



BUILDING ENVELOPE COMMISSIONING REPORT

**UT Austin
Sara M. and Charles E. Seay
Building Addition**

**Prepared By
Zero/Six Consulting, LLC**

August 29, 2022



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1. INTRODUCTION

Zero/Six Consulting, LLC was contracted through University of Texas at Austin (UT) to provide building enclosure commissioning services during the pre-construction and construction phases of the Sara M. and Charles E. Seay Building Addition (SEA) project. This report is to verify and document processes within the scope of work to be provided to UT with the intent that operations staff fully understand the procedures. This includes documenting system operational goals and design parameters, specifying verification and testing in the contract documents, confirming the successful completion of the process.

The goals of this report are to define the:

1. Systems to be commissioned
2. Commissioning activities and documentation
3. Acceptance criteria

The commissioning report is a living document that grows in detail over time, as systems are specified and design details are refined.

2. SYSTEMS-TO-BE COMMISSIONED

2.1 Systems-to-be Commissioned:

- 1.) Nozzle Testing (AAMA 501.2)
 - a.) 14 Aluminum storefront specimens were tested and 4 retested.
- 2.) Roof Membrane Uplift Testing (ASTM E 907)
 - a.) 6 Specimens were tested and 0 retested.

See sections 4.5 and 4.6 for more details on these tests.

3. SUMMARY

Zero/Six Consulting LLC (ZSC) was contracted by University of Texas at Austin to perform limited commissioning activities on the SEA project. The scope of work for this project includes drawing reviews, submittal and RFI reviews, quality assurance/quality control (QA/QC) inspections, and functional performance testing.

ZSC performed two drawing reviews during the pre-construction phase. The drawings reviewed were done at the following stages: 100% Design Development, and 95% Construction Documents. After each review a ZSC representative met with the entire design team to review comments and recommendations.

ZSC reviewed and provided commentary on most submittals and RFIs related to the building enclosure of the project (divisions 7 and 8). Reviewed submittals/RFIs were returned to the Architect and the Owner.

ZSC performed 53 QA/QC visits and issued 53 Field Reports, beginning June 2020 and ending September 2021. The reports included comments and observations related to exterior construction supported by photographic documentation.

SEA Enclosure Commissioning included AAMA 502.1 Nozzle Testing and ASTM E907 Roof Membrane Uplift Testing performed by ZSC.

ZSC performed AAMA 501.2 Nozzle Testing on 14 windows. The testing was done over the course of 5 mobilizations, and a total of 5 failures were observed. The source of each failure was identified during testing. Corrections were made to deficiencies, and specimens were retested at a later date, with the addition of another specimen to provide qualitative evidence of overall system performance.

ZSC performed ASTM E907 Roof Membrane Uplift Testing on 6 specimens. The testing was performed over the course of 1 mobilization, and a total of 0 failures were observed.

UT Austin – Sara M. and Charles E. Seay Building Addition

Conclusion

ZSC is pleased to say that the SEA project had minimal challenges throughout the construction of this project. ZSC, CPC, and SpawGlass worked diligently to provide QA/QC for a well-constructed building that provides protection from air and moisture intrusion, and thermal shortfalls. ZSC feels like this project is a great success and is looking forward to the next project.

4. SUPPORTING COMMISSIONING DOCUMENTATION

4.1 DRAWING REVIEWS

SARAH M. & CHARLES E. SEAY BUILDING ADDITION

108 E. DEAN KEETON ST.
AUSTIN, TX 78712

ZERO/SIX
Consulting
Envelope Architecture

DRAWING REVIEW COMMENTS 07/31/2019

THE UNIVERSITY OF TEXAS AT AUSTIN
CLIENT PROJECT NO. - CPC 102-1219

95% DESIGN DEVELOPMENT



BSA®

| GENERAL | |
|--|------|
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| ACCESSIBILITY | G002 |
| CODE, FIRE PROTECTION, AND ACCESSIBLE ROUTES | G010 |
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| ELECTRICAL | |
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Envelope Architecture

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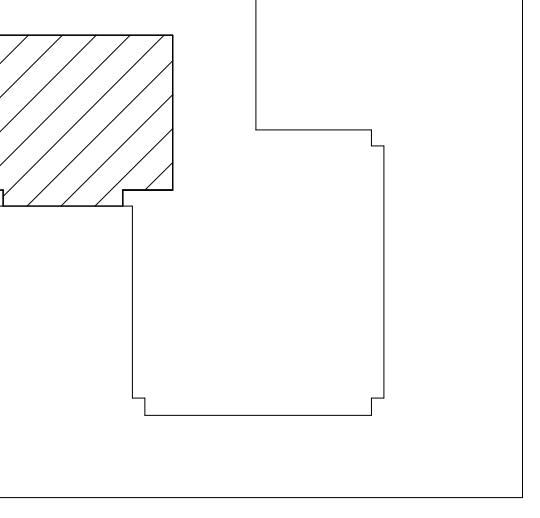
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ph. 512.331.8577

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CLIENT PROJECT NO. - CPC 102-1219

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KEYPLAN

PLAN NORTH

MARK DATE DESCRIPTION

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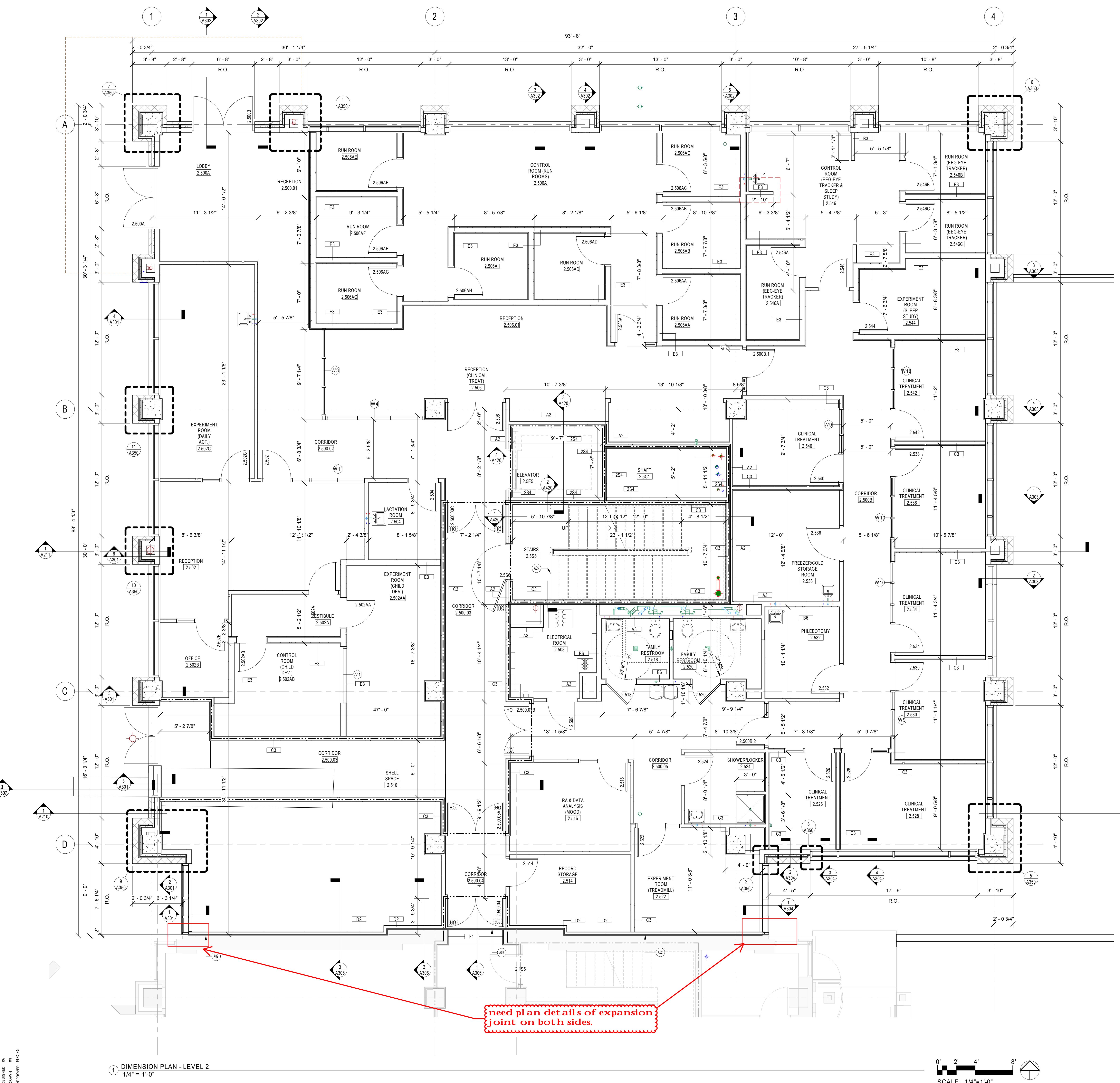
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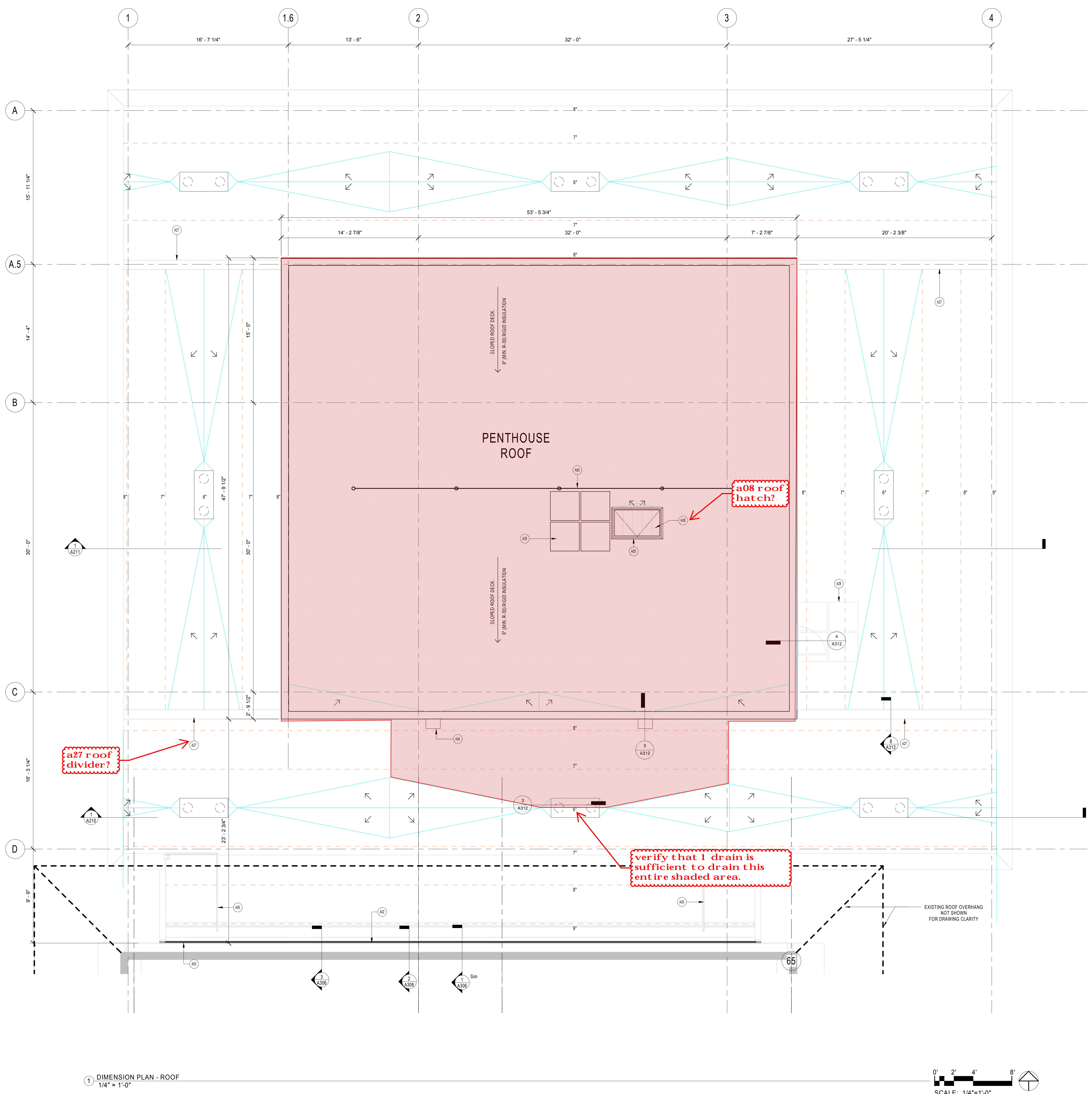
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REGISTRATION NO.:
BSA LIFESTRUCTURES
BR 1590

DIMENSION PLAN - LEVEL 2

DATE JULY, 19 2019
BSALS PROJECT NO. 15830011

A112





| KEYED ARCHITECTURAL NOTES | |
|---------------------------|---|
| KEY | DESCRIPTION |
| A02 | 2" EXPANSION JOINT/COVER |
| A04 | SCUPPER |
| A05 | FALL PROTECTION. REFER TO 2/A312. |
| A09 | TIE-OFF CABLE |
| A28 | WALKWAY PAD. REFER TO SPECIFICATION 07 52 16. |

BSA

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Architectural Registration Number - BR-1590
Engineering Registration Number - F-7421

ZERO / SIX

Consulting

Envelope Architecture

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The logo of The University of Texas at Austin. It consists of a shield-shaped emblem on the left containing a five-pointed star and an open book, all within a laurel wreath. To the right of the shield, the word "TEXAS" is written in large, bold, serif capital letters. Below "TEXAS", the university's name "The University of Texas at Austin" is written in a smaller, bold, serif font.

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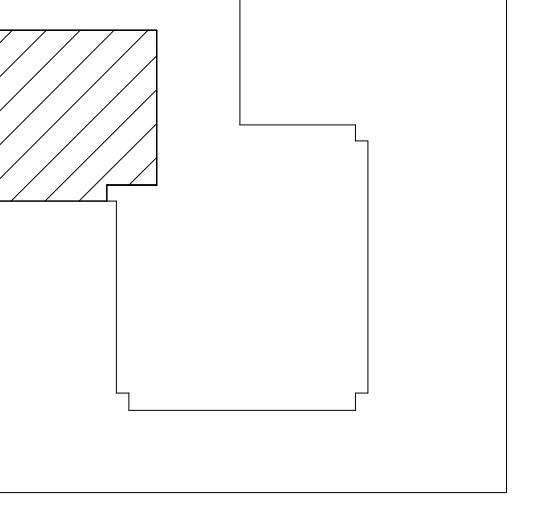
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KEYPLAN
PLAN NORTH

| MARK | DATE | DESCRIPTION |
|------|------|-------------|
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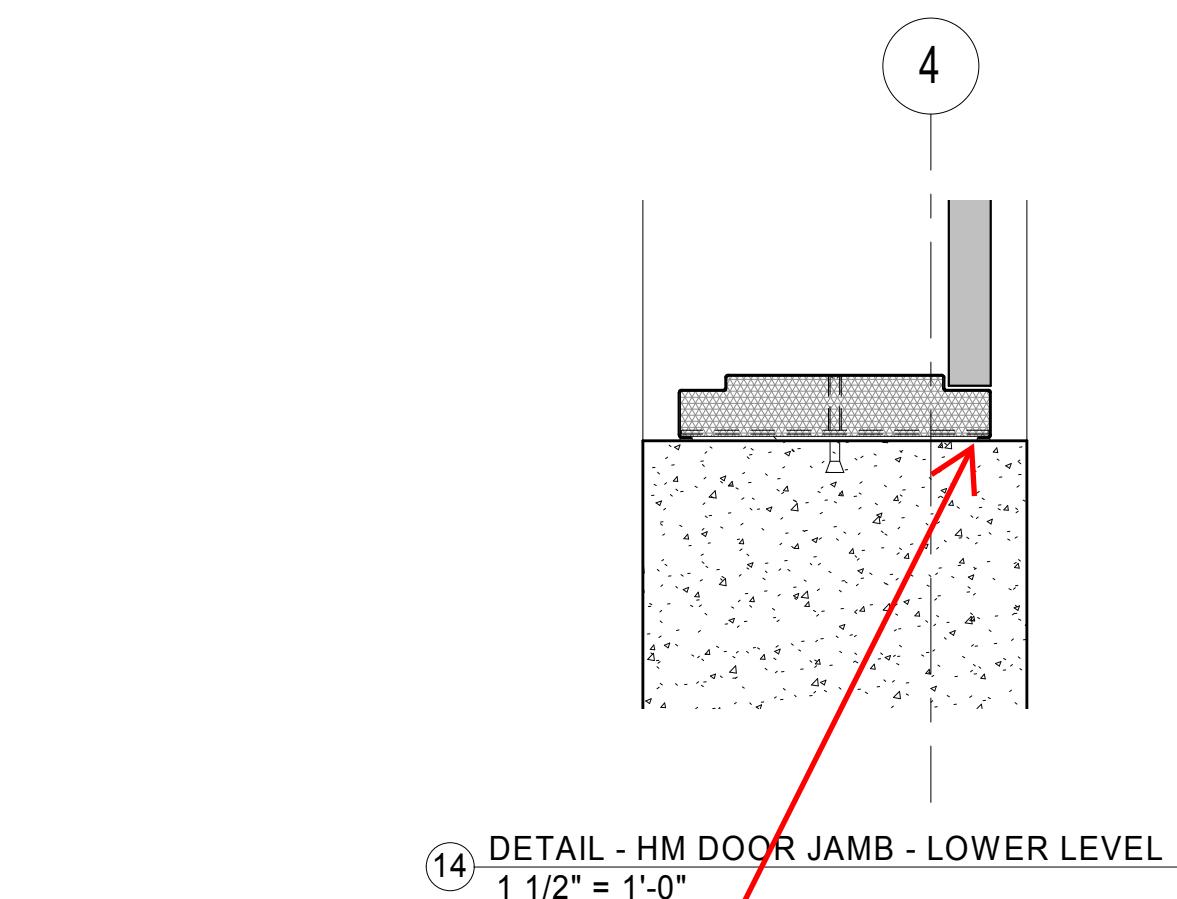
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ARCHITECT/
REGISTRATION NO.:
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DESIGN FIRM/
REGISTRATION NO.:
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DIMENSION PLAN - ROOF

JULY, 1



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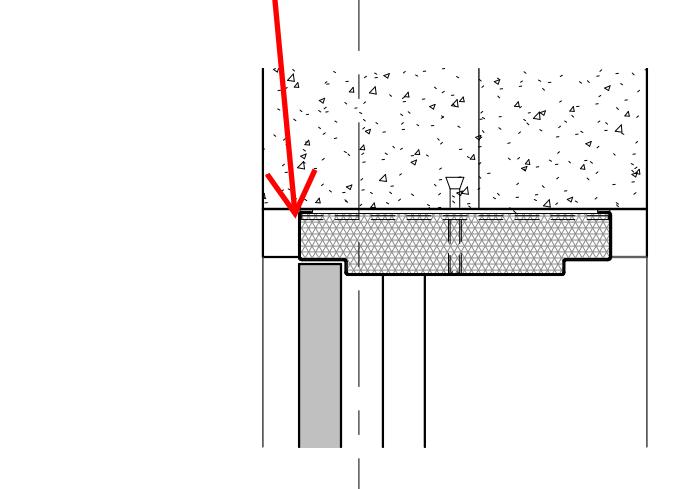
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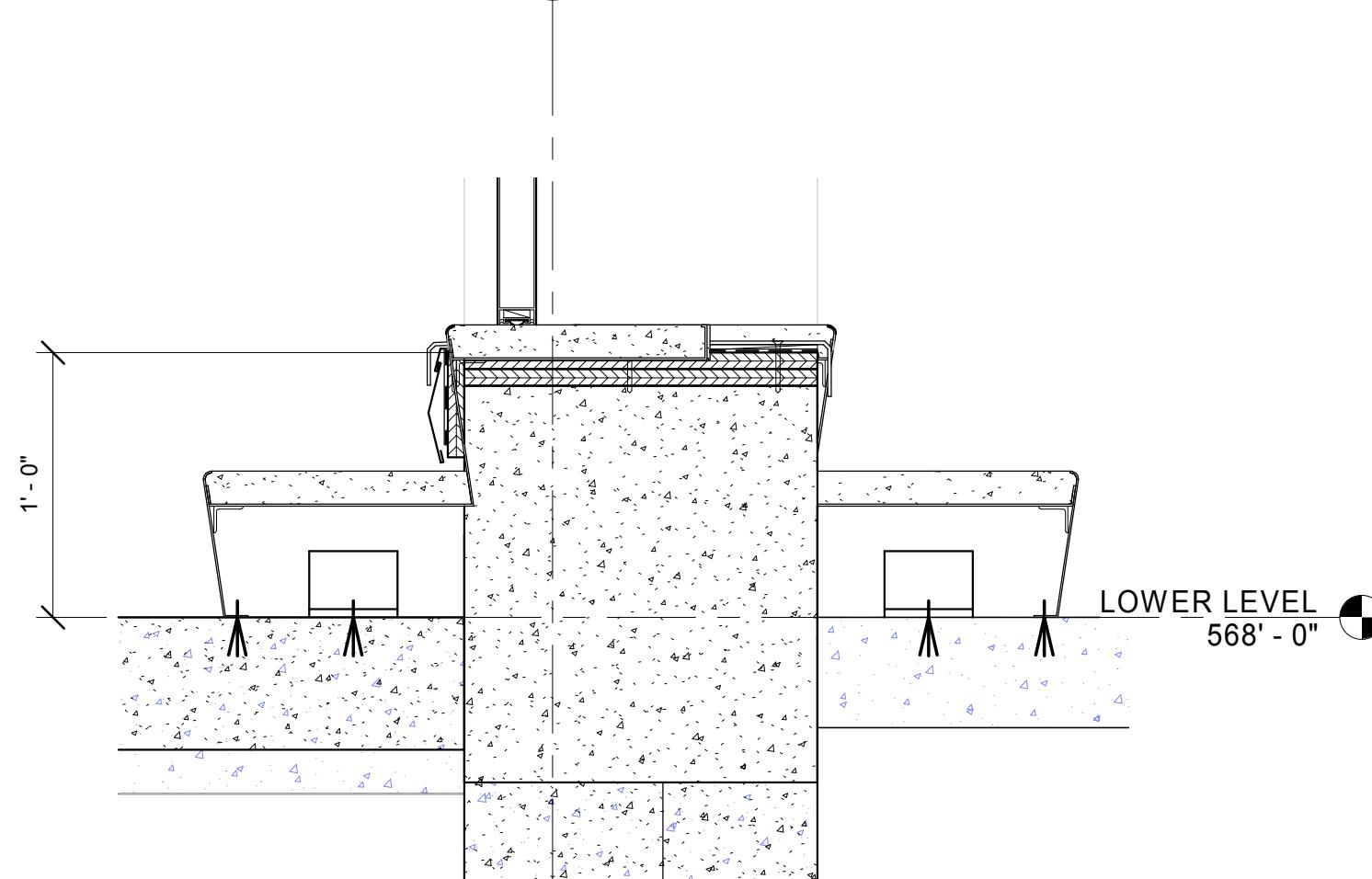
14) DETAIL - HM DOOR JAMB - LOWER LEVEL
 $1\frac{1}{2}'' = 1'-0"$

provide 1/2" perimeter
joints for backer rod
and sealant around
hm door frames.

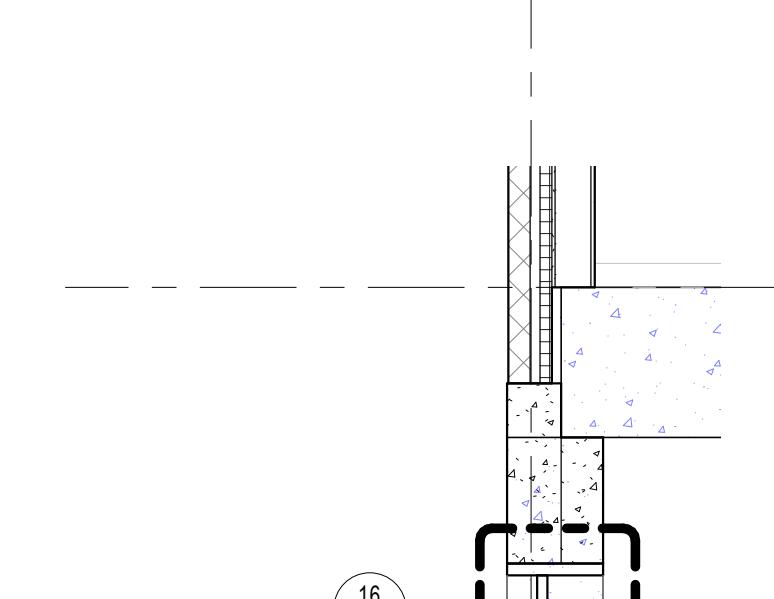
4

16) DETAIL - HM DOOR HEAD
 $1\frac{1}{2}'' = 1'-0"$

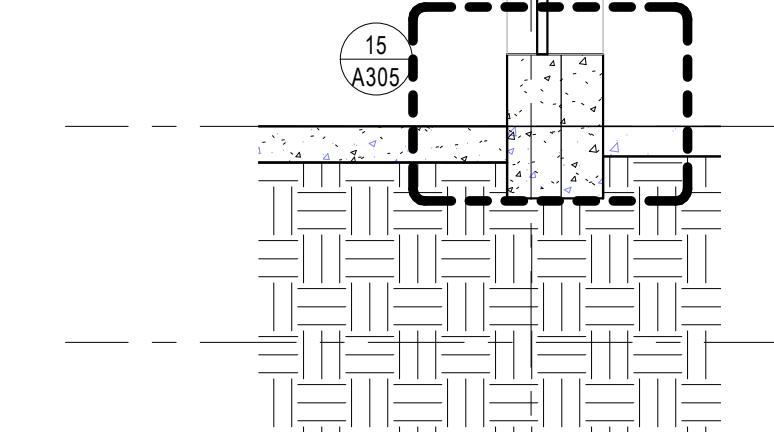
4

15) DETAIL - HM DOOR THRESHOLD
 $1\frac{1}{2}'' = 1'-0"$

4

16) DETAIL - HM DOOR THRESHOLD
 $1\frac{1}{2}'' = 1'-0"$

4

13) WALL SECTION @ WINDOW - TYPICAL
 $3/8'' = 1'-0"$

4

11) DETAIL - CONCRETE WALL SLAB
 $1\frac{1}{2}'' = 1'-0"$

4

10) DETAIL - FALL PROTECTION - LOWER LEVEL
 $1\frac{1}{2}'' = 1'-0"$

4

7) SECTION DETAIL - BRICK LUG
 $1\frac{1}{2}'' = 1'-0"$ 9) DETAIL - SLAB LOWER LEVEL
 $1\frac{1}{2}'' = 1'-0"$
REFERENCED FROM SHEET: A305

4

12) DETAIL - TUNNEL AT SLAB
 $1\frac{1}{2}'' = 1'-0"$

4

13) SECTION DETAIL - LOWER LEVEL - TUNNEL
 $3/8'' = 1'-0"$

4

2) WALL SECTION AT LOWER LEVEL - TUNNEL
 $3/8'' = 1'-0"$

4

11) SECTION DETAIL - LOWER LEVEL - CHAMBER
 $3/8'' = 1'-0"$

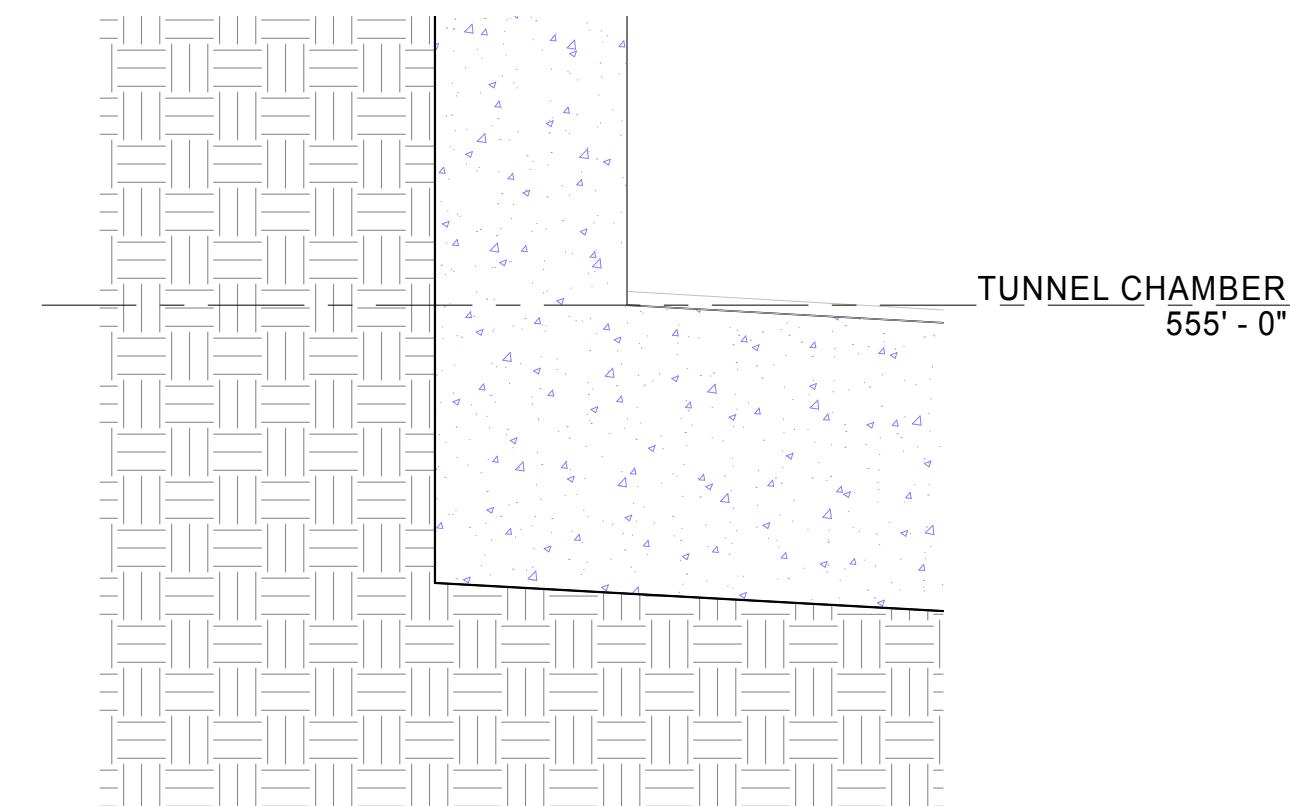
4

10) SECTION DETAIL - LOWER LEVEL - CRAWL SPACE
 $3/8'' = 1'-0"$

4

3) WALL SECTION AT LOWER LEVEL 2
 $3/8'' = 1'-0"$

4

8) DETAIL - SLAB FOUNDATION
A305
 $1\frac{1}{2}'' = 1'-0"$
REFERENCED FROM SHEET: A305

4

9) SECTION DETAIL - LOWER LEVEL - EXTERIOR
 $3/8'' = 1'-0"$

4

5) SECTION DETAIL - LOWER LEVEL - CHAMBER
 $3/8'' = 1'-0"$
comments apply at all typical below grade details.

4

11) SECTION DETAIL - LOWER LEVEL - EXTERIOR
 $3/8'' = 1'-0"$

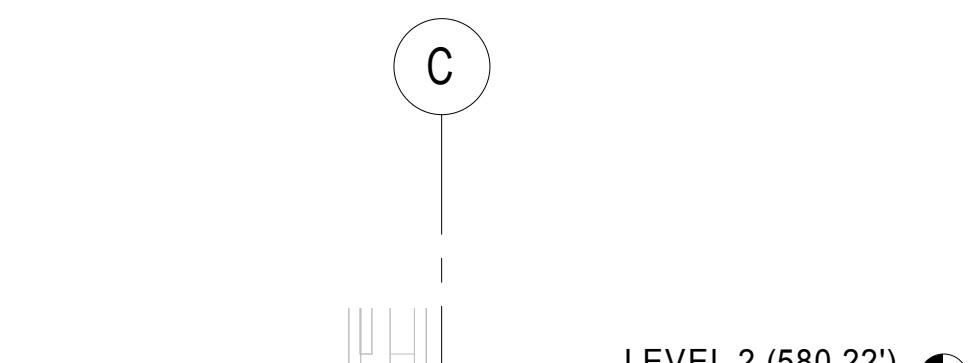
4

10) SECTION DETAIL - LOWER LEVEL - EXTERIOR
 $3/8'' = 1'-0"$

4

11) SECTION DETAIL - LOWER LEVEL - EXTERIOR
 $3/8'' = 1'-0"$

4

12) DETAIL - TUNNEL CHAMBER
555' - 0"

4

13) SECTION DETAIL - LOWER LEVEL - EXTERIOR
 $3/8'' = 1'-0"$

4

14) SECTION DETAIL - LOWER LEVEL - EXTERIOR
 $3/8'' = 1'-0"$

4

15) SECTION DETAIL - LOWER LEVEL - EXTERIOR
 $3/8'' = 1'-0"$

4

16) SECTION DETAIL - LOWER LEVEL - EXTERIOR
 $3/8'' = 1'-0"$

4

17) SECTION DETAIL - LOWER LEVEL - EXTERIOR
 $3/8'' = 1'-0"$

4

SEAY BUILDING ADDITION

CLIENT PROJECT NO. - CPC 102-1219

100% DESIGN DEVELOPMENT

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REGISTRATION NO.:
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18480DESIGN FIRM/
REGISTRATION NO.:
BSA LIFESTRUCTURES
BR 1590

WALL SECTIONS

DATE
JULY, 19 2019
BSALS PROJECT NO.
15830011

A305

SEAY BUILDING ADDITION

CLIENT PROJECT NO. - CPC 102-1219

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DRAWING REVIEW COMMENTS

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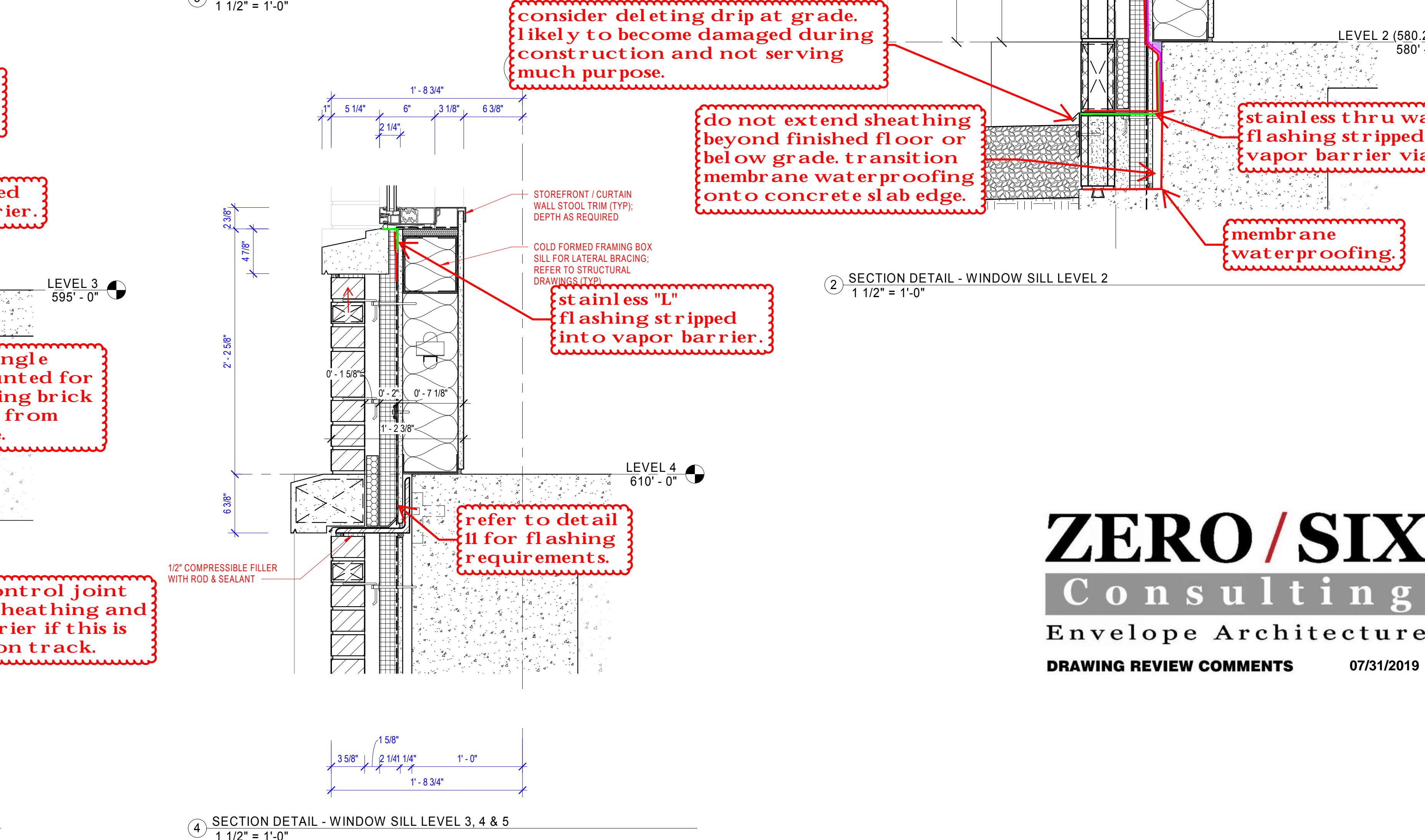
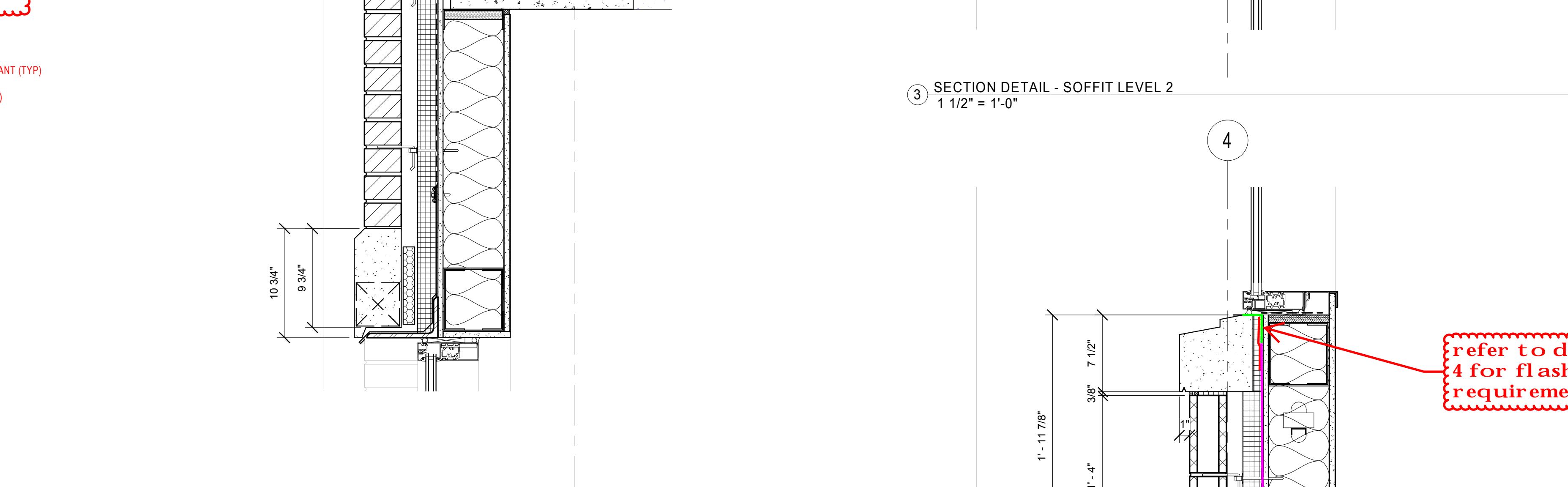
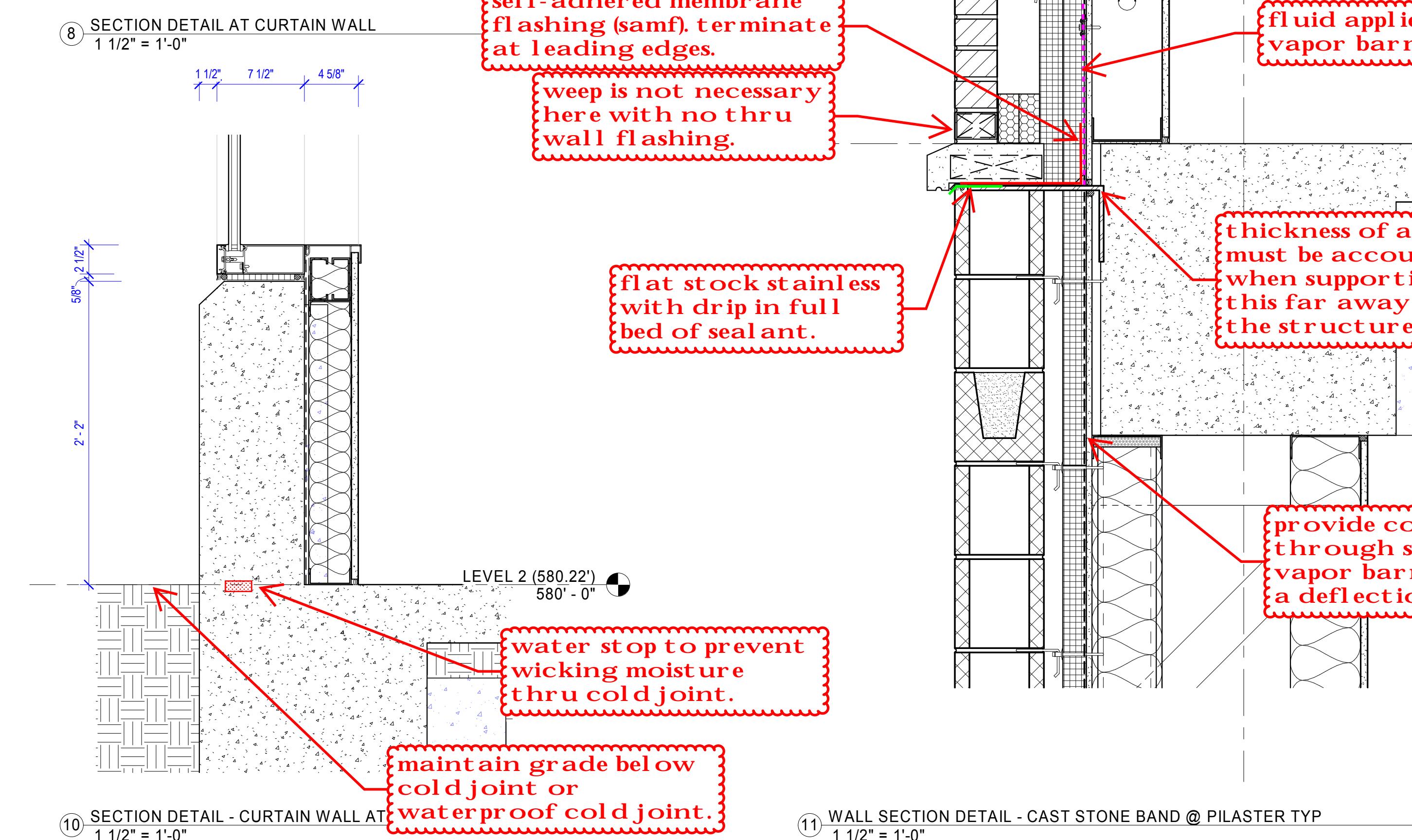
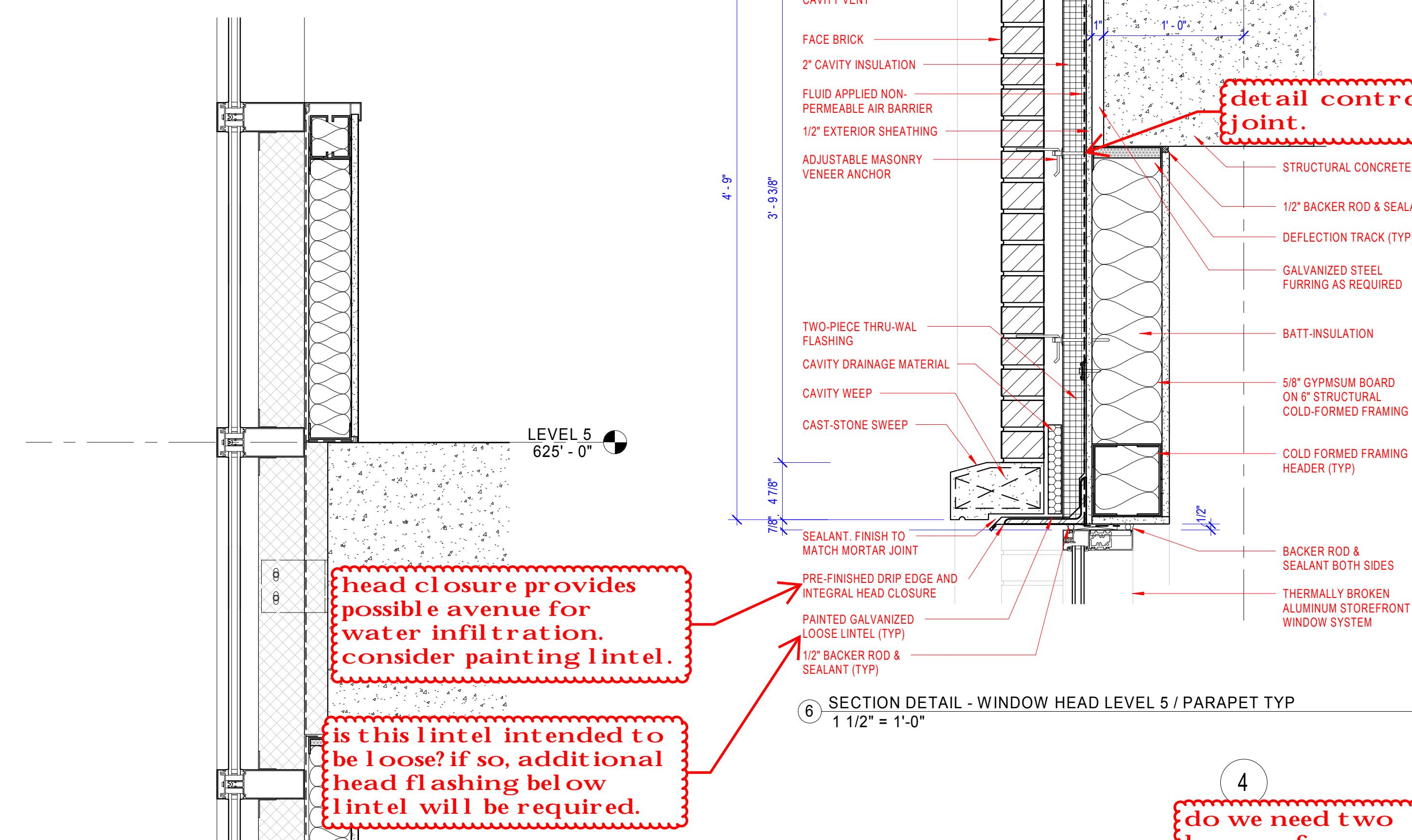
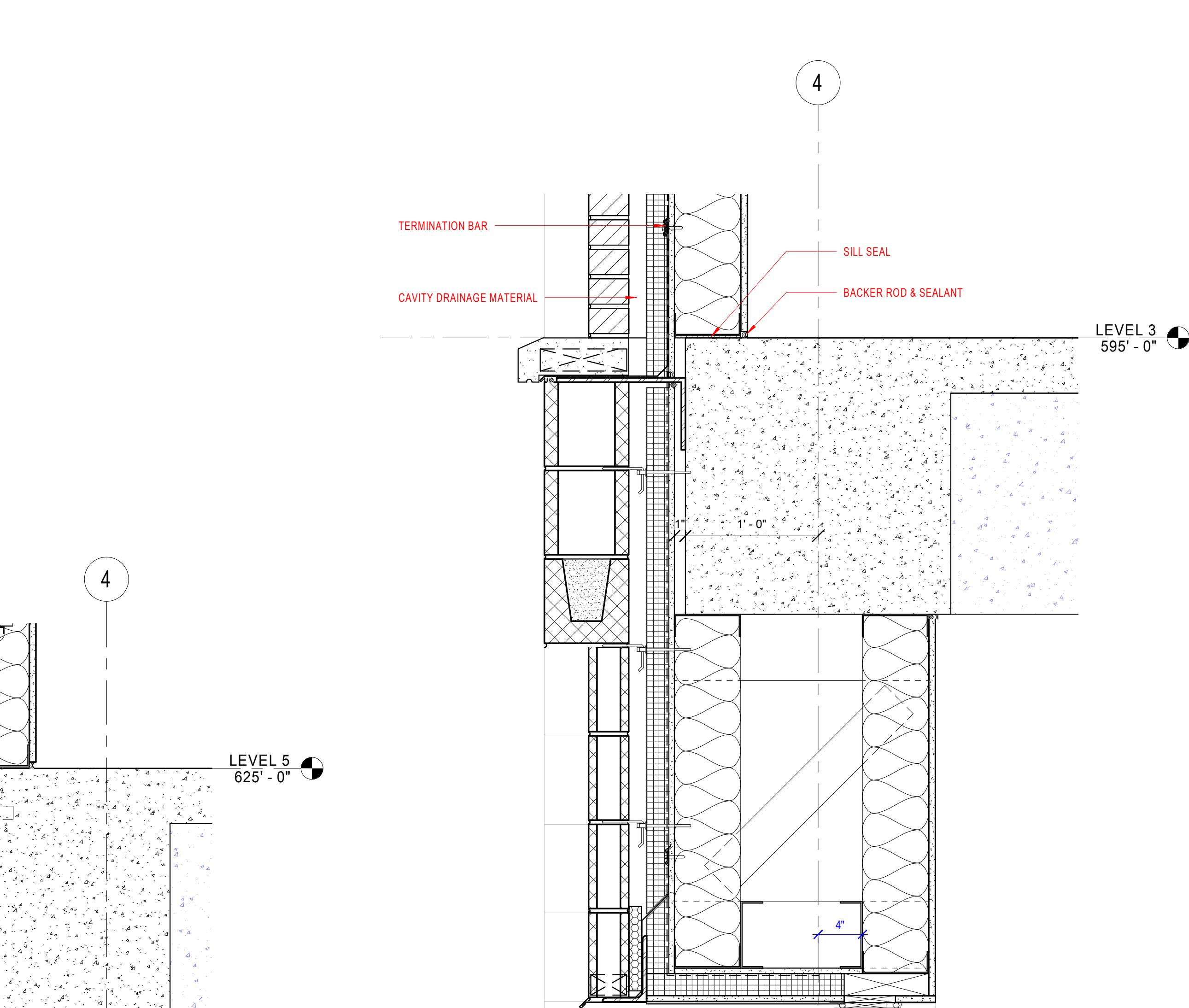
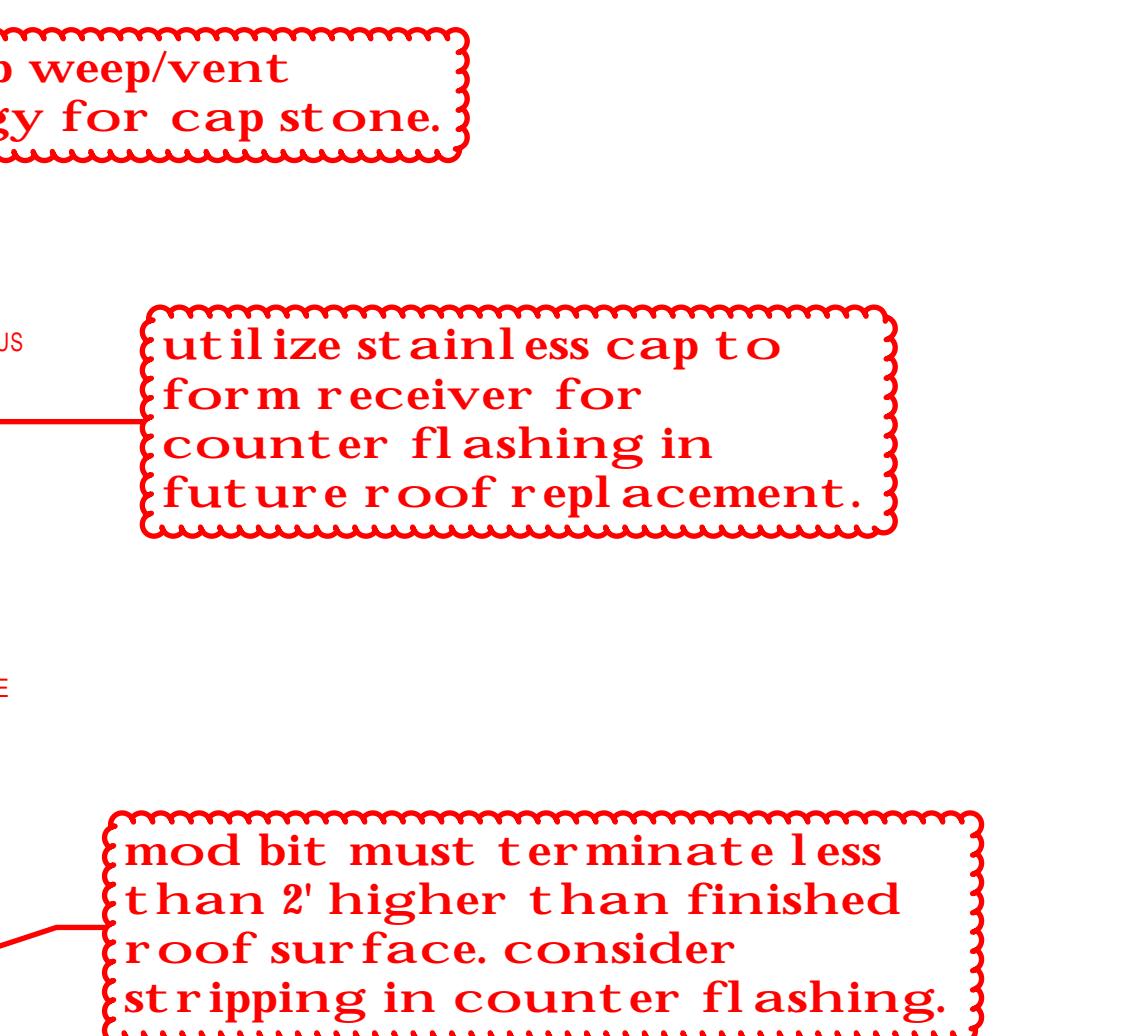
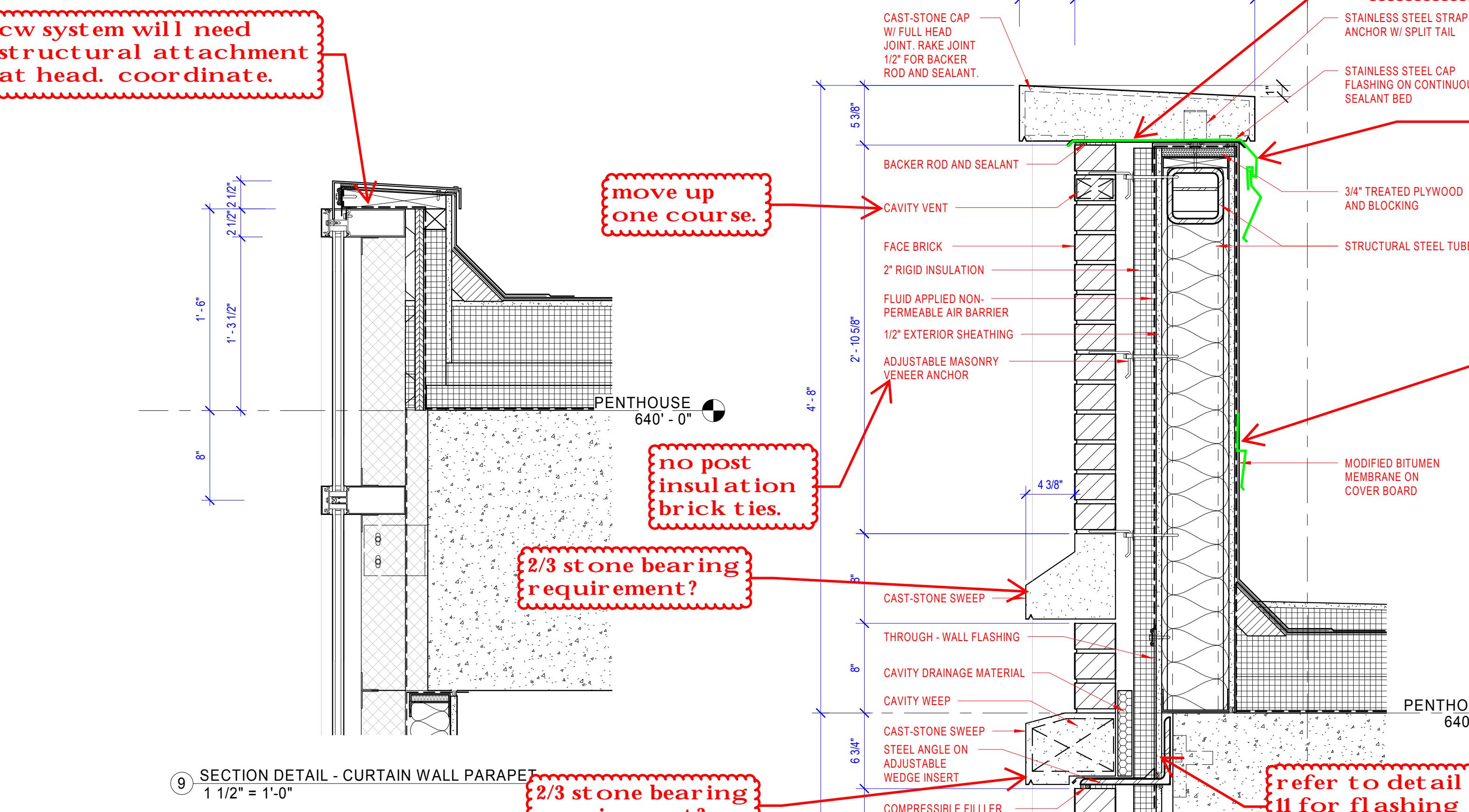
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DESIGN FIRM/
REGISTRATION NO.:
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BR 1590

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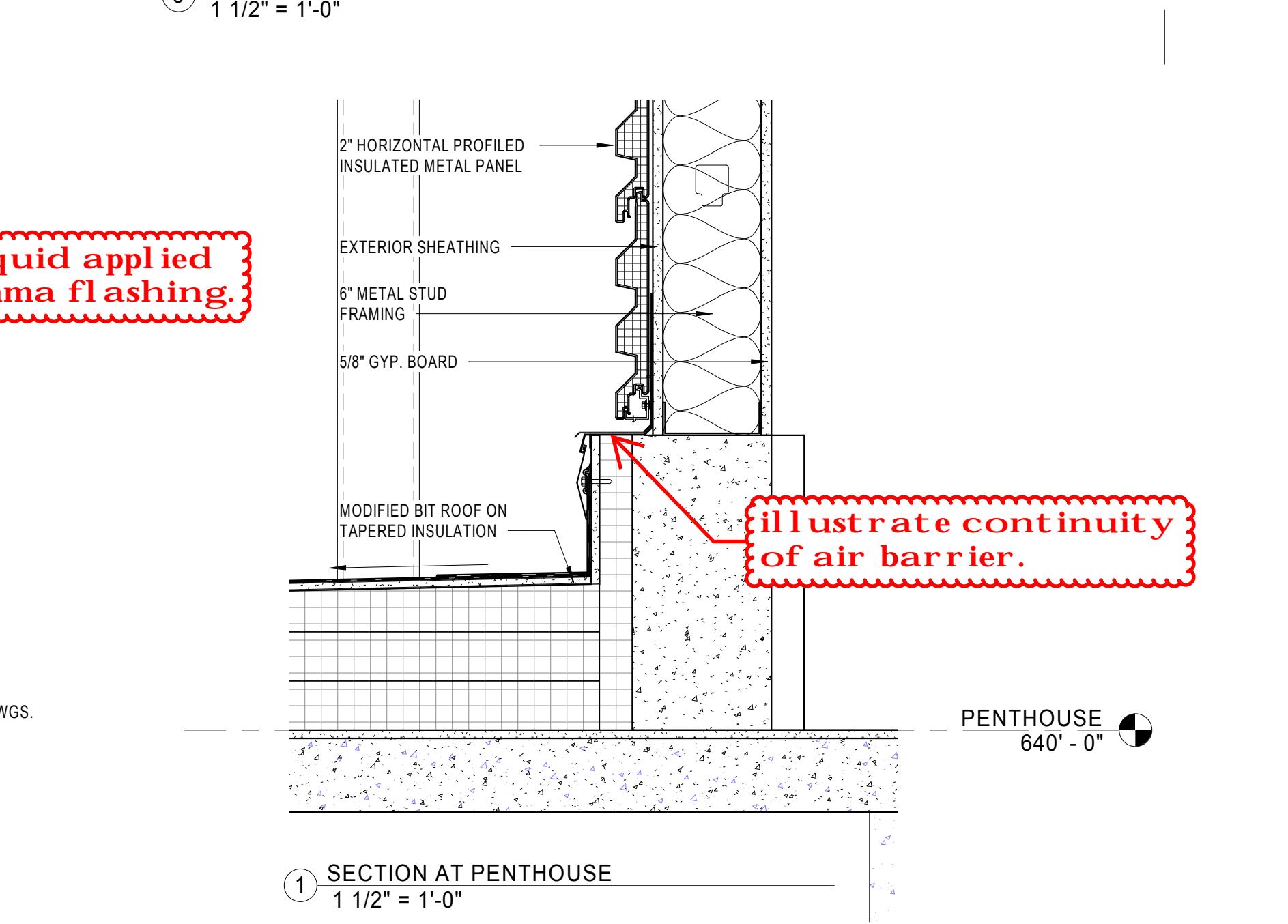
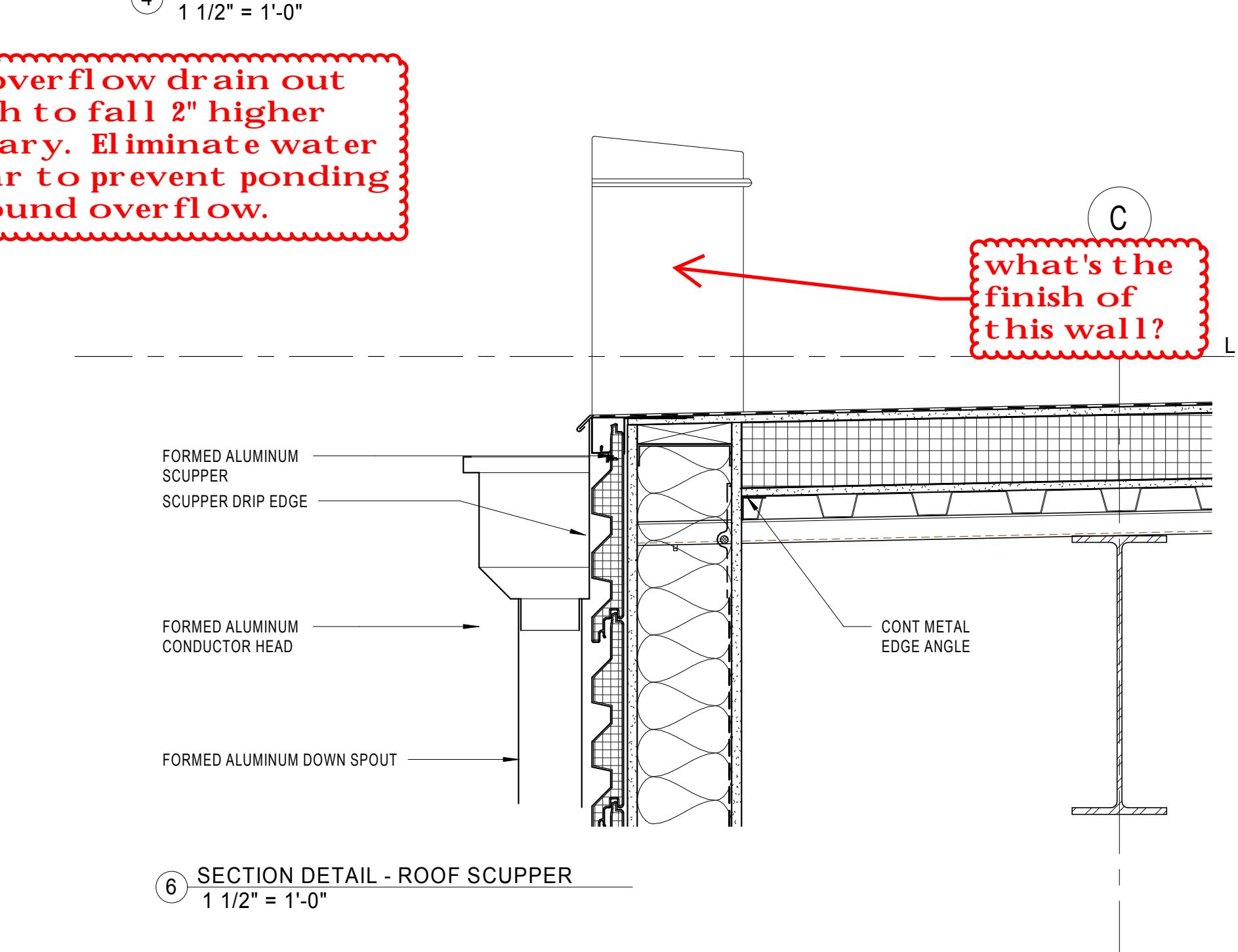
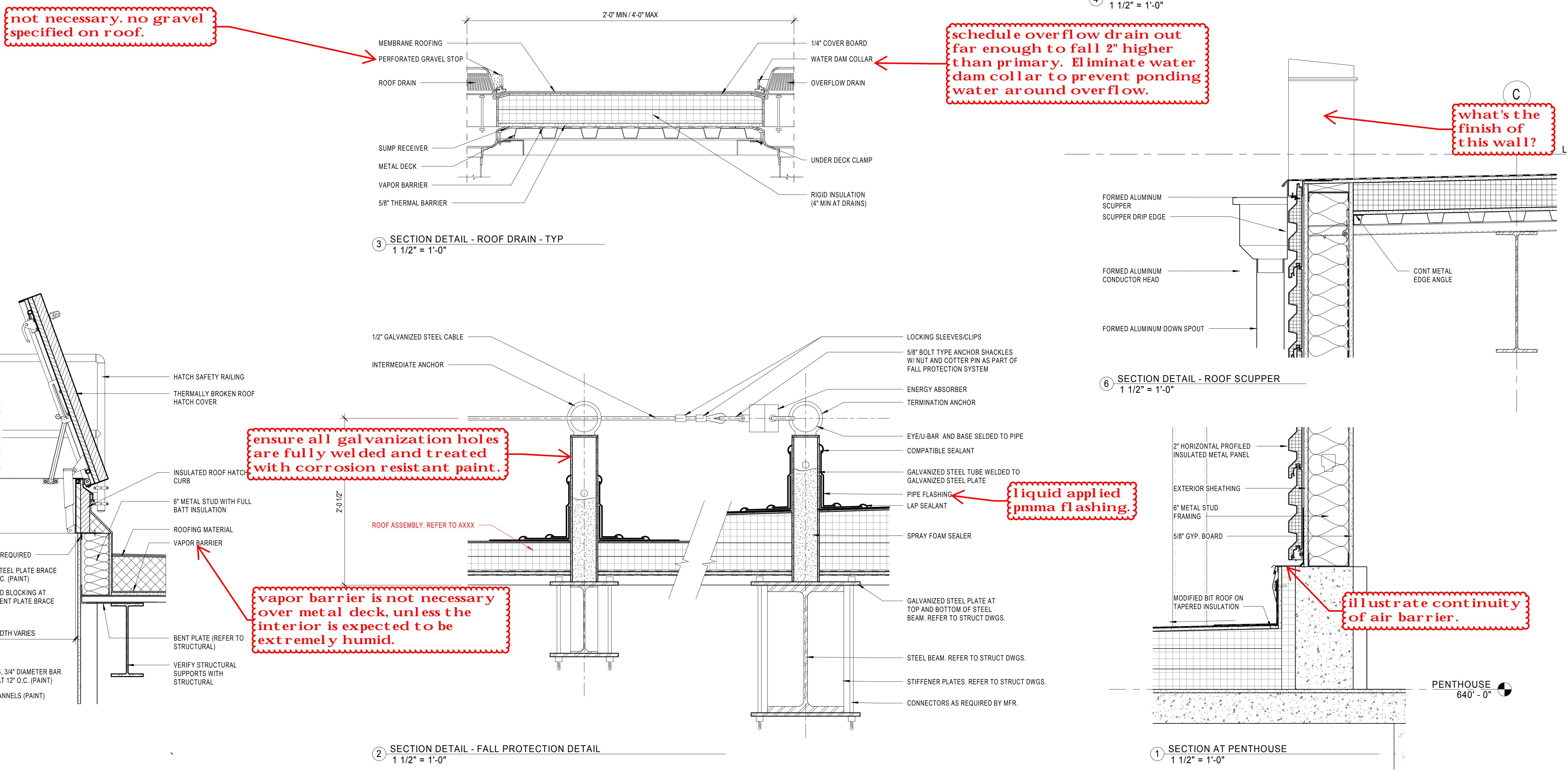
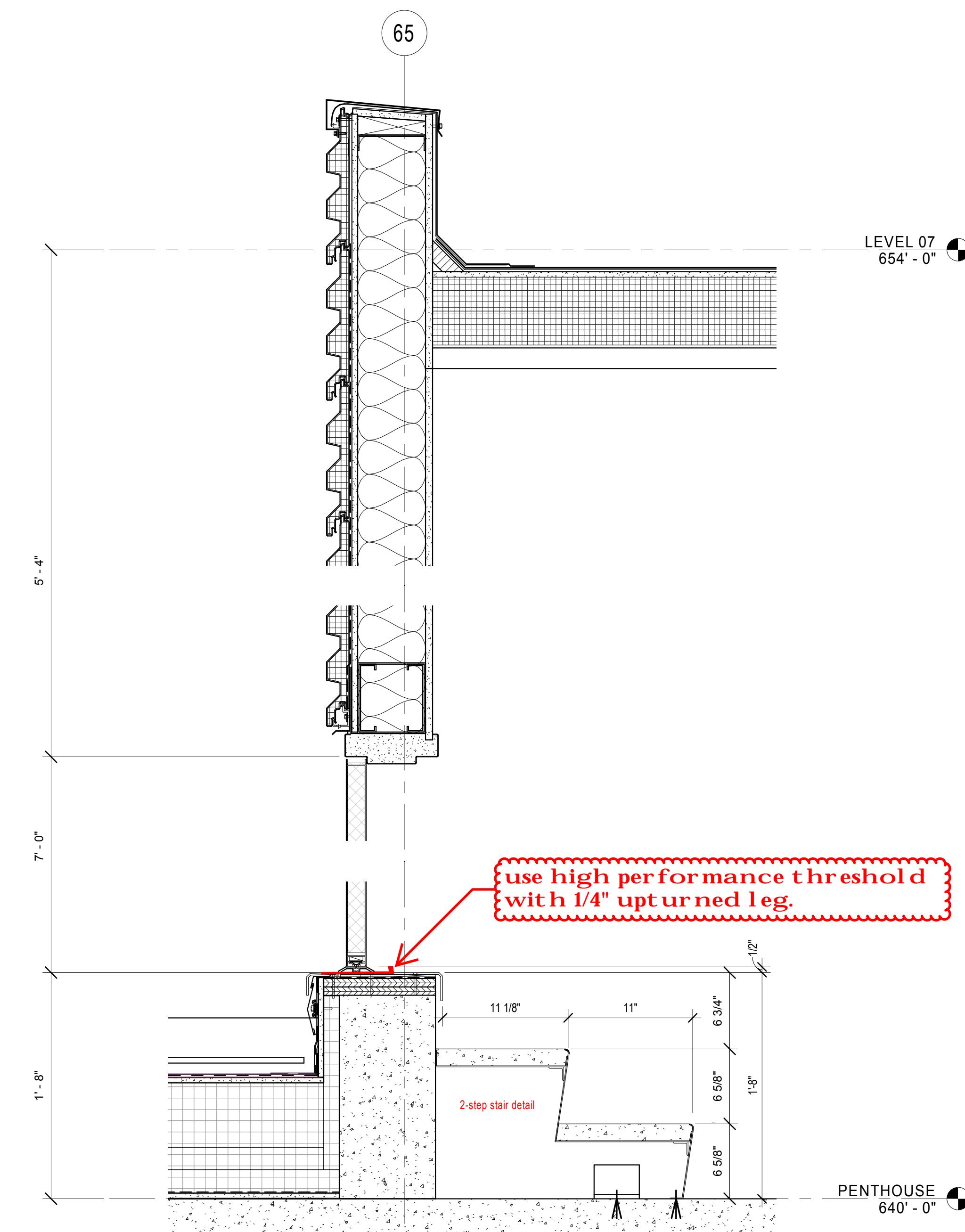
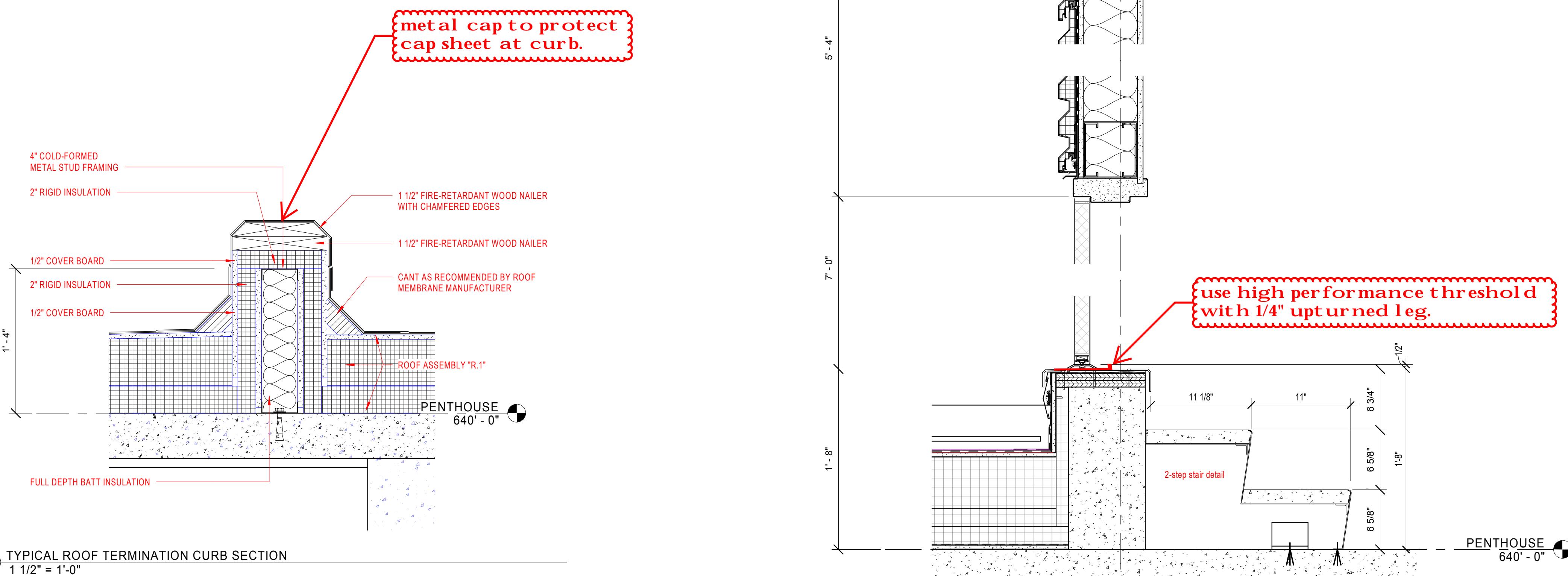
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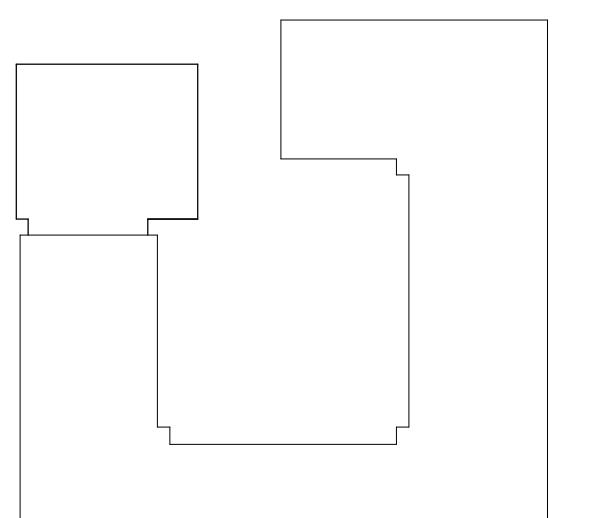


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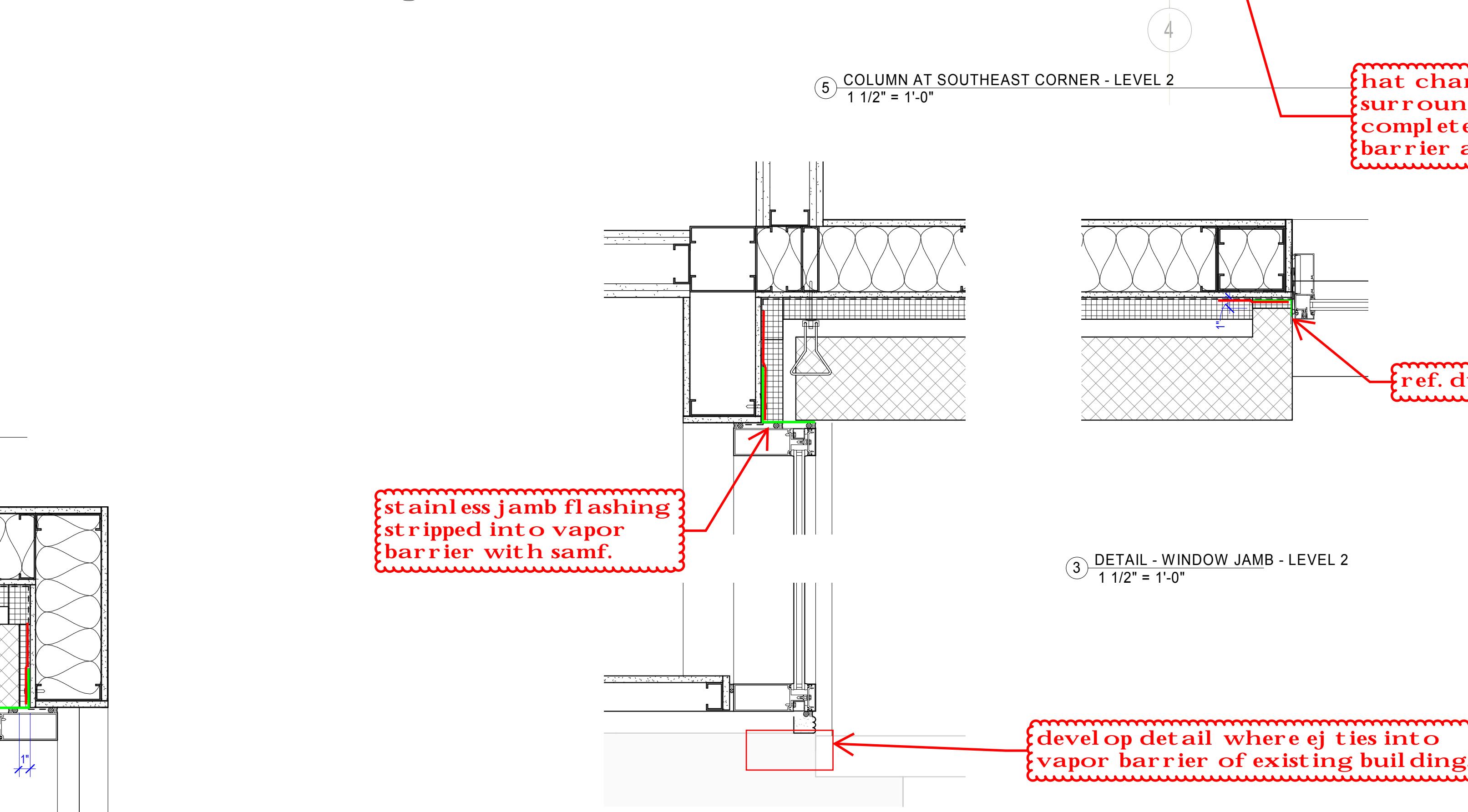
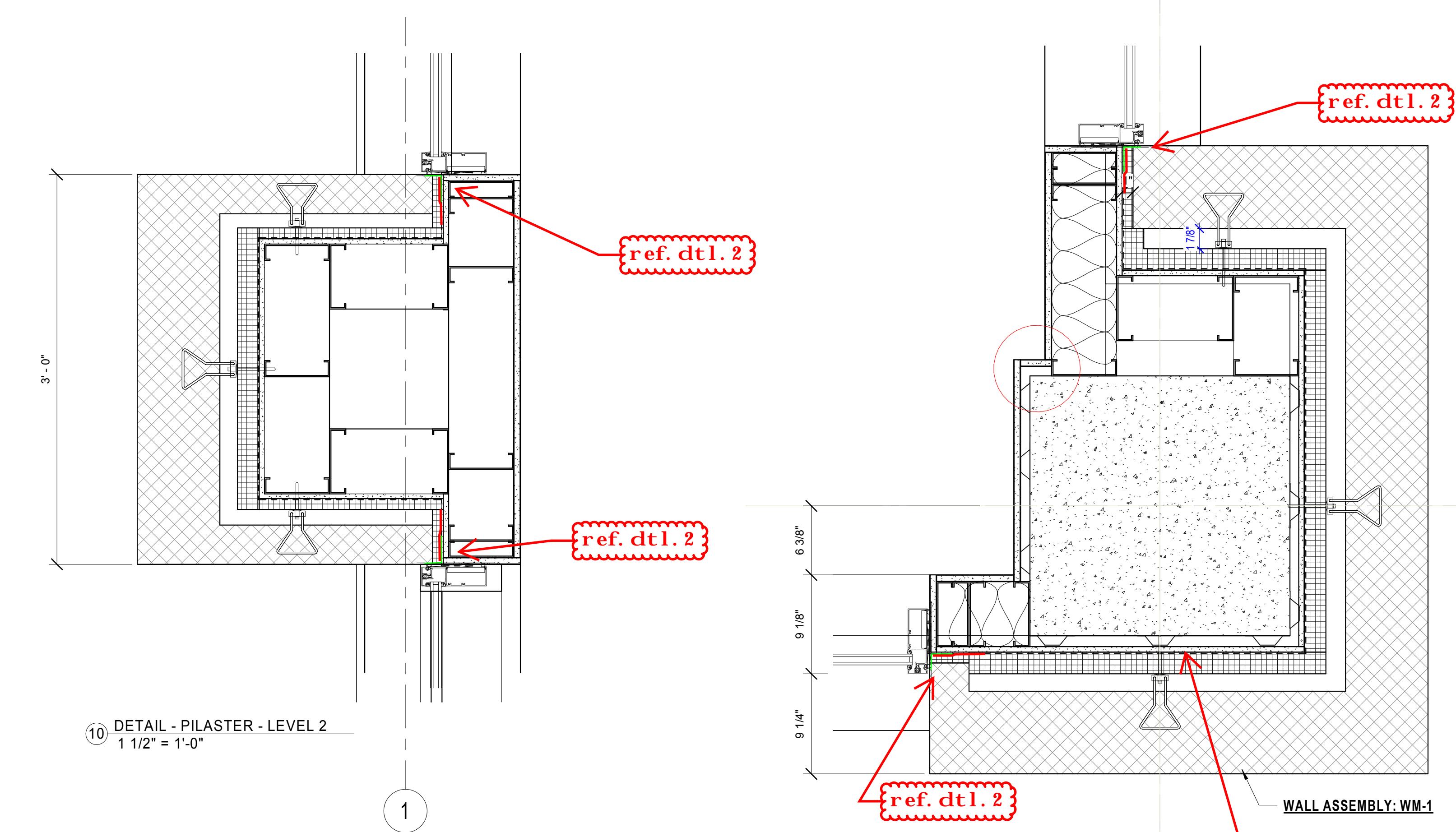
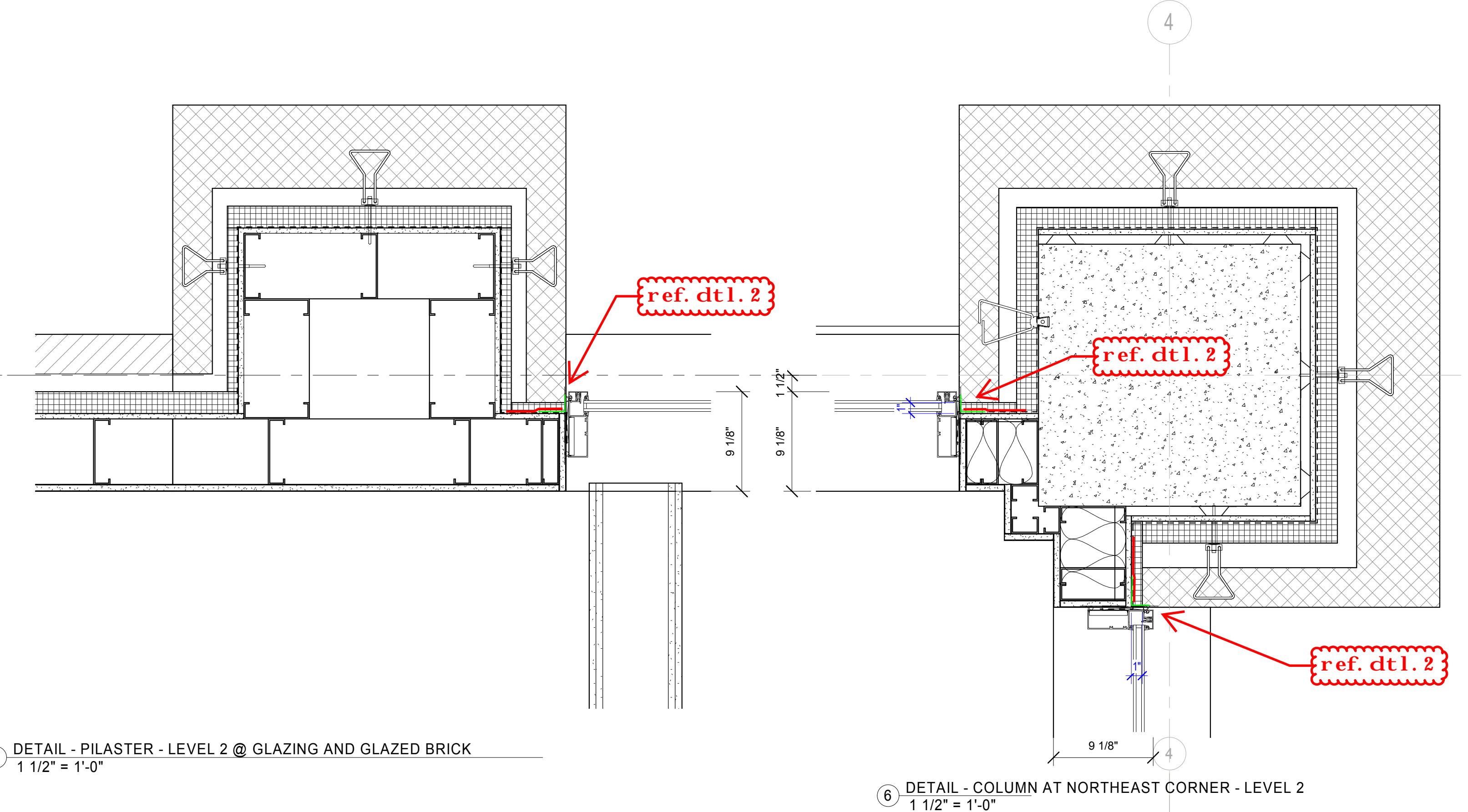
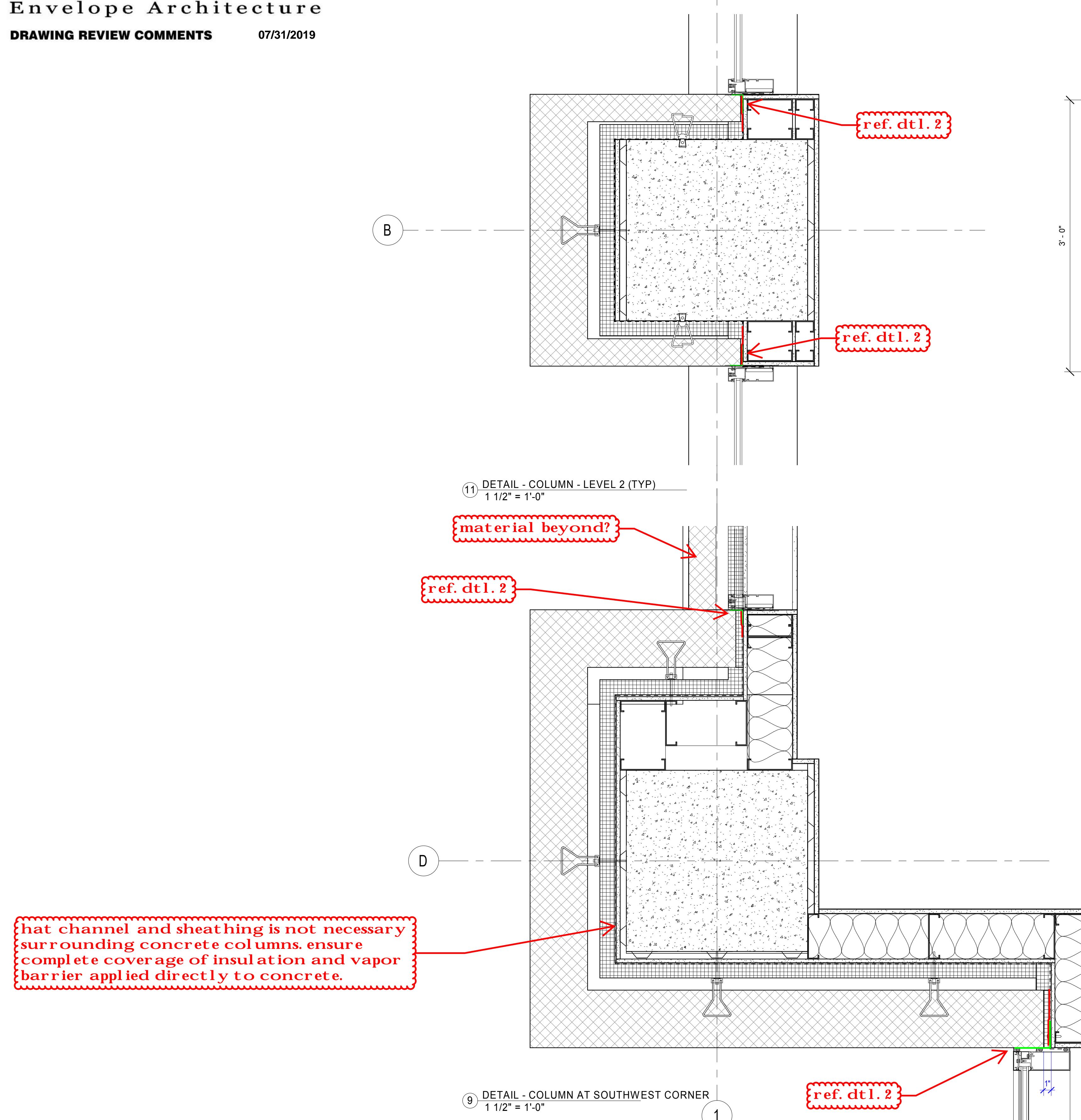
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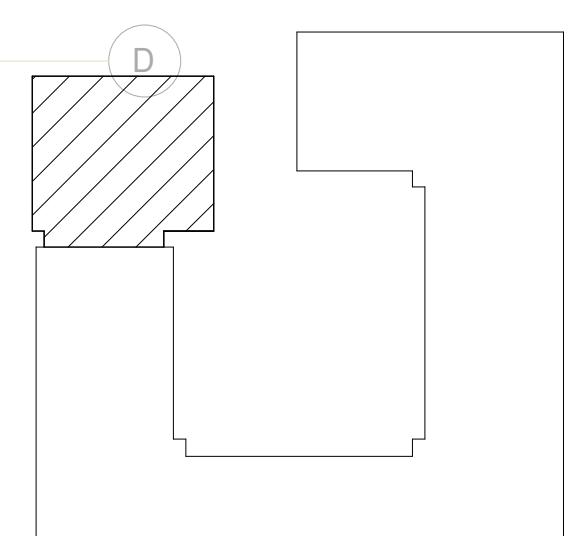
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d sheathing is not necessary on concrete columns. ensure a continuous layer of insulation and vapor barrier applied directly to concrete.

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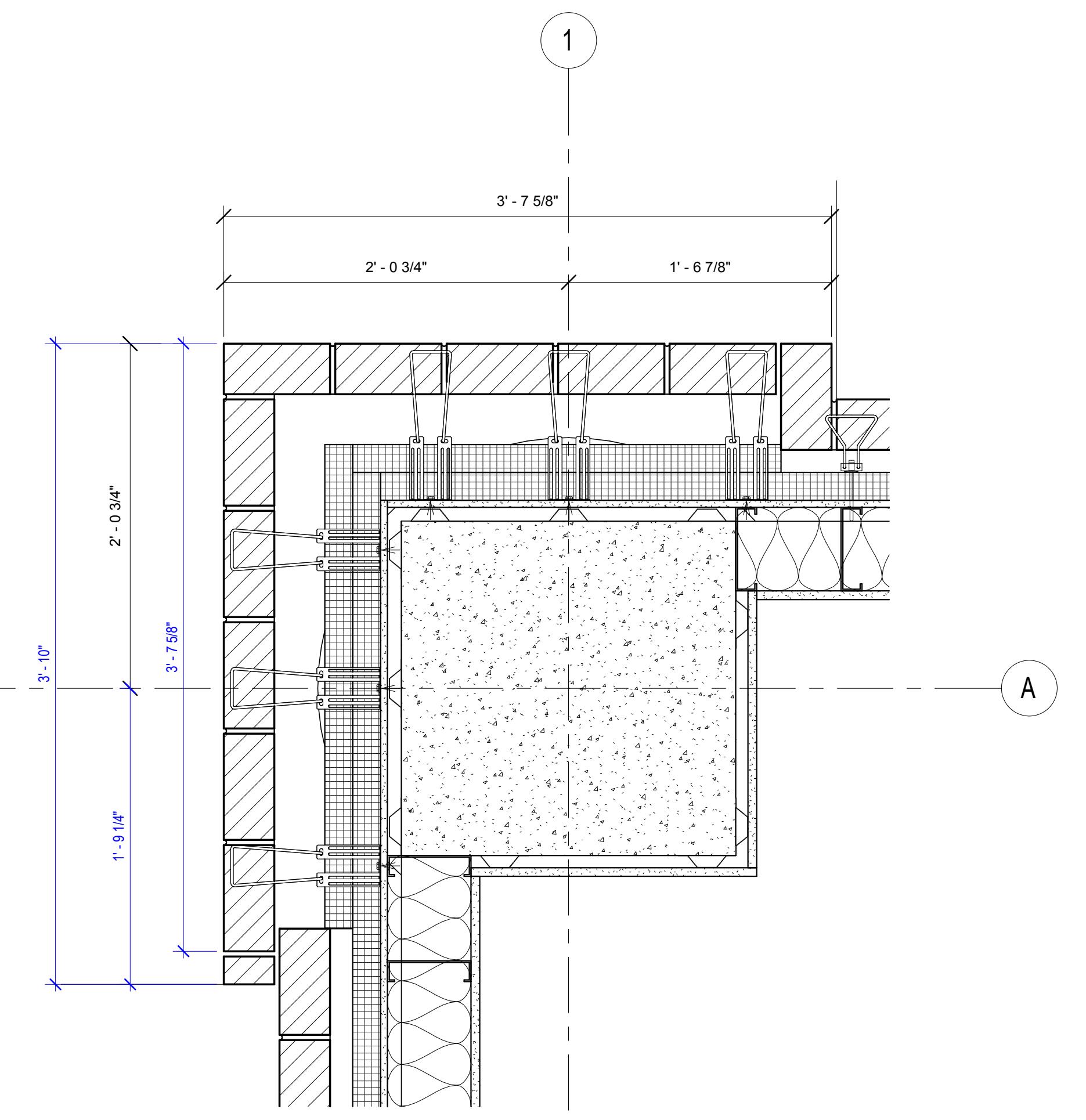
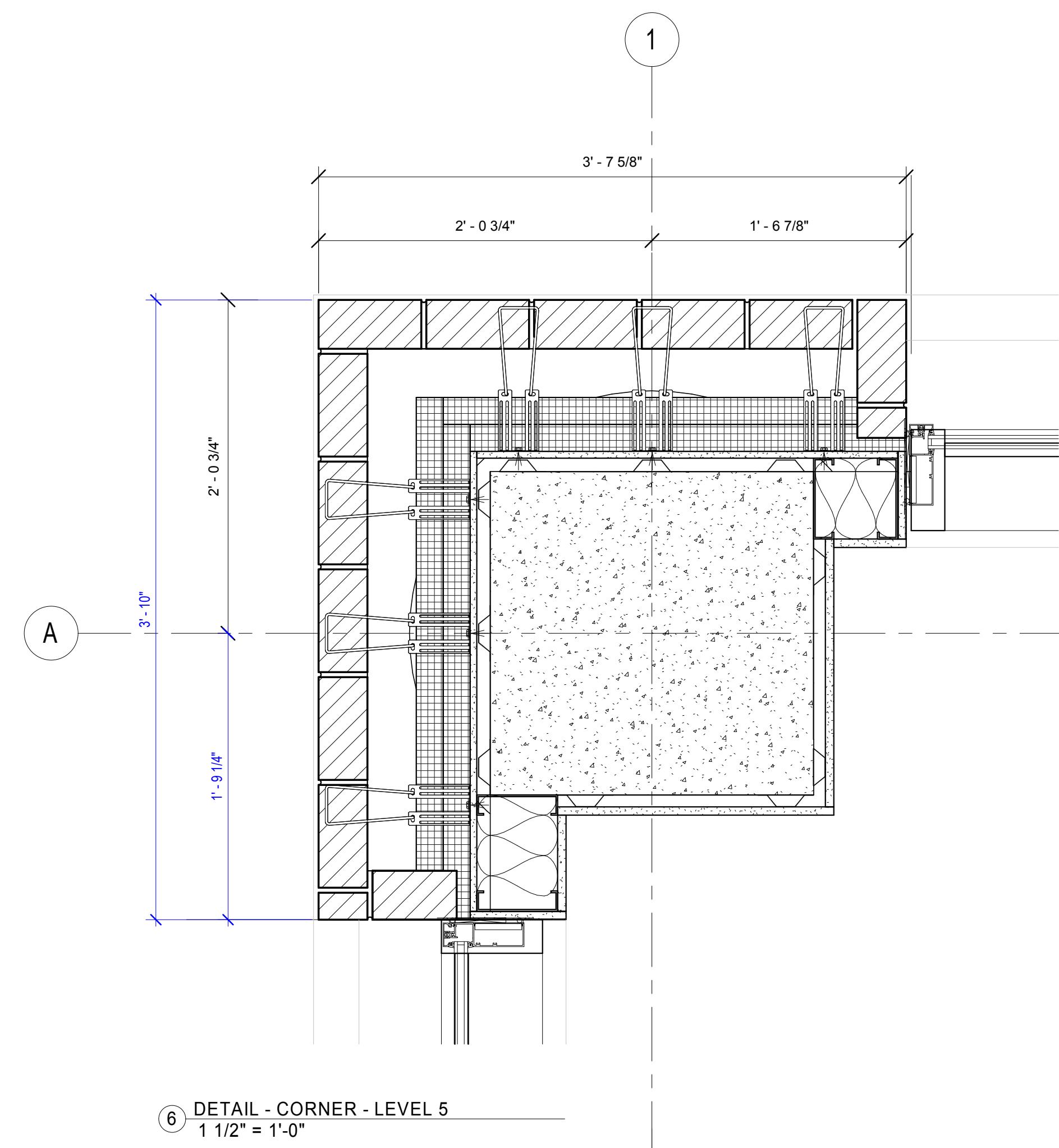
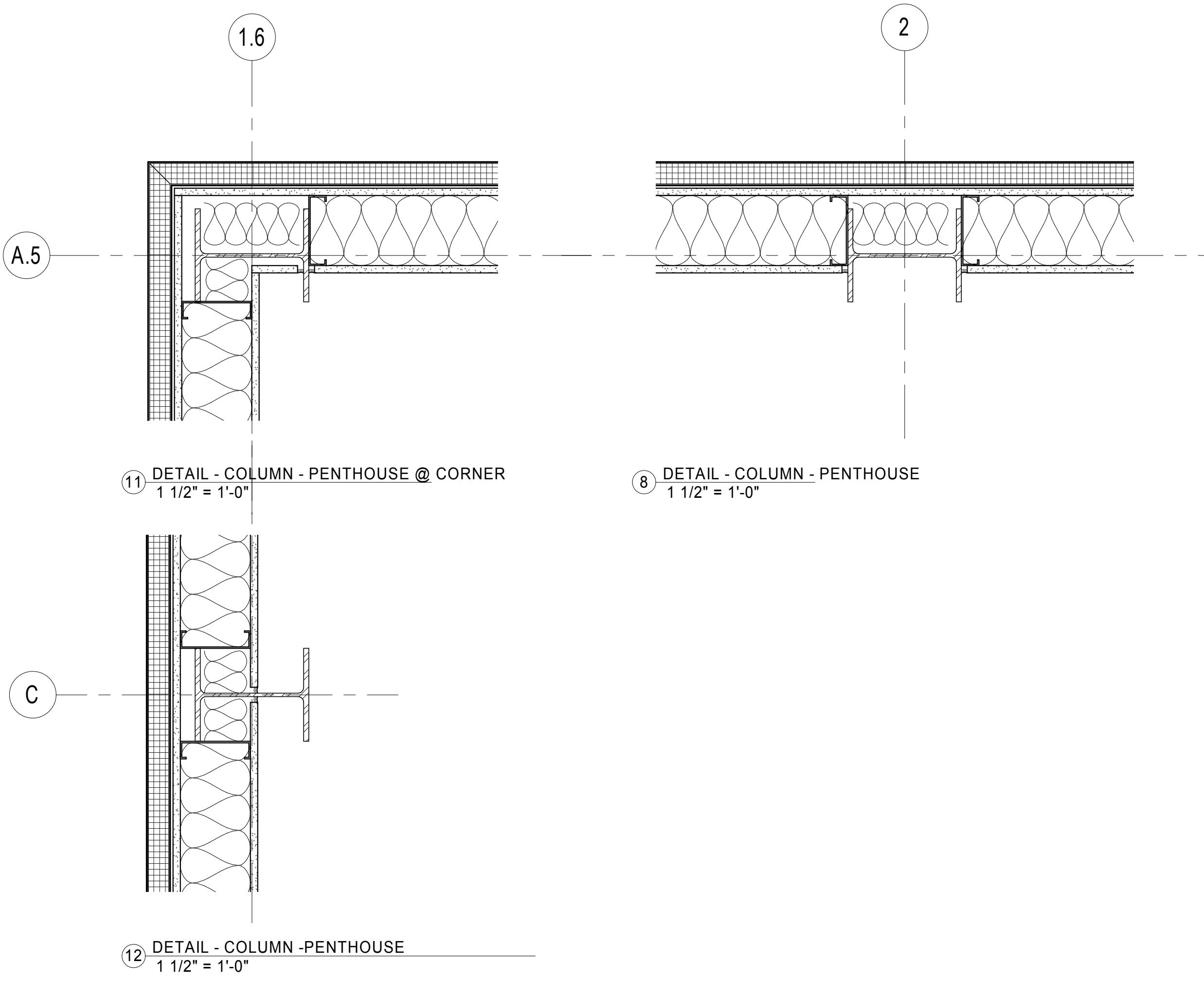
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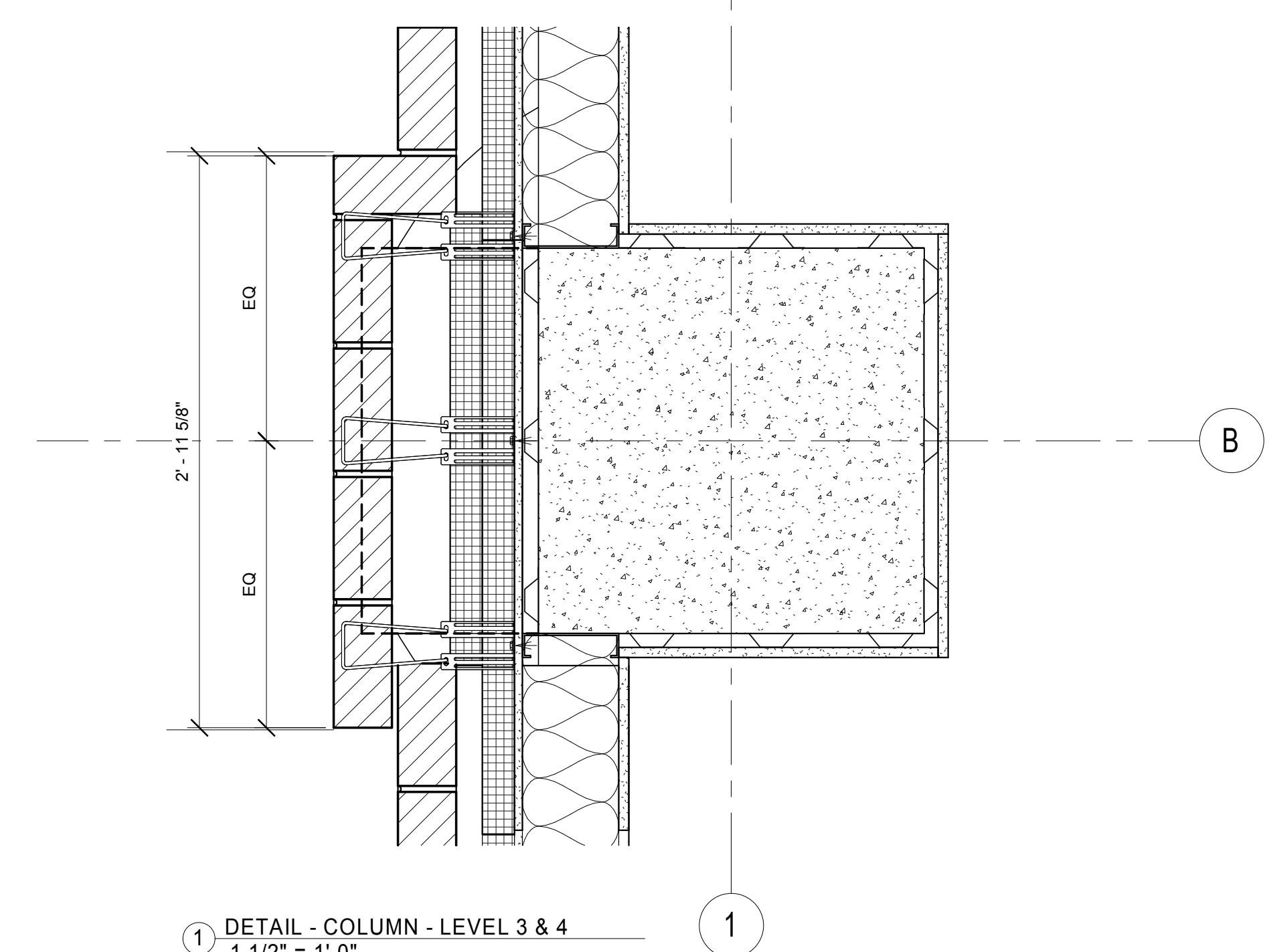
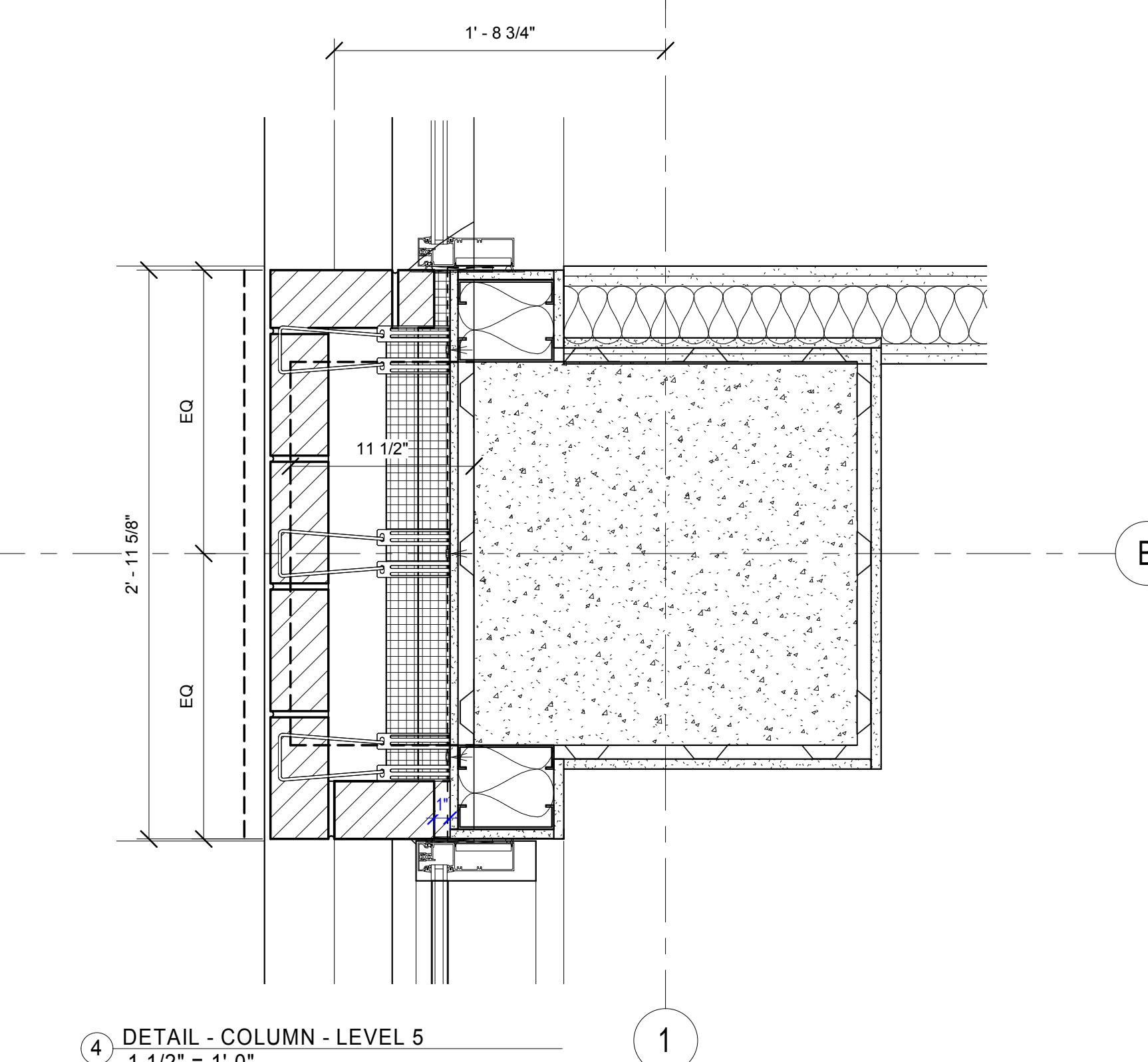
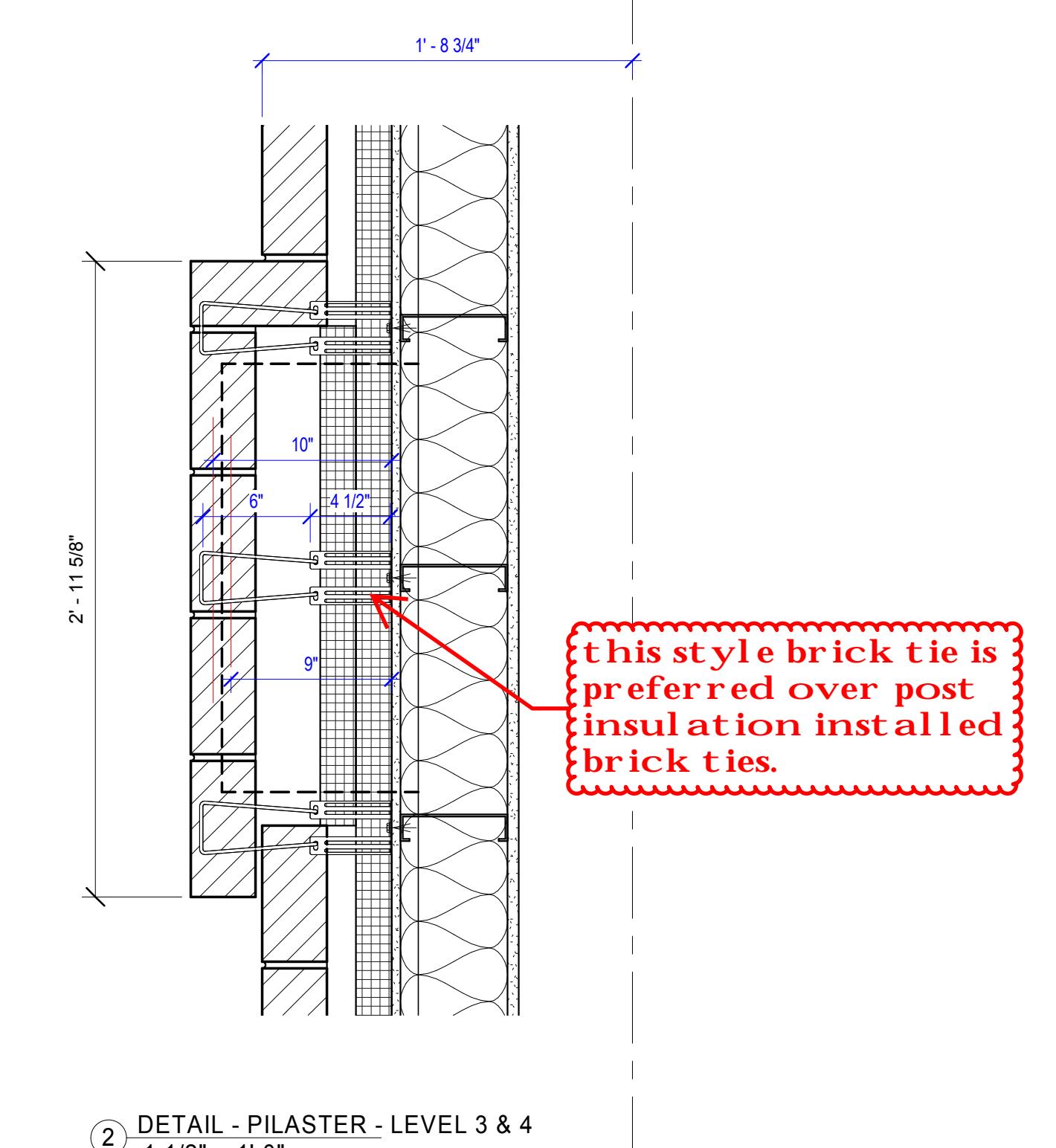
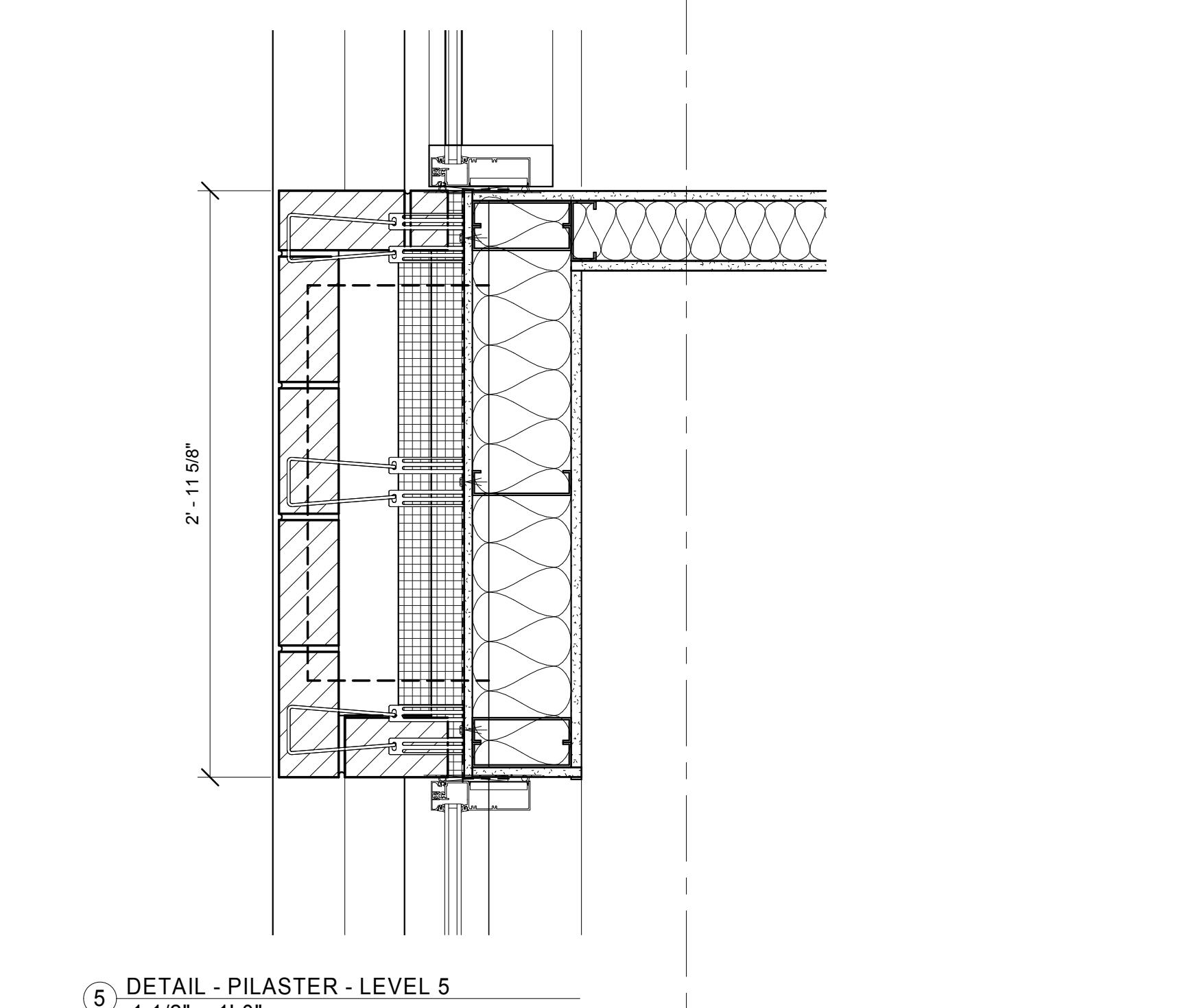
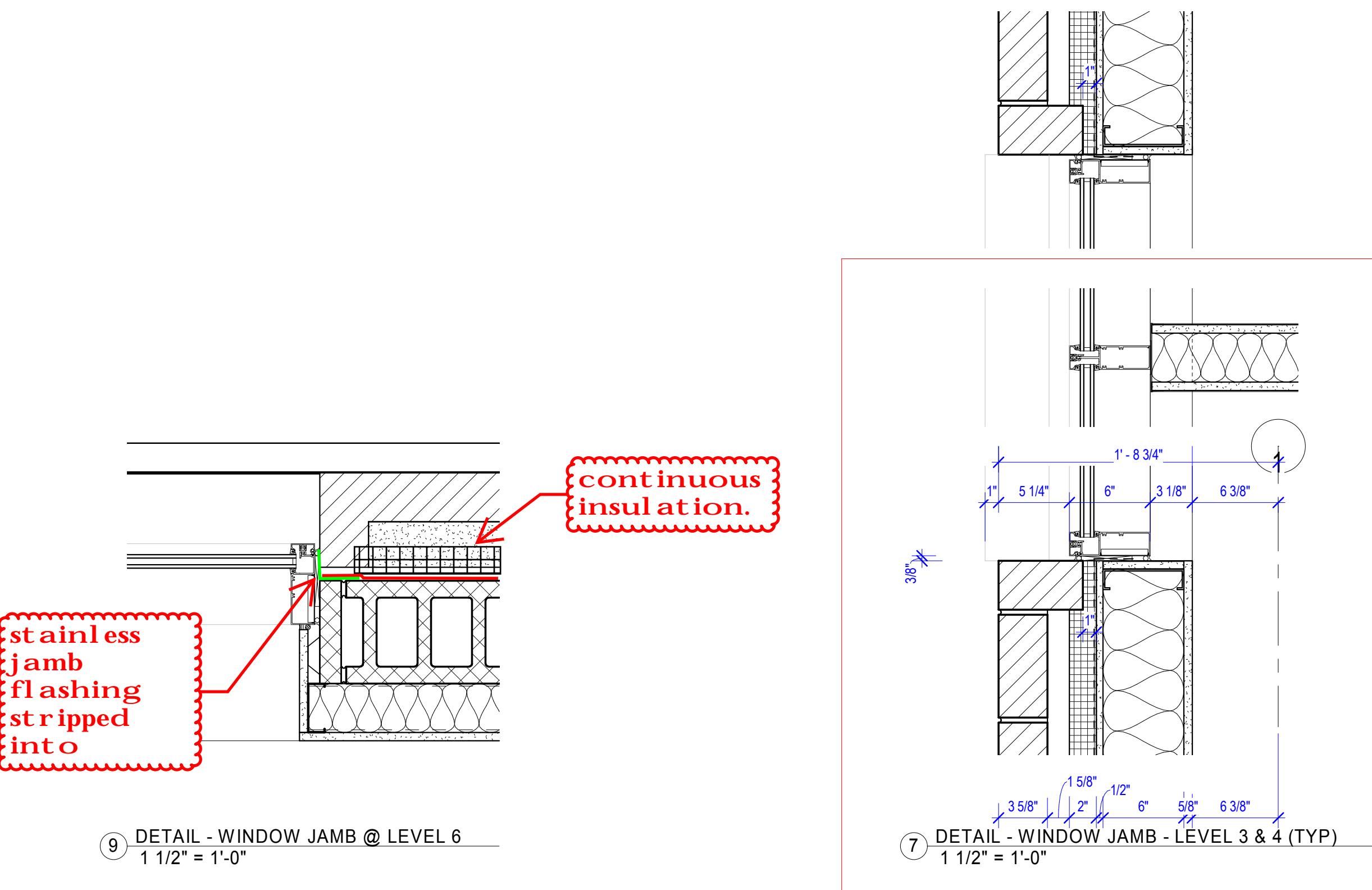
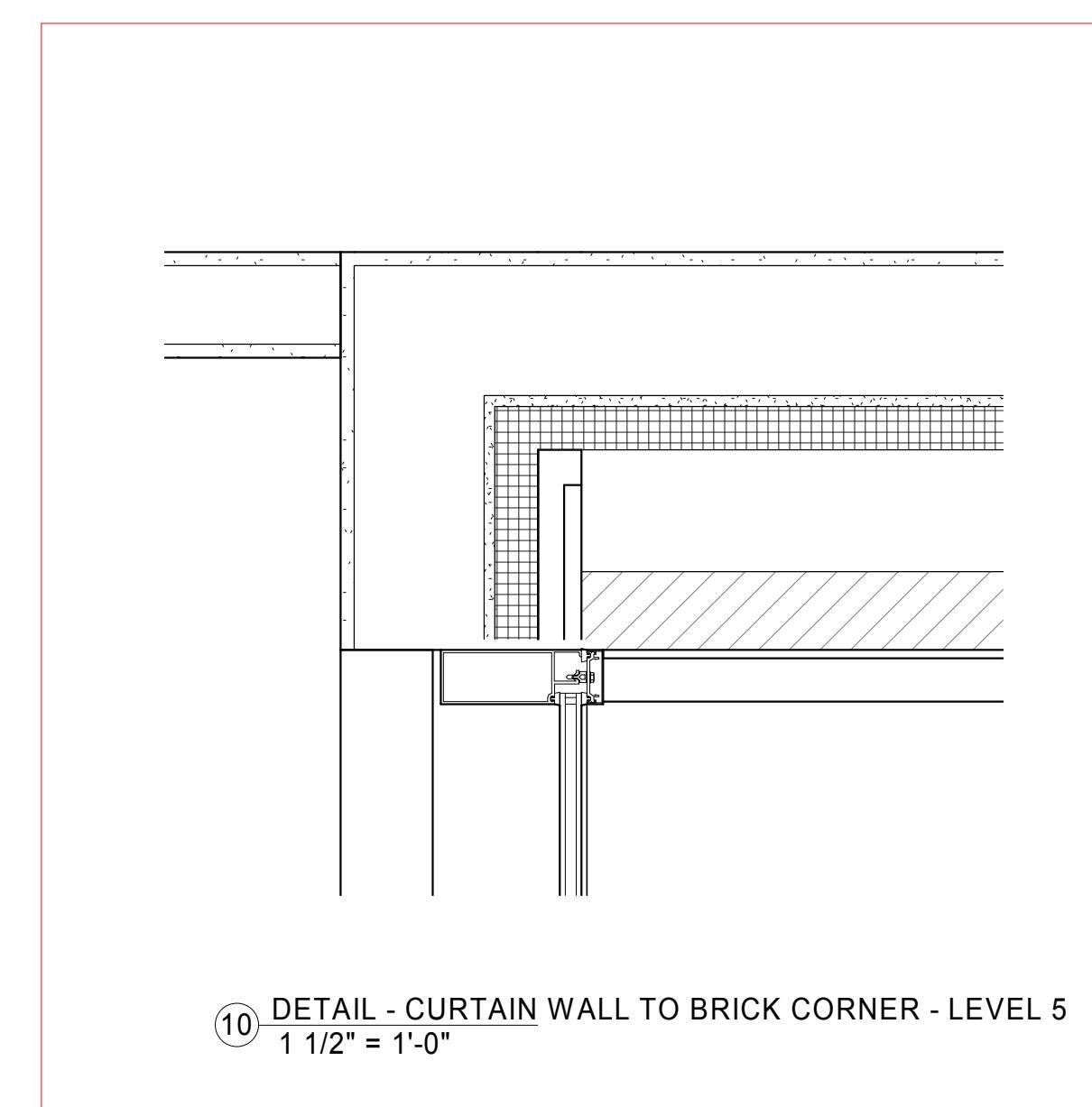
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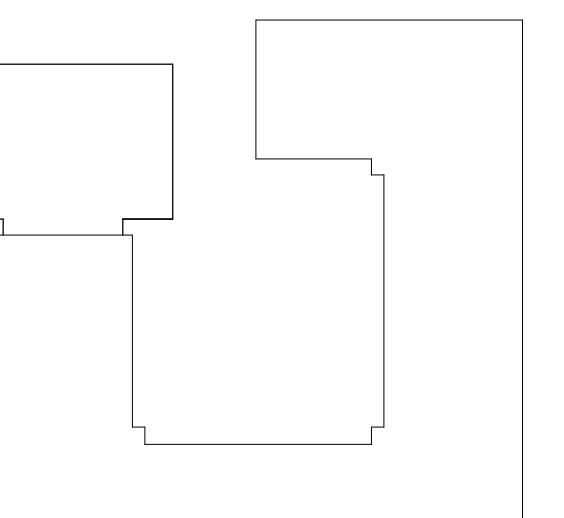
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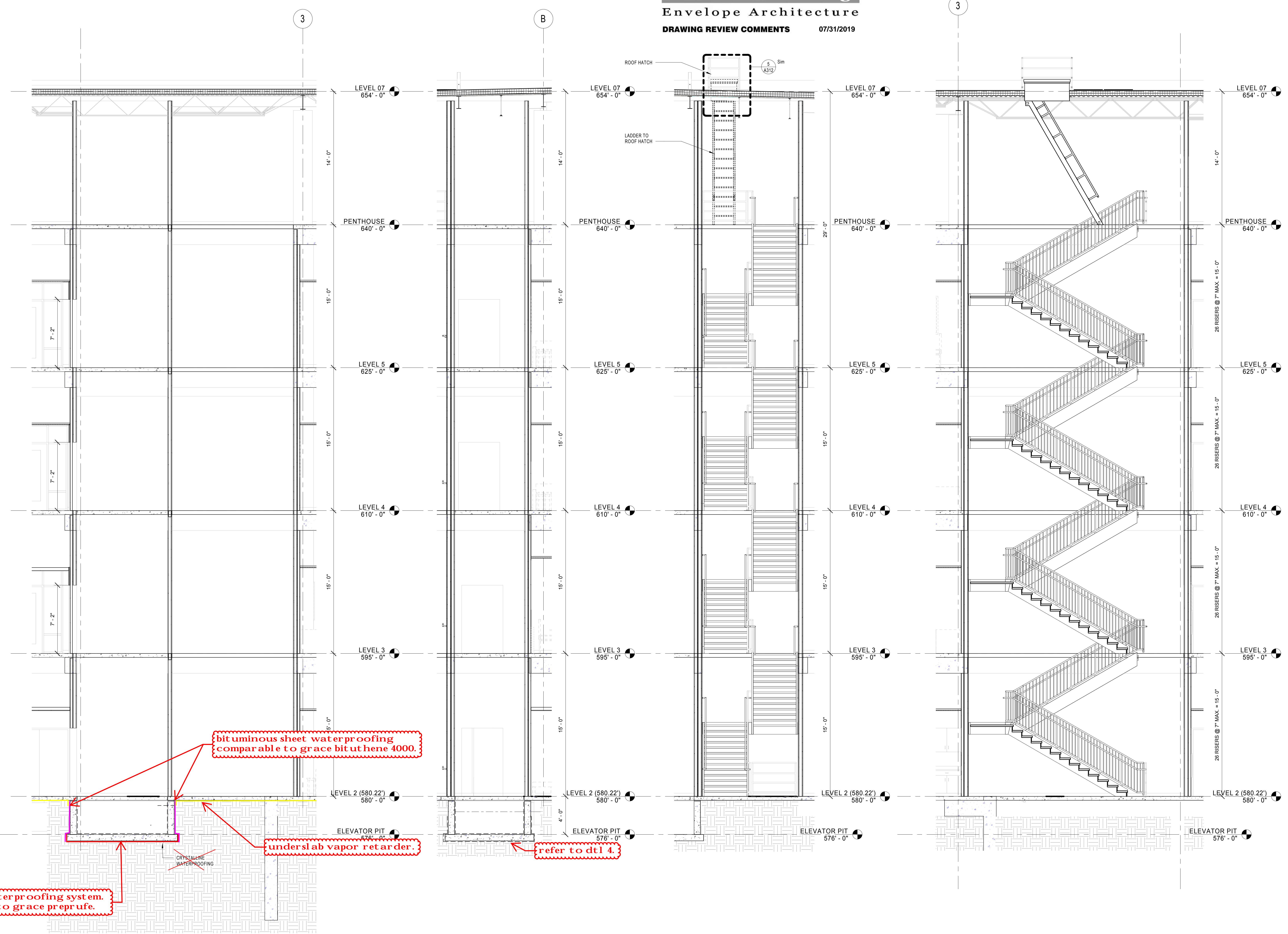


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ENLARGED SECTIONS - STAIR & ELEVATOR

DATE: JULY, 19 2019
BSALS PROJECT NO.: 15830011

PROJECT MANUAL

THE UNIVERSITY OF TEXAS AT AUSTIN

SARAH M. & CHARLES E. SEAY BUILDING ADDITION

VOLUME

1 of 2

Austin, Texas

UT PROJ. NO. CPC 102-1219

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July 19, 2019

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- C. Masonry-Joint Reinforcement for Single-Wythe Masonry: Ladder or truss type with single pair of side rods. (**WHY TWO TYPES?**)

1. Conform to ASTM A82.
2. Material:
 - a. W1.7 (9 gauge) deformed side rods.
 - b. W1.7 (9 gauge) truss rods welded to side rods at approximately 16 inches o.c.
3. Finish:
 - a. Exterior walls: Hot-dipped galvanized.
 - b. Interior walls: Mill galvanized.
4. Width: approximately 2 inches less than nominal wall thickness.

- D. Masonry-Joint Reinforcement for Veneers Anchored with Seismic NONE Masonry-Veneer Anchors: Single 0.187-inch- diameter, stainless-steel continuous wire.

2.9 TIES AND ANCHORS

- A. General: Ties and anchors shall extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.
- B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
1. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304.
 2. Stainless-Steel Bars: ASTM A 276 or ASTM A 666, Type 304.
- C. Corrugated-Metal Ties: Metal strips not less than 7/8 inch wide with corrugations having a wavelength of 0.3 to 0.5 inch and an amplitude of 0.06 to 0.10 inch made from 0.060-inch- thick steel sheet, galvanized after fabrication.
1. Product: Subject to compliance with requirements, provide the following or a comparable product approved by Architect:
 - a. Heckman Building Product; #260 Corrugated Wall Ties.
- D. Wire Mesh Ties:
1. Product: Subject to compliance with requirements, provide the following or a comparable product approved by Architect:
 - a. Heckman Building Product; #269 Wire Mesh Wall Ties.
2. Widths shall be 2 inches less than nominal wall thickness.
 3. Lengths shall be at least twice the width but no shorter than 8 inches.
- E. Adjustable Masonry-Veneer Anchors:



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1. General: Provide anchors that allow vertical adjustment but resist a 100-lbf load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of 1/16 inch.
2. Fabricate sheet metal anchor sections and other sheet metal parts from 0.109-inch- thick, stainless-steel sheet.
3. Fabricate wire ties from 0.187-inch- diameter, stainless-steel] wire unless otherwise indicated.
4. Contractor's Option: Unless otherwise indicated, provide any of the adjustable masonry- veneer anchors specified.
5. Screw-Attached, Thermal Masonry-Veneer Anchors (Masonry Veneer to Sheathing/Steel Studs): Wire tie and a corrosion-resistant, self-drilling, eye-screw designed to receive wire tie. Eye-screw has spacer that seats directly against framing and is same thickness as sheathing and has gasketed washer head that covers hole in sheathing.

a. Product: Subject to compliance with requirements, provide the following or a comparable product approved by Architect:

- 1) Heckmann Building Products, Inc.; Pos-I-Tie with Seismic Clip. (**No seismic - just screw in**) (**Do we even need this type?**)
- 2) Hohmann & Barnard Inc.; HB-213-2X at deep cavities. (**Is this correct terminology?**)

2.10 EMBEDDED FLASHING MATERIALS

- A. Two-piece thru-wall flashing system composed of a stainless-steel drip edge and flexible membrane EPDM sheets, including adhesive tape, waterblock seal, and spray primer.
1. Product: Subject to compliance with requirements, provide the following or a comparable product approved by Architect:
 - a. Firestone; FlashGard Thru-Wall Flashing System.
 2. Metal drip edge:
 - a. Material: ASTM A 167, Type 304 stainless steel, soft temper; 24 gauge, 2B finish.
 - b. Length: 8 foot to 10 foot lengths with 6 inch laps, filled with adhesive tape.
 - c. Fabrication:
 - 1) 3 inch embedded metal drip edge with exposed, hemmed edge turned down 1/2 inch on a 45 degree angle.
 - 2) Corner pieces shall be pre-formed, shop welded or soldered.
 3. EPDM flashing sheet:
 - a. Thickness: 40 mil.
 - b. Length: 50 foot lengths with 6 inch laps. Seal laps with manufacturer's adhesive tape.
 4. Accessories:
 - a. All accessories will be the manufacturer's standard components for use with this system to form a watertight continuous flashing membrane.

this is a post insulation tie
that will prevent visual
inspection for engagement
or waterproofing.

- 1) Heckmann Building Products, Inc.; Pos-I-Tie with Seismic Clip. (**No seismic - just screw in**) (**Do we even need this type?**)
- 2) Hohmann & Barnard Inc.; HB-213-2X at deep cavities. (**Is this correct terminology?**)

use this tie everywhere.

these materials should be
covered by air/vapor
barrier sections.

reinforcement, and with release liner on adhesive side; formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.

1. Provide membrane suitable for application at 25 degrees F.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Carlisle Coatings & Waterproofing Inc.; CCW MiraDRI 861.
- b. CETCO, a Minerals Technologies company; Envirosheet LT.
- c. GCP Applied Technologies Inc. (formerly Grace Construction Products); Bituthene 3000/Low Temperature Membrane.
- d. Henry Company; Blueskin WP200.
- e. Pecora Corporation; Duramem 700-SM.
- f. W. R. Meadows, Inc.; Mel-Rol.



3. Physical Properties:

- a. Tensile Strength, Membrane: 250 psi minimum; ASTM D 412, Die C, modified.
- b. Ultimate Elongation: 300 percent minimum; ASTM D 412, Die C, modified.
- c. Low-Temperature Flexibility: Pass at minus 20 deg F; ASTM D 1970/D 1970M.
- d. Crack Cycling: Unaffected after 100 cycles of 1/8-inch movement; ASTM C 836/C 836M.
- e. Puncture Resistance: 40 lbf minimum; ASTM E 154/E 154M.
- f. Water Absorption: 0.2 percent weight-gain maximum after 48-hour immersion at 70 deg F; ASTM D 570.
- g. Water Vapor Permeance: 0.05 perm maximum; ASTM E 96/E 96M, Water Method.

4. Sheet Strips: Self-adhering, rubberized-asphalt strips of same material and thickness as sheet waterproofing.

2.5 AUXILIARY MATERIALS

include blindside materials
for use at pit floor.

- A. Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.
 1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.
- B. Primer: Liquid primer recommended for substrate by sheet-waterproofing material manufacturer.
- C. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate by sheet-waterproofing material manufacturer.
- D. Liquid Membrane: Elastomeric, two-component liquid, cold fluid applied, of trowel grade or low viscosity.
- E. Substrate Patching Membrane: Low-viscosity, two-component, modified asphalt coating.
- F. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch, predrilled at 9-inch centers.

2. Comparable Product: Subject to compliance with requirements, the following products shall be considered comparable:
 - a. CertainTeed Corporation: CertaPro Thermal unfaced Batts.
 - b. Johns Manville: Unfaced Formaldehyde-free Thermal and Acoustical Fiber Glass Insulation.
 - c. Knauf Fiber Glass: QuietTherm unfaced batts.
3. Widths: 16" or 24", to match stud spacing.
4. Thickness: Full stud thickness.
5. Attachment: Friction fit in studs using adhesive, wire, or metal straps, as recommended by the manufacturer.
6. Thermal Resistance: ASTM C518, R=19.0 for 6 inches.
7. Locations: Exterior metal stud walls with separately applied vapor retarder, full height, and as indicated on Drawings.

2.4 INSULATION FASTENERS

- A. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.
 1. Plate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
 2. Spindle: Copper-coated, low-carbon steel; fully annealed; 0.105 inch in diameter; length to suit depth of insulation.
- B. Adhesively Attached, Angle-Shaped, Spindle-Type Anchors: Angle welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.
 1. Angle: Formed from 0.030-inch- thick, perforated, galvanized carbon-steel sheet with each leg 2 inches square.
 2. Spindle: Copper-coated, low-carbon steel; fully annealed; 0.105 inch in diameter; length to suit depth of insulation.
- C. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch- thick galvanized-steel sheet, with beveled edge for increased stiffness, sized as required to hold insulation securely in place, but not less than 1-1/2 inches square or in diameter.

2.5 ACCESSORIES

- A. Expanding Foam Insulation for Filling Miscellaneous Voids
- will this meet the requirements of nfpa 285? we do not recommend foam as the only weather seal around windows.
1. Window Sealing Foam: Single-component low-expansion polyurethane foam:
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Fomo Products, Inc.; Window and Door Sealant.
 - 2) Hilti, Inc.; CF 812.
 - b. Comply with AAMA 812 test specifications for low pressure window and door sealant foams.

- c. Locations: use to fill frame cavities and narrow openings around windows and doors, not exposed in completed construction.
- B. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Examine surfaces to be covered with insulation; ensure preceding work is completed.
- B. Verify that available space is of sufficient depth for required insulation thickness.
- C. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.
- D. Do not proceed with installation in areas of discrepancy until such conditions are fully resolved.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF SLAB INSULATION

- A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.
 - 1. If not otherwise indicated, extend insulation a minimum of 24 inches below exterior grade line.


not a code requirement.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
 - 1. If not otherwise indicated, extend insulation a minimum of 24 inches in from exterior walls.

3.4 INSTALLATION OF FOUNDATION WALL INSULATION

- A. Butt panels together for tight fit.
- B. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:
 1. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application.
 2. Apply insulation standoffs to each spindle to create cavity width indicated on Drawings between concrete substrate and insulation.
 3. After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washers, taking care not to compress insulation.
 4. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.
- C. Adhesive Installation: Install with adhesive or press into tacky waterproofing or dampproofing according to manufacturer's written instructions.

3.5 INSTALLATION OF CAVITY-WALL INSULATION

- A. Foam-Plastic Board Insulation: Install pads of adhesive spaced approximately 24 inches o.c. both ways on inside face and as recommended by manufacturer. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions. Press units firmly against inside substrates.
 1. Supplement adhesive attachment of insulation by securing boards with two-piece wall ties designed for this purpose and specified in Section 04 20 00 "Unit Masonry."
- B. Screw Attached, Washer Type Anchor Installation: Insulation to be fastened at maximum 12" o.c. at wall perimeters and around openings and maximum 16" o.c. in wall field. One (1) fastener can be used for no more than two (2) boards. Where three (3) or more boards meet, use at least one (1) fastener per every two (2) boards.
 1. Insulation boards should be installed in running bond pattern.
 2. Other fasteners and over-driven fasteners that breach the facer of the insulation must be sealed with liquid flashing as approved by the insulation manufacturer applied on facer around breach.

3.6 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.

do not install fasteners through air barrier after insulation has been installed. visual inspection for stud engagement or air barrier damage is impossible at this point.



SECTION 07 27 13 - MODIFIED BITUMINOUS SHEET AIR BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes self-adhering, vapor-retarding, modified bituminous sheet air barriers.
- B. Related Requirements:
 - 1. Section 01 81 13 "Sustainable Design Requirements."
 - 2. Section 06 16 00 "Sheathing" for wall sheathings and wall sheathing joint-and-penetration treatments.

1.3 DEFINITIONS

- A. Air-Barrier Material: A primary element that provides a continuous barrier to the movement of air.
- B. Air-Barrier Accessory: A transitional component of the air barrier that provides continuity.
- C. Air-Barrier Assembly: The collection of air-barrier materials and accessories applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review air-barrier requirements and installation, special details, mockups, air-leakage and bond testing, air-barrier protection, and work scheduling that covers air barriers.

1.5 ACTION SUBMITTALS

- A. Submit product data under provision of Uniform General Conditions (UGC) and Additional General Conditions (AGC).
- B. Product Data: For each type of product.
 - 1. Include manufacturer's written instructions for evaluating, preparing, and treating each substrate; technical data; and tested physical and performance properties of products.
- C. Shop Drawings: For air-barrier assemblies.

zsc recommends a vapor permeable fluid applied membrane, with modified bituminous transitional membranes (as a component).



2.3 METAL COMPOSITE MATERIAL WALL PANELS

- A. Metal Composite Material Wall Panel Systems: Provide factory-formed and -assembled, metal composite material wall panels fabricated from two metal facings that are bonded to a solid, extruded thermoplastic core; formed into profile for installation method indicated. Include attachment assembly components, panel stiffeners, and accessories required for weathertight system.

1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Alcoa Architectural Products (USA); Reynobond FR.
 - b. ALPOLIC Materials; Mitsubishi Plastics Composites America; ALPOLIC/fr.
 - c. ALUCOBOND; 3A Composites USA, Inc; Alucobond Plus.

- B. Aluminum-Faced Composite Wall Panels: Formed with 0.020-inch- thick, anodized aluminum sheet facings.

1. Panel Thickness: 0.157 inch.
2. Core: Fire retardant.
3. Exterior Finish: Clear anodized.

- C. Attachment Assembly Components: Formed from extruded aluminum.

- D. Attachment Assembly: Rainscreen principle system.

2.4 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring: ASTM C 645, cold-formed, metallic-coated steel sheet ASTM A 653/A 653M, G90 coating designation or ASTM A 792/A 792M, Class AZ50 aluminum-zinc-alloy coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal composite material panel system.

1. Basis-of-Design: Subject to compliance with requirements, provide the following:
 - a. Dow Building Solutions; Dow Knight CI System.
2. Vertical box girt (metal support framing girt): Minimum 0.0475 inch thick galvanized cold formed steel, 2 inch wide x 0.75 inch deep or 2 inch wide x 2 inch deep as indicated.
3. Horizontal rails (metal support framing rail): galvanized cold formed steel, 3 inch wide x 3/4 inch deep.
4. Fasteners: Stainless steel, minimum #12 self-drill hex-head screws with thermal isolating washers.
5. Provide perforations or slope for drainage on all horizontal girts or framing members
6. Support framing and attachment to comply with ASHRAE 90.1 requirements for continuous insulation (i.e. insulation that is continuous across all structural members

- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal composite material panels unless otherwise indicated.

dwgs show an insulated panel. the specified knight system will likely conflict with the specified vapor barrier, leading to one of their failures.

1. Adhesives and Sealants: Comply with VOC limits of authorities having jurisdiction.
- B. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- C. Roof Vents: As recommended by roof membrane manufacturer.
 1. Size: Not less than 4-inch diameter.
- D. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- E. Asphalt Roofing Cement: ASTM D 4586/D 4586M, asbestos free, of consistency required by roofing system manufacturer for application.
- F. Mastic Sealant: Polyisobutylene, plain or modified bitumen; nonhardening, nonmigrating, nonskinning, and nondrying.
- G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- H. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.

2.8 ROOF INSULATION

- A. General: Preformed roof insulation boards, manufactured or approved by roof membrane manufacturer.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. CertainTeed Corporation.
 - b. Firestone Building Products.
 - c. GAF.
 - d. Johns Manville; a Berkshire Hathaway company.
 2. Compressive Strength: 20 psi.
 3. Size: 48 by 96 inches.
 4. Thickness:
 - a. Base Layer: 1.5 inches
 - b. Upper Layer: 1.5 inches
 5. R Value: R-15 min.

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- C. Tapered Insulation: Provide factory-tapered insulation boards.

1. Material: Match roof insulation.
2. Minimum Thickness: 1/4 inch.
3. Slope:
 - a. Roof Field: 1/4 inch per foot unless otherwise indicated on Drawings.
 - b. Saddles and Crickets: 1/2 inch per foot unless otherwise indicated on Drawings.

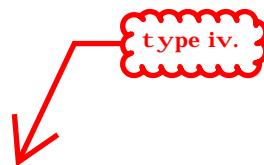


2.9 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.
- C. Insulation Cant Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
- D. Wood Nailer Strips: Comply with requirements in Section 06 10 00 "Rough Carpentry."
- E. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum board or ASTM C 1278/C 1278M, fiber-reinforced gypsum board.
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Georgia-Pacific Gypsum LLC.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. National Gypsum Company.
 - d. USG Corporation.
 2. Thickness: 1/2 inch.
 3. Surface Finish: Factory primed

2.10 ASPHALT MATERIALS

- A. Asphalt Primer: ASTM D 41/D 41M.
- B. Roofing Asphalt: ASTM D 312/D 312M, Type III or IV as recommended by roofing system manufacturer for application.



- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.
 - 1. Notify Architect and Owner 48 hours in advance of date and time of inspection.
- D. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.
- E. Roofing system will be considered defective if it does not pass tests and inspections.
 - 1. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.13 PROTECTING AND CLEANING

consider uplift testing per astm e907.

- A. Protect roofing system from damage and wear during remainder of construction period.
 - 1. When remaining construction does not affect or endanger roofing, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07 52 16



- D. Roughen prefinish paint finish on metal flanges built into roof membrane, and apply primer.
- E. Ensure proper fit and positioning of flashings. Make adjustments necessary to accommodate variances and imperfections in receiving surfaces.
- F. Install flashings free of warp or distortion, and without stress on fixed components.
- G. Stagger joints between components.

3.9 DOWNSPOUTS



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- A. Fabricate downspout drops with minimum $\frac{3}{4}$ inch tabs and 4 inch long vertical section. Solder drops together as a single unit.
- B. Insert drops through properly sized opening in floor of gutter. Rivet and solder to floor of gutter. Locate drops away from gutter joints. Connect downspout to drop with rivets 2 inches on center.
- C. Fabricate downspouts to 5 inch by 4 inch, with double-lock concealed seam.
- D. Connect downspout sections together with 4 inch overlap and rivet sections together.
- E. Fasten downspout to wall with 1 inch, wide straps spaced 5 feet on center.
- F. Fasten straps to wall and to downspout. Locate straps to conceal downspout joints.
- G. Install splash pan diverters where downspouts empty onto asphalt shingle roofing.

3.10 PROTECTION

- A. Protect stored sheet metal and accessories prior to installation according to provisions of this Section. Do not install improperly stored materials into the Work.
- B. Remove and replace sheet metal that has been water-stained, damaged or is otherwise unserviceable.

3.11 SCHEDULE

| ITEM | FINISH | GAGE | FASTENER | PATTERN |
|---|-------------|-------|---------------------------------------|---|
| Modified Bituminous Roof Flashings | | | | |
| Counter Flashing | Prefinished | 22 | Screw | 12 inches on center |
| Pocket Receiver | Prefinished | 22 | Screw | 12 inches on center |
| Roof Drain Flashing | Sheet Lead | 4 lb. | Set in Plastic Cement | Full bed |
| Overflow Scupper Liner | Copper | 16 oz | Threaded Nail Hem to Collectorhead | 3 inches on center Continuous |
| Scupper Face Plate | Copper | 16 oz | Hem to Scupper | Continuous |
| Scupper Counter Flashing | Copper | 16 oz | Screws | 16 inches on center or one each stud |
| Termination Bar | Alum. | 3/16" | Screw | 12 inches on center |

if copper is not specified for aesthetics,
 utilize 304 stainless.

| | | | | |
|---------------------------------------|------------|-------|---------------------|---------------------|
| Soldered Sheet Metal Hood | Galvanized | 22 | Neoprene-Head Screw | 2 each |
| Louver Counter Flashing | Copper | 16 oz | Clips | 12 inches on center |
| Louver Counter Flashing Clips | Copper | 20 oz | Screws | One each |
| Louver Cover Plates (Alternate No. 3) | Copper | 16 oz | Neoprene-Head Screw | 12 inches on center |

END OF SECTION 07 62 00



if copper is not specified for aesthetics,
utilize 304 stainless.

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SECTION 07 71 29 - MANUFACTURED ROOF EXPANSION JOINTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract Documents, General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Flanged bellows-type roof expansion joints.

- B. Related Requirements:

1. Section 01 81 13 "Sustainable Design Requirements."
2. Section 06 10 53 "Miscellaneous Rough Carpentry" for wooden curbs or cants for mounting roof expansion joints.
3. Section 07 62 00 "Sheet Metal Flashing and Trim" for shop- and field-fabricated sheet metal expansion-joint systems, flashing, and other sheet metal items.

1.3 ACTION SUBMITTALS

- A. Submit product data under provisions of Uniform General Conditions (UGC) and Additional General Conditions (AGC).
- B. Product Data: For each type of product.
- C. Shop Drawings: For roof expansion joints.
1. Include plans, elevations, sections, and attachment details.
 2. Include details of splices, intersections, transitions, fittings, method of field assembly, and location and size of each field splice.
 3. Provide isometric drawings of intersections, terminations, changes in joint direction or planes, and transition to other expansion joint systems depicting how components interconnect with each other and adjacent construction to allow movement and achieve waterproof continuity.

1.4 INFORMATIONAL SUBMITTALS

- A. Sustainable Design Submittal Requirements: See Section 01 81 13 "Sustainable Design Requirements" for submittal requirements.
- B. Qualification Data: For Installer.
- C. Sample Warranties: For special warranties.

expansion joints should be a redundant system. exposed epdm or neoprene bellows do not typically perform as advertised when exposed to the elements.



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1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Exterior Building Joints (Horizontal and Vertical):

1. Metal to metal: ES-5 or ES-2.
2. Metal to masonry or stone: ES-5 or ES-2.
3. Masonry to masonry or stone: ES-5, ES-6 or ES-2.
4. Stone to stone: ES-5, ES-6 or ES-2.
5. Threshold setting bed: ES-2, ES-5 or ES-6.
6. Masonry expansion and control joints: ES-5, ES-6 or ES-3.
7. Exterior wall penetrations: ES-5.

polyurethane should not be an option for anyone of these exterior sealants, with exception of exterior site caulking. use es-2 or dow 790.



B. Copings, Flashings, and Metal Reglets:

1. Copings and flashings to wall: ES-5 or ES-2.
2. Metal to metal: ES-5 or ES-2.

C. Interior Sealants:

1. Typical narrow joint, 1/4 inch (6mm) or less at walls and adjacent components: LS-1.
2. Perimeter of doors, windows, access panels to adjacent materials: LS-1.
3. Countertops, backsplashes, endsplashes and adjacent walls, except at toilet rooms, showers and other wet areas: LS-1.
4. Joints at masonry walls, columns, piers and concrete walls: ES-6 or ES-3.
5. Exposed isolation joints at top of full height, non-fire rated walls: ES-3 or ES-6.
6. Drywall trim joints: LS-1.
7. Concrete flatwork control joints and cracks over 1/16 inch wide: EP-1 or EP-2.
8. Walls to plumbing fixtures and at fixtures installed in countertops: ES-4.
9. Countertops to walls, at toilet rooms other wet areas: ES-4.
10. Pipe and plumbing fitting penetrations in non-fire rated walls: ES-4.
11. Non-fire-rated full-height walls and walls containing sound attenuation blankets: AC-1.

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- C. Set continuous sill members and flashing in full sealant bed, as specified in Section 07 92 00 "Joint Sealants," to produce weathertight installation.
- D. Install components plumb and true in alignment with established lines and grades.
- E. Install glazing as specified in Section 08 80 00 "Glazing."
- F. Install weatherseal sealant according to Section 07 92 00 "Joint Sealants" and according to sealant manufacturer's written instruction to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.
- G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
 - 1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
 - 2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

3.3 ERECTION TOLERANCES

- A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:

- 1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
- 2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
- 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
 - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.

- 4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

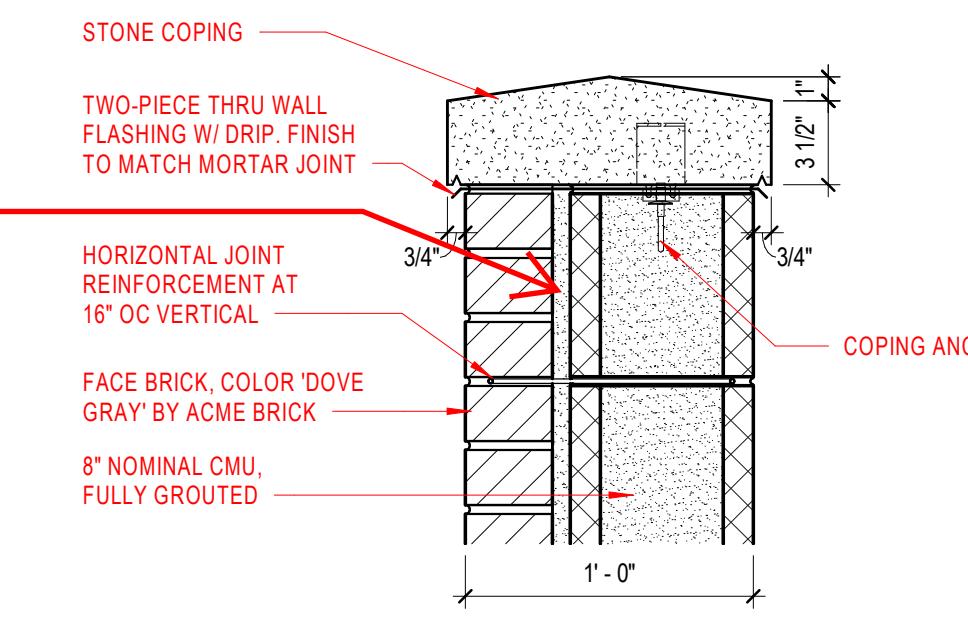
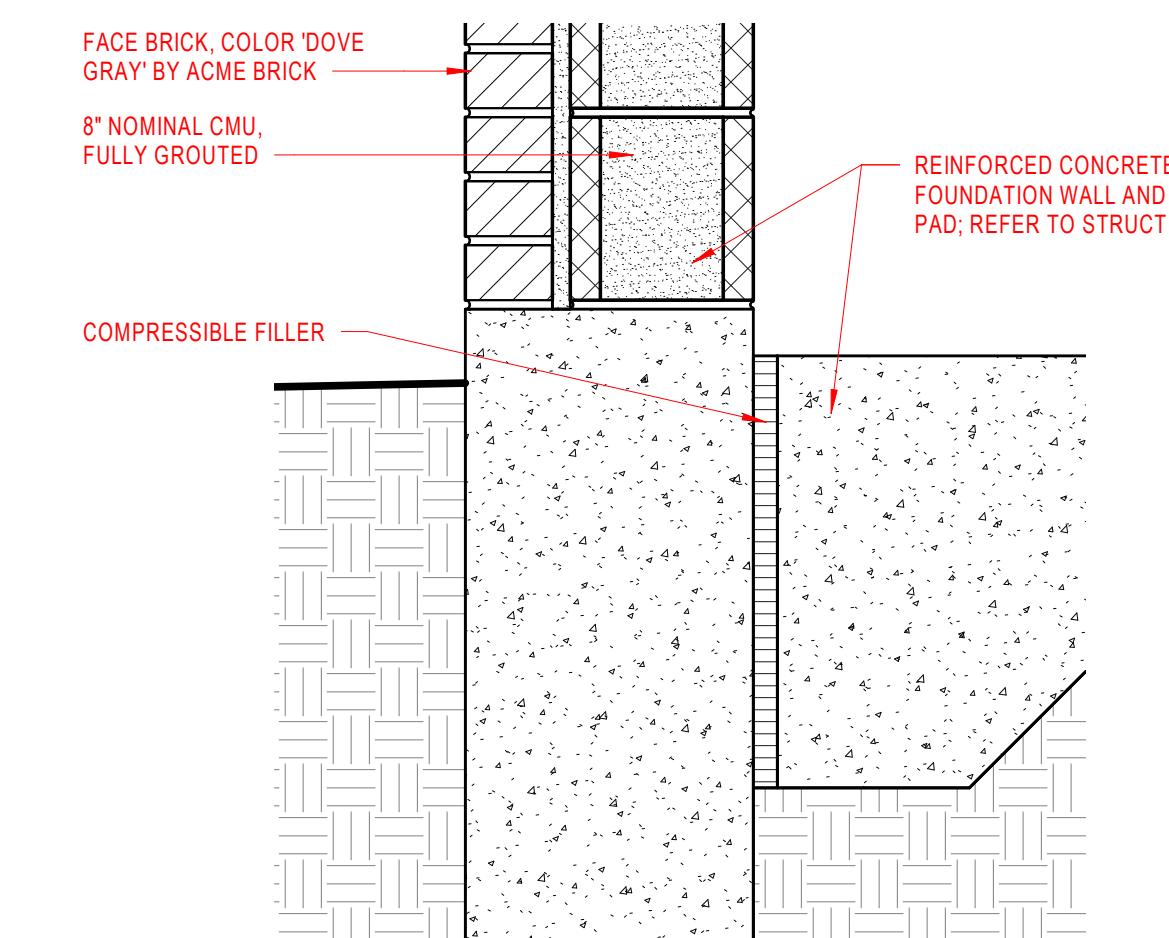
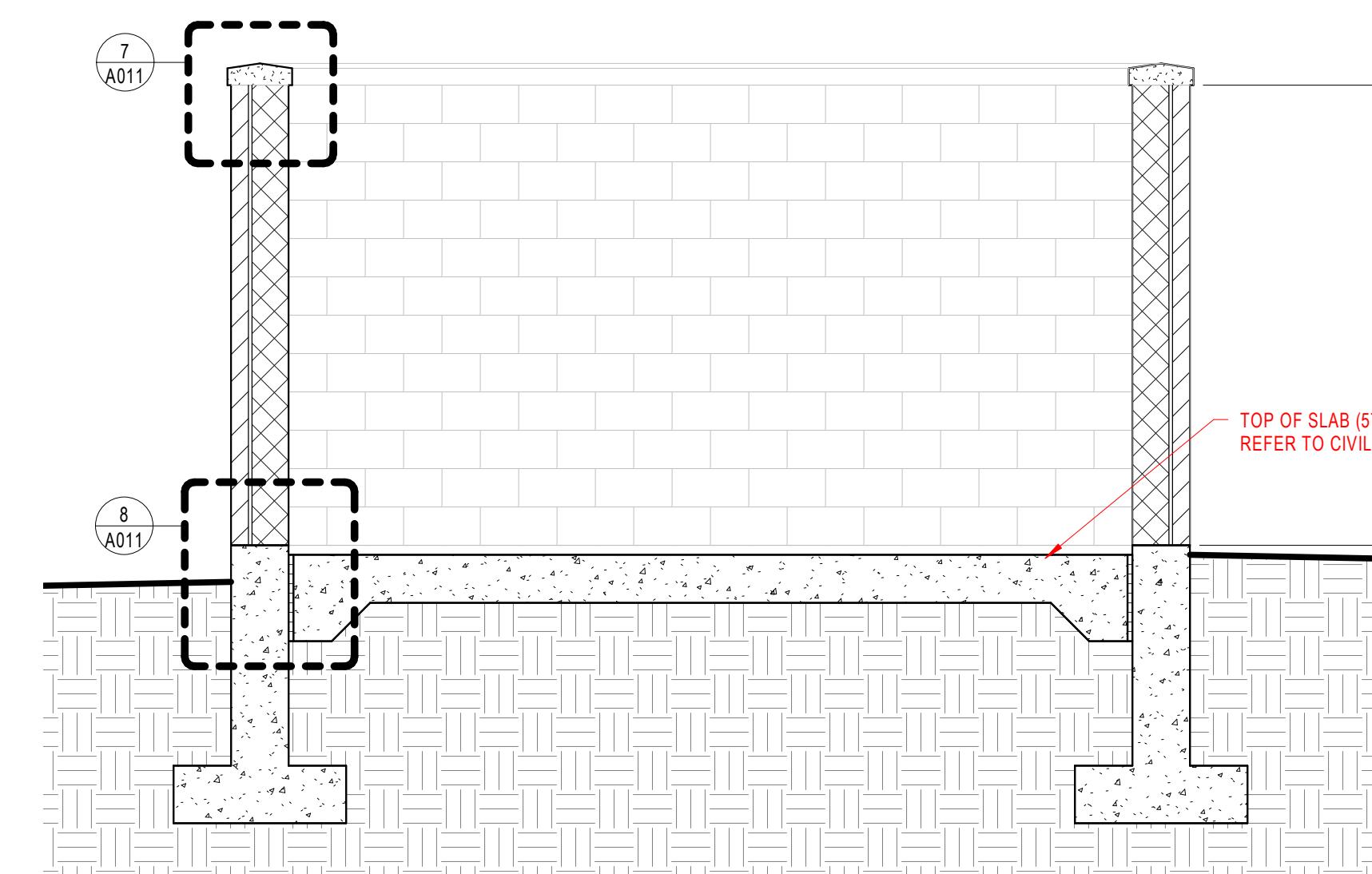
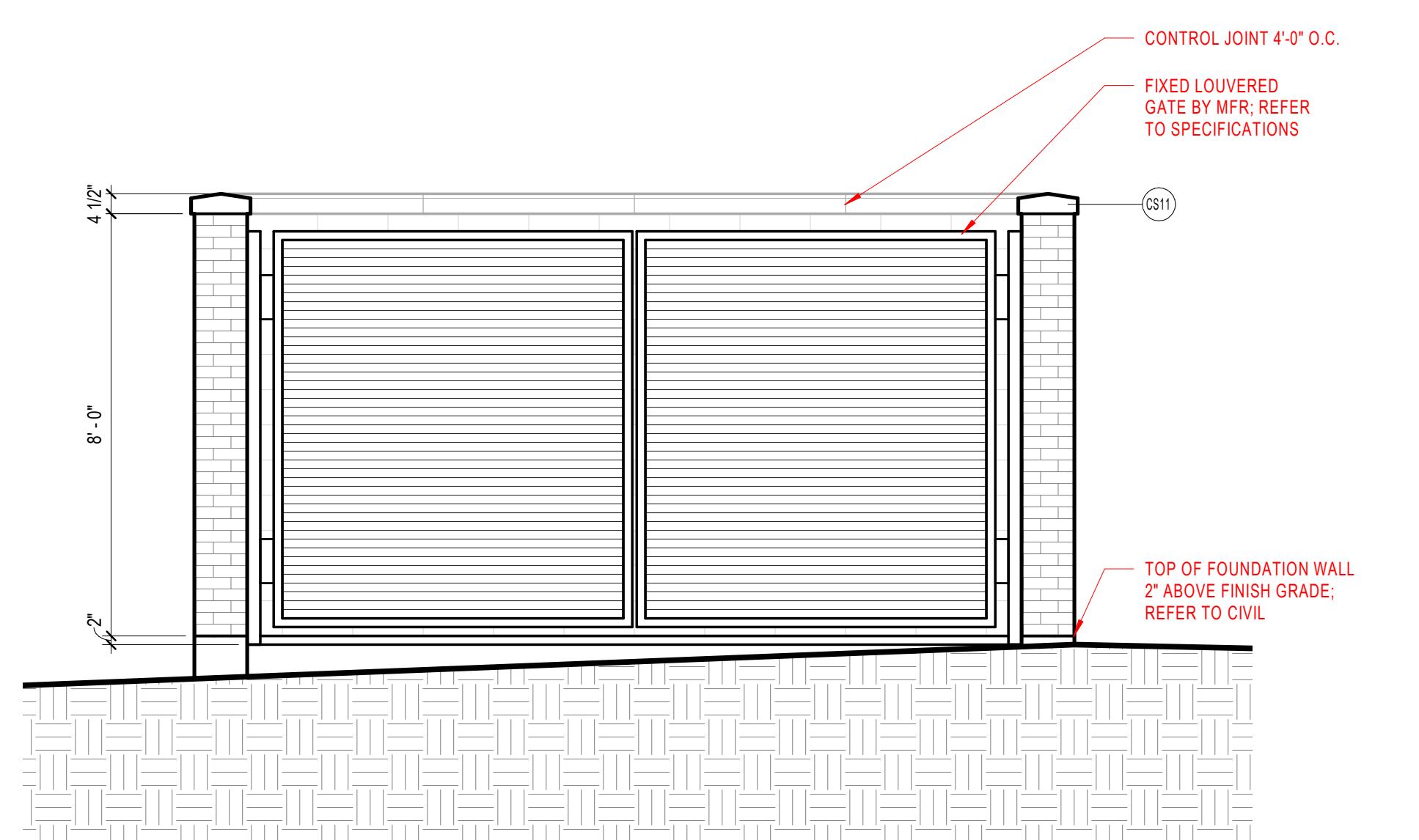
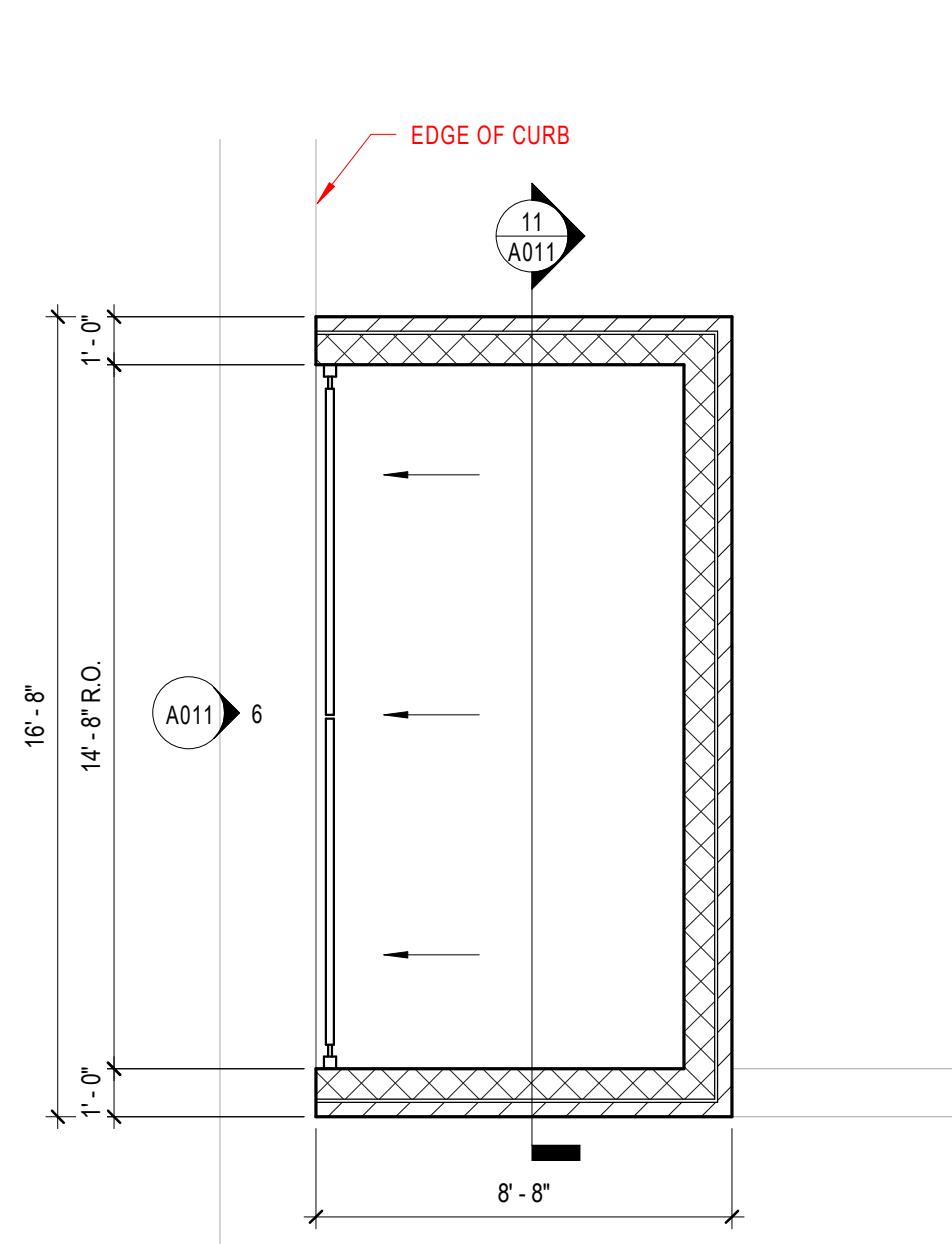
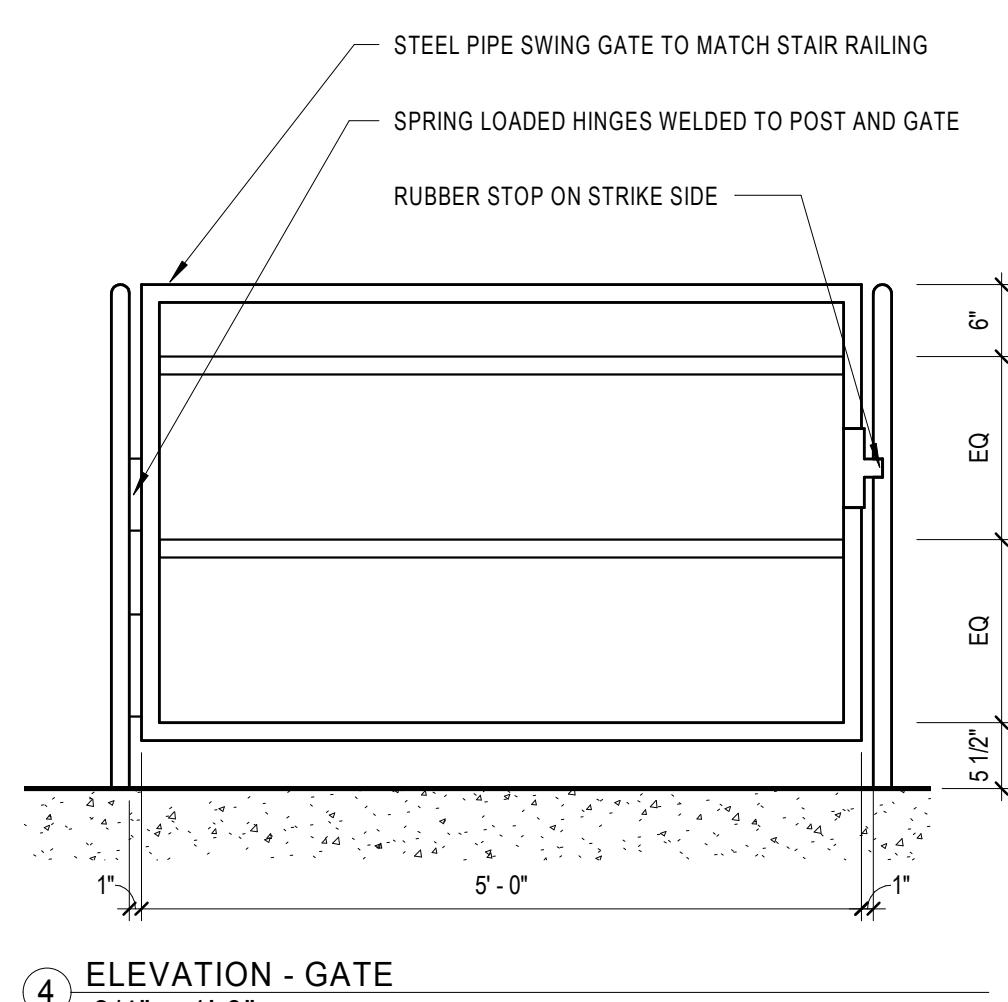
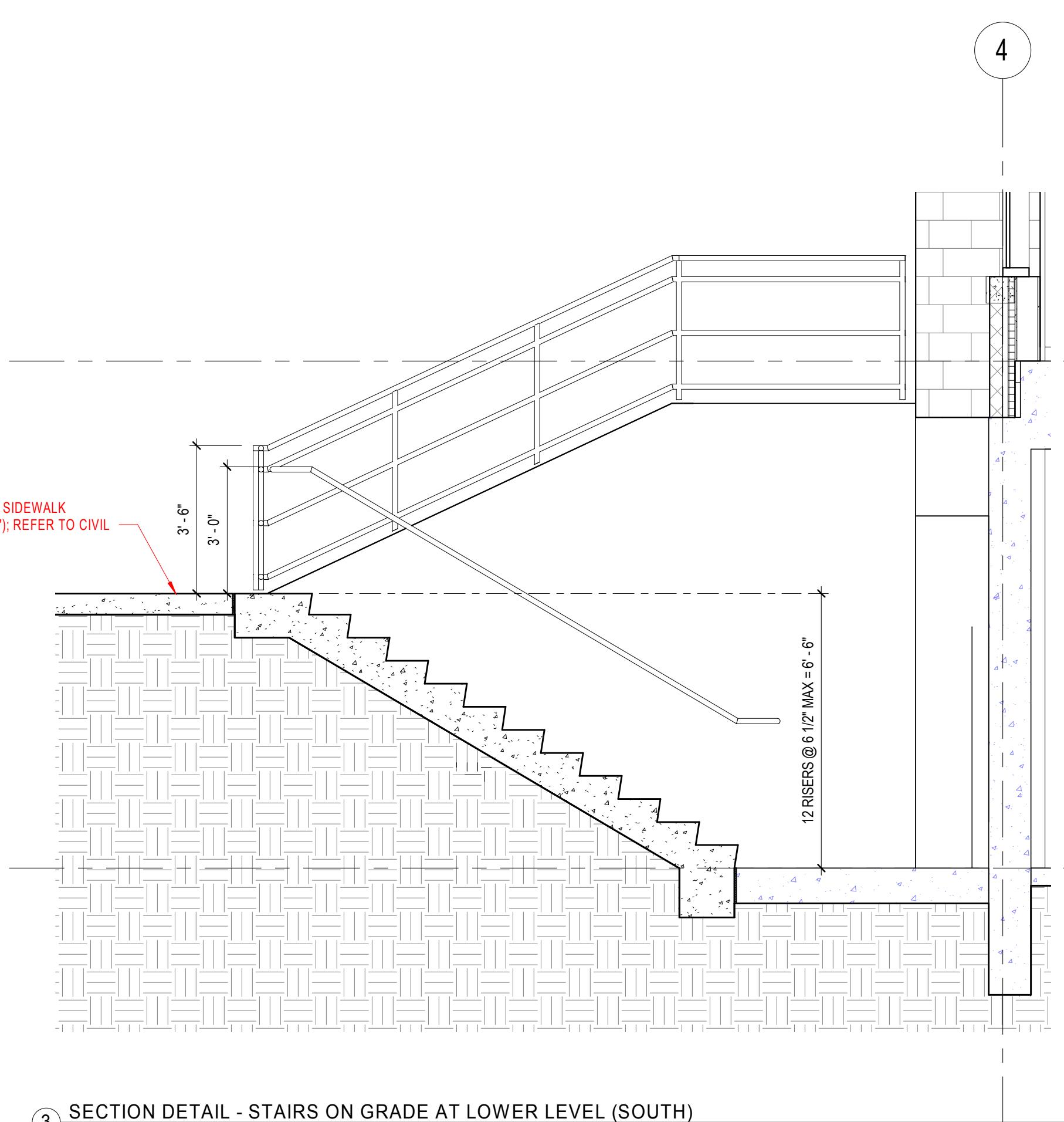
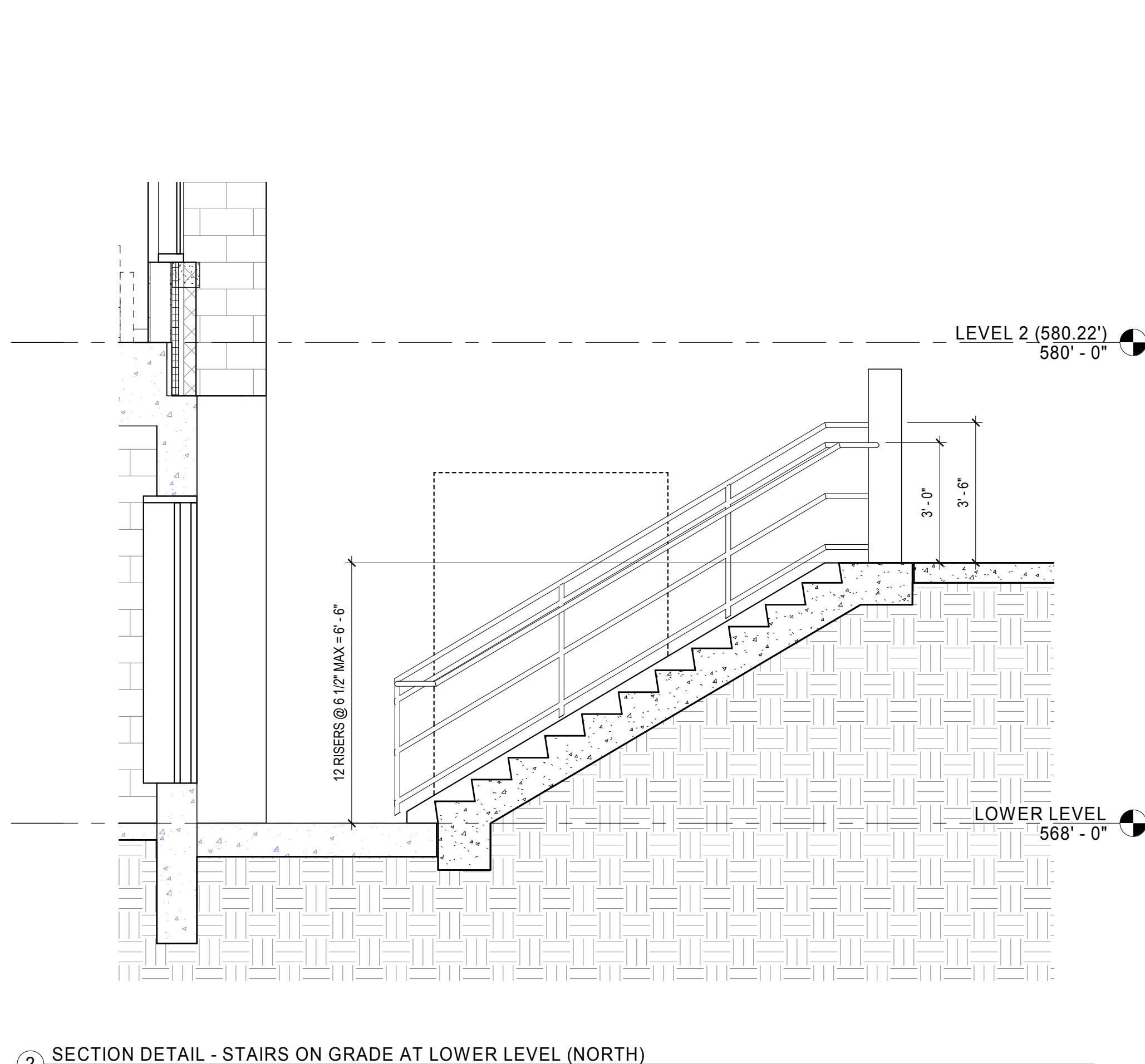
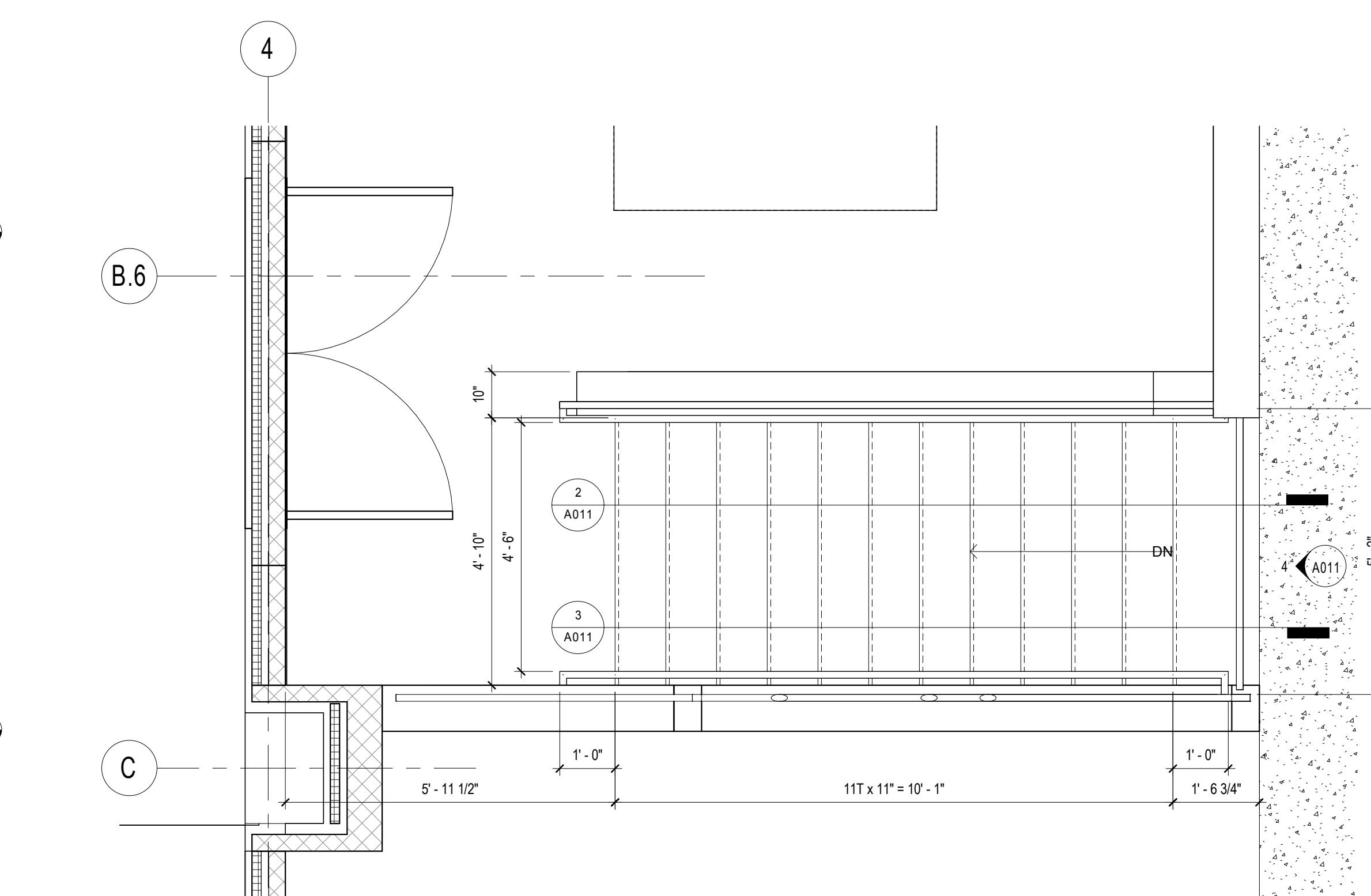
3.4 FIELD QUALITY CONTROL

specify chamber testing at 2/3 laboratory test pressures but not less than 6.24 psf in lieu of aama 501.2. ast m e 1105.

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Field Quality-Control Testing: Perform the following test on representative areas of aluminum-framed entrances and storefronts.
 - 1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect/Engineer shall be tested according to AAMA 501.2 and shall not evidence water penetration.
 - a. Perform tests in each test area as directed by Architect/Engineer. Perform at least three tests, prior to 10, 35, and 70 percent completion.



filling the cavity with mortar may lead to efflorescence and or premature degradation of masonry ties. recommend providing a cavity to dry the wall assembly out faster.

(7) DETAIL - STONE COPING (TRASH ENCLOSURE)
1 1/2" = 1'-0"(8) SECTION DETAIL - BRICK LUG (TRASH ENCLOSURE)
1 1/2" = 1'-0"(11) SECTION DETAIL - TRASH ENCLOSURE
3/8" = 1'-0"(6) ELEVATION - TRASH ENCLOSURE
3/8" = 1'-0"(9) ENLARGED PLAN - TRASH ENCLOSURE
1/4" = 1'-0"(4) ELEVATION - GATE
3/4" = 1'-0"(3) SECTION DETAIL - STAIRS ON GRADE AT LOWER LEVEL (SOUTH)
3/8" = 1'-0"(2) SECTION DETAIL - STAIRS ON GRADE AT LOWER LEVEL (NORTH)
3/8" = 1'-0"(1) ENLARGED PLAN - STAIRS - LOWER LEVEL
1/2" = 1'-0"

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ph. 512.719.5251

CIVIL | GARZA
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ph. 512.298.3284

STRUCTURAL | MARTINEZ MOORE
221 W. 6th St., Suite 800 | Austin, TX 78701
ph. 512.330.1278

LANDSCAPE ARCH. | COLEMAN & ASSOCIATES
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ph. 512.476.2099

CODE + FIRE PROTECTION | JENSEN + HUGHES
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ACOUSTICS + VIBRATION | DICKENSEETS DESIGN
10919 Conchos Trl., Suite 100 | Austin, TX 78726
ph. 512.331.8577

SEAY BUILDING ADDITION

CLIENT PROJECT NO. - CPC 102-1219

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| MARK | DATE | DESCRIPTION |
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REGISTRATION NO.:
STEVEN D. BRUPBACHER
18480
DESIGN FIRM /
REGISTRATION NO.:
BSA LIFESTRUCTURES
BR 1590

EXTERIOR SITE DETAILS

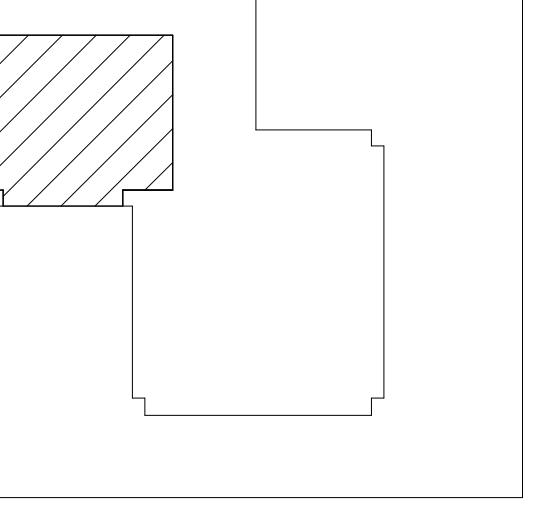
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PLAN NORTH

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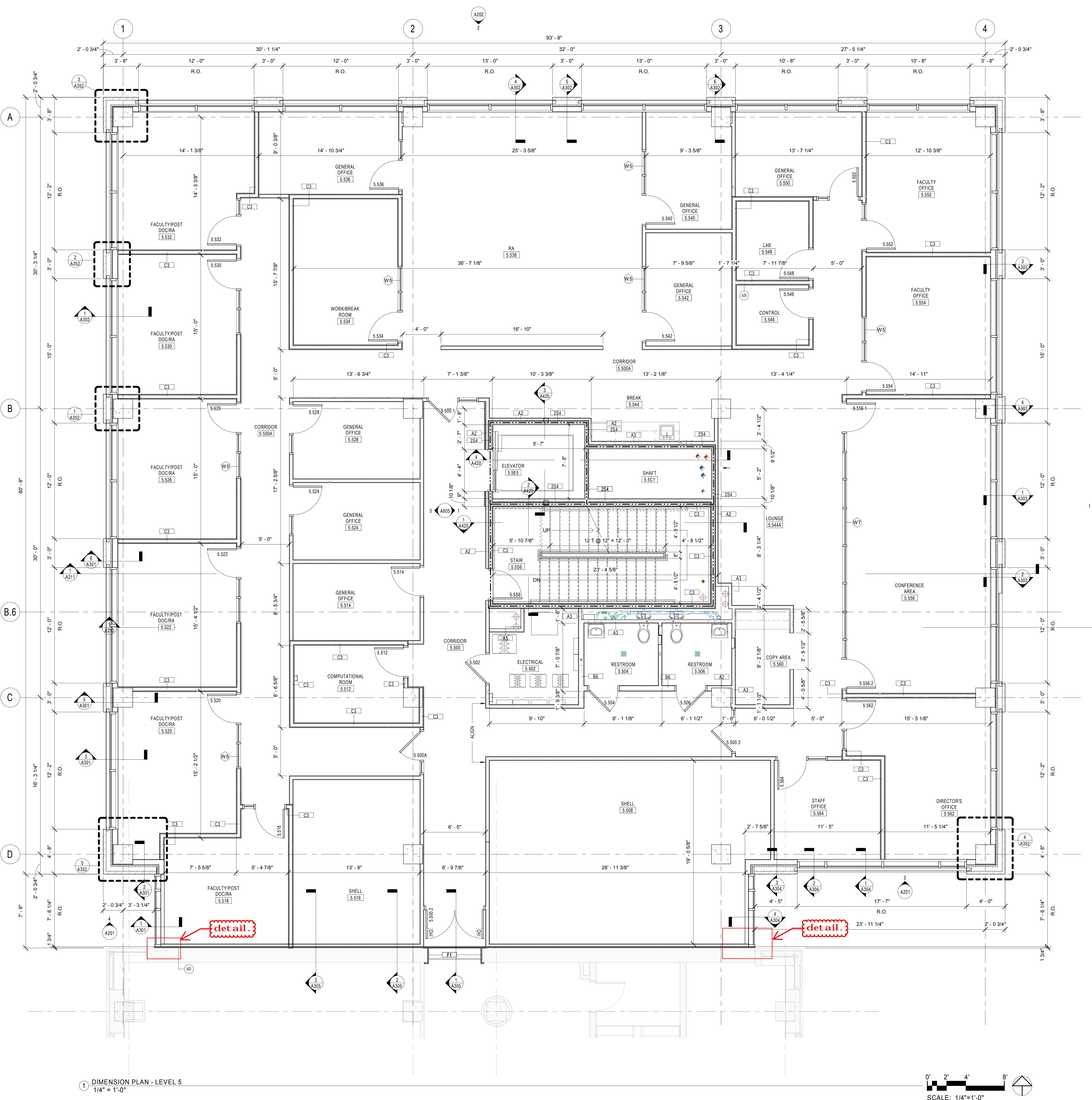
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DIMENSION PLAN - LEVEL 5

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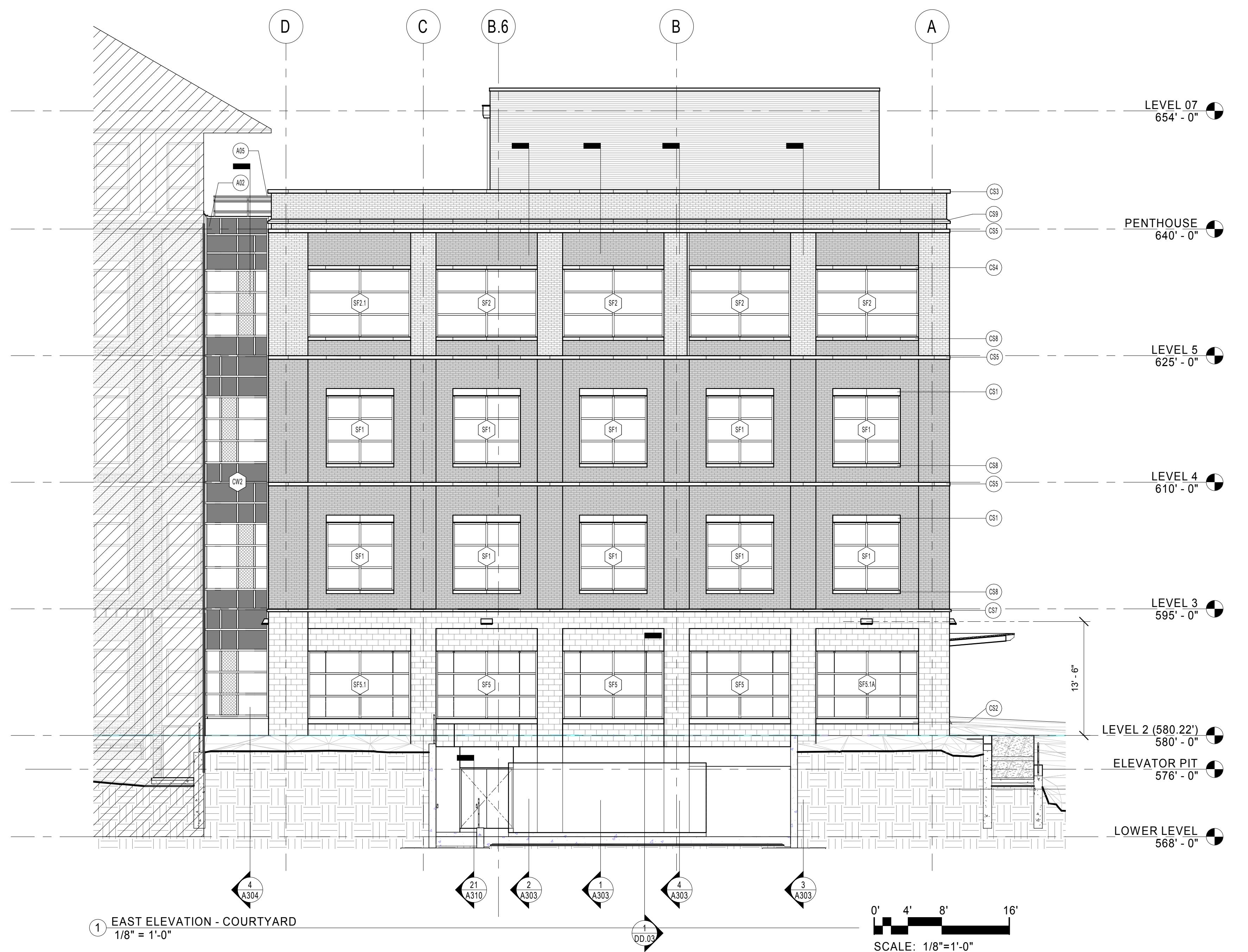
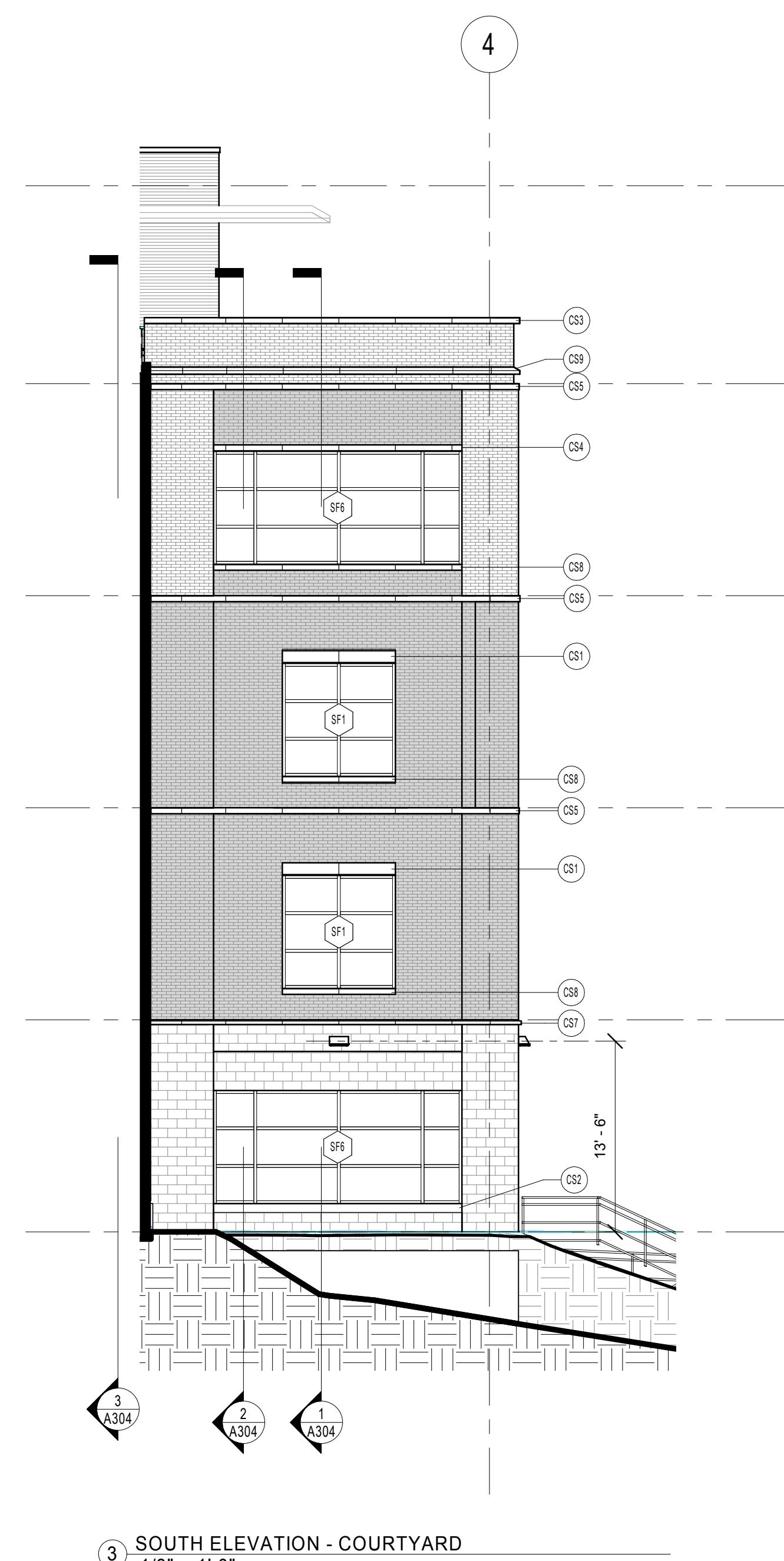
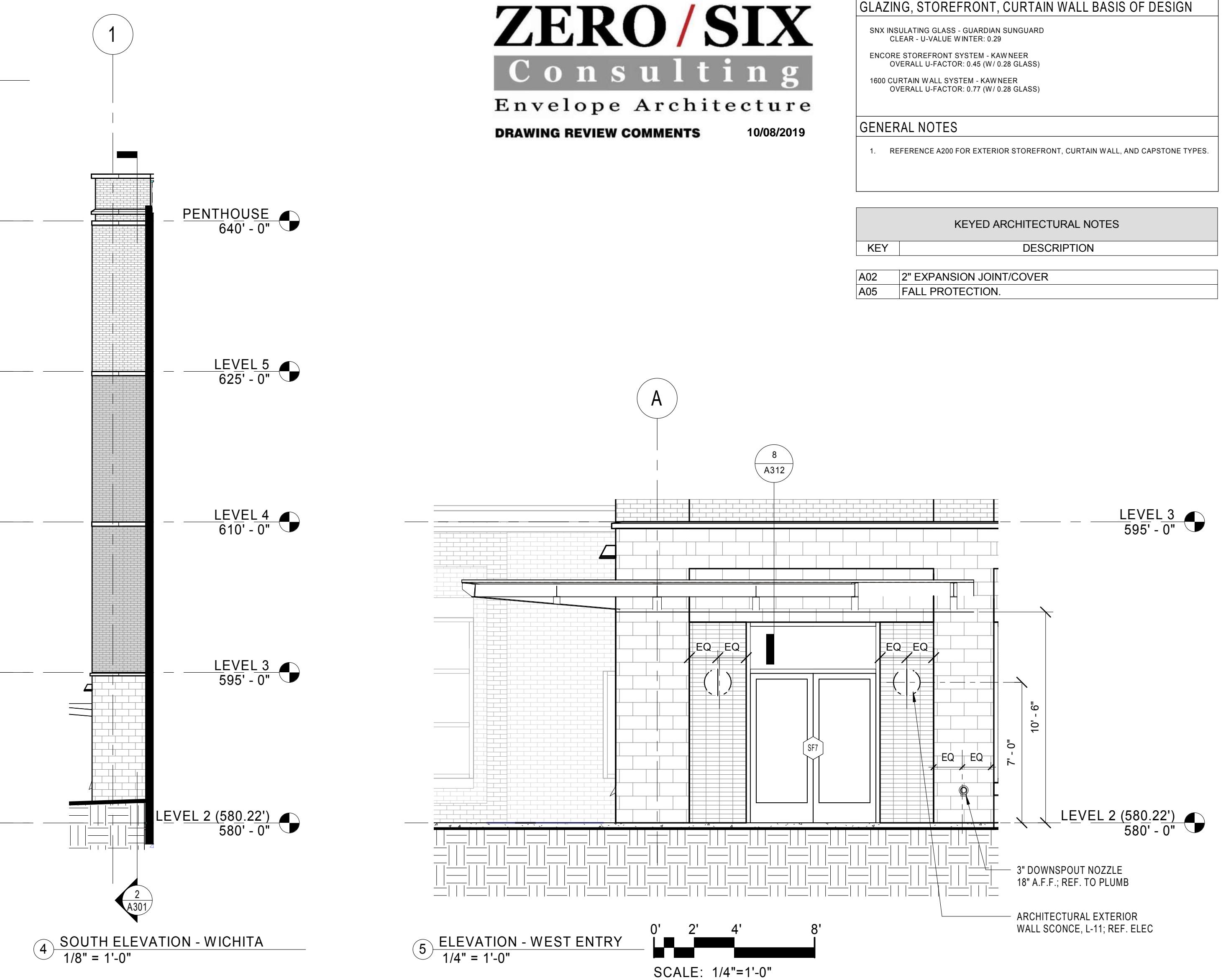
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| EXTERIOR MATERIALS | |
|--------------------|------------------------|
| METAL PANEL | BRICK MASONRY - 1 |
| VISION GLAZING - 1 | BRICK MASONRY - 2 |
| VISION GLAZING - 2 | BRICK MASONRY - GLAZED |
| SPANDREL GLAZING | CAST STONE |
| | CONCRETE MASONRY UNIT |
| | EXISTING BUILDING |

| GLAZING, STOREFRONT, CURTAIN WALL BASIS OF DESIGN | |
|---|--|
| SNX ISOLATING GLASS - GUARDIAN BENGUARD | |
| CLEAR - U-VALUE: 0.29 | |
| ENCORE STOREFRONT SYSTEM - KAWNEER | |
| OVERALL U-FACTOR: 0.45 (W/ 0.28 GLASS) | |
| 1800 CURTAIN WALL SYSTEM - KAWNEER | |
| OVERALL U-FACTOR: 0.77 (W/ 0.28 GLASS) | |

| GENERAL NOTES | |
|--|--|
| 1. REFERENCE A200 FOR EXTERIOR STOREFRONT, CURTAIN WALL, AND CAPSTONE TYPES. | |



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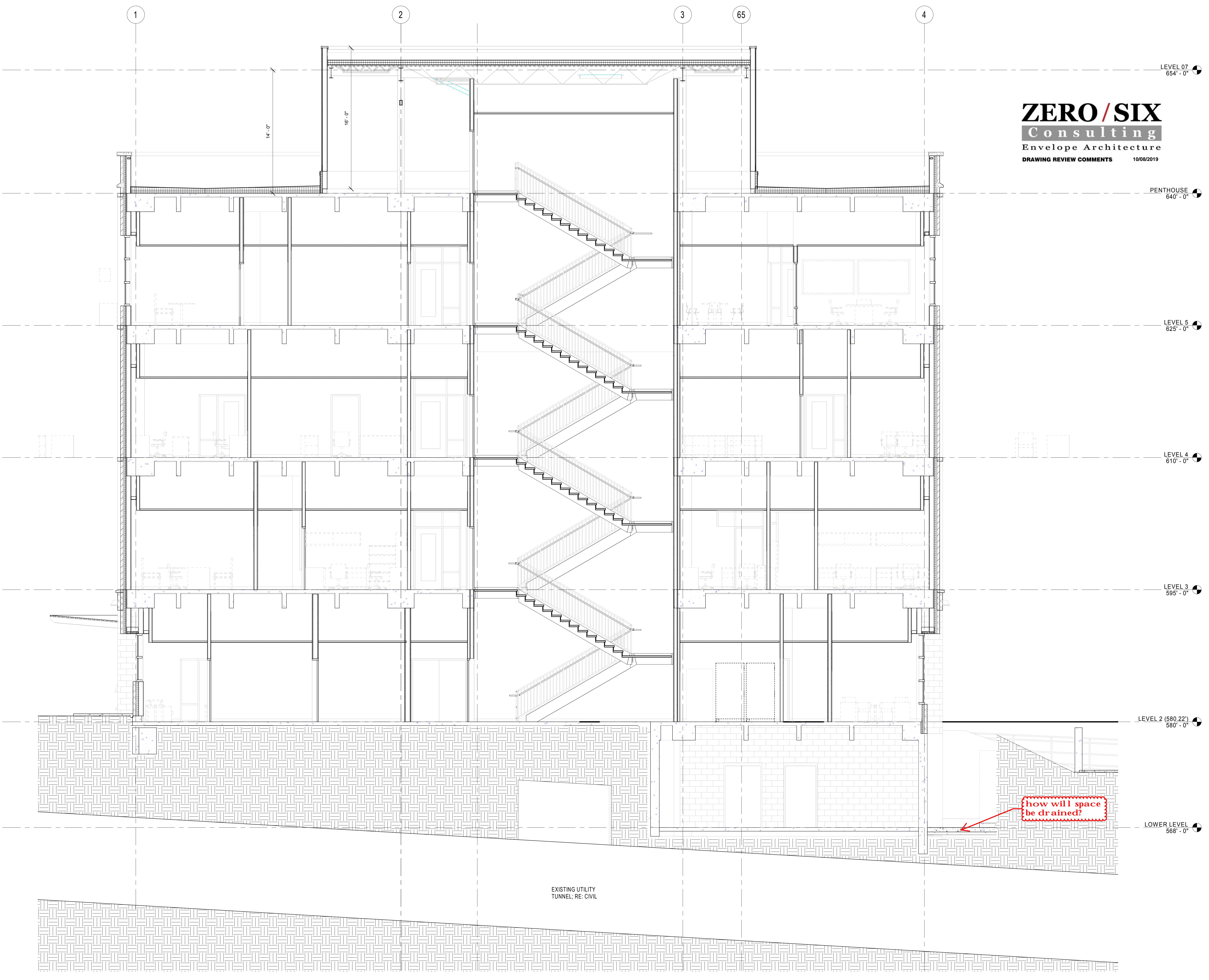
EXTERIOR ELEVATIONS

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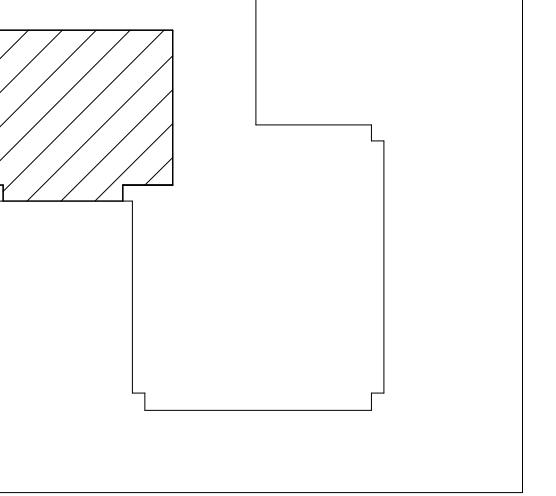
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SEAY BUILDING ADDITION

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PLAN NORTH

MARK DATE DESCRIPTION

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ARCHITECT/
REGISTRATION NO.:
STEVEN D. BRUPBACHER
18480

DESIGN FIRM/
REGISTRATION NO.:
BSA LIFESTRUCTURES
BR 1590

BUILDING SECTIONS

DATE SEP 27, 2019
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SEAY BUILDING ADDITION

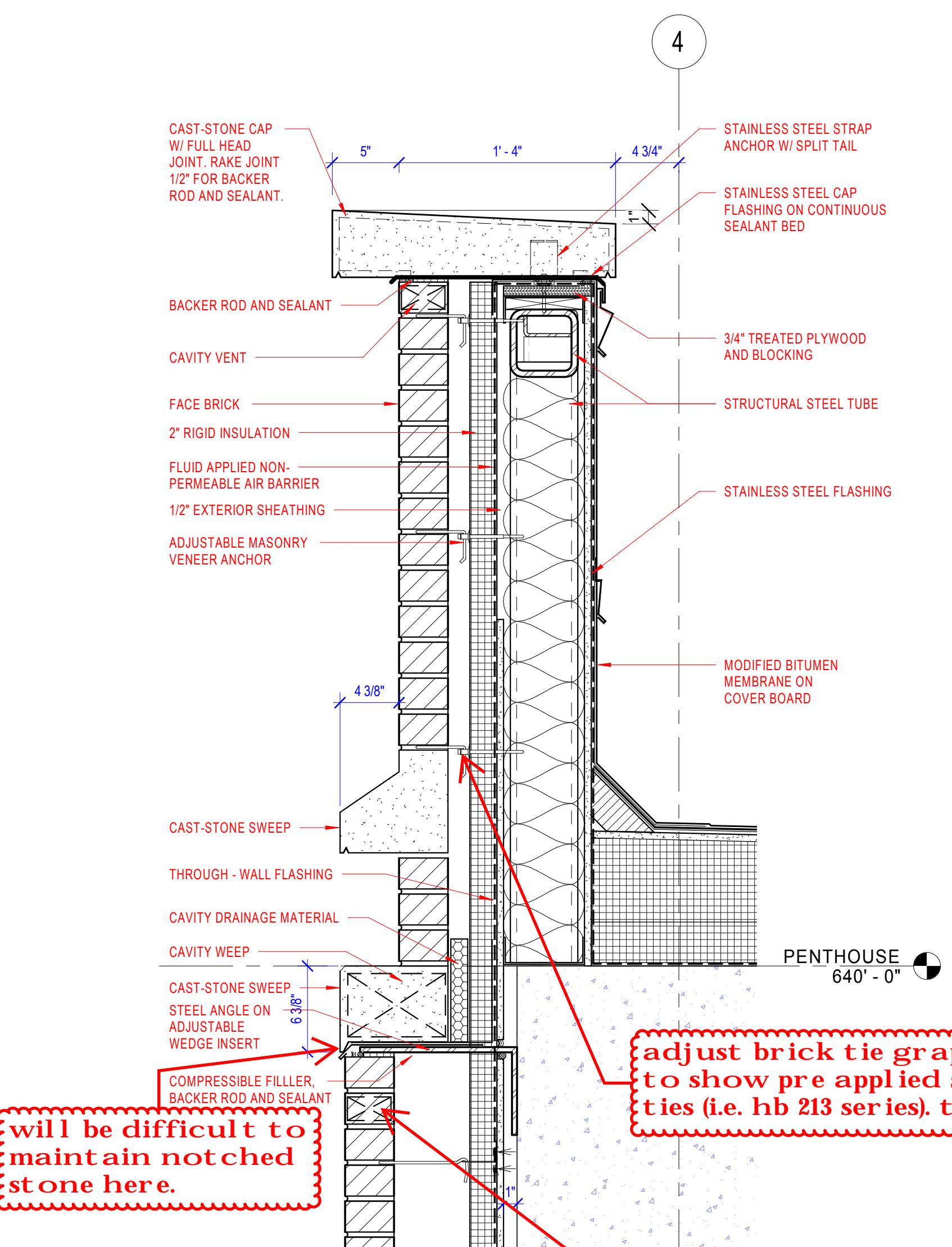
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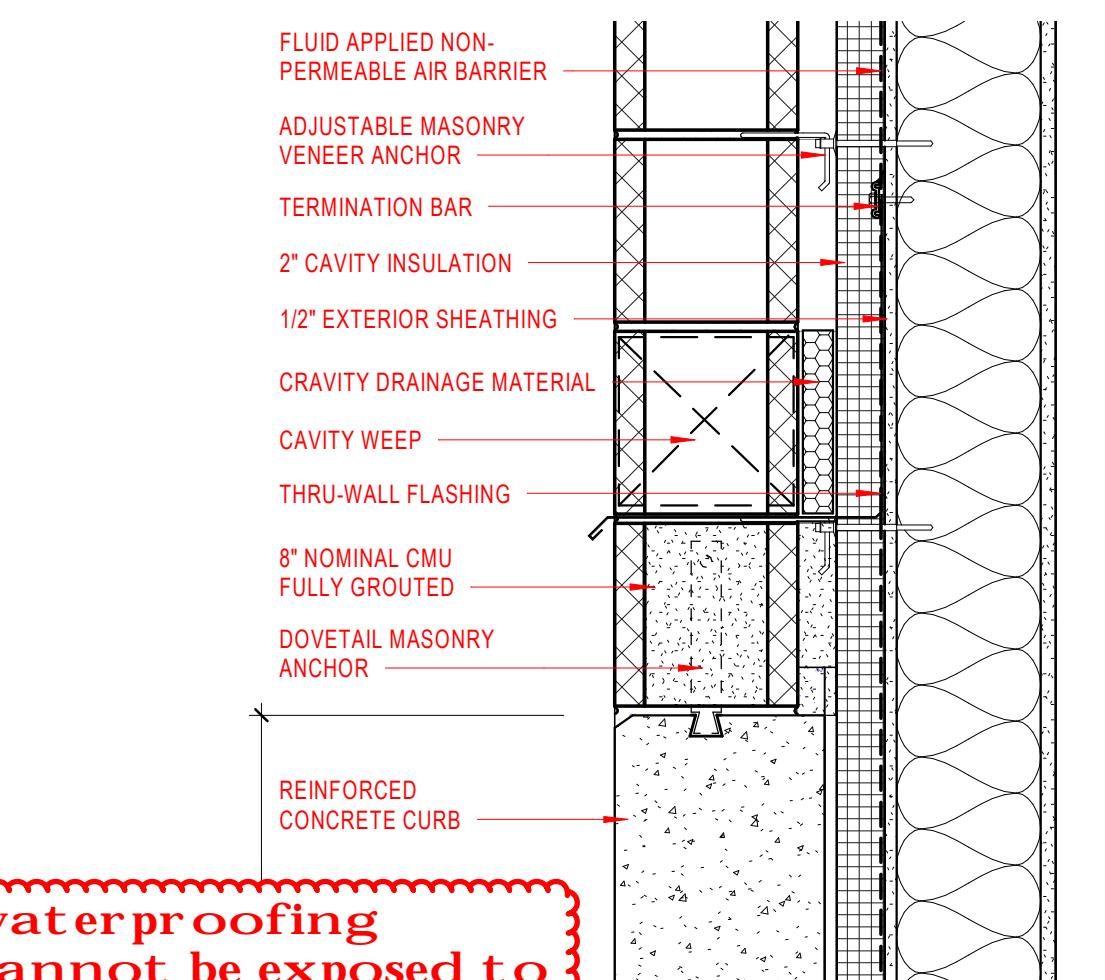
ZERO/SIX Consulting

Envelope Architecture

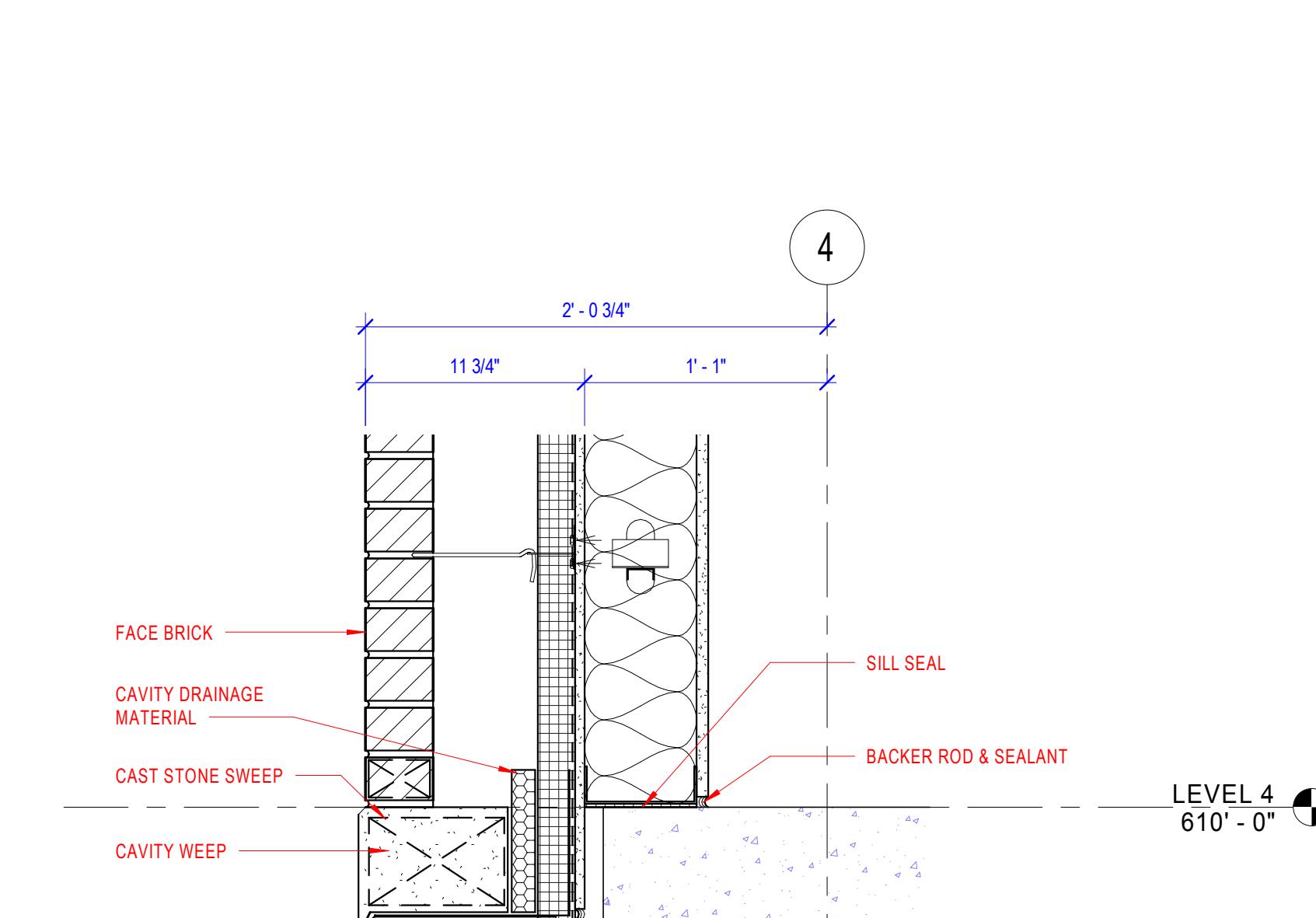
DRAWING REVIEW COMMENTS 10/08/2019



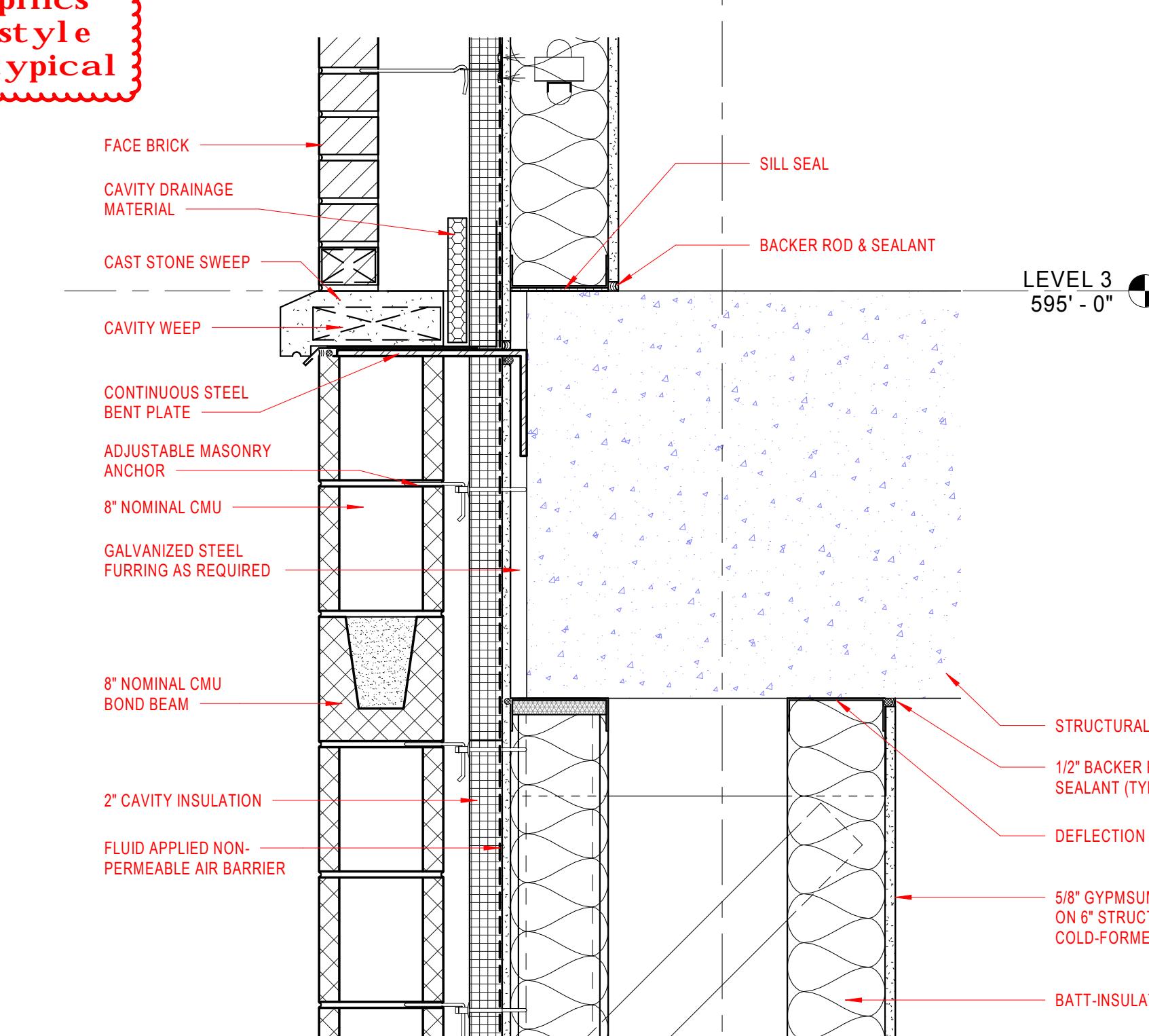
(14) SECTION DETAIL - FOUNDATION WALL AT PILASTER
1 1/2" = 1'-0"



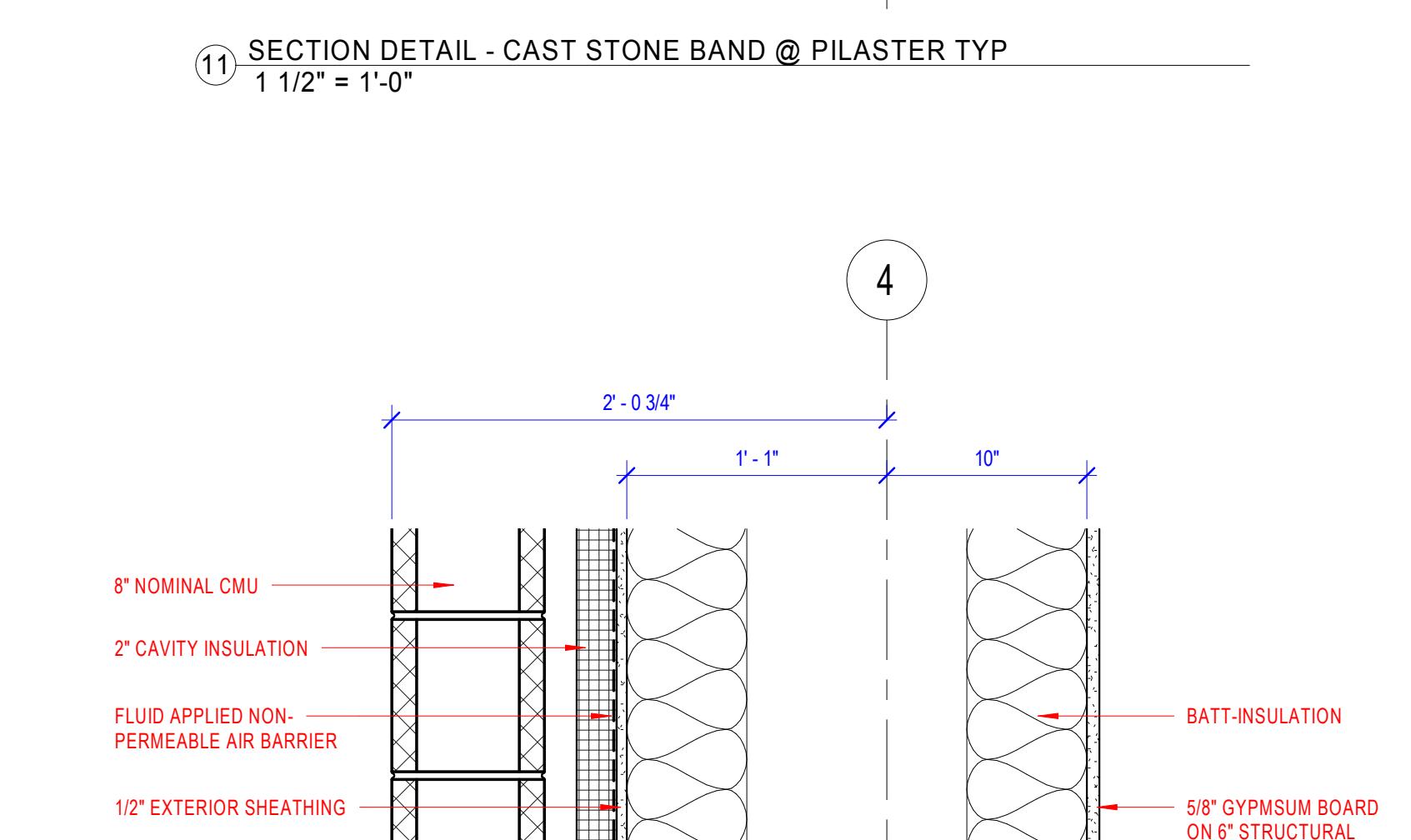
(10) SECTION DETAIL - FOUNDATION DETAIL AT PILASTER TYP.
1 1/2" = 1'-0"



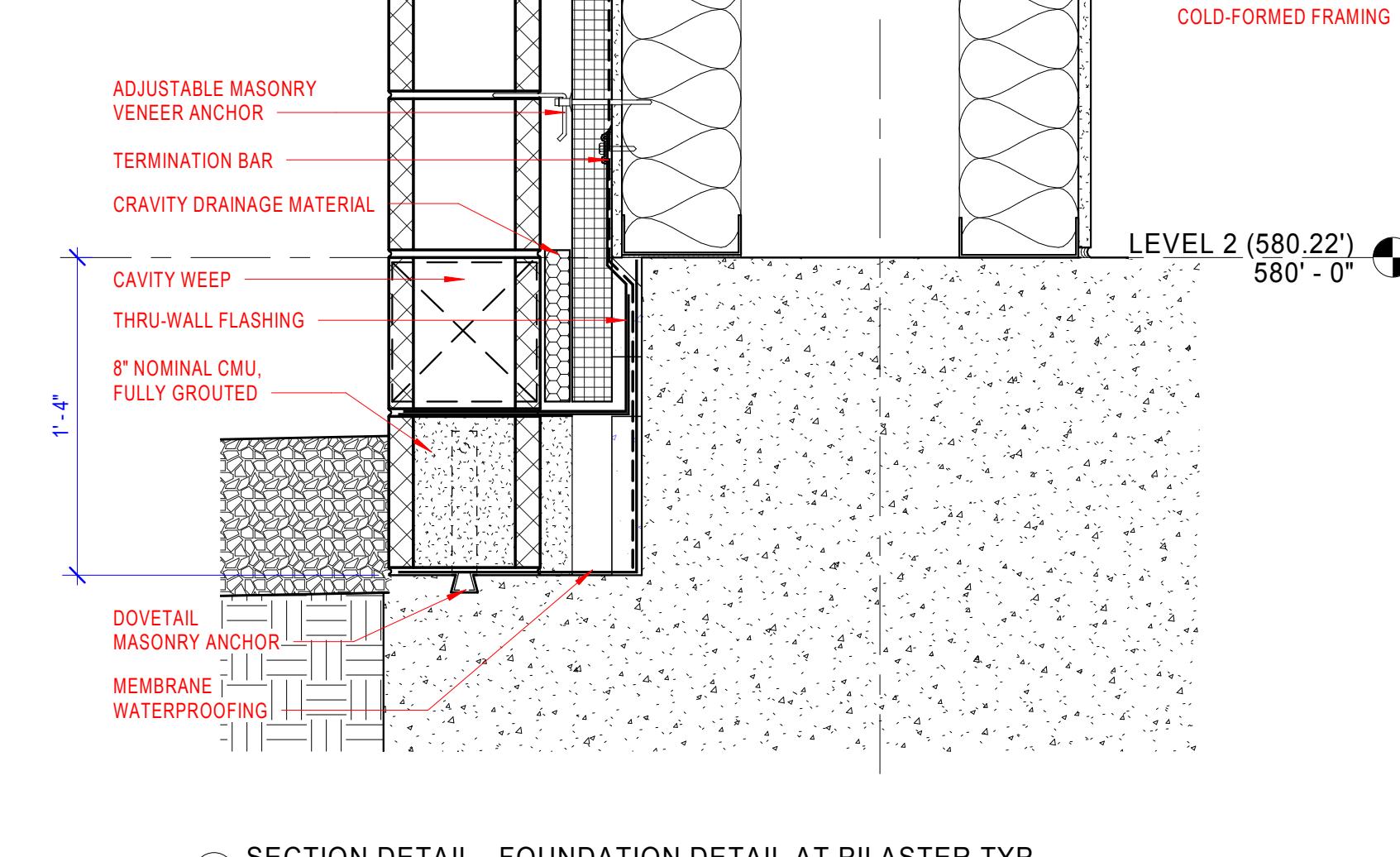
(12) SECTION DETAIL - CAST STONE BAND AT PILASTER - LEVEL 4 & 5
1 1/2" = 1'-0"



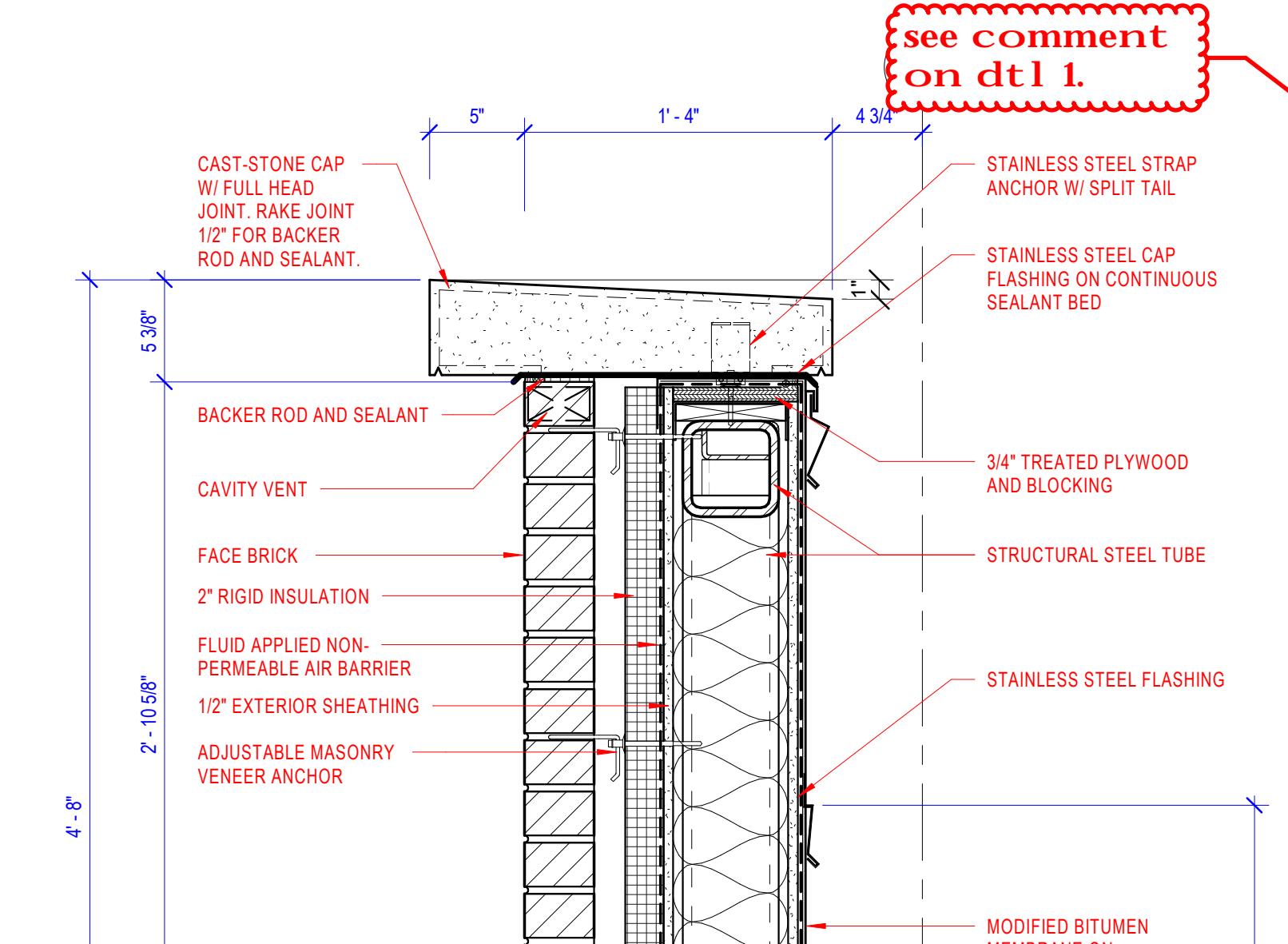
(16) SECTION DETAIL - PARAPET AT PILASTER
1 1/2" = 1'-0"



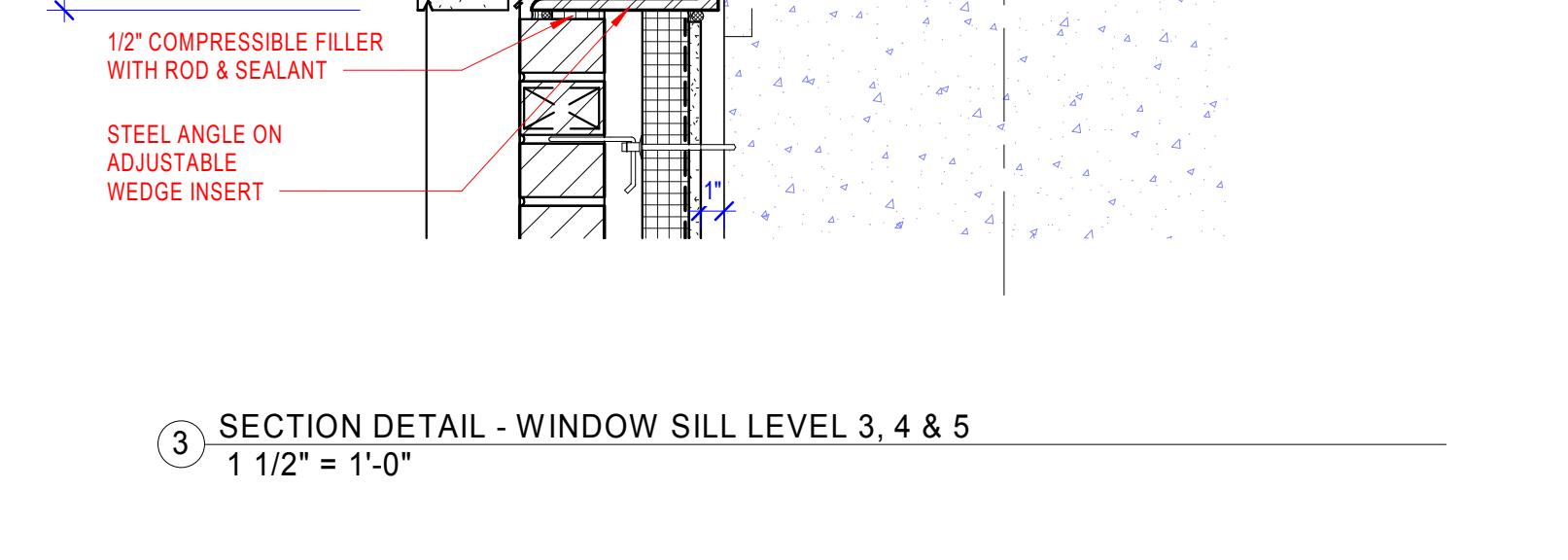
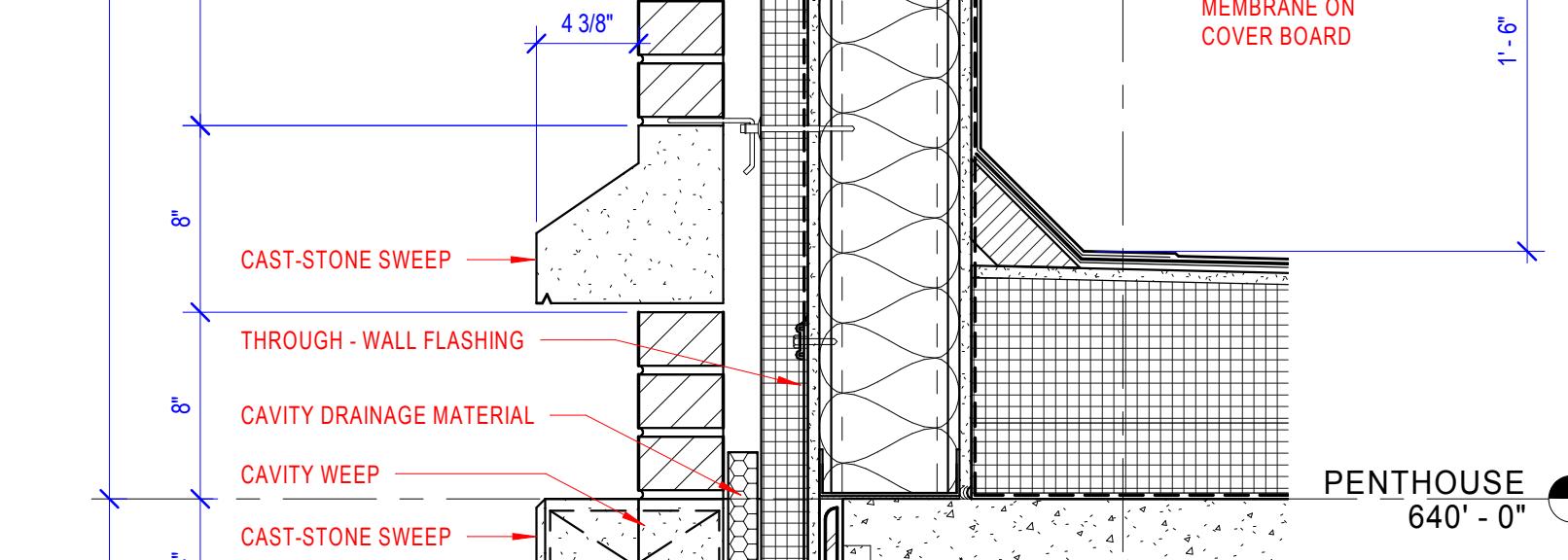
(11) SECTION DETAIL - CAST STONE BAND @ PILASTER TYP
1 1/2" = 1'-0"



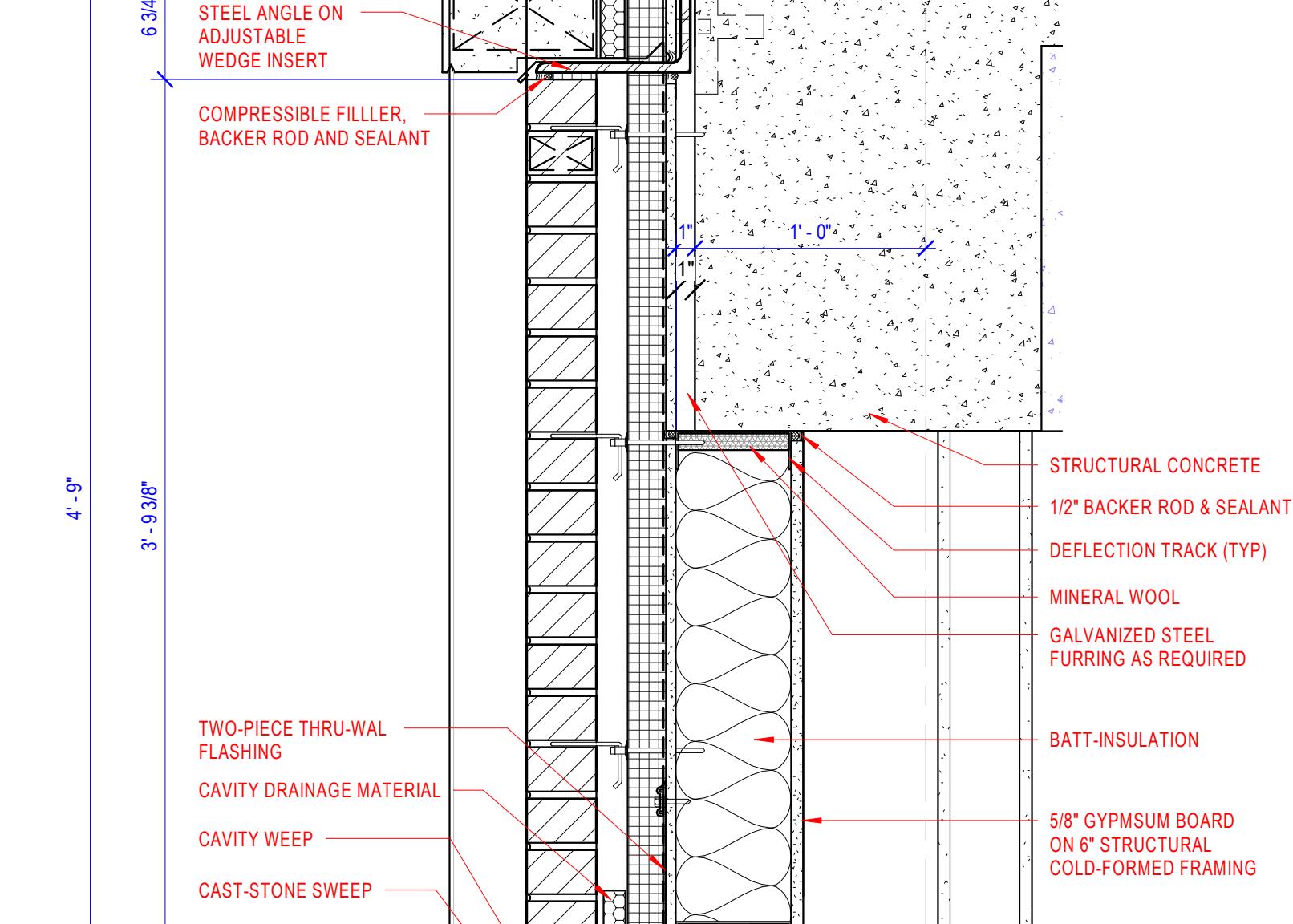
(10) SECTION DETAIL - FOUNDATION DETAIL AT PILASTER TYP.
1 1/2" = 1'-0"



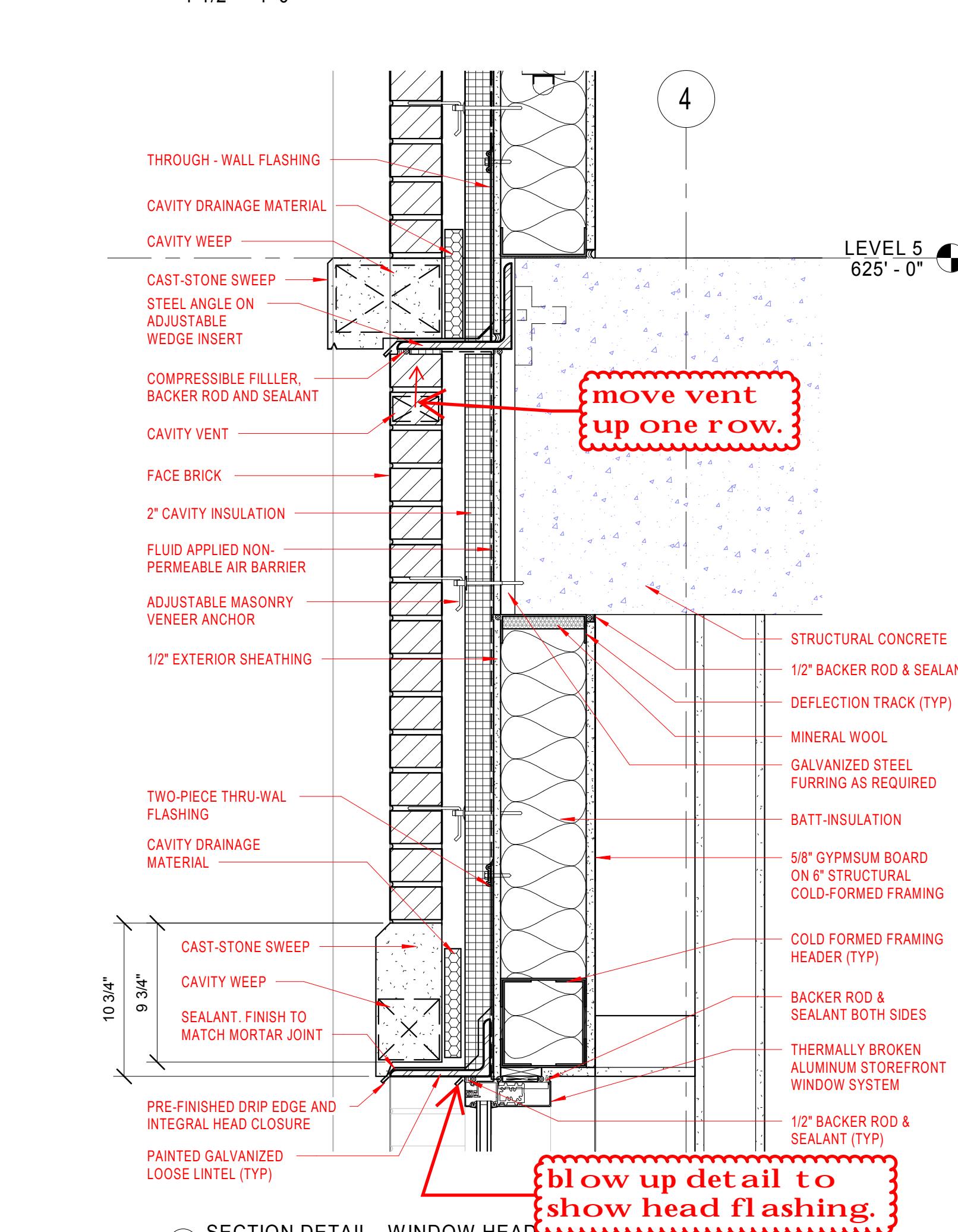
(5) SECTION DETAIL - WINDOW HEAD LEVEL 2
1 1/2" = 1'-0"



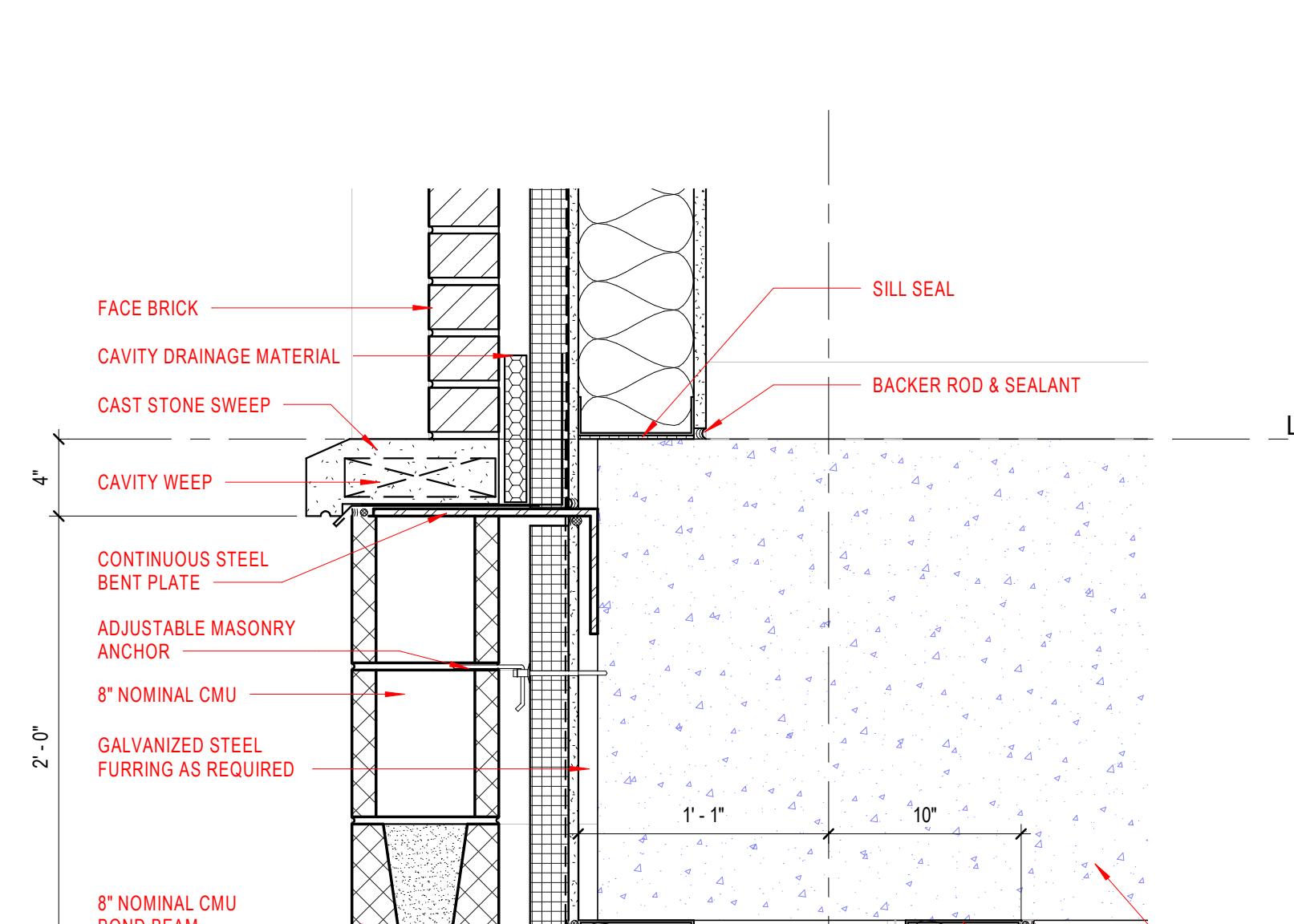
(3) SECTION DETAIL - WINDOW SILL LEVEL 3, 4 & 5
1 1/2" = 1'-0"



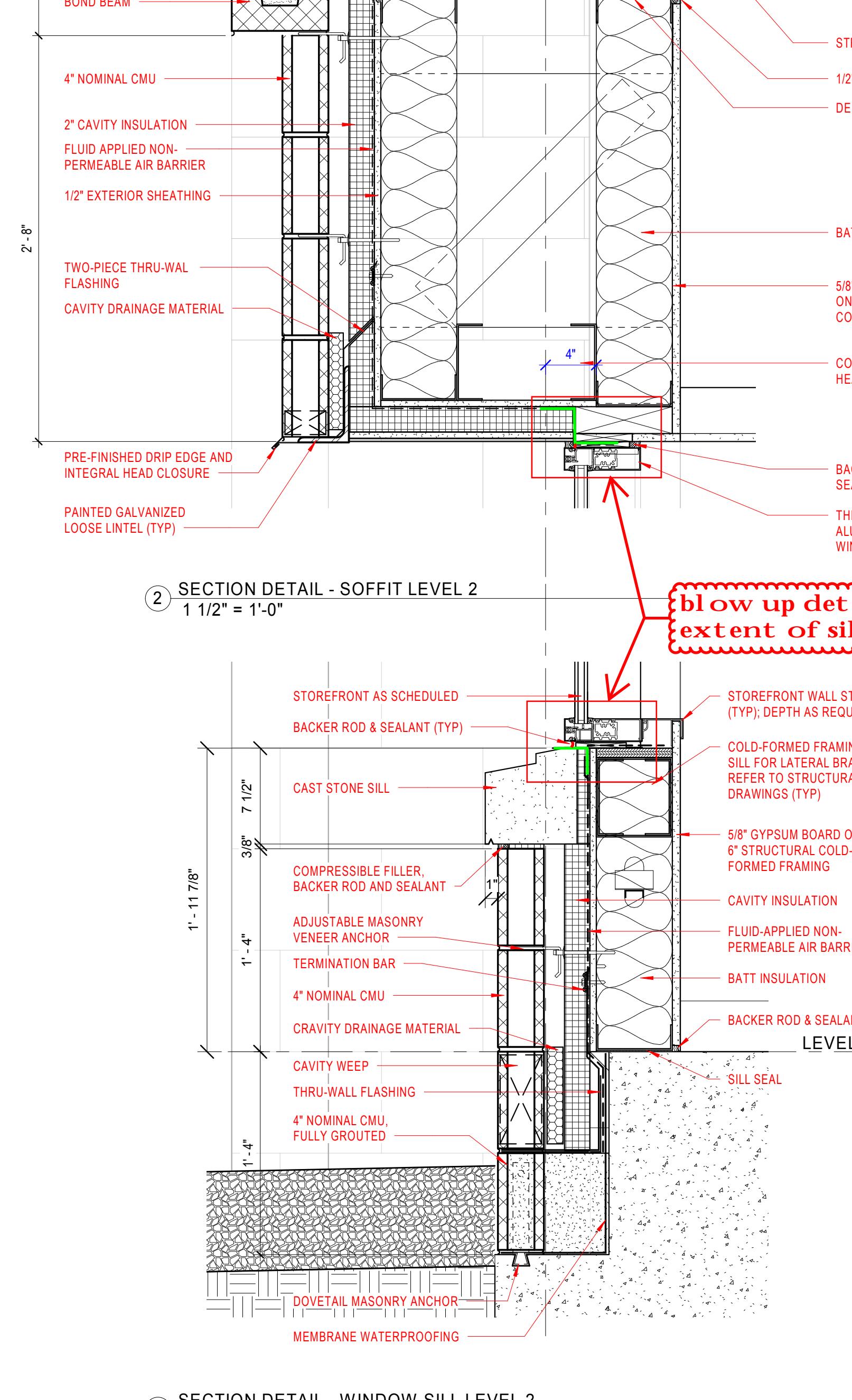
(6) SECTION DETAIL - WINDOW HEAD LEVEL 5 / PARAPET TYP
1 1/2" = 1'-0"



(1) SECTION DETAIL - WINDOW HEAD LEVEL 2
1 1/2" = 1'-0"



(2) SECTION DETAIL - SOFFIT LEVEL 2
1 1/2" = 1'-0"



(1) SECTION DETAIL - WINDOW SILL LEVEL 2
1 1/2" = 1'-0"

INTERIM REVIEW ONLY

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ARCHITECT / REGISTRATION NO.: STEVEN D. BRUPBACHER 18480

DESIGN FIRM / REGISTRATION NO.: BSA LIFESTRUCTURES BR 1590

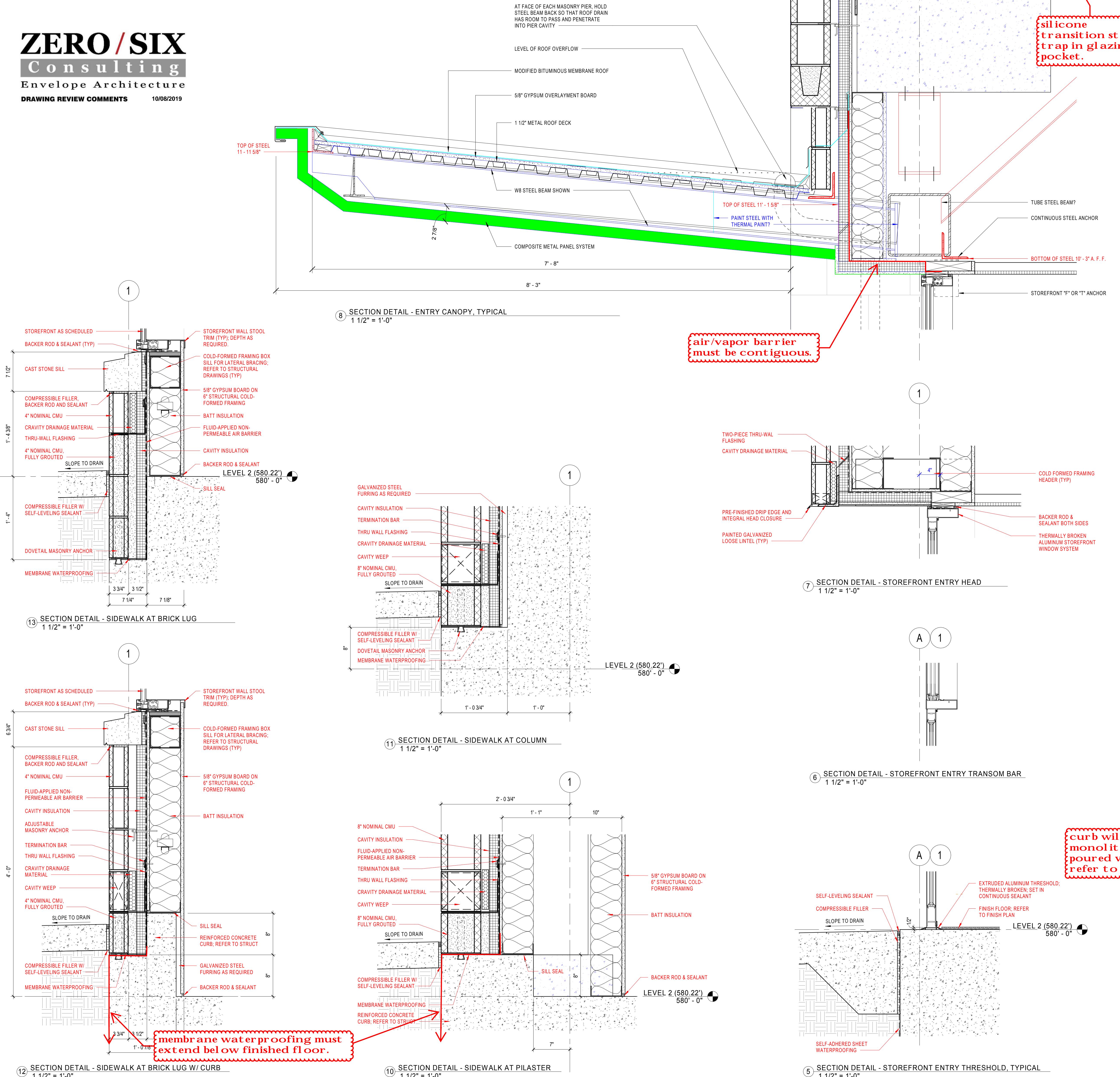
EXTERIOR SECTION DETAILS

DATE SEP 27, 2019
BSALS PROJECT NO. 15830011

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CLIENT PROJECT NO. - CPC 102-1219

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MARK DATE DESCRIPTION

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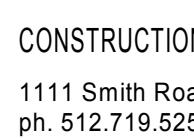
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ARCHITECT/
REGISTRATION NO.:
STEVEN D. BRUPBACHER
18480

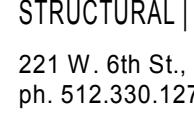
DESIGN FIRM/
REGISTRATION NO.:
BSA LIFESTRUCTURES
BR 1590

EXTERIOR SECTION DETAILS

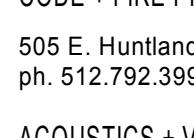
DATE SEP 27, 2019
BSALS PROJECT NO. 15830011

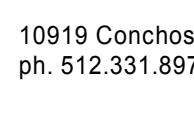
 SpawGlass
CONSTRUCTION MANAGER | SPAWGLASS
1111 Smith Road | Austin, TX 78721
ph. 512.719.5251

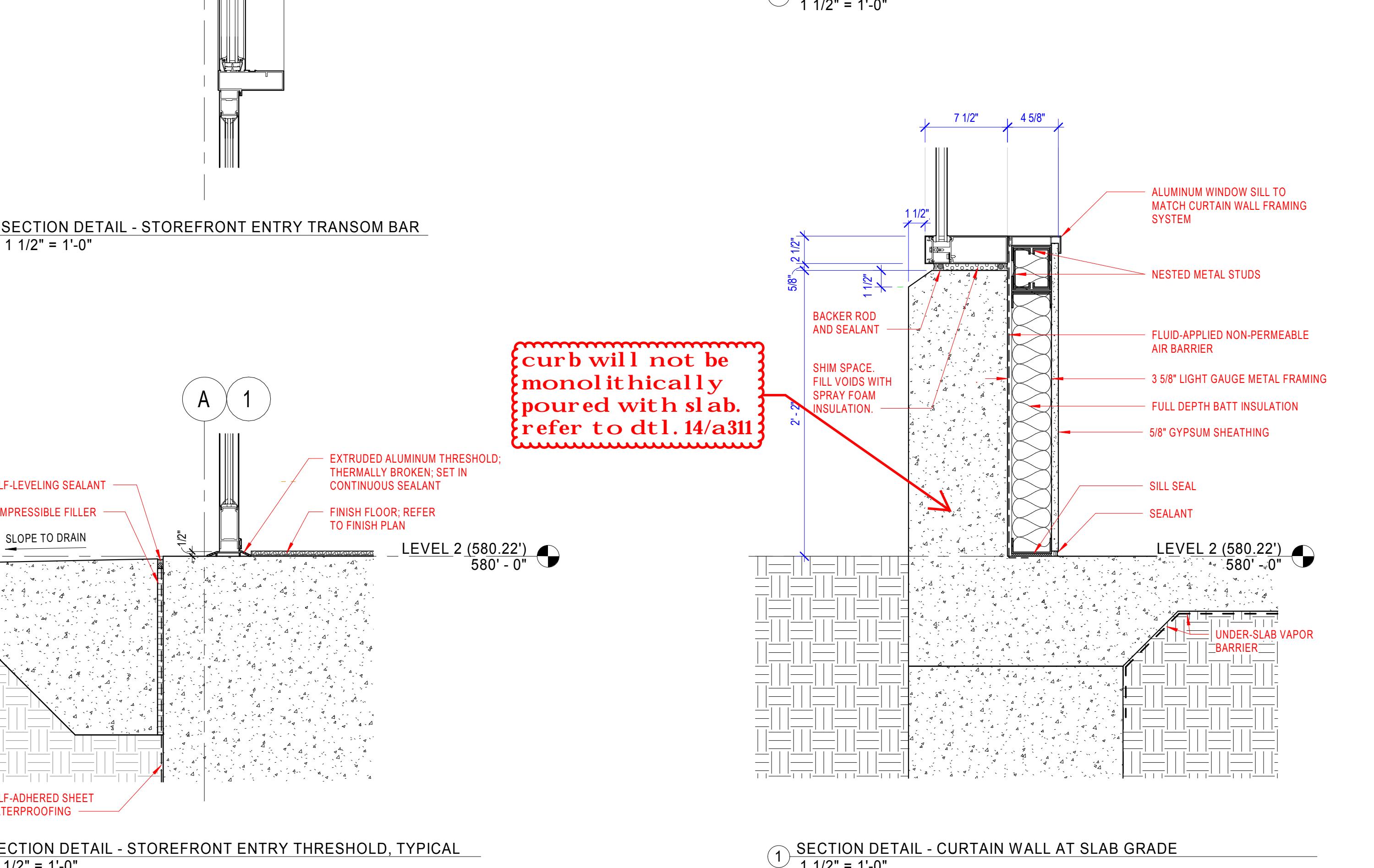
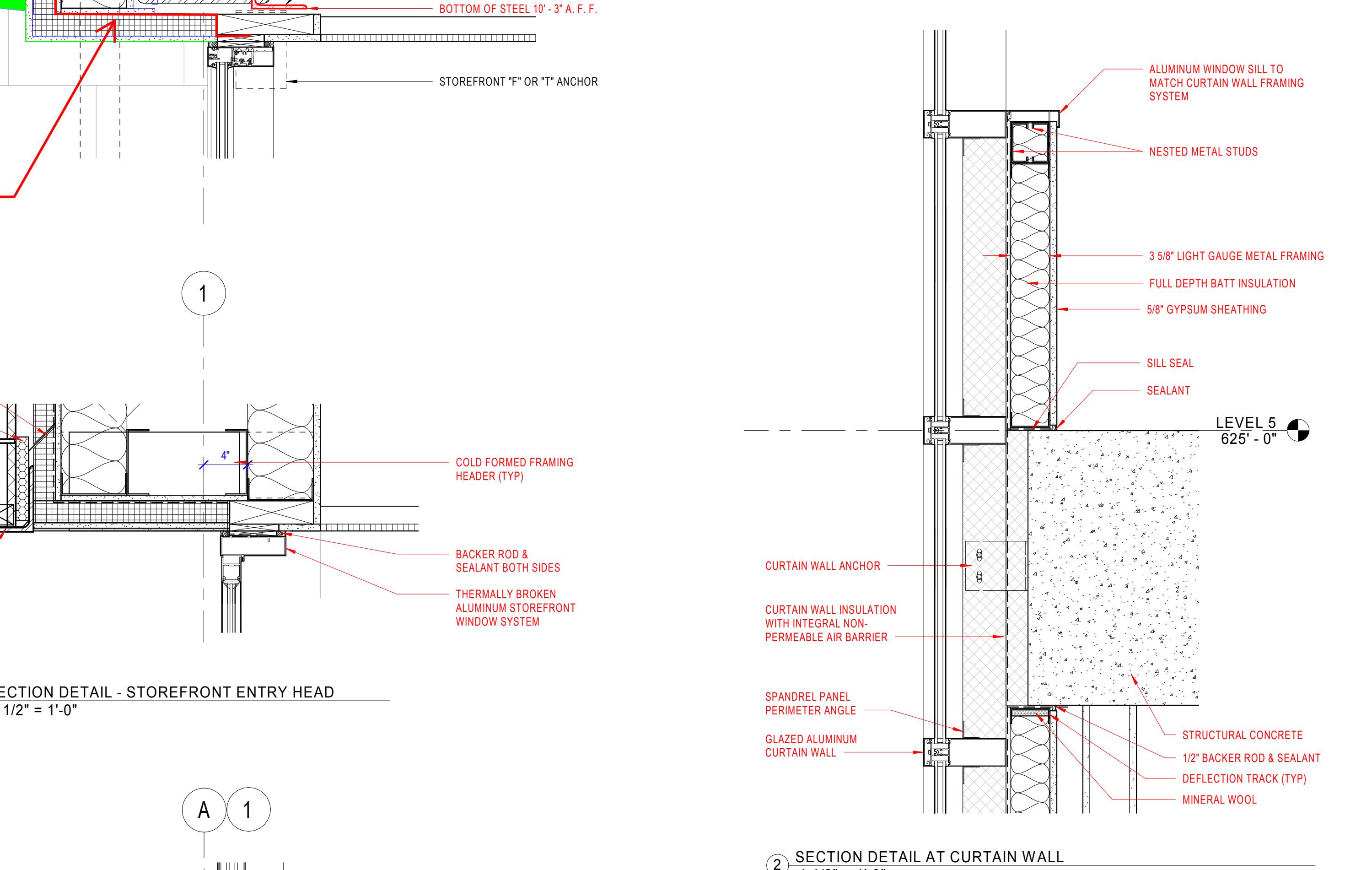
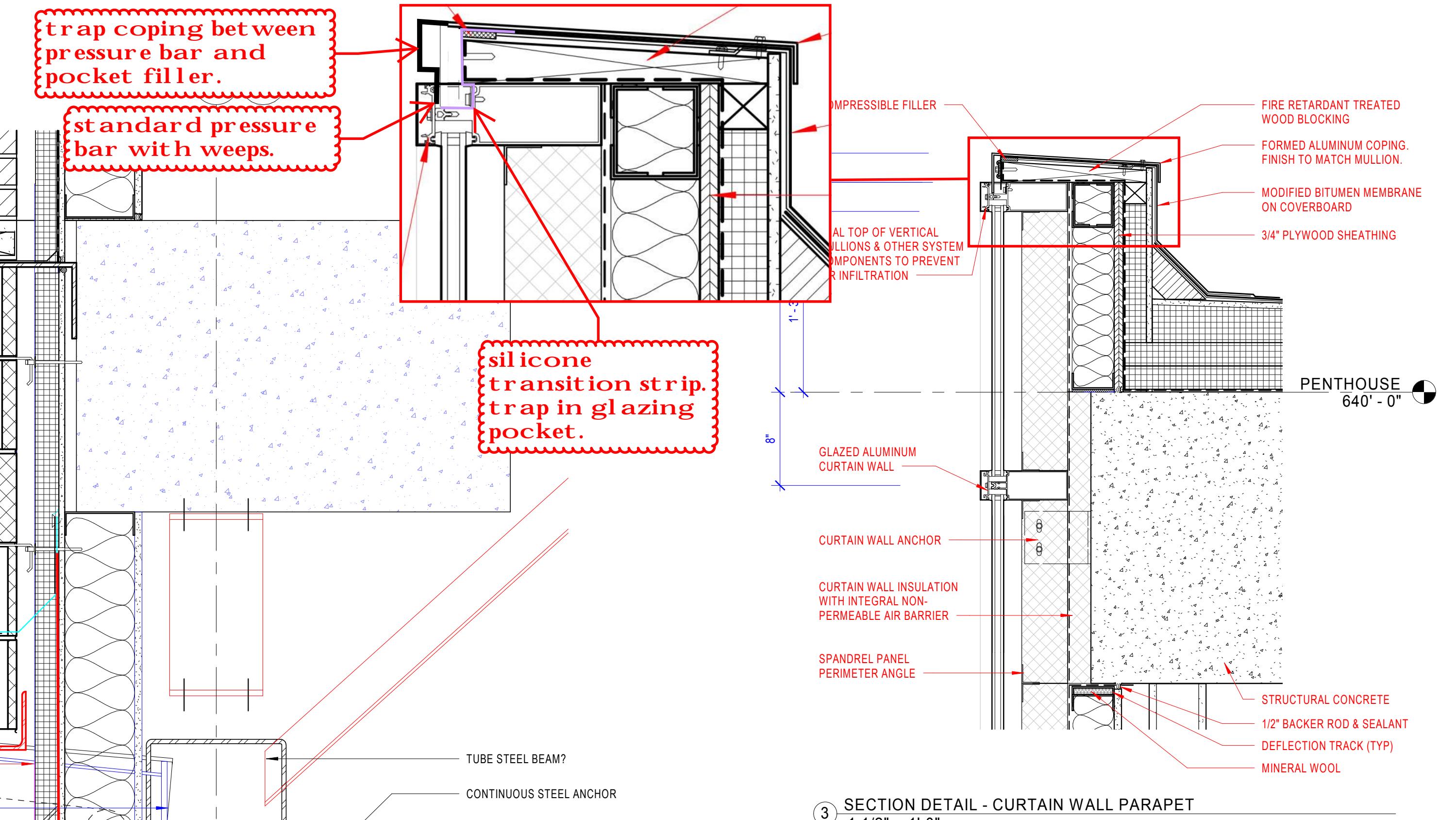
 CIVIL | GARZA
7708 Rialto Blvd., Suite 125 | Austin, TX 78735
ph. 512.298.3284

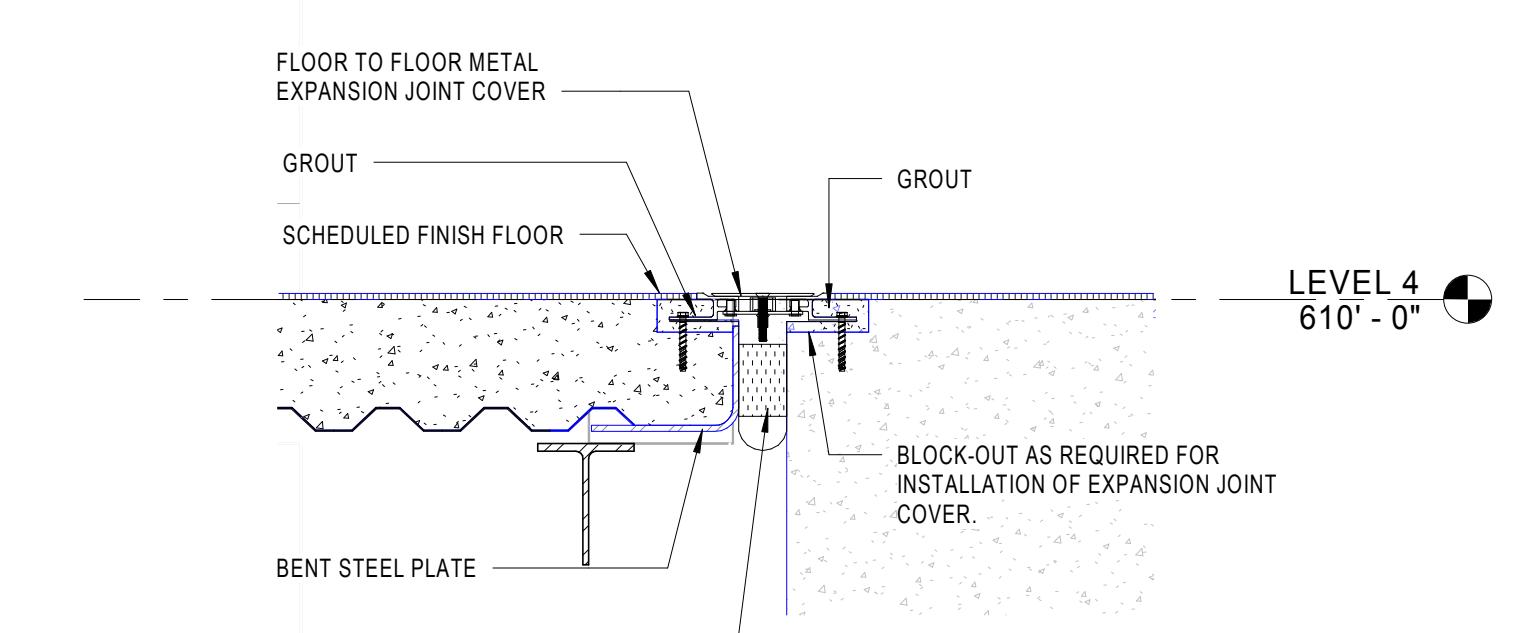
 STRUCTURAL | MARTINEZ MOORE
221 W. 6th St., Suite 800 | Austin, TX 78701
ph. 512.330.1278

 LANDSCAPE ARCH. | COLEMAN & ASSOCIATES
9990 Silver Mountain Dr. | Austin, TX 78737
ph. 512.476.2099

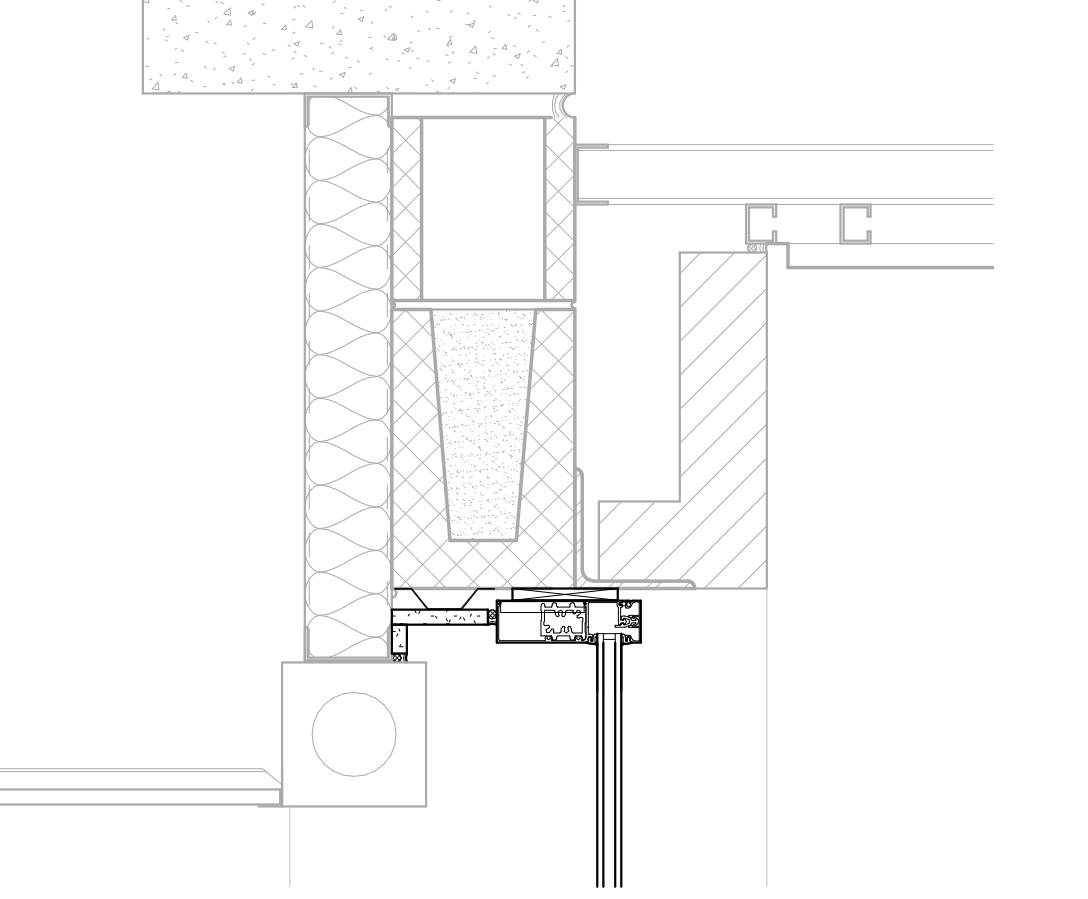
 CODE + FIRE PROTECTION | JENSEN + HUGHES
505 E. Huntland Dr., Suite 501 | Austin, TX 78752
ph. 512.792.3990

 ACOUSTICS + VIBRATION | DICKENSHEETS DESIGN
10919 Conchos Trl., Suite 100 | Austin, TX 78726
ph. 512.331.8577

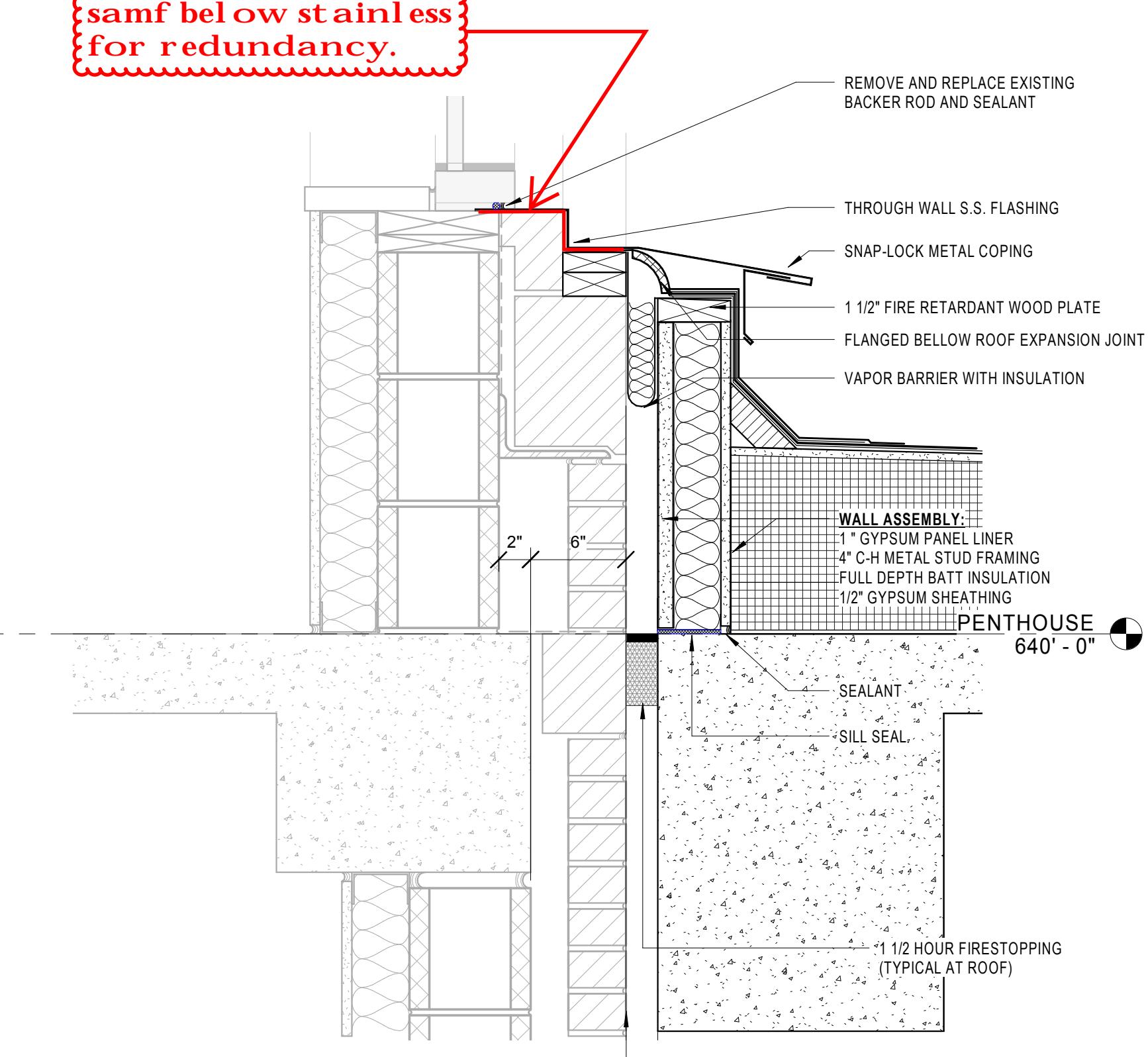




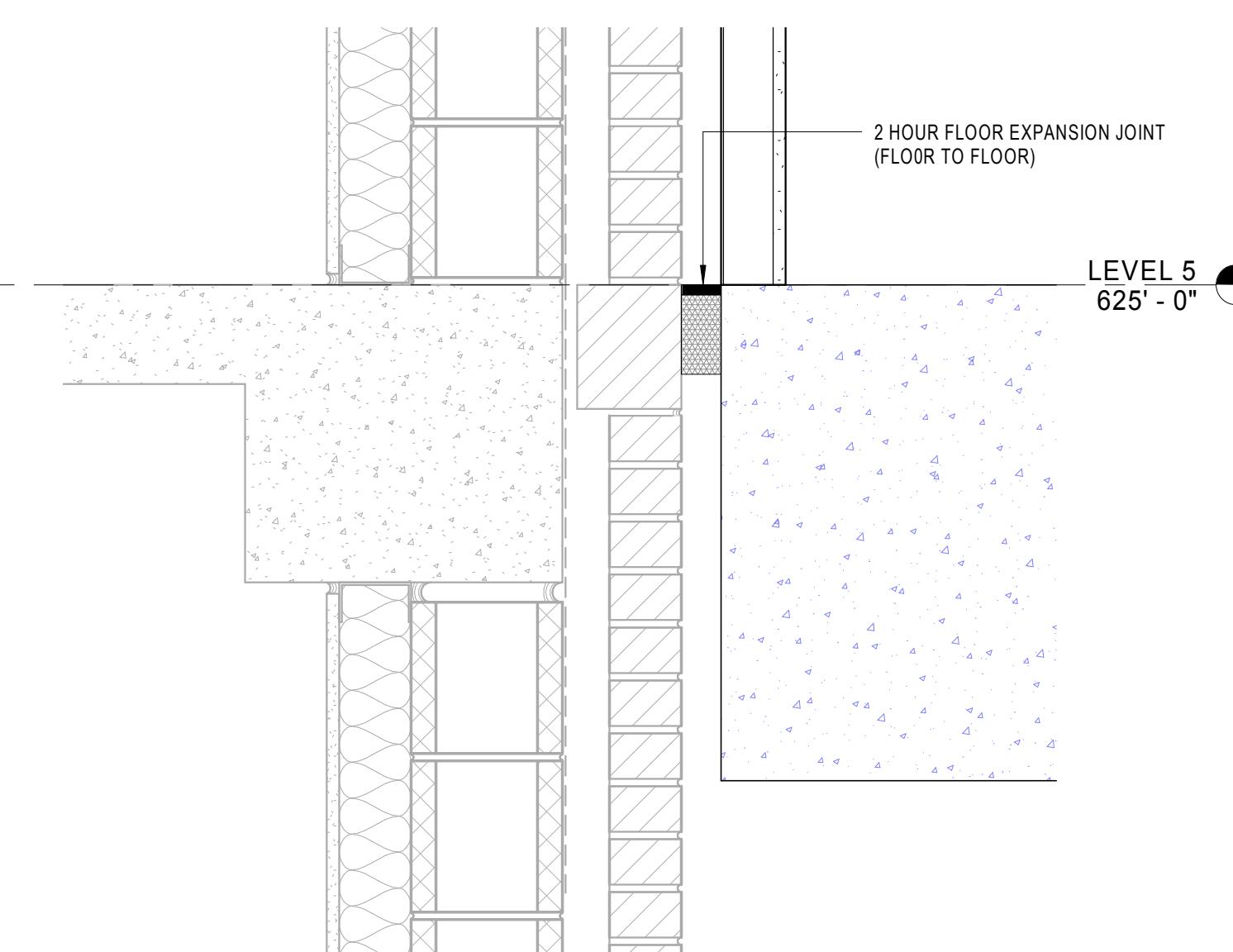
⑯ SECTION DETAIL AT EXISTING CURTAIN WALL - EXPANSION JOINT - LEVEL 4
1 1/2" = 1'-0"



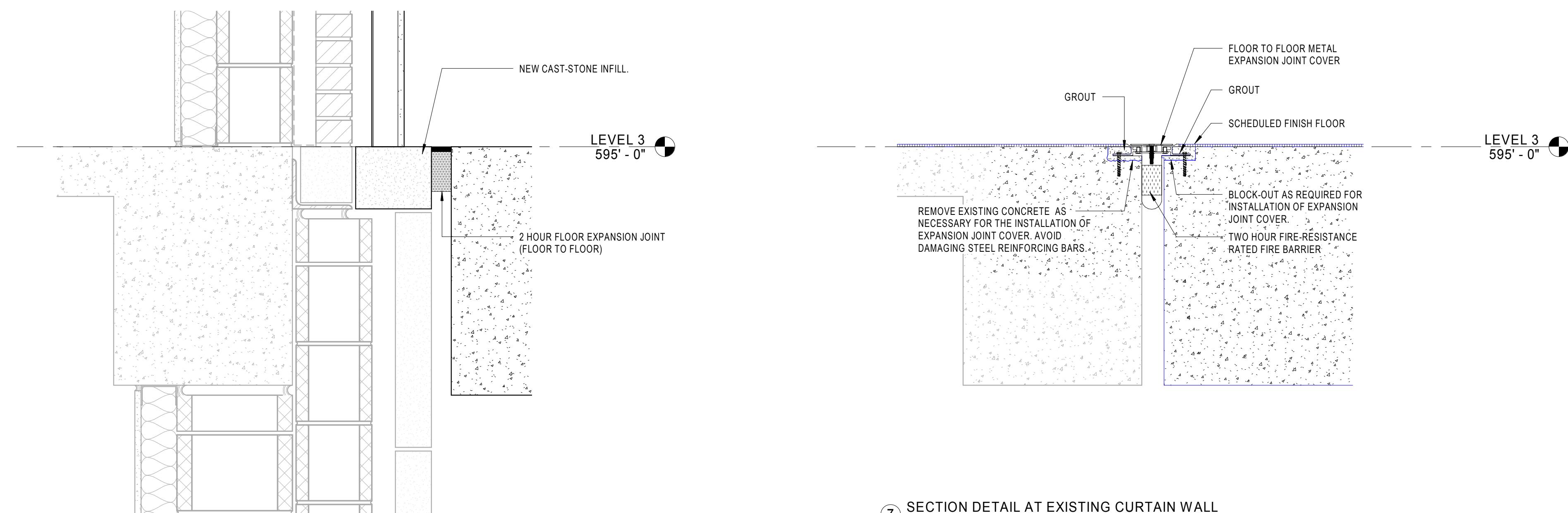
⑨ SECTION DETAIL - WINDOW HEAD / SOFFIT
1 1/2" = 1'-0"



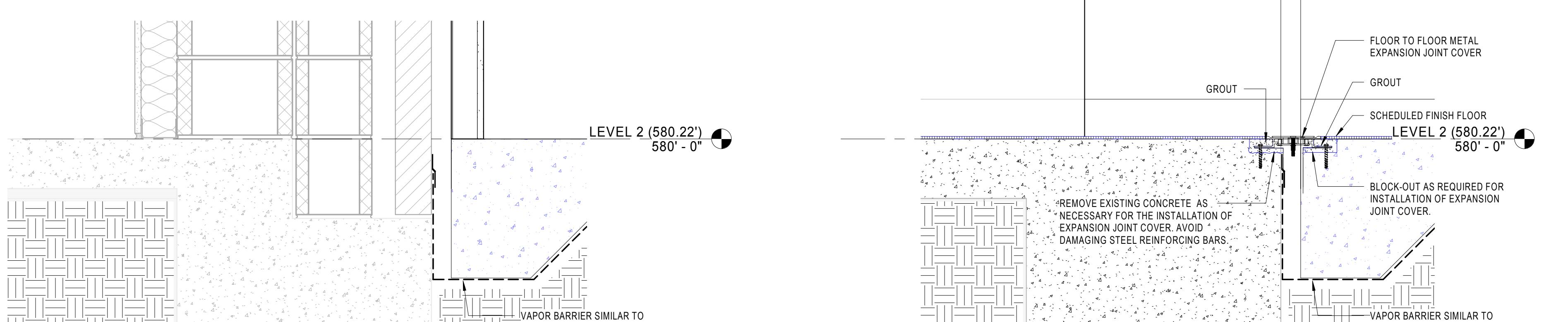
④ SECTION DETAIL - ENDWALL EXPANSION JOINT - ROOF TYP
1 1/2" = 1'-0"



③ SECTION DETAIL - ENDWALL EXPANSION JOINT - LEVEL 4 & 5 TYP
1 1/2" = 1'-0"



⑮ SECTION DETAIL - ENDWALL EXPANSION JOINT - LEVEL 3 - BUMPOUT
1 1/2" = 1'-0"



⑯ SECTION DETAIL - ENDWALL EXPANSION JOINT - LEVEL 2 BUMPOUT
1 1/2" = 1'-0"

⑯ SECTION DETAIL - ENDWALL EXPANSION JOINT SECTION DETAIL - LEVEL 2 FLOOR
1 1/2" = 1'-0"

① SECTION DETAIL - ENDWALL EXPANSION JOINT - LEVEL 2 TYP
1 1/2" = 1'-0"

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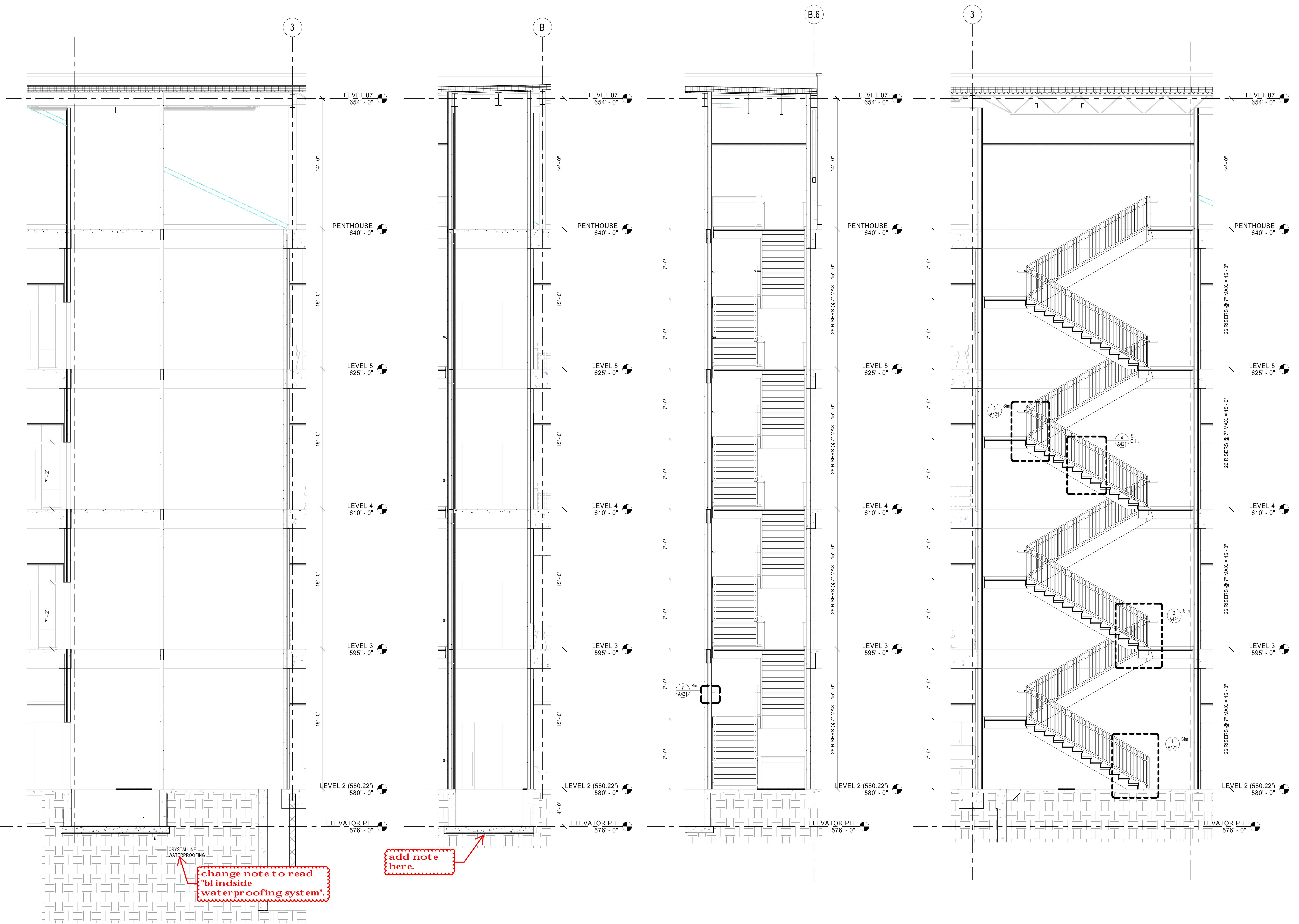
ARCHITECT
REGISTRATION NO.:
STEVEN D. BRUPBACHER
18480

DESIGN FIRM/
REGISTRATION NO.:
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BR 1590

EXTERIOR SECTION DETAILS

DATE SEP 27, 2019
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A313



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1111 Smith Road | Austin, TX 78721
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CIVIL | GARZA
garza 7708 Rialto Blvd., Suite 125 | Austin, TX 78735
ph. 512.298.3284

STRUCTURAL | MARTINEZ MOORE
221 W. 6th St., Suite 800 | Austin, TX 78701
ph. 512.330.1278

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9890 Silver Mountain Dr. | Austin, TX 78737
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| MARK | DATE | DESCRIPTION |
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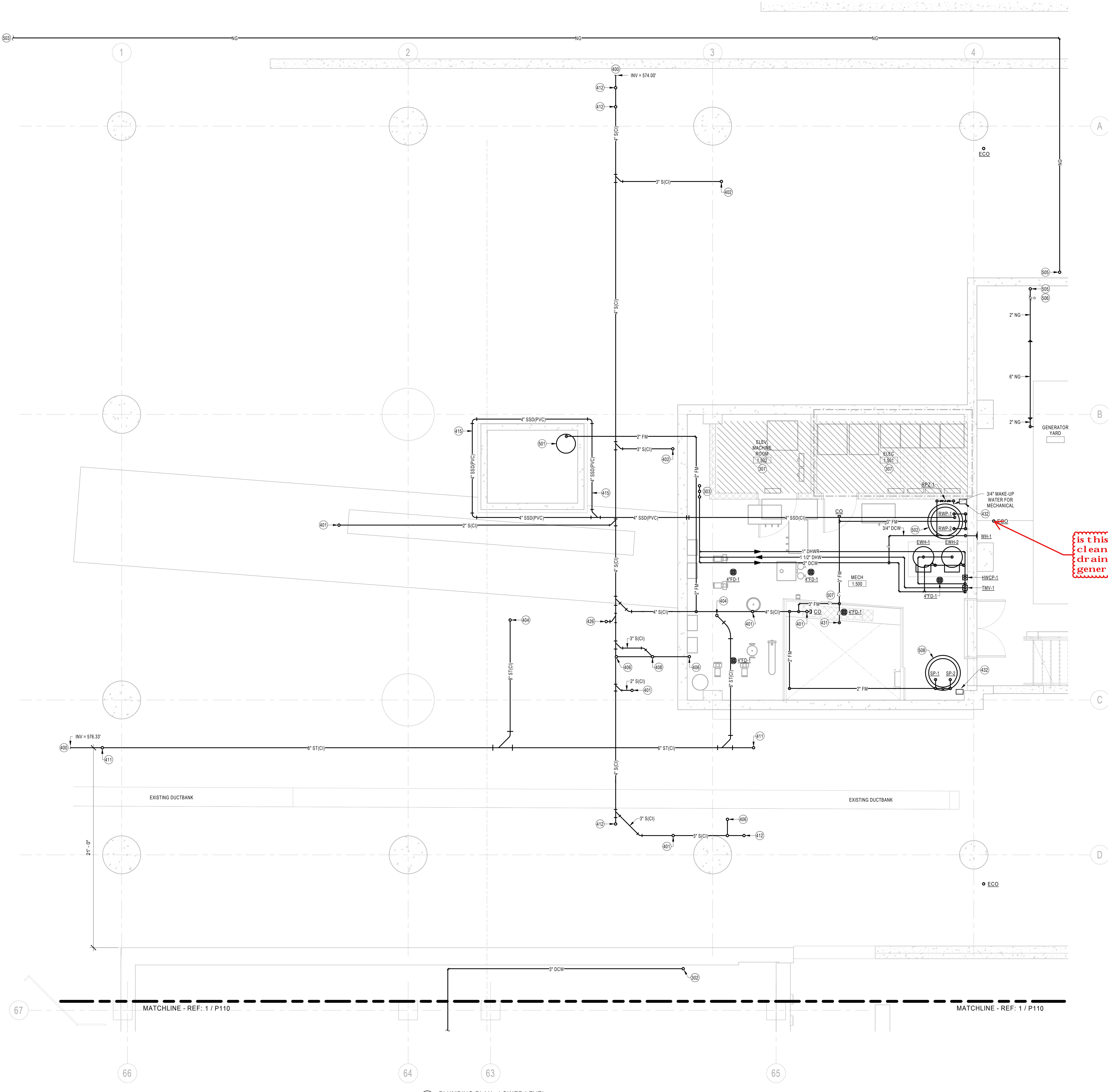
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ARCHITECT /
REGISTRATION NO.: STEVEN D. BRUPBACHER 18480DESIGN FIRM /
REGISTRATION NO.: BSA LIFESTRUCTURES BR 1590

ENLARGED SECTIONS - STAIR & ELEVATOR

DATE SEP 27, 2019
BSALS PROJECT NO. 15830011



| PLAN NOTES | |
|------------|---|
| 302 | 3" DOMESTIC WATER SUPPLY ROUTED THROUGH CRAWLSPACE OF EXISTING BUILDING AND UP INTO EXISTING FIRE RISER ROOM ABOVE. |
| 303 | DOMESTIC WATER RISERS UP IN UTILITY SHAFT ABOVE. |
| 307 | NO PIPING TO BE ROUTED OVER ELECTRICAL ROOMS, ELEVATOR MACHINE ROOMS, OR IT ROOMS. |
| 400 | SEE CIVIL UTILITY PLANS FOR CONTINUATION. |
| 401 | 2" SAN FROM ABOVE. |
| 402 | 3" SAN FROM ABOVE. |
| 404 | 6" STORM DRAIN FROM DRAINAGE STACK ABOVE. |
| 406 | 2" SAN FROM FLOOR DRAIN ABOVE. |
| 408 | 3" SAN FROM WASTE STACK ABOVE. |
| 411 | STORM PIPING FROM CLEANOUT ABOVE. |
| 412 | SAN PIPING FROM CLEANOUT ABOVE. |
| 415 | SET SUBSURFACE DRAINAGE PIPING AT STRUCTURAL FOOTING WHERE SHOWN ON STRUCTURAL DRAWINGS. SLOPE SSD PIPING AT 1/16" PER FOOT TOWARD RECOVERY WATER SUMP. |
| 426 | 4" SAN FROM WASTE STACK ABOVE. |
| 431 | 3" PUMPED RECOVERY WATER DOWN TO UTILITY TUNNEL. SEE DETAIL 2 ON SHEET M400 FOR CONTINUATION. |
| 432 | MOUNT PUMP CONTROL/ALARM PANEL ON WALL. |
| 501 | ROUTE DISCHARGE FROM ELEVATOR SUMP PUMP WITH OIL SENSING CONTROLLER TO SANITARY SEWER IN MECH. 1.500. REFERENCE DETAIL 6/P800. |
| 502 | DUPLEX RECOVERY WATER SUMP PUMPS TO DISCHARGE TO CAMPUS RECOVERED WATER SYSTEM IN UTILITY TUNNEL. REFER TO DETAIL 3/P800. |
| 503 | REFERENCE CIVIL UTILITIES PLAN SHEET C500 FOR LOCATION OF EXISTING NATURAL GAS UTILITY MAIN BENEATH WICHITA STREET AND COORDINATE NEW MEDIUM PRESSURE SERVICE WITH TEXAS GAS CO. NATURAL GAS SERVICE TO BE ROUTED TO NEW METER AND PRESSURE REGULATOR ASSEMBLY WITH MINIMUM OF 24" COVER. |
| 505 | TO/FROM NATURAL GAS METER AND PRESSURE REGULATOR ASSEMBLY ABOVE. |
| 506 | DROP NATURAL GAS SUPPLY LINE ATTACHED TO RETAINING WALL, PROVIDE SECONDARY PRESSURE REDUCING STATION PER DETAIL 11 ON SHEET P800, AND ROUTE SUPPLY LINE TO CONNECTION POINT ON NATURAL GAS FIRED EMERGENCY GENERATOR. |
| 507 | PROVIDE BYPASS VALVE TO AUTOMATICALLY DIVERT DISCHARGE TO THE BUILDING SANITARY DRAINAGE SYSTEM WHEN THE B.A.S. DETECTS EXCESSIVE PRESSURE IN THE CAMPUS RECOVERED WATER MAIN. REFER TO DETAIL 7/P801 |
| 508 | DUPLEX SUMP PUMPS TO DISCHARGE TO SANITARY DRAINAGE SYSTEM. REFER TO DETAIL 4/P800. |

BSA

BSA LifeStructures
2700 Via Fortuna, Suite 400
Austin, TX 78746
12.531.9075 fx 866.990.3272
www.bsalifestructures.com

Architectural Registration Number - BR-1590
Engineering Registration Number - F-7421



CONSTRUCTION MANAGER | SPAWGLAS

ZERO / SIX

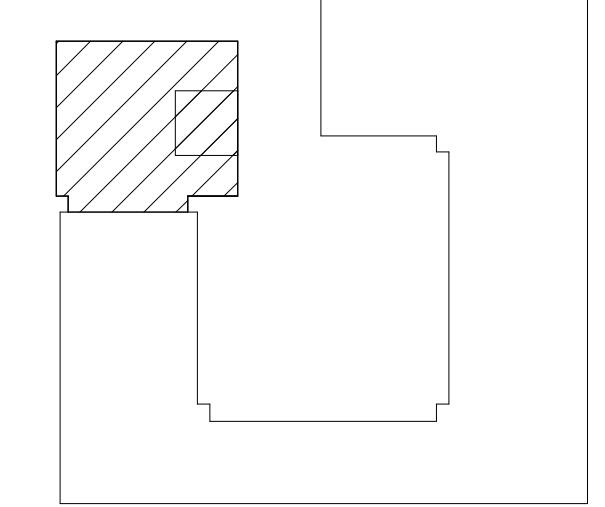
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KEYPLAN
PLAN NORTH

| MARK | DATE | DESCRIPTION |
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ENGINEER/
REGISTRATION NO.:
PRISCILLA A. SAGER
(2004)

123817
DESIGN FIRM/
REGISTRATION NO.:
BSA LIFESTRUCTURES
E 7421

PLUMBING PLAN - LOWER

I FVFI

| | |
|-------------------|--------------|
| DATE | SEP 27, 2011 |
| BSALS PROJECT NO. | 1583001 |

PROJECT MANUAL

THE UNIVERSITY OF TEXAS AT AUSTIN

SARAH M. & CHARLES E. SEAY BUILDING ADDITION

VOLUME

1 of 2

Austin, Texas

UT PROJ. NO. CPC 102-1219

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BSALS PROJ. NO. 15830011

September 27, 2019

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BSA



- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 GYPSUM SHEATHING INSTALLATION

- A. Comply with GA-253 and with manufacturer's written instructions.
 - 1. Fasten gypsum sheathing to cold-formed metal framing with screws.
 - 2. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
 - 3. Install panels with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
- C. Horizontal Installation: Install sheathing with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent panels without forcing. Abut ends over centers of studs, and stagger end joints of adjacent panels not less than one stud spacing. Attach at perimeter and within field of panel to each stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
- D. Vertical Installation: Install vertical edges centered over studs. Abut ends and edges with those of adjacent panels. Attach at perimeter and within field of panel to each stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
- E. Seal sheathing joints according to sheathing manufacturer's written instructions.
 - 1. Apply elastomeric sealant to joints and fasteners and trowel flat. Apply sufficient amount of sealant to completely cover joints and fasteners after troweling. Seal other penetrations and openings.
 - 2. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

3.3 FIELD QUALITY CONTROL

- A. Testing and Inspecting Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Inspections: Water-resistant glass-mat gypsum sheathing, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following:

treat sheathing joints according to air barrier manufacturer's requirements.

1. Adhesives and Sealants: Comply with VOC limits of authorities having jurisdiction.
- B. Prefabricated Pipe Flashings: Liquid resinous flashing membranes (PMMA flashing materials) or as recommended by roof membrane manufacturer.
- C. Roof Vents: As recommended by roof membrane manufacturer.
 1. Size: Not less than 4-inch diameter.
- D. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- E. Asphalt Roofing Cement: ASTM D 4586/D 4586M, asbestos free, of consistency required by roofing system manufacturer for application.
- F. Mastic Sealant: Polyisobutylene, plain or modified bitumen; nonhardening, nonmigrating, nonskinning, and nondrying.
- G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- H. Miscellaneous Accessories: Provide those recommended by roofing system manufacturer.

2.8 ROOF INSULATION

- A. General: Preformed roof insulation boards, manufactured or approved by roof membrane manufacturer.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. CertainTeed Corporation.
 - b. Firestone Building Products.
 - c. GAF.
 - d. Johns Manville; a Berkshire Hathaway company.
 2. Compressive Strength: 20 psi.
 3. Size: 48 by 96 inches.
 4. Thickness:
 - a. Base Layer: 1.5 inches
 - b. Upper Layer: 1.5 inches

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DRAWING REVIEW COMMENTS 10/08/2019

two layers of 2.25". Must meet r25 for code.

- D. Roughen prefinish paint finish on metal flanges built into roof membrane, and apply primer.
- E. Ensure proper fit and positioning of flashings. Make adjustments necessary to accommodate variances and imperfections in receiving surfaces.
- F. Install flashings free of warp or distortion, and without stress on fixed
- G. Stagger joints between components.

3.9 DOWNSPOUTS

- A. Fabricate downspout drops with minimum $\frac{3}{8}$ inch tabs and 4 inch long vertical section. Solder drops together as a single unit.
- B. Insert drops through properly sized opening in floor of gutter. Rivet and solder to floor of gutter. Locate drops away from gutter joints. Connect downspout to drop with rivets 2 inches on center.
- C. Fabricate downspouts to 5 inch by 4 inch, with double-lock concealed seam.
- D. Connect downspout sections together with 4 inch overlap and rivet sections together.
- E. Fasten downspout to wall with 1 inch, wide straps spaced 5 feet on center.
- F. Fasten straps to wall and to downspout. Locate straps to conceal downspout joints.
- G. Install splash pan diverters where downspouts empty onto asphalt shingle roofing.

3.10 PROTECTION

- A. Protect stored sheet metal and accessories prior to installation according to provisions of this Section. Do not install improperly stored materials into the Work.
- B. Remove and replace sheet metal that has been water-stained, damaged or is otherwise unserviceable.

3.11 SCHEDULE

*window perimeter flashings
should be included here. 20-24
gauge stainless.*

| ITEM | FINISH | GAUGE | FASTENER | PATTERN |
|---|-----------------|-------|------------------------------------|--------------------------------------|
| Modified Bituminous Roof Flashings | | | | |
| Counter Flashing | Prefinished | 22 | Screw | 12 inches on center |
| Pocket Receiver | Prefinished | 22 | Screw | 12 inches on center |
| Roof Drain Flashing | Sheet Lead | 4 lb. | Set in Plastic Cement | Full bed |
| Overflow Scupper Liner | Stainless Steel | 24 | Threaded Nail Hem to Collectorhead | 3 inches on center Continuous |
| Scupper Face Plate | Stainless Steel | 24 | Hem to Scupper | Continuous |
| Scupper Counter Flashing | Stainless Steel | 24 | Screws | 16 inches on center or one each stud |

4.2 SUBMITTALS

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 042000-002

Description: Unit Masonry - Mortar and Grout - Certifications

Project Name: UT SEAY - Building Addition

Project No.: 102-1219

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



NO EXCEPTIONS NOTED



SUBMIT SPECIFIED ITEM



ACTION NOT REQUIRED



EXCEPTIONS NOTED



REVISE AND RESUBMIT



NOT REVIEWED

BY:

daniel hodge



DATE: 05/08/2020

Submittal Comments:

- Submitted manufacturer is not specified. A/E to determine if this is an acceptable manufacturer without a substitution request. ZSC takes no exception to submitted product certification or manufacturer.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0159

PROJECT: UT Seay Building Addition

DATE: 05/06/2020

TO: BSA Lifestructures
AL

RE: Unit Masonry - Mortar & Grout - Certifications

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 05/20/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 042000-002 | 1 | | 05/06/2020 | Unit Masonry - Mortar & Grout - Certifications | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE
COMMENTS NOTED
REVISE AND RESUBMIT
OTHER:

DATE 5/6/2020 SPEC# 042000
REVIEWED BY tanner.hawkins
SUBMITTAL# 042000-002
APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins



ALAMO CEMENT COMPANY

SAN ANTONIO, TEXAS

GENERAL PLANT OFFICES AND PLANT: SAN ANTONIO, TEXAS

June 8, 2017

I-10 Building Materials
7193 Heuermann
San Antonio, TX 78256
Attn: Marisol

Gentlemen:

This is to certify that we will furnish Type I Portland cement meeting specifications as described in ASTM C150 and Type N and Type S Masonry cement meeting specifications as described in ASTM C91.

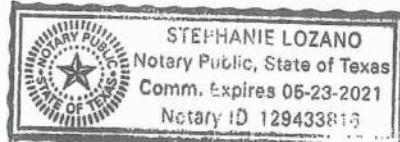
Yours truly,

ALAMO CEMENT COMPANY

Ricardo Rios
Quality Control Manager

Subscribed and sworn to before me:

Stephanie M Lozano, Notary Public, Bexar County, Texas
Term expires May 23, 2021



ADDRESS ALL CORRESPONDENCE TO THE COMPANY AT P.O. BOX 34807 SAN ANTONIO, TEXAS 78265

PHONE: AREA CODE 210-208-1880

WATS: 1-800-292-5510

FAX 210-208-1881



New Braunfels Plant

350 APG Lane,

New Braunfels TX 78132

(830)-221-1600

For a SDS visit
www.lhoist.us

To Ben Morales
Company : San Antonio Masonry and Tool Supply
E-mail: ben@samazonry.com
From : Aaron Jones
Date :
Cc Jim Williamson, Sales
Subject : Certificate of Compliance and LEED

Dear Mr. Morales,

Chemstar Type S Hydrated Lime, manufactured by Lhoist North America at New Braunfels, Texas conforms in every respect to the following specifications.

1. ASTM C206-03 (Type S) Standard Specification for Finishing Hydrated Lime.
2. ASTM C207-06 (Type S) Standard Specification for Hydrated Lime for Masonry Purposes.
3. IBC – 2012 by reference to ASTM C 270.
4. ASTM C926-06 Standard Specification for Application of Portland Cement-Based Plaster, by reference to C206 Type S and C207 Type S.
5. ASTM C842-05 Standard Specification for Application of Interior Gypsum Plaster, by reference to C206.

This compliance letter is applicable to the following project and is valid for six months.

Project Name:

Architect:

General Contractor:

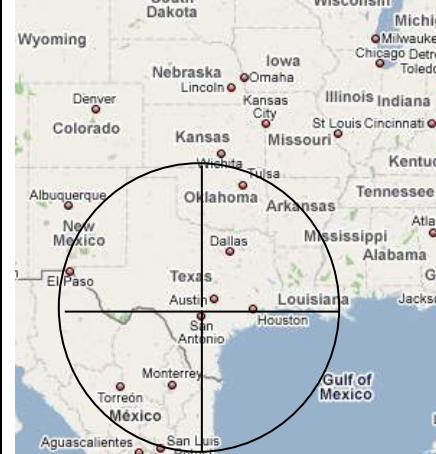
Mason Contractor:

The LEED – NC Version 2009 rating system divided into five categories, which recognize sustainable building practices. LEED certification is for the project, not the material; however, materials can contribute to the ability of the project to achieve the desired certification. The categories, which apply to the use **Chemstar Type S Hydrated Lime** for masonry, are:

| Sustainable Sites | | |
|--------------------------|---------------|--|
| <input type="checkbox"/> | SS Credit 3 | <u>Brownfield Redevelopment</u> . Chemstar Type S Hydrated Lime may be used for soil. |
| <input type="checkbox"/> | SS Credit 7.1 | <u>Heat Island Effect, Non-roof</u> Chemstar Type S Hydrated Lime may be used to lime-wash the exterior of the masonry resulting in a white, highly solar reflective material. |

| Materials and Resources | | |
|--------------------------|---------------|---|
| <input type="checkbox"/> | MR Credit 1.1 | <u>Building Reuse</u> : Maintain 75% of Existing Walls, Floors and Roof <u>Building Reuse</u> : Maintain 100% of Existing Walls, Floors and Roof <u>Building Reuse</u> : Maintain 50% of Interior Non-Structural Elements The historic building inventory is dominated by stone and brick masonry with lime-based mortar. These building are highly reusable and durable. In addition higher contents of lime mortars allow for easier deconstruction. |
| <input type="checkbox"/> | MR Credit 1.2 | |



| | | |
|--------------------------|-------------|--|
| <input type="checkbox"/> | MR Credit 2 | <p><u>Construction Waste Management</u>. Recycle and/or salvage at least 50% of non-hazardous construction and demolition debris.</p> <p><u>Construction Waste Management</u>. Recycle and/or salvage at least 75% of non-hazardous construction and demolition debris</p> <p>Chemstar Type S Hydrated Lime is bagged in a biodegradable brown kraft paper. Unused hydrated lime from opened bags can be used to dry up a work site. Closed and undamaged bags (no rips or rain damage) of hydrated lime can be used at another project by the contractor.</p> |
| <input type="checkbox"/> | MR Credit 5 | <p><u>Regional Materials</u>: 10% Extracted <u>Regional Materials</u>: 20% Extracted Process and Manufactured Regionally Use building materials that are extracted, harvested or manufactured within 500 miles by truck or 1500 miles by rail of the project site.</p> <p>100% of Chemstar Type S Hydrated Lime is extracted, processed (calcined) at the Lhoist North America Marble Falls, Texas plant and manufactured (hydrated) at the New Braunfels, Texas plant. The circle on the map denotes a 500 mile as-the-crow-flies radius from New Braunfels, Texas.</p>  |

Innovation & Design Process:

To provide design teams and projects the opportunity to be awarded points for exceptional performance above the requirements set by the LEED, and/or innovative performance in Green Building categories not specifically addressed by the LEED for New Construction Green Building Durable Building.

| | | |
|--------------------------|------------------------------|---|
| <input type="checkbox"/> | Environmental Quality Credit | <u>Low-Emitting Materials</u> : Chemstar Type S Hydrated Lime emits no VOC. |
| <input type="checkbox"/> | Environmental Quality Credit | <u>Indoor Chemical and Pollutant Source Control</u> . Resistance to water penetration is a critical aspect of ensuring a healthy work and living environment. Chemstar Type S Hydrated Lime in a masonry mortar provides a high level of water penetration resistance to the masonry wall. |
| <input type="checkbox"/> | Carbon Dioxide Sink | The use of Chemstar Type S Hydrated Lime in masonry mortar provides a carbon dioxide gas sink of up to 100% of the weight of the used hydrated lime. |

Yours truly,

Aaron Jones
Plant Manager, New Braunfels Plant

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 042000-003

Description: Masonry Mortar and Grout - Mix Design

Project Name: UT SEAY - Building Addition

Project No.: 102-1219

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



NO EXCEPTIONS NOTED



SUBMIT SPECIFIED ITEM



ACTION NOT REQUIRED



EXCEPTIONS NOTED



REVISE AND RESUBMIT



NOT REVIEWED

BY:

daniel hodge



DATE: 05/08/2020

Submittal Comments:

1.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0160

PROJECT: UT Seay Building Addition

DATE: 05/06/2020

TO: BSA Lifestructures
AL

RE: Unit Masonry - Mortar & Grout - Mix Design

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 05/20/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 042000-003 | 1 | | 05/06/2020 | Unit Masonry - Mortar & Grout - Mix Design | Submitted for Approval |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE <input checked="" type="checkbox"/> |
| COMMENTS NOTED <input type="checkbox"/> |
| REVISE AND RESUBMIT <input type="checkbox"/> |
| OTHER: <input type="checkbox"/> |
| DATE 5/6/2020 SPEC# 042000 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 042000-003 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

CC:

Signed: Tanner Hawkins

Tanner Hawkins

Rudd & Adams Masonry, Inc.

To whom it may concern:

Aggregates will conform to ASTM C144 for mortar and ASTM C404 for grout.

Water will be clean and potable.

Listed below are the proportions for type N & S mortar, per ASTM C270 to be used on this project:

Type N: 1 Part Type I Portland Cement
 1 Part Type S Hydrated Lime
 6 Parts Sand
 Potable Water

Type S: 1 Part Type I Portland Cement
 $\frac{1}{2}$ Part Type S Hydrated Lime
 4 $\frac{1}{2}$ Parts Sand
 Potable Water

Listed below are the proportions for the field mix grout in accordance with ASTM C476:

2 Parts Type I Portland Cement
5 $\frac{1}{2}$ Parts Sand
3 $\frac{1}{2}$ Parts 3/8 Pea Gravel
Potable Water

To the best of our knowledge, there has been no asbestos materials used or placed in the work.

Signed,

Greg Adams

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
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Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 042000-004

Description: Unit Masonry Anchor Ties - PD

Project Name: UT Austin Seay

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



Darryl Castleberry

BY:

DATE: 2020/05/18

Submittal Comments:

1. Per specifications, anchors and ties are to be 304 stainless. Hot-dipped galvanized is selected in the attached submittal sheets.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0161

PROJECT: UT Seay Building Addition

DATE: 05/06/2020

TO: BSA Lifestructures
AL

RE: Unit Masonry - Anchors & Ties - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | | SUBMITTED FOR: | ACTION TAKEN: |
|--|--|---|--|
| <input type="checkbox"/> Shop Drawings | | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | | <input checked="" type="checkbox"/> Due Date: 05/20/2020 |
| <input checked="" type="checkbox"/> Submittal: | | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 042000-004 | 1 | | 05/06/2020 | Unit Masonry - Anchors & Ties - Product Data | Submitted for Approval |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE <input checked="" type="checkbox"/> |
| COMMENTS NOTED <input type="checkbox"/> |
| REVISE AND RESUBMIT <input type="checkbox"/> |
| OTHER: <input type="checkbox"/> |
| DATE 5/6/2020 SPEC# 042000 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 042000-004 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

CC:

Signed: Tanner Hawkins

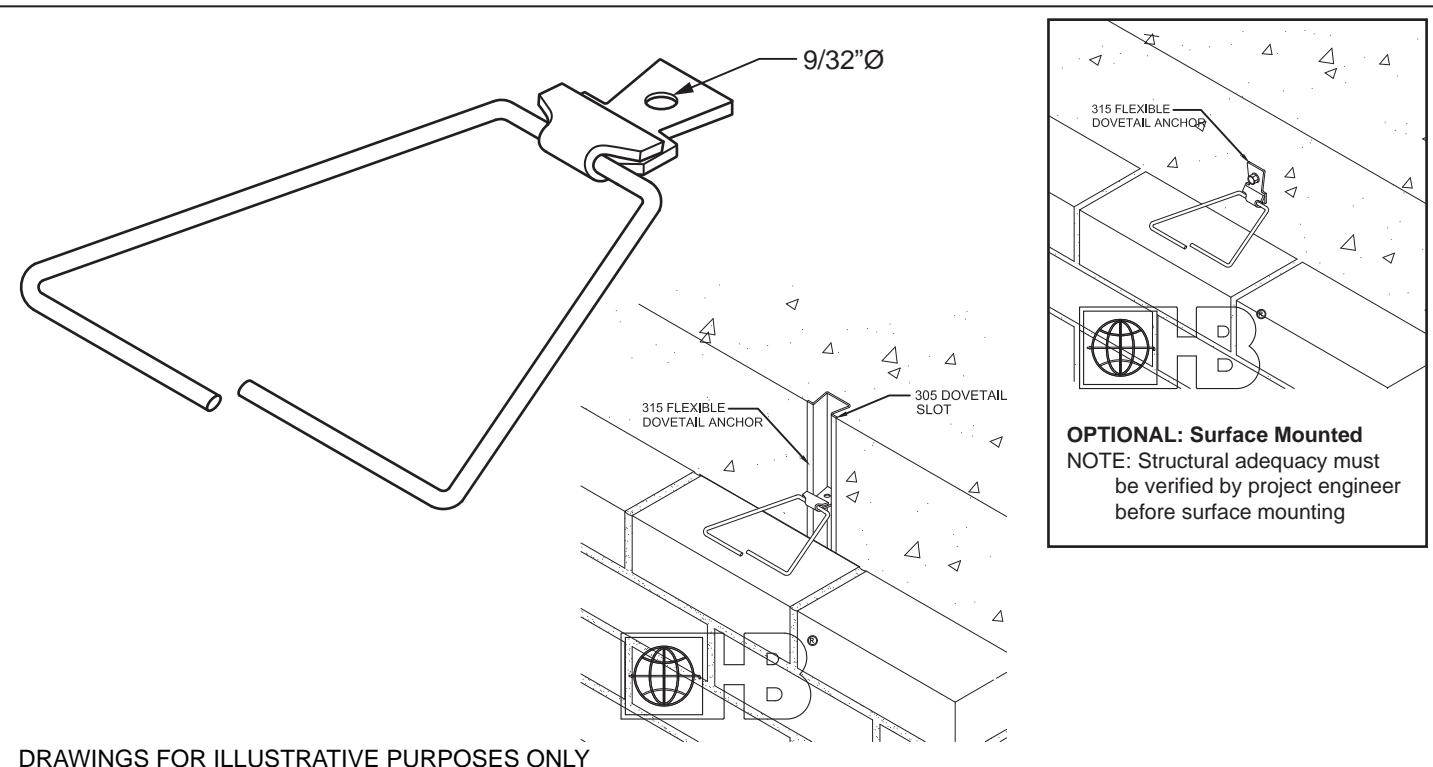
Tanner Hawkins



HOHMANN & BARNARD, INC.
a MiTek company

Dovetail Anchors, Slots & Ties

315 - Flexible Dovetail Brick Tie



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

315 Flexible Dovetail Brick Tie permits horizontal and vertical movement of the masonry wall while, restraining tension and compression.

MATERIAL CONFORMANCE

Wire (Carbon Steel): Prefabricated from cold-drawn steel wire conforming to **ASTM A1064/A1064M**

Tensile Strength - 80,000 p.s.i. | Yield Point - 70,000 p.s.i. minimum
Zinc Coating:

Hot-Dip Galvanized: **ASTM A153/A153M Class B** (1.5 oz/ft²) (sheet metal ties and anchors galvanized after fabrication)

Wire (Stainless Steel):

ASTM A580/A580M - AISI Type 304 (Type 316 available on special order)

Sheet Metal (Carbon Steel):

ASTM A1008/A1008M

Zinc Coating:

Hot-Dip Galvanized (refer to wire conformance above)

Sheet Metal (Stainless Steel):

ASTM A666, ASTM A480/480M, and ASTM A240/A240M AISI Type 304 or 316

Vee Byna-Tie® portion manufactured from a minimum of 95% post-consumer recycled material.

Finish:

- Hot-Dip Galvanized
 Stainless Steel - Type 304
 Stainless Steel - Type 316 (available on special order)

Note: Hohmann & Barnard recommends Stainless Steel for maximum protection against corrosion.

Dovetail Head Thickness:

- 14 Gauge 12 Gauge

Vee Byna-Tie® Length:

- 3" 3 1/2" 4" 4 1/2"
 5" Other _____

Vee Byna-Tie® Diameter:

- 3/16"Ø (standard) 1/4"Ø (heavy-duty)

315 - Flexible Dovetail Brick Tie is manufactured for use with Hohmann & Barnard 305 Dovetail Slot.

H&B is not responsible for incompatibility if ties or slots are interchanged with those of other manufacturers.

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question.

HOHMANN & BARNARD, Inc.

30 Rasons Court | Hauppauge, NY 11788

CORPORATE HEADQUARTERS

T: 800.645.0616 F: 631.234.0683

www.h-b.com

Branch/Subsidiary Locations:

ALABAMA - ILLINOIS - MARYLAND

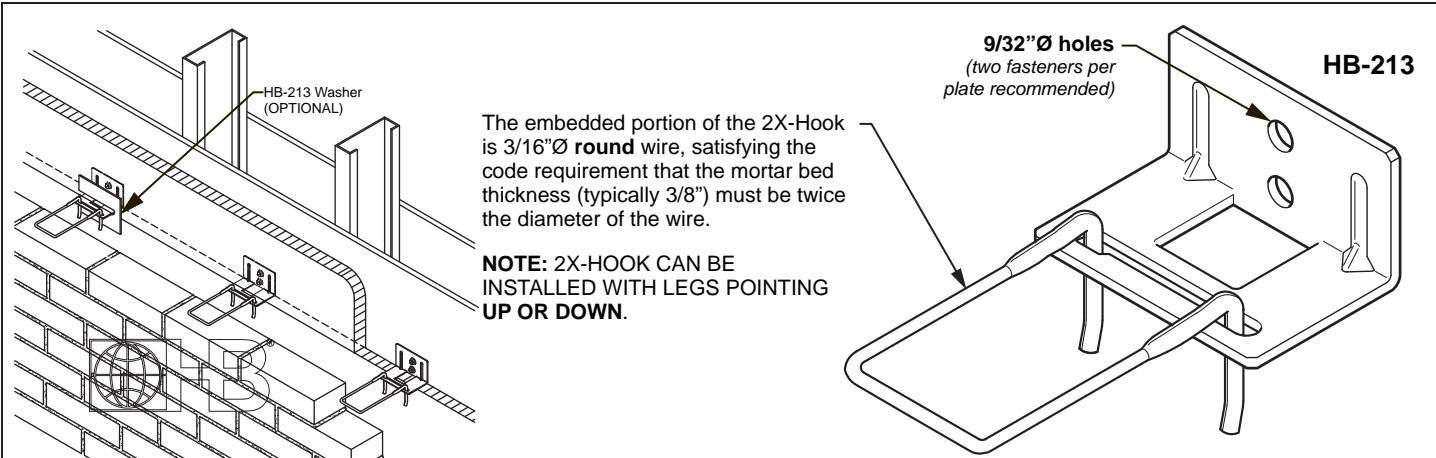
NEW YORK - PENNSYLVANIA - TEXAS

UTAH - CANADA

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Veneer Anchor Plates HB-213-2X Adjustable Veneer Anchor



Hohmann & Barnard's 2X-Hook has been tested and designed to withstand over 200-lbf, in tension or compression, at maximum allowed offset (TMS 402/602-16 12.2.2.5.5.4) of 1 1/4" (disengagement of the pintle from the veneer anchor). These results exceed BIA recommendations and the capabilities of standard "round wire" hooks/pintles by over 100%, while maintaining the ASTM A1064/1064M wire specification.

HB-213 WITH 2X HOOKS (WORKING LOAD*)

| CAVITY | 0" OFFSET | | 5/8" OFFSET | | 1 1/4" OFFSET | | TEST |
|--------|-----------|-------|-------------|-------|---------------|-------|-------------|
| | 14 GA | 12 GA | 14 GA | 12 GA | 14 GA | 12 GA | |
| 4 1/2" | 723# | 1059# | 382# | 436# | 260# | 332# | TENSION |
| 4 1/2" | 1009# | 1124# | 402# | 396# | 267# | 262# | COMPRESSION |
| 7 1/2" | 556# | 928# | 435# | 399# | 293# | 320# | TENSION |
| 7 1/2" | 645#** | 1128# | 370# | 300# | 235# | 251# | COMPRESSION |

** HB-213 backplate buckled before .05" deflection.

DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

H&B RECOMMENDS 16" X 16" SPACING

MATERIAL CONFORMANCE

Wire (Carbon Steel):

Cold-drawn steel wire conforming to **ASTM A1064/A1064M**:

Tensile Strength - 80,000 psi | Yield Point - 70,000 psi minimum

Zinc Coating:

Hot-Dip Galvanized after fabrication: **ASTM A153/A153M-B2** (1.5 oz/ft²)

Wire (Stainless Steel):

ASTM A580/A580M - AISI Type 304 & Type 316

H&B manufactures steel wire products from a minimum of 95% recycled material.

Sheet Metal (Carbon Steel): **ASTM A1008/A1008M**

Zinc Coating: Hot-Dip Galvanized: (refer to wire above)

Sheet Metal (Stainless Steel):

ASTM A666, ASTM A480/480M, and ASTM A240/A240M

AISI Type 304 or 316

2X-HOOK: U.S. Pat. No. 8,613,175

NOTES:

- State overall wall size & cavity or insulation thickness when ordering
- Two fasteners per plate recommended
- Needs 3/4 inch (19mm) to 1 inch (25mm) minimum air cavity
- For attachment to concrete, block or brick see 523 Brass Expansion Bolt
- For wide cavity conditions refer to the HB-213-HS

HB-213 Anchor Backplate Finish:

- Hot-Dip Galvanized
 Stainless Steel - Type 304 Stainless Steel - Type 316
- H&B recommends Stainless Steel for maximum protection against corrosion**

HB-213 Backplate (Equal to thickness of insulation):

- 0" 1" 1 1/2" 2" 2 1/2" 3" 3 1/2"
 4" 4 1/2" 5" 5 1/2" 6"

Backplate Thickness:

- 14 ga. (1.9 mm) 12 ga. (2.7 mm)

3/16"Ø Compressed Leg Hook Length:

- 3" (300H-2X) 4" (400H-2X) 5" (500H-2X)
 6" (600H-2X) 7" (700H-2X)

HB-213 Washer (Optional)

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question. This drawing and/or data sheet is the confidential and proprietary information of Hohmann & Barnard, Inc. and is not to be reproduced, copied or disclosed, in whole or in part, without the prior written consent of H&B.

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Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 042000-005

Description: Unit Masonry - Reinforcement - Product Data

Project Name: UT SEAY - Building Addition

Project No.: 102-1219

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

- NO EXCEPTIONS NOTED
- SUBMIT SPECIFIED ITEM
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

BY:

daniel hodge



DATE: 05/08/2020

Submittal Comments:

1.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0162

PROJECT: UT Seay Building Addition

DATE: 05/06/2020

TO: BSA Lifestructures
AL

RE: Unit Masonry - Reinforcement - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | | SUBMITTED FOR: | ACTION TAKEN: |
|--|--|---|--|
| <input type="checkbox"/> Shop Drawings | | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | | <input checked="" type="checkbox"/> Due Date: 05/20/2020 |
| <input checked="" type="checkbox"/> Submittal: | | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 042000-005 | 1 | | 05/06/2020 | Unit Masonry - Reinforcement - Product Data | Submitted for Approval |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE |
| COMMENTS NOTED |
| REVISE AND RESUBMIT |
| OTHER: |
| <input type="checkbox"/> |
| <input type="checkbox"/> |
| <input type="checkbox"/> |
| DATE 5/6/2020 SPEC# 042000 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 042000-005 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins

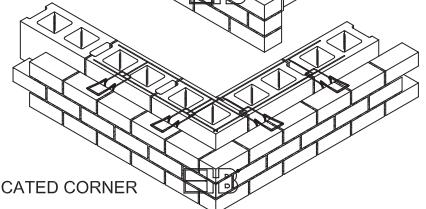
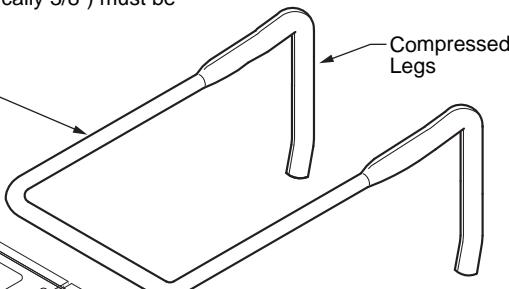
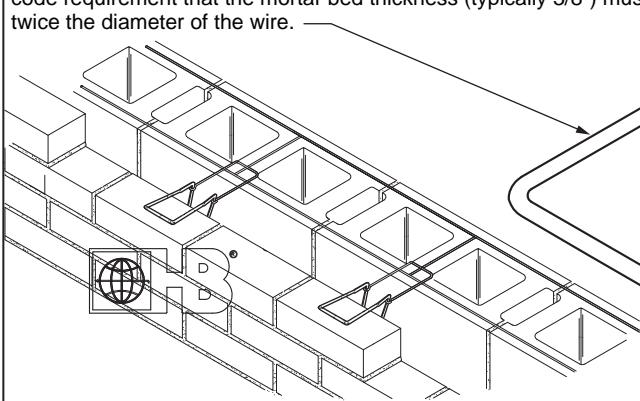


Lox♦All® Adjustable Joint Reinforcement

270-2X Ladder Eye-Wire

Adjustable Reinforcement with 2X-Hook

The embedded portion of the 2X-Hook is 3/16"Ø round wire, satisfying the code requirement that the mortar bed thickness (typically 3/8") must be twice the diameter of the wire.



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

Hohmann & Barnard's 2X-Hook has been tested and designed to withstand over 200-lbf, in tension or compression, at maximum allowed offset (TMS 402/ACI 530 6.2.2.5.5.4) of 1 1/4" (disengagement of the pintle from the veneer anchor). These results exceed BIA recommendations and the capabilities of standard "round wire" hooks/pintles by over 100%, while maintaining the ASTM A1064/A1064M wire specification.

EYE-WIRE WITH 2X HOOKS (WORKING LOAD*)

| CAVITY | 0" OFFSET | 5/8" OFFSET | 1 1/4" OFFSET | TEST |
|--------|-----------|-------------|---------------|-------------|
| 4 1/2" | 807# | 478# | 237# | TENSION |
| 4 1/2" | 709# | 487# | 288# | COMPRESSION |
| 7 1/2" | 851# | 488# | 266# | TENSION |
| 7 1/2" | 700# | 463# | 288# | COMPRESSION |

* WORKING LOAD DETERMINED AT .05" DEFLECTION

Tests were completed for 3" and 6" insulation with 1 1/2" air cavity.

MATERIAL CONFORMANCE

Hohmann & Barnard joint reinforcement products conform to:
ASTM A951/A951M (Standard Specification for Steel Wire for Masonry Joint Reinforcement)

ACI / ASCE 530 (Building Code Requirements for Masonry Structures)

Wire (Carbon Steel): Prefabricated from cold-drawn steel wire conforming to **ASTM A1064/A1064M**

Tensile Strength - 80,000 p.s.i. | Yield Point - 70,000 p.s.i. minimum Zinc Coating:

Hot-Dip Galvanized after fabrication: **ASTM A153/A153M-B2** (1.5 oz/ft²)

Wire (Stainless Steel): **ASTM A580/ASTM 580M** - AISI Type 304 (Type 316 available on special order)

Eye-Wire Diameters/Dimensions:

9 gauge (.148" or W1.7) or 3/16"Ø (.187" or W2.8)

Side Rods and Cross Rods available in any combination of the above.

Eyes and Hooks are 3/16"Ø standard.

Cross Rods welded 16" O.C. First Cross Rods welded 12" in from each end to allow lap splices per code requirements.

2X-Hook: U.S. Pat. No. 8,613,175

H&B manufactures steel wire products from a minimum of 95% recycled material.

Eye-Wire Finish:

Hot-Dip Galvanized | Stainless Steel Type 304 Type 316

Note: H&B recommends Stainless Steel for maximum protection against corrosion.

Eye-Wire Size (10' length std., custom length available special order):

(S) Standard Weight: 9 GA Side Rods x 9 GA Cross Rods

(EH) Extra Heavy: 3/16"Ø Side Rods x 9 GA Cross Rods

(SHD) Super Heavy Duty: 3/16"Ø Side Rods x 3/16"Ø Cross Rods

Block Size: (Std. sizes: 4" - 16" wall, other widths available on special request.)

4" 6" 8" 10" 12" 14" 16"

Note: State cavity and/or insulation thickness when ordering.

Compressed Leg 2X-Hook Finish:

Hot-Dip Galvanized | Stainless Steel Type 304 Type 316

Compressed Leg 2X-Hook: Length (Model), 3/16"Ø (5mm) wire

3" (300H-2X) 4" (400H-2X) 5" (500H-2X)

6" (600H-2X) 7" (700H-2X)

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question.

HOHMANN & BARNARD, Inc.

30 Rasons Court | Hauppauge, NY 11788
CORPORATE HEADQUARTERS

T: 800.645.0616 F: 631.234.0683
www.h-b.com

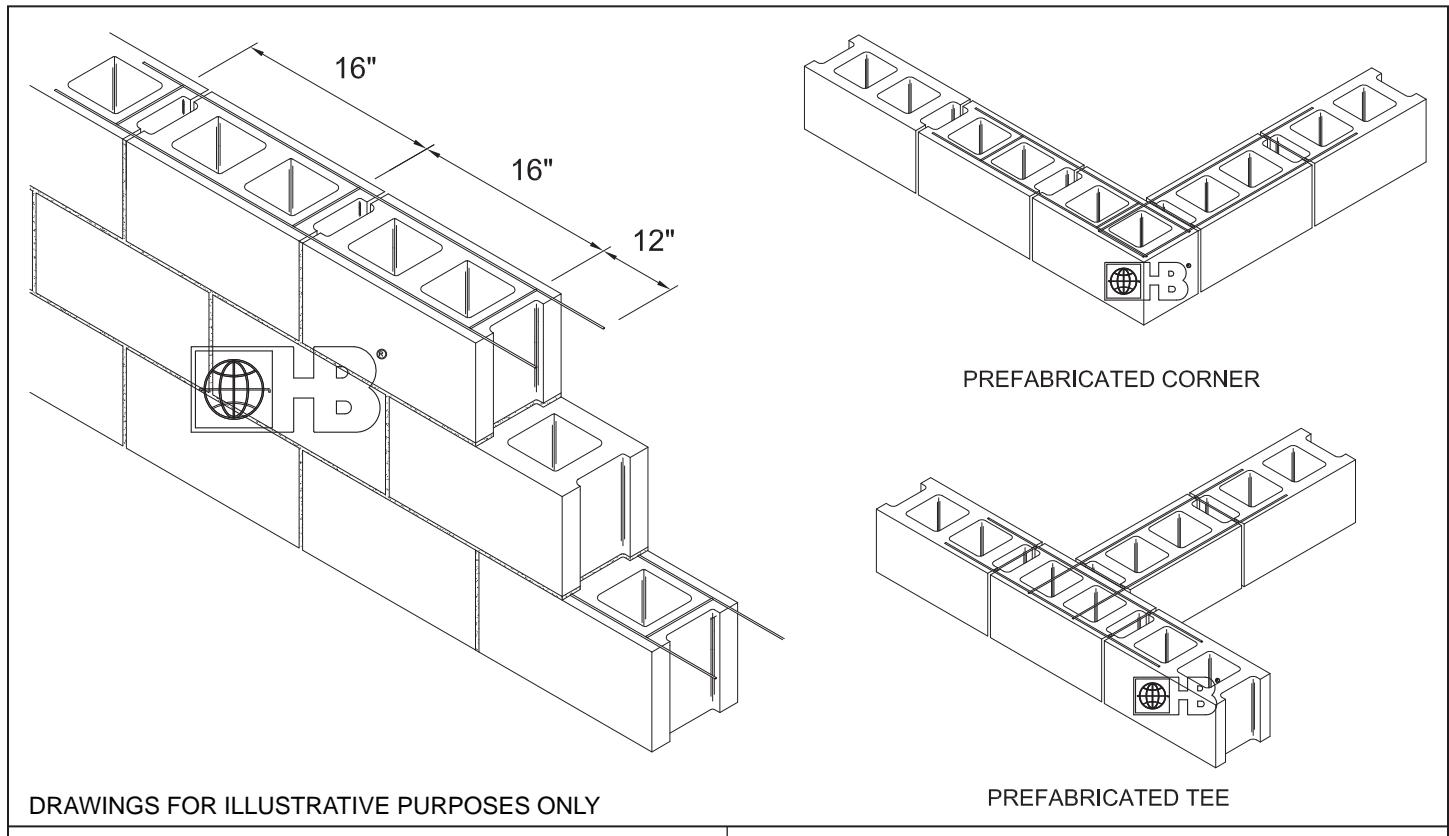
Branch/Subsidiary Locations:

ALABAMA - ILLINOIS - MARYLAND
NEW YORK - PENNSYLVANIA - TEXAS
UTAH - CANADA

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Lox♦All® Ladder Joint Reinforcement 220 Ladder-Mesh



MATERIAL CONFORMANCE

Hohmann & Barnard joint reinforcement products conform to:
ASTM A951/A951M (Standard Specification for Steel Wire for Masonry Joint Reinforcement)
ACI / ASCE 530 (Building Code Requirements for Masonry Structures)

Wire (Carbon Steel): Prefabricated from cold-drawn steel wire conforming to **ASTM A82/A82M**

Tensile Strength - 80,000 p.s.i. | Yield Point - 70,000 p.s.i. minimum Zinc Coating:

Mill Galvanized coating: **ASTM A641/A641M** (0.1 oz/ft²)

Available special order: **ASTM A641/A641M** (0.4 oz/ft²)

ASTM A641/A641M (0.8 oz/ft²)

Hot-Dip Galvanized after fabrication: **ASTM A153/A153M-B2** (1.5 oz/ft²)

Note: Hohmann & Barnard will certify to a minimum of 2.0 oz/ft²

Wire (Stainless Steel): **ASTM A580/ASTM 580M** - AISI Type 304 (Type 316 available on special order)

Wire Diameter:

9 gauge (.148" or W1.7) or 3/16"Ø (.187" or W2.8)

Side Rods and Cross Rods available in any combination of the above.

Cross welded 16" O.C.

First Cross Rods welded 12" in from each end to allow lap splices per code requirements.

H&B manufactures steel wire products from a minimum of 95% post-consumer recycled material.

Finishes:

- Mill Galvanized Coating
- Hot-Dip Galvanized
- Stainless Steel - Type 304 (Type 316 available on special order)

Note: H&B recommends Stainless Steel for maximum protection against corrosion.

Wire Size:

- (S) Standard Weight:
9 Gauge Side Rods x 9 Gauge Cross Rods
- (EH) Extra Heavy:
3/16" Side Rods x 9 Gauge Cross Rods
- (SHD) Super Heavy Duty:
3/16" Side Rods x 3/16" Cross Rods

Block Size:

- | | | | |
|------------------------------|------------------------------|--|------------------------------|
| <input type="checkbox"/> 4" | <input type="checkbox"/> 6" | <input checked="" type="checkbox"/> 8" | <input type="checkbox"/> 10" |
| <input type="checkbox"/> 12" | <input type="checkbox"/> 14" | <input type="checkbox"/> 16" | |

Note: For Corner or Tee, state width of block walls.

INSPECTION CERTIFICATE 3.1. - EN 10204

MILL TEST

| PAGE 5 | CUSTOMER INTERMETAL REBAR LLC | DESTINATION 10800 BISCAYNE BLVD. SUITE #870 PORT OF HOUSTON, TX, USA | |
|--------------------|----------------------------------|---|--------------------|
| ORDER 18/2683/1 | DENOMINATION | | DATE 21/06/2018 |
| | STANDARD ASTM A 615 | GRADE GRADE 60 | |

| REMARKS | | | | | | | | | | | | | | |
|--------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| DIAMETER, h AND c IN in. | | | | | | | | | | | | | | |
| LENGTH IN ft. | | | | | | | | | | | | | | |
| WEIGHT IN lb. | | | | | | | | | | | | | | |
| C, Si, Cr, Ni, Cu, Mn and Ceq. x 100 | | | | | | | | | | | | | | |
| P, S, V and others x 1000 | | | | | | | | | | | | | | |
| Rm and Re in psi. | | | | | | | | | | | | | | |
| ELONGATION IN 8 in. %. | | | | | | | | | | | | | | |



| HEAT N° | BAR DESIGNATION N° | Ø | LENGTH | CHEMICAL COMPOSITION OF THE STEEL IN % OF: | | | | | | | | | | | | h | c | MEASUREMENT OF RIBS | | | TENSILE TESTS | | |
|----------|--------------------|------|--------|--|----|----|-----|----|----|----|----|----|---|----|-----|------|------|---------------------|--------|------|---------------|--|--|
| | | | | C | P | S | Mn | Si | Cr | Ni | Cu | Mo | V | N | Ceq | | | Rm | Re | %A | BEND | | |
| 195048/2 | 3 | 3/8" | 20 ft | 40 | 31 | 13 | 102 | 21 | 31 | 19 | 48 | 43 | 3 | 10 | 62 | 0,03 | 0,24 | 118.351 | 79.481 | 10,0 | S | | |
| 195048/1 | 3 | 3/8" | 20 ft | 44 | 26 | 14 | 99 | 22 | 25 | 17 | 44 | 37 | 3 | 10 | 65 | 0,03 | 0,24 | 123.137 | 82.236 | 10,2 | S | | |
| 195050/1 | 3 | 3/8" | 20 ft | 42 | 19 | 20 | 92 | 18 | 17 | 18 | 43 | 39 | 3 | 11 | 61 | 0,03 | 0,24 | 111.534 | 74.259 | 12,9 | S | | |
| 195051/1 | 3 | 3/8" | 20 ft | 44 | 23 | 20 | 96 | 21 | 19 | 16 | 45 | 34 | 3 | 10 | 64 | 0,03 | 0,24 | 115.305 | 76.000 | 11,2 | S | | |
| 195052/1 | 3 | 3/8" | 20 ft | 45 | 21 | 27 | 95 | 20 | 18 | 17 | 42 | 36 | 3 | 11 | 65 | 0,03 | 0,24 | 116.900 | 77.885 | 12,7 | S | | |
| 195073/1 | 3 | 3/8" | 20 ft | 42 | 17 | 21 | 93 | 16 | 12 | 18 | 41 | 37 | 2 | 11 | 61 | 0,03 | 0,24 | 105.732 | 71.504 | 13,4 | S | | |
| 195076/2 | 3 | 3/8" | 40 ft | 43 | 22 | 18 | 95 | 20 | 15 | 16 | 43 | 31 | 3 | 10 | 62 | 0,03 | 0,24 | 111.389 | 74.114 | 13,7 | S | | |
| 195077/1 | 3 | 3/8" | 40 ft | 40 | 25 | 24 | 92 | 18 | 19 | 18 | 44 | 37 | 3 | 10 | 60 | 0,03 | 0,24 | 109.503 | 72.664 | 12,1 | S | | |
| 195078/1 | 3 | 3/8" | 40 ft | 42 | 20 | 19 | 95 | 18 | 12 | 16 | 38 | 36 | 3 | 11 | 61 | 0,04 | 0,24 | 106.313 | 71.359 | 14,3 | S | | |
| 195079/1 | 3 | 3/8" | 40 ft | 42 | 19 | 17 | 97 | 16 | 13 | 15 | 40 | 34 | 3 | 11 | 62 | 0,03 | 0,24 | 109.649 | 72.374 | 13,1 | S | | |
| 195080/1 | 3 | 3/8" | 40 ft | 42 | 22 | 25 | 94 | 19 | 14 | 17 | 44 | 37 | 3 | 11 | 61 | 0,03 | 0,24 | 108.488 | 71.649 | 11,8 | S | | |
| 195081/1 | 3 | 3/8" | 40 ft | 41 | 19 | 23 | 93 | 20 | 12 | 18 | 44 | 39 | 3 | 9 | 60 | 0,03 | 0,24 | 107.473 | 72.084 | 14,3 | S | | |
| 195082/1 | 3 | 3/8" | 40 ft | 40 | 21 | 23 | 94 | 17 | 16 | 19 | 45 | 42 | 3 | 10 | 59 | 0,03 | 0,24 | 108.343 | 72.374 | 12,9 | S | | |

HEREBY THE COMPANY CERTIFIES THAT THE PRODUCTS INCLUDED IN THIS CERTIFICATE ARE FREE OF RADIOACTIVITY.

IDENTIFICATION MARKS

QUALITY DEPARTME

INSPECTION CERTIFICATE 3.1. - EN 10204

MILL TEST

| PAGE 3 | CUSTOMER INTERMETAL REBAR LLC | DESTINATION 10800 BISCAYNE BLVD. SUITE #870 FINAL DESTINATION : PORT OF HOUSTON | |
|--------------------|----------------------------------|---|--------------------|
| ORDER 18/2683/1 | DENOMINATION | | DATE 18/06/2018 |
| | STANDARD ASTM A 815 | GRADE GRADE 60 | |

| REMARKS |
|--------------------------------------|
| DIAMETER, h AND c IN in. |
| LENGTH IN ft. |
| WEIGHT IN lb. |
| C, Si, Cr, Ni, Cu, Mn and Ceq. x 100 |
| P, S, V and others x 1000 |
| Rm and Re in psi. |
| ELONGATION IN 8 in. %. |



| HEAT N°/H | BAR DESIGNATION N° | HEAT | | CHEMICAL COMPOSITION OF THE STEEL IN % OF: | | | | | | | | | | | | MEASUREMENT OF RIBS | | TENSILE TESTS | | | |
|-----------|--------------------|------|--------|--|----|----|-----|----|----|----|----|----|---|----|-----|---------------------|------|---------------|--------|------|------|
| | | Ø | LENGTH | C | P | S | Mn | Si | Cr | Ni | Cu | Mo | V | N | Ceq | h | c | Rm | Re | %A | BEND |
| 417328/1 | 4 | 1/2" | 60 ft | 42 | 29 | 30 | 128 | 25 | 11 | 14 | 36 | 25 | 1 | 11 | 66 | 0,03 | 0,30 | 116.320 | 76.130 | 10,9 | S |
| 417330/2 | 4 | 1/2" | 60 ft | 42 | 31 | 26 | 129 | 25 | 13 | 15 | 37 | 24 | 1 | 11 | 66 | 0,04 | 0,30 | 118.931 | 76.290 | 12,9 | S |
| 417331/2 | 4 | 1/2" | 60 ft | 41 | 29 | 32 | 127 | 25 | 13 | 14 | 38 | 27 | 1 | 11 | 65 | 0,04 | 0,30 | 118.841 | 76.000 | 13,6 | S |
| 417334/4 | 4 | 1/2" | 40 ft | 44 | 28 | 29 | 127 | 25 | 13 | 17 | 38 | 27 | 2 | 10 | 69 | 0,04 | 0,30 | 117.481 | 75.855 | 12,2 | S |
| 417338/3 | 4 | 1/2" | 20 ft | 41 | 25 | 31 | 125 | 22 | 11 | 12 | 37 | 23 | 1 | 9 | 65 | 0,03 | 0,30 | 112.114 | 70.343 | 13,8 | S |
| 417340/1 | 4 | 1/2" | 40 ft | 43 | 26 | 36 | 126 | 27 | 10 | 15 | 38 | 26 | 1 | 9 | 66 | 0,03 | 0,30 | 111.244 | 69.616 | 15,5 | S |
| 417340/2 | 4 | 1/2" | 20 ft | 43 | 26 | 36 | 126 | 27 | 10 | 15 | 38 | 26 | 1 | 9 | 66 | 0,03 | 0,30 | 111.824 | 70.053 | 13,5 | S |
| 417341/1 | 4 | 1/2" | 40 ft | 43 | 25 | 37 | 125 | 23 | 10 | 14 | 35 | 24 | 1 | 10 | 66 | 0,03 | 0,29 | 111.969 | 69.906 | 13,0 | S |
| 417341/2 | 4 | 1/2" | 20 ft | 43 | 25 | 37 | 125 | 23 | 10 | 14 | 35 | 24 | 1 | 10 | 66 | 0,03 | 0,30 | 110.954 | 68.748 | 14,9 | S |
| 417342/2 | 4 | 1/2" | 60 ft | 43 | 24 | 34 | 126 | 25 | 9 | 14 | 35 | 24 | 1 | 10 | 67 | 0,04 | 0,30 | 112.549 | 70.923 | 14,5 | S |
| 417344/1 | 4 | 1/2" | 40 ft | 43 | 26 | 31 | 128 | 22 | 10 | 13 | 36 | 23 | 1 | 10 | 66 | 0,03 | 0,30 | 112.404 | 71.068 | 13,2 | S |
| 417345/1 | 4 | 1/2" | 40 ft | 43 | 27 | 34 | 128 | 25 | 11 | 14 | 35 | 24 | 1 | 10 | 67 | 0,03 | 0,30 | 114.435 | 72.809 | 13,1 | S |
| 417345/2 | 4 | 1/2" | 20 ft | 43 | 27 | 34 | 128 | 25 | 11 | 14 | 35 | 24 | 1 | 10 | 67 | 0,03 | 0,30 | 113.565 | 72.229 | 12,1 | S |

HEREBY THE COMPANY CERTIFIES THAT THE PRODUCTS INCLUDED IN THIS CERTIFICATE ARE FREE OF RADIOACTIVITY.

IDENTIFICATION MARKS

QUALITY DEPARTME

Amela

INSPECTION CERTIFICATE 3.1. - EN 10204

MILL TEST

| PAGE 1 | CUSTOMER INTERMETAL REBAR LLC | DESTINATION 10800 BISCAYNE BLVD. SUITE #870 FINAL DESTINATION : PORT OF HOUSTON | |
|--------------------|----------------------------------|---|--------------------|
| ORDER 18/2683/1 | DENOMINATION | | DATE 18/06/2018 |
| | STANDARD ASTM A 615 | GRADE GRADE 60 | |

| REMARKS |
|--------------------------------------|
| DIAMETER, h AND c IN in. |
| LENGTH IN ft. |
| WEIGHT IN lb. |
| C, Si, Cr, Ni, Cu, Mn and Ceq. x 100 |
| P, S, V and others x 1000 |
| Rm and Re in psi. |
| ELONGATION IN 8 in.%. |



| HEAT | | | | CHEMICAL COMPOSITION OF THE STEEL IN % OF: | | | | | | | | | | | | MEASUREMENT OF RIBS | | TENSILE TESTS | | | |
|----------|--------------------|------|--------|--|----|----|-----|----|----|----|----|----|---|----|-----|---------------------|------|---------------|--------|------|------|
| HEAT N° | BAR DESIGNATION N° | Ø | LENGTH | C | P | S | Mn | Si | Cr | Ni | Cu | Mo | V | N | Ceq | h | c | Rm | Re | %A | BEND |
| 412111/1 | 5 | 5/8" | 20 ft | 42 | 28 | 31 | 132 | 24 | 7 | 13 | 28 | 21 | 1 | 9 | 66 | 0,04 | 0,36 | 107.473 | 67.297 | 13,9 | S |
| 412903/2 | 5 | 5/8" | 20 ft | 41 | 16 | 26 | 126 | 24 | 10 | 13 | 35 | 27 | 1 | 12 | 65 | 0,05 | 0,37 | 109.213 | 67.007 | 14,4 | S |
| 416691/1 | 5 | 5/8" | 20 ft | 42 | 23 | 31 | 123 | 23 | 9 | 13 | 33 | 27 | 1 | 10 | 65 | 0,06 | 0,37 | 107.038 | 66.717 | 13,2 | S |
| 416692/1 | 5 | 5/8" | 20 ft | 43 | 23 | 29 | 124 | 25 | 9 | 13 | 34 | 27 | 1 | 10 | 66 | 0,05 | 0,37 | 108.923 | 68.023 | 13,0 | S |
| 416698/1 | 5 | 5/8" | 20 ft | 41 | 28 | 28 | 123 | 23 | 11 | 14 | 35 | 28 | 1 | 10 | 64 | 0,05 | 0,37 | 111.389 | 70.488 | 12,1 | S |
| 417324/2 | 5 | 5/8" | 60 ft | 43 | 27 | 25 | 127 | 24 | 11 | 14 | 35 | 26 | 2 | 11 | 67 | 0,05 | 0,37 | 112.839 | 69.328 | 14,3 | S |
| 417325/2 | 5 | 5/8" | 60 ft | 42 | 28 | 30 | 127 | 26 | 12 | 15 | 38 | 28 | 1 | 10 | 66 | 0,05 | 0,37 | 116.030 | 72.809 | 13,3 | S |
| 417326/2 | 5 | 5/8" | 60 ft | 42 | 30 | 22 | 130 | 24 | 11 | 14 | 37 | 26 | 1 | 10 | 66 | 0,05 | 0,37 | 115.450 | 71.649 | 13,6 | S |
| 417327/2 | 5 | 5/8" | 60 ft | 42 | 29 | 27 | 128 | 24 | 10 | 14 | 37 | 23 | 1 | 10 | 66 | 0,05 | 0,37 | 112.404 | 71.068 | 13,9 | S |
| 417328/2 | 5 | 5/8" | 60 ft | 42 | 29 | 30 | 128 | 25 | 11 | 14 | 36 | 25 | 1 | 11 | 66 | 0,05 | 0,37 | 112.114 | 70.488 | 14,2 | S |
| 417329/2 | 5 | 5/8" | 60 ft | 43 | 30 | 29 | 125 | 25 | 14 | 17 | 36 | 26 | 0 | 11 | 67 | 0,05 | 0,37 | 115.015 | 73.099 | 12,6 | S |
| 417814/1 | 5 | 5/8" | 60 ft | 41 | 16 | 32 | 126 | 22 | 9 | 17 | 39 | 36 | 0 | 10 | 65 | 0,05 | 0,37 | 108.488 | 70.633 | 11,6 | S |
| 417817/1 | 5 | 5/8" | 60 ft | 43 | 19 | 31 | 126 | 24 | 9 | 14 | 33 | 30 | 1 | 10 | 66 | 0,05 | 0,37 | 108.343 | 67.878 | 13,4 | S |

HEREBY THE COMPANY CERTIFIES THAT THE PRODUCTS INCLUDED IN THIS CERTIFICATE ARE FREE OF RADIOACTIVITY.

IDENTIFICATION MARKS

QUALITY DEPARTME

Durval

INSPECTION CERTIFICATE 3.1. - EN 10204

MILL TEST

| PAGE 1 | CUSTOMER INTERMETAL REBAR LLC | DESTINATION 10800 BISCAYNE BLVD. SUITE #870 FINAL DESTINATION : PORT OF HOUSTON | |
|--------------------|----------------------------------|---|--------------------|
| ORDER 18/2683/1 | DENOMINATION | | DATE 18/06/2018 |
| | STANDARD ASTM A 615 | GRADE GRADE 60 | |

| REMARKS |
|--------------------------------------|
| DIAMETER, h AND c IN in. |
| LENGTH IN ft. |
| WEIGHT IN lb. |
| C, Si, Cr, Ni, Cu, Mn and Ceq. x 100 |
| P, S, V and others x 1000 |
| Rm and Re in psi |
| ELONGATION IN 8 in. % |



| HEAT N°/H | BAR DESIGNATION N° | HEAT | | CHEMICAL COMPOSITION OF THE STEEL IN % OF: | | | | | | | | | | | | | h | c | MEASUREMENT OF RIBS | | | | TENSILE TESTS | | | |
|-----------|--------------------|------|--------|--|----|----|-----|----|----|----|----|----|---|----|-----|------|------|---------|---------------------|------|---|--|---------------|--|--|--|
| | | Ø | LENGTH | C | P | S | Mn | Si | Cr | Ni | Cu | Mo | V | N | Ceq | Rm | | Re | %A | BEND | | | | | | |
| 417284/1 | 6 | 3/4" | 20 ft | 42 | 31 | 28 | 130 | 24 | 13 | 17 | 39 | 35 | 1 | 8 | 67 | 0,06 | 0,43 | 111.969 | 70.778 | 14,3 | S | | | | | |
| 417820/2 | 6 | 3/4" | 20 ft | 42 | 17 | 35 | 127 | 24 | 11 | 16 | 34 | 43 | 0 | 9 | 66 | 0,06 | 0,45 | 107.763 | 66.717 | 14,3 | S | | | | | |
| 417838/2 | 6 | 3/4" | 20 ft | 41 | 25 | 30 | 128 | 24 | 12 | 18 | 39 | 37 | 1 | 8 | 68 | 0,06 | 0,44 | 111.969 | 70.633 | 12,1 | S | | | | | |
| 417839/1 | 6 | 3/4" | 20 ft | 42 | 27 | 25 | 128 | 24 | 13 | 19 | 37 | 42 | 1 | 11 | 67 | 0,06 | 0,44 | 110.229 | 69.038 | 14,4 | S | | | | | |
| 417839/2 | 6 | 3/4" | 40 ft | 42 | 27 | 25 | 128 | 24 | 13 | 19 | 37 | 42 | 1 | 11 | 67 | 0,06 | 0,44 | 113.129 | 71.214 | 12,5 | S | | | | | |
| 418152/1 | 6 | 3/4" | 20 ft | 43 | 28 | 21 | 128 | 23 | 14 | 14 | 38 | 27 | 1 | 10 | 67 | 0,06 | 0,44 | 110.809 | 71.649 | 14,6 | S | | | | | |
| 418153/2 | 6 | 3/4" | 40 ft | 43 | 33 | 17 | 131 | 27 | 11 | 13 | 37 | 27 | 1 | 9 | 67 | 0,07 | 0,44 | 109.213 | 67.733 | 13,1 | S | | | | | |
| 418154/1 | 6 | 3/4" | 40 ft | 41 | 30 | 28 | 126 | 25 | 12 | 14 | 35 | 25 | 1 | 9 | 65 | 0,06 | 0,45 | 107.183 | 66.137 | 11,9 | S | | | | | |
| 418155/1 | 6 | 3/4" | 20 ft | 42 | 26 | 39 | 128 | 23 | 10 | 13 | 33 | 26 | 1 | 9 | 66 | 0,06 | 0,45 | 107.183 | 66.862 | 14,3 | S | | | | | |
| 418156/1 | 6 | 3/4" | 20 ft | 44 | 27 | 41 | 128 | 21 | 9 | 13 | 35 | 26 | 1 | 9 | 68 | 0,06 | 0,46 | 112.549 | 71.214 | 14,5 | S | | | | | |
| 418156/2 | 6 | 3/4" | 40 ft | 44 | 27 | 41 | 128 | 21 | 9 | 13 | 35 | 26 | 1 | 9 | 68 | 0,06 | 0,44 | 107.183 | 66.282 | 11,0 | S | | | | | |
| 418157/1 | 6 | 3/4" | 20 ft | 41 | 25 | 28 | 127 | 23 | 10 | 14 | 36 | 25 | 1 | 9 | 65 | 0,06 | 0,45 | 108.488 | 67.878 | 14,6 | S | | | | | |
| 418158/1 | 6 | 3/4" | 20 ft | 42 | 26 | 34 | 126 | 24 | 9 | 14 | 36 | 26 | 1 | 10 | 65 | 0,06 | 0,45 | 105.152 | 65.412 | 10,6 | S | | | | | |

HEREBY THE COMPANY CERTIFIES THAT THE PRODUCTS INCLUDED IN THIS CERTIFICATE ARE FREE OF RADIOACTIVITY.

IDENTIFICATION MARKS

QUALITY DEPARTME

INSPECTION CERTIFICATE 3.1. - EN 10204

MILL TEST

| PAGE 1 | CUSTOMER INTERMETAL REBAR LLC | DESTINATION 10800 BISCAYNE BLVD. SUITE #870 FINAL DESTINATION : PORT OF HOUSTON |
|--------------------|----------------------------------|---|
| ORDER 18/2683/1 | DENOMINATION | DATE 18/06/2018 |
| | STANDARD ASTM A 615 | |

| REMARKS |
|--------------------------------------|
| DIAMETER, h AND c IN in. |
| LENGTH IN ft. |
| WEIGHT IN lb. |
| C, Si, Cr, Ni, Cu, Mn and Ceq. x 100 |
| P, S, V and others x 1000 |
| Rm and Re in psi. |
| ELONGATION IN 8 in.%. |



| HEAT N ^o | BAR DESIGNATION N ^o | CHEMICAL COMPOSITION OF THE STEEL IN % OF: | | | | | | | | | | | | | | h | c | MEASUREMENT OF RIBS | | | | TENSILE TESTS | | | |
|---------------------|--------------------------------|--|-------|----|----|----|-----|----|----|----|----|----|-----|----|----|------|------|---------------------|--------|------|------|---------------|--|--|--|
| | | C | P | S | Mn | Si | Cr | Ni | Cu | Mo | V | N | Ceq | Rm | Re | %A | BEND | Rm | Re | %A | BEND | | | | |
| 416748/2 | 7 | 7/8" | 40 ft | 42 | 26 | 36 | 124 | 23 | 10 | 12 | 35 | 24 | 1 | 10 | 65 | 0,07 | 0,50 | 108.633 | 66.862 | 13,3 | S | | | | |
| 416749/1 | 7 | 7/8" | 40 ft | 44 | 28 | 33 | 125 | 24 | 9 | 13 | 35 | 25 | 1 | 10 | 67 | 0,07 | 0,50 | 109.358 | 67.878 | 14,1 | S | | | | |
| 416750/1 | 7 | 7/8" | 40 ft | 43 | 27 | 25 | 123 | 23 | 11 | 16 | 35 | 39 | 1 | 9 | 66 | 0,07 | 0,50 | 110.664 | 69.183 | 12,8 | S | | | | |
| 416752/1 | 7 | 7/8" | 40 ft | 44 | 28 | 23 | 125 | 25 | 10 | 15 | 39 | 30 | 1 | 9 | 68 | 0,07 | 0,50 | 111.824 | 69.763 | 13,1 | S | | | | |
| 416756/1 | 7 | 7/8" | 40 ft | 43 | 25 | 32 | 125 | 24 | 9 | 13 | 35 | 25 | 1 | 11 | 66 | 0,06 | 0,49 | 108.633 | 67.152 | 12,7 | S | | | | |
| 416760/1 | 7 | 7/8" | 40 ft | 43 | 30 | 42 | 124 | 23 | 9 | 13 | 36 | 27 | 1 | 8 | 66 | 0,06 | 0,51 | 107.763 | 65.557 | 12,7 | S | | | | |
| 418761/1 | 7 | 7/8" | 40 ft | 43 | 29 | 40 | 127 | 24 | 9 | 12 | 33 | 24 | 1 | 10 | 67 | 0,06 | 0,50 | 108.778 | 65.992 | 12,6 | S | | | | |

HEREBY THE COMPANY CERTIFIES THAT THE PRODUCTS INCLUDED IN THIS CERTIFICATE ARE FREE OF RADIOACTIVITY.

IDENTIFICATION MARKS

QUALITY DEPARTME

Guilherme

INSPECTION CERTIFICATE 3.1. - EN 10204

MILL TEST

| PAGE 1 | CUSTOMER INTERMETAL REBAR LLC | DESTINATION 10800 BISCAYNE BLVD. SUITE #870 FINAL DESTINATION : PORT OF HOUSTON |
|--------------------|----------------------------------|---|
| ORDER 18/2683/1 | DENOMINATION | DATE 18/06/2018 |
| | STANDARD ASTM A 615 | |

| REMARKS |
|--------------------------------------|
| DIAMETER, h AND c IN in. |
| LENGTH IN ft. |
| WEIGHT IN lb. |
| C, Si, Cr, Ni, Cu, Mn and Ceq. x 100 |
| P, S, V and others x 1000 |
| Rm and Re in psi. |
| ELONGATION IN 8 in.%. |



| HEAT | | | | CHEMICAL COMPOSITION OF THE STEEL IN % OF: | | | | | | | | | | | | MEASUREMENT OF RIBS | | TENSILE TESTS | | | |
|----------|--------------------|----|--------|--|----|----|-----|----|----|----|----|----|----|----|-----|---------------------|------|---------------|--------|------|------|
| HEAT Nº | BAR DESIGNATION Nº | Ø | LENGTH | C | P | S | Mn | Si | Cr | Ni | Cu | Mo | V | N | Ceq | h | c | Rm | Re | %A | BEND |
| 411013/1 | 8 | 1" | 40 ft | 42 | 29 | 30 | 124 | 24 | 8 | 14 | 38 | 26 | 12 | 10 | 65 | 0,08 | 0,55 | 109.358 | 70.778 | 13,1 | S |
| 416866/1 | 8 | 1" | 40 ft | 42 | 27 | 23 | 125 | 25 | 9 | 12 | 38 | 19 | 13 | 8 | 65 | 0,08 | 0,58 | 110.084 | 70.633 | 15,2 | S |
| 416867/1 | 8 | 1" | 40 ft | 43 | 25 | 20 | 124 | 23 | 10 | 14 | 38 | 30 | 13 | 8 | 67 | 0,08 | 0,58 | 109.213 | 71.068 | 15,8 | S |
| 416868/1 | 8 | 1" | 40 ft | 44 | 27 | 27 | 126 | 22 | 10 | 15 | 37 | 29 | 12 | 9 | 68 | 0,07 | 0,58 | 109.649 | 70.633 | 15,7 | S |
| 416928/2 | 8 | 1" | 40 ft | 42 | 25 | 24 | 128 | 25 | 13 | 14 | 34 | 29 | 13 | 11 | 66 | 0,08 | 0,57 | 109.213 | 72.374 | 12,7 | S |
| 416934/2 | 8 | 1" | 40 ft | 44 | 23 | 32 | 128 | 23 | 9 | 14 | 34 | 30 | 13 | 12 | 67 | 0,08 | 0,58 | 108.488 | 70.923 | 12,8 | S |
| 416936/1 | 8 | 1" | 40 ft | 43 | 25 | 34 | 126 | 23 | 10 | 14 | 35 | 32 | 12 | 8 | 67 | 0,08 | 0,56 | 109.068 | 70.923 | 11,6 | S |

HEREBY THE COMPANY CERTIFIES THAT THE PRODUCTS INCLUDED IN THIS CERTIFICATE ARE FREE OF RADIOACTIVITY.

IDENTIFICATION MARKS

QUALITY DEPARTME

INSPECTION CERTIFICATE 3.1. - EN 10204

MILL TEST

| PAGE | CUSTOMER | DESTINATION |
|-----------|------------------------|---|
| 1 | INTERMETAL REBAR LLC | 10800 BISCAYNE BLVD. SUITE #870 FINAL DESTINATION : PORT OF HOUSTON |
| ORDER | DENOMINATION | DATE |
| 18/2683/1 | STANDARD ASTM A 615 | GRADE GRADE 60 |
| | | 18/06/2018 |

| REMARKS |
|--------------------------------------|
| DIAMETER, h AND c IN in. |
| LENGTH IN ft. |
| WEIGHT IN lb. |
| C, Si, Cr, Ni, Cu, Mn and Ceq. x 100 |
| P, S, V and others x 1000 |
| Rm and Re in psi. |
| ELONGATION IN 8 in.%. |



| HEAT N° | BAR DESIGNATION N° | Ø | LENGTH | CHEMICAL COMPOSITION OF THE STEEL IN % OF: | | | | | | | | | | | | h | c | MEASUREMENT OF RIBS | | TENSILE TESTS | | |
|----------|--------------------|-------|--------|--|----|----|-----|----|----|----|----|----|----|----|-----|------|------|---------------------|--------|---------------|------|--|
| | | | | C | P | S | Mn | Si | Cr | Ni | Cu | Mo | V | N | Ceq | | | Rm | Re | %A | BEND | |
| 412952/1 | 9 | 11/8" | 60 ft | 42 | 12 | 25 | 131 | 22 | 11 | 18 | 37 | 35 | 13 | 8 | 67 | 0,08 | 0,65 | 114.000 | 73.679 | 12,7 | S | |
| 416889/1 | 9 | 11/8" | 60 ft | 41 | 26 | 36 | 123 | 25 | 10 | 15 | 40 | 26 | 12 | 8 | 64 | 0,08 | 0,64 | 107.618 | 69.908 | 16,1 | S | |
| 416870/1 | 9 | 11/8" | 60 ft | 42 | 24 | 33 | 126 | 23 | 9 | 14 | 39 | 25 | 13 | 8 | 66 | 0,08 | 0,64 | 108.053 | 70.488 | 16,1 | S | |
| 416871/1 | 9 | 11/8" | 60 ft | 41 | 23 | 36 | 127 | 24 | 8 | 13 | 36 | 24 | 12 | 9 | 65 | 0,08 | 0,65 | 107.763 | 69.908 | 16,2 | S | |
| 416871/2 | 9 | 11/8" | 60 ft | 41 | 23 | 36 | 127 | 24 | 8 | 13 | 36 | 24 | 12 | 9 | 65 | 0,08 | 0,65 | 107.763 | 69.908 | 16,2 | S | |
| 416872/1 | 9 | 11/8" | 60 ft | 41 | 27 | 31 | 126 | 24 | 10 | 15 | 40 | 28 | 13 | 7 | 65 | 0,08 | 0,65 | 106.168 | 69.908 | 16,3 | S | |
| 416872/2 | 9 | 11/8" | 60 ft | 41 | 27 | 31 | 126 | 24 | 10 | 15 | 40 | 28 | 13 | 7 | 65 | 0,08 | 0,65 | 106.168 | 69.908 | 16,3 | S | |
| 416930/2 | 9 | 11/8" | 60 ft | 42 | 21 | 35 | 126 | 25 | 10 | 14 | 34 | 30 | 13 | 8 | 65 | 0,08 | 0,65 | 105.587 | 69.763 | 16,3 | S | |
| 416930/4 | 9 | 11/8" | 60 ft | 42 | 21 | 35 | 126 | 25 | 10 | 14 | 34 | 30 | 13 | 8 | 65 | 0,08 | 0,65 | 105.878 | 70.198 | 16,5 | S | |
| 416931/1 | 9 | 11/8" | 60 ft | 42 | 22 | 38 | 126 | 24 | 9 | 14 | 33 | 30 | 12 | 11 | 66 | 0,08 | 0,65 | 107.038 | 69.618 | 11,8 | S | |
| 416932/3 | 9 | 11/8" | 60 ft | 42 | 23 | 32 | 129 | 26 | 11 | 16 | 34 | 33 | 12 | 8 | 67 | 0,08 | 0,64 | 106.023 | 68.313 | 10,3 | S | |

HEREBY THE COMPANY CERTIFIES THAT THE PRODUCTS INCLUDED IN THIS CERTIFICATE ARE FREE OF RADIOACTIVITY.

IDENTIFICATION MARKS

QUALITY DEPARTME

Anula

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 042000-006

Description: Unit Masonry - Accessories

Project Name: UT SEAY - Building Addition

Project No.: 102-1219

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

- NO EXCEPTIONS NOTED
- SUBMIT SPECIFIED ITEM
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

BY:

daniel hodge



DATE: 05/08/2020

Submittal Comments:

1.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0163

PROJECT: UT Seay Building Addition

DATE: 05/06/2020

TO: BSA Lifestructures
AL

RE: Unit Masonry - Masonry Accessories - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 05/21/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 042000-006 | 1 | | 05/06/2020 | Unit Masonry - Masonry Accessories - Product Data | Submitted for Approval |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE <input checked="" type="checkbox"/> |
| COMMENTS NOTED <input type="checkbox"/> |
| REVISE AND RESUBMIT <input type="checkbox"/> |
| OTHER: <input type="checkbox"/> |
| DATE 5/6/2020 SPEC# 042000 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 042000-006 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

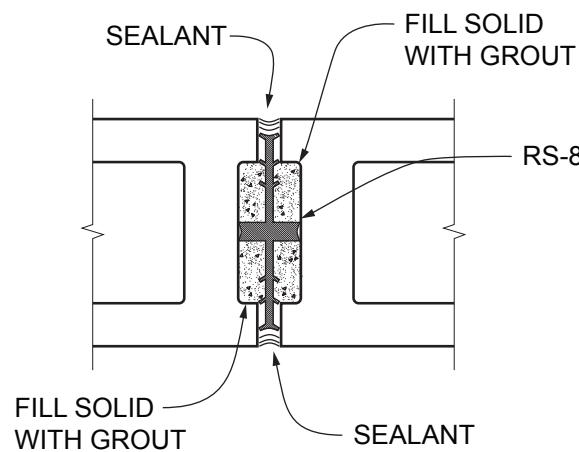
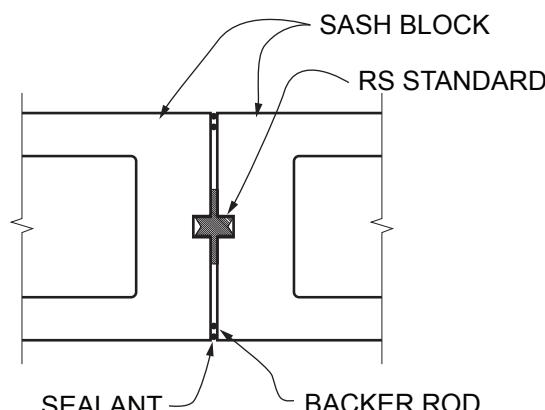
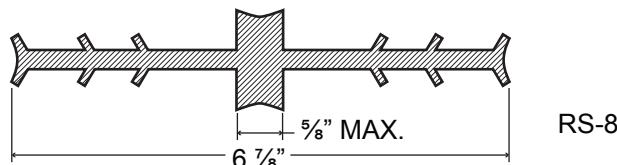
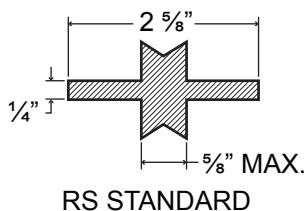
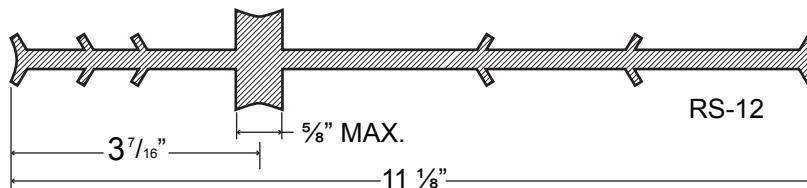
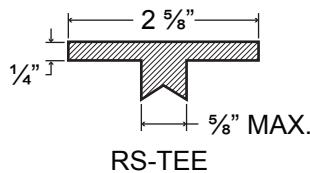
CC:

Signed: Tanner Hawkins
Tanner Hawkins



Control Joints / Expansion Joints

RS Series - Rubber Control Joint



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

MATERIAL SPECIFICATIONS:

- Extruded rubber material designed for masonry walls at control joints
- Rubber material conforms to ASTM D2000 M2AA-805 (type rubber 654-06) with a durometer hardness of 80 (+ or - 5) when tested in conformance with ASTM D2240
- RS Series rubber control joints are manufactured from 50% recycled material.

TEST DATA

| | Typical Values | Test Method |
|-----------------------------|-----------------|--------------------|
| Tensile Strength | 1000 | ASTMD-412 |
| Ultimate Elongation | 575% | ASTMD-412 |
| Compression Set | 45% | ASTMD-395 Method B |
| Low Temperature Brittleness | Passed | ASTMD-746 |
| Shore A Hardness | 80 | |
| Heat Aged Physicals | 70 hours@1000°C | |
| Tensile Strength | 1135 | |
| Ultimate Elongation | 545% | |
| Shore A Hardness | 82 | |

RS Series:

(Length per piece is 4 ft)

- RS-STANDARD
- RS-TEE
- RS-8
- RS-12

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question.

HOHMANN & BARNARD, Inc.

30 Rasons Court | Hauppauge, NY 11788

CORPORATE HEADQUARTERS

T: 800.645.0616 F: 631.234.0683

www.h-b.com

Branch/Subsidiary Locations:

ALABAMA - ILLINOIS - MARYLAND

NEW YORK - PENNSYLVANIA - TEXAS

UTAH - CANADA

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[PRINT FORM](#)

[RESET FORM](#)

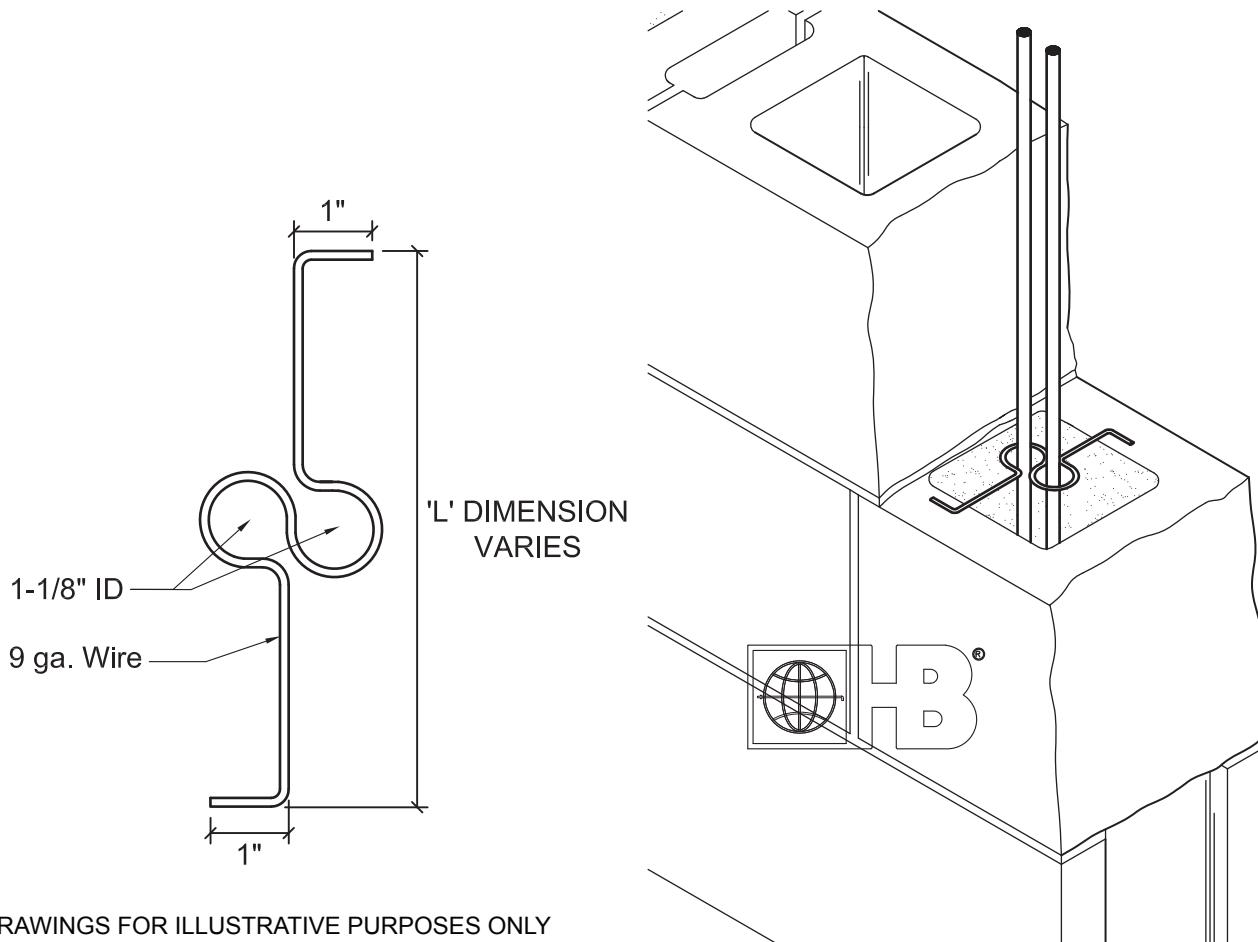
[SAVE FORM](#)

[SAVE FORM LOCK & HIDE BUTTONS](#)



Rebar Positioners

RB Rebar Positioner



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

RB Rebar Positioner

For positioning rebar in center of block. The Z-shaped wire bridges cell of block while bends rest on shell.

Material Conformances:

Wire (Carbon Steel): Cold-drawn steel wire conforming to ASTM A82/A82M:

Tensile Strength - 80,000 p.s.i.

Yield Point - 70,000 p.s.i. minimum

Zinc coating:

Mill Galvanized: ASTM A641/A641M (0.1 oz/ft²)

Hot-Dip Galvanized after fabrication:

ASTM A153/A153M-B2 (1.5 oz/ft)

Wire (Stainless Steel): ASTM A580/A580M - AISI Type 304 (Type 316 available on special order)

Wire Diameter:

9 gauge (.148" or W1.7)

Finishes:

- Mill Galvanized
- Hot-Dip Galvanized
- Stainless Steel

Note: H&B recommends Stainless Steel for maximum protection against corrosion.

Product# (size):

- RB-6 (L=4" for 6" block)
- RB-8 (L=6" for 8" block)
- RB-10 (L=8" for 10" block)
- RB-12 (L=10" for 12"block)

H&B manufactures steel wire products from a minimum of 95% post-consumer recycled material.

HOHMANN & BARNARD, Inc.

30 Rasons Court | Hauppauge, NY 11788

CORPORATE HEADQUARTERS

T: 800.645.0616 F: 631.234.0683

www.h-b.com

Branch/Subsidiary Locations:

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NEW YORK - PENNSYLVANIA - TEXAS

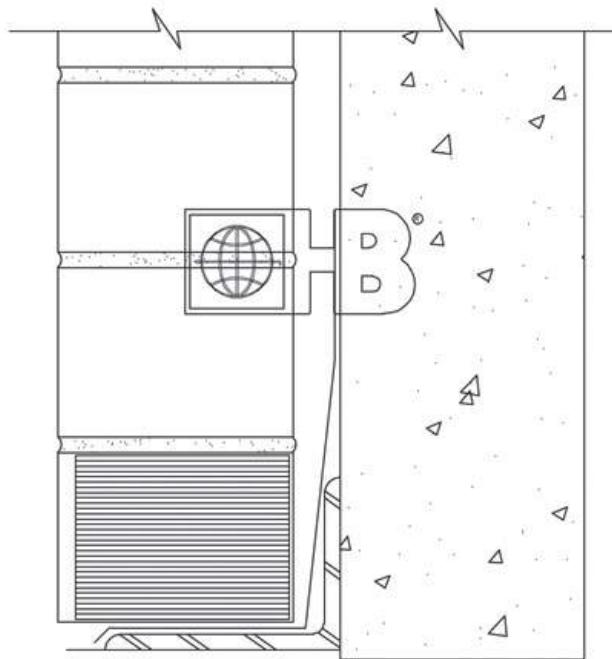
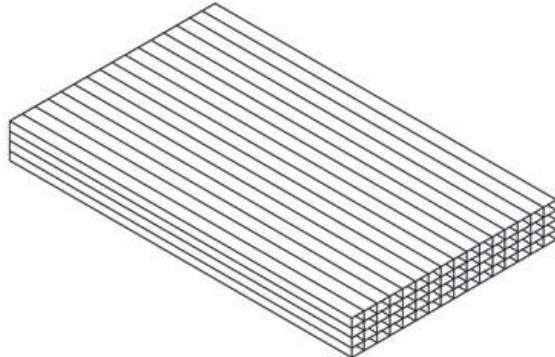
CANADA

© HOHMANN & BARNARD, INC. - 2012



Weep Holes/Vents

QV - Quadro-Vent™



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

Quadro-Vent's honeycomb design allows passage of moisture from cavity to the building exterior while restricting ingress of insects and other debris.

- Allows passage of moisture up to its 2 1/2" height, important in the event of mortar droppings at bottom of cavity.
- Is suitable for top of wall venting.
- Polypropylene tested in conformance with ASTM D2240, ASTM D790B, ASTM D638, and ASTM D1238B.

Color:

- | | | | |
|---------------------------------|--------------------------------|--------------------------------|--------------------------------|
| <input type="checkbox"/> Gray | <input type="checkbox"/> Clear | <input type="checkbox"/> Buff | <input type="checkbox"/> Black |
| <input type="checkbox"/> Almond | <input type="checkbox"/> Cocoa | <input type="checkbox"/> White | |

Size:

- | |
|--|
| <input type="checkbox"/> Standard (3/8" thick x 3 3/8" wide x 2 1/2" tall) |
| <input type="checkbox"/> Jumbo (3/8" thick x 3 3/8" wide x 3 1/2" tall) |
| <input type="checkbox"/> Custom 3/8" x _____ x _____ |



Control Joints / Expansion Joints

NS - Closed Cell Neoprene Sponge

CAULK
NS

NSTA
(WITH TEAR STRIP)

NS
(STD. WITHOUT TEAR STRIP)

TECHNICAL DATA / PHYSICAL PROPERTIES

| | |
|---|----------------|
| Color: Black / Dark Gray | |
| Polymer: Neoprene/SBR | SCE 41/2A1 |
| ASTM Specifications D-1056-91 | |
| SAE Specifications 18-R | |
| Tensile Strength PSI ASTM D3575 | 65 |
| Density (pcf) approx. | 2-5 |
| Elongation ASTM Method 3575 | 350 |
| Temperature Resistance | |
| Low | - 90 degrees F |
| High continuous | +155 degrees F |
| High intermittent | +210 degrees F |
| Compression Set (max) ASTM 3575/1056 | 12% / 25% |
| ASTM Method - 1/2" samples | |
| compressed 50% 22 hrs. @ 70 degrees F - 24 hr. recovery | |
| Compression Deflection (psi) | 5 - 12 |
| Weight required to compress a 1.129" diameter disc by 25% | |
| Varies according to thickness | |
| Accelerated Aging | |
| (7 days at 170o F) | |
| Flexibility - 180o F | |
| bend without cracking | |
| Appearance change | Excellent |
| Shrinkage, Lin. Max | None |
| Water Absorption by weight (Max.) (ASTM method) | 5% 3% (+/-) |

DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

Material:

NS - Without tear strip (standard)
 NSTA - With tear strip
 Optional: Pressure-Sensitive Adhesive on one side

Thickness:

1/4"
 3/8"
 1/2"
 Other _____

Width:

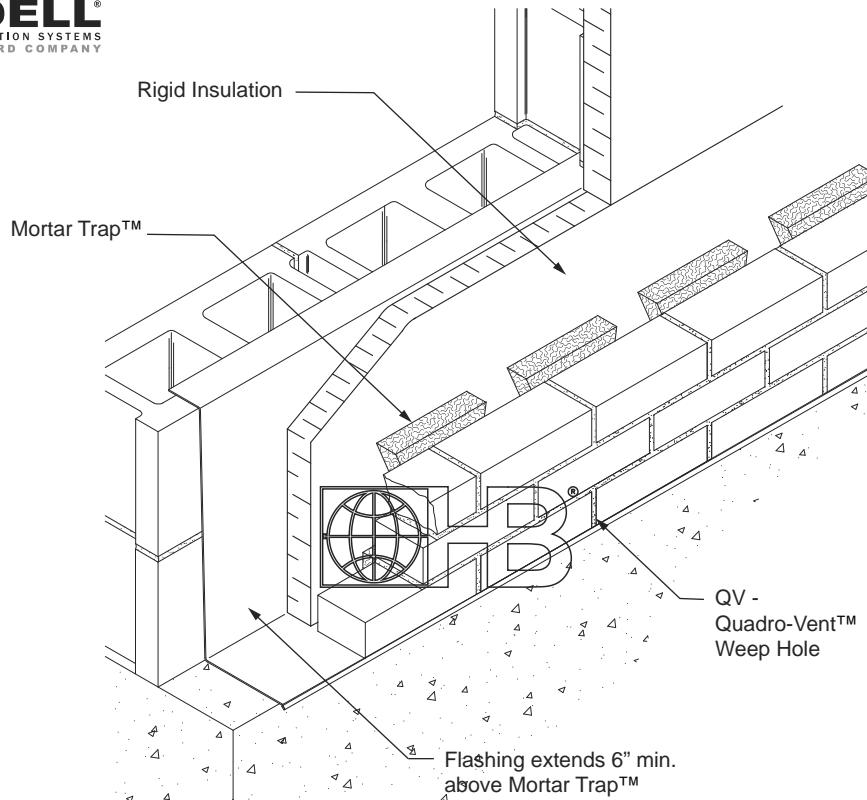
3"
 4"
 6"
 Other _____

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question. This drawing and/or data sheet is the confidential and proprietary information of Hohmann & Barnard, Inc. and is not to be reproduced, copied or disclosed, in whole or in part, without the prior written consent of H&B.



HOHMANN & BARNARD, INC.
A MiTek - BERKSHIRE HATHAWAY COMPANY

Mortar Collection Systems Mortar Trap™



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

Mortar Trap™

Mortar Trap™ is manufactured from high-density polyethylene (HDPE) strands woven into a 90% open mesh. Its unique shape breaks up mortar droppings and prohibits mortar from creating a moisture retaining barrier, allowing water to flow freely to the weep holes.

Features:

- 90% open mesh construction allows unobstructed passage of air & water through the material itself so walls breathe, drain & dry quicker.
- Will not react with common building products (PVC, polystyrene, copper, rubberized-asphalt, lead, stainless steel or galvanized metal).
- Will not: absorb or trap moisture, support mold or fungus, and is inedible to insects.
- Will not degrade as a result of temperature variations and is designed to last for the life of the building.
- Keeps weep holes open - catches and permanently suspends mortar-droppings so blockage can't occur.
- Fast, easy installation by masons - does not require fasteners or adhesives, no special skills or tools.
- Slightly compressible to allow for cavity variations in the field.

Thickness: (Mortar Trap™ is 10" high x 4' long)

- 0.4"
 1"
 1 1/2"
 2"

NOTE: When Mortar Trap™ is used with the Quadro-Vent™ Weep Hole additional insect screening is not required.

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 042000-007

Description: Unit Masonry - Masonry Cleaner - Product Data

Project Name: UT SEAY - Building Addition

Project No.: 102-1219

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



NO EXCEPTIONS NOTED



SUBMIT SPECIFIED ITEM



ACTION NOT REQUIRED



EXCEPTIONS NOTED



REVISE AND RESUBMIT



NOT REVIEWED

BY:

daniel hodge



DATE: 05/08/2020

Submittal Comments:

1.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0164

PROJECT: UT Seay Building Addition

DATE: 05/06/2020

TO: BSA Lifestructures
AL

RE: Unit Masonry - Masonry Cleaner - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 05/21/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 042000-007 | 1 | | 05/06/2020 | Unit Masonry - Masonry Cleaner - Product Data | Submitted for Approval |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE <input checked="" type="checkbox"/> |
| COMMENTS NOTED <input type="checkbox"/> |
| REVISE AND RESUBMIT <input type="checkbox"/> |
| OTHER: <input type="checkbox"/> |
| DATE 5/6/2020 SPEC# 042000 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 042000-007 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

CC:

Signed: Tanner Hawkins

Tanner Hawkins



2010 All Surface Cleaner

multiple-use cleaner and degreaser

OVERVIEW

Enviro Klean® 2010 All Surface Cleaner is a “next-generation” product for cleaning and degreasing light-to-heavily soiled stone, tile, masonry and much more.

Powerful enough for industrial use, flexible enough for jobs around the home, space-saving EK 2010 replaces a host of individual cleaning agents. It's dilutable for home-use on windows, bathroom tub and tile, counter tops and more. It's concentrated for the toughest industrial cleaning jobs on concrete, metal and many other plant and warehouse surfaces. EK 2010 also removes Sure Klean® Weather Seal Siloxane PD over spray from windows.

Easy-to-use EK 2010 All Surface Cleaner is water-rinsable and contains no harsh acids, caustics or solvents.

SPECIFICATIONS

For all PROSOCO product specifications visit www.prosoco.com and click on “SpecBuilder” or “Solution Finder.”

ADVANTAGES

- Cleans and degreases light-to-heavily soiled stone, tile, masonry and much more.
- Effectively removes moderate biological staining.
- Dilutable for jobs around the home.
- Replaces a host of individual cleaning agents.
- Effective cleaner for windows, bathroom tub and tile, counter tops and more.
- Easy-to-use and water-rinsable.
- Contains no harsh acids, caustics or solvents.

Limitation

- Repeated use may dull polished carbonate surfaces, including but not limited to limestone, marble and travertine.

REGULATORY COMPLIANCE

VOC Compliance

Enviro Klean® 2010 All Surface Cleaner is compliant with all national, state and district regulations.

TYPICAL TECHNICAL DATA

| | |
|------------------|---|
| FORM | clear green liquid |
| SPECIFIC GRAVITY | 1.070 |
| pH | 10.5 7.8 – 8.2 Typical Rinsewater |
| WT/GAL | 8.90 lbs |
| ACTIVE CONTENT | Not applicable |
| TOTAL SOLIDS | Not applicable |
| VOC CONTENT | Not applicable |
| FLASH POINT | >200°F (>93°C)ASTM D 3278 |
| FREEZE POINT | 32°F (0°C) |
| SHELF LIFE | 3 years in tightly sealed, unopened container |

2010 All Surface Cleaner

PREPARATION

Protect people, vehicles, property, plants and all surfaces not set for cleaning from the product, splash, rinse, residue, fumes and wind drift. Test all surfaces that may come in contact for compatibility. Immediately rinse non target materials with large quantities of water. Grass and plantings may be protected with sprinklers. Divert pedestrian and auto traffic if necessary. Clean when traffic is at a minimum.

Surface and Air Temperatures

Cleaning when temperatures are below freezing or will be overnight may harm masonry. Best air and surface temperatures for cleaning are 50°F (10°C) or above. If freezing conditions exist before application, let masonry thaw.

Equipment

Apply with low-pressure sprayer, brush or heavy nap roller. Scrub heavily soiled surfaces with a nonabrasive brush or synthetic scrubbing pad. Rinse with enough water and pressure to flush spent cleaner and dissolved soiling from the masonry surface and surface pores without damage. Masonry-washing equipment generating 400–1000 psi with a water flow rate of 6–8 gpm is the best water/pressure combination for rinsing porous masonry. Use a 15–45° fan spray tip. Heated water (150–180°F; 65–82°C) may improve cleaning efficiency.

Use adjustable equipment for reducing water flow rates and rinsing pressure for sensitive surfaces. Rinsing pressures greater than 1000

psi and fan spray tips smaller than 15° may permanently damage sensitive masonry. Water flow rates less than 6 gpm may reduce cleaning productivity and contribute to uneven cleaning results.

ALWAYS TEST

ALWAYS TEST a small area of each surface to confirm suitability and desired results before starting overall application. Test with the same equipment, recommended surface preparation and application procedures planned for general application.

APPLICATION

Before use, read "Preparation" and "Safety Information."

ALWAYS TEST each type of surface and each type of stain for suitability, dilution, dwell-time and results. Use the following application instructions.

Dilution

Use in concentrate to remove heavy soiling. When used as a light-duty cleaner, dilute up to 1 part cleaner to 10 parts clean water.

Application Instructions

1. Working from the bottom to the top, prewet the surface with clean water.
2. Apply the appropriately diluted solution to the masonry surface using a brush or low-pressure spray.
3. Let the cleaner stay on the surface 1–10 minutes, based on testing. Gently scrub heavily soiled areas.
NOTE: Do not let EK 2010 dry on the surface. If drying occurs, lightly wet surfaces with fresh water and reapply the cleaner in a gentle scrubbing manner.
4. Working from the bottom to the top, rinse the surface thoroughly with clean water.
5. Repeat steps 1 through 4 if necessary.

Cleanup

Clean tools and equipment using fresh water.

| Recommended for these substrates. Always test. Coverage is in sq.ft./m. per gallon of concentrate. | | | |
|--|----------------|------|--------------------------------|
| Substrate | Type | Use? | Coverage |
| Architectural Concrete Block | Burnished | yes | 50–150 sq.ft. 5–14 sq.m. |
| | Smooth | yes | |
| | Split-faced | yes | |
| | Ribbed | yes | |
| Concrete | Brick | yes | 50–150 sq.ft. 5–14 sq.m. |
| | Tile | yes | |
| | Precast Panels | yes | |
| | Pavers | yes | |
| | Cast-in-place | yes | |
| Fired Clay | Brick | yes | 150–500 sq.ft. 14–46 sq.m. |
| | Tile | yes | |
| | Terra Cotta | yes | |
| | Pavers | yes | |
| Marble, Travertine, Limestone | Polished | yes | 500–1000 sq.ft. 46–93 sq.m. |
| | Unpolished | yes | 150–500 sq.ft. 14–46 sq.m. |
| Granite | Polished | yes | 500–1000 sq.ft. 46–93 sq.m. |
| | Unpolished | yes | 150–500 sq.ft. 14–46 sq.m. |
| Sandstone | Unpolished | yes | 150–500 sq.ft. 14–46 sq.m. |
| Slate | Unpolished | yes | 150–500 sq.ft. 14–46 sq.m. |
| Always test to ensure desired results. Coverage estimates depend on surface texture and porosity. | | | |

2010 All Surface Cleaner

SAFETY INFORMATION

Enviro Klean® 2010 All Surface Cleaner is a water-reduced cleaning product. Use appropriate safety equipment and job site controls during handling and application. Read the full label and MSDS for precautionary instructions before use.

First Aid

Ingestion: If conscious, give large amounts of water and call a physician, emergency room or poison control center immediately. Induce vomiting with instruction by medical personnel.

Eye Contact: Rinse thoroughly for 15 minutes. Get medical assistance if irritation persists.

Skin Contact: Remove contaminated clothing and rinse thoroughly. Get medical attention if irritation persists. Launder contaminated clothing before reuse.

Inhalation: Remove to fresh air. Get medical attention as necessary.

24-Hour Emergency Information:
INFOTRAC at 800-535-5053

WARRANTY

The information and recommendations made are based on our own research and the research of others, and are believed to be accurate. However, no guarantee of their accuracy is made because we cannot cover every possible application of our products, nor anticipate every variation encountered in masonry surfaces, job conditions and methods used. The purchasers shall make their own tests to determine the suitability of such products for a particular purpose.

PROSOCO, Inc. warrants this product to be free from defects. Where permitted by law, PROSOCO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of merchantability or fitness for particular purpose. The purchaser shall be responsible to make his own tests to determine the suitability of this product for his particular purpose. PROSOCO's liability shall be limited in all events to supplying sufficient product to re-treat the specific areas to which defective product has been applied. Acceptance and use of this product absolves PROSOCO from any other liability, from whatever source, including liability for incidental, consequential or resultant damages whether due to breach of warranty, negligence or strict liability. This warranty may not be modified or extended by representatives of PROSOCO, its distributors or dealers.

CUSTOMER CARE

Factory personnel are available for product, environment and job-safety assistance with no obligation. Call 800-255-4255 and ask for Customer Care - technical support.

Factory-trained representatives are established in principal cities throughout the continental United States. Call Customer Care at 800-255-4255, or visit our web site at www.prosoco.com, for the name of the Enviro Klean® representative in your area.

BEST PRACTICES

Rinse with enough water and pressure to flush spent cleaner and dissolved soiling from the masonry surface and surface pores without damage. Masonry-washing equipment generating 400–1000 psi with a water flow rate of 6–8 gpm is the best water/pressure combination for rinsing porous masonry. Use a 15–45° fan spray tip. Heated water may improve cleaning efficiency.

Do not let EK 2010 dry on the surface. If drying occurs, lightly wet surfaces with fresh water and reapply the cleaner in a gentle scrubbing manner.

Repeated use may dull polished carbonate surfaces, including but not limited to limestone, marble and travertine.

Never go it alone. For problems or questions, contact your local PROSOCO distributor or field representative. Or call PROSOCO technical Customer Care toll-free at 800-255-4255.



PRODUCT DATA SHEET

PROSOCO
SINCE 1939

2010 All Surface Cleaner

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Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 047200-003

Description: Cast Stone Masonry Cleaner and Anchors - PD

Project Name: UT Seay Building Addition

Project No.: 301-8105

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



NO EXCEPTIONS NOTED



SUBMIT SPECIFIED ITEM



ACTION NOT REQUIRED



EXCEPTIONS NOTED



REVISE AND RESUBMIT



NOT REVIEWED

BY:

daniel hodge



DATE: 12/11/2020

Submittal Comments:



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0462

PROJECT: UT Seay Building Addition

DATE: 12/02/2020

TO: BSA Lifestructures
AL

RE: Cast Stone Masonry - Cleaner & Anchors - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 12/16/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 047200-003 | 1 | | 12/02/2020 | Cast Stone Masonry - Cleaner & Anchors - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 12/2/2020 SPEC# 047200

REVIEWED BY tanner.hawkins

SUBMITTAL# 047200-003

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins

Submittal #04 72 00-0.0
04 72 00 - Cast Stone
Masonry

Rudd & Adams Masonry, Inc.
242 STATE HWY 46 W
Boerne, Texas 78006
Phone: (830) 981-4900

Project: 553 - UT Seay
108 E Dean Keeton St
Austin, Texas 78712

047200 - Cast Stone Masonry Submittal

| | | | |
|---------------------------|-------|--------------------|--|
| REVISION: | 0 | SUBMITTAL MANAGER: | Jacob Adams (Rudd & Adams Masonry, Inc.) |
| STATUS: | Draft | DATE CREATED: | 11/13/2020 |
| ISSUE DATE: | | SPEC SECTION: | 04 72 00 - Cast Stone Masonry |
| RESPONSIBLE CONTRACTOR: | | RECEIVED FROM: | |
| SUBMIT BY: | | | |
| TYPE: Product Information | | | |
| APPROVERS: | | | |
| BALL IN COURT: | | | |
| DESCRIPTION: | | | |

SUBMITTAL WORKFLOW

BY

DATE

COPIES TO

Submittal #04 72 00-1.0

04 72 00 - Cast Stone Masonry

Rudd & Adams Masonry, Inc.
242 STATE HWY 46 W
Boerne, Texas 78006
Phone: (830) 981-4900

Project: 553 - UT Seay
108 E Dean Keeton St
Austin, Texas 78712

1. Manufacturers AS SPECIFIED

| | | | |
|--|-------|--------------------|--|
| REVISION: | 0 | SUBMITTAL MANAGER: | Jacob Adams (Rudd & Adams Masonry, Inc.) |
| STATUS: | Draft | DATE CREATED: | 04/24/2020 |
| ISSUE DATE: | | SPEC SECTION: | 04 72 00 - Cast Stone Masonry |
| RESPONSIBLE CONTRACTOR: | | RECEIVED FROM: | |
| | | SUBMIT BY: | |
| | | TYPE: | Product Information |
| APPROVERS: | | | |
| BALL IN COURT: | | | |
| DESCRIPTION: 2.1 MANUFACTURERS A. Source Limitations for Cast Stone: Obtain cast-stone units from single source from single manufacturer. | | | |
| B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color, from one manufacturer for each cementitious component and from one source or producer for each aggregate. | | | |

SUBMITTAL WORKFLOW

BY

DATE

COPIES TO

Submittal #04 72 00-2.0

04 72 00 - Cast Stone Masonry

Rudd & Adams Masonry, Inc.
242 STATE HWY 46 W
Boerne, Texas 78006
Phone: (830) 981-4900

Project: 553 - UT Seay
108 E Dean Keeton St
Austin, Texas 78712

2. Cast-Stone Materials

| | | | | |
|---|-------|---|--|--|
| REVISION: | 0 | SUBMITTAL MANAGER: Jacob Adams (Rudd & Adams Masonry, Inc.) | | |
| STATUS: | Draft | DATE CREATED: 04/24/2020 | | |
| ISSUE DATE: | | SPEC SECTION: 04 72 00 - Cast Stone Masonry | | |
| RESPONSIBLE CONTRACTOR: | | RECEIVED FROM: | | |
| SUBMIT BY: | | | | |
| TYPE: Product Information | | | | |
| APPROVERS: | | | | |
| BALL IN COURT: | | | | |
| DESCRIPTION: 2.2 CAST-STONE MATERIALS | | | | |
| <p>A. General: Comply with ASTM C1364.</p> <p>B. Portland Cement: ASTM C150/C150M, Type I or Type III, containing not more than 0.60 percent total alkali when tested according to ASTM C114. Provide natural color or white cement as required to produce cast-stone color indicated.</p> <p>C. Coarse Aggregates: Granite, quartz, or limestone complying with ASTM C33/C33M; gradation and colors as needed to produce required cast-stone textures and colors.</p> <p>D. Fine Aggregates: Natural sand or crushed stone complying with ASTM C33/C33M, gradation and colors as needed to produce required cast-stone textures and colors.</p> <p>E. Color Pigment: ASTM C979/C979M, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, nonfading, and resistant to lime and other alkalis.</p> <p>F. Admixtures: Use only admixtures specified or approved in writing by Architect.</p> <ol style="list-style-type: none"> 1. Do not use admixtures that contain more than 0.1 percent water-soluble chloride ions by mass of cementitious materials. Do not use admixtures containing calcium chloride. 2. Use only admixtures that are certified by manufacturer to be compatible with cement and other admixtures used. | | | | |

SUBMITTAL WORKFLOW

| NAME | SENT DATE | DUE DATE | RETURNED DATE | RESPONSE | ATTACHMENTS | COMMENTS |
|---------------------------------|-----------|----------|---------------|----------|---|----------|
| General Information Attachments | | | | | Pyramid Cast Stone Supplier Qualifications.pdf Alamo Portland - I-10.pdf | |

BY

DATE

COPIES TO

PYRAMID CAST STONE CO. INC.

PRECAST CONCRETE

CAST STONE

PRECAST TERRAZZO

P.O. Box 23248

PHONE (210) 533-3511

SAN ANTONIO, TEXAS 78223

March 17, 2020

Rudd & Adams Masonry, Inc
242 STATE Hwy 46 West
Boerne, TX, 78006

**Re: Letter of Qualification
The University of Texas at Austin
Austin, Texas**

Gentlemen:

Pyramid Cast Stone Company, Inc. is the oldest family-owned cast stone manufacturer in the United States. We specialize in architectural cast stone and pre-cast concrete products and our family has been in this business for over 75 years. Our products are asbestos free.

We have produced in every Texas town from Amarillo to Brownsville, from El Paso to Orange, approximately 10,000 individual projects.

Here is a list of some of the jobs we have done that show our work

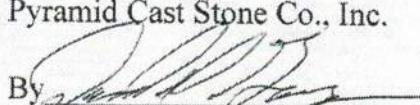
- University of Texas at Austin Recreational Sports Facility – Masons were R+R Masonry – 1988 - \$172,000.00
- University of Texas at Austin Parking Garage #4A – Masons were L + T Masonry – 1998 – \$114,000.00
- University of Texas at Austin Parking Garage #4B – Masons were L + T Masonry – 1999 – \$317,000.00
- University of Texas at Austin Parking Garage – Masons were P + S Masonry – 2001 – \$485,000.00
- University of Texas at Austin Almetris Duren Residence Hall – Masons were P + S Masonry – 2005 – \$154,000.00

- University of Texas at Austin Parking Garage #20 – Masons were Custom Masonry – 1998 – \$57,000.00
- University of Texas at San Antonio Phase III – Masons were Rudd & Adams Masonry – 2007 – \$19,400.00
- University of Texas at San Antonio Engineering Building – Masons Were Rudd & Adams Masonry – 2009
- Corner Stone Christian Schools San Antonio – Masons were Rudd & Adams Masonry – 2018 – \$1,267,481.00
- University of Texas at Austin D.F.F. Patio Club – Masons were Rudd & Adams Masonry – 2019 – \$2,190.00
- University of Texas at Austin Disch-Falk Field Caps – Masons were Rudd & Adams Masonry – 2019 – \$2,150.00

Please let us know if we can provide additional information.

Yours truly,
Pyramid Cast Stone Co., Inc.

By



David D. Garza

PYRAMID CAST STONE CO. INC.

PRECAST CONCRETE

CAST STONE

PRECAST TERRAZZO

P.O. Box 23248

PHONE (210) 533-3511

SAN ANTONIO, TEXAS 78223

March 17, 2020

Rudd & Adams Masonry, Inc

242 STATE Hwy 46 West

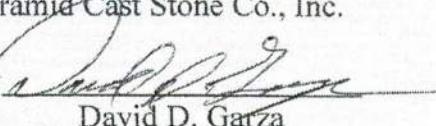
Boerne, TX, 78006

**Re: Letter of Certification
Cast Stone Products
The University of Texas at Austin Seay Building Addition
Austin, Texas**

Gentlemen:

This Letter is to certify that the Cast Stone for the above mentioned project will meet or exceed the specifications section 047200.

Yours truly,
Pyramid Cast Stone Co., Inc.

By 
David D. Garza

Submittal #04 72 00-3.0

04 72 00 - Cast Stone Masonry

Rudd & Adams Masonry, Inc.
242 STATE HWY 46 W
Boerne, Texas 78006
Phone: (830) 981-4900

Project: 553 - UT Seay
108 E Dean Keeton St
Austin, Texas 78712

3. Cast-Stone Units

| | | |
|--|-------|---|
| REVISION: | 0 | SUBMITTAL MANAGER: Jacob Adams (Rudd & Adams Masonry, Inc.) |
| STATUS: | Draft | DATE CREATED: 04/24/2020 |
| ISSUE DATE: | | SPEC SECTION: 04 72 00 - Cast Stone Masonry |
| RESPONSIBLE CONTRACTOR: | | RECEIVED FROM: |
| SUBMIT BY: | | |
| TYPE: Product Information | | |
| APPROVERS: | | |
| BALL IN COURT: | | |
| DESCRIPTION: 2.3 CAST-STONE UNITS <ul style="list-style-type: none"> A. Subject to compliance with requirements, provide products by one of the following: <ol style="list-style-type: none"> 1. Advanced Cast Stone, Inc. 2. Architectural Cast Stone, Inc. 3. Continental Cast Stone Manufacturing, Inc. 4. Custom Cast Stone, Inc. 5. Edwards Cast Stone Company. B. Cast-Stone Units: Comply with ASTM C1364. <ol style="list-style-type: none"> 1. Units shall be manufactured using the vibrant dry tamp or wet-cast method. 2. Units shall be resistant to freezing and thawing as determined by laboratory testing according to ASTM C666/C666M, Procedure A, as modified by ASTM C1364. C. Fabricate units with sharp arris and accurately reproduced details, with indicated texture on all exposed surfaces unless otherwise indicated. <ol style="list-style-type: none"> 1. Slope exposed horizontal surfaces 1:12 to drain unless otherwise indicated. 2. Provide raised fillets at backs of sills and at ends indicated to be built into jambs. 3. Provide drips on projecting elements unless otherwise indicated. D. Fabrication Tolerances: | | |

SUBMITTAL WORKFLOW

| NAME | SENT DATE | DUE DATE | RETURNED DATE | RESPONSE | ATTACHMENTS | COMMENTS |
|---------------------------------|-----------|----------|---------------|----------|---|----------|
| General Information Attachments | | | | | Pyramid Cast Stone - STANDARD SPEC 04 72 0009102019.pdf | |

BY

DATE

COPIES TO

PYRAMID CAST STONE CO. INC.

PRECAST CONCRETE

CAST STONE

PRECAST TERRAZZO

P.O. BOX 23248

PHONE (210) 533-3511

SAN ANTONIO, TX 78223

STANDARD SPECIFICATION 04 72 00

This specification provides basic requirements for Cast Stone, a refined architectural concrete building unit manufactured to simulate natural cut stone, used in division 4 masonry applications. Cast Stone is a masonry product, used as an architectural feature, trim and ornament or facing for buildings and or other structures.

Pyramid Cast Stone Company uses these specifications when manufacturing stone with either the Vibrant Dry Tamp Method as well as a Wet Cast Method these methods use a correctly proportioned mixture of white and grey cements, manufactured or natural sands, crushed stone and color pigments to achieve the appearance of a natural cut stone.

PART I-GENERAL

1.1 SECTION INCLUDES-Architectural Cast Stone.

- A. Scope- Cast Stone shown on architectural drawings and as described in this specification.
 - 1. Manufacturer shall furnish Cast Stone covered by this specification

1.2 RELATED SECTIONS

- A. Section - 01 33 00 - Submittal Procedures
- B. Section - 04 05 13 - Masonry Mortaring
- C. Section - 04 05 16 - Masonry Grouting
- D. Section - 04 05 19 - Masonry Anchorage and Reinforcing.
- E. Section - 04 20 20 - Unit Masonry
- F. Section - 07 90 00 - Joint Masonry

1.3 References

- A. ACI 318- Building code Requirements for Reinforced Concrete
- B. ASTM A 185- Standard Specification for Steel Welded wire Reinforcement, Plain, for Concrete.
- C. ASTM A 615/A 615M- Standard Specification for Deformed and Plain Billet-Steel Bars for Reinforced Concrete
- D. ASTM C 33- Standard Specifications for Concrete Aggregates
- E. ASTM C 150- Standard Specification for Portland Cement
- F. ASTM C 595- Blended Cement
- G. ASTM C 1157- Hydraulic Cement
- H. ASTM C 173- Standard Test Method for Air Content of Freshly Mixed Concrete by the Volume Method.
- I. ASTM C 231- Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
- J. ASTM C 260- Standard Specification for Air-Entrained Admixtures For Concrete.
- K. ASTM C 270- Standard Specification for Mortar for Unit Masonry
- L. ASTM C 426- Standard Test Method for Linear Shrinkage of Concrete Masonry Units.
- M. ASTM C 494/C 494M- Standard Specification for Chemical Admixtures for concrete.
- N. ASTM C 618- Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
- O. ASTM C 666- Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
- P. ASTM C 979- Standard Specification for Coloring Pigments for Integrally Pigmented Concrete
- Q. ASTM C 989- Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete.
- R. ASTM C 1116- Standard Specification for Fiber Reinforced Concrete and Shotcrete.

- S. ASTM C 1194- Standard Test Method for Compressive Strength of Architectural Concrete.
- T. ASTM C 1195- Standard Test Method for Absorption of Architectural Cast Stone.
- U. ASTM C 1364- Standard Specification for Architectural Cast Stone.
- V. ASTM D 2244- Standard Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
- W. Cast Stone Institute Manual ® Technical Manual (Current Edition)

1.4 DEFINITIONS

- A. Cast Stone- a refined architectural concrete building unit manufactured to simulate natural cut stone, used in division 4 masonry applications.
 - 1. Dry Cast- manufactured from zero slump concrete.
 - a. Vibrant Dry Tamp (VDT) casting method: Vibratory ramming of earth moist zero slump concrete against a rigid mold until it is densely compacted.
 - b. Machine casting method: Manufactured from earth moist, zero- slump concrete compacted by machinery using vibration and pressure against a mold until it becomes densely consolidated.
 - 2. Wet Cast-manufactured from slump concrete.
 - a. Wet cast method: manufactured from measurable slump concrete and vibrated into a mold until it becomes densely consolidated.
 - 3. Specifier Note: Slump, manufacturing method, and apparatus shall be selected by the manufacturer and not specified by the purchaser.

1.5 SUBMITTAL PROCEDURES

Pyramid Cast Stone Company complies with section 01 33 00-Submittal Procedures.

Samples: Submit pieces of the Cast Stone that are representative of the general range of finish and color to proposed to be furnished for the project.

Shop Drawings: Submit manufactures shop drawings including profiles, cross sections, reinforcement, exposed faces, arrangement of joints (optional for standard or semi-custom installations), anchoring methods, anchors (if required), annotation of tone types and their location.

1.6 QUALITY ASSURANCE

Manufactures Qualifications:

Pyramid Cast Stone Company has the plant facilities sufficient to produce the shapes, quantities, and size of Cast Stone required in accordance with the project schedule.

Standards:

Pyramid Cast Stone Company complies with the Cast Stone Institute® Technical Manual and the project specifications. Where a conflict may occur, the contact documents shall prevail.

PART 2- PRODUCTS

2.1 ARCHITECTURAL CAST STONE

A. Comply with ASTM C 1364

B. Physical properties: Provide the following:

1. Compressive Strength- ASTM C 1194: 6,500 psi minimum for products at 28 days.
2. Absorption- ASTM C 1195: 6% maximum by the cold water method, or 10% maximum by the boiling method for products at 28 days.
3. Air Content- ASTM C 173 or C 231, for wet cast product shall be 4-8% for units exposed to freeze-thaw environments. Air entrainment is not require for VDT products.
4. Freeze-thaw- ASTM C 1364: The CPWL shall be less than 5% after 300 cycles of freezing and thawing.
5. Linear Shrinkage- ASTM C 426: Shrinkage shall not exceed 0.065%

2.2 RAW MATERIALS

- A. Portland cement- Type I or Type III, white and/or grey, ASTM C 150. Blended Cement, ASTM C595 or Hydraulic Cement ASTM C1157.
- B. Coarse aggregate- Granite, quartz or limestone, ASTM 33, except for gradation, and are optional for the VDT casting method.
- C. Fine aggregates- Manufactured or natural sands, ASTM C 33, except for gradation.
- D. Colors- Inorganic iron oxide pigments, ASTM C 979 except that carbon black pigments may not be used.
- E. Admixtures- Comply with the following:
 1. ASTM C 260 for air-entraining admixtures.
 2. ASTM C 494/C 495 M Types A-G for water reducing, retarding, accelerating and high range admixtures.
 3. Other admixtures: Integral water repellents and other chemicals, for which no ASTM Standard exists, shall be previously established as suitable for use in concrete by proven field performance through laboratory testing.
 4. ASTM C 618 mineral admixtures of dark variable colors shall not be used in surfaces intended to be exposed to view.
 5. ASTM C 989 granulated blast furnace slag may be used to improve physical properties. Tests are required to verify these features.
- F. Water-Potable
- G. Reinforcing bars
 - 1. ASTM A 615/A 615M: Grade 40 or 60 steel galvanized or epoxy coated when cover is less than 1.5 in.
 - 2. Welded Wire Fabric: ASTM A 185 where applicable for wet cast units.
- H. Fiber reinforcement (optional): ASTM C 1116
- I. All anchors, dowels and other anchoring devices and shims shall be standardized building stone anchors commercially available in non-corrosive material such as zinc plated, galvanized steel, brass, or stainless steel type 302 or 304.

2.3 COLOR AND FINISH

- A. Pyramid Cast Stone Company will provide color samples to architect for approval.
- B. All surfaces intended to be exposed to view shall have a fine grain texture similar to natural stone< with no air voids in excess of 1/32 in. and the density of such voids shall be less than 3 occurrences per any 1 in.² and not obvious under direct illumination at a 5 ft. distance.
- C. Units shall exhibit a texture approximately equal to the approved sample when viewed under direct daylight illumination at a 10 ft. distance.
 - 1. ASTM D 2244 permissible variation in color between units of comparable age subjected to weathering exposure.
 - a. Total color difference-not greater than 6 units
 - b. Total hue difference-not greater than 2 units
- D. Minor chipping resulting from shipping and delivery shall not be grounds for rejecting. Minor chips Shall not be obvious under direct daylight illumination from a 20 ft. distance.
- E. The occurrence of crazing or efflorescence shall not commit a cause for rejection.
- F. Remove cement film, if required, from exposed surfaces prior to packaging for shipment.

2.4 REINFORCING

- A. Reinforce the units as required by the drawings and for the safe handling and structural stress.
- B. Minimum reinforcing shall be 0.25 percent of the cross section of that area.
- C. Reinforcement shall be non-corrosive where faces are exposed to weather are covered with less than 1.5 in. of concrete material. All reinforcement shall have minimum coverage of twice the diameter of the bars.
- D. Panels, soffits and similar stones greater than 24 in. in one direction shall be reinforced in that direction. Units less than 24 in. in both their length and width dimension shall be non-reinforced unless otherwise specified.
- E. Welded wire fabric shall not be used in dry cast products.

2.5 CURING

- A. Cure units in a warm curing chamber approximately 100° (37.8°C) at 95 percent relative humidity for approximately 12 hours, or cure in a 95 percent moist environment at a minimum 70°F (21.1°C) for 16 hours

after casting. Additional yard curing at 95 relative percent humidity shall be 350 degree-days (i.e. 7 days @ 50° (10°C) or 5 days @ 70° (21°C) prior to shipping. Form cured units shall be protected from moisture evaporation with curing blankets or curing compounds after casting.

2.6 MANUFACTURING TOLERANCES

- A. Cross sections shall not deviate by more than $\pm 1/8$ " in. from approved dimensions.
- B. Length of units shall not deviate by more than length/ 360 or $\pm 1/8$ ", whichever is greater, not to exceed $\pm \frac{1}{4}$ ".
 - 1. Maximum length of any unit shall not exceed 15 times the larger thickness of such unit unless otherwise agreed by the manufacturer.
- C. Warp, bow or twists of units shall not exceed length/360 or $\pm 1/8$ ",. Whichever is greater.
- D. Location of dowel holes, anchor slots, flashing grooves, false joints and similar features-On formed sides of unit, $1/8$ ",, on unformed sides of unit, $3/8$ " maximum deviation.

2.7 PRODUCTION QUALITY CONTROL

Mix designs and Products have been tested in accordance with ASTM C 1194 and C 1195. The test results exceeded minimum performance standards. New and existing mix designs shall be tested for strength and absorption compliance prior to producing units.

2.8 DELIVERY, STORAGE AND HANDLING

- A. Mark production units with the identification marks on the shop drawings.
- B. Package units and protect them from staining or damage during shipping and storage.
- C. Provide an itemized list of product to support bill of lading.

3. PART 3 EXECUTION

3.1 EXAMINATON

- A. Installing contractor shall check Cast Stone materials for fit and finish prior to installation. Do not set unacceptable units.

3.2 SETTING TOLERANCES

- A. Comply with Cast Stone Institute® Technical Manual.
- B. Set stones $1/8$ in. or less within the plane of adjacent units.
- C. Joints, plus- $1/16$ in. minus $-1/8$ "

3.3 JOINTING

- A. Joint size:
 - 1. At stone/brick joints $3/8$ in.
 - 2. At stone/stone joints in vertical position $\frac{1}{4}$ in. ($3/8$ in. optional).
 - 3. Stone/stone joints exposed on top $3/8$ in.
- B. Joint materials
 - 1. Mortar, Type N, ASTM C 270
 - 2. Use a full bed of mortar at all be joints
 - 3. Flush vertical joints with mortar
 - 4. Leave all joints with exposed tops or under relieving angles open for sealant.
 - 5. Leave head joints in copings and projecting components open for sealant.
- C. Location of Joints
 - 1. As shown on drawings
 - 2. At control and expansion joints unless otherwise shown

3.4 SETTING

- A. Drench units with clean water prior to setting
- B. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.
- C. Set units in full bed of mortar, unless otherwise detailed.

- D. Rake mortar joints $\frac{3}{4}$ in. for pointing.
- E. Remove excess mortar from unit faces immediately after setting.
- F. Tuck point unit joints to a slight concave profile.

3.5 JOINT PROTECTION

- A. Comply with requirements of section 07 90 00.
- B. Prime ends of units, insert properly sized backing rod and install required sealant.

3.6 REPAIR AND CLEANING

- A. Repair chips with touch up materials furnished by manufacturer.
- B. Saturate units to be cleaned prior to applying approved masonry cleaner.
- C. Consult with manufacturer for appropriate cleaners.

3.7 INSPECTION AND ACCEPTANCE

A. Inspect finished installation according to Cast Stone Institute® Technical Bulletin # 36.

B. Do not field apply water repellent until repair, cleaning, inspection and acceptance is completed.

END OF SECTION

Rudd & Adams Masonry, Inc.

SpawGlass: Previously reviewed with no exceptions found per 042000-003R1

To whom it may concern:

Aggregates will conform to ASTM C 144 for mortar and ASTM C 404 for grout.

Water will be clean and potable.

Listed below are the proportions for type S mortar, per ASTM C 270 to be used on this project.

Type S:

1 Part Type 1 Portland Cement
½ Part Type S Hydrated Lime
4 ½ Parts Sand
Potable Water

Listed below are the proportions for the field mix grout in accordance with ASTM C 476

2 Parts Type 1 Portland Cement
5 ½ Parts Sand
3 ½ Parts 3/8 Pea Gravel
Potable Water

To the best of our knowledge, there have been no asbestos materials used or placed in the work.

Signed,

Greg Adams

Greg Adams

242 TX-46 W Boerne, Tx 78006 Ph(830)981-4900 FAX(830)981-4999



Submittal #04 72 00-4.0

04 72 00 - Cast Stone Masonry

Rudd & Adams Masonry, Inc.
242 STATE HWY 46 W
Boerne, Texas 78006
Phone: (830) 981-4900

Project: 553 - UT Seay
108 E Dean Keeton St
Austin, Texas 78712

4. Mortar Materials

| | | |
|--|-------|---|
| REVISION: | 0 | SUBMITTAL MANAGER: Jacob Adams (Rudd & Adams Masonry, Inc.) |
| STATUS: | Draft | DATE CREATED: 04/24/2020 |
| ISSUE DATE: | | SPEC SECTION: 04 72 00 - Cast Stone Masonry |
| RESPONSIBLE CONTRACTOR: | | RECEIVED FROM: |
| SUBMIT BY: | | |
| TYPE: Product Information | | |
| APPROVERS: | | |
| BALL IN COURT: | | |
| DESCRIPTION: 2.4 MORTAR MATERIALS <ul style="list-style-type: none"> A. Provide mortar materials that comply with Section 042000 "Unit Masonry." B. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold- weather construction. Provide natural color or white cement as required to produce mortar color indicated. C. Hydrated Lime: ASTM C207, Type S. D. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients. E. Masonry Cement: ASTM C91/C91M. F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar. | | |

SUBMITTAL WORKFLOW

| NAME | SENT DATE | DUE DATE | RETURNED DATE | RESPONSE | ATTACHMENTS | COMMENTS |
|---------------------------------|-----------|----------|---------------|----------|--|----------|
| General Information Attachments | | | | | ALAMO TYPE I-II PORTLAND CEMENT MILLCERT SEP18.pdf Alamo Portland - I-10.pdf Spec-mix PCL mortar.pdf Hydrated Lime Certification - SA Masonry.pdf | |

BY

DATE

COPIES TO



Alamo Cement

Alamo Cement Plant
6055 West Green Mountain Rd.

San Antonio, TX 78265
Phone: 210-208-1880
Fax: 210-208-1881

SpawGlass: Previously reviewed with no exceptions found per 042000-002R1

Mill Test Report

Cement Type: ALAMO TYPE I/II LA
Manufacture Date: N/A
Silo Number:

From: September 1, 2018
To: September 30, 2018

Chemical

| | |
|-----------------------------------|-------|
| SiO2 (%) | 19.8 |
| Al2O3 (%) | 4.8 |
| Fe2O3 (%) | 3.1 |
| CaO (%) | 64.8 |
| MgO (%) | 0.9 |
| SO3 (%) | 3.1 |
| Total Alkali (Na2O + 0.658K2O) | 0.55 |
| Ignition Loss | 2.9 |
| Insoluble Residue (%) | 0.28 |
| C3S (%) | 67.6 |
| C2S (%) | 5.9 |
| C3A (%) | 7.4 |
| C4AF (%) | 9.5 |
| C3S + 4.75C3A | 102.8 |
| CO2 (%) | 2.0 |
| Limestone (%) | 4.7 |
| CaCO3 in Limestone (%) | 96.0 |

Physical

| Time of Set (Vicat) | Initial Set (min.) | 99 | |
|----------------------|---------------------------------------|-------|-----|
| | Final Set (min.) | 236 | |
| | Compressive Strength | PSI | MPa |
| 1 Day | 2196 | 15.1 | |
| 3 Day | 3860 | 26.6 | |
| 7 Day | 5124 | 35.3 | |
| 28 Day* | 6782 | 46.8 | |
| *Previous month avg. | | | |
| | Cube Flow | | |
| | Fineness, Blaine (cm ² /g) | 3582 | |
| | 325 Mesh (%) | 93.9 | |
| | Air Content (%) | 9.4 | |
| | Normal Consistency (%) | 24.8 | |
| | False Set (%) | 87 | |
| | Autoclave Expansion (%) | -0.00 | |

We certify that the above described cement, at the time of shipment, meets the chemical and physical requirements of ASTM C-150, AASHTO M-85, or ASTM C-91.

Ricardo Rios, Quality Control Manager

Date 10/17/2018 6:56:16 PM

PROVIDED FOR REFERENCE



ALAMO CEMENT COMPANY
SAN ANTONIO, TEXAS

GENERAL PLANT OFFICES AND PLANT: SAN ANTONIO, TEXAS

June 8, 2017

I-10 Building Materials
7193 Heuermann
San Antonio, TX 78256
Attn: Marisol

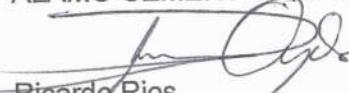
Gentlemen:

This is to certify that we will furnish Type I Portland cement meeting specifications as described in ASTM C150 and Type N and Type S Masonry cement meeting specifications as described in ASTM C91.

PROVIDED FOR
REFERENCE

Yours truly,

ALAMO CEMENT COMPANY

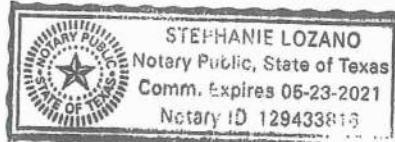


Ricardo Rios
Quality Control Manager

Subscribed and sworn to before me:



Stephanie M Lozano, Notary Public, Bexar County, Texas
Term expires May 23, 2021



ADDRESS ALL CORRESPONDENCE TO THE COMPANY AT P.O. BOX 34807 SAN ANTONIO, TEXAS 78265

PHONE: AREA CODE 210-208-1880

WATS: 1-800-292-5510

FAX 210-208-1881



SpawGlass: Previously reviewed with no exceptions found per 042000-002R1

04 DIVISION
MORTAR

PORTLAND LIME & SAND MASONRY MORTAR



Great Workability. Increased Productivity.

SPEC MIX® Portland Lime & Sand Mortar is a dry preblended mortar mix containing portland cement, hydrated lime and dried masonry sand formulated for superior bond, water retention and board life. Available in Types M, S and N, each meets ASTM C 270, ASTM C 1714 and CSA A179 requirements. SPEC MIX Portland Lime & Sand is available in standard or custom colors. In addition to custom mix designs that are available for specific applications or properties, the standard Portland Lime & Sand Mortar is designed to be compatible with the characteristics of the specified masonry unit. It is acceptable for all types of masonry construction.

SPEC MIX Portland Lime & Sand is produced under strict manufacturing standards, and complete quality control measures are implemented with each batch. A digital printout displaying the proper proportions per batch may be kept as a permanent record. Submittals are available upon request for certification to applicable ASTM, TMS, and CSA standards.

TYPICAL MATERIALS

PORLTAND CEMENT
HYDRATED LIME
SAND
PIGMENT



TYPE M (PL-02)
TYPE S (PL-03)
TYPE N (PL-04)
COLOR (PL-05)

AVAILABLE
IN COLOR

PORLTAND LIME & SAND MASONRY MORTAR

INSTALLATION/APPLICATION

Mortar type should correlate with the particular masonry unit to be used. The specifier should evaluate the interaction of the mortar type and masonry unit specified. That is, masonry units having a high initial rate of absorption will have greater compatibility with mortar that has high water retentivity. The material properties of mortar that influence the structural performance of masonry are compressive strength, bond strength and elasticity. Because the compressive strength of masonry mortar is generally less important than bond strength, workability and water retentivity, the latter properties should be given principal consideration in mortar selection. Select mortar based on the design requirements and with consideration of code and specification provisions affected by the mortar.

A sample of the proposed product will be provided by the manufacturer for architectural approval and testing, if required. Preparation of a panel with all materials and systems employed in the final project is imperative. Retain the mock-up or field sample through the completion of the project.

Allow mortar to cure a minimum of 7 days but no more than 28 days before cleaning. Consult manufacturer of the masonry units and cleaning chemicals for further instructions to ensure proper washing procedures.

Clean masonry only with a national proprietary cleaning agent (following the manufacturer's instructions) or potable water. SPEC MIX products must be kept dry, covered and protected from weather and other damage.

SIZES AND EQUIPMENT

SPEC MIX Portland Lime & Sand Mortar is available in 80 lb (36.2 kg) packages for easy hand loading or in 3,000 lb (1,360.7 kg) reusable bulk bags to be used with the various SPEC MIX silo systems. When using the silo system, once the bulk bags of mortar are delivered to the project site, the portable silo is loaded with a jobsite forklift and the product is dispensed into a mechanical batch mixer. (See silo operations manual.)

MIXING INSTRUCTIONS

- WEAR IMPERVIOUS GLOVES**, such as nitrile.
1. Mixing is best accomplished by using a mechanical mixer to ensure optimal workability and performance.
 2. Use clean, potable water; add the amount of water consistent with optimum workability which provides adequate water to satisfy the initial rate of absorption of the masonry units.
 3. Mixing times are four to five minutes when using a mechanical batch mixer and should be

ASTM C 270 PROPERTY SPECIFICATIONS (laboratory prepared)

| Type | Average compressive strength at 28 days, minimum PSI | Water retention, minimum % | Air content, maximum % |
|------|--|----------------------------|------------------------|
| M | 2,500 | 75 | 12 |
| S | 1,800 | 75 | 12 |
| N | 750 | 75 | 14* |

* When structural reinforcement is incorporated in cement-lime mortar, the maximum air content shall be 12%

CSA A179 PROPERTY SPECIFICATIONS (laboratory prepared)

| Type | Minimum compressive strength at 28 days, MPa | Water retention, minimum % | Air content, maximum % |
|------|--|----------------------------|------------------------|
| M | 17.5 | 70 | 18 |
| S | 12.5 | 70 | 18 |
| N | 5 | 70 | 18 |

ESTIMATED YIELDS

| | 80 lb (36.2 kg) bags | 3,000 lb (1,360.7 kg) bags |
|-------------------|----------------------|----------------------------|
| 4 in Block | 14 to 16 | 525 to 600 |
| 6 in Block | 11 to 13 | 410 to 485 |
| 8 in Block | 10 to 12 | 375 to 450 |
| 10 in Block | 10 to 12 | 375 to 450 |
| 12 in Block | 9 to 11 | 335 to 410 |
| Modular Brick | 37 to 39 | 1,385 to 1,460 |
| Queen Sized Brick | 31 to 33 | 1,160 to 1,235 |
| King Sized Brick | 25 to 27 | 935 to 1,010 |
| Utility Brick | 22 to 24 | 825 to 900 |



Note: The yields given above are approximate and depend on labor practices, site conditions and design of work. Yields include typical waste. Some areas such as FL, CA, OR, and WA experience higher yields due to construction practices. Please contact your local representative for more specific yield information in your area.

- held consistent from batch to batch.
4. Maintain the same mixing procedures to maintain consistency throughout the project.
 5. Tool mortar joints when the surface is thumbprint hard. Keep tooling times consistent.
 6. Hand mix mortar only with written approval by the specifier who should outline procedures.
 7. Use mortar within 2.5 hours after initial mixing.
 8. Retemper mortar only when mixing water is lost due to evaporation.
 9. Whenever possible, do not retemper colored SPEC MIX masonry mortars by adding additional water; retempering may affect color consistency.

LIMITATIONS

SPEC MIX Portland Lime & Sand Mortar should be installed in accordance with the provisions of the local building code and applicable ASTM, TMS, and CSA standards. Good workmanship coupled with proper detailing and design assures durable, functional, watertight construction. Follow proper cold-weather and hot-weather masonry procedures at temperatures below 40 °F (4 °C) or above 100 °F (38 °C) respectively.

LIMITED WARRANTY

IN THE UNITED STATES

NOTICE: Obtain the applicable LIMITED WARRANTY at www.specmix.com/product-warranty or send a written request to SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

AVISO: Obtenga la GARANTÍA LIMITADA correspondiente en www.specmix.com/product-warranty o envíe una solicitud por escrito a SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

IN CANADA

NOTICE: Obtain the applicable LIMITED WARRANTY at www.specmix.com/product-warranty or send a written request to SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

AVIS: Obtenez la GARANTIE LIMITÉE applicable sur www.specmix.com/produit-garantie. Ou envoyez une demande écrite à SPEC MIX, LLC, Five Concourse Parkway, Atlanta, GA 30328, USA.

TECHNICAL SUPPORT

- CONTACT YOUR LOCAL SPEC MIX® MANUFACTURER
- VISIT WWW.SPECMIX.COM
- CONTACT SPEC MIX®
PHONE: 888-733-2649 FAX: 651-454-5315



SpawGlass: Previously reviewed with no exceptions found per 042000-002R1

New Braunfels Plant

350 APG Lane,

New Braunfels TX 78132

(830)-221-1600

For a SDS visit
www.lhoist.us

To : Ben Morales
Company : San Antonio Masonry and Tool Supply
E-mail: ben@samazonry.com
From : Aaron Jones
Date :
Cc Jim Williamson, Sales
Subject : Certificate of Compliance and LEED

Dear Mr. Morales,

Chemstar Type S Hydrated Lime, manufactured by Lhoist North America at New Braunfels, Texas conforms in every respect to the following specifications.

1. ASTM C206-03 (Type S) Standard Specification for Finishing Hydrated Lime.
2. ASTM C207-06 (Type S) Standard Specification for Hydrated Lime for Masonry Purposes.
3. IBC – 2012 by reference to ASTM C 270.
4. ASTM C926-06 Standard Specification for Application of Portland Cement-Based Plaster, by reference to C206 Type S and C207 Type S.
5. ASTM C842-05 Standard Specification for Application of Interior Gypsum Plaster, by reference to C206.

This compliance letter is applicable to the following project and is valid for six months.

Project Name:

Architect:

General Contractor:

Mason Contractor:

The LEED – NC Version 2009 rating system divided into five categories, which recognize sustainable building practices. LEED certification is for the project, not the material; however, materials can contribute to the ability of the project to achieve the desired certification. The categories, which apply to the use **Chemstar Type S Hydrated Lime** for masonry, are:

| Sustainable Sites | | |
|--------------------------|---------------|--|
| <input type="checkbox"/> | SS Credit 3 | <u>Brownfield Redevelopment</u> . Chemstar Type S Hydrated Lime may be used for soil. |
| <input type="checkbox"/> | SS Credit 7.1 | <u>Heat Island Effect, Non-roof</u> Chemstar Type S Hydrated Lime may be used to lime-wash the exterior of the masonry resulting in a white, highly solar reflective material. |

| Materials and Resources | | |
|--------------------------|---------------|---|
| <input type="checkbox"/> | MR Credit 1.1 | <u>Building Reuse</u> : Maintain 75% of Existing Walls, Floors and Roof <u>Building Reuse</u> : Maintain 100% of Existing Walls, Floors and Roof <u>Building Reuse</u> : Maintain 50% of Interior Non-Structural Elements The historic building inventory is dominated by stone and brick masonry with lime-based mortar. These building are highly reusable and durable. In addition higher contents of lime mortars allow for easier deconstruction. |
| <input type="checkbox"/> | MR Credit 1.2 | |



| | | |
|--------------------------|-------------|--|
| <input type="checkbox"/> | MR Credit 2 | <p><u>Construction Waste Management</u>. Recycle and/or salvage at least 50% of non-hazardous construction and demolition debris.</p> <p><u>Construction Waste Management</u>. Recycle and/or salvage at least 75% of non-hazardous construction and demolition debris</p> <p>Chemstar Type S Hydrated Lime is bagged in a biodegradable brown kraft paper. Unused hydrated lime from opened bags can be used to dry up a work site. Closed and undamaged bags (no rips or rain damage) of hydrated lime can be used at another project by the contractor.</p> |
| <input type="checkbox"/> | MR Credit 5 | <p><u>Regional Materials</u>: 10% Extracted</p> <p><u>Regional Materials</u>: 20% Extracted</p> <p>Process and Manufactured Regionally</p> <p>Use building materials that are extracted, harvested or manufactured within 500 miles by truck or 1500 miles by rail of the project site.</p> <p>100% of Chemstar Type S Hydrated Lime is extracted, processed (calcined) at the Lhoist North America Marble Falls, Texas plant and manufactured (hydrated) at the New Braunfels, Texas plant. The circle on the map denotes a 500 mile as-the-crow-flies radius from New Braunfels, Texas.</p>  |

Innovation & Design Process:

To provide design teams and projects the opportunity to be awarded points for exceptional performance above the requirements set by the LEED, and/or innovative performance in Green Building categories not specifically addressed by the LEED for New Construction Green Building Durable Building.

| | | |
|--------------------------|------------------------------|---|
| <input type="checkbox"/> | Environmental Quality Credit | <p><u>Low-Emitting Materials</u>: Chemstar Type S Hydrated Lime emits no VOC.</p> |
| <input type="checkbox"/> | Environmental Quality Credit | <p><u>Indoor Chemical and Pollutant Source Control</u>. Resistance to water penetration is a critical aspect of ensuring a healthy work and living environment. Chemstar Type S Hydrated Lime in a masonry mortar provides a high level of water penetration resistance to the masonry wall.</p> |
| <input type="checkbox"/> | Carbon Dioxide Sink | <p>The use of Chemstar Type S Hydrated Lime in masonry mortar provides a carbon dioxide gas sink of up to 100% of the weight of the used hydrated lime.</p> |

Yours truly,



Aaron Jones
Plant Manager, New Braunfels Plant

Submittal #04 72 00-5.0

04 72 00 - Cast Stone Masonry

Rudd & Adams Masonry, Inc.
242 STATE HWY 46 W
Boerne, Texas 78006
Phone: (830) 981-4900

Project: 553 - UT Seay
108 E Dean Keeton St
Austin, Texas 78712

5. Accessories

| | | |
|--|-------|---|
| REVISION: | 0 | SUBMITTAL MANAGER: Jacob Adams (Rudd & Adams Masonry, Inc.) |
| STATUS: | Draft | DATE CREATED: 04/24/2020 |
| ISSUE DATE: | | SPEC SECTION: 04 72 00 - Cast Stone Masonry |
| RESPONSIBLE CONTRACTOR: | | RECEIVED FROM: |
| SUBMIT BY: | | |
| TYPE: Product Information | | |
| APPROVERS: | | |
| BALL IN COURT: | | |
| DESCRIPTION: 2.5 ACCESSORIES | | |
| A. Anchors: Type and size indicated, fabricated from Type 304 stainless steel complying with ASTM A240/A240M, ASTM A276, or ASTM A666. B. Dowels: 1/2-inch-diameter round bars, fabricated from Type 304 stainless steel complying with ASTM A240/A240M, ASTM A276, or ASTM A666. C. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cast-stone manufacturer and expressly approved by cleaner manufacturer for use on cast stone and adjacent masonry materials. 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following: a. Diedrich Technologies, Inc.; a. Hohmann & Barnard company. b. EaCo Chem, Inc. c. PROSOCO, Inc. | | |

SUBMITTAL WORKFLOW

| NAME | SENT DATE | DUE DATE | RETURNED DATE | RESPONSE | ATTACHMENTS | COMMENTS |
|---------------------------------|-----------|----------|---------------|----------|--|----------|
| General Information Attachments | | | | | PROSOCO - Sure Klean 600.pdf #444 Z-shape Stone Anchors pdf.pdf #435 Split Tail Stone Anchor pdf.pdf #441 J-shape Stone Anchors pdf.pdf | |

BY

DATE

COPIES TO

DESCRIPTION AND USE

Sure Klean® 600 is a general purpose, concentrated acidic cleaner for brick, tile and concrete surfaces. Sure Klean® 600 dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking.

ADVANTAGES

- The No. 1-selling proprietary cleaner for new masonry.
- Proven effective through years of use.
- Recommended by many brick, tile and mortar manufacturers.
- Safer than muriatic acid for new masonry surfaces.
- Fast and easy to apply – use with cold water rinse.
- Special wetting agents let larger masonry surfaces be cleaned at one time, eliminating streaking.

Limitations

- May not be suitable for cleaning buff-colored brick and brick, stone or tile with manganese or other metallic additives. See product literature on Sure Klean® Vana Trol®.

Sure Klean® 600 is recommended for these substrates. Always test. Coverage is in sq.ft./m. per gallon of concentrate.

| Substrate | Type | Use? | Coverage |
|--------------------------------------|----------------|------|---------------------------------|
| Architectural Concrete Block* | Burnished | no | |
| | Smooth | yes | 300-400 sq.ft. |
| | Split-faced | yes | 28-37 sq.m. |
| | Ribbed | yes | |
| Concrete* | Brick | yes | |
| | Tile | yes | 600-1100 sq.ft. |
| | Precast Panels | yes | 56-102 sq.m. |
| | Pavers | yes | |
| | Cast-in-place | yes | |
| Fired Clay | Brick | yes | |
| | Tile | yes | 500-900 sq.ft. |
| | Terra Cotta | yes | 46-84 sq.m. |
| | Pavers | yes | |
| Marble, Travertine, Limestone | Polished | no | NA |
| | Unpolished | no | NA |
| Granite | Polished | no | NA |
| | Unpolished | yes | 600-1200 sq.ft. 56-111 sq.m. |
| Sandstone | Unpolished | yes | 600-900 sq.ft. 56-84 sq.m. |
| Slate | Unpolished | yes | 600-1100 sq.ft. 56-102 sq.m. |

*Repeated applications may damage surfaces. Sure Klean® Custom Masonry Cleaner is a more appropriate product.

Always test to ensure desired results. Coverage estimates depend on surface texture and porosity.

- Not suitable for cleaning polished or certain glazed surfaces. Always test to ensure suitability.
- Repeated applications may leave a detergent residue. Always prewet to reduce potential for detergent residue. Rinse thoroughly. Don't apply more than twice.
- Not effective for removing atmospheric dirt and black carbon stains. Use the appropriate Sure Klean® restoration cleaner to remove atmospheric staining from older masonry surfaces.

TYPICAL TECHNICAL DATA

FORM: Clear liquid with slight amber color

SPECIFIC GRAVITY: 1.130

pH: 0.1 @ 1:9 dilution

WT/GAL: 9.4 lbs.

ACTIVE CONTENT: NA

TOTAL SOLIDS: NA

FLASH POINT: NA

FREEZE POINT: < -22°F (< -30°C)

SHELF LIFE: 3 years in tightly sealed, unopened container

PREPARATION

Protect people, vehicles, property, metal, painted surfaces, plants and other nonmasonry materials from product, splash, residue, wind drift and fumes. When working over traffic, clean when traffic is at a minimum. Protect or divert traffic if necessary.

Vapors and liquid can damage a variety of metals and fabrics. Clean masonry before installing windows, doors, finished flooring, metal fixtures, hardware, light fixtures, roofing materials and other nonmasonry items that the cleaner could harm. If already installed, protect with polyethylene before application. Sure Klean® Strippable Masking is appropriate for use with this product to protect windows. All caulking and sealant materials should be in place and thoroughly cured before cleaning.

New brick and tile surfaces clean most effectively 14 - 28 days after masonry installation. Mortar and grout smears left on the surface longer result in a more difficult clean down and may cause undesirable results. Cleaning high-strength mortar/grout within seven days improves results. Presence of excessive moisture in the wall contributes to efflorescence and other staining. Always protect open wall cavities from rain during construction.

Surface and Air Temperatures

For best results, clean when air and masonry surface temperatures are 40°F (4°C) or above. To avoid harming masonry, don't clean when temperatures are below freezing or will be overnight. If freezing conditions existed before application, let the masonry thaw.

Equipment

Apply with low-pressure spray (50 psi max) or densely-packed, soft-fibered masonry-washing brush. Do not atomize. Do not apply with pressure spray over 50 psi. Such application will drive the chemicals deep into the surface, making complete rinse difficult. Test spray equipment for compatibility and to avoid discoloration. Transport and store in a cool, dry place.

Rinse with enough water and pressure to flush spent cleaner and dissolved soiling from the masonry surface and surface pores without damage. Inadequate rinsing leaves residues which may stain the cleaned surface.

Masonry-washing equipment generating 400-1000 psi with a water flow rate of 6-8 gallons per minute is the best water/pressure combination for rinsing porous masonry. Use a 15-45° fan spray tip. Heated water (150-180°F; 65-82°C) may improve cleaning efficiency. Use adjustable equipment for reducing water flow-rates and rinsing pressure as needed for sensitive surfaces. Rinsing pressures greater than 1000 psi and fan spray tips smaller than 15° may permanently damage sensitive masonry. Water flow-rates less than 6 gallons per minute may reduce cleaning productivity and contribute to uneven cleaning results.

Storage and Handling

Store in a cool, dry place with adequate ventilation. Always seal container after dispensing. Do not alter or mix with other chemicals. Published shelf life assumes upright storage of factory-sealed container in a dry place. Maintain temperatures of 45-100°F (7-38°C). Do not double stack pallets. Dispose of unused product and container in accordance with local, state and federal regulations.

APPLICATION

Before use, read “Preparation” and “Safety Information.”

ALWAYS TEST each type of surface and stain for suitability and results before overall application. Test a minimum 4-ft x 4-ft area on each type of masonry. Let the test panel dry 3 to 7 days before inspection. Use the following application instructions. Keep test panels available for comparison throughout the cleaning project.

If test panel indicates metallic discoloration, or if stains are present before testing, refer to the “Metallic Discolorations” section.

Dilution

Dilute one part product with between four and 12 parts clean water, based on test results. Always pour COLD water into empty bucket first, then carefully add product. Never use hot water. Handle in polypropylene buckets or sprayers only. Acidic materials and fumes attack metal.

When calculating the volume of cleaner required for porous, textured surfaces, assume 50 square feet per gallon of prepared cleaner. For dense, smooth surfaces, assume up to 150 square feet per gallon of prepared cleaner. The coverage rate chart assumes an average coverage rate of 100 square feet per gallon of prepared cleaner.

Application Instructions

Exterior Applications

Test thoroughly before general cleaning. Provide adequate ventilation. Caution: Multiple applications may lighten the mortar color.

1. Working from the bottom to the top, thoroughly prewet a large area with fresh water.
2. Using a densely-packed, soft-fibered masonry washing brush, or low-pressure spray (50 psi maximum), apply the diluted solution freely from the bottom of the work area to the top.
3. Let cleaning solution stay on the wall for 3 to 5 minutes. Do not let cleaner dry into the masonry. This may leave residue or stains. Fresh water rinse the surfaces below areas being cleaned to prevent streaking.
4. Reapply cleaner and scrape off heavy buildup of excess mortar using a wooden scraper or piece of brick. Take care not to harm the masonry surface.
5. Working from the bottom of the work area to the top, rinse thoroughly with clean water, removing all cleaning compound, free sand, loose material and debris.
6. Reapply as needed following steps 1-5.

Interior Application

Proper ventilation is necessary. Follow exterior application procedures. Use a sponge or soft-fibered brush to rinse thoroughly. If conditions don't allow enough water for complete rinsing, use a neutralizing rinse following this procedure:

1. Rinse with clean water.
2. Apply neutralizing rinse of 2 ounces baking soda to 1 gallon water.
3. Saturate. Leave solution on surface 3 to 5 minutes.
4. Apply final rinse of clear water.

Cleanup

Clean tools and equipment using fresh water.

Metallic Discolorations

Because of the metallic oxides contained in many colors of brick in use today, green and brown stains can form on the masonry surface. These stains occur when vanadium, manganese or other oxides migrate to the surface of the brick. Where significant levels of metallic oxides are present in the masonry, an improper dilution of Sure Klean® 600 can contribute to staining.

If the brick shows metallic staining before or after testing, follow these additional steps:

- *If stains are light to moderate*, test using Sure Klean® 600 at a dilution rate of 8 parts water to 1 part concentrate. After rinsing, let brick weather 10 to 14 days. Minor stains will often disappear if allowed to weather.
- *If results are acceptable*, clean using this dilution rate. When cleaning is done, let the wall weather. Spot treat minor stains that have not weathered with Sure Klean® stain removal products.

- If severe stains are apparent before original testing or become a problem at any time during the testing, use Sure Klean® Vana Trol® instead of Sure Klean® 600. Vana Trol® is a cleaning compound formulated specifically to control metallic staining. Follow the procedures outlined in the Vana Trol® product literature. In some cases, Vana Trol® will remove vanadium staining. If test panels do not prove effective, test using Sure Klean® 800 Stain Remover and/or Sure Klean® Ferrous Stain Remover.

SAFETY INFORMATION

Sure Klean® 600 is a concentrated, acidic cleaner. This product may damage a variety of common construction materials and has safety issues common to corrosive materials. Use appropriate ventilation, safety equipment and job site controls during application and handling. Read the full label and MSDS for precautionary instructions before use.

First Aid

Ingestion: Contact a physician immediately.

Eye Contact: Rinse eyes thoroughly for 15 minutes. Get medical attention.

Skin Contact: Rinse thoroughly for 15 minutes. Seek medical assistance as needed.

24-Hour Emergency Information: INFOTRAC at 800-535-5053

WARRANTY

The information and recommendations made are based on our own research and the research of others, and are believed to be accurate. However, no guarantee of their accuracy is made because we cannot cover every possible application of our products, nor anticipate every variation encountered in masonry surfaces, job conditions and methods used. The purchasers shall make their own tests to determine the suitability of such products for a particular purpose.

PROSOCO, Inc. warrants this product to be free from defects. Where permitted by law, PROSOCO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of merchantability or fitness for particular purpose. The purchaser shall be responsible to make his own tests to determine the suitability of this product for his particular purpose. PROSOCO's liability shall be limited in all events to supplying sufficient product to re-treat the specific areas to which defective product has been applied. Acceptance and use of this product absolves PROSOCO from any other liability, from whatever source, including liability for incidental, consequential or resultant damages whether due to breach of warranty, negligence or strict liability. This warranty may not be modified or extended by representatives of PROSOCO, its distributors or dealers.

CUSTOMER CARE

Factory personnel are available for product, environment and job-safety assistance with no obligation. Call 800-255-4255 and ask for Customer Care - technical support.

Factory-trained representatives are established in principal cities throughout the continental United States. Call Customer Care at 800-255-4255, or visit our web site at www.prosoco.com, for the name of the Sure Klean® representative in your area.

MATERIAL SAFETY DATA SHEET

PROSOCO, Inc.



I PRODUCT IDENTIFICATION

| | | | |
|----------------------------------|---|--|------------------------------|
| MANUFACTURER'S NAME AND ADDRESS: | PROSOCO, Inc. 3741 Greenway Circle Lawrence, KS 66046 | EMERGENCY TELEPHONE NUMBERS: 8:00 AM – 5:00 PM CST Monday-Friday: NON-BUSINESS HOURS (INFOTRAC): | 785-865-4200 800-535-5053 |
| PRODUCT TRADE NAME: | Sure Klean® 600 | | |

II HAZARDOUS INGREDIENTS

| CHEMICAL NAME | (COMMON NAME) | CAS NO. | NFPA CODE | ACGIH TLV/TWA | OSHA PEL/TWA |
|----------------------------|---------------------|-----------|-----------|-----------------|--------------------|
| Hydrogen Chloride Solution | (Hydrochloric Acid) | 7647-01-0 | 3,0,0,- | 5 ppm (Ceiling) | 5 ppm (Ceiling) |

Percent content of hazardous ingredients withheld as trade secret pursuant to Massachusetts regulations.

III TYPICAL PHYSICAL DATA

| | BOILING POINT (°F) | VAPOR PRESSURE (mm Hg) 78 (68°F) | VAPOR DENSITY 1.27 | EVAPORATION RATE (Butyl Acetate = 1) < 1.00 |
|----------------------------|-----------------------|--|-----------------------------|---|
| Hydrogen Chloride Solution | 150°F | | | |
| Sure Klean® 600 | | SPECIFIC GRAVITY 1.13 | SOLUBILITY IN WATER 100% | APPEARANCE AND ODOR Clear liquid with slight amber color, pungent odor |

IV FIRE AND EXPLOSION HAZARD DATA

EMERGENCY OVERVIEW

Sure Klean® 600 is a slightly amber-colored liquid with an irritating pungent odor. The vapor and mist from this product may cause irritation of the respiratory tract, wear appropriate respiratory protection. Wear splash-proof chemical goggles when handling this product.

FLASH POINT (METHOD): None

FLAMMABLE LIMITS: Unknown

EXTINGUISHING MEDIA: Any media appropriate for surrounding the type of fire involving this product.

SPECIAL FIRE FIGHTING PROCEDURES: Wear NIOSH/MSHA approved self-contained breathing apparatus with a full face piece operated in pressure demand or other positive pressure mode and full body protective clothing when fighting fires. Water may be used to cool closed containers.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Reacts with most metals to release hydrogen gas which can form explosive mixtures with air. Extinguish all nearby sources of ignition.

V HEALTH HAZARD DATA

PRIMARY ROUTES OF EXPOSURE: Inhalation, skin, eyes.

CARCINOGEN INFORMATION: Not listed (OSHA, IARC, NTP). No standard carcinogenicity studies for hydrogen chloride were identified. Two studies on rats were conducted to determine if hydrogen chloride increased the formation of nasal tumors or increased the carcinogenic potential of formaldehyde. In both studies the rats were exposed to 10-ppm hydrogen chloride, 6 hours per day, 5 days per week. One study lasted 84 weeks while the other lasted the animals' lifetime. Hydrogen chloride did not cause an increase in nasal tumors and did not increase the carcinogenicity of formaldehyde.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: Asthma, bronchitis, emphysema, and other lung conditions; and chronic nose, sinus, or throat conditions. Exposures of 100 ppm for six hours a day for 50 days caused only slight unrest and irritation to the eyes and nose of rabbits, guinea pigs and pigeons. The hemoglobin content of the blood was also slightly diminished. Monkeys receiving 20 exposures of 33 ppm for six hours did not display any adverse effects. Higher exposures (unspecified) have caused weight loss which paralleled the severity of exposure. Baboons exposed to 500, 5000 or 10,000 ppm for 15 minutes did not have significant alterations in any pulmonary function parameters 3 days or 3 months after exposure. In humans long term overexposure has been associated with erosion of the teeth.

EFFECTS OF OVEREXPOSURE: Causes severe damage to eyes and even blindness very rapidly. Causes burns, possible deep ulceration to skin. Breathing of mist or dust can cause damage to nasal and respiratory passages. Swallowing results in severe damage to mucous membranes and deep tissue; can result in death on penetration to vital areas.

EYE CONTACT: Liquid or concentrated vapors can cause eye irritation, severe burns and permanent damage including blindness even after a short exposure to small amounts.

SKIN CONTACT: Liquid or concentrated vapors can rapidly cause burning of skin. Repeated or prolonged contact with dilute solutions and concentrated vapors can cause irritation and dermatitis.

INHALATION: Hydrogen chloride gas, mist, and vapor can cause irritation of respiratory tract, with burning, choking, coughing, headaches, and rapid heartbeat. 35 ppm can cause irritation of the throat and 50-100 ppm is nearly unbearable for one hour. Inflammation, destruction of nasal passages and breathing difficulties can occur with high concentrations and may be delayed in onset. Inhalation of sufficiently high concentrations may result in laryngeal spasms, laryngeal edema or rapidly developing pulmonary edema. Mists may also cause bleeding of the nose and gums, and ulceration of the nasal or oral mucosa. 1,000-2,000 ppm can be fatal.

INGESTION: Unlikely route of exposure. Can cause severe burns of mouth, esophagus, and stomach. Nausea, pain, and vomiting may occur. Depending on the amount swallowed, holes may develop in the intestinal tract, kidney inflammation, shock and death can occur.

EMERGENCY AND FIRST AID PROCEDURES:

EYE CONTACT: Rinse eyes with large quantities of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire eye surface. Get medical attention immediately.

SKIN CONTACT: Remove contaminated clothing and flush exposed area with large quantities of water for at least 15 minutes. Launder contaminated clothing before reuse. Discard contaminated shoes. Get immediate medical attention.

INHALATION: Remove person to fresh air. If breathing stops, administer artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention immediately.

INGESTION: If conscious, give large quantities of water or milk. Do not induce vomiting. Get medical attention immediately. Do not give anything by mouth to an unconscious or convulsing person.

VI REACTIVITY DATA

STABILITY: Stable

CONDITIONS TO AVOID: Contact with strong bases (alkali), can cause violent reaction generating large amounts of heat.

INCOMPATIBILITY (MATERIALS TO AVOID): Metals, oxidizing agents, nitric acid, chlorates, sulfides, and cyanides. Contact with sulfides releases poisonous flammable hydrogen sulfide. Mercuric sulfate, perchloric acid, carbides of calcium, cesium, rubidium, acetylides of cesium and rubidium, phosphides of calcium and uranium, and lithium silicide.

Hydrogen Chloride can react with cyanide, forming lethal concentrations of hydrocyanic acid. Do not enter confined spaces such as tanks or pits without proper entry procedures as required by 29 CFR 1910.146.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: Hydrogen gas when contacting metals, hydrogen chloride, carbon monoxide and carbon dioxide. Hydrogen gas generation has the highest potential for harm in confined or poorly ventilated areas where concentrations can approach flammable or explosive concentrations.

VII SPILL OR LEAK PROCEDURES

SPILL, LEAK, WASTE DISPOSAL PROCEDURES: Evacuate immediate area where concentrated fumes are present. Cleanup personnel must wear proper protective equipment. Provide adequate ventilation. Completely contain spilled material with dikes, etc., and prevent runoff into ground and surface waters or into sewers.

Dilution with water will decrease the fumes generated from spilled product. Spills and leaks should be neutralized by pouring dry soda ash or lime over the affected area. Concentrated product should be diluted with water before adding neutralizing agents to keep splattering and fumes to a minimum. Approximately 2.5 pounds of lime are required to neutralize one gallon of this product. Allow powdered material to remain on spill for five to ten minutes and flush thoroughly with water. Neutralized material, both liquid and solid, should be recovered for proper disposal.

WASTE DISPOSAL METHODS: Recovered solids or liquids may be disposed of in a permitted waste management facility. Neutralized materials may be discharged to a sanitary sewer with approval of the receiving treatment plant. Typical pH range of 6-10 is generally considered appropriate for discharge. Consult federal, state, and/or local authorities for approved procedure. For additional information regarding handling and disposal of rinse-water, please review Technical Bulletin 200-CW "Controlled Handling of Cleaning Wastewater". Empty containers must be triple rinsed before disposal in a permitted sanitary landfill. Check local restrictions.

VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: For vapor or mist concentrations which exceed or are likely to exceed 5 ppm Threshold Limit Value (TLV), wear a NIOSH/MSHA approved half-mask respirator with acid gas cartridges. NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or pressure demand supplied air respirator with full face piece should be worn when concentrations exceed 50 ppm. A SCBA is recommended by NIOSH during leaks and/or emergencies. Follow all applicable respirator use standards and regulations.

VENTILATION: Provide sufficient general and/or local exhaust ventilation to maintain exposure below the TLV.

PROTECTIVE CLOTHING: Wear splash resistant neoprene or PVC rain suit.

PROTECTIVE GLOVES: Nitrile rubber type, neoprene or PVC with acceptable acid resistance.

EYE PROTECTION: Chemical splash goggles and/or full face shield (8 inch minimum) in compliance with OSHA regulations. Do not wear contact lenses because they may contribute to the severity of an eye injury.

OTHER PROTECTIVE EQUIPMENT: Acid-resistant rubber boots, headgear. Eyewash and safety shower.

IX SPECIAL PRECAUTIONS

WORK PRACTICES: Proper work practices and planning should be utilized to avoid contact with workers, passersby, and non-masonry surfaces. Brush on or apply at the lowest practical pressure. Do not atomize during application. Application equipment, scaffolding, swing stages and support systems must be constructed of acid resistant materials. Use only well maintained staging and scaffolding that is equipped with steel cable. This product will attack nylon, cotton and hemp roping. Use polypropylene ropes and safety lines. Dilution and application equipment should be of polypropylene or HDPE construction. Beware of wind drift. Wind-drift hazards may be diminished by pre-rinsing with low pressure water before pressure washing. Divert pedestrian traffic around work areas. See the Product Data sheet and label for specific precautions to be taken during use. Smoking, eating and drinking should be discouraged during the use of this product. Wash hands after handling or use.

This product is only to be used as supplied and specified. Do not alter, mix with chlorine-type bleaches or other chemicals, or dilute product except as specified on the label and Product Data sheet.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Use proper safety equipment (see section VIII) when handling. Store in a cool, well-ventilated area. Separate from oxidizing agents, nitric acid, alkalis, chlorates, sulfides, etc. (see section VI). Do not remove product label. Material diluted for application must be properly labeled and stored in acid-resistant containers with rubber-lined steel, polypropylene or polyethylene construction..

Addition of acidic cleaner to water releases heat, which can result in violent boiling and spattering. **Always add cleaner to water slowly and in small amounts. Never use hot water. Never add water to acidic cleaners.**

Containers of this material may be hazardous when emptied, since emptied containers retain product residues (vapor, liquid, and/or solid). All hazard precautions given in this data sheet must be observed.

OTHER PRECAUTIONS: Do not get in eyes, on skin or on clothing. Can cause severe injury or blindness. Avoid breathing mist or vapor. Provide ventilation sufficient to limit employee exposure below OSHA permissible limit. Do not take internally. Wash thoroughly after handling.

X REGULATORY INFORMATION

SHIPPING: This product carries the shipping description “**UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Hydrochloric acid), 8, II**” for shipping by ground, air and ocean transport. The product meets applicable DOT and UN standards when shipped in the original, unopened factory packaging, although container size may be limited for air transport. Some parcel shipping companies may limit container sizes.

NATIONAL MOTOR FREIGHT CLASSIFICATION: 44157 Sub 3 Rate Class: 85

SARA 313 REPORTABLE:

| CHEMICAL NAME | CAS | UPPERBOUND CONCENTRATION % BY WEIGHT |
|-------------------|-----------|--------------------------------------|
| Hydrogen Chloride | 7647-01-0 | 30 % |

CALIFORNIA PROPOSITION 65: **This product contains no chemicals listed under California's Proposition 65.**

XI OTHER

MSDS Status: **Date of Revision:** March 30, 2011

For Product Manufactured After: N/A – No formulation change

Changes: Product name change

Item #: 10020

Approved By: Regulatory Department

DISCLAIMER:

The information contained on the Material Safety Data Sheet has been compiled from data considered accurate. This data is believed to be reliable, but it must be pointed out that values for certain properties are known to vary from source to source. **PROSOCO, Inc. expressly disclaims any warranty express or implied as well as any liability for any injury or loss arising from the use of this information or the materials described.** This data is not to be construed as absolutely complete since additional data may be desirable when particular conditions or circumstances exist. It is the responsibility of the user to determine the best precautions necessary for the safe handling and use of this product for his unique application. This data relates only to the specific material designated and is not to be used in combination with any other material. Many federal and state regulations pertain directly or indirectly to the product's end use and disposal of containers and unused material. It is the purchaser's responsibility to familiarize himself with all applicable regulations.

DATE OF PREPARATION: March 30, 2011

Sure Klean® 600 Cleaning Specification

Specifier Note: The information provided below is intended to guide the Architect in developing specifications for products manufactured by PROSOCO, Inc. and should not be viewed as a complete source of information about the product(s). The Architect should always refer to the Product Data Sheet and MSDS for additional recommendations and for safety information.

Specifier Note: Paragraph below is for PART 1 GENERAL, Quality Assurance.

Test Area

Test a minimum 4 ft. by 4 ft. area on each type of masonry. Use manufacturer's application instructions. Let the test panel dry 3 to 7 days before inspection. Keep test panels available for comparison throughout the cleaning project. If test panel indicates metallic discoloration, or if stains are present before testing, refer to the "Metallic Discolorations" section on the manufacturer's Product Data Sheet.

Specifier Note: Paragraphs below are for PART 2 PRODUCTS, Manufacturers and Products.

Manufacturer: PROSOCO, Inc., 3741 Greenway Circle, Lawrence, KS 66046. Phone: (800) 255-4255; Fax: (785) 830-9797. E-mail: CustomerCare@prosooco.com

Product Description

Sure Klean® 600 is a general purpose, concentrated acidic cleaner for dissolving mortar smears and construction dirt on brick, tile and concrete surfaces.

Technical Data

FORM: Clear liquid with slight amber color

SPECIFIC GRAVITY: 1.130

TOTAL SOLIDS: N/A

pH: 0.1 @ 1:9 Dilution

WT./GAL.: 9.4 lbs.

FLASH POINT: N/A

FREEZE POINT: < -22 degrees F (< -30 degrees C)

Limitations

- May not be suitable for cleaning buff-colored brick and brick, stone or tile with manganese or other metallic additives.
- Not suitable for cleaning polished or certain glazed surfaces. Always test to ensure suitability.
- Repeated applications may leave a detergent residue. Always prewet to reduce potential for detergent residue. Rinse thoroughly. Don't apply more than twice.
- Not effective for removing atmospheric dirt and black carbon stains. Use the appropriate Sure Klean® restoration cleaner to remove atmospheric staining from older masonry surfaces.

Specifier Note: Paragraphs below are for PART 3 EXECUTION, Installation.

Application

Before applying, read "Preparation" and "Safety Information" sections in the Manufacturer's Product Data Sheet for Sure Klean® 600. Dilute Sure Klean® 600 concentrate with 4-12 parts water. Refer to Product Data Sheet for additional information.

Exterior Application

Test thoroughly before general cleaning.

1. Thoroughly prewet a large area with fresh water.
2. Using a densely-packed, soft-fibered masonry washing brush, or low-pressure spray (50 psi maximum), apply the diluted solution freely.

3. Let diluted cleaning solution stay on the wall for 3 to 5 minutes. Do not let cleaner dry into the masonry. This may leave residue or stains.
4. Reapply diluted cleaning solution and scrape off heavy buildup of excess mortar using a wooden scraper or piece of brick. Take care not to harm the masonry surface.
5. Rinse off all cleaning compounds, free sand, loose material and debris with clean water. The best combination of rinsing pressure and water volume is provided by masonry washing equipment generating 400-1000 psi with a water flow rate of 6-8 gallons per minute delivered through a 15-45 degree fan spray tip. Equipment should be adjustable to reduce water flow rate and rinsing pressure as required for controlled cleaning of more sensitive surfaces. See also "Equipment" section of the Product Data Sheet.
6. Reapply as needed following steps 1-5.

Interior Application

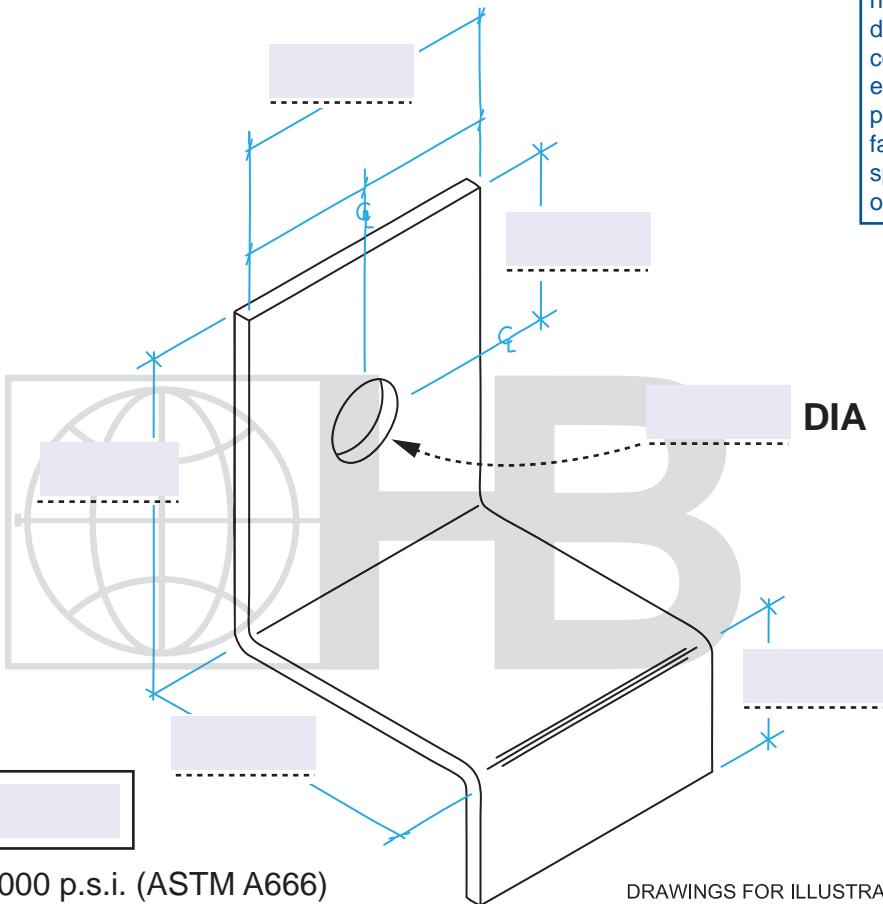
Follow exterior application procedures. Use a sponge or soft fibered brush to rinse thoroughly. If conditions don't allow enough water for complete rinsing, use a neutralizing rinse following this procedure:

1. First, rinse with clean water.
2. Apply neutralizing rinse of 2 ounces baking soda to 1 gallon water.
3. Saturate thoroughly and let neutralizing solution stay on the surface 3 to 5 minutes.
4. Rinse with clear water.



HOHMANN & BARNARD, INC.
a MiTek company

STAINLESS STEEL STONE ANCHORS #444 STONE ANCHOR



ST/ST Plate Min. Fy. = 45,000 p.s.i. (ASTM A666)

DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

FINISH:

- TYPE 304 Stainless Steel
 TYPE 316 Stainless Steel

THICKNESS:

- 12 ga./2.78 mm 3/16"/4.7 mm 3/8"/9.5 mm
 1/8"/3.2 mm 1/4"/6.3 mm OTHER _____

H&B recommends the exclusive use of 304 or 316 Stainless Steel for stone anchorage.

PROJECT NAME: _____

LOCATION: _____

NOTES: _____

CONTACT INFO

Name : _____
Company: _____
Phone: _____ FAX: _____
Email: _____

Due to fabrication requirements and lead times, once a custom anchor order has been scheduled it cannot be cancelled and will not be returnable. Verify all measurements before signing this form. Any changes after the initial order is placed will require a new signed form, and an additional charge. By signing this document, you agree to the terms stated above and accept full responsibility for the accuracy of measurements.

Orders without a signature will not be processed.

ACCEPTED BY: _____

DATE: _____

HOHMANN & BARNARD, Inc.
30 Rasons Court | Hauppauge, NY 11788
CORPORATE HEADQUARTERS
T: 800.645.0616 F: 631.234.0683
www.h-b.com

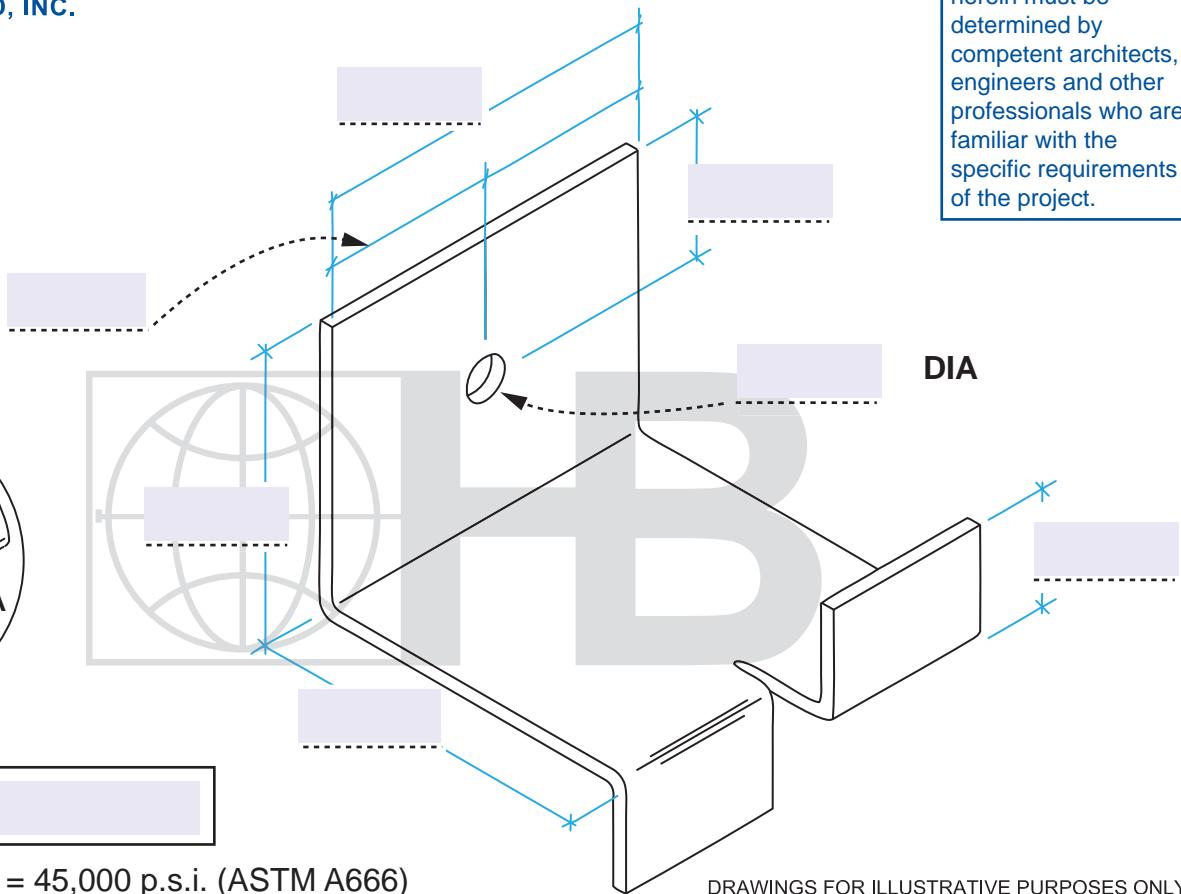
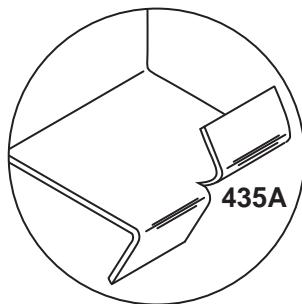
Branch/Subsidiary Locations:
ALABAMA - ARIZONA - ILLINOIS
MARYLAND - NEW YORK - PENNSYLVANIA
TEXAS - MARYLAND - UTAH - CANADA

The appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other professionals who are familiar with the specific requirements of the project.



STAINLESS STEEL STONE ANCHORS #435 STONE ANCHOR

The appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other professionals who are familiar with the specific requirements of the project.



QUANTITY:

ST/ST Plate Min. Fy. = 45,000 p.s.i. (ASTM A666)

DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

FINISH:

- TYPE 304 Stainless Steel
 TYPE 316 Stainless Steel

THICKNESS:

- 12 ga./2.78 mm 3/16"/4.7 mm 3/8"/9.5 mm
 1/8"/3.2 mm 1/4"/6.3 mm OTHER

H&B recommends the exclusive use of 304 or 316 Stainless Steel for stone anchorage.

PROJECT NAME:

LOCATION:

NOTES:

CONTACT INFO

Name :
Company:
Phone: FAX:
Email:

Due to fabrication requirements and lead times, once a custom anchor order has been scheduled it cannot be cancelled and will not be returnable. Verify all measurements before signing this form. Any changes after the initial order is placed will require a new signed form, and an additional charge. By signing this document, you agree to the terms stated above and accept full responsibility for the accuracy of measurements.

Orders without a signature will not be processed.

ACCEPTED BY:

DATE:

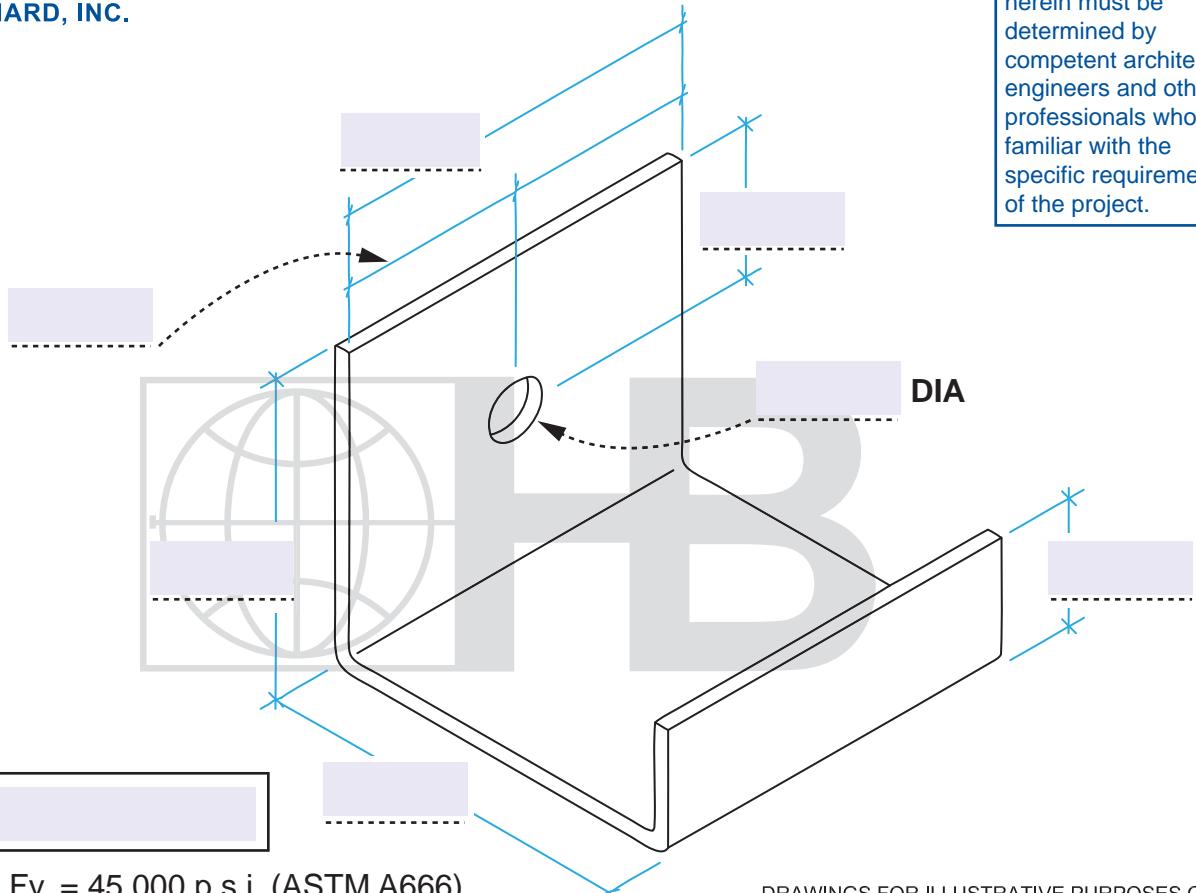
HOHMANN & BARNARD, Inc.
30 Rasons Court | Hauppauge, NY 11788
CORPORATE HEADQUARTERS
T: 800.645.0616 F: 631.234.0683
www.h-b.com

Branch/Subsidiary Locations:
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MARYLAND - NEW YORK - PENNSYLVANIA
TEXAS - MARYLAND - UTAH - CANADA



HOHMANN & BARNARD, INC.
a MiTek company

STAINLESS STEEL STONE ANCHORS #441 STONE ANCHOR



QUANTITY:

ST/ST Plate Min. Fy. = 45,000 p.s.i. (ASTM A666)

DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

FINISH:

- TYPE 304 Stainless Steel
 TYPE 316 Stainless Steel

THICKNESS:

- 12 ga./2.78 mm 3/16"/4.7 mm 3/8"/9.5 mm
 1/8"/3.2 mm 1/4"/6.3 mm OTHER

H&B recommends the exclusive use of 304 or 316 Stainless Steel for stone anchorage.

PROJECT NAME:

LOCATION:

NOTES:

CONTACT INFO

Name :
Company:
Phone: FAX:
Email:

Due to fabrication requirements and lead times, once a custom anchor order has been scheduled it cannot be cancelled and will not be returnable. Verify all measurements before signing this form. Any changes after the initial order is placed will require a new signed form, and an additional charge. By signing this document, you agree to the terms stated above and accept full responsibility for the accuracy of measurements.

Orders without a signature will not be processed.

ACCEPTED BY:

DATE:

HOHMANN & BARNARD, Inc.
30 Rasons Court | Hauppauge, NY 11788
CORPORATE HEADQUARTERS
T: 800.645.0616 F: 631.234.0683
www.h-b.com

Branch/Subsidiary Locations:
ALABAMA - ARIZONA - ILLINOIS
MARYLAND - NEW YORK - PENNSYLVANIA
TEXAS - MARYLAND - UTAH - CANADA

The appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other professionals who are familiar with the specific requirements of the project.

Submittal #04 72 00-7.0

04 72 00 - Cast Stone Masonry

Rudd & Adams Masonry, Inc.
242 STATE HWY 46 W
Boerne, Texas 78006
Phone: (830) 981-4900

Project: 553 - UT Seay
108 E Dean Keeton St
Austin, Texas 78712

7. Source Quality Control - AS SPECIFIED

| | | | |
|--|-------|--------------------|--|
| REVISION: | 0 | SUBMITTAL MANAGER: | Jacob Adams (Rudd & Adams Masonry, Inc.) |
| STATUS: | Draft | DATE CREATED: | 04/24/2020 |
| ISSUE DATE: | | SPEC SECTION: | 04 72 00 - Cast Stone Masonry |
| RESPONSIBLE CONTRACTOR: | | RECEIVED FROM: | |
| | | SUBMIT BY: | |
| | | TYPE: | Product Information |
| APPROVERS: | | | |
| BALL IN COURT: | | | |
| DESCRIPTION: 2.7 SOURCE QUALITY CONTROL | | | |
| A. Engage a qualified independent testing agency to sample and test cast-stone units according to ASTM C1364. 1. Include one test for resistance to freezing and thawing. | | | |

SUBMITTAL WORKFLOW

BY

DATE

COPIES TO

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 047200-002R1

Description: Cast Stone - Shop Drawings

Project Name: UT Seay Building Addition

Project No.: 301-8105

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

- NO EXCEPTIONS NOTED
- SUBMIT SPECIFIED ITEM
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

BY:

daniel hodge



DATE: 12/11/2020

Submittal Comments:

1. Submitted products do not meet the minimum manufacturer warranty requirements.
2. Provide anchorage specifics called out on details with anchor diameter, spacing, and embedment.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0460

PROJECT: UT Seay Building Addition

DATE: 12/02/2020

TO: BSA Lifestructures
AL

RE: Cast Stone Masonry - All levels Updated Profile - Shop Drawi

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | | SUBMITTED FOR: | ACTION TAKEN: |
|--|--|---|--|
| <input type="checkbox"/> Shop Drawings | | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | | <input checked="" type="checkbox"/> Due Date: 12/16/2020 |
| <input checked="" type="checkbox"/> Submittal: | | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|--------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 047200-002R1 | 2 | | 12/02/2020 | Cast Stone Masonry - All levels Updated Profile - Shop Drawings | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 12/2/2020 SPEC# 047200

REVIEWED BY tanner.hawkins

SUBMITTAL# 047200-002R1

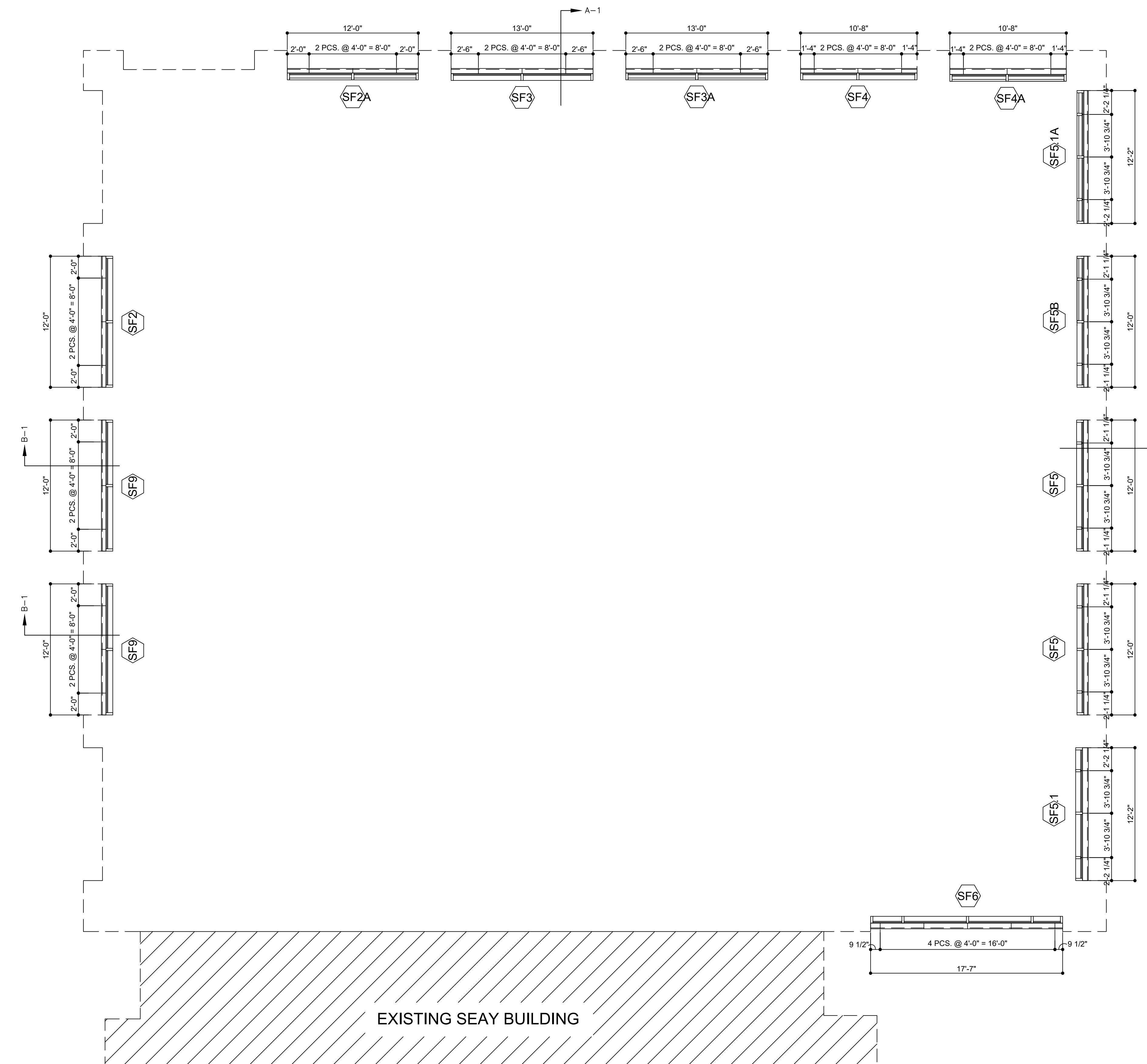
APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

Cast Stone Profiles updated per
RFI-0081 - Cast Stone at
Windows Sills

CC:

Signed: Tanner Hawkins
Tanner Hawkins

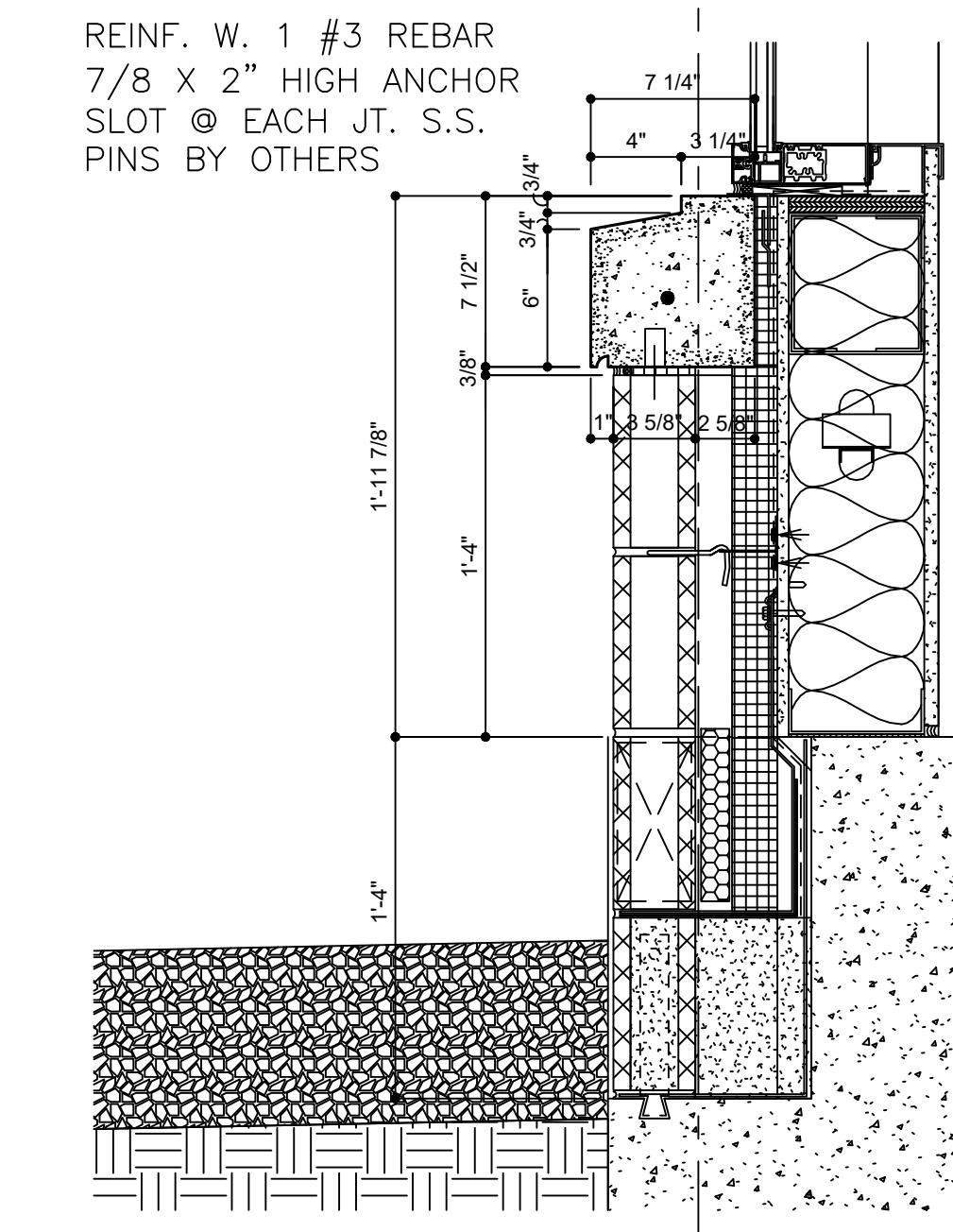


FLOOR PLAN OF CAST STONE WINDOW SILLS (LEVEL 2)

SCALE:

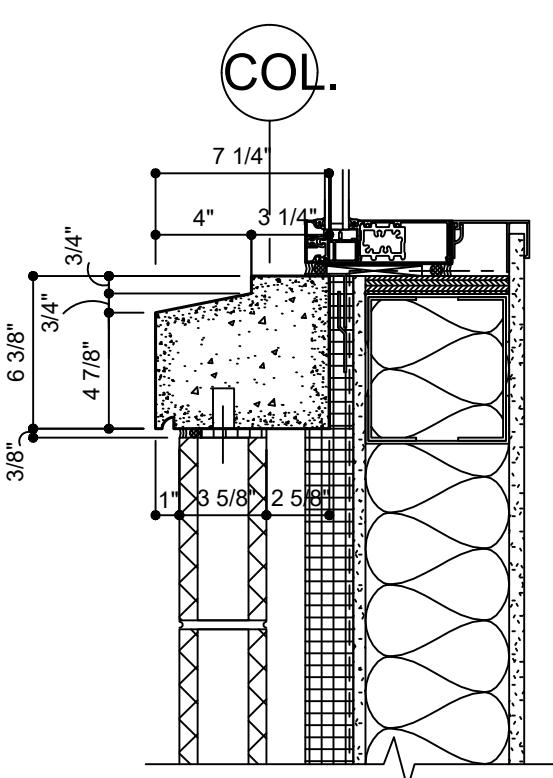
3/16" = 1'-0"

REINF. W. 1 #3 REBAR
7/8 X 2" HIGH ANCHOR
SLOT @ EACH JT. S.S.
PINS BY OTHERS

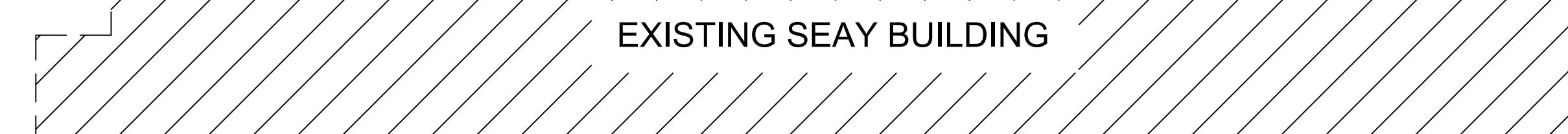


LEVEL 2 (580.22')
580' - 0"

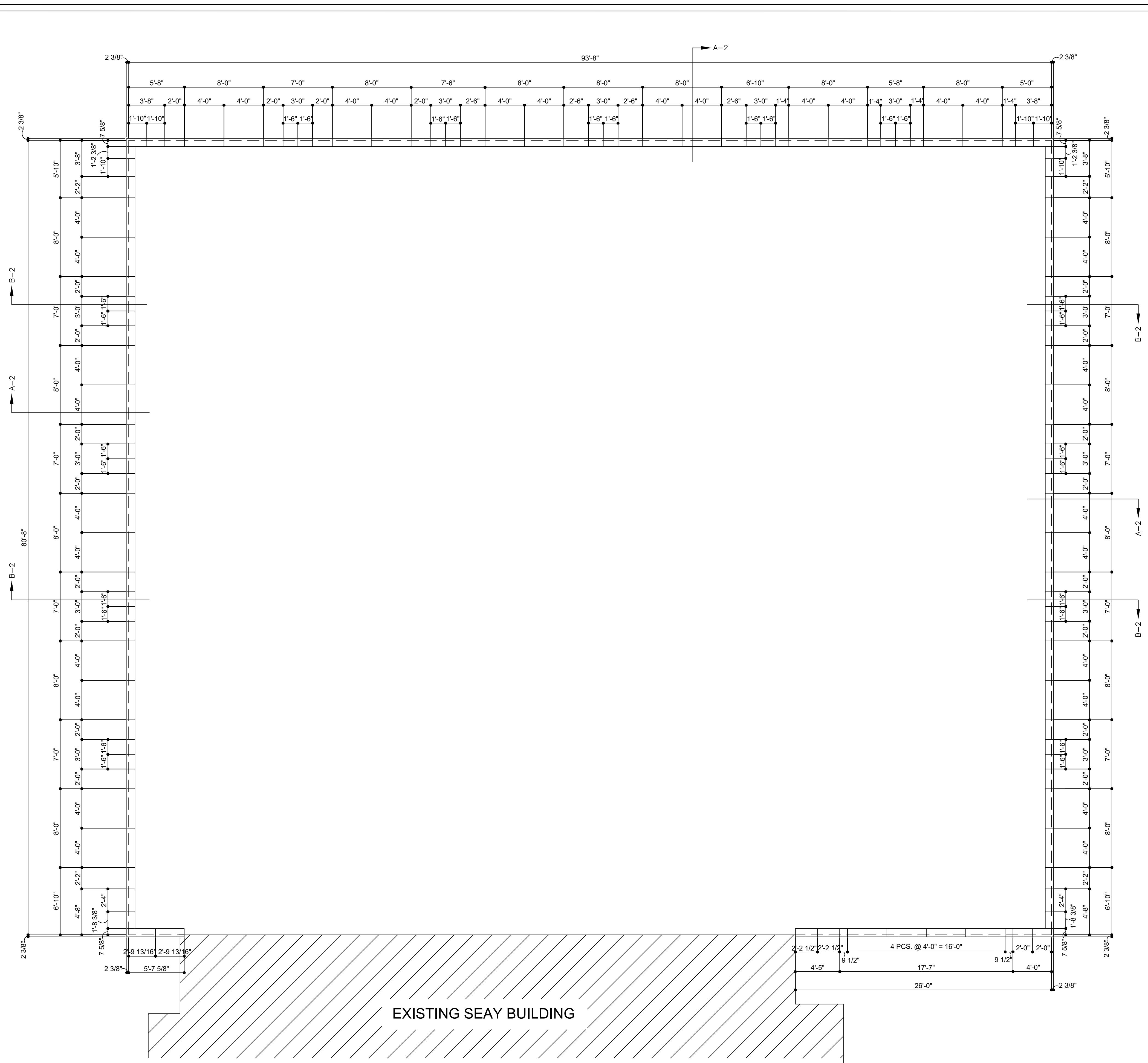
(A) SECTION OF CAST STONE SILL
SCALE: 1 1/2" = 1'-0"



(B) SECTION OF CAST STONE SILL
SCALE: 1 1/2" = 1'-0"



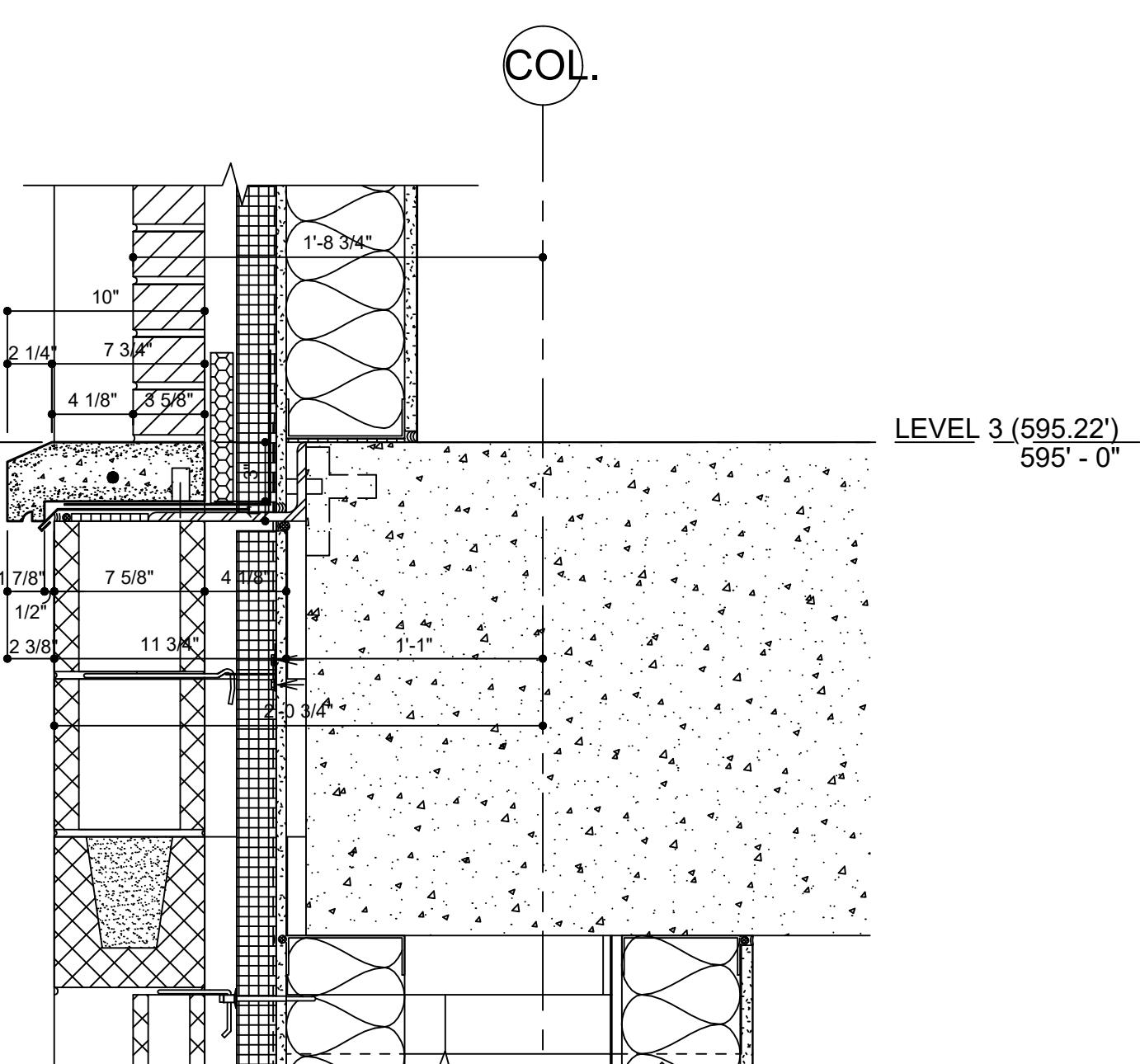
| | |
|--------------------------------------|--|
| REVISION: 9-8-2020 | BLDG: SEAY BUILDING ADDITION |
| LOCATION: AUSTIN, TX | |
| ARCHITECT: BSA LIFE STRUCTURES | |
| CONTRACTOR: SPAWGLASS | |
| CUSTOMER: RUDD & ADAMS MASONRY, INC. | |
| DRAWN: 6-8-2020 | JOB: #6529 |
| APPROVED: | PYRAMID CAST STONE CO. P.O. BOX 33248 SAN ANTONIO TX 78223 |
| | SHEET: 1 OF 14 |



FLOOR PLAN OF CAST STONE BANDING (LEVEL 2)

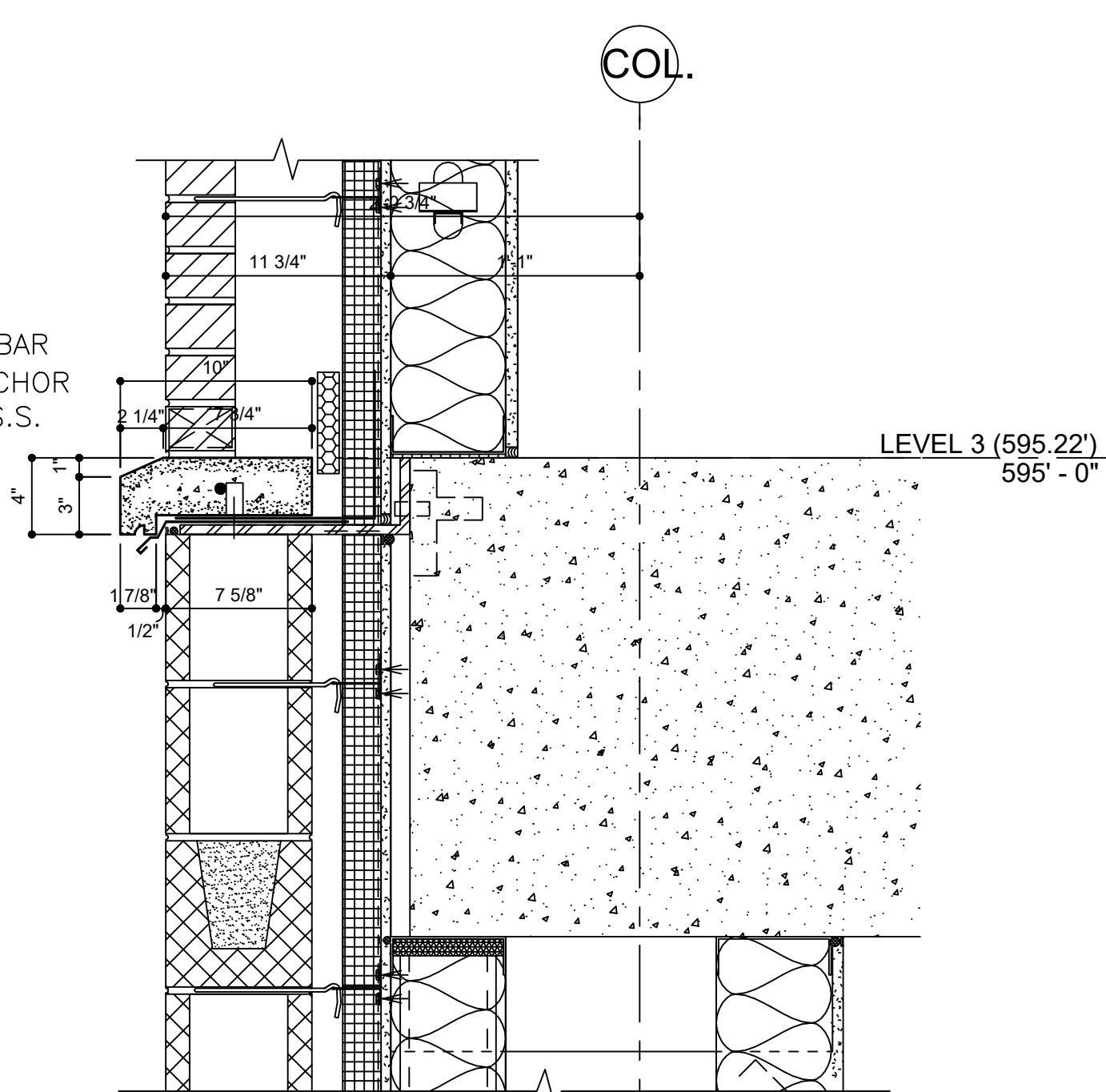
SCA

3/16" = 1'-0"



**A
2 SECTION OF CAST STONE BANDING**

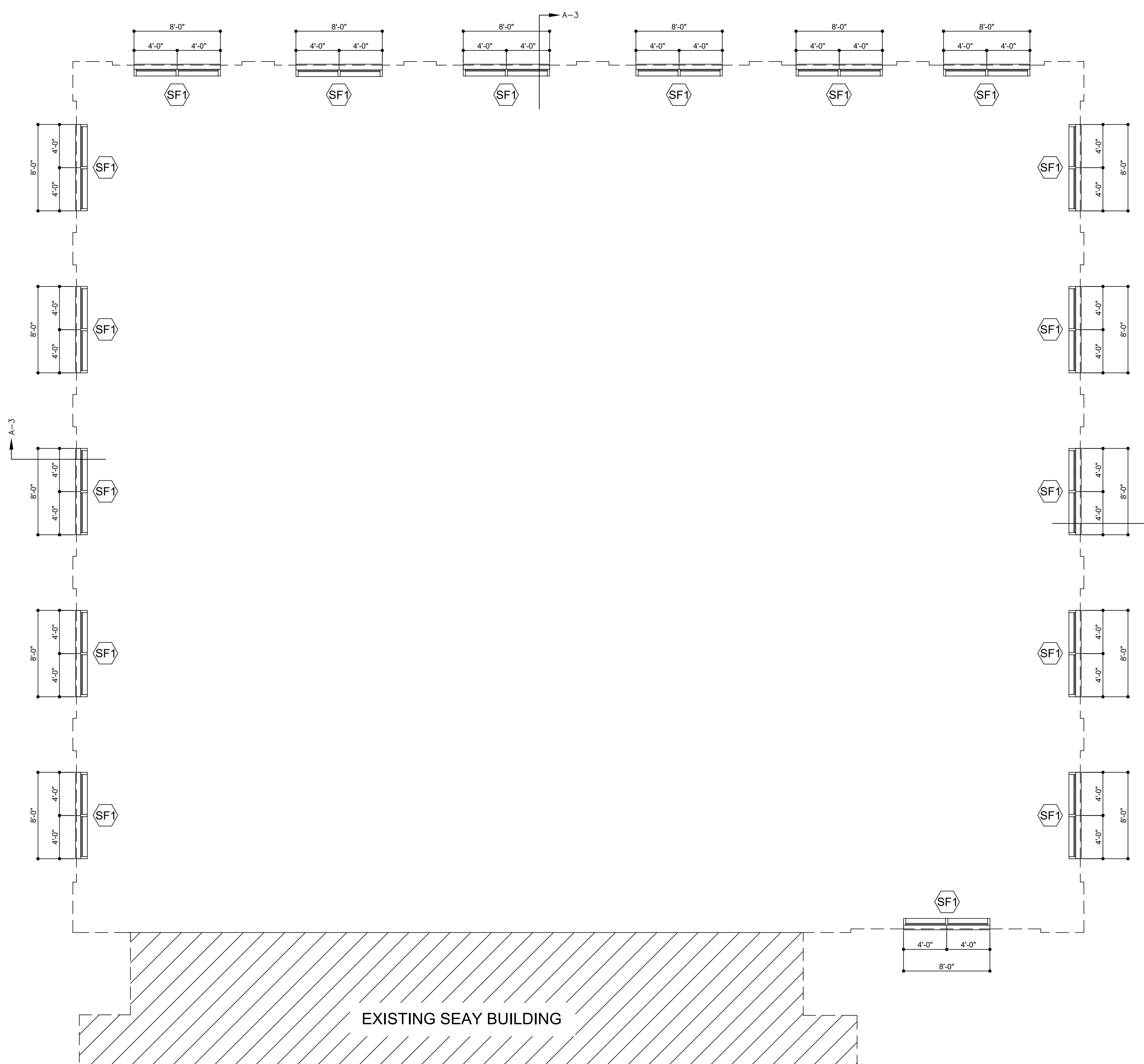
$$\underline{1 \frac{1}{2}'' = 1'-0''}$$



SECTION OF CAST STONE BANDING

1 1/2" ≡ 1'-0"

| | | |
|--------------------|--|-------------------|
| | BLDG: <u>SEAY BUIDLING ADDITION</u> | |
| | LOCATION: <u>AUSTIN, TX</u> | |
| | ARCHITECT: <u>BSA LIFE STRUCTURES</u> | |
| | CONTRACTOR: <u>SPAWGLASS</u> | |
| | CUSTOMER: <u>RUDD & ADAMS MASONRY, INC.</u> | |
| DRAWN: 6-8-2020 | PYRAMID CAST STONE CO. P.O. BOX 23248 SAN ANTONIO TX 78223 | JOB: #6529 |
| APPROVED: | | SHEET: 2 OF 14 |

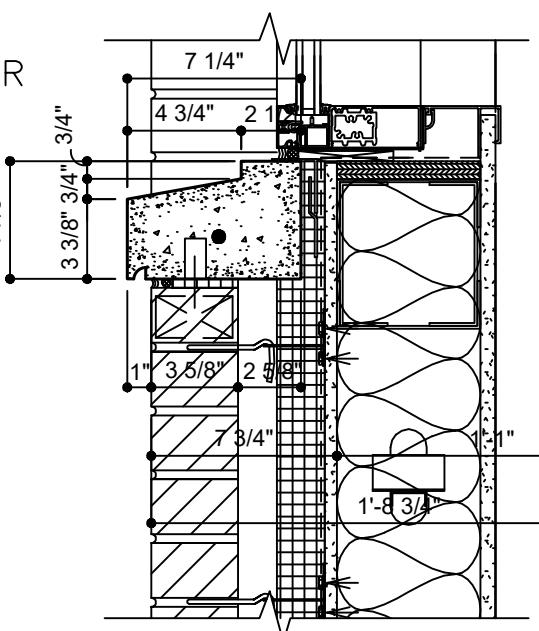


FLOOR PLAN OF CAST STONE WINDOW SILLS (LEVEL 3)

SCALE:

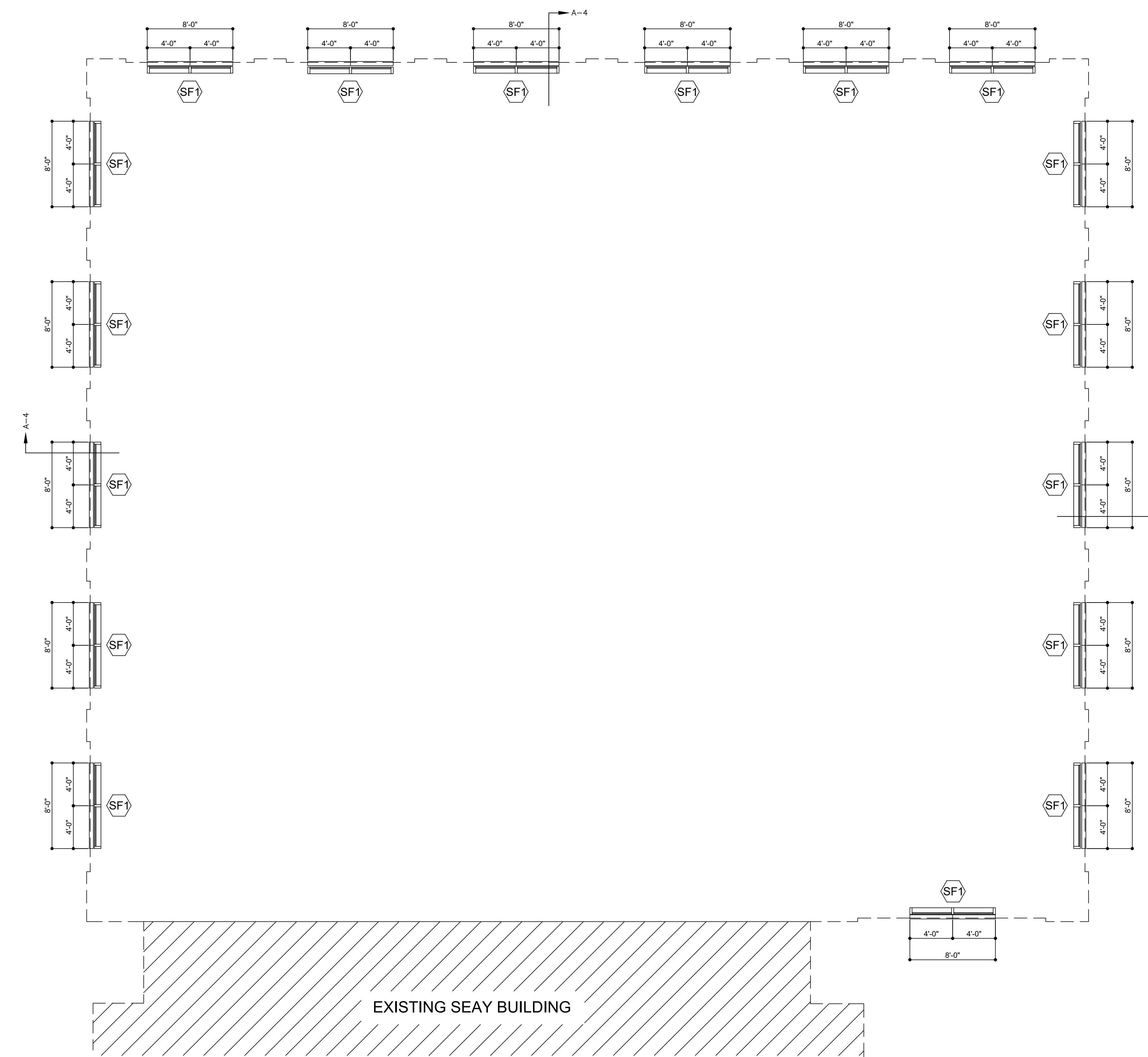
3/16" = 1'-0"

REINF. W. 1 #3 REBAR
7/8 X 2" HIGH ANCHOR
SLOT @ EACH JT. S.S.
PINS BY OTHERS

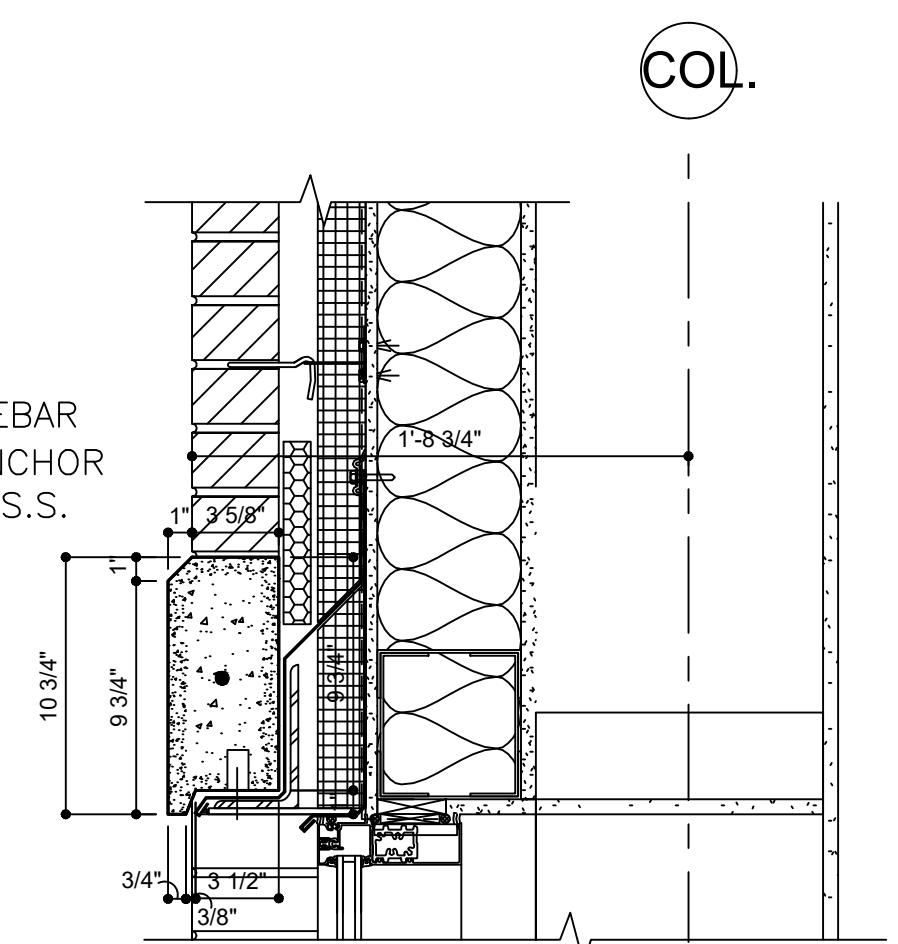


(A) SECTION OF CAST STONE SILL
SCALE: 1 1/2" = 1'-0"

| | |
|-------------|--|
| BLDG: | SEAY BUILDING ADDITION |
| LOCATION: | AUSTIN, TX |
| ARCHITECT: | BSA LIFE STRUCTURES |
| CONTRACTOR: | SPAWGLASS |
| CUSTOMER: | RUDD & ADAMS MASONRY, INC. |
| DRAWN: | 6-8-2020 |
| APPROVED: | PYRAMID CAST STONE CO. P.O. BOX 33248 SAN ANTONIO TX 78223 |
| JOB: | #6529 |
| SHEET: | 3 OF 14 |



REINF. W. 1 #3 REBAR
7/8 X 2" HIGH ANCHOR
SLOT @ EACH JT. S.S.
PINS BY OTHERS



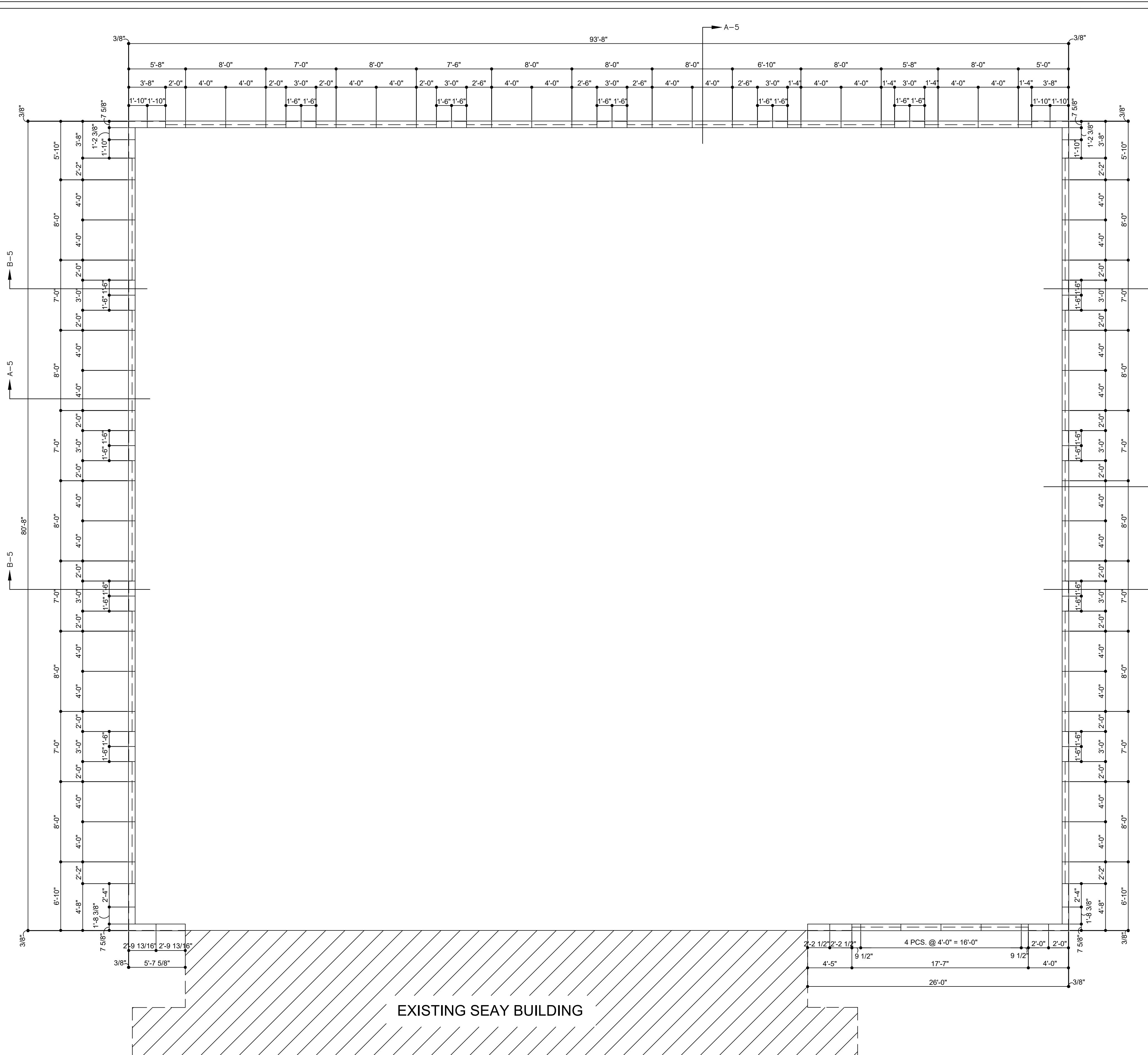
SECTION OF CAST STONE HEADER
SCALE: 1 1/2" = 1'-0"

FLOOR PLAN OF CAST STONE WINDOW HEADER (LEVEL 3)

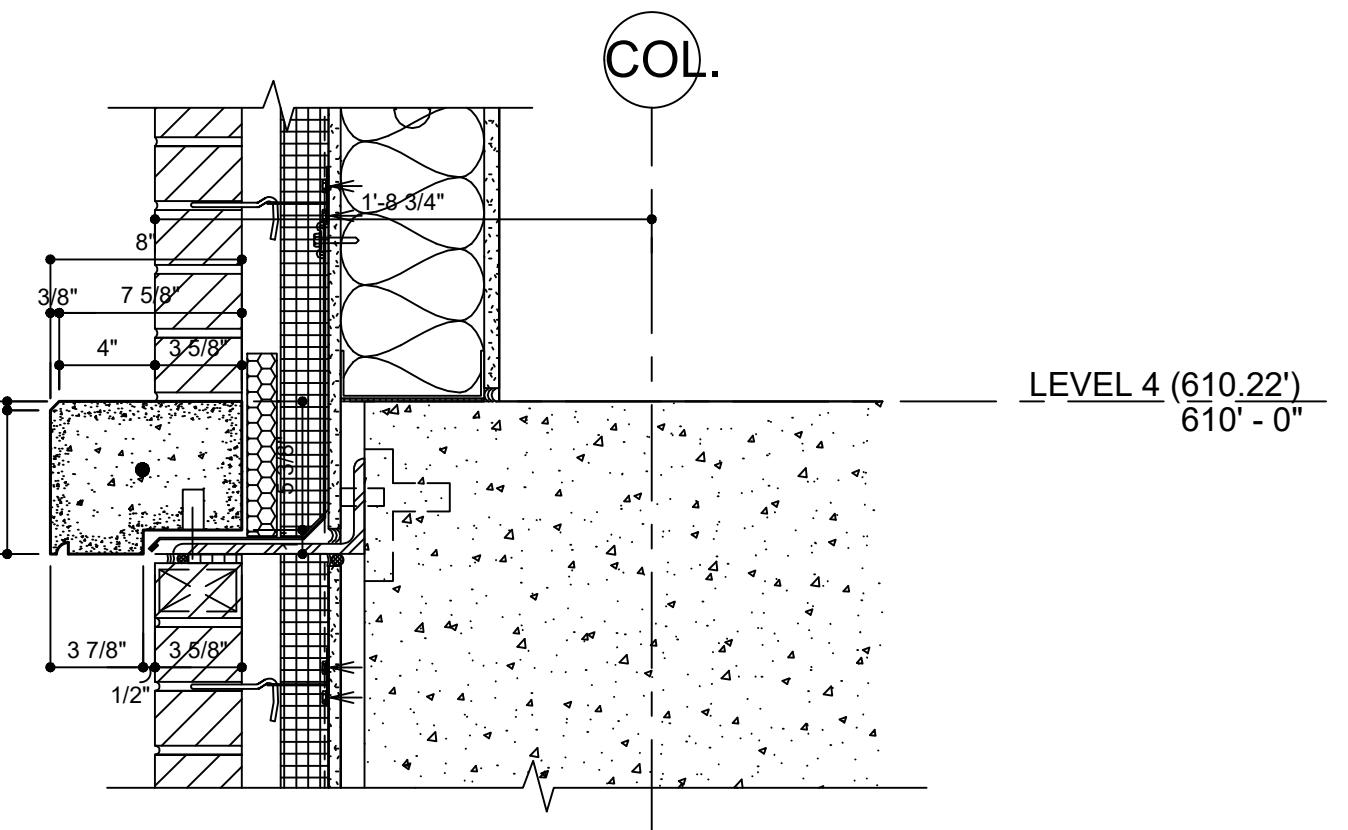
SCALE:

3/16" = 1'-0"

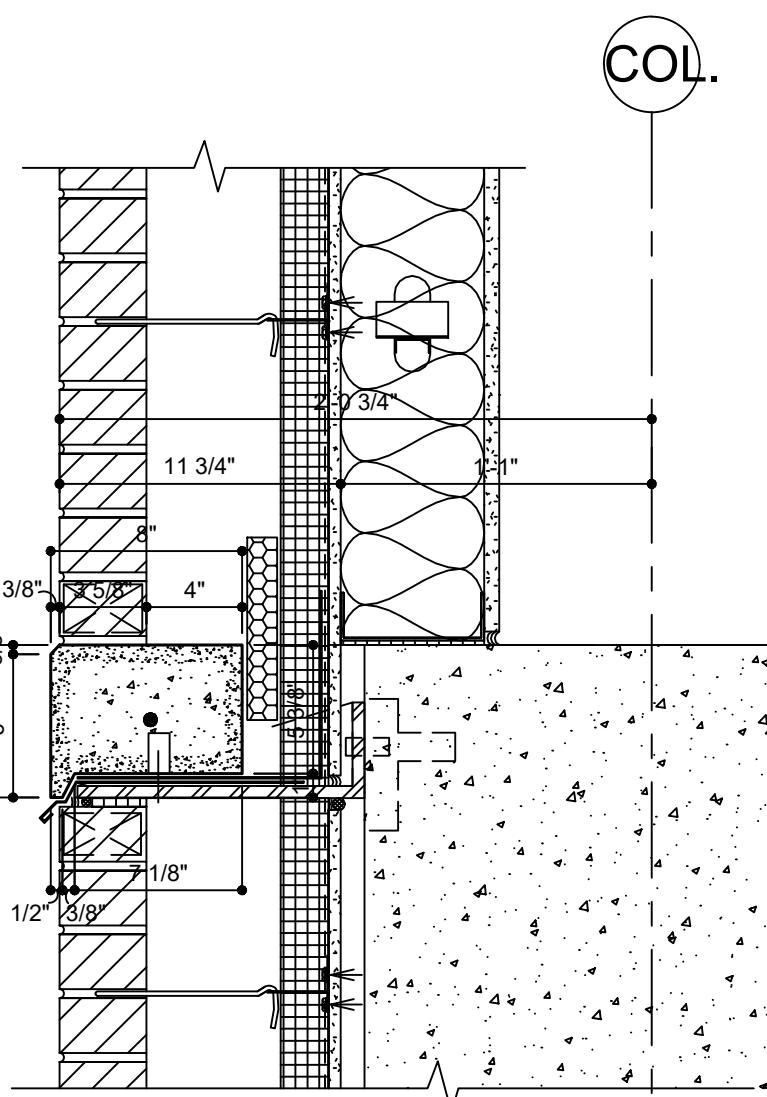
| | |
|-------------|--|
| BLDG: | SEAY BUILDING ADDITION |
| LOCATION: | AUSTIN, TX |
| ARCHITECT: | BSA LIFE STRUCTURES |
| CONTRACTOR: | SPAWGLASS |
| CUSTOMER: | RUDD & ADAMS MASONRY, INC. |
| DRAWN: | 6-8-2020 |
| APPROVED: | PYRAMID CAST STONE CO. P.O. BOX 33248 SAN ANTONIO TX 78223 |
| JOB: | #6529 |
| SHEET: | 4 OF 14 |



REINF. W. 1 #3 REBAR
7/8 X 2" HIGH ANCHOR
SLOT @ EACH JT. S.S.
PINS BY OTHERS

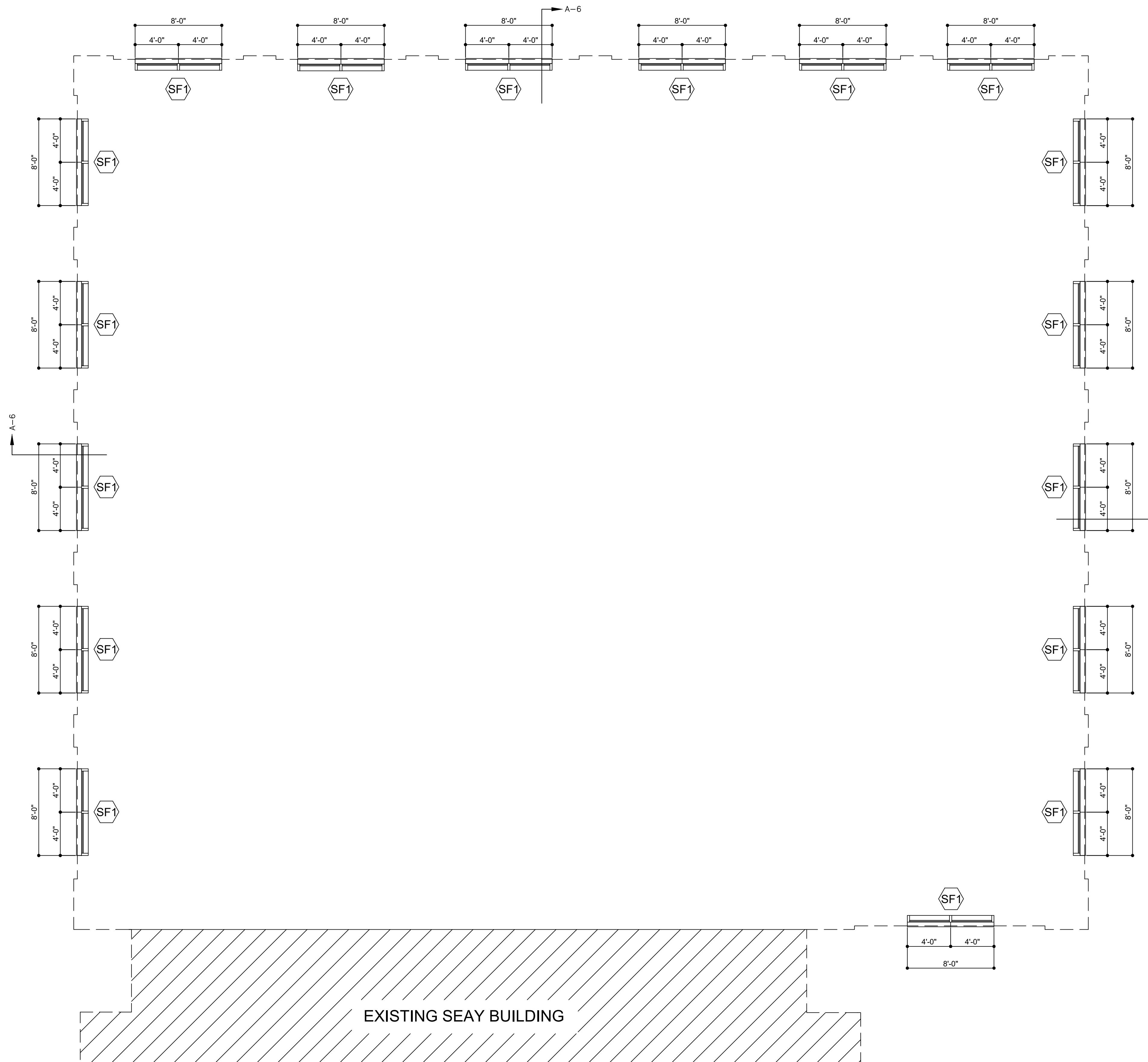


SECTION OF CAST STONE BANDING
SCALE: 1 1/2" = 1'-0"



SECTION OF CAST STONE BANDING
SCALE: 1 1/2" = 1'-0"

| | |
|-------------|--|
| BLDG: | SEAY BUILDING ADDITION |
| LOCATION: | AUSTIN, TX |
| ARCHITECT: | BSA LIFE STRUCTURES |
| CONTRACTOR: | SPAWGLASS |
| CUSTOMER: | RUDD & ADAMS MASONRY, INC. |
| DRAWN: | 6-8-2020 |
| APPROVED: | PYRAMID CAST STONE CO. P.O. BOX 33248 SAN ANTONIO TX 78223 |
| JOB: | #6529 |
| SHEET: | 5 OF 14 |

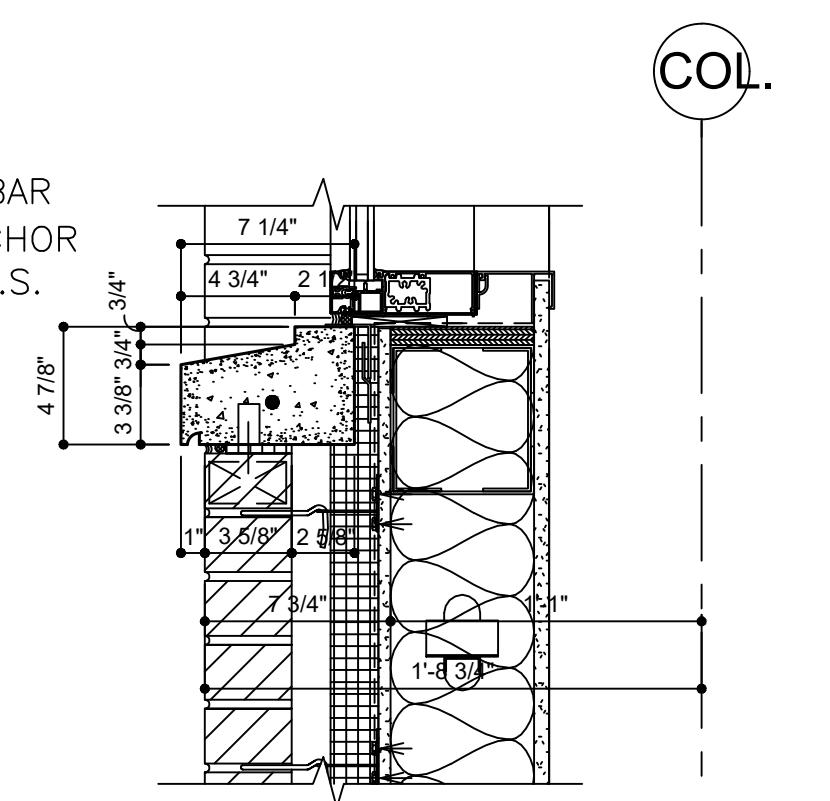


FLOOR PLAN OF CAST STONE WINDOW SILLS (LEVEL 4)

SCALE:

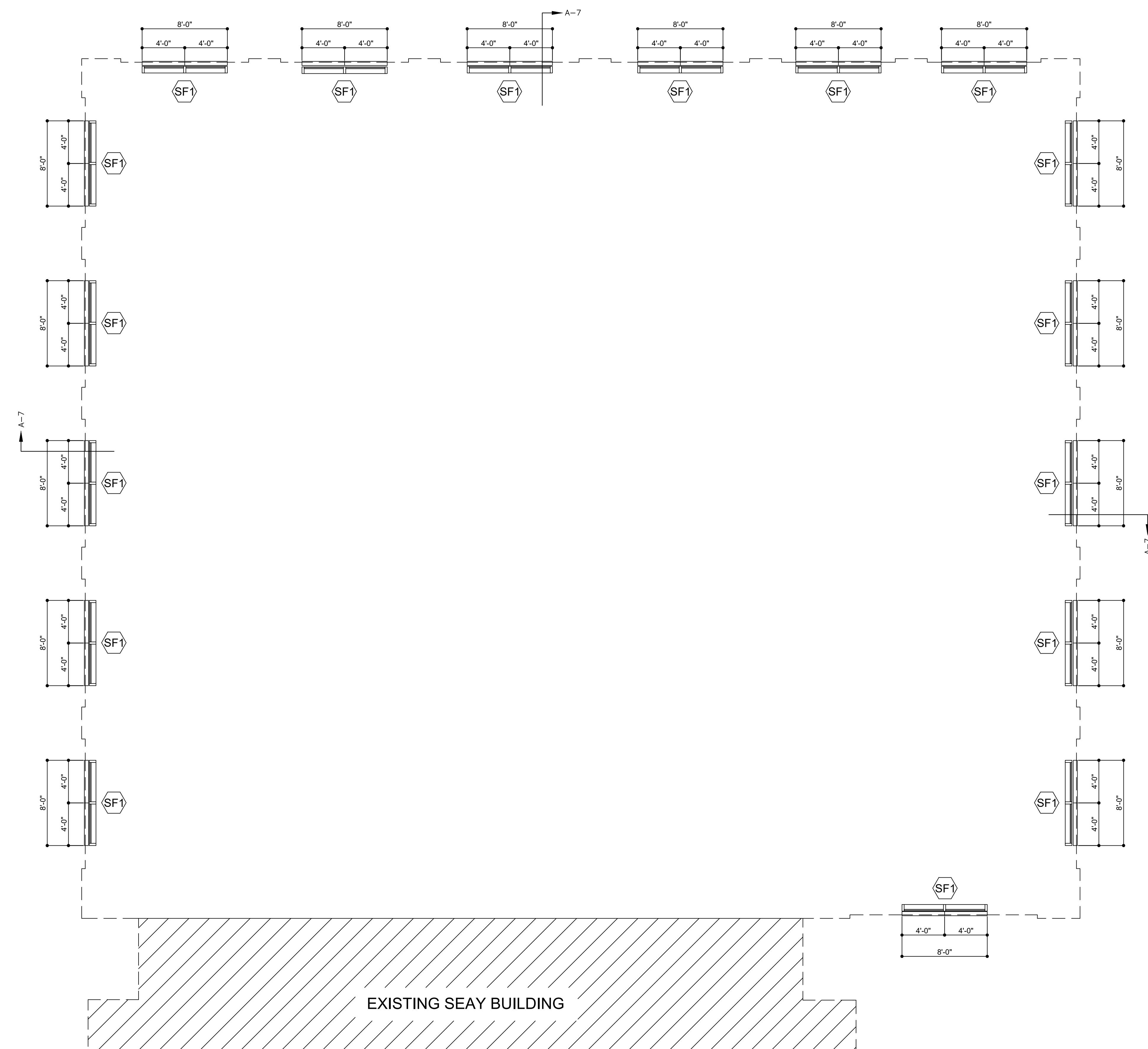
3/16" = 1'-0"

REINF. W. 1 #3 REBAR
7/8 X 2" HIGH ANCHOR
SLOT @ EACH JT. S.S.
PINS BY OTHERS



A-6 SECTION OF CAST STONE SILL
SCALE: 1 1/2" = 1'-0"

| | |
|-------------|--|
| BLDG: | SEAY BUILDING ADDITION |
| LOCATION: | AUSTIN, TX |
| ARCHITECT: | BSA LIFE STRUCTURES |
| CONTRACTOR: | SPAWGLASS |
| CUSTOMER: | RUDD & ADAMS MASONRY, INC. |
| DRAWN: | 6-8-2020 |
| APPROVED: | PYRAMID CAST STONE CO. P.O. BOX 33248 SAN ANTONIO TX 78223 |
| JOB: | #6529 |
| SHEET: | 6 OF 14 |



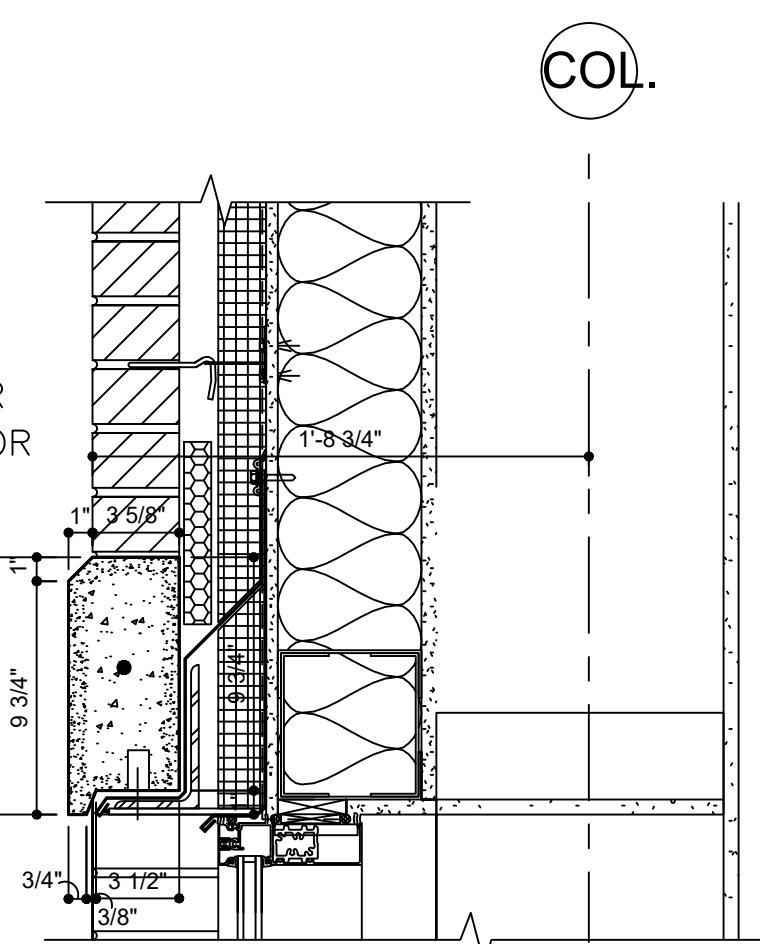
FLOOR PLAN OF CAST STONE WINDOW HEADER (LEVEL 4)

SCALE:

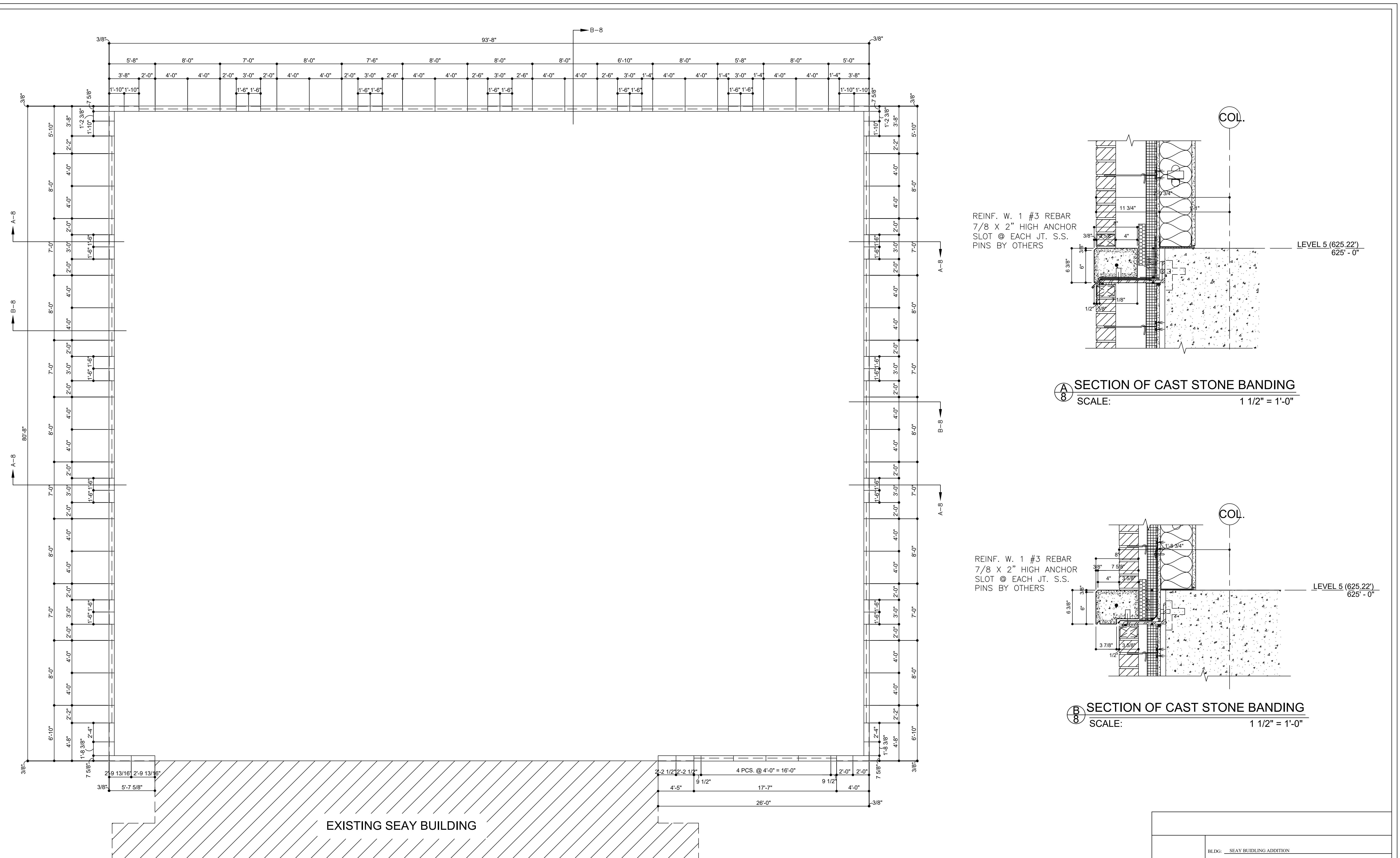
3/16" = 1'-0"

SECTION OF CAST STONE HEADER
A-7
SCALE: 1 1/2" = 1'-0"

REINF. W. 1 #3 REBAR
7/8 X 2" HIGH ANCHOR
SLOT @ EACH JT. S.S.
PINS BY OTHERS



| | |
|-------------|--|
| BLDG: | SEAY BUILDING ADDITION |
| LOCATION: | AUSTIN, TX |
| ARCHITECT: | BSA LIFE STRUCTURES |
| CONTRACTOR: | SPAWGLASS |
| CUSTOMER: | RUDD & ADAMS MASONRY, INC. |
| DRAWN: | 6-8-2020 |
| APPROVED: | PYRAMID CAST STONE CO. P.O. BOX 33248 SAN ANTONIO TX 78223 |
| JOB: | #6529 |
| SHEET: | 7 OF 14 |

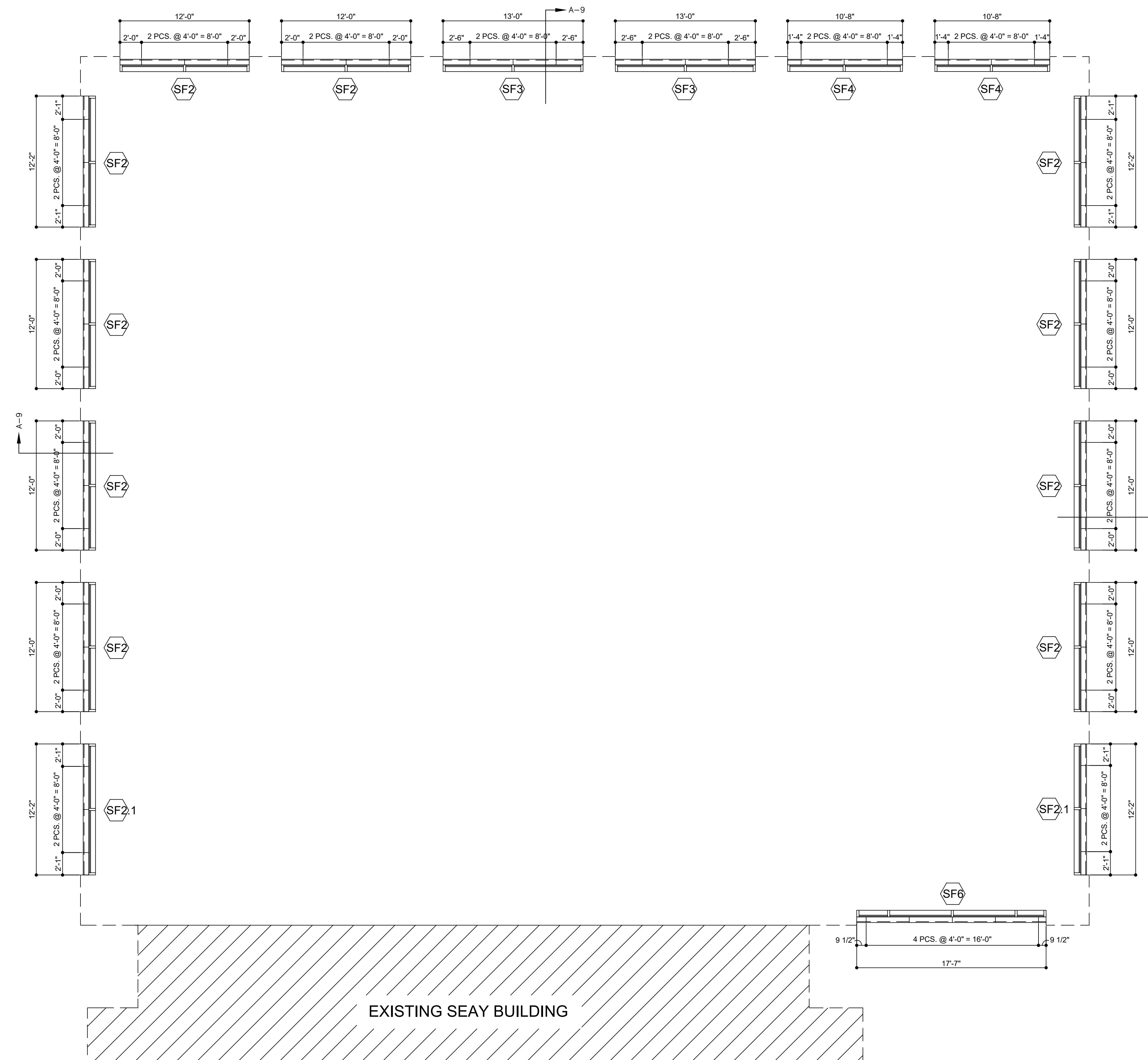


FLOOR PLAN OF CAST STONE BANDING (LEVEL 4)

SCALE

3/16" = 1'-0"

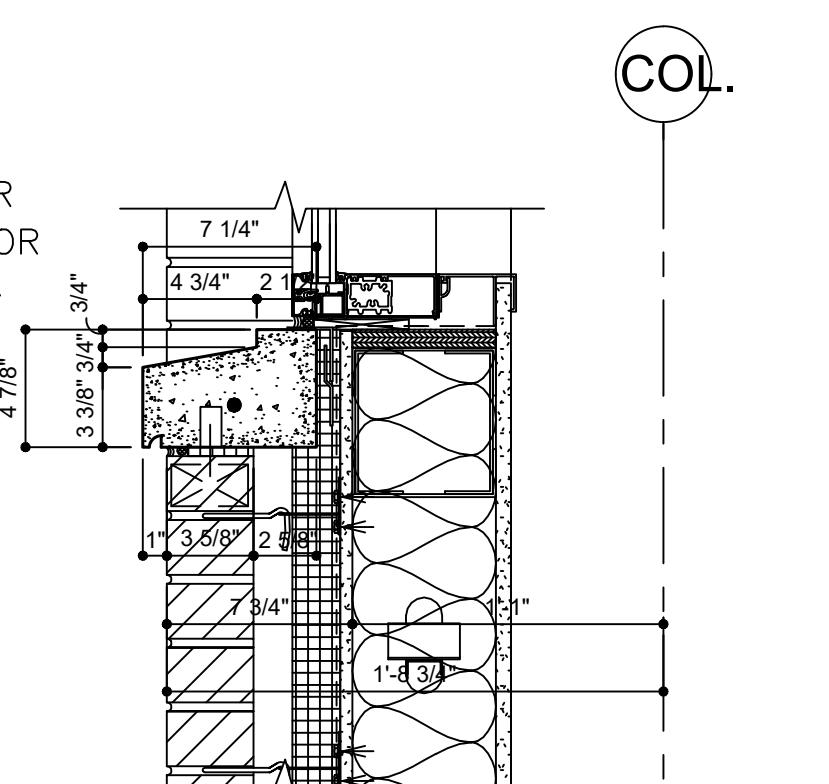
| | | |
|--------------------|--|-------------------|
| | BLDG: <u>SEAY BUIDLING ADDITION</u> | |
| | LOCATION: <u>AUSTIN, TX</u> | |
| | ARCHITECT: <u>BSA LIFE STRUCTURES</u> | |
| | CONTRACTOR: <u>SPAWGLASS</u> | |
| | CUSTOMER: <u>RUDD & ADAMS MASONRY, INC.</u> | |
| DRAWN: 6-8-2020 | PYRAMID CAST STONE CO. P.O. BOX 23248 SAN ANTONIO TX 78223 | JOB: #6529 |
| APPROVED: | | SHEET: 8 OF 14 |



FLOOR PLAN OF CAST STONE WINDOW SILLS (LEVEL 5)

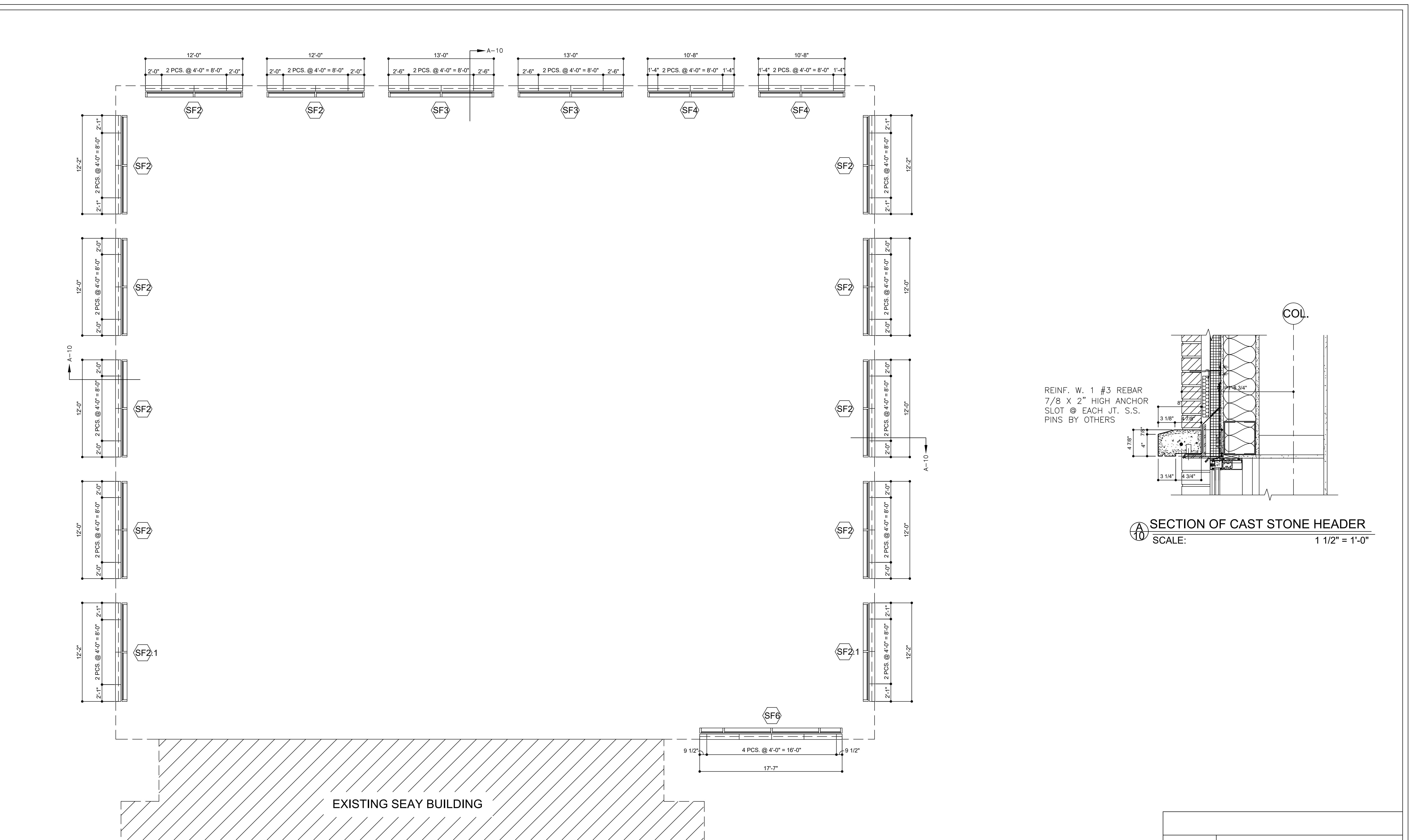
5

3/16" ≈ 1'-0"

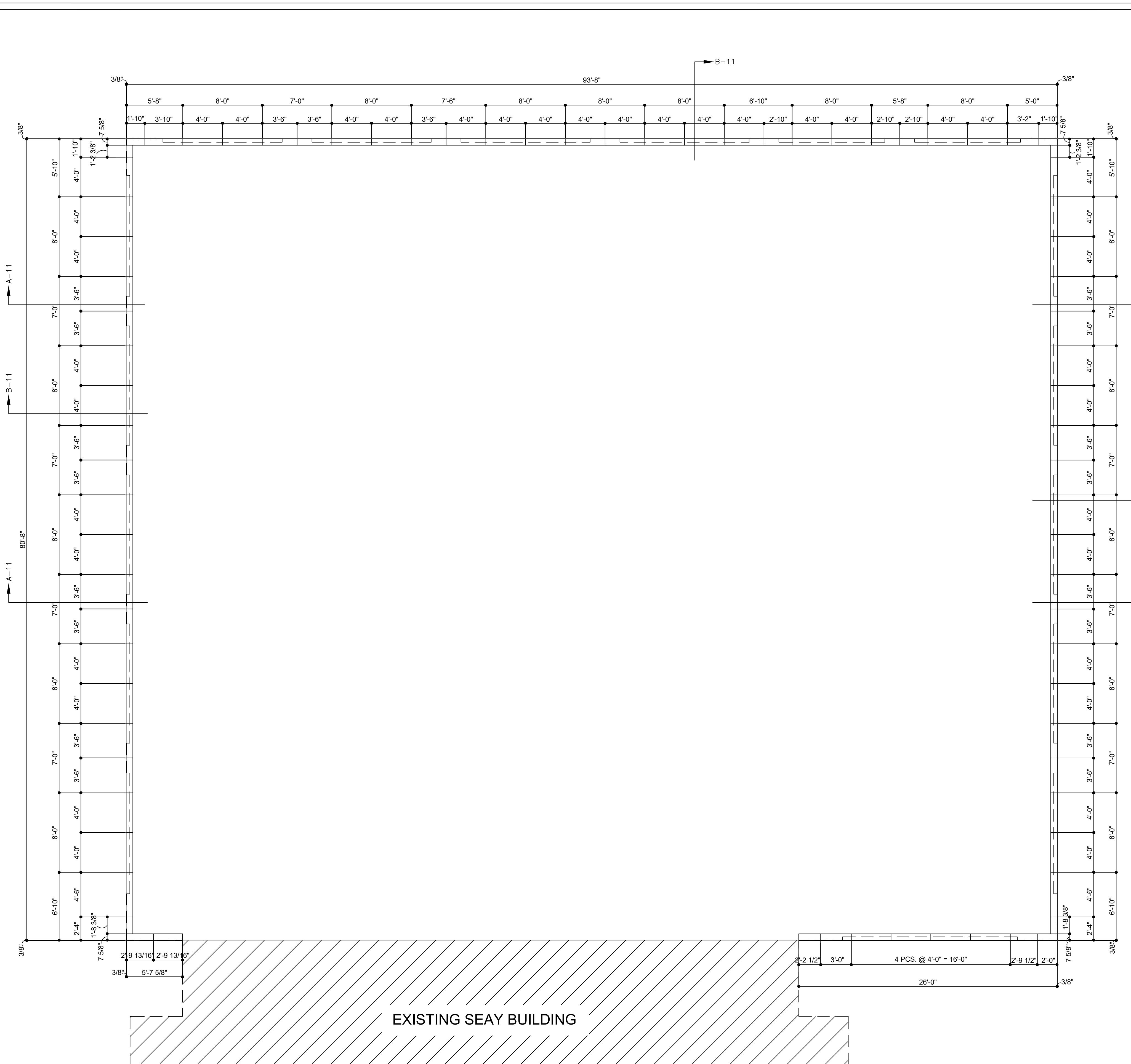


(A) SECTION OF CAST STONE SILL

| | | |
|---|--|-------------------|
| | | |
| | | |
| <p>BLDG: <u>SEAY BUIDLING ADDITION</u></p> <p>LOCATION: <u>AUSTIN, TX</u></p> <p>ARCHITECT: <u>BSA LIFE STRUCTURES</u></p> <p>CONTRACTOR: <u>SPAWGLASS</u></p> <p>CUSTOMER: <u>RUDD & ADAMS MASONRY, INC.</u></p> | | |
| DRAWN: 6-8-2020 | PYRAMID CAST STONE CO. P.O. BOX 23248 SAN ANTONIO TX 78223 | JOB: #6529 |
| APPROVED: | | SHEET: 9 OF 14 |



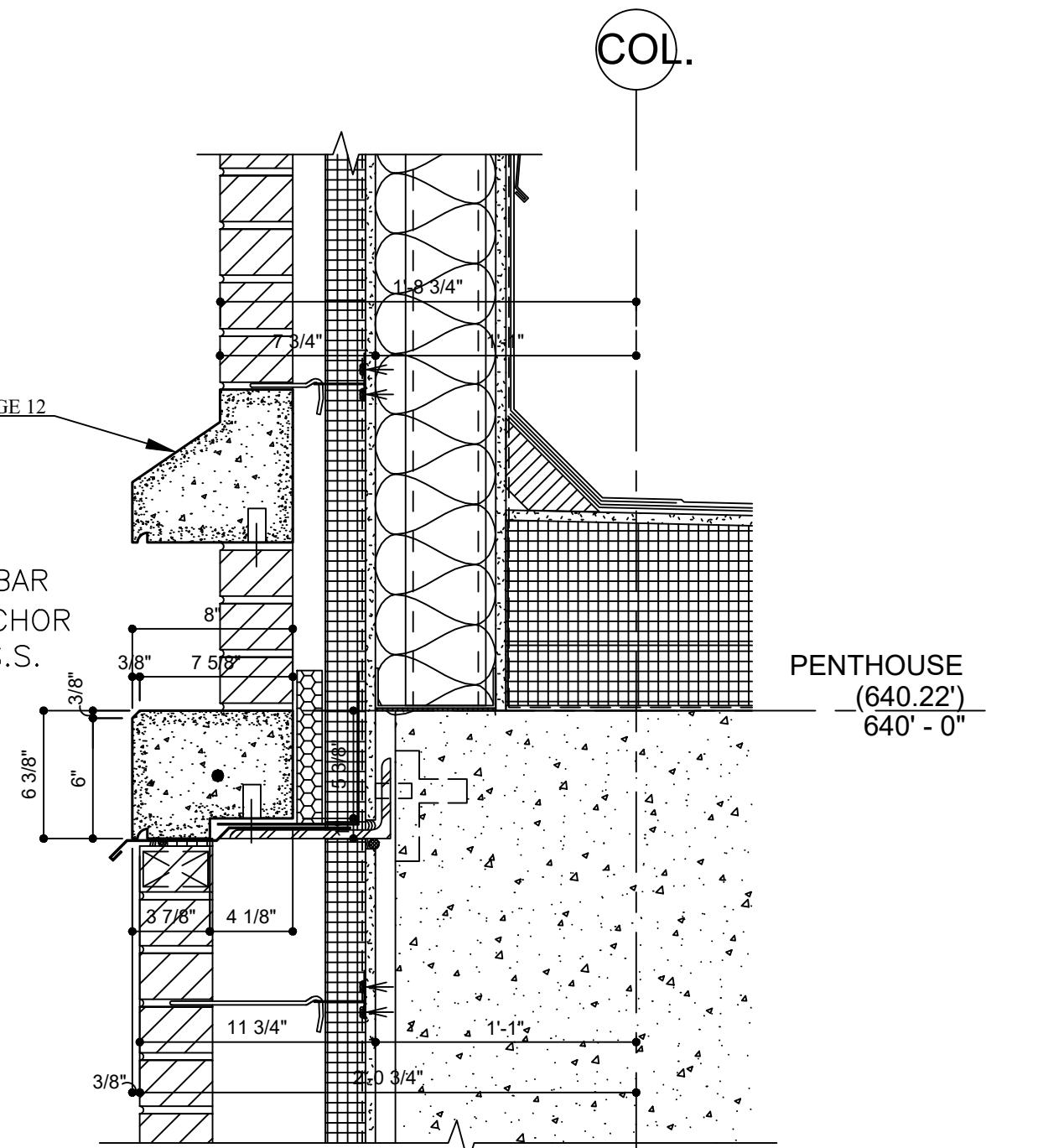
| | |
|-------------|--|
| BLDG: | SEAY BUILDING ADDITION |
| LOCATION: | AUSTIN, TX |
| ARCHITECT: | BSA LIFE STRUCTURES |
| CONTRACTOR: | SPAWGLASS |
| CUSTOMER: | RUDD & ADAMS MASONRY, INC. |
| DRAWN: | 6-8-2020 |
| APPROVED: | PYRAMID CAST STONE CO. P.O. BOX 33248 SAN ANTONIO TX 78223 |
| JOB: | #6529 |
| SHEET: | 10 OF 14 |



FLOOR PLAN OF CAST STONE BANDING (LEVEL 5)

SCAL

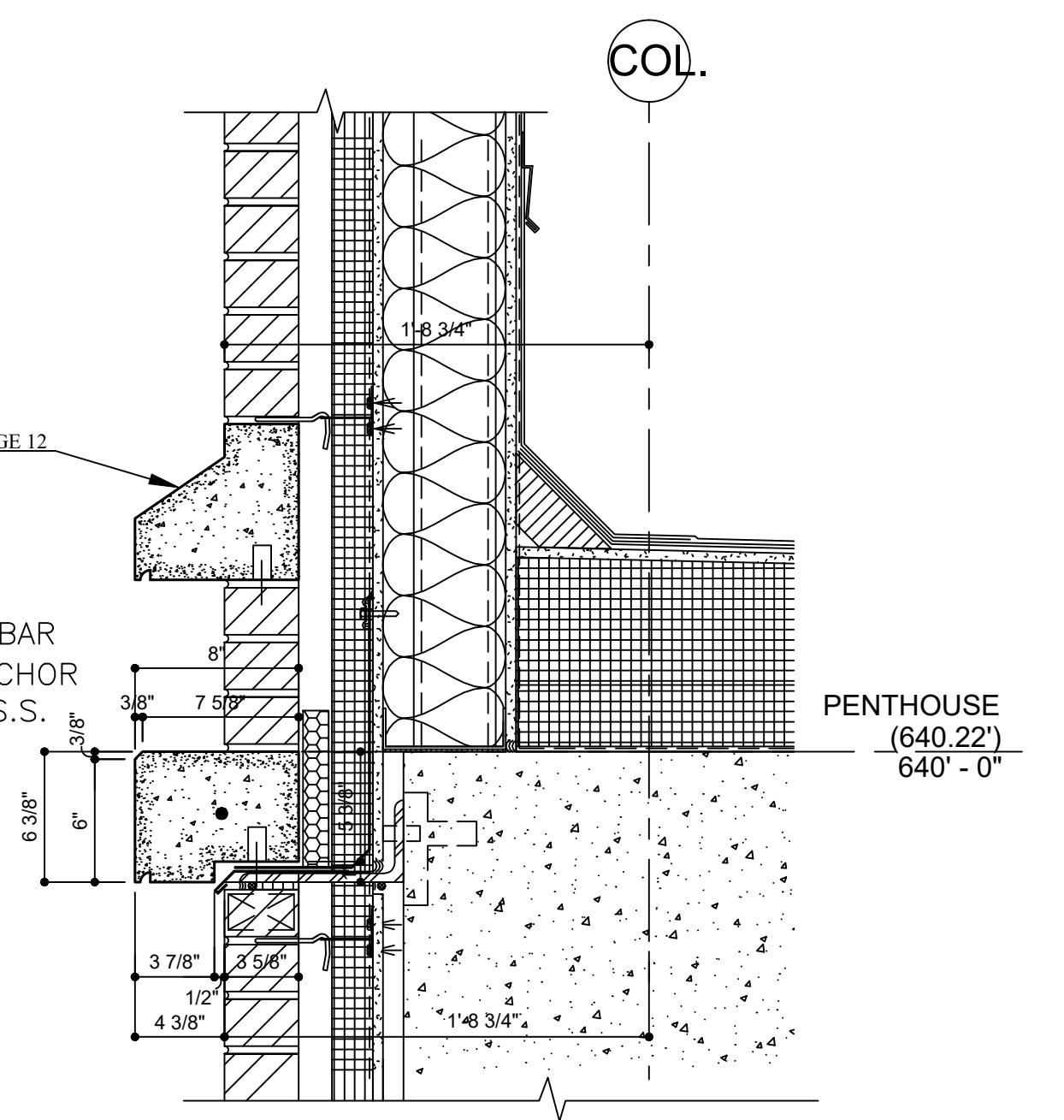
3/16" =



A SECTION OF CAST STONE BANDING

SCALE:

$$\underline{1 \frac{1}{2}'' = 1'-0''}$$

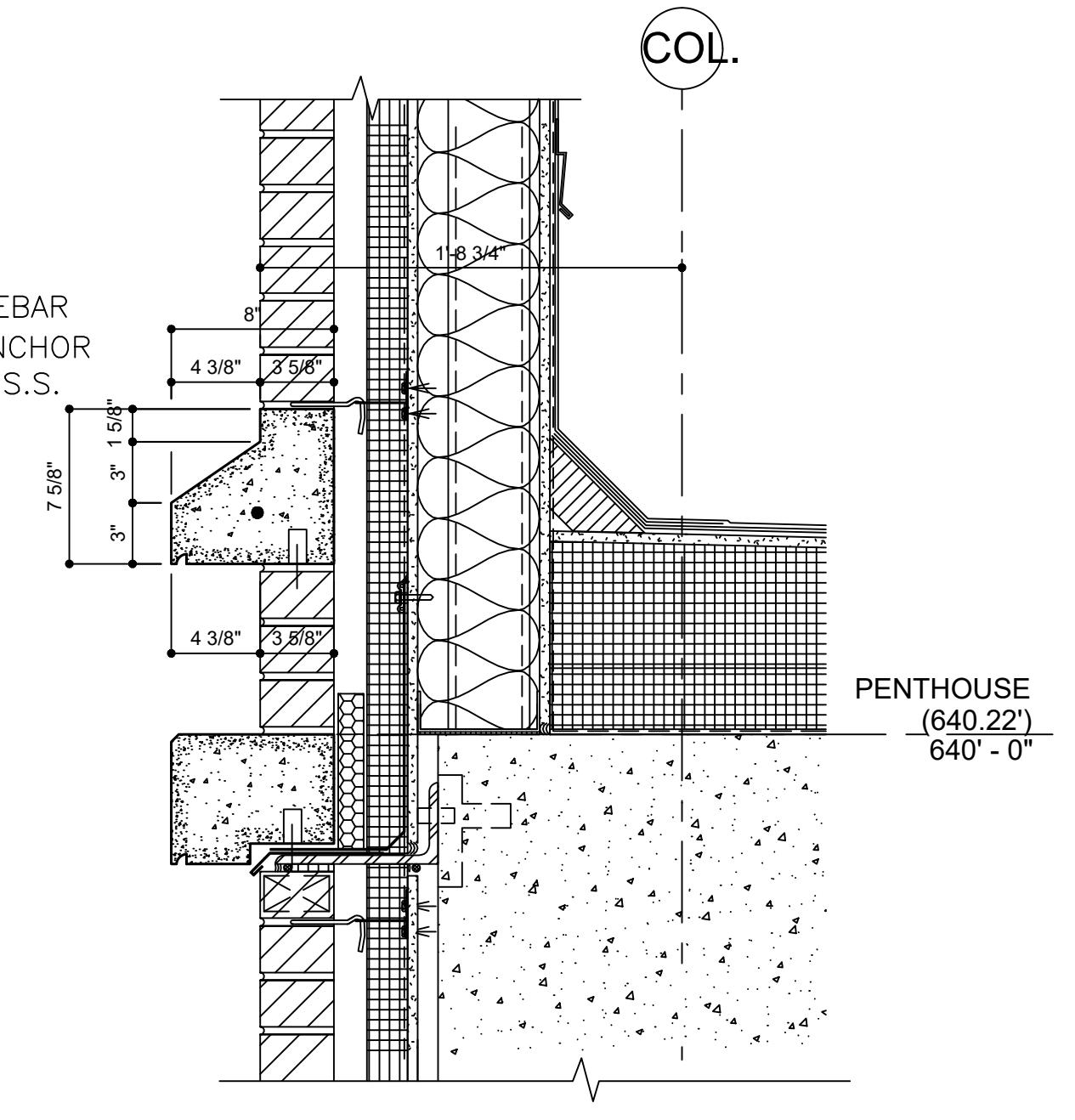
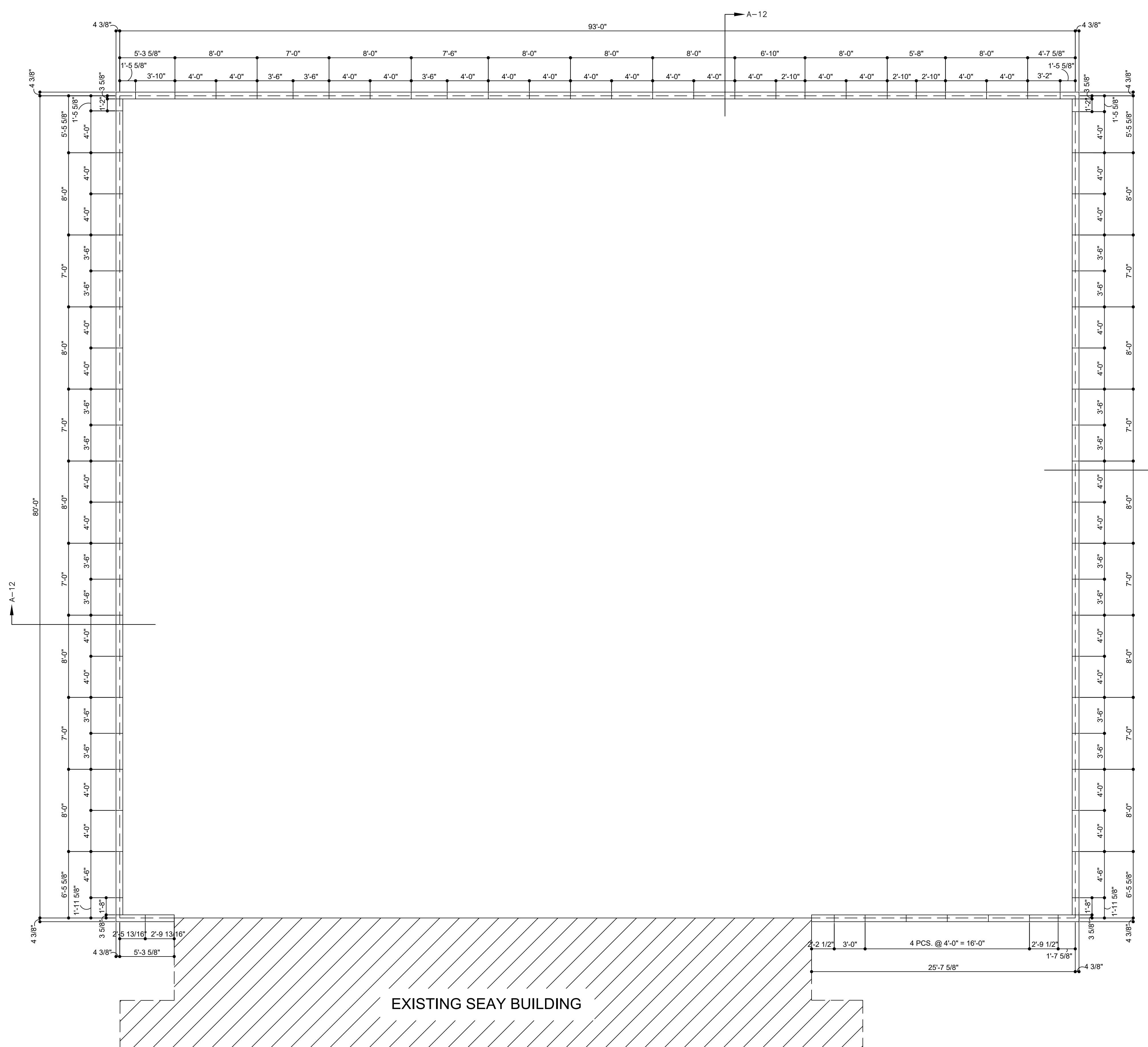


B SECTION OF CAST STONE BANDING
11 SCALE 1:1 (25mm = 11.8")

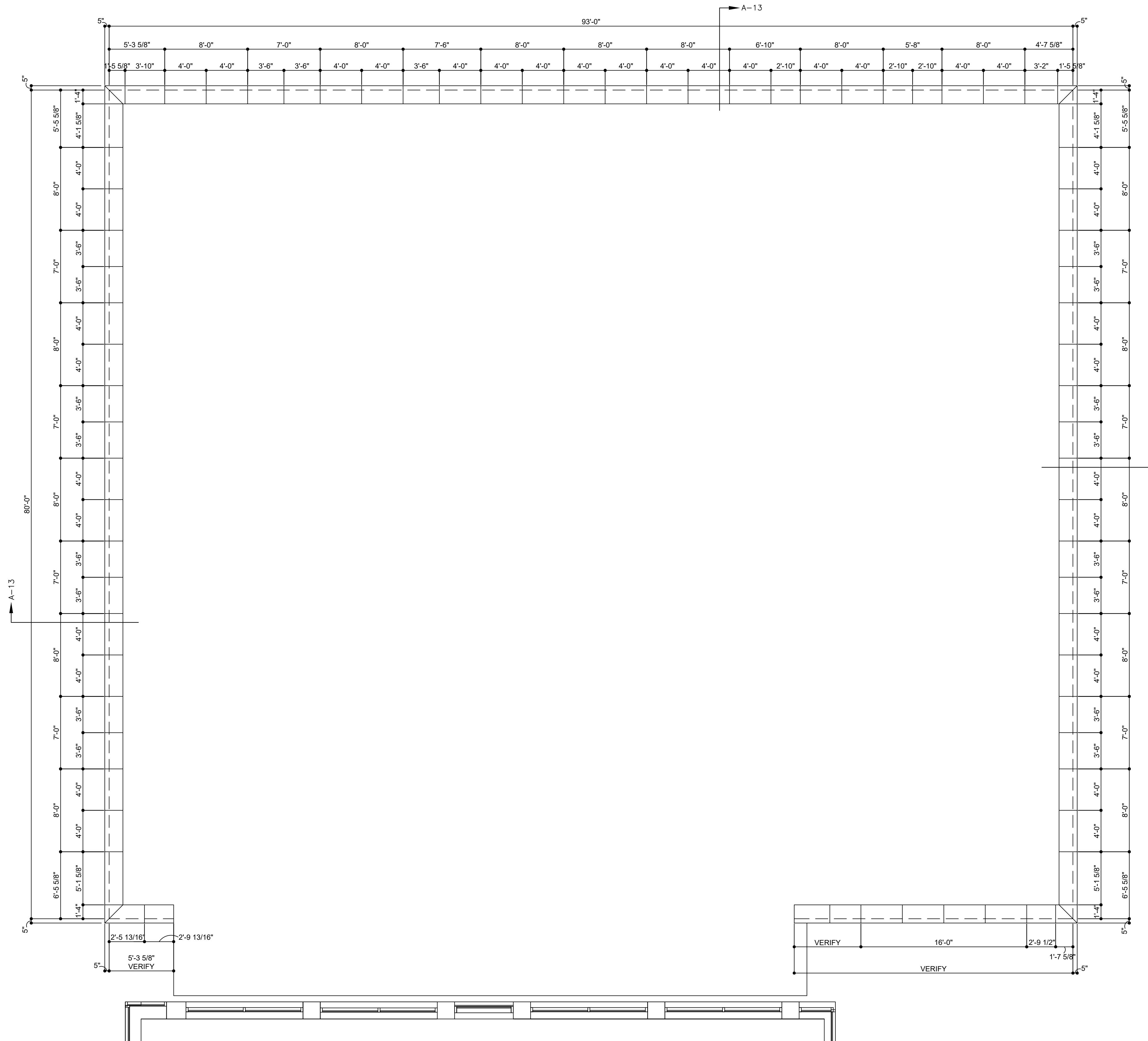
11 _____ SCALE

1 1/2" = 1'-0"

| | | |
|--------------------|--|--------------------|
| BLDG: | <u>SEAY BUIDLING ADDITION</u> | |
| LOCATION: | <u>AUSTIN, TX</u> | |
| ARCHITECT: | <u>BSA LIFE STRUCTURES</u> | |
| CONTRACTOR: | <u>SPAWGLASS</u> | |
| CUSTOMER: | <u>RUDD & ADAMS MASONRY, INC.</u> | |
| DRAWN: 6-8-2020 | PYRAMID CAST STONE CO. P.O. BOX 23248 SAN ANTONIO TX 78223 | JOB: #6529 |
| APPROVED: | | SHEET: 11 OF 14 |



(A) SECTION OF CAST STONE BANDING
(12)
SCALE: 1 1/2" = 1'-0"

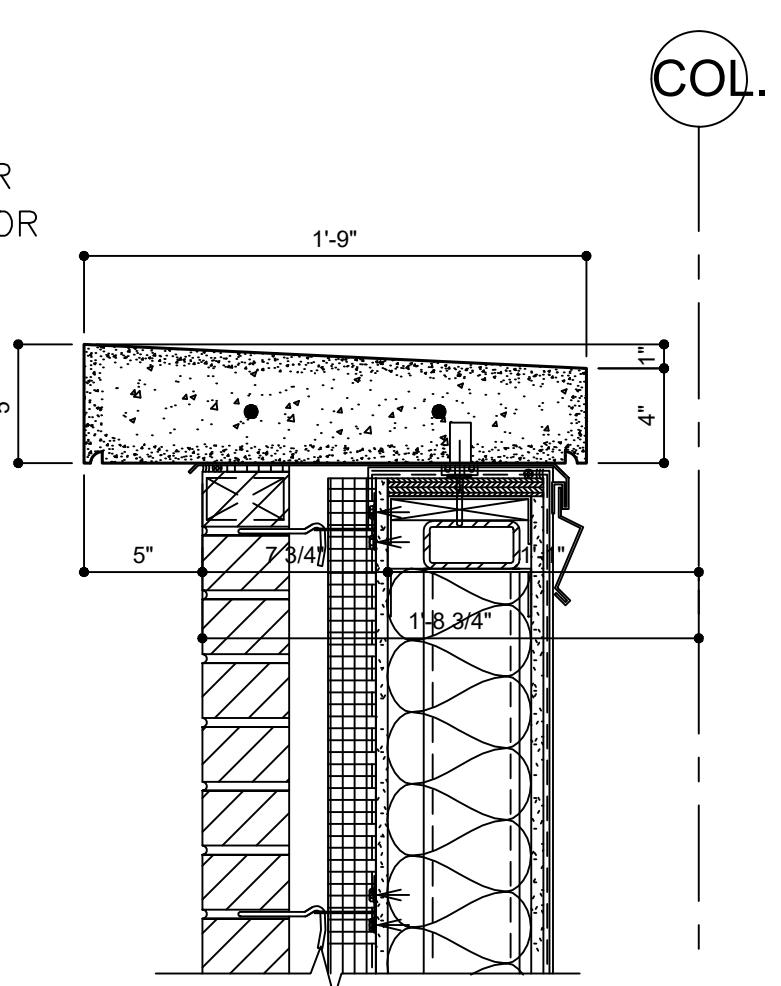


FLOOR PLAN OF CAST STONE BANDING (PENTHOUSE)

SC

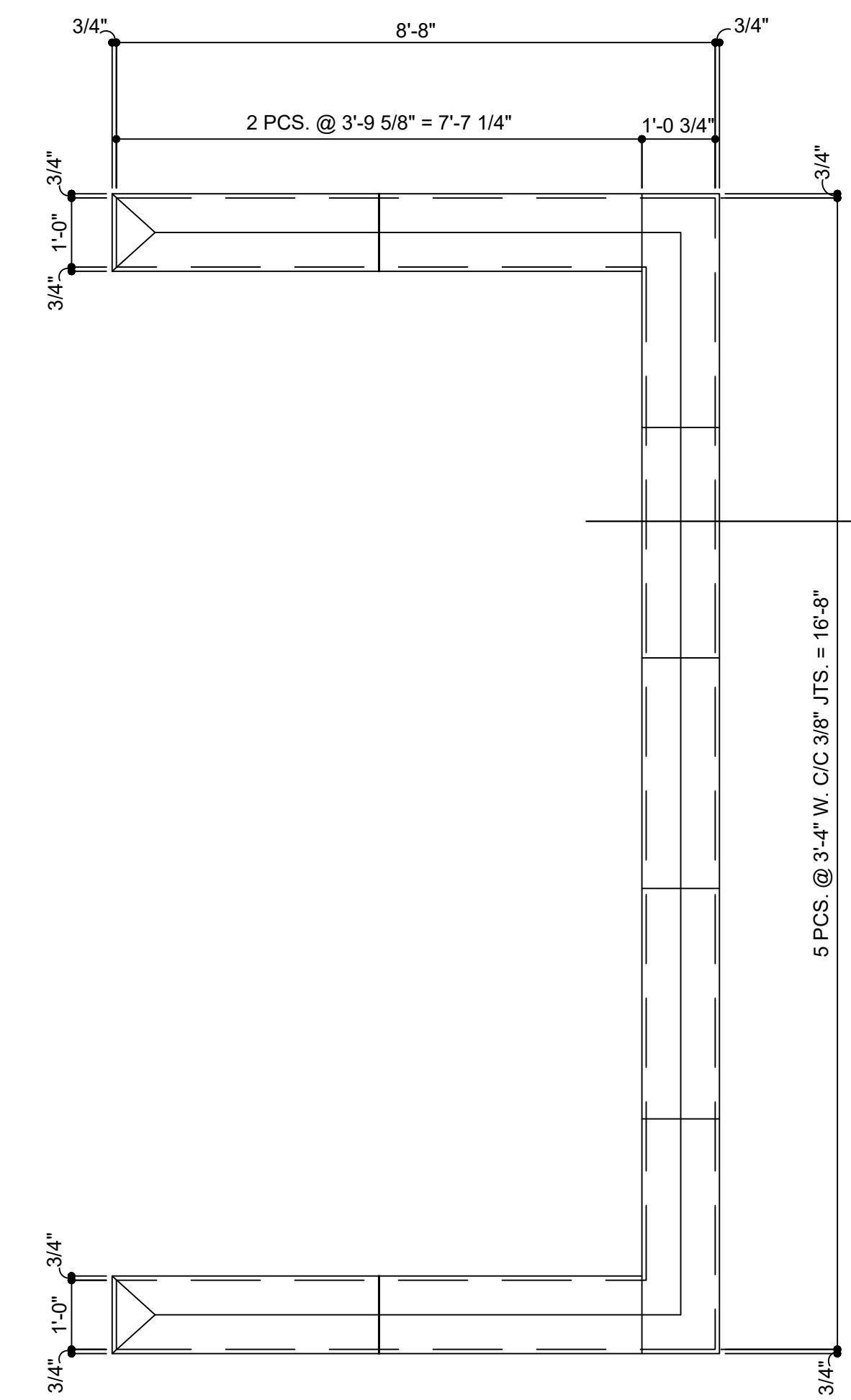
3/16" = 1'-0"

REINF. W. 2 #3 REBAR
7/8 X 2" HIGH ANCHOR
SLOT @ EACH JT. S.S.
PINS BY OTHERS



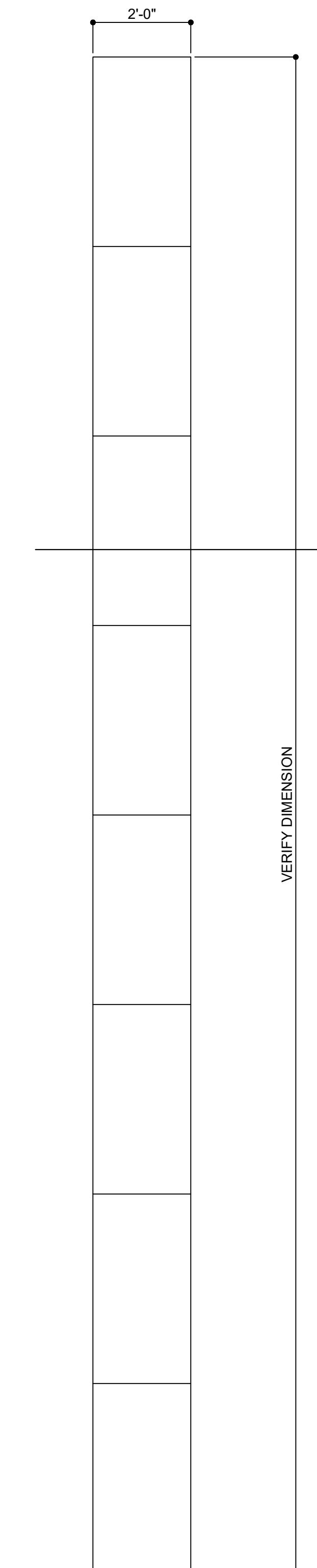
**A
13 SECTION OF CAST STONE CAP**

| | | |
|---|--|--------------------|
| | | |
| BLDG: <u>SEAY BUIDLING ADDITION</u> | | |
| LOCATION: <u>AUSTIN, TX</u> | | |
| ARCHITECT: <u>BSA LIFE STRUCTURES</u> | | |
| CONTRACTOR: <u>SPAWGLASS</u> | | |
| CUSTOMER: <u>RUDD & ADAMS MASONRY, INC.</u> | | |
| DRAWN: 6-8-2020 | PYRAMID CAST STONE CO. P.O. BOX 23248 SAN ANTONIO TX 78223 | JOB: #6529 |
| APPROVED: | | SHEET: 13 OF 14 |



PLAN OF TRASH ENCLOSURE

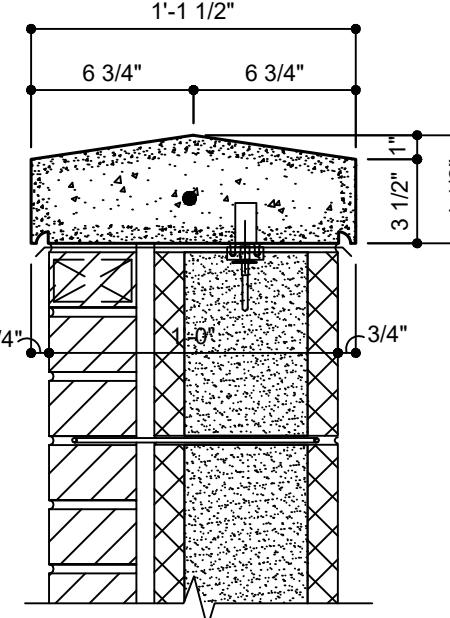
SCALE: 1/2" = 1'-0"



PLAN OF GARDEN WALL

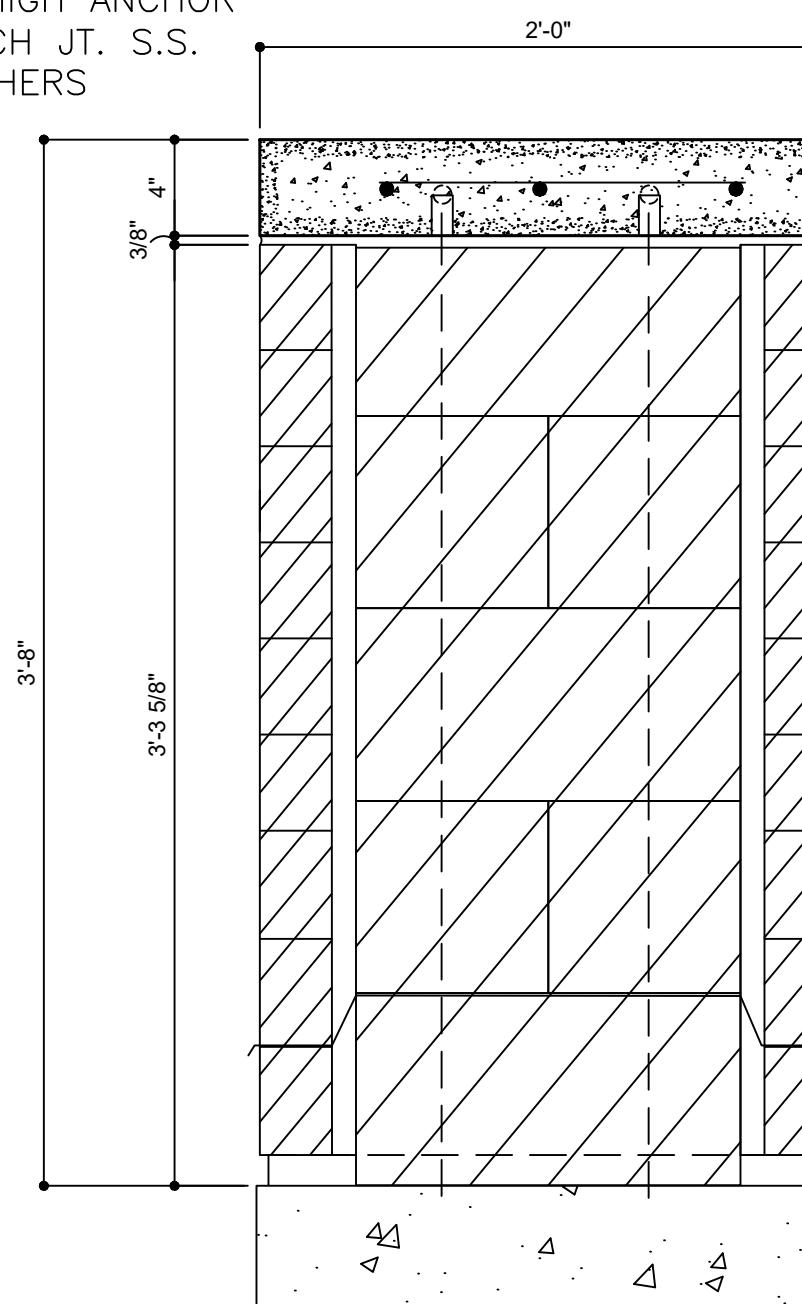
SCALE: 1/2" = 1'-0"

REINF. W. 1 #3 REBAR
7/8 X 2" HIGH ANCHOR
SLOT @ EACH JT. S.S.
PINS BY OTHERS



(A) SECTION OF CAST STONE CAP
SCALE: 1 1/2" = 1'-0"

REINF. W. 3 #3 REBAR
7/8 X 2" HIGH ANCHOR
SLOT @ EACH JT. S.S.
PINS BY OTHERS



(B) SECTION OF CAST STONE CAP
SCALE: 1 1/2" = 1'-0"

| | |
|-------------|--|
| BLDG: | SEAY BUILDING ADDITION |
| LOCATION: | AUSTIN, TX |
| ARCHITECT: | BSA LIFE STRUCTURES |
| CONTRACTOR: | SPAWGLASS |
| CUSTOMER: | RUDD & ADAMS MASONRY, INC. |
| DRAWN: | 6-8-2020 |
| APPROVED: | PYRAMID CAST STONE CO. P.O. BOX 33248 SAN ANTONIO TX 78223 |
| JOB: | #6529 |
| SHEET: | 14 OF 14 |

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 061600-001R1

Description: Exterior Sheathing - PD

Project Name: UT Austin - Seay

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

BY:

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



Darryl Castleberry

DATE:

2020/05/18

Submittal Comments:

1. Substrate components not reviewed by ZSC.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0169

PROJECT: UT Seay Building Addition

DATE: 05/07/2020

TO: BSA Lifestructures
AL

RE: Exterior Sheathing - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Draw ings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 05/21/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|-----------------------------------|------------------------|
| 1 | Submittal | | 061600-001 | 2 | | 05/07/2020 | Exterior Sheathing - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.
REVIEWED FOR COMPLIANCE
COMMENTS NOTED
REVISE AND RESUBMIT
OTHER:
DATE 5/7/2020 SPEC# 061600
REVIEWED BY tanner.hawkins
SUBMITTAL# 061600-00R1
APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

Alternate Exterior Sheathing -
Product Data

CC:

Signed: Tanner Hawkins

Tanner Hawkins



UT Seay Addition

061600 - Exterior
Sheathing Submittal
Rev. 1

5/4/20

Manufacturer

Georgia-Pacific Gypsum
 133 Peachtree Street
 Atlanta, GA 30303

Georgia-Pacific Canada
 2180 Meadowvale Boulevard, Suite 200
 Mississauga, ON L5N 5S3

Technical Service Hotline: 1-800-225-6119

Description

DensGlass® Sheathing is a gypsum panel made of a treated, water-resistant core, surfaced with fiberglass mats and a GOLD colored primer coating. Providing superb protection from the elements, DensGlass Sheathing is resistant to delamination and deterioration due to weather exposure—even during construction delays that last as long as twelve months after installation and are backed by a limited warranty against delamination and deterioration for up to 12 months of exposure to normal weather conditions.* DensGlass Sheathing panels are also mold-resistant, and have scored a 10, the highest level of performance for mold resistance under ASTM D3273 test method.

DensGlass Sheathing exhibits a dimensional stability that assures resistance to warping, rippling, buckling and sagging for a flat and even substrate and is noncombustible as defined and tested in accordance with ASTM E136 or CAN/ULC S114. Since DensGlass Sheathing is strong in both directions, it may be installed either parallel or perpendicular to wall framing members (always follow specific assembly installation instructions).

Primary Uses

Because of the superior performance of DensGlass Sheathing, it is specified for exterior walls, ceilings and soffits in a wide variety of applications. These include exterior insulation and finish systems (EIFS); cavity brick or stone veneer applications; cladding such as wood siding, vinyl siding, composition siding, wood shingles, shakes, conventional stucco systems, plywood siding panels; and interior finish systems that require a substrate panel with superior fire and moisture resistance.

For EIFS applications, DensGlass Sheathing is an ideal substrate for adhesive or mechanical application of expanded polystyrene or extruded polystyrene insulation, and is recommended in all climate zones.

Manufacturers of water and air resistive barriers, which include attached flexible membranes, self-adhered membrane and liquid applied, have found DensGlass Sheathing to be a suitable substrate for their systems.

DensGlass Sheathing is an ideal product for exterior ceilings and soffits for both cold and warm climate zones. It resists sagging, even under exceptionally humid conditions. Panels are applied directly to structural framing. Surface and joints may be finished and painted, or surfaced with an exterior finish system.

Limitations

DensGlass Sheathing is resistant to normal weather conditions, but it is not intended for immersion in water. Cascading roof/floor water should be directed away from the sheathing until appropriate drainage is installed.

Avoid any condition that will create moisture in the air and condensation on DensGlass Sheathing. The use of forced air heaters creates volumes of water vapor which, when not properly vented, can condense on building materials. The use of these heaters and any resulting damage is not the responsibility of Georgia-Pacific Gypsum. Consult heater manufacturer for proper use and ventilation.

* For complete warranty details, visit www.gpgypsum.com.

continued →

Submittal Approvals

| | |
|------------|-------|
| Job Name | <hr/> |
| Contractor | <hr/> |
| Date | <hr/> |

When DensGlass Sheathing panels are used in slanted wall applications, that portion of the wall must be temporarily protected from the elements. Do not allow water to pond or settle on sheathing. Also, exposed wall ends must be covered to prevent water from infiltrating the cavity.

Georgia-Pacific Gypsum does not warrant and is not responsible or liable for the performance of the cladding or exterior systems applied over DensGlass Sheathing. The suitability and compatibility of any system is the responsibility of the system manufacturer or design authority.

Do not laminate masonry surfaces to DensGlass Sheathing; use furring strips or framing.

DensGlass Sheathing is not intended for roof applications. For roof applications, consult our DensDeck® Roof Board brochure.

DensGlass Sheathing is not intended for interior or exterior tile applications. For interior tile applications, consult our DensShield® Tile Backer brochure.

DensGlass Sheathing should not be used in lieu of plywood where required.

Do not apply DensGlass Sheathing below grade.

For all installations, design details such as fasteners, sealants and control joints per system specifications must be properly installed. Openings and penetrations must be properly flashed and sealed. Failure to do so will void the warranty.

Do not use DensGlass Sheathing as a base for nailing or mechanical fastening. Fasteners should be flush to the face of the board, not countersunk.

Technical Data

DensGlass Sheathing is noncombustible as described and tested in accordance with ASTM E136 or CAN/ULC S114.

DensGlass Sheathing exceeds ASTM C1396 sheathing standards for humidified deflection by a factor of 10 in tests over the standard for regular gypsum sheathing.

5/8" (15.9 mm) DensGlass® Fireguard® Sheathing is UL and ULC classified **Type DGG**.

DensGlass Sheathing is manufactured to meet ASTM C1177.

Flame spread and smoke develop rating of 0/0 when tested in accordance with ASTM E84 or CAN/ULC S102.

Handling and Use—CAUTION

This product contains fiberglass facings which may cause skin irritation. Dust and fibers produced during the handling and installation of the product may cause skin, eye and respiratory tract irritation. Avoid breathing dust and minimize contact with skin and eyes. Wear long sleeve shirts, long pants and eye protection. Always maintain adequate ventilation. Use a dust mask or NIOSH/MSHA approved respirator as appropriate in dusty or poorly ventilated areas.

Material Safety Data Sheet (MSDS) is available at www.buildgp.com/safetyinfo or call 1-404-652-5119.

Product Data

Thicknesses: 1/2" (12.7 mm); 5/8" (15.9 mm) is Type X (ASTM C1177)

Width: 4' (1220 mm) standard, tolerance up to ± 1/8" (3.2 mm)

Lengths: 8' (2438 mm), 9' (2743 mm) or 10' (3048 mm) standard

Edges: Square

Stamps/Signatures

Physical Properties

| Properties | 1/2" (12.7 mm) DensGlass® Sheathing | 5/8" (15.9 mm) DensGlass® Fireguard® Sheathing |
|---|---|---|
| Width, nominal | 4' (1219 mm) ± 1/8" (3 mm) | 4' (1219 mm) ± 1/8" (3 mm) |
| Length, standard | 8' (2440 mm), 9' (2743 mm), 10' (3048 mm), ± 1/4" (6 mm) | 8' (2440 mm), 9' (2743 mm), 10' (3048 mm), ± 1/4" (6 mm) |
| Weight, nominal, lbs./sq. ft. (Kg/m ²) | 1.9 (9) | 2.5 (12) |
| Edges | Square | Square |
| Bending radius ⁵ | 6' (1829 mm) | 8' (2438 mm) |
| Racking strength ⁶ , lbs./ft. (dry) (N/m), Ultimate—not design value | >540 (7878) | >654 (9544) |
| Flexural strength ^{1,4} , parallel, lbf. (N), 4' weak direction | ≥80 (356) | ≥100 (445) |
| Compressive strength | min. 500 psi (3445 kPa) | min. 500 psi (3445 kPa) |
| Humidified deflection ^{1,4} | <2/8" (6 mm) | <1/8" (3 mm) |
| Permeance ² , Perms (ng/Pa•s•m ²) | >23 (1300) | >17 (970) |
| R Value ³ , ft ² •°F•hr/BTU (m ² •K/W) | .56 (0.099) | .67 (0.118) |
| Combustibility ⁷ | Noncombustible | Noncombustible |
| Linear expansion with moisture change, in/in %RH (mm/mm %RH) ⁸ | 6.25 x 10 ⁻⁶ | 6.25 x 10 ⁻⁶ |
| Surface burning characteristics per ASTM E84 or CAN/ULC S102: flame spread/smoke developed | 0/0 | 0/0 |
| Coefficient of thermal expansion, in/in°F (mm/mm°C) | 8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶) ⁹ | 8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶) ⁹ |

¹ Tested in accordance with ASTM C473² Tested in accordance with ASTM E96 (dry cup method)³ Tested in accordance with ASTM C518 (heat flow meter)⁴ Specified values per ASTM C1177⁵ Double fasteners on ends as needed⁶ Tested in accordance with ASTM E72⁷ As defined and tested in accordance with ASTM E136 or CAN/ULC S114⁸ As stated by Gypsum Association GA-235⁹ Tested in accordance with ASTM E228-85**SALES INFORMATION AND ORDER PLACEMENT**

| | |
|--------|---|
| U.S.A. | West: 1-800-824-7503 Midwest: 1-800-876-4746 South Central: 1-800-231-6060 Southeast: 1-800-327-2344 Northeast: 1-800-947-4497 |
| CANADA | Canada Toll Free: 1-800-387-6823 Quebec Toll Free: 1-800-361-0486 |

TECHNICAL INFORMATIONU.S.A. and Canada: **1-800-225-6119**, www.gpgypsum.com**TRADEMARKS** Unless otherwise noted, all trademarks are owned by or licensed to Georgia-Pacific Gypsum LLC.**WARRANTIES, REMEDIES AND TERMS OF SALE** For current warranty information for this product, please go to www.gpgypsum.com and select the product for warranty information. All sales of this product by Georgia-Pacific are subject to our Terms of Sale available at www.gpgypsum.com.**UPDATES AND CURRENT INFORMATION** The information in this document may change without notice. Visit our website at www.gpgypsum.com for updates and current information.**CAUTION For product fire, safety and use information, go to www.buildgp.com/safetyinfo or call 1-800-225-6119.****FIRE SAFETY CAUTION** Passing a fire test in a controlled laboratory setting and/or certifying or labeling a product as having a one-hour, two-hour, or any other fire resistance or protection rating and, therefore, as acceptable for use in certain fire rated assemblies/systems, does not mean that either a particular assembly/system incorporating the product, or any given piece of the product itself, will necessarily provide one-hour fire resistance, two-hour fire resistance, or any other specified fire resistance or protection in an actual fire. In the event of an actual fire, you should immediately take any and all actions necessary for your safety and the safety of others without regard for any fire rating of any product or assembly/system.

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Phone (409) 740-0090

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C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 071326-001

Description: Self-Adhering Sheet Waterproofing - PD

Project Name: UT Austin - Seay

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



Darryl Castleberry

BY:

DATE: 2020/04/03

Submittal Comments:

1. Please follow substitution request procedure found in specification section 01 25 00. While ZSC holds no exceptions to the proposed product (Precon), it is not listed as an approved manufacturer/product.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0090

PROJECT: UT Seay Building Addition

TO: BSA Lifestructures
AL

DATE: 04/02/2020

RE: Self-Adhering Sheet Waterproofing - Product Data & Shop Draw

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 04/16/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 071326-001 | 1 | | 04/02/2020 | Self-Adhering Sheet Waterproofing - Product Data & Shop Drawings | Submitted for Approval |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE |
| COMMENTS NOTED |
| REVISE AND RESUBMIT |
| OTHER: |
| DATE 4/2/2020 SPEC# 071326 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 071326-001 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

CC:

Signed: Tanner Hawkins

Tanner Hawkins



SUBMITTAL COVER SHEET

PROJECT NAME: UT Seay

ARCHITECT: BSA Life Structures

SPECIFICATION SECTION: 071326 – Self Adhering Sheet Waterproofing

DATE PREPARED: 4/2/2020

CONTRACTOR: Spawglass

SUBCONTRACTOR'S NAME: Chamberlin Roofing and Waterproofing

SUBCONTRACTOR'S PHONE: 512.275.1600

MANUFACTURER'S NAME: WR Meadows

MANUFACTURER'S PHONE: See Product Data

ITEM: See Table of Contents

NUMBER OF PAGES w/ COVER: 34

| Architect's Approval | Contractor's Approval |
|---|-----------------------|
| <p>The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer, and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.</p> <p>Chamberlin Austin, LLC</p> <p> Subcontractor Authorized Signature</p> <p>04/02/2020</p> <p>Date</p> | |



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| <u>Product Location:</u> Furnish and install underslab and sheet-applied waterproofing to the exterior of the mechanical room and tunnel chamber as shown on page A111. Furnish and install underslab and sheet-applied waterproofing to the exterior walls of the elevator pit per manufacturer's instructions. | |
| A. Product Data | |
| 2. Accessories – Product Data | 14 Pages |
| a. Hydralastic 836 | |
| b. Mel-Drain | |
| c. Mel-Prime | |
| d. Mel-Rol | |
| e. Protection Course | |
| f. Detail Fabric | |
| g. Termination Bar | |
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PRODUCT DATA

NO. 714-F

W. R. MEADOWS®

SEALIGHT®

MasterFormat: 07 13 00

PRECON®

SEPTEMBER 2017
(Supersedes January 2016)

Pre-Applied/Underslab Waterproofing Membrane

DESCRIPTION

PRECON is a composite sheet membrane comprised of a non-woven fabric, elastomeric membrane, and W. R. MEADOWS' exclusive, patented plasmatic core (U.S. Patent No. 7,179,761). The plasmatic core is a seven-layer matrix designed for toughness and provides the lowest water vapor transmission (WVT) rating on the market. Once concrete is poured against PRECON and the concrete cures, a mechanical bond forms that secures the concrete to the membrane.

USES

PRECON is used as a blindside membrane in vertical applications where access to the positive side is limited. The membrane can also be used for horizontal applications for underslab waterproofing and vaporproofing.

FEATURES/BENEFITS

- Provides a waterproof seal between the membrane and poured concrete wall.
- Helps prevent moisture migration into the structure.
- Reduces methane and radon gas intrusion.

PACKAGING

4' (1.2 m) wide x 50' (15.2 m) long rolls, one roll per carton.

STORAGE AND HANDLING

Store membrane cartons on pallets and cover if left outside. Keep materials away from sparks and flames.

SPECIFICATIONS

- ASTM E1993-98 - Standard Specification for Bituminous Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs.
- LARR Report 26023

APPLICATION

Surface Preparation ... Inspect all surfaces for any conditions detrimental to the proper completion of the work. Surfaces should be structurally sound. Remove debris or any other foreign material that could damage the membrane.

PRECON can be used with a caisson wall shoring system without the use of a drainage board, such as MEL-DRAIN™ from W. R. MEADOWS. W. R. MEADOWS recommends proper site drainage, but due to certain site conditions this sometimes cannot be done effectively. The decision to remove the drainage board should be at the discretion of the engineer. In situations where a drainage board is not applied, surface preparation is important. The substrate needs to be sound, solid, and smooth. Any gaps or voids >1" (25 mm) need to be grouted. When PRECON is used with MEL-DRAIN from W. R. MEADOWS, the system can bridge gaps <2" (50.8 mm). However, gaps >2" (50.8 mm) will need to be grouted.

CONTINUED ON REVERSE SIDE ...

Application Method ... PRECON may be applied at temperatures down to 40° F (5° C); however, in less than ideal environments or marginal conditions, consider the use of PRECON LOW TEMP below 60° F (16° C). PRECON LOW TEMP can be used in temperatures down to 25° F (-4° C). MEL-PRIME™ from W. R. MEADOWS should be used to enhance the bond at the selvedge edge when conditions warrant with both PRECON and PRECON LOW TEMP.

Prior to application of the blindside membrane, attach MEL-DRAIN™ rolled matrix drainage system from W. R. MEADOWS to lagging or soil retention system.

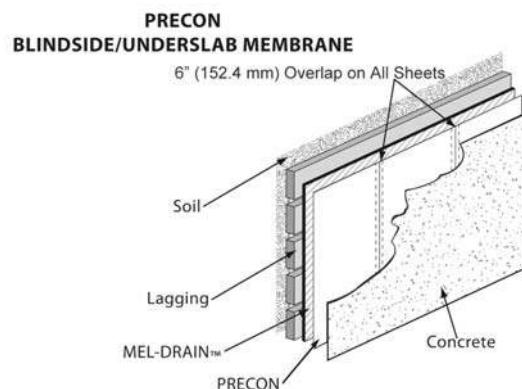
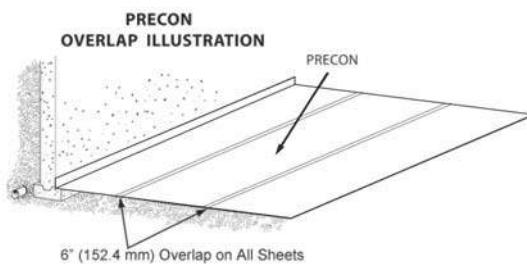
In vertical applications of PRECON, mechanically attach with fasteners every 12" (304.8 mm) across the top, within $\frac{1}{2}$ " (13 mm) of the top edge of the membrane. Install the membrane with the fabric side facing toward the concrete pour.

Remove release paper on 6" (152.4 mm) overlap. Apply membrane and roll press into place with a tile type roller.

End Laps ... Overlap membrane 6" (152.4 mm). Prior to overlap, apply BEM, HYDRALASTIC 836, or MEL-ROL® LIQUID MEMBRANE (two-component) from W. R. MEADOWS in area to be lapped. Roll press membrane into BEM, HYDRALASTIC 836, or MEL-ROL LIQUID MEMBRANE. At terminations of membrane, apply BEM, HYDRALASTIC 836, or MEL-ROL LIQUID MEMBRANE 12" (304.8 mm) wide centered over the termination and while still wet, embed 12" (31 cm) wide DETAIL FABRIC into the HYDRALASTIC 836 or MEL-ROL LIQUID MEMBRANE and roll press into place. Ensure that DETAIL FABRIC is centered over the termination with 6" (152.4 mm) on each side of lap edge. Apply additional HYDRALASTIC 836 on all terminations of DETAIL FABRIC.

Penetrations and Protrusions ... Detail around all horizontal and vertical penetrations using BEM or MEL-ROL LIQUID MEMBRANE (two-component) from W. R. MEADOWS. Apply BEM or MEL-ROL LIQUID MEMBRANE by forming a fillet around the pipe or protrusion, overlapping the fabric side of PRECON and the protrusion a minimum of 2.5" (64 mm). If the gap between the protrusion and the membrane is greater than $\frac{1}{2}$ " (13 mm), apply PRECON FABRIC TAPE over uncured BEM or MEL-ROL LIQUID MEMBRANE. All penetration and protrusion surfaces must be clean, rust-free, and sound prior to application of BEM or MEL-ROL LIQUID MEMBRANE.

*MEL-ROL LIQUID MEMBRANE is a two-component material, not to be confused with MEL-ROL LM.



For horizontal applications involving a cluster of penetrations, consider the use of HYDRALASTIC 836. Prior to application of HYDRALASTIC 836, prepare the surfaces of the penetrations as above and provide a block out using 2' x 4' (.6 x 1.2 m) lumber or other in order to create a "pitch pan" area to receive HYDRALASTIC 836.

Patching ... Prior to pouring, inspect membrane for punctures or damage and repair as necessary with HYDRALASTIC 836 and/or DETAIL FABRIC. (BEM or MEL-ROL LIQUID MEMBRANE may be used in place of HYDRALASTIC 836.) In addition, ensure the membrane is free of standing water and has been cleaned of any deleterious materials that will affect the bond of the concrete to the membrane.

Underslab Application ... Refer to ACI 302.1R-04: Chapter 4 – Site Preparation and Placing Environment for sub-grade preparation prior to PRECON placement.

PRECAUTIONS

Concrete should be poured within 60 days of membrane installation. For installations below 40° F (4° C), contact W. R. MEADOWS technical services. When using bar supports, use those with a flat bottom.

LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- EAp2: Minimum Energy Performance
- EAc2: Optimize Energy Performance
- MRc9: Construction and Demolition Waste Management

For BIM assemblies, CAD details, most recent data sheet, further LEED information, and SDS, visit www.wrmeadows.com.

TECHNICAL DATA

| Property | Test Method | PRECON Results |
|---------------------------------------|--------------------------------------|--|
| Thickness | ASTM D1000 | 73 mil (1.85 mm) |
| Low Temp Flexibility | ASTM D1970, 180° @ -20° F (-28.9° C) | Pass |
| Resistance to Hydrostatic Head | ASTM D5385-93 | 230' (70 m) |
| Elongation, Polymeric Membrane | ASTM D412-06 | > 400% |
| Tensile Strength, Film | ASTM D882 | 9200 psi (63.4 MPa) |
| Crack Cycling | ASTM C836 @ -15° F (-26° C) | Pass |
| Puncture Resistance | ASTME 154 | > 210 lb. (> 934 N) |
| Peel Adhesion to Concrete | ASTMD 903 | 10 lb./in (1754 N/m) |
| Moisture Vapor Transmission | ASTME 96B | 0.0011 perms (0.0004 grains/ft. ² /hr) (0.007 gram/m ² /24 hr) |
| Resistance to Fungi in Soil | GSA-PBS 07115 – 16 Weeks | No Effect |
| Radon Transmittance (m/s) | k124/02/95 | <3.0 x 10 ⁻⁹ |
| Radon Coefficient (m ² /s) | k124/02/95 | <5.6 x 10 ⁻¹² |

TEST REPORTS**LIMITED WARRANTY**

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

PRODUCT DATA

NO. 709

MasterFormat: 07 14 16

W. R. MEADOWS®

SEALIGHT®

NOVEMBER 2017
(Supersedes August 2017)

HYDRALASTIC™ 836

Cold-Applied, Single-Component Waterproofing

DESCRIPTION

HYDRALASTIC 836 is a cold-applied, solvent-free, single-component waterproofing compound. It does not shrink, has a low volatile organic compound (VOC) content, and has a very low odor. It will not crack in extreme cold or slump due to softening at high temperatures.

USES

HYDRALASTIC 836 is suitable for use on interior or exterior concrete surfaces, where protection from water intrusion is desired. The product can be used for both above-grade and below-grade applications. HYDRALASTIC 836 is excellent for horizontal and vertical applications, such as waterproofing plaza decks, planter boxes, and sealing parapets. The product is ideal for positive-side waterproofing for foundations and also in between-slab (split slab) applications. HYDRALASTIC 836 can also be used in vertical applications.

FEATURES/BENEFITS

- Bonds to both concrete and asphalt.
- Skins over in 30 minutes at 75° F (23° C); no dust pick up.
- Easy application; no mixing required.
- Can be applied to green concrete.
- Will not slump.
- Will not harm EPS or Styrofoam materials.
- Does not freeze; will not be damaged due to freezing weather conditions.
- Cures to a tough, flexible membrane.

PACKAGING

5 Gal. (18.93 L) Pails.

COVERAGE

Approximate coverage per gallon (3.78 L):

| | |
|---|----------------|
| 26 ft. ² (2.4 m ²) | 60 mils (dry) |
| 17.5 ft. ² (1.6 m ²) | 90 mils (dry) |
| 13 ft. ² (1.2 m ²) | 120 mils (dry) |

SHELF LIFE

When stored indoors and in original, unopened containers at temperatures between 40° - 70° F (4° - 21° C), shelf life is six months from date of manufacture.

SPECIFICATIONS

- ASTM C 836
- Complies with all current federal, state, and local maximum allowable VOC requirements, including National EPA VOC Emission Standard for Architectural Coatings, CARB, LADCO, OTC Phase I and II, and SCAQMD.

TECHNICAL DATA

| PROPERTY | TYPICAL TEST VALUE | TEST METHOD |
|---|-----------------------------|---------------------------|
| Solids Content By Weight, %: | 98 | ASTM C1250 |
| Tensile Strength, psi: | 100 | ASTM D412 |
| Elongation at Break, %: | 425 | ASTM D412 |
| Permeability, perm in.: Shore 00 Hardness: | 0.1 57 | ASTM E96 BW ASTM D2240 |
| Service Temperature, ° F (° C): | -40° - 200° (-40° -70°) | |
| Minimum Application Temperature, ° F (° C): | Above 30 (-1) and rising | |
| VOC Content, g/L: | 36 | ASTM D2369 |

APPLICATION

New Concrete Design Finish ... For best results, all new concrete surfaces should be designed with a light trowel finish and provide a flat, uniform surface. The surface should then be treated with a light broom finish. Wet curing is preferable. Any membrane curing compounds must be mechanically removed. Address any projections and fill in any voids or indentations to provide a smooth, level surface.

Surface Preparation ... HYDRALASTIC 836 is intended for concrete, asphalt, metal, and wood surfaces. For existing concrete remedial work or new concrete lacking profile, lightly roughen or rough grind substrate. Remove all unsound substrate and provide a relatively flat, profiled, roughened surface. Substrate must be structurally sound, dust-free, and free of frost, grease, oil, dirt, curing compounds, release agents, or any other surface or penetrated contaminants that will adversely affect bond. Use denatured alcohol to remove all grime, oil, loose paint, frost, and other contamination, from all working surfaces. DO NOT USE petroleum solvents such as mineral spirits or xylene.

Repair any concrete deterioration, defects or voids and fill bug holes, minor surface defects or tie holes with MEADOW-PATCH® 5 or MEADOW-PATCH 20 from W. R. MEADOWS. Irregularities in concrete that could cause a protrusion should be ground to a smooth surface. Penetrations should be grouted and structurally sound. All penetration areas must have sufficient room for adequate waterproofing to be applied.

CONTINUED ON REVERSE SIDE ...

Do not use asphalt-based primers on concrete or metal surfaces. Do not condition any concrete or metal surfaces with primers designed for asphalt. Asphalt-type primers will act as a bond breaker and soften the cured material. Residual asphalt or old, non-live coal tar pitch-coated surfaces that may remain after surface preparation may be suitable for waterproofing with HYDRALASTIC 836. In this case, a sample test application should be conducted to determine appropriateness.

Priming ... For porous substrates where air and/or moisture release may cause pinhole or blister problems to occur in the applied membrane, priming the substrate prior to application of HYDRALASTIC 836 is recommended. Contact a W. R. MEADOWS representative for priming recommendations. Priming is recommended to remove trapped air/vapor from the substrate and promote a better bond with the substrate.

Application Method ... Gentle mixing using a slow-speed drill and paddle may be necessary if product has settled. Do not over mix. Make sure product is conditioned at 75° F (23° C) by storing product overnight or at least 12 hours prior to use for ease of application. Apply by trowel, squeegee, or roller. A flat-blade squeegee is suggested for best results. Notched rubber squeegees waste material and do not provide a uniform coat. Flat-blade squeegees provide a uniform mil thickness. HYDRALASTIC 836 can also be applied horizontally with a squeegee or roller and vertically with a roller. Test periodically to make sure adequate adhesion is achieved. HYDRALASTIC 836 has a work life of one hour at 75° F (23° C). Make sure all spreading and finishing of the product has been completed within this timeframe.

A single-coat application (60 mils) can be used for typical waterproofing applications such as foundation walls and planters. In critical waterproofing applications such as plaza decks, podiums, or other similar horizontal waterproofing applications, a 120-mil layer of HYDRALASTIC 836 embedded with REINFORCING FABRIC HCR from W. R. MEADOWS is recommended. For all horizontal installations, refer to High Build Reinforced System installation guidelines provided at www.wrmeadows.com for proper installation guidelines. If there are no details available for your specific application, please contact a W. R. MEADOWS representative for recommendations.

If a second coat is necessary, apply as soon as possible, but no more than eight hours apart at 75° F (23° C). As ambient, substrate, and material temperatures increase, an oily like film may develop on the surface and act as a bond breaker.

For next-day or second-coat applications, rub the tie-in area down [6" - 8" (152 - 203 mm wide)] with acetone or alcohol. This removes the oil film.

Protect the Membrane ... On all vertical and horizontal installations, protect HYDRALASTIC 836 with PROTECTION COURSE (PC-2) or MEL-DRAIN™ (type with the polyester backing film) from W. R. MEADOWS or contact W. R. MEADOWS for additional protection course options. Application of protection should be done after material can be walked on without causing damage to the integrity of the membrane.

HYDRALASTIC 836 will not typically wash off if rain begins during or after application. Stop all work if rain begins and protect open or unused material from rainfall.

Tack-Free Drying Time ... HYDRALASTIC 836 features a fast-drying time. Drying time is usually four hours, depending on temperature and relative humidity.

Cleanup ... Uncured HYDRALASTIC 836 cleans up easily with alcohol or other solvents. Cured material is best removed by mechanical means.

PRECAUTIONS

Do not expose product to exterior UV for longer than 14 days. HYDRALASTIC 836 is not to be used as a liner in a water-containing structure and is not to be used as an exposed or wearing surface. For this purpose, use the GEMITE® line of products. Do not use on surfaces that are later to be painted. This data sheet provides a summary of the factors, precautions, limitations, and design theories that should be considered when designing a complete waterproofing and drainage system, but is not stand alone or complete; project, environmental, and application specific requirements must be considered before drafting a guide specification, determining suitability or application of material. Refer to Safety Data Sheet for health and safety information.

LEED INFORMATION

May help contribute to LEED credits:

- EAp2: Minimum Energy Performance
- EAc2: Optimize Energy Performance
- MRc9: Construction and Demolition Waste Management
- EQc2: Low-Emitting Materials
[For Healthcare and Schools (exterior-applied products) ONLY]

For most current data sheet, further LEED information, and SDS, visit www.wrmeadows.com.

LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection

with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.



PRODUCT DATA

NO. 719

W. R. MEADOWS®
SEALIGHT®

MasterFormat: 07 10 00

AUGUST 2019
(Supersedes August 2017)

MEL-DRAIN™ Rolled Matrix Drainage System

DESCRIPTION

MEL-DRAIN drainage products combine geotextile filter fabrics with specially designed drainage cores. This geocomposite allows the passage of moisture through the fabric while preventing fine soils from entering the drainage channel. Various drain designs are available, depending on compressive strength and flow rate requirements. (An optional polyester backing film is available when used in conjunction with flexible waterproofing material.) The family of MEL-DRAIN products provides excellent protection and drainage performance for vertical, horizontal, or site drainage applications.

USES

Used in conjunction with a total W. R. MEADOWS moisture protection system, MEL-DRAIN is the ideal choice for enhanced waterproofing protection of basement walls, plaza decks, earth-sheltered homes, commercial buildings, retaining walls, underground parking, site drainage, etc.

FEATURES/BENEFITS

- High flow capacity, without clogging/Relieves hydrostatic pressure buildup.
- High compressive strength/Dependable, long life performance.
- Easy to install; durable under jobsite conditions/Lower total installed cost.
- Chemically resistant to all naturally occurring soil conditions/Wide variety of applications.
- Provides protection for waterproofing materials/Enhances waterproofing performance.
- Part of a complete W. R. MEADOWS moisture protection system/Worry-free, single-source solution.

INSTALLATION

For vertical, below-grade applications, unroll MEL-DRAIN with flat, core side against the wall or waterproofing material. POINTING MASTIC or MEL-PRIME™ from W. R. MEADOWS are excellent adhesives compatible with this installation. The flat side core lip is overlapped to provide a continuous drainage layer. Extra filter fabric is provided at the edges for overlapping with the next sheet. MEL-DRAIN is easily cut with construction knives or scissors.

For horizontal applications, unroll and overlap so that water runs with overlap. Add appropriate ballast as needed to hold down drainage board.

PRECAUTIONS

Store materials in protected environment until time of installation. Materials not shipped in UV-resistant bags must be stored indoors or under separate UV-protective cover to protect materials from exposure to direct sunlight. UV-resistant bagged materials may be stored in outdoor UV-exposed environments for a cumulative maximum of 180 days. Limit unpackaged material UV exposure to a cumulative maximum of 14 days during installation. Do not install materials during high wind events. Do not expose materials to chemicals that are strong acids, strong bases, or high in solvents content. Protect materials from site construction damage, flames, and other environmental conditions that may damage the materials. It is not recommended that installation take place when the ambient temperature is below 20° F (-6.6° C) or above 100° F (37.8° C). Do not install in applications where the long term operational temperature is expected to be below -20° F (-18.9° C) or above 150° F (65.6° C).

CONTINUED ON REVERSE SIDE ...

TECHNICAL DATA

| MEL-DRAIN PRODUCTS | | | 5012 | 5035 | 7555 | 7955 | 9055 | 9072 |
|--|-------------------------|------------------------|----------|----------|-----------|------------|----------|----------|
| | | | 5012-B | 5035-B | 7555-B | 7955-B | 9055-B | 9072-B |
| Physical Properties¹ | ASTM Test Method | Unit of Measure | | | | | | |
| FABRIC | | | | | | | | |
| Material ² | | | PP, NPNW | PP, NPNW | PP, WM | PP, WM | PP, NPNW | PP, NPNW |
| Water Flow Rate | D 4491 | gpm/ft ² | 165 | 165 | 160 | 145 | 90 | 90 |
| | | Lpm/m ² | 6,724 | 6,724 | 6,520 | 5,907 | 3,668 | 3,668 |
| Grab Tensile Strength | D 4632 | lbs | 100 | 100 | 385x220 | 365 x 200 | 205 | 205 |
| | | N | 445 | 445 | 1,713x979 | 1624 x 890 | 912 | 912 |
| CBR Puncture | D 6241 | lbs | 275 | 275 | 725 | 675 | 600 | 600 |
| | | kN | 1.22 | 1.22 | 3.22 | 3.00 | 2.66 | 2.66 |
| Apparent Opening Size | D 4751 | sieve | 70 | 70 | 45 | 40 | 80 | 80 |
| | | mm | 0.210 | 0.210 | 0.350 | 0.43 | 0.177 | 0.177 |
| CORE | | | | | | | | |
| Material ² | | | HIPS | HIPS | HIPS | PP | HIPS | HIPS |
| Thickness | D 1777 | in | 0.25 | 0.44 | 0.44 | 0.40 | 0.44 | 0.25 |
| | | mm | 6.35 | 11 | 11 | 10 | 11 | 6.35 |
| Compressive Strength | D 1621 | psf | 11,000 | 15,000 | 18,000 | 18,000 | 18,000 | 30,000 |
| | | kPa | 527 | 718 | 862 | 862 | 862 | 1,436 |
| Flow Rate ³ | D 4716 | gpm/ft | 12.5 | 17 | 21 | 21 | 21 | 13 |
| | | Lpm/m | 155 | 211 | 261 | 261 | 261 | 161 |
| COMPOSITE | | | | | | | | |
| Recycled Content ⁴ | | % | 70 | 75 | 74 | 70 | 65 | 65 |
| Roll Size | | ft | 4x50 | 4x50 | 4x50 | 6x50 | 4x50 | 4x50 |
| Roll Weight | | lbs | 28, 29-B | 38, 39-B | 47 | 73, 74-B | 53, 50-B | 49, 50-B |

¹ Unless otherwise noted, all physical and performance properties listed are Typical Values as defined in ASTM D 4439.

² PP = Polypropylene; HIPS = High Impact Polystyrene; NPNW = Needle-Punched Nonwoven; WM = Woven Monofilament.

³ In-plane flow rate measured at 3,600 psf (172 kPa) compressive load and a hydraulic gradient of 1.0.

⁴ Post-industrial recycled content by weight.

^{-B} products include a polymeric backing film.

W. R. MEADOWS offers MEL-DRAIN products with AASHTO Classified Geotextiles. All technical information contained in this document is accurate as of time of publishing. W. R. MEADOWS reserves the right to make changes to products and literature without notice. For more detailed information, please request specific MEL-DRAIN model.

LEED INFORMATION

May help contribute to LEED credits:

- EAp2: Minimum Energy Performance
- EAc2: Optimize Energy Performance
- MRc9: Construction and Demolition Waste Management

For most recent data sheet, further LEED information, and SDS, visit www.wrmeadows.com.

**LIMITED WARRANTY**

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

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with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

PRODUCT DATA

NO. 751

MasterFormat: 07 13 53

W. R. MEADOWS®

SEALIGHT®

JANUARY 2011
(Supersedes July 2004)

MEL-PRIME™ Solvent-Based VOC Adhesive

DESCRIPTION

MEL-PRIME is a solvent-based, ready-to-use adhesive for W. R. MEADOWS membrane systems. It is red to reddish-brown in color.

USES

MEL-PRIME simultaneously prepares and dustproofs new and old and vertical and horizontal surfaces in one easy, economical operation. MEL-PRIME is designed for surfaces to receive waterproofing and air/vapor barrier systems from W. R. MEADOWS. Use MEL-PRIME on surfaces to receive applications of MEL-ROL®, MEL-ROL PRECON™, MEL-DEK™, AIR-SHIELD™ and/or AIR-SHIELD THRU-WALL FLASHING from W. R. MEADOWS.

FEATURES/BENEFITS

- High solids for optimum performance.
- Ready to use ... no mixing or dilution required.
- For exterior vertical and horizontal applications.

PACKAGING

1 Gallon (3.79 Liter) Can
5 Gallon (18.9 Liter) Pail

COVERAGE

250 to 300 sq. ft./gal. (6.14 to 7.37 sq. m/L)

SHELF LIFE

Shelf life is three years when stored indoors and in original, unopened containers at temperatures between 40 - 90° F (4 - 32° C).

APPLICATION

Surface Preparation ... All surfaces to receive adhesive must be clean, dry, smooth, and free of all voids. Fill all voids and remove sharp protrusions. When used on concrete, concrete should be cured at least 72 hours. For additional substrate surface preparation requirements, see instructions for applying MEL-ROL, MEL-ROL PRECON, MEL-DEK, and/or AIR-SHIELD.

NOTE: Metal surfaces must also be clean, dry, and free of loose paint, rust, or other contaminants.

Application Method ... Apply MEL-PRIME with a roller or brush at a coverage rate of 250 to 300 sq. ft./gal (6.14 to 7.37 sq. m/L). Apply only to the area to be covered with the membrane during the working day. Areas not covered with a membrane in 24 hours must be re-applied.

Drying Time ... Allow to dry for one hour or until the surface feels tacky but does not pick up when touched. If the work area is very dusty, apply membrane as soon as possible after MEL-PRIME is dry.

Cleanup ... MEL-PRIME may be cleaned with mineral spirits.

CONTINUED ON REVERSE SIDE ...



PRECAUTIONS

Do not apply MEL-PRIME when rain is imminent, or on damp or frost-covered surfaces. Avoid allowing MEL-PRIME to puddle – this will lengthen drying time. Do not dilute; use as is.

HEALTH HAZARDS

This product is flammable. Ignition sources should be removed prior to product use. Avoid direct contact with the product. Direct contact may cause mild to moderate irritation of the eyes and skin. Product vapors may also cause transient central nervous system depression. Refer to Safety Data Sheet for complete health and safety information.

LEED INFORMATION

May help contribute to LEED credits:

- IEQ Credit 3.1: Construction Indoor Air Management Plan – During Construction
- IEQ Credit 7.1: Thermal Comfort - Design
- MR Credit 2: Construction Waste Management
- MR Credit 5: Regional Materials

**For most recent data sheet, further LEED information, and MSDS, visit
www.wrmeadows.com.**



LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

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PRODUCT DATA

NO. 714

MasterFormat: 07 13 26

W. R. MEADOWS®

SEALIGHT®

OCTOBER 2013
(Supersedes July 2012)

MEL-ROL®

Rolled, Self-Adhering Waterproofing Membrane

DESCRIPTION

MEL-ROL waterproofing system is a flexible, versatile, dependable, roll-type waterproofing membrane. It is composed of a nominally 56 mil thick layer of polymeric waterproofing membrane on a heavy duty, four-mil thick, cross-laminated polyethylene carrier film. The two components are laminated together under strict quality-controlled production procedures.

A handy overlap guideline is printed 2 ½" (63.5 mm) in from the material edge on each side to assure proper overlap coverage and to assist in maintaining a straight application. Special exposed polymeric membrane strips are provided on both sides for positive membrane-to-membrane adhesion in the overlap area. The membrane strips are protected by a pull-off release strip. All components of the MEL-ROL waterproofing system work together to provide a cost-effective, positive waterproofing system that's quick and easy to apply.

W. R. MEADOWS accessory products included in the MEL-ROL waterproofing system are: BEM, MEL-ROL LIQUID MEMBRANE, MEL-PRIME™ adhesive (solvent-based and water-based), POINTING MASTIC, DETAIL STRIP, CATALYTIC BONDING ASPHALT, TERMINATION BAR, PROTECTION COURSE and MEL-DRAIN™ drainage board.

USES

MEL-ROL waterproofing system provides a cost-effective answer to properly waterproof foundations, vertical walls, and below-grade floors in residential and commercial construction. It is equally effective for use as between-the-slab waterproofing on plaza decks, parking decks, and structural slabs. Use it as a waterproofing membrane to isolate mechanical and electronic rooms, laboratories, kitchens, and bathrooms. MEL-ROL offers positive protection when "wrapped around" major rapid transit, vehicular, utility, and pedestrian tunnel projects. MEL-ROL can also be used on insulated concrete forms (ICF).

Installation of PROTECTION COURSE from W. R. MEADOWS is recommended before backfilling. MEL-ROL can also be used with drainage boards when specified.

FEATURES/BENEFITS

- Provides cost-effective, flexible, versatile, dependable, positive waterproofing protection against damaging moisture migration and the infiltration of free water.
- Offers a quick and easy-to-apply system for maximum productivity.
- Special membrane-to-membrane adhesion provides additional overlap security.
- Meets or exceeds the test requirements of all currently applicable specifications.
- Components work together for positive waterproofing protection.
- Handles with ease on the jobsite.
- Available in a low temperature version for use when air and surface temperatures are between 20° F (-7° C) and 60° F (16° C). An extra-low temp version is also available, ideal for application in extra-low temperatures down to 0° F (-18° C).

PACKAGING

38.5" (977.9 mm) wide x 62.5' (19.1 m) long, one roll per carton.

COVERAGE

Provides 200 ft.² (18.6 m²) per roll. Gross coverage is 200 ft.² (18.6 m²). [Net coverage is 187.5 ft.² (17.4 m²) with overlap of 2 ½" (63.5 mm).]

STORAGE AND HANDLING

Store membrane cartons on pallets and cover if left outside. Keep materials away from sparks and flames. Store where temperature will not exceed 90° F (32° C) for extended periods of time.

SPECIFICATIONS

- A.R.E.M.A.® Specifications Chapter 29, Waterproofing
- LARR Report 26022

APPLICATION

Surface Preparation ... Concrete should be cured at least 72 hours, be clean, dry, smooth, and free of voids. Repair spalled areas; fill all voids and remove all sharp protrusions.

CONTINUED ON REVERSE SIDE...

MEL-ROL COMBINES POSITIVE WATERPROOFING PROTECTION WITH EASE OF HANDLING EXCLUSIVE FEATURES

A handy overlap guideline is printed $2\frac{1}{2}$ " (63.5 mm) in from the material edge on each side, assuring proper overlap coverage and assisting in maintaining a straight application. The polymeric waterproofing membrane is protected by a special, easy-to-remove release paper. The exposed membrane strips on the material edges are protected by a pull-off release strip. Exposed polymeric membrane strips are provided on both sides of MEL-ROL for positive membrane-to-membrane adhesion in the overlap area ... note the detail, as shown in inset photo.

| TECHNICAL DATA | | |
|--|---|-----------------------|
| PROPERTY | TYPICAL VALUE | TEST METHOD |
| COLOR ... Carrier Film Polymeric Membrane | White Black | |
| THICKNESS ... Carrier Film Polymeric Membrane | 4 mils 56 mils | |
| TENSILE STRENGTH ... Carrier Film Membrane | 5900 psi min. (40.71 MPa) 460 psi (3230 KPa) | ASTM D 412 (Die C) |
| ELONGATION | 971.3% | ASTM D 412 |
| LOW TEMP CRACK BRIDGING 100 Cycle -25° F (-32° C) | Pass | ASTM C 836 |
| PEEL ADHESION | 11.8 lb./in. (2068 N/m) | ASTM D 903 |
| LAP ADHESION | 8.62 lbf/in. (1508.5 N/m) | ASTM D 1876 |
| WATER VAPOR PERMEABILITY | 0.036 Perms | ASTM E-96, B |
| WATER ABSORPTION | 0.1%, 72 hrs. max. | ASTM D570 |
| HYDROSTATIC RESISTANCE | Equiv. to 230.9" (70.38 m) of water | ASTM D 5385 |
| PUNCTURE RESISTANCE | 48.24 lbf (214.6 N) | ASTM E 154 |
| EXPOSURE TO FUNGI | Pass, 16 weeks | Soil Test |
| FLEXIBILITY @ -20° F (-29° C) | Pass | ASTM D 1970 |

MEL-ROL IS QUICK AND EASY TO APPLY

Temperature ... Apply in dry, fair weather when the air and surface temperatures are above 40° F (4° C). Do not apply to frozen concrete.

MEL-ROL LOW TEMP can be used when air and surface temperatures are between 20° F (-7° C) and 60° F (16° C).

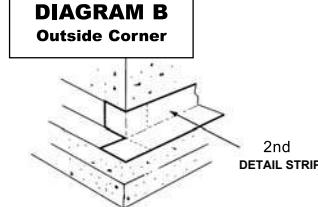
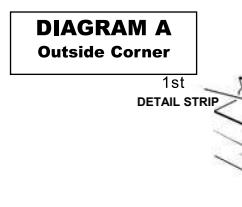
Surface Conditioning ... Apply MEL-PRIME adhesive to surfaces that will be covered within one working day. If left exposed overnight, additional adhesive must be applied. Follow all instructions and precautions on containers.

REMOVE release paper from MEL-ROL from the top edge of the roll and firmly press exposed area to the wall. Remove the release paper from the rolls in a downward direction, pressing MEL-ROL into place on the wall.

Footing Details ... Use DETAIL STRIP for impaction sheet coverage. First, fold strips lengthwise and then cut at the fold. Material is then ready to install as $4\frac{1}{2}$ " (114.3 mm) strips on either side of the rebar. Any excess can be turned down on the face of the footing. Next, fill the voids around rebars in the keyway with CATALYTIC BONDING ASPHALT. Pour the walls. Install DETAIL STRIP horizontally along the wall where it meets the footing, placing half the material up the wall and the other half onto the footing. Extend the material $4\frac{1}{2}$ " (114.3 mm) beyond outside corners. Slit extended portion of DETAIL STRIP lengthwise. Place the horizontal flap out onto the footing and bend the vertical flap around the wall. (See Diagram A.) Repeat this procedure in the opposite direction as shown in Diagram B.

MEL-ROL can be applied to concrete, masonry surfaces, wood, insulated wall systems, and metal. All substrates must be clean, dry, and free of all surface irregularities.

Horizontal Application ... Remove release paper on edge, then position the MEL-ROL membrane. Pull balance of release paper off, running the roll from low to high points, so all laps will shed water. Stagger end laps and overlap all seams at least $2\frac{1}{2}$ " (63.5 mm). Apply a double-thickness of the MEL-ROL membrane over construction, control, all expansion joints and over cracks greater than $1/16$ " (1.59 mm) wide.



Vertical Wall Application ... Masonry walls may require the application of a cementitious parge-coat. Allow the parge-coat to dry before priming and applying MEL-ROL. When applied, the parge-coat will produce a smooth, uniform, and well-bonded surface. Remove release paper, then apply vertically in lengths approximately 8' (2.44 m) long over the top of the horizontal DETAIL STRIP at the footing. Overlap seams at least 2 1/2" (63.5 mm). Tightly butt edges of membrane and apply POINTING MASTIC in corner applications. (See Diagram C.)

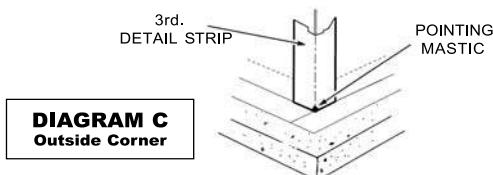


DIAGRAM C
Outside Corner

To the top terminations, apply POINTING MASTIC at least 1/8" (3.18 mm) thick and 1" (25.4 mm) wide. As an option, TERMINATION BAR may be used to mechanically fasten the membrane.

Hand-Rub and Roll Press ... Once positioned, immediately hand-rub the MEL-ROL membrane firmly to the surface, removing any bubbles or wrinkles, then pressure roll the complete surface to assure positive adhesion.

Inside Corners ... Before MEL-ROL is applied, place a vertical DETAIL STRIP on inside corners extending the material 4 1/2" (114.3 mm) beyond each side of the corner. (See Diagram D.) Terminate at the footing and finish the corner with POINTING MASTIC.

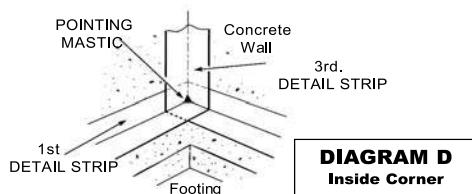
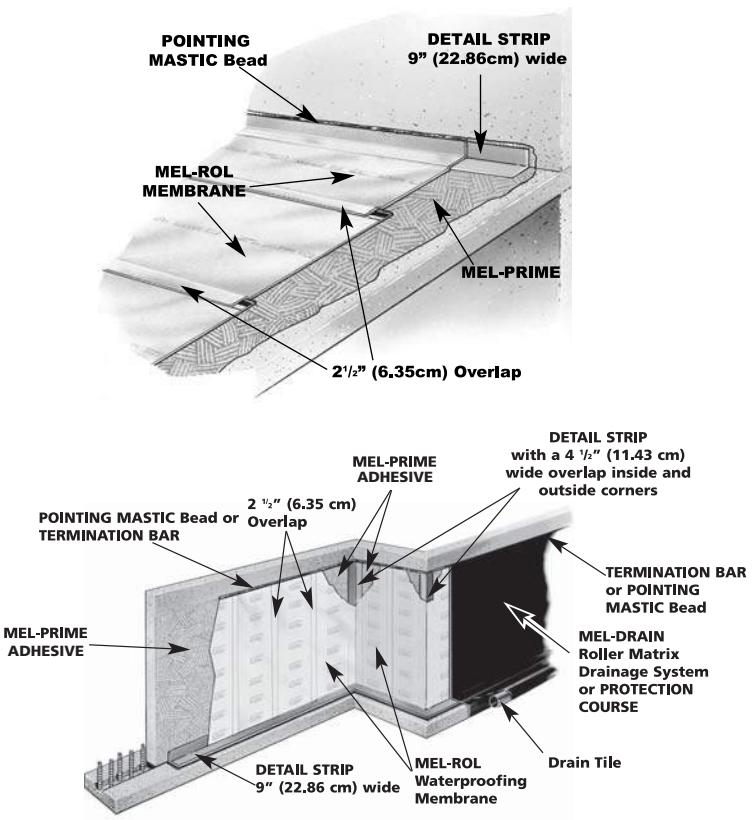


DIAGRAM D
Inside Corner

Outside Corners ... Bend DETAIL STRIP vertically over the outside corner and extend 4 1/2" (114.3 mm) beyond each side of the corner. Terminate the material at the footing. Finish the corner with POINTING MASTIC. (See Diagram C.)

Drains and Protrusions ... All protrusions should be sealed with two layers of membrane applied at least 6" (152.4 mm) in all directions. Seal all terminations with POINTING MASTIC. Around drains, apply two layers of MEL-ROL and put a bead of POINTING MASTIC between the membrane and clamping rings and at all terminations, drains, and protrusions. See ASTM D 5898.



Inspect and Repair ... A thorough inspection should be made before covering and all necessary repairs made immediately. Tears and inadequate overlaps should be covered with MEL-ROL ... slit fish mouths and patch. Seal edges of all patches with POINTING MASTIC. Where applicable, horizontal applications can be flood-tested for 24 hours. All leaks should be marked and repaired when membrane dries.

Protect the Membrane ... on all vertical and horizontal installations with the immediate application of PROTECTION COURSE if no drainage system is used, or MEL-DRAIN. To secure PROTECTION COURSE, use POINTING MASTIC as an adhesive, and/or physically attach at the top edge using TERMINATION BAR. Backfilling should be done immediately, using care and caution to avoid damaging the waterproofing application.

PRECAUTIONS

Avoid the use of products that contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with MEL-ROL. The use of MEL-ROL does not negate the need for relief of hydrostatic heads. A complete drain tile system should be placed around the exterior of footing and under slabs, as required.

ACCESSORIES

MEL-PRIME W/B ... This water-based adhesive prepares concrete surfaces for MEL-ROL application. Arrives ready to use. Requires no additional mixing. MEL-PRIME W/B emits no unpleasant odors and works with all W. R. MEADOWS waterproofing membranes. Applies easily with manual sprayer or roller; VOC-compliant. MEL-PRIME W/B is for use at temperatures of 40° F (4° C) and up.

COVERAGE: 150 - 200 ft.²/gal. (3.7 - 4.9 m²/L)

PACKAGING: 1 Gallon (3.79 Liter) Units (4 units per carton), 5 Gallon (18.93 Liter) Pails

MEL-PRIME ... This solvent-based adhesive is for use at temperatures of 25° F (-4° C) and above. Apply by roller.

COVERAGE: 250-350 ft.²/gal. (6.14 to 8.59 m²/L) PACKAGING: 5 Gallon (18.93 Liter) Pails

MEL-ROL LIQUID MEMBRANE ... A two-component material used as a flashing to form fillets at corners and at protrusions. May be used as a substitute for POINTING MASTIC. Product can also be used in between walls and footings in lieu of DETAIL STRIP.

COVERAGE: As a fillet, approximately 135 lineal feet per gallon (10.87 m per liter) PACKAGING: 1 Gallon (3.79 Liter) Units, 4 Units per carton.

BEM ... BEM can be used as a fillet to round out 90° angles, such as the wall-footing connection, and can be used as a substitute for MEL-ROL LIQUID MEMBRANE.

COVERAGE: As a fillet, approximately 135 lineal ft./gal. (10.9 mL). PACKAGING: 28 Oz. (828 mL) Cartridges (12 per Carton)

POINTING MASTIC ... Used as an adhesive and for sealing top edge terminations on DETAIL STRIP and membrane, and to adhere PROTECTION COURSE.

COVERAGE: 1/8" x 1" x 200'/gal. (3.18 mm x 25.4 mm x 16.10 ml). PACKAGING: 5 Gallon (18.93 Liter) Pails, 29 Oz. (857.65 ml) Cartridges, 12/ctn.

CATALYTIC BONDING ASPHALT ... Easy-to-apply, one-component material for sealing around rebar.

COVERAGE: 5 gal./1000 ft.²/gal. (4.9 m²/L) PACKAGING: 5 Gallon (18.93 Liter) Pails.



LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection

with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

DETAIL STRIP ... Convenient, easy-to-use DETAIL STRIP provides an economical and effective method for sealing vertical and horizontal butt joints, i.e. inside or outside corners and where walls and footings meet.

PACKAGING: 9" x 50' (.23 x 15.24 m) roll, 4 rolls per carton.

PROTECTION COURSE ... Use for vertical and horizontal applications. Adhere with POINTING MASTIC or use mechanical fasteners.

PACKAGING: 4' x 8' (1.22 x 2.44 m) panels.

MEL-DRAIN ... is a dimple-raised molded polystyrene fabric designed to provide high flow capacity to reduce hydrostatic pressure buildup around waterproofing and vaporproofing membranes. Choice of drain types are available for vertical, horizontal, and site applications. Use MEL-PRIME to condition surface prior to application of MEL-DRAIN.

TERMINATION BAR ... is a high strength, pre-formed, multi-purpose, plastic strip designed to support vertical membrane systems and PROTECTION COURSE at their termination point.

PACKAGING: 10' (Holes every 6" o/c, 2" from either end), 25 pieces per carton.

MAINTAIN ENERGY EFFICIENCY

Wet insulating materials lose much of their "R" factor performance characteristics, reducing the energy efficiency of the structure. W. R. MEADOWS thermal and moisture protection products play a key role in *maintaining* the structure's energy efficiency and aiding in the integrity of other structural systems, such as insulation.

LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan: During Construction
- IEQ Credit 7.1: Thermal Comfort - Design
- MR Credit 2: Construction Waste Management
- MR Credit 5: Regional Materials

For CAD details, most recent data sheet, further LEED information, and MSDS, visit www.wrmeadows.com.

PRODUCT DATA

NO. 712

MasterFormat: 07 10 00

W. R. MEADOWS®

SEALIGHT®

SEPTEMBER 2014
(Supersedes December 2008)

PROTECTION COURSE

Waterproofing Protection

DESCRIPTION

PROTECTION COURSE is a multi-ply, semi-rigid core composed of a mineral-fortified asphalt core formed between two outside layers of asphalt-impregnated reinforced mats, manufactured in accordance with ASTM D 6506.

When properly applied by personnel trained in good waterproofing techniques, PROTECTION COURSE will absorb the impact of aggregate shock and normal jobsite foot traffic. It also protects the membrane waterproofing from penetration by sharp aggregate during backfilling and later settlement. PROTECTION COURSE is available in two types: PC-2, Standard Duty and PC-3, Heavy Duty. Both types are economical and convenient to use.

USES

PROTECTION COURSE is used in between slab construction, such as plaza decks, roof terraces, promenade decks, pedestrian concourses, tunnels, bathroom floors, showers, kitchens, mechanical rooms, parking garage decks, planter boxes, reflective pools, and foundation walls. PROTECTION COURSE is compatible with most currently popular dampproofing and waterproofing materials.

FEATURES/BENEFITS

- Tough, durable and lightweight ... panels are easily handled, quickly installed.
- Full width fiberglass matting improves flexural strength.
- Highly resistant to chemical action.
- Performance is equally effective in above- or below-grade installations.
- Unique dual facing offers compatibility with most currently popular waterproofing materials.
- Economical and convenient to use.

PACKAGING

4' x 8' (1.22 m x 2.44 m) Panels

TECHNICAL DATA

ASTM D 6506, Class B

PROTECTION BOARD REQUIREMENTS

| | PC-2 | PC-3 |
|--|--|--|
| Puncture Strength | 312 N (70 1bf) minimum | 365 N (82 1bf) minimum |
| Thickness | 2.4 - 3.9 mm (0.095" - 0.155") | 5.6 - 7.1 mm (0.220" - 0.280") |
| Water Absorption | 10.0% maximum | 10.0% maximum |
| Asphalt, % by weight | 40% minimum | 40% minimum |
| Resistance to Decay (Classes A & B) | Meets puncture requirements after completion of test | Meets puncture requirements after completion of test |

Product conforming to ASTM D 6506, Class A also available by special order.

APPLICATION

NOTE: Prior to application, consult the waterproofing manufacturer to determine whether the polyethylene film facing on one side, or the asphalt-impregnated reinforced mat on the other side of PROTECTION COURSE, is approved as "compatible" to the specific waterproofing product being protected.

PROTECTION COURSE is installed to form a continuous protective layer over the membrane waterproofing. The sheets can be easily cut with a roofer's knife for fitting at protrusions.

Surface Condition ... The waterproofing membrane must be free of sharp projections, dirt, and dust. If water testing is desired, it should be made prior to placing PROTECTION COURSE. Note: PROTECTION COURSE should be applied at the end of each day's waterproofing to both horizontal and vertical surfaces.

CONTINUED ON REVERSE SIDE ...

Horizontal Surfaces ... PROTECTION COURSE should be installed over the waterproofing membrane as soon as permissible by the membrane applicator or manufacturer. PROTECTION COURSE sheets should be butted together and cut to fit all intersecting surfaces and protrusions. If desired, joints may be covered with DETAIL STRIP from W. R. MEADOWS or roofer's glass reinforced tape embedded in hot asphalt as a secondary waterproofing system. (See PRECAUTIONS.)

Vertical Surfaces ... For dampproofed and/or waterproofed vertical walls to receive backfill, PROTECTION COURSE should be butt jointed and, if necessary, temporarily held in place while backfilling.

Backfilling ... Backfilling against vertical walls should be done immediately using care and caution to avoid damaging the waterproofing application. Backfill material should not be dropped against PROTECTION COURSE in such a manner that it could drag the sheet down as the backfill drops. For horizontal applications, the waterproofing and PROTECTION COURSE should be installed just prior to the installation of the wearing surface.

PRECAUTIONS

Where PROTECTION COURSE is adhered to a waterproofing membrane, use an approved adhesive. Where taped joints are desired with tape set in hot asphalt, consult membrane manufacturer. PROTECTION COURSE is shipped on pallets with the polyethylene anti-stick sheet on the top or exposed side. PROTECTION COURSE should be stored on pallets and placed on a level surface. CAUTION: Do not apply PROTECTION COURSE over liquid waterproofing membranes containing volatile solvents until all of the solvent has evaporated. Consult membrane manufacturer for specific application details prior to placing PROTECTION COURSE. Read and follow application information and precautions. Refer to Safety Data Sheet for complete health and safety information.

LEED INFORMATION

May help contribute to LEED credits:

- MR Credit 2: Construction Waste Management
- MR Credit 4: Recycled Content
- MR Credit 5: Regional Materials

**For most current data sheet, further LEED information, and SDS, visit
www.wrmeadows.com.**



LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

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DATA SHEET NO. 6057-120**DETAIL FABRIC****Nonwoven Geotextile Fabric****DESCRIPTION**

DETAIL FABRIC is a polypropylene, staple fiber, needle-punched, nonwoven geotextile fabric. The fibers are needled to form a stable network that retains dimensional stability relative to each other. The geotextile is resistant to ultraviolet degradation and to biological and chemical environments normally found in soils.

USES

DETAIL FABRIC is designed for end lap applications of PRECON® and PRECON LOW TEMP from W. R. MEADOWS. The use of DETAIL FABRIC will create a waterproof and vaporproof shield that will help resist moisture penetration through ends laps of PRECON and PRECON LOW TEMP.

FEATURES/BENEFITS

- Superior chemical resistance.
- Sturdy fabric capable of withstanding construction installation stresses.
- Maximum UV resistance.

PACKAGING

305 mm x 36.6 m (12" x 120)

TECHNICAL DATA

| Property | Test Method | Value | Unit | Result |
|-----------------------|-------------|-------|----------|------------|
| Grab Tensile Strength | ASTM D-4632 | MARV | lb. N | 115 512 |
| Grab Elongation | ASTM D-4632 | MARV | % | 50 |
| Puncture Strength | ASTM D-4833 | MARV | lb. N | 65 289 |

APPLICATION

End Laps ... Overlap PRECON membrane 6" (152.4 mm). Prior to overlap, apply BEM, HYDRALASTIC 836, or MEL-ROL® LIQUID MEMBRANE (two-component) from W. R. MEADOWS in area to be lapped. Roll press membrane into BEM, HYDRALASTIC 836, or MEL-ROL LIQUID MEMBRANE. At terminations of membrane, apply BEM, HYDRALASTIC 836 or MEL-ROL LIQUID MEMBRANE 305 mm (12") wide centered over the termination and while still wet, embed 305 mm (12") wide DETAIL FABRIC into the HYDRALASTIC 836 or MEL-ROL LIQUID MEMBRANE and roll press into place. Ensure that DETAIL FABRIC is centered over the termination with 152.4 mm (6") on each side of lap edge. Apply additional HYDRALASTIC 836 on all terminations of DETAIL FABRIC.

MASTERFORMAT NUMBER AND TITLE

07 13 00 – Sheet Waterproofing

LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan: During Construction
- IEQ Credit 7.1: Thermal Comfort - Design
- MR Credit 2: Construction Waste Management
- MR Credit 4: Recycled Content
- MR Credit 5: Regional Materials

For most recent data sheet, further LEED information, and MSDS, visit www.wrmeadows.com.

2013-12-06

W. R. MEADOWS OF CANADA
70 Hannant Court, Milton, ON L9T 5C1
Phone: (905) 878-4122 • Fax: (905) 878-41
Montreal Sales: (877) 405-5186

Hampshire, IL / Cartersville, GA / York, PA / Fort Worth, TX

Benicia, CA / Pomona, CA / Goodyear, AZ / Milton, ON

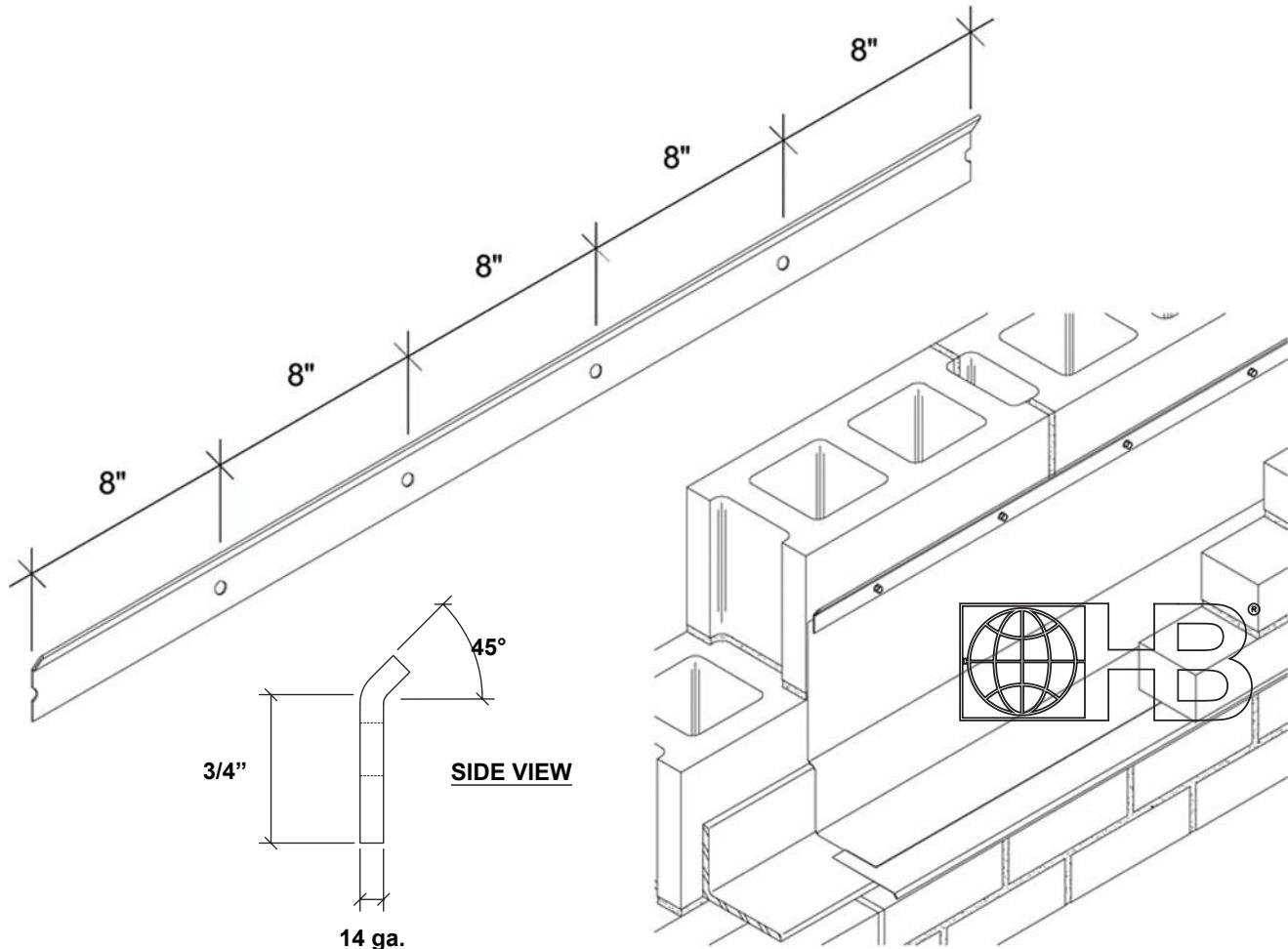
St. Albert, AB

www.wrmeadows.com



HOHMANN & BARNARD, INC.
a MiTek company

Flashing and Reglets T2 - Aluminum Termination Bar



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

T2 - Aluminum Termination Bar

AA 6063-T6 Aluminum (GRADE TB-75) termination bar for use at top of flashing to mechanically secure it to the backup. Compatible with all H&B Surface-Mount membrane and copper-laminate flashings.

NOTE: Available with optional Foam-Tite Seal™ to aid in inhibiting moisture infiltration. A factory-installed foam strip helps to seal small voids occurring between the termination bar and irregular substrate surfaces, while offering protection against water penetration due to sealant deterioration.

NOTE: H&B recommends termination bars be fastened 8" o.c.
(Metal term bars can be fastened 16" o.c. for metal stud backup)

Product:

- T2 Aluminum
 OPTIONAL: T2 Aluminum-FTS (Foam-Tite Seal™)

Dimensions:

- 14 ga. x 1" x 8' long
- Has a 1/4" flange on top for easy caulking
- 1/4" holes spaced 8" o.c.

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question. This drawing and/or data sheet is the confidential and proprietary information of Hohmann & Barnard, Inc. and is not to be reproduced, copied or disclosed, in whole or in part, without the prior written consent of H&B.

HOHMANN & BARNARD, Inc.

30 Rasons Court | Hauppauge, NY 11788
CORPORATE HEADQUARTERS

T: 800.645.0616 F: 631.234.0683

www.h-b.com

Branch/Subsidiary Locations:

ALABAMA - ARIZONA - ILLINOIS
MARYLAND - NEW YORK
PENNSYLVANIA - TEXAS - UTAH
CANADA

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[RESET FORM](#)

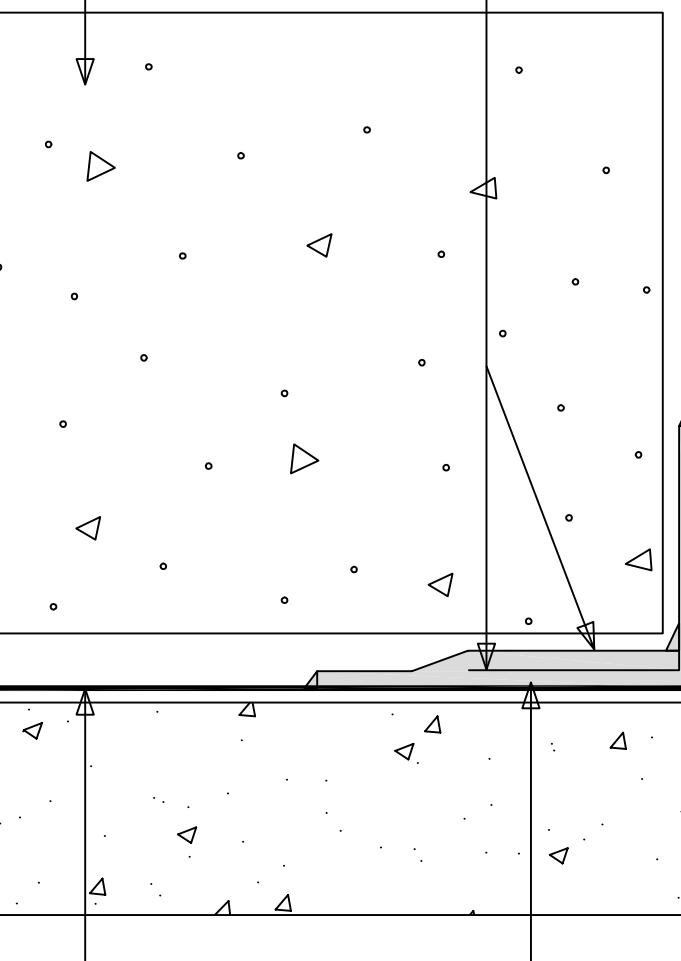
[SAVE FORM](#)

[SAVE FORM LOCK & HIDE BUTTONS](#)

CONCRETE SLAB

PRECON TAPE

POINTING MASTIC OR
BEM OR HYDRASTIC 836



PRECON
(FABRIC FACE TO
CONCRETE)

SATURATE FABRIC FACE
OF PRECON WITH POINTING
MASTIC, BEM, OR
HYDRASTIC 836 AND
ADHERE PRECON TAPE

MUD SLAB

W.R. MEADOWS, INC.

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1-800-342-5976
www.wrmeadows.com

SKETCH: HORIZONTAL
PIPE PENETRATION
PRECON

SKETCH NO:
HPP - PRECON - 16

DATE:
10/24/2012

MEL-ROL

FOUNDATION INSULATION

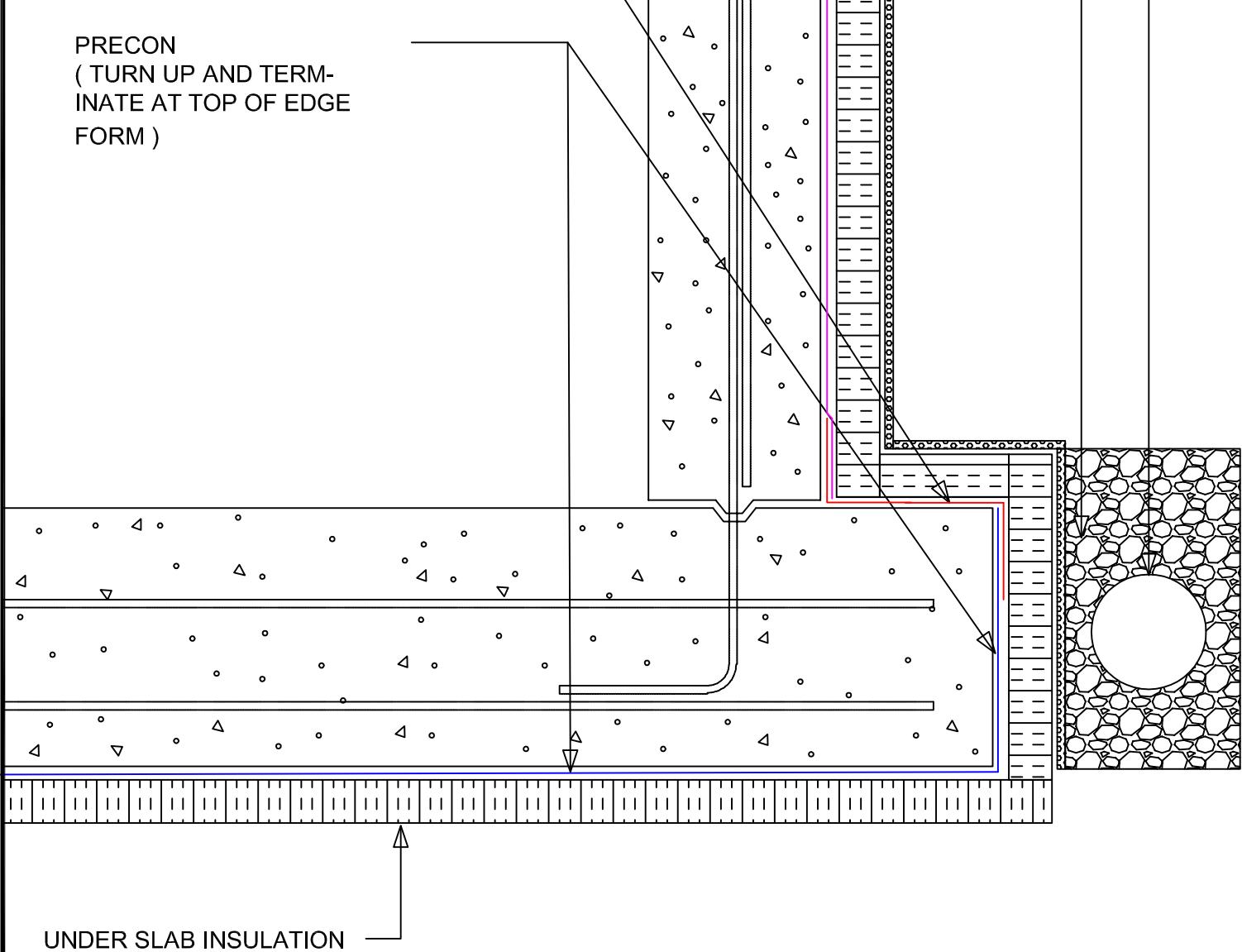
MEL-DRAIN

DRAIN TILE SYSTEM
(DRAINED TO DAYLIGHT
OR A COLLECTION &
EJECTION SYSTEM)

FREE-DRAINING GRAVEL
WRAPPED IN FILTER FABRIC

DETAIL STRIP

PRECON
(TURN UP AND TERM-
INATE AT TOP OF EDGE
FORM)



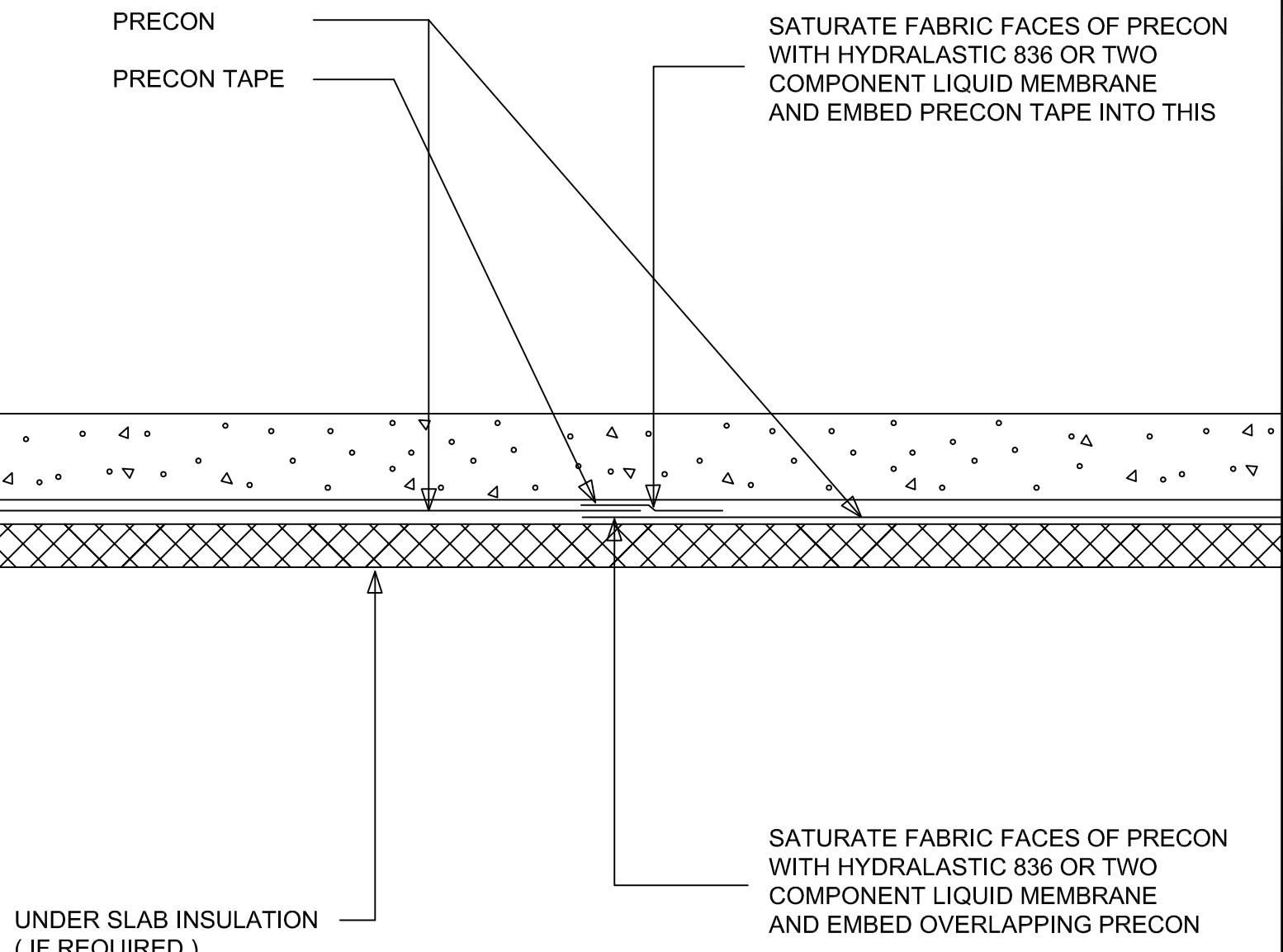
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SKETCH: FOUNDATION BASE
STRUCTURAL SLAB
NO MUD SLAB
WATER TABLE ABOVE SLAB

SKETCH NO: PRECON - 17 - MR

DATE: 07/10/2013



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**SKETCH: SLAB ON GRADE
PRECON END LAP
DETAIL**

SKETCH NO: MWP-18-HS-MPC

DATE: 03/21/2013

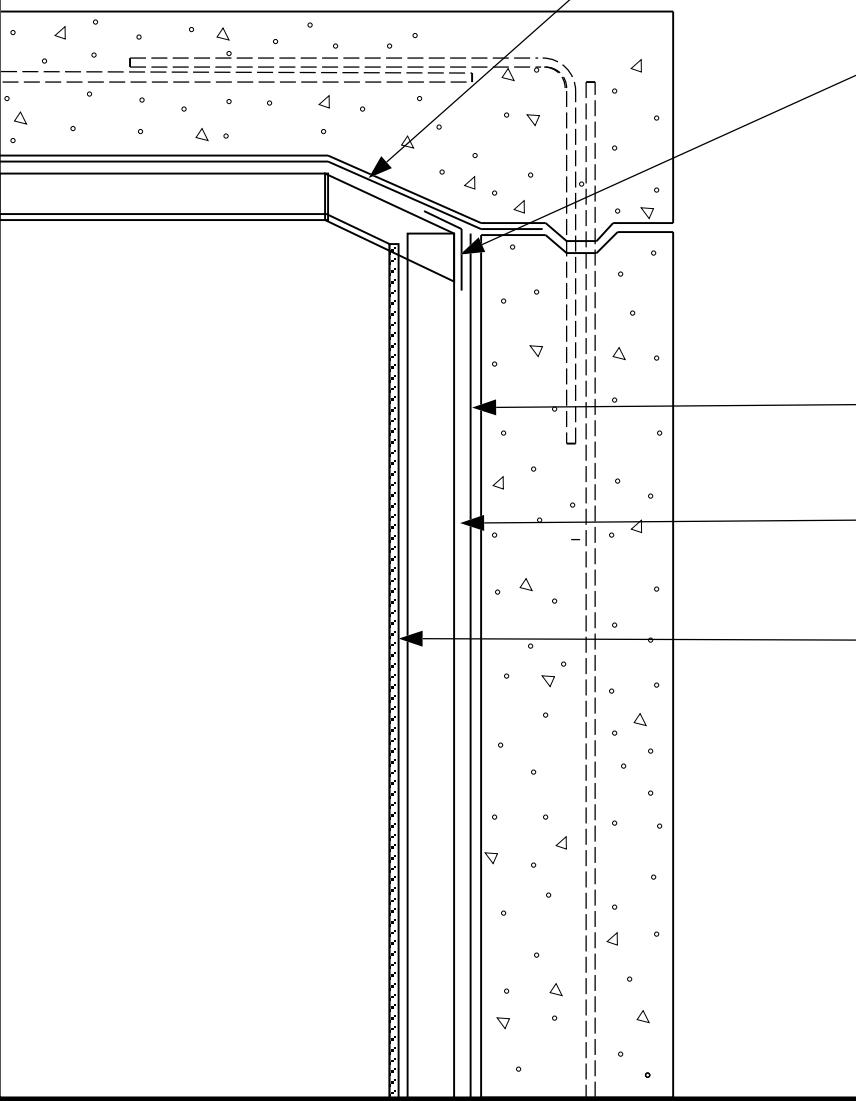
MEL-ROL® PRECON
(LAP ONTO TOP OF FOUNDATION
WALL AND SET IN A BED OF
POINTING MASTIC)

MEL-ROL® PRECON TAPE

MEL-ROL®

INSULATION (IF REQ'D)

MEL-DRAIN™

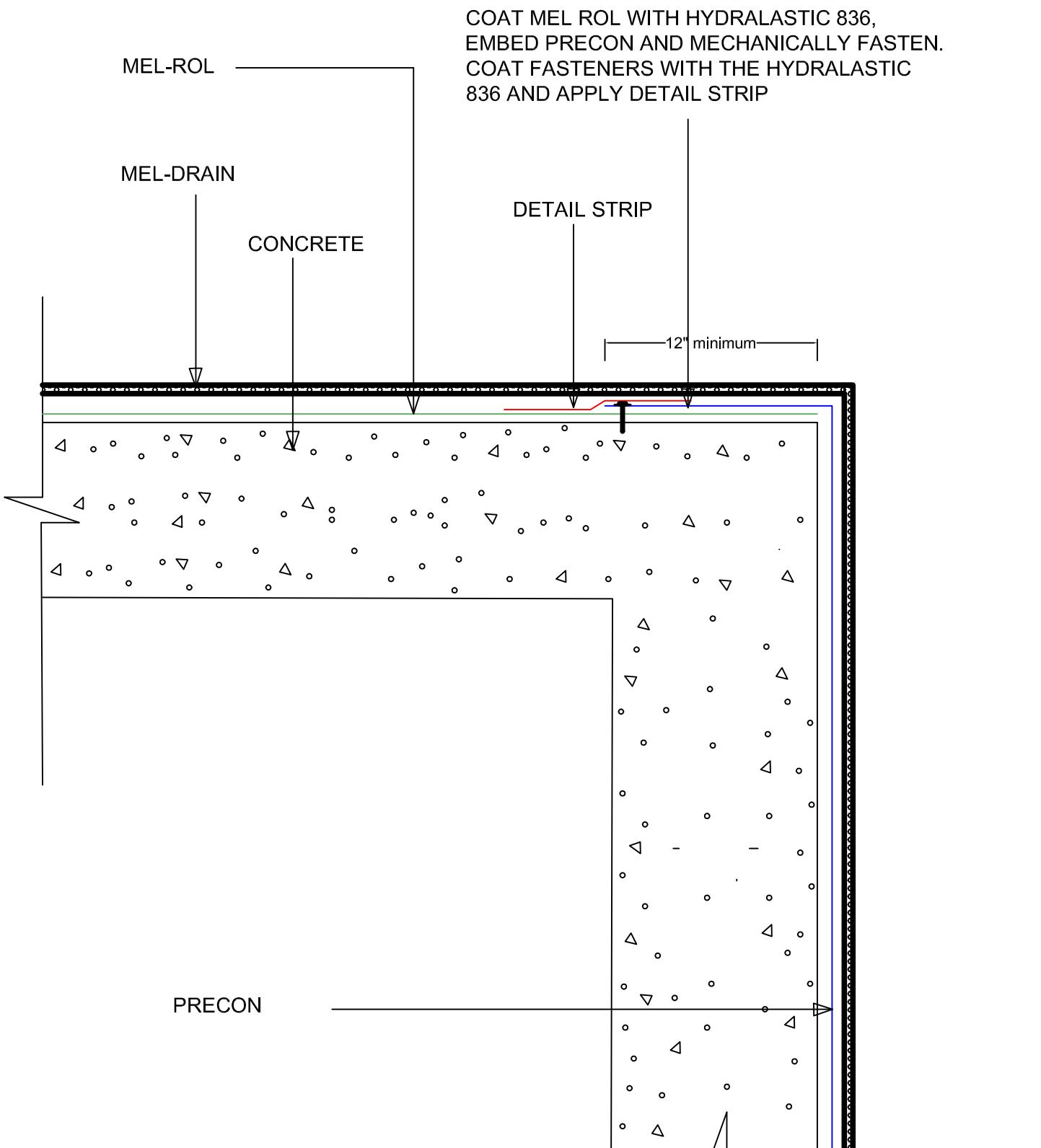


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1-800-342-5976
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SKETCH: **TOP OF FOUNDATION
ELEVATOR PIT**

SKETCH NO: **MWP-21-EP-MR-MPC**

DATE: **2/7/11**



*NOTE: BEM OR 2-COMPONENT LIQUID
MEMBRANE CAN BE USED IN PLACE OF
HYDRASTIC 836. CONSULT W.R.
MEADOWS INSTALLATION PROCEDURES FOR
CORRECT APPLICATION

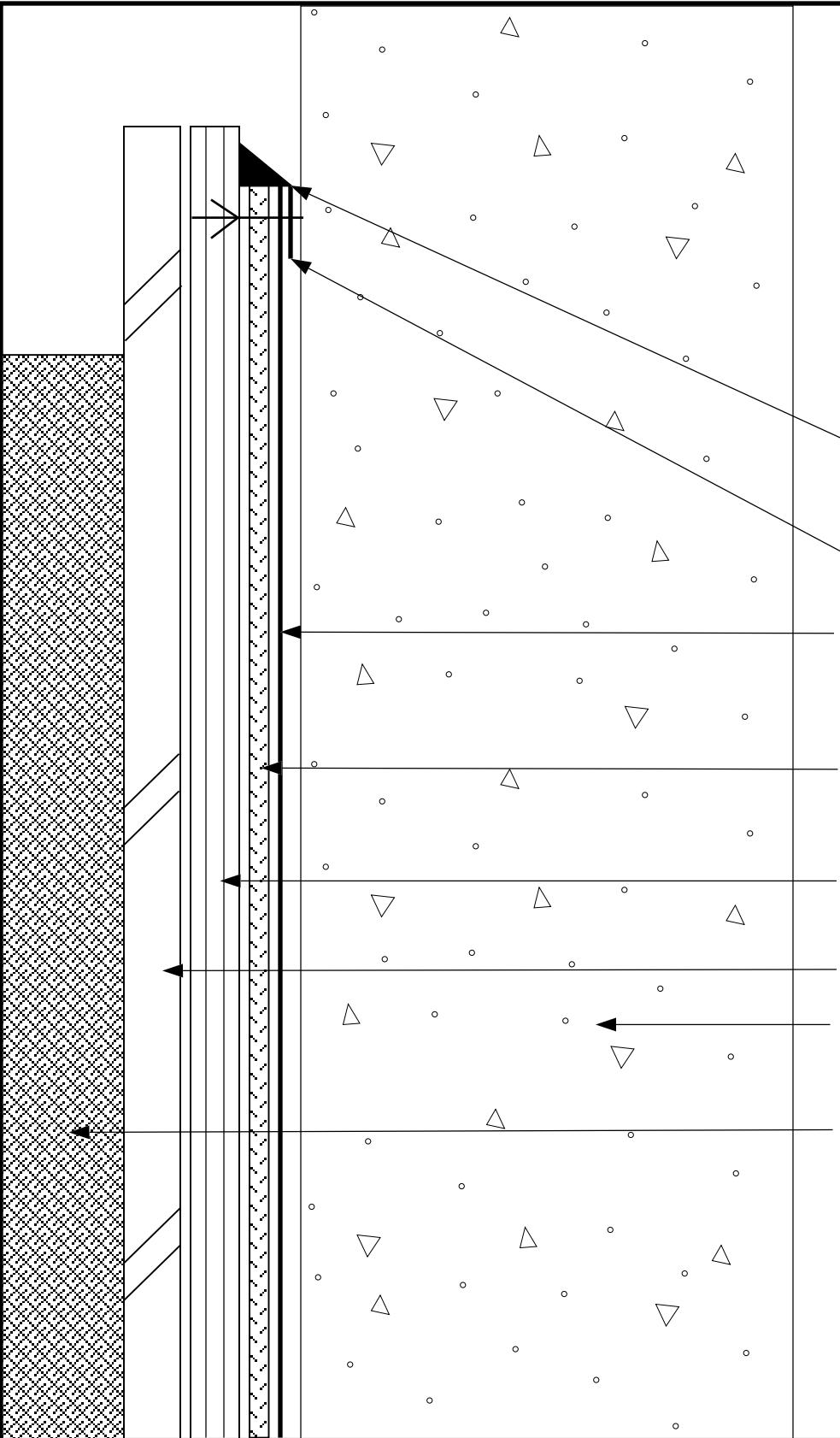
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SKETCH: PRECON
OUTSIDE CORNER

SKETCH NO: PRECON - 21 - OC

DATE: 07/10/2013

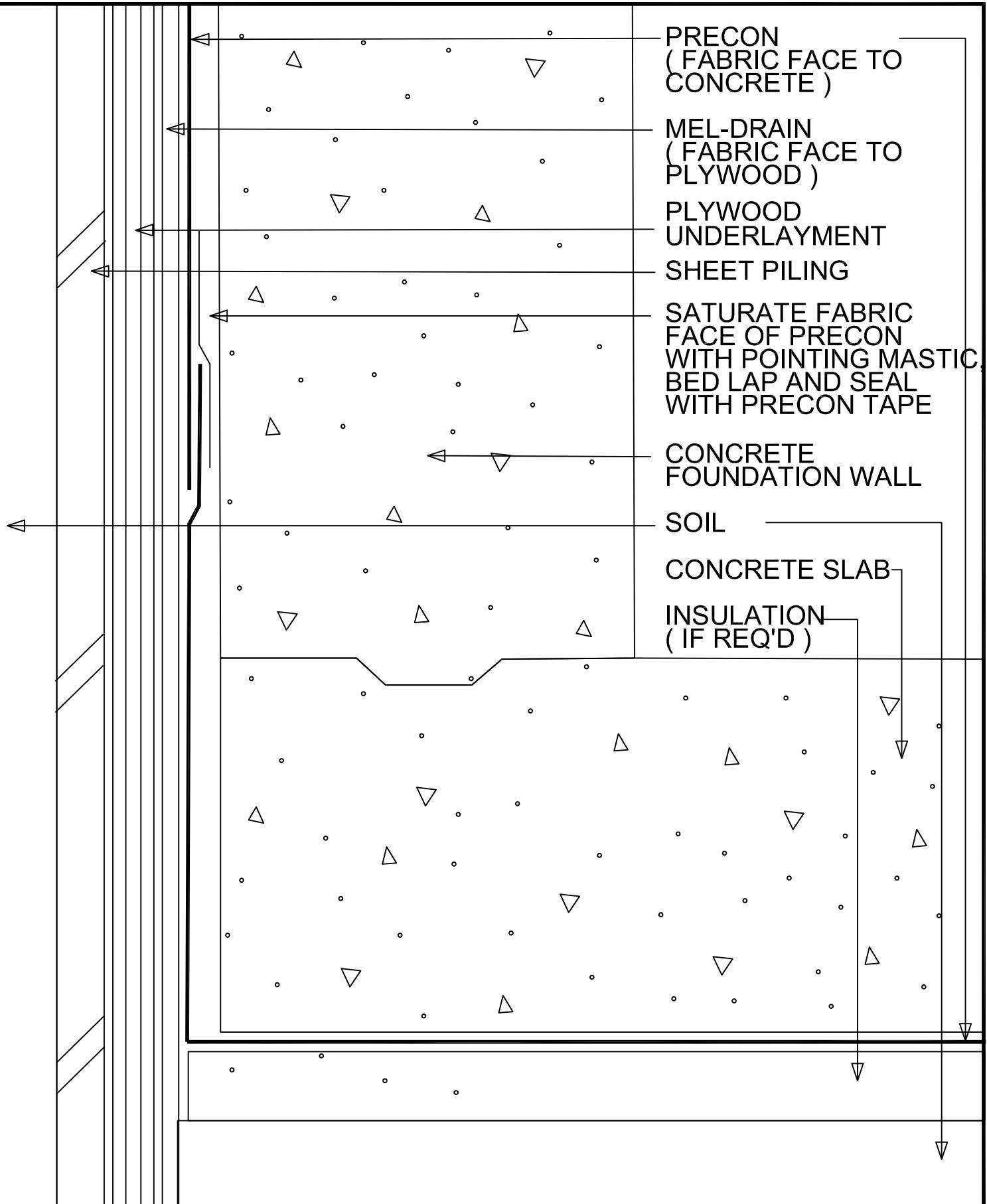


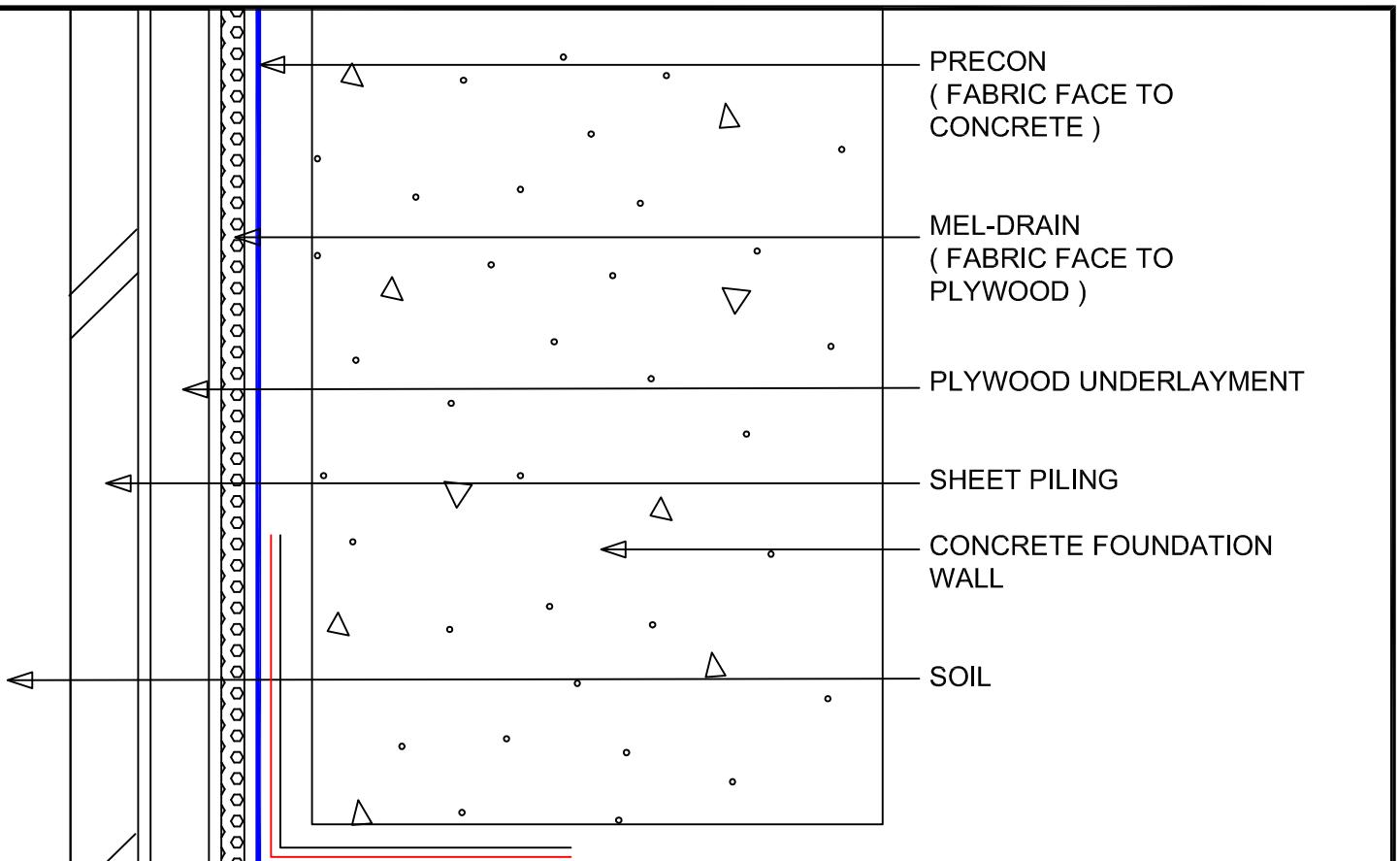
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Hampshire, IL 60140-0338
1-800-342-5976
www.wrmeadows.com

SKETCH: **BLIND SIDE
SHEET PILING
MEL-ROL® PRECON
TOP TERMINATION**

SKETCH NO: **MWP-23-BSSH-P-MPC**

DATE: **2/7/11**





PRECON
(FABRIC FACE TO
CONCRETE)

MEL-DRAIN
(FABRIC FACE TO
PLYWOOD)

PLYWOOD UNDERLayment

SHEET PILING

CONCRETE FOUNDATION
WALL

SOIL

COAT OF HYDRASTIC 836
APPLIED TO PENETRATION AND
PRECON. EMBED DETAIL FABRIC
INTO THIS COAT OF
HYDRASTIC 836.

W.R. MEADOWS, INC.

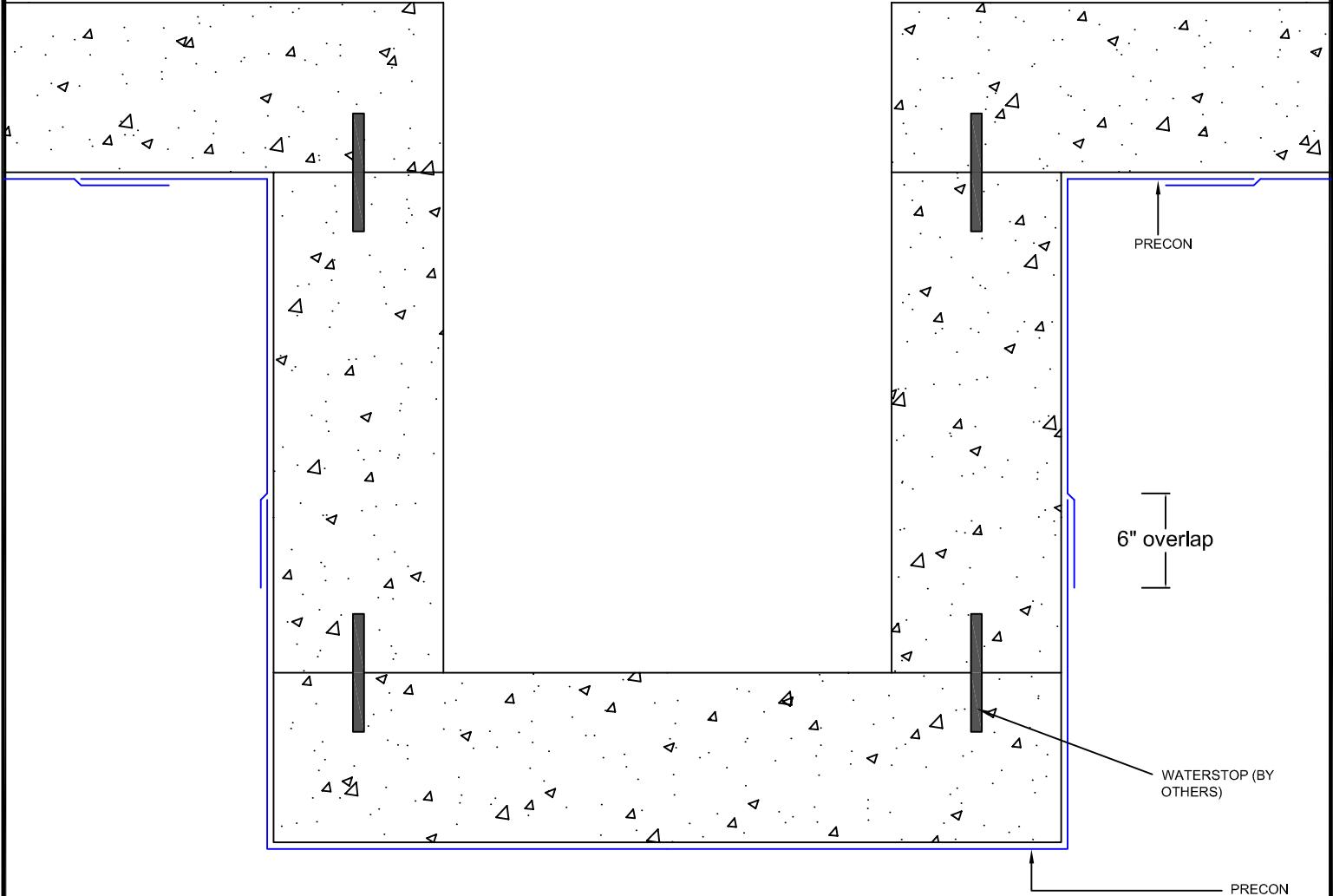
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www.wrmeadows.com

SKETCH: **BLIND SIDE
SHEET PILING
PRECON
PENETRATION**

SKETCH NO: **PRECON - 31**

DATE: **01/30/2018**

DETAIL IS INTENDED TO BE A GUIDE FOR W. R. MEADOWS' PRODUCT INSTALLATION ONLY



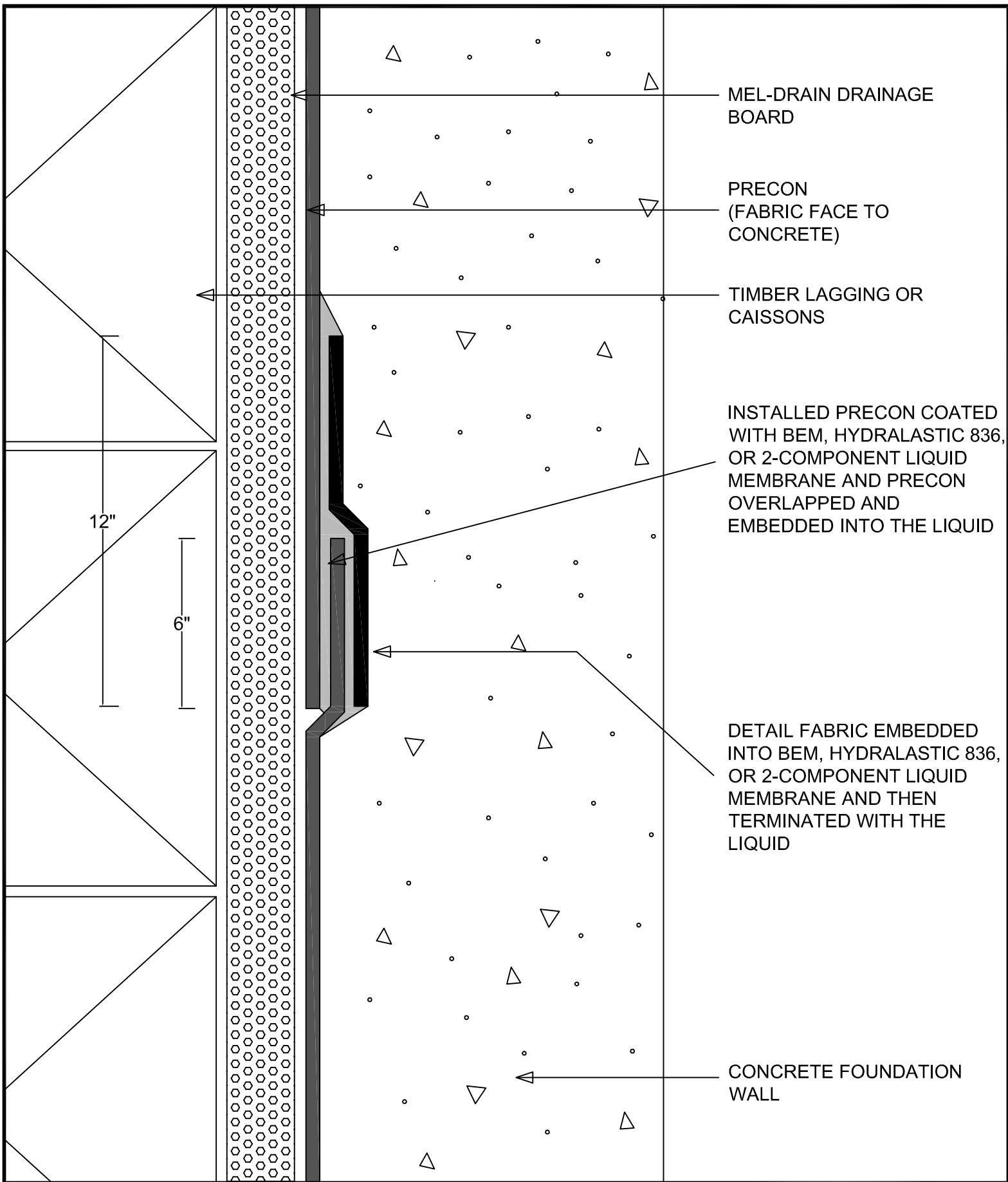
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SKETCH:
**PRECON ELEVATOR
PIT DETAIL (N.T.S.)**

SKETCH NO: **PRECON - 70**

DATE: **1/9/2015**



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Hampshire IL 60140
Tel: 1-800-825-5976
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SKETCH: PRECON END LAP DETAIL

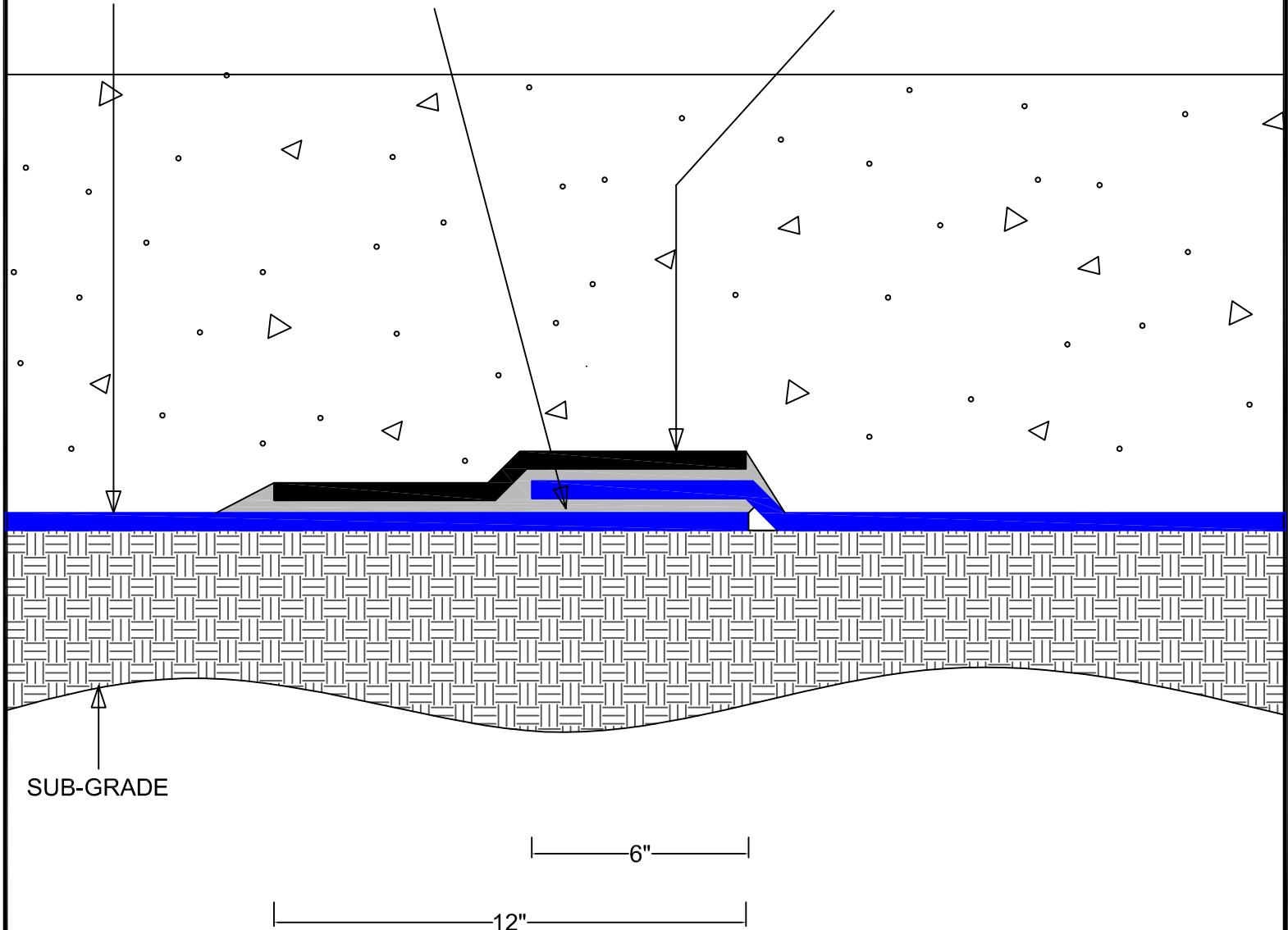
SKETCH NO: PRECON 34 - EL

DATE: 06 / 03 / 2013

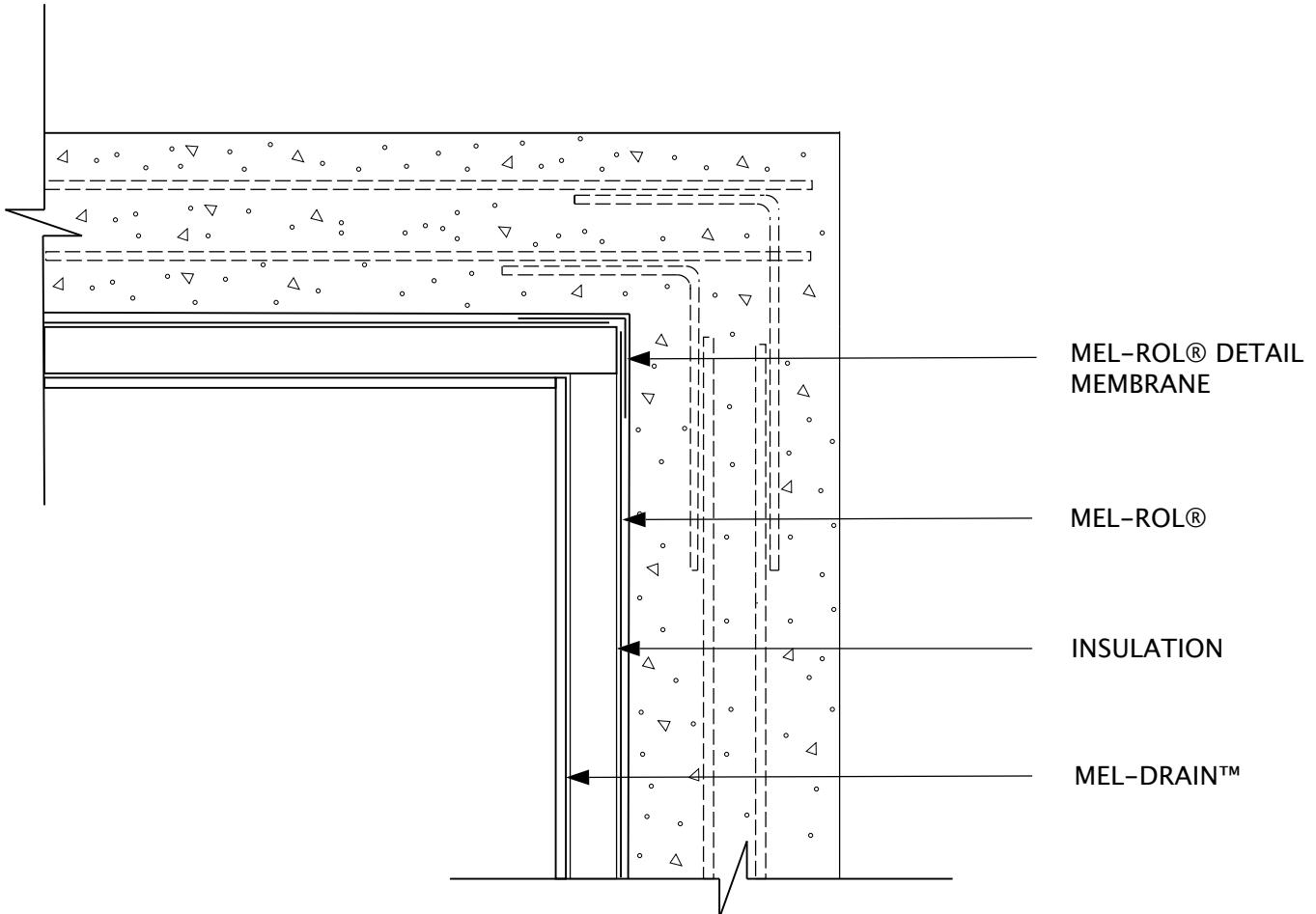
PRECON
(FABRIC FACE TO
CONCRETE)

INSTALLED PRECON COATED
WITH HYDRALASTIC 836, AND
PRECON OVERLAPPED AND
EMBEDDED INTO THE
HYDRALASTIC 836*

DETAIL FABRIC EMBEDDED
INTO HYDRALASTIC 836, THEN
TERMINATED WITH THE
HYDRALASTIC 836*



*NOTE: BEM OR 2-COMPONENT LIQUID
MEMBRANE CAN BE USED IN PLACE OF
HYDRALASTIC 836. CONSULT W.R.
MEADOWS INSTALLATION PROCEDURES FOR
CORRECT APPLICATION

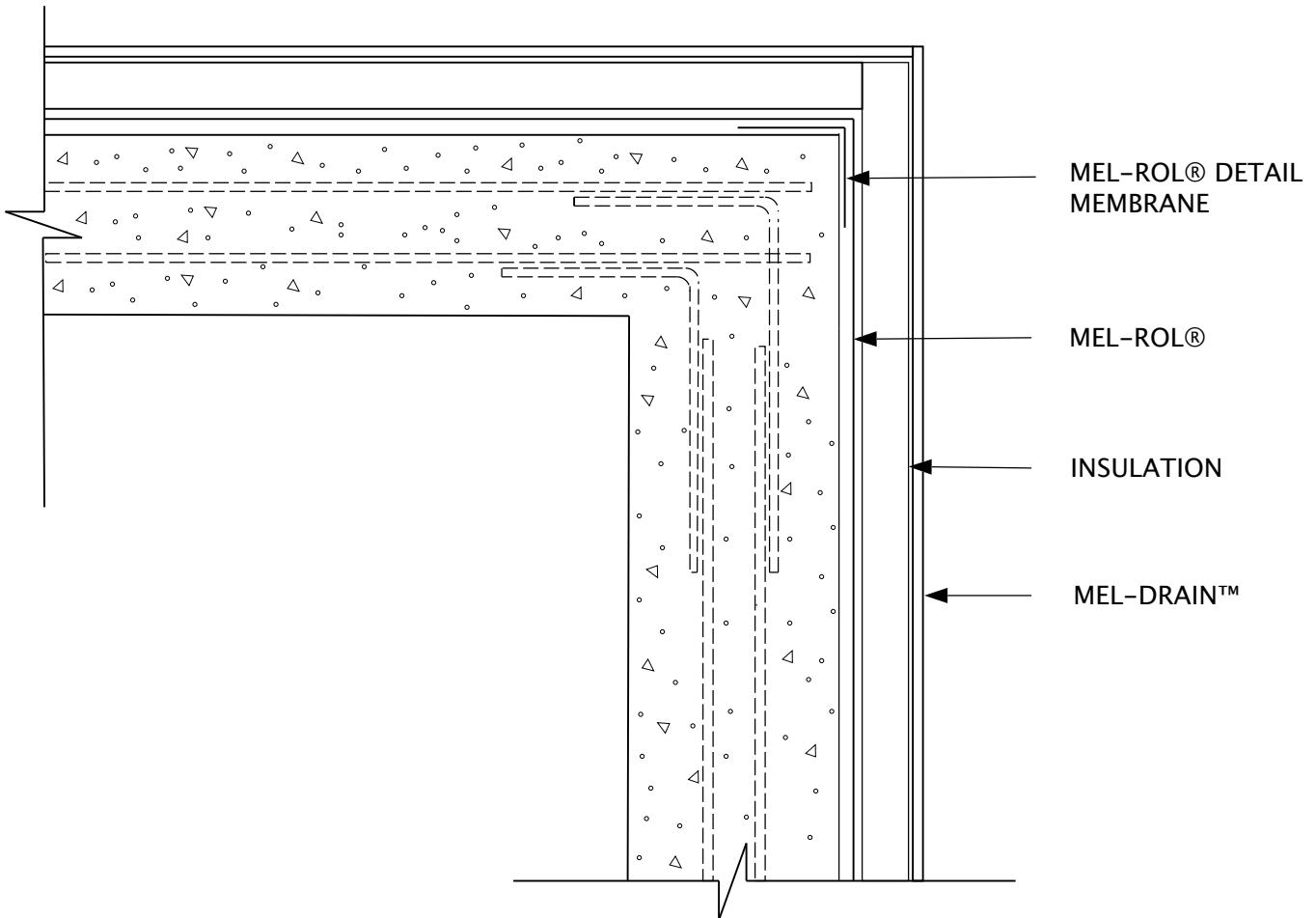


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SKETCH: PLAN VIEW
INSIDE CORNER

SKETCH NO: MWP-21-IC-MR

DATE: 10/26/07

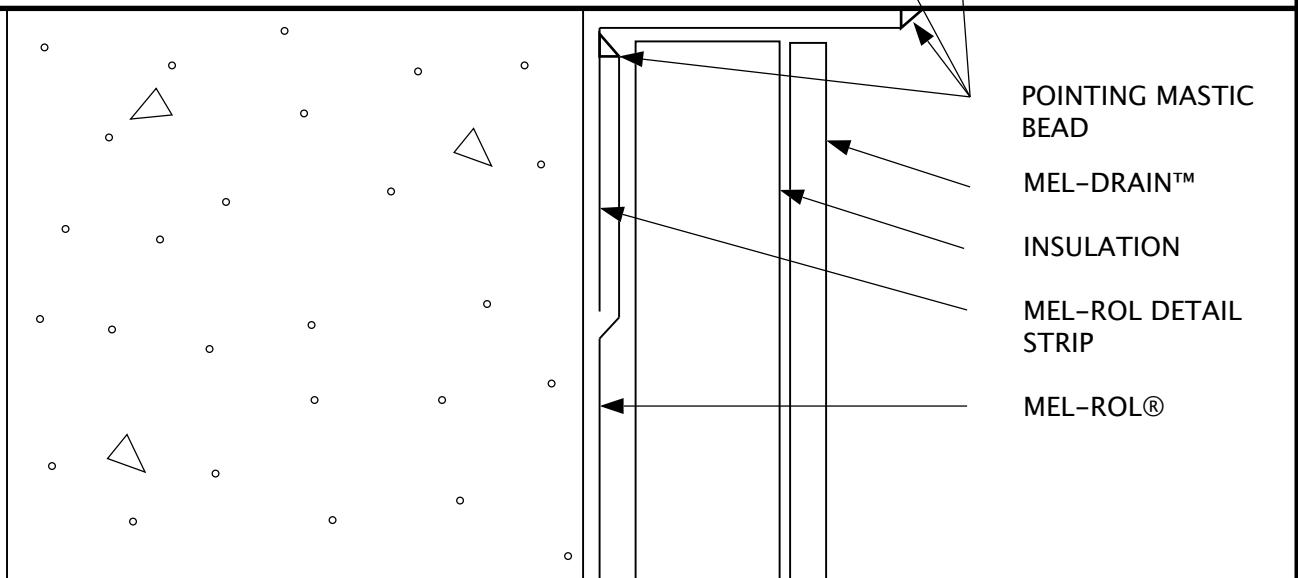
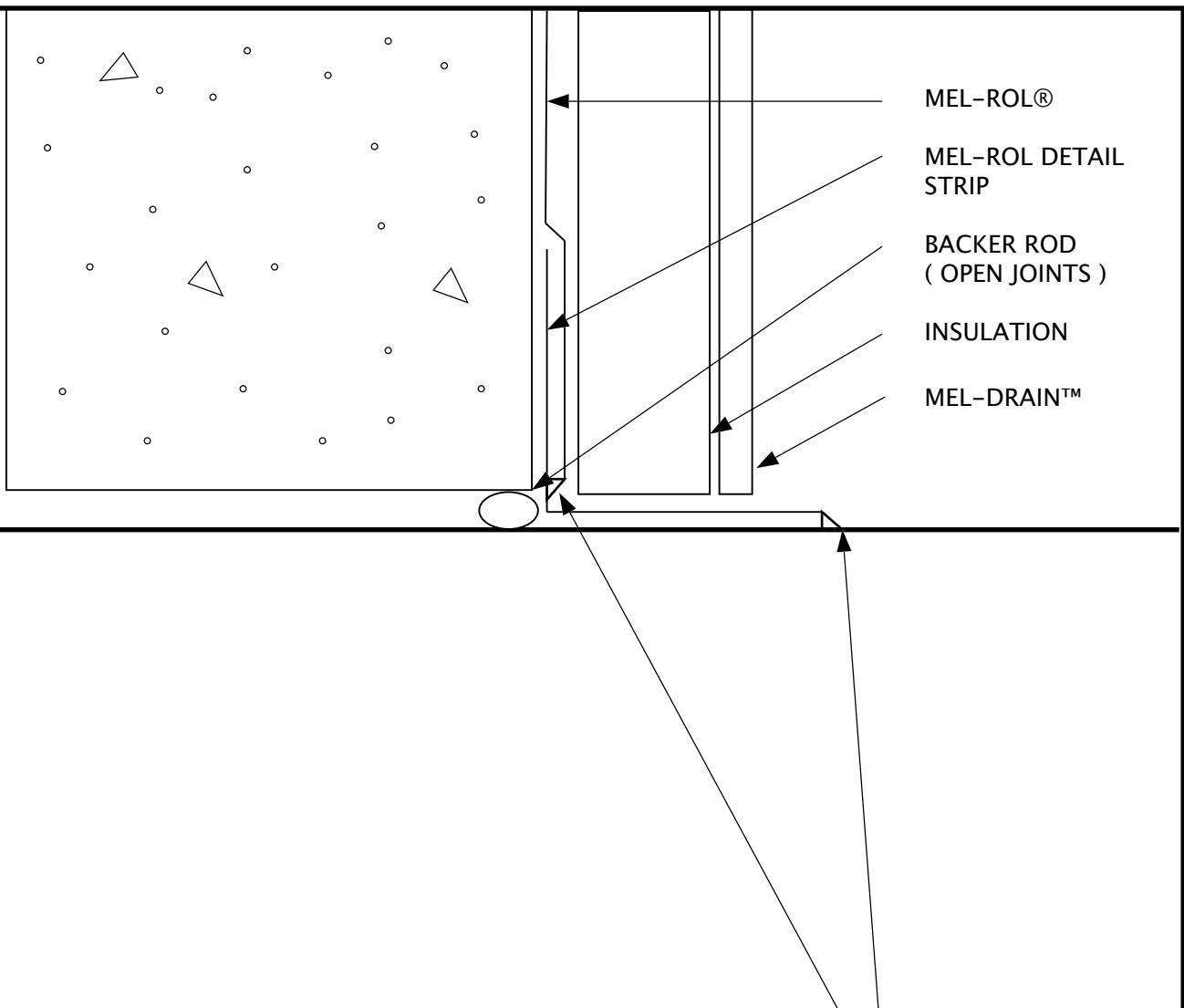


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SKETCH: PLAN VIEW
OUTSIDE CORNER

SKETCH NO: MWP-22-EC-MR

DATE: 10/26/07



W. R. Meadows, Inc.

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1-800-342-5976

SKETCH: MEMBRANE PENETRATION
VERTICAL ORIENTATION

SKETCH NO: MWP-40-VP-LM

DATE: 10/26/07

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Inspection Services

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Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 071326-001 R1

Description: Self-Adhering Sheet Waterproofing - PD Updated

Project Name: UT Austin - Seay

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



Darryl Castleberry

BY:

DATE:
2020/07/10

Submittal Comments:



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0229

PROJECT: UT Seay Building Addition

TO: BSA Lifestructures
AL

DATE: 06/29/2020

RE: Self-Adhering Sheet Waterproofing - Product Data & Shop Draw

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 06/29/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 071326-001 | 2 | | 06/29/2020 | Self-Adhering Sheet Waterproofing - Product Data & Shop Drawings | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 6/15/2020 SPEC# 071326

REVIEWED BY tanner.hawkins

SUBMITTAL# 071326-001R1

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

This submittal has been updated to include the W.R.
Meadows BEM & Pointing Mastic Products.

CC:

Signed: Tanner Hawkins
Tanner Hawkins

PRODUCT DATA

NO. 710

SLAB TO WALL TRANSITION FILLET BEAD

MasterFormat:
07 14 00
07 14 16

W. R. MEADOWS®

SEALIGHT®

JANUARY 2019

(Supersedes November 2015)

BEM

One-Component Building Envelope Membrane

DESCRIPTION

BEM is a one-component, cold-applied, non-slump membrane that can be used for a variety of applications with building envelope products from W. R. MEADOWS. BEM cures to form a tough, flexible membrane. BEM is a high quality moisture-curing elastomeric sealing material.

USES

BEM can be used in the forming of fillets and reinforcement at corners. BEM is also compatible with glass-mat exterior sheathing.

FEATURES/BENEFITS

- Bonds to asphalt and concrete.
- Solvent-free; will not shrink.
- Skins over in 50 minutes.
- Does not freeze.
- Cures to a tough, flexible membrane.

PACKAGING

20 Oz. (600 mL) Sausages (12 per Carton)
28 Oz. (828 mL) Cartridges (12 per Carton)

COVERAGE

As a corner reinforcement and fillet, approximately 14 lineal ft./gal. (1.1 m/L). For a 3" (76.2 mm) flashing, approximately 17 lineal ft./gal. (1.4 m/L). As a fillet, approximately 135 lineal ft./gal. (10.9 m/L).

SHELF LIFE

When stored indoors and in original, unopened containers at temperatures between 40° - 70° F (4° - 21° C), shelf life is one year from date of manufacture.

SPECIFICATIONS

- Complies with all current federal, state, and local maximum allowable VOC requirements, including National EPA VOC Emission Standard for Architectural Coatings, CARB, LADCO, OTC Phase I and II, and SCAQMD.

TECHNICAL DATA

VOC Content: 26 g/L

APPLICATION

Surface Preparation ... All surfaces to be covered with BEM should be clean, free of all contaminants, dry, and frost-free.

Application Method ... Trowel on BEM to a minimum thickness of 90 mils. When dispensing material, make sure to cut nozzle 1.5" (38.1 mm). BEM may be applied to both primed and unprimed asphalt and concrete surfaces. Apply in 3" (76.2 mm) or 4" (101.6 mm) wide strips of material over terminations. When used as a corner reinforcement, apply a minimum of 6" (152.4 mm) wide in each direction. When used as a fillet, the face should be a minimum of ¾" (19.1 mm). At drains and protrusions, BEM should overlap the W. R. MEADOWS building envelope product membrane at a minimum of 2" (50.8 mm) and should extend 6" (152.4 mm) above the surface or to the top of the wearing course.

If applying fresh material over the cured membrane, the cured membrane should be lightly washed and wiped with alcohol. Allow for a few minutes to dry and trowel on the fresh material.

CONTINUED ON REVERSE SIDE...

BEM is also compatible with AIR-SHIELD products from W. R. MEADOWS for joint detailing in exterior sheathing panels. For detailed application instructions, please view our AIR-SHIELD EXTERIOR SHEATHING PANELS INSTALLATION GUIDELINES document on our website

Drying Time ... 50 minutes +/- 15 minutes. Discard material that begins to thicken and becomes difficult to apply. BEM will cure to form a tough, flexible membrane.

Cleanup ... Tools can be cleaned with alcohol. Follow manufacturer's precautions when using alcohol for cleanup. Cured material is best removed by mechanical means.

PRECAUTIONS

BEM is not to be used as a liner in a water-containing structure or as an exposed or wearing surface. BEM is a fluid-applied membrane that is designed to be used as part of a complete building envelope and drainage system. Do not use on surfaces that are later to be painted. Do not store in high temperatures. Refer to Safety Data Sheet for complete health and safety information.

LEED INFORMATION

May help contribute to LEED credits:

- MRc9: Construction and Demolition Waste Management
- EQc2: Low-Emitting Materials [For Healthcare and Schools (exterior-applied products) ONLY]

**For most recent data sheet, further LEED information, and SDS, visit
www.wrmeadows.com**



LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

PRODUCT DATA

NO. 740

W. R. MEADOWS®
SEALIGHT®

MasterFormat: 07 13 53

AUGUST 2012
(Supersedes October 2005)

SEAL TOP EDGES OF MEL-ROL MEMBRANE

POINTING MASTIC

Cold-Applied, Single-Component Polymeric Sealing Compound

DESCRIPTION

POINTING MASTIC is a pre-mixed, cold-applied, polymeric, single-component sealing compound. POINTING MASTIC was specifically designed to seal all exterior, vertical, and horizontal terminations of MEL-ROL®, PRECON®, MEL-DEK™, AIR-SHIELD™, PERMINATOR®, and PREMOULDED MEMBRANE® VAPOR SEAL WITH PLASMATIC® CORE from W. R. MEADOWS. It is also used for adhesive bonding of PROTECTION COURSE and MEL-DRAIN™. POINTING MASTIC can be used on all patches and overlaps in detail areas. It offers excellent cohesive and adhesive qualities when applied to structural concrete, masonry, and/or wood. Once applied, it provides excellent adhesive and bonding strengths. POINTING MASTIC cures to form a tough, flexible membrane.

USES

POINTING MASTIC is designed to meet a variety of building/construction product applications. These uses include sealing terminations for vertical or horizontal vaporproofing or waterproofing membranes, deck waterproofing systems, air barriers, and flashing membranes.

It is used for adhesive bonding of protection course boards and rolled matrix draining systems. POINTING MASTIC is also applied between membrane and clamping rings at all terminations, drains, and protrusions. In addition, POINTING MASTIC is ideal for sealing joints and concrete curbs and gutters. The product can also be used with sewer joints.

POINTING MASTIC can be applied to seal top edge horizontal terminations as well as the inside and outside corners of overlapping detail strips.

FEATURES/BENEFITS

- Premixed and easy to apply with caulking gun or trowel.
- Excellent cohesive and adhesive strengths.
- Will not lose bond once applied.
- Specifically developed for use with detail strips, vaporproofing and waterproofing membranes, protection course boards, and rolled matrix drainage systems.

PACKAGING

29 Oz. (857.65 mL) Cartridges
5 Gallon (18.93 Liter) Pails

COVERAGE

Approx. 200 lineal ft. (61 m) per gallon (3.79 L), when used as directed.

SHELF LIFE

When stored indoors and in original, unopened containers at temperatures between 40 - 90° F (4 - 32° C), shelf life is a minimum of two years from date of manufacture.

SPECIFICATIONS

- Complies with U.S. EPA, LADCO, OTC, and SCAQMD maximum allowable VOC requirements.

APPLICATION

Surface Preparation ... All surfaces to receive an application of POINTING MASTIC should be dry, frost-free, clean, and free of all contaminants.

CONTINUED ON REVERSE SIDE...

Application Method ... For easy application, store at temperatures of 60° F (16° C) or higher before using. Material will be stiffer and more difficult to work with at cooler temperatures. POINTING MASTIC can be easily applied with a caulking gun or trowel. Apply only in areas that will not be covered with a waterproofing membrane. Apply and spread the material to a thickness of approximately 1/8" (3.18 mm) in a strip 1 - 3" (25.4 - 76.2 mm) wide.

A bead of POINTING MASTIC is applied to the top edge horizontal termination of the vaporproofing or waterproofing membranes on vertical walls.

The corner and footing on inside corners are finished with POINTING MASTIC in the center of the detail strip where the vertical wall and footing meet. The outside corner is finished with POINTING MASTIC in the lower center point where vertical wall and footing meet.

POINTING MASTIC should also be applied at the laps around corners, extending 12" (305 mm) in each direction from the corner.

A bead of POINTING MASTIC should also be applied between membrane and clamping rings and at all terminations, drains, and protrusions.

Application temperature should coincide with the product it is being used with.

Cleanup ... Tools can be cleaned with mineral spirits at the end of each workday. Follow manufacturer's precautions when using a solvent as a cleaner.

PRECAUTIONS

POINTING MASTIC VAPOR IS FLAMMABLE. Read and follow application information and Health and Safety information on product label.

LEED INFORMATION

May help contribute to LEED credits:

- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan: During Construction
- IEQ Credit 4.2: Low-Emitting Materials – Paints and Coatings
- IEQ Credit 7.1: Thermal Comfort – Design
- MR Credit 2: Construction Waste Management
- MR Credit 5: Regional Materials

For most recent data sheet, further LEED information, and MSDS, visit www.wrmeadows.com.



LIMITED WARRANTY

"W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order." Read complete warranty. Copy furnished upon request.

Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090



SUBMITTAL REVIEW

Submittal No.: 071326-001

Description: Self-Adhering Sheet Waterproofing - PD

Project Name: UT Austin - Seay

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

BY:

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

A handwritten signature in blue ink, appearing to read "Darryl Castleberry".

Darryl Castleberry

DATE: 2020/04/03

Submittal Comments:

1. Please follow substitution request procedure found in specification section 01 25 00. While ZSC holds no exceptions to the proposed product (Precon), it is not listed as an approved manufacturer/product.

- No Exceptions Taken
- Note Markings & Comments
- Note Markings & Comments-Resubmit

- Rejected for Non-compliance w/Contract Documents
- Revise & Resubmit
- Other: _____

Submittal has been reviewed only for general compliance with the design concept expressed in the Contract Documents. Markings and/or comments shall not be construed as relieving the Contractor from compliance from the project plans and specifications, nor any departures there from. Contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for verification and field conditions, for coordination with other trades and contractors, and performing the work in a safe and satisfactory manner.

Where initial review of these submittals was performed by the A/E's professional consultant(s), review of this submittal by the Architect or Engineer of Record relies solely on the Consultant's review, comments and directions.

BSA LifeStructures

Reviewer: Ramon Arteaga

Date: 4/22/2020



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0090

PROJECT: UT Seay Building Addition

TO: BSA Lifestructures
AL

DATE: 04/02/2020

RE: Self-Adhering Sheet Waterproofing - Product Data & Shop Draw

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 04/16/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 071326-001 | 1 | | 04/02/2020 | Self-Adhering Sheet Waterproofing - Product Data & Shop Drawings | Submitted for Approval |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE |
| COMMENTS NOTED |
| REVISE AND RESUBMIT |
| OTHER: |
| DATE 4/2/2020 SPEC# 071326 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 071326-001 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

CC:

Signed: Tanner Hawkins

Tanner Hawkins



SUBMITTAL COVER SHEET

PROJECT NAME: UT Seay

ARCHITECT: BSA Life Structures

SPECIFICATION SECTION: 071326 – Self Adhering Sheet Waterproofing

DATE PREPARED: 4/2/2020

CONTRACTOR: Spawglass

SUBCONTRACTOR'S NAME: Chamberlin Roofing and Waterproofing

SUBCONTRACTOR'S PHONE: 512.275.1600

MANUFACTURER'S NAME: WR Meadows

MANUFACTURER'S PHONE: See Product Data

ITEM: See Table of Contents

NUMBER OF PAGES w/ COVER: 34

| Architect's Approval | Contractor's Approval |
|---|-----------------------|
| <p>The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer, and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.</p> <p>Chamberlin Austin, LLC</p> <p> Subcontractor Authorized Signature</p> <p>04/02/2020</p> <p>Date</p> | |



TABLE OF CONTENTS

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| Composite sheet membrane comprised of a non-woven fabric, elastomeric membrane, and W. R. MEADOWS' exclusive, patented plasmatic core. | |
| <u>Product Location:</u> Furnish and install underslab and sheet-applied waterproofing to the exterior of the mechanical room and tunnel chamber as shown on page A111. Furnish and install underslab and sheet-applied waterproofing to the exterior walls of the elevator pit per manufacturer's instructions. | |
| A. Product Data | |
| 2. Accessories – Product Data | 14 Pages |
| a. Hydralastic 836 | |
| b. Mel-Drain | |
| c. Mel-Prime | |
| d. Mel-Rol | |
| e. Protection Course | |
| f. Detail Fabric | |
| g. Termination Bar | |
| 3. Detail Drawings | 14 Pages |

PRODUCT DATA

NO. 714-F

W. R. MEADOWS®

SEALIGHT®

MasterFormat: 07 13 00

PRECON®

SEPTEMBER 2017
(Supersedes January 2016)

Pre-Applied/Underslab Waterproofing Membrane

DESCRIPTION

PRECON is a composite sheet membrane comprised of a non-woven fabric, elastomeric membrane, and W. R. MEADOWS' exclusive, patented plasmatic core (U.S. Patent No. 7,179,761). The plasmatic core is a seven-layer matrix designed for toughness and provides the lowest water vapor transmission (WVT) rating on the market. Once concrete is poured against PRECON and the concrete cures, a mechanical bond forms that secures the concrete to the membrane.

USES

PRECON is used as a blindside membrane in vertical applications where access to the positive side is limited. The membrane can also be used for horizontal applications for underslab waterproofing and vaporproofing.

FEATURES/BENEFITS

- Provides a waterproof seal between the membrane and poured concrete wall.
- Helps prevent moisture migration into the structure.
- Reduces methane and radon gas intrusion.

PACKAGING

4' (1.2 m) wide x 50' (15.2 m) long rolls, one roll per carton.

STORAGE AND HANDLING

Store membrane cartons on pallets and cover if left outside. Keep materials away from sparks and flames.

SPECIFICATIONS

- ASTM E1993-98 - Standard Specification for Bituminous Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs.
- LARR Report 26023

APPLICATION

Surface Preparation ... Inspect all surfaces for any conditions detrimental to the proper completion of the work. Surfaces should be structurally sound. Remove debris or any other foreign material that could damage the membrane.

PRECON can be used with a caisson wall shoring system without the use of a drainage board, such as MEL-DRAIN™ from W. R. MEADOWS. W. R. MEADOWS recommends proper site drainage, but due to certain site conditions this sometimes cannot be done effectively. The decision to remove the drainage board should be at the discretion of the engineer. In situations where a drainage board is not applied, surface preparation is important. The substrate needs to be sound, solid, and smooth. Any gaps or voids >1" (25 mm) need to be grouted. When PRECON is used with MEL-DRAIN from W. R. MEADOWS, the system can bridge gaps <2" (50.8 mm). However, gaps >2" (50.8 mm) will need to be grouted.

CONTINUED ON REVERSE SIDE ...

Application Method ... PRECON may be applied at temperatures down to 40° F (5° C); however, in less than ideal environments or marginal conditions, consider the use of PRECON LOW TEMP below 60° F (16° C). PRECON LOW TEMP can be used in temperatures down to 25° F (-4° C). MEL-PRIME™ from W. R. MEADOWS should be used to enhance the bond at the selvedge edge when conditions warrant with both PRECON and PRECON LOW TEMP.

Prior to application of the blindside membrane, attach MEL-DRAIN™ rolled matrix drainage system from W. R. MEADOWS to lagging or soil retention system.

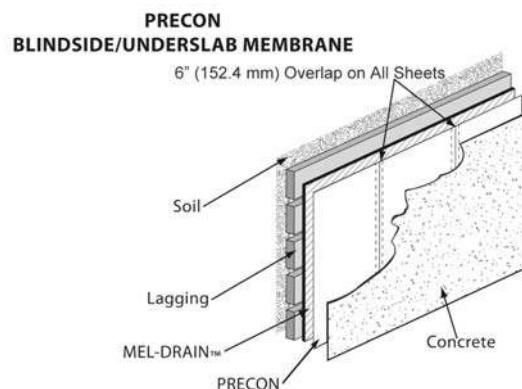
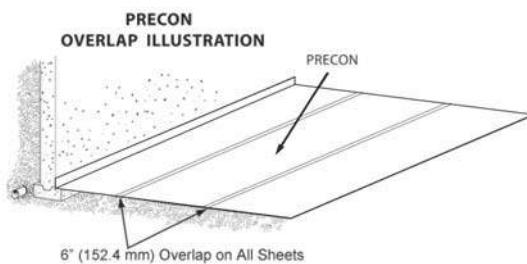
In vertical applications of PRECON, mechanically attach with fasteners every 12" (304.8 mm) across the top, within $\frac{1}{2}$ " (13 mm) of the top edge of the membrane. Install the membrane with the fabric side facing toward the concrete pour.

Remove release paper on 6" (152.4 mm) overlap. Apply membrane and roll press into place with a tile type roller.

End Laps ... Overlap membrane 6" (152.4 mm). Prior to overlap, apply BEM, HYDRALASTIC 836, or MEL-ROL® LIQUID MEMBRANE (two-component) from W. R. MEADOWS in area to be lapped. Roll press membrane into BEM, HYDRALASTIC 836, or MEL-ROL LIQUID MEMBRANE. At terminations of membrane, apply BEM, HYDRALASTIC 836, or MEL-ROL LIQUID MEMBRANE 12" (304.8 mm) wide centered over the termination and while still wet, embed 12" (31 cm) wide DETAIL FABRIC into the HYDRALASTIC 836 or MEL-ROL LIQUID MEMBRANE and roll press into place. Ensure that DETAIL FABRIC is centered over the termination with 6" (152.4 mm) on each side of lap edge. Apply additional HYDRALASTIC 836 on all terminations of DETAIL FABRIC.

Penetrations and Protrusions ... Detail around all horizontal and vertical penetrations using BEM or MEL-ROL LIQUID MEMBRANE (two-component) from W. R. MEADOWS. Apply BEM or MEL-ROL LIQUID MEMBRANE by forming a fillet around the pipe or protrusion, overlapping the fabric side of PRECON and the protrusion a minimum of 2.5" (64 mm). If the gap between the protrusion and the membrane is greater than $\frac{1}{2}$ " (13 mm), apply PRECON FABRIC TAPE over uncured BEM or MEL-ROL LIQUID MEMBRANE. All penetration and protrusion surfaces must be clean, rust-free, and sound prior to application of BEM or MEL-ROL LIQUID MEMBRANE.

*MEL-ROL LIQUID MEMBRANE is a two-component material, not to be confused with MEL-ROL LM.



For horizontal applications involving a cluster of penetrations, consider the use of HYDRALASTIC 836. Prior to application of HYDRALASTIC 836, prepare the surfaces of the penetrations as above and provide a block out using 2' x 4' (.6 x 1.2 m) lumber or other in order to create a "pitch pan" area to receive HYDRALASTIC 836.

Patching ... Prior to pouring, inspect membrane for punctures or damage and repair as necessary with HYDRALASTIC 836 and/or DETAIL FABRIC. (BEM or MEL-ROL LIQUID MEMBRANE may be used in place of HYDRALASTIC 836.) In addition, ensure the membrane is free of standing water and has been cleaned of any deleterious materials that will affect the bond of the concrete to the membrane.

Underslab Application ... Refer to ACI 302.1R-04: Chapter 4 – Site Preparation and Placing Environment for sub-grade preparation prior to PRECON placement.

PRECAUTIONS

Concrete should be poured within 60 days of membrane installation. For installations below 40° F (4° C), contact W. R. MEADOWS technical services. When using bar supports, use those with a flat bottom.

LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- EAp2: Minimum Energy Performance
- EAc2: Optimize Energy Performance
- MRc9: Construction and Demolition Waste Management

For BIM assemblies, CAD details, most recent data sheet, further LEED information, and SDS, visit www.wrmeadows.com.

TECHNICAL DATA

| Property | Test Method | PRECON Results |
|---------------------------------------|--------------------------------------|--|
| Thickness | ASTM D1000 | 73 mil (1.85 mm) |
| Low Temp Flexibility | ASTM D1970, 180° @ -20° F (-28.9° C) | Pass |
| Resistance to Hydrostatic Head | ASTM D5385-93 | 230' (70 m) |
| Elongation, Polymeric Membrane | ASTM D412-06 | > 400% |
| Tensile Strength, Film | ASTM D882 | 9200 psi (63.4 MPa) |
| Crack Cycling | ASTM C836 @ -15° F (-26° C) | Pass |
| Puncture Resistance | ASTME 154 | > 210 lb. (> 934 N) |
| Peel Adhesion to Concrete | ASTMD 903 | 10 lb./in (1754 N/m) |
| Moisture Vapor Transmission | ASTME 96B | 0.0011 perms (0.0004 grains/ft. ² /hr) (0.007 gram/m ² /24 hr) |
| Resistance to Fungi in Soil | GSA-PBS 07115 – 16 Weeks | No Effect |
| Radon Transmittance (m/s) | k124/02/95 | <3.0 x 10 ⁻⁹ |
| Radon Coefficient (m ² /s) | k124/02/95 | <5.6 x 10 ⁻¹² |

TEST REPORTS**LIMITED WARRANTY**

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PRODUCT DATA

NO. 709

MasterFormat: 07 14 16

W. R. MEADOWS®

SEALIGHT®

NOVEMBER 2017
(Supersedes August 2017)

HYDRALASTIC™ 836

Cold-Applied, Single-Component Waterproofing

DESCRIPTION

HYDRALASTIC 836 is a cold-applied, solvent-free, single-component waterproofing compound. It does not shrink, has a low volatile organic compound (VOC) content, and has a very low odor. It will not crack in extreme cold or slump due to softening at high temperatures.

USES

HYDRALASTIC 836 is suitable for use on interior or exterior concrete surfaces, where protection from water intrusion is desired. The product can be used for both above-grade and below-grade applications. HYDRALASTIC 836 is excellent for horizontal and vertical applications, such as waterproofing plaza decks, planter boxes, and sealing parapets. The product is ideal for positive-side waterproofing for foundations and also in between-slab (split slab) applications. HYDRALASTIC 836 can also be used in vertical applications.

FEATURES/BENEFITS

- Bonds to both concrete and asphalt.
- Skins over in 30 minutes at 75° F (23° C); no dust pick up.
- Easy application; no mixing required.
- Can be applied to green concrete.
- Will not slump.
- Will not harm EPS or Styrofoam materials.
- Does not freeze; will not be damaged due to freezing weather conditions.
- Cures to a tough, flexible membrane.

PACKAGING

5 Gal. (18.93 L) Pails.

COVERAGE

Approximate coverage per gallon (3.78 L):

| | |
|---|----------------|
| 26 ft. ² (2.4 m ²) | 60 mils (dry) |
| 17.5 ft. ² (1.6 m ²) | 90 mils (dry) |
| 13 ft. ² (1.2 m ²) | 120 mils (dry) |

SHELF LIFE

When stored indoors and in original, unopened containers at temperatures between 40° - 70° F (4° - 21° C), shelf life is six months from date of manufacture.

SPECIFICATIONS

- ASTM C 836
- Complies with all current federal, state, and local maximum allowable VOC requirements, including National EPA VOC Emission Standard for Architectural Coatings, CARB, LADCO, OTC Phase I and II, and SCAQMD.

TECHNICAL DATA

| PROPERTY | TYPICAL TEST VALUE | TEST METHOD |
|---|-----------------------------|---------------------------|
| Solids Content By Weight, %: | 98 | ASTM C1250 |
| Tensile Strength, psi: | 100 | ASTM D412 |
| Elongation at Break, %: | 425 | ASTM D412 |
| Permeability, perm in.: Shore 00 Hardness: | 0.1 57 | ASTM E96 BW ASTM D2240 |
| Service Temperature, ° F (° C): | -40° - 200° (-40° -70°) | |
| Minimum Application Temperature, ° F (° C): | Above 30 (-1) and rising | |
| VOC Content, g/L: | 36 | ASTM D2369 |

APPLICATION

New Concrete Design Finish ... For best results, all new concrete surfaces should be designed with a light trowel finish and provide a flat, uniform surface. The surface should then be treated with a light broom finish. Wet curing is preferable. Any membrane curing compounds must be mechanically removed. Address any projections and fill in any voids or indentations to provide a smooth, level surface.

Surface Preparation ... HYDRALASTIC 836 is intended for concrete, asphalt, metal, and wood surfaces. For existing concrete remedial work or new concrete lacking profile, lightly roughen or rough grind substrate. Remove all unsound substrate and provide a relatively flat, profiled, roughened surface. Substrate must be structurally sound, dust-free, and free of frost, grease, oil, dirt, curing compounds, release agents, or any other surface or penetrated contaminants that will adversely affect bond. Use denatured alcohol to remove all grime, oil, loose paint, frost, and other contamination, from all working surfaces. DO NOT USE petroleum solvents such as mineral spirits or xylene.

Repair any concrete deterioration, defects or voids and fill bug holes, minor surface defects or tie holes with MEADOW-PATCH® 5 or MEADOW-PATCH 20 from W. R. MEADOWS. Irregularities in concrete that could cause a protrusion should be ground to a smooth surface. Penetrations should be grouted and structurally sound. All penetration areas must have sufficient room for adequate waterproofing to be applied.

CONTINUED ON REVERSE SIDE ...

Do not use asphalt-based primers on concrete or metal surfaces. Do not condition any concrete or metal surfaces with primers designed for asphalt. Asphalt-type primers will act as a bond breaker and soften the cured material. Residual asphalt or old, non-live coal tar pitch-coated surfaces that may remain after surface preparation may be suitable for waterproofing with HYDRALASTIC 836. In this case, a sample test application should be conducted to determine appropriateness.

Priming ... For porous substrates where air and/or moisture release may cause pinhole or blister problems to occur in the applied membrane, priming the substrate prior to application of HYDRALASTIC 836 is recommended. Contact a W. R. MEADOWS representative for priming recommendations. Priming is recommended to remove trapped air/vapor from the substrate and promote a better bond with the substrate.

Application Method ... Gentle mixing using a slow-speed drill and paddle may be necessary if product has settled. Do not over mix. Make sure product is conditioned at 75° F (23° C) by storing product overnight or at least 12 hours prior to use for ease of application. Apply by trowel, squeegee, or roller. A flat-blade squeegee is suggested for best results. Notched rubber squeegees waste material and do not provide a uniform coat. Flat-blade squeegees provide a uniform mil thickness. HYDRALASTIC 836 can also be applied horizontally with a squeegee or roller and vertically with a roller. Test periodically to make sure adequate adhesion is achieved. HYDRALASTIC 836 has a work life of one hour at 75° F (23° C). Make sure all spreading and finishing of the product has been completed within this timeframe.

A single-coat application (60 mils) can be used for typical waterproofing applications such as foundation walls and planters. In critical waterproofing applications such as plaza decks, podiums, or other similar horizontal waterproofing applications, a 120-mil layer of HYDRALASTIC 836 embedded with REINFORCING FABRIC HCR from W. R. MEADOWS is recommended. For all horizontal installations, refer to High Build Reinforced System installation guidelines provided at www.wrmeadows.com for proper installation guidelines. If there are no details available for your specific application, please contact a W. R. MEADOWS representative for recommendations.

If a second coat is necessary, apply as soon as possible, but no more than eight hours apart at 75° F (23° C). As ambient, substrate, and material temperatures increase, an oily like film may develop on the surface and act as a bond breaker.

For next-day or second-coat applications, rub the tie-in area down [6" - 8" (152 - 203 mm wide)] with acetone or alcohol. This removes the oil film.

Protect the Membrane ... On all vertical and horizontal installations, protect HYDRALASTIC 836 with PROTECTION COURSE (PC-2) or MEL-DRAIN™ (type with the polyester backing film) from W. R. MEADOWS or contact W. R. MEADOWS for additional protection course options. Application of protection should be done after material can be walked on without causing damage to the integrity of the membrane.

HYDRALASTIC 836 will not typically wash off if rain begins during or after application. Stop all work if rain begins and protect open or unused material from rainfall.

Tack-Free Drying Time ... HYDRALASTIC 836 features a fast-drying time. Drying time is usually four hours, depending on temperature and relative humidity.

Cleanup ... Uncured HYDRALASTIC 836 cleans up easily with alcohol or other solvents. Cured material is best removed by mechanical means.

PRECAUTIONS

Do not expose product to exterior UV for longer than 14 days. HYDRALASTIC 836 is not to be used as a liner in a water-containing structure and is not to be used as an exposed or wearing surface. For this purpose, use the GEMITE® line of products. Do not use on surfaces that are later to be painted. This data sheet provides a summary of the factors, precautions, limitations, and design theories that should be considered when designing a complete waterproofing and drainage system, but is not stand alone or complete; project, environmental, and application specific requirements must be considered before drafting a guide specification, determining suitability or application of material. Refer to Safety Data Sheet for health and safety information.

LEED INFORMATION

May help contribute to LEED credits:

- EAp2: Minimum Energy Performance
- EAc2: Optimize Energy Performance
- MRc9: Construction and Demolition Waste Management
- EQc2: Low-Emitting Materials
[For Healthcare and Schools (exterior-applied products) ONLY]

For most current data sheet, further LEED information, and SDS, visit www.wrmeadows.com.

LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection

with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

PRODUCT DATA

NO. 719

W. R. MEADOWS®
SEALIGHT®

MasterFormat: 07 10 00

AUGUST 2019
(Supersedes August 2017)

MEL-DRAIN™ Rolled Matrix Drainage System

DESCRIPTION

MEL-DRAIN drainage products combine geotextile filter fabrics with specially designed drainage cores. This geocomposite allows the passage of moisture through the fabric while preventing fine soils from entering the drainage channel. Various drain designs are available, depending on compressive strength and flow rate requirements. (An optional polyester backing film is available when used in conjunction with flexible waterproofing material.) The family of MEL-DRAIN products provides excellent protection and drainage performance for vertical, horizontal, or site drainage applications.

USES

Used in conjunction with a total W. R. MEADOWS moisture protection system, MEL-DRAIN is the ideal choice for enhanced waterproofing protection of basement walls, plaza decks, earth-sheltered homes, commercial buildings, retaining walls, underground parking, site drainage, etc.

FEATURES/BENEFITS

- High flow capacity, without clogging/Relieves hydrostatic pressure buildup.
- High compressive strength/Dependable, long life performance.
- Easy to install; durable under jobsite conditions/Lower total installed cost.
- Chemically resistant to all naturally occurring soil conditions/Wide variety of applications.
- Provides protection for waterproofing materials/Enhances waterproofing performance.
- Part of a complete W. R. MEADOWS moisture protection system/Worry-free, single-source solution.

INSTALLATION

For vertical, below-grade applications, unroll MEL-DRAIN with flat, core side against the wall or waterproofing material. POINTING MASTIC or MEL-PRIME™ from W. R. MEADOWS are excellent adhesives compatible with this installation. The flat side core lip is overlapped to provide a continuous drainage layer. Extra filter fabric is provided at the edges for overlapping with the next sheet. MEL-DRAIN is easily cut with construction knives or scissors.

For horizontal applications, unroll and overlap so that water runs with overlap. Add appropriate ballast as needed to hold down drainage board.

PRECAUTIONS

Store materials in protected environment until time of installation. Materials not shipped in UV-resistant bags must be stored indoors or under separate UV-protective cover to protect materials from exposure to direct sunlight. UV-resistant bagged materials may be stored in outdoor UV-exposed environments for a cumulative maximum of 180 days. Limit unpackaged material UV exposure to a cumulative maximum of 14 days during installation. Do not install materials during high wind events. Do not expose materials to chemicals that are strong acids, strong bases, or high in solvents content. Protect materials from site construction damage, flames, and other environmental conditions that may damage the materials. It is not recommended that installation take place when the ambient temperature is below 20° F (-6.6° C) or above 100° F (37.8° C). Do not install in applications where the long term operational temperature is expected to be below -20° F (-18.9° C) or above 150° F (65.6° C).

CONTINUED ON REVERSE SIDE ...

TECHNICAL DATA

| MEL-DRAIN PRODUCTS | | | 5012 | 5035 | 7555 | 7955 | 9055 | 9072 |
|--|-------------------------|------------------------|----------|----------|-----------|------------|----------|----------|
| | | | 5012-B | 5035-B | 7555-B | 7955-B | 9055-B | 9072-B |
| Physical Properties¹ | ASTM Test Method | Unit of Measure | | | | | | |
| FABRIC | | | | | | | | |
| Material ² | | | PP, NPNW | PP, NPNW | PP, WM | PP, WM | PP, NPNW | PP, NPNW |
| Water Flow Rate | D 4491 | gpm/ft ² | 165 | 165 | 160 | 145 | 90 | 90 |
| | | Lpm/m ² | 6,724 | 6,724 | 6,520 | 5,907 | 3,668 | 3,668 |
| Grab Tensile Strength | D 4632 | lbs | 100 | 100 | 385x220 | 365 x 200 | 205 | 205 |
| | | N | 445 | 445 | 1,713x979 | 1624 x 890 | 912 | 912 |
| CBR Puncture | D 6241 | lbs | 275 | 275 | 725 | 675 | 600 | 600 |
| | | kN | 1.22 | 1.22 | 3.22 | 3.00 | 2.66 | 2.66 |
| Apparent Opening Size | D 4751 | sieve | 70 | 70 | 45 | 40 | 80 | 80 |
| | | mm | 0.210 | 0.210 | 0.350 | 0.43 | 0.177 | 0.177 |
| CORE | | | | | | | | |
| Material ² | | | HIPS | HIPS | HIPS | PP | HIPS | HIPS |
| Thickness | D 1777 | in | 0.25 | 0.44 | 0.44 | 0.40 | 0.44 | 0.25 |
| | | mm | 6.35 | 11 | 11 | 10 | 11 | 6.35 |
| Compressive Strength | D 1621 | psf | 11,000 | 15,000 | 18,000 | 18,000 | 18,000 | 30,000 |
| | | kPa | 527 | 718 | 862 | 862 | 862 | 1,436 |
| Flow Rate ³ | D 4716 | gpm/ft | 12.5 | 17 | 21 | 21 | 21 | 13 |
| | | Lpm/m | 155 | 211 | 261 | 261 | 261 | 161 |
| COMPOSITE | | | | | | | | |
| Recycled Content ⁴ | | % | 70 | 75 | 74 | 70 | 65 | 65 |
| Roll Size | | ft | 4x50 | 4x50 | 4x50 | 6x50 | 4x50 | 4x50 |
| Roll Weight | | lbs | 28, 29-B | 38, 39-B | 47 | 73, 74-B | 53, 50-B | 49, 50-B |

¹ Unless otherwise noted, all physical and performance properties listed are Typical Values as defined in ASTM D 4439.

² PP = Polypropylene; HIPS = High Impact Polystyrene; NPNW = Needle-Punched Nonwoven; WM = Woven Monofilament.

³ In-plane flow rate measured at 3,600 psf (172 kPa) compressive load and a hydraulic gradient of 1.0.

⁴ Post-industrial recycled content by weight.

^{-B} products include a polymeric backing film.

W. R. MEADOWS offers MEL-DRAIN products with AASHTO Classified Geotextiles. All technical information contained in this document is accurate as of time of publishing. W. R. MEADOWS reserves the right to make changes to products and literature without notice. For more detailed information, please request specific MEL-DRAIN model.

LEED INFORMATION

May help contribute to LEED credits:

- EAp2: Minimum Energy Performance
- EAc2: Optimize Energy Performance
- MRc9: Construction and Demolition Waste Management

For most recent data sheet, further LEED information, and SDS, visit www.wrmeadows.com.

**LIMITED WARRANTY**

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

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with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

PRODUCT DATA

NO. 751

MasterFormat: 07 13 53

W. R. MEADOWS®

SEALIGHT®

JANUARY 2011
(Supersedes July 2004)

MEL-PRIME™ Solvent-Based VOC Adhesive

DESCRIPTION

MEL-PRIME is a solvent-based, ready-to-use adhesive for W. R. MEADOWS membrane systems. It is red to reddish-brown in color.

USES

MEL-PRIME simultaneously prepares and dustproofs new and old and vertical and horizontal surfaces in one easy, economical operation. MEL-PRIME is designed for surfaces to receive waterproofing and air/vapor barrier systems from W. R. MEADOWS. Use MEL-PRIME on surfaces to receive applications of MEL-ROL®, MEL-ROL PRECON™, MEL-DEK™, AIR-SHIELD™ and/or AIR-SHIELD THRU-WALL FLASHING from W. R. MEADOWS.

FEATURES/BENEFITS

- High solids for optimum performance.
- Ready to use ... no mixing or dilution required.
- For exterior vertical and horizontal applications.

PACKAGING

1 Gallon (3.79 Liter) Can
5 Gallon (18.9 Liter) Pail

COVERAGE

250 to 300 sq. ft./gal. (6.14 to 7.37 sq. m/L)

SHELF LIFE

Shelf life is three years when stored indoors and in original, unopened containers at temperatures between 40 - 90° F (4 - 32° C).

APPLICATION

Surface Preparation ... All surfaces to receive adhesive must be clean, dry, smooth, and free of all voids. Fill all voids and remove sharp protrusions. When used on concrete, concrete should be cured at least 72 hours. For additional substrate surface preparation requirements, see instructions for applying MEL-ROL, MEL-ROL PRECON, MEL-DEK, and/or AIR-SHIELD.

NOTE: Metal surfaces must also be clean, dry, and free of loose paint, rust, or other contaminants.

Application Method ... Apply MEL-PRIME with a roller or brush at a coverage rate of 250 to 300 sq. ft./gal (6.14 to 7.37 sq. m/L). Apply only to the area to be covered with the membrane during the working day. Areas not covered with a membrane in 24 hours must be re-applied.

Drying Time ... Allow to dry for one hour or until the surface feels tacky but does not pick up when touched. If the work area is very dusty, apply membrane as soon as possible after MEL-PRIME is dry.

Cleanup ... MEL-PRIME may be cleaned with mineral spirits.

CONTINUED ON REVERSE SIDE ...



PRECAUTIONS

Do not apply MEL-PRIME when rain is imminent, or on damp or frost-covered surfaces. Avoid allowing MEL-PRIME to puddle – this will lengthen drying time. Do not dilute; use as is.

HEALTH HAZARDS

This product is flammable. Ignition sources should be removed prior to product use. Avoid direct contact with the product. Direct contact may cause mild to moderate irritation of the eyes and skin. Product vapors may also cause transient central nervous system depression. Refer to Safety Data Sheet for complete health and safety information.

LEED INFORMATION

May help contribute to LEED credits:

- IEQ Credit 3.1: Construction Indoor Air Management Plan – During Construction
- IEQ Credit 7.1: Thermal Comfort - Design
- MR Credit 2: Construction Waste Management
- MR Credit 5: Regional Materials

For most recent data sheet, further LEED information, and MSDS, visit www.wrmeadows.com.



LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

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PRODUCT DATA

NO. 714

MasterFormat: 07 13 26

W. R. MEADOWS®

SEALIGHT®

OCTOBER 2013
(Supersedes July 2012)

MEL-ROL®

Rolled, Self-Adhering Waterproofing Membrane

DESCRIPTION

MEL-ROL waterproofing system is a flexible, versatile, dependable, roll-type waterproofing membrane. It is composed of a nominally 56 mil thick layer of polymeric waterproofing membrane on a heavy duty, four-mil thick, cross-laminated polyethylene carrier film. The two components are laminated together under strict quality-controlled production procedures.

A handy overlap guideline is printed 2 ½" (63.5 mm) in from the material edge on each side to assure proper overlap coverage and to assist in maintaining a straight application. Special exposed polymeric membrane strips are provided on both sides for positive membrane-to-membrane adhesion in the overlap area. The membrane strips are protected by a pull-off release strip. All components of the MEL-ROL waterproofing system work together to provide a cost-effective, positive waterproofing system that's quick and easy to apply.

W. R. MEADOWS accessory products included in the MEL-ROL waterproofing system are: BEM, MEL-ROL LIQUID MEMBRANE, MEL-PRIME™ adhesive (solvent-based and water-based), POINTING MASTIC, DETAIL STRIP, CATALYTIC BONDING ASPHALT, TERMINATION BAR, PROTECTION COURSE and MEL-DRAIN™ drainage board.

USES

MEL-ROL waterproofing system provides a cost-effective answer to properly waterproof foundations, vertical walls, and below-grade floors in residential and commercial construction. It is equally effective for use as between-the-slab waterproofing on plaza decks, parking decks, and structural slabs. Use it as a waterproofing membrane to isolate mechanical and electronic rooms, laboratories, kitchens, and bathrooms. MEL-ROL offers positive protection when "wrapped around" major rapid transit, vehicular, utility, and pedestrian tunnel projects. MEL-ROL can also be used on insulated concrete forms (ICF).

Installation of PROTECTION COURSE from W. R. MEADOWS is recommended before backfilling. MEL-ROL can also be used with drainage boards when specified.

FEATURES/BENEFITS

- Provides cost-effective, flexible, versatile, dependable, positive waterproofing protection against damaging moisture migration and the infiltration of free water.
- Offers a quick and easy-to-apply system for maximum productivity.
- Special membrane-to-membrane adhesion provides additional overlap security.
- Meets or exceeds the test requirements of all currently applicable specifications.
- Components work together for positive waterproofing protection.
- Handles with ease on the jobsite.
- Available in a low temperature version for use when air and surface temperatures are between 20° F (-7° C) and 60° F (16° C). An extra-low temp version is also available, ideal for application in extra-low temperatures down to 0° F (-18° C).

PACKAGING

38.5" (977.9 mm) wide x 62.5' (19.1 m) long, one roll per carton.

COVERAGE

Provides 200 ft.² (18.6 m²) per roll. Gross coverage is 200 ft.² (18.6 m²). [Net coverage is 187.5 ft.² (17.4 m²) with overlap of 2 ½" (63.5 mm).]

STORAGE AND HANDLING

Store membrane cartons on pallets and cover if left outside. Keep materials away from sparks and flames. Store where temperature will not exceed 90° F (32° C) for extended periods of time.

SPECIFICATIONS

- A.R.E.M.A.® Specifications Chapter 29, Waterproofing
- LARR Report 26022

APPLICATION

Surface Preparation ... Concrete should be cured at least 72 hours, be clean, dry, smooth, and free of voids. Repair spalled areas; fill all voids and remove all sharp protrusions.

CONTINUED ON REVERSE SIDE...

MEL-ROL COMBINES POSITIVE WATERPROOFING PROTECTION WITH EASE OF HANDLING EXCLUSIVE FEATURES

A handy overlap guideline is printed $2 \frac{1}{2}$ " (63.5 mm) in from the material edge on each side, assuring proper overlap coverage and assisting in maintaining a straight application. The polymeric waterproofing membrane is protected by a special, easy-to-remove release paper. The exposed membrane strips on the material edges are protected by a pull-off release strip. Exposed polymeric membrane strips are provided on both sides of MEL-ROL for positive membrane-to-membrane adhesion in the overlap area ... note the detail, as shown in inset photo.

| TECHNICAL DATA | | |
|--|---|-----------------------|
| PROPERTY | TYPICAL VALUE | TEST METHOD |
| COLOR ... Carrier Film Polymeric Membrane | White Black | |
| THICKNESS ... Carrier Film Polymeric Membrane | 4 mils 56 mils | |
| TENSILE STRENGTH ... Carrier Film Membrane | 5900 psi min. (40.71 MPa) 460 psi (3230 KPa) | ASTM D 412 (Die C) |
| ELONGATION | 971.3% | ASTM D 412 |
| LOW TEMP CRACK BRIDGING 100 Cycle -25° F (-32° C) | Pass | ASTM C 836 |
| PEEL ADHESION | 11.8 lb./in. (2068 N/m) | ASTM D 903 |
| LAP ADHESION | 8.62 lbf/in. (1508.5 N/m) | ASTM D 1876 |
| WATER VAPOR PERMEABILITY | 0.036 Perms | ASTM E-96, B |
| WATER ABSORPTION | 0.1%, 72 hrs. max. | ASTM D570 |
| HYDROSTATIC RESISTANCE | Equiv. to 230.9" (70.38 m) of water | ASTM D 5385 |
| PUNCTURE RESISTANCE | 48.24 lbf (214.6 N) | ASTM E 154 |
| EXPOSURE TO FUNGI | Pass, 16 weeks | Soil Test |
| FLEXIBILITY @ -20° F (-29° C) | Pass | ASTM D 1970 |

MEL-ROL IS QUICK AND EASY TO APPLY

Temperature ... Apply in dry, fair weather when the air and surface temperatures are above 40° F (4° C). Do not apply to frozen concrete.

MEL-ROL LOW TEMP can be used when air and surface temperatures are between 20° F (-7° C) and 60° F (16° C).

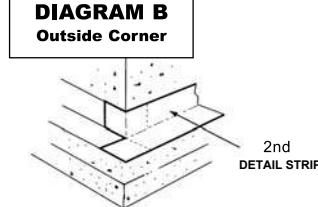
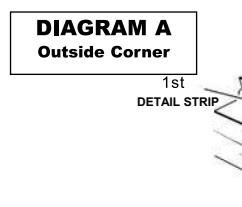
Surface Conditioning ... Apply MEL-PRIME adhesive to surfaces that will be covered within one working day. If left exposed overnight, additional adhesive must be applied. Follow all instructions and precautions on containers.

REMOVE release paper from MEL-ROL from the top edge of the roll and firmly press exposed area to the wall. Remove the release paper from the rolls in a downward direction, pressing MEL-ROL into place on the wall.

Footing Details ... Use DETAIL STRIP for impaction sheet coverage. First, fold strips lengthwise and then cut at the fold. Material is then ready to install as $4 \frac{1}{2}$ " (114.3 mm) strips on either side of the rebar. Any excess can be turned down on the face of the footing. Next, fill the voids around rebars in the keyway with CATALYTIC BONDING ASPHALT. Pour the walls. Install DETAIL STRIP horizontally along the wall where it meets the footing, placing half the material up the wall and the other half onto the footing. Extend the material $4 \frac{1}{2}$ " (114.3 mm) beyond outside corners. Slit extended portion of DETAIL STRIP lengthwise. Place the horizontal flap out onto the footing and bend the vertical flap around the wall. (See Diagram A.) Repeat this procedure in the opposite direction as shown in Diagram B.

MEL-ROL can be applied to concrete, masonry surfaces, wood, insulated wall systems, and metal. All substrates must be clean, dry, and free of all surface irregularities.

Horizontal Application ... Remove release paper on edge, then position the MEL-ROL membrane. Pull balance of release paper off, running the roll from low to high points, so all laps will shed water. Stagger end laps and overlap all seams at least $2 \frac{1}{2}$ " (63.5 mm). Apply a double-thickness of the MEL-ROL membrane over construction, control, all expansion joints and over cracks greater than $1/16$ " (1.59 mm) wide.



Vertical Wall Application ... Masonry walls may require the application of a cementitious parge-coat. Allow the parge-coat to dry before priming and applying MEL-ROL. When applied, the parge-coat will produce a smooth, uniform, and well-bonded surface. Remove release paper, then apply vertically in lengths approximately 8' (2.44 m) long over the top of the horizontal DETAIL STRIP at the footing. Overlap seams at least 2 1/2" (63.5 mm). Tightly butt edges of membrane and apply POINTING MASTIC in corner applications. (See Diagram C.)

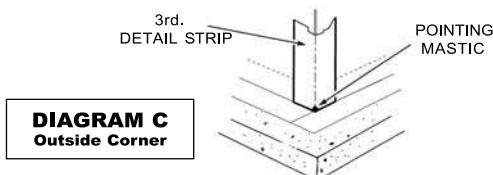


DIAGRAM C
Outside Corner

To the top terminations, apply POINTING MASTIC at least 1/8" (3.18 mm) thick and 1" (25.4 mm) wide. As an option, TERMINATION BAR may be used to mechanically fasten the membrane.

Hand-Rub and Roll Press ... Once positioned, immediately hand-rub the MEL-ROL membrane firmly to the surface, removing any bubbles or wrinkles, then pressure roll the complete surface to assure positive adhesion.

Inside Corners ... Before MEL-ROL is applied, place a vertical DETAIL STRIP on inside corners extending the material 4 1/2" (114.3 mm) beyond each side of the corner. (See Diagram D.) Terminate at the footing and finish the corner with POINTING MASTIC.

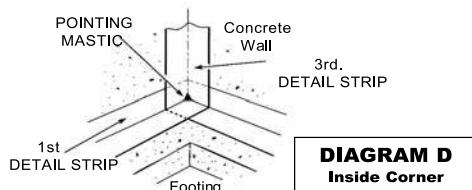
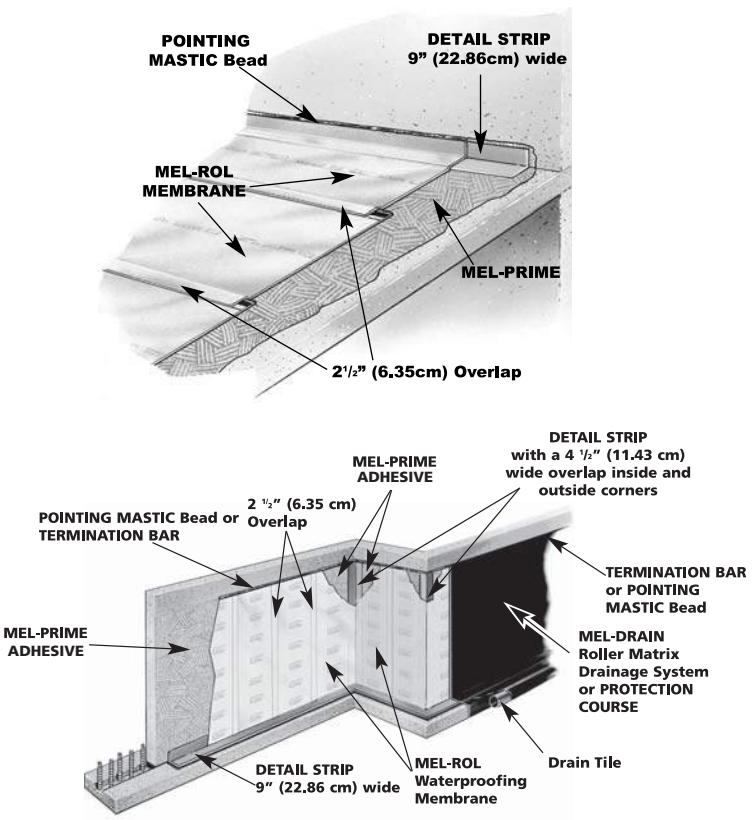


DIAGRAM D
Inside Corner

Outside Corners ... Bend DETAIL STRIP vertically over the outside corner and extend 4 1/2" (114.3 mm) beyond each side of the corner. Terminate the material at the footing. Finish the corner with POINTING MASTIC. (See Diagram C.)

Drains and Protrusions ... All protrusions should be sealed with two layers of membrane applied at least 6" (152.4 mm) in all directions. Seal all terminations with POINTING MASTIC. Around drains, apply two layers of MEL-ROL and put a bead of POINTING MASTIC between the membrane and clamping rings and at all terminations, drains, and protrusions. See ASTM D 5898.



Inspect and Repair ... A thorough inspection should be made before covering and all necessary repairs made immediately. Tears and inadequate overlaps should be covered with MEL-ROL ... slit fish mouths and patch. Seal edges of all patches with POINTING MASTIC. Where applicable, horizontal applications can be flood-tested for 24 hours. All leaks should be marked and repaired when membrane dries.

Protect the Membrane ... on all vertical and horizontal installations with the immediate application of PROTECTION COURSE if no drainage system is used, or MEL-DRAIN. To secure PROTECTION COURSE, use POINTING MASTIC as an adhesive, and/or physically attach at the top edge using TERMINATION BAR. Backfilling should be done immediately, using care and caution to avoid damaging the waterproofing application.

PRECAUTIONS

Avoid the use of products that contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with MEL-ROL. The use of MEL-ROL does not negate the need for relief of hydrostatic heads. A complete drain tile system should be placed around the exterior of footing and under slabs, as required.

ACCESSORIES

MEL-PRIME W/B ... This water-based adhesive prepares concrete surfaces for MEL-ROL application. Arrives ready to use. Requires no additional mixing. MEL-PRIME W/B emits no unpleasant odors and works with all W. R. MEADOWS waterproofing membranes. Applies easily with manual sprayer or roller; VOC-compliant. MEL-PRIME W/B is for use at temperatures of 40° F (4° C) and up.

COVERAGE: 150 - 200 ft.²/gal. (3.7 - 4.9 m²/L)

PACKAGING: 1 Gallon (3.79 Liter) Units (4 units per carton), 5 Gallon (18.93 Liter) Pails

MEL-PRIME ... This solvent-based adhesive is for use at temperatures of 25° F (-4° C) and above. Apply by roller.

COVERAGE: 250-350 ft.²/gal. (6.14 to 8.59 m²/L) PACKAGING: 5 Gallon (18.93 Liter) Pails

MEL-ROL LIQUID MEMBRANE ... A two-component material used as a flashing to form fillets at corners and at protrusions. May be used as a substitute for POINTING MASTIC. Product can also be used in between walls and footings in lieu of DETAIL STRIP.

COVERAGE: As a fillet, approximately 135 lineal feet per gallon (10.87 m per liter) PACKAGING: 1 Gallon (3.79 Liter) Units, 4 Units per carton.

BEM ... BEM can be used as a fillet to round out 90° angles, such as the wall-footing connection, and can be used as a substitute for MEL-ROL LIQUID MEMBRANE.

COVERAGE: As a fillet, approximately 135 lineal ft./gal. (10.9 mL). PACKAGING: 28 Oz. (828 mL) Cartridges (12 per Carton)

POINTING MASTIC ... Used as an adhesive and for sealing top edge terminations on DETAIL STRIP and membrane, and to adhere PROTECTION COURSE.

COVERAGE: 1/8" x 1" x 200'/gal. (3.18 mm x 25.4 mm x 16.10 ml). PACKAGING: 5 Gallon (18.93 Liter) Pails, 29 Oz. (857.65 ml) Cartridges, 12/ctn.

CATALYTIC BONDING ASPHALT ... Easy-to-apply, one-component material for sealing around rebar.

COVERAGE: 5 gal./1000 ft.²/gal. (4.9 m²/L) PACKAGING: 5 Gallon (18.93 Liter) Pails.



LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection

with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

DETAIL STRIP ... Convenient, easy-to-use DETAIL STRIP provides an economical and effective method for sealing vertical and horizontal butt joints, i.e. inside or outside corners and where walls and footings meet.

PACKAGING: 9" x 50' (.23 x 15.24 m) roll, 4 rolls per carton.

PROTECTION COURSE ... Use for vertical and horizontal applications. Adhere with POINTING MASTIC or use mechanical fasteners.

PACKAGING: 4' x 8' (1.22 x 2.44 m) panels.

MEL-DRAIN ... is a dimple-raised molded polystyrene fabric designed to provide high flow capacity to reduce hydrostatic pressure buildup around waterproofing and vaporproofing membranes. Choice of drain types are available for vertical, horizontal, and site applications. Use MEL-PRIME to condition surface prior to application of MEL-DRAIN.

TERMINATION BAR ... is a high strength, pre-formed, multi-purpose, plastic strip designed to support vertical membrane systems and PROTECTION COURSE at their termination point.

PACKAGING: 10' (Holes every 6" o/c, 2" from either end), 25 pieces per carton.

MAINTAIN ENERGY EFFICIENCY

Wet insulating materials lose much of their "R" factor performance characteristics, reducing the energy efficiency of the structure. W. R. MEADOWS thermal and moisture protection products play a key role in *maintaining* the structure's energy efficiency and aiding in the integrity of other structural systems, such as insulation.

LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan: During Construction
- IEQ Credit 7.1: Thermal Comfort - Design
- MR Credit 2: Construction Waste Management
- MR Credit 5: Regional Materials

For CAD details, most recent data sheet, further LEED information, and MSDS, visit www.wrmeadows.com.

PRODUCT DATA

NO. 712

MasterFormat: 07 10 00

W. R. MEADOWS®

SEALIGHT®

SEPTEMBER 2014
(Supersedes December 2008)

PROTECTION COURSE

Waterproofing Protection

DESCRIPTION

PROTECTION COURSE is a multi-ply, semi-rigid core composed of a mineral-fortified asphalt core formed between two outside layers of asphalt-impregnated reinforced mats, manufactured in accordance with ASTM D 6506.

When properly applied by personnel trained in good waterproofing techniques, PROTECTION COURSE will absorb the impact of aggregate shock and normal jobsite foot traffic. It also protects the membrane waterproofing from penetration by sharp aggregate during backfilling and later settlement. PROTECTION COURSE is available in two types: PC-2, Standard Duty and PC-3, Heavy Duty. Both types are economical and convenient to use.

USES

PROTECTION COURSE is used in between slab construction, such as plaza decks, roof terraces, promenade decks, pedestrian concourses, tunnels, bathroom floors, showers, kitchens, mechanical rooms, parking garage decks, planter boxes, reflective pools, and foundation walls. PROTECTION COURSE is compatible with most currently popular dampproofing and waterproofing materials.

FEATURES/BENEFITS

- Tough, durable and lightweight ... panels are easily handled, quickly installed.
- Full width fiberglass matting improves flexural strength.
- Highly resistant to chemical action.
- Performance is equally effective in above- or below-grade installations.
- Unique dual facing offers compatibility with most currently popular waterproofing materials.
- Economical and convenient to use.

PACKAGING

4' x 8' (1.22 m x 2.44 m) Panels

TECHNICAL DATA

ASTM D 6506, Class B

PROTECTION BOARD REQUIREMENTS

| | PC-2 | PC-3 |
|--|--|--|
| Puncture Strength | 312 N (70 1bf) minimum | 365 N (82 1bf) minimum |
| Thickness | 2.4 - 3.9 mm (0.095" - 0.155") | 5.6 - 7.1 mm (0.220" - 0.280") |
| Water Absorption | 10.0% maximum | 10.0% maximum |
| Asphalt, % by weight | 40% minimum | 40% minimum |
| Resistance to Decay (Classes A & B) | Meets puncture requirements after completion of test | Meets puncture requirements after completion of test |

Product conforming to ASTM D 6506, Class A also available by special order.

APPLICATION

NOTE: Prior to application, consult the waterproofing manufacturer to determine whether the polyethylene film facing on one side, or the asphalt-impregnated reinforced mat on the other side of PROTECTION COURSE, is approved as "compatible" to the specific waterproofing product being protected.

PROTECTION COURSE is installed to form a continuous protective layer over the membrane waterproofing. The sheets can be easily cut with a roofer's knife for fitting at protrusions.

Surface Condition ... The waterproofing membrane must be free of sharp projections, dirt, and dust. If water testing is desired, it should be made prior to placing PROTECTION COURSE. Note: PROTECTION COURSE should be applied at the end of each day's waterproofing to both horizontal and vertical surfaces.

CONTINUED ON REVERSE SIDE ...

Horizontal Surfaces ... PROTECTION COURSE should be installed over the waterproofing membrane as soon as permissible by the membrane applicator or manufacturer. PROTECTION COURSE sheets should be butted together and cut to fit all intersecting surfaces and protrusions. If desired, joints may be covered with DETAIL STRIP from W. R. MEADOWS or roofer's glass reinforced tape embedded in hot asphalt as a secondary waterproofing system. (See PRECAUTIONS.)

Vertical Surfaces ... For dampproofed and/or waterproofed vertical walls to receive backfill, PROTECTION COURSE should be butt jointed and, if necessary, temporarily held in place while backfilling.

Backfilling ... Backfilling against vertical walls should be done immediately using care and caution to avoid damaging the waterproofing application. Backfill material should not be dropped against PROTECTION COURSE in such a manner that it could drag the sheet down as the backfill drops. For horizontal applications, the waterproofing and PROTECTION COURSE should be installed just prior to the installation of the wearing surface.

PRECAUTIONS

Where PROTECTION COURSE is adhered to a waterproofing membrane, use an approved adhesive. Where taped joints are desired with tape set in hot asphalt, consult membrane manufacturer. PROTECTION COURSE is shipped on pallets with the polyethylene anti-stick sheet on the top or exposed side. PROTECTION COURSE should be stored on pallets and placed on a level surface. CAUTION: Do not apply PROTECTION COURSE over liquid waterproofing membranes containing volatile solvents until all of the solvent has evaporated. Consult membrane manufacturer for specific application details prior to placing PROTECTION COURSE. Read and follow application information and precautions. Refer to Safety Data Sheet for complete health and safety information.

LEED INFORMATION

May help contribute to LEED credits:

- MR Credit 2: Construction Waste Management
- MR Credit 4: Recycled Content
- MR Credit 5: Regional Materials

**For most current data sheet, further LEED information, and SDS, visit
www.wrmeadows.com.**



LIMITED WARRANTY

W. R. MEADOWS, INC. warrants at the time and place we make shipment, our material will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete warranty. Copy furnished upon request.

Disclaimer

The information contained herein is included for illustrative purposes only, and to the best of our knowledge, is accurate and reliable. W. R. MEADOWS, INC. cannot however under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information. As W. R. MEADOWS, INC. has no control over the use to which others may put its product, it is recommended that the products be tested to determine if suitable for specific application and/or our information is valid in a particular circumstance. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine the suitability of products for specific application and assume all responsibilities in connection therewith.

DATA SHEET NO. 6057-120**DETAIL FABRIC****Nonwoven Geotextile Fabric****DESCRIPTION**

DETAIL FABRIC is a polypropylene, staple fiber, needle-punched, nonwoven geotextile fabric. The fibers are needled to form a stable network that retains dimensional stability relative to each other. The geotextile is resistant to ultraviolet degradation and to biological and chemical environments normally found in soils.

USES

DETAIL FABRIC is designed for end lap applications of PRECON® and PRECON LOW TEMP from W. R. MEADOWS. The use of DETAIL FABRIC will create a waterproof and vaporproof shield that will help resist moisture penetration through ends laps of PRECON and PRECON LOW TEMP.

FEATURES/BENEFITS

- Superior chemical resistance.
- Sturdy fabric capable of withstanding construction installation stresses.
- Maximum UV resistance.

PACKAGING

305 mm x 36.6 m (12" x 120)

TECHNICAL DATA

| Property | Test Method | Value | Unit | Result |
|-----------------------|-------------|-------|----------|------------|
| Grab Tensile Strength | ASTM D-4632 | MARV | lb. N | 115 512 |
| Grab Elongation | ASTM D-4632 | MARV | % | 50 |
| Puncture Strength | ASTM D-4833 | MARV | lb. N | 65 289 |

APPLICATION

End Laps ... Overlap PRECON membrane 6" (152.4 mm). Prior to overlap, apply BEM, HYDRALASTIC 836, or MEL-ROL® LIQUID MEMBRANE (two-component) from W. R. MEADOWS in area to be lapped. Roll press membrane into BEM, HYDRALASTIC 836, or MEL-ROL LIQUID MEMBRANE. At terminations of membrane, apply BEM, HYDRALASTIC 836 or MEL-ROL LIQUID MEMBRANE 305 mm (12") wide centered over the termination and while still wet, embed 305 mm (12") wide DETAIL FABRIC into the HYDRALASTIC 836 or MEL-ROL LIQUID MEMBRANE and roll press into place. Ensure that DETAIL FABRIC is centered over the termination with 152.4 mm (6") on each side of lap edge. Apply additional HYDRALASTIC 836 on all terminations of DETAIL FABRIC.

MASTERFORMAT NUMBER AND TITLE

07 13 00 – Sheet Waterproofing

LEED INFORMATION

May help contribute to LEED credits:

- EA Credit 1: Optimize Energy Performance
- IEQ Credit 3.1: Construction Indoor Air Quality Management Plan: During Construction
- IEQ Credit 7.1: Thermal Comfort - Design
- MR Credit 2: Construction Waste Management
- MR Credit 4: Recycled Content
- MR Credit 5: Regional Materials

For most recent data sheet, further LEED information, and MSDS, visit www.wrmeadows.com.

2013-12-06

W. R. MEADOWS OF CANADA
70 Hannant Court, Milton, ON L9T 5C1
Phone: (905) 878-4122 • Fax: (905) 878-41
Montreal Sales: (877) 405-5186

Hampshire, IL / Cartersville, GA / York, PA / Fort Worth, TX

Benicia, CA / Pomona, CA / Goodyear, AZ / Milton, ON

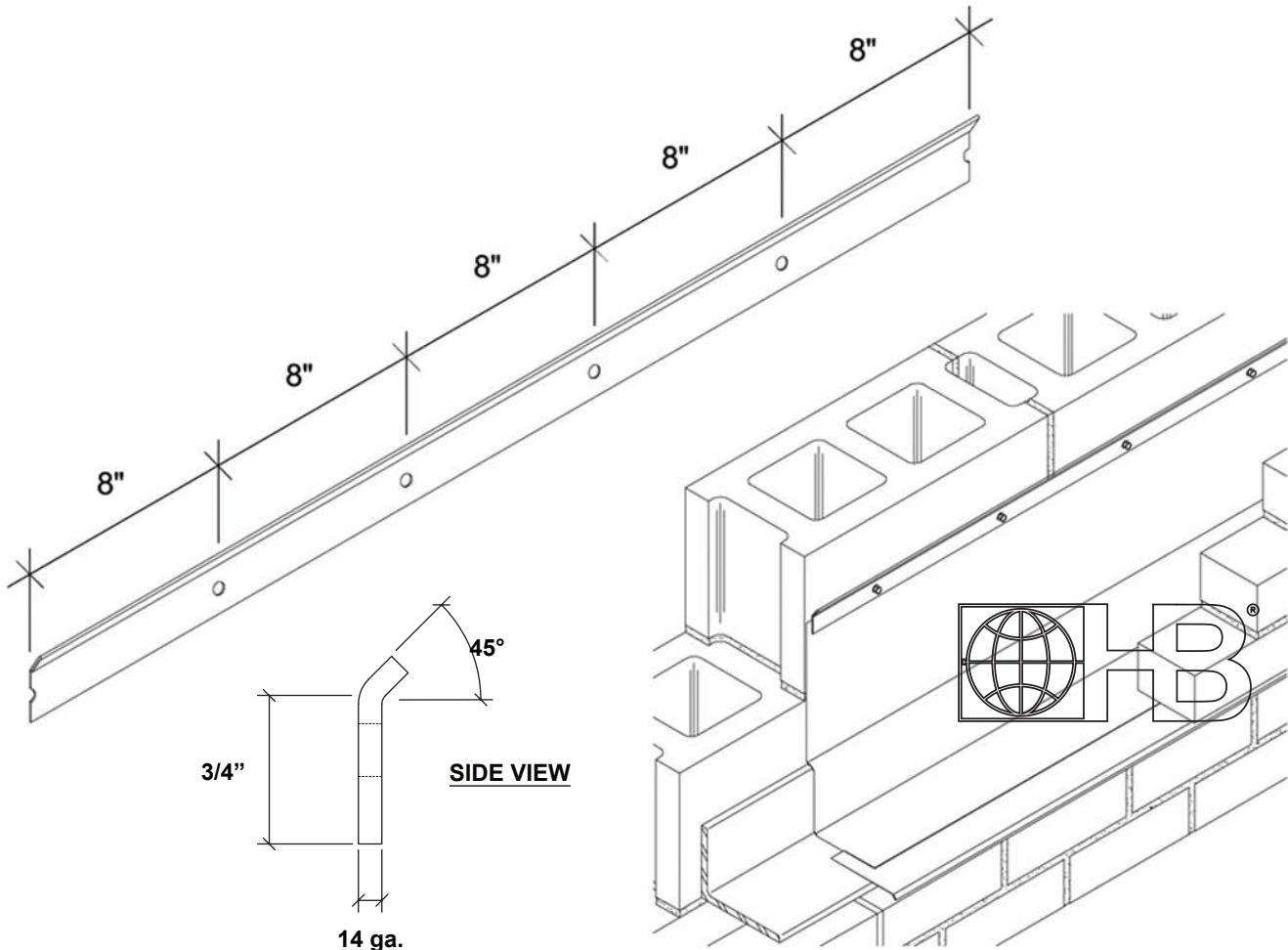
St. Albert, AB

www.wrmeadows.com



HOHMANN & BARNARD, INC.
a MiTek company

Flashing and Reglets T2 - Aluminum Termination Bar



DRAWINGS FOR ILLUSTRATIVE PURPOSES ONLY

T2 - Aluminum Termination Bar

AA 6063-T6 Aluminum (GRADE TB-75) termination bar for use at top of flashing to mechanically secure it to the backup. Compatible with all H&B Surface-Mount membrane and copper-laminate flashings.

NOTE: Available with optional Foam-Tite Seal™ to aid in inhibiting moisture infiltration. A factory-installed foam strip helps to seal small voids occurring between the termination bar and irregular substrate surfaces, while offering protection against water penetration due to sealant deterioration.

NOTE: H&B recommends termination bars be fastened 8" o.c.
(Metal term bars can be fastened 16" o.c. for metal stud backup)

Product:

- T2 Aluminum
 OPTIONAL: T2 Aluminum-FTS (Foam-Tite Seal™)

Dimensions:

- 14 ga. x 1" x 8' long
- Has a 1/4" flange on top for easy caulking
- 1/4" holes spaced 8" o.c.

IMPORTANT: Since each construction project is unique, the appropriate selection and use of any product contained herein must be determined by competent architects, engineers and other appropriate professionals who are familiar with the specific requirements of the project in question. This drawing and/or data sheet is the confidential and proprietary information of Hohmann & Barnard, Inc. and is not to be reproduced, copied or disclosed, in whole or in part, without the prior written consent of H&B.

HOHMANN & BARNARD, Inc.

30 Rasons Court | Hauppauge, NY 11788

CORPORATE HEADQUARTERS

T: 800.645.0616 F: 631.234.0683

www.h-b.com

Branch/Subsidiary Locations:

ALABAMA - ARIZONA - ILLINOIS

MARYLAND - NEW YORK

PENNSYLVANIA - TEXAS - UTAH

CANADA

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[RESET FORM](#)

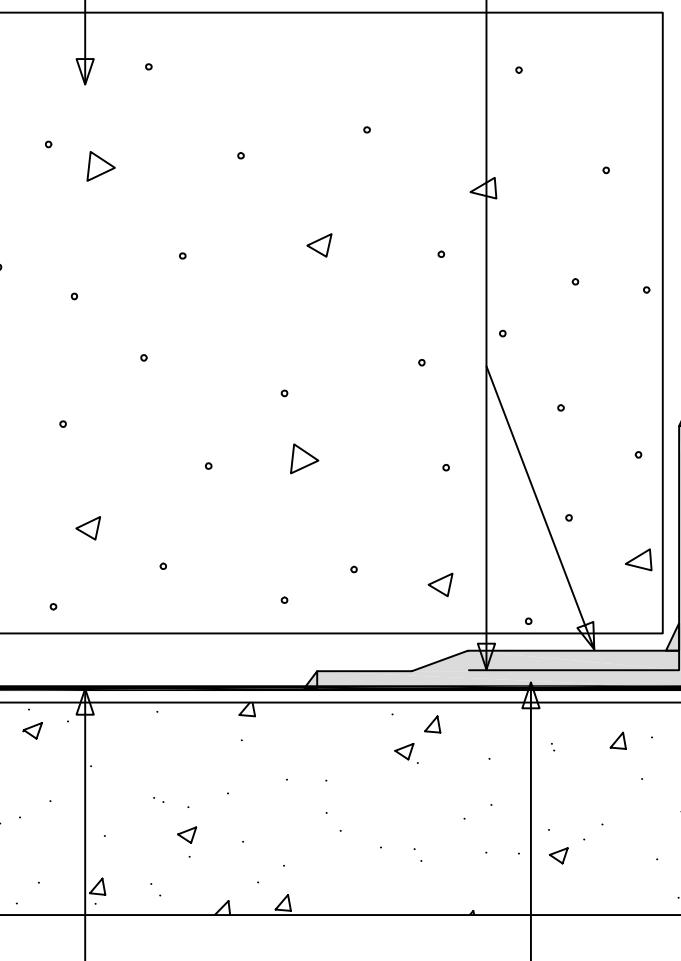
[SAVE FORM](#)

[SAVE FORM LOCK & HIDE BUTTONS](#)

CONCRETE SLAB

PRECON TAPE

POINTING MASTIC OR
BEM OR HYDRASTIC 836



PRECON
(FABRIC FACE TO
CONCRETE)

SATURATE FABRIC FACE
OF PRECON WITH POINTING
MASTIC, BEM, OR
HYDRASTIC 836 AND
ADHERE PRECON TAPE

MUD SLAB

W.R. MEADOWS, INC.

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1-800-342-5976
www.wrmeadows.com

SKETCH: HORIZONTAL
PIPE PENETRATION
PRECON

SKETCH NO:
HPP - PRECON - 16

DATE:
10/24/2012

MEL-ROL

FOUNDATION INSULATION

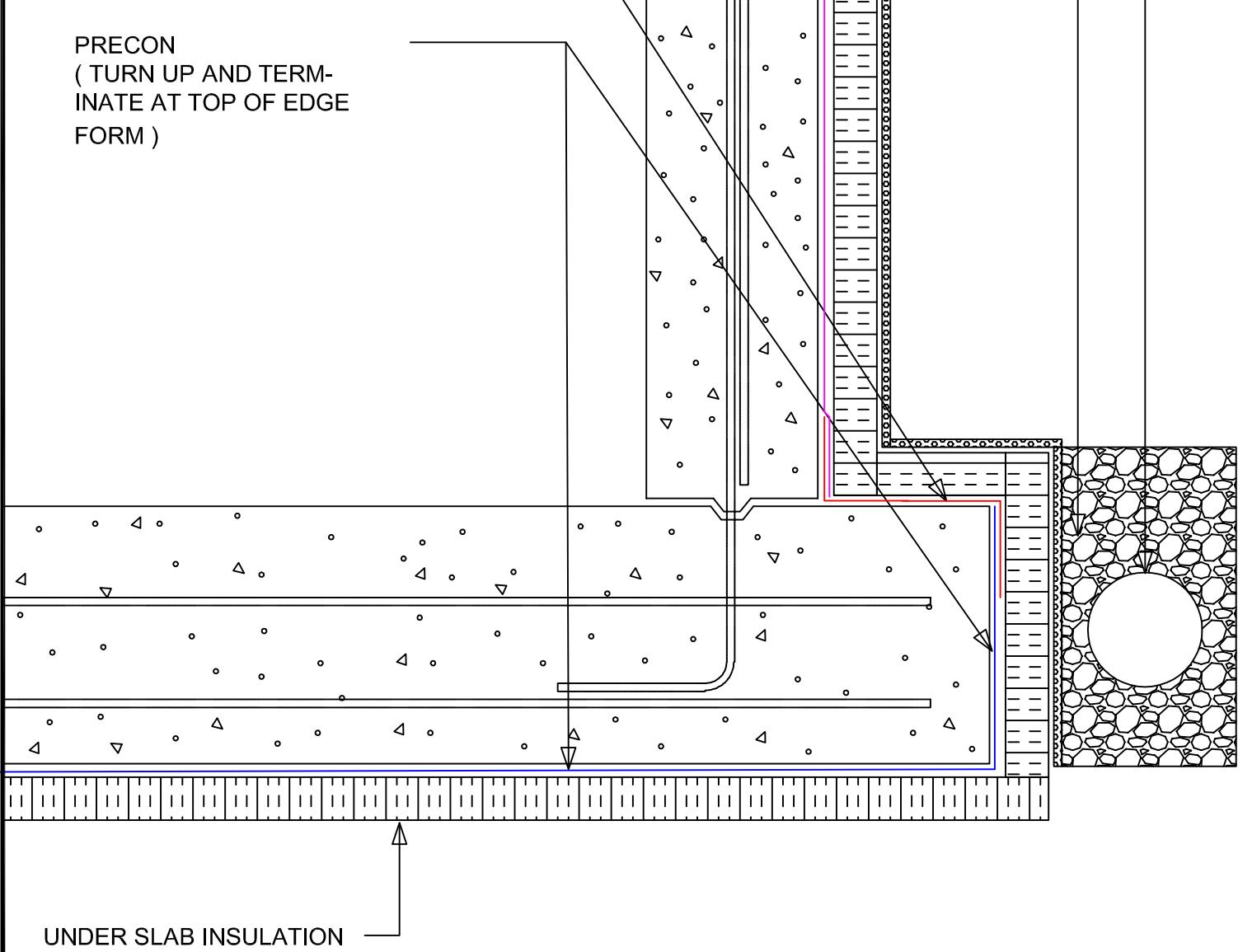
MEL-DRAIN

DRAIN TILE SYSTEM
(DRAINED TO DAYLIGHT
OR A COLLECTION &
EJECTION SYSTEM)

FREE-DRAINING GRAVEL
WRAPPED IN FILTER FABRIC

DETAIL STRIP

PRECON
(TURN UP AND TERM-
INATE AT TOP OF EDGE
FORM)



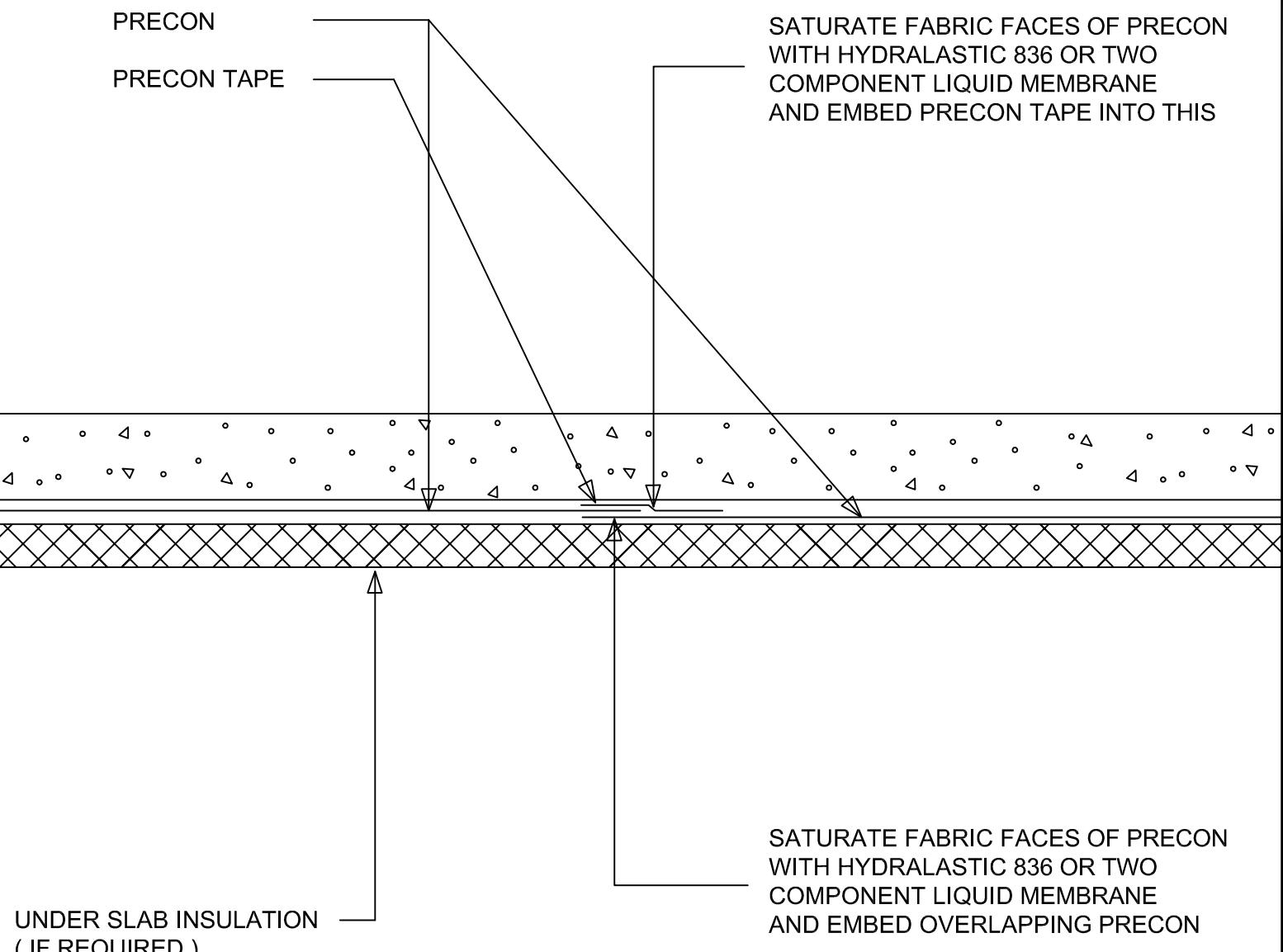
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www.wrmeadows.com

SKETCH: FOUNDATION BASE
STRUCTURAL SLAB
NO MUD SLAB
WATER TABLE ABOVE SLAB

SKETCH NO: PRECON - 17 - MR

DATE: 07/10/2013



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**SKETCH: SLAB ON GRADE
PRECON END LAP
DETAIL**

SKETCH NO: MWP-18-HS-MPC

DATE: 03/21/2013

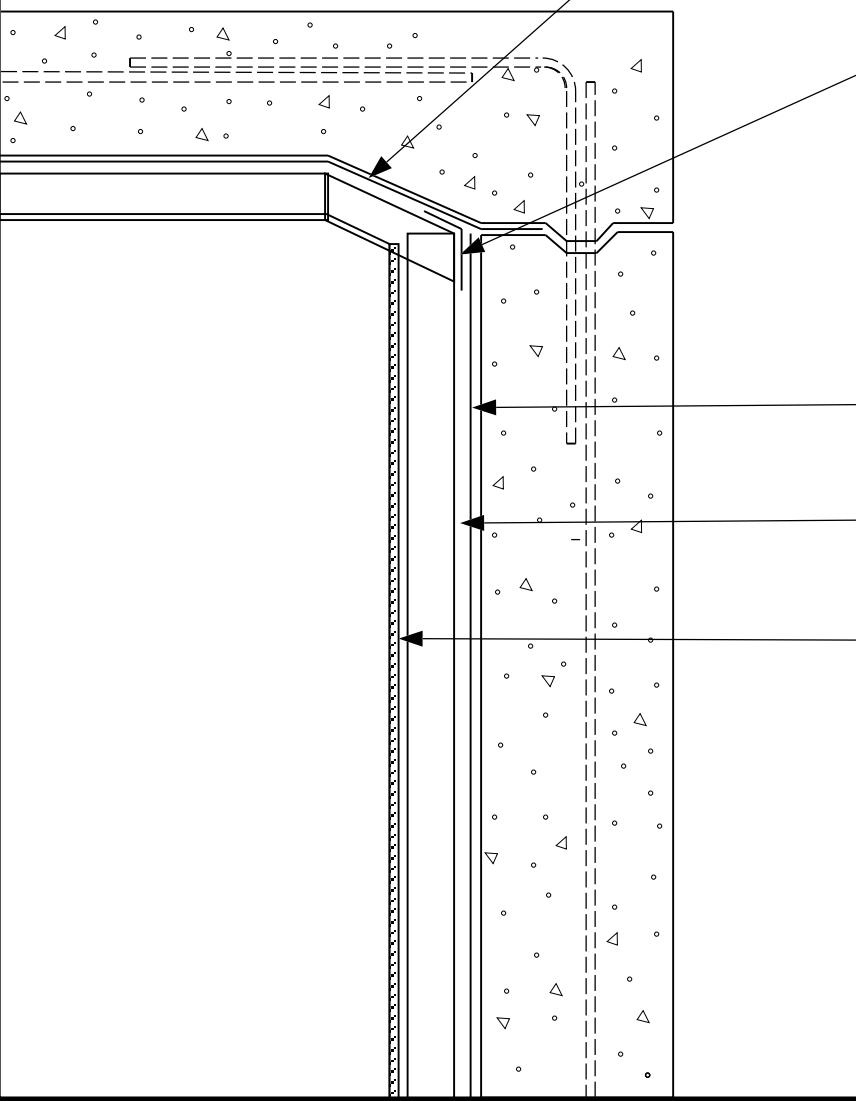
MEL-ROL® PRECON
(LAP ONTO TOP OF FOUNDATION
WALL AND SET IN A BED OF
POINTING MASTIC)

MEL-ROL® PRECON TAPE

MEL-ROL®

INSULATION (IF REQ'D)

MEL-DRAIN™

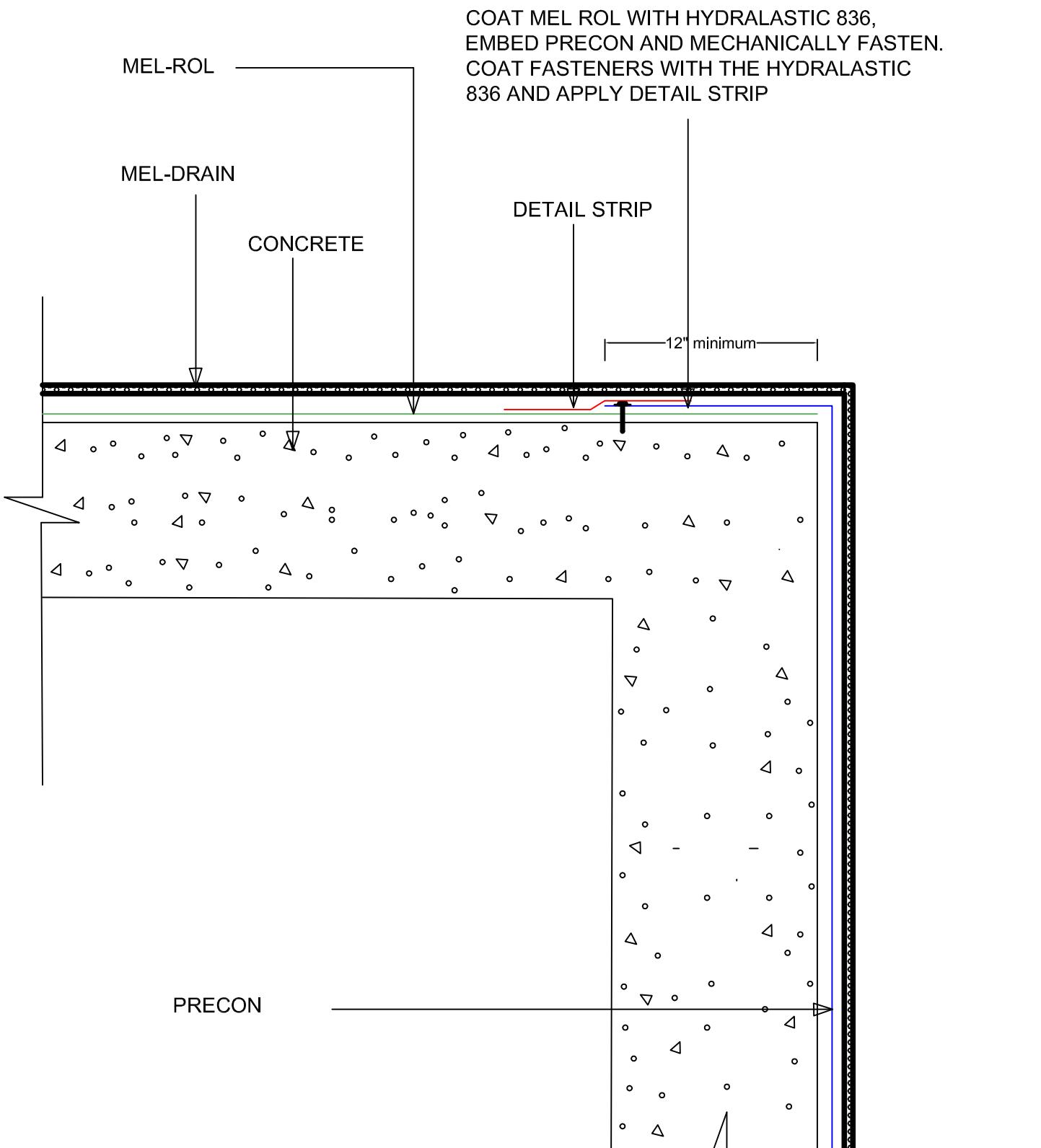


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SKETCH: **TOP OF FOUNDATION
ELEVATOR PIT**

SKETCH NO: **MWP-21-EP-MR-MPC**

DATE: **2/7/11**



*NOTE: BEM OR 2-COMPONENT LIQUID
MEMBRANE CAN BE USED IN PLACE OF
HYDRASTIC 836. CONSULT W.R.
MEADOWS INSTALLATION PROCEDURES FOR
CORRECT APPLICATION

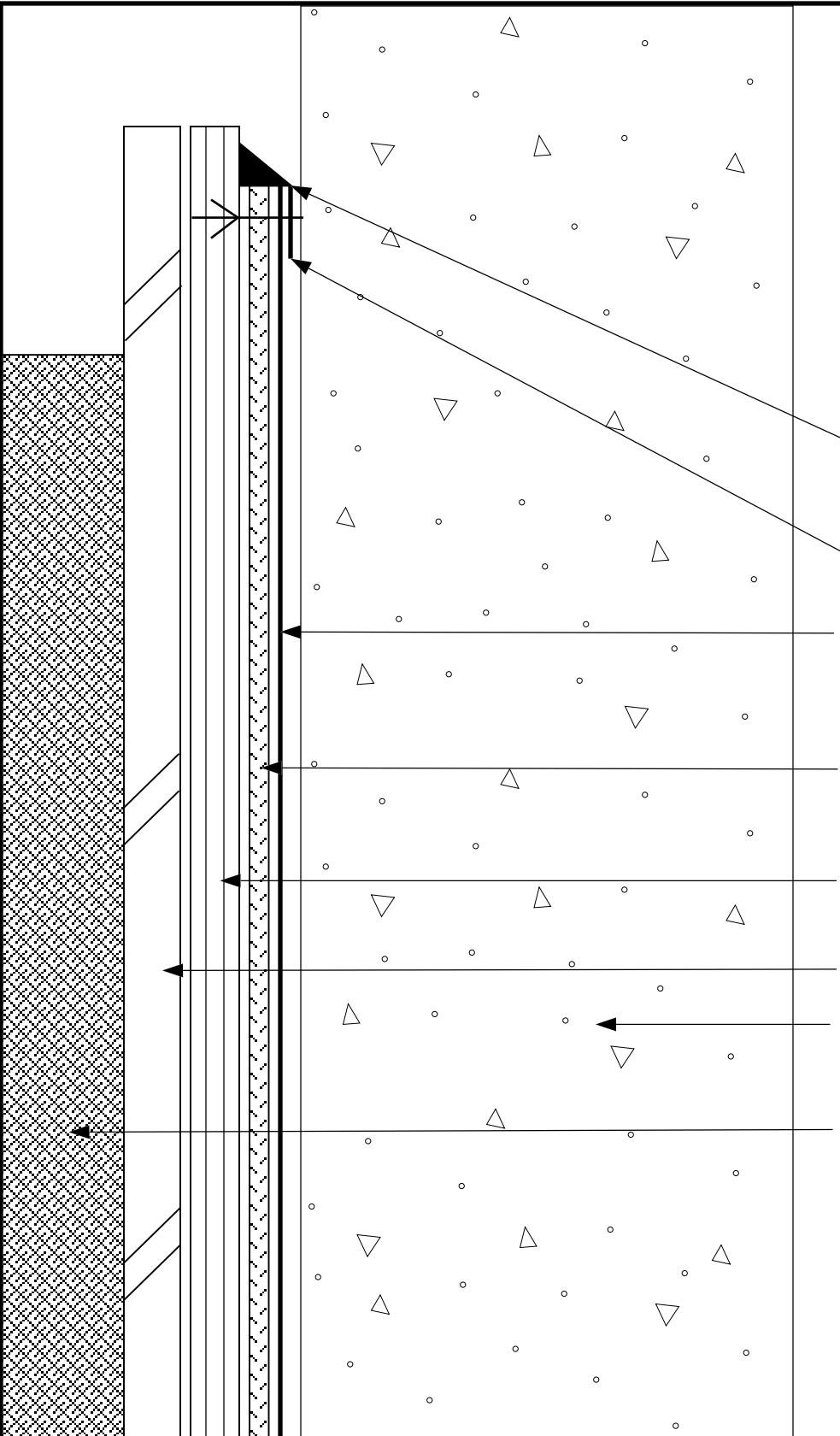
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Hampshire, IL 60140-0338
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SKETCH: PRECON
OUTSIDE CORNER

SKETCH NO: PRECON - 21 - OC

DATE: 07/10/2013

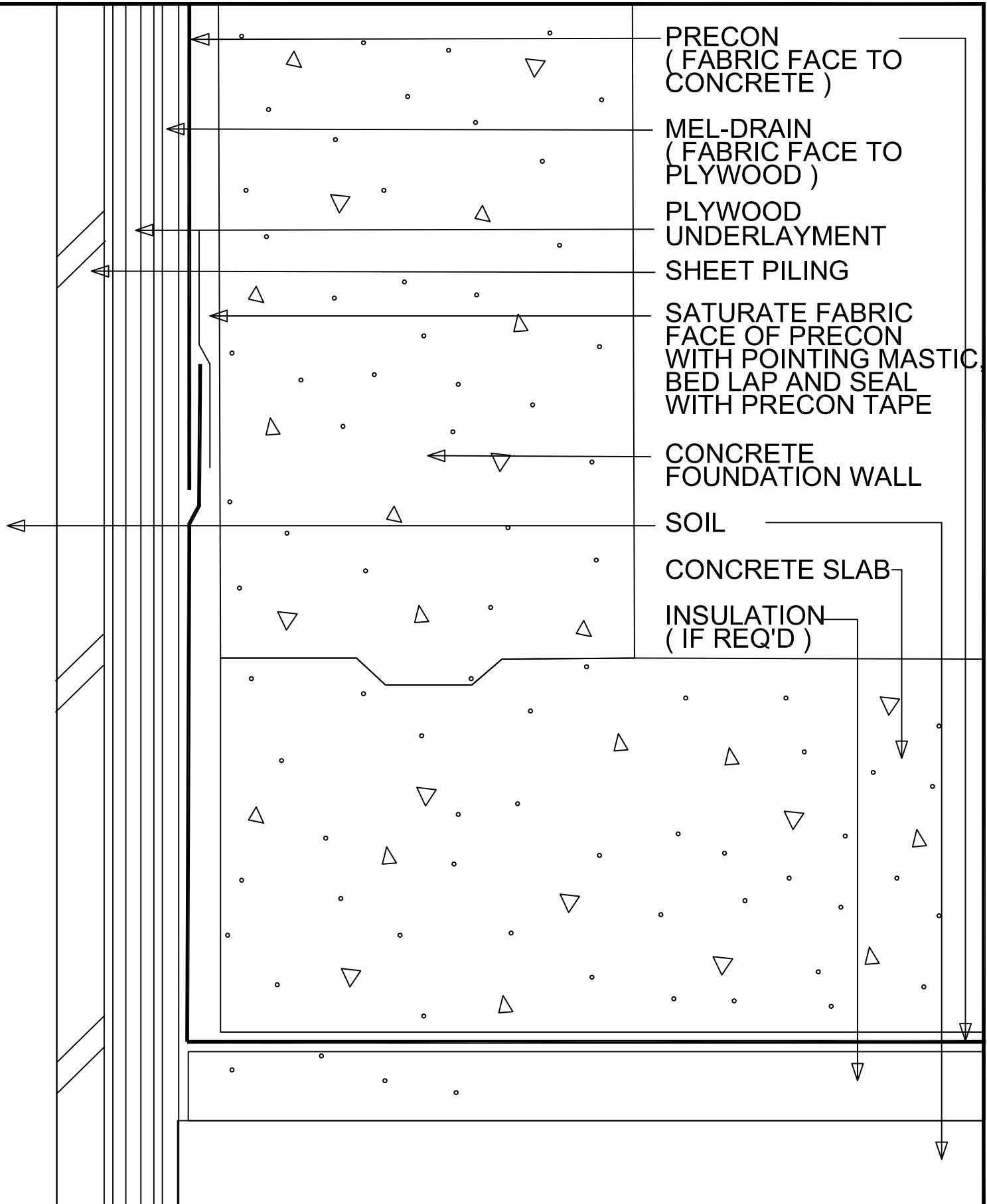


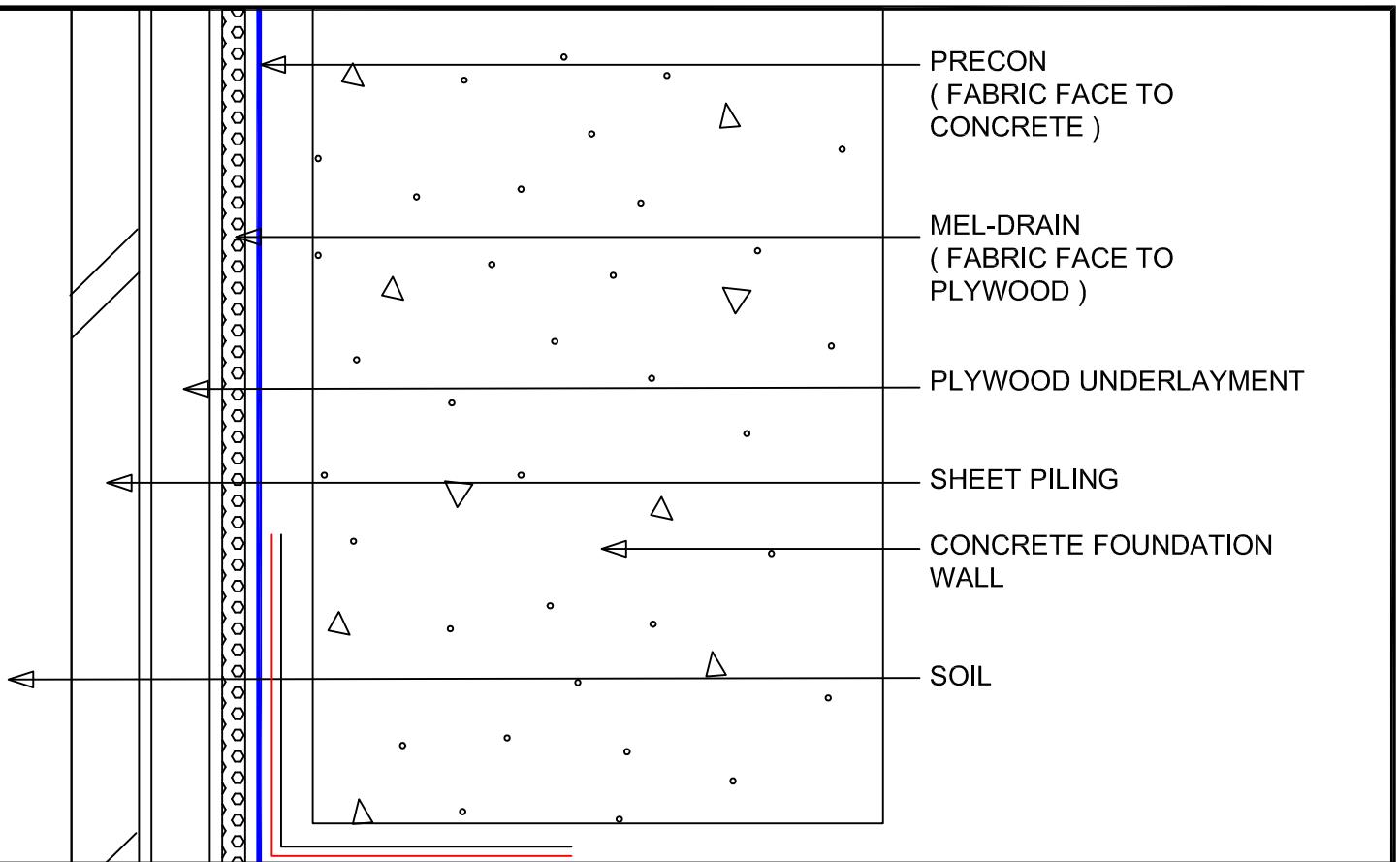
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300 Industrial Drive
Hampshire, IL 60140-0338
1-800-342-5976
www.wrmeadows.com

SKETCH: BLIND SIDE
SHEET PILING
MEL-ROL® PRECON
TOP TERMINATION

SKETCH NO: MWP-23-BSSH-P-MPC

DATE: 2/7/11





PRECON
(FABRIC FACE TO
CONCRETE)

MEL-DRAIN
(FABRIC FACE TO
PLYWOOD)

PLYWOOD UNDERLayment

SHEET PILING

CONCRETE FOUNDATION
WALL

SOIL

COAT OF HYDRASTIC 836
APPLIED TO PENETRATION AND
PRECON. EMBED DETAIL FABRIC
INTO THIS COAT OF
HYDRASTIC 836.

W.R. MEADOWS, INC.

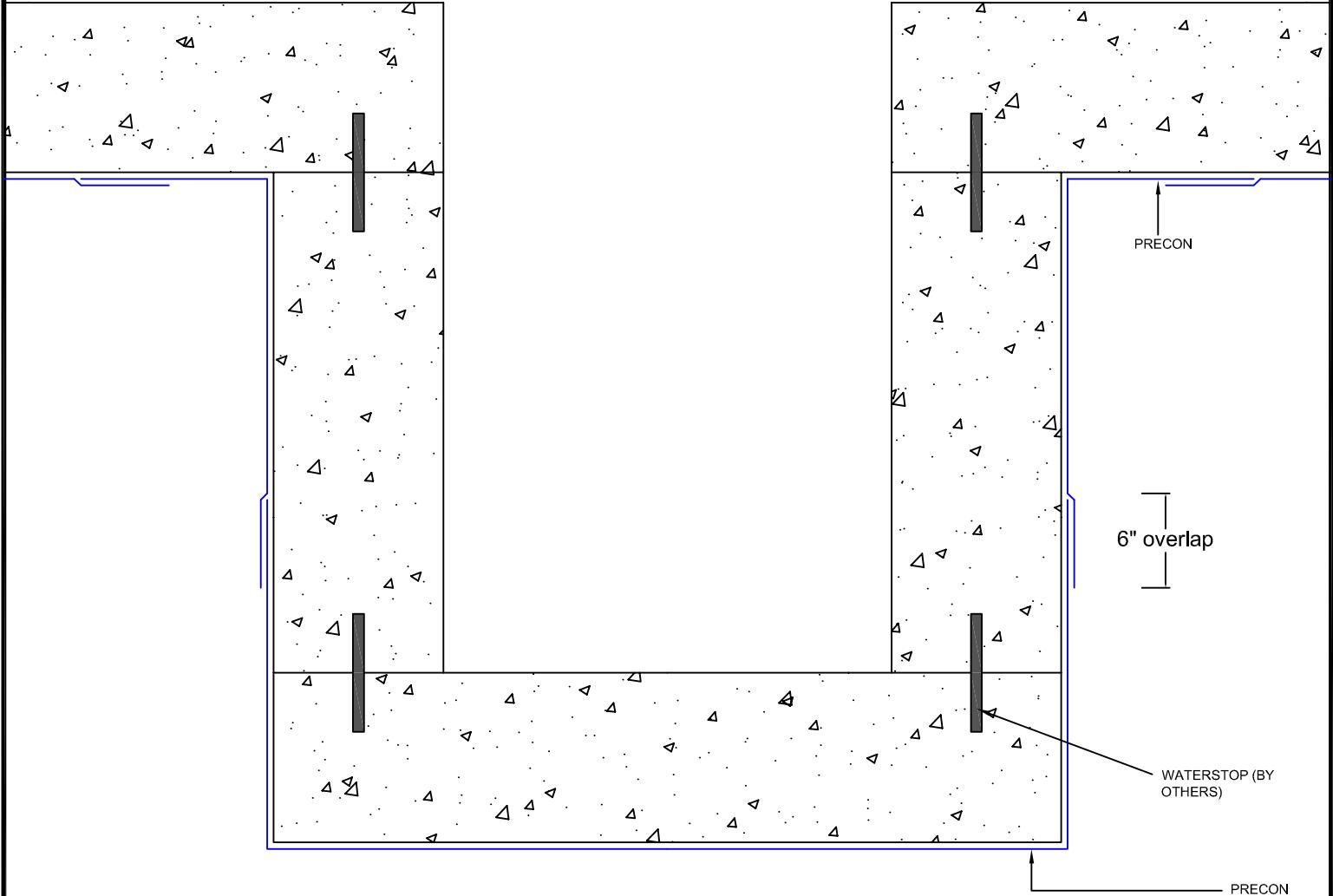
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1-800-342-5976
www.wrmeadows.com

SKETCH: **BLIND SIDE
SHEET PILING
PRECON
PENETRATION**

SKETCH NO: **PRECON - 31**

DATE: **01/30/2018**

DETAIL IS INTENDED TO BE A GUIDE FOR W. R. MEADOWS' PRODUCT INSTALLATION ONLY



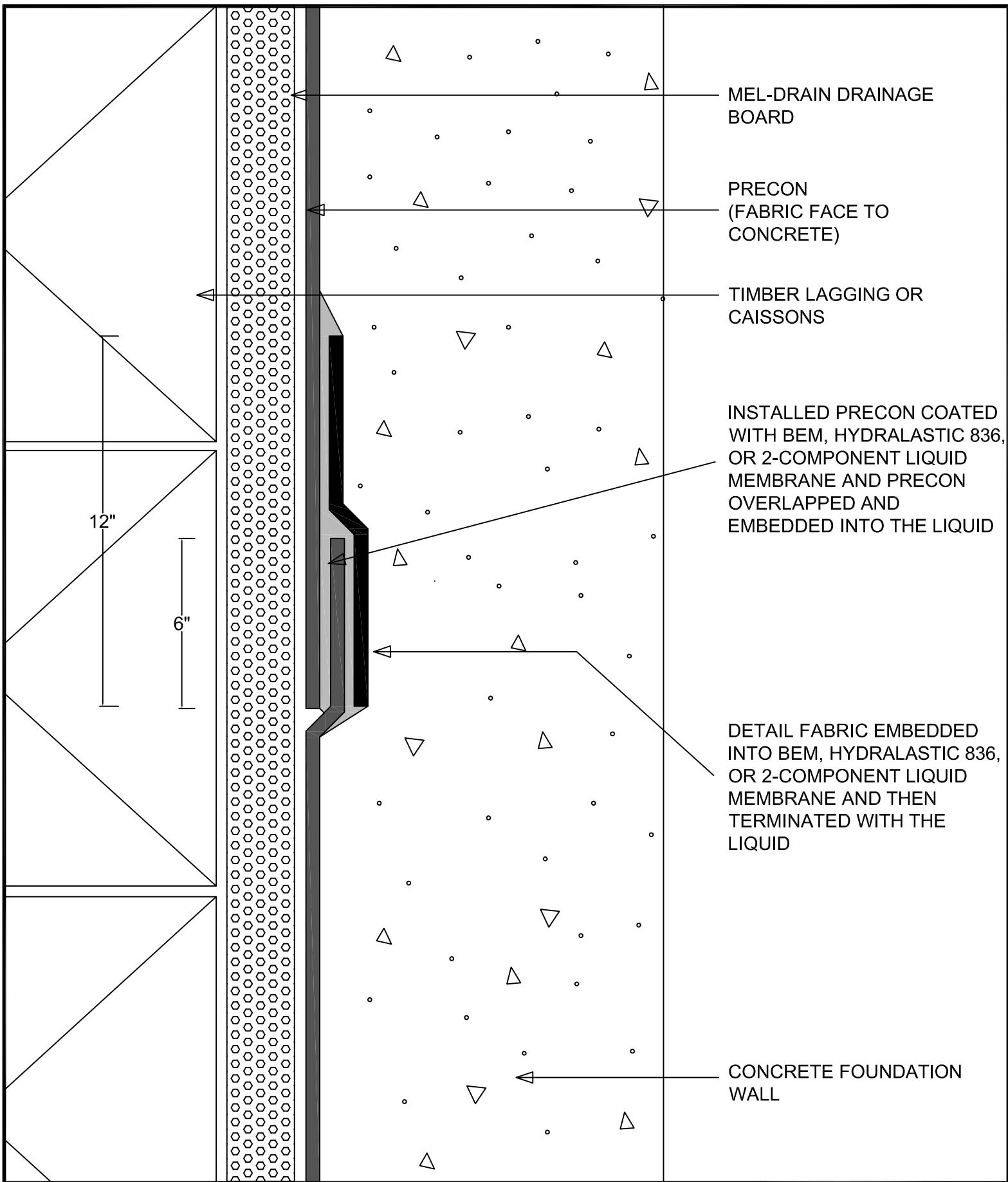
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SKETCH:
**PRECON ELEVATOR
PIT DETAIL (N.T.S.)**

SKETCH NO: **PRECON - 70**

DATE: **1/9/2015**



W.R. MEADOWS, INC.
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Hampshire IL 60140
Tel: 1-800-825-5976
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SKETCH: PRECON END LAP DETAIL

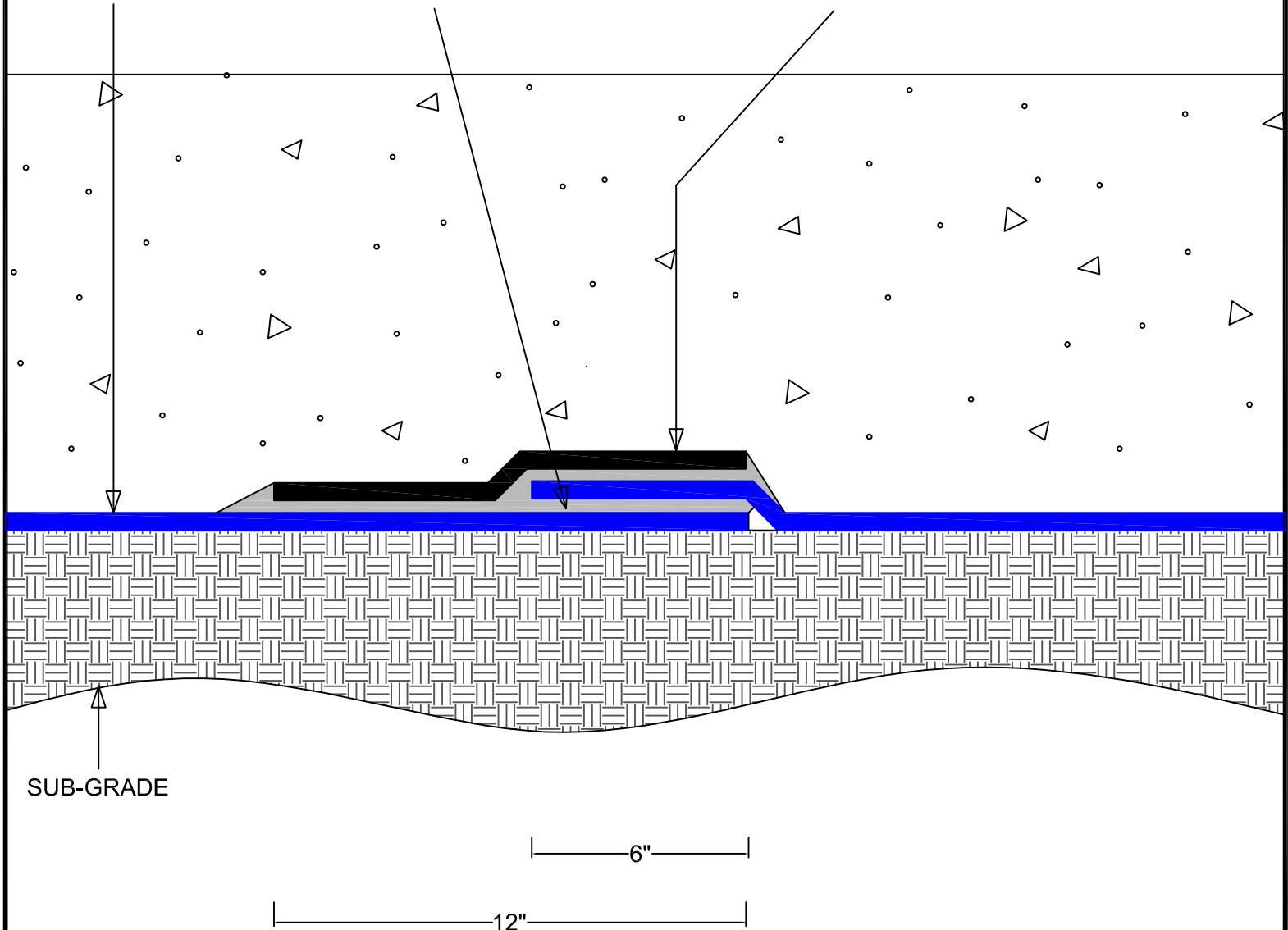
SKETCH NO: PRECON 34 - EL

DATE: 06 / 03 / 2013

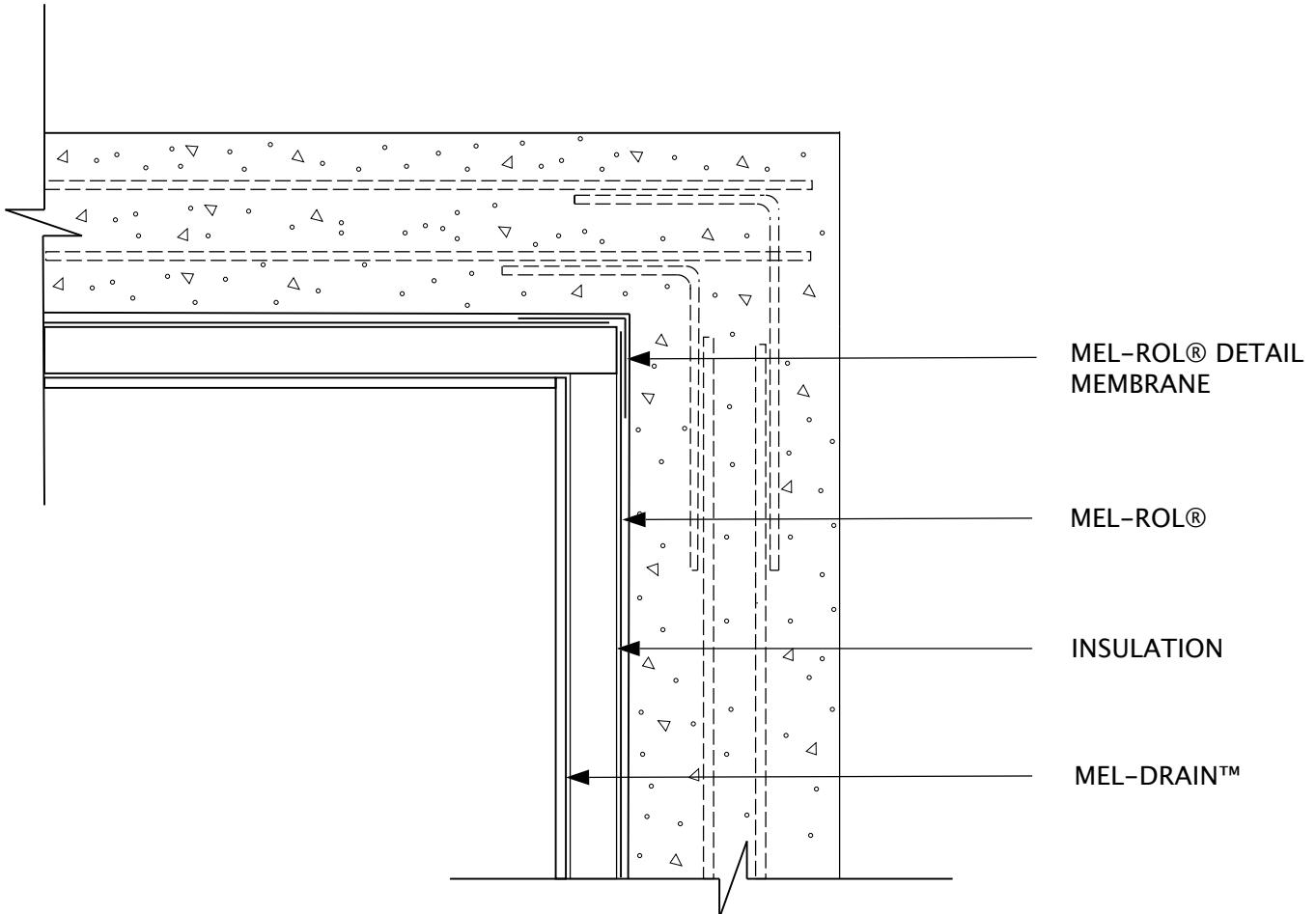
PRECON
(FABRIC FACE TO
CONCRETE)

INSTALLED PRECON COATED
WITH HYDRALASTIC 836, AND
PRECON OVERLAPPED AND
EMBEDDED INTO THE
HYDRALASTIC 836*

DETAIL FABRIC EMBEDDED
INTO HYDRALASTIC 836, THEN
TERMINATED WITH THE
HYDRALASTIC 836*



*NOTE: BEM OR 2-COMPONENT LIQUID
MEMBRANE CAN BE USED IN PLACE OF
HYDRALASTIC 836. CONSULT W.R.
MEADOWS INSTALLATION PROCEDURES FOR
CORRECT APPLICATION

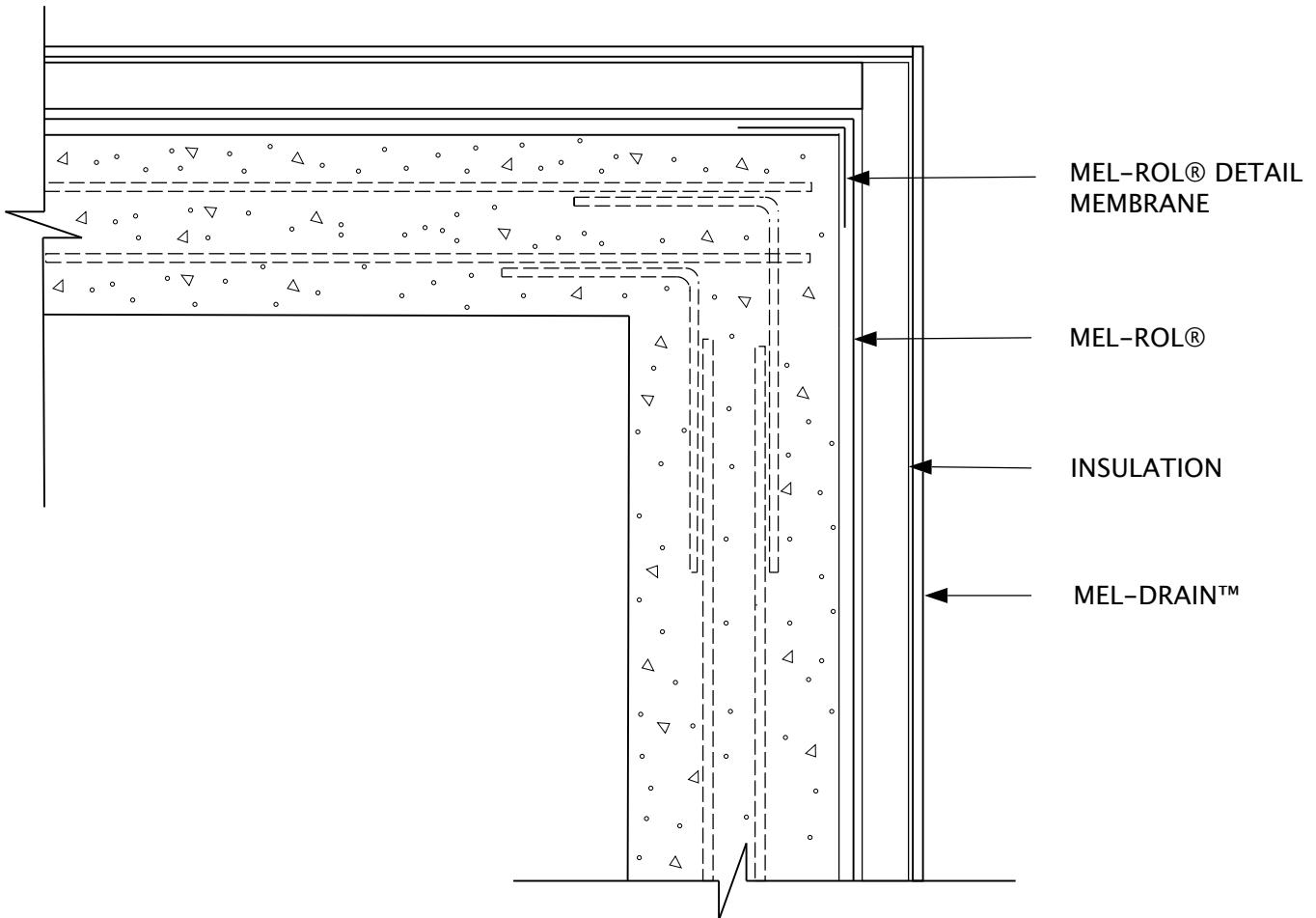


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SKETCH: PLAN VIEW
INSIDE CORNER

SKETCH NO: MWP-21-IC-MR

DATE: 10/26/07

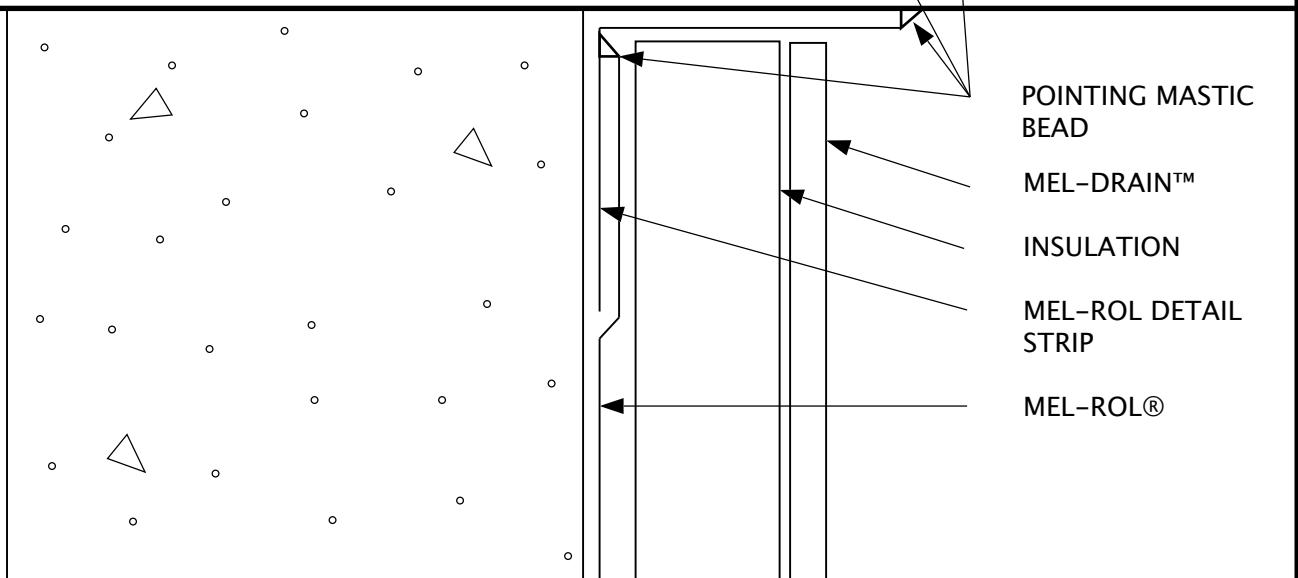
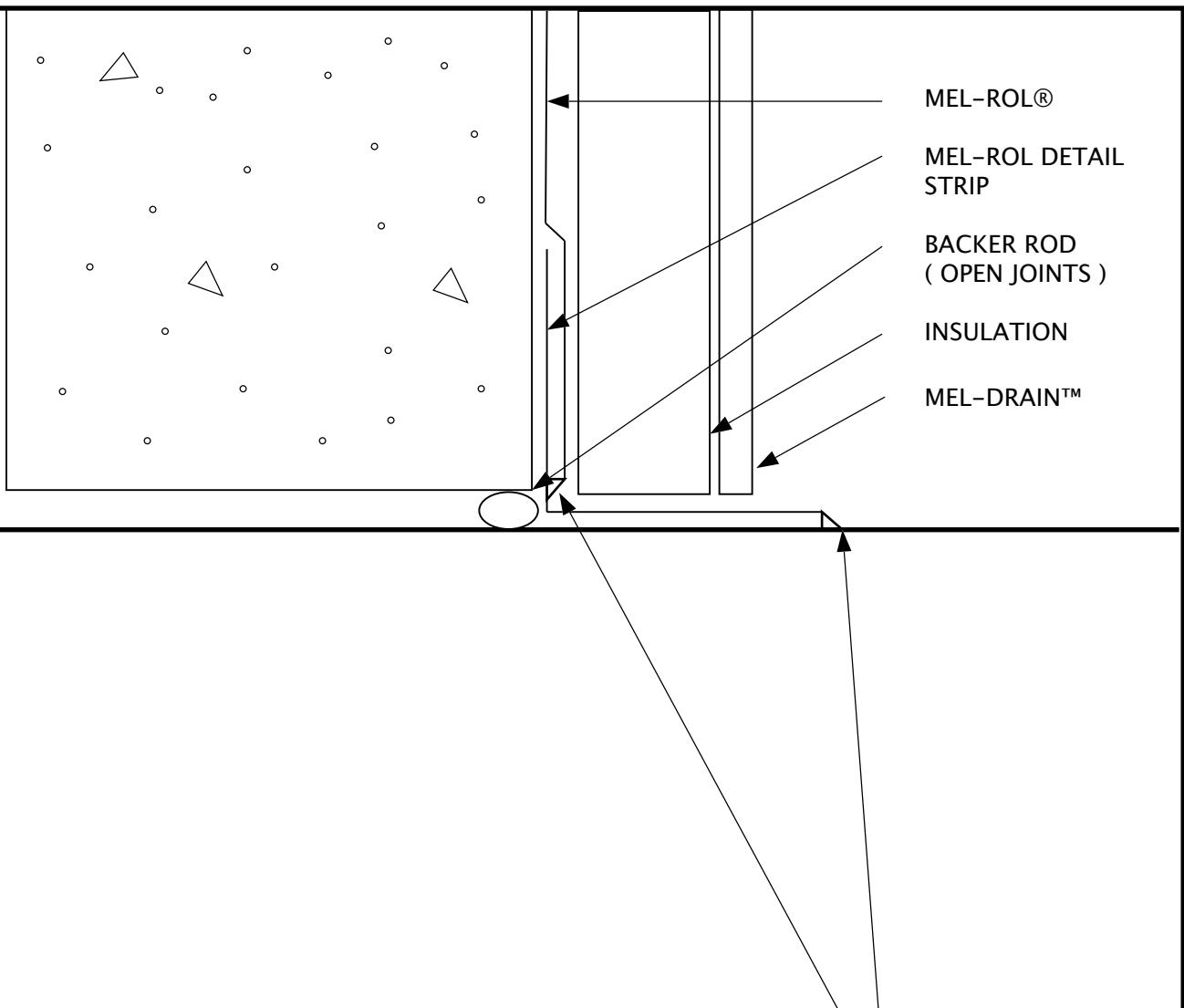


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SKETCH: PLAN VIEW
OUTSIDE CORNER

SKETCH NO: MWP-22-EC-MR

DATE: 10/26/07



W. R. Meadows, Inc.

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Hampshire, IL 60140-0338
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SKETCH: MEMBRANE PENETRATION
VERTICAL ORIENTATION

SKETCH NO: MWP-40-VP-LM

DATE: 10/26/07

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ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 072100-001

Description: Thermal Insulation - PD

Project Name: UT Austin - Seay

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



Darryl Castleberry

BY:

DATE: 2020/04/27

Submittal Comments:

1. Not reviewed by ZSC as these products do not pertain to the building envelope.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0127

PROJECT: UT Seay Building Addition

DATE: 04/27/2020

TO: BSA Lifestructures
AL

RE: Thermal Insulation - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|---|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input type="checkbox"/> Due Date: |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|-----------------------------------|------------------------|
| 1 | Submittal | | 072100-001 | | 1 | 04/27/2020 | Thermal Insulation - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 4/27/2020 SPEC# 072100

REVIEWED BY tanner.hawkins

SUBMITTAL# 072100-001

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins



UT Seay Addition

072100 - Insulation
Submittal

4/17/20

EcoTouch® PINK® Fiberglas™ Insulation with PureFiber® Technology

Contractor _____

Owens Corning® EcoTouch® Insulation with PureFiber® Technology is flexible light density insulation with a variety of facings and uses for thermal and acoustic benefits. EcoTouch® Insulation is dimensionally stable and will not slump within the cavity. Due to its inorganic fibers, EcoTouch® Insulation is not a food source for mold, it will not rot or mildew and it is not corrosive to steel, copper or aluminum.

| ASTM C665 Classification | Description |
|--------------------------|--|
| Type I | Blankets without membrane coverings. |
| Type II | Blankets with nonreflective membrane coverings: |
| Class A | Membrane-faced surface flame spread of 25 or less. |
| Class B | Membrane-faced surface with critical radiant flux of 0.12 W/cm² (0.11 Btu/ft²xs) or greater. |
| Class C | Membrane-faced surface not rated for flame propagation resistance |
| Category 1 | Membrane is a vapor retarder. |
| Category 2 | Membrane is not a vapor retarder. |
| Type III | Blankets with reflective membrane coverings: |
| Class A | Membrane-faced surface flame spread of 25 or less. |
| Class B | Membrane-faced surface with critical radiant flux of 0.12 W/cm² (0.11 Btu/ft²xs) or greater. |
| Class C | Membrane-faced surface not rated for flame propagation resistance |
| Category 1 | Membrane is a vapor retarder. |
| Category 2 | Membrane is not a vapor retarder. |

Fiberglass insulation designed to improve thermal and acoustic performance of wall and roof/ceiling assemblies. Fits tightly in wood or metal framing to allow for friction fit installation. Different sizes available to fit specific applications.

- ASTM C665 Type I
 - ASTM E84 <25/<50
 - ASTM C1338 Mold/mildew resistant
 - ASTM E136 Non-Combustible
 - ASTM C518
 - ASTM E90, E413 (3½", 6¼")
 - UL File #BKNV 3576 (Fire rated assemblies)
- R-11 3½" R-25 8"
- R-13 3½" R-30C 8¾"
- R-15 3½" R-30 9½"
- R-19 6¼" R-38C 10¼"
- R-20 5½" R-38 12"
- R-21 5½" R-49 14"
- R-22 6¾"

Project _____

Fiberglass insulation designed to improve thermal and acoustic performance of wall and roof/ceiling assemblies. Fits tightly in wood or metal framing to allow for friction fit installation. Flanges can be inset or face stapled as needed. Different sizes available to fit specific applications.

- ASTM C665 Type II, Class C
 - ASTM E84 Not rated
 - ASTM C1338 Mold/mildew resistant
 - ASTM C518
 - ASTM E90, E413 (3½", 6¼")
 - ASTM E96 Perm Rating -1 perm
- R-11 3½" R-22 6¾"
- R-13 3½" R-30C 8¾"
- R-15 3½" R-30 9½"
- R-19 6¼" R-38C 10¼"
- R-20 5½" R-38 12"
- R-21 5½" R-49 14"

Fiberglass insulation with PureFiber® Technology designed to improve thermal and acoustic performance of wall and roof/ceiling assemblies. Fits tightly in metal framing to allow for friction fit installation. Different sizes available to fit specific applications.

- ASTM C665 Type I
 - ASTM E84 <25/<50
 - ASTM C1338 Mold/mildew resistant
 - ASTM E136 Non-Combustible
 - ASTM C518
 - ASTM E90, E413 (2½", 3½")
 - UL File #BKNV 3576 (Fire rated assemblies)
- R-8 2½" R-11 3½"

Fiberglass insulation with facing that can be left exposed that is designed to improve thermal and acoustic performance of wall and roof/ceiling assemblies. Fits tightly in wood or metal framing to allow for friction fit installation. Flanges can be inset or face stapled as needed. Different sizes available to fit specific applications.

- ASTM C665 Type II (PSK) or Type III (FSK), Class A
- ASTM E84 <25/<50
- ASTM C1338 Mold/mildew resistant
- ASTM C518
- ASTM E96 Perm Rating -.5 perm
- UL File #BKNV 3576 (Fire rated assemblies)

PSK-E

- R-13 3½"
 - R-19 6¼"
 - R-21 5½"
 - R-30 9½"
 - R-38 12"
 - R-49 14"
- R-30 9½"
- R-38 12"
- R-49 14"
- R-30 9½"
- R-38 12"

- R-13 3½"
- R-19 6¼"
- R-21 5½"
- R-30 9½"
- R-38 12"
- R-49 14"

- R-13 3½"
- R-19 6¼"
- R-21 5½"
- R-30 9½"
- R-38 12"
- R-49 14"



Thermafiber® SAFB™ Mineral Wool Insulation



Description

Thermafiber® SAFB™ (Sound Attenuation Fire Blankets) are mineral wool batts designed to provide acoustical control and fire protection in many different UL® fire-rated wall and floor-ceiling assemblies. These products are non-combustible, moisture-resistant, non-corrosive, non-deteriorating, mildew-resistant and vermin-resistant. SAFB™ resist temperatures over 2,000°F and add STCs to wall and floor-ceiling assemblies. SAFB™ can be installed in both steel and wood framed construction.

Standards, Codes Compliance

| | |
|-------------------------|--|
| NFPA 101 | Class A rated interior finish |
| ASTM C 665 | Type I, per Federal Specification HH-I-521F |
| ASTM E 136 | Non-combustible as defined per NFPA Standard 220 |
| CAN/ULC S114 | Complies |
| ASTM C 1104 | Absorbs less than 1% by volume |
| ASTM E 84/ CAN/ULC S102 | Flame Spread 0, Smoke Developed 0 |

SAFB products are approved by: New York City Board of Standards & Appeals - (under BSA 35-66-SM, 173-77-M, 249-74-SM, 34-66-SM, & accepted by MEA 207-82-M, Vol.2)

Product Options

Recycled Content Options^{1,2}:

| | |
|---|-------------|
| EPA Choice Fiber (US Government Buildings) | Minimum 75% |
| Standard Fiber | 70% |

1. Recycled content options other than standard must be specified at time of order.

Formaldehyde-Free product available. See Owens Corning publication "Thermafiber® SAFB™ Formaldehyde-Free Mineral Wool Insulation Data Sheet" (Pub. No. 10022322) for more information.

Acoustical Performance

| Coefficients at Frequencies Per ASTM C 423 | | | | | | | | |
|--|-----------|--------|-------|-------|--------|--------|--------|------|
| | Thickness | 125 Hz | 250Hz | 500Hz | 1000Hz | 2000Hz | 4000Hz | NRC |
| 2.5 pcf SAFB™ Density | 2" | 0.34 | 0.61 | 1.07 | 1.09 | 1.07 | 1.10 | 0.95 |
| | 3" | 0.51 | 0.99 | 1.18 | 1.03 | 0.99 | 0.96 | 1.05 |
| | 4" | 0.83 | 1.19 | 1.27 | 1.12 | 1.12 | 1.13 | 1.20 |
| | 6" | 1.37 | 1.32 | 1.23 | 1.16 | 1.12 | 1.12 | 1.20 |

Installation

- Interior Stud Cavity – Friction fit SAFB™ securely between studs. Butt ends of blankets closely together and fill all voids.
- Creased SAFB™ – Using SAFB™ 1" wider than regular blankets, bow the blankets slightly to fit into stud cavity. Slit the blankets vertically 1" deep with a utility knife down the center.
- Floor-Ceiling – Friction fit SAFB™ securely between floor joints.
- Ceiling Overlayment – Lay SAFB™ over ceiling panels extending 48" beyond all partitions. Tightly fit around all hangers, obstructions, and penetrations.

Availability

| Density | Thickness* | Widths** | Lengths |
|------------|------------|------------------------------|---------|
| 2.5 pcf | 1½" - 7" | 15", 16", 17", 23", 24", 25" | 48" |
| 4.0 pcf | 1" | 15", 16", 17", 23", 24", 25" | 48" |
| Tolerances | +¼" - ½" | ±⅛" | ±½" |

*Thicknesses are available in ½" increments.

**15¼" and 23" are recommended widths for wood framed construction.

Thermafiber Insolutions®

Thermafiber Insolutions® offers industry leading technical and engineering assistance to architects, specifiers, and contractors. These services include CAD drawings, engineering judgments, LEED® Credit Information, and product recommendations. Contact our technical services department at 1-888-834-2371 or email ThermafiberInsolutions@owenscorning.com.



Thermafiber

Features

- Exceptional sound and noise absorption
- Adds STC value to wall and floor-ceiling assemblies
- Provides fire containment in rated assemblies
- Fire resistant to temperatures above 2,000° F (1,093° C)
- Minimum 70% Recycled content²
- Mold-resistant³
- Contributes to credits in several green building programs such as LEED® and Green Globes®

3. ASTM C 1338

Environmental and Sustainability

Owens Corning is a worldwide leader in building material systems, insulation and composite solutions, delivering a broad range of high quality products and services.

Owens Corning is committed to driving sustainability by delivering solutions, transforming markets and enhancing lives. More information can be found at www.owenscorning.com.

Notes

For additional information refer to the Safe Use Instruction Sheet (SUIS) found in the SDS Database via <http://sds.owenscorning.com>.

Submittal Approvals

Job Name _____

Contractor _____

Date _____



Made in the USA

Certifications and Sustainable Features

- ²Verified by ICC-ES to contain a minimum of 70% recycled content. See ICC-ES Evaluation Report VAR-1025 at icc-es.org.
- Environmental Product Declaration (EPD) has been certified by UL Environment. For more information visit ul.com/epd.
- Material Health Certificate from Cradle to Cradle Products Innovation Institute. For more information visit c2ccertified.org.
- This product receives SAFETY Act designation by the U.S. department of Homeland Security. For more information visit safetyact.gov.



Thermafiber® SAFB™, FireSpan®, and Safing mineral wool insulation contributed to the fire containment of the #7 World Trade Center building in New York City, NY. Thermafiber® mineral wool insulation also contributed to the building's LEED® Gold Rating.



Thermafiber

THERMAFIBER, INC.
ONE OWENS CORNING PARKWAY
TOLEDO, OHIO, USA 43659

888-TFIBER1 [834-2371]
www.thermafiber.com

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SUBMITTAL REVIEW

Submittal No.: 072100-002

Description: Thermal Insulation - PD

Project Name: UT Austin - Seay Building Addition

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

BY:

DATE: 2020/08/31

Submittal Comments:



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0328

PROJECT: UT Seay Building Addition

DATE: 08/31/2020

TO: BSA Lifestructures
AL

RE: Thermal Insulation - Mineral-Wool Board - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | | SUBMITTED FOR: | ACTION TAKEN: |
|--|--|---|--|
| <input type="checkbox"/> Shop Drawings | | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | | <input checked="" type="checkbox"/> Due Date: 09/14/2020 |
| <input checked="" type="checkbox"/> Submittal: | | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 072100-002 | 1 | | 08/31/2020 | Thermal Insulation - Mineral-Wool Board - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.
REVIEWED FOR COMPLIANCE
COMMENTS NOTED
REVISE AND RESUBMIT
OTHER:

DATE 8/31/2020 SPEC# 072100
REVIEWED BY tanner.hawkins
SUBMITTAL# 072100-002

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins



SUBMITTAL COVER SHEET

PROJECT NAME: UT Seay

ARCHITECT: BSA Life Structures

SPECIFICATION SECTION: 072100 Thermal Insulation

DATE PREPARED: 8/31/2020

CONTRACTOR: Spawglass

SUBCONTRACTOR'S NAME: Chamberlin Roofing and Waterproofing

SUBCONTRACTOR'S PHONE: 512.275.1600

MANUFACTURER'S NAME: Rockwool

MANUFACTURER'S PHONE: See Product Data

ITEM: See Table of Contents

NUMBER OF PAGES w/ COVER: 09

| Architect's Approval | Contractor's Approval |
|-----------------------------|---|
| | <p>The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer, and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.</p> <p>Chamberlin Austin, LLC Subcontractor Roland Cardenas Authorized Signature 08/31/2020 Date</p> |



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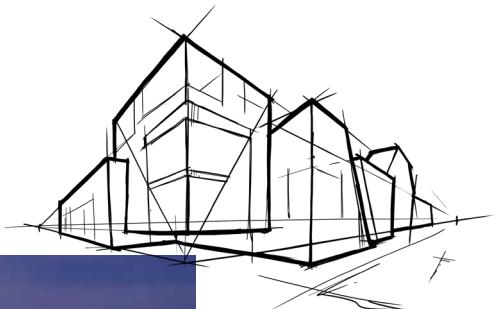
| | |
|---|----------------|
| 1. Rockwool CavityRock Semi-Rigid Stone Wool Insulation Board | 7 Pages |
|---|----------------|

Product Location: Furnish and install 2" mineral wool insulation to the cavity wall behind masonry veneer.

A. Product Data

Cavityrock®

Exterior Insulation for Cavity Wall
and Rainscreen Applications



Rush University Medical Center, Chicago, IL

ROCKWOOL Cavityrock® semi-rigid stone wool insulation board available in mono and dual density is designed for exterior cavity wall and rainscreen applications. Choose mono-density insulation in thicknesses up to 2" or dual-density in thicknesses of 2.5" to 6".

Compatible with numerous cladding attachment systems, Cavityrock® is a durable solution with non-combustible characteristics meaning that the insulation will not develop toxic smoke or promote flame spread even when directly exposed to fire. Approved for use in many NFPA 285-compliant designs, it is an important component of fire-resilient exterior wall systems when used as a continuous insulation.

Cavityrock® also offers energy efficiency with reliable thermal performance, improved acoustic comfort, and is moisture resistant to maintain insulating value for the long-term.

Also available in a black mat facer finish for open-joint cladding systems, Cavityrock® Black combines your insulation install with masking in a single step, reducing installation time and material cost to achieve your desired design aesthetic.

Learn more at rockwool.com/products/cavityrock/

Cavityrock® Black: Now available with black mineral fiber facing for open-joint cladding systems.

Fire Performance

The non-combustible characteristics of Cavityrock® insulation mean that it will not develop toxic smoke or promote flame spread even when directly exposed to fire.



Cavityrock®

Exterior Insulation for Cavity Wall and Rainscreen Applications

Technical Data Sheet

Board Insulation 07210* • Board Insulation 07 21 13**

Cavity Wall Unit Masonry 04 27 23**

ROCKWOOL Cavityrock® is a semi-rigid stone wool insulation board designed for exterior cavity wall and rainscreen applications. Compatible with numerous cladding attachment systems, Cavityrock® is non-combustible and available with a black mineral fleece facing for open-joint cladding systems.

| | Performance | Test Standard |
|---|---|---|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant MEA Approval, New York City Approval For information on CAN/ULC S702 compliance, contact ROCKWOOL Technical Support | ASTM C612 236 - 05 - M |
| 2.4B | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Behaviour of materials at 750°C - Non Combustible | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 |
| Reaction to fire (with black mat facer) | Flame spread index = 10; Smoke developed index = 25 Flame spread index = 10; Smoke developed index = 10 | ASTM E84 (UL 723) CAN/ULC S102 |
| Monolithic Density (thickness: 1", 1.5", 2") | > 4.3 lbs/ft³ (>69 kg/m³)* * Density will change with thickness, please contact ROCKWOOL for more information | ASTM C303 |
| Density (thickness ≥ 2.5") | Dual Density - 6.2 lbs/ft³ (100 kg/m³) outer layer and 3.8 lbs/ft³ (61 kg/m³) inner layer | ASTM C303 |
| Dimensional Stability | Linear Shrinkage = 0.7% @ 1200°F (650°C) | ASTM C356 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 |
| 2.4/B.5 | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4.3 hr.ft².F/Btu 0.75 m²K/W |
| Reaction to Moisture | Moisture Sorption - 0.03% by volume Water Vapor Transmission, Desiccant Method - 1555ng/Pa.s.m² (27 perm) Determination of Fungi Resistance - Passed | ASTM C1104 ASTM E96 ASTM C1338 |
| Reaction to moisture (with black mat facer) | Moisture Sorption - 0.65% by volume Water Vapor Transmission, Desiccant Method - 2435ng/Pa.s.m² (43 perm) Determination of Fungi Resistance - Passed | ASTM C1104 ASTM E96 ASTM C1338 |
| Dimensions | 1" (25.4 mm) to 4" (101.6 mm) in 1/2" increments. 5" (127 mm) and 6" (152.4 mm) 24" x 48" (610 mm x 1219 mm) and 16" x 48" (406 mm x 1219 mm) | |
| Dimensions (with black mat facer) | 2" (25.4 mm) to 6" (101.6 mm) in 1" increments (5" and 6" limited to 24 x 48 dimension) 24" x 48" (610 mm x 1219 mm) and 16" x 48" (406 mm x 1219 mm) | |
| Acoustical Performance | Thickness 125 Hz 250 Hz 500 Hz 1000 Hz 2000Hz 4000 Hz NRC 1.5" 0.19 0.55 1.03 1.06 1.02 1.01 0.9 2" 0.26 0.71 1.14 1.09 1.04 1.03 1 3" 0.72 0.93 0.88 0.84 0.9 0.97 0.9 | ASTM C423 |

Issued 01-01-18
Supersedes 08-23-17



Please contact ROCKWOOL for
Declare labels for other ROCKWOOL
manufacturing facilities.

NOTE: *Master Format 1995 Edition **Master Format 2004 Edition. As ROCKWOOL has no control over installation design and workmanship, accessory materials or application conditions, ROCKWOOL does not warranty the performance or results of any installation containing ROCKWOOL's products. ROCKWOOL's overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.

Safe Use Instruction Sheet

This ROCKWOOL Safe Use Instruction Sheet [SUIS] is provided for manufactured articles neither regulated by OSHA Hazard Communication Standard, 29 CFR 1910.1200 nor by the Canada Hazardous Products Regulation SOR/2015-17 [WHMIS 2015].

ROCKWOOL provides this SUIS for safe handling and use instructions.

1. Identification of the article

Product Name Resin-Bonded Stone Wool Insulation

| Product Family | Product Identification | Intended Use |
|----------------|---|--|
| I. | AFB evo™ | Interior Wall and Floor Applications |
| II. | COMFORTBOARD™, COMFORTBATT®, SAFE'N'SOUND®, AFB®, CAVITYROCK®, CURTAINROCK®, ROCKBOARD®, ROXUL Plus®, SAFE® | Interior and Exterior Applications |
| III. | MONOBOARD® PLUS, TOPROCK® DD Plus, MULTIFIX | Roof Insulation or Insulating Cover Board over Other Insulations |
| IV. | MONOBOARD®, TOPROCK® DD, TOPROCK® DD | Low-Slope Roof Applications |
| V. | CONROCK®, FABROCK™ | OEM |
| VI. | ProRox® NA, SeaRox® NA | Industrial Piping and Equipment Applications |

Manufacturer ROCKWOOL

Address Canada
8024 Esquesing Line
Milton, Ontario
Canada
L9T 6W3 USA
4594 Cayce Rd
Byhalia
MS 38611
USA

Company 1-800-265-6878
Phone Number 1-877-823-9790 (8:30 am to 5:00 pm ET)

Email contactus@rockwool.com

2. Hazards identification

OSHA This product is considered an article as per OSHA 29 CFR 1910.1200.

29 CFR 1910.1200(c) defines an article as follows: "Article" means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

Articles meeting the above definition are not regulated by OSHA 29 CFR 1910.1200 and are exempt from SDS and label requirements.



8024 Esquesing Line, Milton, ON L9T 6W3
Tel: 800-265-6878 • Fax: 800-991-0110
rockwool.com

2. Hazards identification - Continued

WHMIS

This product is considered an article per the Canadian Hazardous Products Regulation SOR/2015-17. Manufactured articles that meet the definition of the Canadian Hazardous Products Act (any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, when being installed, if the intended use of the article requires it to be installed, and under normal conditions of use, will not release or otherwise cause an individual to be exposed to a hazardous product) are not regulated by the Canadian Hazardous Products Regulation SOR/2015-17 and are exempt from SDS and label requirements.

Adverse physicochemical, human health and environmental effects

This product may cause temporary mechanical irritation to the eyes and skin. Temporary irritation of the upper respiratory tract (scratchy throat, coughing, congestion) may result from exposure to dusts and fibers in excess of applicable exposure limits. Pre-existing chronic eye, skin and respiratory conditions may temporarily worsen due to exposure to dusts and fibers (see section 8 for safe handling instructions).

3. Composition / information on ingredients

| Product Family | Stone wool (a, b) | Non added formaldehyde binder | Phenol Formaldehyde Binder | Syrups, hydrolysed starch | Mineral Oil |
|----------------|-------------------|-------------------------------|----------------------------|---------------------------|-------------|
| I. | 97% | <3% | - | <1% | <0.2% |
| II. | 97% | - | <3% | <1% | <0.2% |
| III. | 94-96% | - | <6% | <1% | <0.2% |
| IV. | 94-96% | - | <6% | <1% | <0.2% |
| V. | 97% | - | <3% | <1% | <0.2% |
| VI. | 97% | - | <3% | <1% | <0.2% |

a: Man-made vitreous (silicate) fibres with random orientation with alkaline oxide and alkali earth oxide ($\text{Na}_2\text{O} + \text{K}_2\text{O} + \text{CaO} + \text{MgO} + \text{BaO}$) content greater than 18 % by weight and fulfilling Note Q conditions

b: Man Made Vitreous Wool Fibres are IARC classified as Group 3 (not classifiable as to their carcinogenicity to humans)

Possible facing materials: Mineral fleece. Aluminium foil, Aluminium foil reinforced mineral fiber grid, PE craft paper, Wired mesh, PP film, Plaster board, Mineral cloth, Bitumen.

4. First aid measures

Eye contact

Rinse immediately with water for at least 15 minutes.

Skin contact (if itching occurs)

Remove contaminated clothing and wash skin gently with cold water and a mild soap. Never use compressed air to remove fibers from skin or clothing.

Inhalation

If affected, remove from exposure.

Ingestion

Rinse mouth and drink plenty of water.

If any irritation persists, seek immediate medical attention.

5. Fire fighting measures

| | |
|--|--|
| Suitable extinguishing media | Water, Foam, Carbon Dioxide or dry powder (No unsuitable extinguishing firefighting media known). |
| Protective equipment for firefighters | Do not enter fire area without proper protective equipment, including NIOSH-approved self-contained breathing apparatus (SCBA). Observe normal fire fighting procedures. |

6. Accidental release

| | |
|--------------------------------|--|
| Personal precautions | In case of high concentrations of dust: Ventilate and/or use same protective equipment as mentioned in section 8 |
| Methods for cleaning up | Use personal protective equipment as required. Clean contaminated surface with vacuum or dampen with water spray prior to sweeping up. Place waste in appropriate containers for disposal. |

7. Handling and storage

| | |
|--------------------------------------|--|
| Precautions and safe handling | No specific measures required. A serrated knife for cutting is preferred. Minimize dust creation and ensure adequate ventilation of workplace. |
| Storage conditions | Keep product dry and in original packaging until use. |
| Incompatible materials | None known. |

8. Exposure controls / personal protection

| | | |
|----------------------------|---|--|
| Exposure guidelines | Follow all applicable exposure limits. Local regulations may apply. ROCKWOOL recommends that users of the products adhere to the OSHA-recommended PEL of 1 f/cc TWA (fibers longer than 5 µm with diameters less than 3µm). This recommended PEL, together with recommended work practices and personal protective equipment, were adopted in a Health and Safety Partnership Program (HSPP) agreement in 1999 between OSHA and the North American Insulation Manufacturers Association (NAIMA), of which ROCKWOOL is a member. Adherence to the OSHA-recommended PEL, work practices and protective equipment in the HSPP is expected to provide appropriate protection against all inhalation-related health risks that may be associated with exposures to mineral wool fibers (ACGIH, 1997; NAIMA, 1999; OSHA, 1999; National Research Council, 2000; IARC, 2001), and to minimize eye and skin irritation. | |
|----------------------------|---|--|

| Reference | Exposure | Legal or Recommended Exposure Limit |
|-----------|---|--|
| OSHA | Synthetic Vitreous Fibers, > 5 µm length, < 3 µm diameter | 1 f/cc TWA (recommended) |
| | Inert dust and particulates not otherwise regulated | 15 mg/m ³ TWA-PEL (total particulate) 5 mg/m ³ TWA-PEL (respirable particulate) |
| ACGIH | Synthetic Vitreous Fibers, > 5 µm length, < 3 µm diameter | 1 f/cc TWA (threshold limit value TLV) |
| | Particulates not otherwise classified, containing no asbestos and < 1% crystalline silica | 10 mg/m ³ TWA-PEL (inhalable particulate) 3 mg/m ³ TWA-PEL (respirable particulate) |

8. Exposure controls / personal protection

Engineering controls Provide local exhaust and/or general ventilation to main exposure below regulatory and recommended limits. Vacuum or wet cleaning methods recommended.

Individual protection measures, including personal protection

| | |
|-----------------|---|
| Eyes | Wear safety glasses with side shielding or similar |
| Skin/body | Wear protective gloves Wear long sleeve shirt and long trousers |
| Respiratory | Ensure proper ventilation Use appropriate certified respirator when airborne particulates are above exposure limits (properly fitted NIOSH disposable N95 type dust respirator or better is recommended) |
| General hygiene | Wash hands with cold water after handling products Remove and wash clothes worn during working with product. |

9. Physical and chemical properties

Physical State Solid

Color Grey, green, brown

Odor May have slight resin odor

Melting Point Approximately 2150°F (1177°C)

Water solubility Insoluble in water

10. Stability and reactivity

Reactivity and Stability Stable under normal conditions of use

Decomposition products Primary combustion products of the cured urea extended phenolic formaldehyde binder, when heated above 390°F (200°C), are carbon monoxide, carbon dioxide, ammonia, water and trace amounts of formaldehyde. Other undetermined compounds could be released in trace quantities. Emission usually only occurs during the first heating. The released gases may be irritating to the eyes, nose and throat during initial heat-up. Use appropriate respirators (air supplied) particularly in tightly confined or poorly ventilated areas during initial heat-up.

11. Toxicological information

Stone wool fibers are not classifiable as OSHA irritants. Coarse fibers and dust from mineral wool products can cause temporary and reversible irritation (itching, redness) of the skin and eyes. The itching and possible inflammation are a mechanical reaction to dust and coarse fibers (more than about 5 µm in diameter) and are not damaging in the way chemical irritants may be. The symptoms generally abate within a short time after the end of exposure. When products are handled continually, the skin itching generally diminishes.

Man Made Vitreous Wool Fibers are IARC classified as Group 3 (not classifiable as to their carcinogenicity to humans)

12. Ecological information

The products are stable, not expected to cause harm to animals, plants or fish, and have no known adverse environmental effects.

13. Disposal considerations

The products, as supplied, are not expected to be a characteristic hazardous waste under RCRA if discarded. Products are not considered to be a hazardous waste. Dispose of waste material according to federal, state, provincial and Local environmental regulations. Comply with relevant regulations with regards to disposal, recycling, treatment, transportation and storage of contents and containers.

14. Transport information

No special precautions. This product is not considered to be a hazardous material for transport.

15. Regulatory information

International Inventories

Articles are exempt from registration or listing chemicals inventories like TSCA (USA), DSL/NDSL (CAN), REACH (EU), ENCS (JP), IECSC (CN), KECL (KR), PICCS (PH), AICS (AUS). Per Section 2. these products are considered an article.

| Product Family | California Proposition 65 Status |
|----------------|---|
| I. | This product does not contain any Proposition 65 chemicals. |
| II. - V. | These products contain formaldehyde, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. |

16. Other information

Date of preparation

16-AUG-2018

Date of revision

10-MAY-2019

Comments to revision

Inclusion of ProRox and SeaRox Technical Insulation

Disclaimer

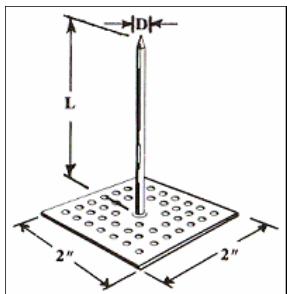
Disclaimer: The information contained herein is based upon data considered to be accurate. However, no warranty is expressed or implied regarding the accuracy of these data, the results to be obtained from the use thereof, or that any such use will not infringe upon any patent. This information is furnished as a guide only and upon the condition that the person receiving it shall make tests to determine the accuracy and suitability for his or her own purpose. No responsibility is assumed for injury or damage from the use of the products described herein.

ROCKWOOL reserves the right, at its discretion, to change and modify this Safe Use Instruction Sheet. This version supersedes any Safety Data Sheets and older versions. ROCKWOOL will not take responsibility for documents downloaded from any website except those downloaded directly from www.rockwool.com. ROCKWOOL takes no responsibility for documentation supplied by a third party as ROCKWOOL cannot control the content of such documentation to ensure accuracy.

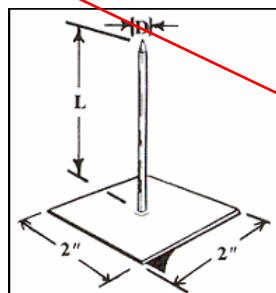
INSULATION HANGERS



Insulation Hangers



**PERFORATED BASE
(ADHESIVE REQUIRED)**



**PEEL & PRESS
(SELF-STICKING)**

Perforated Base Insulation Hangers

| Perforated Hanger Specifications | |
|----------------------------------|-----------------------------|
| "D" | "L" |
| 12 Ga. (.105) | 3/4" minimum 16" maximum |

- **NAIL:** Low Carbon Steel, copper coated. (Aluminum and Stainless Steel nails available on special order.)
- **ANNEALING:** All steel pins are fully annealed unless otherwise specified.
- **BASEPLATE:** Low Carbon Steel, galvanized.
- **ACCESSORIES:** Self locking washers in a variety of sizes, shapes and materials.

Peel & Press Insulation Hangers

| Peel & Press Specifications | |
|-----------------------------|--------------|
| "D" | "L" |
| 12 Ga. (.105) | 3/4" minimum |

- **NAIL:** Low Carbon Steel, copper coated. (Aluminum and Stainless Steel nails available on special order.)
- **ANNEALING:** All steel pins are fully annealed unless otherwise specified.
- **BASEPLATE:** Low Carbon Steel, galvanized.
- **ACCESSORIES:** Self locking washers in a variety of sizes, shapes and materials.

INSULATION HANGER ADHESIVE



Dymonic® 100

High-Performance, High-Movement, Single-Component, Polyurethane Sealant

Product Description

Dymonic® 100 is a high-performance, high-movement, single-component, medium-modulus, low-VOC, UV-stable, non-sag polyurethane sealant.

Basic Uses

Dymonic 100 is a durable, flexible sealant that offers excellent performance in moving joints and exhibits tenacious adhesion once fully cured. Typical applications for Dymonic 100 include expansion and control joints, precast concrete panel joints, perimeter caulking (windows, doors, and panels), aluminum, masonry and vinyl siding. Dymonic 100 is also an excellent choice as a fluid applied flashing material in rough opening perimeters for fenestration/window, door and curtain wall applications.

Features and Benefits

- Can adhere to damp or green concrete and has a skin time of 2 hr with a tack-free time of 6 to 8 hr to significantly reduce dirt attraction.
- Movement capability of +100/-50% in typical field conditions, is low VOC, paintable, jet fuel-resistant, and will not crack, craze or yellow under extreme UV exposure.
- Suitable for water immersion and will not out gas.
- Formulated with an innovative polymer technology, similar to TREMproof® 250GC and Vulkem® 45SSL, Dymonic 100 is highly versatile and has a unique capability to adhere to damp or green concrete and will not out gas.
- Compatible and can be coated over with Tremco's Vulkem Deck Coatings, ExoAir® Air Barrier products and the cold, fluid-applied TREMproof® line of below-grade waterproofing products.

Availability

Dymonic 100 is immediately available from your local Tremco Sales Representative, distributor, or warehouse.

Coverage Rates

308' of joint per gallon for a 1/4" x 1/4" (6 mm x 6 mm) joint. For specific coverage rates that include joint size, and usage efficiencies, visit our website usage calculator at www.tremcosealants.com

Packaging

- 10.1-oz (300-mL) cartridges
- 20-oz (600-mL) sausages

Colors

Almond, Aluminum Stone, Anodized Aluminum, Beige, Black, Bronze, Buff, Dark Bronze, Gray, Gray Stone, Hartford Green, Ivory, Light Bronze, Limestone, Natural Clay, Off White, Precast White, Redwood Tan, Sandalwood, Stone, and White.

Shelf Life

1 year when stored at 40 to 110 °F (5 to 43 °C)

Storage

Store Dymonic 100 in original, undamaged packaging in a clean, dry, protected location with temperatures between 40 to 110 °F (5 to 43 °C).

Applicable Standards

- Dymonic 100 meets or exceeds the requirements of the following specifications:
- ASTM C920 Type S, Grade NS, Class 50, Use NT, T, M, A, O, I
- U.S. Federal Specification TT-S-00230C, Class A, Type II
- CAN/CGSB-19.13-M87
- International Code Council (ICC) Section R703.8 Flashing
- AAMA 714-15 Specification for Liquid-Applied Flashing
- NFPA 285 Listed Component



Fire Rated Systems

FF-D-1186, FW-D-1117, HW-D-1122, WW-D-1200, and BW-S-0006

Limitations

- Use with adequate ventilation.
- Always utilize the accompanying MSDS for information on Personal Protective Equipment (PPE) and Health Hazards.
- Not recommended for use in chlorinated, potable, heavy or waste water.
- Although Dymonic 100 is paintable, this does not imply adhesion to and compatibility with all paints. Consult Tremco Technical Bulletin No. S-09-05 for more information.

Substrate Preparation

Surfaces must be sound and clean. All release agents, existing waterproofing, dust, loose mortar, paints, other finishes or field applied coating must be removed. This can be accomplished with a thorough wire brushing, grinding, sandblasting, or solvent washing, depending on the contamination.

Tremco recommends that surface temperatures be 40 °F (5 °C) or above at the time the sealant is applied. If sealant must be applied in temperatures below 40 °F, please refer to the Tremco Technical Bulletin for Applying Sealants in Cold Conditions (No. S-08-44 rev 1) that can be found on our website at www.tremcosealants.com

Dymonic® 100

High-Performance, High Movement, Single-Component, Polyurethane Sealant

Priming

Dymonic 100 typically adheres to common construction substrates without primers; anodized aluminum may require the use of primer. However, Tremco always recommends that a mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer, proper cleaning and prep requirements. A description of the field adhesion test can be found in appendix X1 of ASTM C1193, Standard Guide for Use of Joint Sealants.

Where deemed necessary, use Vulkem® Primer #191 Low-VOC on porous substrates and TREMprime® Non-Porous Primer for metals or plastics.

Application

Dymonic 100 is easy to apply with conventional caulking equipment. Ensure that the backer rod is fitted properly for friction and that any necessary primers have been applied.

Fill the joint completely with a proper width-to-depth ratio, and then tool to ensure intimate contact of sealant with joint substrates.

Dry tooling is always preferred, although compatible wetting agents can be used in limited amounts to slick the spatula if needed after an initial pass.

For a cleaner finish, mask the sides of the joint with tape prior to filling.

Joint Design

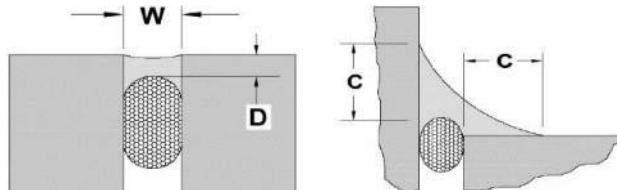
Dymonic 100 may be used in vertical or horizontal joints designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement but not less than 1/4" (6 mm).

Joint Backing

Polyethylene backer rod is recommended as joint backing to control sealant depth and ensure intimate contact of sealant with joint substrate when tooling. Where depth of joint will prevent the use of backer rod, an adhesive backed polyethylene tape (bond breaker tape) should be used to prevent three-sided adhesion. All backing should be dry at the time of sealant application.

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



Expansion Joints- The minimum width and depth of any sealant application should be 1/4" x 1/4" (6 mm x 6 mm). The depth (D) of sealant may be equal to width (W) of joints less than 1/2" wide. For joints from 1/2" to 1" (13 mm to 25 mm) wide, the sealant depth should be approximately one-half of the joint width. The maximum depth (D) of any sealant application should be 1/2" (13 mm). For Joints that are wider than 1" (25 mm) contact Tremco Technical Services or your local Tremco Sales Representative.

Window Perimeter- For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area [C] of 1/4" (6 mm) onto each substrate, with provisions for release at the heel of the angle using backer rod or bond breaker tape.

Cure Time

Dymonic 100 generally cures at a rate of 3/32" per day at 75 °F (24 °C) and 50% RH. It will skin in 2 hr and be tack free in 6 to 8 hr. The cure time will increase as temperatures and/or humidity decrease. A typical rule of thumb is one additional day for every 10 °F decrease in temperature.

Clean Up

Excess sealant and smears adjacent to the joint interface can be carefully removed with xylene or mineral spirits before the sealant cures. Any utensils used for tooling can also be cleaned with xylene or mineral spirits.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

Dymonic® 100

High-Performance, High Movement, Single-Component, Polyurethane Sealant

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|--------------------------------------|------------------------|--|
| Type | | Single component polyurethane sealant |
| Color | | 21 Standard Colors |
| Solids | | 98% |
| Specific Gravity | | 1.3302 |
| Application | | gun-grade sealant, applied with typical caulking equipment |
| Rheological Properties | ASTM C639 | non-sag (NS), 0" of sag in channel |
| Hardness Properties | ASTM C661 | 40 +/-5 |
| Weight Loss | ASTM C1246 | Pass |
| Skin Time | ASTM C679 | 2 to 3 hr |
| Tack Free Time | 73.4°F (23°C) 50% RH | 6 to 8 hr |
| Stain and Color Change | ASTM C510 | Pass |
| Adhesion to Concrete | ASTM C794 | 35 pli |
| Adhesion to Concrete After Immersion | ASTM C794 | 30 pli |
| Adhesion to Green Concrete | ASTM C794 | >25 pli |
| Adhesion to Damp Concrete | ASTM C794 | >20 pli |
| Effects of Accelerated Aging | ASTM C793 | Pass |
| Movement Capability | ASTM C719 | +/-50% |
| Movement Capability | ASTM C719* Modified | +100/-50% |
| Tensile Strength | ASTM D412 | 350 to 450 psi |
| % Elongation | ASTM D412 | 800 to 900% |
| Modulus at 100% | ASTM D412 | 75 to 85 psi |
| Tear Strength | ASTM D412 | 65 to 75 psi |
| Service Temperature | | -40 to 180 °F (-40 to 82 °C) |
| Application Temperature | | 40 to 100 °F (4 to 37 °C) * |
| Smoke Development | ASTM E84 | 5 |
| Fire Spread | ASTM E84 | 5 |
| Fire Resistance of Assembly | NFPA 285 | PASS |
| Smoke Development | CAN S102 | 10 |
| Fire Spread | CAN S102 | 10 |
| Crack Bridging | ASTM C1305 | PASS |
| Nail Sealability | ASTM D1970 Section 7.9 | PASS |

*For temperatures below 40 °F, please refer to the Technical Bulletin, Cold Temperature Sealant Application Recommendations.

0619/D100DS-STPlease refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.**Tremco Commercial Sealants & Waterproofing**

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H 1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555

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Phone (409) 740-0090

ZERO / SIX
Consulting
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 072600-001

Description: Vapor Retarder - PD

Project Name: UT Austin - Seay

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



Darryl Castleberry

BY:

DATE: 2020.03.04

Submittal Comments:

1. Product manufacturer is not listed as an approved manufacturer. Please follow substitution request guidelines outlined in specification section 012500.



SpawGlass Construction Corp.
1111 Smith Rd, Austin, TX
Austin TX 78721

TRANSMITTAL

No. 0051

PROJECT: UT Seay Building Addition

DATE: 02/27/2020

TO: BSA Lifestructures
AL

RE: Vapor retarder - Product Data

ATTN: Steve Bruppacher

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|--|---|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input checked="" type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | eMail | <input type="checkbox"/> Due Date: |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|-------------------------------|------------------------|
| 1 | Submittal | | 072600-001 | 1 | | 02/27/2020 | Vapor retarder - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 2/27/2020 SPEC# 072600

REVIEWED BY tanner.hawkins

SUBMITTAL# 072600-001

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins
TANNER HAWKINS

Yellow Guard®

15 MIL VAPOR BARRIER

Husky® Yellow Guard® premium vapor barriers are waterproofing membranes manufactured using top-quality polyethylene (polyolefin) resins. Husky® Yellow Guard® vapor barriers are manufactured to be used in contact with soil and granular fill under concrete slabs, beams, and footings, and provide exceptionally low water vapor permeance. Husky® Yellow Guard® vapor barriers are manufactured by Poly-America, an industry leader in the manufacture of polyethylene films. Poly-America utilizes state-of-the-art processing equipment.



VAPOR BARRIER HIGHLIGHTS

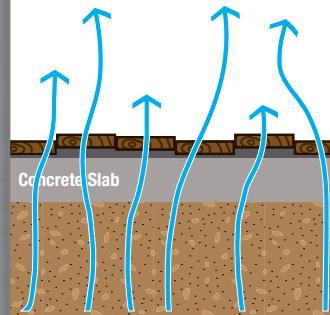
- Developed for use as a durable vapor barrier.
- Multi-layer product formulated from top-quality polyethylene (polyolefin) resins.
- Exceeds industry-standard ASTM E 1745 Class A, Class B, and Class C specifications.
- Restricts migration of soil gases such as radon and methane.
- Exceptionally low water vapor permeance, ten times lower than industry-standard ASTM E 1745 Class A requirement.
- Manufactured by Poly-America on state-of-the-art manufacturing equipment with full-time on-line quality monitoring and routine laboratory testing.
- Maintains low water vapor permeance even after exposure to severe field conditions.
- Outstanding tensile properties and puncture resistance.
- Excellent resistance to low-temperature brittleness.
- Available nationwide.

Manufacturing Quality Control & Quality Assurance

All resins, additives, and concentrates for use in Husky® Yellow Guard® vapor barrier must meet Poly-America's stringent raw material specifications. Husky® Yellow Guard® vapor barrier is manufactured with continuous process-control monitoring and is routinely tested in Poly-America's state-of-the-art laboratory during and after production.

In addition, Husky® Yellow Guard® vapor barrier has been tested by accredited, independent laboratories to ensure that it meets ASTM E 1745 Class A, Class B, and Class C specifications.

NO MOISTURE PROTECTION



HUSKY® Yellow Guard®

VAPOR BARRIER

MOISTURE PROTECTION

Concrete Slab

Husky® Yellow Guard® Vapor Barrier



PROPERTIES OF 15 MIL HUSKY® YELLOW GUARD® VAPOR BARRIER

| Properties | Test Method | ASTM E 1745 Class A Requirements | Yellow Guard® Vapor Barrier Test Result* | Measures |
|---|----------------------|-------------------------------------|---|---|
| Permeance | ASTM F 1249 | 0.1 perms | 0.0082 perms/**0.0037 WVTR | Resistance to water vapor |
| Puncture Resistance | ASTM D 1709 Method B | 2200 g | 2300 g | Impact energy required to cause failure |
| Puncture Resistance | ASTM D 4833 | | 183 N | Force required to puncture film |
| Tensile Strength | ASTM D 882 | 45.0 lbf/in | 79.3 lbf/in | Force required to break/rupture film |
| Permeance After Conditioning (ASTM F 1249) | ASTM E 154 | | | Resistance to water vapor after: -wetting, drying, and soaking -heat conditioning -low-temperature conditioning -soil organism exposure |
| | Section 8 | 0.1 perms | 0.0087 perms | |
| | Section 11 | 0.1 perms | 0.0090 perms | |
| | Section 12 | 0.1 perms | 0.0087 perms | |
| | Section 13 | 0.1 perms | 0.0093 perms | |
| Methane Transmission Rate | ASTM D 1434 | | 182.91 mL(STP)/(m ² · day) | Transmission through a membrane |
| Radon Permeability Coefficient | | | 6.7 x 10 ⁻¹⁴ m ² /sec | |
| Thickness | | | 15 mils | |
| Roll Dimensions | | | 14 ft x 140 ft | |
| Roll Weight | | | 142.4 lbs | |

*All values are typical values and may vary within industry tolerances.

Perm = grains/(ft² · hr · inHg)

**WVTR (Water Vapor Transmission Rate) in g/(100 in² · day)



Installation

Installation of Husky® Yellow Guard® vapor barrier, including placement, lap joints, pipe penetrations, protection, repair, and suggested field check list, shall be in accordance with ASTM E 1643 standard practice and the project plans and specifications.

Availability

Husky® Yellow Guard® 15 mil vapor barriers are available nationwide. Visit www.yellowguard.com for more information.

Limited Replacement Warranty

Poly-America provides a limited replacement warranty on Husky® Yellow Guard® vapor barrier representing that the vapor barrier is free from material defects for a period of 1 year from the date of sale. The specific details of Poly-America's limited replacement warranty are available at <http://www.yellowguard.com/limitedwarranty.pdf>.

Poly-America

2000 W. Marshall Dr. • Grand Prairie, TX 75051

800-527-3322 • 972-337-7654 • Fax 972-337-7016 • www.yellowguard.com • yellowguard@poly-america.com

The information provided herein has been compiled by Poly-America, L.P. and to the best of our knowledge accurately represents Poly-America's Yellow Guard® vapor barriers at the time of publication. This publication is offered "as is," for preliminary planning purposes only, without any warranties of any kind. Final determination of suitability of this information or these products for the use contemplated and its manner of use is the sole responsibility of the end user. Poly-America, L.P. assumes no liability in connection with the use of this information and these products. This information is subject to change without notice.

57-023-0086A Rev 2/16

Poly-America

2000 West Marshall Dr. • Grand Prairie, TX 75051
800-527-3322 • 972-337-7100 • FAX 972-337-7600

Yellow Guard Vapor Barrier Independent Laboratory Test Results

Material: Vapor Barrier

Thickness: 15 mils

Color: Yellow

Composition: Multi-Layer Co-extruded Polyolefin Membrane

Specification: ASTM E 1745 Class A

Poly-America, L.P. certifies that the 15mil Yellow Guard meets the requirements of ASTM E 1745 Class A.

All tests were performed by reputable independent laboratories at their locations as indicated.

| Material Property | Test Method | Result | Unit | Date |
|---|-------------|--------|---------------------------------|-----------|
| *Water Vapor Permeance | ASTM F 1249 | 0.0081 | grains/ft ² *hr*inHg | 6/21/2013 |
| **Tensile Strength (Machine Direction) | ASTM D 882 | 80.0 | lbf/in | 1/30/2013 |
| **Tensile Strength (Transverse Direction) | ASTM D 882 | 79.3 | lbf/in | 1/30/2013 |
| **Puncture Resistance | ASTM D 1709 | 2290 | grams | 1/30/2013 |

*Mocon Testing Services, Minneapolis, MN

**TRI/Environmental, Inc., Austin, TX

Date: 6/25/2013

A.M. Yazdani, MSc., P.E.
Technical Services
Poly-America, L.P.



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

July 6, 2018

Mail To:

George Yazdani
Poly America
2000 W Marshall Dr
Grand Prairie TX 75051

email: georgey@poly-america.com

Dear Mr. Yazdani:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project: **WVT Barrier Film Study - ASTM E1745**

TRI Job Reference Number: 36062

Material(s) Tested: 15 mil Yellow Guard Vapor Barrier

Test(s) Requested: ASTM E1745 Test Series
Section 7.1: Water Vapor Permeance (ASTM F1249)
Section 7.1.1: Permeance of As-Manufactured Material (no conditioning)
Section 7.1.2: Permeance after Wetting, Drying, and Soaking (ASTM E154/E154M, Section 8)
Section 7.1.3 Permeance after Heat Conditioning (ASTM E154/E154M, Section 11)
Section 7.1.4: Permeance after Low Temperature Conditioning (ASTM E154/E154M, Section 12)
Section 7.1.5: Permeance after Soil Organism Exposure (ASTM E154/E154M, Section 13)
Section 7.2: Tensile Strength of As-Manufactured Material (ASTM D882)
Section 7.3: Resistance to Puncture of As-Manufactured Material (ASTM D1709, Method B)
ASTM D4833: Index Puncture Resistance of Geomembrane and Related Products

NOTE: All tests were performed on a sample obtained from a single production roll of material in conformance with Section 8 of ASTM E1745. The test sample was obtained by Mr. Vincent Saucedo of TRI-Environmental, Inc. at the Poly-America production plant in Grand Prairie, Texas on March 14, 2018. Mr Saucedo randomly selected a roll from the Poly-America production inventory and witnessed the cutting and labeling of the sample and personally delivered it to TRI-Environmental, Inc. in Austin, Texas for subsequent testing.

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Sam Allen
Vice President
*Signature is on file



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

GEOMEMBRANE TEST RESULTS

TRI Client: Poly America

Project: WVT Barrier Film Study - ASTM E1745

Material: YellowGuard Vapor Barrier

Sample Identification: 15 mil

TRI Log #: 36062

| PARAMETER | TEST REPPLICATE NUMBER | | | | | MEAN | STD. DEV. |
|---|-------------------------|------|-------|------|------|------|-----------|
| | 1 | 2 | 3 | 4 | 5 | | |
| Tensile Properties (ASTM D 882, 2 ipm strain rate) | | | | | | | |
| MD Strength (ppi) | 78.5 | 77.5 | 100.2 | 92.8 | 97.1 | 89.2 | 10.6 |
| TD Strength (ppi) | 90.1 | 93.8 | 53.5 | 80.8 | 85.4 | 80.7 | 16.0 |
| MD Strength (kN/m) | 13.7 | 13.6 | 17.6 | 16.3 | 17.0 | 15.6 | 1.9 |
| TD Strength (kN/m) | 15.8 | 16.4 | 9.4 | 14.2 | 15.0 | 14.1 | 2.8 |
| MD Break Elongation (%) | 827 | 837 | 952 | 920 | 956 | 898 | 62 |
| TD Break Elongation (%) | 889 | 924 | 636 | 836 | 882 | 833 | 115 |
| Puncture Resistance (ASTM D 4833) | | | | | | | |
| Puncture Strength (lbs) | 38 | 43 | 41 | 40 | 40 | 40 | 2 |
| Puncture Strength (N) | 170 | 189 | 181 | 180 | 179 | 180 | 7 |
| Impact Resistance (ASTM D1709, Method B) | | | | | | | |
| Impact Resistance (grams) | 3288 | | | | | 3288 | |
| MD Machine Direction | TD Transverse Direction | | | | | | |

Page 2 of 3

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

TRI Environmental | 9063 Bee Cave Rd., Austin, TX 78733, USA | 512-263-5944 | www.tri-env.com

LABORATORY TEST RESULTS

TRI Client: Poly America

Project: WVT Barrier Film Study - ASTM E1745

Material: YellowGuard Vapor Barrier

Sample Identification: 15 mil

TRI Log #: 36062

Test Procedure: Water Vapor Transmission / Permeance measured in accordance with ASTM F1249, 50% RH, 23°C

| PARAMETER | TEST REPPLICATE NUMBER | MEAN | STD. DEV. |
|--|------------------------|--------|---------------|
| Water Vapor Transmission (ASTM D 1249) ASTM E 154, Section 7: Baseline | | | |
| Baseline Water Vapor Transmission (g/100 in ² *day) | 0.0037 | 0.0039 | 0.0038 |
| Baseline Water Vapor Transmission (g/m ² *day) | 0.0570 | 0.0600 | 0.0585 |
| Baseline Water Vapor Permeance (grains/ft ² *hr*inHg) | 0.0081 | 0.0086 | 0.0084 |
| Water Vapor Transmission (ASTM D 1249) ASTM E 154, Section 8: Resistance to Wetting and Drying | | | |
| Water Vapor Transmission (g/100 in ² *day) | 0.0037 | 0.0036 | 0.0037 |
| Water Vapor Transmission (g/m ² *day) | 0.0570 | 0.0560 | 0.0565 |
| Water Vapor Permeance (grains/ft ² *hr*inHg) | 0.0081 | 0.0080 | 0.0081 |
| Water Vapor Transmission (ASTM D 1249) ASTM E 154, Section 11: Resistance to Plastic Flow and Elevated Temperature | | | |
| Water Vapor Transmission (g/100 in ² *day) | 0.0043 | 0.0037 | 0.0040 |
| Water Vapor Transmission (g/m ² *day) | 0.0660 | 0.0580 | 0.0620 |
| Water Vapor Permeance (grains/ft ² *hr*inHg) | 0.0094 | 0.0083 | 0.0089 |
| Water Vapor Transmission (ASTM D 1249) ASTM E 154, Section 12: Resistance to Low Temperature Bending | | | |
| Water Vapor Transmission (g/100 in ² *day) | 0.0052 | 0.0046 | 0.0049 |
| Water Vapor Transmission (g/m ² *day) | 0.0800 | 0.0710 | 0.0755 |
| Water Vapor Permeance (grains/ft ² *hr*inHg) | 0.0114 | 0.0101 | 0.0108 |
| Water Vapor Transmission (ASTM D 1249) ASTM E 154, Section 13: Resistance to Organisms and Substrates In Contact with Soil | | | |
| Water Vapor Transmission (g/100 in ² *day) | 0.0041 | 0.0039 | 0.0040 |
| Water Vapor Transmission (g/m ² *day) | 0.0630 | 0.0610 | 0.0620 |
| Water Vapor Permeance (grains/ft ² *hr*inHg) | 0.009 | 0.0087 | 0.0089 |



Installation Instructions

Husky® Yellow Guard® Vapor Barrier should be installed according to ASTM E 1643. The installation team should have a full copy of ASTM E 1643 available. If they do not, please go to www.astm.org or call Kelley Johnston at 972-337-7430 for assistance.

Key points of ASTM E 1643 for Husky® Yellow Guard® Vapor Barrier installation:

1. Inspect the surface. Be sure that it is level and free of sharp objects and standing water.
2. Deploy Husky® Yellow Guard® Vapor Barrier in the long direction, allowing for the fewest number of seams.
3. Overlap Husky® Yellow Guard® Vapor Barrier by 6" and tape immediately with Husky™ Yellow Guard™ tape.
4. Treat footers, grade beams, pile caps, and/or perimeter as recommended by the architect or structural engineer
5. Repair any holes with a 6-inch patch and tape around the edges of the patch with Husky™ Yellow Guard™ tape.
6. Wrap and tape pipes as seen in the Husky® Yellow Guard® Vapor Barrier pipe penetration details.

Poly-America

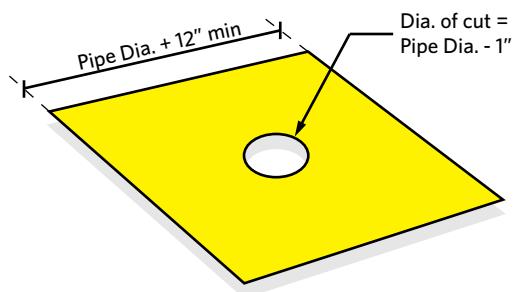
2000 W. Marshall Dr. • Grand Prairie, TX 75051

800-527-3322 • 972-337-7654 • Fax 972-337-7016 • www.yellowguard.com • yellowguard@poly-america.com

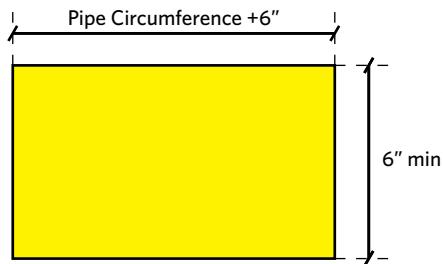
Install Instructions Rev 08/15 (4865)

Pipe Penetration Detail 1

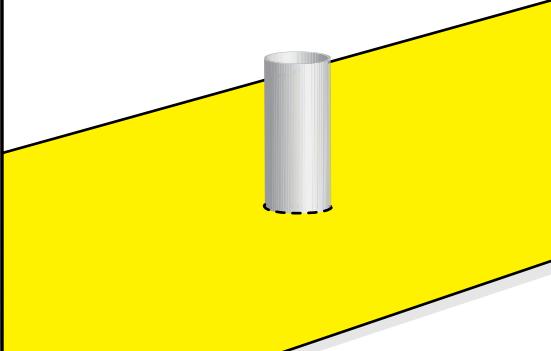
1. Prepare a square piece of Husky® Yellow Guard® vapor barrier with a hole in the center.



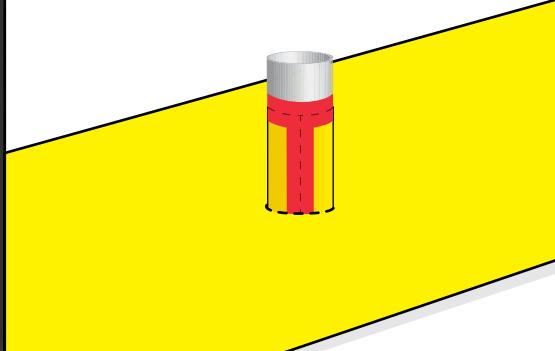
2. Prepare pipe boot.



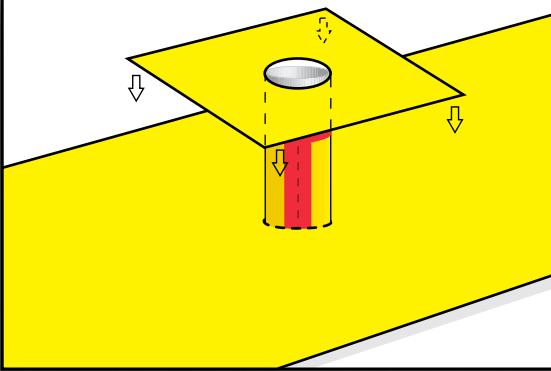
3. Cut a circle in the Husky® Yellow Guard® vapor barrier for pipe penetration.



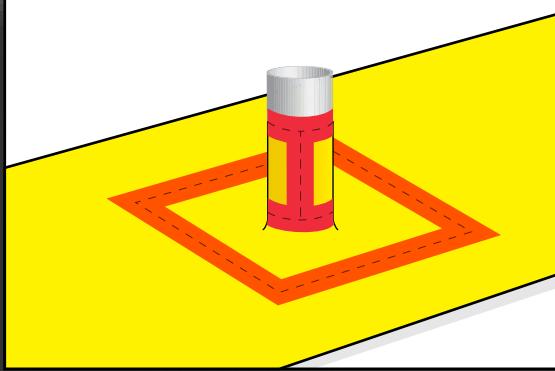
4. Wrap and tape boot around pipe.



5. Push square piece down over pipe for a tight fit all the way to the base of pipe with a 1/2" lip.



6. Tape the square piece to the pipe boot and around all edges.



Not To Scale

The drawings and information provided herein have been compiled by Poly-America, L.P. and to the best of our knowledge accurately represent Poly-America's Yellow Guard® vapor barriers at the time of publication. These drawings and information are offered "as is," for preliminary planning purposes only, without any warranties of any kind. Final determination of suitability of these drawings and information or products for the use contemplated and its manner of use are the sole responsibility of the end user. Poly-America, L.P. assumes no liability in connection with the use of this information and these products. This information is subject to change without notice.

Poly-America

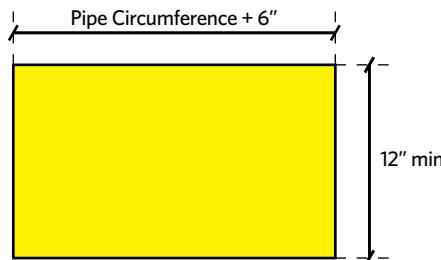
2000 W. Marshall Dr. • Grand Prairie, TX 75051

800-527-3322 • 972-337-7654 • Fax 972-337-7016 • www.yellowguard.com • yellowguard@poly-america.com

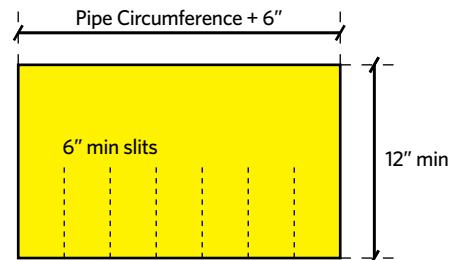
Detail 1 Rev 08/15 (4865)

Pipe Penetration Detail 2

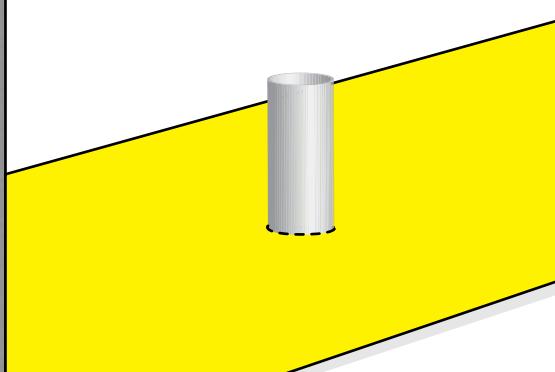
1. Cut a piece of Husky® Yellow Guard® vapor barrier.



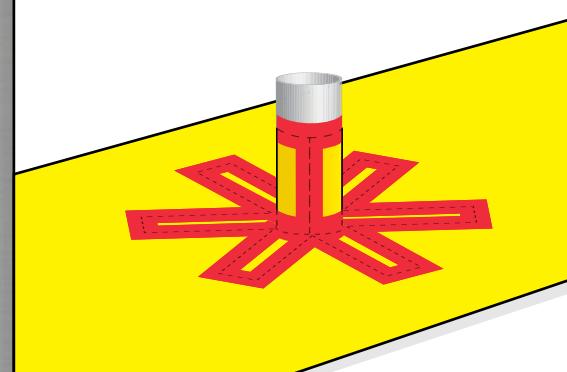
2. Cut 6" slits along the length of the film.



3. Cut a circle in the Yellow Guard® panel for pipe penetration.



4. Wrap and tape the film boot around the pipe with the unslit film on the pipe and the slit film on the ground.



Not To Scale

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Poly-America

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Detail 2 Rev 08/15 (4865)

Job Number: 122452

Poly America
Attn: Brad Cobler
2000 West Marshall Dr.
Grand Prairie, TX 75051

mocon®

7500 Mendelssohn Ave. N
Minneapolis, MN 55428
Phone: 763-493-6370 Fax: 763-493-6358

**TESTING
SERVICE**

Water Vapor Transmission Rate Results
We are pleased to submit the results of our
transmission rate measurements of your
material submitted under:

PO #: 431098
Dated: 11/19/2012

Test Conditions:

| Test Gas | Water Vapor | Test Temperature | 23.0 (°C) 73.4 (°F) |
|------------------------|-------------|----------------------|---------------------|
| Test Gas Concentration | N/A | Carrier Gas | Nitrogen |
| Test Gas Humidity | 50 % RH | Carrier Gas Humidity | 0 % RH |

Test Results:

| Sample ID | Mocon ID # | Water Vapor Transmission Rate g/(100in ² ·day) | Sample Thickness | English Perms | Water Vapor Transmission Rate g/(100in ² ·day) | Sample Thickness | English Perms |
|---------------------------|---------------|--|---------------------|---|--|---------------------|---|
| | | Replicate #1 | mils | Grains/ (Ft ² .hr .inHg) | Replicate #2 | mils | Grains/ (Ft ² .hr .inHg) |
| 15 mil Yellow Guard | 6127-001 | 0.0036 | 15.4 | 0.0081 | 0.0037 | 15.3 | 0.0082 |

Note: Above samples were analyzed on a MOCON Permatran-W 3/33 Water Vapor Permeability Instrument. The standard that applies to this instrument is ASTM F-1249.

Remarks: The lower detection limit for this instrument is 0.0003 g/(100in²·day).

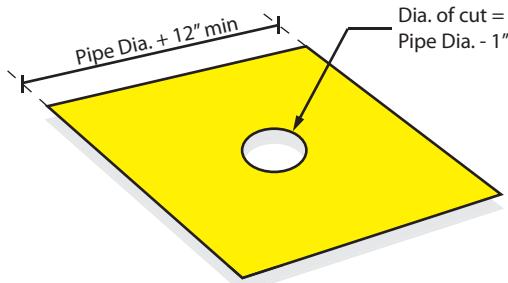
Test Operator: Rachelle Meyeres Date: 6/21/13

Test Operator: R. Meyeres Date: 6.21.13 Reviewed By: Dan Hammack Date: 6/21/13
Dan Hammack
Laboratory QA Officer

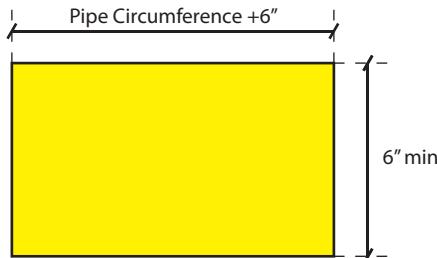
This information represents our best judgement based on work done, but the company (MOCON) assumes no liability whatsoever in connection with the use of information or findings contained herein.

Pipe Penetration Detail 1

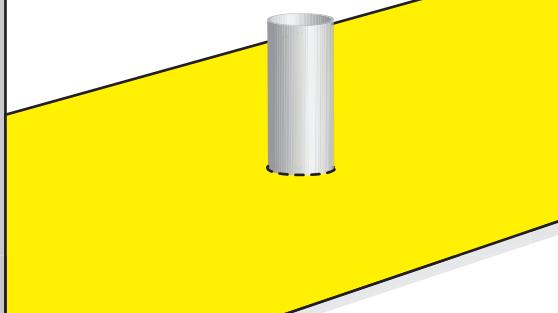
1. Prepare a square piece of Yellow Guard™ with a hole in the center.



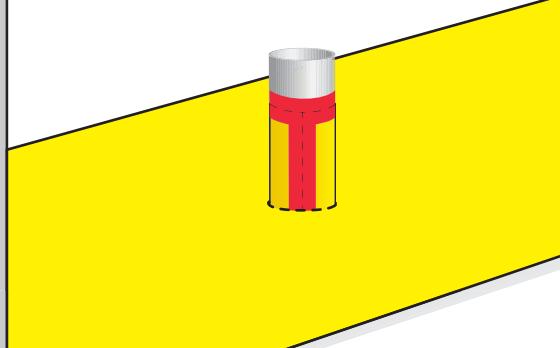
2. Prepare pipe boot.



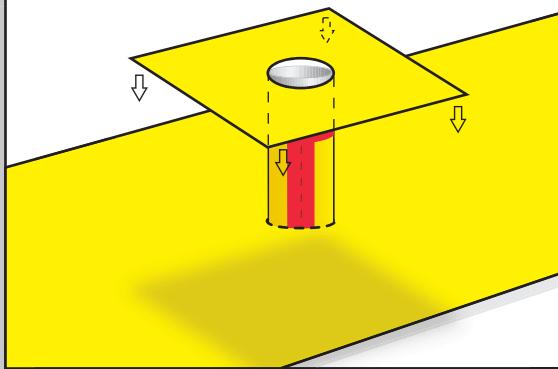
3. Cut a circle in the Yellow Guard™ panel for pipe penetration.



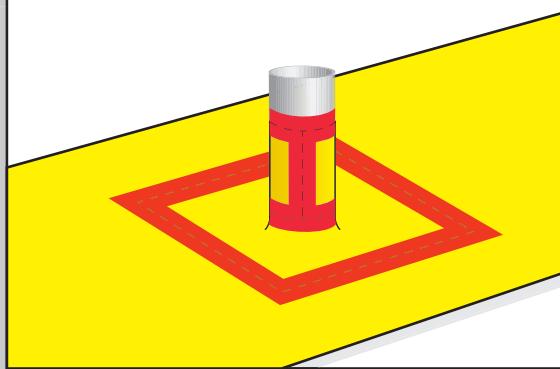
4. Wrap and tape boot around pipe.



5. Push square piece down over pipe for a tight fit all the way to the base of pipe with a 1/2" lip.



6. Tape the square piece to the pipe boot and around all edges.



Not To Scale

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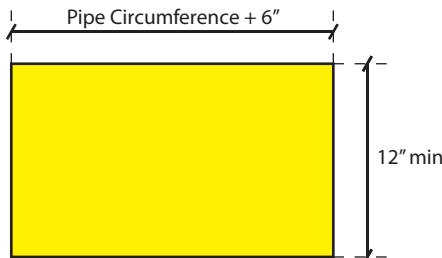
Poly-America

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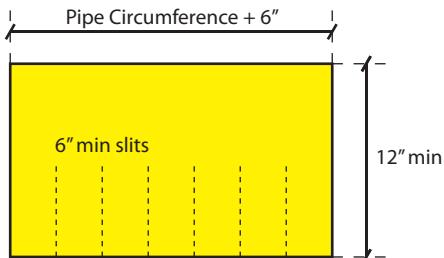
800-527-3322 • 972-337-7654 • Fax 972-337-7016 • www.poly-america.com • sheeting@poly-america.com

Pipe Penetration Detail 2

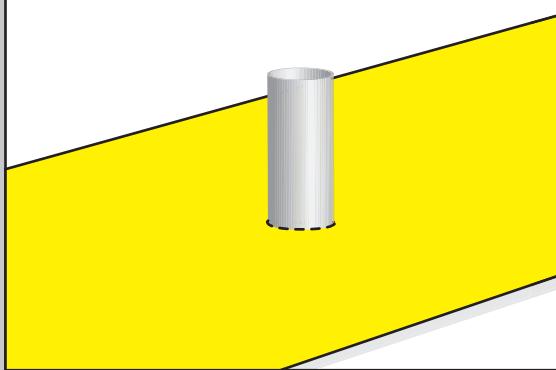
1. Cut a piece of Husky® Yellow Guard® film.



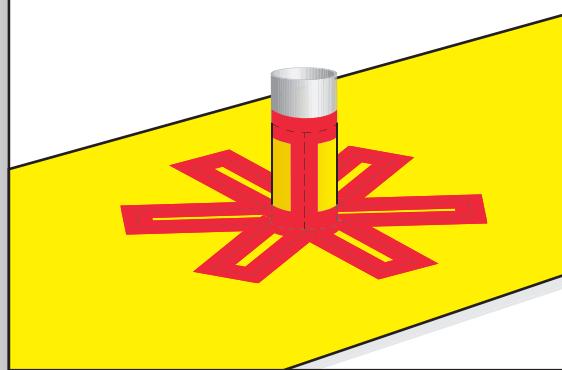
2. Cut 6" slits along the length of the film.



3. Cut a circle in the Yellow Guard® panel for pipe penetration.



4. Wrap and tape the film boot around the pipe with the unslit film on the pipe and the slit film on the ground.



Not To Scale

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Poly-America

2000 W. Marshall Dr. • Grand Prairie, TX 75051

800-527-3322 • 972-337-7654 • Fax 972-337-7016 • www.poly-america.com • sheeting@poly-america.com



January 30, 2013

Mail To:

James Nobert
Poly-America, Inc.
2000 Marshall Drive
Grand Prairie, TX 75051

email: jamesn@poly-america.com

Bill To:

<= Same (P O # 437069)

Dear Mr. Nobert:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report for laboratory testing.

TRI Job Reference Number: E2375-30-03

Material(s) Tested: One, 15 mil. Yellow Guard Film

Test(s) Requested: Impact Resistance ASTM D1709, Method B

If you have any questions or require any additional information, please call us at
1-800-880-8378.

Sincerely,

A handwritten signature in black ink that reads "Mansukh Patel".

Mansukh Patel
Sr. Laboratory Coordinator
Geosynthetic Services Division
www.GeosyntheticTesting.com

cc: Sam R. Allen, Vice President and Division Manager



LABORATORY TEST RESULTS

TRI Client: Poly-America, Inc.

Material: 15 mil. Yellow Guard Film

Sample Identification: 15 mil. Yellow Guard

TRI Log #: E2375-30-03

| PARAMETER | TEST REPLICATE NUMBER | | | | | | | | | | MEAN | STD. DEV. |
|--|-----------------------|---|---|---|---|---|---|---|---|----|------|-----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Impact Resistance ASTM D1709, Method B | | | | | | | | | | | | |
| Impact Resistance (grams) | 2290 | | | | | | | | | | 2290 | |

The testing is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

| Name | Location | Contact Name | Contact Number | Architect |
|--------------------------|---------------|----------------|----------------|----------------------|
| Element | Cypress TX | Larry Anderson | 281-757-7732 | |
| Mercy Gate Church | Mt Belview TX | Victor Saienni | 713-202-9460 | |
| Howard University | Washington DC | Brian Bramhall | 202-461-3341 | |
| Office Building @ Domain | Austin TX | Spaw Glass | | Arch Nelson Partners |
| Westpark Springs | Houston TX | Joe Krebs | 832-372-4433 | |

Yellow Guard™

POLYETHYLENE TAPE

Husky™ Yellow Guard™ Tape is made with a cast polyethylene film coated with high-tack natural rubber adhesive. Recommended for splicing heavy duty polyethylene, polyethylene patching, and protective masking, the tape is flexible, strong, and moisture and UV resistant.

Specifications quoted are averages only and may vary within industry tolerances. The final user must assure product suitability for the application and assumes all risks and liabilities.

Contact Poly-America's Sales Department for pricing and availability.

TECHNICAL DATA

| | |
|--------------------------------|-------------------------------|
| Backing | Cast Polyethylene Film |
| Thickness | 9.0 mils |
| Adhesion | 70 oz/in |
| Tensile Strength | 26 lbs/in |
| Elongation at Break | 96.25% |
| Application Temperature | 41°F – 122°F |
| Temperature Resistance | 176°F for 30 min. |
| Roll Width | 3.75 in |
| Roll Length | 180 ft |

Poly-America

2000 W. Marshall Dr. • Grand Prairie, TX 75051

800-527-3322 ext. 7437 • Fax 972-337-8437 • www.yellowguard.com • yellowguard@poly-america.com

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BROCH

Poly-America

2000 West Marshall Dr. • Grand Prairie, TX 75051
800-527-3322 • 972-337-7100 • FAX 972-337-7600

Yellow Guard Vapor Barrier Independent Laboratory Test Results

Material: Vapor Barrier
Thickness: 15 mils
Color: Yellow
Composition: Multi-Layer Co-extruded Polyolefin Membrane
Specification: ASTM E 1745 Class A

Poly-America, L.P. certifies that the 15mil Yellow Guard meets the requirements of ASTM E 1745 Class A.

All tests were performed by reputable independent laboratories at their locations as indicated.

| Material Property | Test Method | Result | Unit | Date |
|---|------------------------------------|-----------------------|--|------------|
| Water Vapor Permeance ¹ | ASTM F 1249 | 0.0082 | grains/(ft ² *hr*in.Hg) | 6/21/2013 |
| Tensile Strength (Machine Direction) ² | ASTM D 882 | 80.0 | lbf/in | 1/30/2013 |
| Tensile Strength (Transverse Direction) ² | ASTM D 882 | 79.3 | lbf/in | 1/30/2013 |
| Puncture Resistance ² | ASTM D 1709, Method B | 2,290 | grams | 1/30/2013 |
| Puncture Resistance ² | ASTM D 4833 | 183 | Newtons | 10/21/2013 |
| Permeance After Wetting & Drying & Long Term Soaking ¹ | ASTM E 154, Sec. 8 ASTM F 1249 | 0.0087 | grains/(ft ² *hr*in.Hg) | 10/23/2013 |
| Permeance After Exposure to Elevated Temperature ¹ | ASTM E 154, Sec. 11 ASTM F 1249 | 0.0090 | grains/(ft ² *hr*in.Hg) | 10/23/2013 |
| Permeance After Effects of Low Temperature ¹ | ASTM E 154, Sec.12 ASTM F 1249 | 0.0087 | grains/(ft ² *hr*in.Hg) | 10/23/2013 |
| Permeance After Exposure to Soil Organisms ¹ | ASTM E 154, Sec. 13 ASTM F 1249 | 0.0093 | grains/(ft ² *hr*in.Hg) | 10/23/2013 |
| Radon Permeability Coefficient ³ | NA | 6.7×10^{-14} | m ² /sec | 8/31/2013 |
| Methane Permeability ⁴ | ASTM D 1434-M | 182.91 | cm ³ /(m ² Atm *day) | 12/27/2012 |

1: Average of 2 replicates. Mocon Testing Services, Minneapolis, MN

2: TRI/Environmental, Inc., Austin, TX

3: TCS Industries, Inc. Harrisburg, PA

4: Polyhedron Laboratories, Inc., Houston, TX

Date: 10/24/2013

A.M. Yazdani, MSc., P.E.

Technical Services

Poly-America, L.P.

(972) 337-7314



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma, Texas 78154
(210) / 651-9000, FAX (210) / 651-4450

PROJECT MANAGEMENT
Transmittal
No 0601

PROJECT: UT Seay Building Addition

DATE: 06/23/2021

To: BSA LifeStructures, Inc.
 9365 Counselors Row Suite 300
 Indianapolis IN 46240

RE: Curtain-Wall Head - ProGlaze - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | | SUBMITTED FOR: | | ACTION TAKEN: | |
|--|-------------------------------------|--------------------|--------------------------|-------------------------------------|--|
| Shop Drawings | <input checked="" type="checkbox"/> | Approval | | | Approved as Submitted |
| Letter | | Your Use | | | Approved as Noted |
| Prints | | As Requested | | | Returned After Loan |
| Change Order | | Review and Comment | | | Resubmit |
| Plans | | | | <input checked="" type="checkbox"/> | Submit |
| Samples | | SENT VIA: | | | Returned |
| Specifications | | Attached | <input type="checkbox"/> | Separate Cover | Returned for Corrections |
| Other: Product Data | | | | | <input checked="" type="checkbox"/> Due Date: 06/23/2021 |
| <input checked="" type="checkbox"/> Submittal: | | | | | Other: |

| Line | Item | Package | Code | Rev. | QTY | Date | Description | Status |
|------|-----------|---------|------------|------|-----|------------|---|--------|
| 1 | Submittal | | 072726-004 | 1 | | 06/23/2021 | Curtain-Wall Head - ProGlaze - Product Data | |

REMARKS:

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE <input checked="" type="checkbox"/> |
| COMMENTS NOTED <input type="checkbox"/> |
| REVISE AND RESUBMIT <input type="checkbox"/> |
| OTHER: <input type="checkbox"/> |
| DATE 6/23/2021 SPEC# 072726 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 072726-004 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

CC:

Signed:

Tanner Hawkins

Tanner Hawkins

SpawGlass 06/23/21: To be used at Curtain Wall Head condition (ref. detail 3A/A312)

ZERO / SIX
Consulting
Envelope Architecture

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

NO EXCEPTIONS NOTED
 SUBMIT SPECIFIED ITEM
 ACTION NOT REQUIRED

EXCEPTIONS NOTED
 REVISE AND RESUBMIT
 NOT REVIEWED

REVIEWED BY: Darryl Castleberry
 DATE: 2021/06/24



UT-SEAY BUILDING ADDITION

Contractor: Spawglass Contractors, Inc.

No Spec
Silicone Transition Sheet at CW Head Condition

Submittals
Product Data

Proglaze® ETA - System 3

Pressure Bar Applications U.S. Patent No. 8,096,088 B2

Product Description

Proglaze® ETA System 3 consists of pre-engineered silicone materials used as the transition assembly. The system assembly is comprised of a silicone extrusion with a small dart, which is attached to the pressure bar mullion by inserting the dart into the metal race filled with Spectrem® 1 Silicone Sealant to ensure a durable connection and positive seal. The opposite edge of the extrusion will span onto the air and vapor barrier. Proglaze ETA System 3 is comprised of the following components:

1.) **Silicone Rubber Extrusion (SRE):** Extruded, 40 durometers, translucent silicone, with a lock-in dart that will fit a majority of pressure bar race conditions. The Silicone Extrusion is available in 4", 6" and 8" widths and is packaged in 50 linear feet coils. For physical properties refer to Tremco's translucent Silicone Extruded Sheet data sheet.

2.) **Silicone Rubber Corners (SRC):** Pre-molded, 40 durometers, translucent silicone, with a lock-in dart. Silicone Rubber Corners are supplied in left and right-hand mates.

3.) **Spectrem 1 Silicone Sealant:** High movement, ultra-low modulus sealant utilized as a compatible adhesive and wet seal. For physical properties refer to Tremco's Spectrem 1 data sheet.

Basic Uses

Proglaze ETA is a transition assembly for bridging continuously between the window and/or curtain wall openings and the adjacent air and vapor barrier materials. The system's design absorbs thermal movement and wind-loading stresses. The Proglaze ETA thin cross-section and low durometer allow the system to span and seal across irregular window geometries.

The translucent silicone material allows the installer and/or inspector to see through the gasket to verify the recommended amount of sealant is properly applied to ensure an effective seal is achieved, while the ribs of the gasket's design ensure a minimum sealant thickness.

The assembly is fully compatible with most window sealants and glazing materials and bonds to the face of ExoAir® 110, ExoAir 110AT, and ExoAir TWF and to the cured surface of ExoAir 130, ExoAir 230 and Securock ExoAir 430. Not intended as a seal to untested substrates.

Availability

Please contact our Customer Service Department in Beachwood, Ohio at 800-321-7906, or Toronto at 800-363-3213.

Applicable Standards

Proglaze ETA System 3 has been tested as a component of several wall assemblies meeting ASTM E2357, the Standard Test Method for Determining Air Leakage of Air Barrier Assemblies, and NFPA 285, the Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

Limitations

- Not intended to be utilized in a permanently exposed condition unless approved by Tremco.
- Not intended as a seal to untested substrates.

Warranty

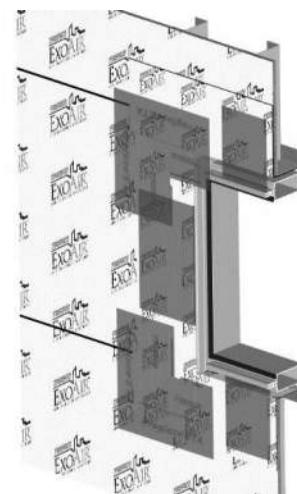
Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.



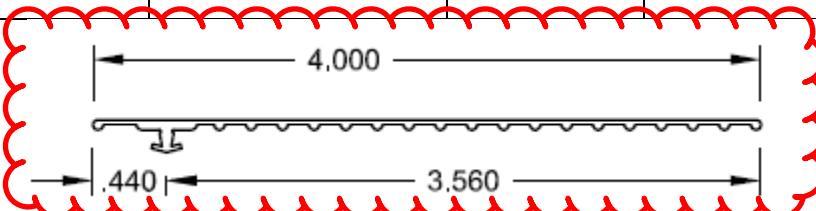
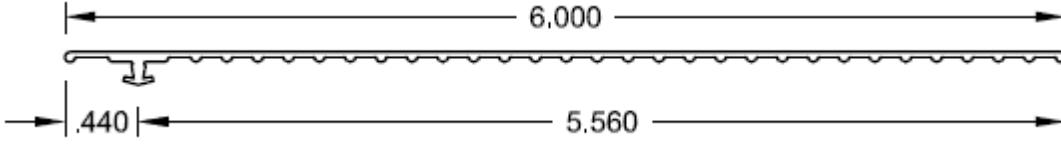
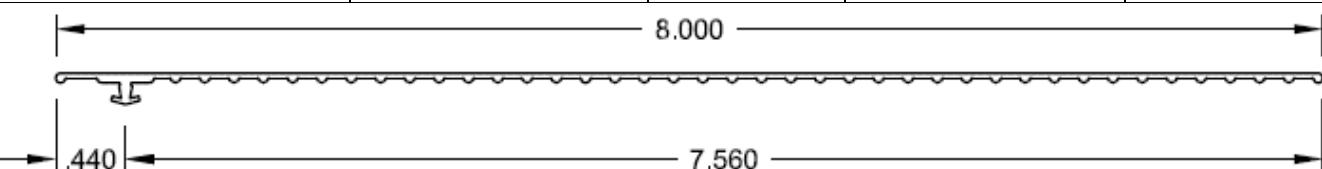
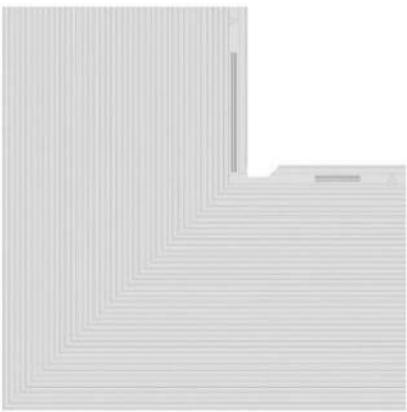
Proglaze ETA System 3 Assembly



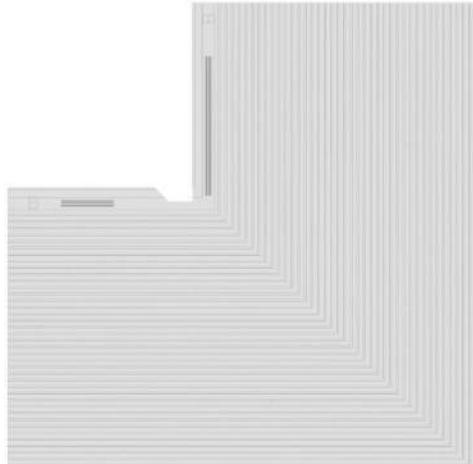
Typical System Assembly

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL RESULTS |
|--------------------------|---------------------|---|
| Uniform Static Pressure | ASTM E331 | No Leakage |
| Cyclic Static Pressure | ASTM E547 | No Leakage |
| Flame Spread | ASTM E 84 | 15 |
| Smoke Development | ASTM E 84 | 300 |
| Before Air Leakage | ASTM E 2357 | 77 Pa (1.60 psf) <0.01 cfm/ft ² (<0.05 L/s/m ²) |
| After Air Leakage | ASTM E 2357 | 300 Pa (6.27 psf) <0.01 cfm/ft ² (<0.05 L/s/m ²) |
| Uniform Load Deflection | ASTM E330 | No damage at \pm 6699 Pa (\pm 140 psf) |
| Uniform Load Deflection2 | ASTM E330 | No damage at \pm 10,049 Pa (\pm 210 psf) |
| Water Vapor Permeability | ASTM E 96 (Dry Cup) | 2.59 perms |

| SKU | Description | Width | FT/Case | Stock Class |
|---------------|--|-------|---------------|-------------|
| ETA17285S4Z | ETA SYS3- 4" SNGL RIB LINEAL W/ DART | 4 | 50 | Standard |
| |  | | | |
| SKU | Description | Width | FT/Case | Stock Class |
| ETA19186S4Z | ETA SYS3- 6" SNGL RIB LINEAL W/ DART | 6 | 50 | Standard |
| |  | | | |
| SKU | Description | Width | FT/Case | Stock Class |
| ETA16423S4Z | ETA SYS3- 8" SNGL RIB LINEAL W/ DART | 8 | 50 | Standard |
| |  | | | |
| SKU | Description | Width | FT/Case | Stock Class |
| ETA System 3A | ETA SYS3 PART A 2D MOLDED CORNER W/ DART | n/a | 8 Corners/Bag | Standard |
| |  | | | |

| SKU | Description | Width | FT/Case | Stock Class |
|---------------|---|-------|---------------|-------------|
| ETA System 3B | ETA SYS3 PART B 2D MOLDED CORNER W/ DART | n/a | 8 Corners/Bag | Standard |


0519/PETASYS3DS-GL

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

Tremco Commercial Sealants & Waterproofing

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555



Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 072726-001

Description: Fluid-Applied Membrane Air Barrier - PD

Project Name: UT Austin - Seay

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



Darryl Castleberry

BY:

DATE: 2020/04/16

Submittal Comments:

1. Specifications require a vapor permeable membrane that measures a minimum of 10 perms. The submitted product is vapor impermeable, measuring 0.032 perms.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0110

PROJECT: UT Seay Building Addition

DATE: 04/16/2020

TO: BSA Lifestructures
AL

RE: Fluid-Applied Membrane Air Barriers - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 04/30/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 072726-001 | 1 | | 04/16/2020 | Fluid-Applied Membrane Air Barriers - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 4/16/2020 SPEC# 072726

REVIEWED BY tanner.hawkins

SUBMITTAL# 072726-001

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins

Tanner Hawkins



SUBMITTAL COVER SHEET

PROJECT NAME: UT Seay

ARCHITECT: BSA Life Structures

SPECIFICATION SECTION: 072726 – Fluid Applied Membrane Air Barrier

DATE PREPARED: 4/13/2020

CONTRACTOR: Spawglass

SUBCONTRACTOR'S NAME: Chamberlin Roofing and Waterproofing

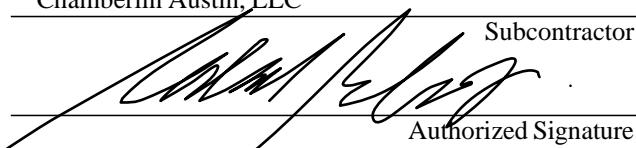
SUBCONTRACTOR'S PHONE: 512.275.1600

MANUFACTURER'S NAME: Tremco

MANUFACTURER'S PHONE: See Product Data

ITEM: See Table of Contents

NUMBER OF PAGES w/ COVER: 28

| | |
|--|------------------------------|
| Architect's Approval | Contractor's Approval |
| <p>The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer, and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.</p> | |
| <p>Chamberlin Austin, LLC</p> | |
|  <p>Subcontractor</p> | |
| <p>Authorized Signature</p> | |
| <p>04/14/2020</p> | |
| <p>Date</p> | |

SECTION 07 27 26 - FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Vapor-permeable, fluid-applied air barriers.
- B. Related Requirements:
 - 1. Section 01 81 13.14 "Sustainable Design Requirements – LEED v4 BD+C."
 - 2. Section 061600 "Sheathing" for wall sheathings and wall sheathing joint-and-penetration treatments.

1.3 DEFINITIONS

- A. Air-Barrier Material: A primary element that provides a continuous barrier to the movement of air.
- B. Air-Barrier Accessory: A transitional component of the air barrier that provides continuity.
- C. Air-Barrier Assembly: The collection of air-barrier materials and accessories applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review air-barrier requirements and installation, special details, mockups, air-leakage and bond testing, air-barrier protection, and work scheduling that covers air barriers.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include manufacturer's written instructions for evaluating, preparing, and treating each substrate; technical data; dry film thickness; and tested physical and performance properties of products.
- B. Shop Drawings: For air-barrier assemblies.
 1. Show locations and extent of air-barrier materials, accessories, and assemblies specific to Project conditions.
 2. Include details for substrate joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
 3. Include details of interfaces with other materials that form part of air barrier.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: From air-barrier manufacturer, certifying compatibility of air barriers and accessory materials with Project materials that connect to or that come in contact with the barrier.
- C. Product Test Reports: For each air-barrier assembly, for tests performed by a qualified testing agency.
- D. Field quality-control reports.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Mockups: Build mockups to set quality standards for materials and execution.
 1. Build integrated mockups of exterior wall assembly, 150 sq. ft., incorporating backup wall construction, external cladding, window, storefront, door frame and sill, insulation, ties and other penetrations, and flashing to demonstrate surface preparation, crack and joint treatment, application of air barriers, and sealing of gaps, terminations, and penetrations of air-barrier assembly.
 - a. Coordinate construction of mockups to permit inspection and testing of air barrier before external insulation and cladding are installed.
 - b. Include junction with roofing membrane, building corner condition, and foundation wall intersection.
 - c. If Architect determines mockups do not comply with requirements, reconstruct mockups and apply air barrier until mockups are approved.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- B. Protect stored materials from direct sunlight.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended in writing by air-barrier manufacturer.
 1. Protect substrates from environmental conditions that affect air-barrier performance.
 2. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Source Limitations: Obtain primary air-barrier materials and air-barrier accessories from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Air-Barrier Performance: Air-barrier assembly and seals with adjacent construction shall be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, tie-ins to installed waterproofing, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.
- B. Air-Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft., when tested according to ASTM E2357.

2.3 HIGH-BUILD AIR BARRIERS, VAPOR PERMEABLE

- A. High-Build, Vapor-Permeable Air Barrier: synthetic polymer membrane with an installed dry film thickness, according to manufacturer's written instructions, of 35 mils or thicker over smooth, void-free substrates.
 1. Synthetic Polymer Type:

- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1) GCP Applied Technologies Inc.
- 2) Henry Company.
- 3) Tremco Incorporated.

2. Physical and Performance Properties:

- a. Air Permeance: Maximum 0.004 cfm/sq. ft. of surface area at 1.57-lbf/sq. ft. pressure difference; ASTM E2178.
- b. Vapor Permeance: Minimum 10 perms; ASTM E96/E96M, Desiccant Method, Procedure A.
- c. Ultimate Elongation: Minimum 200 percent; ASTM D412, Die C.
- d. Adhesion to Substrate: Minimum 16 lbf/sq. in. when tested according to ASTM D4541.
- e. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- f. UV Resistance: Can be exposed to sunlight for 30 days according to manufacturer's written instructions.

2.4 ACCESSORY MATERIALS

- A. Requirement: Provide primers, transition strips, termination strips, joint reinforcing fabric and strips, joint sealants, counterflashing strips, flashing sheets and metal termination bars, termination mastic, substrate patching materials, adhesives, tapes, foam sealants, lap sealants, and other accessory materials that are recommended in writing by air-barrier manufacturer to produce a complete air-barrier assembly and that are compatible with primary air-barrier material and adjacent construction to which they may seal.
- B. Primer: Liquid primer recommended for substrate by air-barrier material manufacturer.
- C. Stainless-Steel Sheet: ASTM A240/A240M, Type 304, 0.0187 inch thick, and Series 300 stainless-steel fasteners.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
 1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
 2. Verify that substrates have cured and aged for minimum time recommended in writing by air-barrier manufacturer.
 3. Verify that substrates are visibly dry and free of moisture.
 4. Verify that masonry joints are flush and completely filled with mortar.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

- A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate according to manufacturer's written instructions and details. Provide clean, dust-free, and dry substrate for air-barrier application.
- B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.
- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching material.
- E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.
- F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.
- G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.
- H. Bridge isolation joints, expansion joints and discontinuous wall-to-wall, deck-to-wall, and deck-to-deck joints with air-barrier accessory material that accommodates joint movement according to manufacturer's written instructions and details.

3.3 ACCESSORIES INSTALLATION

- A. Install accessory materials according to air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.
 1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
 2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches of coverage is achieved over each substrate.
 3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
 4. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
- B. Connect and seal exterior wall air-barrier material continuously to roofing-membrane air barrier, concrete below-grade structures, floor-to-floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials.

- C. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.
- D. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- E. Wall Openings: Prime concealed, perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply transition strip so that a minimum of 3 inches of coverage is achieved over each substrate. Maintain 3 inches of full contact over firm bearing to perimeter frames, with not less than 1 inch of full contact.
 - 1. Transition Strip: Roll firmly to enhance adhesion.
 - 2. Preformed Silicone Extrusion: Set in full bed of silicone sealant applied to walls, frame, and air-barrier material.
- F. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air-barrier material with foam sealant.
- G. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.
- H. Seal top of through-wall flashings to air barrier with an additional 6-inch-wide, transition strip.
- I. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.
- J. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches beyond repaired areas in strip direction.

3.4 PRIMARY AIR-BARRIER MATERIAL INSTALLATION

- A. Apply air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier according to air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.
 - 1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
 - 2. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
 - 3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.
- B. High-Build Air Barriers: Apply continuous unbroken air-barrier material to substrates according to the following thickness. Apply air-barrier material in full contact around protrusions such as masonry ties.
 - 1. Vapor-Permeable, High-Build Air Barrier: Total dry film thickness as recommended in writing by manufacturer to comply with performance requirements, but not less than 35 mils, applied in the number of coats recommended by the manufacturer..

- C. Do not cover air barrier until it has been tested and inspected by testing agency.
- D. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

3.5 FIELD QUALITY CONTROL

- A. ABAA Quality Assurance Program: Perform examinations, preparation, installation, testing, and inspections under ABAA's Quality Assurance Program.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- C. Inspections: Air-barrier materials, accessories, and installation are subject to inspection for compliance with requirements. Inspections may include the following:
 - 1. Continuity of air-barrier system has been achieved throughout the building envelope with no gaps or holes.
 - 2. Air-barrier dry film thickness.
 - 3. Continuous structural support of air-barrier system has been provided.
 - 4. Masonry and concrete surfaces are smooth, clean, and free of cavities, protrusions, and mortar droppings.
 - 5. Site conditions for application temperature and dryness of substrates have been maintained.
 - 6. Maximum exposure time of materials to UV deterioration has not been exceeded.
 - 7. Surfaces have been primed, if applicable.
 - 8. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.
 - 9. Termination mastic has been applied on cut edges.
 - 10. Strips and transition strips have been firmly adhered to substrate.
 - 11. Compatible materials have been used.
 - 12. Transitions at changes in direction and structural support at gaps have been provided.
 - 13. Connections between assemblies (air-barrier and sealants) have complied with requirements for cleanliness, surface preparation and priming, structural support, integrity, and continuity of seal.
 - 14. All penetrations have been sealed.
- D. Tests: As determined by testing agency from among the following tests:
 - 1. Adhesion Testing: Air-barrier assemblies will be tested for required adhesion to substrate according to ASTM D4541 for each 600 sq. ft. of installed air barrier or part thereof.
- E. Air barriers will be considered defective if they do not pass tests and inspections.
 - 1. Apply additional air-barrier material, according to manufacturer's written instructions, where inspection results indicate insufficient thickness.
 - 2. Remove and replace deficient air-barrier components for retesting as specified above.
- F. Repair damage to air barriers caused by testing; follow manufacturer's written instructions.
- G. Prepare test and inspection reports.

3.6 CLEANING AND PROTECTION

- A. Protect air-barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
 - 1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed materials according to air-barrier manufacturer's written instructions.
 - 2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.
- B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.
- C. Remove masking materials after installation.

END OF SECTION 07 27 26



TABLE OF CONTENTS

| | |
|--|-----------------|
| 1) ExoAir 120 | 5 Pages |
| EXOAIR® 120 Fluid-Applied Air and Vapor Barrier Membrane is a monolithic, elastomeric membrane designed to seal exterior above-grade wall assemblies and mitigate air infiltration/exfiltration, vapor transmission and water penetration. | |
| <u>Product Location:</u> Furnish and install air barrier to the sheathing panels on the backup wall per manufacturer's instructions | |
| a) Product Data | |
| b) Application Instructions | |
| 2) Accessories | 17 Pages |
| a) ExoAir 110AT | |
| i) Product Data | |
| ii) Application Instructions | |
| b) Tremflex 834 | |
| i) Product Data | |
| c) Dymonic 100 | |
| i) Product Data | |
| ii) Application Instructions | |
| iii) Color Chart | |
| 3) Certifications | 6 Pages |

Product Description

EXOAIR® 120 Fluid-Applied Air and Vapor Barrier Membrane is a monolithic, elastomeric membrane designed to seal exterior above-grade wall assemblies and mitigate air infiltration/exfiltration, vapor transmission and water penetration. It is available in two grades: EXOAIR 120 SP (spray grade) and EXOAIR 120 R (roller grade). EXOAIR 120 R can also be sprayed with the appropriate spraying equipment.

Basic uses

EXOAIR 120 is typically applied to exterior sheathing panels, concrete block, poured concrete or wood substrates as an air and vapor barrier material. EXOAIR 120 can be used with EXOAIR 110, EXOAIR 110AT, or Dymonic 100 as liquid applied flashing to detail into the rough opening

Features and Benefits

- EXOAIR 120 is a seamless, monolithic membrane that creates a fully adhered air and vapor barrier when properly installed.
- The ability to roller or spray apply the material affords the contractor the ability to accelerate installation times compared to traditional self-adhered membrane systems.
- EXOAIR 120 can be co-sprayed to accelerate the curing process when weather threatens washout, or to fast-track construction

Availability

EXOAIR 120 is immediately available from your local Tremco Sales Representative or Distributor. For Distributor locations, visit www.tremcosealants.com

Coverage Rates

Approximately 25 ft²/gal at 60 wet mils (40 dry mils)

Approximately 2.32 M²/US gal at 60 wet mils (40 dry mils)

Packaging

5-gal (19-L) pails

52-gal (197-L) drums

Colors

Black

Storage

Store EXOAIR 120 in original, undamaged packages in a clean, dry, protected location with temperatures 40 to 100 °F (5 to 37 °C).

Shelf Life

1 year when stored in accordance with storage instructions

Applicable Standards

EXOAIR 120 has been tested to the following industry standards for air barriers:

- AATCC 127-2008 Water Resistance: Hydrostatic Pressure Test
- ASTM C1305 Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane
- ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
- ASTM D1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection

- ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials
- ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- ASTM E2178 Standard Test Method for Air Permeance of Building Materials
- ASTM E2357 Standard Test Methods for Determining Air Leakage of Air Barrier Assemblies

Fire Rated Systems

None presently listed however engineering judgements may be requested which will be dependent upon the specific wall design for your project. For Firestop engineering judgment requests please go to the following link <http://www.tremcosealants.com/technical-resources/nfpa-285-air-barrier-engineering-judgment-request.aspx> or contact Tremco Technical Service at 866-209-2404.

Limitations

- No more than 30 days of UV exposure before façade installation. If membrane is exposed for a period exceeding 30 days, contact Tremco Technical Service for additional recommendations at 866-209-2404, or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."
- Do not apply to damp, contaminated or frost-covered surfaces.
- Not to be used as a permanently exposed surface. Contact your local Tremco Sales Representative for project specific requirements.
- Membrane shall be protected from rain and washout prior to drying.
- When applying to surfaces below 40 °F (5 °C), please refer to the Technical Bulletin- Cold Temperature Recommendations for Air Barrier Applications at www.tremcosealants.com or contact Tremco Technical Service at 866-209-2404.
- EXOAIR 120 is not to be applied directly to fireproofing materials. Contact Tremco Technical Service at www.tremcosealants.com for alternative recommendations.
- Keep product from freezing prior to being applied to the substrate. It is best to store EXOAIR 120 off the floor at an ambient temperature above 50 °F (10 °C).

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or to refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

EXOAIR® 120

Fluid-Applied, Asphaltic Air and Vapor Barrier Membrane

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | DESCRIPTION |
|-------------------------|--|
| Type | Polymer-Modified emulsion |
| Color | Black |
| Solids | 64% |
| Application | Sprayer/Roller |
| Thickness | Minimum 60 mils (wet), 40 mils (dry) |
| Storage Temperature | 40 to 100 °F (5 to 37 °C) |
| Application Temperature | Above 40 °F (5 °C) and rising. If installing below 40 °F (5 °C), please refer to Cold Weather Air Barrier Installation Technical Bulletin or contact Tremco Technical Service at 866-209-2404. |
| Service Temperature | Intermittent Exposure up to 158 °F (70 °C) |

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|---|--------------------------------------|--|
| Maximum V.O.C. | Method 310 | 72 g/L |
| Crack Bridging | ASTM C1305 | Pass |
| Elongation | ASTM D412 Die C | 1500% |
| Water Immersion | ASTM D870 | Pass |
| Pliability, 180°, 1" (25 mm) mandrel @ -29 °F (-34 °C) (Low Temperature Flex) | ASTM D1970 – Section 7.6 | Pass |
| Nail Sealability | ASTM D1970 – Section 7.9 | Pass |
| Adhesion | ASTM D4541 | Concrete: 20 psi Exterior Sheathing: 17 psi |
| Water Vapor Permeance | ASTM E96 Dry Cup ASTM E96 Wet Cup | 0.028 US Perms 0.032 US Perms |
| Water Penetration | ASTM E331 | Passed at 2.86 lb/ft² (137 Pa) for 15 mins |
| Air Leakage of material | ASTM E2178; Free Film Method @ 75 Pa | 0.0001 cfm/ft² (0.0005 L/[sm²]) |
| Air Leakage of assembly | ASTM E2357 | 0.0257 cfm/ft² @ 1.57 psf (0.1307 L/[sm²] @ 75 Pa) |
| Storage Temperature | | 40-100 °F (5-37 °C) |

0418/EXOAIR120DS**Tremco Commercial Sealants & Waterproofing**

| | | | |
|--|--|---|--|
| 3735 Green Rd Beachwood OH 44122 216.292.5000 / 800.321.7906 | 1451 Jacobson Ave Ashland OH 44805 419.289.2050 / 800.321.6357 | 220 Wicksteed Ave Toronto ON M4H1G7 416.421.3300 / 800.363.3213 | 1445 Rue de Coulomb Boucherville QC J4B 7L8 514.521.9555 |
|--|--|---|--|

APPLICATION INSTRUCTIONS

1 Purpose

- 1.1 The purpose of this document is to establish uniform procedures for installing EXOAIR® 120 Fluid-Applied Asphaltic, Air and Vapor Barrier Membrane.
- 1.2 The techniques involved may require modifications to adjust to jobsite conditions. Tremco recognizes that site specific conditions, weather patterns, contractor preferences and membrane detailing may require deviation or alteration from these prescribed installation procedures. When such circumstances exist on a project, Tremco recommends that the local Tremco Sales Representative or Tremco Technical Service be contacted for assistance and approval as required.
- 1.3 EXOAIR® 120 is compatible with and part of ExoAir Air Barrier Systems, a complete line of air barrier systems provided by Tremco.

2 Scope

- 2.1 This document will provide the necessary instructions for the application of EXOAIR® 120 and its related air barrier system components.

3 Possible System Components

- 3.1 Recommended materials and their use are as follows. For more information on the following materials, please contact your local Tremco Sales Representative or visit our website for product specific data sheet and application instructions at www.tremcosealants.com.

Detail Sealant:

- Dymonic® 100
- Spectrem® 1*
- Tremflex® 834*

*May only be used as directed in Sections 7.1, 7.2, and 8.6.

Transition Membrane:

- ExoAir TWF (Thru Wall Flashing)
- ExoAir 110
- ExoAir 110AT
- ExoAir 230
- Proglaze ETA (Engineered Transition Assemblies)

Other Accessories:

- ExoAir Eco
- ExoAir Flex Foam
- ExoAir LEF (Low Expanding Foam)
- ExoAir Termination Mastic
- ExoAir Trio
- Illmod 600®
- Tremco 2011 Mesh

4 Limitations

- 4.1 UV exposure should not exceed 30 days before façade installation. If the 30-days limit is exceeded, contact Tremco Technical Service at 866-209-2404, or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."
- 4.2 Do not apply to damp, contaminated or frost-covered surfaces.

4.3 EXOAIR 120 is not to be used as a permanently exposed surface. Contact your local Tremco Sales Representative for project specific requirements.

4.4 The membrane shall be protected from rain and washout prior to drying.

4.5 When applying to surfaces below 40 °F (5 °C), please refer to the Technical Bulletin - Cold Temperature Recommendations for Air Barrier Applications at www.tremcosealants.com or contact Tremco Technical Service at 866-209-2404.

4.6 EXOAIR 120 is not to be applied directly to fireproofing materials. Contact Tremco Technical Service at www.tremcosealants.com for alternative recommendations.

4.7 Keep product from freezing prior to being applied to the substrate. It is best to store EXOAIR 120 off the floor at an ambient temperature above 40 °F (10 °C).

4.8 **Termination Mastic should not be used with ExoAir 120 in a fully encapsulated area.**

5 Storage

5.1 Store EXOAIR® 120 in original, undamaged packages in a clean, dry, protected location with temperatures 40 to 100 °F (5 to 37 °C).

6 Substrate Preparation

6.1 Roofing systems shall be capped and sealed, or top of walls protected, in such a way as to eliminate the ability of water to saturate the wall or interior space, both before and after, air barrier system installation. Coordinate installation of EXOAIR® 120 with the roofing trade to ensure compatibility and continuity with the roofing system.

6.2 Continuity of the air barrier system is critical to the performance of the façade. Proper connections to other envelope systems such as the waterproofing, flashing, roof and window/curtain wall systems shall be documented and approved by each manufacturer. Visit www.tremcosealants.com for various system testing performed at the Tremco Test Facility or to submit a project connection detail for testing.

6.3 Surface to be coated must be dry, clean, smooth, firm, free of release agents, dust, mud, loose mortar, wires, fins, metal projections or any other substances that might prevent placement and bonding of membrane. For porous substrate moisture content, please visit www.tremcosealants.com/technical-resources/technical-bulletins.aspx for additional information.

6.4 EXOAIR® 120 may be applied to most typical building materials such as exterior sheathing boards, CMU, concrete, exterior grade plywood, OSB and metal surfaces.

6.5 Exterior sheathing shall be installed according to the manufacturer's installation instructions. All board edges shall be sound and anchored in a way to provide minimum deflection. All board edges shall be cut cleanly and excess debris shall be removed.

6.6 CMU walls shall have all joints filled and struck flush. Mortar should be cured a minimum of 7 days. Any voids shall be patched with mortar, a non-shrinking grout or other approved patching material.

EXOAIR® 120

Fluid-Applied Asphaltic, Air and Vapor Barrier Membrane

- 6.7 All concrete substrates shall be clean and free of all release agents. Any voids shall be patched with mortar, non-shrinking grout or other approved patching material.
- 6.8 Exterior grade plywood shall be securely fastened. All board joints, fasteners, knots, or other defects need to be detailed with Tremco Dymonic 100.
- 6.9 OSB requires approval by the local Tremco Sales Representative prior to application. OSB requires mock-ups and pull-tests to validate proper adhesion and performance. Please consult your local Tremco Sales Representative when OSB is used.
- 6.10 Metal surfaces require a pull-test to validate proper adhesion and performance. Metal surfaces need to be clean and free of oils or other contaminants.

Visit www.tremcosealants.com for various system testing performed at the Tremco Test Facility or to submit a project connection detail for testing.

7 Detail Work Prior to Air Barrier Membrane Application

- 7.1 Construction Gaps: It is best practice to have all construction gaps detailed with Dymonic 100 or Tremflex 834. However, EXOAIR® 120 fluid-applied membranes can bridge construction gaps 1/16" (1.6 mm) or less without additional detailing. All gaps greater than 1/16" (1.6 mm) shall be treated in the following ways, depending on substrate, joint size and expected movement. Please choose the appropriate product based on the movement requirements and joint dimensions set forth from the design build team.
 - Dymonic 100 (+100/-50% movement, 1/4" to 1" joint)
 - Illmod 600 (+/-25% movement, 1/8" to 2-5/8" joint)
 - Proglaze ETA (varies based on system selection)
 - Tremflex 834 (+/-12% movement, 1/4" to 1" joint)
- 7.2 Fasteners: Fasteners should be flush with the surface of the substrate. Fasteners which are protruding from or sunk below the face of the substrate shall be treated with a detail coat of Dymonic 100, or Tremflex 834 prior to the installation of EXOAIR® 120. The detail sealants may be coated over once a skin has developed. If the fastener penetration occurs after the EXOAIR® 120 membrane has been installed, detail all fastener penetrations not flush to the EXOAIR® 120 membrane with Dymonic 100 or Spectrem 1 sealant.
- 7.3 Penetrations: Penetrations must be rigidly supported through membrane as to not allow movement of penetrating item.
- 7.4 Rough Openings, Corners, Tie-Ins to other building envelope systems: Please consult www.tremcosealants.com for detail drawings and technical bulletins showing typical transitions and tie-ins. For job specific details or questions, please contact Tremco Technical Service at 866-209-2404.

8 Membrane Application

- 8.1 EXOAIR 120 should be applied at a rate of 60 wet mils (25 ft²/gal; 2.32 M²/US gal) using a minimum 3/4" (19 mm) nap roller or spray applicator. EXOAIR 120 can be co-sprayed to speed the curing process in order to allow for fast-track construction or when weather threatens washout. Co-spraying involves spraying EXOAIR 120 and a quick-cure solution simultaneously. The EXOAIR 120 and co-spray solution combine and react instantly, resulting in a fully cured membrane within minutes. For more information on co-spraying the EXOAIR 120, please refer to the Technical Bulletin Spraying Guide at www.tremcosealants.com.

- 8.2 Use a wet film mil gauge as well as staging of material to ensure proper application thickness.
- 8.3 When transitioning onto ExoAir self-adhered membranes, Dymonic 100 shall be used to detail the edges of the ExoAir self-adhered membranes prior to installation of the ExoAir 120.
- 8.4 Seal around brick-ties and other penetrations as work progresses. Exercise care when applying around brick-ties to ensure uniform coverage.
- 8.5 Tremco has conducted in-house testing on a variety of fasteners/façade anchors used in commercial construction for attaching various insulation/cladding systems. The results demonstrated that if installed properly according to the manufacturer's installation instructions, the fasteners/façade anchors tested in conjunction with the EXOAIR membranes created an air and watertight seal. Tremco recommends contacting Technical Service at www.tremcosealants.com for a list of evaluated fasteners/façade anchors, o to submit a fastener/façade anchor for testing.
- 8.6 If detail work is being done after the air barrier membrane has been installed, seal around brick-ties and other penetrations with an additional coat of ExoAir 120, or detail with Dymonic 100, ExoAir Termination Mastic or Spectrem. Spectrem 1 may be used when there will not be any additional ExoAir membranes installed over it. Location, cladding type and service life temperature may determine which detail material must be used.
- 8.7 Protect membranes to avoid damage by other trades and construction materials during subsequent operations. Insulation and/or protection products may be installed after membranes have cured, 16 to 24 hr following application, or firm and dry to the touch.
- 8.8 Connect the EXOAIR Air Barrier System to the adjacent building envelope systems such as the roof membrane, below-grade waterproofing membrane, window and curtain wall systems and other portions of the building envelope using the recommended Tremco materials. For more information on those materials and application details, please visit www.tremcosealants.com.
- 8.9 Schedule work so that the air and vapor barrier system is covered as soon as possible after installation. If the air and vapor barrier system cannot be covered within 30 days after installation, apply temporary UV protection. Contact Tremco Technical Service for additional recommendations at 866-209-2404 or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."

9 Inspection, Testing, Repair

- 9.1 Inspect the surface of the EXOAIR® 120 thoroughly for pinholes, blisters or other voids in the membrane. If any are detected, reapply until a monolithic coating at the specified minimum thickness is achieved. If the membrane has already been completely cured, prepare the surface with a mineral spirit wipe or xylene to clean and soften the surface of the EXOAIR® 120 membrane. Reapply at the minimum specified thickness with EXOAIR® 120, extending out 4" (10 cm) beyond the pinholes, blisters or other voids.
- 9.2 Inspect the air barrier system before covering and repair any punctures or damaged areas. Make repairs with Dymonic 100 or ExoAir Termination Mastic as appropriate, extending the repair

EXOAIR® 120

Fluid-Applied Asphaltic, Air and Vapor Barrier Membrane

material a minimum of 4" (10 cm) beyond the puncture or damage in all directions.

- 9.3 If on-site adhesion testing is required, Tremco recommends ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers. EXOAIR® 120 should be allowed to dry for a minimum of 72 hr or until fully cured, whichever is longer, prior to conducting test. Additional information about this testing can be found at www.tremcosealants.com in the Technical Bulletin section.

10 Clean Up

- 10.1 Remove any masking materials immediately after installation. Clean spillage and soiling on adjacent construction that will be exposed in the finished work using cleaning agents and procedures recommended by manufacturer of the affected construction.
- 10.2 Uncured Dymonic 100, EXOAIR Termination Mastic, EXOAIR Primer, EXOAIR® 120 or Spectrem 1 can be cleaned using a solvent wipe.
- 10.3 Uncured Tremflex 834 can be cleaned using a clean, damp cloth and water.
- 10.4 Cured sealants or fluid-applied membranes can be cleaned using a solvent wipe. Mechanical removal methods may also be necessary.
- 10.5 Please refer to the Technical Bulletin Spraying Guide at www.tremcosealants.com for more information on cleaning the spray pump after EXOAIR membrane application.

0519/EXOAIR120AI-AB

Please refer to our website at www.tremcosealants.com for the most up-to-date Application Instructions.

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www.tremcosealants.com



Product Description

ExoAir® 110AT is a 22-mil composite impermeable membrane that is comprised of 16 mils of butyl and 6 mils of HDPP facer. It can be used as the membrane, detailing accessory, as well as thru-wall flashing of an air barrier system. ExoAir 110AT when installed properly as a system will provide the requirements of an air barrier: air impermeable, continuity, structural integrity and durability.

Basic Uses

ExoAir 110AT is an impermeable, self-adhered sheet designed to be applied to exterior cavity walls in order to mitigate air infiltration/exfiltration, vapor transmission and water penetration. Typically applied to exterior sheathing boards and concrete block, ExoAir 110AT can also be applied to poured concrete, steel and wood based substrate as well as serve as detailing or a transition membrane into window and door openings. ExoAir 110AT is designed to be installed when both the air and surface temperature are 20 °F (-6 °C) and rising.

Features and Benefits

- The high-performance butyl has been tested and is compatible with the ExoAir product line.
- Primerless application allows for faster installation time.
- Manufactured to a preset, uniform thickness that provides consistent and uniform coverage.
- Rugged HDPP film protects high-performance butyl membrane against incidental damage during construction process.
- Variety of widths available for job specific needs.
- White facer reduces heat absorption, resulting in thermal stability during construction cycle.
- Material installation and service temperatures eliminate the need for low temperature or high temperature accessories.
- Reduced material weight compared to traditional 40-mil systems reduces fatigue on installers and can increase productivity.

Availability

EXOAIR® 110 AT is immediately available from your local Tremco Sales Representative or Distributor. For Distributor locations, visit www.tremcosealants.com

Coverage Rates

Varies depending on width selected

Packaging

Length: 75' (22 M)

Width: 4" (10 cm)-12 rolls/box, 6" (15 cm)-8 rolls/box,
9" (22 cm)-4 rolls/box, 12" (30 cm)-4 rolls/box,
18" (45 cm)-1 roll/box, 24" (61 cm)-1 roll/box,
36" (91 cm)-1 roll/box

Colors

White HDPP facer with green ExoAir logo.

Storage

Store ExoAir 110AT in the original, undamaged packaging in a clean, dry, and protected location where temperatures do not exceed 100 °F (37 °C).

Applicable Standards

- ExoAir 110AT has been tested to the following industry standards and test methods for air barriers:
- AATCC 127-2008 Water Resistance: Hydrostatic Pressure Test for 5 hr
- ASTM C1305 Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane
- ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
- ASTM D870 Standard Practice for Testing Water Resistance of Coatings Using Water Immersion
- ASTM D882 Standard Test Method for Tensile Properties of Thin Plastic Sheeting
- ASTM D903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
- ASTM D1876 Standard Test Method for Peel Resistance of Adhesives (T Peel Test)
- ASTM D1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- ASTM D4073 Standard Test Method for Tensile – Tear Strength of Bituminous Roofing Membranes
- ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials
- ASTM E154 Standard Test Methods for Water Vapor Retarders used in Contact with Under Concrete Slabs, on Walls or as Ground Cover - Section 10 only
- ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- ASTM E2178 Standard Test Method for Air Permeance of Building Materials
- ASTM E2357 Standard Test Methods for Determining Air Leakage of Air Barrier Assemblies
- NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

ExoAir® 110AT

Self-Adhered Air and Vapor Barrier Membrane

Fire Rated Systems

EXOAIR® 110 AT has been tested in assemblies according to NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components. All of the NFPA 285 UL listed assemblies using Tremco materials can be found using the technical bulletin: ASHRA 90.1 & NFPA 285: Defining & Specifying to Meet IECC & IBC or utilizing the following link: http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpage.html?name=FWFX_R27656&ccnshorttitle=Exterior+Wall+System+Components&objid=1082999775&cfqid=1073741824&version=versionless&parent_id=1082761881&sequence=1

For NFPA 285 engineering judgment requests please go to www.tremcosealants.com/NFPA 285 Engineering Judgment Request or contact Tremco Technical Service at 866-209-2404.

Limitations

- No more than 12 months of UV exposure before façade installation. If membrane is exposed for a period exceeding 12 months, contact Tremco Technical Service for additional recommendations at 866-209-2404, or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."

- Do not apply to damp, contaminated or frost-covered surfaces.
- Not to be used as a permanently exposed surface.
- Termination Mastic should not be used with ExoAir 110AT in a fully encapsulated area.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or to refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

ExoAir® 110AT

Self-Adhered Air and Vapor Barrier Membrane

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | DESCRIPTION |
|-------------------------|---|
| Type | Butyl sheet with white HDPP facer |
| Color | White HDPP facer |
| Solids | 100% |
| Weight | 0.17 lb/ft ² (0.83 kg/M ²) |
| Application | Self-Adhered |
| Thickness | 22 mils: 16 mils butyl, 6 mils HDPP facer |
| Storage Temperature | Temperatures not exceeding 100 °F (37 °C) |
| Application Temperature | Above 20 °F (-6°C) and rising |
| Service Temperature | Intermittent Exposure up to 240 °F (115 °C) |

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|---|--------------------------------------|--|
| Maximum V.O.C. | Method 310 | 0 g/L |
| Water Resistance | AATCC-127 | Pass (5 hours) |
| Crack Bridging | ASTM C1305 | Pass |
| Elongation | ASTM D412 Die C | 650% |
| Tensile Strength | ASTM D412 Die C | 1570 psi |
| Peel or Stripping Strength | ASTM D903 | |
| | Plywood | 5.7 lbf/in |
| | CMU | 8.0 lbf/in |
| | Exterior Sheathing | 7.3 lbf/in |
| | ExoAir 110AT | 9.0 lbf/in |
| Pliability, 180°, 1" (25 mm) mandrel @ -29 °F (-34 °C) (Low Temperature Flex) | ASTM D1970 – Section 7.6 | Pass |
| Nail Seal ability | ASTM D1970 – Section 7.9 | Pass |
| Tear Initiation | ASTM D4073 | |
| | MD (Machine Direction) | 24 lbf |
| | CMD (Cross Machine Direction) | 21 lbf |
| Adhesion | ASTM D4541 | 38.7 psi |
| Flame Spread | | 5 |
| Smoke Development | ASTM E84 | 10 |
| Water Vapor Permeance | ASTM E96 Dry Cup | 0.02 US Perms |
| | ASTM E96 Wet Cup | 0.04 US Perms |
| Water Penetration | ASTM E331 | Passed at 6.26 lb/ft ² (300 Pa) for 2 hours |
| Material Air Permeance | ASTM E2178; Free film Method @ 75 Pa | 0.001 L/sm ² |
| Air Barrier Assembly Air Leakage | ASTM E2357 | 0.003 L·s·m ² @ 75 Pa |
| Fire Resistance of an Assembly | NFPA 285 | Pass |
| Tensile Strength | ASTM D882 | 28 lbf/in |
| Resistance to Puncture | ASTM E154 | 52 lbf/in |

0618/EXOA110ATDS-AB**Tremco Commercial Sealants & Waterproofing**

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www.tremcosealants.com

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APPLICATION INSTRUCTIONS

1 Purpose

- 1.1 The purpose of this document is to establish uniform procedures for installing EXOAIR® 110 AT EXOAIR® 110 AT.
- 1.2 The techniques involved may require modifications to adjust to jobsite conditions. Tremco recognizes that site specific conditions, weather patterns, contractor preferences and membrane detailing may require deviation or alteration from these prescribed installation procedures. When such circumstances exist on a project, Tremco recommends that the local Tremco Sales Representative or Tremco Technical Service be contacted for assistance and approval as required.
- 1.3 EXOAIR® 110 AT is compatible with and part of ExoAir Air Barrier Systems, a complete line of air barrier systems provided by Tremco.

2 Scope

- 2.1 This document will provide the necessary instructions for the application of EXOAIR® 110 AT and its related air barrier system components.

3 Limitations

- 3.1 UV exposure should not exceed 12 months after installation. If the 12-month limit is exceeded, contact Tremco Technical Service for additional recommendations at 866-209-2404, or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."
- 3.2 Do not apply to damp, contaminated or frost-covered surfaces.
- 3.3 ExoAir 110AT is not to be used as a permanently exposed surface. Contact your local Tremco Sales Representative for project specific requirements.
- 3.4 Termination Mastic should not be used with ExoAir 110AT in a fully encapsulated area.

4 Storage

- 4.1 Store EXOAIR® 110 AT in original, undamaged packages in a clean, dry, protected location with temperatures not exceeding 100 °F (37 °C).

5 Substrate Preparation

- 5.1 Roofing systems shall be capped and sealed, or top of walls protected, in such a way as to eliminate the ability of water to saturate the wall or interior space, both before and after, air barrier system installation. Coordinate installation of EXOAIR® 110 AT with the roofing trade to ensure compatibility and continuity with the roofing system.
- 5.2 Continuity of the air barrier system is critical to the performance of the façade. Proper connections to other envelope systems such as the waterproofing, flashing, roof and window/curtain wall systems shall be documented and approved by each manufacturer. Visit www.tremcosealants.com for various system testing performed at the Tremco Test Facility or to submit a project connection detail for testing.
- 5.3 Surface to be coated must be dry, clean, smooth, firm, free of release agents, dust, mud, loose mortar, wires, fins, metal projections or any other substances that might prevent placement and bonding of membrane. Please visit www.tremcosealants.com/technical-resources/technical-bulletins.aspx to review additional information.

- 5.4 EXOAIR® 110 AT may be applied to most typical building materials such as exterior sheathing boards, CMU, concrete, exterior grade plywood, OSB and metal surfaces. Exterior sheathing shall be installed according to the manufacturer's installation instructions. All board edges shall be sound and anchored in a way to provide minimum deflection. All board edges shall be cut cleanly and excess debris shall be removed.
 - 5.5 CMU walls shall have all joints filled and struck flush. Mortar should be cured a minimum of 7 days. Any voids shall be patched with mortar, a non-shrinking grout or other approved patching material.
 - 5.6 All concrete substrates shall be clean and free of all release agents. Any voids shall be patched with mortar, non-shrinking grout or other approved patching material.
 - 5.7 Exterior grade plywood shall be securely fastened. All board joints, fasteners, knots, or other defects need to be detailed with Tremco Dymonic 100.
 - 5.8 OSB requires approval by the local Tremco Sales Representative prior to application. OSB requires mock-ups and pull-tests to validate proper adhesion and performance. Please consult your local Tremco Sales Representative when OSB is used.
 - 5.9 Metal surfaces require a pull-test to validate proper adhesion and performance. Metal surfaces need to be clean and free of oils or other contaminants.
- Visit www.tremcosealants.com for various system testing performed at the Tremco Test Facility or to submit a project connection detail for testing.

6 Detail Work Prior to Air Barrier Membrane Application

- 6.1 Construction Gaps: ExoAir 110AT sheet applied membranes can bridge construction gaps 1/4" (6 mm) or less without additional detailing. All gaps greater than 1/4" (6 mm) shall be treated in the following ways, depending on substrate, joint size and expected movement. Please choose the appropriate product based on the movement requirements and joint dimensions set forth from the design build team.
 - Dymonic 100 (+100/-50% movement, 1/4" to 1" joint)
 - Spectrem 1 (+100/-50% movement, 1/4" to 1" joint)
 - Illmod 600 (+/-25% movement, 1/8" to 2-5/8" joint)
 - Proglaze ETA (varies based on system selection)
 - Tremflex 834 (+/-12% movement, 1/4" to 1" joint)
- 6.2 Fasteners: Fasteners should be flush with the surface of the substrate. Fasteners which are protruding from or sunk below the face of the substrate shall be treated with Dymonic 100 or Tremflex 834 prior to the ExoAir 110AT installation. The detail sealants may be coated over once a skin has developed. If the fastener penetration occurs after the ExoAir 110AT membrane has been installed, detail all fastener penetrations not flush to the ExoAir 110AT membrane with Dymonic 100 or Spectrem 1 sealant.
- 6.3 Rough Openings, Penetrations, Corners, Tie-Ins to other building envelope systems: Please consult www.tremcosealants.com for detail drawings and technical bulletins showing typical transitions and tie-ins. For job specific details or questions, please contact Tremco Technical Service at 866-209-2404.

EXOAIR® 110 AT

Self-Adhered Air and Vapor Barrier Membrane

7 Membrane Application

- 7.1 ExoAir 110AT does not typically require the use of primer. If primer is deemed necessary or required by the specifications, apply ExoAir Primer to all areas that will receive the ExoAir 110AT membrane. Allow ExoAir Primer to develop a tack (typically 15 to 30 min) prior to installing the ExoAir 110AT.
- 7.2 ExoAir 110AT can be applied vertically or horizontally. ExoAir 110AT membrane shall be lapped onto previous sheet a minimum of 2" (5 cm) when overlap is in plane. All other transitions should have a minimum of 3" (8 cm) overlap. All horizontal laps should be shingled. ExoAir 110AT must be mechanically roll pressed with a J-Roller to ensure the ExoAir 110AT develops sound contact to the substrate.
- 7.3 All seams not oriented to shed water and edges at the end of that day's work shall be detailed with Dymonic 100 or ExoAir Termination Mastic. All edges that will be receiving ExoAir 130 must be detailed with a 2" wide detail of Dymonic 100. Dymonic 100 will provide the bonding surface for the ExoAir 130 transitions. Spectrem 1 may be used on edges/terminations of the membrane when there will not be any additional ExoAir membranes installed over it. Location, cladding type and service life temperature may determine which detail material must be used.
- 7.4 Tremco has conducted in-house testing on a variety of fasteners/façade anchors used in commercial construction for attaching various insulation/cladding systems. The results demonstrated that if installed properly according to the manufacturer's installation instructions, the fasteners/façade anchors tested in conjunction with the ExoAir membranes created an air and watertight seal. Tremco recommends contacting Technical Service at www.tremcosealants.com for a list of evaluated fasteners/façade anchors or to submit fasteners/façade anchors for testing.
- 7.5 If detail work is being done after the air barrier membrane has been installed, seal around brick-ties and other penetrations with Dymonic 100, ExoAir Termination Mastic or Spectrem 1. Spectrem 1 may be used when there will not be any additional ExoAir membranes installed over it. Location, cladding type and service life temperature may determine which detail material must be used.
- 7.6 Protect membranes to avoid damage by other trades and construction materials during subsequent operations. Insulation and/or protection products may be installed after membranes have been installed.
- 7.7 Connect the ExoAir Air Barrier System to the adjacent building envelope systems such as the roof membrane, below-grade waterproofing membrane, window and curtain wall systems and other portions of the building envelope using the recommended Tremco materials. For more information on those materials and application details, please visit www.tremcosealants.com.
- 7.8 Schedule work so that the air and vapor barrier system is covered as soon as possible after installation. If the air and vapor barrier system cannot be covered within 12 months after installation, apply temporary UV protection. Contact Tremco Technical

Service at 866-209-2404 for additional recommendations or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert".

8 Inspection, Testing, Repair

- 8.1 Inspect the air barrier system before covering, and repair any punctures, fishmouths, wrinkles or damaged areas. Make repairs with EXOAIR® 110 AT, Dymonic 100 or ExoAir Termination Mastic as appropriate, extending the repair material a minimum of 4" (10 cm) beyond the puncture or damage in all directions. Location, cladding type and service life temperature may determine which detail material must be used.
- 8.2 If on-site adhesion testing is required, Tremco recommends ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers. EXOAIR® 110 AT should be installed defect free prior to conducting test. Additional information about this testing can be found at www.tremcosealants.com in the Technical Bulletin section.

9 Clean Up

- 9.1 Remove any masking materials immediately after installation. Clean spillage and soiling on adjacent construction that will be exposed in the finished work using cleaning agents and procedures recommended by manufacturer of the affected construction.
- 9.2 Uncured Dymonic 100, EXOAIR Termination Mastic, Spectrem 1 or ExoAir Primer can be cleaned using a solvent wipe.
- 9.3 Uncured Tremflex 834 can be cleaned using a clean, damp cloth and water.
- 9.4 Cured sealants can be cleaned using a solvent wipe. Mechanical removal methods may also be necessary.

1019/EXOAIR110ATAB-AI

Please refer to our website at www.tremcosealants.com for the most up-to-date Application Instructions.

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www.tremcosealants.com



Product Description

Tremflex® 834 is a pure acrylic latex sealant formulated to provide a fast-setting pliable seal with minimal shrinkage.

Basic Uses

Tremflex 834 can be used for general purpose interior and exterior caulking and as a back-bedding glazing compound. It is also highly recommended as an acoustical seal in the construction of interior walls, ceilings and floors. It is suitable for use on vinyl, aluminum and wood siding as well as on bathroom and kitchen fixtures.

Features and Benefits

- Tremflex 834 is an easy gunning, non-staining, general purpose sealant formulated from the highest quality acrylic polymer to offer exceptional flexibility and workability for any commercial construction acrylic sealant application.
- It can be used indoors or outdoors and is tack-free in 15 min and ready to paint in 30 to 45 min with latex or oil-based paint.
- It also has been tested for acoustical properties to reduce sound transmissions when constructing partition walls.
- Class A Building Material

Availability

Immediately available from your local Tremco Field Representative, Tremco Distributor or Tremco Warehouse.

Coverage Rates

308' of joint per gal for a 1/4" x 1/4" (6 mm x 6 mm) joint. For specific coverage rates that include joint size, and usage efficiencies, visit our website usage calculator at www.tremcosealants.com

Packaging

10.1-oz (300-mL) cartridges

20-oz. (600-mL) sausages

5-gal (18.9-L) pails

Colors

Clear, Limestone, White

Storage

Store Tremflex 834 in original, undamaged packaging in a clean, dry, protected location with temperatures between 40 to 110 °F (5 to 43 °C).

Limitations

- Do not apply Tremflex 834 to damp or contaminated surfaces.
- Always utilize the sealant's MSDS found on our website at www.tremcosealants.com for information on proper ventilation, Personal Protective Equipment (PPE) and other health concerns.
- Keep product from freezing.
- Although Tremflex 834 is paintable, this does not imply adhesion to and compatibility with all paints. Please refer to Tremco Technical Bulletin No. S-09-05 for more information.

Substrate Preparation

Surfaces must be sound, clean, and dry. All release agents, existing waterproofing, dust, loose mortar, laitance, paints, or other finishes must be removed. This can be accomplished with a thorough wire brushing, grinding, sandblasting, or solvent washing, depending on the contamination.

Tremco recommends that surface temperatures be 40 °F (5 °C) or above at the time the sealant is applied. If sealant must be applied in temperatures below 40 °F, please refer to the Tremco Guide for Applying Sealants in Cold Weather that can be found on our website at www.tremcosealants.com.

Applicable Standards

- Tremflex 834 meets or exceeds the requirements of the following specifications:
- ASTM C834, Type OP, Grade -18 °C
- CAN/CGSB 19-GP-17M

Application

Apply Tremflex 834 with conventional caulking equipment filling the joint from the bottom first.

Immediately tool the sealant with a spatula to ensure intimate contact with the joint walls. Dry tooling is preferred, although water can be used in limited amounts to slick the spatula if needed.

For window and door perimeter fillet bead applications, a 1/4" (6 mm) minimum surface area is recommended.

Priming

Tremflex 834 adheres to common construction substrates without primers, however, Tremco always recommends that a mock-up or field adhesion test on the actual materials being used on the job be conducted to verify adhesion. The field adhesion test can be found in Appendix X1 of ASTM C1193, Standard Guide for Use of Joint Sealants.

Joint Design

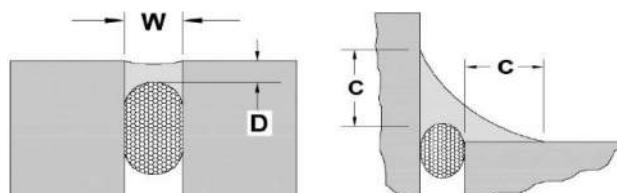
Tremflex 834 may be used in any vertical or horizontal joint designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement, but not less than 1/4" (6.4 mm).

Joint Backing

Closed cell or reticulated polyethylene backer rod is recommended as joint backing to control sealant depth and to ensure intimate contact of sealant with joint walls when tooling. Where depth of joint will prevent the use of backer rod, an adhesive backed polyethylene tape (bond breaker tape) should be used to prevent three-sided adhesion. All backing should be dry at time of sealant application.

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



Expansion Joints- The minimum width and depth of any sealant application should be 1/4" x 1/4" (6 mm x 6 mm).

The depth (D) of sealant may be equal to the width (W) of joints that are less than 1/2" wide. For joints ranging from 1/2" to 1" (13 mm to 25 mm) wide, the sealant should be approximately one-half of the joint width.

The maximum depth (D) of any sealant should be 1/2" (13 mm). For joints that are wider than 1" (25 mm), contact Tremco Technical Services or your local Tremco Sales Representative.

Tremflex® 834

Siliconized Acrylic Latex Sealant

Window Perimeter- For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area [C] of 1/4" (6 mm) onto each substrate, with provisions for release at the heel of the angle using backer rod or bond breaker tape.

Cure Time

At 72 °F (22 °C), 50% RH, Tremflex 834 is tack free in 15 min and dries at a rate of about 1/8" (3 mm) per day but can be painted after only 30 to 45 min with latexes, or oil-based paint. As the temperatures decrease, the dry time of Tremflex 834 will increase. A good rule of thumb is one additional day for every 10 °F (5.5 °C) decrease in temperature.

Clean Up

Excess sealant and smears along the joint interface can be cleaned up or removed with soapy water before the sealant skins. Any utensils used for tooling can also be cleaned with soapy water.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace, or refund the purchase price of the quantity of Tremco Products proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|-----------------------|-------------|--|
| Type | | Single-component Siliconized Acrylic Latex sealant |
| Color | | Clear, Limestone, White |
| Solids | | 84% |
| Specific Gravity | | 1.58 |
| Application | | gun-grade sealant, applied with typical caulking equipment |
| Extrudability | ASTM C1183 | 6 g/s |
| Artificial Weathering | ASTM C732 | Pass |
| Wash-out | ASTM C732 | None |
| Slump | ASTM C732 | None |
| Cracking | ASTM C732 | None |
| Discoloration | ASTM C732 | None |
| Adhesion Loss | ASTM C732 | None |
| Volume Shrinkage | ASTM C1241 | 22.4% (Type OP) 35.3% (Type C) |
| Low Temp. Flexibility | ASTM C734 | No cracks, no adhesion loss |
| Extension - Recovery | ASTM C736 | 93.7% |
| Extension - Adhesion | ASTM C736 | None |
| Slump | ASTM D2202 | 2 mm |
| Stain Index | ASTM D2203 | 0 mm |
| Tack-Free Time | ASTM C679 | 3 hr, 55 min |
| Movement Capability | | ±12.5% |
| Flame Spread | ASTM E84 | 10 |
| Smoke Development | ASTM E84 | 0 |

0318/T834DS-ST

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Dymonic® 100

High-Performance, High-Movement, Single-Component, Polyurethane Sealant

Product Description

Dymonic® 100 is a high-performance, high-movement, single-component, medium-modulus, low-VOC, UV-stable, non-sag polyurethane sealant.

Basic Uses

Dymonic 100 is a durable, flexible sealant that offers excellent performance in moving joints and exhibits tenacious adhesion once fully cured. Typical applications for Dymonic 100 include expansion and control joints, precast concrete panel joints, perimeter caulking (windows, doors, and panels), aluminum, masonry and vinyl siding. Dymonic 100 is also an excellent choice as a fluid applied flashing material in rough opening perimeters for fenestration/window, door and curtain wall applications.

Features and Benefits

- Can adhere to damp or green concrete and has a skin time of 2 hr with a tack-free time of 6 to 8 hr to significantly reduce dirt attraction.
- Movement capability of +100/-50% in typical field conditions, is low VOC, paintable, jet fuel-resistant, and will not crack, craze or yellow under extreme UV exposure.
- Suitable for water immersion and will not out gas.
- Formulated with an innovative polymer technology, similar to TREMproof® 250GC and Vulkem® 45SSL, Dymonic 100 is highly versatile and has a unique capability to adhere to damp or green concrete and will not out gas.
- Compatible and can be coated over with Tremco's Vulkem Deck Coatings, ExoAir® Air Barrier products and the cold, fluid-applied TREMproof® line of below-grade waterproofing products.

Availability

Dymonic 100 is immediately available from your local Tremco Sales Representative, distributor, or warehouse.

Coverage Rates

308' of joint per gallon for a 1/4" x 1/4" (6 mm x 6 mm) joint. For specific coverage rates that include joint size, and usage efficiencies, visit our website usage calculator at www.tremcosealants.com

Packaging

- 10.1-oz (300-mL) cartridges
- 20-oz (600-mL) sausages

Colors

Almond, Aluminum Stone, Anodized Aluminum, Beige, Black, Bronze, Buff, Dark Bronze, Gray, Gray Stone, Hartford Green, Ivory, Light Bronze, Limestone, Natural Clay, Off White, Precast White, Redwood Tan, Sandalwood, Stone, and White.

Shelf Life

1 year when stored at 40 to 110 °F (5 to 43 °C)

Storage

Store Dymonic 100 in original, undamaged packaging in a clean, dry, protected location with temperatures between 40 to 110 °F (5 to 43 °C).

Applicable Standards

- Dymonic 100 meets or exceeds the requirements of the following specifications:
- ASTM C920 Type S, Grade NS, Class 50, Use NT, T, M, A, O, I
- U.S. Federal Specification TT-S-00230C, Class A, Type II
- CAN/CGSB-19.13-M87
- International Code Council (ICC) Section R703.8 Flashing
- AAMA 714-15 Specification for Liquid-Applied Flashing
- NFPA 285 Listed Component



Fire Rated Systems

FF-D-1186, FW-D-1117, HW-D-1122, WW-D-1200, and BW-S-0006

Limitations

- Use with adequate ventilation.
- Always utilize the accompanying MSDS for information on Personal Protective Equipment (PPE) and Health Hazards.
- Not recommended for use in chlorinated, potable, heavy or waste water.
- Although Dymonic 100 is paintable, this does not imply adhesion to and compatibility with all paints. Consult Tremco Technical Bulletin No. S-09-05 for more information.

Substrate Preparation

Surfaces must be sound and clean. All release agents, existing waterproofing, dust, loose mortar, paints, other finishes or field applied coating must be removed. This can be accomplished with a thorough wire brushing, grinding, sandblasting, or solvent washing, depending on the contamination.

Tremco recommends that surface temperatures be 40 °F (5 °C) or above at the time the sealant is applied. If sealant must be applied in temperatures below 40 °F, please refer to the Tremco Technical Bulletin for Applying Sealants in Cold Conditions (No. S-08-44 rev 1) that can be found on our website at www.tremcosealants.com

Dymonic® 100

High-Performance, High Movement, Single-Component, Polyurethane Sealant

Priming

Dymonic 100 typically adheres to common construction substrates without primers; anodized aluminum may require the use of primer. However, Tremco always recommends that a mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer, proper cleaning and prep requirements. A description of the field adhesion test can be found in appendix X1 of ASTM C1193, Standard Guide for Use of Joint Sealants.

Where deemed necessary, use Vulkem® Primer #191 Low-VOC on porous substrates and TREMprime® Non-Porous Primer for metals or plastics.

Application

Dymonic 100 is easy to apply with conventional caulking equipment. Ensure that the backer rod is fitted properly for friction and that any necessary primers have been applied.

Fill the joint completely with a proper width-to-depth ratio, and then tool to ensure intimate contact of sealant with joint substrates.

Dry tooling is always preferred, although compatible wetting agents can be used in limited amounts to slick the spatula if needed after an initial pass.

For a cleaner finish, mask the sides of the joint with tape prior to filling.

Joint Design

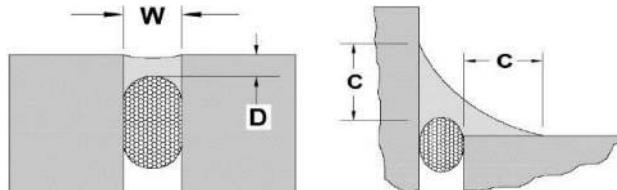
Dymonic 100 may be used in vertical or horizontal joints designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement but not less than 1/4" (6 mm).

Joint Backing

Polyethylene backer rod is recommended as joint backing to control sealant depth and ensure intimate contact of sealant with joint substrate when tooling. Where depth of joint will prevent the use of backer rod, an adhesive backed polyethylene tape (bond breaker tape) should be used to prevent three-sided adhesion. All backing should be dry at the time of sealant application.

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



Expansion Joints- The minimum width and depth of any sealant application should be 1/4" x 1/4" (6 mm x 6 mm). The depth (D) of sealant may be equal to width (W) of joints less than 1/2" wide. For joints from 1/2" to 1" (13 mm to 25 mm) wide, the sealant depth should be approximately one-half of the joint width. The maximum depth (D) of any sealant application should be 1/2" (13 mm). For Joints that are wider than 1" (25 mm) contact Tremco Technical Services or your local Tremco Sales Representative.

Window Perimeter- For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area [C] of 1/4" (6 mm) onto each substrate, with provisions for release at the heel of the angle using backer rod or bond breaker tape.

Cure Time

Dymonic 100 generally cures at a rate of 3/32" per day at 75 °F (24 °C) and 50% RH. It will skin in 2 hr and be tack free in 6 to 8 hr. The cure time will increase as temperatures and/or humidity decrease. A typical rule of thumb is one additional day for every 10 °F decrease in temperature.

Clean Up

Excess sealant and smears adjacent to the joint interface can be carefully removed with xylene or mineral spirits before the sealant cures. Any utensils used for tooling can also be cleaned with xylene or mineral spirits.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

Dymonic® 100

High-Performance, High Movement, Single-Component, Polyurethane Sealant

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|--------------------------------------|------------------------|--|
| Type | | Single component polyurethane sealant |
| Color | | 21 Standard Colors |
| Solids | | 98% |
| Specific Gravity | | 1.3302 |
| Application | | gun-grade sealant, applied with typical caulking equipment |
| Rheological Properties | ASTM C639 | non-sag (NS), 0" of sag in channel |
| Hardness Properties | ASTM C661 | 40 +/-5 |
| Weight Loss | ASTM C1246 | Pass |
| Skin Time | ASTM C679 | 2 to 3 hr |
| Tack Free Time | 73.4°F (23°C) 50% RH | 6 to 8 hr |
| Stain and Color Change | ASTM C510 | Pass |
| Adhesion to Concrete | ASTM C794 | 35 pli |
| Adhesion to Concrete After Immersion | ASTM C794 | 30 pli |
| Adhesion to Green Concrete | ASTM C794 | >25 pli |
| Adhesion to Damp Concrete | ASTM C794 | >20 pli |
| Effects of Accelerated Aging | ASTM C793 | Pass |
| Movement Capability | ASTM C719 | +/-50% |
| Movement Capability | ASTM C719* Modified | +100/-50% |
| Tensile Strength | ASTM D412 | 350 to 450 psi |
| % Elongation | ASTM D412 | 800 to 900% |
| Modulus at 100% | ASTM D412 | 75 to 85 psi |
| Tear Strength | ASTM D412 | 65 to 75 psi |
| Service Temperature | | -40 to 180 °F (-40 to 82 °C) |
| Application Temperature | | 40 to 100 °F (4 to 37 °C) * |
| Smoke Development | ASTM E84 | 5 |
| Fire Spread | ASTM E84 | 5 |
| Fire Resistance of Assembly | NFPA 285 | PASS |
| Smoke Development | CAN S102 | 10 |
| Fire Spread | CAN S102 | 10 |
| Crack Bridging | ASTM C1305 | PASS |
| Nail Sealability | ASTM D1970 Section 7.9 | PASS |

*For temperatures below 40 °F, please refer to the Technical Bulletin, Cold Temperature Sealant Application Recommendations.

0619/D100DS-STPlease refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.**Tremco Commercial Sealants & Waterproofing**

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APPLICATION INSTRUCTIONS

1. Selecting the Urethane sealant

The intended function of sealant determines the specific product that will be appropriate for use in the application. A brief overview of selection guidelines is found in this section. If further assistance with urethane sealant selection is required, then contact Tremco's technical services or consult Tremco's Sealant Selection Guide; this guide is available at tremcosealants.com. Provided below is a list of items to consider while selecting a urethane sealant:

Movement capability

Many joints into which sealants are installed must be considered dynamically moving entities, and the sealant must be able to accommodate the magnitude of dynamic movement that the joint will experience. The sealant's ability to accommodate joint movement is provided as ratings for the extension and compression capabilities. The movement capability of a urethane sealant is published on the product data sheet and reported under the "Applicable Standards" section as the "class" distinction within ASTM C920 – *Standard Specification for Elastomeric Joint Sealants*.

Modulus

The modulus property of a sealant is a relative value measured as a ratio of stress to strain during joint extension. To define this property simply, modulus describes the amount of force, load, or stress required to extend a sealant to a predetermined strain or elongation. Low-modulus sealants exhibit less stress at the location of the sealant-substrate bond line when the sealant is exposed joint movement; generally, low-modulus sealants demonstrate greater movement capabilities when compared to their higher-modulus counterparts. Low-modulus sealants are a more forgiving selection for high movement joints, joints that have opposing substrates with dissimilar coefficients of thermal expansion, and joints that have interfaces that can be pulled apart by movement stresses maintained by higher-modulus sealant materials. Low-modulus urethane sealants are the preferred selection for joints that interface with Dryvit/EIFS. Medium-modulus and high-modulus sealants can provide durability in joints where a less significant amount of joint movement is expected and when the substrate is rigid enough to accept higher levels of stress.

Single-component or multi-component

This portion of selection pertains to equipment available to dispense the sealant, speed of sealant cure-through and preference of the applicator. A multi-component sealant is usually packaged in bulk containers and requires mixing as well as specialized dispensing equipment, while single-component sealants are ready for immediate dispensing from packaging types that have a smaller volume, such as cartridges or sausages

Non-sag or pourable

A non-sag material is required in applications marked with joints in vertically-oriented substrates and can be used in skyward facing horizontal joints; pourable sealants cannot be used in vertically-oriented joints and may be preferred in skyward facing horizontal joints as they promote ease of use by reducing the intensity of tooling that the applicator must perform after the sealant is initially applied. The "gun-grade" and "non-sag" sealant terms are synonymous. The "self-leveling" sealant term is descriptive for "pourable sealant"

Paintability

Where sealant joints are to be painted, urethane sealants are typically paintable this does not imply adhesion to and compatibility with all paints. Please refer to Tremco Technical Bulletin No. S-09-05 for more information.

Contact Tremco Technical Services if you have any questions regarding the sealant selection process.

2. Testing

Tremco recommends project-specific testing be completed prior to starting production at any job-site conditions. Upon request, Tremco's technical services laboratory performs in-house testing of sealant for adhesion, compatibility and potential staining on submitted project substrate materials. Project-specific recommendations regarding surface preparation, primer use, and urethane sealant product recommendation is made after the completion of Tremco's project-specific testing process. Contact Tremco's technical services for details on how to initiate, complete, and interpret laboratory testing procedures, requirements, and results. Consult Tremco's technical services bulletin S-08-47 or contact the Technical Service Department for more detailed information pertaining to each test performed within Tremco's technical services laboratory.

In some instances, [in-field testing](#) may be adequate for qualifying a sealant for use in a specific application. Contact a local Tremco sales representative for assistance with testing at the job site.

3. Storage

Prior to use, all urethane sealants must be stored in original, undamaged packaging in a clean, dry, protected location with temperatures between 40 to 110 °F (5 to 43 °C). Once the packaging of a single-component sealant is opened, the material will begin to cure. Preserving the sealant from developing an undesired cure of the material can be achieved by promptly closing the sealant's container immediately after completion of use.

The curing mechanism of single-component urethane sealants is initiated with the introduction of airborne water vapor to the exposed sealant. The seals of Tremco sealant containers are effective at isolating the sealant from the atmosphere, and the water vapor that it contains, for extended periods of time.

Urethane Sealant Application Instructions

Storage of packaged urethane sealants in locations that experience significant temperature fluctuations and/or cyclic temperature changes may be problematic, as these conditions are known to accelerate the migration of air and water vapor into the sealant container, unduly exposing the sealant to conditions that will ultimately reduce the effective shelf life of the material or the overall performance of the sealant when applied. Therefore, it is recommended to ensure that the storage of urethane sealants be in a temperature-controlled environment with a stable ambient air temperature.

Two-part urethane sealants are usually package in two containers. The larger contains the base, the smaller contains the curative. The curative should be poured into the larger container and mixed with a low speed paddle until homogenous. The mixed product is then filled into and dispensed from a bulk loading gun.

4. Surface preparation

The five key steps for a successful sealant installation can be summarized as: clean, prime (if necessary), pack with joint backing material, gun the sealant, and tool the surface of the sealant. Specific instructions for each of these installation steps are provided in subsequent sections within this document below.

Two-cloth cleaning method

The two-cloth cleaning method is completed by first wiping the substrate with a clean, white, lint-free cloth that is dampened with an approved cleaning solvent. The cleaning cloth should never be introduced or inserted directly into the solvent vessel or its contents to prevent contamination. Immediately follow the solvent-wipe, before the cleaning solvent has flashed off the substrate surface, wipe of a second cloth that is dry, clean, white, and lint-free to remove loosened dirt or oil. The surface must be dry, solvent must be flashed off, and contaminate free at this point prior to sealant application. It is recommended to clean non-porous substrates using this cleaning method immediately before applying a urethane sealant, and the substrate must be cleaned again if two or more hours have elapsed between the time that the substrate was cleaned, and the sealant is applied.

Taping of surfaces surrounding the joint

Applying masking tape at the perimeter of a sealant joint is optional and is generally to support aesthetically favorable appearances of the sealant joint and to promote easier clean-up procedures. The masking tape must be removed immediately after the sealant's surface is tooled and before the sealant begins to develop a skinned surface.

Masonry

Concrete and masonry surfaces must be stable, clean, dry, and free of contaminants. If film-forming curing aids or form release agents are present on a concrete substrate, they must be completely removed. If non-film-forming curing or form release agents have been used, adhesion testing must be employed to determine if they would be deleterious to adhesion.

The rough surfaces of these substrates can be prepared by sandblasting, mechanically abrading, wire brushing, grinding, or any combination of these preparation methods. These abrasive surface

preparation procedures will introduce dust and other particles to the application area that must be treated as contaminants and thoroughly removed by blowing the affected substrate with oil-free compressed air or by brushing the contaminants away from the application area with a soft bristle brush.

Recommendation on the use of primer is determined via project-specific testing. Tremco always recommends that a mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer, proper cleaning and prep requirements. Specifics on priming substrates of this type can be found in section 5 of this document, "Priming." These substrates are porous in nature; Where deemed necessary, use Vulkem® 191 Primer on porous substrates for the sealant to develop adequate adhesion.

Tile

The surfaces must be clean, dry, and free of any contaminants. Clean the substrate using the two-cloth cleaning method described above. Preventing oily fingerprints from being introduced onto these substrates is an important precaution to maintain cleanliness and create an ideal surface for the sealant to develop adhesion to.

Recommendation on the use of primer is determined via project-specific testing. Tremco always recommends that a mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer, proper cleaning and prep requirements. Specifics on priming substrates of this type can be found in section 5 of this document, "Priming." These substrates are non-porous in nature; Where deemed necessary, use TREMprime Non-Porous Primer for the sealant to develop adequate adhesion.

Wood

Tremco's urethane sealants will typically develop adhesion to dry, fresh wood that is clean and free of any contaminants. Many species of wood, such as teak, contain oils that dry out very slowly. Oil bearing woods are usually not suitable substrates for urethane sealants to develop adhesion with unless sufficient time has been allotted for the oils to vacate the substrate. Applications of urethane sealant onto wood that will be painted or stained at a later time must utilize adequate masking techniques to ensure that urethane sealant does not get onto surfaces to be painted or stained.

When applying urethane sealants to painted wood surfaces and adhesion will develop with the paint, it is important to note that the bond between the sealant and the paint is of no more value than the bond between the paint and the wood. Recognize the need for additional prudence because stresses of movement introduced to the sealant joint will be transferred to the paint material at the bond line. Use of a low-modulus sealant would be preferable to a medium- or high-modulus sealant to minimize such transfer of movement stress. Tremco recommends that any paint on the surface of the wood at the bonding area be removed mechanically, so bare wood is the exposed surface for the urethane sealant to bond to. Where paint is not fully removed from wood and well-bonded residual paint is left after scraping or abrading, a low-modulus sealant is the preferred selection. Urethane sealants have historically been found to readily develop adhesion with a wide variety

Urethane Sealant Application Instructions

of different types of paint, but it is always recommended to confirm this with the implementation of project-specific testing with the materials present at the application site.

Metal

The bonding surface of the urethane sealant must be clean, dry, and free of any contaminants. Metal substrates must be cleaned using the two-cloth cleaning method described previously within this document. Preventing oily fingerprints from being introduced onto these substrates is an important precaution to maintain cleanliness and create an ideal surface for the sealant to develop adhesion to.

Metals that have the potential to corrode via oxidation pose a threat to the long-term adhesion of a sealant as oxidation can creep beneath the sealant bond line over time to cause failure. It is for that reason that factory-applied primers are recommended on steel substrates.

Recommendation on the use of primer is determined via project-specific testing. Tremco always recommends that a mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer, proper cleaning and prep requirements. Specifics on priming substrates of this type can be found in section 5 of this document, “**Priming**.” These substrates are non-porous in nature; Where deemed necessary, use TREMprime Non-Porous Primer for the sealant to develop adequate adhesion.

Plastics.

Plastic surfaces must be scuff-sanded, clean, dry, and free of contaminants prior to the application of urethane sealant. These substrates must be cleaned using the two-cloth cleaning method described previously within this document. Preventing oily fingerprints from being introduced onto these substrates is an important precaution to maintain cleanliness and create an ideal surface for the sealant to develop adhesion to.

Recommendation on the use of primer is determined via project-specific testing. Tremco always recommends that a mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer, proper cleaning and prep requirements. Specifics on priming substrates of this type can be found in section 5 of this document, “**Priming**.” These substrates are non-porous in nature; Where deemed necessary, use TREMprime Non-Porous Primer for the sealant to develop adequate adhesion.

5. Priming

Porous substrates

Tremco commercial urethane sealants will typically develop adhesion without the need of a primer to most common porous construction materials. When priming is determined to be necessary, by conclusions derived from results from testing with project-specific materials, then Vulkem® 191 Primer or Vulkem Primer #171 for porous substrates is recommended. Contact Tremco Technical Services for primer recommendations. These are a single-component primer that used to enhance the adhesion of urethane sealants to porous surfaces, such as concrete, limestone, or brick. They also provide a barrier to moisture at the bonding area when the substrate becomes wet and begins to wick moisture throughout its body.

Vulkem® 191 Primer and Vulkem Primer #171 are to be Apply generously with a clean brush or roller. Do not apply in excess where it will puddle or pond. At 70 °F (21°C), allow 30 to 45 min for primer to become tacky before applying sealant, coating or membrane. Do not allow primer to dry completely. Do not apply sealant or coating if primer becomes hard or glossy.

Urethane sealants can be applied onto a primed substrate for up to eight hours after primer has been applied; if sealant has not been applied to the primed substrate after eight hours has elapsed, the surface must be cleaned and primed with the recommended Porous Primer again.

Non-porous substrates

Tremco commercial urethane sealants will typically develop adhesion without the need of primers to most common non-porous construction materials. When priming is determined to be necessary, by conclusions derived from results acquired with testing of project-specific materials, then TREMprime Non-Porous Primer recommended. This is a single-component primer used to enhance adhesion of urethane sealants on non-porous surfaces, such as metal, or plastics. When TREMprime Non-Porous Primer is applied to the bonding surface, the time required for the urethane sealant to reach complete adhesion to the substrate is often reduced, when compared to applications of the sealant onto identical unprimed substrates.

To apply the TREMprime Non-Porous Primer, the primer must be applied directly to a clean, lint-free, white cloth; the cloth used for this primer's application should never be inserted directly into the container of TREMprime Non-Porous Primer, as this significantly increases the potential for the primer to become contaminated. Before the primer can be applied to the substrate, it is recommended to remove all excess primer from cloth, so the cloth is merely dampened with the primer; this will help prevent the over-application of primer onto the substrate. Apply TREMprime Non-Porous Primer from the dampened cloth directly onto the substrate as a thin layer. When applied correctly, this primer dries after approximately 15 min, at conditions of 70°F (21°C). The primer must be completely dry before applying sealant; applying the sealant to a surface that is still wet with freshly applied primer will become a detriment to the sealant's ability to cure appropriately, develop adhesion to the substrate, and/or achieve its expected physical properties.

Urethane sealants can be applied onto a primed surface for up to six hours after primer has been applied; if the sealant has not been applied to the primed substrate within six hours, then the surface must be cleaned using the two-cloth cleaning method and primed with TREMprime Non-Porous Primer again.

6. Application

Backing materials

Closed cell or reticulated polyethylene backer rod is recommended as joint backing to control sealant depth and to ensure intimate contact of sealant with joint walls when tooling. Where depth of joint will prevent the use of backer rod, an adhesive backed polyethylene tape (bond breaker tape) should be used to prevent three-sided adhesion. All backing should be dry at time of sealant application.

Joint Designs and Dimensions

Tremco recommends that individuals responsible for designing sealant joints and those who are to apply Tremco urethane sealants become familiar with the versions of the following industry guidelines and best practices that have been published most recently:

- ASTM C1193 – Standard Guide for Use of Joint Sealants
- ASTM C1472 – Standard Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width

All urethane sealant joints must be designed and installed in accordance with ASTM C1193 and ASTM C1472

W = Sealant joint width

D = Sealant joint depth

C = Sealant Contact depth.

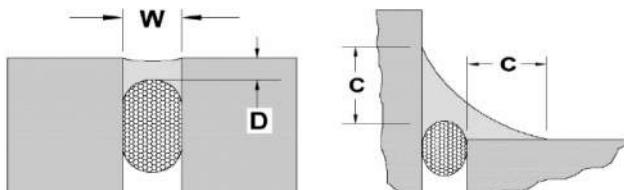


Figure 1 sealant bead width and depth recommendations and appropriate joint design

EXPANSION JOINTS - The minimum width and depth of any sealant application should be 1/4" by 1/4" (6 mm by 6 mm). The depth (D) of sealant may be equal to the width (W) of joints that are less than 1/2" wide. For joints ranging from 1/2" to 1" (13 mm to 25 mm) wide, the sealant depth should be approximately one-half of the joint width. The maximum depth (D) of any sealant application should be 1/2" (13 mm). For joints that are wider than 1" (25 mm) contact Tremco's Technical Service Department, or your local Tremco field representative.

WINDOW PERIMETER- For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area [C] of 1/4" onto each substrate, with provisions for release at the heel of the angle using backer rod or bond breaker tape.

Applying sealant

After joint is verified to be clean, dry and free of contaminants, primer has been applied (if necessary), and the backing material has been properly installed, the application of urethane sealant may begin.

The process of gunning sealant is completed by dispensing sealant from its packaging, through a nozzle, and into the sealant joint. Two considerations must be acknowledged when gunning the sealant:

1. The joint is to be filled from the backside to the front side. It is not recommended practice to fill the joint from front to back, as this introduces the potential for air to become entrapped within the body of the sealant bead. If air becomes encapsulated within the body of the sealant bead, then the sealant joint may demonstrate a reduced capacity to perform when exposed to dynamic movement.
2. Complete contact between the sealant and joint bonding surfaces of the substrate is required for the sealant to be expected to perform as intended when the sealant joint was designed. Substrate joint surfaces must be fully "wetted" with sealant,

meaning that there must be contact between the urethane sealant and the substrate along the entire depth of the sealant-substrate interface. If the sealant does not fully contact the substrate along the bond line from the face of the sealant joint to the backer rod, then there is assumed potential for the sealant joint to be ineffective at preventing leaks and/or fail prematurely when exposed to a load or stress. Some force exerted during gunning of the sealant may be required to accomplish full "wetting" of the sealant onto the bonding surfaces as tooling, alone, may not be sufficient to force the sealant fully into the joint.

Tooling

Tooling is always a required step within the installation of a sealant bead to achieve an optimally performing sealant joint. Tooling the sealant joint will assist to create an installation that has full "wetting" of the sealant onto the joint interfaces, to achieve the desired hour-glass shaped cross-sectional joint geometry, and to shape the visible surface of the sealant joint to a clean and consistent appearance. The sealant joint should be deliberately toolled to a shape to actively shed water and prevent the ponding of water on the surface of the joint.

Tooling can only be accomplished prior to the sealant achieving a skinned surface; once the sealant has begun to form a skinned surface, the joint can no longer be effectively toolled. For information regarding the skin time of any Tremco's sealants, consult the data sheet created for the specific sealant or contact Tremco's technical services.

Tooling is the process of applying consistent pressure to the sealant body through the exposed face of the sealant bead by running a rounded tip spatula along exterior surface of the sealant bead. A slightly concave surface at the exterior surface of the sealant bead is one characteristic of a properly toolled sealant bead. Pressure is applied by the applicator with the tooling spatula to the face of the sealant bead of a substantial enough magnitude to ensure the sealant is completely filled into the joint. The use of controlled force while tooling is a practice that is intended to provide additional assurance that the sealant has fully "wetted" the bonding interfaces of the substrates. The applied pressure is also effective in ensuring that the installed sealant has achieved complete contact with the backing material; care must be observed while tooling the joint to not introduce enough pressure to displace the joint backing material.

Tremco recommends dry tooling be used to tool the surface of the sealant joint. The practice of dry tooling is completed without the use of tooling agents, such as water, soap or detergent solutions. Sealant joints should be toolled to shed water and eliminate ponding.

Curing and adhesion development

The applied sealant bead must be left undisturbed until it has sufficiently cured to resist damage or deformation when contacted. The rate at which a one-component sealant will cure is heavily dependent on the environmental conditions, most notably temperature and relative humidity, that it is exposed to. Please refer to the product data sheet for cure time.

Urethane Sealant Application Instructions

The development of adhesion occurs more slowly than the cure-through which is why adhesion testing may require two or more weeks before executing.

0719/SSAI-AI

Please refer to our website at www.tremcosealants.com for the most up-to-date Application Instructions

Tremco Commercial Sealants & Waterproofing

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555



We certify that Tremflex® 834 has been tested against ASTM C 834, Standard Specification for Latex Sealants and does conform to the specification requirements and is classified as follows:

Type: OP (Opaque)
Grade: -18°C (Meets the requirements of low temperature flexibility)

Tremflex 834 is classified as a Type S, single component, Grade NS, non-sag, and Use NT, non-traffic acrylic latex sealant.

Tremflex 834 meets CAN/CGSB-19-GP-17M.

Although Tremflex 834 is not NSF registered, or previously authorized by USDA, it does meet the requirements for use in Federally inspected food processing facilities provided it is not used in areas where food is being processed, prepared or packaged. The material must also be applied in a manner which prevents any direct or indirect contamination of food. Additionally, before any food product can be placed in the area of treatment, the sealant must be allowed to cure according to manufacturer's recommendations and the area should be sufficiently free of odor to prevent food contamination.

Typical Physical Properties

| Property | Test Method | Results |
|--------------------|----------------|---|
| Movement | ASTM C 920 | +/- 12.5% |
| VOC Content | EPA Method 310 | 20g/L |
| Shelf Life | | Min.1 yr (@ 40-110°F (5-43°C)) |
| STC Rating | ASTM E-90 | Restored to 59 in a U411 wall See tables below |
| pH | | 7-9 |
| Antifungal | | Contains antifungal additive |
| Peel Strength, pli | | 8-14 (substrate dependent) |

Table 2. Acoustic Performance of Wall Systems

| Base Wall System (No Leaks) | STC | | |
|---|--------------------|------------------|--------------|
| Wall Type 1. One layer 5/8" gypsum board, with joints taped and filled, either side of 3-5/8" steel studs, spaced 24" on centre, with absorptive material in cavity. | 45* | | |
| Wall Type 2. Two layers 1/2" gypsum board, with joints overlapped, taped and filled, either side of 3-5/8" steel studs, spaced 24" on centre, with absorptive material in cavity. | 53* | | |
| Predicted Acoustic Degradation due to Leakage and Performance of Tremco Sealant (STC) | | | |
| Sealant Material | Acoustical Sealant | TREMstop Acrylic | TremFlex 834 |
| Wall Type 1 with 1/4" gap along top or bottom of 8' high wall. | 26 (no sealant) | | |
| Above sealed with one 1/4" bead** on one side only. | 44 | 41 | 43 |
| Above sealed with one 1/4" bead on both sides. | 45 | 45 | 45 |
| Above sealed with two 1/4" beads on both sides. | 45 | 45 | 45 |
| Wall Type 2 with 1/4" gap along top or bottom of 8' high wall. | 26 (no sealant) | | |
| Above sealed with one 1/4" bead on one side only. | 48 | 43 | 47 |
| Above sealed with one 1/4" bead on both sides. | 53 | 52 | 53 |
| Above sealed with two 1/4" beads on both sides. | 53 | 53 | 53 |

* as per National Building Code of Canada, Table A-9.10.3.A.

** depth of bead before shrinkage.

Table 1. Acoustic Performance of Tremco Sealants
Material Properties

| Material | Acoustical Sealant | TREMstop Acrylic | TremFlex 834 |
|--|--------------------|------------------|--------------|
| Shear Modulus* (G_R), N/m ² | 45,000 | 200,000 | 410,000 |
| Loss Factor* ($\tan(\delta_L)$), dimensionless | 0.33 | 0.56 | 0.67 |
| Density (cured), kg/m ³ | 1720 | 1100 | 1630 |
| Depth after Shrinkage of 1/2" bead, inches | 0.465 | 0.371 | 0.391 |

Predicted Acoustic Performance of Sealant Alone

| | | | |
|---|----|----|----|
| Sound Transmission Loss (STC) of single 1/4", (as applied**) bead | 30 | 24 | 28 |
| Sound Transmission Loss (STC) of single 1/2", (as applied**) bead | 36 | 30 | 34 |
| STC of two 1/4", (as applied**) beads, separated by 3.5", with sound absorption material in between | 48 | 36 | 44 |
| STC of two 1/2", (as applied**) beads, separated by 3.5", with sound absorption material in between | 60 | 48 | 56 |

* based on tests at 25° C, and 100 rad/s. G_R is the real component of the complex shear modulus.

** depth of bead before shrinkage.

We certify that Dymonic® 100 has been tested against ASTM C 920, Standard Specification for Elastomeric Joint Sealants and does conform to the specification requirements and is classified as follows:

Type: S (Single Component)
Grade: NS (Non-sag)
Class: 50 (+50% / - 50% joint movement)
Use: NT (Non-traffic)
Use: T₁ (Traffic)
M (Mortar)
A (Aluminum)
O (Other)
I (Immersion)

Additionally, we certify that Dymonic 100 has been tested in accordance to ASTM D 412, Test Method for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers – Tension, with the following results:

Ultimate Elongation: 850% - 1000%

We further certify that Dymonic 100 manufactured by Tremco Incorporated, Cleveland, Ohio conforms to the requirements of Federal Specification TT-S-00230C, Type II, Class A.

Dymonic meets CAN/CGSB 19.13, MCG-2-25-B-N.

Although Dymonic 100 is not NSF registered, or previously authorized by USDA, it does meet the requirements for use in Federally inspected food processing facilities provided it is not used in areas where food is being processed, prepared or packaged. The material must also be applied in a manner which prevents any direct or indirect contamination of food. Additionally, before any food product can be placed in the area of treatment, the sealant must be allowed to cure according to manufacturer's recommendations and the area should be sufficiently free of odor to prevent food contamination.

CERTIFICATION LETTER

| Property | Test Method | Requirement | Result |
|-------------------------------|-----------------------------|------------------------------|-----------------------|
| Air Permeance | ASTM E 2178 | $\leq 0.02 \text{ L/sm}^2$ | 0.001 L/sm^2 |
| Water Resistance | AATCC 127 (22" for 5 hours) | Pass | Pass |
| Tensile Strength | ASTM D 882 | $\leq 20.0 \text{ lbf/in}$ | 28 lbf/in |
| Peel or Stripping Strength | ASTM D 903 | | |
| Plywood | | $\leq 5.0 \text{ lbf/in}$ | 5.7 lbf/in |
| CMU | | $\leq 5.0 \text{ lbf/in}$ | 8.0 lbf/in |
| Exterior Sheathing | | $\leq 5.0 \text{ lbf/in}$ | 7.3 lbf/in |
| ExoAir 110AT | | $\leq 5.0 \text{ lbf/in}$ | 9.0 lbf/in |
| Lap Adhesion | | $\leq 5.0 \text{ lbf/in}$ | 6.9 lbf/in |
| Low Temperature Flex | ASTM D 1970 | No Visible Cracking | Pass |
| Self Sealability | ASTM D 1970 | No Water | Pass |
| Pull Adhesion | ASTM D 4541 | $\geq 16 \text{ psi}$ | 38.7 psi |
| Tear Initiation | ASTM 4073 | | |
| MD (Machine Direction) | | $\geq 9 \text{ lbf}$ | 24 lbf |
| CMD (Cross Machine Direction) | | $\geq 9 \text{ lbf}$ | 21 lbf |
| Crack Bridging | ASTM C 1305 | Pass | Pass |
| Water Vapor Permeance | ASTM E96 | | |
| Procedure A | | Declare | 0.02 US Perms |
| Procedure B | | Declare | 0.04 US Perms |
| Water Penetration | ASTM E 331 | No water Leakage | Pass |
| Air Leakage of Assembly | ASTM E 2357 | 0.20 L/sm^2 (75 Pa) | 0.003 L/sm^2 |
| Fire Resistance of Assembly | NFPA 285 | Pass | Pass |
| Puncture Resistance | ASTM G 154 | $\geq 40 \text{ lbf}$ | 52 lbf |

Tremco Incorporated

3735 Green Road • Beachwood, Ohio 44122 • 216-292-5000

Sealant/Weatherproofing Division
Tremco® • Mameco/VULKEM® • Paramount™
Technical Services



We certify that ExoAir 120 as manufactured by Tremco Incorporated, Cleveland, Ohio has been tested against the following ASTM Standards and does conform to the specification requirements.

TYPICAL PHYSICAL PROPERTIES

Property Description

| | |
|-------------|--|
| Type | Polymer-modified emulsion |
| Color | Black |
| Solids | 62% |
| Density | 8.1 lbs/gal |
| Application | Airless spray/Roller |
| Cure Time | 16-24 hours (at 75°F (23°C) at 50% RH) |
| Thickness | Minimum 60 mils (wet) Minimum 40 mils (dry) |

Property Test Method Typical Values

| | | |
|---------------------------------------|-----------------------------|---------------------------|
| Air Leakage of Air Barrier Assemblies | ASTM E2357 | Passed |
| Air Permeance | ASTM E2178-01 CCMC 07273 | .00120 L/s/m ² |
| Elongation | ASTM D412 Die C | 1500% |
| Nail Sealability | ASTM D1970 | Passed |
| Water Vapor Permeance | ASTM E96 | 0.08 |
| Maximum V.O.C. | | 65 grams/liter |

Forensic Architecture
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Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 072726-001

Description: Fluid Applied Membrane Air Barriers - PD

Project Name: UT SEAY - Building Addition

Project No.: 102-1219

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



NO EXCEPTIONS NOTED



SUBMIT SPECIFIED ITEM



ACTION NOT REQUIRED



EXCEPTIONS NOTED



REVISE AND RESUBMIT



NOT REVIEWED

BY:

daniel hodge



DATE: 5/08/2020

Submittal Comments:

1.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0151

PROJECT: UT Seay Building Addition

DATE: 05/05/2020

TO: BSA Lifestructures
AL

RE: Fluid-Applied Membrane Air Barriers - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input checked="" type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 05/19/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 072726-001 | 2 | | 05/05/2020 | Fluid-Applied Membrane Air Barriers - Product Data | Submitted for Approval |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE <input checked="" type="checkbox"/> |
| COMMENTS NOTED <input type="checkbox"/> |
| REVISE AND RESUBMIT <input type="checkbox"/> |
| OTHER: <input type="checkbox"/> |
| DATE 5/5/2020 SPEC# 072726 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 072726-001R1 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

CC:

Signed: Tanner Hawkins

Tanner Hawkins



SUBMITTAL COVER SHEET

PROJECT NAME: UT Seay

ARCHITECT: BSA Life Structures

SPECIFICATION SECTION: 072726 – Fluid Applied Membrane Air Barrier

DATE PREPARED: 4/30/2020

CONTRACTOR: Spawglass

SUBCONTRACTOR'S NAME: Chamberlin Roofing and Waterproofing

SUBCONTRACTOR'S PHONE: 512.275.1600

MANUFACTURER'S NAME: Tremco

MANUFACTURER'S PHONE: See Product Data

ITEM: See Table of Contents

NUMBER OF PAGES w/ COVER: 25

| Architect's Approval | Contractor's Approval |
|----------------------|--|
| | <p>The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer, and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.</p> <p>_____ Chamberlin Austin, LLC _____ Subcontractor</p> <p>_____ Authorized Signature</p> <p>_____ Date</p> |
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Product Description

EXOAIR® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane is a monolithic, elastomeric membrane designed to be rolled or sprayed onto exterior above-grade wall assemblies to mitigate air infiltration/exfiltration and water penetration while remaining permeable to the passage of water vapor. It may also be used as a liquid-applied flashing, enabling the contractor to address both the membrane and flashing needs with a single material.

Basic Uses

EXOAIR® 230 is typically applied to exterior sheathing panels, concrete block, poured concrete or wood substrates as an air and vapor barrier material. EXOAIR® 230 can be used with EXOAIR 110, EXOAIR 110AT, EXOAIR 230 (and mesh) or Dymonic 100 as liquid applied flashing to detail into the rough opening.

Features and Benefits

- EXOAIR 230 is a UV stable, seamless, monolithic membrane that creates a fully adhered air barrier when properly installed.
- The ability to roller or spray apply the material affords the contractor the ability to accelerate installation times compared to traditional self-adhered membrane systems.
- The high-performance properties of the EXOAIR 230 membrane retard the migration of air and bulk water but allow water vapor to pass through the membrane. As a result, vapor permeable systems like EXOAIR 230 allow for more flexibility in the placement of the air barrier membrane in the wall design.
- EXOAIR 230 is formulated for UV resistance providing the flexibility to install rainscreen systems with open joints or to allow the membrane to be exposed longer during the construction process.
- EXOAIR 230 can be custom colored to meet all of your design needs.
- EXOAIR 230 is specifically formulated for design options requiring assemblies that have been evaluated for NFPA 285.

Availability

EXOAIR® 230 is immediately available from your local Tremco Sales Representative or Distributor. For Distributor locations, visit www.tremcosealants.com

Coverage Rates

Exterior Sheathing: Minimum 48 wet mils (25 dry mils); 33 ft²/gal (3.07 M²/US gal)

Porous Substrates: Minimum 70 wet mils (35 dry mils); 23 ft²/gal (2.13 M²/US gal)

Note: Above listed coverage rates are minimums, installing at a greater thickness is acceptable. For more information, please contact your Tremco Representative

Packaging

5-gal (19-L) pails

52-gal (197-L) drums

Colors

Standard color: Black & Limestone; Custom colors available upon request.

Storage

Store EXOAIR® 230 in original, undamaged packages in a clean, dry, protected location with temperatures 40 to 100 °F (5 to 37 °C).

Shelf Life

1 year when stored in accordance with storage instructions

Applicable Standards

EXOAIR® 230 has been tested to the following industry standards for air barriers:

- AATCC 127-2008 Water Resistance: Hydrostatic Pressure Test
- ASTM C1305 Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane
- ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
- ASTM D1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials
- ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- ASTM E2178 Standard Test Method for Air Permeance of Building Materials
- ASTM E2357 Standard Test Methods for Determining Air Leakage of Air Barrier Assemblies
- NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

Fire Rated Systems

EXOAIR® 230 has been tested in assemblies according to NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components. All of the NFPA 285 UL listed assemblies using Tremco materials can be found using the technical bulletin: ASHRA 90.1 & NFPA 285: Defining & Specifying to Meet IECC & IBC or utilizing the following link: http://database.ul.com/cgi-bin/XV/template/LISEXT/1FRAME/showpage.html?name=FWFX.R27656&ccnshorttitle=Exterior+Wall+System+Components&objid=1082999775&cfid=1073741824&version=versionless&parent_id=1082761881&sequence=1.

For NFPA 285 engineering judgment requests please go to www.tremcosealants.com/NFPA 285 Engineering Judgment Request or contact Tremco Technical Service at 866-209-2404.

Limitations

- No more than 12 months of UV exposure before façade installation. If membrane is exposed for a period exceeding 12 months, contact Tremco Technical Service for additional recommendations at 866-209-2404, or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."
- Do not apply to damp, contaminated or frost-covered surfaces.
- Not to be used as a permanently exposed surface. Contact your local Tremco Sales Representative for project specific requirements.
- Membrane shall be protected from rain and washout prior to drying.

EXOAIR® 230

Fluid-Applied, Synthetic Air and Vapor Permeable Membrane

- When applying to surfaces below 40 °F (5 °C), please refer to the Technical Bulletin- Cold Temperature Recommendations for Air Barrier Applications at www.tremcosealants.com or contact Tremco Technical Service at 886-209-2404.
- EXOAIR® 230 is not to be applied directly to fireproofing materials. Contact Tremco Technical Service at www.tremcosealants.com for alternative recommendations.
- Keep product from freezing prior to being applied to the substrate. It is best to store EXOAIR® 230 off the floor at an ambient temperature above 40 °F (10 °C).

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance,

Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or to refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

EXOAIR® 230

Fluid-Applied, Synthetic Air and Vapor Permeable Membrane

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | DESCRIPTION | |
|--|--|---|
| Type | Synthetic Acrylic | |
| Color | Limestone; Custom colors available upon request | |
| Solids | 0.53 | |
| Application | Spray/Roller | |
| Thickness | Exterior Sheathing: Minimum 48 mils (wet), 25 mils (dry); Porous Substrates: Minimum 70 mils (wet), 35 mils (dry) | |
| Storage Temperature | 40 to 100 °F (5 to 37 °C) | |
| Cure Time | 16 to 24 hr at 75 °F (24 °C), 50% RH | |
| Application Temperature | Above 40 °F (5 °C) and rising. If installing below 40 °F (5 °C), please refer to Cold Weather Air Barrier Installation Technical Bulletin or contact Tremco Technical Service at 866-209-2404. | |
| Service Temperature | Intermittent Exposure up to 240 °F (115 °C) | |
| PROPERTY | TEST METHOD | TYPICAL VALUES |
| Maximum V.O.C. | Method 310 | 18 g/L |
| Hydrostatic Head | AATCC – 127 | Pass (5 hours) |
| Crack Bridging | ASTM C1305 | Pass |
| Elongation | ASTM D412 Die C | 900% |
| Tensile Strength | | 121 psi |
| Water Immersion | ASTM D870 | Pass |
| Pliability, 180°, 1" (25 mm) mandrel (Low Temperature Flex) | ASTM D1970 – Section 7.6 | Pass |
| Nail Sealability | ASTM D1970 – Section 7.9 | Pass |
| Adhesion | ASTM D4541 | Concrete: 38 psi Exterior Sheathing: 20 psi |
| Antifungal | ASTM D5590 | Pass |
| Flame Spread | | 10 |
| Smoke Development | E84 | 25 |
| Water Vapor Permeance | ASTM E96 Dry Cup ASTM E96 Wet Cup | 1.44 US Perms 11.71 US Perms |
| Water Penetration | ASTM E331 | Passed at 15 lb/ft² (718 Pa); Passed at 6.27 lb/ft² (300 Pa) for 2 hours |
| Air Leakage of material | ASTM E2178; Free Film Method @ 75 Pa ASTM E2178; Free Film Method @ 300 Pa | 0.00158 cfm/ft² (0.00805 L/(s·m²)) 0.00435 cfm/ft² (0.02211 L/(s·m²)) |
| Air Leakage of assembly | ASTM E2357 | 0.003 cfm/ft² @ 1.56 lb/ft² (0.013 L/(s·m²)) @ (75 Pa)) |
| Fire Resistance of Assembly | NFPA 285 | Pass |

*All product testing performed at 35 dry mils.

Exoair® 230

0120/EXOAIR230DS-AB**Tremco Commercial Sealants & Waterproofing**

| | | | |
|--|--|---|--|
| 3735 Green Rd Beachwood OH 44122 216.292.5000 / 800.321.7906 | 1451 Jacobson Ave Ashland OH 44805 419.289.2050 / 800.321.6357 | 220 Wicksteed Ave Toronto ON M4H1G7 416.421.3300 / 800.363.3213 | 1445 Rue de Coulomb Boucherville QC J4B 7L8 514.521.9555 |
|--|--|---|--|

APPLICATION INSTRUCTIONS

1 Purpose

- 1.1 The purpose of this document is to establish uniform procedures for installing EXOAIR® 230 Fluid-Applied Synthetic Air and Vapor Permeable Membrane.
- 1.2 The techniques involved may require modifications to adjust to jobsite conditions. Tremco recognizes that site specific conditions, weather patterns, contractor preferences and membrane detailing may require deviation or alteration from these prescribed installation procedures. When such circumstances exist on a project, Tremco recommends that the local Tremco Sales Representative or Tremco Technical Service be contacted for assistance and approval as required.
- 1.3 EXOAIR® 230 is compatible with and part of ExoAir Air Barrier Systems, a complete line of air barrier systems provided by Tremco.

2 Scope

- 2.1 This document will provide the necessary instructions for the application of EXOAIR® 230 and its related air barrier system components.

3 Possible System Components

- 3.1 Recommended materials and their use are as follows. For more information on the following materials, please contact your local Tremco Sales Representative or visit our website for product specific data sheet and application instructions at www.tremcosealants.com.

Detail Sealant:

- Dymonic® 100
- Spectrem® 1*
- Tremflex® 834*

*May only be used as directed in Sections 7.1, 7.2, and 8.6.

Transition Membrane:

- ExoAir TWF (Thru Wall Flashing)
- ExoAir 110
- ExoAir 110AT
- ExoAir 230
- Proglaze ETA (Engineered Transition Assemblies)

Other Accessories:

- ExoAir Eco
- ExoAir Flex Foam
- ExoAir LEF (Low Expanding Foam)
- ExoAir Termination Mastic
- ExoAir Trio
- Illmod 600®
- Tremco 2011 Mesh

4 Limitations

- 4.1 UV exposure should not exceed 12 months before façade installation. If the 12-month limit is exceeded, contact Tremco Technical Service at 866-209-2404, or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."
- 4.2 Do not apply to damp, contaminated or frost-covered surfaces.

- 4.3 EXOAIR® 230 is not to be used as a permanently exposed surface. Contact your local Tremco Sales Representative for project specific requirements.
- 4.4 The membrane shall be protected from rain and washout prior to drying.
- 4.5 When applying to surfaces below 40 °F (5 °C), please refer to the Technical Bulletin - Cold Temperature Recommendations for Air Barrier Applications at www.tremcosealants.com or contact Tremco Technical Service at 866-209-2404.
- 4.6 EXOAIR® 230 is not to be applied directly to fireproofing materials. Contact Tremco Technical Service at www.tremcosealants.com for alternative recommendations.
- 4.7 Keep product from freezing prior to being applied to the substrate. It is best to store EXOAIR® 230 off the floor at an ambient temperature above 50 °F (10 °C).

5 Storage

- 5.1 Store EXOAIR® 230 in original, undamaged packages in a clean, dry, protected location with temperatures 40 to 100 °F (5 to 37 °C).

6 Substrate Preparation

- 6.1 Roofing systems shall be capped and sealed, or top of walls protected, in such a way as to eliminate the ability of water to saturate the wall or interior space, both before and after, air barrier system installation. Coordinate installation of EXOAIR® 230 with the roofing trade to ensure compatibility and continuity with the roofing system.
- 6.2 Continuity of the air barrier system is critical to the performance of the façade. Proper connections to other envelope systems such as the waterproofing, flashing, roof and window/curtain wall systems shall be documented and approved by each manufacturer. Visit www.tremcosealants.com for various system testing performed at the Tremco Test Facility or to submit a project connection detail for testing.
- 6.3 Surface to be coated must be dry, clean, smooth, firm, free of release agents, dust, mud, loose mortar, wires, fins, metal projections or any other substances that might prevent placement and bonding of membrane. For porous substrate moisture content, please visit www.tremcosealants.com/technical-resources/technical-bulletins.aspx for additional information.
- 6.4 EXOAIR® 230 may be applied to most typical building materials such as exterior sheathing boards, CMU, concrete, exterior grade plywood, OSB and metal surfaces.
- 6.5 Exterior sheathing shall be installed according to the manufacturer's installation instructions. All board edges shall be sound and anchored in a way to provide minimum deflection. All board edges shall be cut cleanly and excess debris shall be removed.
- 6.6 CMU walls shall have all joints filled and struck flush. Mortar should be cured a minimum of 7 days. Any voids shall be patched with mortar, a non-shrinking grout or other approved patching material.

- 6.7 All concrete substrates shall be clean and free of all release agents. Any voids shall be patched with mortar, non-shrinking grout or other approved patching material.
- 6.8 Exterior grade plywood shall be securely fastened. All board joints, fasteners, knots, or other defects need to be detailed with Tremco Dymonic 100.
- 6.9 OSB requires approval by the local Tremco Sales Representative prior to application. OSB requires mock-ups and pull-tests to validate proper adhesion and performance. Please consult your local Tremco Sales Representative when OSB is used.
- 6.10 Metal surfaces require a pull-test to validate proper adhesion and performance. Metal surfaces need to be clean and free of oils or other contaminants.

Visit www.tremcosealants.com for various system testing performed at the Tremco Test Facility or to submit a project connection detail for testing.

7 Detail Work Prior to Air Barrier Membrane Application

- 7.1 Construction Gaps: It is best practice to have all construction gaps detailed with Dymonic 100 or Tremflex 834. However, EXOAIR® 230 fluid-applied membranes can bridge construction gaps 1/16" (1.6 mm) or less without additional detailing. All gaps greater than 1/16" (1.6 mm) shall be treated in the following ways, depending on substrate, joint size and expected movement. Please choose the appropriate product based on the movement requirements and joint dimensions set forth from the design build team.
 - Dymonic 100 (+100/-50% movement, 1/4" to 1" joint)
 - Illmod 600 (+/-25% movement, 1/8" to 2-5/8" joint)
 - Proglaze ETA (varies based on system selection)
 - Tremflex 834 (+/-12% movement, 1/4" to 1" joint)
- 7.2 Fasteners: Fasteners should be flush with the surface of the substrate. Fasteners which are protruding from or sunk below the face of the substrate shall be treated with a detail coat of Dymonic 100, or Tremflex 834 prior to the installation of EXOAIR® 230. The detail sealants may be coated over once a skin has developed. If the fastener penetration occurs after the EXOAIR® 230 membrane has been installed, detail all fastener penetrations not flush to the EXOAIR® 230 membrane with Dymonic 100 or Spectrem 1 sealant.
- 7.3 Penetrations: Penetrations must be rigidly supported through membrane as to not allow movement of penetrating item.
- 7.4 Rough Openings, Corners, Tie-Ins to other building envelope systems: Please consult www.tremcosealants.com for detail drawings and technical bulletins showing typical transitions and tie-ins. For job specific details or questions, please contact Tremco Technical Service at 866-209-2404.

8 Membrane Application

- 8.1 Using a minimum 3/4" (19 mm) nap roller or spray applicator, ExoAir 230 is to be applied at 48 wet mils (33 ft²/gal; 3.07 M²/US gal) on exterior glass-mat sheathing and 70 wet mils (23 ft²/gal; 2.13 M²/US gal) on porous substrates. Please refer to the Technical Bulletin Spraying Guide at www.tremcosealants.com for more information on spraying ExoAir 230.
- 8.2 Use a wet film mil gauge as well as staging of material to ensure proper application thickness.
- 8.3 When transitioning onto ExoAir self-adhered membranes, Dymonic 100 shall be used to detail the edges of the EXOAIR self-adhered membranes prior to the installation of ExoAir 230.
- 8.4 Seal around brick-ties and other penetrations as work progresses. Exercise care when applying around brick-ties to ensure uniform coverage.
- 8.5 Tremco has conducted in-house testing on a variety of fasteners used in commercial construction for attaching various insulation/cladding systems. The results demonstrated that if installed properly according to the manufacturer's installation instructions, the fasteners/façade anchors tested in conjunction with the ExoAir membranes created an air and watertight seal. Tremco recommends contacting Technical Service at www.tremcosealants.com for a list of evaluated fasteners/façade anchors, or to submit a fastener/façade anchor for testing.
- 8.6 If detail work is being done after the air barrier membrane has been installed, seal around brick-ties and other penetrations with an additional coat of ExoAir 230, or detail with Dymonic 100, ExoAir Termination Mastic or Spectrem 1. Spectrem 1 may be used when there will not be any additional ExoAir membranes installed over it. Location, cladding type and service life temperature may determine which detail material must be used.
- 8.7 Protect membranes to avoid damage by other trades and construction materials during subsequent operations. Insulation and/or protection products may be installed after membranes have cured, 16 to 24 hr following application, or firm and dry to the touch.
- 8.8 Connect the ExoAir Air Barrier System to the adjacent building envelope systems such as the roof membrane, below-grade waterproofing membrane, window and curtain wall systems and other portions of the building envelope using the recommended Tremco materials. For more information on those materials and application details, please visit www.tremcosealants.com.
- 8.9 Schedule work so that the air barrier system is covered as soon as possible after installation. If the air barrier system cannot be covered within 12 months after installation, apply temporary UV protection. Contact Tremco Technical Service for additional recommendations at 866-209-2404 or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."

9 Inspection, Testing, Repair

- 9.1 Inspect the surface of the EXOAIR® 230 thoroughly for pinholes, blisters or other voids in the membrane. If any are detected, reapply until a monolithic coating at the specified minimum thickness is achieved. If the membrane has already been completely cured, prepare the surface with a mineral spirit wipe or xylene to clean and soften the surface of the EXOAIR® 230 membrane. Reapply at the minimum specified thickness with EXOAIR® 230, extending out 4" (10 cm) beyond the pinholes, blisters or other voids.
- 9.2 Inspect the air barrier system before covering and repair any punctures or damaged areas. Make repairs with Dymonic 100 or Spectrem 1 as appropriate, extending the repair material a minimum of 4" (10 cm) beyond the puncture or damage in all directions.
- 9.3 If on-site adhesion testing is required, Tremco recommends ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers. EXOAIR® 230 should be allowed to dry for a minimum of 72 hr or until fully cured, whichever is longer, prior to conducting test. Additional information about this testing can be found at www.tremcosealants.com in the Technical Bulletin section.

10 Clean Up

- 10.1 Remove any masking materials immediately after installation. Clean spillage and soiling on adjacent construction that will be exposed in the finished work using cleaning agents and procedures recommended by manufacturer of the affected construction.
- 10.2 Uncured Dymonic 100, ExoAir Termination Mastic, ExoAir Primer or Spectrem 1 can be cleaned using a solvent wipe.
- 10.3 Uncured Tremflex 834 or EXOAIR® 230 can be cleaned using a clean, damp cloth and water.
- 10.4 Cured sealants or fluid-applied membranes can be cleaned using a solvent wipe. Mechanical removal methods may also be necessary.
- 10.5 Please refer to the Technical Bulletin Spraying Guide at www.tremcosealants.com for more information on cleaning the spray pump after ExoAir membrane application.

0519/EXOAIR230AI-AB

Please refer to our website at www.tremcosealants.com for the most up-to-date Application Instructions.

Tremco Commercial Sealants & Waterproofing

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555

www.tremcosealants.com



Product Description

ExoAir® 110AT is a 22-mil composite impermeable membrane that is comprised of 16 mils of butyl and 6 mils of HDPP facer. It can be used as the membrane, detailing accessory, as well as thru-wall flashing of an air barrier system. ExoAir 110AT when installed properly as a system will provide the requirements of an air barrier: air impermeable, continuity, structural integrity and durability.

Basic Uses

ExoAir 110AT is an impermeable, self-adhered sheet designed to be applied to exterior cavity walls in order to mitigate air infiltration/exfiltration, vapor transmission and water penetration. Typically applied to exterior sheathing boards and concrete block, ExoAir 110AT can also be applied to poured concrete, steel and wood based substrate as well as serve as detailing or a transition membrane into window and door openings. ExoAir 110AT is designed to be installed when both the air and surface temperature are 20 °F (-6 °C) and rising.

Features and Benefits

- The high-performance butyl has been tested and is compatible with the ExoAir product line.
- Primerless application allows for faster installation time.
- Manufactured to a preset, uniform thickness that provides consistent and uniform coverage.
- Rugged HDPP film protects high-performance butyl membrane against incidental damage during construction process.
- Variety of widths available for job specific needs.
- White facer reduces heat absorption, resulting in thermal stability during construction cycle.
- Material installation and service temperatures eliminate the need for low temperature or high temperature accessories.
- Reduced material weight compared to traditional 40-mil systems reduces fatigue on installers and can increase productivity.

Availability

EXOAIR® 110 AT is immediately available from your local Tremco Sales Representative or Distributor. For Distributor locations, visit www.tremcosealants.com

Coverage Rates

Varies depending on width selected

Packaging

Length: 75' (22 M)

Width: 4" (10 cm)-12 rolls/box, 6" (15 cm)-8 rolls/box,
9" (22 cm)-4 rolls/box, 12" (30 cm)-4 rolls/box,
18" (45 cm)-1 roll/box, 24" (61 cm)-1 roll/box,
36" (91 cm)-1 roll/box

Colors

White HDPP facer with green ExoAir logo.

Storage

Store ExoAir 110AT in the original, undamaged packaging in a clean, dry, and protected location where temperatures do not exceed 100 °F (37 °C).

Applicable Standards

- ExoAir 110AT has been tested to the following industry standards and test methods for air barriers:
- AATCC 127-2008 Water Resistance: Hydrostatic Pressure Test for 5 hr
- ASTM C1305 Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane
- ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
- ASTM D870 Standard Practice for Testing Water Resistance of Coatings Using Water Immersion
- ASTM D882 Standard Test Method for Tensile Properties of Thin Plastic Sheeting
- ASTM D903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
- ASTM D1876 Standard Test Method for Peel Resistance of Adhesives (T Peel Test)
- ASTM D1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- ASTM D4073 Standard Test Method for Tensile – Tear Strength of Bituminous Roofing Membranes
- ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials
- ASTM E154 Standard Test Methods for Water Vapor Retarders used in Contact with Under Concrete Slabs, on Walls or as Ground Cover - Section 10 only
- ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- ASTM E2178 Standard Test Method for Air Permeance of Building Materials
- ASTM E2357 Standard Test Methods for Determining Air Leakage of Air Barrier Assemblies
- NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

ExoAir® 110AT

Self-Adhered Air and Vapor Barrier Membrane

Fire Rated Systems

EXOAIR® 110 AT has been tested in assemblies according to NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components. All of the NFPA 285 UL listed assemblies using Tremco materials can be found using the technical bulletin: ASHRA 90.1 & NFPA 285: Defining & Specifying to Meet IECC & IBC or utilizing the following link: http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpage.html?name=FWFX_R27656&ccnshorttitle=Exterior+Wall+System+Components&objid=1082999775&cfqid=1073741824&version=versionless&parent_id=1082761881&sequence=1

For NFPA 285 engineering judgment requests please go to www.tremcosealants.com/NFPA 285 Engineering Judgment Request or contact Tremco Technical Service at 866-209-2404.

Limitations

- No more than 12 months of UV exposure before façade installation. If membrane is exposed for a period exceeding 12 months, contact Tremco Technical Service for additional recommendations at 866-209-2404, or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."

- Do not apply to damp, contaminated or frost-covered surfaces.
- Not to be used as a permanently exposed surface.
- Termination Mastic should not be used with ExoAir 110AT in a fully encapsulated area.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or to refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

ExoAir® 110AT

Self-Adhered Air and Vapor Barrier Membrane

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | DESCRIPTION |
|-------------------------|---|
| Type | Butyl sheet with white HDPP facer |
| Color | White HDPP facer |
| Solids | 100% |
| Weight | 0.17 lb/ft ² (0.83 kg/M ²) |
| Application | Self-Adhered |
| Thickness | 22 mils: 16 mils butyl, 6 mils HDPP facer |
| Storage Temperature | Temperatures not exceeding 100 °F (37 °C) |
| Application Temperature | Above 20 °F (-6°C) and rising |
| Service Temperature | Intermittent Exposure up to 240 °F (115 °C) |

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|---|--------------------------------------|--|
| Maximum V.O.C. | Method 310 | 0 g/L |
| Water Resistance | AATCC-127 | Pass (5 hours) |
| Crack Bridging | ASTM C1305 | Pass |
| Elongation | ASTM D412 Die C | 650% |
| Tensile Strength | ASTM D412 Die C | 1570 psi |
| Peel or Stripping Strength | ASTM D903 | |
| | Plywood | 5.7 lbf/in |
| | CMU | 8.0 lbf/in |
| | Exterior Sheathing | 7.3 lbf/in |
| | ExoAir 110AT | 9.0 lbf/in |
| Pliability, 180°, 1" (25 mm) mandrel @ -29 °F (-34 °C) (Low Temperature Flex) | ASTM D1970 – Section 7.6 | Pass |
| Nail Seal ability | ASTM D1970 – Section 7.9 | Pass |
| Tear Initiation | ASTM D4073 | |
| | MD (Machine Direction) | 24 lbf |
| | CMD (Cross Machine Direction) | 21 lbf |
| Adhesion | ASTM D4541 | 38.7 psi |
| Flame Spread | | 5 |
| Smoke Development | ASTM E84 | 10 |
| Water Vapor Permeance | ASTM E96 Dry Cup | 0.02 US Perms |
| | ASTM E96 Wet Cup | 0.04 US Perms |
| Water Penetration | ASTM E331 | Passed at 6.26 lb/ft ² (300 Pa) for 2 hours |
| Material Air Permeance | ASTM E2178; Free film Method @ 75 Pa | 0.001 L/sm ² |
| Air Barrier Assembly Air Leakage | ASTM E2357 | 0.003 L·s·m ² @ 75 Pa |
| Fire Resistance of an Assembly | NFPA 285 | Pass |
| Tensile Strength | ASTM D882 | 28 lbf/in |
| Resistance to Puncture | ASTM E154 | 52 lbf/in |

0618/EXOA110ATDS-AB**Tremco Commercial Sealants & Waterproofing**

3735 Green Rd
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www.tremcosealants.com

Page 3 of 3

APPLICATION INSTRUCTIONS

1 Purpose

- 1.1 The purpose of this document is to establish uniform procedures for installing EXOAIR® 110 AT EXOAIR® 110 AT.
- 1.2 The techniques involved may require modifications to adjust to jobsite conditions. Tremco recognizes that site specific conditions, weather patterns, contractor preferences and membrane detailing may require deviation or alteration from these prescribed installation procedures. When such circumstances exist on a project, Tremco recommends that the local Tremco Sales Representative or Tremco Technical Service be contacted for assistance and approval as required.
- 1.3 EXOAIR® 110 AT is compatible with and part of ExoAir Air Barrier Systems, a complete line of air barrier systems provided by Tremco.

2 Scope

- 2.1 This document will provide the necessary instructions for the application of EXOAIR® 110 AT and its related air barrier system components.

3 Limitations

- 3.1 UV exposure should not exceed 12 months after installation. If the 12-month limit is exceeded, contact Tremco Technical Service for additional recommendations at 866-209-2404, or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."
- 3.2 Do not apply to damp, contaminated or frost-covered surfaces.
- 3.3 ExoAir 110AT is not to be used as a permanently exposed surface. Contact your local Tremco Sales Representative for project specific requirements.
- 3.4 Termination Mastic should not be used with ExoAir 110AT in a fully encapsulated area.

4 Storage

- 4.1 Store EXOAIR® 110 AT in original, undamaged packages in a clean, dry, protected location with temperatures not exceeding 100 °F (37 °C).

5 Substrate Preparation

- 5.1 Roofing systems shall be capped and sealed, or top of walls protected, in such a way as to eliminate the ability of water to saturate the wall or interior space, both before and after, air barrier system installation. Coordinate installation of EXOAIR® 110 AT with the roofing trade to ensure compatibility and continuity with the roofing system.
- 5.2 Continuity of the air barrier system is critical to the performance of the façade. Proper connections to other envelope systems such as the waterproofing, flashing, roof and window/curtain wall systems shall be documented and approved by each manufacturer. Visit www.tremcosealants.com for various system testing performed at the Tremco Test Facility or to submit a project connection detail for testing.
- 5.3 Surface to be coated must be dry, clean, smooth, firm, free of release agents, dust, mud, loose mortar, wires, fins, metal projections or any other substances that might prevent placement and bonding of membrane. Please visit www.tremcosealants.com/technical-resources/technical-bulletins.aspx to review additional information.

- 5.4 EXOAIR® 110 AT may be applied to most typical building materials such as exterior sheathing boards, CMU, concrete, exterior grade plywood, OSB and metal surfaces. Exterior sheathing shall be installed according to the manufacturer's installation instructions. All board edges shall be sound and anchored in a way to provide minimum deflection. All board edges shall be cut cleanly and excess debris shall be removed.
 - 5.5 CMU walls shall have all joints filled and struck flush. Mortar should be cured a minimum of 7 days. Any voids shall be patched with mortar, a non-shrinking grout or other approved patching material.
 - 5.6 All concrete substrates shall be clean and free of all release agents. Any voids shall be patched with mortar, non-shrinking grout or other approved patching material.
 - 5.7 Exterior grade plywood shall be securely fastened. All board joints, fasteners, knots, or other defects need to be detailed with Tremco Dymonic 100.
 - 5.8 OSB requires approval by the local Tremco Sales Representative prior to application. OSB requires mock-ups and pull-tests to validate proper adhesion and performance. Please consult your local Tremco Sales Representative when OSB is used.
 - 5.9 Metal surfaces require a pull-test to validate proper adhesion and performance. Metal surfaces need to be clean and free of oils or other contaminants.
- Visit www.tremcosealants.com for various system testing performed at the Tremco Test Facility or to submit a project connection detail for testing.

6 Detail Work Prior to Air Barrier Membrane Application

- 6.1 Construction Gaps: ExoAir 110AT sheet applied membranes can bridge construction gaps 1/4" (6 mm) or less without additional detailing. All gaps greater than 1/4" (6 mm) shall be treated in the following ways, depending on substrate, joint size and expected movement. Please choose the appropriate product based on the movement requirements and joint dimensions set forth from the design build team.
 - Dymonic 100 (+100/-50% movement, 1/4" to 1" joint)
 - Spectrem 1 (+100/-50% movement, 1/4" to 1" joint)
 - Illmod 600 (+/-25% movement, 1/8" to 2-5/8" joint)
 - Proglaze ETA (varies based on system selection)
 - Tremflex 834 (+/-12% movement, 1/4" to 1" joint)
- 6.2 Fasteners: Fasteners should be flush with the surface of the substrate. Fasteners which are protruding from or sunk below the face of the substrate shall be treated with Dymonic 100 or Tremflex 834 prior to the ExoAir 110AT installation. The detail sealants may be coated over once a skin has developed. If the fastener penetration occurs after the ExoAir 110AT membrane has been installed, detail all fastener penetrations not flush to the ExoAir 110AT membrane with Dymonic 100 or Spectrem 1 sealant.
- 6.3 Rough Openings, Penetrations, Corners, Tie-Ins to other building envelope systems: Please consult www.tremcosealants.com for detail drawings and technical bulletins showing typical transitions and tie-ins. For job specific details or questions, please contact Tremco Technical Service at 866-209-2404.

EXOAIR® 110 AT

Self-Adhered Air and Vapor Barrier Membrane

7 Membrane Application

- 7.1 ExoAir 110AT does not typically require the use of primer. If primer is deemed necessary or required by the specifications, apply ExoAir Primer to all areas that will receive the ExoAir 110AT membrane. Allow ExoAir Primer to develop a tack (typically 15 to 30 min) prior to installing the ExoAir 110AT.
- 7.2 ExoAir 110AT can be applied vertically or horizontally. ExoAir 110AT membrane shall be lapped onto previous sheet a minimum of 2" (5 cm) when overlap is in plane. All other transitions should have a minimum of 3" (8 cm) overlap. All horizontal laps should be shingled. ExoAir 110AT must be mechanically roll pressed with a J-Roller to ensure the ExoAir 110AT develops sound contact to the substrate.
- 7.3 All seams not oriented to shed water and edges at the end of that day's work shall be detailed with Dymonic 100 or ExoAir Termination Mastic. All edges that will be receiving ExoAir 130 must be detailed with a 2" wide detail of Dymonic 100. Dymonic 100 will provide the bonding surface for the ExoAir 130 transitions. Spectrem 1 may be used on edges/terminations of the membrane when there will not be any additional ExoAir membranes installed over it. Location, cladding type and service life temperature may determine which detail material must be used.
- 7.4 Tremco has conducted in-house testing on a variety of fasteners/façade anchors used in commercial construction for attaching various insulation/cladding systems. The results demonstrated that if installed properly according to the manufacturer's installation instructions, the fasteners/façade anchors tested in conjunction with the ExoAir membranes created an air and watertight seal. Tremco recommends contacting Technical Service at www.tremcosealants.com for a list of evaluated fasteners/façade anchors or to submit fasteners/façade anchors for testing.
- 7.5 If detail work is being done after the air barrier membrane has been installed, seal around brick-ties and other penetrations with Dymonic 100, ExoAir Termination Mastic or Spectrem 1. Spectrem 1 may be used when there will not be any additional ExoAir membranes installed over it. Location, cladding type and service life temperature may determine which detail material must be used.
- 7.6 Protect membranes to avoid damage by other trades and construction materials during subsequent operations. Insulation and/or protection products may be installed after membranes have been installed.
- 7.7 Connect the ExoAir Air Barrier System to the adjacent building envelope systems such as the roof membrane, below-grade waterproofing membrane, window and curtain wall systems and other portions of the building envelope using the recommended Tremco materials. For more information on those materials and application details, please visit www.tremcosealants.com.
- 7.8 Schedule work so that the air and vapor barrier system is covered as soon as possible after installation. If the air and vapor barrier system cannot be covered within 12 months after installation, apply temporary UV protection. Contact Tremco Technical

Service at 866-209-2404 for additional recommendations or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert".

8 Inspection, Testing, Repair

- 8.1 Inspect the air barrier system before covering, and repair any punctures, fishmouths, wrinkles or damaged areas. Make repairs with EXOAIR® 110 AT, Dymonic 100 or ExoAir Termination Mastic as appropriate, extending the repair material a minimum of 4" (10 cm) beyond the puncture or damage in all directions. Location, cladding type and service life temperature may determine which detail material must be used.
- 8.2 If on-site adhesion testing is required, Tremco recommends ASTM D4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers. EXOAIR® 110 AT should be installed defect free prior to conducting test. Additional information about this testing can be found at www.tremcosealants.com in the Technical Bulletin section.

9 Clean Up

- 9.1 Remove any masking materials immediately after installation. Clean spillage and soiling on adjacent construction that will be exposed in the finished work using cleaning agents and procedures recommended by manufacturer of the affected construction.
- 9.2 Uncured Dymonic 100, EXOAIR Termination Mastic, Spectrem 1 or ExoAir Primer can be cleaned using a solvent wipe.
- 9.3 Uncured Tremflex 834 can be cleaned using a clean, damp cloth and water.
- 9.4 Cured sealants can be cleaned using a solvent wipe. Mechanical removal methods may also be necessary.

1019/EXOAIR110ATAB-AI

Please refer to our website at www.tremcosealants.com for the most up-to-date Application Instructions.

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Product Description

Tremflex® 834 is a pure acrylic latex sealant formulated to provide a fast-setting pliable seal with minimal shrinkage.

Basic Uses

Tremflex 834 can be used for general purpose interior and exterior caulking and as a back-bedding glazing compound. It is also highly recommended as an acoustical seal in the construction of interior walls, ceilings and floors. It is suitable for use on vinyl, aluminum and wood siding as well as on bathroom and kitchen fixtures.

Features and Benefits

- Tremflex 834 is an easy gunning, non-staining, general purpose sealant formulated from the highest quality acrylic polymer to offer exceptional flexibility and workability for any commercial construction acrylic sealant application.
- It can be used indoors or outdoors and is tack-free in 15 min and ready to paint in 30 to 45 min with latex or oil-based paint.
- It also has been tested for acoustical properties to reduce sound transmissions when constructing partition walls.
- Class A Building Material

Availability

Immediately available from your local Tremco Field Representative, Tremco Distributor or Tremco Warehouse.

Coverage Rates

308' of joint per gal for a 1/4" x 1/4" (6 mm x 6 mm) joint. For specific coverage rates that include joint size, and usage efficiencies, visit our website usage calculator at www.tremcosealants.com

Packaging

10.1-oz (300-mL) cartridges

20-oz. (600-mL) sausages

5-gal (18.9-L) pails

Colors

Clear, Limestone, White

Storage

Store Tremflex 834 in original, undamaged packaging in a clean, dry, protected location with temperatures between 40 to 110 °F (5 to 43 °C).

Limitations

- Do not apply Tremflex 834 to damp or contaminated surfaces.
- Always utilize the sealant's MSDS found on our website at www.tremcosealants.com for information on proper ventilation, Personal Protective Equipment (PPE) and other health concerns.
- Keep product from freezing.
- Although Tremflex 834 is paintable, this does not imply adhesion to and compatibility with all paints. Please refer to Tremco Technical Bulletin No. S-09-05 for more information.

Substrate Preparation

Surfaces must be sound, clean, and dry. All release agents, existing waterproofing, dust, loose mortar, laitance, paints, or other finishes must be removed. This can be accomplished with a thorough wire brushing, grinding, sandblasting, or solvent washing, depending on the contamination.

Tremco recommends that surface temperatures be 40 °F (5 °C) or above at the time the sealant is applied. If sealant must be applied in temperatures below 40 °F, please refer to the Tremco Guide for Applying Sealants in Cold Weather that can be found on our website at www.tremcosealants.com.

Applicable Standards

- Tremflex 834 meets or exceeds the requirements of the following specifications:
- ASTM C834, Type OP, Grade -18 °C
- CAN/CGSB 19-GP-17M

Application

Apply Tremflex 834 with conventional caulking equipment filling the joint from the bottom first.

Immediately tool the sealant with a spatula to ensure intimate contact with the joint walls. Dry tooling is preferred, although water can be used in limited amounts to slick the spatula if needed.

For window and door perimeter fillet bead applications, a 1/4" (6 mm) minimum surface area is recommended.

Priming

Tremflex 834 adheres to common construction substrates without primers, however, Tremco always recommends that a mock-up or field adhesion test on the actual materials being used on the job be conducted to verify adhesion. The field adhesion test can be found in Appendix X1 of ASTM C1193, Standard Guide for Use of Joint Sealants.

Joint Design

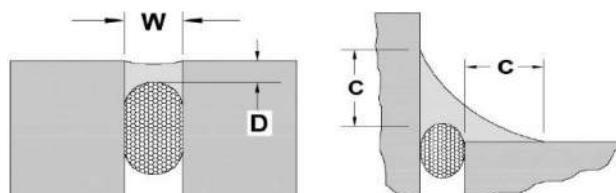
Tremflex 834 may be used in any vertical or horizontal joint designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement, but not less than 1/4" (6.4 mm).

Joint Backing

Closed cell or reticulated polyethylene backer rod is recommended as joint backing to control sealant depth and to ensure intimate contact of sealant with joint walls when tooling. Where depth of joint will prevent the use of backer rod, an adhesive backed polyethylene tape (bond breaker tape) should be used to prevent three-sided adhesion. All backing should be dry at time of sealant application.

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



Expansion Joints- The minimum width and depth of any sealant application should be 1/4" x 1/4" (6 mm x 6 mm).

The depth (D) of sealant may be equal to the width (W) of joints that are less than 1/2" wide. For joints ranging from 1/2" to 1" (13 mm to 25 mm) wide, the sealant should be approximately one-half of the joint width.

The maximum depth (D) of any sealant should be 1/2" (13 mm). For joints that are wider than 1" (25 mm), contact Tremco Technical Services or your local Tremco Sales Representative.

Tremflex® 834

Siliconized Acrylic Latex Sealant

Window Perimeter- For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area [C] of 1/4" (6 mm) onto each substrate, with provisions for release at the heel of the angle using backer rod or bond breaker tape.

Cure Time

At 72 °F (22 °C), 50% RH, Tremflex 834 is tack free in 15 min and dries at a rate of about 1/8" (3 mm) per day but can be painted after only 30 to 45 min with latexes, or oil-based paint. As the temperatures decrease, the dry time of Tremflex 834 will increase. A good rule of thumb is one additional day for every 10 °F (5.5 °C) decrease in temperature.

Clean Up

Excess sealant and smears along the joint interface can be cleaned up or removed with soapy water before the sealant skins. Any utensils used for tooling can also be cleaned with soapy water.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace, or refund the purchase price of the quantity of Tremco Products proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|-----------------------|-------------|--|
| Type | | Single-component Siliconized Acrylic Latex sealant |
| Color | | Clear, Limestone, White |
| Solids | | 84% |
| Specific Gravity | | 1.58 |
| Application | | gun-grade sealant, applied with typical caulking equipment |
| Extrudability | ASTM C1183 | 6 g/s |
| Artificial Weathering | ASTM C732 | Pass |
| Wash-out | ASTM C732 | None |
| Slump | ASTM C732 | None |
| Cracking | ASTM C732 | None |
| Discoloration | ASTM C732 | None |
| Adhesion Loss | ASTM C732 | None |
| Volume Shrinkage | ASTM C1241 | 22.4% (Type OP) 35.3% (Type C) |
| Low Temp. Flexibility | ASTM C734 | No cracks, no adhesion loss |
| Extension - Recovery | ASTM C736 | 93.7% |
| Extension - Adhesion | ASTM C736 | None |
| Slump | ASTM D2202 | 2 mm |
| Stain Index | ASTM D2203 | 0 mm |
| Tack-Free Time | ASTM C679 | 3 hr, 55 min |
| Movement Capability | | ±12.5% |
| Flame Spread | ASTM E84 | 10 |
| Smoke Development | ASTM E84 | 0 |

0318/T834DS-ST

Tremco Commercial Sealants & Waterproofing



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514.521.9555

Dymonic® 100

High-Performance, High-Movement, Single-Component, Polyurethane Sealant

Product Description

Dymonic® 100 is a high-performance, high-movement, single-component, medium-modulus, low-VOC, UV-stable, non-sag polyurethane sealant.

Basic Uses

Dymonic 100 is a durable, flexible sealant that offers excellent performance in moving joints and exhibits tenacious adhesion once fully cured. Typical applications for Dymonic 100 include expansion and control joints, precast concrete panel joints, perimeter caulking (windows, doors, and panels), aluminum, masonry and vinyl siding. Dymonic 100 is also an excellent choice as a fluid applied flashing material in rough opening perimeters for fenestration/window, door and curtain wall applications.

Features and Benefits

- Can adhere to damp or green concrete and has a skin time of 2 hr with a tack-free time of 6 to 8 hr to significantly reduce dirt attraction.
- Movement capability of +100/-50% in typical field conditions, is low VOC, paintable, jet fuel-resistant, and will not crack, craze or yellow under extreme UV exposure.
- Suitable for water immersion and will not out gas.
- Formulated with an innovative polymer technology, similar to TREMproof® 250GC and Vulkem® 45SSL, Dymonic 100 is highly versatile and has a unique capability to adhere to damp or green concrete and will not out gas.
- Compatible and can be coated over with Tremco's Vulkem Deck Coatings, ExoAir® Air Barrier products and the cold, fluid-applied TREMproof® line of below-grade waterproofing products.

Availability

Dymonic 100 is immediately available from your local Tremco Sales Representative, distributor, or warehouse.

Coverage Rates

308' of joint per gallon for a 1/4" x 1/4" (6 mm x 6 mm) joint. For specific coverage rates that include joint size, and usage efficiencies, visit our website usage calculator at www.tremcosealants.com

Packaging

- 10.1-oz (300-mL) cartridges
- 20-oz (600-mL) sausages

Colors

Almond, Aluminum Stone, Anodized Aluminum, Beige, Black, Bronze, Buff, Dark Bronze, Gray, Gray Stone, Hartford Green, Ivory, Light Bronze, Limestone, Natural Clay, Off White, Precast White, Redwood Tan, Sandalwood, Stone, and White.

Shelf Life

1 year when stored at 40 to 110 °F (5 to 43 °C)

Storage

Store Dymonic 100 in original, undamaged packaging in a clean, dry, protected location with temperatures between 40 to 110 °F (5 to 43 °C).

Applicable Standards

- Dymonic 100 meets or exceeds the requirements of the following specifications:
- ASTM C920 Type S, Grade NS, Class 50, Use NT, T, M, A, O, I
- U.S. Federal Specification TT-S-00230C, Class A, Type II
- CAN/CGSB-19.13-M87
- International Code Council (ICC) Section R703.8 Flashing
- AAMA 714-15 Specification for Liquid-Applied Flashing
- NFPA 285 Listed Component



Fire Rated Systems

FF-D-1186, FW-D-1117, HW-D-1122, WW-D-1200, and BW-S-0006

Limitations

- Use with adequate ventilation.
- Always utilize the accompanying MSDS for information on Personal Protective Equipment (PPE) and Health Hazards.
- Not recommended for use in chlorinated, potable, heavy or waste water.
- Although Dymonic 100 is paintable, this does not imply adhesion to and compatibility with all paints. Consult Tremco Technical Bulletin No. S-09-05 for more information.

Substrate Preparation

Surfaces must be sound and clean. All release agents, existing waterproofing, dust, loose mortar, paints, other finishes or field applied coating must be removed. This can be accomplished with a thorough wire brushing, grinding, sandblasting, or solvent washing, depending on the contamination.

Tremco recommends that surface temperatures be 40 °F (5 °C) or above at the time the sealant is applied. If sealant must be applied in temperatures below 40 °F, please refer to the Tremco Technical Bulletin for Applying Sealants in Cold Conditions (No. S-08-44 rev 1) that can be found on our website at www.tremcosealants.com

Dymonic® 100

High-Performance, High Movement, Single-Component, Polyurethane Sealant

Priming

Dymonic 100 typically adheres to common construction substrates without primers; anodized aluminum may require the use of primer. However, Tremco always recommends that a mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer, proper cleaning and prep requirements. A description of the field adhesion test can be found in appendix X1 of ASTM C1193, Standard Guide for Use of Joint Sealants.

Where deemed necessary, use Vulkem® Primer #191 Low-VOC on porous substrates and TREMprime® Non-Porous Primer for metals or plastics.

Application

Dymonic 100 is easy to apply with conventional caulking equipment. Ensure that the backer rod is fitted properly for friction and that any necessary primers have been applied.

Fill the joint completely with a proper width-to-depth ratio, and then tool to ensure intimate contact of sealant with joint substrates.

Dry tooling is always preferred, although compatible wetting agents can be used in limited amounts to slick the spatula if needed after an initial pass.

For a cleaner finish, mask the sides of the joint with tape prior to filling.

Joint Design

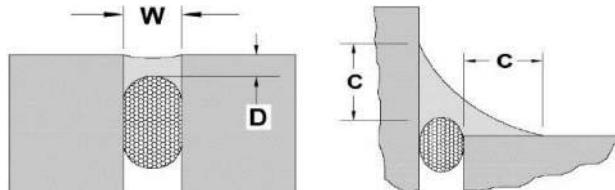
Dymonic 100 may be used in vertical or horizontal joints designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement but not less than 1/4" (6 mm).

Joint Backing

Polyethylene backer rod is recommended as joint backing to control sealant depth and ensure intimate contact of sealant with joint substrate when tooling. Where depth of joint will prevent the use of backer rod, an adhesive backed polyethylene tape (bond breaker tape) should be used to prevent three-sided adhesion. All backing should be dry at the time of sealant application.

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



Expansion Joints- The minimum width and depth of any sealant application should be 1/4" x 1/4" (6 mm x 6 mm). The depth (D) of sealant may be equal to width (W) of joints less than 1/2" wide. For joints from 1/2" to 1" (13 mm to 25 mm) wide, the sealant depth should be approximately one-half of the joint width. The maximum depth (D) of any sealant application should be 1/2" (13 mm). For Joints that are wider than 1" (25 mm) contact Tremco Technical Services or your local Tremco Sales Representative.

Window Perimeter- For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area [C] of 1/4" (6 mm) onto each substrate, with provisions for release at the heel of the angle using backer rod or bond breaker tape.

Cure Time

Dymonic 100 generally cures at a rate of 3/32" per day at 75 °F (24 °C) and 50% RH. It will skin in 2 hr and be tack free in 6 to 8 hr. The cure time will increase as temperatures and/or humidity decrease. A typical rule of thumb is one additional day for every 10 °F decrease in temperature.

Clean Up

Excess sealant and smears adjacent to the joint interface can be carefully removed with xylene or mineral spirits before the sealant cures. Any utensils used for tooling can also be cleaned with xylene or mineral spirits.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

Dymonic® 100

High-Performance, High Movement, Single-Component, Polyurethane Sealant

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|--------------------------------------|------------------------|--|
| Type | | Single component polyurethane sealant |
| Color | | 21 Standard Colors |
| Solids | | 98% |
| Specific Gravity | | 1.3302 |
| Application | | gun-grade sealant, applied with typical caulking equipment |
| Rheological Properties | ASTM C639 | non-sag (NS), 0" of sag in channel |
| Hardness Properties | ASTM C661 | 40 +/-5 |
| Weight Loss | ASTM C1246 | Pass |
| Skin Time | ASTM C679 | 2 to 3 hr |
| Tack Free Time | 73.4°F (23°C) 50% RH | 6 to 8 hr |
| Stain and Color Change | ASTM C510 | Pass |
| Adhesion to Concrete | ASTM C794 | 35 pli |
| Adhesion to Concrete After Immersion | ASTM C794 | 30 pli |
| Adhesion to Green Concrete | ASTM C794 | >25 pli |
| Adhesion to Damp Concrete | ASTM C794 | >20 pli |
| Effects of Accelerated Aging | ASTM C793 | Pass |
| Movement Capability | ASTM C719 | +/-50% |
| Movement Capability | ASTM C719* Modified | +100/-50% |
| Tensile Strength | ASTM D412 | 350 to 450 psi |
| % Elongation | ASTM D412 | 800 to 900% |
| Modulus at 100% | ASTM D412 | 75 to 85 psi |
| Tear Strength | ASTM D412 | 65 to 75 psi |
| Service Temperature | | -40 to 180 °F (-40 to 82 °C) |
| Application Temperature | | 40 to 100 °F (4 to 37 °C) * |
| Smoke Development | ASTM E84 | 5 |
| Fire Spread | ASTM E84 | 5 |
| Fire Resistance of Assembly | NFPA 285 | PASS |
| Smoke Development | CAN S102 | 10 |
| Fire Spread | CAN S102 | 10 |
| Crack Bridging | ASTM C1305 | PASS |
| Nail Sealability | ASTM D1970 Section 7.9 | PASS |

*For temperatures below 40 °F, please refer to the Technical Bulletin, Cold Temperature Sealant Application Recommendations.

0619/D100DS-STPlease refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.**Tremco Commercial Sealants & Waterproofing**

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H 1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555

We certify that Tremflex® 834 has been tested against ASTM C 834, Standard Specification for Latex Sealants and does conform to the specification requirements and is classified as follows:

Type: OP (Opaque)
Grade: -18°C (Meets the requirements of low temperature flexibility)

Tremflex 834 is classified as a Type S, single component, Grade NS, non-sag, and Use NT, non-traffic acrylic latex sealant.

Tremflex 834 meets CAN/CGSB-19-GP-17M.

Although Tremflex 834 is not NSF registered, or previously authorized by USDA, it does meet the requirements for use in Federally inspected food processing facilities provided it is not used in areas where food is being processed, prepared or packaged. The material must also be applied in a manner which prevents any direct or indirect contamination of food. Additionally, before any food product can be placed in the area of treatment, the sealant must be allowed to cure according to manufacturer's recommendations and the area should be sufficiently free of odor to prevent food contamination.

Typical Physical Properties

| Property | Test Method | Results |
|--------------------|----------------|---|
| Movement | ASTM C 920 | +/- 12.5% |
| VOC Content | EPA Method 310 | 20g/L |
| Shelf Life | | Min.1 yr (@ 40-110°F (5-43°C)) |
| STC Rating | ASTM E-90 | Restored to 59 in a U411 wall See tables below |
| pH | | 7-9 |
| Antifungal | | Contains antifungal additive |
| Peel Strength, pli | | 8-14 (substrate dependent) |

Table 2. Acoustic Performance of Wall Systems

| Base Wall System (No Leaks) | STC | | |
|---|--------------------|------------------|--------------|
| Wall Type 1. One layer 5/8" gypsum board, with joints taped and filled, either side of 3-5/8" steel studs, spaced 24" on centre, with absorptive material in cavity. | 45* | | |
| Wall Type 2. Two layers 1/2" gypsum board, with joints overlapped, taped and filled, either side of 3-5/8" steel studs, spaced 24" on centre, with absorptive material in cavity. | 53* | | |
| Predicted Acoustic Degradation due to Leakage and Performance of Tremco Sealant (STC) | | | |
| Sealant Material | Acoustical Sealant | TREMstop Acrylic | TremFlex 834 |
| Wall Type 1 with 1/4" gap along top or bottom of 8' high wall. | 26 (no sealant) | | |
| Above sealed with one 1/4" bead** on one side only. | 44 | 41 | 43 |
| Above sealed with one 1/4" bead on both sides. | 45 | 45 | 45 |
| Above sealed with two 1/4" beads on both sides. | 45 | 45 | 45 |
| Wall Type 2 with 1/4" gap along top or bottom of 8' high wall. | 26 (no sealant) | | |
| Above sealed with one 1/4" bead on one side only. | 48 | 43 | 47 |
| Above sealed with one 1/4" bead on both sides. | 53 | 52 | 53 |
| Above sealed with two 1/4" beads on both sides. | 53 | 53 | 53 |

* as per National Building Code of Canada, Table A-9.10.3.A.

** depth of bead before shrinkage.

Table 1. Acoustic Performance of Tremco Sealants
Material Properties

| Material | Acoustical Sealant | TREMstop Acrylic | TremFlex 834 |
|--|--------------------|------------------|--------------|
| Shear Modulus* (G_R), N/m ² | 45,000 | 200,000 | 410,000 |
| Loss Factor* ($\tan(\delta_L)$), dimensionless | 0.33 | 0.56 | 0.67 |
| Density (cured), kg/m ³ | 1720 | 1100 | 1630 |
| Depth after Shrinkage of 1/2" bead, inches | 0.465 | 0.371 | 0.391 |

Predicted Acoustic Performance of Sealant Alone

| | | | |
|---|----|----|----|
| Sound Transmission Loss (STC) of single 1/4", (as applied**) bead | 30 | 24 | 28 |
| Sound Transmission Loss (STC) of single 1/2", (as applied**) bead | 36 | 30 | 34 |
| STC of two 1/4", (as applied**) beads, separated by 3.5", with sound absorption material in between | 48 | 36 | 44 |
| STC of two 1/2", (as applied**) beads, separated by 3.5", with sound absorption material in between | 60 | 48 | 56 |

* based on tests at 25° C, and 100 rad/s. G_R is the real component of the complex shear modulus.

** depth of bead before shrinkage.

We certify that Dymonic® 100 has been tested against ASTM C 920, Standard Specification for Elastomeric Joint Sealants and does conform to the specification requirements and is classified as follows:

Type: S (Single Component)
Grade: NS (Non-sag)
Class: 50 (+50% / - 50% joint movement)
Use: NT (Non-traffic)
Use: T₁ (Traffic)
M (Mortar)
A (Aluminum)
O (Other)
I (Immersion)

Additionally, we certify that Dymonic 100 has been tested in accordance to ASTM D 412, Test Method for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers – Tension, with the following results:

Ultimate Elongation: 850% - 1000%

We further certify that Dymonic 100 manufactured by Tremco Incorporated, Cleveland, Ohio conforms to the requirements of Federal Specification TT-S-00230C, Type II, Class A.

Dymonic meets CAN/CGSB 19.13, MCG-2-25-B-N.

Although Dymonic 100 is not NSF registered, or previously authorized by USDA, it does meet the requirements for use in Federally inspected food processing facilities provided it is not used in areas where food is being processed, prepared or packaged. The material must also be applied in a manner which prevents any direct or indirect contamination of food. Additionally, before any food product can be placed in the area of treatment, the sealant must be allowed to cure according to manufacturer's recommendations and the area should be sufficiently free of odor to prevent food contamination.

CERTIFICATION LETTER

| Property | Test Method | Requirement | Result |
|-------------------------------|-----------------------------|------------------------------|-----------------------|
| Air Permeance | ASTM E 2178 | $\leq 0.02 \text{ L/sm}^2$ | 0.001 L/sm^2 |
| Water Resistance | AATCC 127 (22" for 5 hours) | Pass | Pass |
| Tensile Strength | ASTM D 882 | $\leq 20.0 \text{ lbf/in}$ | 28 lbf/in |
| Peel or Stripping Strength | ASTM D 903 | | |
| Plywood | | $\leq 5.0 \text{ lbf/in}$ | 5.7 lbf/in |
| CMU | | $\leq 5.0 \text{ lbf/in}$ | 8.0 lbf/in |
| Exterior Sheathing | | $\leq 5.0 \text{ lbf/in}$ | 7.3 lbf/in |
| ExoAir 110AT | | $\leq 5.0 \text{ lbf/in}$ | 9.0 lbf/in |
| Lap Adhesion | | $\leq 5.0 \text{ lbf/in}$ | 6.9 lbf/in |
| Low Temperature Flex | ASTM D 1970 | No Visible Cracking | Pass |
| Self Sealability | ASTM D 1970 | No Water | Pass |
| Pull Adhesion | ASTM D 4541 | $\geq 16 \text{ psi}$ | 38.7 psi |
| Tear Initiation | ASTM 4073 | | |
| MD (Machine Direction) | | $\geq 9 \text{ lbf}$ | 24 lbf |
| CMD (Cross Machine Direction) | | $\geq 9 \text{ lbf}$ | 21 lbf |
| Crack Bridging | ASTM C 1305 | Pass | Pass |
| Water Vapor Permeance | ASTM E96 | | |
| Procedure A | | Declare | 0.02 US Perms |
| Procedure B | | Declare | 0.04 US Perms |
| Water Penetration | ASTM E 331 | No water Leakage | Pass |
| Air Leakage of Assembly | ASTM E 2357 | 0.20 L/sm^2 (75 Pa) | 0.003 L/sm^2 |
| Fire Resistance of Assembly | NFPA 285 | Pass | Pass |
| Puncture Resistance | ASTM G 154 | $\geq 40 \text{ lbf}$ | 52 lbf |

We certify that ExoAir 230 has been tested against the following ASTM Standards and does conform to the specification requirements.

TYPICAL PHYSICAL PROPERTIES

| Property | Description | |
|-------------------------------|---|--|
| Type | UV Resistant Acrylic | |
| Color | Limestone/white – special colors available upon request | |
| Solids | 50% | |
| Application | Spray or roll | |
| Tack Free Time | 30-60 mins (77°F (25°F) @ 50%RH) | |
| Cure Time | 18 Hours (77°F (25°F) @ 50%RH) | |
| Thickness | Minimum 70 wet mils; 35 dry mils | |
| Coverage | ~23 sqft/gal | |
| Antifungal | Contains an antifungal additive | |
| Property | Test Method | Typical Values |
| Air Permeance | ASTM E2178 | 0.00805 L/sm ² @ 75Pa 0.00158 cfm/ft ² @ 1.57 psf |
| Water Vapor Permeance | ASTM E96, Wet Cup | 11.71 perms |
| Air Leakage of Assemblies | ASTM E2357 | Pass |
| | ASTM E331 | No water penetration |
| Fire Test for Wall Assemblies | NFPA 285 | Pass |
| Flame Spread | ASTM E84 | 10 |
| Smoke Development | ASTM E84 | 25 |
| Water Resistance: | AATCC 127-2008 | |
| Hydrostatic Pressure Test | 21.6" (55cm) | No Leakage |
| Elongation | ASTM D412 | 630% |
| VOC | EPA Method 310 | 37 g/L |
| Low Temperature Flexibility | ASTM C1305 | Pass @ -20°F (-29°C) |
| Water Immersion | ASTM D870 | Pass |
| UV Resistance | QUV-B | Passes 168 daily cycles UV & Water spray |

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1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090



SUBMITTAL REVIEW

Submittal No.: 072726-001-R1

Description: Air Barrier - PD

Project Name: UT Austin - SEA

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

BY:

DATE: 2020/09/16

Submittal Comments:

1. Please confirm termination sealant within submittal no. 072726-002 will be used for termination purposes of the ExoAir TWF as well.
2. Please confirm that ExoAir 110-AT within submittal no. 072726-002 will continue to be used at metal panel locations as ExoAir TWF cannot be installed behind metal panel facades due to super heated conditions.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0344

PROJECT: UT Seay Building Addition

DATE: 09/14/2020

TO: BSA Lifestructures
AL

RE: Exoair 110 - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 09/28/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---------------------------|------------------------|
| 1 | Submittal | | 072726-002 | 1 | | 09/14/2020 | Exoair 110 - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 9/14/2020 SPEC# 072726

REVIEWED BY tanner.hawkins

SUBMITTAL# 072726-002

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins

Tanner Hawkins



SUBMITTAL COVER SHEET

PROJECT NAME: UT Seay

ARCHITECT: BSA Life Structures

SPECIFICATION SECTION: 072726 – Fluid Applied Membrane Air Barrier

DATE PREPARED: 9/8/2020

CONTRACTOR: Spawglass

SUBCONTRACTOR'S NAME: Chamberlin Roofing and Waterproofing

SUBCONTRACTOR'S PHONE: 512.275.1600

MANUFACTURER'S NAME: Tremco

MANUFACTURER'S PHONE: See Product Data

ITEM: See Table of Contents

NUMBER OF PAGES w/ COVER: 8

| Architect's Approval | Contractor's Approval |
|----------------------|--|
| | <p>The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer, and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.</p> <p>Chamberlin Austin, LLC _____ Subcontractor</p> <p>_____ Authorized Signature</p> <p>_____ Date</p> |



TABLE OF CONTENTS

1. ExoAir TWF

40-mil composite sheet comprised of 32 mils self-adhering SBS rubberized asphalt laminated to 8-mil cross laminated, high density polyethylene film with siliconized release liner.

Product Location: To be installed at all base of wall and lintel conditions.

- a. Product Data
- b. Manufacture Certification

2. ExoAir Primer

Primer specifically formulated for use with ExoAir membranes.

Product Location: To be installed in conjunction with ExoAir air barrier system.

- a. Product Data



EXOAIR® TWF

Self-Adhered Thru-Wall Flashing Membrane

Product Description

EXOAIR® TWF (Thru-Wall Flashing) is a 40-mil (1.0 mm) composite sheet designed for use as a thru-wall flashing. It is comprised of 32 mils (.80 mm) of self-adhering SBS rubberized asphalt laminated to an 8 mil (.20 mm) cross-laminated, high density, polyethylene film with a siliconized release liner.

Basic Uses

EXOAIR TWF is typically installed in cavity wall construction on substrates such as masonry, metal, concrete, gypsum and wood substrates. EXOAIR TWF transitions from EXOAIR 110 and EXOAIR 110 AT Self-Adhered Air and Vapor Barrier, EXOAIR 120 and EXOAIR 130 Fluid Applied Air and Vapor Retarder Membranes and EXOAIR 220 and EXOAIR 230 Fluid Applied Vapor Permeable Membrane to areas that require a masonry flashing material.

Features and Benefits

- EXOAIR TWF has been tested and is compatible with all the EXOAIR product line.
- Manufactured to a preset, uniform thickness that provides consistent and uniform coverage at proper thickness.
- Rugged HDPE film protects SBS membrane against incidental damage during construction process.
- Variety of widths available for job specific needs.

Availability

EXOAIR® TWF is immediately available from your local Tremco Sales Representative or Distributor. For Distributor locations, visit www.tremcosealants.com

Coverage Rates

Varies depending on width selected

Packaging

Length: 75' (22 M)

Width: 12" (30 cm) 2 rolls/box

18" (45 cm) 1 roll/box

24" (61 cm) 1 roll/box

Colors

Black HDPE facer with White Tremco Logo

Storage

Store EXOAIR TWF in the original, undamaged packaging in a clean, dry and protected location where temperatures do not exceed 100 °F (37 °C). If material is stored in an area below 40 °F (5 °C), move material to a heated area, 60 to 70 °F (15 to 21 °C) prior to installation.

Shelf Life

2 years when stored in accordance with storage instructions.

Applicable Standards

- ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
- ASTM D570 Standard Test Method for Water Absorption of Plastics

- ASTM D1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials
- ASTM E154 Standard Test Methods for Water Vapor Retarders used in Contact with Under Concrete Slabs, on Walls or as Ground Cover - Section 10 only

Fire Rated Systems

EXOAIR TWF has been tested in assemblies according to NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components. All the NFPA 285 UL listed assemblies using Tremco materials can be found using the technical bulletin: ASHRAE 90.1 & NFPA 285: Defining & Specifying to Meet IECC & IBC or utilizing the following link:

http://www.tremcosealants.com/fileshare/commercial_docs/ASHRAE90.1%20and%20NFPA285.pdf

For NFPA 285 engineering judgement requests please go to www.tremcosealants.com/NFPA 285 Engineering Judgement Request, or contact Tremco Technical Service at 866-209-2404.

Limitations

- No more than 30 days of UV exposure before façade installation. If membrane is exposed for a period exceeding 30 days, contact Tremco Technical Service for additional recommendations at 866-209-2404, or visit the Technical Resources area of our website at www.tremcosealants.com and "Ask the Expert."
- Do not apply to damp, contaminated or frost-covered surfaces.
- Not to be used as a permanently exposed surface. Contact your local Tremco Sales Representative for project specific requirements.
- Keep product from freezing prior to being applied to the substrate. It is best to store EXOAIR TWF off the floor at an ambient temperature above 40 °F (10 °C).
- EXOAIR TWF is designed for installation at 40°F (5°C) and rising.
- Termination Mastic should not be used with ExoAir TWF in a fully encapsulated area.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or to refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | DESCRIPTION | |
|---|--|------------------------------------|
| Type | SBS modified asphalt sheet with white HDPE facer | |
| Color | Black HDPE facer with White Tremco Logo | |
| Solids | 100% | |
| Weight | 0.30 lb/ft ² (1.46 kg/M ²) | |
| Application | Sheet Applied | |
| Thickness | 32 mils SBS asphalt, 8 mils HDPE facer | |
| Storage Temperature | 40 to 100 °F (5 to 37 °C) | |
| Application Temperature | Above 40 °F (5 °C) and rising. If installing below 40 °F (5 °C), please refer to Cold Weather Air Barrier Installation Technical Bulletin or contact Tremco Technical Service at 866-209-2404. | |
| Service Temperature | Intermittent Exposure up to 158 °F (70 °C) | |
| PROPERTY | TEST METHOD | TYPICAL VALUES |
| Maximum V.O.C. | Method 310 | 0 g/L |
| Elongation | ASTM D412 Die C | 250% |
| Tensile Strength | ASTM D412 Die C | 500 psi (344.7 N/cm ²) |
| Moisture Absorption | ASTM D570 | 0.1% |
| Water Vapor Permeance | ASTM E96 Dry Cup | 0.02 US Perms |
| Tensile Strength | ASTM D882 | 5.994 N/mm |
| Pliability, 180°, 1" (25 mm) mandrel @ -29 °F (-34 °C) (Low Temperature Flex) | ASTM D1970 Section 7.6 | Pass |
| Puncture Resistance | ASTM E154 | 70 lbf (3111 N) |
| Nail Sealability | ASTM D1970, Section 7.9 | Pass |
| Evaluation of Fire Propagation Characteristics | NFPA 285 | Evaluated in multiple assemblies |

TEST REPORTS

0418/EXOAIRTWF DS-AB



Tremco Commercial Sealants & Waterproofing

| | | | |
|--|--|---|--|
| 3735 Green Rd Beachwood OH 44122 216.292.5000 / 800.321.7906 | 1451 Jacobson Ave Ashland OH 44805 419.289.2050 / 800.321.6357 | 220 Wicksteed Ave Toronto ON M4H1G7 416.421.3300 / 800.363.3213 | 1445 Rue de Coulomb Boucherville QC J4B 7L8 514.521.9555 |
|--|--|---|--|

CERTIFICATION LETTER

We certify that ExoAir TWF has been tested against the following ASTM Standards and does conform to the specification requirements.

TYPICAL PHYSICAL PROPERTIES

| Property Test Method | Typical Values |
|---|-----------------------|
| ASTM D1970 – Nail Sealability (7.9) | Passed |
| Elongation (Membrane) ASTM D412 Die C | 250% |
| Tensile Strength (Membrane) ASTM D412 Die C | 500 psi |
| Tensile Strength (Film) ASTM D412 Die C | 5,000 psi |
| Puncture Resistance - Membrane ASTM E154 | 70 lbs |
| Pliability, 180° - 1" mandrel @ -25°F, -32°C ASTM D1970 | Pass |
| Moisture Absorption ASTM D570 | .1% |
| Permeance ASTM E96 | .05 perms |

Product Description

Porous Surface Primers

Vulkem® Primer #171 – Urethane sealants, deck coatings, and TREMproof® membranes (Not for use in Canada)

Vulkem 191 Primer- Urethane sealants, deck coatings and TREMproof membranes

TREMprime® Silicone Porous Primer – Silicone sealants

TREMprime Multi-Surface Urethane Primer – Urethane coatings

TREMprime VB Primer – Vulkem coatings, urethane and PUMA technology

Non-Porous Surface Primers

TREMprime Silicone Metal Primer – Silicone sealants

TREMprime Non-Porous Primer – Urethane sealants, coatings and TREMproof membranes

Urethane Tie-Ins

Vulkem 191 Primer – Urethane sealants, coatings and TREMproof membranes

TREMprime Multi-Surface Urethane Primer – Urethane coatings

Tremco Epoxy Primer – Below-grade waterproofing and urethane deck coatings to air barrier systems

Hot Applied Membrane Specific Primers

TREMprime WB

TREMprime QD Low-Odor Primer

Self-Adhered Air Barrier Membrane Primer

ExoAir Primer

General Application Guidelines

Detailed instructions specific to each primer are listed below.

Tremco Silicone Metal Primer

Usage: Non-porous surfaces, silicone sealants. A one-component primer used to enhance adhesion of silicone sealants on non-porous surfaces such as metals and plastics. Tremco Silicone Metal Primer is also approved for Structural Glazing applications. Apply with a clean cloth. Remove all excess primer from cloth to ensure a very thin layer is applied. Dry time is 15 min at 70 °F (21 °C). Primer must be completely dry before applying sealant. Silicone sealants can be applied up to 6 hr after primer has been applied. After 6 hr, the surface must be cleaned with IPA and reprimed with Tremco Silicone Metal Primer.

Coverage Rate: 1400 to 1800 ft²/gal

Packaging: 1-pt (473-mL) can

TREMprime WB

Usage: Porous and non-porous surfaces, TREMproof 6100 and 6100BM High-solids, water-based primer for use in preparing porous and non-porous surfaces for application of TREMproof 6100, 6100BM and 6145. Apply with roller or airless spray equipment.

Coverage Rate: Concrete: 150 to 300 ft²/gal; Metal: 300 to 350 ft²/gal

Packaging: 5-gal (18.9-L) pails

TREMprime Silicone Porous Primer

Usage: Porous surfaces, silicone sealants. One-component primer used to enhance adhesion of silicone sealant to porous surfaces such as concrete and limestone. Apply generously with a clean cloth. Dry time is 30 to 45 min at 70 °F (21°C). Primer must be completely dry before applying sealant. Silicone sealants can be applied up to 8 hr after primer has been applied. After 8 hr, the surface must be cleaned with IPA and reprimed with TREMprime Silicone Porous Primer.

Coverage Rate: 500 to 600 ft²/gal.; 9600 ft/gal (1/2" wide band)

Packaging: 1-pt (473-mL) can

TREMprime Non-Porous Primer

Usage: Non-porous surfaces and urethane sealants. A low-VOC, water-based, quick-drying, one-part primer. TREMprime Non-Porous Primer is not a film-forming primer. It is used as an adhesion promoter for urethane sealants and coatings on non-porous surfaces such as metals and plastics. Apply with a clean cloth. Remove all excess primer from cloth to ensure a very thin layer is applied. Dry time is 15 min at 70 °F (21°C). Primer must be completely dry before applying sealant or coating. Urethane sealants and coatings can be applied up to 8 hr after primer has been applied. After 8 hr, the surface must be cleaned with a Tremco approved solvent and reprimed with TREMprime Non-Porous Primer.

Coverage Rate: 1400 to 1800 ft²/gal

Packaging: 1-qt (946-mL) can

1-gal (3.8-L) pails

Vulkem Primer #171 (Not for use in Canada and OTC states)

Usage: Porous surfaces, urethane sealants, Vulkem Coating Systems and TREMproof membranes. Quick-drying, one-part, moisture-curing primer. It is used as an adhesion promoter for Vulkem brand urethane sealants and coatings and TREMproof membranes on porous surfaces such as concrete and wood. Apply generously with a clean brush or roller. Do not apply in excess where it will puddle or pond. At 70 °F (21°C), allow 30 to 45 min for primer to become tacky before applying sealant, coating or membrane. Do not allow primer to dry completely. Do not apply sealant or coating if primer becomes hard or glossy. If it does, clean with a Tremco approved solvent and coat with Vulkem 191 Primer.

Coverage Rate: 100 to 600 ft²/gal

Packaging: 1-qt (946-mL) can

1-gal (3.8-L) pails

5-gal (18.9-L) pails

Primer Selection & Usage Guide

Primer Selection by Application

TREMprime Multi-Surface Urethane Primer

Usage: Porous surfaces, interlaminary, urethane coatings. Low-VOC (<60 g/L), two-part epoxy primer used to condition and prep porous surfaces and existing coatings for application of a new coating layer. Apply with a short nap roller or brush evenly to the surface. Primer must dry completely before coating application as indicated by turning from milky-white to completely clear.

Coverage Rate: 200 to 300 ft²/gal

Packaging: 3-gal (11.4- L) kits:

Part A: 2-gal (7.6 L) can

Part B: 1-gal (3.8 L) can

Vulkem 191 Primer

Usage: Porous surfaces, interlaminary, urethane sealants, coatings and TREMproof membranes. It is used to prepare surfaces of cured urethane sealants, coatings and TREMproof membranes that will be sealed with a fresh coat. Apply with a clean brush or roller. Do not apply in excess or allow to puddle. Use a short nap roller only. Dry time is 25 to 45 min at 70 °F (21°C). Apply coating or sealant within 1 to 2 hr after application when primer is still tacky but does not come off substrate. Primer will yellow with time if left exposed. Do not apply in excess to other substrates not intended to be coated. Do not apply sealant or coating if primer becomes hard or glossy. If it does, clean with a Tremco approved solvent and reprime with Vulkem 191 Primer.

Coverage Rate: 400 to 450 ft²/gal for interlaminary applications. VOC-compliant.

Packaging: 1-qt (946-mL) can

1-gal (3.8-L) pails

5-gal (18.9-L) pails

TREMprime VB

Usage: Two-component, epoxy-based, solvent-free vapor barrier primer for mitigating vapor drive caused by moisture in concrete for use with our Vulkem coatings, including Vulkem EWS.

Coverage Rate: For concrete RH of 88% or above, two coats of TREMprime VB are required.

When applied in one coat, 1 gal / 100 sq. ft. (16 mils).

When applied in two coats, 1 gal / 100 sq. ft. (16 mils) each, 20-40 mesh silica sand broadcast into second coat until refusal.

Packaging: 3.6-gal (13.6-L) kits:

Part A - 2.4-gal (9.08 L) pail

Part B - 1.2-gal (4.54 L) pail

TREMprime QD Low-Odor Primer

Usage: Porous and non-porous surfaces, TREMproof 6100 solvent-based modified bituminous roofing primer for use in preparing porous and non-porous surfaces for application of TREMproof 6100.

Coverage Rate: Concrete: 150 to 300 ft²/gal; Metal: 300 to 350 ft²/gal

Packaging: 5-gal (18.9- L) pails

ExoAir Primer

Usage: ExoAir Primer is specifically formulated for use with the ExoAir membranes. It can be used on porous and non-porous substrates. Surfaces to be primed should be dry, clean, smooth, firm, free of dust, mud, loose mortar, or any other substance that may prevent placement and bonding of the ExoAir membrane. Allow the ExoAir Primer to develop a tack, non-transferrable film (typically 15 to 30 min) prior to installing any membrane. Prime only those surfaces that will be completed that day.

Coverage Rate: Approximately 250 ft²/gal (6 m²/L), depending on porosity and texture of substrate.

Packaging: 5-gal (18.9- L) pails

Color: Green

TREMprime HR Primer

Usage: Porous and non-porous surfaces for application of Tremco hot-applied asphaltic fluids. Solvent-based modified bituminous primer promotes adhesion of Tremco asphaltic hot-applied fluids such as TREMproof 6100 and TREMproof 6100BM. It is a multi-purpose primer and can be used on a variety of surfaces, such as concrete, masonry, metal, gypsum, and new or weathered bituminous surfaces. Apply using a brush, short nap roller or airless spray system.

Coverage Rate: 200 to 400 ft²/gal

Packaging: 5-gal (18.9- L) pails

Primer Selection & Usage Guide

Primer Selection by Application

Availability

Immediately available from your local Tremco Sales Representative, Tremco Distributor or Tremco Warehouse.

Coverage Rates

All coverage rates listed are approximate and may differ depending upon texture of the substrate finish.

Colors

Colors of the primers will vary depending on primer.

Fire Rated Systems

- None presently listed. For firestop engineering judgement requests please visit www.tremcosealants.com or contact Tremco Technical Services at 866-209-2404.

Limitations

- All surfaces must be sound, clean, dry and free from contamination. A thorough wire brushing, grinding, sandblasting or solvent cleaning may be required to expose clean, sound, virgin surfaces.

- Any questions regarding drying times, coverage rates and unique application techniques regarding the individual primers should be directed to Tremco Technical Services or your local Tremco Sales Representative.
- Do not apply over contaminated or damp surfaces.
- Do not thin.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied, including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or to refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

0720/PSUGDS

Tremco Commercial Sealants & Waterproofing

3735 Green Rd
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216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555



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Inspection Services

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1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 07-2726-003

Description: Curtain Wall Waterproofing - Proglaze PD

Project Name: UT Austin - Seay

Project No.: UT 102-1219

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

- NO EXCEPTIONS NOTED
- SUBMIT SPECIFIED ITEM
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

BY:

DATE: 04/01/2021

Submittal Comments:

- 1) Refer to manufacturer's installation instructions for proper sealant terminations in curtain wall system and on existing substrate



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma, Texas 78154
(210) / 651-9000, FAX (210) / 651-4450

PROJECT MANAGEMENT
Transmittal
No 0544

PROJECT: UT Seay Building Addition

DATE: 04/01/2021

To: SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

RE: Curtain Wall Waterproofing - Proglaze - Product Data

ATTN: Tanner Hawkins

JOB: 3018105

| WE ARE SENDING: | | SUBMITTED FOR: | | ACTION TAKEN: | |
|--|--|-------------------------------------|--------------------|-------------------------------------|-----------------------|
| Shop Drawings | | <input checked="" type="checkbox"/> | Approval | | Approved as Submitted |
| Letter | | | Your Use | | Approved as Noted |
| Prints | | | As Requested | | Returned After Loan |
| Change Order | | | Review and Comment | | Resubmit |
| Plans | | | | <input checked="" type="checkbox"/> | Submit |
| Samples | | SENT VIA: | | | Returned |
| Specifications | | <input type="checkbox"/> | Attached | <input type="checkbox"/> | Separate Cover |
| Other: Product Data | | | | <input checked="" type="checkbox"/> | Due Date: 04/15/2021 |
| <input checked="" type="checkbox"/> Submittal: | | | | | Other: |

| Line | Item | Package | Code | Rev. | QTY | Date | Description | Status |
|------|-----------|---------|------------|------|-----|------------|--|--------|
| 1 | Submittal | | 072726-003 | 1 | | 04/01/2021 | Curtain Wall Waterproofing - Proglaze - Product Data | |

REMARKS:

CC:

| | |
|---|----------|
| SpawGlass Contractors, Inc. | |
| REVIEWED FOR COMPLIANCE <input checked="" type="checkbox"/> | |
| COMMENTS NOTED <input type="checkbox"/> | |
| REVISE AND RESUBMIT <input type="checkbox"/> | |
| OTHER: <input type="checkbox"/> | |
| DATE | 4/1/2021 |
| SPEC# | 072726 |
| REVIEWED BY tanner.hawkins | |
| SUBMITTAL# 072726-003 | |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS | |

Signed: Tanner Hawkins

Tanner Hawkins



Proglaze® ETA - Connections

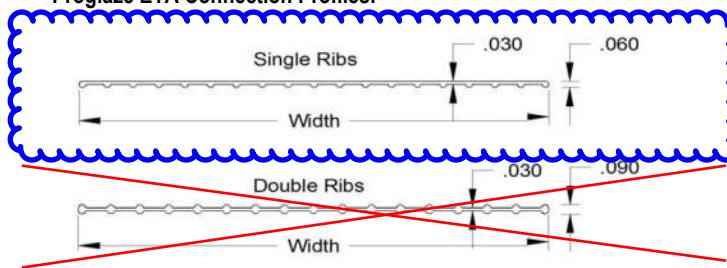
Product Description

Proglaze® ETA Connections are pre-engineered silicone materials used as a transition assembly between the window or wall system and adjacent air and vapor barrier materials.

The assembly is comprised of a flat single or double ribbed silicone extrusion of varying widths, which is adhered to the building façade with Spectrem® 1 Silicone Sealant to ensure a durable connection and positive seal.

The opposite edge of the ribbed silicone extrusion will span unsupported onto the wall and/or window system, which is adhered with Spectrem 1 Silicone Sealant. This connection will provide a long-term durable flexible connection between the two components.

Proglaze ETA Connection Profiles:



Basic Uses

Proglaze ETA Connections are a transition assembly for bridging continuously between the window and/or curtain wall and the adjacent air and vapor barrier materials. The system is designed to absorb thermal movement and wind-loading stresses.

The Proglaze ETA Connection has a thin cross-section and low durometer which allows the material to span and seal across irregular window geometries. The translucent silicone material allows the installer and/or inspector to see through the gasket to verify the recommended amount of sealant is properly applied to ensure an effective seal is achieved, while the ribs of the gasket's design ensures a minimum sealant thickness.

The assembly is fully compatible with most window sealants and glazing materials and bonds to the face of ExoAir® 110, ExoAir 110AT, and ExoAir TWF and to the cured surface of ExoAir 130, ExoAir 230, and Securock ExoAir 430. Not intended as a seal to untested substrates.

Features and Benefits

- Single Ribbed extrusions are available in the following widths: 2", 3", 4", 6", 8" and 9.5".
- Double Ribbed extrusions are available in the following widths: 4", 6", 8". Some widths of the Single Ribbed extrusions are standard sizes. Double Ribbed extrusions are made-to-order. Custom sizes are also available. Contact Tremco's Ashland Customer Service group for more information and for pricing.

Availability

Please contact our Customer Service Department in Beachwood, Ohio at 800-321-7906, or Toronto at 800-363-3213.

Colors

Translucent. Custom colors are available.

Limitations

- Not intended to be utilized in a permanently exposed condition unless approved by Tremco.
- Not intended as a seal to untested substrates.

Warranty

Tremco warrants its Products to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

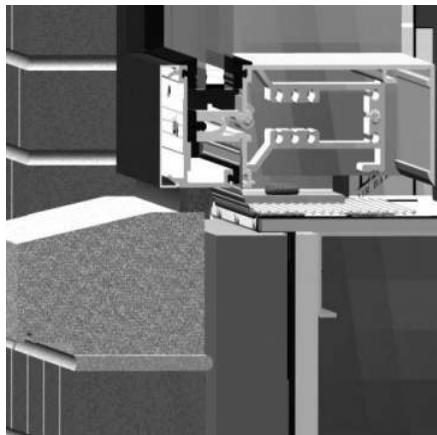
Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL RESULTS |
|------------------------------|-------------|--|
| Color | | Translucent. Custom colors are available. |
| Flame Spread | ASTM E84 | 15 |
| Smoke Development | ASTM E84 | 300 |
| Hardness, Type "A" Durometer | ASTM D2240 | 43 |
| Compression Set | ASTM D395 | 22 hr at 212°F (100°C). 14.5% |
| Ozone Resistance | ASTM D1149 | 300 mPa, 100 hr at 158°F (70°C) 20% elongation. No Cracks. |
| Tensile Strength | ASTM D412 | 1130 psi (7.8 mPa) |
| Ultimate Elongation | ASTM D412 | 550% |
| Tear Strength | ASTM D624 | 114 lb/in (19.9kN/m) |
| Low Temp. Flexibility | ASTM D746 | -40°F (-40°C). Pass |

System Assembly



Sill condition showing Extruded Silicone Double Ribbed ETA Connection attached at the sill and corners with Spectrem 1 Silicone Sealant. The Ribbed Silicone Sheet is folded into the glazing pocket and at the corners it is folded and mechanically fastened under the pressure plate.

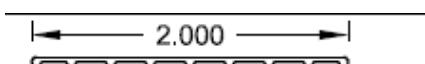
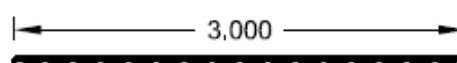
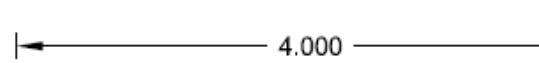
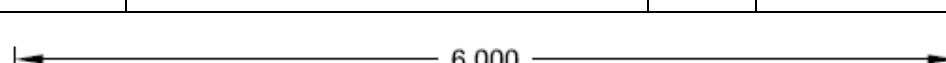
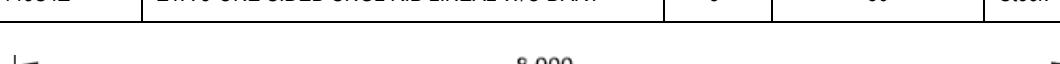
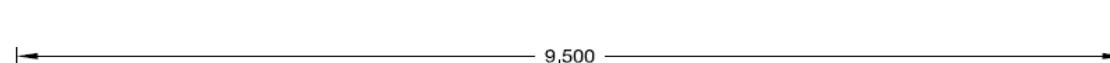
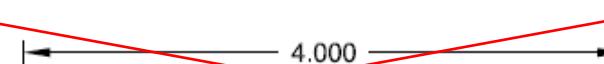
Window is positioned and anchored on top of Extruded Silicone Single Ribbed ETA Connection, which has been wrapped around the rough opening.



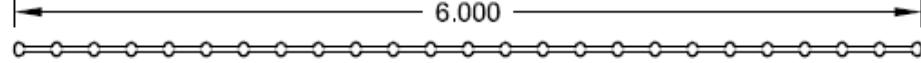
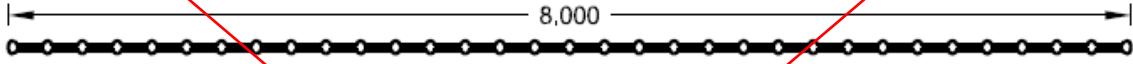
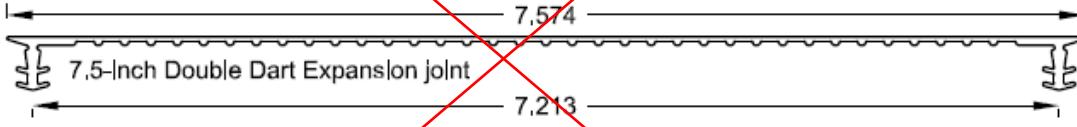
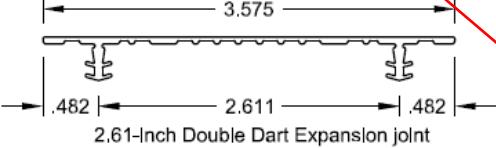
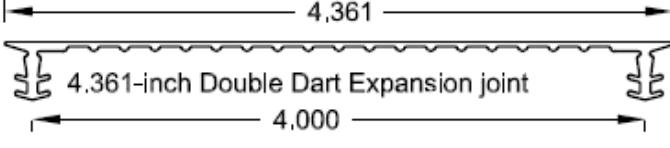
The Silicone Ribbed Extrusion is folded and sealed into the glazing pocket. Mechanical fasteners are used to hold the folded corner and are sealed over with Spectrem 1 Silicone Sealant.



Proglaze® ETA - Connections

| Type | SKU | Description | Width | FT/Case | Stock Class |
|-----------------------------|-------------|--|--|---------|-------------|
| One Sided Lineal | ETA17666S4Z | ETA 2"ONE SIDED SNGL RIB LINEAL W/O DART | 2" | 50 | Special |
| | | |  | | |
| | | 2-Inch Ribbed Silicone Sheet | | | |
| | ETA16384S4Z | ETA 3"ONE SIDED SNGL RIB LINEAL W/O DART | 3" | 50 | Stock |
| | | |  | | |
| | | 3-Inch Ribbed Silicone Sheet | | | |
| | ETA16957S4Z | ETA 4"ONE SIDED SNGL RIB LINEAL W/O DART | 4" | 50 | Stock |
| | | |  | | |
| | | 4-Inch Ribbed Silicone Sheet | | | |
| | ETA15947S4Z | ETA 6"ONE SIDED SNGL RIB LINEAL W/O DART | 6" | 50 | Stock |
| | | |  | | |
| | | 6-inch Ribbed Silicone Sheet | | | |
| | ETA18148S4Z | ETA 8"ONE SIDED SNGL RIB LINEAL W/O DART | 8" | 50 | Stock |
| | | |  | | |
| | | 8-Inch Ribbed Silicone Sheet | | | |
| | ETA18154S4Z | ETA 9.5"ONE SIDE SNGL RIB LINEAL W/O DRT | 9.5" | 50 | Stock |
| | | |  | | |
| | | 9.5-inch Ribbed Silicone Sheet | | | |
| Two- Sided RIB Lineal | ETA17136S4Z | ETA 4" TWO SIDED DBL RIB LINEAL W/O DART | 4" | 50 | Stock |
| | | |  | | |
| | | 4-inch Double Ribbed Silicone Sheet | | | |

Proglaze ® ETA - Connections

| | | | | | |
|--|--|--|--------|----|---------|
| | ETA17137S4Z | ETA 6" TWO SIDED DBL RIB LINEAL W/O DART | 6" | 50 | Stock |
|  6-inch Double Ribbed Silicone Sheet | | | | | |
|  8-Inch Double Ribbed Silicone Sheet | | | | | |
| | ETA16233S4Z | ETA 7.7" EXP JT W/ DBL DART (7.213" CL) | 7.5" | 50 | Special |
|  7.5-Inch Double Dart Expansion joint | | | | | |
| Expansion Joint Lineal | ETA15970S4Z | ETA 3.575" EXP JT W/DBL DART (2.611' CL) | 2.611" | 50 | Special |
| |  2.61-Inch Double Dart Expansion joint | | | | |
| | ETA18099S4Z | ETA 4" EXP JT W/ DBL DART (4" CL) | 4" | 50 | Special |
|  4.361-inch Double Dart Expansion joint | | | | | |

0818/PETACONNDS-GL

Tremco Commercial Sealants & Waterproofing

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220 Wichsteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555

TO BE USED TO ANCHOR SILICONE TRANSITION STRIP TO SUBSTRATES. TERMINATION BAR NOT RECOMMENDED. PERFORM ADHESION TEST OVER EXISTING MATERIALS PRIOR TO INSTALL



Spectrem® 1

Single-Component, Moisture-Cure Silicone Sealant

Product Description

Spectrem® 1 is a high-performance, single-component, moisture-cure, ultra-low modulus silicone sealant.

Basic Uses

Spectrem® 1 is the ideal sealant for the most demanding dynamically moving joints. This includes material having a high coefficient of linear expansion such as aluminum curtainwalls, precast concrete panels, metal panels and window perimeters.

Features and Benefits

- Ultra-low modulus means high elasticity with movement accommodation of +100/-50%.
- With excellent adhesion to a variety of substrates, one product can be used for multiple applications on the same job from perimeter caulking to expansion joints.
- An excellent choice for sealing difficult-to-adhere-to substrates.
- Resistance to driving rain, ozone, ultra-violet light and temperature extremes safeguards against water penetration with exceptional weatherability in all climate zones.
- Wide variety of colors to choose from with custom colors and color matching also available for a particular project.
- No mixing required, so product is always ready to use for immediate application with conventional caulking equipment.
- Greenguard Gold certification ensures safety for use in the most sensitive indoor environments including hospitals and schools.
- Accepted/Compatible for use over Nudura Insulated Concrete Forms (ICF)

Availability

Immediately available from your local Tremco Sales Representative, Tremco Distributor or Tremco Warehouse.

Packaging

10.1-oz (300-mL) cartridges

20-oz (600-mL) sausages

55-gal (208-L) drums

All colors are not available in all package sizes. Contact Tremco Customer Service for more information.

Colors

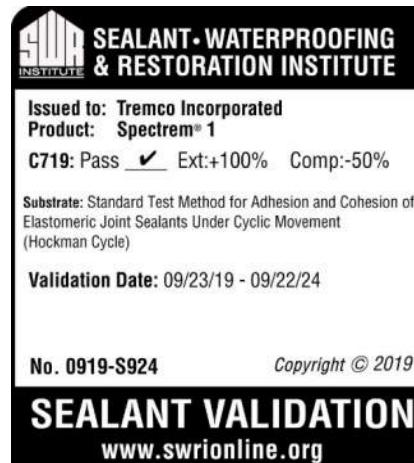
Aluminum Stone, Anodized Aluminum, Gray, Limestone, White, Off White, Precast White, Bronze, Buff, Dark Bronze, Ivory, Rustic Brick, Sandstone, Black, Adobe Tan, and Champagne.

Limitations

- Do not apply to damp or contaminated surfaces.
- Use with adequate ventilation.
- Not intended for continuous water immersion.

Substrate Preparation

Surface must be sound, clean, and dry. Contact surfaces should be free of loose dirt, dust, oils, and any other contaminants. Tremco recommends that air temperatures be 40 °F (5 °C) or above before applying any sealant. If colder weather is imminent, please refer to the Tremco Guide for Cold Weather Applications at www.tremcosealants.com.



Applicable Standards

Spectrem 1 meets or exceeds the requirements of the following specifications:

- ASTM C920 Type S, Grade NS, Class 100/50, Use NT, M, G, A and O
- ASTM C1248
- ASTM C1382
- ASTM E84
- U.S. Federal Specification TT-S-001543A (COM-NBS) Class A
- U.S. Federal Specification TT-S-00230C (COM-NBS) Class A, Type II
- CAN/CGSB 19.13-M87, MCG-2-40-B-N
- EIMA Test Method 300.01
- Spectrem 1 has been tested as a component of several wall assemblies meeting ASTM E2357, the Standard Test Method for Determining Air Leakage of Air Barrier Assemblies, and NFPA 285, the Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

Application

Spectrem 1 is easy to apply with conventional caulking equipment. Fill joint completely and tool. At 75 °F (23.9 °C), 50% RH, a durable skin will form within 10 to 30 min. Please visit www.tremcosealants.com for complete application instructions.

Joint Design

May be used in any joint designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement, but not less than 1/4" (6 mm) wide.

Joint Backing

Closed-cell polyethylene backer rods or the Tremco sealant tape illmod® 600 is preferred as joint backing to control depth of sealant bead. Where depth of joint will prevent use of joint backing, an adhesive-backed polyethylene tape

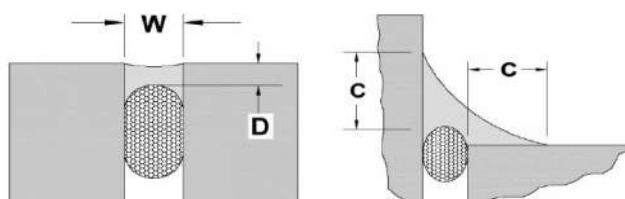
should be installed to prevent three-sided adhesion. Joint backing must be dry at time of the sealant application.

Spectrem® 1

Single-Component, Moisture-Cure Silicone Sealant

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



Expansion joints: The minimum joint width (W) and sealant contact depth (C) of any silicone sealant application is $1/4"$ by $1/4"$ (6.35 mm by 6.35 mm). It is recommended that the sealant joint depth (D), when measured from the face of the sealant bead to the crown of the backer rod, be equal to one-half the sealant joint width (W), known as 2:1 width-to-depth joint ratio. For silicone sealants, the minimum sealant joint depth (D) at crown of backer rod is $1/8"$ (3 mm) and the maximum sealant joint depth at crown of backer rod is $1/2"$ (13 mm). For joints that are wider than 1" (25 mm), contact Tremco's technical services or the Tremco sales representative nearest to the application site for additional support.

Perimeter Joints - For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum sealant contact depth [C] of $1/4"$ (6.34 mm) onto each substrate. Proper joint backing or bond breaking must be implemented to allow the sealant to perform when exposed to joint movement.

Compatibility and Continuity

Spectrem 1 Silicone Sealant is the recommended sealant for use when detailing over the ExoAir® Air Barrier system to ensure an airtight seal

throughout the building envelope. Spectrem 1 has excellent adhesion to most polyethylene-backed, self-adhering air barrier membranes.

The performance of Spectrem 1 is exceptional when used on the polyethylene face of ExoAir 110, Exoair 110AT, ExoAir TWF and the cured surface of Exoair 130, and ExoAir 230.

Spectrem 1 is recommended for use with Tremco's Silicone Rubber extrusions, Spectrem Simple Seal and Tremco's patented solution, Proglaze® ETA (Engineered Transition Assembly), for sealing between challenging conditions such as the opaque wall air barrier and window/curtain wall assemblies. For more information on Proglaze ETA, Spectrem Simple Seal, ExoAir or Tremco's Silicone Rubber Extrusions, please visit the Tremco website at www.tremcosealants.com.

Warranty

Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace, or refund the purchase price of the quantity of Tremco Products proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

Spectrem® 1

Single-Component, Moisture-Cure Silicone Sealant

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|---|------------------------|--------------------|
| As Supplied: | | |
| Curing Time | | 7 to 14 days |
| Flow, sag or slump inches | ASTM C639 | Nil |
| Full Adhesion | | 14 to 21 days |
| Tack free time | ASTM C679 | 30 to 60 min |
| Tooling Time | Skin Formation | 10 to 20 min |
| Extension | | Plus 100 |
| As Cured: After 14 days at 77 °F (25 °C), 50%RH | | |
| Hardness (shore A) | ASTM C661 | Plus 15 |
| Peel Strength Aluminum and Glass | ASTM C794 | 5.2 kN/M (30 pli) |
| Stain & Color Change | ASTM C510 TT-S-001543A | None |
| Staining of Porous Substrates White Marble Primed & Unprimed | ASTM C1248 | No Stain |
| Tear strength, die ("C") | ASTM D624 | .7 kN/M (40 pli) |
| Tensile Strength at 100% Elongation | ASTM C1184 | .24 MPa (35 psi) |
| Tensile Strength at Max Elongation | ASTM D412 | 1.38 MPa (200 psi) |

0321/SP1DS-STPlease refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.**Tremco Commercial Sealants & Waterproofing**

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma, Texas 78154
(210) / 651-9000, FAX (210) / 651-4450

PROJECT MANAGEMENT
Transmittal
No 0617

PROJECT: UT Seay Building Addition

DATE: 07/20/2021

To: BSA LifeStructures, Inc.
 9365 Counselors Row Suite 300
 Indianapolis IN 46240

RE: Curtain-Wall Head - ProGlaze - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | | SUBMITTED FOR: | | ACTION TAKEN: | |
|--|-------------------------------------|--------------------|-------------------------------------|-------------------------------------|----------------------|
| Shop Drawings | <input checked="" type="checkbox"/> | Approval | | Approved as Submitted | |
| Letter | | Your Use | | Approved as Noted | |
| Prints | | As Requested | | Returned After Loan | |
| Change Order | | Review and Comment | | Resubmit | |
| Plans | | | <input checked="" type="checkbox"/> | Submit | |
| Samples | | SENT VIA: | | Returned | |
| Specifications | | Attached | <input type="checkbox"/> | Separate Cover | |
| Other: | | | | <input checked="" type="checkbox"/> | Due Date: 06/23/2021 |
| <input checked="" type="checkbox"/> Submittal: | | | | | Other: |

| Line | Item | Package | Code | Rev. | QTY | Date | Description | Status |
|------|-----------|---------|------------|------|-----|------------|---|--------|
| 1 | Submittal | | 072726-004 | 1 | | 07/20/2021 | Curtain-Wall Head - ProGlaze - Product Data | |

REMARKS:

SpawGlass Contractors, Inc.
 REVIEWED FOR COMPLIANCE
 COMMENTS NOTED
 REVISE AND RESUBMIT
 OTHER:
 DATE 7/20/2021 SPEC# 072726
 REVIEWED BY tanner.hawkins
 SUBMITTAL# 072726-004
 APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS

Tanner Hawkins

Signed:

Tanner Hawkins

SpawGlass 07/20/21: This product is intended to be used at the curtain-wall head conditions.

ZERO/SIX
Consulting
Envelope Architecture

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

NO EXCEPTIONS NOTED
 SUBMIT SPECIFIED ITEM
 ACTION NOT REQUIRED

EXCEPTIONS NOTED
 REVISE AND RESUBMIT
 NOT REVIEWED

REVIEWED BY: Darryl Castleberry
 DATE: 2021/07/20



UT-SEAY BUILDING ADDITION

Contractor: Spawglass Contractors, Inc.

No Spec
Silicone Transition Sheet at CW Head Condition

Submittals
Product Data

Proglaze® ETA - System 3

Pressure Bar Applications U.S. Patent No. 8,096,088 B2

Product Description

Proglaze® ETA System 3 consists of pre-engineered silicone materials used as the transition assembly. The system assembly is comprised of a silicone extrusion with a small dart, which is attached to the pressure bar mullion by inserting the dart into the metal race filled with Spectrem® 1 Silicone Sealant to ensure a durable connection and positive seal. The opposite edge of the extrusion will span onto the air and vapor barrier. Proglaze ETA System 3 is comprised of the following components:

1.) **Silicone Rubber Extrusion (SRE):** Extruded, 40 durometers, translucent silicone, with a lock-in dart that will fit a majority of pressure bar race conditions. The Silicone Extrusion is available in 4", 6" and 8" widths and is packaged in 50 linear feet coils. For physical properties refer to Tremco's translucent Silicone Extruded Sheet data sheet.

2.) **Silicone Rubber Corners (SRC):** Pre-molded, 40 durometers, translucent silicone, with a lock-in dart. Silicone Rubber Corners are supplied in left and right-hand mates.

3.) **Spectrem 1 Silicone Sealant:** High movement, ultra-low modulus sealant utilized as a compatible adhesive and wet seal. For physical properties refer to Tremco's Spectrem 1 data sheet.

Basic Uses

Proglaze ETA is a transition assembly for bridging continuously between the window and/or curtain wall openings and the adjacent air and vapor barrier materials. The system's design absorbs thermal movement and wind-loading stresses. The Proglaze ETA thin cross-section and low durometer allow the system to span and seal across irregular window geometries.

The translucent silicone material allows the installer and/or inspector to see through the gasket to verify the recommended amount of sealant is properly applied to ensure an effective seal is achieved, while the ribs of the gasket's design ensure a minimum sealant thickness.

The assembly is fully compatible with most window sealants and glazing materials and bonds to the face of ExoAir® 110, ExoAir 110AT, and ExoAir TWF and to the cured surface of ExoAir 130, ExoAir 230 and Securock ExoAir 430. Not intended as a seal to untested substrates.

Availability

Please contact our Customer Service Department in Beachwood, Ohio at 800-321-7906, or Toronto at 800-363-3213.

Applicable Standards

Proglaze ETA System 3 has been tested as a component of several wall assemblies meeting ASTM E2357, the Standard Test Method for Determining Air Leakage of Air Barrier Assemblies, and NFPA 285, the Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

Limitations

- Not intended to be utilized in a permanently exposed condition unless approved by Tremco.
- Not intended as a seal to untested substrates.

Warranty

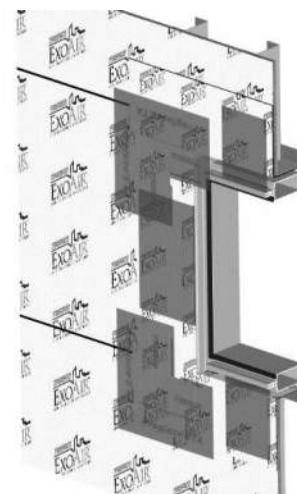
Tremco warrants its Products to be free of defects in materials but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace or refund the purchase price of the quantity of Tremco Products proven to be defective, and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.



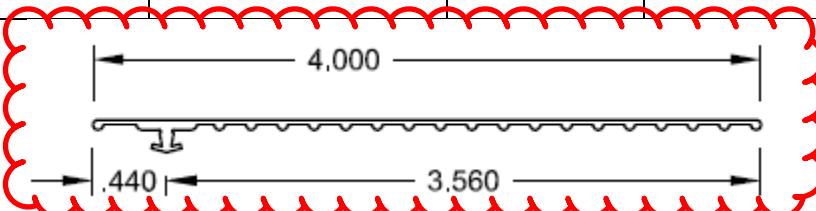
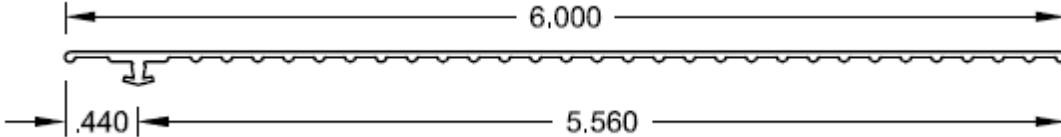
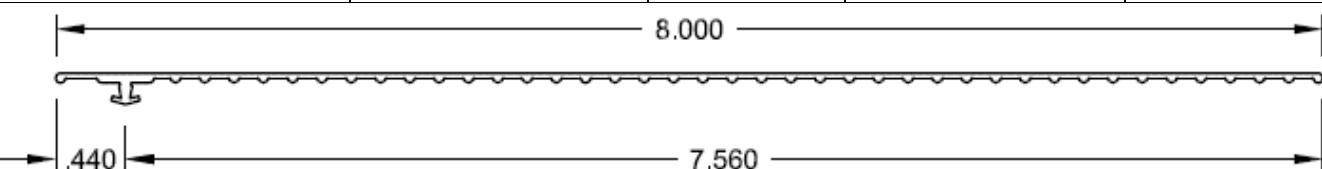
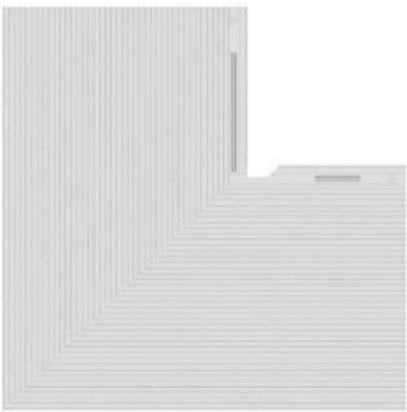
Proglaze ETA System 3 Assembly



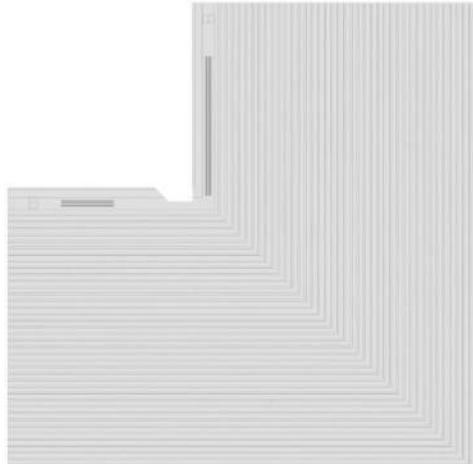
Typical System Assembly

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL RESULTS |
|--------------------------|---------------------|---|
| Uniform Static Pressure | ASTM E331 | No Leakage |
| Cyclic Static Pressure | ASTM E547 | No Leakage |
| Flame Spread | ASTM E 84 | 15 |
| Smoke Development | ASTM E 84 | 300 |
| Before Air Leakage | ASTM E 2357 | 77 Pa (1.60 psf) <0.01 cfm/ft ² (<0.05 L/s/m ²) |
| After Air Leakage | ASTM E 2357 | 300 Pa (6.27 psf) <0.01 cfm/ft ² (<0.05 L/s/m ²) |
| Uniform Load Deflection | ASTM E330 | No damage at \pm 6699 Pa (\pm 140 psf) |
| Uniform Load Deflection2 | ASTM E330 | No damage at \pm 10,049 Pa (\pm 210 psf) |
| Water Vapor Permeability | ASTM E 96 (Dry Cup) | 2.59 perms |

| SKU | Description | Width | FT/Case | Stock Class |
|---------------|--|-------|---------------|-------------|
| ETA17285S4Z | ETA SYS3- 4" SNGL RIB LINEAL W/ DART | 4 | 50 | Standard |
| |  | | | |
| SKU | Description | Width | FT/Case | Stock Class |
| ETA19186S4Z | ETA SYS3- 6" SNGL RIB LINEAL W/ DART | 6 | 50 | Standard |
| |  | | | |
| SKU | Description | Width | FT/Case | Stock Class |
| ETA16423S4Z | ETA SYS3- 8" SNGL RIB LINEAL W/ DART | 8 | 50 | Standard |
| |  | | | |
| SKU | Description | Width | FT/Case | Stock Class |
| ETA System 3A | ETA SYS3 PART A 2D MOLDED CORNER W/ DART | n/a | 8 Corners/Bag | Standard |
| |  | | | |

| SKU | Description | Width | FT/Case | Stock Class |
|---------------|---|-------|---------------|-------------|
| ETA System 3B | ETA SYS3 PART B 2D MOLDED CORNER W/ DART | n/a | 8 Corners/Bag | Standard |

**0519/PETASYS3DS-GL**Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.**Tremco Commercial Sealants & Waterproofing**

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090



SUBMITTAL REVIEW

Submittal No.: 074213.13-002

Description: Formed Metal Wall Panels - PD

Project Name: UT Austin - SEA

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

BY:

Submittal Comments:

1. Please confirm z-girt framing will comply with G90 rating per specifications.

DATE: 2020/08/18



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0313

PROJECT: UT Seay Building Addition

DATE: 08/11/2020

TO: BSA Lifestructures
AL

RE: Formed Metal Wall Panels - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 08/25/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|---------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 074213.13-002 | 1 | | 08/11/2020 | Formed Metal Wall Panels - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 8/11/2020 SPEC# 074213.13

REVIEWED BY tanner.hawkins

SUBMITTAL# 074213.13-002

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins

Tanner Hawkins



1212 E. Anderson Lane Austin Texas 78752

SARAH & CHARLES SEAY BLDG.

FORMED METAL WALL PANELS 074213.13

1. KIDD WORKMANSHIP WARRANTY
2. BERRIDGE FINISH WARRANTY
3. BERRIDGE LEED v4
4. BERRIDGE S-DECK PANELS
5. BERRIDGE COLOR CHART
6. ZEE FURRING CHANNELS
7. CONCEALER FASTENERS
8. ROCKWOOL CAVITYROCK
9. ROCKWOOL LEED v4
10. WIP 300HT
11. SPECTREM 2
12. SPECTREM 2 LEED v4

07/21/2020

LIMITED COMMERCIAL WORKMANSHIP WARRANTY

Project:

2 YEARS

Project Address:

D. R. Kidd Company, Inc. - "DRKCI" - hereby warrants, subject to the terms and conditions set forth herein, that it will, at no cost to the "Buyer", make all repairs to leaks which result from defects in workmanship and materials furnished by DRKCI, which occur within the **YEARS (2) year term** of this warranty beginning the date of substantial completion : 06/11/2014

This warranty is made under and subject to the following terms and conditions:

- (a) "Buyer" must notify DRKCI of any leaks which may require repairs under this warranty. In order to pursue a claim that DRKCI has not honored this warranty, written notice of the leak must be given to DRKCI at the address listed below. DRKCI shall make the required repairs as soon as practical upon notification of reported defects.
- (b) Repairs made by others than DRKCI shall invalidate this warranty unless preapproved by DRKCI.
- (c) Nothing in this warranty shall be construed to hold DRKCI as liable for any damage to "Buyer"s premises or any contents thereof, including the roof decking, facia and rafters. It is the "Buyer"s responsibility to periodically inspect roof, wall panels, ceilings and overhangs for signs of leakage and promptly report them to DRKCI.
- (d) DRKCI will not be responsible for any leaks caused by (1) lightning, hail, hurricane, tornado, windstorm or other weather phenomena; (2) structural elements of the building, including cracking, movement, settlement, deflection, nails, staples or other fasteners not part of DRKCI's installation which have backed out of the roof deck, deterioration and decomposition of the walls, foundation or the roof deck; (3) parapet walls, copings, chimneys, skylights, vents equipment supports and other edge conditions and penetrations of the roofing work unless the leak is caused by faulty installation of accessories which were performed by DRKCI or if such accessories were furnished by DRKCI; (4) service to or maintenance of any roof top equipment or traffic of any nature on the roof; (5) abuse, misuse, accident or negligence by any person other than DRKCI;(6) atypical flashing (height) installation(s) that are non-compliant to NRCA/SMACNA provisions due to architectural design;(7) improper drainage due to, but not limited to, existing gutters/drains/downspouts by non-compliance to construction codes or poor pitch.
- (e) Any alterations or additions to the roof surface after completion of installation by DRKCI must be approved by DRKCI in writing and DRKCI shall have the right to submit its recommendations for any new roofing or flashing materials required. Failure of the "Buyer" to adhere to these recommendations will result in cancellation of this warranty. Owners responsibility to provide roof access. Kidd not responsible for removeing or replacing roof coverings. I.E deck/pavers.
- (f) This warranty shall accrue only to the benefit of the original "Buyer" named herein. It is not transferable to any other person except with the prior written consent of DRKCI.
- (g) DRKCI shall have no obligation pursuant to this warranty until all bills for installation, supplies and services in connection with the roofing covered by this warranty have been paid in full.
- (h) DRKCI will not be liable for fasteners that back out of the roof deck or substrate which penetrate the roofing materials. This disclaimer does not relate to fasteners installed by DRKCI.
- (i) This warranty and the proposal/contract of which this warranty is a part, constitute the entire agreement between DRKCI and the "Buyer" and no other representations or agreements pertaining to the work performed by DRKCI have been made. DRKCI shall have no obligation with respect to the roof upon the expiration of the warranty period set forth above which begins on the date of substantial completion of the work as determined by DRKCI.
- (j) Any claim arising out of or relating to this contract, or breach thereof, shall be settled by arbitration, binding on both parties , in accordance with the construction industry arbitration rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

DRKCI SHALL NOT BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL INCIDENTAL OR OTHER DAMAGES. "BUYER"S SOLE REMEDY UNDER THIS WARRANTY IS THE RIGHT TO HAVE DRKCI REPAIR AT NO COST TO THE "BUYER". THOSE LEAKS IN THE ROOF WHICH RESULT FROM DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY DRKCI. THIS WARRANTY IS GIVEN AND ACCEPTED IN LIEU OF ALL OTHER LIABILITY OR WARRANTIES ON THE PART OF DRKCI, EXPRESS OR IMPLIED, IN FACT OR IN LAW. ALL IMPLIED WARRANTIES AND SPECIFICALLY THE IMPLIED WARRANTIES OF MERCHANTABILITY, HABITABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED AND DISCLAIMED.

THIS LIMITED WORKMANSHIP WARRANTY SHALL ONLY BE IN EFFECT IF THE CONTRACT WITH D. R. KIDD COMPANY, INC HAS BEEN PAID IN FULL



1212 E. Anderson Ln | Ste 200
Austin, Texas 78752
(512) 671-7791 FAX (512) 671-8707

EXPIRES:



20 YEAR

02

Kynar 500® or Hylar 5000™ Limited Warranty

MATERIAL DESCRIPTION:

JOB NAME:

SOLD TO:

INVOICE NUMBER(S):

OWNER:

EFFECTIVE DATE:

DATE OF ISSUE:

Berridge Manufacturing Company warrants that Kynar 500® or Hylar 5000™ 70% full-strength Fluoropolymer finish will perform for twenty (20) years from date of installation as an effective surfacing material within the scope of the conditions and limitations defined in this warranty document.

EFFECTIVE SURFACING MATERIAL IS DEFINED TO MEAN:

1. Freedom from cracking, chipping or peeling due to the deterioration of the finish for a period of twenty (20) years from date of purchase, exclusive of mechanical damage or other abnormal contingencies. (See Para 2).
2. Freedom from any color changes in excess of 5 NBS Units (Using the NBS unit of color notation as measured on the MEECO Colormaster: ASTM-D-2244) for a period of twenty (20) years from date of purchase.
3. Freedom from chalking in excess of Number 8 Rating (ASTM-D-659-80) for a period of twenty (20) years from date of installation.

TERMS AND CONDITIONS OF WARRANTY:

1. Berridge shall not have any obligation under this Warranty until all invoices for installation, supplies and services have been paid in full to Berridge and to the Roofer.

2. BERRIDGE HAS NO OBLIGATION NOR RESPONSIBILITY FOR DAMAGE TO FINISH OR MATERIALS CAUSED BY THE FOLLOWING CONDITIONS:

- A. Materials installed in corrosive or aggressive environments including, but not limited to, areas subject to marine conditions, salt water, salt water spray, chemicals, or harmful gases with the exception of normal air pollution.
- B. Acts of God, falling objects, fire or external forces.
- C. Abnormal or harmful gases, fumes or chemicals other than general air pollution.
- D. Physical damage after installation, intentional or unintentional, whether caused by abuse, misuse, negligence, vandalism, or excessive foot traffic on roof area.
- E. Any act or acts which damages finish after installation of materials on project.
- F. Physical damage caused during the forming process due to machinery or roll forming process used.
- G. Slopes of the roof or sections with a pitch of less than one in twenty-four or otherwise as to allow puddling or staining.
- H. Deterioration of finish or materials due to improper storage prior to or during installation process.
- I. Deterioration of the finish or substrate caused by standing water or condensation.
- J. Discoloration or damage to panel finish caused by failure to remove factory-applied protective strippable plastic film.

3. **CUSTOMER MUST NOTIFY BERRIDGE MANUFACTURING COMPANY IN WRITING WITHIN THIRTY (30) DAYS FROM DISCOVERY OF THE CONDITION WHICH IS THE BASIS OF ANY CLAIM AND ALLOW AN INSPECTION OF THE MATERIALS DURING NORMAL BUSINESS HOURS.**

4. **BERRIDGE MANUFACTURING COMPANY'S OBLIGATION WITH RESPECT TO THIS WARRANTY IS LIMITED AS FOLLOWS:**

- A. In the event of a valid claim, Berridge Manufacturing Company shall, at its option: a.) assume the reasonable costs to restore the finish on the materials; b.) furnish replacement materials; or c.) refund the original purchase price paid to Berridge for the materials less five percent (5%) for each year which has lapsed since the date of purchase of the materials.
- B. Berridge Manufacturing Company's maximum liability for any claim under this Limited Warranty will be the lesser of the three amounts calculated pursuant to a, b, or c of paragraph 4A above.
- C. It will be at the sole discretion of Berridge Manufacturing Company to determine which action will be taken with respect to any claim under this Limited Warranty.
- D. In no event shall Berridge Manufacturing Company's liability exceed the lesser of the cost of replacing or restoring the defective panels.
- E. The warranty on any repaired or replaced product shall be for the remainder of the warranty period applicable to the original purchase.
- F. **EXCEPT AS SET FORTH HEREIN, BERRIDGE MANUFACTURING COMPANY MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND HEREBY EXPRESSLY DENIES THE SAME.**
5. This warranty is tendered for the sole benefit of the original owner of the project named herein and is not transferable or assignable.
6. Berridge's only liability and responsibility is to the terms and conditions of this Warranty. This Warranty supersedes and is in lieu of any and all other warranties (whether express or implied) that are either in addition to or in conflict with the term(s) and condition(s) stated herein.
7. In the event a court of competent jurisdiction rules that any portion of this Limited Warranty is unenforceable, the remainder of this Limited Warranty shall be construed and enforced as if the stricken portion was not a part hereof originally.

What is LEED®?

Leadership in Energy and Environmental Design (LEED) is an internationally recognized certification system established by the U.S. Green Building Council (USGBC) whose goal is to promote integrated, whole-building design practices and standards for green, sustainable building and community designs emphasizing energy savings, water efficiency, CO₂ emissions reductions, improved indoor environmental quality, and stewardship of resources and their impacts on the environment.

LEED® for New Construction and Major Renovations is one component of LEED v4 and is the latest version of the USGBC's green building certification program. It recognizes the following key areas:

Sustainable Sites (SS) – 10 Possible Points

Materials & Resources (MR) – 13 Possible Points

Water Efficiency (WE) – 11 Possible Points

Innovation – 6 Possible Points

Indoor Environmental Quality (IEQ) – 16 Possible Points

Energy & Atmosphere (EA) – 33 Possible Points

Regional Priority – 4 Possible Points

Points are awarded to each category listed above depending on building performance on certain requirements and standards set forth by LEED® v4. Points are then totaled and LEED certification is granted based on the total point levels shown below:

LEED Certified – 40 to 49 Points

LEED Silver – 50 to 59 Points

LEED Gold – 60 to 79 Points

LEED Platinum – 80 to 110 Points

Summary

The use of Berridge Manufacturing metal roofing products can directly contribute up to 2 LEED® v4 credits for Heat Island Reduction, but when a "whole-building design" approach is implemented, metal roofing combined with other concerted efforts, products and building systems can contribute to other LEED® v4 credits mentioned herein as well as other credits not listed.

While every effort has been made to provide accurate information, applicants for LEED® Certification should verify compliance with a LEED® expert. For more information on LEED® v4 certification, visit www.usgbc.org.

HOW CAN USING BERRIDGE PRODUCTS CONTRIBUTE TO A LEED® CERTIFICATION ON NEW CONSTRUCTION OR MAJOR RENOVATIONS?

Sustainable Sites –

Berridge Manufacturing Company cool metal roofs have Solar Reflectance Index values that meet or exceed LEED® v4 criteria for the Heat Island Reduction credit as detailed below.

SS Credit 5: Heat Island Reduction (2 points excluding Healthcare, 1 point Healthcare)

Intent: To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

Requirements: Use roofing materials that have an SRI equal to or greater than the values in Table 1. Meet the three-year aged SRI value. If three-year aged value information is not available, use materials that meet the initial SRI value.

Table 1. Minimum solar reflectance index value, by roof slope

| | Slope | Initial SRI | 3 Year Aged SRI |
|--------------------------|-------|-------------|-----------------|
| Low Sloped Roof | <2:12 | 82 | 64 |
| Steep Sloped Roof | >2:12 | 39 | 32 |

Refer to the chart of SRI values for information on solar reflectance, thermal emissivity and Solar Reflectance Index (SRI) values for all Berridge cool metal roof colors.

Disclaimer: Due to different testing methods employed by various laboratories and paint suppliers these values may vary slightly. Refer to www.berridge.com technical bulletins for the most up to date information or contact BMC directly.

| Berridge Colors | Solar Reflectance | Emissivity | Initial SRI |
|--------------------------|-------------------|------------|-------------|
| Aged Bronze | 0.30 | 0.86 | 30 |
| Almond | 0.65 | 0.83 | 77 |
| Antique Copper Cote | 0.51 | 0.85 | 59 |
| Award Blue | 0.17 | 0.83 | 11 |
| Bristol Blue | 0.33 | 0.85 | 33 |
| Buckskin | 0.32 | 0.83 | 32 |
| Burgundy | 0.29 | 0.85 | 29 |
| Champagne | 0.40 | 0.85 | 43 |
| Charcoal Grey | 0.31 | 0.84 | 30 |
| Cityscape | 0.48 | 0.85 | 54 |
| Colonial Red | 0.33 | 0.85 | 34 |
| Copper Brown | 0.30 | 0.85 | 29 |
| Copper-Cote | 0.51 | 0.85 | 59 |
| Dark Bronze | 0.28 | 0.85 | 27 |
| Deep Red | 0.39 | 0.84 | 41 |
| Evergreen | 0.30 | 0.83 | 29 |
| Forest Green | 0.25 | 0.83 | 22 |
| Hartford Green | 0.28 | 0.83 | 26 |
| Hemlock Green | 0.31 | 0.83 | 30 |
| Lead-Cote | 0.36 | 0.86 | 38 |
| Matte Black | 0.26 | 0.89 | 26 |
| Medium Bronze | 0.31 | 0.85 | 31 |
| Natural White | 0.76 | 0.84 | 93 |
| Parchment | 0.52 | 0.83 | 58 |
| Patina Green | 0.34 | 0.86 | 36 |
| Preweathered Galvalume | 0.40 | 0.85 | 43 |
| Royal Blue | 0.26 | 0.85 | 25 |
| Shasta White | 0.60 | 0.84 | 70 |
| Sierra Tan | 0.39 | 0.85 | 42 |
| Teal Green | 0.27 | 0.87 | 27 |
| Terra-Cotta | 0.32 | 0.83 | 31 |
| Zinc-Cote | 0.53 | 0.83 | 59 |
| Zinc Grey | 0.39 | 0.85 | 42 |
| Acrylic Coated Galvalume | 0.67 | 0.06 | 55 |

SS Credit 4: Rainwater Management (1-3 points)

Berridge Manufacturing Company cool metal roofs can be used as a surface for non-potable rainwater collection and thus can contribute LEED® v4 criteria for water efficiency when integrated with rainwater collection systems.

Intent: To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site, based on historical conditions and undeveloped ecosystems in the region.

Requirements:

Option 1. Percentile of rainfall events

Path 1. 95th percentile (2 points excluding Healthcare, 1 point Healthcare)

In a manner best replicating natural site hydrology processes, manage on-site the runoff from the developed site for the 95th percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure.

Use daily rainfall data and the methodology in the U.S. Environmental Protection Agency (EPA) Technical Guidance on Implementing the Storm Water Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act to determine the 95th percentile amount.

OR

Path 2. 98th percentile (3 points excluding Healthcare, 2 points Healthcare)

Achieve Path 1 but for the 98th percentile of regional or local rainfall events, using LID and green infrastructure.

OR

Path 3. Zero lot line projects only – 85th Percentile (3 points excluding Healthcare, 2 points Healthcare)

The following requirement applies to zero lot line projects in urban areas with a minimum density of 1.5 FAR. In a manner best replicating natural site hydrology processes, manage on site the runoff from the developed site for the 85th percentile of regional or local rainfall events, using LID and green infrastructure.

Materials & Resources –

Berridge Manufacturing Company's metal products are made from 32.3% recycled content and are 100% recyclable at the end of their life. Reusing, recycling, or salvaging Berridge metal products can help contribute to the following LEED® v4 credits:

MR Credit 1: Building Life-Cycle Impact Reduction: Building and Material Reuse (2-5 points)

Intent: To encourage adaptive reuse and optimize the environmental performance of products and materials.

Requirements: Demonstrate reduced environmental effects during initial project decision-making by reusing existing building resources or demonstrating a reduction in materials use through life-cycle assessment.

Points for reuse of building materials:

| Percentage of Completed Project Surface Area Reused | Points BD&C | Points BD&C (Core and Shell) |
|---|-------------|------------------------------|
| 25% | 2 | 2 |
| 50% | 3 | 3 |
| 75% | 4 | 5 |

MR Credit 2: Building Product Disclosure and Optimization- Environmental Product Declarations (1-2 points)

Intent: To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.

Requirements:

Achieve one or more of the options for a maximum of 2 points.

Primary Steel Mills:

Processing Location: Indiana Harbor West Plant, East Chicago, IN 46312

Extraction Location: United Taconite, Ishpeming, MI 49849
Northshore Mine, Silver Bay, MN 55614

Processing Location: Fairfield Works, Fairfield, AL 35064

Extraction Location: Minntac, Mt. Iron, MN 55768
Keetac, Keewatin, MN 55753

Manufacturing Locations:

Painted: Berridge Manufacturing Company, San Antonio, TX 78218

Manufactured: Berridge Manufacturing Company, Seguin, TX 78155

Alternate Manufacturing Location: Location of Berridge Portable Roll Former used to site-form panels

All Berridge Manufacturing Company's architectural metal products are made from AZ-50 Galvalume steel extracted, harvested, or recovered from various mines in the United States as noted above. Documentation from Berridge's steel providers is inconclusive in regards to the exact extraction locations for all raw materials and recycled content. Therefore, it is not possible for Berridge to verify or document a primary extraction, harvesting, or recovery location. As such, Berridge recommends verifying compliance with a LEED® expert.

MR Credit 5: Construction and Demolition Waste Management (1-2 points)

Intent: To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovery, reusing, and recycling materials.

Requirements: Recycle and/or salvage nonhazardous construction and demolition materials. Calculations can be by weight or volume but must be consistent throughout.

Exclude excavated soil, land-clearing debris from calculations. Include materials destined for alternative daily cover (ADC) in the calculations as waste (not diversion). Include wood waste converted to fuel (bio-fuel) in the calculations; other types of waste-to-energy are not considered diversion for this credit.

Indoor Environmental Quality—

Berridge Manufacturing Company recommends using Tremco Spectrum I, Dow Corning 790, Pecora 890NST, DuraLink or Titebond Metal Roof Sealant with Berridge architectural metal products. When Berridge metal products are used for indoor product applications, the aforementioned sealants meet LEED® v4 criteria for IEQ Credits as indicated below:

Tremco Spectrum I contains 0 g/L of VOC

Dow Corning 790 contains 50 g/L of VOC

Pecora 890NST contains 98 g/L of VOC

DuraLink contains less than 19 g/L of VOC

Titebond Metal Roof Sealant contains 9 g/L of VOC

IEQ Credit 2: Low Emitting Materials (Possible 3 Points)

Intent: To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment

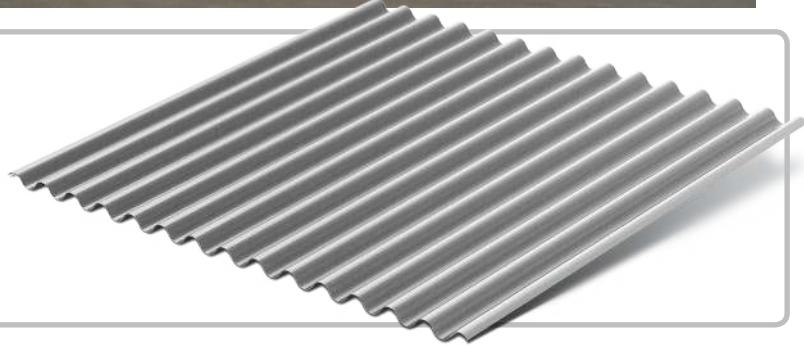
Requirements: This credit includes requirements for product manufacturing as well as project teams. It covers volatile organic compound (VOC) emissions in the indoor air and the VOC content of materials, as well as the testing methods by which indoor VOC emissions are determined. Different materials must meet different requirements to be considered compliant for this credit. The building interior and exterior are organized in seven categories, each with different thresholds of compliance. The building interior is defined as everything within the waterproofing membrane. The building exterior is defined as everything outside and inclusive of the primary and secondary weatherproofing system, such as waterproofing membranes and air and water resistive barrier materials.

Berridge S-Deck Panel

EXPOSED FASTENER PANEL SYSTEM



The Berridge S-Deck Panels are corrugated structural metal and can be installed horizontally or vertically with exposed fasteners. S-Deck may be curved making it ideal for use over covered walkways and shelters. This panel is available in two coverage options, two substrate options and is ideal for a variety of uses.



Materials

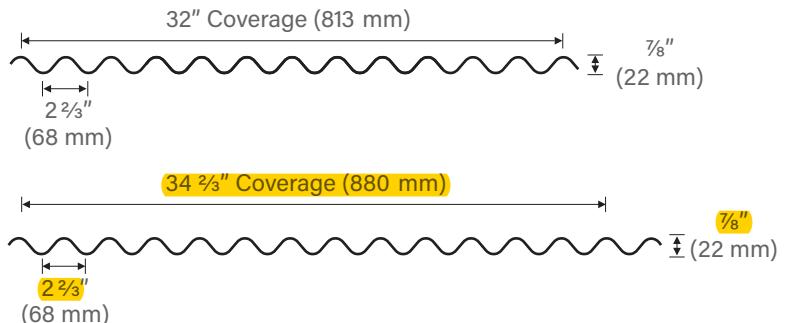
24 and 22 Gauge Steel
0.032 and 0.040 Aluminum

Specifications

Uses: Roof, Wall, Soffit, Ceiling, Fascia, Sheathing, Screen Wall
Coverage: 32" and 34 ½"
Finishes: Smooth corrugated
Fasteners: Exposed
Applications: Vertical on Roof; vertical or horizontal over open framing or solid sheathing for other uses
Optional: Factory curved for limited applications

Installation

- Panel is available from the factory in continuous lengths to a maximum of 40'
- Structural properties allow it to be utilized as a sheathing option
- Estimate 130 fasteners/sq
- Use foam closures to help prevent air infiltration at ridges, eaves, head walls, etc.
- Use expandable foam filler tape per installation details as closure at hips and valleys
- Use mastic sealant tape per installation detail at panel endlaps, sidelaps, skylights, with foam closures, etc.



Factory Curved S-Deck Installation Requirements

- Available in 32" exposure panels only
- Lapping of two corrugations on panel side lap is recommended
- Exposure: 29 ½" with two laps; 32" with one lap
- Add 6" to 8" extra to all panel lengths
- 5' Minimum radius (10' minimum radius for 22 gauge)
- 50' Maximum radius

Pictured Above

Project: Wildland Fire Station, City of Boulder, CO
Architect: ALLRED & Associates
General Contractor: Symmetry Builders, Inc.
Installing Contractor: Bighorn Metal Works, Inc.
Color: Burgundy

BERRIDGE S-DECK PANEL TESTING AND CERTIFICATION SUMMARY CHART

04

| CATEGORY | CHARACTERISTIC | TEST METHOD | PURPOSE | RESULT |
|---------------|---|-------------|---|--|
| PERFORMANCE | <input type="checkbox"/> Uplift Resistance | ASTM E-1592 | Test method to determine uplift resistance of open framing systems | See Load Chart on Berridge website |
| FIRE | <input checked="" type="checkbox"/> Room Fire Performance | UL 790 | Test methods for fire tests of roof coverings | Class A Rating |
| ENVIRONMENTAL | <input checked="" type="checkbox"/> Impact Resistance | UL 2218 | Impact resistance of prepared roof coverings | Class 4 Rating |
| ROOF LISTINGS | <input type="checkbox"/> Florida Product Approval | TAS 125 | Local and state approval of products and systems for compliance with the structural requirements of the Florida Building Code | FL# 9000.1 (24 GA-16 or 20 GA Purlins) FL# 14210.9 (24 GA-Purlins) FL# 14669.6 (24 GA-Girts) FL# 18522.2 (0.032 AL-Purlins) |
| | <input type="checkbox"/> TDI Listed | ASTM E-1592 | Texas Department of Insurance Listing for wind capacities | RC-207 (24 GA-Purlins) RC-559 (0.032 AL-Purlins) |

- Steel only - Steel and Aluminum
For further details please visit www.berridge.com



CORPORATE HEADQUARTERS
2610 Harry Wurzbach Road
San Antonio, TX 78209
(800) 669-0009
www.Berridge.com



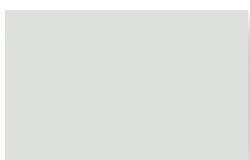
BERRIDGE MANUFACTURING COMPANY

KYNAR 500®/HYLAR 5000® COLOR FINISHES

05

(210) 650-3050
www.berridge.com

Standard Colors



Shasta White



Parchment



Almond



Sierra Tan



Buckskin



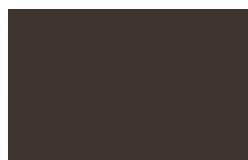
Medium Bronze



Aged Bronze



Copper Brown



Dark Bronze



Terra-Cotta



Deep Red



Colonial Red



Burgundy



Bristol Blue



Royal Blue



Patina Green



Hemlock Green



Teal Green



Forest Green



Evergreen



Hartford Green



Cityscape



Zinc Grey



Charcoal Grey



Matte Black

Premium Colors

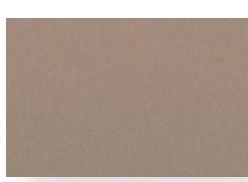
Berridge premium colors require a nominal surcharge.



Natural White



Award Blue



Champagne



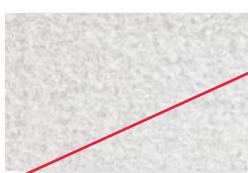
Copper-Cote™



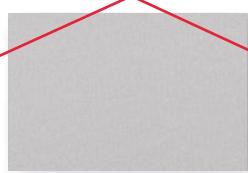
Antique Copper-Cote

Natural Metal Finish

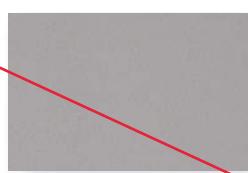
Berridge Acrylic-Coated Galvalume® is a coated sheet product that combines the corrosion resistance of Galvalume® steel sheet with a clear, organic resin applied to the top side and bottom side of Galvalume® substrate.



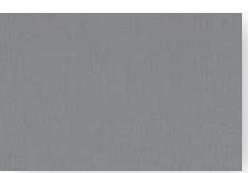
Acrylic-Coated Galvalume®



Zinc-Cote™



Lead-Cote™



Preweathered Galvalume®

Please consult the BMC Technical department at Technical@Berridge.com for LEED and Energy Star compliance information.
Due to limitations in the printing process, please request actual color chips for accurate color viewing.

Energy Star is
only valid in the
United States

S - Stock Color N - Non-Stocking Color N/A - Not Available

| Standard Colors | 24 Gauge | | 22 Gauge* | | 0.032 Aluminum* | | 0.040 Aluminum* | | SR | EM | SRI |
|---------------------------|----------|-----|-----------|-----|-----------------|-----|-----------------|-----|------|------|-----|
| | 48" | 42" | 48" | 42" | 48" | 42" | 48" | 42" | | | |
| Aged Bronze | S | S | S | N | S | N | S | N/A | 0.30 | 0.86 | 30 |
| Almond | S | S | S | N | S | N | S | N/A | 0.65 | 0.83 | 77 |
| Bristol Blue | S | S | N | N | N | N | N | N/A | 0.33 | 0.85 | 33 |
| Buckskin | S | S | S | N | N | N | N | N/A | 0.32 | 0.83 | 32 |
| Burgundy | S | S | N | N | N | N | N | N/A | 0.29 | 0.85 | 29 |
| Charcoal Grey | S | S | S | N | N | N | N | N/A | 0.31 | 0.84 | 30 |
| Cityscape | S | S | N | N | N | N | N | N/A | 0.48 | 0.85 | 54 |
| Colonial Red | S | S | N | N | N | N | N | N/A | 0.33 | 0.85 | 34 |
| Copper Brown | S | S | N | N | N | N | N | N/A | 0.30 | 0.85 | 29 |
| Dark Bronze | S | S | S | N | S | N | S | N/A | 0.28 | 0.85 | 27 |
| Deep Red | S | S | N | N | N | N | N | N/A | 0.39 | 0.84 | 41 |
| Evergreen | S | S | N | N | N | N | N | N/A | 0.30 | 0.83 | 29 |
| Forest Green | S | S | S | N | N | N | N | N/A | 0.25 | 0.83 | 22 |
| Hartford Green | S | S | N | N | N | N | N | N/A | 0.28 | 0.83 | 26 |
| Hemlock Green | S | S | N | N | N | N | N | N/A | 0.31 | 0.83 | 30 |
| Matte Black | S | S | N | N | N | N | N | N/A | 0.26 | 0.89 | 26 |
| Medium Bronze | S | S | S | N | S | N | S | N/A | 0.31 | 0.85 | 31 |
| Parchment | S | S | S | N | S | N | S | N/A | 0.52 | 0.83 | 58 |
| Patina Green | S | S | N | N | N | N | N | N/A | 0.34 | 0.86 | 36 |
| Royal Blue | S | S | N | N | N | N | N | N/A | 0.26 | 0.85 | 25 |
| Shasta White | S | S | S | N | S | N | S | N/A | 0.60 | 0.84 | 70 |
| Sierra Tan | S | S | S | N | S | N | S | N/A | 0.39 | 0.85 | 42 |
| Teal Green | S | S | N | N | N | N | N | N/A | 0.27 | 0.87 | 27 |
| Terra - Cotta | S | S | N | N | N | N | N | N/A | 0.32 | 0.83 | 31 |
| Zinc Grey | S | S | S | N | S | N | S | N/A | 0.39 | 0.85 | 42 |
| Acrylic-Coated Galvalume® | S | S | S | S | N/A | N/A | N/A | N/A | 0.67 | 0.20 | 59 |
| Premium Colors* | | | | | | | | | | | |
| Award Blue | S | S | N | N | N | N | N | N/A | 0.17 | 0.83 | 11 |
| Natural White | S | S | N | N | N | N | N | N/A | 0.76 | 0.84 | 93 |
| Metallic Colors* | | | | | | | | | | | |
| Antique Copper-Cote | S | S | N | N | N | N | N | N/A | 0.33 | 0.84 | 34 |
| Champagne | S | S | N | N | N | N | N | N/A | 0.40 | 0.85 | 43 |
| Copper-Cote™ | S | S | N | N | N | N | N | N/A | 0.51 | 0.85 | 59 |
| Lead-Cote™ | S | S | N | N | N | N | N | N/A | 0.46 | 0.84 | 50 |
| Prewheathered Galvalume® | S | S | N | N | N | N | N | N/A | 0.40 | 0.85 | 43 |
| Zinc-Cote™ | S | S | N | N | N | N | N | N/A | 0.53 | 0.83 | 59 |

S - Stock Color; Not subject to a minimum order

N - Non-Stock Color; Subject to inventory on hand; 4,500 sf minimum order for 22 Gauge and 0.032 & 0.040 Aluminum

N/A - Not Available

* Consult BMC on product availability for 22 Gauge and 0.032 and 0.040 Aluminum. Premium and Metallic colors are subject to a surcharge, contact BMC for additional information

Testing results for Kynar 500®/Hylar 5000® coil coating applications:

- Specular Gloss: (ASTM D-523) Low and medium gloss only
- Color Uniformity: (ASTM D-2244) Color controlled both instrumentally and visually
- Dry Film Thickness: (ASTM D-7091, ASTM D-1005, NCCA 11-13, 11-14, 11-15) Primer 0.20 ± 0.05 mil, Topcoat 0.75 ± 0.05 mil
- Hardness: (ASTM D-3363, NCCA 11-12, Eagle Turquoise Pencils) HB Minimum
- Adhesion (X-Cut): (ASTM D-3359) No adhesion loss
- Adhesion (Crosshatch): (ASTM D-3359) No adhesion loss
- Abrasion Coefficient: (ASTM D-968) 100 liters/mil topcoat
- Direct Impact Flexibility: (ASTM D-2794, Gardner Impact Tester, 1/10" Distortion) Excellent, no removal
- Reverse Impact Flexibility: (NCCA Spec. 11, ASTM D-2794, Gardner Impact Tester, 5/8" ball Impact force in inch pounds equal to metal thickness) Excellent, no cracking or loss of adhesion
- Formability: (ASTM D-4145, 180° T-Bend on 1/8 Mandrel) No cracks or loss of adhesion
- Erosion: (20 years, 45° South Florida) Maximum 15% loss
- Humidity Resistance: (ASTM D-2247) Passes 2000 hours on Galvalume® and 4000 hours on Aluminum
- Acid Resistance: (ASTM D-1308, Proc. 3.1.1, 10% Sulfuric Acid spot test, 24 hour exposure) Excellent, no effect
- Salt Spray Resistance: (ASTM B-117) Passes 2000 hours on Galvalume® and 4000 hours on Aluminum
- Alkali Resistance: (ASTM D-1308, Proc. 5.2, 10% Sodium Hydroxide, 24 hour exposure) Excellent, no effect
- Detergent Resistance: (ASTM D-2248, 72 hours immersion in 3% solution at 100°F) Excellent, no effect
- Resistance to Acid Pollutants: (ASTM D 1308 Proc. 3.1.1, 24 hour exposure 10% HNO₃ vapors) Excellent, no effect
- Weathering - Color Retention: (ASTM D-2244, 20 years, 45° South Florida) Maximum 5 NBS units color change
- Weathering - Chalk Resistance: (ASTM D-4214, 20 years, 45° South Florida) Not worse than No. 8 rating

Notes:

1. ASTM - American Society for Testing Materials

2. NCCA - National Coil Coaters Association

3. Galvalume® is 55% Aluminum-Zinc alloy coated sheet steel and is a registered trademark of BIEC International Inc.

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Fax: 562-865-7878

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210-650-3050 • Fax 210-650-0379

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830-401-5200 • Fax: 830-303-0530

Roofs of Distinction

www.berridge.com

Spring 2018 - Berridge Color Chart - 15M Printed in the U.S.A.

Custom Z-Furring Channel

Custom: 1" leg x 1-1/4" leg x 2" Depth x Gauge (see below)

A 10'-0" long galvanized steel product, which is often field cut to job site conditions for the ultimate use as a connector for framing members. On interior framing it is often used to secure drywall at corner intersections or along horizontal planes. It can also be used as a half-track in chase and furred walls.

Product Data & Ordering Information:

Material: All Non-Structural Material: Grade 33ksi min. yield strength, G40
(G60/G90 Available upon special order)

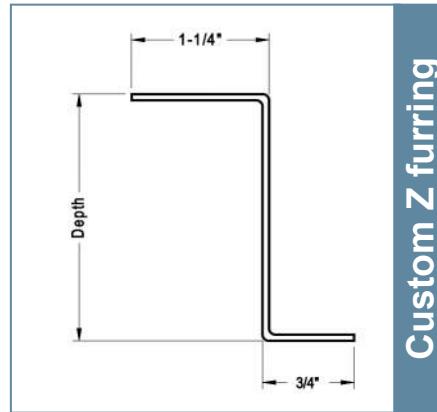
18mils: 25 Gauge, 0.0188" Design Thickness, 0.0179" Min. Thickness
30mils: 20ga DW, 0.0312" Design Thickness, 0.0296" Min. Thickness

All Structural Material: Grade 33ksi min. yield strength, G60
(50ksi and G90 material available)

33mils: 20ga STR, 0.0346" Design Thickness, 0.0329" Min. Thickness
43mils: 18 Gauge, 0.0451" Design Thickness, 0.0428" Min. Thickness
54mils: 16 Gauge, 0.0566" Design Thickness, 0.0538" Min. Thickness
68mils: 14 Gauge, 0.0713" Design Thickness, 0.0677" Min. Thickness
97mils: 12 Gauge, 0.1017" Design Thickness, 0.0966" Min. Thickness

Dimensions:
Leg #1: Width = 1" Min.
Leg #2: Width = 1-1/4" Min.
Depth = 2" Min.

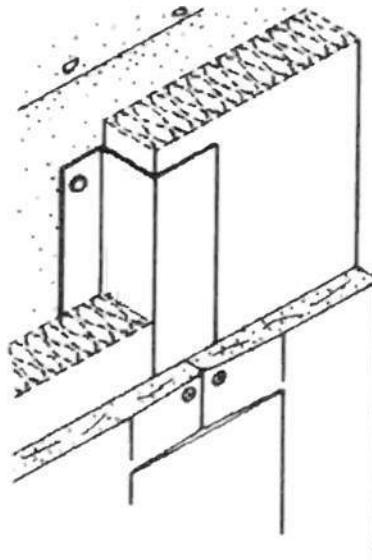
Stock Lengths: 10'-0" long
Packaging: (10) pieces per bundle – (280) pieces per pallet



Custom Z furring

ASTM & Code Standards:

- Structural framing is produced to meet or exceed ASTM C955
- Drywall framing is produced to meet or exceed ASTM C645
- Galvanized sheet steel meets or exceeds requirements of A653 and A1003
- For installation & storage information refer to ASTM C754
- MSDS & Product Certification Information is available at www.clarkdietrich.com



Related Accessories:

- Other profile depths available: 1", 1-1/2", 2", 2-1/2" and 3"
- 7/8" and 1-1/2" Furring / Hat Channel
- Single and Double Leg Resilient Channel

GREEN Benefits and Recycled Content:

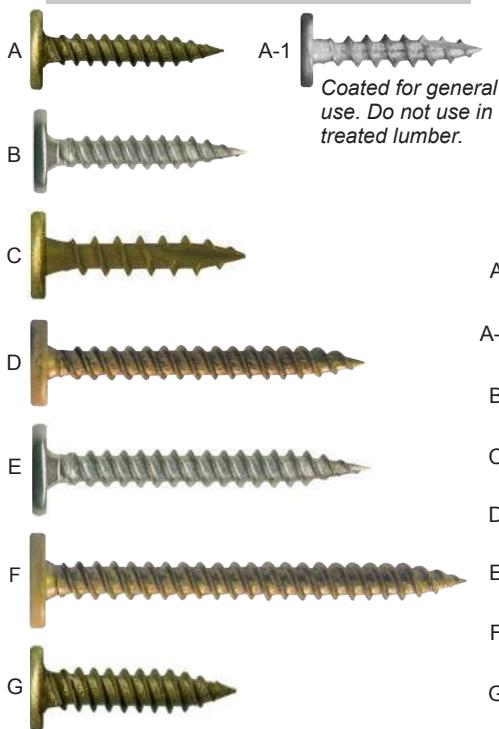
LEED Credit MR 2 - ClarkDietrich products are manufactured from cold-formed steel. Steel is 100% recyclable, which helps divert debris from the waste stream. The contribution to LEED must be calculated by the contractor based on weight or volume.

LEED Credit MR 4 – ClarkDietrich's steel products have a minimum of 25.5% post-consumer recycled content, and 6.8% pre-consumer. If you wish to report a higher number for your project or seek Credit MR 5 please contact Tech Support at 888-437-3244 or visit www.clarkdietrich.com.

| Project Information | Contractor Information | Architect Information |
|-----------------------------------|-------------------------------------|-------------------------------------|
| Name: Address: City/ST/ZIP: | Name: Contact: Phone: Fax: | Name: Contact: Phone: Fax: |

WOOD OR THIN METAL

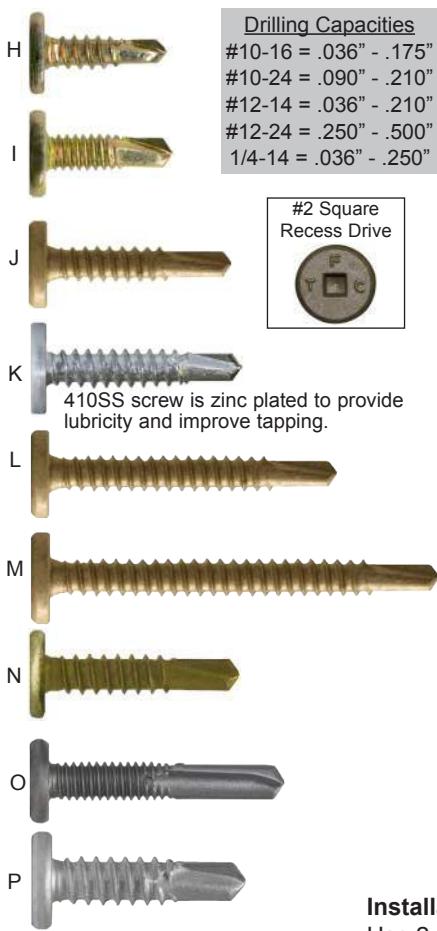
Piercing Capacity: CS & 410SS <=20 ga


#10, #12, & 1/4" PIERCING POINTS AND DRILL POINTS

CONCEALOR® low profile head fasteners are engineered to perform in a variety of applications. They are specified in many metal roofing systems to attached SSR clips to metal or wood. They are easy to install and provides optimal strength.

Sizes

| | Description | Load Bearing Length (Max) | Part Number | Box Quantity | WT Per Box |
|-----|---|---------------------------|----------------|--------------|------------|
| A | #10-13 X 1" GP Long-life TRI-SEAL® coated | 1" | 10100SPCGCSTS | 5,000 pcs | 36.0 lbs. |
| A-1 | #10-9 X 1" Type 17 Coated for general use | 1" | 10100SPC17CSCZ | 5,000 pcs | 36.0 lbs. |
| B | #10-13 X 1" GP 302 Stainless Steel | 1" | 10100SPCGS3 | 5,000 pcs | 39.0 lbs. |
| C | #10-9 X 1-1/8" TYPE 17 Long-life TRI-SEAL® coated | 1-1/8" | 10112SPC17CSTS | 5,000 pcs | 40.0 lbs. |
| D | #10-13 X 1-1/2" GP Long-life TRI-SEAL® coated | 1-1/2" | 10150SPCGCSTS | 3,000 pcs | 31.0 lbs. |
| E | #10-13 X 1-1/2" GP 302 Stainless Steel | 1-1/2" | 10150SPCGS3 | 3,000 pcs | 32 lbs. |
| F | #10-13 X 2" GP Long-life TRI-SEAL® coated | 2" | 10200SPCGCSTS | 1,500 pcs | 19.0 lbs. |
| G | #12-11 X 1" GP Long-life TRI-SEAL® coated | 1" | 12100SPCGCSTS | 5,000 pcs | 44.0 lbs. |

METAL SUBSTRATES


| | | | | | |
|---|---|-------|---------------|-----------|-----------|
| H | #10-16 X 5/8" DP3 .0003" Zinc and Yellow | .125" | 10062SPC3CS | 5,000 pcs | 27.0 lbs. |
| I | #10-24 X 5/8" DP3 .0003" Zinc and Yellow | .125" | 10062PPC3CSYZ | 5,000 pcs | 27.0 lbs. |
| J | #10-16 X 1" DP3 Long-Life TRI-SEAL® coated | .500" | 10100SPC3CSTS | 5,000 pcs | 37.0 lbs. |
| K | #10-16 X 1" DP3 410 Stainless Steel / ZP for lubricity. | .500" | 10100SPC3S4 | 5,000 pcs | 37.0 lbs. |
| L | #10-16 X 1-1/2" DP3 Long-Life TRI-SEAL® coated | 1" | 10150SPC3CSTS | 3,000 pcs | 32.0 lbs |
| M | #10-16 X 2" DP3 Long-Life TRI-SEAL® coated | 1.5" | 10200SPC3CSTS | 1,500 pcs | 21.0 lbs. |
| N | #12-14 X 1" DP3 Long-Life TRI-SEAL® coated | .375" | 12100SPC3CSTS | 5,000 pcs | 43.0 lbs. |
| O | #12-24 X 1-1/4" DP5 Long-Life TRI-SEAL® coated | .500" | 12125SPC5CSTS | 4,000 pcs | 52.0 lbs. |
| P | #12-24 X 1-1/2" DP5 Long-Life TRI-SEAL® coated | .625" | 12150SPC5CSTS | 4,000 pcs | 43.8 lbs. |
| | 1/4-14 X 1" DP3 Long-Life TRI-SEAL® coated | .325" | 14100SPC3CSTS | 2,500 pcs | 27.0 lbs. |

Bagged 250 pcs. per bag for your convenience!

SPECIAL APPLICATIONS

We can assemble CONCEALOR® with a bonded sealing washer that locks out weather and looks appealing!



We can color match to your exact requirements in three days or less!

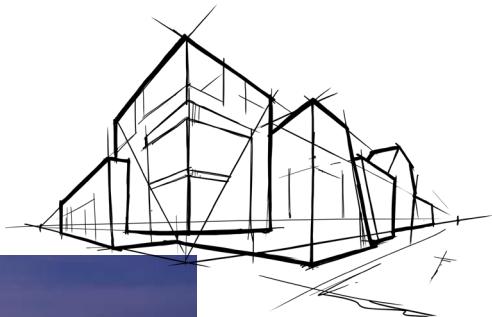

Installation: Do not use impact drivers!

Use 2,500 RPM max variable speed screw drivers with torque control or depth sensing nosepiece.

Army Corps of Engineers

Cavityrock®

Exterior Insulation for Cavity Wall
and Rainscreen Applications



Rush University Medical Center, Chicago, IL

ROCKWOOL Cavityrock® semi-rigid stone wool insulation board available in mono and dual density is designed for exterior cavity wall and rainscreen applications. Choose mono-density insulation in thicknesses up to 2" or dual-density in thicknesses of 2.5" to 6".

Compatible with numerous cladding attachment systems, Cavityrock® is a durable solution with non-combustible characteristics meaning that the insulation will not develop toxic smoke or promote flame spread even when directly exposed to fire. Approved for use in many NFPA 285-compliant designs, it is an important component of fire-resilient exterior wall systems when used as a continuous insulation.

Cavityrock® also offers energy efficiency with reliable thermal performance, improved acoustic comfort, and is moisture resistant to maintain insulating value for the long-term.

Also available in a black mat facer finish for open-joint cladding systems, Cavityrock® Black combines your insulation install with masking in a single step, reducing installation time and material cost to achieve your desired design aesthetic.

Learn more at rockwool.com/products/cavityrock/



Cavityrock® Black: Now available with black mineral fiber facing for open-joint cladding systems.

Fire Performance

The non-combustible characteristics of Cavityrock® insulation mean that it will not develop toxic smoke or promote flame spread even when directly exposed to fire.



Cavityrock®

Exterior Insulation for Cavity Wall and Rainscreen Applications

Technical Data Sheet

Board Insulation 07210* • Board Insulation 07 21 13**
Cavity Wall Unit Masonry 04 27 23**

ROCKWOOL Cavityrock® is a semi-rigid stone wool insulation board designed for exterior cavity wall and rainscreen applications. Compatible with numerous cladding attachment systems, Cavityrock® is non-combustible and available with a black mineral fleece facing for open-joint cladding systems.

| | Performance | Test Standard | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|------------------|---------|--------|---------|--------|---------|-----|------|------|------|------|------|------|------|-----|----|------|------|------|------|------|------|---|----|------|------|------|------|-----|------|-----|-----------|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant MEA Approval, New York City Approval For information on CAN/ULC S702 compliance, contact ROCKWOOL Technical Support | ASTM C612 236 - 05 - M | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Behaviour of materials at 750°C - Non Combustible | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reaction to fire (with black mat facer) | Flame spread index = 10; Smoke developed index = 25 Flame spread index = 10; Smoke developed index = 10 | ASTM E84 (UL 723) CAN/ULC S102 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monolithic Density (thickness: 1", 1.5", 2") | > 4.3 lbs/ft³ (>69 kg/m³)* * Density will change with thickness, please contact ROCKWOOL for more information | ASTM C303 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Density (thickness ≥ 2.5") | Dual Density - 6.2 lbs/ft³ (100 kg/m³) outer layer and 3.8 lbs/ft³ (61 kg/m³) inner layer | ASTM C303 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimensional Stability | Linear Shrinkage = 0.7% @ 1200°F (650°C) | ASTM C356 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4.3 hr.ft².F/Btu 0.75 m²K/W | ASTM C518 (C177) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reaction to Moisture | Moisture Sorption - 0.03% by volume Water Vapor Transmission, Desiccant Method - 1555ng/Pa.s.m² (27 perm) Determination of Fungi Resistance - Passed | ASTM C1104 ASTM E96 ASTM C1338 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reaction to moisture (with black mat facer) | Moisture Sorption - 0.65% by volume Water Vapor Transmission, Desiccant Method - 2435ng/Pa.s.m² (43 perm) Determination of Fungi Resistance - Passed | ASTM C1104 ASTM E96 ASTM C1338 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimensions | 1" (25.4 mm) to 4" (101.6 mm) in 1/2" increments. 5" (127 mm) and 6" (152.4 mm) 24" x 48" (610 mm x 1219 mm) and 16" x 48" (406 mm x 1219 mm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimensions (with black mat facer) | 2" (25.4 mm) to 6" (101.6 mm) in 1" increments (5" and 6" limited to 24 x 48 dimension) 24" x 48" (610 mm x 1219 mm) and 16" x 48" (406 mm x 1219 mm) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acoustical Performance | <table border="1"> <thead> <tr> <th>Thickness</th> <th>125 Hz</th> <th>250 Hz</th> <th>500 Hz</th> <th>1000 Hz</th> <th>2000Hz</th> <th>4000 Hz</th> <th>NRC</th> </tr> </thead> <tbody> <tr> <td>1.5"</td> <td>0.19</td> <td>0.55</td> <td>1.03</td> <td>1.06</td> <td>1.02</td> <td>1.01</td> <td>0.9</td> </tr> <tr> <td>2"</td> <td>0.26</td> <td>0.71</td> <td>1.14</td> <td>1.09</td> <td>1.04</td> <td>1.03</td> <td>1</td> </tr> <tr> <td>3"</td> <td>0.72</td> <td>0.93</td> <td>0.88</td> <td>0.84</td> <td>0.9</td> <td>0.97</td> <td>0.9</td> </tr> </tbody> </table> | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | 1.5" | 0.19 | 0.55 | 1.03 | 1.06 | 1.02 | 1.01 | 0.9 | 2" | 0.26 | 0.71 | 1.14 | 1.09 | 1.04 | 1.03 | 1 | 3" | 0.72 | 0.93 | 0.88 | 0.84 | 0.9 | 0.97 | 0.9 | ASTM C423 |
| Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.5" | 0.19 | 0.55 | 1.03 | 1.06 | 1.02 | 1.01 | 0.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2" | 0.26 | 0.71 | 1.14 | 1.09 | 1.04 | 1.03 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3" | 0.72 | 0.93 | 0.88 | 0.84 | 0.9 | 0.97 | 0.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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Please contact ROCKWOOL for
Declare labels for other ROCKWOOL
manufacturing facilities.

NOTE: *Master Format 1995 Edition **Master Format 2004 Edition. As ROCKWOOL has no control over installation design and workmanship, accessory materials or application conditions, ROCKWOOL does not warranty the performance or results of any installation containing ROCKWOOL's products. ROCKWOOL's overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.

ROCKWOOL LEED v4 Solutions Guide

The right choice for creating sustainable buildings and achieving LEED® certification.



The ROCKWOOL Group is the world leader in stone wool solutions. Our product portfolio is well placed to tackle many of today's biggest sustainability and development challenges and we offer carefully designed, innovative sustainable solutions for your comfort, safety and for the benefit of the environment.

Our products

ROCKWOOL stone wool insulation products not only help in creating sustainable buildings; they are made from a natural fire safe and durable material with no added flame retardants or blowing agents.

Rock: A natural, renewable resource

All ROCKWOOL products are made from stone wool – consisting of a blend of naturally occurring volcanic diabase rock. This stone is a renewable and plentiful natural resource in itself, but just as importantly our high-tech production process ensures that all our insulation products are produced in a sustainable and environmentally responsible way.

Major energy savings

One of the best ways to reduce the energy consumption of a building is through proper insulation. ROCKWOOL stone wool products are a major energy and CO₂ saver, as they allow new and existing buildings to benefit from durable, efficient and

versatile thermal insulation. Actually, the energy savings obtained from installing the right insulation will outweigh the energy consumption used for its production in just a few months time.

In most cases, properly installed insulation can cut the building's energy need for heating or cooling of up to 70-90%. In addition, ROCKWOOL insulation works continuously and requires no maintenance or replacement. In other words, it's an investment, which will quickly pay off!

Creating sustainable buildings

The LEED® v4 Green Building Rating System includes revised performance criteria for certifying the design and construction of commercial, institutional and residential buildings. LEED® works for all buildings anywhere, regardless of where they are in their life cycle and the process is designed to inspire innovative solutions that support healthy, highly efficient and cost-saving green buildings during the design, construction, operation and maintenance of these high-performance structures.

ROCKWOOL insulation is the right choice for creating sustainable buildings and achieving LEED® v4 points for your high-performance buildings.



Energy & Atmosphere

Minimum energy performance & Optimize energy performance

Energy efficient building design requires a well-insulated and properly constructed building envelope. ROCKWOOL provides a range of thermal insulation products that can be used on the exterior, interior or both to achieve the prerequisite minimum energy performance and optimized energy performance credits.



Materials & Resources

Building life-cycle impact reduction

A properly constructed and well-insulated building envelope utilizing the long lasting high performance of ROCKWOOL thermal insulation products can assist your project team in achieving the building life-cycle impact reduction through a whole-building life-cycle assessment.

Building product disclosure and optimization - environmental product declarations

ROCKWOOL can deliver third-party UL certified industry wide cradle-to-grave EPDs according to ISO 14025 and ISO 14044 and are available for download at

www.ROCKWOOL.com.

Building product disclosure and optimization - sourcing of raw materials

The ROCKWOOL Group Code of Conduct for Suppliers addresses topics such as equal opportunities, trade union recognition, fair employment terms and the abolition of child labour. This document must be signed by all of our major suppliers including but not limited to suppliers of raw materials and equipment for repair, maintenance, operations as well as suppliers with whom we spend more than US \$100,000. Currently, 75% of our key suppliers have already signed the Code of Conduct.

The ROCKWOOL Group procurement policy provides opportunity to engage with our suppliers on social and ethical topics, and implies that high-risk suppliers will be audited against our Code of Conduct. The ROCKWOOL Group has adopted the ICC "Business Charter for Sustainable Development – Principles for Environmental Management", where our suppliers are also required to ensure their own suppliers meet the same standards.

Our commitment is documented through our corporate governance published in the ROCKWOOL Group Annual Report as well as the ROCKWOOL Group Sustainability Report which is self-declared and follows the Global Reporting Initiative (GRI) Sustainability Report CSR framework (GRI G4).

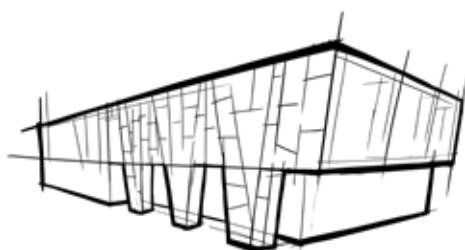
Building product disclosure and optimization - material ingredients

ROCKWOOL stone wool products are made up of approximately 97 percent minerals such as volcanic rock, as well as upcycled and recycled materials from our factories and other industries that might otherwise be landfilled or downcycled. Stone wool is also fully recyclable and can be recycled again and again without degrading its quality.

ROCKWOOL values transparency and has published complete content inventory for the product at 0.1% (1000 ppm) identified by name and Chemical Abstract Service Registration Number (CASRN), disclosing role, amount and hazard screen using GreenScreen benchmark, as defined in GreenScreen v1.2. Our AFB evo™ product also holds a Declare label.

≤ 40 %

The average recycled content of the stone wool core is up to 40%, depending on production site and product.



ROCKWOOL Products for LEED® v4

09

| | | Energy and Atmosphere (EA) | | Materials & Resources (MR) | | | Indoor Environmental Quality (EQ) | | | | |
|--------------------------|---------------------|----------------------------|-----------------------------|--------------------------------------|---|--|---|--------------------------------|------------------------|-----------------|----------------------|
| | | Minimum Energy Performance | Optimize Energy Performance | Building Life-Cycle Impact Reduction | Building Product Disclosure and Optimization - Environmental Product Declarations | Building Product Disclosure and Optimization - Sourcing of Raw Materials | Building Product Disclosure and Optimization - Material Ingredients | Minimum Acoustical Performance | Low-Emitting Materials | Thermal Comfort | Acoustic Performance |
| ROCKWOOL Products | | | | | | | | | | | |
| Walls | Exterior Walls | | | | | | | | | | |
| | CAVITYROCK™ | x | x | x | x | x | x | x | x | x | x |
| | COMFORTBOARD™ 110 | x | x | x | x | x | x | x | x | x | x |
| | COMFORTBOARD™ 80 | x | x | x | x | x | x | x | x | x | x |
| | COMFORTBATT® | x | x | x | x | x | x | x | x | x | x |
| | Interior Walls | | | | | | | | | | |
| | AFB® | | | x | x | x | x | x | x | x | x |
| | AFB evo™ | | | x | x | x | Declare | x | x* | x | x |
| | SAFE'n'SOUND® | | | x | x | x | x | x | x | x | x |
| | ROCKBOARD® 40/60/80 | | | x | x | x | x | x | x | x | x |
| | Curtain Wall | | | | | | | | | | |
| | CURTAINROCK® 40/80 | x | x | x | x | x | x | x | x | x | x |
| | Firestopping | | | | | | | | | | |
| | ROXUL SAFE™ | | | | x | x | x | x | | | x |
| | ROXUL SAFE™ 45 | | | | x | x | x | x | | | x |
| | Metal Building | | | | | | | | | | |
| | PLUS™ MB | x | x | x | x | x | x | x | x | x | x |
| | ROXUL SAFE™ 65 | x | x | x | x | x | x | x | x | x | x |
| | ROXUL SAFE™ 55 | x | x | x | x | x | x | x | x | x | x |
| | Sandwich Wall | | | | | | | | | | |
| | CONROCK 60° | x | x | x | x | x | x | x | x | x | x |
| | CONROCK® | x | x | x | x | x | x | x | x | x | x |
| Roofs | Flat Roof | | | | | | | | | | |
| | TOPROCK® DD | x | x | x | x | x | x | x | x | x | x |
| | TOPROCK® DD PLUS | x | x | x | x | x | x | x | x | x | x |
| | ROCKWOOL MULTIFIX™ | x | x | x | x | x | x | x | x | x | x |
| | MONOBOARD® | x | x | x | x | x | x | x | x | x | x |
| | MONOBOARD® Plus | x | x | x | x | x | x | x | x | x | x |

* UL validated formaldehyde free

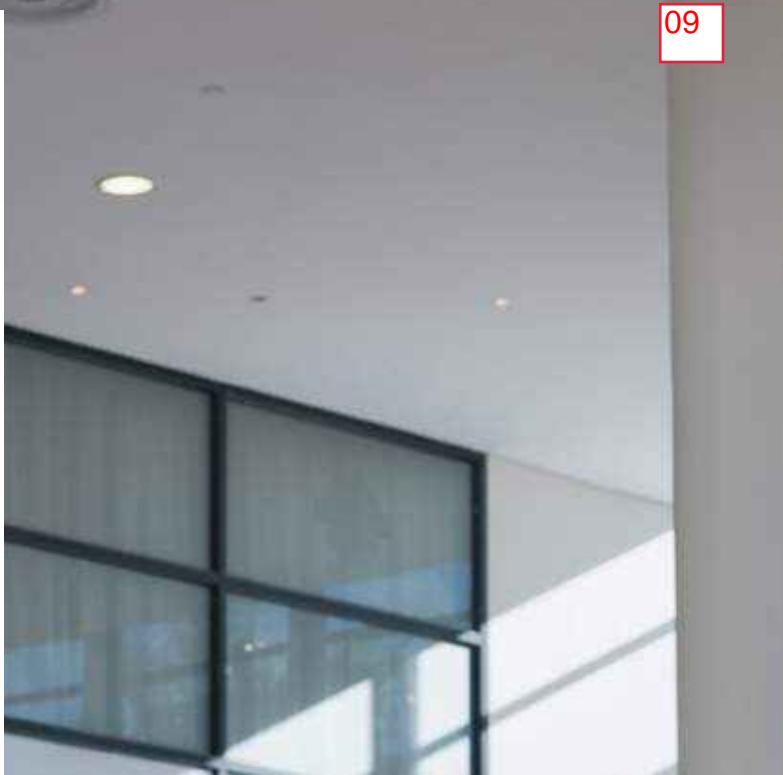
Indoor Environmental Quality

Low-emitting materials

Our wellbeing goes hand-in-hand with the comfort of the environment where we work, live, learn, play or even – in the case of a hospital – recover.

All ROCKWOOL stone wool insulation batt products are certified according to GREENGUARD Gold in accordance with California Department of Public Health (CDPH) Standard Method v1.1–2010.

In addition, AFB evo™ is UL validated to be Formaldehyde Free.



ROCKWOOL North American production facilities

With production facilities strategically placed to support local resources and reduced environmental impacts from transportation, ROCKWOOL's primary raw material sources are located in close vicinity of our facilities though certain materials may be sourced from further than 100 miles (160 km).

Milton, Ontario, Canada

The ROCKWOOL Group entered the North American market for the first time in 1988. This location marks the group's first factory and serves as ROCKWOOL's head office for North American operations.

Grand Forks, British Columbia, Canada

This facility has been in operation since November 1999 and was the first expansion for ROCKWOOL within North America. The Grand Forks facility operates to meet the needs of North America's western regions.

Byhalia, Mississippi, USA

In the spring of 2014, a new 600,000 sq. ft. facility opened in Marshall County, Mississippi; approximately 30 miles south of Memphis.

***COMING SOON (2020) – Ranson, West Virginia, USA**

This new manufacturing facility will cover some 460,000 square feet and employ around 150 people.



For information on how ROCKWOOL products and resource-efficient solutions support sustainable design strategies, or for assistance with your calculations, contact one of our Technical Specialists at 1-877-823-9790 or visit www.ROCKWOOL.com.

At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With more than 11,000 employees in 39 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine and offshore.

AFB®, CAVITYROCK®, COMFORTBATT®, CONROCK®, CURTAINROCK®, ROCKBOARD®, TOPROCK®, MONOBOARD®, ROXUL® are registered trademarks of the ROCKWOOL Group in USA and ROXUL Inc. in Canada.

ROCKWOOL™, COMFORTBOARD™, FABROCK™, ROXUL SAFE™, ROCKWOOL PLUS™, and AFB evo™ are trademarks of the ROCKWOOL Group in USA and ROXUL Inc. in Canada.

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WIP 300HT High-Temperature Protection Self-Adhering Roofing Underlayment

WIP 300HT

WATER & ICE PROTECTION

HIGH-TEMPERATURE PROTECTION

WIP 300HT is a high-tensile-strength rubberized asphalt underlayment specifically designed to withstand temperatures up to 250°F (121°C). Ideal for use under metal including copper, zinc and COR-TEN® (consult technical department for installation instructions), WIP 300HT can also be used under synthetic, concrete and clay tiles and asphalt shingles. This strong, skid-resistant membrane is available in either black or white and provides superior protection from water penetration caused by wind-driven rain and ice dams.

Features and Benefits

- Protects the roof structure from water seepage caused by ice dams and wind-driven rains
- Resists temperatures up to 250°F without degradation of the adhesive
- Seals around roofing nails, staples and screws
- Split-release film provides easier, faster installation
- Resists cracking, drying and rotting, providing long-term waterproofing performance and low lifecycle cost
- Concealed waterproofing system will not detract from the architectural aesthetics of the primary roofing system
- Exposed rubberized asphalt bead along the membrane edge ensures watertightness of lap seams

Standards

- UL Classified
- ICC-ES ESR #2206
- 2009 and 2012 International Building Code™
- 2007 Florida Building Code Approved Product #6785
- Meets ASTM D1970
- Miami-Dade County Product Control Approved

Storage

WIP 300HT roofing underlayment rolls should be stored on their side, under cover and in areas where the temperature is between 40° and 100°F (4.4° and 38°C). **Do not double-stack pallets.**

Warranty

Carlisle WIP products are backed by Carlisle's industry-leading warranty. Carlisle WIP Products will display optimal performance when stored under recommended conditions and used within one year of date of manufacture. Product installed after one year of date of manufacture is not covered under defect warranty. Visit our website for warranty details.

Installation

WIP 300HT underlayment is applied when the roof deck is dry and the substrate temperature is 40°F (4.4°C) or higher. At temperatures below 40°F, nailing or priming should be used to temporarily hold the membrane in place while adhesion develops. WIP 300HT is designed to be covered with the primary roofing system and should not be exposed to sunlight for more than 60 days. White underlayment offers exposure time of 120 days.

Substrate must be free of any moisture. If moisture is present, it may inhibit adhesion. Prepare the roof deck by removing all loose objects, dirt, dust and debris. For re-roofing applications, remove all old materials from the roof deck in the area to be covered with WIP 300HT underlayment. Replace water-damaged sheathing and sweep roof deck thoroughly.



WIP 300HT High-Temperature Protection Self-Adhering Roofing Underlayment

Priming

Priming is not required on clean, dry wood, metal or most polyisocyanurate surfaces (polyiso paper facer does require priming). Masonry and exterior gypsum boards (such as DensDeck®) should be primed using an appropriate primer or adhesive. Some rigid insulation boards with porous or dusty surfaces may require priming to promote initial adhesion. Priming is required on all substrates when air or substrate temperatures are below 40°F (4.4°C). Adhesives such as CCW-702, CCW-702WB, CAV-GRIP™ and CCW-AWP are approved for use with WIP products. Refer to your local building codes to determine acceptable product for use in your region.

Selection of roof deck or insulation substrate and/or use of a primer or adhesive are the responsibility of the architect, specifier or roofing contractor to determine based on the roof assembly and environmental conditions.

Valleys, Hips & Ridges

Cut WIP 300HT roofing underlayment into manageable lengths. Align over the center of the valley, hip or ridge. Remove release film. Press the middle of the membrane first before working toward the edges. For open valleys, cover WIP 300HT roofing underlayment with metal valley liners.

Eaves & Rakes

Cut WIP 300HT underlayment into 10–15' pieces. Remove 2–3' of release film and align the edge of the membrane, sticky side down, so it overhangs the drip edge by $\frac{3}{8}$ " (10 mm). Continue to remove release film and press as you move across the roof. Use a hand roller and/or hand pressure to press into place. Overlap end laps a minimum of 6". WIP roofing underlayment should reach a point 2' inside the interior wall line. Local codes may require additional courses. If additional courses are required, the top lap must be at least 3 $\frac{1}{2}$ ".

Drip Edges

At the rake edge, apply WIP 300HT underlayment first and place drip edge on top. At the eave, apply drip edge first and place WIP underlayment on top of the drip edge so that it overhangs drip edge by $\frac{3}{8}$ " (10 mm).

For standard installation details, follow the WIP detail drawings. For non-standard installation instructions, contact your local Carlisle WIP representative.

Metal Roof Underlayment

Under water-shedding metal roof systems or low-slope metal roofs with a minimum $\frac{1}{2}$ " slope, start at the low point and apply WIP 300HT over the full surface of the roof deck. Review the metal roofing manufacturer's instructions for limitations and precautions. Beginning at the eaves, apply underlayment from the low point to the high point of the roof, running the roll horizontally.

Lap Edges

Lap edge seams should be hand rolled to ensure maximum adhesion.

Limitations

- WIP 300HT should be installed when air, roof deck and membrane temperatures are at or above 40°F (4.4°C).
- WIP 300HT should not be left exposed to sunlight for more than 60 days for black membrane or 120 days for white membrane.
- WIP 300HT membrane should not be folded over the roof edge unless protected by a gutter or other flashing materials.
- The primary roof system must be ventilated to prevent excessive moisture build-up in the interior structure.
- Use caution during the installation of the membrane as it may become slippery when wet or covered with frost.
- WIP 300HT must not be used in contact with PVC material.
- WIP 300HT is not approved for use in foam set tile applications.
- WIP 300HT is not designed for wall assemblies.

| PRODUCT SPECIFICATIONS | | |
|--|---|------------|
| PHYSICAL PROPERTIES | | |
| Surface | Black/White Engineered Polyolefin Composite Film with Factory-applied Anti-skid Coating | |
| Membrane | Rubberized Asphalt | |
| PRODUCT CHARACTERISTIC | UNITS | RESULTS |
| Roll Length | feet | 66 |
| Roll Weight | lbs | 55 |
| Roll Size | sq ft | 198 |
| Roll Width | inches | 36 |
| TYPICAL PERFORMANCE PROPERTIES | TEST METHOD | RESULTS |
| Thickness | ASTM D1970 | 40 mils |
| Low Temperature Flexibility | ASTM D1970 | -45°F |
| Adhesion to Plywood at 75°F | ASTM D1970 | 35 lbs/ft |
| Lap Seam Adhesion at 75°F | ASTM D1970 | 21 lbs/ft |
| Sealability Around Nail | ASTM D1970 | Pass |
| Slip Resistance | ASTM D1970 | Pass |
| Thermal Stability | ASTM D1970 | Pass |
| Moisture Vapor Permeance | ASTM D1970 | 0.02 perms |
| Water Absorption | ASTM D1970 | 0.5% |
| Tensile Strength Machine Direction | ASTM D412 | 250 psi |
| Tensile Strength Transverse Direction | ASTM D412 | 1390 psi |
| Elongation at Break Machine Direction | ASTM D412 | 250% |
| Elongation at Break Transverse Direction | ASTM D412 | 170% |
| PACKAGING INFORMATION | | |
| Boxes (rolls) per pallet | | 25 |



MIAMI-DADE COUNTY
APPROVED

Spectrem® 2

Single-Component, Neutral-Cure Silicone Sealant for 2-Sided Structural Glazing

Product Description

Spectrem® 2 is a high-performance, single-component, neutral-cure, medium-modulus silicone sealant.

Basic Uses

Spectrem 2 is ideal for a variety of perimeter caulking and glazing applications, including 2-sided structural glazing. Spectrem 2 may be used on substrates such as aluminum, glass, steel, painted metal, plastic, stone, concrete and brick.

Features and Benefits

- With medium modulus, can be used as a structural tensile bead and weather sealant.
- Offering excellent adhesion to a variety of substrates including glass and metal, a single product can be used for a variety of applications on the same job from 2-sided structural glazing to perimeter caulking and joint filling.
- Resistance to driving rain, ozone, ultraviolet light, and temperature extremes safeguards against water penetration with exceptional weatherability in all climate zones.
- Wide variety of colors to choose from with custom colors and color matching also available for a particular project.
- No mixing required, so product is always ready to use for immediate application with conventional caulking equipment.
- Greenguard Gold certification ensures safety for use in the most sensitive indoor environments including hospitals and schools.

Availability

Immediately available from your local Tremco Sales Representative, Tremco distributor or warehouse.

Packaging

10.1-oz (300-mL) cartridges

20-oz (600-mL) sausages

2-gal (7.6-L) and 4.5-gal (17-L) pails

55-gal (208.2-L) drums

All colors are not available in all package sizes. Contact Tremco Customer Service for more information.

Colors

Aluminum Stone, Anodized Aluminum, Black, Bronze, Gray, Limestone, Off White, Precast White, White, Clear and Light Bronze

Limitations

- Do not apply to damp or contaminated surfaces.
- Use with adequate ventilation.
- Not intended for continuous water immersion.
- Only black silicones are recommended for structural glazing applications.

Substrate Preparation

Surfaces must be sound, clean, and dry. Contact surfaces should be free of loose dirt, dust, oils, and any other contaminants. Tremco recommends that air temperatures be 40 °F (5 °C) or above before applying any sealant. If colder weather is imminent, please refer to the Tremco Guide for Cold Weather Applications at www.tremcosealants.com.



Applicable Standards

Spectrem 2 meets or exceeds the requirements of the following specifications:

- ASTM C920 Type S, Grade NS, Class 50, Use NT, M, G, A and O
- ASTM C1248 Standard Test Method for Staining of Porous Substrate by Joint Sealants
- ASTM C1184 Standard Specifications for Structural Silicone Sealants
- U.S. Federal Specification TT-S-001543A (COM-NBS) Class A
- CAN/CGSB 19.13-M87
- U.S. Federal Specification TT-S-00230C (COM-NBS) Class A, Type II
- Black meets all of AAMA 802.3-92 (Type I and II), 805.2-94 (Group C), and 808.3-92
- Conforms to ASTM C1184 Use G and O (Aluminum)

Application

Spectrem 2 is easy to apply with conventional caulking equipment. Fill joint completely and tool. At 75 °F (23.9 °C), 50% RH, a durable skin will form typically within fewer than 10 minutes. Please visit www.tremcosealants.com for complete application instructions.

Joint Design

May be used in any joint designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement, but not less than 1/4" (6 mm) wide.

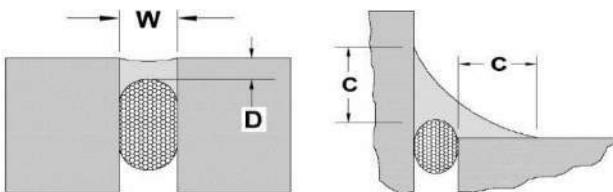
Joint Backing

Approved structural glazing tapes, such as SGT 900 Series Tape, compatible silicone, or SCR spacer gaskets are approved to promote properly dimensioned tensile beads when used in 2-sided structural glazing applications.

When Spectrem 2 sealant is used in non-structural glazing applications, closed-cell polyethylene backer rod is preferred as joint backing to control depth of sealant bead. Where depth of joint will prevent use of joint backing, an adhesive-backed polyethylene tape should be installed to prevent three-sided adhesion. Joint backing must be dry at time of sealant application.

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



EXPANSION JOINTS - The minimum width and depth of any sealant application should be $1/4'' \times 1/4''$ (6 mm by 6 mm). The depth (D) of sealant may be equal to the width (W) of joints that are less than $1/2''$ (13 mm) wide.

For joints ranging from $1/2''$ to $1''$ (13 mm to 25 mm) wide, the sealant depth should be approximately one-half of the joint width. The maximum depth (D) of any sealant application should be $1/2''$ (13 mm). For joints that are wider than $1''$ (25 mm) contact Tremco Technical Services or your local Tremco Sales Representative.

WINDOWS PERIMETERS- For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area [C] of $1/4''$ (6 mm) onto each substrate. Proper joint backing or bond breaking should be provided to allow for anticipated movement.

STRUCTURAL GLAZING: Special consideration must be taken when using Spectrem 2 in structural glazing applications; therefore, the above sealant dimension guidelines do not apply in these applications. Consult Tremco Technical Services for structural glazing reviews and recommendations.

Clean Up

Tooling is recommended immediately after application to ensure firm, intimate contact with the joint interface. Dry tooling is preferred. Cleaning can be

accomplished with solvents such as IPA, Xylene, Toluene or MEK while sealant is in an uncured state.

Warranty

Tremco warrants its Products to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace, or refund the purchase price of the quantity of Tremco Products proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|---|----------------|-----------------------------------|
| As Supplied: | | |
| Flow, sag or slump inches | ASTM C639 | Nil |
| Sag | ASTM D2202 | 0" to 0.03" (0 mm to 0.1 mm) |
| Tack free time | ASTM C679 | 20 to 40 min |
| Tooling Time | Skin Formation | 10 to 15 min |
| As Cured: After 14 days at 77 °F (25 °C), 50%RH | | |
| Cyclic Movement | ASTM C719 | ±50% |
| Elongation | ASTM D412 | 235 to 260% |
| Hardness (shore A) | ASTM C661 | 37 to 40 |
| Peel Strength Aluminum and Glass | ASTM C794 | 16 to 22 pli (2.81 to 3.86 kN/M) |
| Staining of Porous Substrates White Marble Primed & Unprimed | ASTM C1248 | No Stain |
| Tear strength, die ("C") | ASTM D624 | 35 to 40 pli (6.14 to 7.02 kN/M) |
| Tensile Strength at 100% Elongation | ASTM C1135 | 90 to 100 psi (0.62 to 0.69 MPa) |
| Tensile Strength at Max Elongation | ASTM D412 | 220 to 230 psi (1.52 to 1.59 MPa) |
| As Cured: After 21 days at 77 °F (25 °C), 50%RH | | |
| Ultimate Elongation | ASTM C1135 | 261% |
| Ultimate Tensile Strength | ASTM C1135 | 123 psi (0.85 MPa) |

0517/SPEC2DS-ST

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

Tremco Commercial Sealants & Waterproofing

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555



Tremco Incorporated

3735 Green Road Beachwood, OH 44122 216.292.5000 www.tremcosealants.com



January 22, 2019

To Whom It May Concern:

RE: Spectrem 2—Green Building Product Information (LEED v4 Information)

Tremco Incorporated is an organization that is committed to quality, our employees, and our environment. We are responsive to both internal and external customers, and we pledge to treat everyone with good stewardship and respect.

Tremco Incorporated certifies the following for Spectrem 2:

Building Product Disclosure and Optimization:

Spectrem 2 is manufactured in Toronto, Ontario, Canada.

No single extracted material is used to produce the majority of this product.

Recycled content for Spectrem 2 is not available, and for the purposes of LEED reporting should be assumed to be zero.

Low Emitting Materials - VOC Content Information:

Spectrem 2 is a silicone sealant with a VOC content of 42g/L equaling 3% as applied/mixed. As such, VOC levels are lower than the limits set by SCAQMD rule 1168.

Note: VOC content values are as reported for the highest VOC content color for all Spectrem 2 colors. Other colors may have a lower VOC content reported on the MSDS .

This product is Greenguard certified, meaning it has met some of the world's most difficult and complete standards for low emissions of VOC's into indoor air. This product also adheres to the California Department of Public Health (CDPH) Standard Method V1.1-2010, a standard vital to demonstrate compliance with LEED.

Green Chemistry:

Tremco Incorporated is dedicated to the environment and prides itself on making its products as sustainable as possible.



Tremco Incorporated3735 Green Road Beachwood, OH 44122 216.292.5000 www.tremcosealants.com**Manufacture Inventory (reported to 1000ppm):**

| Chemical Name or Role | CAS Number | Amount | GHS Hazard |
|--|------------|--------|---------------|
| Calcium Carbonate (Limestone) | 1317-65-3 | | |
| Calcium carbonate | 471-34-1 | | |
| Silicone Reactive Polymer Resin | | 20-60% | Non-Hazardous |
| Silicone Nonreactive Polymer Resin | | <15% | Non-Hazardous |
| Amorphous silica | 7631-86-9 | | |
| Crosslinker | | <5% | Non-Hazardous |
| Prepolymer | | <1% | Non-Hazardous |
| Copolymer | | <1% | Non-Hazardous |
| Carbon Black | 1333-86-4 | | |
| Additive | | <1% | Non-Hazardous |
| Pigment | | <1% | Non-Hazardous |
| Stearic acid | 57-11-4 | | |
| Aminosilane | 919-30-2 | | |
| Adhesion Promoter | | <1% | Non-Hazardous |
| Titanium dioxide | 13463-67-7 | | |
| Octamethylcyclotetrasiloxane | 556-67-2 | | |
| Copper phthalocyanine | 147-14-8 | | |
| Crystalline Silica (Quartz)/ Silica Sand | 14808-60-7 | | |

Additional Information:

Should you have any questions or require additional information, please do not hesitate to contact Technical Services or your local Tremco Field Representative.

Sincerely,

A handwritten signature in blue ink, appearing to read "Amy Woodard".

Amy Woodard
Manager
Compliance and Regulatory



Zero/Six Consulting, LLC
1027 Tremont St.
Galveston, TX
409.740.0090

SUBMITTAL REVIEW

PROJECT UT - SEAY BUILDING ADDITION

PROJECT # 19069

SUBMITTAL # 07 52 16 - 001

DESCRIPTION MODIFIED BITUMINOUS MEMBRANE ROOFING - PD

- | | |
|--|---|
| <input type="checkbox"/> NO EXCEPTION TAKEN | <input type="checkbox"/> EXCEPTIONS NOTED |
| <input type="checkbox"/> SUBMIT SPECIFIED ITEM | <input checked="" type="checkbox"/> REVISE AND RESUBMIT |

COMMENTS:

1. Specification calls for ASTM D6163 (glass fiber reinforced) membrane, but an ASTM D6164 (polyester reinforced) was submitted.
2. Specification calls for 3 layers, hot mop system, submitted system is 2 layers, torch applied with adhesive and mechanically attached insulation.
3. Sheet S0001 has -48 PSF listed in the field zone for roof uplift, the assembly letter states the system submitted meets -45 PSF.

DATE 7.31.2020

REVIEWED BY JEFFREY BISHOP, PE

CORRECTIONS AND NOTATIONS ON SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS. THIS REVIEW IS ONLY TO CHECK GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANITIES AND DIMENSION, SELECTING FABRICATION PROCESSES, TECHNIQUES OF CONSTRUCTION, AND PERFORMING THE WORK IN A SAFE MANNER.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0277

PROJECT: UT Seay Building Addition

DATE: 07/24/2020

TO: BSA Lifestructures
AL

RE: Modified Bituminous Membrane Roofing - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 08/07/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 075216-001 | 1 | | 07/24/2020 | Modified Bituminous Membrane Roofing - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE
COMMENTS NOTED
REVISE AND RESUBMIT
OTHER:

DATE 7/24/2020 SPEC# 075216

REVIEWED BY tanner.hawkins

SUBMITTAL# 075216-001

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins

KIDD ROOFING

Since 1982

1212 E. Anderson Lane Austin Texas 78752

SARAH & CHARLES SEAY BLDG.

MOD BIT ROOF 075216

1. KIDD WORKMANSHIP WARRANTY
2. GAF EVERGUARD DIAMOND PLEDGE
3. GAF SYSTEM LETTER
4. GAF SA PRIMER
5. GAF SA VAPOR RETARDER
6. GAF ENERGYGUARD POLYISO INSULATION
7. GAF ENERGYGUARD TAPERED POLYISO INSULATION
8. GAF OLYBOND 500
9. GAF DENSDECK PRIME
10. GAF RUBEROID HW SMOOTH MEMBRANE
11. GAF RUBEROID HW PLUS GRANULE MEMBRANE
12. GAF MAJORSEAL LIQUID FLASHING
13. GAF MATRIX 202 SBS FLASHING CEMENT
14. GAF 307 ASPHALT PRIMER
15. WOODY BUTTS – OR EQUAL LEAD SHEETS FOR JACKS
16. GAF DRILL-TEC STEEL & PLASTIC PLATES
17. GAF DRILL-TEC STANDARD #12 FASTENERS
18. GAF ENERGYGUARD PERLITE CANT STRIP
19. GAF TERMINATION BAR
20. GAF WALKWAY ROLL

06/26/2020

LIMITED COMMERCIAL WORKMANSHIP WARRANTY

Project:

2 YEARS

Project Address:

D. R. Kidd Company, Inc. - "DRKCI" - hereby warrants, subject to the terms and conditions set forth herein, that it will, at no cost to the "Buyer", make all repairs to leaks which result from defects in workmanship and materials furnished by DRKCI, which occur within the **YEARS (2) year term** of this warranty beginning the date of substantial completion : 06/11/2014

This warranty is made under and subject to the following terms and conditions:

- (a) "Buyer" must notify DRKCI of any leaks which may require repairs under this warranty. In order to pursue a claim that DRKCI has not honored this warranty, written notice of the leak must be given to DRKCI at the address listed below. DRKCI shall make the required repairs as soon as practical upon notification of reported defects.
- (b) Repairs made by others than DRKCI shall invalidate this warranty unless preapproved by DRKCI.
- (c) Nothing in this warranty shall be construed to hold DRKCI as liable for any damage to "Buyer"s premises or any contents thereof, including the roof decking, facia and rafters. It is the "Buyer"s responsibility to periodically inspect roof, wall panels, ceilings and overhangs for signs of leakage and promptly report them to DRKCI.
- (d) DRKCI will not be responsible for any leaks caused by (1) lightning, hail, hurricane, tornado, windstorm or other weather phenomena; (2) structural elements of the building, including cracking, movement, settlement, deflection, nails, staples or other fasteners not part of DRKCI's installation which have backed out of the roof deck, deterioration and decomposition of the walls, foundation or the roof deck; (3) parapet walls, copings, chimneys, skylights, vents equipment supports and other edge conditions and penetrations of the roofing work unless the leak is caused by faulty installation of accessories which were performed by DRKCI or if such accessories were furnished by DRKCI; (4) service to or maintenance of any roof top equipment or traffic of any nature on the roof; (5) abuse, misuse, accident or negligence by any person other than DRKCI;(6) atypical flashing (height) installation(s) that are non-compliant to NRCA/SMACNA provisions due to architectural design;(7) improper drainage due to, but not limited to, existing gutters/drains/downspouts by non-compliance to construction codes or poor pitch.
- (e) Any alterations or additions to the roof surface after completion of installation by DRKCI must be approved by DRKCI in writing and DRKCI shall have the right to submit its recommendations for any new roofing or flashing materials required. Failure of the "Buyer" to adhere to these recommendations will result in cancellation of this warranty. Owners responsibility to provide roof access. Kidd not responsible for removing or replacing roof coverings. I.E deck/pavers.
- (f) This warranty shall accrue only to the benefit of the original "Buyer" named herein. It is not transferable to any other person except with the prior written consent of DRKCI.
- (g) DRKCI shall have no obligation pursuant to this warranty until all bills for installation, supplies and services in connection with the roofing covered by this warranty have been paid in full.
- (h) DRKCI will not be liable for fasteners that back out of the roof deck or substrate which penetrate the roofing materials. This disclaimer does not relate to fasteners installed by DRKCI.
- (i) This warranty and the proposal/contract of which this warranty is a part, constitute the entire agreement between DRKCI and the "Buyer" and no other representations or agreements pertaining to the work performed by DRKCI have been made. DRKCI shall have no obligation with respect to the roof upon the expiration of the warranty period set forth above which begins on the date of substantial completion of the work as determined by DRKCI.
- (j) Any claim arising out of or relating to this contract, or breach thereof, shall be settled by arbitration, binding on both parties , in accordance with the construction industry arbitration rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

DRKCI SHALL NOT BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL INCIDENTAL OR OTHER DAMAGES. "BUYER"S SOLE REMEDY UNDER THIS WARRANTY IS THE RIGHT TO HAVE DRKCI REPAIR AT NO COST TO THE "BUYER". THOSE LEAKS IN THE ROOF WHICH RESULT FROM DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY DRKCI. THIS WARRANTY IS GIVEN AND ACCEPTED IN LIEU OF ALL OTHER LIABILITY OR WARRANTIES ON THE PART OF DRKCI, EXPRESS OR IMPLIED, IN FACT OR IN LAW. ALL IMPLIED WARRANTIES AND SPECIFICALLY THE IMPLIED WARRANTIES OF MERCHANTABILITY, HABITABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED AND DISCLAIMED.

THIS LIMITED WORKMANSHIP WARRANTY SHALL ONLY BE IN EFFECT IF THE CONTRACT WITH D. R. KIDD COMPANY, INC HAS BEEN PAID IN FULL



1212 E. Anderson Ln | Ste 200
Austin, Texas 78752
(512) 671-7791 FAX (512) 671-8707

EXPIRES:

**EverGuard® Diamond Pledge™
NDL Roof Guarantee
(COMTS700)**

Updated: 3/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



**GAF® EverGuard®
DIAMOND PLEDGE™
NDL ROOF GUARANTEE**

No. _____



OWNER: _____ PERIOD OF COVERAGE: _____ YEARS

NAME AND TYPE OF BUILDING: _____

ADDRESS OF BUILDING: _____

ROOF SPECIFICATION: _____ AREA OF ROOF: _____ SQUARES

APPLIED BY: _____

DATE OF COMPLETION: _____ GUARANTEE EXPIRATION DATE: _____

THE GUARANTEE/SOLE AND EXCLUSIVE REMEDY

GAF guarantees to you, the owner of the building described above, that GAF will provide "Edge To Edge" protection by repairing leaks through the GAF roofing membrane, liquid-applied membrane or coating, base flashing, high wall waterproofing flashing, insulation, expansion joint covers, prelashed accessories, and metal flashings used by the contractor of record that meet SMACNA standards (the "GAF Roofing Materials") resulting from a manufacturing defect, ordinary wear and tear, or workmanship in applying the GAF Roofing Materials. There is no dollar limit on covered repairs. Leaks caused by any non-GAF materials, such as the roof deck or non-GAF insulation, are not covered.

GUARANTEE PERIOD

This guarantee ends on the expiration date listed above. **NOTE:** Lexsucos® flashings are covered by this guarantee **ONLY** for the first ten years.

OWNER RESPONSIBILITIES**Notification of Leaks**

In the event of a leak through the GAF Roofing Materials, you **MUST** make sure that GAF is notified directly about the leak, in writing, within **30 days** by email (preferred) at guaranteeleak@gaf.com or by postal mail to GAF Guarantee Services, 1 Campus Drive, Parsippany, NJ 07054, or GAF will have no responsibility for making repairs. **NOTE:** The roofing contractor is **NOT** an agent of GAF; notice to the roofing contractor is **NOT** notice to GAF.

By notifying GAF, you authorize GAF to investigate the cause of the leak. If the investigation reveals that the leak is not covered by this guarantee, you agree to pay an investigation cost of \$500. This guarantee will be cancelled if you fail to pay this cost within 30 days of receipt of an invoice for it.

Preventative Maintenance and Repairs

- A. You must perform regular inspections and maintenance and keep records of this work.
- B. To keep this guarantee in effect, you must repair any conditions in the building structure or roofing system that are not covered by this guarantee but that GAF concludes may be threatening the integrity of the GAF Roofing Materials. Any such repairs must be performed by a GAF-certified roofing contractor. Failure to make timely repairs may jeopardize guarantee coverage.
- C. You may make temporary repairs to minimize damage to the building or its contents in an emergency, at your sole expense. These repairs will not result in cancellation of the guarantee as long as they are reasonable and customary and do not result in permanent damage to the GAF Roofing Materials.
- D. Any equipment or material that impedes any inspection or repair must be removed at your expense so that GAF can perform inspections or repairs.

EXCLUSIONS FROM COVERAGE

(e.g., items that are not "ordinary wear and tear" or are beyond GAF's control)

This guarantee does **NOT** cover conditions other than leaks. This guarantee also does **NOT** cover leaks caused by any of the following:

1. Inadequate roof maintenance, that is, the failure to follow the Scheduled Maintenance Checklists provided with this guarantee (extra copies available by calling Guarantee Services at 1-800-ROOF-411) or the failure to repair owner responsibility items.
2. Unusual weather conditions or natural disasters including, but not limited to, winds in excess of 55 miles per hour, hail, floods, hurricanes, lightning, tornados, and earthquakes, unless specifically covered by an addendum to this guarantee.
3. Impact of foreign objects or physical damage caused by any intentional or negligent acts, accidents, misuse, abuse or the like.
4. Damage to the roof constructed of the GAF Roofing Materials due to:
 - (a) movement, cracking, or other failure of the roof deck or building;
 - (b) improper installation or failure of any non-GAF insulation or materials;
 - (c) condensation or infiltration of moisture through or around the walls, copings, building structure, or surrounding materials except where high wall GAF waterproofing flashings
5. Traffic of any nature on the roof unless using GAF walkways applied in accordance with GAF's published application instructions.
6. Blisters in the GAF Roofing Materials that have not resulted in leaks.
7. Changes in the use of the building or any repairs, modifications, or additions to the GAF Roofing Materials after the roof is completed, unless approved in writing by GAF.
8. Exposure to sustained high-temperature conditions; however, for systems utilizing EverGuard Extreme® TPO membrane, exposure in excess of 195°F.

No representative, employee, or agent of GAF, or any other person, has the authority to assume any additional or other liability or responsibility for GAF, unless it is in writing and signed by an authorized GAF Field Services Manager or Director. GAF does not practice engineering or architecture. Neither the issuance of this guarantee, nor any review of the roof constructed of the GAF Roofing Materials (or the plans for the roof), by GAF shall constitute any warranty of such plans, specifications or construction or the suitability or code compliance of the GAF Roofing Materials for any particular structure. **NOTE:** Any inspections made by GAF are limited to a surface inspection only, are for GAF's sole benefit, and do not constitute a waiver or extension of any of the terms and conditions of this guarantee.

This guarantee **MAY BE SUSPENDED OR CANCELLED IF THE ROOF IS DAMAGED BY** any cause listed above as **AN EXCLUSION FROM COVERAGE** that may affect the integrity or watertightness of the roof.

TRANSFERABILITY

You may transfer or assign this guarantee to a subsequent owner of this building for the remaining term only if: 1) the request is in writing to GAF at the address listed below within 60 days after ownership transfer; 2) you make any repairs to the GAF Roofing Materials or other roofing or building components that are identified by GAF after an inspection as necessary to preserve the integrity of the GAF Roofing Materials; and 3) you pay an assignment fee of \$500. This guarantee is **NOT** otherwise transferable or assignable by contract or operation of law, either directly or indirectly.

LIMITATION OF DAMAGES; MEDIATION; JURISDICTION; CHOICE OF LAW

THIS GUARANTEE IS EXPRESSLY IN LIEU OF ANY OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, and of any other obligations or liability of GAF, whether any claim against it is based upon negligence, breach of warranty, or any other theory. In NO event shall GAF be liable for any CONSEQUENTIAL OR INCIDENTAL DAMAGES of any kind, including, but not limited to, interior or exterior damages and/or mold growth. The parties agree that, as a condition precedent to litigation, any controversy or claim relating to this guarantee shall be first submitted to mediation before a mutually acceptable mediator. In the event that mediation is unsuccessful, the parties agree that neither one will commence or prosecute any lawsuit or proceeding other than before the appropriate state or federal court in the State of New Jersey. This guarantee shall be governed by the laws of the State of New Jersey, without regard to principles of conflicts of laws. Each party irrevocably consents to the jurisdiction and venue of the above identified courts.

NOTE: GAF shall have no obligation under this guarantee unless and until all bills for installation and supplies have been paid in full to the roofing contractor and materials suppliers, and the guarantee charge has been paid to GAF.

This guarantee must have a raised seal to be valid.

©2016 GAF 3/16 • #242

GAF
1 Campus Drive
Parsippany, NJ 07054

By: _____
Authorized Signature

Date

COMTS700



EverGuard® Diamond Pledge™ NDL Roof Guarantee With True "Edge-To-Edge" Coverage

Important Information On Your Guarantee Coverage...

Congratulations on selecting a GAF EverGuard® Diamond Pledge™ NDL Roof Guarantee. GAF is proud to provide you with extraordinary guarantee coverage for your new roofing system.

- The EverGuard® Diamond Pledge™ NDL Roof Guarantee provides you with comprehensive system protection so that if your new GAF roofing system leaks from a manufacturing defect or workmanship error, the costs of repair are 100% covered (see your EverGuard® Diamond Pledge™ NDL Roof Guarantee for complete coverage and restrictions).

First, let's understand the responsibilities of ownership...

- It's common sense... if you own something and you want it to perform, you have to maintain it. After all, you wouldn't expect...
 - a smoke alarm to go off with a dead battery
 - your furnace to perform efficiently if you never changed the filter
 - your car to run if you never changed the oil

Your new roof is no exception.

Simply put... maintenance is a responsibility of ownership. Without basic maintenance, your assets will diminish in value. With basic maintenance, you can preserve them and enjoy years of reliable service.

Your new roof is protected by the extraordinary EverGuard® Diamond Pledge™ NDL Roof Guarantee coverage, plus you may be eligible for the added benefits of...

• Up to 25% of additional duration... with the WellRoof® Guarantee Extension¹

We've put together a program designed to help reduce the risk of the unexpected expense and unnecessary disruption that may occur if your roof leaks.

The WellRoof® Guarantee Extension can add up to 25% additional duration to your EverGuard® Diamond Pledge™ NDL Roof Guarantee coverage, when you maintain your roof with the services of a **GAF Certified Maintenance Professional**.

Protect your asset and get longer protection from your guarantee with **The WellRoof® Guarantee Extension** and a maintenance program you can trust, executed by a GAF Certified Maintenance Professional. Call 1-800-ROOF-411 or visit gaf.com for information about a Certified Maintenance Professional in your area.

Need more info on saving money with a roof maintenance program? See the WellRoof® Brochure at gaf.com.

¹ See the WellRoof® Guarantee Extension for complete coverage and restrictions.



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what matters most™

Technical Services

1 Campus Drive
Parsippany, NJ 07054

03

June 26, 2020

Kidd Roofing
1212 East Anderson, Suite 200
Austin, TX 78759

Subject: Contractor/System Certification

Project: UT Sarah & Charles Seay Bldg.
Austin, TX

To Whom It May Concern:

Kidd Roofing of Austin, TX is a GAF Master Select roofing contractor for asphaltic, single-ply and restoration roofing systems and is eligible to obtain a GAF Diamond Pledge™ (NDL) guarantee for up to 20 years.

GAF specification I-0-2-HGPFR is eligible to obtain a 20 year Diamond Pledge™ (NDL) guarantee; provided all current GAF application requirements are followed and guarantee procedures are met.

I-0-2-HGPFR – Structural Concrete Deck – Concrete Deck Area – R1

GAF SA Primer: Prime the concrete deck using GAF SA primer in accordance with GAF application recommendations.

GAF SA Vapor Retarder: Install GAF SA vapor retarder, self-adhered in accordance with GAF application recommendations.

EnergyGuard™ Polyiso Insulation: Install two layers of 2.2" EnergyGuard™ polyiso insulation (R-25.2, 4' x 4' boards) using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

EnergyGuard™ Tapered Polyiso Insulation: Install EnergyGuard™ tapered polyiso insulation using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

DensDeck® Prime Roof Board: Install ½" DensDeck® Prime roof board using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

Ruberoid® HW Smooth: Install one ply of Ruberoid® HW Smooth, torch applied and adhered in accordance with GAF application recommendations.

***Ruberoid® EnergyCap™ HW Plus Granule FR:** Install Ruberoid® EnergyCap™ HW Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide -45psf (90psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (C-69) evaluation report #01506.11.04 – R27 for FL5680 – R27, page 55 of 106.

I-0-2-HGPFREC – Minimum 22ga 33ksi Steel Deck – Steel Deck Area – R2

EnergyGuard™ Polyiso Insulation: Simultaneously fasten two layers of 2.6" EnergyGuard™ polyiso insulation (R-30) to the steel deck using Drill-Tec™ #12 fasteners and 3" plates, as follows:

- Field: 8 fasteners per 4' x 4' board
- Perimeter: 12 fasteners per 4' x 4' board
- Corners: 16 fasteners per 4' x 4' board

DensDeck® Prime Roof Board: Install ½" DensDeck® Prime roof board using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

Ruberoid® HW Smooth: Install one ply of Ruberoid® HW Smooth, torch applied and adhered in accordance with GAF application recommendations.

***Ruberoid® EnergyCap™ HW Plus Granule FR:** Install Ruberoid® EnergyCap™ HW Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide -45psf (90psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (SC-13) evaluation report #01506.11.04 – R27 for FL5680 – R27, page 20 of 106.

I-0-2-HGPFREC – Minimum 22ga 33ksi Steel Deck – Entry Canopy

DensDeck® Prime Roof Board: Preliminarily fasten ½" DensDeck® Prime roof board to the steel deck using Drill-Tec™ #12 fasteners and 3" plates, as follows:

- Field: 8 fasteners per 4' x 4' board
- Perimeter: 12 fasteners per 4' x 4' board
- Corners: 16 fasteners per 4' x 4' board

EnergyGuard™ Tapered Polyiso Insulation Crickets: Install EnergyGuard™ tapered polyiso insulation crickets as specified using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.



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03

Technical Services

1 Campus Drive
Parsippany, NJ 07054

Ruberoid® HW Smooth: Install one ply of Ruberoid® HW Smooth, torch applied and adhered in accordance with GAF application recommendations.

***Ruberoid® EnergyCap™ HW Plus Granule FR:** Install Ruberoid® EnergyCap™ HW Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide -45psf (90psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (SC-69) evaluation report #01506.11.04 – R27 for FL5680 – R27, page 29 of 106.

*Ruberoid® EnergyCap™ HW Plus Granule FR meets LEED® v4 credit requirements.

The above listed roofing systems are based on GAF guarantee requirements and are not intended to modify, negate or alter any requirements specified by the design professional or others.

If you have any further questions, please contact us at 1-800-766-3411.

Sincerely,

Matthew Romero

Matthew Romero
Technical Services Representative

SA Primer Data Sheet

Updated: 9/18



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GAF SA Primer

Description

GAF SA Primer is an SBS polymer-based primer for use with GAF SA Vapor Retarder on approved substrates. The GAF SA Primer is a blend of SBS polymers, solvents, and additives to prepare a substrate for adhesion to the GAF SA Vapor Retarder. The GAF SA Primer can be used on plywood, gypsum, concrete, and asphalt panels, and can be applied by brush or roller.

Uses

GAF SA Primer may be applied to:

- Plywood
- Gypsum
- Concrete
- Asphalt panels



Application:

GAF SA Primer must be mixed thoroughly prior to application. GAF SA Primer can be applied at temperatures as low as 25°F (-3.9°C) with rising temperatures, as long as the primer has been stored in a heated area to ensure the GAF SA Primer is between 50°F – 100°F (10°C – 37.7°C) at time of installation. The application rate for GAF SA Primer is 0.7 – 1.0 gal./100 ft² (0.3 – 0.4 L/m²) and can be applied with a brush or roller.

Applicable Standards:



Refer to FMapprovals.com/RoofNav for actual FM Approved assemblies.

Product Specifications (nominal)

| | |
|------------------------|---|
| Container Size | 5.0 gal. (18.9 L) |
| Coverage Rate | 0.7 – 1.0 gal./100 ft ² (0.3 – 0.4 L/m ²) |
| Weight per pail | 44.5 lb. (20.2 kg) |
| Pails / Skid | 36 |

SA Vapor Retarder Data Sheet

Updated: 1/18



*Quality You Can Trust...From
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SA VAPOR RETARDER

Description

GAF SA Vapor Retarder is an SBS modified bitumen vapor retarder for use in approved GAF roof assemblies. GAF SA Vapor Retarder is composed of a proprietary formulation of elastomeric styrene-butadiene-styrene (SBS) polymer modified bitumen in combination with a high tack self-adhesive. The topside is surfaced with high-strength tri-laminate polyethylene film and the underside is surfaced with protective polyolefin release film that is removed during application.

Uses

GAF SA Vapor Retarder may be applied to:

- Steel
- Plywood
- Gypsum
- Concrete



Advantages

- 45" (1.1 m) roll provides increased coverage across roof deck
- Easy-to-peel release film for faster installation
- Durable top surface protects roof from inclement weather
- High tensile strength provides resistance to foot traffic

Application:

GAF SA Vapor Retarder can be applied at temperatures between 50°F (10°C) and 100°F (38°C). All substrates except metal decks must be primed. Vapor retarder should be installed with minimum 3" (76.2 mm) side laps and 6" (152.4 mm) end laps.

Applicable Standards

- FM Approved
- UL Listed
- State of Florida approved

Product Specifications (nominal)

| | |
|---------------------|--|
| Roll size | 5 squares (502.5 gross sq. ft.) (46.68 m ²) |
| Roll Length | 134' (40.8 m) |
| Roll Width | 45" (1.1 m) |
| Approx. Roll Weight | 80 lb. (36.4 kg) |

Typical Physical Properties

| Property | MD Value | XMD Value | Test Method |
|---|------------|-----------|-------------|
| Thickness, mils (mm) | 31 (0.8) | 31 (0.8) | ASTM D5147 |
| Tensile strength, lbf/in (kN/m) | 54 (9.5) | 74 (13) | ASTM D5147 |
| Ultimate elongation @ 73.4°F (23°C), % | 33 | 25 | ASTM D5147 |
| Tear resistance, lbf (N) | 95 (423) | 103 (458) | ASTM D1970 |
| Static puncture, lbf (N) | 90 (400) | 90 (400) | ASTM D5602 |
| Lap adhesion, lbf/ft (N/m) | 68 (1000) | 68 (1000) | ASTM D1876 |
| Water absorption, % | 0.1 | 0.1 | ASTM D5147 |
| Peel resistance, lbf/in (N/m) | 5.4 (950) | 5.4 (950) | ASTM D903 |
| Cold bending, °F (°C) | -58 (-50) | -58 (-50) | ASTM D5147 |
| Water vapor permeance, perm (ng/Pa.s.m ²) | 0.03 (1.7) | | ASTM E96 |
| Air permeability, L/s•m ² | < 0.001 | | ASTM E283 |

EnergyGuard™ Polyiso Insulation

20 & 25 PSI

Data Sheet

Updated: 6/16



*Quality You Can Trust...From
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ENERGYGUARD™

POLYISO INSULATION, 20 & 25 PSI (1 of 2)

Description

EnergyGuard™ Polyiso Insulation is made of glass fiber-reinforced cellulosic felt facers bonded to a core of polyisocyanurate foam. Available in 4' x 4' (1.21 m x 1.21 m) or 4' x 8' (1.21 m x 2.44 m) and in thicknesses ranging from 1" to 4.6" (25.4 mm - 116.8 mm).

Uses

- EnergyGuard™ Polyiso Insulation is designed for use over structural roof decks where R-values of 5.7 or higher are required, along with comprehensive UL and FM approvals.
- Meets FM 4450/4470 and UL 1256/790/263.
- When properly installed, it is suitable for use under built-up, modified bitumen, and most single-ply roofing systems.
- Refer to the application specifications in the current membrane manufacturer's application and specifications manual for proper membrane installation procedures.
- Meets **ASTM C1289 Type II**, Class 1, Grade 2 (20 psi), and available in Grade 3 (25 psi).

Advantages

- High insulation value — Excellent "LTTR" value compared to any other FM Class I rated products of equivalent thickness.
- Manufactured with EPA-compliant blowing agents.
- Lightweight — Lighter than most other insulating products offering comparable thermal resistance; as much as five times lighter in weight than many other materials with the same R-value.
- Excellent dimensional stability.
- Low water permeability — Lower overall perm rating than many conventional insulation boards.
- High moisture resistance and no capillarity; is stable and maintains its physical and insulating characteristics.
- Easier handling and faster to install — Because of its light weight, this material is easier to handle on the job site and installs faster. Easier cutting in the field provides the installer with simplified fabricating on the roof deck. Minimizes on-the-job damage.

Thermal and Physical Characteristics¹

| Thickness* | Inches | mm | LTTR (R-Value**) | Max. Flute Spanability Inches | mm |
|------------|--------|------|---------------------|----------------------------------|------|
| 1.0 | 25.4 | 635 | 5.7 | 2 5/8 | 66.7 |
| 1.1 | 27.9 | 708 | 6.3 | 2 5/8 | 66.7 |
| 1.2 | 30.5 | 774 | 6.8 | 2 5/8 | 66.7 |
| 1.3 | 33.0 | 838 | 7.4 | 2 5/8 | 66.7 |
| 1.4 | 35.6 | 900 | 8.0 | 4 3/8 | 111 |
| 1.5 | 38.1 | 953 | 8.6 | 4 3/8 | 111 |
| 1.6 | 40.6 | 1021 | 9.1 | 4 3/8 | 111 |
| 1.7 | 43.1 | 1090 | 9.7 | 4 3/8 | 111 |
| 1.75 | 44.5 | 1127 | 10.0 | 4 3/8 | 111 |
| 1.8 | 45.7 | 1156 | 10.3 | 4 3/8 | 111 |
| 1.9 | 48.3 | 1222 | 10.8 | 4 3/8 | 111 |
| 2.0 | 51 | 1295 | 11.4 | 4 3/8 | 111 |
| 2.1 | 53 | 1343 | 12.0 | 4 3/8 | 111 |
| 2.2 | 56 | 1408 | 12.6 | 4 3/8 | 111 |
| 2.3 | 58 | 1473 | 13.2 | 4 3/8 | 111 |
| 2.4 | 61 | 1537 | 13.8 | 4 3/8 | 111 |
| 2.5 | 64 | 1601 | 14.4 | 4 3/8 | 111 |
| 2.6 | 66 | 1664 | 15.0 | 4 3/8 | 111 |
| 2.7 | 69 | 1727 | 15.6 | 4 3/8 | 111 |
| 2.8 | 71 | 1791 | 16.2 | 4 3/8 | 111 |
| 2.9 | 74 | 1855 | 16.8 | 4 3/8 | 111 |
| 3.0 | 76 | 1918 | 17.4 | 4 3/8 | 111 |
| 3.1 | 79 | 1982 | 18.0 | 4 3/8 | 111 |
| 3.2 | 81 | 2045 | 18.6 | 4 3/8 | 111 |
| 3.25 | 83 | 2108 | 18.9 | 4 3/8 | 111 |
| 3.3 | 84 | 2172 | 19.2 | 4 3/8 | 111 |
| 3.4 | 86 | 2235 | 19.9 | 4 3/8 | 111 |
| 3.5 | 89 | 2300 | 20.5 | 4 3/8 | 111 |
| 3.6 | 91 | 2363 | 21.1 | 4 3/8 | 111 |
| 3.7 | 94 | 2427 | 21.7 | 4 3/8 | 111 |
| 3.8 | 97 | 2490 | 22.3 | 4 3/8 | 111 |
| 3.9 | 99 | 2553 | 23.0 | 4 3/8 | 111 |
| 4.0 | 102 | 2617 | 23.6 | 4 3/8 | 111 |
| 4.1 | 104 | 2680 | 24.2 | 4 3/8 | 111 |
| 4.2 | 106 | 2743 | 24.9 | 4 3/8 | 111 |
| 4.3 | 109 | 2807 | 25.5 | 4 3/8 | 111 |
| 4.4 | 112 | 2870 | 26.1 | 4 3/8 | 111 |
| 4.5 | 114 | 2933 | 26.8 | 4 3/8 | 111 |
| 4.6 | 116 | 2997 | 27.1 | 4 3/8 | 111 |

*Other thicknesses available upon request.

**Long Term Thermal Resistance Values provide a 15-year time weighted average in accordance with CAN/ULC S770.

Note: Physical and thermal properties shown are based on data obtained under controlled laboratory conditions and are subject to normal manufacturing tolerances.

WARNING: DO NOT EXPOSE TO OPEN FLAME OR EXCESSIVE HEAT. MAY SMOLDER IF IGNITED. IF IGNITED, EXTINGUISH COMPLETELY.

Code Compliance



State of Florida Approved

*Product certified at time of publication. Consult with manufacturer and the PIMA quality mark program directory on the PIMA website (www.pima.org).

Typical Physical Properties

| Property | Value | Test Method |
|---|--|------------------------|
| Water Absorption, % by Volume – 2 hours (under 1" [25.4 mm] water) | 1.5 max. | ASTM C209 |
| Dimensional Stability Change, 7 days @158°F (70°C), 97% RH • Length + Width | <2% | ASTM D2126 |
| Compressive Strength — psi (kPa) | 25 (172) nom. Grade 3 20 (138) nom. Grade 2 | ASTM D1621 |
| Tensile Strength — psf (kPa) | ≥ 500 (23.9) | ASTM C209 |
| Moisture Vapor Transmission | <1.5 perm (85.8ng/Pa•s•m²) | ASTM E96 (Procedure A) |
| Flame Spread ⁽¹⁾⁽²⁾ Index | <75 | ASTM E84 |
| Service Temperature | -100 to 200°F (-73.3 to 93.3°C) | |

⁽¹⁾Foam core only.

⁽²⁾These numerical ratings are not intended to reflect hazards presented by these or any other material under actual fire conditions.

TAPER FILL

TWO LAYERS EACH:

AREA R-1

2.2 = 12.6 R-VALUE

2.2 = 12.6 R-VALUE

T = 25.2 R-VALUE

AREA R-2

2.6 = 15.0 R-VALUE

2.6 = 15.0 R-VALUE

T = 30.0 R-VALUE





ENERGYGUARD™

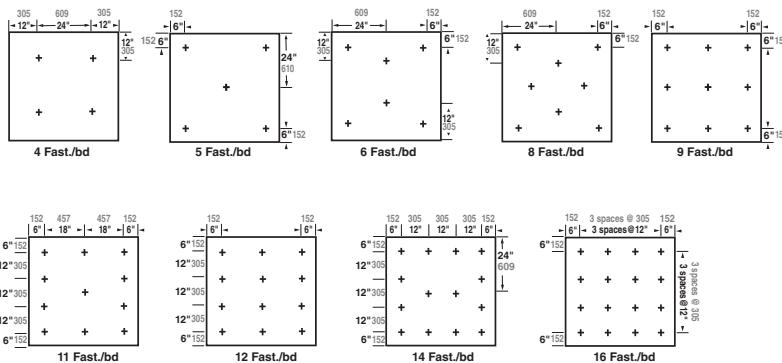
POLYISO INSULATION, 20 & 25 PSI (2 of 2)

Limitations and Potential Fire Hazard

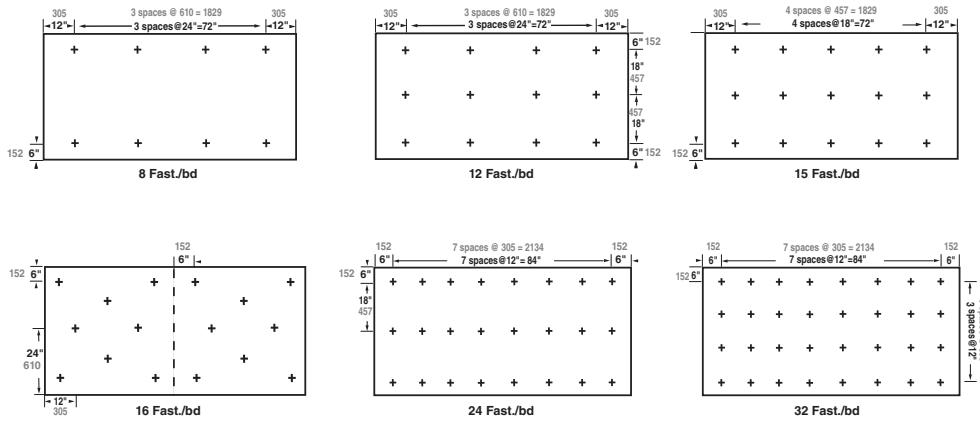
- EnergyGuard™ Polyiso Insulation is a non-structural, non load-bearing material. It is not designed for direct traffic usage unless adequately protected.
- EnergyGuard™ Polyiso Insulation should be stored protected from the elements. Bundle wrap is not for use as waterproofing for boards. No more insulation should be installed than can be completely covered with roofing on the same day.
- As unprotected polyisocyanurate will burn, fire safety precautions should be observed wherever insulation products are used.
- Direct mopping of modified bitumen roofing or built-up roofing (BUR) to EnergyGuard™ Polyiso Insulation is not approved.

Design Considerations – Suggested Insulation Fastener Patterns (NOTE: Measurements in GRAY are in millimeters)

4' x 4' (1220 x 1220) Boards



4' x 8' (1220 x 2440) Boards



NOTE: These patterns are for FM Approved decks utilizing appropriate FM Approved screws and insulation plates when installed per RoofNav. Consult FM Loss Prevention Data Sheets 1-29 for specific perimeter and corner fastening details. For proper attachment, fasteners must penetrate the flange or the metal deck a minimum of 3/4 inch (19.1 mm). Due to ongoing testing programs and changes in FM Global (FM) requirements, the number of fasteners and their placement are subject to change without notice. Consult RoofNav and FM Global Loss Prevention Data Sheets 1-28, 1-29, and 1-29R for approved fastener density for Polyisocyanurate Roof Insulations. If your fastener pattern is not listed, please contact Technical Services at 1-800-766-3411.

EnergyGuard™ Tapered Polyiso Insulation **20 & 25 PSI**

Updated: 7/17



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*

ENERGYGUARD™

TAPERED POLYISO INSULATION, 20 & 25 PSI (1 of 2)

Description

EnergyGuard™ Tapered Polyiso Insulation has a thermally efficient polyisocyanurate core bonded between glass fiber-reinforced cellulosic felt facers. It is readily available in various slopes profiles such as the most popular and efficient tapers, $\frac{1}{8}:12$ (1%), $\frac{1}{4}:12$ (2%), and $\frac{1}{2}:12$ (4%).

Uses

- EnergyGuard™ Tapered Polyiso Insulation is designed for use over structural roof decks to provide slope to drain and to provide thermally efficient insulation.
- When properly installed, it is suitable for use under built-up, modified bitumen, and most single-ply roofing systems.
- Refer to the application specifications in the current membrane manufacturer's application and specifications manual for proper installation procedures.

Advantages

- Properly designed and installed EnergyGuard™ Tapered Polyiso Insulation Systems virtually eliminate ponding water.
- High thermal efficiency.
- Easily installed with mechanical fasteners, low-rise foam, hot asphalt, or loose-laid in a ballasted system.
- Low point and letter codes are designated on each board.
- Engineering design board layouts are available from your plans and field-verified dimensions.

Limitations and Potential Fire Hazard

- EnergyGuard™ Tapered Polyiso Insulation is a non-structural, non-load-bearing board. It is not designed for direct traffic usage unless adequately protected.
- EnergyGuard™ Tapered Polyiso Insulation should be stored dry and be protected from the elements. Once properly loaded at the job site, remove factory wraps and cover with a breathable tarp.
- As an unprotected polyisocyanurate will burn, **fire safety precautions must be observed** wherever any insulation products are used.

EnergyGuard™ Tapered Polyiso Insulation



Code Compliance



State of Florida Approved

Limitations and Potential Fire Hazard

(Continued)

- Direct torching of modified bitumen roofing to EnergyGuard™ Tapered Polyiso Insulation will present a **fire hazard**. A properly installed fiberglass base sheet **MUST** be used over the insulation.
- These tapered systems are designed to provide a top surface of slope. Each board is manufactured to exact thickness specifications. GAF cannot be held responsible for field conditions such as actual building dimensions and deck deflection.

WARNING: DO NOT EXPOSE TO OPEN FLAME OR EXCESSIVE HEAT. MAY SMOLDER IF IGNITED. IF IGNITED, EXTINGUISH COMPLETELY.

Tapered Physical Characteristics

| TAPERED PANELS - 4' X 8' | | | | |
|--------------------------|----------------|-------------------------|----------------------|----------------------|
| | BOARD STYLE | DIMENSIONS IN INCHES | AVERAGE THICKNESS | BD FEET PER PANEL |
| $\frac{1}{8}$ | AA | 0.5" - 1" | 0.75" | 12 |
| | A | 1" - 1.5" | 1.25" | 20 |
| | B | 1.5" - 2" | 1.75" | 28 |
| | C | 2" - 2.5" | 2.25" | 36 |
| | * D | 2.5" - 3" | 2.75" | 44 |
| | * E | 3" - 3.5" | 3.25" | 52 |
| | * F | 3.5" - 4" | 3.75" | 60 |
| | * FF | 4" - 4.5" | 4.25" | 68 |
| $\frac{1}{4}$ | X | 0.5" - 1.5" | 1" | 16 |
| | Y | 1.5" - 2.5" | 2" | 32 |
| | * Z | 2.5" - 3.5" | 3" | 48 |
| | ZZ | 3.5" - 4.5" | 4" | 64 |
| | G | 1" - 2" | 1.5" | 24 |
| | H | 2" - 3" | 2.5" | 40 |
| | * I | 3" - 4" | 3.5" | 56 |
| | Q | 0.5" - 2.5" | 1.5" | 24 |
| $\frac{1}{2}$ | * QQ | 2.5" - 4.5" | 3.5" | 56 |
| | * XX | 1" - 3" | 2" | 32 |
| | * JJ | 0.5" - 1.25" | 0.875" | 14 |
| | * KK | 1.25" - 2" | 1.625" | 26 |
| | * LL | 2" - 2.75" | 2.375" | 38 |
| | * MM | 2.75" - 3.5" | 3.125" | 50 |
| | * J | 1" - 1.75" | 1.375" | 22 |
| | * K | 1.75" - 2.5" | 2.125" | 34 |
| $\frac{3}{16}$ | * L | 2.5" - 3.25" | 2.875" | 46 |
| | * M | 3.25" - 4" | 3.625" | 58 |
| | * SS | 0.5" - 2" | 1.25" | 20 |
| | * TT | 2" - 3.5" | 2.75" | 44 |
| | * S | 1" - 2.5" | 1.75" | 28 |
| | 1 | 0.5" - .75" | 0.625" | 10 |
| | 2 | .75" - 1" | 0.875" | 14 |
| | 3 | 1" - 1.25" | 1.125" | 18 |
| $\frac{3}{8}$ | 4 | 1.25" - 1.5" | 1.375" | 22 |
| | 5 | 1.5" - 1.75" | 1.625" | 26 |
| | 6 | 1.75" - 2" | 1.875" | 30 |
| | * 7 | 2" - 2.25" | 2.125" | 34 |
| | * 8 | 2.25" - 2.5" | 2.375" | 38 |

*Availability for these tapered panel systems may vary for each region.

Note: All sizes are nominal.



ENERGYGUARD™

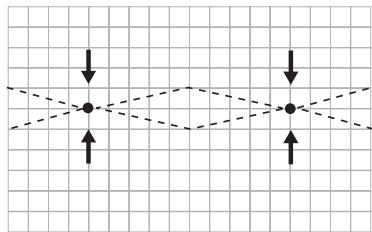
07

TAPERED POLYISO INSULATION, 20 & 25 PSI (2 of 2)

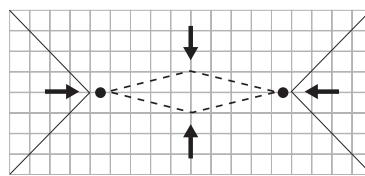
Installation Suggestions: Although each tapered system is different, here are some suggested methods for installing a Tapered Polyiso Insulation system efficiently.

1. Verify building dimensions and drain locations with the Tapered Polyiso Insulation Shop Drawing. Discrepancies should be reported to GAF prior to shipment.
2. Verify that the proper number of truckloads and piece quantities have been received on the job site.
3. Determine the area to be completed that day.
4. Measure the distance from the drain to the perimeter where the shop drawing indicates full 4 feet x 4 feet (1.22 m x 1.22 m) insulation boards. Verify that the system will meet the drain piece.
5. Start installing the tapered system utilizing full 4 feet x 4 feet (1,220 mm x 1,220 mm) boards. Work from the drain and finish the area where the shop drawing indicates field cutting.
6. When more than one layer of insulation is utilized, all vertical board joints should be staggered, preferably by $\frac{1}{2}$ board.
7. Cover the insulation with the complete membrane system the same day.

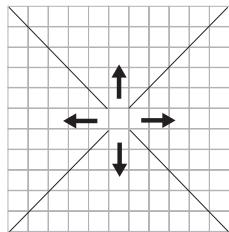
Typical Tapered Layouts



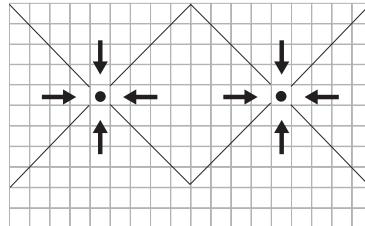
Two-Way Tapered System (Crickets Optional)



Modified Two-Way Tapered System with Constant Edge Thickness (Crickets Optional)

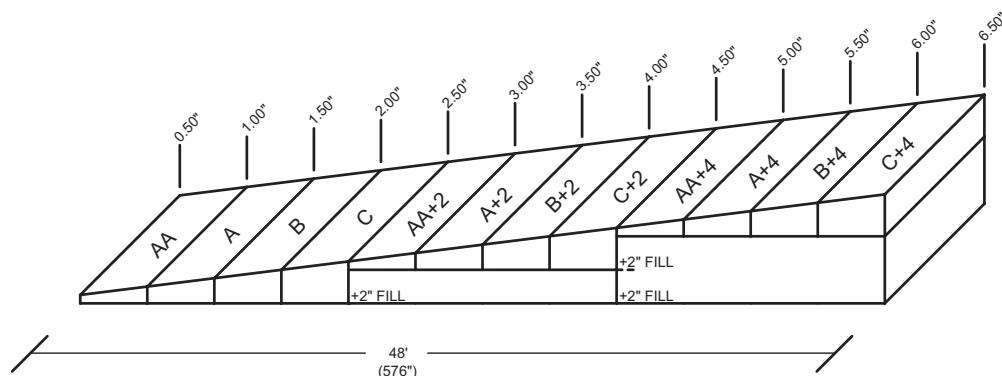


Four-Way Tapered System with Perimeter Drain



Four-Way Tapered System with Variable Edge Thickness

Typical Cross Section $\frac{1}{8}$ Slope Tapered Iso (4' x 4' [1.22 m x 1.22 m] Panels)



NOTE: Consult FM Loss Prevention Data Sheets 1-29, 1-49 for specific perimeter and corner fastening details. Due to ongoing testing programs and changes in FM Global requirements, the number of fasteners and their placement are subject to change without notice. Consult current FM Approvals Guide and Loss Prevention Data Sheets 1-28, 1-29, and 1-29R for approved fastener density for Isotherm Roof Insulation.

OlyBond500® & OlyBond500® Green Data Sheets

Updated: 6/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*

Distributed by:



AS NEEDED

08

OLYBOND500® & OLYBOND500® GREEN

Insulation Adhesive

Description

OlyBond500® and OlyBond500® Green are two-component, low-rise polyurethane adhesives used to adhere a variety of board stocks to most roof substrates in both new and reroof applications. They can also be used to adhere insulation board to insulation board. OlyBond500® is dispensed in $\frac{3}{4}$ " (19.1 mm) to 1" (25.4 mm) wide beads that spread to several inches while rising $\frac{3}{4}$ " (19.1 mm) to 1" (25.4 mm) above the substrate. Place the board stock into the adhesive and walk into place. A chemical cure takes place, securing the board in approximately 4 to 8 minutes after application, depending on temperature and weather conditions.

OlyBond500® is a dual-component, reaction-cure polyurethane adhesive. The blowing agent is water. OlyBond500® does not contain HCFC and has low VOCs. It is available in 10-gallon sets of Part 1 (diisocyanate, 5 gallons [18.93 liters]) and Part 2 (resin, 5 gallons [18.93 liters]), and is also available in 1,500-ml SpotShot cartridge sets (4 cartridges/case).

Basic Use

- OlyBond500® and OlyBond500® Green are included in many approved roof assemblies listed with FM Approvals and Miami-Dade County.
- OlyBond500® and OlyBond500® Green are available in both Regular (Bag-in-Box and Spot Shot) and Winter Grade (OlyBond500® SpotShot only) for optimum application at various temperatures.
- Lightweight and portable.
- Easy application process.
- Compatible with a wide variety of roofing systems.
- Quick set-up time.
- Compatible with many roof decks, substrates, and cover boards.
- Ensure that you have the correct OlyBond500® or OlyBond500® Green formulation for the surface and ambient temperature.
 - **Bag-in-Box:** Regular ($40^{\circ}\text{F} + [4.4^{\circ}\text{C}]$)
 - **SpotShot:** Regular ($40^{\circ}\text{F} + [4.4^{\circ}\text{C}]$) or Winter ($0^{\circ}\text{F} - 65^{\circ}\text{F} [-17^{\circ}\text{C} - 18.3^{\circ}\text{C}]$)
- On retrofit re-cover projects, the existing roofing material must be investigated to ensure adequate attachment of existing system. All wet material must be identified and removed prior to the application of the OlyBond500® or OlyBond500® Green adhesive.
- See pages 3 – 4 for general application recommendations and requirements.

Packaging

- 10-gallon (37.85 liters) Bag-in-Box sets for use with the PaceCart 2® and PaceCart 3™ (5-gallon [18.93 liters] Part 1; 5-gallon [18.93 liters] Part 2).



Manufactured by:



- 1,500-ml SpotShot cartridge sets for use in specially designed applicators.

Formulas (10-gallon Bag-in-Box sets):

- Regular ($40^{\circ}\text{F} + [4.4^{\circ}\text{C}]$)

Formulas (1,500-ml SpotShot cartridges):

- Regular ($40^{\circ}\text{F} + [4.4^{\circ}\text{C}]$)
- Winter ($0^{\circ}\text{F} - 65^{\circ}\text{F} [-17^{\circ}\text{C} - 18.3^{\circ}\text{C}]$)

Compatibility When Properly Prepared and Evaluated

Roof Decks and Substrates:

- Structural concrete
- Gypsum
- Cementitious wood fiber plank
- Lightweight insulating concrete
- Steel (22 gauge or thicker with approved cross section)
- Plywood ($\frac{5}{8}$ " [15.9 mm] thick min.)
- Smooth and granular surface BUR
- Smooth and granular surface modified bitumen
- Existing sprayed-in-place polyurethane foam
- Base sheets
- Most vapor barriers (including asphaltic and fleece-top)

Roof Insulation and Cover Board:

- Expanded Polystyrene
- Polyisocyanurate and HD Polyisocyanurate
- High-Density Wood Fiber
- Gypsum Cover Boards
- Perlite
- Certain Extruded Polystyrene

Any substrate or insulation not listed must be reviewed by OMG. Call 800-633-3800.

Codes and Compliance

OlyBond500®

| Physical Property | Test Method | Typical Values |
|----------------------|--------------------------------------|------------------------|
| Density | ASTM D1622 | 3.2 lb/cf |
| Compressive Strength | ASTM D1621 | 38 psi @ 6% deflection |
| Tensile Strength | ASTM D1623 | 35 psi |
| Water Absorption | ASTM D2842 | 5.1% |
| Closed Cell Content | ASTM D6226 | 90% min |
| R-Value | ASTM C518 | 3.8/inch (new) |
| VOC Content | ASTM D2369 | 5 g/L |
| Weight/Gallon | Part 1 Component Part 2 Component | 10.32 lb 8.4 lb |

OlyBond500® Green

| Physical Property | Test Method | Typical Values |
|----------------------|--------------------------------------|--------------------------|
| Density | ASTM D1622 | 3.38 lb/cf |
| Compressive Strength | ASTM D1621 | 20.6 psi @ 6% deflection |
| Tensile Strength | ASTM D1623 | 39.27 psi |
| Water Absorption | ASTM D2842 | 0.40% |
| Closed Cell Content | ASTM D6226 | 19.5% min |
| R-Value | ASTM C518 | 3.8/inch (new) |
| VOC Content | ASTM D2369 | 11 g/L |
| Weight/Gallon | Part 1 Component Part 2 Component | 10.32 lb 8.4 lb |



Florida Building Code

MIAMI-DADE COUNTY APPROVED



OLYBOND500® & OLYBOND500® GREEN

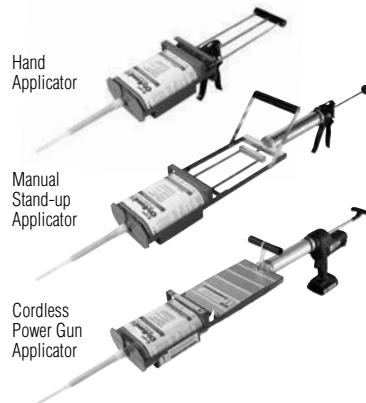
Insulation Adhesive

PaceCart 2® and PaceCart 3™ for OlyBond500® & OlyBond500® Green

Patented PaceCart 2® and PaceCart 3™ are the exclusive pieces of application equipment for OlyBond500® or OlyBond500® Green using patented Bag-in-Box technology.



- Fast application method
- Designed for high-production roof projects
- Low installed cost method of application
- Inexpensive to purchase and operate
- Can apply up to 60 squares of insulation per hour
- Two-component reaction occurs in the disposable mix tips, keeping the gun and hoses clean and free flowing
- 30-ft. (9.14 m) hose allows for easy application around penetrations
- Use OMG PCPreserver™ to keep pumps, hoses, and gun assembly sufficiently lubricated during storage
- Easy to clean and maintain
- Clean, airtight delivery system
- Built-in tool box holds extra mix tips, grease gun, etc.



SpotShot Applicators

Cordless Power Gun Applicator

- All the benefits of the manual stand-up applicator plus a battery-powered mechanical drive system
- Constant pressure provides even and uninterrupted adhesive flow for maximum efficiency
- Significantly increases production; easy to operate
- Includes two (2) batteries and a 120-volt charger

Hand Applicator

- Lightweight and easy to use
- Great for repair work or small areas
- Inexpensive and in stock at major roofing distributors

Manual Stand-up Applicator

- Lightweight and portable
- Stand-up application reduces worker fatigue while increasing production

Product Installation

Job Conditions:

- Ensure that you have the correct OlyBond500® and OlyBond500® Green formulation for the surface and ambient temperature.
 - **Bag-in-Box:** Regular (40°F [4.4°C +])
 - **SpotShot:** Regular (40°F [4.4°C +]) or Winter (0°F – 65°F [-17°C – 18.3°C]) (OlyBond500® only)
- Existing phenolic insulation must be removed.
- Coordination between trades is essential to avoid unnecessary rooftop traffic.

Roof Deck Criteria

1. The building owner or general contractor shall provide a proper substrate. The structure shall be sufficient to withstand normal construction load and live loads.
2. Defects in the deck must be documented and reported to the specifier, general contractor, roof cover manufacturer, and OMG, Inc. The application of OlyBond500® and OlyBond500® Green shall not proceed unless the defects are corrected.
3. It is the responsibility of the roofing contractor to ensure that the existing roof is adequately attached to the building and meets all the requirements for an acceptable surface.
4. Acceptable decks are structural concrete, gypsum, cementitious wood fiber plank, lightweight insulating concrete, minimum 22-gauge steel, and minimum $\frac{5}{8}$ " (15.9 mm) plywood.

Surface Preparation

- **General:** All surfaces must be dry and free of any debris, dirt, oil, or grease before applying OlyBond500® or OlyBond500® Green. GAF United Cleaning Concentrate (UCC) may be used on most surfaces.

Specific Conditions

- **Steel** - The bonding surface of steel decks must be dry and free of debris, dirt, grease, and oil. On new steel, the shop coating/mill oil must be removed. The bonding surface must be free of any cleaner before applying OlyBond500®.
- **Existing Smooth Asphaltic Surfaces** - The surface must be dry and free of debris, dirt, grease, and oil.
- **Existing Polyurethane Foam** - The surface of the polyurethane roof, including the coating, should be removed with a scarifier (minimum inch). The bonding surface should be blown clean before applying OlyBond500® or Olybond500® Green.
- **Metal** - OlyBond500® and OlyBond500® Green have excellent adhesion to clean metal. It is recommended that all non-ferrous metals (aluminum, copper, stainless, etc.) be primed to further increase adhesion. Accepted primers include GAF Epoxy Primer, chlorinated rubber, and wash primer.
- **Concrete** - All concrete surfaces must be fully cured prior to applying OlyBond500® or OlyBond500® Green.
- **Other** - For other substrates not listed, contact OMG at 800-633-3800 or GAF at 1-800-ROOF-411.

Manufactured by:





OLYBOND500® & OLYBOND500® GREEN

Insulation Adhesive

Product Installation

- **Using PaceCart 2® and PaceCart 3™**

- Install Part 1 and Part 2 components following instructions on Bag-in-Box package.
- Open flow valves on the dispenser completely and turn machine on. This allows adhesive to be pumped at a 1:1 ratio through the disposable mix tip and onto the substrate in a semi-liquid state.
- Apply fluid mixture $\frac{3}{4}'' - 1''$ (19.1 mm – 25.4 mm) wide wet beads spaced a maximum of 12" (305 mm) on center that spreads in excess of 2" (51 mm) wide while rising to $\frac{3}{4}'' - 1''$ (19.1 mm – 25.4 mm).
- Lay insulation board into place and walk-in to ensure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.
- Check with roof system manufacturer for project-specific spacing requirements.

- **Using SpotShot Applicator**

- Attach the disposable mix tip to the top of the SpotShot tube. Insert the tube into the SpotShot dispensing tool and dispense onto the substrate. Apply fluid mixture in $\frac{3}{4}'' - 1''$ (19.1 mm – 25.4 mm) wide wet beads in rows spaced a maximum of 12" (305 mm) on center that spread in excess of 2" (51 mm) wide while rising to $\frac{3}{4}'' - 1''$ (19.1 mm – 25.4 mm).
- Lay insulation board into place and walk-in to ensure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.
- Check with roof system manufacturer for project-specific spacing requirements.

Typical Application Rates

Application rates vary depending on surface roughness and absorption rate of the substrate. Typical coverage rates for OlyBond500® and OlyBond500® Green dispensed through the PaceCart 2® and PaceCart 3™ are 10 – 25 squares per 10-gallon (37.85 liters) Bag-in-Box sets. Typical coverage rate for OlyBond500® and OlyBond500® Green SpotShot dispensed through applicators is 4 – 6 squares per case (4 sets of 1,500-ml cartridges). All coverage rates are based on 12" (305 mm) on center maximum spacing. See chart below for typical application rates on specific substrates.

| Application Rates Bag-in-Box Dispensed from PaceCart 2® | Typical Coverage Squares/Gallon |
|---|------------------------------------|
| Insulation to Concrete | 1.7 to 2.5 |
| Insulation to Insulation | 1.7 to 2.5 |
| Insulation to Smooth BUR | 1.5 to 1.7 |
| Insulation to Modified Bitumen | 1.5 to 1.7 |
| Insulation to Gypsum | 1 to 1.2 |
| Insulation to Lightweight Concrete* | 1 to 1.7 |
| Insulation to Wood | 1.7 to 2 |
| Insulation to Cementitious Wood Fiber | 1 to 1.2 |
| Insulation to Steel | 1 to 1.2 |

*Coverage rate may vary substantially based on the absorption rate and/or the surface conditions of the LWC.

Typical Reaction Time Characteristics

5-Gallon Bag-in-Box Packaging:
OlyBond500® & OlyBond500® Green

| Temp. | Tack-Free Time | Set-Up Time |
|-------|----------------|-----------------|
| 40°F+ | 3 – 5 minutes | 10 – 12 minutes |

1500-ml SpotShot Cartridge:
OlyBond500® Only

| Temp. | Tack-Free Time | Set-Up Time |
|------------|----------------|-----------------|
| 0°F – 65°F | 3 – 4 minutes | 10 – 12 minutes |

OlyBond500® & OlyBond500® Green

| Temp. | Tack-Free Time | Set-Up Time |
|-------|----------------|-----------------|
| 40°F+ | 3 – 4 minutes | 10 – 12 minutes |

Important: When applying OlyBond500® board stock must be placed into the adhesive shortly after it has reached its maximum rise while it is still wet and tacky and before it reaches its tack-free state.

Precautions

• **In Case of Fire:** Use water spray, foam, or CO₂. Firefighters should be equipped with self-contained breathing apparatus and turnout gear for protection against PMDI vapors and toxic decomposition products. Avoid water contamination in closed container or confined areas.

• **Do Not Leave Adhesive Exposed or Unprotected.** Polyurethane foam or isocyanurate foam products may present a serious fire hazard if exposed or unprotected. Each person, firm, or corporation engaged in the manufacture, production, application, installation, or use of any of these materials should carefully determine whether there is a potential fire hazard associated with such product in a specific usage and utilize all appropriate precautionary and safety measures as outlined in local, state, and federal regulations. When not in use, keep stored containers closed.

First Aid

In case of contact with eyes, immediately flush eyes with running water for at least 15 minutes. Call a physician immediately. In case of contact with skin, wash affected area with soap and water. Remove all contaminated clothing and shoes and clean before re-use. If swallowed, give large amounts of water to dilute. If vomiting occurs, give more water. Call a physician immediately.

Disposal

PMDI in Part 1 component may cause pollution. Do not discharge into lakes, streams, ponds, or public waters. Spilled material, unused contents, and empty containers should be neutralized and disposed of in accordance with local, state, and federal regulations.

Manufactured by:





OLYBOND500® & OLYBOND500® GREEN

Insulation Adhesive

Patent Notice

The OMG PaceCart 3™ dispensing cart and the Bag-in-Box OlyBond500® Part 1/Part 2 adhesive system, including the adhesive dispensing method, are covered by one or more of U.S. Patent Nos. 6,220,526; 8,113,385; 8,132,693; 8,167,170; 8,342,372 and 8,474,658; and Canadian Patent No. 2,591,502. U.S. and Canadian Patents Pending.

Limitations

- OlyBond500® and OlyBond500® Green are not recommended for use with Polyisocyanurate board stock larger than 4' (1.21 mm) x 4' (1.21 mm).
- OlyBond500® (regular grade) and OlyBond500® Green are not recommended for application when ambient or substrate temperatures are below 40°F [4.4°C].
- OlyBond500® SpotShot winter formulation is specifically designed to be applied between 0°F and 65°F (-17°C – 18.3°C).
- OlyBond500® and OlyBond500® Green are not recommended for use during wet weather.
- OlyBond500® and OlyBond500® Green cannot be used on wet surfaces.
- OlyBond500® and OlyBond500® Green cannot be used on dirty or grease-laden surfaces.
- OlyBond500® and OlyBond500® Green are not recommended for use on any roof deck that shows signs of deterioration or loss of structural integrity.
- OlyBond500® and OlyBond500® Green are not recommended for use after the expiration date. Contact OMG at 800-633-3800 for options and instructions.

Storage and Handling

- Store in a cool, dry location at temperatures between 55°F (12.8°C) and 85°F (29.4°C). Protect from freezing at all times. If properly stored, the shelf life for unopened product is 18 months from the date of manufacture.
- Keep containers closed. Contamination by moisture or basic compounds can cause dangerous pressure build-up in a closed container.
- The minimum product temperature before application should be 72°F (22.2°C). The minimum ambient and surface temperatures should be 40°F (4.4°C) and rising unless the SpotShot winter formulation is being used.

Manufactured by:



DensDeck® Prime Roof Board

Updated: 7/17



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North America's Largest Roofing Manufacturer!™*

Distributed by:



DENSDECK® PRIME ROOF BOARD (1 of 2)

09

Manufactured by:



133 Peachtree Street, N.E.
Atlanta, GA 30303
Technical: 1-800-225-6119

Description

DensDeck® Prime Roof Board combines exceptional fire resistance, a thermal barrier, and recovery board for use in various commercial roofing systems with a pre-primed surface to make the bond even stronger. The patented DensDeck® Prime Roof Board design employs glass mat facings front and back that are embedded into a water-resistant and moisture-resistant treated gypsum core, providing excellent fire resistance, moisture resistance, and wind uplift properties. The unique construction of DensDeck® Prime Roof Board provides superior flute spanning and will help stiffen and stabilize the roof deck. Additionally, DensDeck® Prime Roof Board has been shown to withstand delamination, deterioration, warping, and job site damage more effectively than roofing membrane substrates such as paper-faced gypsum board, fiber board, and perlite insulation.

Primary Uses

Roof system manufacturers and designers have found DensDeck® Prime Roof Board to be compatible with many types of roofing systems, including modified asphalt, single ply, metal systems, and re-cover board, as well as an overlayment for polyisocyanurate and polystyrene insulation. DensDeck® can also be used as a foam board for poured gypsum concrete deck in roof applications as well as a substrate for spray form roofing systems. $\frac{1}{2}$ " (12.7 mm) and $\frac{5}{8}$ " (15.9 mm) DensDeck® Prime Roof Board may also be used in vertical applications as a backer board or liner for the roof side of parapet walls. Georgia-Pacific Gypsum offers a limited warranty for up to 90 days of exposure to normal weather conditions when applied vertically on parapet walls. For complete warranty details, visit DensDeck.com.

DensDeck® Prime Roof Board allows the bonding of cold mastic modified bitumen and torching directly to the surface. **Refer to specific membrane system application instructions.** System manufacturers and designers have found DensDeck® Prime Roof Board to be compatible with bonding adhesives for fully adhered single-ply membrane applications and has been shown to extend the adhesive usage.

DensDeck® Prime Roof Board's exceptional moisture resistance and low R-value make it the preferred substrate for vapor retarders. Having excellent fire resistance, DensDeck® Prime Roof Boards feature a noncombustible core and inorganic surface that offers greater fire protection than other conventional commercial roofing products when applied over combustible roof decks and steel decks. DensDeck® Prime Roof Board is FM tested and approved as the only $\frac{1}{2}$ " (12.7 mm) gypsum product to meet the calorimeter requirements for conventionally insulated decks. Tested in accordance with ASTM E84, its surface burning characteristics are Flame Spread-0 and Smoke Developed-0. $\frac{5}{8}$ " (15.9 mm) Dens Deck® Prime Roof Board can replace any generic type X gypsum board in any roof assembly in the UL Fire Resistance Directory under the prefix "P."

Limitations

DensDeck® Prime Roof Boards are designed to act with a properly designed roof system. The actual use of DensDeck® Prime Roof Board as a roofing component is the responsibility of the roofing system's designing authority.

Conditions beyond the control of Georgia-Pacific Gypsum such as weather conditions, dew, application temperatures, and techniques may cause adverse effects with adhered roofing systems. Always consult the roofing system specific manufacturer's instructions for applying the various roofing types to DensDeck® Prime Roof Board.

Panels must be kept dry before, during, and after installation. Apply only as much DensDeck® Prime Roof Board as can be covered by a roof membrane system in the same day.

Accumulation of water due to leaks or condensation in or on DensDeck® Prime Roof Board must be avoided during construction and after construction. Avoid over-use of non-vented direct-fired heaters during winter months. Avoid application of DensDeck® Prime Roof Board during rains, heavy fogs, and other conditions that may deposit moisture on the surface.

When applying solvent-based adhesives or primers, allow sufficient time for the solvent to flash off to avoid damage to roofing components.

Maximum flute span is $2\frac{5}{8}$ " (66.7 mm) for $\frac{1}{4}$ " (6.35 mm) DensDeck® Prime; 5" (127 mm) for $\frac{1}{2}$ " (12.7 mm) DensDeck® Prime; and 8" (203 mm) for $\frac{5}{8}$ " (15.9 mm) DensDeck® Prime Fireguard® Type X.

Refer to the installation instructions for the specific roof system to be installed for additional requirements.

Technical Data

Flame spread 0, smoke developed 0, when tested in accordance with ASTM E84 or CAN/ULC-S102. Noncombustible when tested in accordance with ASTM E136.

DensDeck® Prime Fireguard®: UL Classified when tested in accordance with ASTM E119.

$\frac{1}{4}$ " (6.35 mm) DensDeck® Prime Roof Board has been tested at FM approvals for 60 psf and 90 psf wind uplift for BUR, EPDM, thermoplastics, and modified bitumen roof systems. Higher wind uplift ratings have been achieved by numerous membrane manufacturers using DensDeck® Prime Roof Boards in their FM-approved construction designs.

Note: DensDeck® is a registered trademark of Georgia Pacific.

Product Specifications (nominal)

| | |
|-----------|---|
| Thickness | $\frac{1}{4}$ " – 6 mm; $\frac{1}{2}$ " – 13 mm; $\frac{5}{8}$ " – 15.9 mm Fireguard® Type X |
| Widths | 4' – 1.22 m standard, $\frac{1}{8}$ " – 3 mm tolerance |
| Lengths | 8' – 2,440 mm standard, tolerance $\frac{1}{4}$ " – 6.35 mm; Optional: 4' (1,220 mm) Available |
| Edges | Square |
| Spanning | $\frac{1}{4}$ " (6.35 mm) DensDeck® Prime Roof Board spans flute widths up to $2\frac{5}{8}$ " (66.7 mm) $\frac{1}{2}$ " (12.7 mm) DensDeck® Prime Roof Board spans flute widths up to 5" (127 mm) $\frac{5}{8}$ " (15.9 mm) DensDeck® Prime Roof Board spans flutes up to 8" (203 mm) wide |

Distributed by:



DENSDECK® PRIME ROOF BOARD (2 of 2)

Manufactured by:



133 Peachtree Street, N.E.
Atlanta, GA 30303
Technical: 1-800-225-6119

09

Installation

1. DensDeck® Prime Roof Board should be used with fasteners specified in accordance with FM requirements and roof membrane manufacturer's written recommendations.
2. For wind uplift/FM compliance where DensDeck® Prime Roof Board is mechanically attached to metal decks, DensDeck® Prime Roof Board shall be installed to the specifics of the FM design assembly.
3. For installations involving BUR, EPDM, thermoplastics, and modified bitumen roof systems, call GP's Technical Hotline at 1-800-225-6119 for fastener patterns of Georgia-Pacific's FMRC uplift assemblies.
4. In accordance with approved shop drawings, FM-approved fasteners shall be installed with plates through the DensDeck® Prime Roof Board, flush with the surface.
5. Where DensDeck® Prime Roof Board is installed over combustible wood decks or insulation, all joints should be staggered. The optional separator sheet should be installed prior to DensDeck® Prime Roof Board installation.
6. Edge joints should be located on, and parallel to, deck ribs. End joints of adjacent lengths of DensDeck® Prime Roof Board should be staggered.
7. DensDeck® Prime Roof Board shall be installed with ends and edges butted tightly.
8. DensDeck® Prime Roof Board is manufactured to meet **ASTM C1177**.

| PHYSICAL PROPERTIES | | | |
|---|---|---|---|
| PROPERTIES | 1/4" (6.4 mm) | 1/2" (12.7 mm) | 5/8" (15.9 mm) |
| Thickness, nominal | 1/4" (6.4 mm) ± 1/16" (1.6 mm) | 1/4" (12.7 mm) ± 1/32" (0.8 mm) | 5/32" (15.9 mm) ± 1/32" (0.8 mm) |
| Width, standard | 4' (1,219 mm) ± 1/8" (3 mm) | 4' (1,219 mm) ± 1/8" (3 mm) | 4' (1,219 mm) ± 1/8" (3 mm) |
| Length, standard | 4' (1,219 mm) & 8' (2,438 mm) ± 1/4" (6.4 mm) | 4' (1,219 mm) & 8' (2,438 mm) ± 1/4" (6.4 mm) | 4' (1,219 mm) & 8' (2,438 mm) ± 1/4" (6.4 mm) |
| Weight nominal, lbs./sq. ft. (Kg/m ²) ⁷ | 1.2 (5.9) | 2.0 (9.8) | 2.5 (12.2) |
| Surfacing | Fiberglass mat with non-asphaltic coating | Fiberglass mat with non-asphaltic coating | Fiberglass mat with non-asphaltic coating |
| Flexural Strength ¹ , parallel, lbf. min. (N) | ≥40 (178) | ≥80 (356) | ≥100 (444) |
| Flute Spanability ² | 2-5/8" (66.7 mm) | 5" (127 mm) | 8" (203 mm) |
| Permeance ³ , Perms (ng/Pa•S•m ²) | >30 (>1710) | >23 (>1300) | >17 (>970) |
| R Value ⁴ , ft ² •°F•hr/BTU (m ² •K/W) | .28 | .56 | .67 |
| Lineal Variation with Change in Temp., in/in °F (mm/mm/°C) | 8.5x10 ⁻⁶ (15.3x10 ⁻⁶) | 8.5x10 ⁻⁶ (15.3x10 ⁻⁶) | 8.5x10 ⁻⁶ (15.3x10 ⁻⁶) |
| Lineal Variation with Change in Moisture | 6.25x10 ⁻⁶ | 6.25x10 ⁻⁶ | 6.25x10 ⁻⁶ |
| Water Absorption ⁵ , % max | <10.0 | <10.0 | <10.0 |
| Compressive Strength ⁶ , psi nominal | 900 | 900 | 900 |
| Surface Water Absorption, grams, nominal ¹ | <2.0 | <2.0 | <2.0 |
| Flame Spread, Smoke Developed (ASTM E84, UL 723, CAN/ULC-S102) | 0/0 | 0/0 | 0/0 |
| Fire Classification | UL Classified FM Approvals | UL Classified FM Approvals | UL Classified FM Approvals |
| Bending Radius | 4' (1,219 mm) | 6' (1,829 mm) | 8' (2,438 mm) |

¹ Tested in accordance with ASTM C473, method B.

² Tested in accordance with ASTM E661.

³ Tested in accordance with ASTM E96 (dry cup method).

⁴ Tested in accordance with ASTM C518 (heat flow meter).

⁵ Specified values per ASTM C1177.

⁶ Tested in accordance with ASTM C473.

⁷ Represents approximate weight for design and shipping purposes. Actual weight may vary based on manufacturing location and other factors.

MOLD RESISTANCE. When tested, as manufactured, in accordance with ASTM D3273, DensDeck® Roof Boards have scored a 10, the highest level of performance for mold resistance under the ASTM D3273 test method. The score of 10, in the ASTM D3273 test, indicates no mold growth in a 4-week controlled laboratory test. The mold resistance of any building product when used in actual job site conditions may not produce the same results as were achieved in the controlled, laboratory setting. No material can be considered mold proof. For additional information, go to www.buildgp.com/safetyinfo.

RUBEROID® HW Smooth Membrane

Updated: 8/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



RUBEROID® HW SMOOTH MEMBRANE

Formerly RUBEROID® SBS HeatWeld™ Smooth

Description

RUBEROID® HW Smooth Membrane is a tough, resilient modified bitumen membrane manufactured to stringent GAF specifications. Its core is a strong, resilient non-woven polyester mat that is coated with flexible polymer modified asphalt and has a smooth surface. Smooth-surface installations must be protected with surfacing.

Uses

RUBEROID® HW Smooth Membrane is designed for new roofing and re-covering applications as well as the construction of flashings. RUBEROID® HW Smooth Membrane is also an ideal product for repairs of built-up roofing membranes or other modified bitumen systems.

Advantages

- System guarantees are available for up to 20 years.*
- Cost effective—The installed cost is less than most single-ply systems on the market today.
- Light weight—Installed roof designs weigh less than 2 pounds per square foot (9.8 kg/m²).

Advantages (Continued)

- Durable—Specially formulated modified asphalt gives lasting performance.
- Resilient polyester mat core allows it to resist splits and tears due to its pliability and elongation characteristics.
- RUBEROID® HW Smooth Membrane is manufactured by GAF, a company with over 125 years in the roofing business.

* See applicable guarantee for complete coverage and restrictions.

Applicable Standards

Meets ASTM D6164, Type I, Grade S

FM Approved

ICC ESR-1274

Miami-Dade County Product Control Approved

State of Florida Approved

UL/ULC Listed

Product Specifications (nominal)

| | |
|---------------------|--|
| Roll Size | 1 square (107.7 gross sq. ft.) (10.0 m ²) |
| Roll Length | 32.6' (9.9 m) |
| Roll Width | 39.625" (1.0 m) |
| Approx. Roll Weight | 72.8 lb (33.0 kg) |
| Product Thickness | 0.120" (3.0 mm) |

This product meets or exceeds the following ASTM D6164, Type I, Grade S, minimum requirements:

| Property | Test Method | Value |
|---------------------------------------|-------------|-------|
| Tensile Strength @ 0°F (min), lbf/in | ASTM D5147 | 70 |
| Elongation @ 0°F (min), % | ASTM D5147 | 20 |
| Low Temperature Flexibility (max), °F | ASTM D5147 | 0 |
| Tear Strength (min), lbf | ASTM D5147 | 55 |
| Dimensional Stability, (max)% | ASTM D5147 | 1 |

RUBEROID® ENERGYCAP™ HW Plus Granule FR Membrane

Updated: 8/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



RUBEROID® ENERGYCAP™ HW Plus Granule FR Membrane

Formerly RUBEROID® EnergyCap™ SBS Heat-Weld™ Plus FR

Description

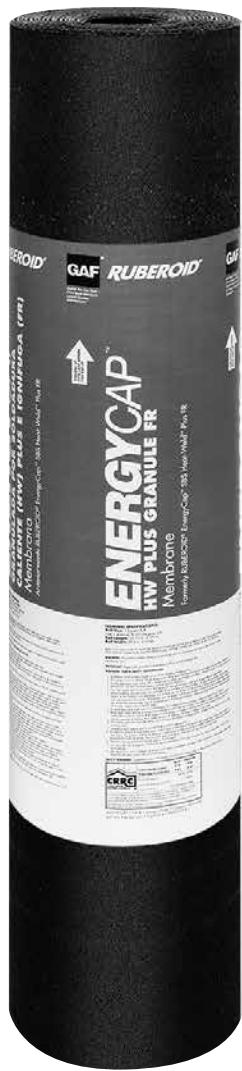
RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is a membrane with a factory-applied premium, heavy-duty, fire-retarding modified bitumen membrane and a factory-applied layer of TOPCOAT® EnergyCote™ Elastomeric Coating. RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is manufactured to stringent GAF specifications. Its core is a strong, heavyweight, resilient non-woven polyester mat that is coated with fire-resistant SBS polymer modified asphalt and surfaced with extra-fine mineral granules and TOPCOAT® EnergyCote™ Elastomeric Coating.

Uses

RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is designed for new roofing and reroofing applications where long-term roof system performance is specified.

Advantages

- System guarantees are available for up to 20 years.*
- Cost effective—The installed cost of RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is much less than installing a reflective coating on top of a standard white granule membrane.
- Light weight—Installed premium roof systems weigh less than 3 pounds per square feet (14.6 kg/m²).
- Resilient—RUBEROID® EnergyCap™ HW Plus Granule FR Membrane's heavyweight polyester mat core allows it to resist splits and tears due to its pliability and elongation characteristics.
- Durable—Specially formulated modified asphalt gives RUBEROID® EnergyCap™ HW Plus Granule FR Membrane lasting performance.
- RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is manufactured by GAF, a company with over 125 years in the roofing business.



Advantages (Continued)

- RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is available in highly reflective brilliant white only.

* See applicable guarantee for complete coverage and restrictions.

Applicable Standards

Meets ASTM D6164, Types I & II, Grade G

ASTM E903, ASTM E408

ENERGY STAR® Qualified (U.S. Only)

UL/ULC Listed

Product Specifications (nominal)

| | |
|------------------------------|---|
| Roll Size | 1 square (108.1 gross sq. ft.) (10.04 m ²) |
| Roll Length | 32.75' (9.98 m) |
| Roll Width | 39.625" (1.0 m) |
| Approx. Roll Weight | 108 lb (49 kg) |
| Product Thickness | 0.165" (4.19 mm) |
| Emissivity* | |
| Initial | 0.82 |
| Aged | 0.80 |
| Reflectivity* | |
| Initial | 0.75 |
| Aged | 0.60 |
| SRI (Solar Reflective Index) | |
| Initial | 91 |
| Aged | 70 |

* Note: The emittance and reflectance values published are those required for Title 24 compliance as listed by CRRC. For certification or other reflectance and emittance code requirements, different calculations may be used resulting in different values. All EnergyCap™ products meet LEED® requirements. Please contact Technical Services at 1-800-766-3411 for assistance and submittal information.

This product meets or exceeds the following ASTM D6164, Types I & II, Grade G, minimum requirements:

| Property | Test Method | Value |
|------------------------------------|-------------|-----------------|
| Tensile Strength @ 0°F, (lbf/in) | ASTM D5147 | 100 min |
| Elongation @ 0°F, (%) | ASTM D5147 | 20 min |
| Low Temperature Flexibility, (°F) | ASTM D5147 | 0°F max (-18°C) |
| Tear Strength, (lbf) @ 73°F (23°C) | ASTM D5147 | 70 min |
| Dimensional Stability, (%) | ASTM D5147 | 1.0 max |

MAJORSEAL™ Liquid Flashing

Updated: 8/16



MAJORSEAL™

LIQUID FLASHING (1 of 2)

Waterproof Difficult Flashing Conditions

Description

MajorSeal™ Liquid Flashing is designed to waterproof difficult flashing conditions. The MajorSeal™ Liquid Flashing System offers an alternative to traditional flashing technology. MajorSeal™ Systems combine MajorSeal™ Liquid Flashing and United Coating™ Roof Mate Fabric to form a durable, redundant flashing membrane. Available in a convenient, easy-to-use kit, MajorSeal™ Liquid Flashing is a VOC-compliant, one-part, moisture-curing, gray polyether sealant.

MajorSeal™ Liquid Flashing is easy to install. Compatible substrates include concrete, masonry (uncoated block and brick), wood, EFIS, and granule-surfaced BUR and SBS cap sheets. In addition, MajorSeal™ Liquid Flashing is compatible with most metals (excluding Kynar® coated metals and copper). Do NOT use on APP or single-ply membranes such as EPDM, PVC, or TPO. MajorSeal™ Liquid Flashing is designed for use with hot asphalt or heat-welded applications. Contact GAF Technical Services at 1-800-ROOF-411 if there are questions on compatible substrates or application method. MajorSeal™ Liquid Flashing requires the addition of Mineral Shield™ Roofing Granules, or a GAF Coating.

Uses

The MajorSeal™ Liquid Flashing System is used to waterproof irregularly shaped penetrations, low parapet walls, at door thresholds, in lieu of pitch pans, and at virtually any application where more traditional flashings are not practical. MajorSeal™ Liquid Flashing cures in humid or dry climate conditions and may be installed at temperatures ranging from 30°F (1.1°C) to 100°F (37.8°C).

Advantages

- One part... no special tools or mixing required
- Less waste... open pouches can be sealed for reuse; fewer pot life concerns
- VOC compliant... (less than 25 grams/liter at 240°F [116°C]), solvent free
- Non-slumping... on vertical surfaces
- Coatable... in 24 hours
- Versatile... can be installed in temperatures from 30°F (1.1°C) – 100°F (37.8°C)
- No shrinkage... due to high solids moisture cure

Approvals & Certification

Conforms to:

- OTC rule for sealants and caulk
- Meets requirements of California VOC regs: CARB and SCAQMD

Conforms to:

Typical Properties



| | |
|------------------------|---|
| VOCs (max) | <25 grams per liter. |
| Service Temperature | -40°F (-40°C) to 200°F (93.3°C) |
| Full Cure | Weather dependent; varies greatly by temperature and humidity. 24 hours @ 60 mil total thickness. |
| Skin Time | Weather dependent; varies greatly by temperature and humidity. Approximately 4 hrs at 70°F (21.1°C) and 50% relative humidity. |
| Shrinkage | 0% |
| Tensile Strength | 243 lbf less scrim |
| Required Mil Thickness | 60 wet mils total |
| Base Coat | 30 wet mils |
| Second Coat | 30 wet mils |
| Clean-Up | Wet material may be cleaned up with alcohol. Cured liquid flashing may be scraped or abraded from substrate. |



Waterproof Difficult Flashing Conditions

MAJORSEAL™

LIQUID FLASHING (2 of 2)

- ASTM D2369
- EPA method 24

Application

Application Considerations

Before using, always review complete application instructions and construction details at gaf.com. Do not use on TPO.

MajorSeal™ Liquid Flashing is easy to install. Compatible substrates include concrete, masonry (uncoated block and brick), most metals (see above), wood, EFIS, and granule-surfaced BUR and SBS cap sheets.

Use MajorSeal™ Liquid Flashing products only on clean, dry substrates; they will not adhere properly where contamination is present. All substrates must be free of residual contamination (e.g., oils, asphalt, or plastic cement). Contaminates such as asphalt will impede adhesion; they may stain through the flashing material and cause discoloration. Use mechanical abrasion where appropriate to ensure a clean substrate. Complete the cleaning process by wiping the substrate with isopropyl alcohol. Allow the alcohol to flash off prior to the application of the flashing material. Do not use cleaning products such as mineral spirits or xylene, or any hydrocarbon solvent, as they will leave a film and impede adhesion of the liquid flashing.

MajorSeal™ Liquid Flashing may flow through gaps greater than $\frac{1}{4}$ inch (6 mm). Where gaps greater than $\frac{1}{4}$ inch (6 mm) are present, bridge the gap with M-Bond™ Sealant. For gaps $\frac{1}{2}$ inch (13 mm) or larger, place a backer rod in the gap, and then seal with M-Bond™ Sealant. Do not substitute sealants. Sealants with alternate chemistries will not be compatible with MajorSeal™ Liquid Flashing.

Using the notched trowel in the kit, apply a base layer of liquid flashing to a thickness of 30 wet mils/approximately 28 lineal feet (8.51 lm) per coating per pouch. Use a wet mil gauge to ensure proper amount of material is installed.

Install precut United Coatings™ Roof Mate Fabric around the penetration so that the fabric extends a minimum of 4 inches (102 mm) onto the field membrane and a minimum of 4 inches (102 mm) onto the penetration. Embed the fabric into the base layer of liquid flashing using the smooth side of the trowel in the kit.

Install a second coat of 30 wet mils/approximately 28 lineal feet (8.51 lm) per coating per pouch of liquid flashing to achieve a total of 60 wet mils of liquid flashing. Extend the sec-

ond coat a minimum of 2 inches (51 mm) past the fabric in the field and on the penetration. If application of the second coat displaces the fabric, straighten the fabric and use a brush to tool-in the remaining liquid flashing.

Apply Mineral Shield™ Roofing Granules immediately after second coat. Additional application of United Coatings™ Roof Mate Coating 24 hours after granule application.

Coverage varies widely by substrate, generally 14–15 lineal feet (4.2–4.5 m) at an application rate of 60 wet mils, (using 12 inch [305 mm] fabric). Drying time also varies by condition. Do not apply if there is threat of rain in 6 hours. Do not install at temperatures below 30°F (1.1°C).

Storage / Shelf Life

Store original unopened containers in a cool, dry place. MajorSeal™ Liquid Flashing will not freeze. Continued storage at elevated temperatures (70°F [21.1°C] and at 50% relative humidity) will shorten expected shelf life. With proper storage, MajorSeal™ Liquid Flashing is expected to last approximately one year from the date of manufacture. Once opened, the foil pouch may be resealed and used within 14 days of opening. Where subsequent use is expected, remove all air from the foil pouch prior to resealing. Do not use if material does not flow freely from pouch or has cured particles.

For Application Questions

Contact GAF Technical Services at 1-800-766-3411 or visit gaf.com.

| Packaging | |
|----------------------------|--|
| Kit 1 Contents | 3 – .53-gallon (2 liter) pouches of MajorSeal™ Liquid Flashing 2 – 10.1-oz (.30 liter) tubes of M-Bond™ Sealant 1 pair – disposable gloves |
| Kit 2 Contents | 1 – notched trowel 1 – 6" x 50" (1.8 x 15 m) roll United Coatings™ Roof Mate Fabric 3 – nozzle extensions |
| Weight Per Kit 1 | 24 lb (10.89 kg) |
| Weight Per Kit 2 | 4 – MajorSeal™ Liquid Flashing pouches .53 gallons (2 liters) |
| Available in a 4-pack box. | |

MATRIX™ 202

SBS Flashing Cement

Updated: 8/16





Highly Modified/Smooth Application



CODE APPROVALS



Cements and coatings
for roofing systems as to
external fire exposure.

MATRIX™ 202 AS NEEDED

SBS FLASHING CEMENT (1 OF 2)

Description

Matrix™ 202 SBS Flashing Cement is a high-quality, asbestos-free formulation for use as a cold-applied bonding agent for SBS modified bitumen roof systems. Heavy, "trowel-grade" consistency makes this product ideal for flashing details, attachment of membrane to steep slopes and parapet walls, and a variety of waterproofing repairs, especially at moving joints where its flexibility and elasticity make it superior to standard plastic cements.

- Superior bonding strength and high flexibility to accommodate temperature-related expansion and contraction of the roof system or waterproofing system
- Easy application...smooth, "trowel-grade" cement maintains excellent low-temperature flexibility

Uses

Matrix™ 202 SBS Flashing Cement's "trowel-grade" consistency outperforms standard plastic cements for:

- Attaching flashing to parapet walls, curbs, and roof projections
- Sealing end laps and perimeter edges of SBS modified bitumen membranes
- Sealing metal-edge flashing, gutter seams, air-conditioning ducts, etc.
- Repairing splits, breaks, and holes in roofing and flashing
- Sealing joints of metal roof panels, metal edging, gutters, coping caps, and air-conditioning ducts
- Flashing pipes and projections through below-grade damp-proofing membranes, sealing shingles, and repairing asphalt built-up, metal, and masonry roofs

Approvals & Certification

Matrix™ 202 SBS Flashing Cement is listed and approved by the following agencies or code bodies: Underwriters Laboratories (UL). Meets or exceeds the requirements of **ASTM D4586** Asphalt Roof Cement Asbestos-free, Type I and **ASTM D3409** Asphalt Roof Cement for Damp, Wet, or Underwater Surfaces. Approvals may vary by region. Be sure to review pail labels before purchase.

Surface Preparation

All surfaces must be clean, dry, and free from any foreign matter, such as oil, grease, dirt, or debris that could inhibit the bonding capabilities of the cement. On existing roofs, inspect roof deck condition; moisture in old roof may require complete removal of existing roof. Check local building codes; local building codes may require complete removal of existing roof. Contact GAF Technical Services for details on cutting out and repairing blisters, buckles, and raised edges for a smooth surface. Check all flashings, edges, drains, valleys, and vents, and repair as needed.

Application

Application Rate: Typical application rate is 8 gallons per square (3.26 L/m²) for a $\frac{1}{8}$ " (3 mm) coat.

Application Method: Use notched trowel or wide-edged putty knife to apply cement evenly and in equal amounts to substrate and SBS membrane flashing. Coat should be $\frac{1}{8}$ " (3 mm) thick on each surface, without gaps, dry areas, or bubbles.

Attachment: Membrane Flashing: No cure time before attaching flashing; simply press into place with even pressure, smoothing out wrinkles and bubbles. Adhere membrane to cemented substrate and press into place, working out any wrinkles or non-adhered areas and making sure a sufficient amount of cement is applied to the laps so that a bead of cement is visible at all lap edges. Mechanically fasten membrane flashing on parapet walls to avoid membrane slippage.

Coursing: Apply cement to surface and install glass or polyester fabric into cement; repeat method for desired courses. When finished, coat with another layer of cement.

Metal: All metal should be primed. Set metal flanges in full bead of $\frac{1}{8}$ " (3 mm) thick cement. Apply cement between joints and apply pressure so that a bead of cement is visible at joint edge.

Product Specifications (Nominal)

| | |
|----------------------|---------------------------|
| Weight | 9.1 lb (4.1kg) per gallon |
| VOC (max) | 300 grams/liter |
| Non-volatile content | 50% maximum |
| SETA Flash Point | 110°F (43.3°C) |
| Sizes | 55 gallon/208.2 L |



MATRIX™ 202

SBS FLASHING CEMENT (2 OF 2)

Highly Modified/ Smooth Application

Application (Continued)

Sealing/Repairs: Apply cement at a $\frac{1}{8}$ " (3 mm) to $\frac{1}{4}$ " (6 mm) thickness, working the cement into the opening or crack and spreading beyond repair area approximately 2–4 inches (51–102 mm). If repair area is over $\frac{1}{4}$ " (6 mm) wide or more than 2" (51 mm) long, embed glass or polyester fabric into the cement for added reinforcement, then cover with additional cement. If desired, repeat procedure for coursing application and feather each layer of fabric beyond underlying layer.

Precautions

Compatibility & Limitations: Do not use with any APP modified products or any modified bitumen membranes that have a plastic film surface or are metal foil-faced. Do not use on wet or damp surfaces, directly over wood, or on surfaces previously covered with coal tar products. Do not install over or under polystyrene insulation.

Temperature Range: Apply only when temperatures are 45°F (7.2°C) and rising. Cold weather will cause product to stiffen, making application difficult. Store for 24 hours at room temperature prior to application. Do not heat container or attempt to thin this product. Not recommended for application on substrates that exceed 140°F (60°C).

Storage/Handling & FIRE WARNING: Matrix™ 202 SBS Flashing Cement is COMBUSTIBLE and should always be kept away from heat, open flame, and any source of ignition. Observe normal safeguards for storing and handling of this product prior to and during application. Do not allow flashing cement to freeze.

Important: Repair leaks promptly to avoid adverse effects, including, but not limited to, mold growth.

Clean Up

Keep containers covered when not in use. Clean equipment and overspray with kerosene, mineral spirits, or petroleum naphtha. Clean hands with waterless hand cleaner.

Caution

Matrix™ 202 SBS Flashing Cement contains petroleum distillate.

Ventilation – Use with adequate ventilation and close containers when not in use. If TLV (Threshold Limit Value) is exceeded, respirators are required (NIOSH/OSHA). Inhalation of high vapor concentration may result in headaches and/or dizziness. Remove individual to fresh air and administer oxygen if breathing is difficult. If breathing has stopped, administer artificial respiration, keep victim warm, and order emergency medical attention immediately.

Eye Contact – Rinse immediately with water for 15 minutes and seek medical advice.

Personal Protection – Irritation may result from prolonged or repeated contact with skin. Wear chemical-resistant gloves, protective goggles, and protective clothing, if needed.

Fire Protection – Matrix™ 202 SBS Flashing Cement is COMBUSTIBLE and should always be kept away from heat, open flame, and any source of ignition.

Waste Disposal – Empty containers must be disposed of in an approved landfill in accordance with local, state, and federal regulations.

For Application Questions

Contact GAF Technical Services at 1-800-766-3411 or visit gaf.com.

MATRIX™ 307 Premium Asphalt Primer

Updated: 8/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



Promotes Excellent Bond For Asphalt Roof Systems



CODE APPROVALS



Cements and coatings
for roofing systems as to
external fire exposure.

MATRIX™ 307

PREMIUM ASPHALT PRIMER (1 OF 2)

14

Description

Matrix™ 307 Premium Asphalt Primer is a general purpose, asbestos-free foundation coating for all types of asphalt-based roofing materials, e.g., hot-mopped or cold-applied asphalt coatings, roof cements, and asphalt-based roof and flooring adhesives.

- Excellent penetration rate—promotes a tough, weather-resistant bond for coating and adhesives
- Strength and flexibility—accommodates temperature-related expansion and contraction of the roof system
- Easy application—sprayer, brush, or roller; maintains excellent low-temperature flexibility

Uses

Matrix™ 307 Premium Asphalt Primer has an excellent penetration rate that promotes a tough, weather-resistant foundation coating for:

- Concrete and masonry roofs, walls, or floors prior to the use of asphalt cutback adhesives
- Metal edging and flashing, asphalt, or weathered composition roofing prior to the application of hot-mopped or cold-applied built-up roofing materials
- Undercoating for LeakBuster™ aluminum roof coatings or asphalt roof coatings and emulsions
- Gypsum surfaces

Approvals & Certification

Matrix™ 307 Premium Asphalt Primer is listed and approved by the following agencies or code bodies: Underwriters Laboratories (UL), Factory Mutual (FM). Meets or exceeds the requirements of ASTM D41 Type 1 Asphalt Primer Used in Roofing, Damp Roofing, and Waterproofing. Approvals may vary by region. Be sure to review pail labels before purchase.

Surface Preparation

All surfaces to be primed must be clean, dry, and free from any foreign matter, such as oil, grease, dirt, or debris that could inhibit the bonding capabilities of the primer. Sweep (or wire-brush metal surfaces) and remove oil, grease, dirt, or other foreign material that could inhibit bonding. On existing roofs, inspect roof deck condition; moisture in old roof may indicate need for roof repair. Contact GAF Technical Services for details on cutting out and repairing blisters, buckles, and raised edges for a smooth surface. Check all flashings, edges, drains, valleys, and vents, and repair as needed.

Application

Application Rate: Typical application rate is $\frac{1}{2}$ gallon per square (.2 L/m²); varies with texture of surface to be primed. Drying time is 4–8 hours between coats.

Material Preparation: Stir well before application.

Application Method: Apply primer with a roller, brush, or sprayer, covering the surface at an even 1 gallon per 500 square feet (.08 L/m²).

Spray: A Graco 45:1 pump or equivalent is recommended. Consult equipment manufacturer for optimum psi, spray tip size, length of hose, and number of spray guns to achieve uniform coat.

Brush: Apply smooth, even coat, using parallel strokes for a uniform coat. If first coat is completely absorbed, apply a second coat.

Roller: Apply smooth, heavy coat, using parallel strokes for a uniform coat.

Precautions

Compatibility & Limitations: Do not use on wet or damp surfaces or on surfaces previously covered with coal tar products. On concrete decks, previous use of wax/resin curing compound may inhibit bonding.

Temperature Range: Apply only when temperatures are 45°F (7.2°C) and rising. Cold weather will cause product to stiffen, making application difficult. Store 24 hours at room temperature prior to application. Do not heat container or attempt to thin this product. Not recommended for application on substrates that exceed 140°F (60°C).

Storage/Handling & FIRE WARNING:

Matrix™ 307 Premium Asphalt Primer is COMBUSTIBLE and should always be kept away from heat, open flame, and any source of ignition. Observe normal safeguards for storing and handling of this product prior to and during application. Do not allow primer to freeze.

Important: Repair leaks promptly to avoid adverse effects, including, but not limited to, mold growth.

Clean Up

Keep containers covered when not in use. Clean equipment and overspray with kerosene, mineral spirits, or petroleum naphtha. Clean hands with waterless hand cleaner.

Product Specifications (Nominal)

| | |
|----------------------|---|
| Weight | 7.4 lb (3.36 kg) per gallon |
| VOC (max) | 350 grams/liter |
| Non-volatile content | 85% by weight minimum |
| Sizes | 3 gal/11.4 L or 5 gal/18.9 L or 55 gal/208.2 L |



Promotes
Excellent
Bond
For Asphalt
Roof
Systems

MATRIX™ 307

PREMIUM ASPHALT PRIMER (2 OF 2)

Caution

Matrix™ 307 Premium Asphalt Primer contains petroleum distillate. Do not thin.

Ventilation – Use with adequate ventilation and close containers when not in use. If TLV (Threshold Limit Value) is exceeded, respirators are required (NIOSH/OSHA). Inhalation of high vapor concentration may result in headaches and/or dizziness. Remove individual to fresh air and administer oxygen if breathing is difficult. If breathing has stopped administer artificial respiration, keep victim warm, and order emergency medical attention immediately.

Eye Contact – Rinse immediately with water for 15 minutes and seek medical advice.

Personal Protection – Irritation may result from prolonged or repeated contact with skin. Wear chemical-resistant gloves, protective goggles, and protective clothing, if needed.

Fire Protection – Matrix™ 307 Premium Asphalt Primer is COMBUSTIBLE and should always be kept away from heat, open flame, and any source of ignition.

Waste Disposal – Empty containers must be disposed of in an approved landfill in accordance with local, state, and federal regulations.

For Application Questions

Contact GAF Technical Services at 1-800-766-3411 or visit gaf.com.



Woody Butts, INC.

OR EQUAL

MANUFACTURERS • DISTRIBUTORS
3451 DALWORTH ARLINGTON, TEXAS 76011
(817) 440-5842

SHEET LEAD SPECIFICATION

2-1/2# & 4#

use

Sheet Lead supplied by Woody Butts, Inc. is 99.9% pure and meets Federal Specification QQ-L-201 Grade B and ASTM B 749.

Drill-Tec™ Steel and Plastic Plates

Data Sheet

Updated: 1/10



*Quality You Can Trust Since 1886...
From North America's Largest Roofing Manufacturer™*



DRILL-TEC™

STEEL AND PLASTIC PLATES

AS NEEDED

16

Pressure Plates

Drill-Tec™ Steel Plates



Drill-Tec™ Plastic Plates



Description

Drill-Tec™ Steel Plates are made of Galvalume® coated steel. The round design provides an even distribution of loads and eliminates sharp corners that can damage the insulation or membrane. Drill-Tec™ 2 3/8" and 2 3/4" plates should be used for lap seam fastening. Drill-Tec™ 3" plates should be used when fastening insulation. These plates are designed to be used with Drill-Tec™ fasteners.

Code Approvals



Physical Data

2" Barbed Plate

Application: Attaches EverGuard® membrane to the substrate.
Fastener: Drill-Tec™ HD #14 Fasteners, XHD #15 Fasteners and Drill-Tec™ CD-10 Fasteners

2" Double-Barbed Plate

Application: Attaches EverGuard® membrane to the substrate.
Fastener: Drill-Tec™ XHD #15 Fasteners, SXHD #21 Fasteners and Drill-Tec™ CD-10 Fasteners.

2 3/8" XHD Barbed Seam Plate

Application: Attaches EverGuard® membrane to the substrate.
Fastener: Drill-Tec™ XHD #15 Fasteners and Drill-Tec™ CD-10 Fasteners.

2 3/4" Super XHD Double-Barbed Seam Plate

Application: Attaches EverGuard® membrane to the substrate.
Fastener: Drill-Tec™ SXHD #21 Fasteners and Drill-Tec™ CD-10 Fasteners.

3" Galvalume® Plate

Application: Attaches insulation to the substrate.
Fastener: Drill-Tec™ Standard, #12 Fasteners, HD #14 Fasteners, CD-10 Fasteners, Fluted Nail

Lite-Deck Plate

Application: Attaches insulation to gypsum, Tectum® and lightweight concrete decks.
Fastener: Drill-Tec™ Lite-Deck Fastener.

Base Sheet Plate

Application: Attaches base sheets to lightweight insulating concrete and various gypsums.
Fastener: Drill-Tec™ Standard or 1.2 Base Sheet Fastener.

Product Data

| Plate | SKU # | Diameter | Packaging | Weight |
|------------------------------|-------|----------|-----------|--------|
| 2" Barbed Plate | 8676 | 2" | 1000 | 29 lbs |
| 2" Double-Barbed Plate | 46DB | 2 1/8" | 1000 | 34 lbs |
| 2 3/8" XHD Barbed Seam Plate | 8678 | 2 3/8" | 1000 | 45 lbs |
| 2 3/4" Super XHD Plate | 8679 | 2 3/4" | 500 | 37 lbs |
| 3" Galvalume® Plate | 4577 | 2 7/8" | 1000 | 37 lbs |
| 3" Lite-Deck Plate | 457B | 3" | 500 | 19 lbs |
| 3" Base Sheet Plate | 45JJ | 3" | 1000 | 46 lbs |

Description

Drill-Tec™ 3" plates should be used when fastening insulation. All Drill-Tec™ plates are round and designed to be used with Drill-Tec™ fasteners.

Code Approvals



Physical Data

3" Polypropylene Plastic Plate

Application: Attaches insulation to the substrate.
Fastener: Drill-Tec Standard, Heavy Duty, CD-10, Fluted Nail or Toggle Bolt fastener.

3" Polypropylene Locking Plastic Plate

Application: Attaches insulation to the substrate.
Fastener: Drill-Tec Standard, Heavy Duty or Toggle Bolt fastener.

Product Data

| Plate | SKU # | Diameter | Packaging | Weight |
|--------------------------|-------|----------|-----------|--------|
| 3" Plastic Plate | 4578 | 3 1/16" | 1000 | 25 lbs |
| 3" Locking Plastic Plate | 45JK | 3 1/16" | 1000 | 25 lbs |

Drill-Tec™ #12 Fastener

Updated: 7/17



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*

Description

Drill-Tec™ #12 Fastener is designed to secure insulation to steel (18 ga. – 24 ga.) and wood. It is available in lengths from 1-5/8" – 8" (41.3 mm – 203 mm). The Drill-Tec™ Standard #12 Roofing Fastener is Factory Mutual and Miami-Dade County Product Control approved.

Application

The Drill-Tec™ #12 Fastener must penetrate steel decks a minimum of 3/4" (19.1 mm), wood plank decks a minimum of 1" (25.4 mm), and 1/2" (12.7 mm) through the underside for plywood decks. Using a screw gun, drive the fastener until the screw head is seated securely; with very rigid insulation boards, watch for the plate to dimple.

Note: Be careful not to overdrive the fastener and fracture the skin of the insulation. Fastener must be tight enough so that the plate doesn't turn.

For steel decks, Factory Mutual requires that the fastener penetrate the deck at the top flute.

To speed installation, this fastener is also available as a labor saving assembled screw and plate. See Drill-Tec ASAP® 3S.

Code Approvals**Advantages**

- Heavier shank & thread diameters than most "standard" roofing fasteners.
- Deep buttress thread for high pull-out resistance.
- Extra sharp drill point for quick installation in new or reroof applications.
- Available with Hex Head or #3 Phillips Truss Head.

Plates & Accessories

- Use 3" (76 mm) steel or plastic plates, depending upon the application.
- For best installation results, use a variable speed 0-2500 rpm screw gun.

Specifications

The fastener will be a Drill-Tec™ #12 Fastener with a thread diameter of .220"

**Drill-Tec™
#12 Fastener**

(5.58 mm). The fastener must have 12.5 buttress threads per inch (per 25.4 mm) and a 30° drill point. Also, the fastener must be heat treated per specification OMG-1. The Drill-Tec™ #12 Fastener will be used with a Factory Mutual-approved, Drill-Tec™ Round Pressure Plate or Pressure Bar. The fastener must be Factory Mutual approved.

Coating Requirement

The fastener will be coated with the Drill-Tec™ CR-10 corrosion-resistant coating. When subjected to 30 Kesternich cycles (DIN 50018), the fastener must show less than 15% red rust and surpass Factory Mutual Approval Standard 4470.

Note: ASAP® is a registered trademark of OMG.

Product Data

| | |
|-----------------|---|
| Thread Diameter | .220" (5.58 mm) |
| Head Diameter | |
| Truss Head | .435" (11.04 mm) |
| Hex Head | .390" (9.91 mm) |
| Head Style | #3 Phillips Truss Head* 1/4" (6.35 mm) Hex Head* |
| Coating | CR-10 |

*#3 Phillips bit or Hex Head drive included in each bucket.

| Length | Thread Length | Packaging (Bucket) | Weight |
|------------------|----------------|--------------------|---------------------|
| 1 5/8" (41.3mm) | Full | 1,000 | 12 lb (5.44 kg) |
| 2 1/4" (57.1 mm) | Full | 1,000 | 15 lb (7.71 kg) |
| 3" (76 mm) | Full | 1,000 | 24 lb (10.89 kg) |
| 4" (102 mm) | 3" (76 mm) | 1,000 | 28 lb (12.70 kg) |
| 5" (127 mm) | 3" (76 mm) | 1,000 | 35 lb (15.88 kg) |
| 6" (152 mm) | 4" (102 mm) | 1,000 | 40 lb (18.14 kg) |
| 7" (178 mm) | 4" (102 mm) | 1,000 | 48 lb (21.77 kg) |
| 8" (203 mm) | 4" (102 mm) | 1,000 | 50 lb (22.68 kg) |

Note: All sizes are nominal.

Example: Drill-Tec™ #12 Fastener Length Selection Procedure

1. If applicable, determine thickness of existing roofing material.
2. Add thickness of new insulation.
3. Add 3/4" (19.1 mm) minimum fastener penetration.
4. If odd size requirement, always size up in length, not down. See example below.

Example

| | |
|------------------------|------------------|
| Existing Roofing: | 1 3/4" (44.4 mm) |
| New Insulation: | + 1/2" (12.7 mm) |
| Min. Embedment: | + 3/4" (19.1 mm) |
| Total Fastening Range: | = 3" (76 mm) |

The proper #12 Fastener for the example is 3 1/4" (82.6 mm).

Use this format to calculate correct fastener size:

| | |
|------------------------|------------------|
| Existing Roof: | |
| New Insulation: | + |
| Min. Embedment: | + 3/4" (19.1 mm) |
| Total Fastening Range: | = |

The proper #12 Fastener is:

EnergyGuard™ Perlite Cant Strip

Updated: 7/17



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*

PERLITE CANT STRIP (1 of 2)

AS NEEDED**Description**

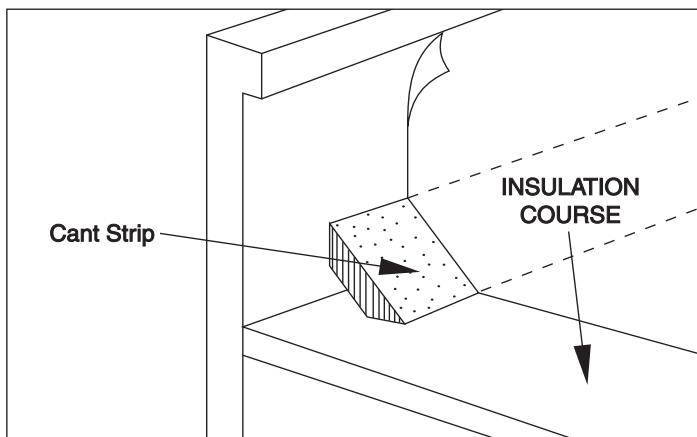
- Factory-fabricated from rigid EnergyGuard™ Perlite insulation board.
- Cut at angles that provide a true 45° angle between horizontal and vertical surfaces.
- UL, ULC Flame Spread Rating 35.
- Easy to fabricate for installation with most types of roof systems.
- Strips are available in 3", 4", and 5" (76 mm, 102 mm, and 127 mm) nominal sizes.

Uses

- To provide a smooth transition from horizontal to vertical surfaces.
- Properly installed, EnergyGuard™ Perlite Cant Strip is suitable for use under built-up and modified bitumen roofing systems.
- Refer to the application specifications in the current membrane manufacturer's application and specifications manual for proper installation procedures for EnergyGuard™ Perlite Cant Strip.

Benefits

- Strong and dimensionally stable.
- Available in 4 standard sizes.
- Can be shipped in mixed loads with roof insulation and tapered systems.
- Multiple shipping locations.
- Easily identifiable bundles.
- Average recycled content is 37%.

**EnergyGuard™
Perlite Cant Strip****Limitations**

- EnergyGuard™ Perlite Cant Strips are a non-structural, non-load-bearing material.
- EnergyGuard™ Perlite Cant Strips should be stored dry and be protected from the elements. Once properly loaded at the job site, remove factory wraps and cover with a breathable tarp.
- No more Cant Strip should be applied than can be completely covered with finished roofing on the same day.
- Do **NOT** use under fully adhered single-ply systems or with direct torch application of modified bitumen.
- If torch-grade modified bitumen roofing is to be installed over EnergyGuard™ Perlite Cant Strips, a fiberglass base sheet **MUST** first be installed.

Code Compliance**Cant Sizes***

| | | |
|----------------|---------------|----------------|
| 1" (25 mm) | x 3" (76 mm) | x 48" (1.22 m) |
| 1" (25 mm) | x 4" (102 mm) | x 48" (1.22 m) |
| 1 1/2" (38 mm) | x 4" (102 mm) | x 48" (1.22 m) |
| 1 1/2" (38 mm) | x 5" (127 mm) | x 48" (1.22 m) |

*All sizes shown are nominal and subject to nominal manufacturing tolerances.



ENERGYGUARD™

PERLITE CANT STRIP (2 of 2)

18

EnergyGuard™ Perlite Cant Sizes and Packaging

| Nominal Size (metric) | | Per Bundle | | Per Pallet | |
|-------------------------------|--|------------|------------------------|------------|------------------------|
| | | Pcs. | Ln. Ft. (Ln. Meter) | Bundles | Ln. Ft. (Ln. Meter) |
| 1 x 4 in (25 x 102 mm) | | 21 | 84 (25.6) | 30 | 2,520 (768) |
| 1 x 3 in (25 x 76 mm) | | 33 | 120 (36.51) | 30 | 3,960 (1201) |
| 1 1/2 x 4 in (38 x 102 mm) | | 30 | 120 (36.51) | 20 | 2,400 (731.52) |
| 1 1/2 x 5 in (38 x 127 mm) | | 18 | 72 (21.9) | 20 | 1,440 (438.9) |

Note: Packaging is subject to change without prior notice.

Specialty Deck Fasteners

Refer to published application instructions for complete installation requirements. For applications not listed or with questions, please contact Technical Services at 1-800-ROOF-411 or technicalquestions@gaf.com.

| | | | |
|--|--|--|---|
| DRILL-TEC™ GYPTEC® |  <p>Drill-Tec™ Polymer GypTec® Fastener Lengths: 2½" to 8" ¼" Square Drive</p>   <p>Drill-Tec™ 2" GypTec Plate (for Membrane) Code # 4596 Galvalume 1000/Bucket 24 lb.</p> <p>Drill-Tec™ 3" GypTec Plate (for Insulation) Code # 4599 Galvalume 1000/Bucket 46 lb.</p> | DRILL-TEC™ LD |  <p>Drill-Tec™ LD Fastener Lengths: 2½" to 12" #3 Square Drive</p>  <p>Drill-Tec™ LD Plate (for Insulation) Code # 457B Galvalume 500/Bucket 19 lb.</p> |
| DRILL-TEC™ BASE SHEET FASTENERS |  <p>Drill-Tec™ Base Sheet Fasteners</p> <p>1.7" Length Code # 459C Galvalume 500/Box 20 lb.</p> <p>1.2" Length* Code # 459U Galvalume 1000/Box 35 lb.</p> <p>*1.2" length may also be used in gypsum applications.</p> | DRILL-TEC™ LOCKING IMPACT NAILS |  <p>DRILL-TEC™ LOCKING IMPACT NAILS</p> <p>GYPSUM, CEMENTITIOUS WOOD FIBER (TECTUM), and LIGHTWEIGHT INSULATING CONCRETE</p> <p>1.4" Length for Base Sheets Code # 45D1 Galvalume 500/Box 26 lb.</p> <p>1.8" Length for Base Sheet or Insulation Code # 45D2 Galvalume 500/Box 28 lb.</p> |

Refer to accompanying SKU table for specific SKU for individual fastener lengths.

| STRUCTURAL CONCRETE and MASONRY | | | | | | | | | | | | | | | | | | | |
|--|--|--------------|-------------|-------|-----------|-------------|--------|---------------|-------------|--------|---------------|-------------|--------|-----------|-------------|--------|---|---|---|
| BAR |  <p>Drill-Tec™ Masonry Anchors (Zinc)</p> <table> <tbody> <tr> <td>3/16" x 7/8"</td> <td>Code # 457B</td> <td>9 lb.</td> </tr> <tr> <td>1/4" x 1"</td> <td>Code # 457F</td> <td>18 lb.</td> </tr> <tr> <td>1/4" x 1 1/4"</td> <td>Code # 457H</td> <td>21 lb.</td> </tr> <tr> <td>1/4" x 1 1/2"</td> <td>Code # 457J</td> <td>24 lb.</td> </tr> <tr> <td>1/4" x 2"</td> <td>Code # 457L</td> <td>29 lb.</td> </tr> </tbody> </table> <p>All sizes are 1000/Box</p> | 3/16" x 7/8" | Code # 457B | 9 lb. | 1/4" x 1" | Code # 457F | 18 lb. | 1/4" x 1 1/4" | Code # 457H | 21 lb. | 1/4" x 1 1/2" | Code # 457J | 24 lb. | 1/4" x 2" | Code # 457L | 29 lb. |  <p>Drill-Tec™ LIP Termination Bar</p> <p>6 in. o.c. Code # 453B ¾" Width Aluminum 500 ft./Tube 57 lb.</p> |  <p>Drill-Tec™ FLAT Termination Bar</p> <p>6 in. o.c. Code # 453D 1" Width Aluminum 500 ft./Tube 56 lb.</p> |  <p>Drill-Tec™ Batten Bar</p> <p>6 in. o.c. Code # 8068 1" Width Aluminum 500 ft./Tube 103 lb.</p> |
| 3/16" x 7/8" | Code # 457B | 9 lb. | | | | | | | | | | | | | | | | | |
| 1/4" x 1" | Code # 457F | 18 lb. | | | | | | | | | | | | | | | | | |
| 1/4" x 1 1/4" | Code # 457H | 21 lb. | | | | | | | | | | | | | | | | | |
| 1/4" x 1 1/2" | Code # 457J | 24 lb. | | | | | | | | | | | | | | | | | |
| 1/4" x 2" | Code # 457L | 29 lb. | | | | | | | | | | | | | | | | | |



GAF

1 Campus Drive, Parsippany, NJ 07054
gaf.com

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RUBEROID® HW Plus Granule FR Membrane

FOR WALKWAY

Updated: 8/16



*Quality You Can Trust...From
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AS NEEDED

20

RUBEROID®

HW PLUS GRANULE FR MEMBRANE

Formerly RUBEROID® SBS Heat-Weld™ Plus FR

WALKWAY ROLL AS
NEEDED - ARCHITECT
TO CHOOSE COLOR

Description

RUBEROID® HW Plus Granule FR Membrane is a premium, heavy-duty fire-retarding membrane that can be installed without the use of hot asphalt. Its core is a strong, resilient non-woven polyester mat that is coated with an inherently fire-retardant polymer modified asphalt and surfaced with mineral granules.

Uses

RUBEROID® HW Plus Granule FR Membrane is designed for new roofing and re-covering applications as well as the construction of flashings. RUBEROID® HW Plus Granule FR Membrane is also an ideal product for repairs of built-up roofing membranes or other modified bitumen systems.

Advantages

- System guarantees are available for up to 20 years.*
- Light weight—Installed roof designs weigh less than 2 pounds per square foot (9.8 kg/m²).
- Durable—Specially formulated modified asphalt gives RUBEROID® HW Plus Granule FR Membrane lasting performance.
- Specially formulated poly burn-off film allows for easy installation.
- Heat welding allows for kettle-free operation.



Advantages (Continued)

- Resilient—RUBEROID® HW Plus Granule FR Membrane's premium polyester mat core allows it to resist splits and tears due to its pliability and elongation characteristics.
- RUBEROID® HW Plus Granule FR Membrane is manufactured by GAF, a company with over 125 years in the roofing business.
- No coatings required for Class A ratings from UL and FM.
- Available with black or white granules.

* See applicable guarantee for complete coverage and restrictions.

Applicable Standards

Meets ASTM D6164, Types I & II, Grade G

FM Approved

ICC ESR-1274

Miami-Dade County Product Control Approved

State of Florida Approved

UL/ULC Listed

Product Specifications (nominal)

| | |
|------------------------|--|
| Roll Size | 1 square (107.7 gross sq. ft.) (10.0 m ²) |
| Roll Length | 32.6' (9.9 m) |
| Roll Width | 39.625" (1.0 m) |
| Approx. Roll Weight | 105 lb (47.6 kg) |
| Product Thickness | 0.165" (4.19 mm) |

This product meets or exceeds the following ASTM D6164, Types I & II, Grade G, minimum requirements:

| Property | Test Method | Value |
|---------------------------------------|-------------|-------|
| Tensile Strength @ 0°F (min), lbf/in | ASTM D5147 | 100 |
| Elongation @ 0°F (min), % | ASTM D5147 | 20 |
| Low Temperature Flexibility (max), °F | ASTM D5147 | 0 |
| Tear Strength (min), lbf | ASTM D5147 | 70 |
| Dimensional Stability, (max) % | ASTM D5147 | 1 |

Forensic Architecture
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Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 075216-001

Description: Modified Bituminous Membrane Roofing - PD

Project Name: UT Seay Building Addition

Project No.: 301-8105

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

- NO EXCEPTIONS NOTED
- SUBMIT SPECIFIED ITEM
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

BY:

daniel hodge



DATE: 12/10/2020

Submittal Comments:

1. Submitted products (Majorseal) do not meet specified product requirements as a PMMA flashing product is required. Single component polyether sealants are not comparable in performance.
2. Previous comments on submittal are moot pending this products approval from the A/E in response to RFI 085. If A/E accepts new product, ZSC takes no exceptions to provided product data, excluding the aforementioned liquid flashing issue.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0459

PROJECT: UT Seay Building Addition

DATE: 12/01/2020

TO: BSA Lifestructures
AL

RE: Modified Bituminous Membrane Roofing - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 12/15/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 075216-001 | 2 | | 12/01/2020 | Modified Bituminous Membrane Roofing - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 12/1/2020 SPEC# 075216

REVIEWED BY tanner.hawkins

SUBMITTAL# 075216-001R1

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

Revision 1

CC:

Signed: Tanner Hawkins
Tanner Hawkins

Project: UT Seay Building Addition

Attention: Tanner Hawkins

RESPONSE TO SUBMITTAL No. 0277, Job 3016105, 07/24/2020

1. Specification calls for ASTM D6163 (glass fiber reinforced) membrane, but an ATM D6164 (polyester reinforced) was submitted.

Upon completion of our research, the ASTM D 6164 meets the same specification as the JM Basis of Design. The only difference is in the reference to the polyester reinforcement rather than the fiberglass reinforcement of ASTM D 6163 listed in JM. The benefits of using the polyester membrane: It is a significant upgrade from the specifications. Because GAF is an Insulation Approved Manufacturer, the rolled goods would be as well. Lastly, there is no added cost for the upgrade to the System.

2. Specification calls for 3 layers, hot mop system, submitted system is 2 layers, torch applied with adhesive and mechanically attached insulation.

Because there are differing specifications, our efforts have been to provide a product that best meets the Owner's requirements. The JM SBS Heat-Weld Specifications 2FID-HW CR, which is the basis of design is not a 3-ply system (layers), however, the GAF HW Smooth is superior to JM Dynaweld Base. It is considered a better mat than the fiberglass mat in the JM Dynaweld base due to the tremendous puncture resistance and its ability to withstand high temperatures which lends itself to the predominant use of modified bitumen. Polyester can remain dimensionally stable during the torching application. The use of hot asphalt as an adhesive is outdated and results in a safety issue. In addition, hot asphalt will melt the vapor barrier over concrete which is 75% of the roof area.

3. Sheet S0001 has -48 PSF listed in the field zone for roof uplift, the assembly letter states the system submitted meets – 45PSF.

Refer to GAF System Letter, (page 2) of October 23, 2020:

"The above listed system will provide -67.5psf (135psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (SC-73) evaluation report #01506.11.04-R28 for FL5680 - R28, page 30 of 104." (See attached letter).

October 23, 2020

Kidd Roofing
1212 East Anderson, Suite 200
Austin, TX 78759

Subject: Contractor/System Certification

Project: UT Sarah & Charles Seay Bldg.
Austin, TX

To Whom It May Concern:

Kidd Roofing of Austin, TX is a GAF Master Select roofing contractor for asphaltic, single-ply and restoration roofing systems and is eligible to obtain a GAF Diamond Pledge™ NDL Roof Guarantee for up to 20 years.

GAF specification I-0-2-HGPFR is eligible to obtain a 20 year Diamond Pledge™ NDL Roof Guarantee; provided all current GAF application requirements are followed and guarantee procedures are met.

I-0-2-HGPFR – Structural Concrete Deck – Concrete Deck Area – R1

GAF SA Primer: Prime the concrete deck using GAF SA primer in accordance with GAF application recommendations.

GAF SA Vapor Retarder: Install GAF SA vapor retarder, self-adhered in accordance with GAF application recommendations.

EnergyGuard™ Polyiso Insulation: Install two layers of 2.2" EnergyGuard™ polyiso insulation (R-25.2, 4' x 4' boards) using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

EnergyGuard™ Tapered Polyiso Insulation: Install EnergyGuard™ tapered polyiso insulation using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

Securock® Gypsum-Fiber Roof Board: Install ½" Securock® gypsum-fiber roof board using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

Ruberoid® HW Smooth: Install one ply of Ruberoid® HW Smooth, torch applied and adhered in accordance with GAF application recommendations.

***Ruberoid® EnergyCap™ HW Plus Granule FR:** Install Ruberoid® EnergyCap™ HW Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide -180psf (360psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (C-69) evaluation report #01506.11.04 – R28 for FL5680 – R28, page 55 of 104.

I-0-2-HGPFREC – Minimum 22ga 33ksi Steel Deck – Steel Deck Area – R2 (Option 1)

EnergyGuard™ Polyiso Insulation: Simultaneously fasten two layers of 2.6" EnergyGuard™ polyiso insulation (R-30) to the steel deck using Drill-Tec™ #12 fasteners and 3" plates, as follows:

- Field: 20 fasteners per 4' x 8' board
- Perimeter: 30 fasteners per 4' x 8' board
- Corners: 40 fasteners per 4' x 8' board

Securock® Gypsum-Fiber Roof Board: Install ½" Securock® gypsum-fiber roof board using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

Ruberoid® HW Smooth: Install one ply of Ruberoid® HW Smooth, torch applied and adhered in accordance with GAF application recommendations.

***Ruberoid® EnergyCap™ HW Plus Granule FR:** Install Ruberoid® EnergyCap™ HW Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide -60psf (120psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (SC-43) evaluation report #01506.11.04 – R28 for FL5680 – R28, page 25 of 104.

I-0-2-HGPFREC – Minimum 22ga 33ksi Steel Deck – Entry Canopy

Securock® Gypsum-Fiber Roof Board: Mechanically fasten ½" Securock® gypsum-fiber roof board to the steel deck using Drill-Tec™ #12 fasteners and 3" flat plates, as follows:

- Field: 16 fasteners per 4' x 8' board
- Perimeter: 24 fasteners per 4' x 8' board
- Corners: 32 fasteners per 4' x 8' board

GAF SA Primer: Prime the Securock® gypsum-fiber roof board using GAF SA primer in accordance with GAF application recommendations.

GAF SA Vapor Retarder: Install GAF SA vapor retarder, self-adhered in accordance with GAF application recommendations.

EnergyGuard™ Tapered Polyiso Insulation Crickets: Install EnergyGuard™ tapered polyiso insulation crickets as specified using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

Ruberoid® HW Smooth: Install one ply of Ruberoid® HW Smooth, torch applied and adhered in accordance with GAF application recommendations.



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what matters most®

Technical Services

1 Campus Drive
Parsippany, NJ 07054

***Ruberoid® EnergyCap™ HW Plus Granule FR:** Install Ruberoid® EnergyCap™ HW Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide -67.5psf (135psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (SC-73) evaluation report #01506.11.04 – R28 for FL5680 – R28, page 30 of 104.

*Ruberoid® EnergyCap™ HW Plus Granule FR meets LEED® v4 credit requirements.

The above listed roofing systems are based on GAF guarantee requirements and are not intended to modify, negate or alter any requirements specified by the design professional or others.

If you have any further questions, please contact us at 1-800-766-3411.

Sincerely,

Matthew Romero

Matthew Romero
Technical Services Representative

PROJECT: UT Seay Building Addition

TO: BSA Lifestructures
AL

DATE: 07/24/2020

RE: Modified Bituminous Membrane Roofing - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 08/07/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 075216-001 | 1 | | 07/24/2020 | Modified Bituminous Membrane Roofing - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE
COMMENTS NOTED
REVISE AND RESUBMIT
OTHER:

DATE 7/24/2020 SPEC# 075216

REVIEWED BY tanner.hawkins

SUBMITTAL# 075216-001

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins



Zero/Six Consulting, LLC
1027 Tremont St.
Galveston, TX
409.740.0090

SUBMITTAL REVIEW

PROJECT UT - SEAY BUILDING ADDITION

PROJECT # 19069

SUBMITTAL # 07 52 16 - 001

DESCRIPTION MODIFIED BITUMINOUS MEMBRANE ROOFING - PD

- | | |
|--|---|
| <input type="checkbox"/> NO EXCEPTION TAKEN | <input type="checkbox"/> EXCEPTIONS NOTED |
| <input type="checkbox"/> SUBMIT SPECIFIED ITEM | <input checked="" type="checkbox"/> REVISE AND RESUBMIT |

COMMENTS:

1. Specification calls for ASTM D6163 (glass fiber reinforced) membrane, but an ASTM D6164 (polyester reinforced) was submitted.
2. Specification calls for 3 layers, hot mop system, submitted system is 2 layers, torch applied with adhesive and mechanically attached insulation.
3. Sheet S0001 has -48 PSF listed in the field zone for roof uplift, the assembly letter states the system submitted meets -45 PSF.

PLEASE SEE ATTACHED RESPONSE
FROM KIDD ROOFING.

DATE 7.31.2020

REVIEWED BY JEFFREY BISHOP, PE

CORRECTIONS AND NOTATIONS ON SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS. THIS REVIEW IS ONLY TO CHECK GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSION, SELECTING FABRICATION PROCESSES, TECHNIQUES OF CONSTRUCTION, AND PERFORMING THE WORK IN A SAFE MANNER.

SUBMITTAL REVIEW

Project Name: UT SEAY Building Addition
Project Number: 15830011

Reviewer: Ramon Arteaga
Date: 8/3/2020

Specification Section: 07
Submittal Number: 075216-001

Submittal has been reviewed only for general compliance with the design concept expresses in the Contract Documents. Markings and/or comments shall not be construed as relieving the Contractor from compliance from the project plans and specifications, nor any departures there from. Contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for verification and field conditions, for coordination with other trades and contractors, and performing the work in a safe and satisfactory manner.

Where initial review of these submittals was performed by the A/E's professional consultant(s), review of this submittal by the Architect or Engineer of Record relies solely on the Consultant's review, comments and directions.

- No Exceptions Taken
- Note Markings & Comments
- Note Markings & Comments - Resubmit
- Rejected for Non-Compliance with Contract Documents
- Revise & Resubmit
- Other: _____

Comments:

1. See comments from ZSC.

PROVIDED FOR
REFERENCE



1212 E. Anderson Lane Austin Texas 78752

SARAH & CHARLES SEAY BLDG.

MOD BIT ROOF 075216

1. KIDD WORKMANSHIP WARRANTY
2. GAF EVERGUARD DIAMOND PLEDGE
3. GAF SYSTEM LETTER
4. GAF SA PRIMER
5. GAF SA VAPOR RETARDER
6. GAF ENERGYGUARD POLYISO INSULATION
7. GAF ENERGYGUARD TAPERED POLYISO INSULATION
8. GAF OLYBOND 500
9. GAF DENSDECK PRIME
10. GAF RUBEROID HW SMOOTH MEMBRANE
11. GAF RUBEROID HW PLUS GRANULE MEMBRANE
12. GAF MAJORSEAL LIQUID FLASHING
13. GAF MATRIX 202 SBS FLASHING CEMENT
14. GAF 307 ASPHALT PRIMER
15. WOODY BUTTS – OR EQUAL LEAD SHEETS FOR JACKS
16. GAF DRILL-TEC STEEL & PLASTIC PLATES
17. GAF DRILL-TEC STANDARD #12 FASTENERS
18. GAF ENERGYGUARD PERLITE CANT STRIP
19. GAF TERMINATION BAR
20. GAF WALKWAY ROLL

06/26/2020

LIMITED COMMERCIAL WORKMANSHIP WARRANTY

Project:

2 YEARS

Project Address:

D. R. Kidd Company, Inc. - "DRKCI" - hereby warrants, subject to the terms and conditions set forth herein, that it will, at no cost to the "Buyer", make all repairs to leaks which result from defects in workmanship and materials furnished by DRKCI, which occur within the **YEARS (2) year term** of this warranty beginning the date of substantial completion : 06/11/2014

This warranty is made under and subject to the following terms and conditions:

- (a) "Buyer" must notify DRKCI of any leaks which may require repairs under this warranty. In order to pursue a claim that DRKCI has not honored this warranty, written notice of the leak must be given to DRKCI at the address listed below. DRKCI shall make the required repairs as soon as practical upon notification of reported defects.
- (b) Repairs made by others than DRKCI shall invalidate this warranty unless preapproved by DRKCI.
- (c) Nothing in this warranty shall be construed to hold DRKCI as liable for any damage to "Buyer"s premises or any contents thereof, including the roof decking, facia and rafters. It is the "Buyer"s responsibility to periodically inspect roof, wall panels, ceilings and overhangs for signs of leakage and promptly report them to DRKCI.
- (d) DRKCI will not be responsible for any leaks caused by (1) lightning, hail, hurricane, tornado, windstorm or other weather phenomena; (2) structural elements of the building, including cracking, movement, settlement, deflection, nails, staples or other fasteners not part of DRKCI's installation which have backed out of the roof deck, deterioration and decomposition of the walls, foundation or the roof deck; (3) parapet walls, copings, chimneys, skylights, vents equipment supports and other edge conditions and penetrations of the roofing work unless the leak is caused by faulty installation of accessories which were performed by DRKCI or if such accessories were furnished by DRKCI; (4) service to or maintenance of any roof top equipment or traffic of any nature on the roof; (5) abuse, misuse, accident or negligence by any person other than DRKCI;(6) atypical flashing (height) installation(s) that are non-compliant to NRCA/SMACNA provisions due to architectural design;(7) improper drainage due to, but not limited to, existing gutters/drains/downspouts by non-compliance to construction codes or poor pitch.
- (e) Any alterations or additions to the roof surface after completion of installation by DRKCI must be approved by DRKCI in writing and DRKCI shall have the right to submit its recommendations for any new roofing or flashing materials required. Failure of the "Buyer" to adhere to these recommendations will result in cancellation of this warranty. Owners responsibility to provide roof access. Kidd not responsible for removing or replacing roof coverings. I.E deck/pavers.
- (f) This warranty shall accrue only to the benefit of the original "Buyer" named herein. It is not transferable to any other person except with the prior written consent of DRKCI.
- (g) DRKCI shall have no obligation pursuant to this warranty until all bills for installation, supplies and services in connection with the roofing covered by this warranty have been paid in full.
- (h) DRKCI will not be liable for fasteners that back out of the roof deck or substrate which penetrate the roofing materials. This disclaimer does not relate to fasteners installed by DRKCI.
- (i) This warranty and the proposal/contract of which this warranty is a part, constitute the entire agreement between DRKCI and the "Buyer" and no other representations or agreements pertaining to the work performed by DRKCI have been made. DRKCI shall have no obligation with respect to the roof upon the expiration of the warranty period set forth above which begins on the date of substantial completion of the work as determined by DRKCI.
- (j) Any claim arising out of or relating to this contract, or breach thereof, shall be settled by arbitration, binding on both parties , in accordance with the construction industry arbitration rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

DRKCI SHALL NOT BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL INCIDENTAL OR OTHER DAMAGES. "BUYER"S SOLE REMEDY UNDER THIS WARRANTY IS THE RIGHT TO HAVE DRKCI REPAIR AT NO COST TO THE "BUYER". THOSE LEAKS IN THE ROOF WHICH RESULT FROM DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY DRKCI. THIS WARRANTY IS GIVEN AND ACCEPTED IN LIEU OF ALL OTHER LIABILITY OR WARRANTIES ON THE PART OF DRKCI, EXPRESS OR IMPLIED, IN FACT OR IN LAW. ALL IMPLIED WARRANTIES AND SPECIFICALLY THE IMPLIED WARRANTIES OF MERCHANTABILITY, HABITABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED AND DISCLAIMED.

THIS LIMITED WORKMANSHIP WARRANTY SHALL ONLY BE IN EFFECT IF THE CONTRACT WITH D. R. KIDD COMPANY, INC HAS BEEN PAID IN FULL



1212 E. Anderson Ln | Ste 200
Austin, Texas 78752
(512) 671-7791 FAX (512) 671-8707

EXPIRES:

**EverGuard® Diamond Pledge™
NDL Roof Guarantee
(COMTS700)**

Updated: 3/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



**GAF® EverGuard®
DIAMOND PLEDGE™
NDL ROOF GUARANTEE**

No. _____



OWNER: _____ PERIOD OF COVERAGE: _____ YEARS

NAME AND TYPE OF BUILDING: _____

ADDRESS OF BUILDING: _____

ROOF SPECIFICATION: _____ AREA OF ROOF: _____ SQUARES

APPLIED BY: _____

DATE OF COMPLETION: _____ GUARANTEE EXPIRATION DATE: _____

THE GUARANTEE/SOLE AND EXCLUSIVE REMEDY

GAF guarantees to you, the owner of the building described above, that GAF will provide "Edge To Edge" protection by repairing leaks through the GAF roofing membrane, liquid-applied membrane or coating, base flashing, high wall waterproofing flashing, insulation, expansion joint covers, prelashed accessories, and metal flashings used by the contractor of record that meet SMACNA standards (the "GAF Roofing Materials") resulting from a manufacturing defect, ordinary wear and tear, or workmanship in applying the GAF Roofing Materials. There is no dollar limit on covered repairs. Leaks caused by any non-GAF materials, such as the roof deck or non-GAF insulation, are not covered.

GUARANTEE PERIOD

This guarantee ends on the expiration date listed above. **NOTE:** Lexsucos® flashings are covered by this guarantee **ONLY** for the first ten years.

OWNER RESPONSIBILITIES**Notification of Leaks**

In the event of a leak through the GAF Roofing Materials, you **MUST** make sure that GAF is notified directly about the leak, in writing, within **30 days** by email (preferred) at guaranteeleak@gaf.com or by postal mail to GAF Guarantee Services, 1 Campus Drive, Parsippany, NJ 07054, or GAF will have no responsibility for making repairs. **NOTE:** The roofing contractor is **NOT** an agent of GAF; notice to the roofing contractor is **NOT** notice to GAF.

By notifying GAF, you authorize GAF to investigate the cause of the leak. If the investigation reveals that the leak is not covered by this guarantee, you agree to pay an investigation cost of \$500. This guarantee will be cancelled if you fail to pay this cost within 30 days of receipt of an invoice for it.

Preventative Maintenance and Repairs

- A. You must perform regular inspections and maintenance and keep records of this work.
- B. To keep this guarantee in effect, you must repair any conditions in the building structure or roofing system that are not covered by this guarantee but that GAF concludes may be threatening the integrity of the GAF Roofing Materials. Any such repairs must be performed by a GAF-certified roofing contractor. Failure to make timely repairs may jeopardize guarantee coverage.
- C. You may make temporary repairs to minimize damage to the building or its contents in an emergency, at your sole expense. These repairs will not result in cancellation of the guarantee as long as they are reasonable and customary and do not result in permanent damage to the GAF Roofing Materials.
- D. Any equipment or material that impedes any inspection or repair must be removed at your expense so that GAF can perform inspections or repairs.

EXCLUSIONS FROM COVERAGE

(e.g., items that are not "ordinary wear and tear" or are beyond GAF's control)

This guarantee does **NOT** cover conditions other than leaks. This guarantee also does **NOT** cover leaks caused by any of the following:

1. Inadequate roof maintenance, that is, the failure to follow the Scheduled Maintenance Checklists provided with this guarantee (extra copies available by calling Guarantee Services at 1-800-ROOF-411) or the failure to repair owner responsibility items.
2. Unusual weather conditions or natural disasters including, but not limited to, winds in excess of 55 miles per hour, hail, floods, hurricanes, lightning, tornados, and earthquakes, unless specifically covered by an addendum to this guarantee.
3. Impact of foreign objects or physical damage caused by any intentional or negligent acts, accidents, misuse, abuse or the like.
4. Damage to the roof constructed of the GAF Roofing Materials due to:
 - (a) movement, cracking, or other failure of the roof deck or building;
 - (b) improper installation or failure of any non-GAF insulation or materials;
 - (c) condensation or infiltration of moisture through or around the walls, copings, building structure, or surrounding materials except where high wall GAF waterproofing flashings
5. Traffic of any nature on the roof unless using GAF walkways applied in accordance with GAF's published application instructions.
6. Blisters in the GAF Roofing Materials that have not resulted in leaks.
7. Changes in the use of the building or any repairs, modifications, or additions to the GAF Roofing Materials after the roof is completed, unless approved in writing by GAF.
8. Exposure to sustained high-temperature conditions; however, for systems utilizing EverGuard Extreme® TPO membrane, exposure in excess of 195°F.

No representative, employee, or agent of GAF, or any other person, has the authority to assume any additional or other liability or responsibility for GAF, unless it is in writing and signed by an authorized GAF Field Services Manager or Director. GAF does not practice engineering or architecture. Neither the issuance of this guarantee, nor any review of the roof constructed of the GAF Roofing Materials (or the plans for the roof), by GAF shall constitute any warranty of such plans, specifications or construction or the suitability or code compliance of the GAF Roofing Materials for any particular structure. **NOTE:** Any inspections made by GAF are limited to a surface inspection only, are for GAF's sole benefit, and do not constitute a waiver or extension of any of the terms and conditions of this guarantee.

This guarantee **MAY BE SUSPENDED OR CANCELLED IF THE ROOF IS DAMAGED BY** any cause listed above as **AN EXCLUSION FROM COVERAGE** that may affect the integrity or watertightness of the roof.

TRANSFERABILITY

You may transfer or assign this guarantee to a subsequent owner of this building for the remaining term only if: 1) the request is in writing to GAF at the address listed below within 60 days after ownership transfer; 2) you make any repairs to the GAF Roofing Materials or other roofing or building components that are identified by GAF after an inspection as necessary to preserve the integrity of the GAF Roofing Materials; and 3) you pay an assignment fee of \$500. This guarantee is **NOT** otherwise transferable or assignable by contract or operation of law, either directly or indirectly.

LIMITATION OF DAMAGES; MEDIATION; JURISDICTION; CHOICE OF LAW

THIS GUARANTEE IS EXPRESSLY IN LIEU OF ANY OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, and of any other obligations or liability of GAF, whether any claim against it is based upon negligence, breach of warranty, or any other theory. In NO event shall GAF be liable for any CONSEQUENTIAL OR INCIDENTAL DAMAGES of any kind, including, but not limited to, interior or exterior damages and/or mold growth. The parties agree that, as a condition precedent to litigation, any controversy or claim relating to this guarantee shall be first submitted to mediation before a mutually acceptable mediator. In the event that mediation is unsuccessful, the parties agree that neither one will commence or prosecute any lawsuit or proceeding other than before the appropriate state or federal court in the State of New Jersey. This guarantee shall be governed by the laws of the State of New Jersey, without regard to principles of conflicts of laws. Each party irrevocably consents to the jurisdiction and venue of the above identified courts.

NOTE: GAF shall have no obligation under this guarantee unless and until all bills for installation and supplies have been paid in full to the roofing contractor and materials suppliers, and the guarantee charge has been paid to GAF.

This guarantee must have a raised seal to be valid.

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GAF
1 Campus Drive
Parsippany, NJ 07054

By: _____
Authorized Signature

Date

COMTS700



EverGuard® Diamond Pledge™ NDL Roof Guarantee With True "Edge-To-Edge" Coverage

Important Information On Your Guarantee Coverage...

Congratulations on selecting a GAF EverGuard® Diamond Pledge™ NDL Roof Guarantee. GAF is proud to provide you with extraordinary guarantee coverage for your new roofing system.

- The EverGuard® Diamond Pledge™ NDL Roof Guarantee provides you with comprehensive system protection so that if your new GAF roofing system leaks from a manufacturing defect or workmanship error, the costs of repair are 100% covered (see your EverGuard® Diamond Pledge™ NDL Roof Guarantee for complete coverage and restrictions).

First, let's understand the responsibilities of ownership...

- It's common sense... if you own something and you want it to perform, you have to maintain it. After all, you wouldn't expect...
 - a smoke alarm to go off with a dead battery
 - your furnace to perform efficiently if you never changed the filter
 - your car to run if you never changed the oil

Your new roof is no exception.

Simply put... maintenance is a responsibility of ownership. Without basic maintenance, your assets will diminish in value. With basic maintenance, you can preserve them and enjoy years of reliable service.

Your new roof is protected by the extraordinary EverGuard® Diamond Pledge™ NDL Roof Guarantee coverage, plus you may be eligible for the added benefits of...

• Up to 25% of additional duration... with the WellRoof® Guarantee Extension¹

We've put together a program designed to help reduce the risk of the unexpected expense and unnecessary disruption that may occur if your roof leaks.

The WellRoof® Guarantee Extension can add up to 25% additional duration to your EverGuard® Diamond Pledge™ NDL Roof Guarantee coverage, when you maintain your roof with the services of a **GAF Certified Maintenance Professional**.

Protect your asset and get longer protection from your guarantee with **The WellRoof® Guarantee Extension** and a maintenance program you can trust, executed by a GAF Certified Maintenance Professional. Call 1-800-ROOF-411 or visit gaf.com for information about a Certified Maintenance Professional in your area.

Need more info on saving money with a roof maintenance program? See the WellRoof® Brochure at gaf.com.

¹ See the WellRoof® Guarantee Extension for complete coverage and restrictions.



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*

gaf.com



We protect
what matters most™

Technical Services
1 Campus Drive
Parsippany, NJ 07054

03

June 26, 2020

Kidd Roofing
1212 East Anderson, Suite 200
Austin, TX 78759

Subject: Contractor/System Certification

Project: UT Sarah & Charles Seay Bldg.
Austin, TX

To Whom It May Concern:

Kidd Roofing of Austin, TX is a GAF Master Select roofing contractor for asphaltic, single-ply and restoration roofing systems and is eligible to obtain a GAF Diamond Pledge™ (NDL) guarantee for up to 20 years.

GAF specification I-0-2-HGPFR is eligible to obtain a 20 year Diamond Pledge™ (NDL) guarantee; provided all current GAF application requirements are followed and guarantee procedures are met.

I-0-2-HGPFR – Structural Concrete Deck – Concrete Deck Area – R1

GAF SA Primer: Prime the concrete deck using GAF SA primer in accordance with GAF application recommendations.

GAF SA Vapor Retarder: Install GAF SA vapor retarder, self-adhered in accordance with GAF application recommendations.

EnergyGuard™ Polyiso Insulation: Install two layers of 2.2" EnergyGuard™ polyiso insulation (R-25.2, 4' x 4' boards) using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

EnergyGuard™ Tapered Polyiso Insulation: Install EnergyGuard™ tapered polyiso insulation using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

DensDeck® Prime Roof Board: Install ½" DensDeck® Prime roof board using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

Ruberoid® HW Smooth: Install one ply of Ruberoid® HW Smooth, torch applied and adhered in accordance with GAF application recommendations.

***Ruberoid® EnergyCap™ HW Plus Granule FR:** Install Ruberoid® EnergyCap™ HW Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide -45psf (90psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (C-69) evaluation report #01506.11.04 – R27 for FL5680 – R27, page 55 of 106.

I-0-2-HGPFREC – Minimum 22ga 33ksi Steel Deck – Steel Deck Area – R2

EnergyGuard™ Polyiso Insulation: Simultaneously fasten two layers of 2.6" EnergyGuard™ polyiso insulation (R-30) to the steel deck using Drill-Tec™ #12 fasteners and 3" plates, as follows:

- Field: 8 fasteners per 4' x 4' board
- Perimeter: 12 fasteners per 4' x 4' board
- Corners: 16 fasteners per 4' x 4' board

DensDeck® Prime Roof Board: Install 1/2" DensDeck® Prime roof board using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.

Ruberoid® HW Smooth: Install one ply of Ruberoid® HW Smooth, torch applied and adhered in accordance with GAF application recommendations.

***Ruberoid® EnergyCap™ HW Plus Granule FR:** Install Ruberoid® EnergyCap™ HW Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide -45psf (90psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (SC-13) evaluation report #01506.11.04 – R27 for FL5680 – R27, page 20 of 106.

I-0-2-HGPFREC – Minimum 22ga 33ksi Steel Deck – Entry Canopy

DensDeck® Prime Roof Board: Preliminarily fasten 1/2" DensDeck® Prime roof board to the steel deck using Drill-Tec™ #12 fasteners and 3" plates, as follows:

- Field: 8 fasteners per 4' x 4' board
- Perimeter: 12 fasteners per 4' x 4' board
- Corners: 16 fasteners per 4' x 4' board

EnergyGuard™ Tapered Polyiso Insulation Crickets: Install EnergyGuard™ tapered polyiso insulation crickets as specified using OlyBond 500™ insulation adhesive, as follows:

- Field: .75" -1" ribbons 12" o.c.
- Perimeter: .75" – 1" ribbons 6" o.c.
- Corners: .75" – 1" ribbons 4" o.c.



We protect
what matters most™

03

Technical Services

1 Campus Drive
Parsippany, NJ 07054

Ruberoid® HW Smooth: Install one ply of Ruberoid® HW Smooth, torch applied and adhered in accordance with GAF application recommendations.

***Ruberoid® EnergyCap™ HW Plus Granule FR:** Install Ruberoid® EnergyCap™ HW Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide -45psf (90psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (SC-69) evaluation report #01506.11.04 – R27 for FL5680 – R27, page 29 of 106.

*Ruberoid® EnergyCap™ HW Plus Granule FR meets LEED® v4 credit requirements.

The above listed roofing systems are based on GAF guarantee requirements and are not intended to modify, negate or alter any requirements specified by the design professional or others.

If you have any further questions, please contact us at 1-800-766-3411.

Sincerely,

Matthew Romero

Matthew Romero
Technical Services Representative

SA Primer Data Sheet

Updated: 9/18



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



GAF SA Primer

Description

GAF SA Primer is an SBS polymer-based primer for use with GAF SA Vapor Retarder on approved substrates. The GAF SA Primer is a blend of SBS polymers, solvents, and additives to prepare a substrate for adhesion to the GAF SA Vapor Retarder. The GAF SA Primer can be used on plywood, gypsum, concrete, and asphalt panels, and can be applied by brush or roller.

Uses

GAF SA Primer may be applied to:

- Plywood
- Gypsum
- Concrete
- Asphalt panels



Application:

GAF SA Primer must be mixed thoroughly prior to application. GAF SA Primer can be applied at temperatures as low as 25°F (-3.9°C) with rising temperatures, as long as the primer has been stored in a heated area to ensure the GAF SA Primer is between 50°F – 100°F (10°C – 37.7°C) at time of installation. The application rate for GAF SA Primer is 0.7 – 1.0 gal./100 ft² (0.3 – 0.4 L/m²) and can be applied with a brush or roller.

Applicable Standards:



Refer to FMapprovals.com/RoofNav for actual FM Approved assemblies.

Product Specifications (nominal)

| | |
|------------------------|---|
| Container Size | 5.0 gal. (18.9 L) |
| Coverage Rate | 0.7 – 1.0 gal./100 ft ² (0.3 – 0.4 L/m ²) |
| Weight per pail | 44.5 lb. (20.2 kg) |
| Pails / Skid | 36 |

SA Vapor Retarder Data Sheet

Updated: 1/18



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



SA VAPOR RETARDER

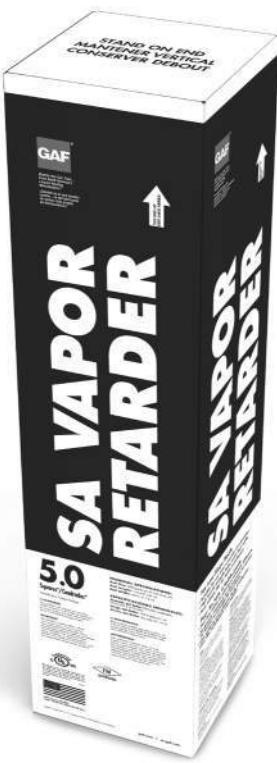
Description

GAF SA Vapor Retarder is an SBS modified bitumen vapor retarder for use in approved GAF roof assemblies. GAF SA Vapor Retarder is composed of a proprietary formulation of elastomeric styrene-butadiene-styrene (SBS) polymer modified bitumen in combination with a high tack self-adhesive. The topside is surfaced with high-strength tri-laminate polyethylene film and the underside is surfaced with protective polyolefin release film that is removed during application.

Uses

GAF SA Vapor Retarder may be applied to:

- Steel
- Plywood
- Gypsum
- Concrete



Advantages

- 45" (1.1 m) roll provides increased coverage across roof deck
- Easy-to-peel release film for faster installation
- Durable top surface protects roof from inclement weather
- High tensile strength provides resistance to foot traffic

Application:

GAF SA Vapor Retarder can be applied at temperatures between 50°F (10°C) and 100°F (38°C). All substrates except metal decks must be primed. Vapor retarder should be installed with minimum 3" (76.2 mm) side laps and 6" (152.4 mm) end laps.

Applicable Standards

- FM Approved
- UL Listed
- State of Florida approved

Product Specifications (nominal)

| | |
|---------------------|--|
| Roll size | 5 squares (502.5 gross sq. ft.) (46.68 m ²) |
| Roll Length | 134' (40.8 m) |
| Roll Width | 45" (1.1 m) |
| Approx. Roll Weight | 80 lb. (36.4 kg) |

Typical Physical Properties

| Property | MD Value | XMD Value | Test Method |
|---|------------|-----------|-------------|
| Thickness, mils (mm) | 31 (0.8) | 31 (0.8) | ASTM D5147 |
| Tensile strength, lbf/in (kN/m) | 54 (9.5) | 74 (13) | ASTM D5147 |
| Ultimate elongation @ 73.4°F (23°C), % | 33 | 25 | ASTM D5147 |
| Tear resistance, lbf (N) | 95 (423) | 103 (458) | ASTM D1970 |
| Static puncture, lbf (N) | 90 (400) | 90 (400) | ASTM D5602 |
| Lap adhesion, lbf/ft (N/m) | 68 (1000) | 68 (1000) | ASTM D1876 |
| Water absorption, % | 0.1 | 0.1 | ASTM D5147 |
| Peel resistance, lbf/in (N/m) | 5.4 (950) | 5.4 (950) | ASTM D903 |
| Cold bending, °F (°C) | -58 (-50) | -58 (-50) | ASTM D5147 |
| Water vapor permeance, perm (ng/Pa.s.m ²) | 0.03 (1.7) | | ASTM E96 |
| Air permeability, L/s•m ² | < 0.001 | | ASTM E283 |

EnergyGuard™ Polyiso Insulation

20 & 25 PSI

Data Sheet

Updated: 6/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



ENERGYGUARD™

POLYISO INSULATION, 20 & 25 PSI (1 of 2)

Description

EnergyGuard™ Polyiso Insulation is made of glass fiber-reinforced cellulosic felt facers bonded to a core of polyisocyanurate foam. Available in 4' x 4' (1.21 m x 1.21 m) or 4' x 8' (1.21 m x 2.44 m) and in thicknesses ranging from 1" to 4.6" (25.4 mm - 116.8 mm).

Uses

- EnergyGuard™ Polyiso Insulation is designed for use over structural roof decks where R-values of 5.7 or higher are required, along with comprehensive UL and FM approvals.
- Meets FM 4450/4470 and UL 1256/790/263.
- When properly installed, it is suitable for use under built-up, modified bitumen, and most single-ply roofing systems.
- Refer to the application specifications in the current membrane manufacturer's application and specifications manual for proper membrane installation procedures.
- Meets **ASTM C1289 Type II**, Class 1, Grade 2 (20 psi), and available in Grade 3 (25 psi).

Advantages

- High insulation value — Excellent "LTTR" value compared to any other FM Class I rated products of equivalent thickness.
- Manufactured with EPA-compliant blowing agents.
- Lightweight — Lighter than most other insulating products offering comparable thermal resistance; as much as five times lighter in weight than many other materials with the same R-value.
- Excellent dimensional stability.
- Low water permeability — Lower overall perm rating than many conventional insulation boards.
- High moisture resistance and no capillarity; is stable and maintains its physical and insulating characteristics.
- Easier handling and faster to install — Because of its light weight, this material is easier to handle on the job site and installs faster. Easier cutting in the field provides the installer with simplified fabricating on the roof deck. Minimizes on-the-job damage.

Thermal and Physical Characteristics¹

| Thickness* | Inches | mm | LTTR (R-Value**) | Max. Flute Spanability Inches | mm |
|------------|-----------|-------------|---------------------|----------------------------------|------------|
| 1.0 | 25.4 | 635 | 5.7 | 2 5/8 | 66.7 |
| 1.1 | 27.9 | 708 | 6.3 | 2 5/8 | 66.7 |
| 1.2 | 30.5 | 774 | 6.8 | 2 5/8 | 66.7 |
| 1.3 | 33.0 | 838 | 7.4 | 2 5/8 | 66.7 |
| 1.4 | 35.6 | 900 | 8.0 | 4 3/8 | 111 |
| 1.5 | 38.1 | 953 | 8.6 | 4 3/8 | 111 |
| 1.6 | 40.6 | 1021 | 9.1 | 4 3/8 | 111 |
| 1.7 | 43.1 | 1090 | 9.7 | 4 3/8 | 111 |
| 1.75 | 44.5 | 1127 | 10.0 | 4 3/8 | 111 |
| 1.8 | 45.7 | 1156 | 10.3 | 4 3/8 | 111 |
| 1.9 | 48.3 | 1222 | 10.8 | 4 3/8 | 111 |
| 2.0 | 51 | 1270 | 11.4 | 4 3/8 | 111 |
| 2.1 | 53 | 1346 | 12.0 | 4 3/8 | 111 |
| 2.2 | 56 | 1406 | 12.6 | 4 3/8 | 111 |
| 2.3 | 58 | 1468 | 13.2 | 4 3/8 | 111 |
| 2.4 | 61 | 1533 | 13.8 | 4 3/8 | 111 |
| 2.5 | 64 | 1594 | 14.4 | 4 3/8 | 111 |
| 2.6 | 66 | 1651 | 15.0 | 4 3/8 | 111 |
| 2.7 | 69 | 1710 | 15.6 | 4 3/8 | 111 |
| 2.8 | 71 | 1768 | 16.2 | 4 3/8 | 111 |
| 2.9 | 74 | 1825 | 16.8 | 4 3/8 | 111 |
| 3.0 | 76 | 1882 | 17.4 | 4 3/8 | 111 |
| 3.1 | 79 | 1939 | 18.0 | 4 3/8 | 111 |
| 3.2 | 81 | 2000 | 18.6 | 4 3/8 | 111 |
| 3.25 | 83 | 2050 | 18.9 | 4 3/8 | 111 |
| 3.3 | 84 | 2080 | 19.2 | 4 3/8 | 111 |
| 3.4 | 86 | 2130 | 19.9 | 4 3/8 | 111 |
| 3.5 | 89 | 2180 | 20.5 | 4 3/8 | 111 |
| 3.6 | 91 | 2230 | 21.1 | 4 3/8 | 111 |
| 3.7 | 94 | 2280 | 21.7 | 4 3/8 | 111 |
| 3.8 | 97 | 2330 | 22.3 | 4 3/8 | 111 |
| 3.9 | 99 | 2380 | 23.0 | 4 3/8 | 111 |
| 4.0 | 102 | 2430 | 23.6 | 4 3/8 | 111 |
| 4.1 | 104 | 2480 | 24.2 | 4 3/8 | 111 |
| 4.2 | 106 | 2530 | 24.9 | 4 3/8 | 111 |
| 4.3 | 109 | 2580 | 25.5 | 4 3/8 | 111 |
| 4.4 | 112 | 2630 | 26.1 | 4 3/8 | 111 |
| 4.5 | 114 | 2680 | 26.8 | 4 3/8 | 111 |
| 4.6 | 116 | 2730 | 27.1 | 4 3/8 | 111 |

*Other thicknesses available upon request.

**Long Term Thermal Resistance Values provide a 15-year time weighted average in accordance with CAN/ULC S770.

Note: Physical and thermal properties shown are based on data obtained under controlled laboratory conditions and are subject to normal manufacturing tolerances.

WARNING: DO NOT EXPOSE TO OPEN FLAME OR EXCESSIVE HEAT. MAY SMOLDER IF IGNITED. IF IGNITED, EXTINGUISH COMPLETELY.

Code Compliance



State of Florida Approved

*Product certified at time of publication. Consult with manufacturer and the PIMA quality mark program directory on the PIMA website (www.pima.org).

Typical Physical Properties

| Property | Value | Test Method |
|--|--|------------------------|
| Water Absorption, % by Volume - 2 hours (under 1" [25.4 mm] water) | 1.5 max. | ASTM C209 |
| Dimensional Stability Change, 7 days @158°F (70°C), 97% RH | <2% | ASTM D2126 |
| • Length + Width | | |
| Compressive Strength — psi (kPa) | 25 (172) nom. Grade 3 20 (138) nom. Grade 2 | ASTM D1621 |
| Tensile Strength — psf (kPa) | ≥ 500 (23.9) | ASTM C209 |
| Moisture Vapor Transmission | <1.5 perm (85.8ng/Pa•s•m²) | ASTM E96 (Procedure A) |
| Flame Spread ⁽¹⁾⁽²⁾ Index | <75 | ASTM E84 |
| Service Temperature | -100 to 200°F (-73.3 to 93.3°C) | |

⁽¹⁾Foam core only.

⁽²⁾These numerical ratings are not intended to reflect hazards presented by these or any other material under actual fire conditions.

TAPER FILL

TWO LAYERS EACH:

AREA R-1

2.2 = 12.6 R-VALUE

2.2 = 12.6 R-VALUE

T = 25.2 R-VALUE

AREA R-2

2.6 = 15.0 R-VALUE

2.6 = 15.0 R-VALUE

T = 30.0 R-VALUE

EnergyGuard™

Polyiso Insulation





ENERGYGUARD™

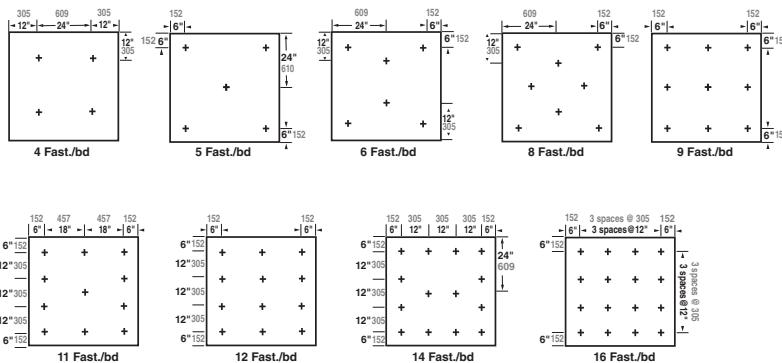
POLYISO INSULATION, 20 & 25 PSI (2 of 2)

Limitations and Potential Fire Hazard

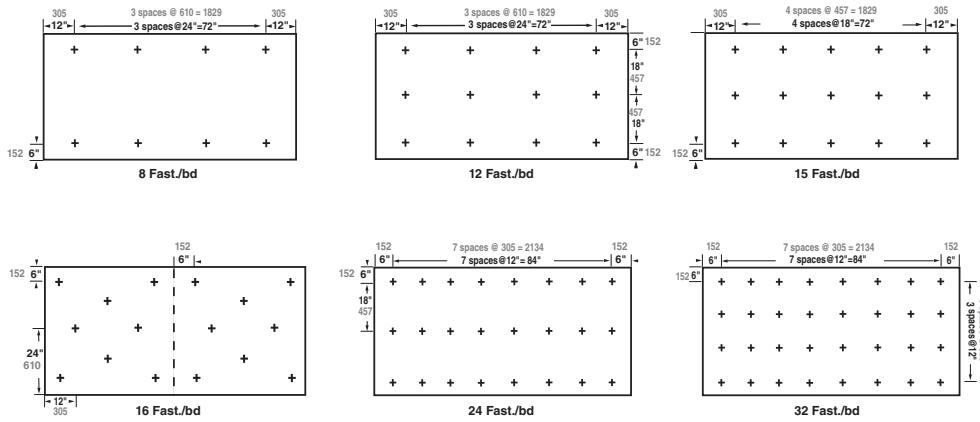
- EnergyGuard™ Polyiso Insulation is a non-structural, non load-bearing material. It is not designed for direct traffic usage unless adequately protected.
- EnergyGuard™ Polyiso Insulation should be stored protected from the elements. Bundle wrap is not for use as waterproofing for boards. No more insulation should be installed than can be completely covered with roofing on the same day.
- As unprotected polyisocyanurate will burn, fire safety precautions should be observed wherever insulation products are used.
- Direct mopping of modified bitumen roofing or built-up roofing (BUR) to EnergyGuard™ Polyiso Insulation is not approved.

Design Considerations – Suggested Insulation Fastener Patterns (NOTE: Measurements in GRAY are in millimeters)

4' x 4' (1220 x 1220) Boards



4' x 8' (1220 x 2440) Boards



NOTE: These patterns are for FM Approved decks utilizing appropriate FM Approved screws and insulation plates when installed per RoofNav. Consult FM Loss Prevention Data Sheets 1-29 for specific perimeter and corner fastening details. For proper attachment, fasteners must penetrate the flange or the metal deck a minimum of 3/4 inch (19.1 mm). Due to ongoing testing programs and changes in FM Global (FM) requirements, the number of fasteners and their placement are subject to change without notice. Consult RoofNav and FM Global Loss Prevention Data Sheets 1-28, 1-29, and 1-29R for approved fastener density for Polyisocyanurate Roof Insulations. If your fastener pattern is not listed, please contact Technical Services at 1-800-766-3411.

EnergyGuard™ Tapered Polyiso Insulation **20 & 25 PSI**

Updated: 7/17



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*

ENERGYGUARD™

TAPERED POLYISO INSULATION, 20 & 25 PSI (1 of 2)

Description

EnergyGuard™ Tapered Polyiso Insulation has a thermally efficient polyisocyanurate core bonded between glass fiber-reinforced cellulosic felt facers. It is readily available in various slopes profiles such as the most popular and efficient tapers, $\frac{1}{8}:12$ (1%), $\frac{1}{4}:12$ (2%), and $\frac{1}{2}:12$ (4%).

Uses

- EnergyGuard™ Tapered Polyiso Insulation is designed for use over structural roof decks to provide slope to drain and to provide thermally efficient insulation.
- When properly installed, it is suitable for use under built-up, modified bitumen, and most single-ply roofing systems.
- Refer to the application specifications in the current membrane manufacturer's application and specifications manual for proper installation procedures.

Advantages

- Properly designed and installed EnergyGuard™ Tapered Polyiso Insulation Systems virtually eliminate ponding water.
- High thermal efficiency.
- Easily installed with mechanical fasteners, low-rise foam, hot asphalt, or loose-laid in a ballasted system.
- Low point and letter codes are designated on each board.
- Engineering design board layouts are available from your plans and field-verified dimensions.

Limitations and Potential Fire Hazard

- EnergyGuard™ Tapered Polyiso Insulation is a non-structural, non-load-bearing board. It is not designed for direct traffic usage unless adequately protected.
- EnergyGuard™ Tapered Polyiso Insulation should be stored dry and be protected from the elements. Once properly loaded at the job site, remove factory wraps and cover with a breathable tarp.
- As an unprotected polyisocyanurate will burn, **fire safety precautions must be observed** wherever any insulation products are used.

EnergyGuard™ Tapered Polyiso Insulation



Code Compliance



State of Florida Approved

Limitations and Potential Fire Hazard

(Continued)

- Direct torching of modified bitumen roofing to EnergyGuard™ Tapered Polyiso Insulation will present a **fire hazard**. A properly installed fiberglass base sheet **MUST** be used over the insulation.
- These tapered systems are designed to provide a top surface of slope. Each board is manufactured to exact thickness specifications. GAF cannot be held responsible for field conditions such as actual building dimensions and deck deflection.

WARNING: DO NOT EXPOSE TO OPEN FLAME OR EXCESSIVE HEAT. MAY SMOLDER IF IGNITED. IF IGNITED, EXTINGUISH COMPLETELY.

Tapered Physical Characteristics

| TAPERED PANELS - 4' X 8' | | | | |
|--------------------------|----------------|-------------------------|----------------------|----------------------|
| | BOARD STYLE | DIMENSIONS IN INCHES | AVERAGE THICKNESS | BD FEET PER PANEL |
| $\frac{1}{8}$ | AA | 0.5" - 1" | 0.75" | 12 |
| | A | 1" - 1.5" | 1.25" | 20 |
| | B | 1.5" - 2" | 1.75" | 28 |
| | C | 2" - 2.5" | 2.25" | 36 |
| | * D | 2.5" - 3" | 2.75" | 44 |
| | * E | 3" - 3.5" | 3.25" | 52 |
| | * F | 3.5" - 4" | 3.75" | 60 |
| | * FF | 4" - 4.5" | 4.25" | 68 |
| $\frac{1}{4}$ | X | 0.5" - 1.5" | 1" | 16 |
| | Y | 1.5" - 2.5" | 2" | 32 |
| | * Z | 2.5" - 3.5" | 3" | 48 |
| | ZZ | 3.5" - 4.5" | 4" | 64 |
| | G | 1" - 2" | 1.5" | 24 |
| | H | 2" - 3" | 2.5" | 40 |
| | * I | 3" - 4" | 3.5" | 56 |
| | Q | 0.5" - 2.5" | 1.5" | 24 |
| $\frac{1}{2}$ | * QQ | 2.5" - 4.5" | 3.5" | 56 |
| | * XX | 1" - 3" | 2" | 32 |
| | * JJ | 0.5" - 1.25" | 0.875" | 14 |
| | * KK | 1.25" - 2" | 1.625" | 26 |
| | * LL | 2" - 2.75" | 2.375" | 38 |
| | * MM | 2.75" - 3.5" | 3.125" | 50 |
| | * J | 1" - 1.75" | 1.375" | 22 |
| | * K | 1.75" - 2.5" | 2.125" | 34 |
| $\frac{3}{16}$ | * L | 2.5" - 3.25" | 2.875" | 46 |
| | * M | 3.25" - 4" | 3.625" | 58 |
| | * SS | 0.5" - 2" | 1.25" | 20 |
| | * TT | 2" - 3.5" | 2.75" | 44 |
| | * S | 1" - 2.5" | 1.75" | 28 |
| | 1 | 0.5" - .75" | 0.625" | 10 |
| | 2 | .75" - 1" | 0.875" | 14 |
| | 3 | 1" - 1.25" | 1.125" | 18 |
| $\frac{3}{8}$ | 4 | 1.25" - 1.5" | 1.375" | 22 |
| | 5 | 1.5" - 1.75" | 1.625" | 26 |
| | 6 | 1.75" - 2" | 1.875" | 30 |
| | * 7 | 2" - 2.25" | 2.125" | 34 |
| | * 8 | 2.25" - 2.5" | 2.375" | 38 |

*Availability for these tapered panel systems may vary for each region.

Note: All sizes are nominal.



ENERGYGUARD™

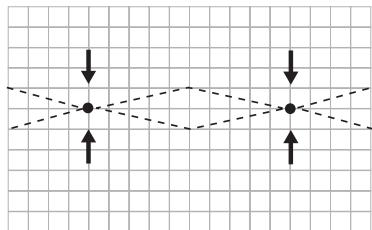
07

TAPERED POLYISO INSULATION, 20 & 25 PSI (2 of 2)

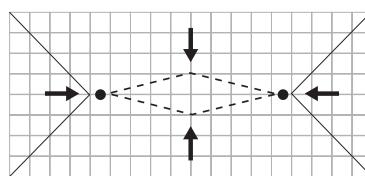
Installation Suggestions: Although each tapered system is different, here are some suggested methods for installing a Tapered Polyiso Insulation system efficiently.

1. Verify building dimensions and drain locations with the Tapered Polyiso Insulation Shop Drawing. Discrepancies should be reported to GAF prior to shipment.
2. Verify that the proper number of truckloads and piece quantities have been received on the job site.
3. Determine the area to be completed that day.
4. Measure the distance from the drain to the perimeter where the shop drawing indicates full 4 feet x 4 feet (1.22 m x 1.22 m) insulation boards. Verify that the system will meet the drain piece.
5. Start installing the tapered system utilizing full 4 feet x 4 feet (1,220 mm x 1,220 mm) boards. Work from the drain and finish the area where the shop drawing indicates field cutting.
6. When more than one layer of insulation is utilized, all vertical board joints should be staggered, preferably by $\frac{1}{2}$ board.
7. Cover the insulation with the complete membrane system the same day.

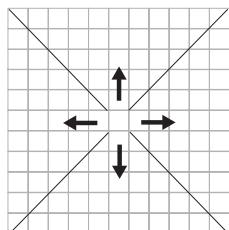
Typical Tapered Layouts



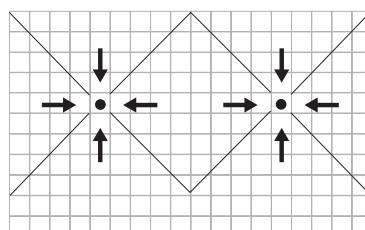
Two-Way Tapered System (Crickets Optional)



Modified Two-Way Tapered System with Constant Edge Thickness (Crickets Optional)

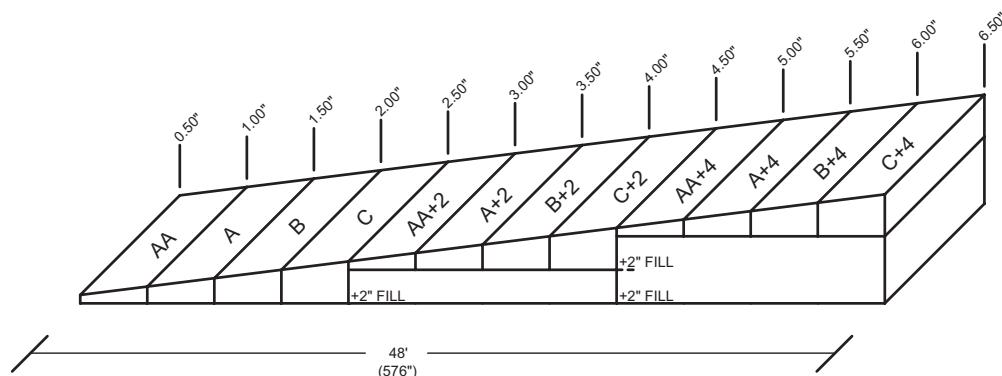


Four-Way Tapered System with Perimeter Drain



Four-Way Tapered System with Variable Edge Thickness

Typical Cross Section $\frac{1}{8}$ Slope Tapered Iso (4' x 4' [1.22 m x 1.22 m] Panels)



NOTE: Consult FM Loss Prevention Data Sheets 1-29, 1-49 for specific perimeter and corner fastening details. Due to ongoing testing programs and changes in FM Global requirements, the number of fasteners and their placement are subject to change without notice. Consult current FM Approvals Guide and Loss Prevention Data Sheets 1-28, 1-29, and 1-29R for approved fastener density for Isotherm Roof Insulation.

OlyBond500® & OlyBond500® Green Data Sheets

Updated: 6/16



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North America's Largest Roofing Manufacturer!™*

Distributed by:



AS NEEDED

08

OLYBOND500® & OLYBOND500® GREEN

Insulation Adhesive

Description

OlyBond500® and OlyBond500® Green are two-component, low-rise polyurethane adhesives used to adhere a variety of board stocks to most roof substrates in both new and reroof applications. They can also be used to adhere insulation board to insulation board. OlyBond500® is dispensed in $\frac{3}{4}$ " (19.1 mm) to 1" (25.4 mm) wide beads that spread to several inches while rising $\frac{3}{4}$ " (19.1 mm) to 1" (25.4 mm) above the substrate. Place the board stock into the adhesive and walk into place. A chemical cure takes place, securing the board in approximately 4 to 8 minutes after application, depending on temperature and weather conditions.

OlyBond500® is a dual-component, reaction-cure polyurethane adhesive. The blowing agent is water. OlyBond500® does not contain HCFC and has low VOCs. It is available in 10-gallon sets of Part 1 (diisocyanate, 5 gallons [18.93 liters]) and Part 2 (resin, 5 gallons [18.93 liters]), and is also available in 1,500-ml SpotShot cartridge sets (4 cartridges/case).

Basic Use

- OlyBond500® and OlyBond500® Green are included in many approved roof assemblies listed with FM Approvals and Miami-Dade County.
- OlyBond500® and OlyBond500® Green are available in both Regular (Bag-in-Box and Spot Shot) and Winter Grade (OlyBond500® SpotShot only) for optimum application at various temperatures.
- Lightweight and portable.
- Easy application process.
- Compatible with a wide variety of roofing systems.
- Quick set-up time.
- Compatible with many roof decks, substrates, and cover boards.
- Ensure that you have the correct OlyBond500® or OlyBond500® Green formulation for the surface and ambient temperature.
 - **Bag-in-Box:** Regular ($40^{\circ}\text{F} + [4.4^{\circ}\text{C}]$)
 - **SpotShot:** Regular ($40^{\circ}\text{F} + [4.4^{\circ}\text{C}]$) or Winter ($0^{\circ}\text{F} - 65^{\circ}\text{F} [-17^{\circ}\text{C} - 18.3^{\circ}\text{C}]$)
- On retrofit re-cover projects, the existing roofing material must be investigated to ensure adequate attachment of existing system. All wet material must be identified and removed prior to the application of the OlyBond500® or OlyBond500® Green adhesive.
- See pages 3 – 4 for general application recommendations and requirements.

Packaging

- 10-gallon (37.85 liters) Bag-in-Box sets for use with the PaceCart 2® and PaceCart 3™ (5-gallon [18.93 liters] Part 1; 5-gallon [18.93 liters] Part 2).



Manufactured by:



- 1,500-ml SpotShot cartridge sets for use in specially designed applicators.

Formulas (10-gallon Bag-in-Box sets):

- Regular ($40^{\circ}\text{F} + [4.4^{\circ}\text{C}]$)

Formulas (1,500-ml SpotShot cartridges):

- Regular ($40^{\circ}\text{F} + [4.4^{\circ}\text{C}]$)
- Winter ($0^{\circ}\text{F} - 65^{\circ}\text{F} [-17^{\circ}\text{C} - 18.3^{\circ}\text{C}]$)

Compatibility When Properly Prepared and Evaluated

Roof Decks and Substrates:

- Structural concrete
- Gypsum
- Cementitious wood fiber plank
- Lightweight insulating concrete
- Steel (22 gauge or thicker with approved cross section)
- Plywood ($\frac{5}{8}$ " [15.9 mm] thick min.)
- Smooth and granular surface BUR
- Smooth and granular surface modified bitumen
- Existing sprayed-in-place polyurethane foam
- Base sheets
- Most vapor barriers (including asphaltic and fleece-top)

Roof Insulation and Cover Board:

- Expanded Polystyrene
- Polyisocyanurate and HD Polyisocyanurate
- High-Density Wood Fiber
- Gypsum Cover Boards
- Perlite
- Certain Extruded Polystyrene

Any substrate or insulation not listed must be reviewed by OMG. Call 800-633-3800.

Codes and Compliance

OlyBond500®

| Physical Property | Test Method | Typical Values |
|----------------------|--------------------------------------|------------------------|
| Density | ASTM D1622 | 3.2 lb/cf |
| Compressive Strength | ASTM D1621 | 38 psi @ 6% deflection |
| Tensile Strength | ASTM D1623 | 35 psi |
| Water Absorption | ASTM D2842 | 5.1% |
| Closed Cell Content | ASTM D6226 | 90% min |
| R-Value | ASTM C518 | 3.8/inch (new) |
| VOC Content | ASTM D2369 | 5 g/L |
| Weight/Gallon | Part 1 Component Part 2 Component | 10.32 lb 8.4 lb |

OlyBond500® Green

| Physical Property | Test Method | Typical Values |
|----------------------|--------------------------------------|--------------------------|
| Density | ASTM D1622 | 3.38 lb/cf |
| Compressive Strength | ASTM D1621 | 20.6 psi @ 6% deflection |
| Tensile Strength | ASTM D1623 | 39.27 psi |
| Water Absorption | ASTM D2842 | 0.40% |
| Closed Cell Content | ASTM D6226 | 19.5% min |
| R-Value | ASTM C518 | 3.8/inch (new) |
| VOC Content | ASTM D2369 | 11 g/L |
| Weight/Gallon | Part 1 Component Part 2 Component | 10.32 lb 8.4 lb |



Florida Building Code

MIAMI-DADE COUNTY APPROVED



OLYBOND500® & OLYBOND500® GREEN

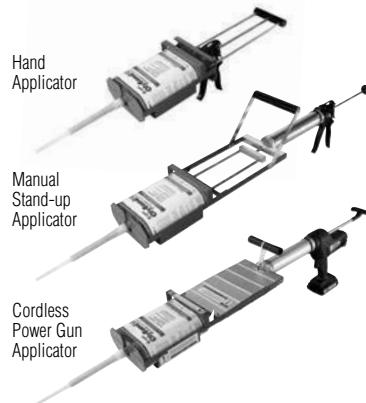
Insulation Adhesive

PaceCart 2® and PaceCart 3™ for OlyBond500® & OlyBond500® Green

Patented PaceCart 2® and PaceCart 3™ are the exclusive pieces of application equipment for OlyBond500® or OlyBond500® Green using patented Bag-in-Box technology.



- Fast application method
- Designed for high-production roof projects
- Low installed cost method of application
- Inexpensive to purchase and operate
- Can apply up to 60 squares of insulation per hour
- Two-component reaction occurs in the disposable mix tips, keeping the gun and hoses clean and free flowing
- 30-ft. (9.14 m) hose allows for easy application around penetrations
- Use OMG PCPreserver™ to keep pumps, hoses, and gun assembly sufficiently lubricated during storage
- Easy to clean and maintain
- Clean, airtight delivery system
- Built-in tool box holds extra mix tips, grease gun, etc.



SpotShot Applicators

Cordless Power Gun Applicator

- All the benefits of the manual stand-up applicator plus a battery-powered mechanical drive system
- Constant pressure provides even and uninterrupted adhesive flow for maximum efficiency
- Significantly increases production; easy to operate
- Includes two (2) batteries and a 120-volt charger

Hand Applicator

- Lightweight and easy to use
- Great for repair work or small areas
- Inexpensive and in stock at major roofing distributors

Manual Stand-up Applicator

- Lightweight and portable
- Stand-up application reduces worker fatigue while increasing production

Product Installation

Job Conditions:

- Ensure that you have the correct OlyBond500® and OlyBond500® Green formulation for the surface and ambient temperature.
 - **Bag-in-Box:** Regular (40°F [4.4°C +])
 - **SpotShot:** Regular (40°F [4.4°C +]) or Winter (0°F – 65°F [-17°C – 18.3°C]) (OlyBond500® only)
- Existing phenolic insulation must be removed.
- Coordination between trades is essential to avoid unnecessary rooftop traffic.

Roof Deck Criteria

1. The building owner or general contractor shall provide a proper substrate. The structure shall be sufficient to withstand normal construction load and live loads.
2. Defects in the deck must be documented and reported to the specifier, general contractor, roof cover manufacturer, and OMG, Inc. The application of OlyBond500® and OlyBond500® Green shall not proceed unless the defects are corrected.
3. It is the responsibility of the roofing contractor to ensure that the existing roof is adequately attached to the building and meets all the requirements for an acceptable surface.
4. Acceptable decks are structural concrete, gypsum, cementitious wood fiber plank, lightweight insulating concrete, minimum 22-gauge steel, and minimum $\frac{5}{8}$ " (15.9 mm) plywood.

Surface Preparation

- **General:** All surfaces must be dry and free of any debris, dirt, oil, or grease before applying OlyBond500® or OlyBond500® Green. GAF United Cleaning Concentrate (UCC) may be used on most surfaces.

Specific Conditions

- **Steel** - The bonding surface of steel decks must be dry and free of debris, dirt, grease, and oil. On new steel, the shop coating/mill oil must be removed. The bonding surface must be free of any cleaner before applying OlyBond500®.
- **Existing Smooth Asphaltic Surfaces** - The surface must be dry and free of debris, dirt, grease, and oil.
- **Existing Polyurethane Foam** - The surface of the polyurethane roof, including the coating, should be removed with a scarifier (minimum inch). The bonding surface should be blown clean before applying OlyBond500® or Olybond500® Green.
- **Metal** - OlyBond500® and OlyBond500® Green have excellent adhesion to clean metal. It is recommended that all non-ferrous metals (aluminum, copper, stainless, etc.) be primed to further increase adhesion. Accepted primers include GAF Epoxy Primer, chlorinated rubber, and wash primer.
- **Concrete** - All concrete surfaces must be fully cured prior to applying OlyBond500® or OlyBond500® Green.
- **Other** - For other substrates not listed, contact OMG at 800-633-3800 or GAF at 1-800-ROOF-411.

Manufactured by:





OLYBOND500® & OLYBOND500® GREEN

Insulation Adhesive

Product Installation

- **Using PaceCart 2® and PaceCart 3™**

- Install Part 1 and Part 2 components following instructions on Bag-in-Box package.
- Open flow valves on the dispenser completely and turn machine on. This allows adhesive to be pumped at a 1:1 ratio through the disposable mix tip and onto the substrate in a semi-liquid state.
- Apply fluid mixture $\frac{3}{4}'' - 1''$ (19.1 mm – 25.4 mm) wide wet beads spaced a maximum of 12" (305 mm) on center that spreads in excess of 2" (51 mm) wide while rising to $\frac{3}{4}'' - 1''$ (19.1 mm – 25.4 mm).
- Lay insulation board into place and walk-in to ensure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.
- Check with roof system manufacturer for project-specific spacing requirements.

- **Using SpotShot Applicator**

- Attach the disposable mix tip to the top of the SpotShot tube. Insert the tube into the SpotShot dispensing tool and dispense onto the substrate. Apply fluid mixture in $\frac{3}{4}'' - 1''$ (19.1 mm – 25.4 mm) wide wet beads in rows spaced a maximum of 12" (305 mm) on center that spread in excess of 2" (51 mm) wide while rising to $\frac{3}{4}'' - 1''$ (19.1 mm – 25.4 mm).
- Lay insulation board into place and walk-in to ensure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.
- Check with roof system manufacturer for project-specific spacing requirements.

Typical Application Rates

Application rates vary depending on surface roughness and absorption rate of the substrate. Typical coverage rates for OlyBond500® and OlyBond500® Green dispensed through the PaceCart 2® and PaceCart 3™ are 10 – 25 squares per 10-gallon (37.85 liters) Bag-in-Box sets. Typical coverage rate for OlyBond500® and OlyBond500® Green SpotShot dispensed through applicators is 4 – 6 squares per case (4 sets of 1,500-ml cartridges). All coverage rates are based on 12" (305 mm) on center maximum spacing. See chart below for typical application rates on specific substrates.

| Application Rates Bag-in-Box Dispensed from PaceCart 2® | Typical Coverage Squares/Gallon |
|---|------------------------------------|
| Insulation to Concrete | 1.7 to 2.5 |
| Insulation to Insulation | 1.7 to 2.5 |
| Insulation to Smooth BUR | 1.5 to 1.7 |
| Insulation to Modified Bitumen | 1.5 to 1.7 |
| Insulation to Gypsum | 1 to 1.2 |
| Insulation to Lightweight Concrete* | 1 to 1.7 |
| Insulation to Wood | 1.7 to 2 |
| Insulation to Cementitious Wood Fiber | 1 to 1.2 |
| Insulation to Steel | 1 to 1.2 |

*Coverage rate may vary substantially based on the absorption rate and/or the surface conditions of the LWC.

Typical Reaction Time Characteristics

5-Gallon Bag-in-Box Packaging:
OlyBond500® & OlyBond500® Green

| Temp. | Tack-Free Time | Set-Up Time |
|-------|----------------|-----------------|
| 40°F+ | 3 – 5 minutes | 10 – 12 minutes |

1500-ml SpotShot Cartridge:
OlyBond500® Only

| Temp. | Tack-Free Time | Set-Up Time |
|------------|----------------|-----------------|
| 0°F – 65°F | 3 – 4 minutes | 10 – 12 minutes |

OlyBond500® & OlyBond500® Green

| Temp. | Tack-Free Time | Set-Up Time |
|-------|----------------|-----------------|
| 40°F+ | 3 – 4 minutes | 10 – 12 minutes |

Important: When applying OlyBond500® board stock must be placed into the adhesive shortly after it has reached its maximum rise while it is still wet and tacky and before it reaches its tack-free state.

Precautions

• **In Case of Fire:** Use water spray, foam, or CO₂. Firefighters should be equipped with self-contained breathing apparatus and turnout gear for protection against PMDI vapors and toxic decomposition products. Avoid water contamination in closed container or confined areas.

• **Do Not Leave Adhesive Exposed or Unprotected.** Polyurethane foam or isocyanurate foam products may present a serious fire hazard if exposed or unprotected. Each person, firm, or corporation engaged in the manufacture, production, application, installation, or use of any of these materials should carefully determine whether there is a potential fire hazard associated with such product in a specific usage and utilize all appropriate precautionary and safety measures as outlined in local, state, and federal regulations. When not in use, keep stored containers closed.

First Aid

In case of contact with eyes, immediately flush eyes with running water for at least 15 minutes. Call a physician immediately. In case of contact with skin, wash affected area with soap and water. Remove all contaminated clothing and shoes and clean before re-use. If swallowed, give large amounts of water to dilute. If vomiting occurs, give more water. Call a physician immediately.

Disposal

PMDI in Part 1 component may cause pollution. Do not discharge into lakes, streams, ponds, or public waters. Spilled material, unused contents, and empty containers should be neutralized and disposed of in accordance with local, state, and federal regulations.

Manufactured by:





OLYBOND500® & OLYBOND500® GREEN

Insulation Adhesive

Patent Notice

The OMG PaceCart 3™ dispensing cart and the Bag-in-Box OlyBond500® Part 1/Part 2 adhesive system, including the adhesive dispensing method, are covered by one or more of U.S. Patent Nos. 6,220,526; 8,113,385; 8,132,693; 8,167,170; 8,342,372 and 8,474,658; and Canadian Patent No. 2,591,502. U.S. and Canadian Patents Pending.

Limitations

- OlyBond500® and OlyBond500® Green are not recommended for use with Polyisocyanurate board stock larger than 4' (1.21 mm) x 4' (1.21 mm).
- OlyBond500® (regular grade) and OlyBond500® Green are not recommended for application when ambient or substrate temperatures are below 40°F [4.4°C].
- OlyBond500® SpotShot winter formulation is specifically designed to be applied between 0°F and 65°F (-17°C – 18.3°C).
- OlyBond500® and OlyBond500® Green are not recommended for use during wet weather.
- OlyBond500® and OlyBond500® Green cannot be used on wet surfaces.
- OlyBond500® and OlyBond500® Green cannot be used on dirty or grease-laden surfaces.
- OlyBond500® and OlyBond500® Green are not recommended for use on any roof deck that shows signs of deterioration or loss of structural integrity.
- OlyBond500® and OlyBond500® Green are not recommended for use after the expiration date. Contact OMG at 800-633-3800 for options and instructions.

Storage and Handling

- Store in a cool, dry location at temperatures between 55°F (12.8°C) and 85°F (29.4°C). Protect from freezing at all times. If properly stored, the shelf life for unopened product is 18 months from the date of manufacture.
- Keep containers closed. Contamination by moisture or basic compounds can cause dangerous pressure build-up in a closed container.
- The minimum product temperature before application should be 72°F (22.2°C). The minimum ambient and surface temperatures should be 40°F (4.4°C) and rising unless the SpotShot winter formulation is being used.

Manufactured by:



DensDeck® Prime Roof Board

Updated: 7/17



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*

Distributed by:



DENSDECK® PRIME ROOF BOARD (1 of 2)

09

Manufactured by:



133 Peachtree Street, N.E.
Atlanta, GA 30303
Technical: 1-800-225-6119

Description

DensDeck® Prime Roof Board combines exceptional fire resistance, a thermal barrier, and recovery board for use in various commercial roofing systems with a pre-primed surface to make the bond even stronger. The patented DensDeck® Prime Roof Board design employs glass mat facings front and back that are embedded into a water-resistant and moisture-resistant treated gypsum core, providing excellent fire resistance, moisture resistance, and wind uplift properties. The unique construction of DensDeck® Prime Roof Board provides superior flute spanning and will help stiffen and stabilize the roof deck. Additionally, DensDeck® Prime Roof Board has been shown to withstand delamination, deterioration, warping, and job site damage more effectively than roofing membrane substrates such as paper-faced gypsum board, fiber board, and perlite insulation.

Primary Uses

Roof system manufacturers and designers have found DensDeck® Prime Roof Board to be compatible with many types of roofing systems, including modified asphalt, single ply, metal systems, and re-cover board, as well as an overlayment for polyisocyanurate and polystyrene insulation. DensDeck® can also be used as a foam board for poured gypsum concrete deck in roof applications as well as a substrate for spray form roofing systems. $\frac{1}{2}$ " (12.7 mm) and $\frac{5}{8}$ " (15.9 mm) DensDeck® Prime Roof Board may also be used in vertical applications as a backer board or liner for the roof side of parapet walls. Georgia-Pacific Gypsum offers a limited warranty for up to 90 days of exposure to normal weather conditions when applied vertically on parapet walls. For complete warranty details, visit DensDeck.com.

DensDeck® Prime Roof Board allows the bonding of cold mastic modified bitumen and torching directly to the surface. **Refer to specific membrane system application instructions.** System manufacturers and designers have found DensDeck® Prime Roof Board to be compatible with bonding adhesives for fully adhered single-ply membrane applications and has been shown to extend the adhesive usage.

DensDeck® Prime Roof Board's exceptional moisture resistance and low R-value make it the preferred substrate for vapor retarders. Having excellent fire resistance, DensDeck® Prime Roof Boards feature a noncombustible core and inorganic surface that offers greater fire protection than other conventional commercial roofing products when applied over combustible roof decks and steel decks. DensDeck® Prime Roof Board is FM tested and approved as the only $\frac{1}{2}$ " (12.7 mm) gypsum product to meet the calorimeter requirements for conventionally insulated decks. Tested in accordance with ASTM E84, its surface burning characteristics are Flame Spread-0 and Smoke Developed-0. $\frac{5}{8}$ " (15.9 mm) Dens Deck® Prime Roof Board can replace any generic type X gypsum board in any roof assembly in the UL Fire Resistance Directory under the prefix "P."

Limitations

DensDeck® Prime Roof Boards are designed to act with a properly designed roof system. The actual use of DensDeck® Prime Roof Board as a roofing component is the responsibility of the roofing system's designing authority.

Conditions beyond the control of Georgia-Pacific Gypsum such as weather conditions, dew, application temperatures, and techniques may cause adverse effects with adhered roofing systems. Always consult the roofing system specific manufacturer's instructions for applying the various roofing types to DensDeck® Prime Roof Board.

Panels must be kept dry before, during, and after installation. Apply only as much DensDeck® Prime Roof Board as can be covered by a roof membrane system in the same day.

Accumulation of water due to leaks or condensation in or on DensDeck® Prime Roof Board must be avoided during construction and after construction. Avoid over-use of non-vented direct-fired heaters during winter months. Avoid application of DensDeck® Prime Roof Board during rains, heavy fogs, and other conditions that may deposit moisture on the surface.

When applying solvent-based adhesives or primers, allow sufficient time for the solvent to flash off to avoid damage to roofing components.

Maximum flute span is $2\frac{5}{8}$ " (66.7 mm) for $\frac{1}{4}$ " (6.35 mm) DensDeck® Prime; 5" (127 mm) for $\frac{1}{2}$ " (12.7 mm) DensDeck® Prime; and 8" (203 mm) for $\frac{5}{8}$ " (15.9 mm) DensDeck® Prime Fireguard® Type X.

Refer to the installation instructions for the specific roof system to be installed for additional requirements.

Technical Data

Flame spread 0, smoke developed 0, when tested in accordance with ASTM E84 or CAN/ULC-S102. Noncombustible when tested in accordance with ASTM E136.

DensDeck® Prime Fireguard®: UL Classified when tested in accordance with ASTM E119.

$\frac{1}{4}$ " (6.35 mm) DensDeck® Prime Roof Board has been tested at FM approvals for 60 psf and 90 psf wind uplift for BUR, EPDM, thermoplastics, and modified bitumen roof systems. Higher wind uplift ratings have been achieved by numerous membrane manufacturers using DensDeck® Prime Roof Boards in their FM-approved construction designs.

Note: DensDeck® is a registered trademark of Georgia Pacific.

Product Specifications (nominal)

| | |
|-----------|---|
| Thickness | $\frac{1}{4}$ " – 6 mm; $\frac{1}{2}$ " – 13 mm; $\frac{5}{8}$ " – 15.9 mm Fireguard® Type X |
| Widths | 4' – 1.22 m standard, $\frac{1}{8}$ " – 3 mm tolerance |
| Lengths | 8' – 2,440 mm standard, tolerance $\frac{1}{4}$ " – 6.35 mm; Optional: 4' (1,220 mm) Available |
| Edges | Square |
| Spanning | $\frac{1}{4}$ " (6.35 mm) DensDeck® Prime Roof Board spans flute widths up to $2\frac{5}{8}$ " (66.7 mm) $\frac{1}{2}$ " (12.7 mm) DensDeck® Prime Roof Board spans flute widths up to 5" (127 mm) $\frac{5}{8}$ " (15.9 mm) DensDeck® Prime Roof Board spans flutes up to 8" (203 mm) wide |

Distributed by:



DENSDECK® PRIME ROOF BOARD (2 of 2)

Manufactured by:



133 Peachtree Street, N.E.
Atlanta, GA 30303
Technical: 1-800-225-6119

09

Installation

1. DensDeck® Prime Roof Board should be used with fasteners specified in accordance with FM requirements and roof membrane manufacturer's written recommendations.
2. For wind uplift/FM compliance where DensDeck® Prime Roof Board is mechanically attached to metal decks, DensDeck® Prime Roof Board shall be installed to the specifics of the FM design assembly.
3. For installations involving BUR, EPDM, thermoplastics, and modified bitumen roof systems, call GP's Technical Hotline at 1-800-225-6119 for fastener patterns of Georgia-Pacific's FMRC uplift assemblies.
4. In accordance with approved shop drawings, FM-approved fasteners shall be installed with plates through the DensDeck® Prime Roof Board, flush with the surface.
5. Where DensDeck® Prime Roof Board is installed over combustible wood decks or insulation, all joints should be staggered. The optional separator sheet should be installed prior to DensDeck® Prime Roof Board installation.
6. Edge joints should be located on, and parallel to, deck ribs. End joints of adjacent lengths of DensDeck® Prime Roof Board should be staggered.
7. DensDeck® Prime Roof Board shall be installed with ends and edges butted tightly.
8. DensDeck® Prime Roof Board is manufactured to meet **ASTM C1177**.

| PHYSICAL PROPERTIES | | | |
|---|---|---|---|
| PROPERTIES | 1/4" (6.4 mm) | 1/2" (12.7 mm) | 5/8" (15.9 mm) |
| Thickness, nominal | 1/4" (6.4 mm) ± 1/16" (1.6 mm) | 1/4" (12.7 mm) ± 1/32" (0.8 mm) | 5/32" (15.9 mm) ± 1/32" (0.8 mm) |
| Width, standard | 4' (1,219 mm) ± 1/8" (3 mm) | 4' (1,219 mm) ± 1/8" (3 mm) | 4' (1,219 mm) ± 1/8" (3 mm) |
| Length, standard | 4' (1,219 mm) & 8' (2,438 mm) ± 1/4" (6.4 mm) | 4' (1,219 mm) & 8' (2,438 mm) ± 1/4" (6.4 mm) | 4' (1,219 mm) & 8' (2,438 mm) ± 1/4" (6.4 mm) |
| Weight nominal, lbs./sq. ft. (Kg/m ²) ⁷ | 1.2 (5.9) | 2.0 (9.8) | 2.5 (12.2) |
| Surfacing | Fiberglass mat with non-asphaltic coating | Fiberglass mat with non-asphaltic coating | Fiberglass mat with non-asphaltic coating |
| Flexural Strength ¹ , parallel, lbf. min. (N) | ≥40 (178) | ≥80 (356) | ≥100 (444) |
| Flute Spanability ² | 2-5/8" (66.7 mm) | 5" (127 mm) | 8" (203 mm) |
| Permeance ³ , Perms (ng/Pa•S•m ²) | >30 (>1710) | >23 (>1300) | >17 (>970) |
| R Value ⁴ , ft ² •°F•hr/BTU (m ² •K/W) | .28 | .56 | .67 |
| Lineal Variation with Change in Temp., in/in °F (mm/mm/°C) | 8.5x10 ⁻⁶ (15.3x10 ⁻⁶) | 8.5x10 ⁻⁶ (15.3x10 ⁻⁶) | 8.5x10 ⁻⁶ (15.3x10 ⁻⁶) |
| Lineal Variation with Change in Moisture | 6.25x10 ⁻⁶ | 6.25x10 ⁻⁶ | 6.25x10 ⁻⁶ |
| Water Absorption ⁵ , % max | <10.0 | <10.0 | <10.0 |
| Compressive Strength ⁶ , psi nominal | 900 | 900 | 900 |
| Surface Water Absorption, grams, nominal ¹ | <2.0 | <2.0 | <2.0 |
| Flame Spread, Smoke Developed (ASTM E84, UL 723, CAN/ULC-S102) | 0/0 | 0/0 | 0/0 |
| Fire Classification | UL Classified FM Approvals | UL Classified FM Approvals | UL Classified FM Approvals |
| Bending Radius | 4' (1,219 mm) | 6' (1,829 mm) | 8' (2,438 mm) |

¹ Tested in accordance with ASTM C473, method B.

² Tested in accordance with ASTM E661.

³ Tested in accordance with ASTM E96 (dry cup method).

⁴ Tested in accordance with ASTM C518 (heat flow meter).

⁵ Specified values per ASTM C1177.

⁶ Tested in accordance with ASTM C473.

⁷ Represents approximate weight for design and shipping purposes. Actual weight may vary based on manufacturing location and other factors.

MOLD RESISTANCE. When tested, as manufactured, in accordance with ASTM D3273, DensDeck® Roof Boards have scored a 10, the highest level of performance for mold resistance under the ASTM D3273 test method. The score of 10, in the ASTM D3273 test, indicates no mold growth in a 4-week controlled laboratory test. The mold resistance of any building product when used in actual job site conditions may not produce the same results as were achieved in the controlled, laboratory setting. No material can be considered mold proof. For additional information, go to www.buildgp.com/safetyinfo.

RUBEROID® HW Smooth Membrane

Updated: 8/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



RUBEROID®

HW SMOOTH MEMBRANE

Formerly RUBEROID® SBS HeatWeld™ Smooth

Description

RUBEROID® HW Smooth Membrane is a tough, resilient modified bitumen membrane manufactured to stringent GAF specifications. Its core is a strong, resilient non-woven polyester mat that is coated with flexible polymer modified asphalt and has a smooth surface. Smooth-surface installations must be protected with surfacing.

Uses

RUBEROID® HW Smooth Membrane is designed for new roofing and re-covering applications as well as the construction of flashings. RUBEROID® HW Smooth Membrane is also an ideal product for repairs of built-up roofing membranes or other modified bitumen systems.

Advantages

- System guarantees are available for up to 20 years.*
- Cost effective—The installed cost is less than most single-ply systems on the market today.
- Light weight—Installed roof designs weigh less than 2 pounds per square foot (9.8 kg/m²).

Advantages (Continued)

- Durable—Specially formulated modified asphalt gives lasting performance.
- Resilient polyester mat core allows it to resist splits and tears due to its pliability and elongation characteristics.
- RUBEROID® HW Smooth Membrane is manufactured by GAF, a company with over 125 years in the roofing business.

* See applicable guarantee for complete coverage and restrictions.

Applicable Standards

Meets ASTM D6164, Type I, Grade S

FM Approved

ICC ESR-1274

Miami-Dade County Product Control Approved

State of Florida Approved

UL/ULC Listed

Product Specifications (nominal)

| | |
|---------------------|--|
| Roll Size | 1 square (107.7 gross sq. ft.) (10.0 m ²) |
| Roll Length | 32.6' (9.9 m) |
| Roll Width | 39.625" (1.0 m) |
| Approx. Roll Weight | 72.8 lb (33.0 kg) |
| Product Thickness | 0.120" (3.0 mm) |

This product meets or exceeds the following ASTM D6164, Type I, Grade S, minimum requirements:

| Property | Test Method | Value |
|---------------------------------------|-------------|-------|
| Tensile Strength @ 0°F (min), lbf/in | ASTM D5147 | 70 |
| Elongation @ 0°F (min), % | ASTM D5147 | 20 |
| Low Temperature Flexibility (max), °F | ASTM D5147 | 0 |
| Tear Strength (min), lbf | ASTM D5147 | 55 |
| Dimensional Stability, (max)% | ASTM D5147 | 1 |

RUBEROID® ENERGYCAP™ HW Plus Granule FR Membrane

Updated: 8/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



RUBEROID® ENERGYCAP™ HW Plus Granule FR Membrane

Formerly RUBEROID® EnergyCap™ SBS Heat-Weld™ Plus FR

Description

RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is a membrane with a factory-applied premium, heavy-duty, fire-retarding modified bitumen membrane and a factory-applied layer of TOPCOAT® EnergyCote™ Elastomeric Coating. RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is manufactured to stringent GAF specifications. Its core is a strong, heavyweight, resilient non-woven polyester mat that is coated with fire-resistant SBS polymer modified asphalt and surfaced with extra-fine mineral granules and TOPCOAT® EnergyCote™ Elastomeric Coating.

Uses

RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is designed for new roofing and reroofing applications where long-term roof system performance is specified.

Advantages

- System guarantees are available for up to 20 years.*
- Cost effective—The installed cost of RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is much less than installing a reflective coating on top of a standard white granule membrane.
- Light weight—Installed premium roof systems weigh less than 3 pounds per square feet (14.6 kg/m²).
- Resilient—RUBEROID® EnergyCap™ HW Plus Granule FR Membrane's heavyweight polyester mat core allows it to resist splits and tears due to its pliability and elongation characteristics.
- Durable—Specially formulated modified asphalt gives RUBEROID® EnergyCap™ HW Plus Granule FR Membrane lasting performance.
- RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is manufactured by GAF, a company with over 125 years in the roofing business.



Advantages (Continued)

- RUBEROID® EnergyCap™ HW Plus Granule FR Membrane is available in highly reflective brilliant white only.

* See applicable guarantee for complete coverage and restrictions.

Applicable Standards

Meets ASTM D6164, Types I & II, Grade G

ASTM E903, ASTM E408

ENERGY STAR® Qualified (U.S. Only)

UL/ULC Listed

Product Specifications (nominal)

| | | |
|------------------------------|---|--|
| Roll Size | 1 square (108.1 gross sq. ft.) (10.04 m ²) | |
| Roll Length | 32.75' (9.98 m) | |
| Roll Width | 39.625" (1.0 m) | |
| Approx. Roll Weight | 108 lb (49 kg) | |
| Product Thickness | 0.165" (4.19 mm) | |
| Emissivity* | | |
| Initial | 0.82 | |
| Aged | 0.80 | |
| Reflectivity* | | |
| Initial | 0.75 | |
| Aged | 0.60 | |
| SRI (Solar Reflective Index) | | |
| Initial | 91 | |
| Aged | 70 | |

* Note: The emittance and reflectance values published are those required for Title 24 compliance as listed by CRRC. For certification or other reflectance and emittance code requirements, different calculations may be used resulting in different values. All EnergyCap™ products meet LEED® requirements. Please contact Technical Services at 1-800-766-3411 for assistance and submittal information.

This product meets or exceeds the following ASTM D6164, Types I & II, Grade G, minimum requirements:

| Property | Test Method | Value |
|------------------------------------|-------------|-----------------|
| Tensile Strength @ 0°F, (lbf/in) | ASTM D5147 | 100 min |
| Elongation @ 0°F, (%) | ASTM D5147 | 20 min |
| Low Temperature Flexibility, (°F) | ASTM D5147 | 0°F max (-18°C) |
| Tear Strength, (lbf) @ 73°F (23°C) | ASTM D5147 | 70 min |
| Dimensional Stability, (%) | ASTM D5147 | 1.0 max |

MAJORSEAL™ Liquid Flashing

Updated: 8/16



MAJORSEAL™

LIQUID FLASHING (1 of 2)

Waterproof
Difficult
Flashing
Conditions

**Specifications require
pmma liquid flashings in
lieu of polyether. zsc**

Description

MajorSeal™ Liquid Flashing is designed to waterproof difficult flashing conditions. The MajorSeal™ Liquid Flashing System offers an alternative to traditional flashing technology. MajorSeal™ Systems combine MajorSeal™ Liquid Flashing and United Coating™ Roof Mate Fabric to form a durable, redundant flashing membrane. Available in a convenient, easy-to-use kit, MajorSeal™ Liquid Flashing is a VOC-compliant, one-part, moisture-curing, gray polyether sealant.

MajorSeal™ Liquid Flashing is easy to install. Compatible substrates include concrete, masonry (uncoated block and brick), wood, EFIS, and granule-surfaced BUR and SBS cap sheets. In addition, MajorSeal™ Liquid Flashing is compatible with most metals (excluding Kynar® coated metals and copper). Do NOT use on APP or single-ply membranes such as EPDM, PVC, or TPO. MajorSeal™ Liquid Flashing is designed for use with hot asphalt or heat-welded applications. Contact GAF Technical Services at 1-800-ROOF-411 if there are questions on compatible substrates or application method. MajorSeal™ Liquid Flashing requires the addition of Mineral Shield™ Roofing Granules, or a

Uses

The MajorSeal™ Liquid Flashing System is used to waterproof irregularly shaped penetrations, low parapet walls, at door thresholds, in lieu of pitch pans, and at virtually any application where more traditional flashings are not practical. MajorSeal™ Liquid Flashing cures in humid or dry climate conditions and may be installed at temperatures ranging from 30°F (1.1°C) to 100°F (37.8°C).

Advantages

- One part... no special tools or mixing required
- Less waste... open pouches can be sealed for reuse; fewer pot life concerns
- VOC compliant... (less than 25 grams/liter at 240°F [116°C]), solvent free
- Non-slumping... on vertical surfaces
- Coatable... in 24 hours
- Versatile... can be installed in temperatures from 30°F (1.1°C) – 100°F (37.8°C)
- No shrinkage... due to high solids moisture cure

Approvals & Certification

Conforms to:

- OTC rule for sealants and caulk
- Meets requirements of California VOC regs: CARB and SCAQMD

Conforms to:

Typical Properties



| | |
|------------------------|---|
| VOCs (max) | <25 grams per liter. |
| Service Temperature | -40°F (-40°C) to 200°F (93.3°C) |
| Full Cure | Weather dependent; varies greatly by temperature and humidity. 24 hours @ 60 mil total thickness. |
| Skin Time | Weather dependent; varies greatly by temperature and humidity. Approximately 4 hrs at 70°F (21.1°C) and 50% relative humidity. |
| Shrinkage | 0% |
| Tensile Strength | 243 lbf less scrim |
| Required Mil Thickness | 60 wet mils total |
| Base Coat | 30 wet mils |
| Second Coat | 30 wet mils |
| Clean-Up | Wet material may be cleaned up with alcohol. Cured liquid flashing may be scraped or abraded from substrate. |



Waterproof Difficult Flashing Conditions

MAJORSEAL™

LIQUID FLASHING (2 of 2)

- ASTM D2369
- EPA method 24

Application

Application Considerations

Before using, always review complete application instructions and construction details at gaf.com. Do not use on TPO.

MajorSeal™ Liquid Flashing is easy to install. Compatible substrates include concrete, masonry (uncoated block and brick), most metals (see above), wood, EFIS, and granule-surfaced BUR and SBS cap sheets.

Use MajorSeal™ Liquid Flashing products only on clean, dry substrates; they will not adhere properly where contamination is present. All substrates must be free of residual contamination (e.g., oils, asphalt, or plastic cement). Contaminates such as asphalt will impede adhesion; they may stain through the flashing material and cause discoloration. Use mechanical abrasion where appropriate to ensure a clean substrate. Complete the cleaning process by wiping the substrate with isopropyl alcohol. Allow the alcohol to flash off prior to the application of the flashing material. Do not use cleaning products such as mineral spirits or xylene, or any hydrocarbon solvent, as they will leave a film and impede adhesion of the liquid flashing.

MajorSeal™ Liquid Flashing may flow through gaps greater than $\frac{1}{4}$ inch (6 mm). Where gaps greater than $\frac{1}{4}$ inch (6 mm) are present, bridge the gap with M-Bond™ Sealant. For gaps $\frac{1}{2}$ inch (13 mm) or larger, place a backer rod in the gap, and then seal with M-Bond™ Sealant. Do not substitute sealants. Sealants with alternate chemistries will not be compatible with MajorSeal™ Liquid Flashing.

Using the notched trowel in the kit, apply a base layer of liquid flashing to a thickness of 30 wet mils/approximately 28 lineal feet (8.51 lm) per coating per pouch. Use a wet mil gauge to ensure proper amount of material is installed.

Install precut United Coatings™ Roof Mate Fabric around the penetration so that the fabric extends a minimum of 4 inches (102 mm) onto the field membrane and a minimum of 4 inches (102 mm) onto the penetration. Embed the fabric into the base layer of liquid flashing using the smooth side of the trowel in the kit.

Install a second coat of 30 wet mils/approximately 28 lineal feet (8.51 lm) per coating per pouch of liquid flashing to achieve a total of 60 wet mils of liquid flashing. Extend the sec-

ond coat a minimum of 2 inches (51 mm) past the fabric in the field and on the penetration. If application of the second coat displaces the fabric, straighten the fabric and use a brush to tool-in the remaining liquid flashing.

Apply Mineral Shield™ Roofing Granules immediately after second coat. Additional application of United Coatings™ Roof Mate Coating 24 hours after granule application.

Coverage varies widely by substrate, generally 14–15 lineal feet (4.2–4.5 m) at an application rate of 60 wet mils, (using 12 inch [305 mm] fabric). Drying time also varies by condition. Do not apply if there is threat of rain in 6 hours. Do not install at temperatures below 30°F (1.1°C).

Storage / Shelf Life

Store original unopened containers in a cool, dry place. MajorSeal™ Liquid Flashing will not freeze. Continued storage at elevated temperatures (70°F [21.1°C] and at 50% relative humidity) will shorten expected shelf life. With proper storage, MajorSeal™ Liquid Flashing is expected to last approximately one year from the date of manufacture. Once opened, the foil pouch may be resealed and used within 14 days of opening. Where subsequent use is expected, remove all air from the foil pouch prior to resealing. Do not use if material does not flow freely from pouch or has cured particles.

For Application Questions

Contact GAF Technical Services at 1-800-766-3411 or visit gaf.com.

| Packaging | |
|----------------------------|--|
| Kit 1 Contents | 3 – .53-gallon (2 liter) pouches of MajorSeal™ Liquid Flashing 2 – 10.1-oz (.30 liter) tubes of M-Bond™ Sealant 1 pair – disposable gloves |
| Kit 2 Contents | 1 – notched trowel 1 – 6" x 50" (1.8 x 15 m) roll United Coatings™ Roof Mate Fabric 3 – nozzle extensions |
| Weight Per Kit 1 | 24 lb (10.89 kg) |
| Weight Per Kit 2 | 4 – MajorSeal™ Liquid Flashing pouches .53 gallons (2 liters) |
| Available in a 4-pack box. | |

MATRIX™ 202

SBS Flashing Cement

Updated: 8/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



Highly Modified/Smooth Application



CODE APPROVALS



Cements and coatings
for roofing systems as to
external fire exposure.

MATRIX™ 202 AS NEEDED

SBS FLASHING CEMENT (1 OF 2)

Description

Matrix™ 202 SBS Flashing Cement is a high-quality, asbestos-free formulation for use as a cold-applied bonding agent for SBS modified bitumen roof systems. Heavy, "trowel-grade" consistency makes this product ideal for flashing details, attachment of membrane to steep slopes and parapet walls, and a variety of waterproofing repairs, especially at moving joints where its flexibility and elasticity make it superior to standard plastic cements.

- Superior bonding strength and high flexibility to accommodate temperature-related expansion and contraction of the roof system or waterproofing system
- Easy application...smooth, "trowel-grade" cement maintains excellent low-temperature flexibility

Uses

Matrix™ 202 SBS Flashing Cement's "trowel-grade" consistency outperforms standard plastic cements for:

- Attaching flashing to parapet walls, curbs, and roof projections
- Sealing end laps and perimeter edges of SBS modified bitumen membranes
- Sealing metal-edge flashing, gutter seams, air-conditioning ducts, etc.
- Repairing splits, breaks, and holes in roofing and flashing
- Sealing joints of metal roof panels, metal edging, gutters, coping caps, and air-conditioning ducts
- Flashing pipes and projections through below-grade damp-proofing membranes, sealing shingles, and repairing asphalt built-up, metal, and masonry roofs

Approvals & Certification

Matrix™ 202 SBS Flashing Cement is listed and approved by the following agencies or code bodies: Underwriters Laboratories (UL). Meets or exceeds the requirements of **ASTM D4586** Asphalt Roof Cement Asbestos-free, Type I and **ASTM D3409** Asphalt Roof Cement for Damp, Wet, or Underwater Surfaces. Approvals may vary by region. Be sure to review pail labels before purchase.

Surface Preparation

All surfaces must be clean, dry, and free from any foreign matter, such as oil, grease, dirt, or debris that could inhibit the bonding capabilities of the cement. On existing roofs, inspect roof deck condition; moisture in old roof may require complete removal of existing roof. Check local building codes; local building codes may require complete removal of existing roof. Contact GAF Technical Services for details on cutting out and repairing blisters, buckles, and raised edges for a smooth surface. Check all flashings, edges, drains, valleys, and vents, and repair as needed.

Application

Application Rate: Typical application rate is 8 gallons per square (3.26 L/m²) for a $\frac{1}{8}$ " (3 mm) coat.

Application Method: Use notched trowel or wide-edged putty knife to apply cement evenly and in equal amounts to substrate and SBS membrane flashing. Coat should be $\frac{1}{8}$ " (3 mm) thick on each surface, without gaps, dry areas, or bubbles.

Attachment: Membrane Flashing: No cure time before attaching flashing; simply press into place with even pressure, smoothing out wrinkles and bubbles. Adhere membrane to cemented substrate and press into place, working out any wrinkles or non-adhered areas and making sure a sufficient amount of cement is applied to the laps so that a bead of cement is visible at all lap edges. Mechanically fasten membrane flashing on parapet walls to avoid membrane slippage.

Coursing: Apply cement to surface and install glass or polyester fabric into cement; repeat method for desired courses. When finished, coat with another layer of cement.

Metal: All metal should be primed. Set metal flanges in full bead of $\frac{1}{8}$ " (3 mm) thick cement. Apply cement between joints and apply pressure so that a bead of cement is visible at joint edge.

Product Specifications (Nominal)

| | |
|----------------------|---------------------------|
| Weight | 9.1 lb (4.1kg) per gallon |
| VOC (max) | 300 grams/liter |
| Non-volatile content | 50% maximum |
| SETA Flash Point | 110°F (43.3°C) |
| Sizes | 55 gallon/208.2 L |



MATRIX™ 202

SBS FLASHING CEMENT (2 OF 2)

Highly Modified/ Smooth Application

Application (Continued)

Sealing/Repairs: Apply cement at a $\frac{1}{8}$ " (3 mm) to $\frac{1}{4}$ " (6 mm) thickness, working the cement into the opening or crack and spreading beyond repair area approximately 2–4 inches (51–102 mm). If repair area is over $\frac{1}{4}$ " (6 mm) wide or more than 2" (51 mm) long, embed glass or polyester fabric into the cement for added reinforcement, then cover with additional cement. If desired, repeat procedure for coursing application and feather each layer of fabric beyond underlying layer.

Precautions

Compatibility & Limitations: Do not use with any APP modified products or any modified bitumen membranes that have a plastic film surface or are metal foil-faced. Do not use on wet or damp surfaces, directly over wood, or on surfaces previously covered with coal tar products. Do not install over or under polystyrene insulation.

Temperature Range: Apply only when temperatures are 45°F (7.2°C) and rising. Cold weather will cause product to stiffen, making application difficult. Store for 24 hours at room temperature prior to application. Do not heat container or attempt to thin this product. Not recommended for application on substrates that exceed 140°F (60°C).

Storage/Handling & FIRE WARNING: Matrix™ 202 SBS Flashing Cement is COMBUSTIBLE and should always be kept away from heat, open flame, and any source of ignition. Observe normal safeguards for storing and handling of this product prior to and during application. Do not allow flashing cement to freeze.

Important: Repair leaks promptly to avoid adverse effects, including, but not limited to, mold growth.

Clean Up

Keep containers covered when not in use. Clean equipment and overspray with kerosene, mineral spirits, or petroleum naphtha. Clean hands with waterless hand cleaner.

Caution

Matrix™ 202 SBS Flashing Cement contains petroleum distillate.

Ventilation – Use with adequate ventilation and close containers when not in use. If TLV (Threshold Limit Value) is exceeded, respirators are required (NIOSH/OSHA). Inhalation of high vapor concentration may result in headaches and/or dizziness. Remove individual to fresh air and administer oxygen if breathing is difficult. If breathing has stopped, administer artificial respiration, keep victim warm, and order emergency medical attention immediately.

Eye Contact – Rinse immediately with water for 15 minutes and seek medical advice.

Personal Protection – Irritation may result from prolonged or repeated contact with skin. Wear chemical-resistant gloves, protective goggles, and protective clothing, if needed.

Fire Protection – Matrix™ 202 SBS Flashing Cement is COMBUSTIBLE and should always be kept away from heat, open flame, and any source of ignition.

Waste Disposal – Empty containers must be disposed of in an approved landfill in accordance with local, state, and federal regulations.

For Application Questions

Contact GAF Technical Services at 1-800-766-3411 or visit gaf.com.

MATRIX™ 307 Premium Asphalt Primer

Updated: 8/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



Promotes Excellent Bond For Asphalt Roof Systems



CODE APPROVALS



Cements and coatings
for roofing systems as to
external fire exposure.

MATRIX™ 307

PREMIUM ASPHALT PRIMER (1 OF 2)

14

Description

Matrix™ 307 Premium Asphalt Primer is a general purpose, asbestos-free foundation coating for all types of asphalt-based roofing materials, e.g., hot-mopped or cold-applied asphalt coatings, roof cements, and asphalt-based roof and flooring adhesives.

- Excellent penetration rate—promotes a tough, weather-resistant bond for coating and adhesives
- Strength and flexibility—accommodates temperature-related expansion and contraction of the roof system
- Easy application—sprayer, brush, or roller; maintains excellent low-temperature flexibility

Uses

Matrix™ 307 Premium Asphalt Primer has an excellent penetration rate that promotes a tough, weather-resistant foundation coating for:

- Concrete and masonry roofs, walls, or floors prior to the use of asphalt cutback adhesives
- Metal edging and flashing, asphalt, or weathered composition roofing prior to the application of hot-mopped or cold-applied built-up roofing materials
- Undercoating for LeakBuster™ aluminum roof coatings or asphalt roof coatings and emulsions
- Gypsum surfaces

Approvals & Certification

Matrix™ 307 Premium Asphalt Primer is listed and approved by the following agencies or code bodies: Underwriters Laboratories (UL), Factory Mutual (FM). Meets or exceeds the requirements of ASTM D41 Type 1 Asphalt Primer Used in Roofing, Damp Roofing, and Waterproofing. Approvals may vary by region. Be sure to review pail labels before purchase.

Surface Preparation

All surfaces to be primed must be clean, dry, and free from any foreign matter, such as oil, grease, dirt, or debris that could inhibit the bonding capabilities of the primer. Sweep (or wire-brush metal surfaces) and remove oil, grease, dirt, or other foreign material that could inhibit bonding. On existing roofs, inspect roof deck condition; moisture in old roof may indicate need for roof repair. Contact GAF Technical Services for details on cutting out and repairing blisters, buckles, and raised edges for a smooth surface. Check all flashings, edges, drains, valleys, and vents, and repair as needed.

Application

Application Rate: Typical application rate is $\frac{1}{2}$ gallon per square (.2 L/m²); varies with texture of surface to be primed. Drying time is 4–8 hours between coats.

Material Preparation: Stir well before application.

Application Method: Apply primer with a roller, brush, or sprayer, covering the surface at an even 1 gallon per 500 square feet (.08 L/m²).

Spray: A Graco 45:1 pump or equivalent is recommended. Consult equipment manufacturer for optimum psi, spray tip size, length of hose, and number of spray guns to achieve uniform coat.

Brush: Apply smooth, even coat, using parallel strokes for a uniform coat. If first coat is completely absorbed, apply a second coat.

Roller: Apply smooth, heavy coat, using parallel strokes for a uniform coat.

Precautions

Compatibility & Limitations: Do not use on wet or damp surfaces or on surfaces previously covered with coal tar products. On concrete decks, previous use of wax/resin curing compound may inhibit bonding.

Temperature Range: Apply only when temperatures are 45°F (7.2°C) and rising. Cold weather will cause product to stiffen, making application difficult. Store 24 hours at room temperature prior to application. Do not heat container or attempt to thin this product. Not recommended for application on substrates that exceed 140°F (60°C).

Storage/Handling & FIRE WARNING:

Matrix™ 307 Premium Asphalt Primer is COMBUSTIBLE and should always be kept away from heat, open flame, and any source of ignition. Observe normal safeguards for storing and handling of this product prior to and during application. Do not allow primer to freeze.

Important: Repair leaks promptly to avoid adverse effects, including, but not limited to, mold growth.

Clean Up

Keep containers covered when not in use. Clean equipment and overspray with kerosene, mineral spirits, or petroleum naphtha. Clean hands with waterless hand cleaner.

Product Specifications (Nominal)

| | |
|----------------------|---|
| Weight | 7.4 lb (3.36 kg) per gallon |
| VOC (max) | 350 grams/liter |
| Non-volatile content | 85% by weight minimum |
| Sizes | 3 gal/11.4 L or 5 gal/18.9 L or 55 gal/208.2 L |



Promotes
Excellent
Bond
For Asphalt
Roof
Systems

MATRIX™ 307

PREMIUM ASPHALT PRIMER (2 OF 2)

Caution

Matrix™ 307 Premium Asphalt Primer contains petroleum distillate. Do not thin.

Ventilation – Use with adequate ventilation and close containers when not in use. If TLV (Threshold Limit Value) is exceeded, respirators are required (NIOSH/OSHA). Inhalation of high vapor concentration may result in headaches and/or dizziness. Remove individual to fresh air and administer oxygen if breathing is difficult. If breathing has stopped administer artificial respiration, keep victim warm, and order emergency medical attention immediately.

Eye Contact – Rinse immediately with water for 15 minutes and seek medical advice.

Personal Protection – Irritation may result from prolonged or repeated contact with skin. Wear chemical-resistant gloves, protective goggles, and protective clothing, if needed.

Fire Protection – Matrix™ 307 Premium Asphalt Primer is COMBUSTIBLE and should always be kept away from heat, open flame, and any source of ignition.

Waste Disposal – Empty containers must be disposed of in an approved landfill in accordance with local, state, and federal regulations.

For Application Questions

Contact GAF Technical Services at 1-800-766-3411 or visit gaf.com.



Woody Butts, INC.

OR EQUAL

MANUFACTURERS • DISTRIBUTORS
3451 DALWORTH ARLINGTON, TEXAS 76011
(817) 440-5842

SHEET LEAD SPECIFICATION

2-1/2# & 4#

use

Sheet Lead supplied by Woody Butts, Inc. is 99.9% pure and meets Federal Specification QQ-L-201 Grade B and ASTM B 749.

Drill-Tec™ Steel and Plastic Plates

Data Sheet

Updated: 1/10



*Quality You Can Trust Since 1886...
From North America's Largest Roofing Manufacturer™*



DRILL-TEC™

STEEL AND PLASTIC PLATES

AS NEEDED

16

Pressure Plates

Drill-Tec™ Steel Plates



Drill-Tec™ Plastic Plates



Description

Drill-Tec™ Steel Plates are made of Galvalume® coated steel. The round design provides an even distribution of loads and eliminates sharp corners that can damage the insulation or membrane. Drill-Tec™ 2 3/8" and 2 3/4" plates should be used for lap seam fastening. Drill-Tec™ 3" plates should be used when fastening insulation. These plates are designed to be used with Drill-Tec™ fasteners.

Code Approvals



Physical Data

2" Barbed Plate

Application: Attaches EverGuard® membrane to the substrate.
Fastener: Drill-Tec™ HD #14 Fasteners, XHD #15 Fasteners and Drill-Tec™ CD-10 Fasteners

2" Double-Barbed Plate

Application: Attaches EverGuard® membrane to the substrate.
Fastener: Drill-Tec™ XHD #15 Fasteners, SXHD #21 Fasteners and Drill-Tec™ CD-10 Fasteners.

2 3/8" XHD Barbed Seam Plate

Application: Attaches EverGuard® membrane to the substrate.
Fastener: Drill-Tec™ XHD #15 Fasteners and Drill-Tec™ CD-10 Fasteners.

2 3/4" Super XHD Double-Barbed Seam Plate

Application: Attaches EverGuard® membrane to the substrate.
Fastener: Drill-Tec™ SXHD #21 Fasteners and Drill-Tec™ CD-10 Fasteners.

3" Galvalume® Plate

Application: Attaches insulation to the substrate.
Fastener: Drill-Tec™ Standard, #12 Fasteners, HD #14 Fasteners, CD-10 Fasteners, Fluted Nail

Lite-Deck Plate

Application: Attaches insulation to gypsum, Tectum® and lightweight concrete decks.
Fastener: Drill-Tec™ Lite-Deck Fastener.

Base Sheet Plate

Application: Attaches base sheets to lightweight insulating concrete and various gypsums.
Fastener: Drill-Tec™ Standard or 1.2 Base Sheet Fastener.

Product Data

| Plate | SKU # | Diameter | Packaging | Weight |
|------------------------------|-------|----------|-----------|--------|
| 2" Barbed Plate | 8676 | 2" | 1000 | 29 lbs |
| 2" Double-Barbed Plate | 46DB | 2 1/8" | 1000 | 34 lbs |
| 2 3/8" XHD Barbed Seam Plate | 8678 | 2 3/8" | 1000 | 45 lbs |
| 2 3/4" Super XHD Plate | 8679 | 2 3/4" | 500 | 37 lbs |
| 3" Galvalume® Plate | 4577 | 2 7/8" | 1000 | 37 lbs |
| 3" Lite-Deck Plate | 457B | 3" | 500 | 19 lbs |
| 3" Base Sheet Plate | 45JJ | 3" | 1000 | 46 lbs |

Description

Drill-Tec™ 3" plates should be used when fastening insulation. All Drill-Tec™ plates are round and designed to be used with Drill-Tec™ fasteners.

Code Approvals



Physical Data

3" Polypropylene Plastic Plate

Application: Attaches insulation to the substrate.
Fastener: Drill-Tec Standard, Heavy Duty, CD-10, Fluted Nail or Toggle Bolt fastener.

3" Polypropylene Locking Plastic Plate

Application: Attaches insulation to the substrate.
Fastener: Drill-Tec Standard, Heavy Duty or Toggle Bolt fastener.

Product Data

| Plate | SKU # | Diameter | Packaging | Weight |
|--------------------------|-------|----------|-----------|--------|
| 3" Plastic Plate | 4578 | 3 1/16" | 1000 | 25 lbs |
| 3" Locking Plastic Plate | 45JK | 3 1/16" | 1000 | 25 lbs |

Drill-Tec™ #12 Fastener

Updated: 7/17



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*

Description

Drill-Tec™ #12 Fastener is designed to secure insulation to steel (18 ga. – 24 ga.) and wood. It is available in lengths from 1-5/8" – 8" (41.3 mm – 203 mm). The Drill-Tec™ Standard #12 Roofing Fastener is Factory Mutual and Miami-Dade County Product Control approved.

Application

The Drill-Tec™ #12 Fastener must penetrate steel decks a minimum of 3/4" (19.1 mm), wood plank decks a minimum of 1" (25.4 mm), and 1/2" (12.7 mm) through the underside for plywood decks. Using a screw gun, drive the fastener until the screw head is seated securely; with very rigid insulation boards, watch for the plate to dimple.

Note: Be careful not to overdrive the fastener and fracture the skin of the insulation. Fastener must be tight enough so that the plate doesn't turn.

For steel decks, Factory Mutual requires that the fastener penetrate the deck at the top flute.

To speed installation, this fastener is also available as a labor saving assembled screw and plate. See Drill-Tec ASAP® 3S.

Code Approvals

MIAMI-DADE COUNTY
APPROVED

Advantages

- Heavier shank & thread diameters than most "standard" roofing fasteners.
- Deep buttress thread for high pull-out resistance.
- Extra sharp drill point for quick installation in new or reroof applications.
- Available with Hex Head or #3 Phillips Truss Head.

Plates & Accessories

- Use 3" (76 mm) steel or plastic plates, depending upon the application.
- For best installation results, use a variable speed 0-2500 rpm screw gun.

Specifications

The fastener will be a Drill-Tec™ #12 Fastener with a thread diameter of .220"

**Drill-Tec™
#12 Fastener**



(5.58 mm). The fastener must have 12.5 buttress threads per inch (per 25.4 mm) and a 30° drill point. Also, the fastener must be heat treated per specification OMG-1. The Drill-Tec™ #12 Fastener will be used with a Factory Mutual-approved, Drill-Tec™ Round Pressure Plate or Pressure Bar. The fastener must be Factory Mutual approved.

Coating Requirement

The fastener will be coated with the Drill-Tec™ CR-10 corrosion-resistant coating. When subjected to 30 Kesternich cycles (DIN 50018), the fastener must show less than 15% red rust and surpass Factory Mutual Approval Standard 4470.

Note: ASAP® is a registered trademark of OMG.

Product Data

| | |
|-----------------|---|
| Thread Diameter | .220" (5.58 mm) |
| Head Diameter | |
| Truss Head | .435" (11.04 mm) |
| Hex Head | .390" (9.91 mm) |
| Head Style | #3 Phillips Truss Head* 1/4" (6.35 mm) Hex Head* |
| Coating | CR-10 |

*#3 Phillips bit or Hex Head drive included in each bucket.

| Length | Thread Length | Packaging (Bucket) | Weight |
|------------------|---------------|--------------------|------------------|
| 1 5/8" (41.3mm) | Full | 1,000 | 12 lb (5.44 kg) |
| 2 1/4" (57.1 mm) | Full | 1,000 | 15 lb (7.71 kg) |
| 3" (76 mm) | Full | 1,000 | 24 lb (10.89 kg) |
| 4" (102 mm) | 3" (76 mm) | 1,000 | 28 lb (12.70 kg) |
| 5" (127 mm) | 3" (76 mm) | 1,000 | 35 lb (15.88 kg) |
| 6" (152 mm) | 4" (102 mm) | 1,000 | 40 lb (18.14 kg) |
| 7" (178 mm) | 4" (102 mm) | 1,000 | 48 lb (21.77 kg) |
| 8" (203 mm) | 4" (102 mm) | 1,000 | 50 lb (22.68 kg) |

Note: All sizes are nominal.

Example: Drill-Tec™ #12 Fastener Length Selection Procedure

1. If applicable, determine thickness of existing roofing material.
2. Add thickness of new insulation.
3. Add 3/4" (19.1 mm) minimum fastener penetration.
4. If odd size requirement, always size up in length, not down. See example below.

Example

| | |
|------------------------|------------------|
| Existing Roofing: | 1 3/4" (44.4 mm) |
| New Insulation: | + 1/2" (12.7 mm) |
| Min. Embedment: | + 3/4" (19.1 mm) |
| Total Fastening Range: | = 3" (76 mm) |

**The proper #12 Fastener
for the example is 3 1/4" (82.6 mm).**

Use this format to calculate correct fastener size:

| | |
|------------------------|---------|
| Existing Roof: | |
| New Insulation: | + _____ |
| Min. Embedment: | + _____ |
| Total Fastening Range: | = _____ |

The proper #12 Fastener is:

EnergyGuard™ Perlite Cant Strip

Updated: 7/17



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*

PERLITE CANT STRIP (1 of 2)

AS NEEDED**Description**

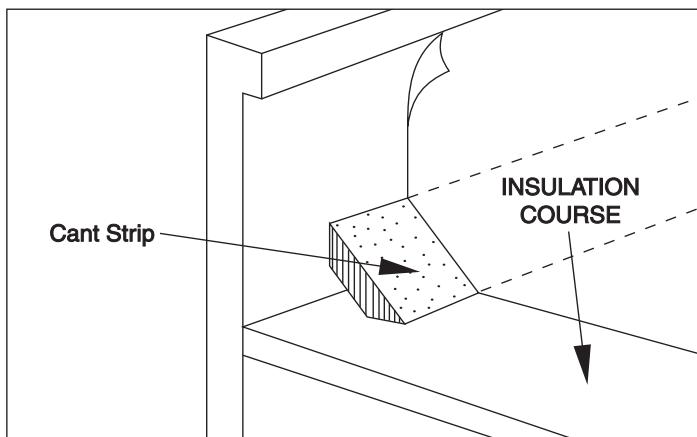
- Factory-fabricated from rigid EnergyGuard™ Perlite insulation board.
- Cut at angles that provide a true 45° angle between horizontal and vertical surfaces.
- UL, ULC Flame Spread Rating 35.
- Easy to fabricate for installation with most types of roof systems.
- Strips are available in 3", 4", and 5" (76 mm, 102 mm, and 127 mm) nominal sizes.

Uses

- To provide a smooth transition from horizontal to vertical surfaces.
- Properly installed, EnergyGuard™ Perlite Cant Strip is suitable for use under built-up and modified bitumen roofing systems.
- Refer to the application specifications in the current membrane manufacturer's application and specifications manual for proper installation procedures for EnergyGuard™ Perlite Cant Strip.

Benefits

- Strong and dimensionally stable.
- Available in 4 standard sizes.
- Can be shipped in mixed loads with roof insulation and tapered systems.
- Multiple shipping locations.
- Easily identifiable bundles.
- Average recycled content is 37%.

**EnergyGuard™
Perlite Cant Strip****Limitations**

- EnergyGuard™ Perlite Cant Strips are a non-structural, non-load-bearing material.
- EnergyGuard™ Perlite Cant Strips should be stored dry and be protected from the elements. Once properly loaded at the job site, remove factory wraps and cover with a breathable tarp.
- No more Cant Strip should be applied than can be completely covered with finished roofing on the same day.
- Do **NOT** use under fully adhered single-ply systems or with direct torch application of modified bitumen.
- If torch-grade modified bitumen roofing is to be installed over EnergyGuard™ Perlite Cant Strips, a fiberglass base sheet **MUST** first be installed.

Code Compliance**Cant Sizes***

| | | |
|----------------|---------------|----------------|
| 1" (25 mm) | x 3" (76 mm) | x 48" (1.22 m) |
| 1" (25 mm) | x 4" (102 mm) | x 48" (1.22 m) |
| 1 1/2" (38 mm) | x 4" (102 mm) | x 48" (1.22 m) |
| 1 1/2" (38 mm) | x 5" (127 mm) | x 48" (1.22 m) |

*All sizes shown are nominal and subject to nominal manufacturing tolerances.



ENERGYGUARD™

PERLITE CANT STRIP (2 of 2)

18

EnergyGuard™ Perlite Cant Sizes and Packaging

| Nominal Size (metric) | | Per Bundle | | Per Pallet | |
|-------------------------------|--|------------|------------------------|------------|------------------------|
| | | Pcs. | Ln. Ft. (Ln. Meter) | Bundles | Ln. Ft. (Ln. Meter) |
| 1 x 4 in (25 x 102 mm) | | 21 | 84 (25.6) | 30 | 2,520 (768) |
| 1 x 3 in (25 x 76 mm) | | 33 | 120 (36.51) | 30 | 3,960 (1201) |
| 1 1/2 x 4 in (38 x 102 mm) | | 30 | 120 (36.51) | 20 | 2,400 (731.52) |
| 1 1/2 x 5 in (38 x 127 mm) | | 18 | 72 (21.9) | 20 | 1,440 (438.9) |

Note: Packaging is subject to change without prior notice.

Specialty Deck Fasteners

Refer to published application instructions for complete installation requirements. For applications not listed or with questions, please contact Technical Services at 1-800-ROOF-411 or technicalquestions@gaf.com.

| | | | |
|--|--|--|---|
| DRILL-TEC™ GYPTEC® |  <p>Drill-Tec™ Polymer GypTec® Fastener Lengths: 2½" to 8" ¼" Square Drive</p>  <p>Drill-Tec™ 2" GypTec Plate (for Membrane) Code # 4596 Galvalume 1000/Bucket 24 lb.</p>  <p>Drill-Tec™ 3" GypTec Plate (for Insulation) Code # 4599 Galvalume 1000/Bucket 46 lb.</p> | DRILL-TEC™ LD |  <p>Drill-Tec™ LD Fastener Lengths: 2½" to 12" #3 Square Drive</p>  <p>Drill-Tec™ LD Plate (for Insulation) Code # 457B Galvalume 500/Bucket 19 lb.</p> |
| DRILL-TEC™ BASE SHEET FASTENERS |  <p>Drill-Tec™ Base Sheet Fasteners</p> <p>1.7" Length Code # 459C Galvalume 500/Box 20 lb.</p> <p>1.2" Length* Code # 459U Galvalume 1000/Box 35 lb.</p> <p>*1.2" length may also be used in gypsum applications.</p> | DRILL-TEC™ LOCKING IMPACT NAILS |  <p>Drill-Tec™ Locking Impact Nail</p> <p>1.4" Length for Base Sheets Code # 45D1 Galvalume 500/Box 26 lb.</p> <p>1.8" Length for Base Sheet or Insulation Code # 45D2 Galvalume 500/Box 28 lb.</p> |

Refer to accompanying SKU table for specific SKU for individual fastener lengths.

| STRUCTURAL CONCRETE and MASONRY | | | | | | | | | | | | | | | | | | |
|--|--|--------------|-------------|-------|-----------|-------------|--------|---------------|-------------|--------|---------------|-------------|--------|-----------|-------------|--------|---|---|
| BAR |  <p>Drill-Tec™ Masonry Anchors (Zinc)</p> <table> <tbody> <tr> <td>3/16" x 7/8"</td> <td>Code # 457B</td> <td>9 lb.</td> </tr> <tr> <td>1/4" x 1"</td> <td>Code # 457F</td> <td>18 lb.</td> </tr> <tr> <td>1/4" x 1 1/4"</td> <td>Code # 457H</td> <td>21 lb.</td> </tr> <tr> <td>1/4" x 1 1/2"</td> <td>Code # 457J</td> <td>24 lb.</td> </tr> <tr> <td>1/4" x 2"</td> <td>Code # 457L</td> <td>29 lb.</td> </tr> </tbody> </table> <p>All sizes are 1000/Box</p> | 3/16" x 7/8" | Code # 457B | 9 lb. | 1/4" x 1" | Code # 457F | 18 lb. | 1/4" x 1 1/4" | Code # 457H | 21 lb. | 1/4" x 1 1/2" | Code # 457J | 24 lb. | 1/4" x 2" | Code # 457L | 29 lb. |  <p>Drill-Tec™ LIP Termination Bar</p> <p>6 in. o.c. Code # 453B ¾" Width Aluminum 500 ft./Tube 57 lb.</p> |  <p>Drill-Tec™ FLAT Termination Bar</p> <p>6 in. o.c. Code # 453D 1" Width Aluminum 500 ft./Tube 56 lb.</p> |
| 3/16" x 7/8" | Code # 457B | 9 lb. | | | | | | | | | | | | | | | | |
| 1/4" x 1" | Code # 457F | 18 lb. | | | | | | | | | | | | | | | | |
| 1/4" x 1 1/4" | Code # 457H | 21 lb. | | | | | | | | | | | | | | | | |
| 1/4" x 1 1/2" | Code # 457J | 24 lb. | | | | | | | | | | | | | | | | |
| 1/4" x 2" | Code # 457L | 29 lb. | | | | | | | | | | | | | | | | |



GAF

1 Campus Drive, Parsippany, NJ 07054
gaf.com

**Quality You Can Trust...From
North America's Largest Roofing Manufacturer!**

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RUBEROID® HW Plus Granule FR Membrane

FOR WALKWAY

Updated: 8/16



*Quality You Can Trust...From
North America's Largest Roofing Manufacturer!™*



AS NEEDED

20

RUBEROID®

HW PLUS GRANULE FR MEMBRANE

Formerly RUBEROID® SBS Heat-Weld™ Plus FR

WALKWAY ROLL AS
NEEDED - ARCHITECT
TO CHOOSE COLOR

Description

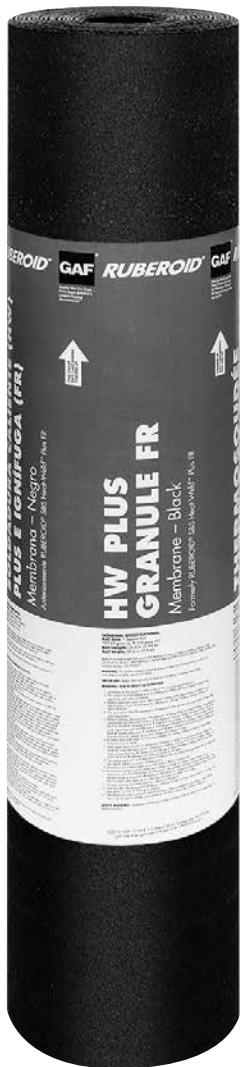
RUBEROID® HW Plus Granule FR Membrane is a premium, heavy-duty fire-retarding membrane that can be installed without the use of hot asphalt. Its core is a strong, resilient non-woven polyester mat that is coated with an inherently fire-retardant polymer modified asphalt and surfaced with mineral granules.

Uses

RUBEROID® HW Plus Granule FR Membrane is designed for new roofing and re-covering applications as well as the construction of flashings. RUBEROID® HW Plus Granule FR Membrane is also an ideal product for repairs of built-up roofing membranes or other modified bitumen systems.

Advantages

- System guarantees are available for up to 20 years.*
- Light weight—Installed roof designs weigh less than 2 pounds per square foot (9.8 kg/m²).
- Durable—Specially formulated modified asphalt gives RUBEROID® HW Plus Granule FR Membrane lasting performance.
- Specially formulated poly burn-off film allows for easy installation.
- Heat welding allows for kettle-free operation.



Advantages (Continued)

- Resilient—RUBEROID® HW Plus Granule FR Membrane's premium polyester mat core allows it to resist splits and tears due to its pliability and elongation characteristics.
- RUBEROID® HW Plus Granule FR Membrane is manufactured by GAF, a company with over 125 years in the roofing business.
- No coatings required for Class A ratings from UL and FM.
- Available with black or white granules.

* See applicable guarantee for complete coverage and restrictions.

Applicable Standards

Meets ASTM D6164, Types I & II, Grade G

FM Approved

ICC ESR-1274

Miami-Dade County Product Control Approved

State of Florida Approved

UL/ULC Listed

Product Specifications (nominal)

| | |
|------------------------|--|
| Roll Size | 1 square (107.7 gross sq. ft.) (10.0 m ²) |
| Roll Length | 32.6' (9.9 m) |
| Roll Width | 39.625" (1.0 m) |
| Approx. Roll Weight | 105 lb (47.6 kg) |
| Product Thickness | 0.165" (4.19 mm) |

This product meets or exceeds the following ASTM D6164, Types I & II, Grade G, minimum requirements:

| Property | Test Method | Value |
|---------------------------------------|-------------|-------|
| Tensile Strength @ 0°F (min), lbf/in | ASTM D5147 | 100 |
| Elongation @ 0°F (min), % | ASTM D5147 | 20 |
| Low Temperature Flexibility (max), °F | ASTM D5147 | 0 |
| Tear Strength (min), lbf | ASTM D5147 | 70 |
| Dimensional Stability, (max) % | ASTM D5147 | 1 |



Zero/Six Consulting, LLC
1027 Tremont St.
Galveston, TX
409.740.0090

SUBMITTAL REVIEW

PROJECT UT - SEAY BUILDING ADDITION

PROJECT # 19069

SUBMITTAL # 07 52 16 - 002

DESCRIPTION MODIFIED BITUMINOUS MEMBRANE ROOFING - SD

- | | |
|--|---|
| <input type="checkbox"/> NO EXCEPTION TAKEN | <input type="checkbox"/> EXCEPTIONS NOTED |
| <input type="checkbox"/> SUBMIT SPECIFIED ITEM | <input checked="" type="checkbox"/> REVISE AND RESUBMIT |

COMMENTS:

1. See product data review, roof system submitted does not match specification requirements.

DATE 7.31.2020

REVIEWED BY JEFFREY BISHOP, PE

CORRECTIONS AND NOTATIONS ON SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS. THIS REVIEW IS ONLY TO CHECK GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSION, SELECTING FABRICATION PROCESSES, TECHNIQUES OF CONSTRUCTION, AND PERFORMING THE WORK IN A SAFE MANNER.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0278

PROJECT: UT Seay Building Addition

TO: BSA Lifestructures
AL

DATE: 07/24/2020

RE: Modified Bituminous Membrane Roofing - Shop
Drawings

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 08/07/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|---------------------------|
| 1 | Submittal | | 075216-002 | 1 | | 07/24/2020 | Modified Bituminous Membrane Roofing - Shop Drawings | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 7/24/2020 SPEC# 075216

REVIEWED BY tanner.hawkins

SUBMITTAL# 075216-002

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins



1

Since 1982

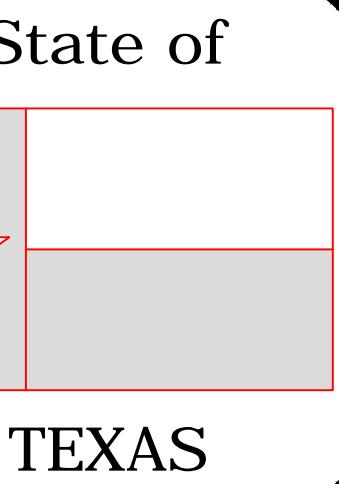
::1212 E.Anderson Ln., Ste. 200::Austin, TX::78752::

TRANSMITTAL NO: 04**Project: UT Seay Building****Date: 07/20/2020****To: Tyler Patton****Ref: Product Data**

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|--|---|
| <input type="checkbox"/> Product Data | Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | Your Records | <input type="checkbox"/> Approved as Noted |
| Prints | <input checked="" type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Orders | Review and Comment | <input type="checkbox"/> Resubmit |
| <input checked="" type="checkbox"/> Plans | | <input type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | | |
| <input type="checkbox"/> Specifications | Enclosed | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Original Warranty Documents | <input type="checkbox"/> Separate Cover Via: | <input type="checkbox"/> Due Date: |

1. We are forwarding you the Shop Drawings.

Linda Lang



State of

TEXAS

BSABSA LifeStructures
2700 Via Fortuna, Suite 400
Austin, TX 78746
ph 512.351.9000 fx 866.980.3272
www.bsalifestructures.com
Architectural Registration Number: 89-002
Engineering Registration Number: F-2421

SEAY BUILDING ADDITION

| | |
|-------------------------------------|------|
| COVER SHEET..... | A0 |
| ROOF PLAN & GAF DETAILS..... | A1 |
| MOD-BIT DETAILS..... | A1.1 |
| MOD-BIT DETAILS..... | A1.2 |
| PENTHOUSE ELEVATIONS & DETAILS..... | A2 |
| PENTHOUSE DETAILS..... | A2.1 |
| CANOPY COMPOSITE PANELS..... | A3 |

SEAY BUILDING
ADDITION**D.R.Kidd**
company inc.SUITE 200
1212 E. ANDERSON LN.
AUSTIN, TEXAS 78752
(512) 671-7791

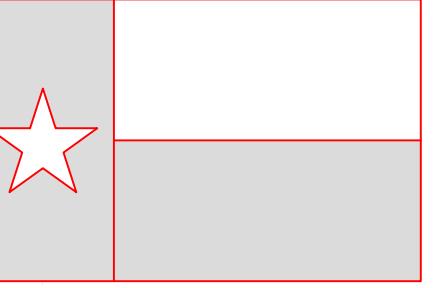
Revisions

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Checked By: ROBERT
Drawing Date: 07/20/20

Revision:

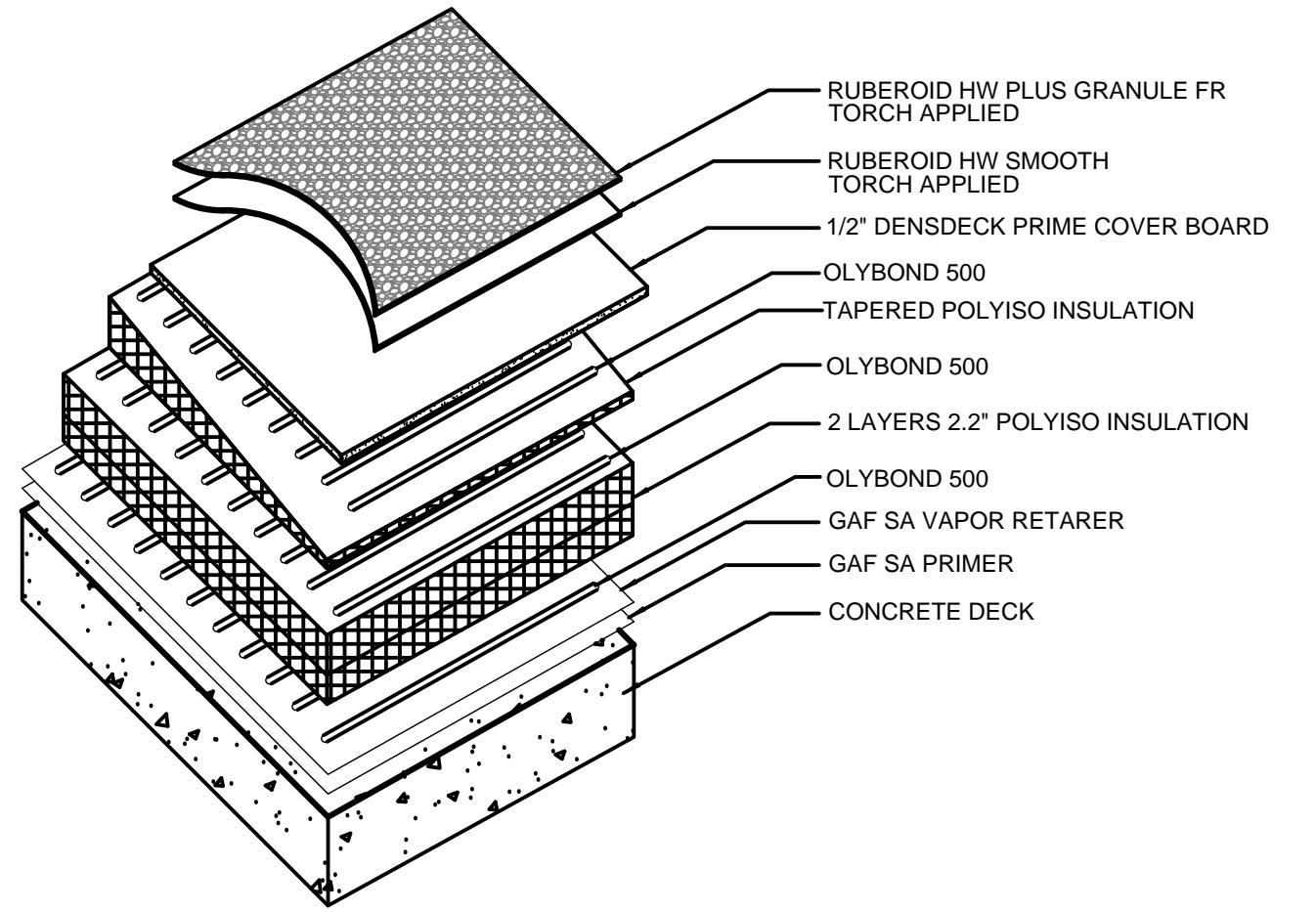
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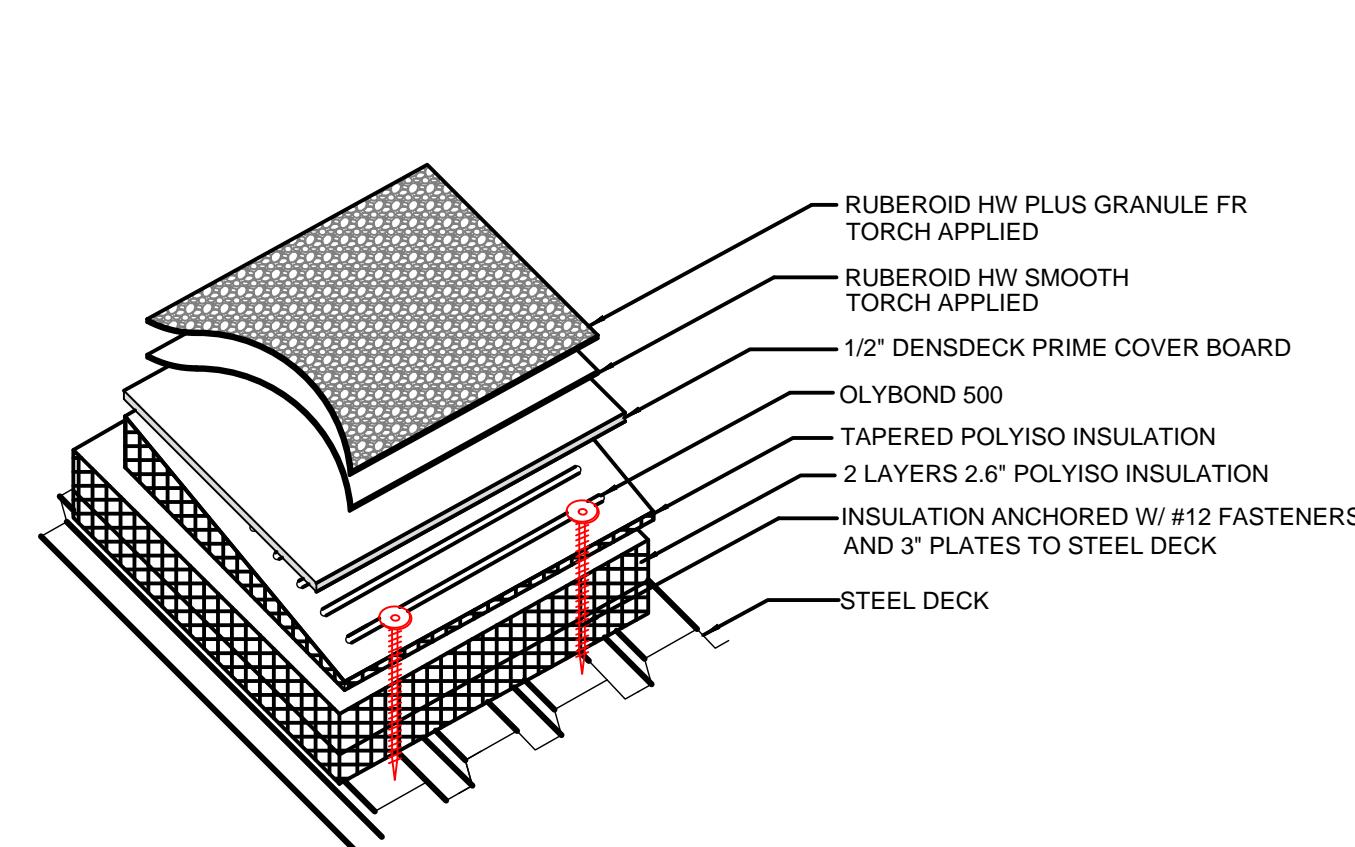


BSA

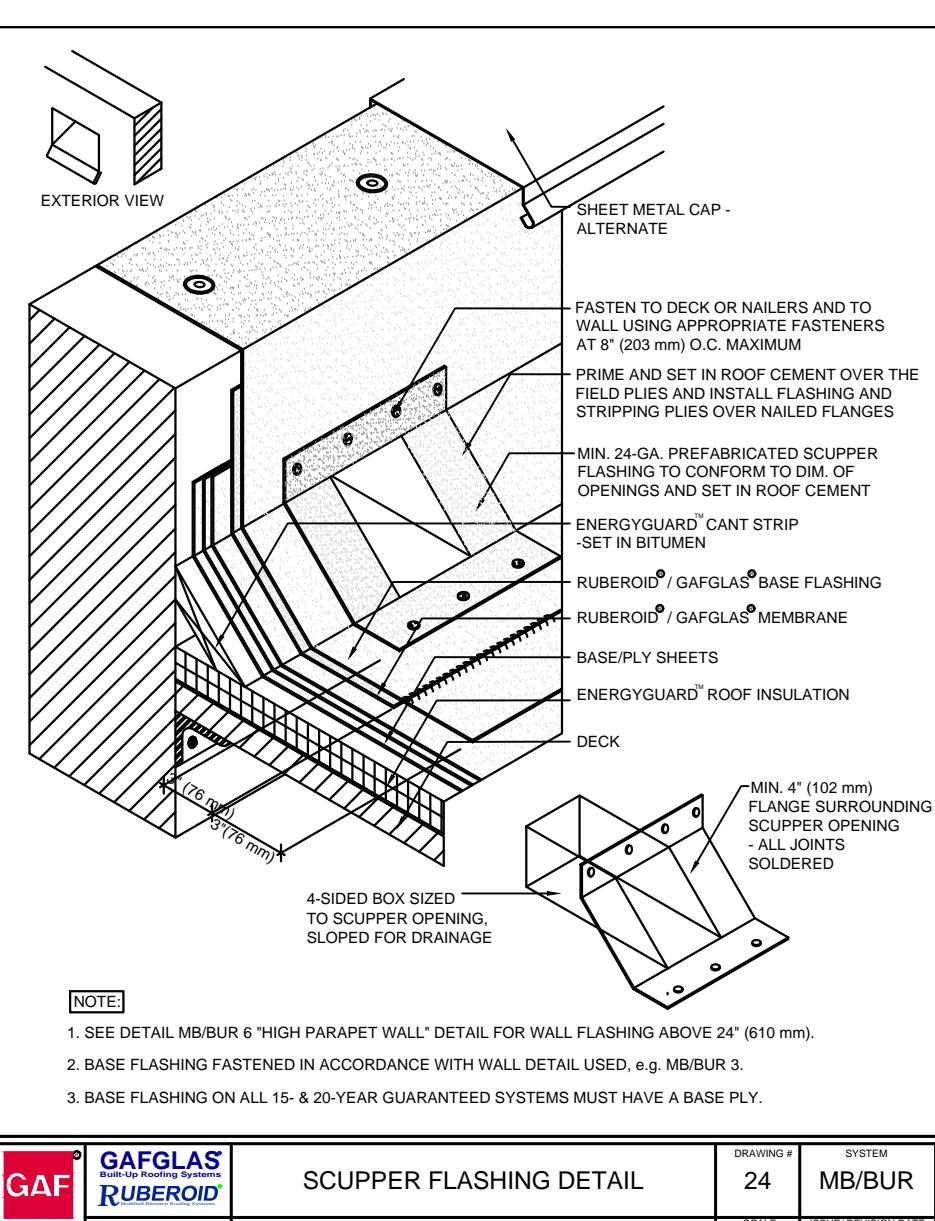
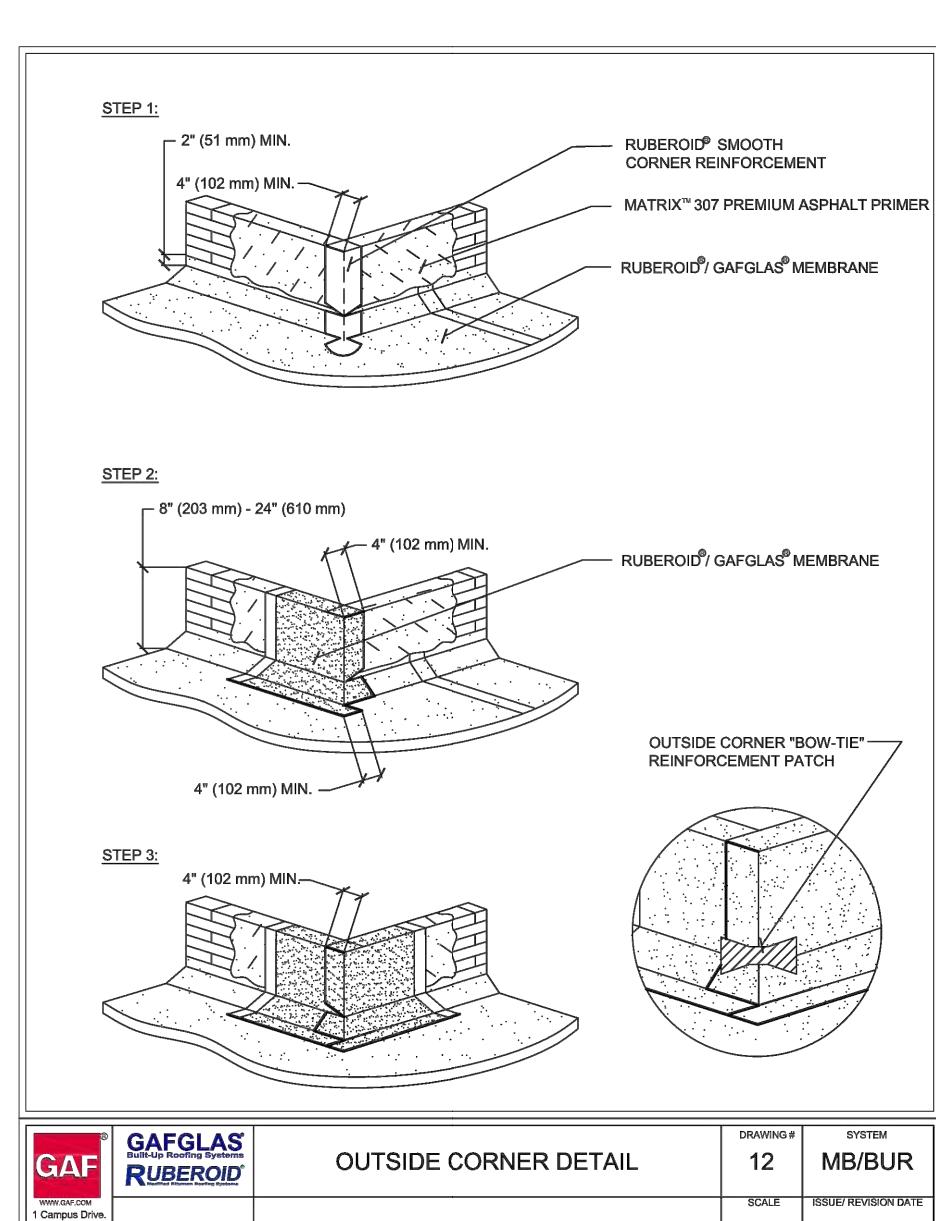
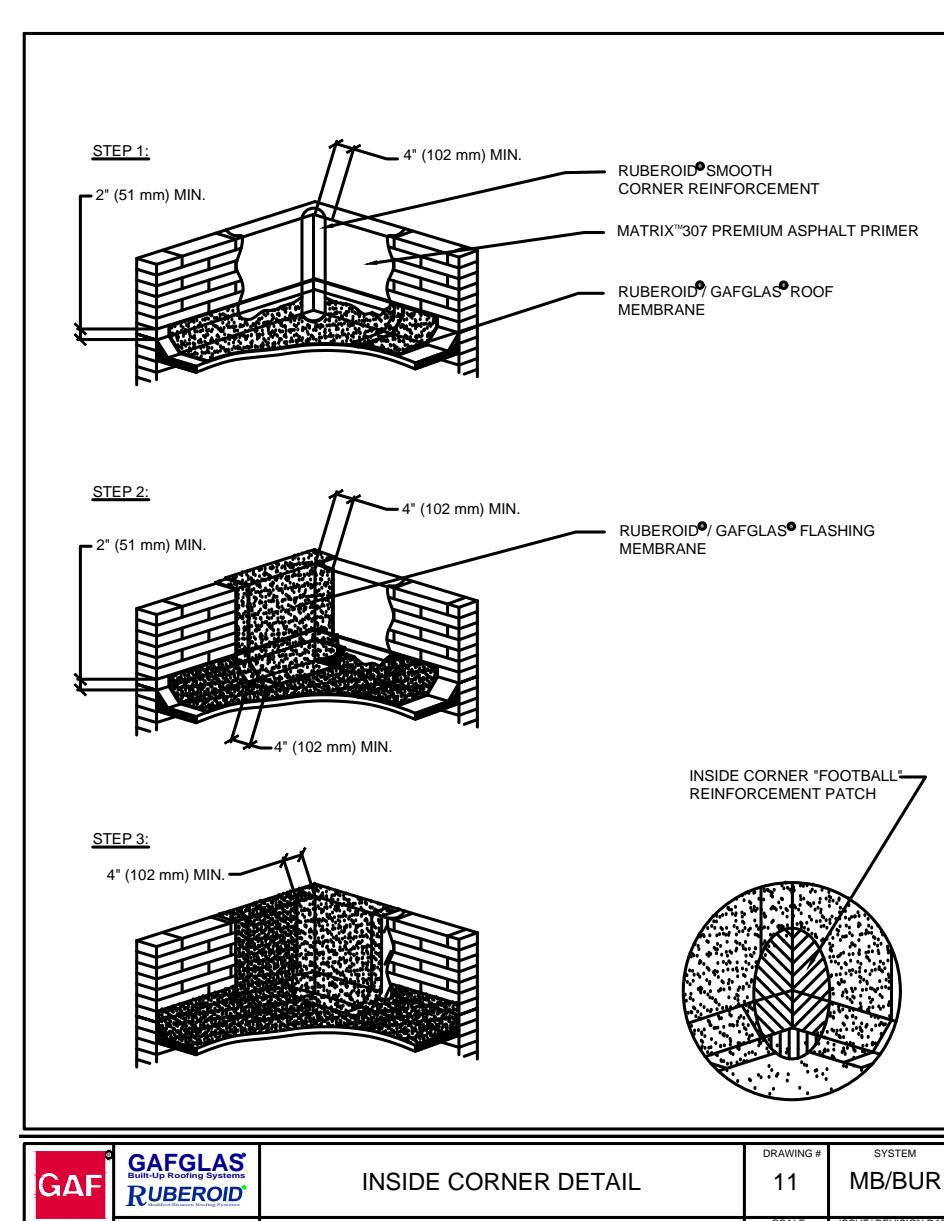
BSA LifeStructures
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ph 512.531.9000 fx 866.980.3272
www.bsainc.com
Architectural Registration Number: 89-050
Engineering Registration Number: F-2421



MOD-BIT SYSTEM - CONC. DECK
(ROOF ASSEMBLY 1) N.T.S.



MOD-BIT SYSTEM - STEEL DECK
AT PENTHOUSE (ROOF ASSEMBLY 2) N.T.S.



Technical Services
1 Campus Drive
Parsippany, NJ 07054

June 26, 2020

Kidd Roofing
1212 East Anderson, Suite 200
Austin, TX 78759

Subject: Contractor/System Certification

Project: UT Sarah & Charles Seay Bldg.
Austin, TX

To Whom It May Concern:

Kidd Roofing of Austin, TX is a GAF Master Select roofing contractor for asphaltic, single-ply and restoration roofing systems and is eligible to obtain a GAF Diamond Pledge™ (NDL) guarantee for up to 20 years.

GAF specification I-O-2-HGPREC is eligible to obtain a 20 year Diamond Pledge™ (NDL) guarantee; provided all current GAF application requirements are followed and guarantee procedures are met.

I-O-2-HGPREC - Structural Concrete Deck - Concrete Deck Area - R1

GAF SA Primer: Prime the concrete deck using GAF SA primer in accordance with GAF application recommendations.

GAF SA Vapor Retarder: Install GAF SA vapor retarder, self-adhered in accordance with GAF application recommendations.

EnergyGuard™ Polyiso Insulation: Install two layers of 2.2" EnergyGuard™ polyiso insulation (R-25.2, 4' x 4' boards) using OlyBond 500™ insulation adhesive, as follows:

Field: .75" 1" ribbons 12' o.c.
Perimeter: .75" 1" ribbons 6' o.c.
Corners: .75" 1" ribbons 4' o.c.

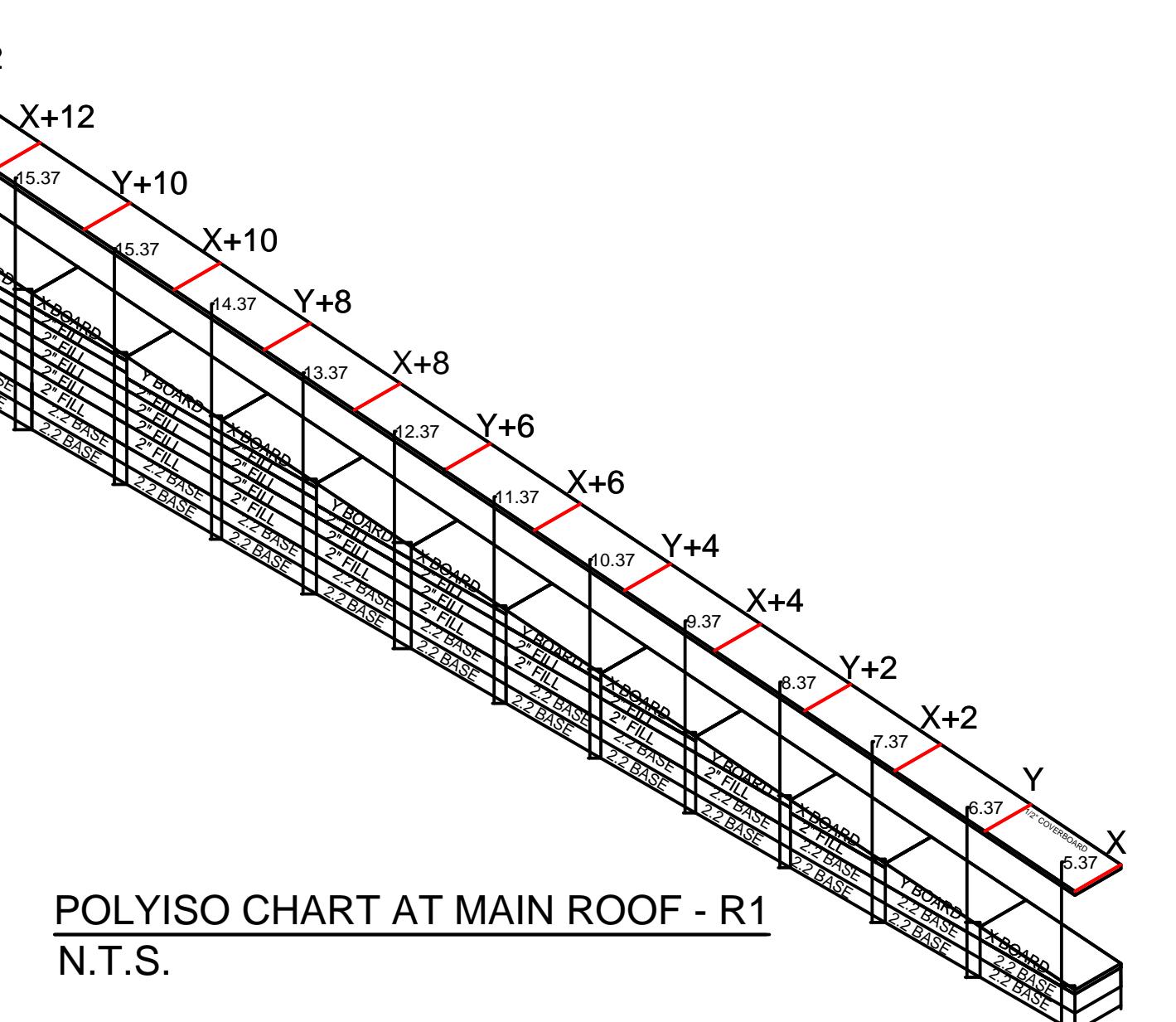
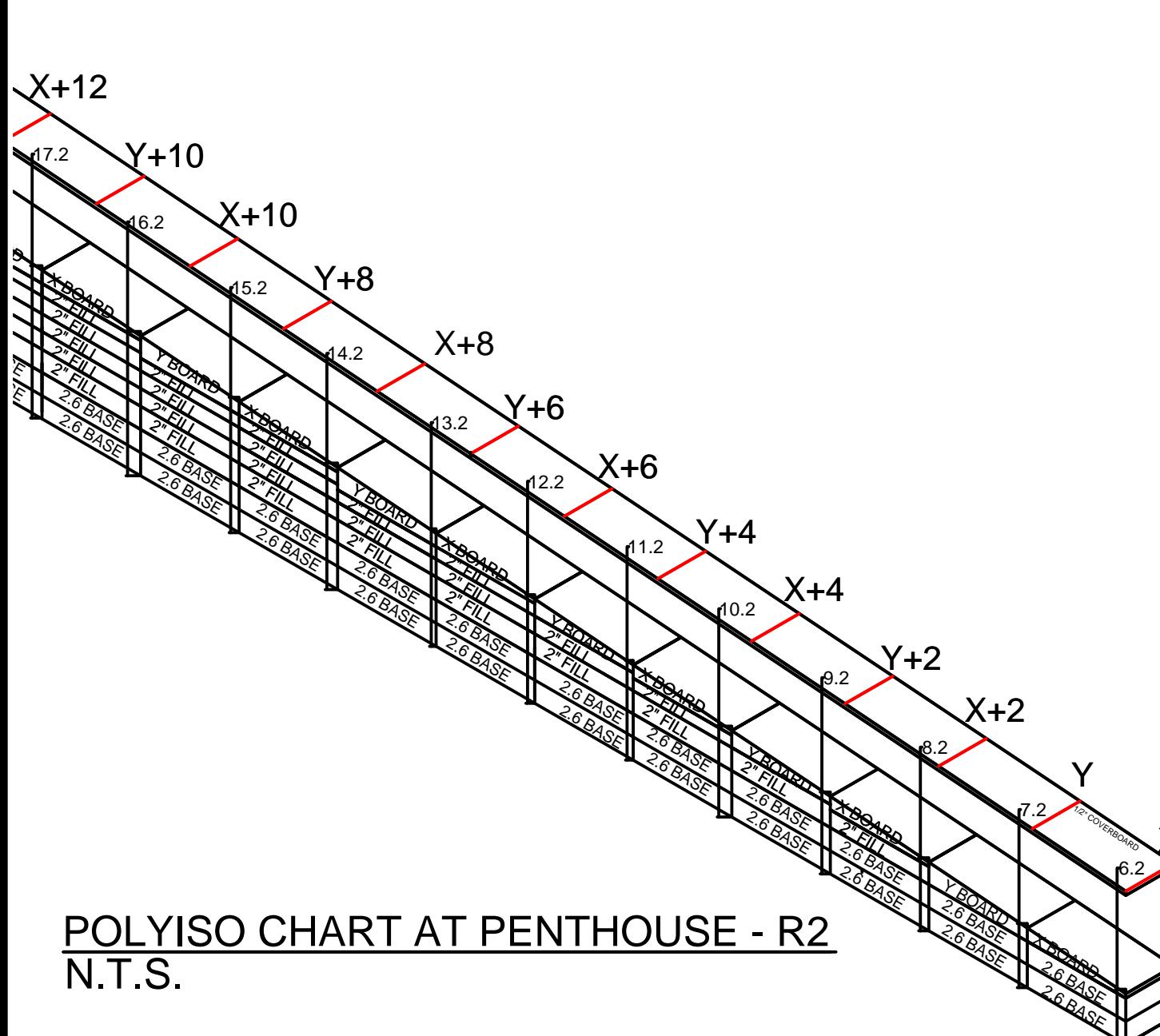
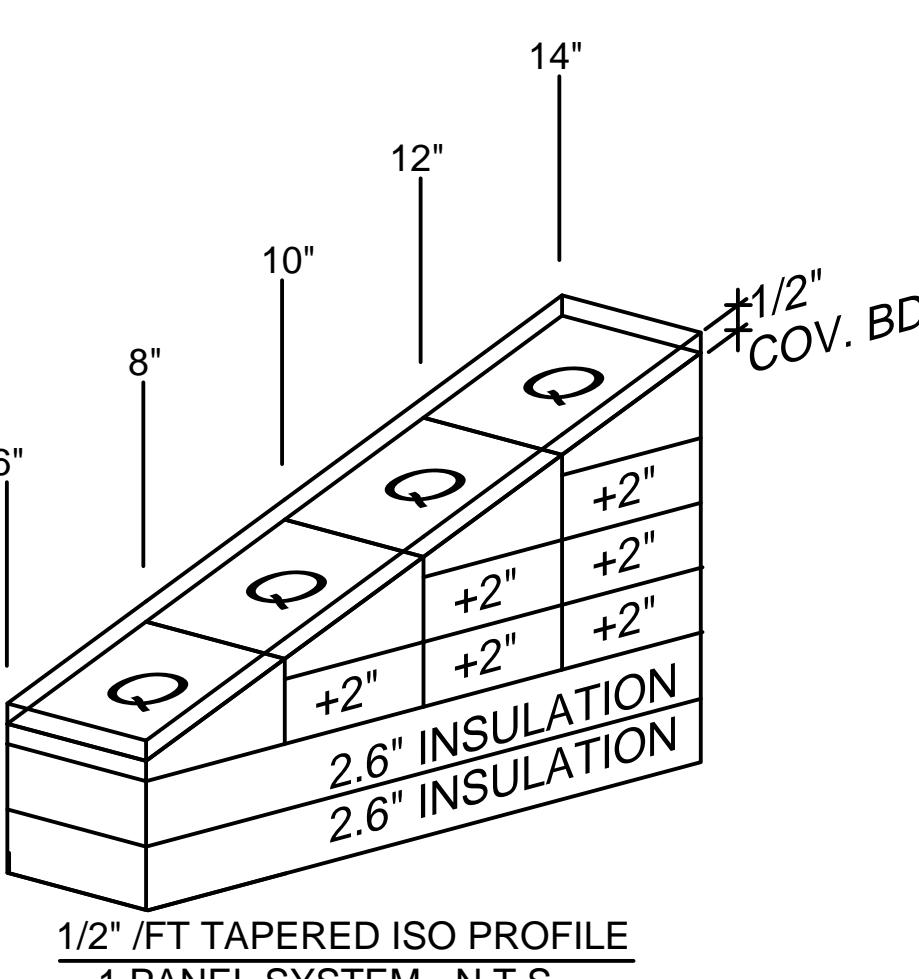
EnergyGuard™ Tapered Polyiso Insulation: Install EnergyGuard™ tapered polyiso insulation using OlyBond 500™ insulation adhesive, as follows:

Field: .75" 1" ribbons 12' o.c.
Perimeter: .75" 1" ribbons 6' o.c.
Corners: .75" 1" ribbons 4' o.c.

DensDeck® Prime Roof Board: Install 1/2" DensDeck® Prime roof board using OlyBond 500™ insulation adhesive, as follows:

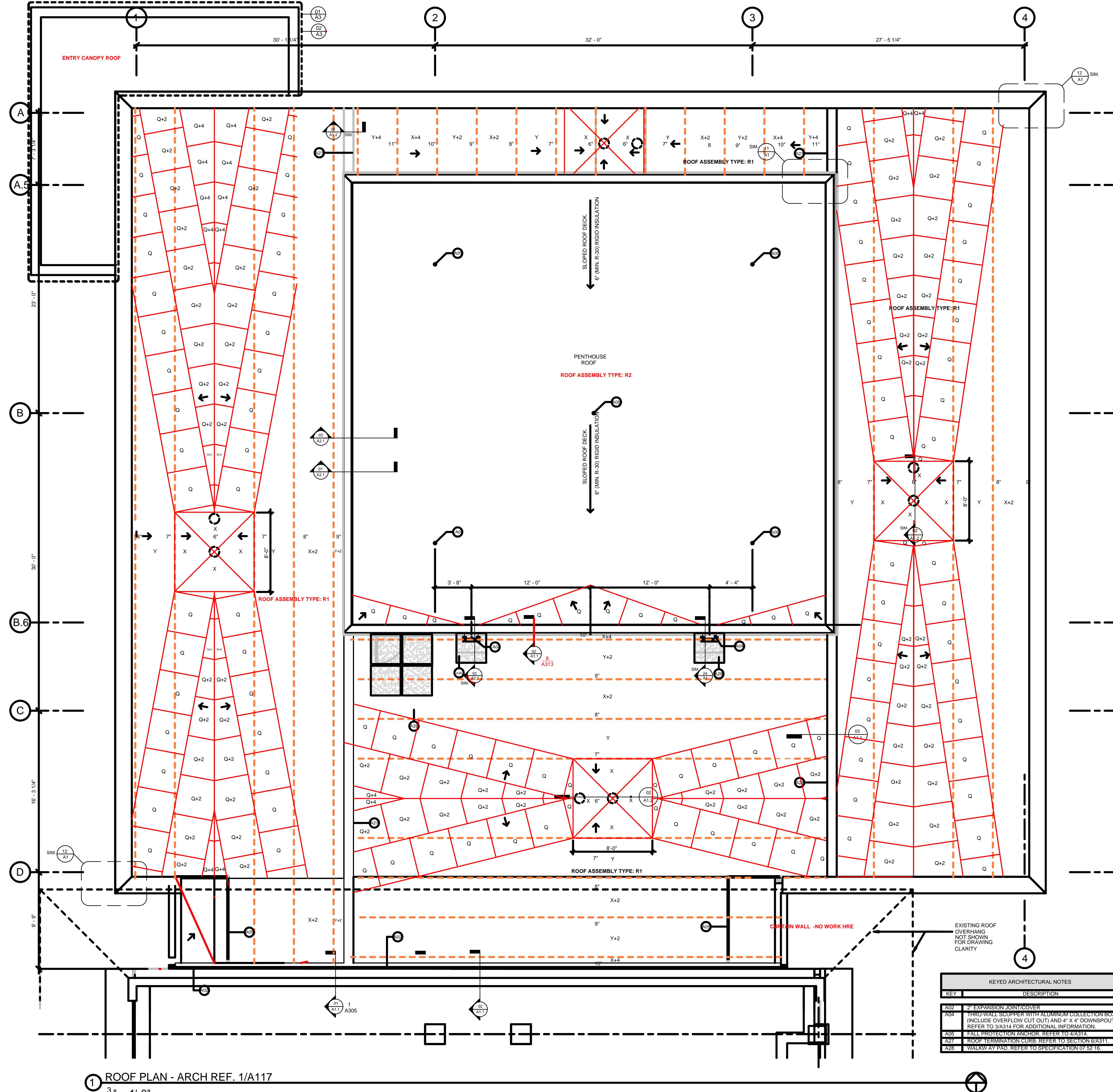
Field: .75" 1" ribbons 12' o.c.
Perimeter: .75" 1" ribbons 6' o.c.
Corners: .75" 1" ribbons 4' o.c.

I-O-2-HGPFR UT FBC90 Sarah & Charles Seay Bldg Austin TX 062620 mr Rev3



POLYISO CHART AT PENTHOUSE - R2
N.T.S.

POLYISO CHART AT MAIN ROOF - R1
N.T.S.



Technical Services
1 Campus Drive
Parsippany, NJ 07054

Ruberoil® HV Smooth: Install one ply of Ruberoil® HV Smooth, torch applied and adhered in accordance with GAF application recommendations.

Ruberoil® EnergyCap™ HV Plus Granule FR: Install Ruberoil® EnergyCap™ HV Plus Granule FR, torch applied and adhered in accordance with GAF application recommendations.

The above listed system will provide .45psf (90psf) of uplift resistance in the field of the roof; provided the roofing system is installed in accordance with NEMO ETC, LLC (SC-03) evaluation report #01503.11.04 - R27 for FL5680 - R27, page 20 of 103.

*Ruberoil® EnergyCap™ HV Plus Granule FR meets LEED v4 credit requirements.

The above listed roofing systems are based on GAF guarantee requirements and are not intended to modify, negate or alter any requirements specified by the design professional or others.

If you have any further questions, please contact us at 1-800-766-3411.

Sincerely,

Matthew Romero
Matthew Romero
Technical Services Representative

SEAY BUILDING
ADDITION

D.R.Kidd
company inc.
1212 E. ANDERSON LN.
SUITE 200
AUSTIN, TEXAS 78752
(512) 671-7791

Revisions

Drawn By: LINDA
Checked By: ROBERT
Drawing Date: 07/20/20

Revision:

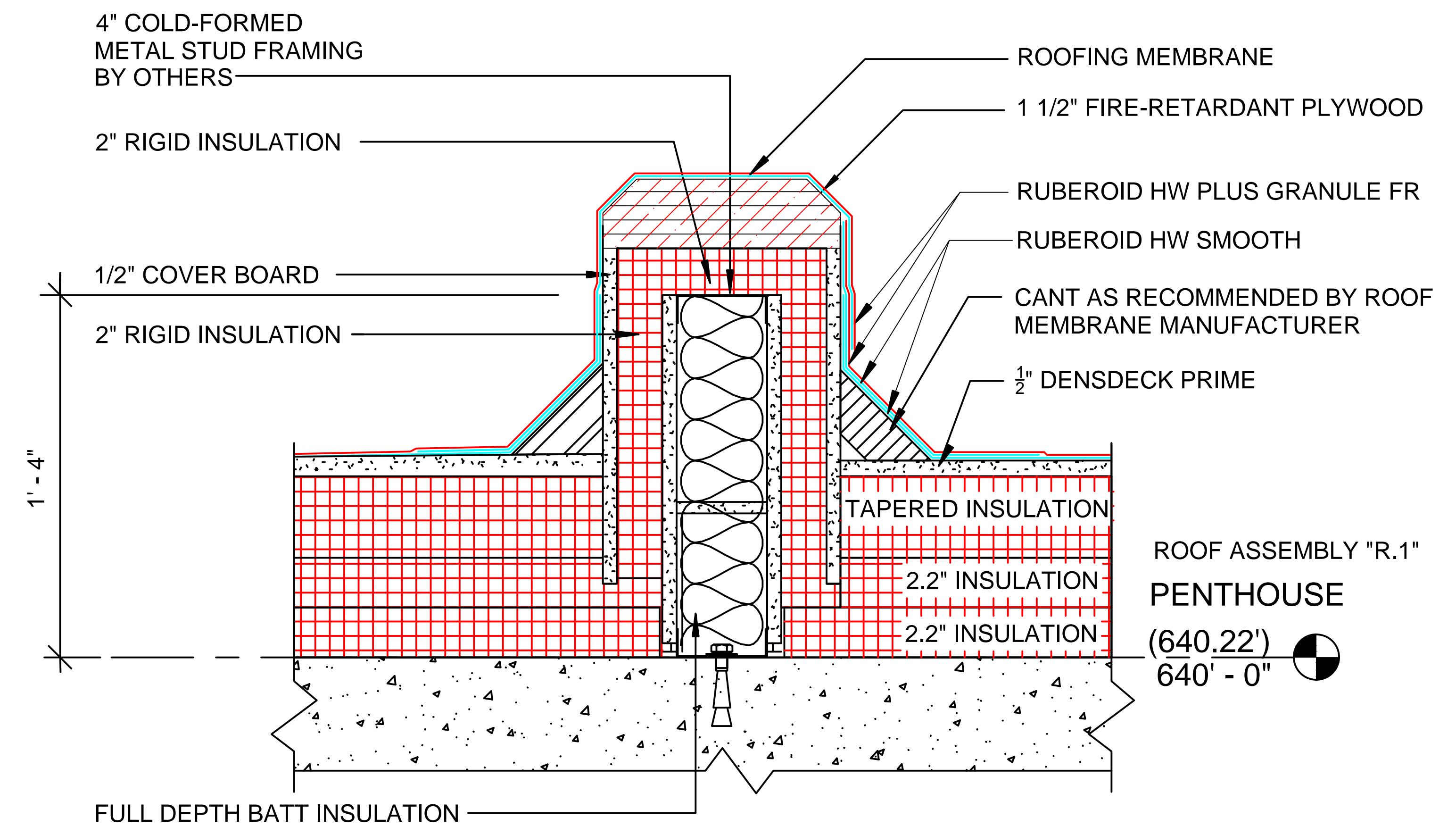
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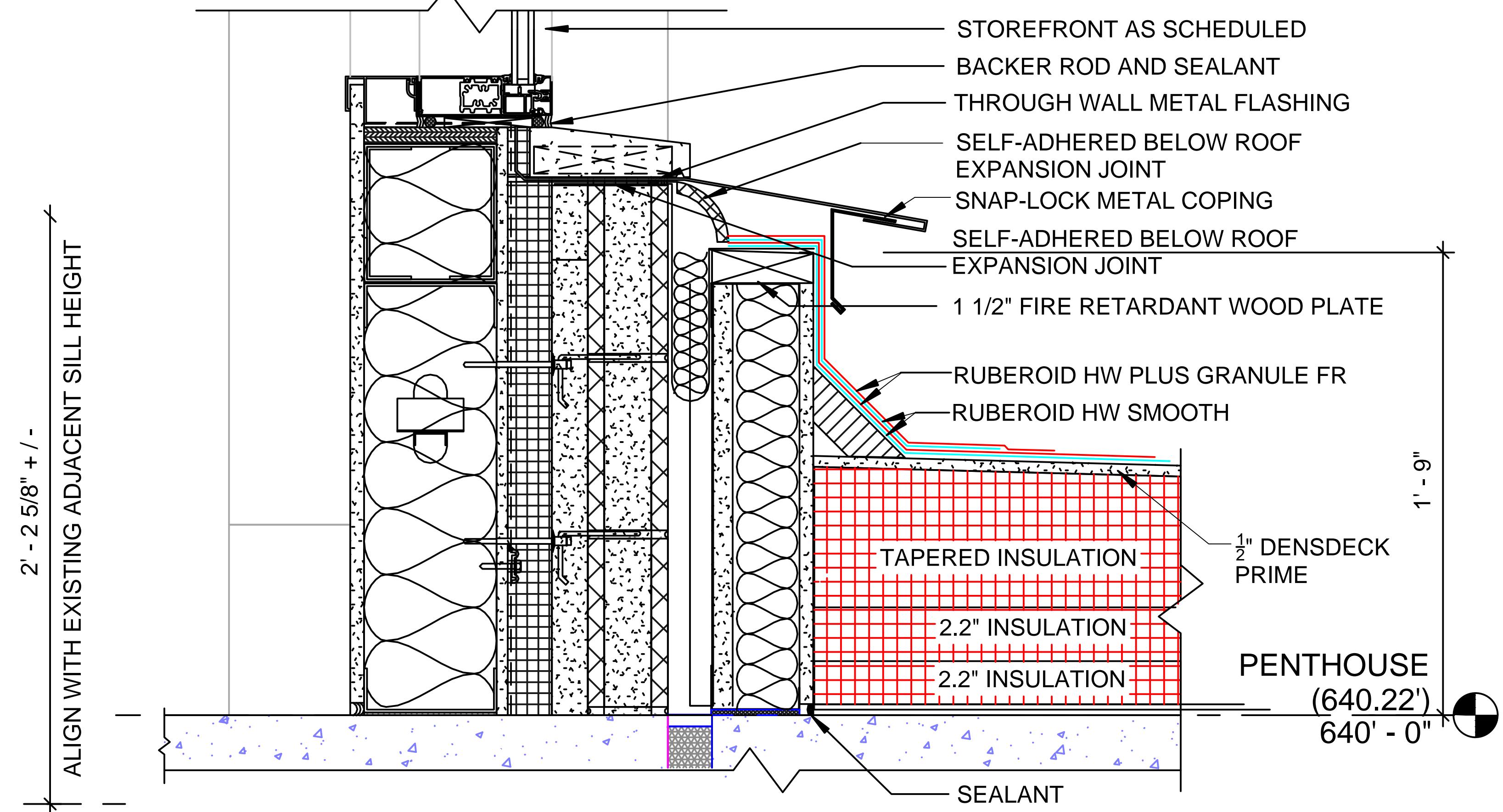


BSA

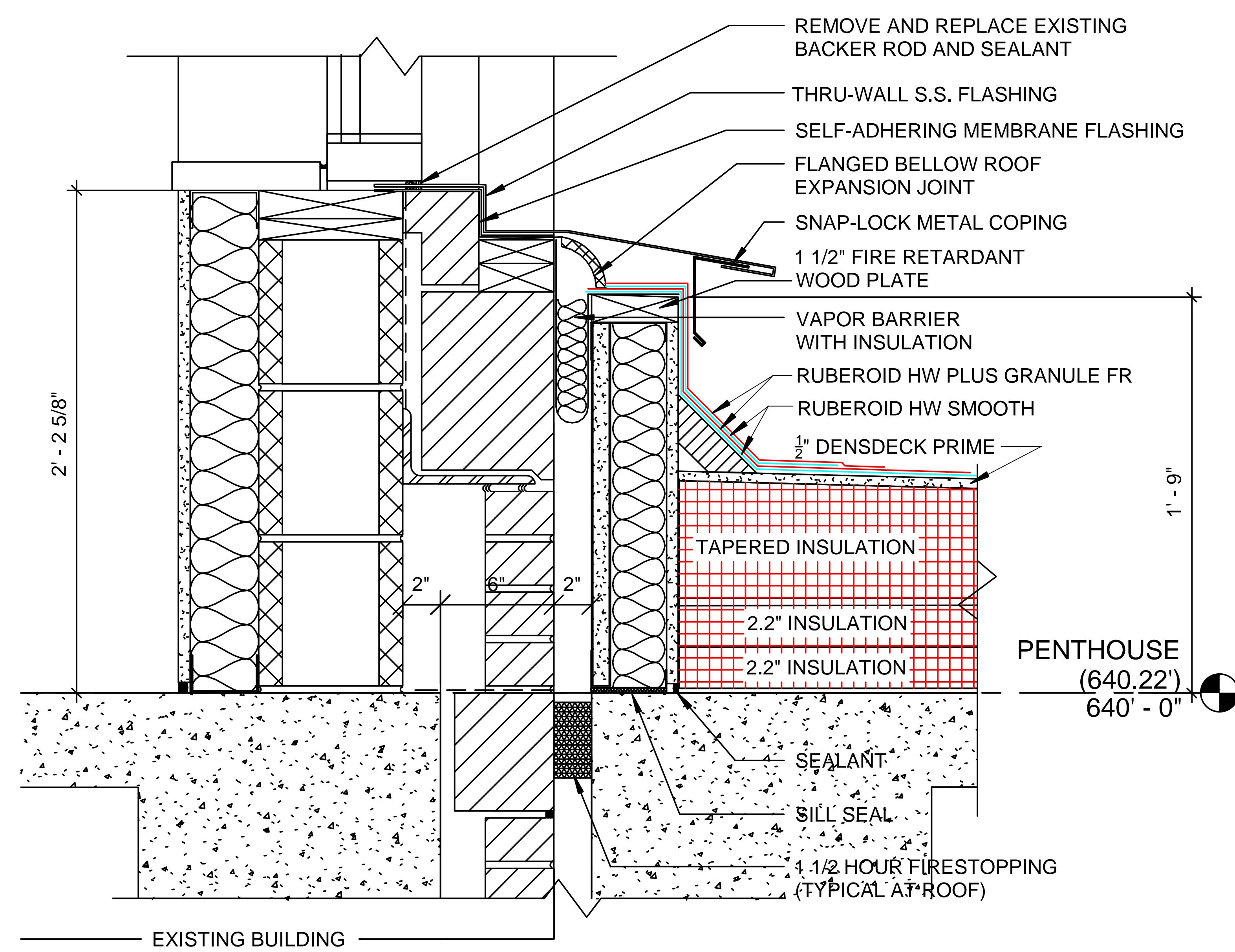
BSA LifeStructures
2700 Via Fortuna, Suite 400
Austin, TX 78746
ph 512.351.9000 fx 866.980.3272
www.bsabuilding.com
Architectural Registration Number: 89-020
Engineering Registration Number: F-2421



③ SECTION DETAIL AT ROOF - TYPICAL ROOF
TERMINATION CURB - ARCH REF. 3/A314 3" = 1'-0"



② SECTION DETAIL - EXPANSION JOINT - ROOF - ARCH REF. 8/A313
3" = 1'-0"



① SECTION DETAIL - ENDWALL EXPANSION JOINT - ROOF TYP - ARCH REF. 4/A313
3" = 1'-0"

SEAY BUILDING ADDITION

D.R.Kidd

company inc.
1212 E. ANDERSON LN. SUITE 200
AUSTIN, TEXAS 78752
(512) 671-7791

Revisions

Drawn By: LINDA
Checked By: ROBERT
Drawing Date: 07/20/20

Revision:

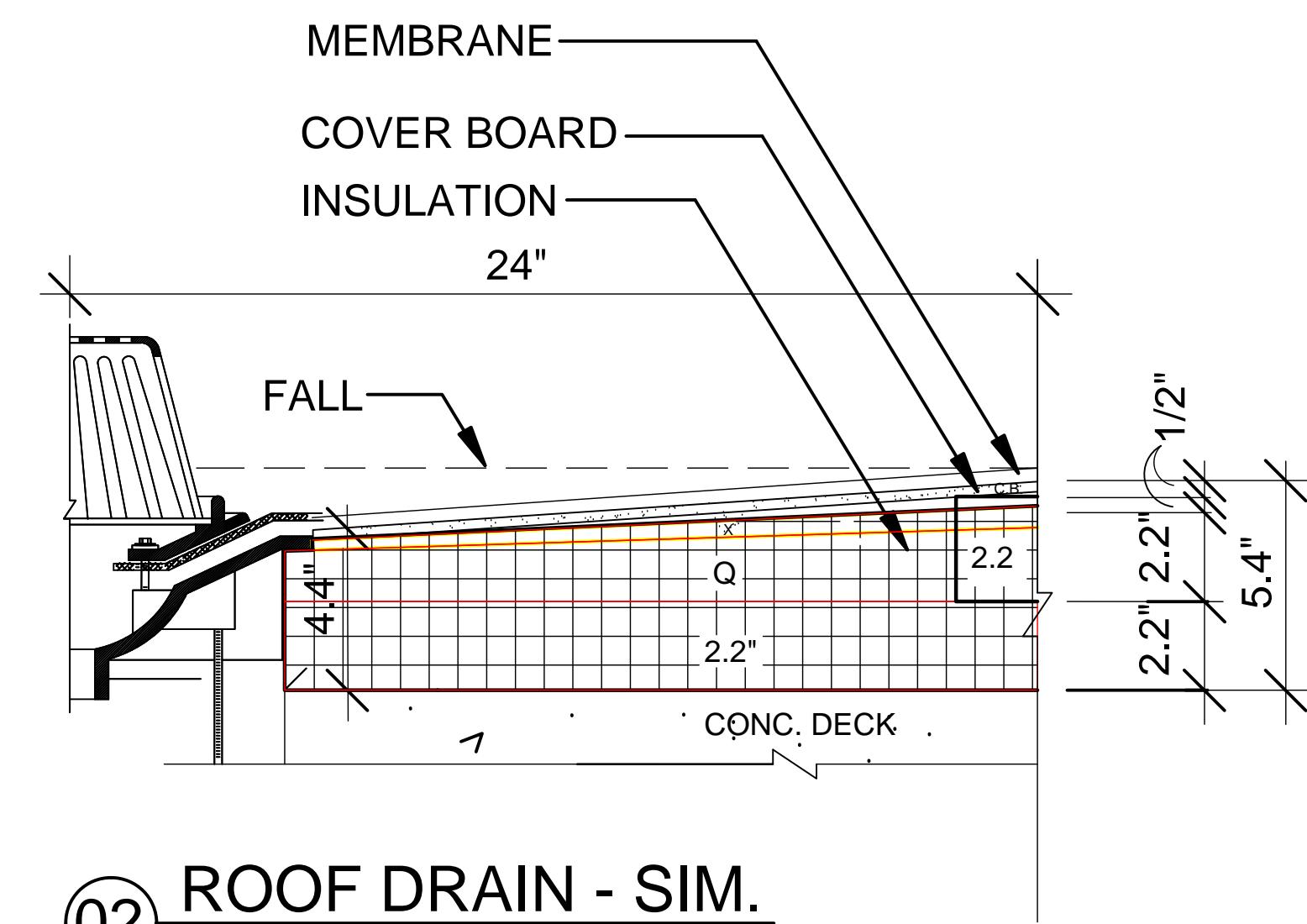
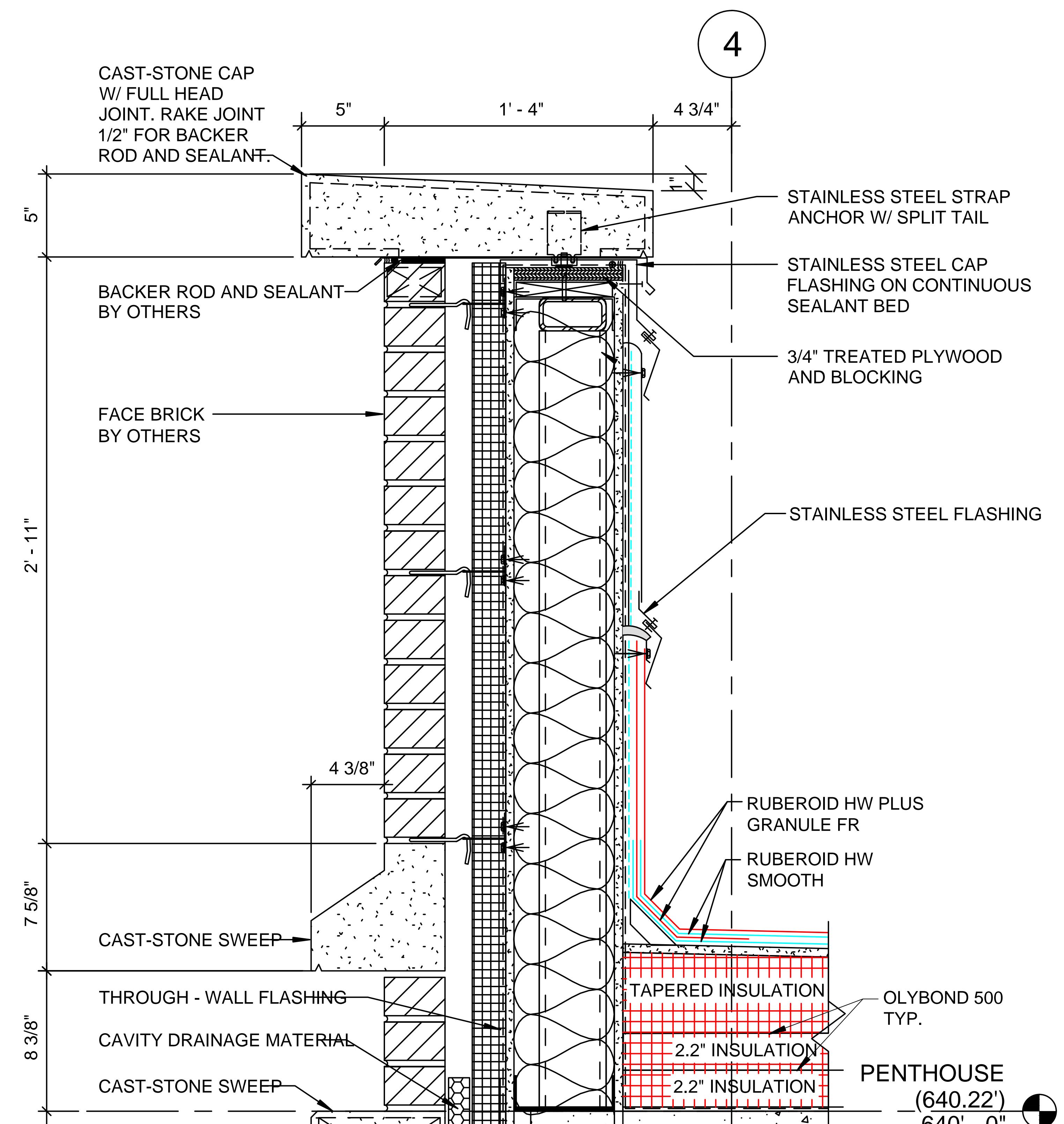
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BSA

BSA LifeStructures
2700 Via Fortuna, Suite 400
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ph 512.351.9000 fx 865.980.3272
www.bsaelifestructures.com
Architectural Registration Number: 89-020
Engineering Registration Number: F-2421

(02) ROOF DRAIN - SIM.
3" = 1'-0"(01) SECTION DETAIL - PARAPET AT PILASTER - ARCH RE. 16/A311
3" = 1'-0"

SEAY BUILDING ADDITION

D.R.Kidd

company inc.

SUITE 200

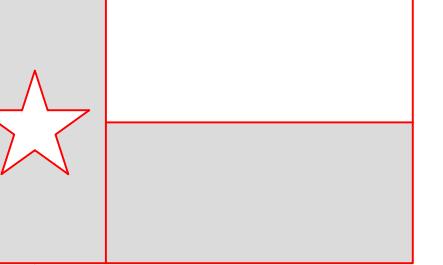
1212 E. ANDERSON LN.
AUSTIN, TEXAS 78752
(512) 671-7791

Revisions

| | |
|---------------|----------|
| Drawn By: | LINDA |
| Checked By: | ROBERT |
| Drawing Date: | 07/20/20 |
| Revision: | |

Sheet

A1.2



TEXAS

BSA

BSA LifeStructures
2700 Via Fortuna, Suite 400
Austin, TX 78746
512.531.9075 fx 866.990.3272
www.bsalifestructures.com

www.osallestructures.com
Architectural Registration Number - BR-1590
Engineering Registration Number - F-7421

SEAY BUILDING ADDITION

D.N.India
company inc.
1212 E. ANDERSON LN. SUITE 200
AUSTIN, TEXAS 78752
(512) 671-7791

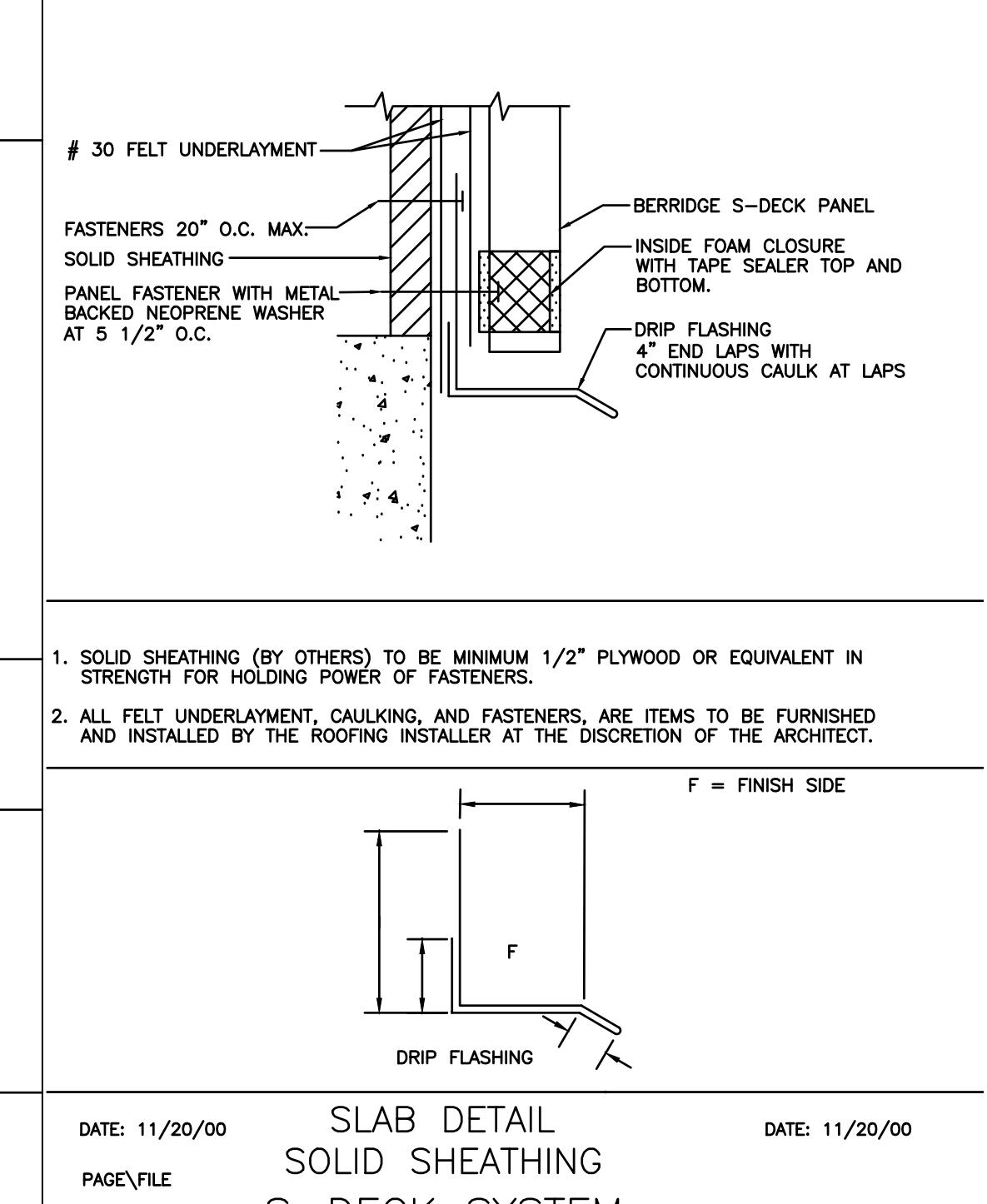
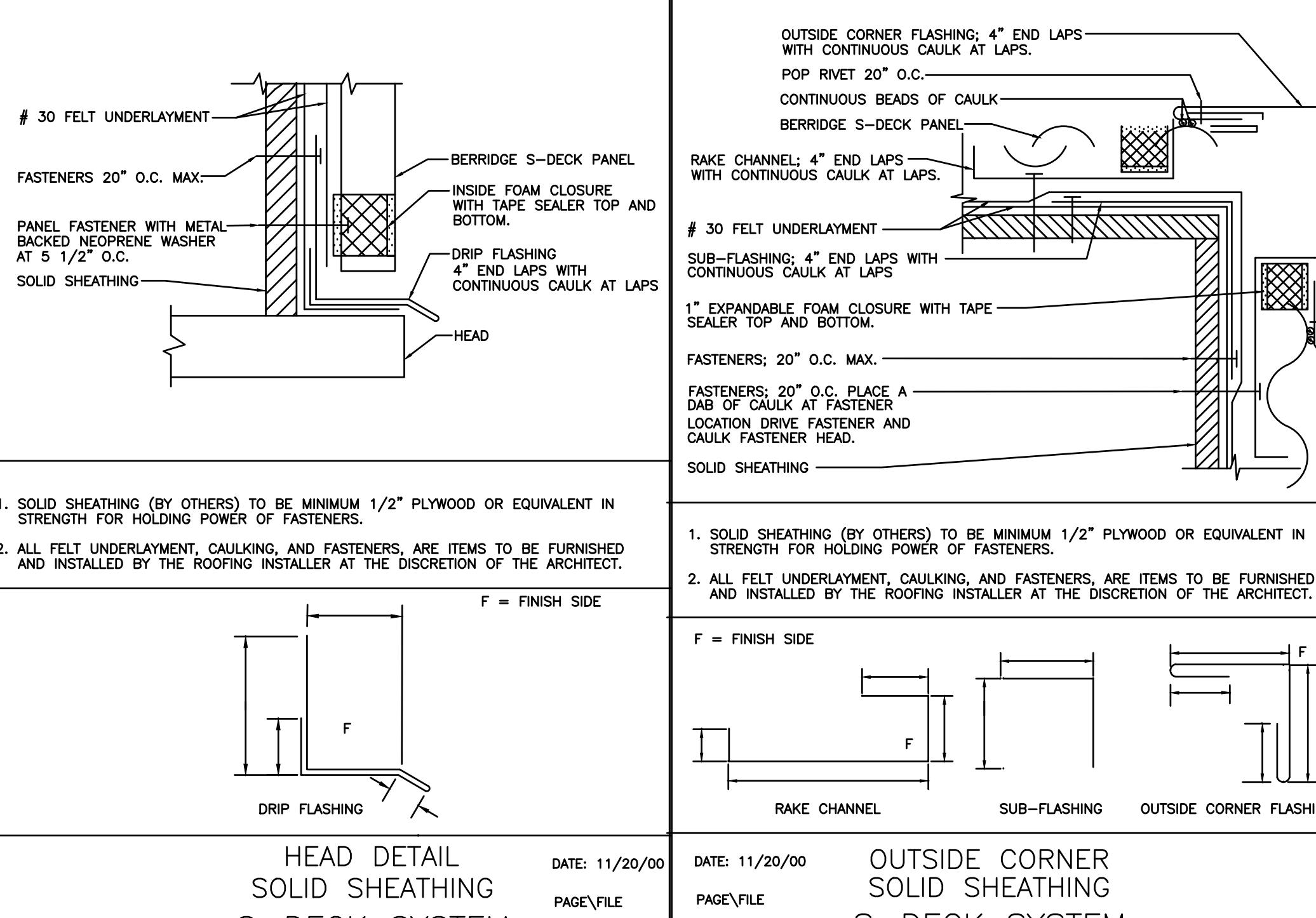
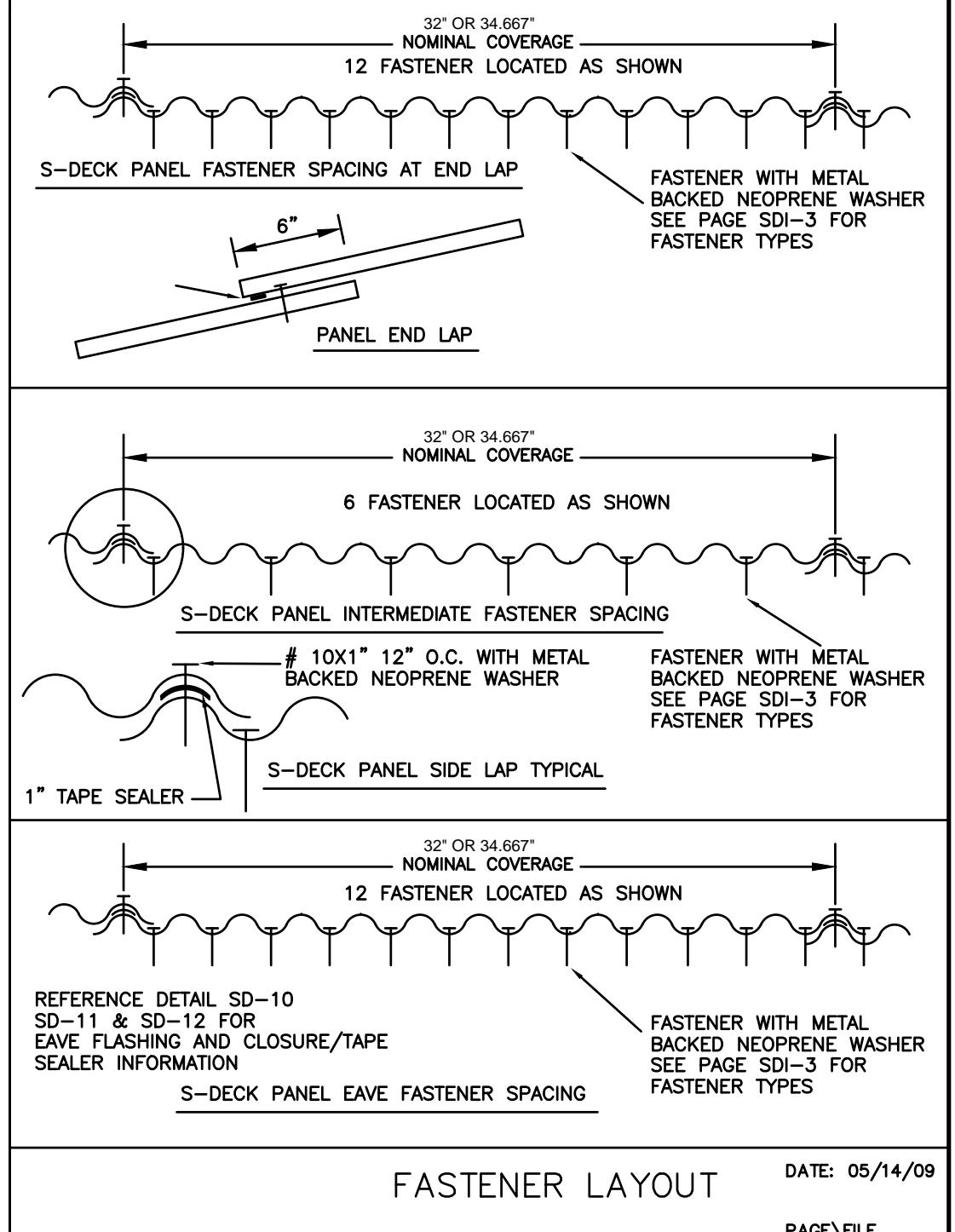
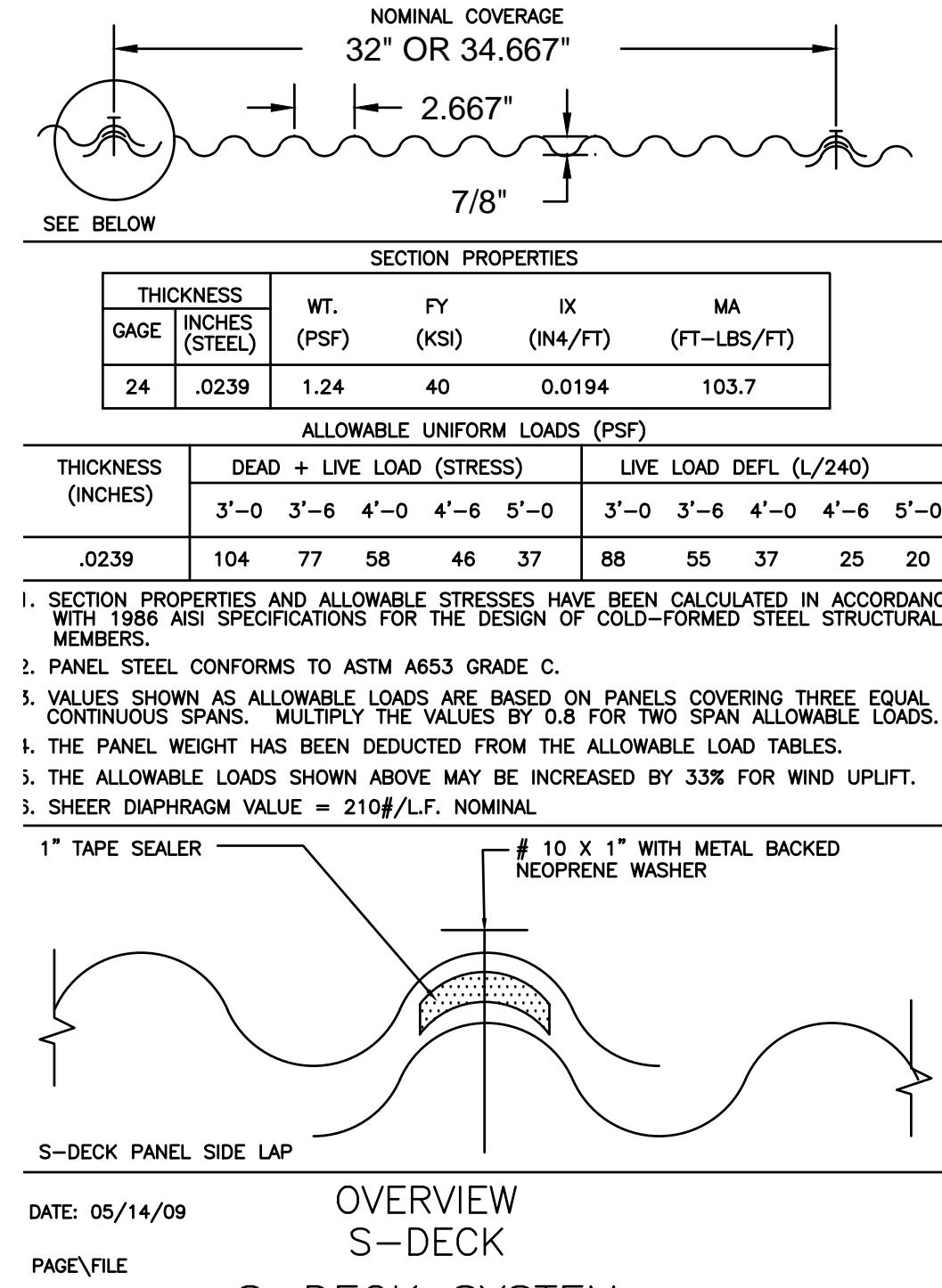
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d By: ROBERT
n Date: 07/20/20

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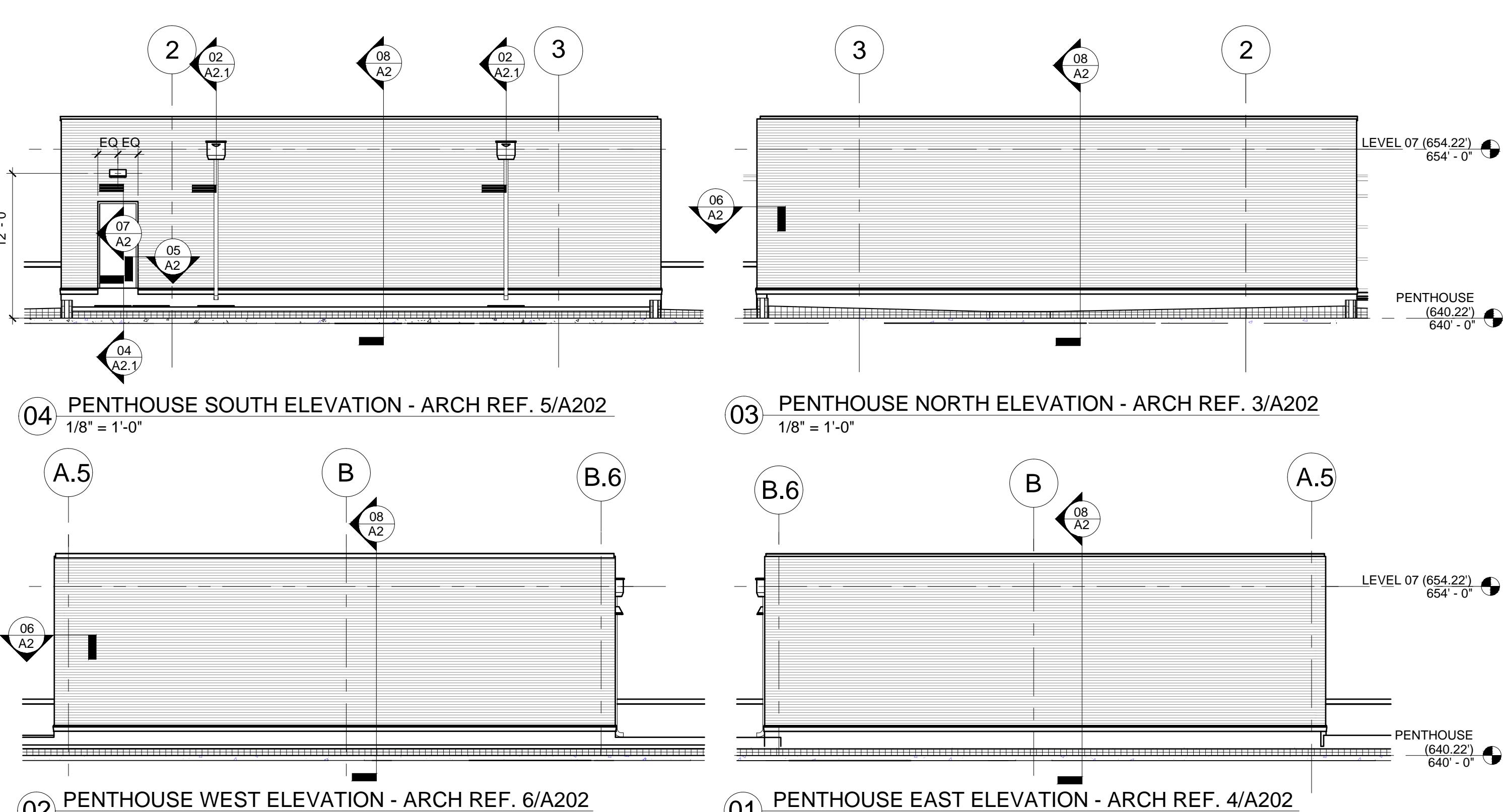
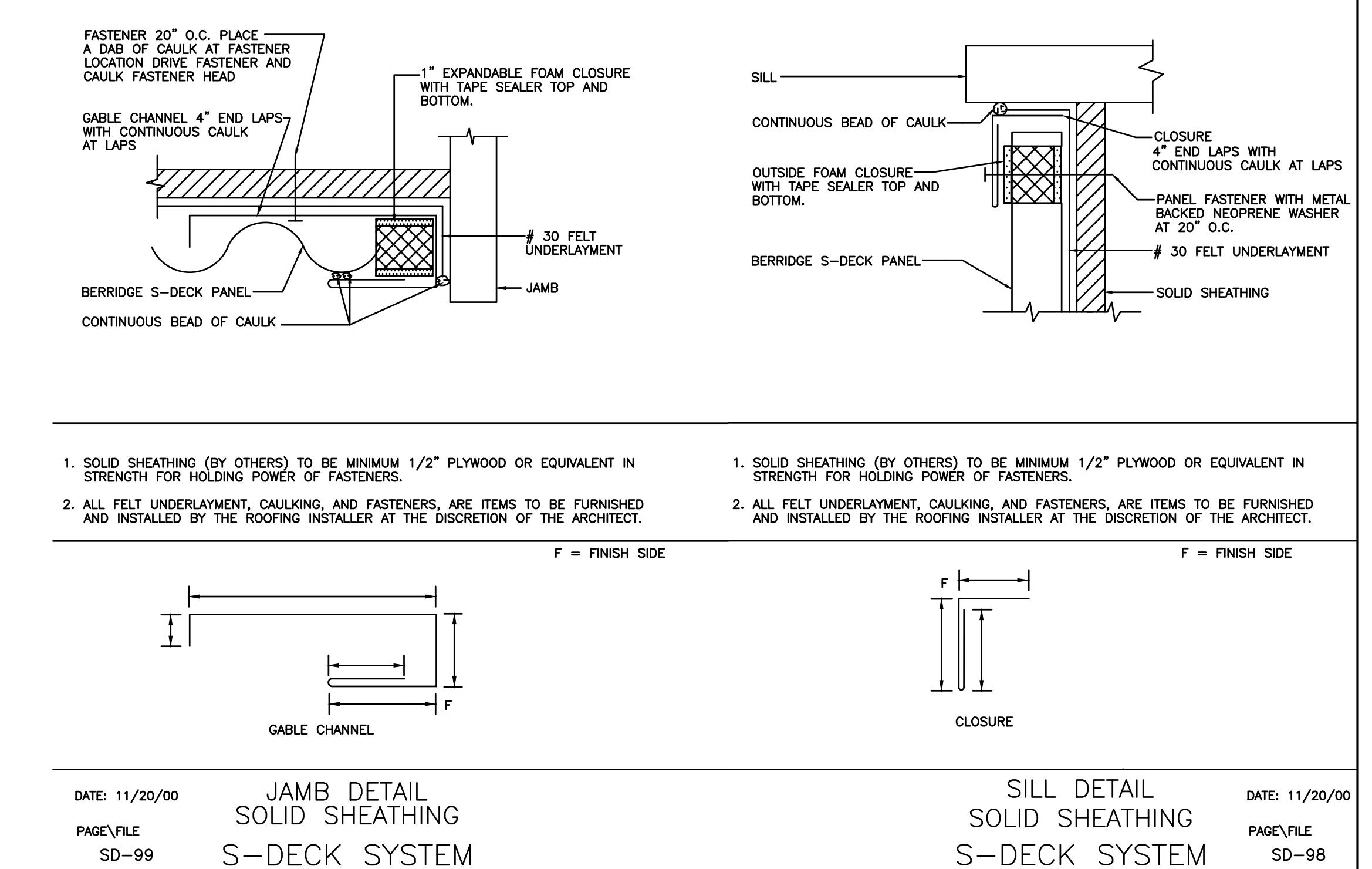
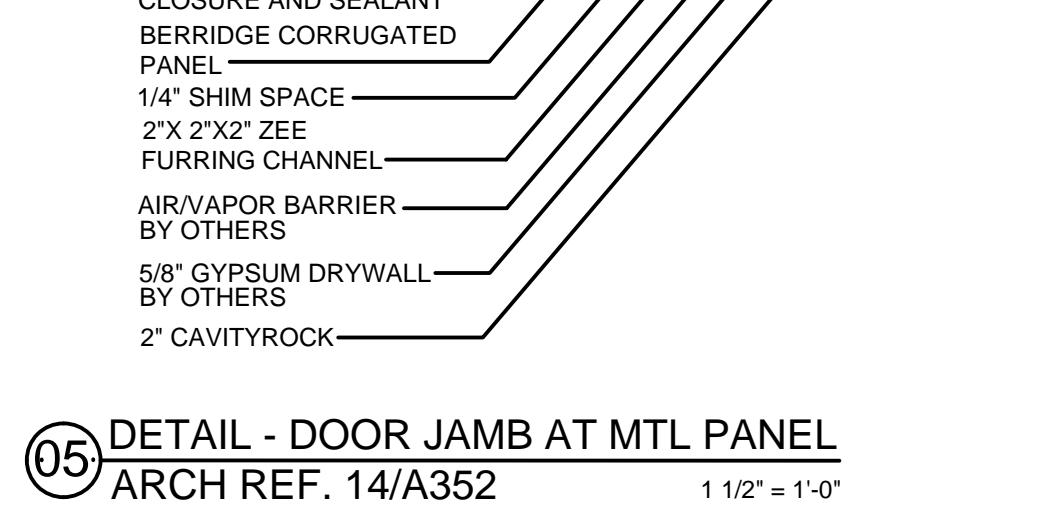
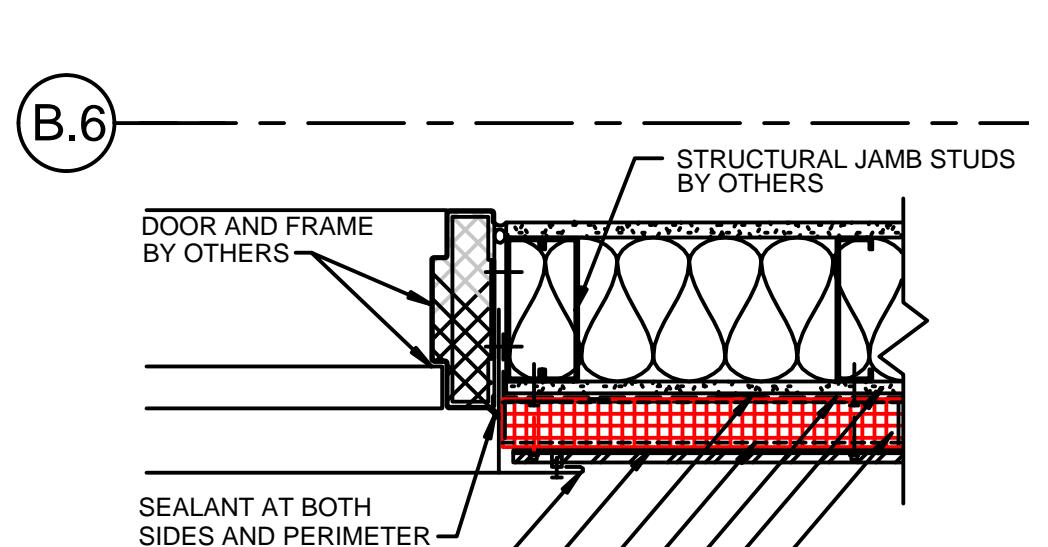
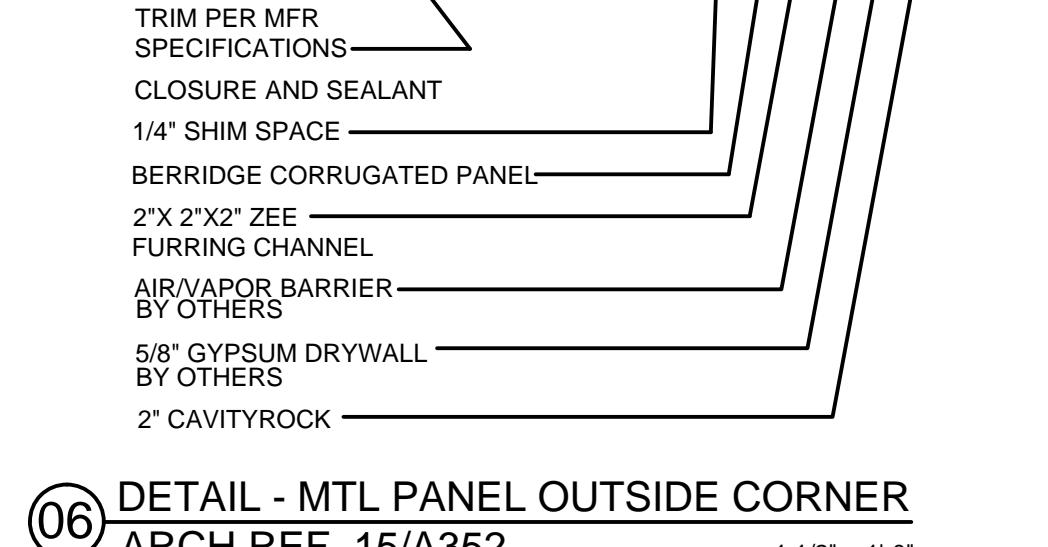
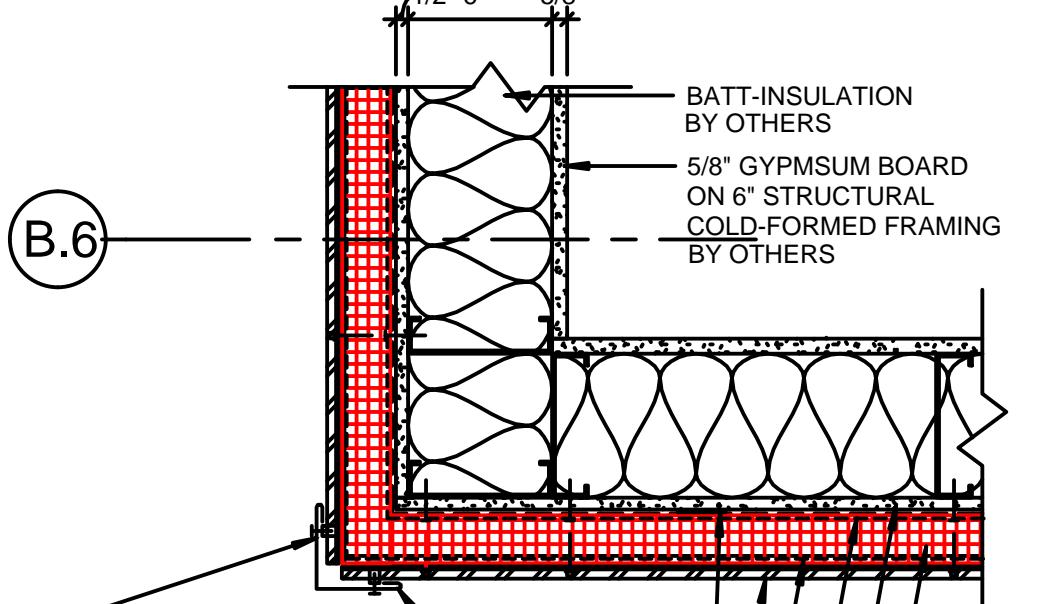
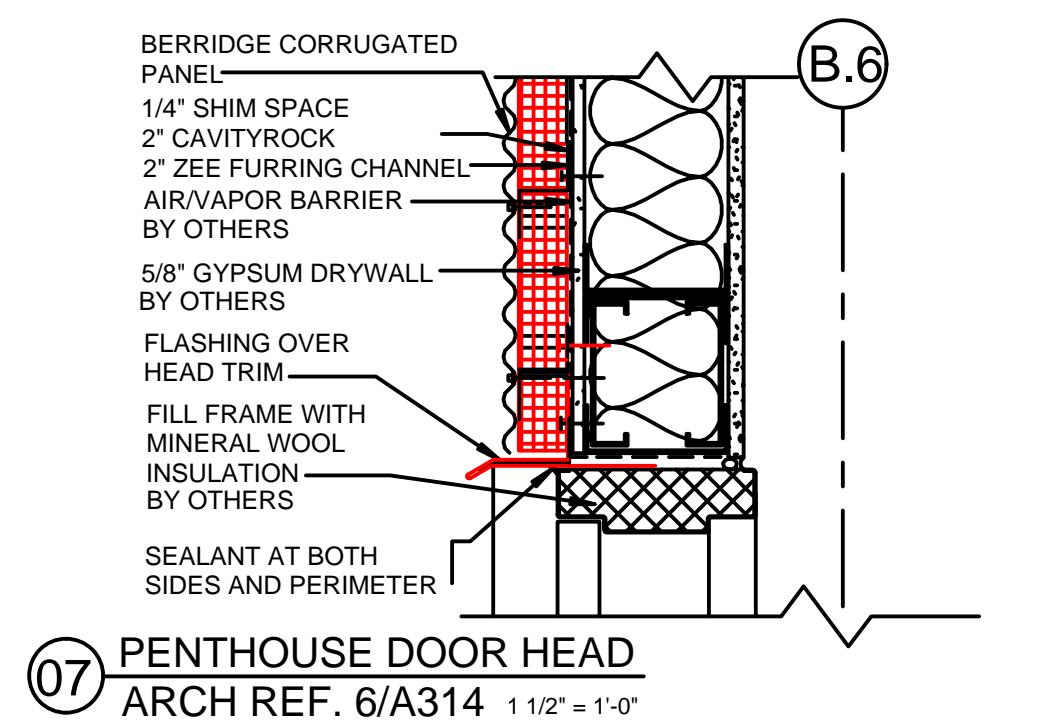
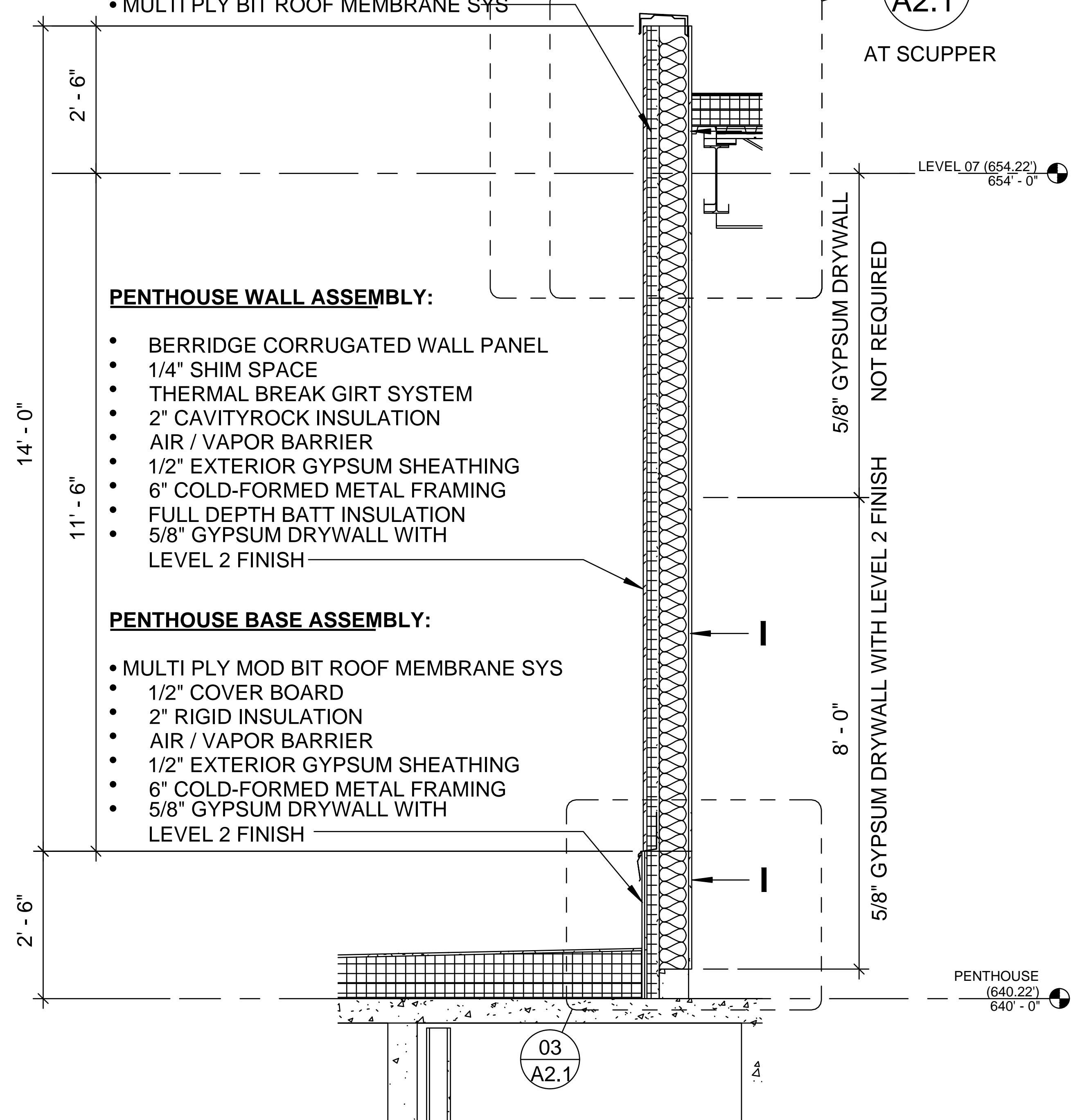
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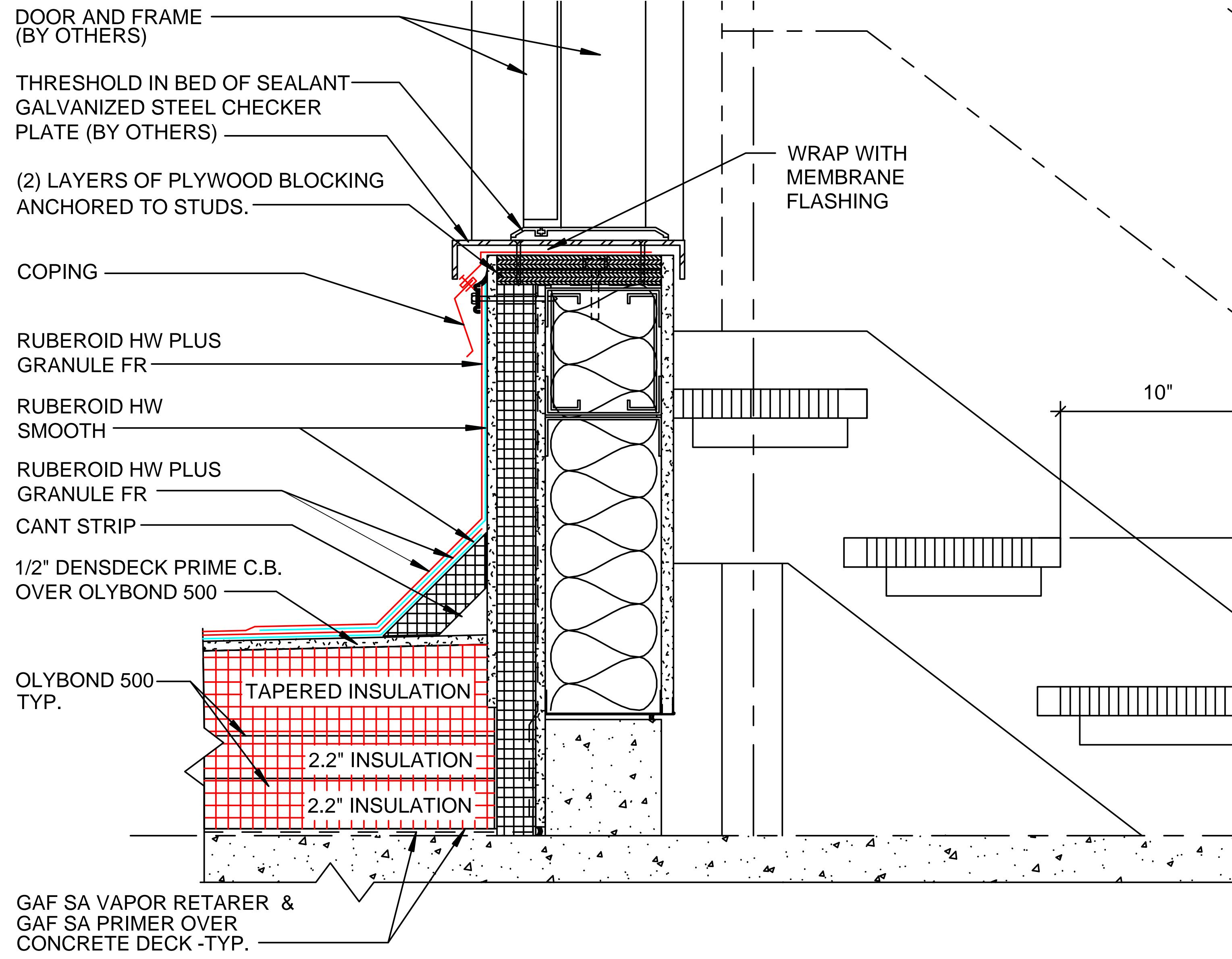
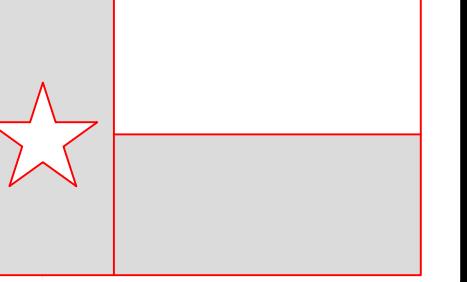
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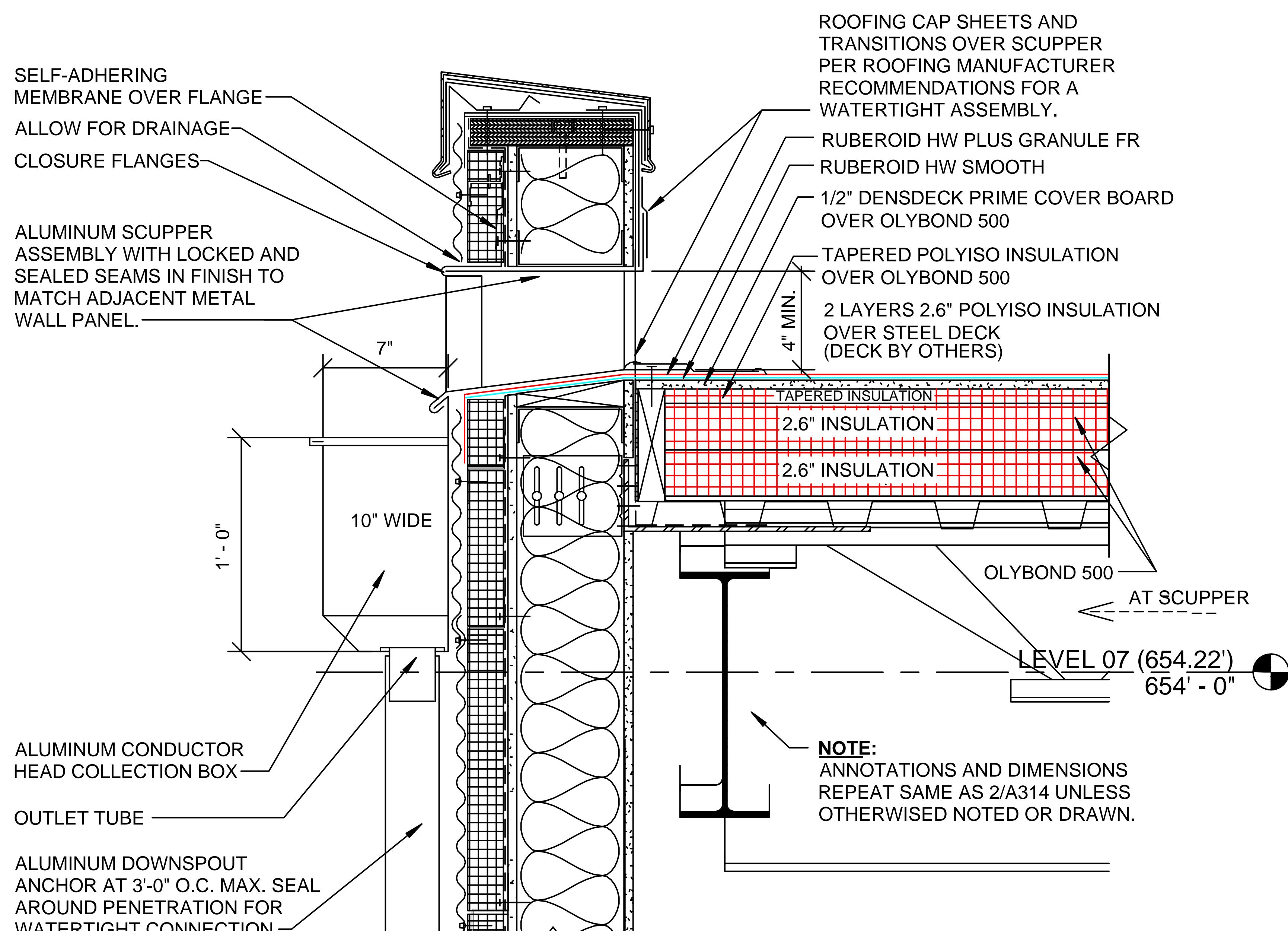
PENTHOUSE PARAPET ASSEMBLY:

- BERRIDGE CORRUGATED WALL PANEL
 - 1/4" SHIM SPACE
 - THERMAL GIRT SYSTEM
 - 2" CAVITYROCK INSULATION
 - AIR / VAPOR BARRIER
 - 1/2" EXTERIOR GYPSUM SHEATHING
 - 6" COLD-FORMED METAL FRAMING
 - FULL DEPTH BATT INSULATION
 - 1/2" COVER BOARD
 - MULTIPLY BIT ROOF MEMBRANE SYS

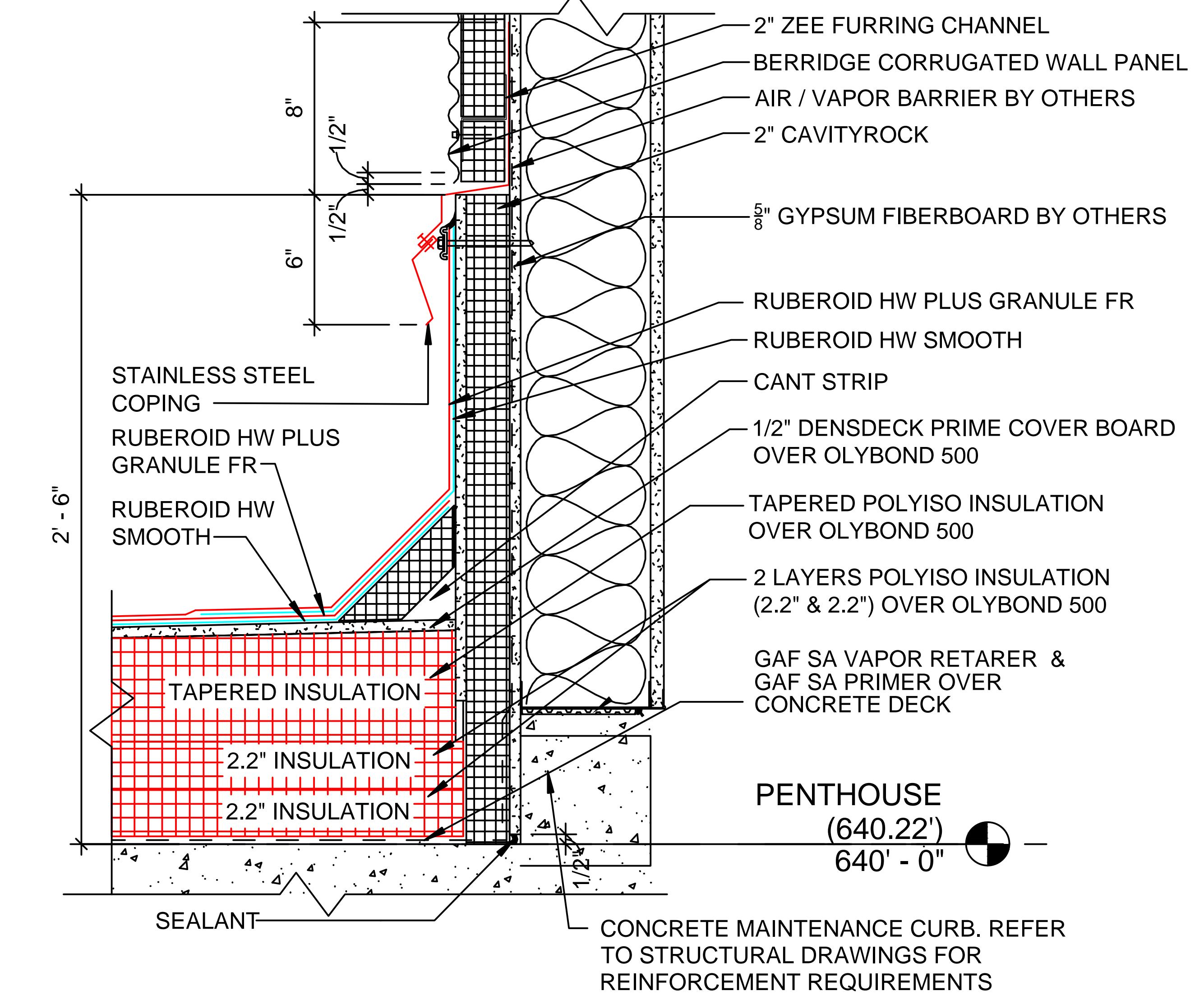




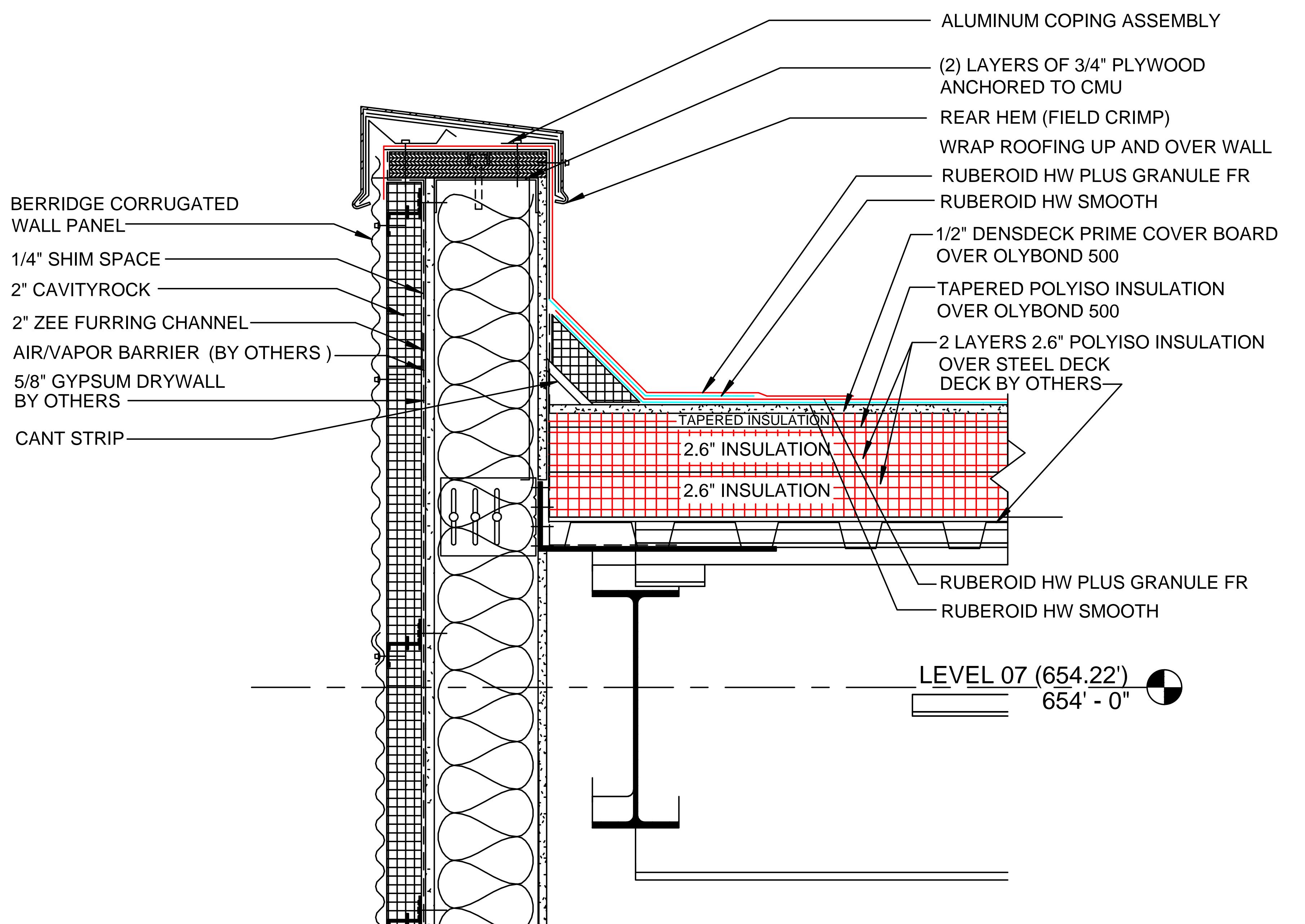
04 PENTHOUSE DOOR SILL - ARCH REF. 5/A314
3" = 1'-0"



02 TYPICAL PENTHOUSE PARAPET DETAIL AT SCUPPER
ARCH REF. 4/A314
3" = 1'-0"



03 TYPICAL PENTHOUSE CURB /
SILL DETAIL - ARCH REF. 1/A314 3" = 1'-0"



01 TYPICAL PENTHOUSE PARAPET DETAIL
ARCH REF. 2/A314
3" = 1'-0"



TEXAS

BSA

BSA LifeStructures
2700 Via Fortuna, Suite 400
Austin, TX 78746
ph 512.351.9000 fx 866.980.3272
www.bsaelifestructures.com
Architectural Registration Number: 89-020
Engineering Registration Number: F-7421

**SEAY BUILDING
ADDITION**

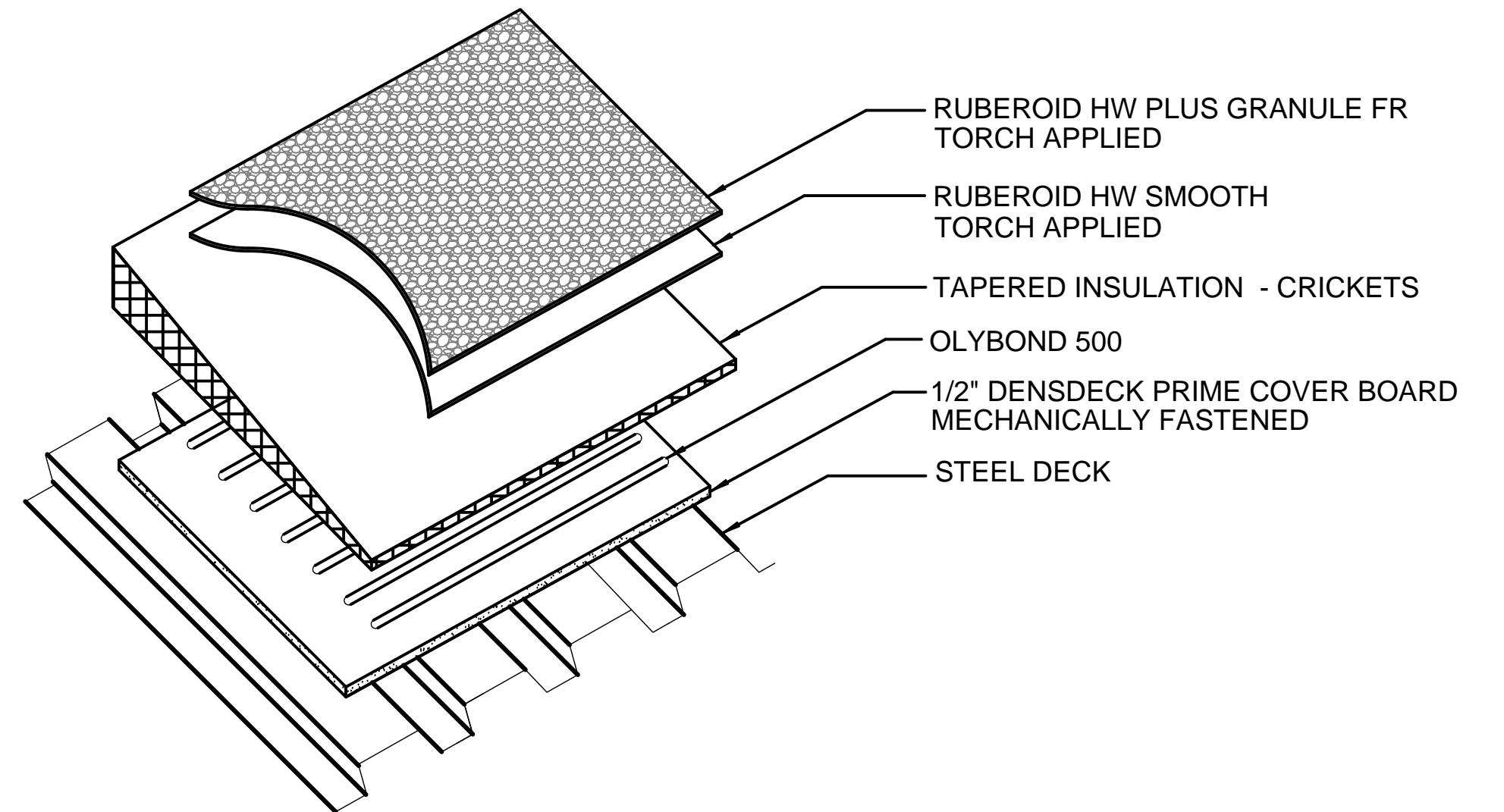
D.R.Kidd
company inc.
SUITE 200
1212 E. ANDERSON LN.
AUSTIN, TEXAS 78752
(512) 671-7791

Revisions

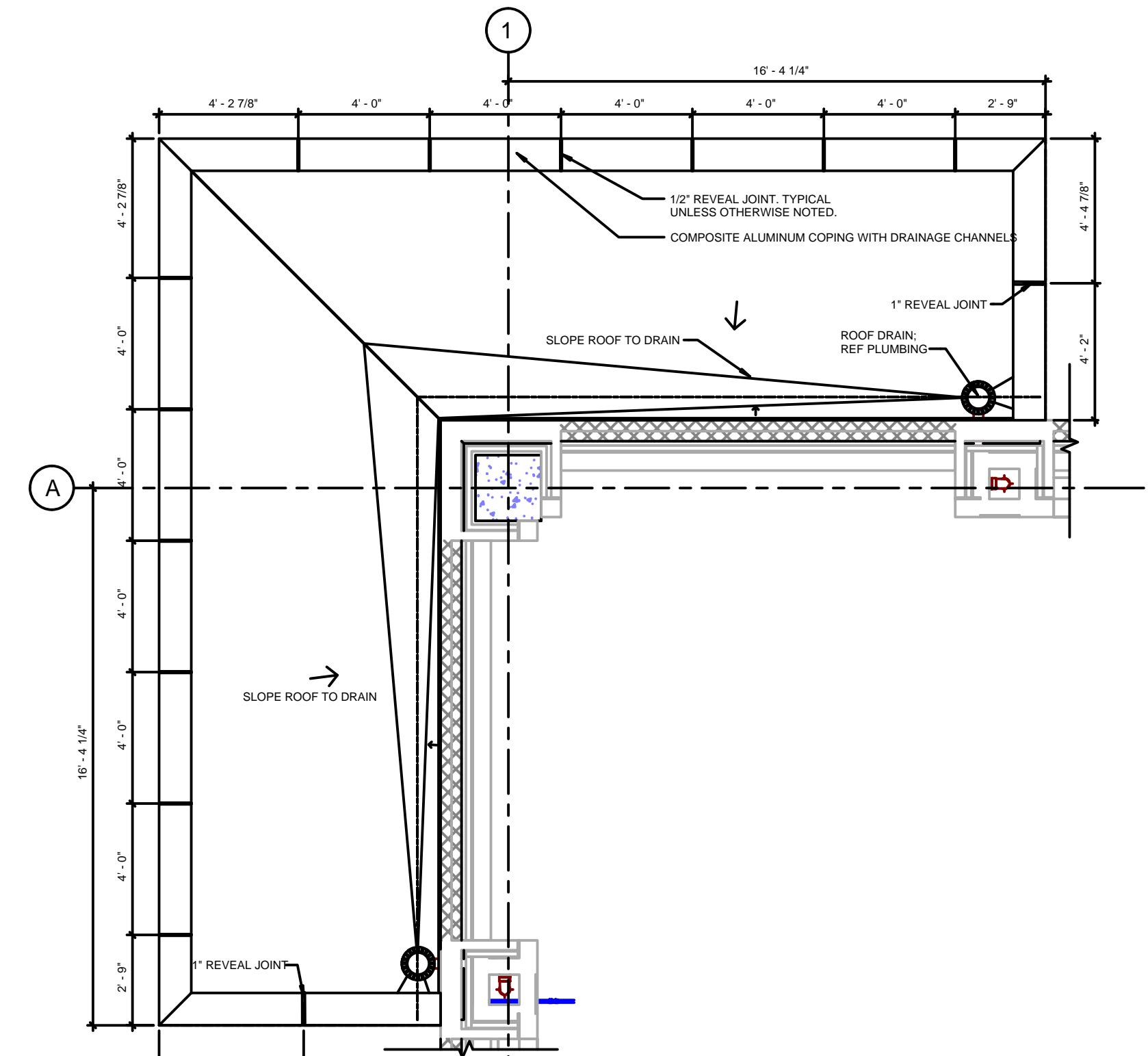
Drawn By: LINDA
Checked By: ROBERT
Drawing Date: 07/20/20
Revision:

Sheet

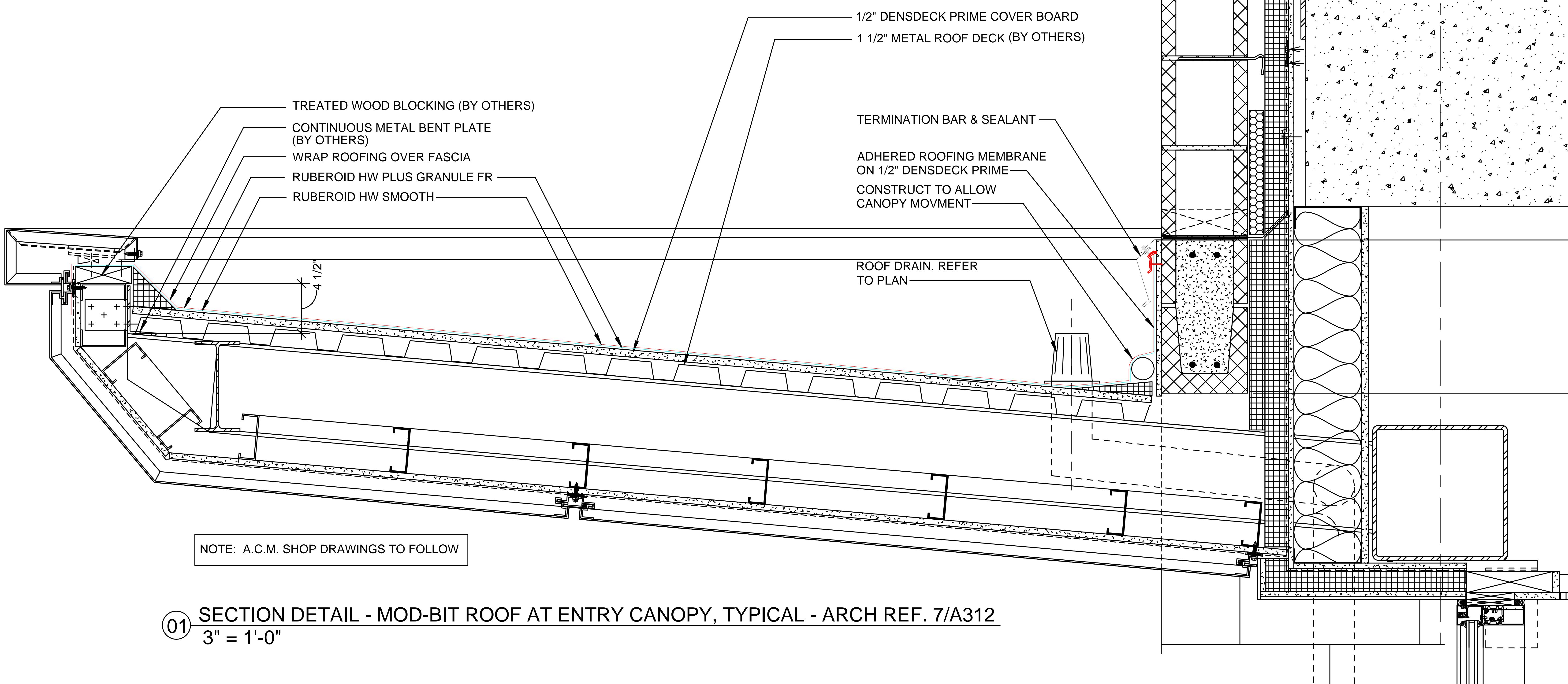
A3



MOD-BIT SYSTEM - STEEL DECK
AT CANOPY N.T.S.



② PLAN DETAIL - ENTRY CANOPY ROOF PLAN - ARCH REF. 2/A420
1/4" = 1'-0"



① SECTION DETAIL - MOD-BIT ROOF AT ENTRY CANOPY, TYPICAL - ARCH REF. 7/A312
3" = 1'-0"



Zero/Six Consulting, LLC
1027 Tremont St.
Galveston, TX
409.740.0090

SUBMITTAL REVIEW

PROJECT UT - SEAY BUILDING ADDITION

PROJECT # 19069

SUBMITTAL # 07 62 00 - 001

DESCRIPTION SHEET METAL FLASHING AND TRIM - PD



NO EXCEPTION TAKEN



EXCEPTIONS NOTED



SUBMIT SPECIFIED ITEM



REVISE AND RESUBMIT

COMMENTS:

1. No exceptions

DATE 7.29.2020

REVIEWED BY JEFFREY BISHOP, PE



CORRECTIONS AND NOTATIONS ON SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS. THIS REVIEW IS ONLY TO CHECK GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANITIES AND DIMENSION, SELECTING FABRICATION PROCESSES, TECHNIQUES OF CONSTRUCTION, AND PERFORMING THE WORK IN A SAFE MANNER.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0263

PROJECT: UT Seay Building Addition

DATE: 07/09/2020

TO: BSA Lifestructures
AL

RE: Sheet Metal Flashing and Trim - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | | SUBMITTED FOR: | ACTION TAKEN: |
|--|--|---|--|
| <input type="checkbox"/> Shop Drawings | | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | | <input checked="" type="checkbox"/> Due Date: 07/23/2020 |
| <input checked="" type="checkbox"/> Submittal: | | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|--------|
| 1 | Submittal | | 076200-001 | 1 | | 07/09/2020 | Sheet Metal Flashing and Trim - Product Data | |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE <input checked="" type="checkbox"/> |
| COMMENTS NOTED <input type="checkbox"/> |
| REVISE AND RESUBMIT <input type="checkbox"/> |
| OTHER: <input type="checkbox"/> |
| DATE 7/9/2020 SPEC# 076200 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 076200-001 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins



SUBMITTAL COVER SHEET

PROJECT NAME: UT Seay

ARCHITECT: BSA Life Structures

SPECIFICATION SECTION: 076200 – Sheet Metal Flashing and Trim

DATE PREPARED: 5/18/2020

CONTRACTOR: Spawglass

SUBCONTRACTOR'S NAME: Chamberlin Roofing and Waterproofing

SUBCONTRACTOR'S PHONE: 512.275.1600

MANUFACTURER'S NAME: AK Steel / Berridge

MANUFACTURER'S PHONE: See Product Data

ITEM: See Table of Contents

NUMBER OF PAGES w/ COVER: 12

| Architect's Approval | Contractor's Approval |
|----------------------|--|
| | <p>The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer, and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.</p> |
| | <p>Chamberlin Austin, LLC</p> |
| | <p>Subcontractor</p> |
| |  <p>Authorized Signature</p> |
| | <p>05/20/2020</p> |
| | <p>Date</p> |



TABLE OF CONTENTS

1. 304 Stainless Steel.....8 Pages

Product Description: Type 304 Stainless Steel

Product Location: Furnish and install sheet metal flashing at brick base and window / door head.

- a. Product Data
- b. Sample Warranty

2. 24 Gauge Galvalume.....5 Pages

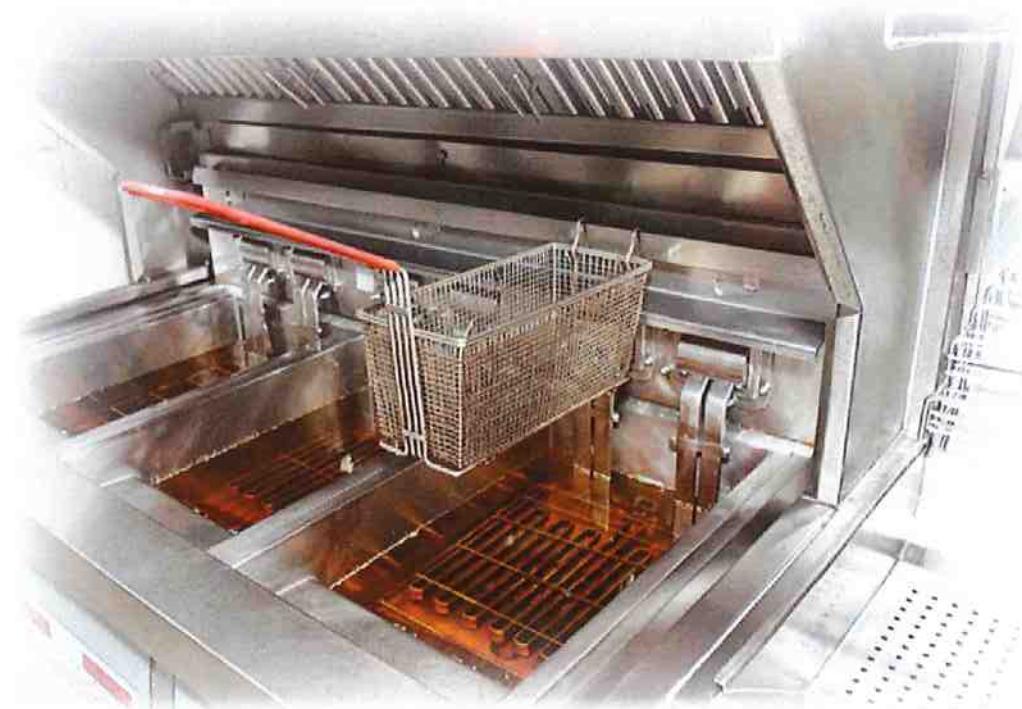
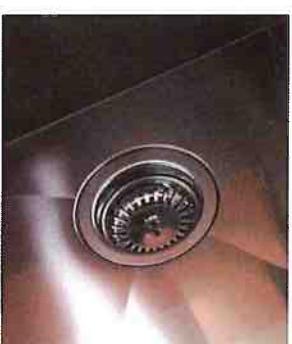
Product Location: Furnish and install at masonry relief angles and floor line reglet flashing. A/E to select color from standard color chart.

- a. Product Data
- b. Color Chart
- c. Sample Warranty



304/304L STAINLESS STEEL

PRODUCT DATA BULLETIN



Architectural Moldings and Trim Kitchen Equipment
Textile Paper
Pharmaceutical and
Chemical Industry Processing Equipment

Applications Potential

High strength, excellent corrosion resistance and excellent formability make Types 304 and 304L Stainless Steels useful for many applications. Typical uses include architectural moldings and trim, kitchen equipment, as well as chemical, textile, paper, pharmaceutical and chemical industry processing equipment.

For severely corrosive environments or when welding is required, Type 304L is preferred because of its greater immunity to intergranular corrosion.



304/304L STAINLESS STEEL

TABLE OF CONTENTS

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| Product Description | 1 |
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| Available Forms | 1 |
| Mechanical Properties | 2 |
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| Oxidation Resistance | 4 |
| Heat Treatment | 4 |
| Cold Working | 4 |
| Formability | 4 |
| Weldability | 4 |
| Specifications | 4 |





304/304L STAINLESS STEEL

PRODUCT DESCRIPTION

Type 304 Stainless Steel is a variation of the base 18-8 grade, with a higher chromium and lower carbon content. The lower carbon content minimizes chromium carbide precipitation due to welding and its susceptibility to intergranular corrosion. In some instances Type 304 can be used in the "as-welded" condition.

Type 304L is an extra low-carbon variation of Type 304 with a 0.03% maximum carbon content that eliminates carbide precipitation due to welding. As a result, this alloy can be used in the "as welded" condition, even in severe corrosive conditions. In many cases it eliminates the necessity of annealing weldments except for applications specifying stress relief. Type 304L has slightly lower mechanical properties than Type 304.

| COMPOSITION | TYPE 304 (wt %) | TYPE 304L (wt %) |
|----------------|--------------------|---------------------|
| Carbon (C) | 0.08 max. | 0.03 max. |
| Manganese (Mn) | 2.00 max. | 2.00 max. |
| Phosphorus (P) | 0.045 max. | 0.045 max. |
| Sulfur (S) | 0.030 max. | 0.030 max. |
| Silicon (Si) | 0.75 max. | 0.75 max. |
| Chromium (Cr) | 18.00 – 20.00 | 18.00 – 20.00 |
| Nickel (Ni) | 8.00 – 12.00 | 8.00 – 12.00 |
| Nitrogen (N) | 0.10 max. | 0.10 max. |
| Iron (Fe) | Balance | Balance |

AVAILABLE FORMS

AK Steel produces Type 304 and 304L Stainless Steels in thicknesses from 0.01 – 0.25 in. (0.25 – 6.35 mm) max. and widths up to 60 in. (1524 mm). For other thicknesses and widths, please contact your AK Steel sales representative.

METRIC PRACTICE

Values shown in this bulletin were established in U.S. customary units. The metric equivalents may be approximate.



304/304L STAINLESS STEEL

MECHANICAL PROPERTIES

TABLE 1 – TYPICAL ROOM TEMPERATURE MECHANICAL PROPERTIES

| | UTS ksi. (MPa) | 0.2% YS ksi. (MPa) | Elongation % in 2" (50.8 mm) | Rockwell Hardness |
|-----------|-------------------|-----------------------|---------------------------------|----------------------|
| Type 304 | 95 (655) | 42 (290) | 55 | B84 |
| Type 304L | 95 (655) | 40 (276) | 55 | B82 |

TABLE 2 – ELEVATED TEMPERATURE MECHANICAL PROPERTIES

| Temperature °F (°C) | UTS ksi. (MPa) | 0.2% YS ksi. (MPa) | Elongation % in 2" (50.8 mm) |
|------------------------|-------------------|-----------------------|---------------------------------|
| Room | 85 (586) | 35 (241) | 55 |
| 400 (204) | 72 (496) | 23 (159) | 51 |
| 600 (316) | 68 (469) | 20 (134) | 45 |
| 800 (427) | 64 (441) | 17 (114) | 40 |
| 1000 (538) | 56 (386) | 14 (97) | 36 |
| 1200 (649) | 44 (303) | 13 (88) | 34 |
| 1400 (760) | 29 (200) | 11 (76) | 36 |
| 1600 (871) | 16 (110) | | 40 |

TABLE 3 – LOW TEMPERATURE MECHANICAL PROPERTIES

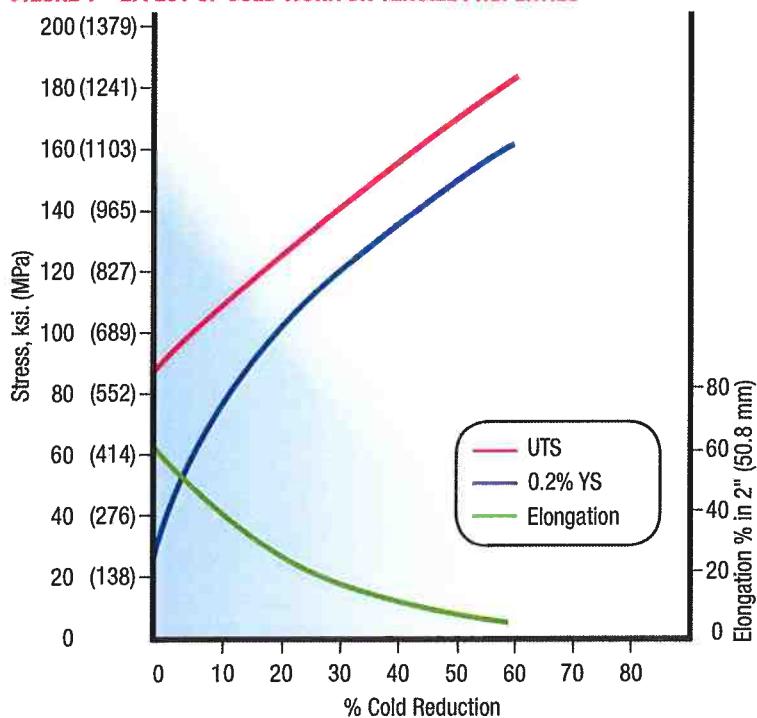
| Condition | Temperature °F (°C) | UTS ksi. (MPa) | 0.2% YS ksi. (MPa) | Elongation % in 2" (50.8 mm) |
|-----------|------------------------|-------------------|-----------------------|---------------------------------|
| Annealed | -320 (-196) | 235 (1620) | 56 (386) | 40 |
| | -80 (-62) | 161 (1110) | 50 (345) | 57 |
| | -40 (-40) | 145 (1000) | 48 (331) | 60 |
| | 32 (0) | 122 (841) | 40 (296) | 65 |
| | 70 (21) | 85 (586) | 35 (241) | 55 |

MECHANICAL PROPERTIES

TABLE 4 – FATIGUE STRENGTH

| Condition | Fatigue Strength, ksi. (MPa) |
|----------------------|------------------------------|
| Annealed – 150 BHN | 35 (241) |
| Cold Drawn – 277 BHN | 70 (70) |

FIGURE 1 – EFFECT OF COLD WORK ON TENSILE PROPERTIES



PROPERTIES

PHYSICAL PROPERTIES

| | |
|--|------------------------------------|
| Density, lbs./in. ³ (g/cm ³) | 0.29 (8.03) |
| Electrical Resistivity, $\mu\Omega \cdot \text{in.}$ ($\mu\Omega \cdot \text{cm}$) | |
| 68 °F (20 °C) | 28.4 (72) |
| 1200 °F (659 °C) | 45.8 (116) |
| Thermal Conductivity, BTU/hr./ft./°F (W/m/K) | |
| 212 °F (100 °C) | 9.4 (16.2) |
| 932 °F (500 °C) | 12.4 (21.4) |
| Coefficient of Thermal Expansion, in./in./°F ($\mu\text{m}/\text{m}/\text{K}$) | |
| 32 – 212 °F (0 – 100 °C) | 9.4×10^{-6} (16.9) |
| 32 – 600 °F (0 – 315 °C) | 9.9×10^{-6} (17.3) |
| 32 – 1000 °F (0 – 538 °C) | 10.2×10^{-6} (18.4) |
| 32 – 1200 °F (0 – 649 °C) | 10.4×10^{-6} (18.7) |
| Modulus of Elasticity, ksi. (MPa) | |
| in tension | 28.0×10^3 (193 x 10^3) |
| in torsion | 11.2×10^3 (78 x 10^3) |
| Magnetic Permeability Annealed, (H/m at 200 Oersteds) | 1.02 max. |
| Specific Heat, BTU/lbs./°F (kJ/kg/K) | |
| 32 – 212 °F (0 – 100 °C) | 0.12 (0.50) |
| Melting Range, °F (°C) | 2550 – 2650 (1399 – 1454) |

CORROSION RESISTANCE

Types 304 and 304L exhibit excellent resistance to corrosive environments such as the chemical, textile and petroleum industries. Type 304 and 304L are found suitable in the food and dairy industries as well as excelling in rural and industrial atmospheric exposure. By reducing the carbon content in Type 304L, welding operations will not cause carbide precipitation that can lead to intergranular corrosion.

OXIDATION RESISTANCE

The maximum temperature to which Type 304 can be exposed continuously without appreciable scaling is about 1650 °F (899 °C). For Intermittent cyclic exposure, the maximum exposure temperature is about 1500 °F (816 °C).

HEAT TREATMENTS

Type 304 is non-hardenable by heat treatment.

Annealing: Heat to 1900 – 2050 °F (1038 – 1121 °C), then cool rapidly. Thin strip sections may be air cooled, but heavy sections should be water quenched to minimize exposure in the carbide precipitation region.

Stress Relief Annealing: Cold worked parts should be stress relieved at 750 °F (399 °C) for 1/2 to 2 hours.

COLD WORKING

High hardness and strength are achieved through cold working. In the annealed condition, Types 304 and 304L are very ductile and can be cold worked easily by roll forming, deep drawing, bending, and other common fabricating methods. Since the material work hardens rapidly, in-process annealing may be necessary to restore ductility and to lower hardness.

FORMABILITY

Types 304 and 304L can be readily formed and drawn. The higher nickel versions of Type 304 are well suited to severe forming applications involving multi-draw operations and forming of complex shapes. This is largely due to its combination of lower strength and lower work hardening rate. As with all austenitic stainless steels, annealing or stress-relieving can be performed following fabrication.

WELDABILITY

The austenitic class of stainless steels is generally considered to be weldable by the common fusion and resistance techniques. Special consideration is required to avoid weld "hot cracking" by assuring formation of ferrite in the weld deposit. Type 304 and 304L are generally considered to be the most common alloys of this stainless class. When a weld filler is needed, AWS E/ER 308, 308L or 347 are most often specified. Types 304 and 304L Stainless Steels are well known in reference literature and more information can be obtained in the following ways:

1. ANSI/AWS A5.9, A5.22 and A5.4 (Stainless Steel Welding Electrode Specifications).
2. "Welding of Stainless Steels and Other Joining Methods," SSINA, (www.ssina.com).
3. ANSI/AWS B2.1.009:2002 (GTAW 300's @ 0.50 – 0.14 in.).
4. ANSI/AWS B2.1-8-024:2001 (GTAW 300's @ 0.125 – 1.5 in.).
5. ANSI/AWS B2.1-8-013:2002 (SMAW 300's @ 0.050 – 0.14 in.).
6. ANSI/AWS B2.1-8-023:94 (SMAW 300's @ 0.125 – 1.5 in.).
7. ANSI/AWS B2.1.005:2002 (GMAW 300's @ 0.050 – 0.14 in.).
8. "High Frequency Welding of Stainless Steel Tubes" by H.N. Udall and R.K. Nichols.
9. ANSI/AWS D1.6/D1.6M:2007 (Structural Welding Code – Stainless Steel).

SPECIFICATIONS

Type 304 and 304L Stainless Steels are covered by the following specifications:

| Type 304 | Type 304L |
|-----------|-----------|
| AMS 5513 | AMS 5511 |
| ASTM A240 | ASTM A240 |
| ASTM A666 | ASTM A666 |



AK Steel Corporation
9227 Centre Pointe Drive
West Chester, OH 45069
844.STEEL99 | 844.783.3599
www.aksteel.com
sales@aksteel.com

AK Steel is a leading producer of flat-rolled carbon, stainless and electrical steel products, and carbon and stainless tubular products, primarily for automotive, infrastructure and manufacturing, construction and electrical power generation and distribution markets. Headquartered in West Chester, Ohio (Greater Cincinnati), the company employs approximately 8,500 men and women at eight steel plants, two coke plants and two tube manufacturing plants across six states (Indiana, Kentucky, Michigan, Ohio, Pennsylvania and West Virginia) and one tube plant in Mexico. Additional information about AK Steel is available at www.aksteel.com.

The information and data in this document are accurate to the best of our knowledge and belief, but are intended for general information only. Applications suggested for the materials are described only to help readers make their own evaluations and decisions, and are neither guarantees nor to be construed as express or implied warranties of suitability for these or other applications.

Data referring to material properties are the result of tests performed on specimens obtained from specific locations of the products in accordance with prescribed sampling procedures; any warranty thereof is limited to the values obtained at such locations and by such procedures. There is no warranty with respect to values of the materials at other locations.

AK and the AK Steel logo are registered trademarks of the AK Steel Corporation.

12.13.18



AK Steel Corporation

9227 Centre Pointe Drive
West Chester, Ohio 45069

Architectural Limited Warranty

AK Steel Corporation (AK) warrants its Type 304, Type 316, Aluminized Type 1 409, Aluminized Type 1 439 and CHROMESHIELD® 22 stainless products used in roofing applications against corrosion for a period of thirty (30) years from the date of purchase, subject to the limitations and exclusions described in this warranty and provided the product is utilized solely for architectural applications and in normal atmospheric conditions. For purposes of this warranty, corrosion is defined as through-wall penetration of the stainless steel. No warranty is made regarding mechanical damage, physical damage or other damage as a result of installation or workmanship after receipt of the product from AK (including but not limited to applications or welding, shaping or forming using methods which are not best practices for stainless steel of this grade) or using inappropriate cleaning solutions. This warranty does not cover any product which has been subject to misuse, neglect or accident. Use on chemical or manufacturing facilities which produce or use chemicals which have an adverse effect on stainless steel also is excluded from this warranty.

Revision: January 5, 2017



BERRIDGE FINISHES AND MATERIAL SPECIFICATIONS

Berridge color finishes applied on Galvalume® steel and aluminum substrates are produced with full strength Kynar 500® or Hylar 5000® resin. Kynar 500® or Hylar 5000® PVDF resin-based color finishes provide superior exterior durability and maximum resistance to ultraviolet radiation. All Berridge color finishes are processed on the Berridge continuous coil coating line in San Antonio, TX.

Berridge Metallic Finishes

Metallic colors are processed and finished on Berridge's continuous coil coating line. These proprietary finishes are available for all factory products, flat sheets, and coils. Flat sheets and coils in metallic finishes are available to sheet metal companies for fabrication of special profiles, shapes, or flashing. Metallic colors are directional and paint lot sensitive. Large orders should be placed at the same time to avoid mixing paint lots.

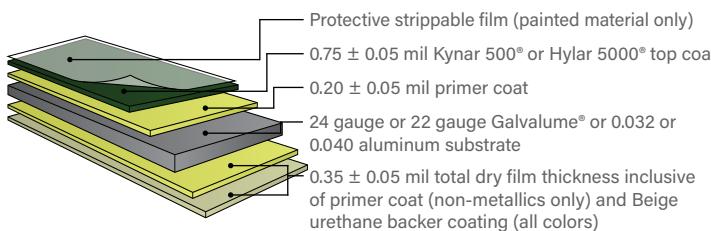
Berridge Metallic Finishes include:

| | |
|-------------------------|---------------------|
| Copper-Cote™ | Antique Copper-Cote |
| Champagne | Zinc-Cote™ |
| Preweathered Galvalume® | Lead-Cote™ |

Acrylic-Coated Galvalume®

Acrylic-Coated Galvalume® is a coated sheet product that combines the corrosion resistance of Galvalume® steel sheet with a clear acrylic coating that is applied over Galvalume® substrate. The surface treatment is essentially invisible and provides excellent characteristics to enhance the fabrication, performance and aesthetic of the installed Galvalume®. These enhancements include: good roll-formability without the need for oils, excellent transit and field-storage performance without staining, dramatic decrease in finger printing or foot printing during installation, and long-term surface brightness when exposed to the environment. It is applied at the mill by roll coating a uniform, thin film of a water-base acrylic solution onto both surfaces of the sheet.

Coating System



Notes:

1. Custom colors and finishes are available. Please consult Berridge for pricing and lead time.
2. Berridge metallic and premium finishes require a nominal surcharge.
3. Galvalume® is a registered trademark of BIEC International, Inc.
4. Kynar 500® is a registered trademark of Arkema, Inc.
5. Hylar 5000® is a registered trademark of Solvay Solexis.



Berridge owns and operates its own modern continuous coil coating line in San Antonio, Texas, painting both 48" and 42" wide master coils.

Specifications for all 24 & 22 Gauge* Galvalume® and 0.032 & 0.040 Aluminum* Berridge Sheet Metal Products

- A. Prefinished metal shall be aluminum-zinc alloy coated (AZ-50 Galvalume®) steel sheet, 24 gauge or 22 gauge*, ASTM 792, Grade 40, yield strength 40 ksi min. or 3105 alloy aluminum sheet 0.032 or 0.040*, ASTM B209, H14 temper, yield strength 21 ksi min.
- B. Finish shall be full strength Kynar 500® or Hylar 5000® fluoropolymer coating applied by the manufacturer on a continuous coil coating line, with a top side dry film thickness of 0.75 ± 0.05 mil over 0.20 ± 0.05 mil prime coat, to provide a total top side dry film thickness of 0.95 ± 0.10 mil. Bottom side shall be coated with a primer (non-metallics only) and beige urethane coating with a total dry film thickness of 0.35 ± 0.05 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500® or Hylar 5000® finish supplier.
- C. Strippable film shall be applied to the top side of all prefinished metal to protect the finish during fabrication, shipping, and field handling. This strippable film MUST be removed immediately before installation.
- D. Acrylic-Coated Galvalume® metal shall be aluminum-zinc alloy coated (AZ-55 Galvalume®) steel sheet, 24 gauge or 22 gauge*, ASTM 792, Grade 40, yield strength 40 ksi min., with clear acrylic coating on both sides of material.
- E. Field protection must be provided by the contractor at the job site so stacked or coiled material is not exposed to weather and moisture.
- F. Flashing may be factory fabricated or field fabricated. Unless otherwise specified, all exposed adjacent flashing shall be of the same material and finish as panel system.

Note: The rolling process of sheet metal results in inherent surface unevenness referred to as "oil-canning". This condition is also caused by several factors including thermal expansion and contraction, dark colors, both medium and high-gloss finishes and uneven substrate. "Oil-canning" in itself is not sufficient cause for material rejection.

* Not all products and colors are available in 22 gauge or aluminum substrate. Consult Berridge for product and color availability.

For complete specifications visit www.Berridge.com

Sustainable Cool Metal Roofing

THE BERRIDGE COMMITMENT

BERRIDGE METAL ROOFING IS COOL AND SUSTAINABLE

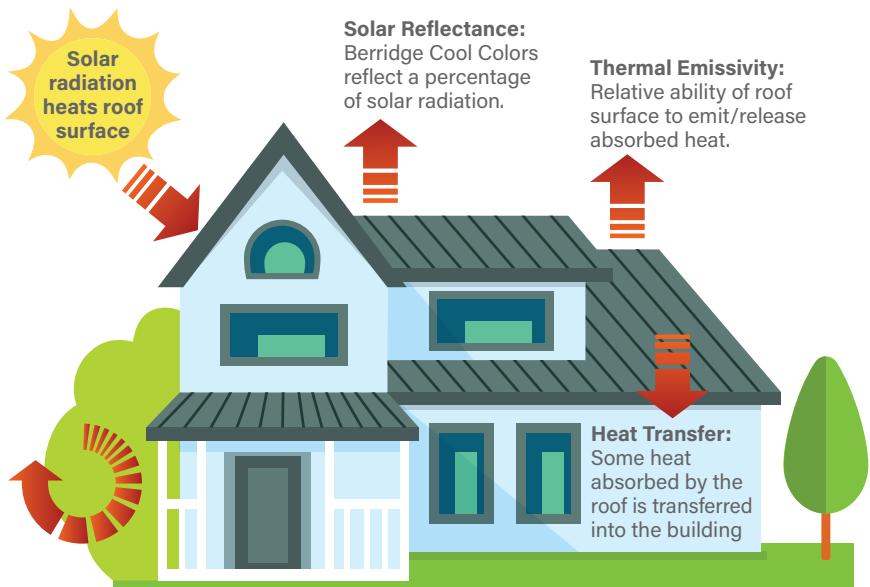
The high reflectivity, emissivity and solar reflectance index (SRI) of Berridge metal roofing helps mitigate the heat island effect. Berridge's Kynar 500® or Hylar 5000® PVDF Resin-Based Color Finishes are optimal for reducing energy consumption, particularly where cooling loads dominate. For LEED® compliance please reference the SRI values for the Berridge color finishes below.

| Berridge Colors | Solar Reflectance | Emissivity | SRI |
|---------------------------|-------------------|------------|-----|
| Aged Bronze | 0.30 | 0.86 | 30 |
| Almond | 0.65 | 0.83 | 77 |
| Bristol Blue | 0.33 | 0.85 | 33 |
| Buckskin | 0.32 | 0.83 | 32 |
| Burgundy | 0.29 | 0.85 | 29 |
| Charcoal Grey | 0.31 | 0.84 | 30 |
| Cityscape | 0.48 | 0.85 | 54 |
| Colonial Red | 0.33 | 0.85 | 34 |
| Copper Brown | 0.30 | 0.85 | 29 |
| Dark Bronze | 0.28 | 0.85 | 27 |
| Deep Red | 0.39 | 0.84 | 41 |
| Evergreen | 0.30 | 0.83 | 29 |
| Forest Green | 0.25 | 0.83 | 22 |
| Hartford Green | 0.28 | 0.83 | 26 |
| Hemlock Green | 0.31 | 0.83 | 30 |
| Matte Black | 0.26 | 0.89 | 26 |
| Medium Bronze | 0.31 | 0.85 | 31 |
| Parchment | 0.52 | 0.83 | 58 |
| Patina Green | 0.34 | 0.86 | 36 |
| Royal Blue | 0.26 | 0.85 | 25 |
| Shasta White | 0.60 | 0.84 | 70 |
| Sierra Tan | 0.39 | 0.85 | 42 |
| Teal Green | 0.27 | 0.87 | 27 |
| Terra-Cotta | 0.32 | 0.83 | 31 |
| Zinc Grey | 0.39 | 0.85 | 42 |
| Acrylic-Coated Galvalume® | 0.67 | 0.20 | 59 |
| Premium Colors | | | |
| Award Blue | 0.17 | 0.83 | 11 |
| Natural White | 0.76 | 0.84 | 93 |
| Metallic Colors | | | |
| Antique Copper-Cote | 0.33 | 0.84 | 34 |
| Champagne | 0.40 | 0.85 | 43 |
| Copper-Cote™ | 0.51 | 0.85 | 59 |
| Lead-Cote™ | 0.46 | 0.84 | 50 |
| Preweathered Galvalume® | 0.40 | 0.85 | 43 |
| Zinc-Cote™ | 0.52 | 0.83 | 59 |

SRI Values are provided by Berridge's paint supplier and may vary slightly. All values listed are initial values. Reference www.berridge.com for the most up-to-date information.

SOLAR REFLECTANCE INDEX (SRI):

Incorporates both solar reflectance and thermal emissivity in a single value. SRI measures the roof's ability to reject solar heat, defined such that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100.



Heat Island Effect:

Ambient temperature outside buildings is heated through convection and conduction contributing to the "urban heat island" effect which happens when metropolitan areas are significantly warmer than surrounding areas.

RECYCLED CONTENT OF BERRIDGE METAL

Berridge metal products have a high recycled content and are 100% recyclable at the end of their lifespan. Using building products that incorporate recycled materials helps reduce the impacts resulting from the extraction and processing of natural resources.

Post-consumer steel recycled content: 25.6%

Pre-consumer steel recycled content: 6.8%

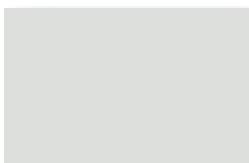
TOTAL RECYCLED CONTENT: 32.9%

LEED® COMPLIANCE

The use of Berridge Manufacturing Company metal roofing products can directly contribute up to two LEED® v4 credits for Heat Island Reduction. When a "whole building design" approach is implemented, metal roofing combined with other concerted efforts, products and building systems can contribute to other LEED® v4 credits. Reference the technical section at www.Berridge.com for more information. While every effort has been made to provide accurate information, applicants for LEED® certification should verify compliance with a LEED® expert. For more information on LEED® v4 certification visit www.usgbc.org.

BERRIDGE MANUFACTURING STANDARD COLORS

Due to limitations in the printing process, please request actual color chips for accurate color viewing.



Shasta White



Parchment



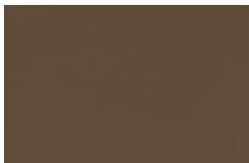
Almond



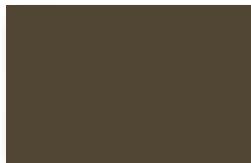
Sierra Tan



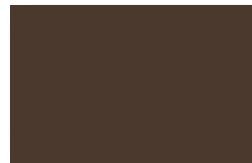
Buckskin



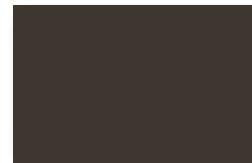
Medium Bronze



Aged Bronze



Copper Brown



Dark Bronze



Terra-Cotta



Deep Red



Colonial Red



Burgundy



Bristol Blue



Royal Blue



Patina Green



Hemlock Green



Teal Green



Forest Green



Evergreen



Hartford Green



Cityscape



Zinc Grey



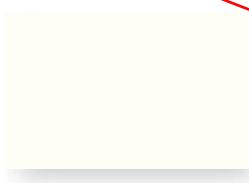
Charcoal Grey



Matte Black

~~Premium Colors~~

Berridge premium colors require a nominal surcharge.



Natural White



Award Blue



Champagne



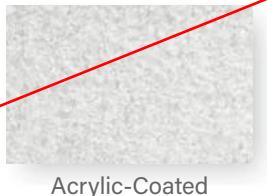
Copper-Cote™



Antique
Copper-Cote

Natural Metal Finish

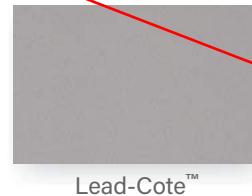
Berridge Acrylic-Coated Galvalume® is a coated sheet product that combines the corrosion resistance of Galvalume® steel sheet with a clear, organic resin applied to the top side and bottom side of Galvalume® substrate.



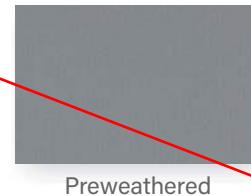
Acrylic-Coated
Galvalume®



Zinc-Cote™



Lead-Cote™



Preweathered
Galvalume®

Please consult the BMC technical department at technical@berridge.com for LEED® and Energy Star compliance information.

Energy Star is
only valid in the
United States.



**BERRIDGE MANUFACTURING COMPANY
20-YEAR WATERTIGHTNESS
LIMITED WARRANTY**

Building Owner: _____

Building /Job Name: _____

Building Location: _____

Berridge Work Order Number: _____

Date Roof Completed: _____

Berridge Material Furnished (sqft): _____

Berridge Manufacturing Company (hereinafter referred to as "Berridge") and the Roofing Contractor/Installer whose signature appears below (hereinafter referred to as "Roofer") severally warrant [Roofer only for any matter arising during the first two years after completion of installation of the subject roof on the above referenced Building and Berridge only for any matter first arising after the second anniversary of successful completion of installation of the subject roof but arising not later than the twentieth anniversary of such completion] to the above-named Building Owner (hereinafter referred to as "Owner") that subject to each and every term(s), condition(s), limitation(s), allocation(s) of warranty, and responsibility(ies) stated herein, Roofer's workmanship on the above-named building will be adequate to prevent leaks for 20 years commencing with the date of completion of installation of the Roofing System. This warranty will be fully satisfied by repair of the Roof, and any such repairs shall carry a warranty against leaks only for any then remaining balance of the original 20-year warranty period.

BERRIDGE'S AND ROOFER'S AGGREGATE TOTAL CUMULATIVE LIABILITY UNDER THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY IS LIMITED TO THE DOLLAR AMOUNT OF THE OWNER'S ORIGINAL PAYMENT MADE TO THEM FOR MATERIALS FURNISHED BY BERRIDGE ONLY AND FOR THE INSTALLATION OF THOSE MATERIALS ONLY. NEITHER BERRIDGE NOR ROOFER MAKES ANY OTHER WARRANTY WHATEVER, EXPRESS OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE WHICH EXCEED OR DIFFER FROM THE WARRANTIES HEREIN EXPRESSED ARE DISCLAIMED BY EACH AND ALL OF SAID PARTIES AND EXCLUDED FROM THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY. BERRIDGE DOES NOT IN ANY WAY WARRANT THE MERCHANTABILITY OF THE GOODS SOLD HEREBY. NO WARRANTIES EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

IN NO EVENT SHALL ANY ONE OR MORE OF BERRIDGE AND ROOFER HAVE ANY LIABILITY FOR ANY COMMERCIAL LOSS, CLAIMS FOR LABOR, OR CONSEQUENTIAL DAMAGES OF ANY OTHER TYPE. WHETHER OWNER'S CLAIM BE BASED IN CONTRACT, TORT, WARRANTY, STRICT LIABILITY, OR OTHERWISE, IT IS EXPRESSLY AGREED THAT OWNER'S REMEDIES EXPRESSED IN THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY ARE OWNER'S EXCLUSIVE REMEDIES.

TERMS, CONDITIONS, LIMITATIONS

1. Owner shall provide Berridge and Roofer with written notice within thirty (30) days of the discovery of any leak(s) in the Roof. Failure of the Owner to do so shall automatically relieve both Berridge and Roofer of any and all responsibility and/or liability under this 20-year Watertightness Limited Warranty.
2. In the event a roof repair is necessary during the first two-year period or any extension thereof, the Roofer's responsibility [which shall be in lieu of any and all Berridge liability during such period and any such extension(s)] shall be extended for a two-year period from the date of the last such repair. In any such case, Berridge will be responsible only for the balance remaining after the end of such period and any and all extension(s) of the original twenty (20)-year period from the date of completion of installation of the subject Roofing System.
3. If upon Berridge's inspection, Berridge determines that the leak(s) in the Roof are caused by defects in Berridge materials or in the workmanship of the Roofer, Roof repair obligations shall then arise in accordance herewith, but Owner's remedies and Berridge's liability shall in any event be limited to repair of the Roof, subject to the cost limitations set forth above. Otherwise, neither Berridge nor Roofer shall have any liability. The Roofer's two-year liability (which is in lieu of any and all Berridge liability for such period) shall be extended an additional two years from date of last repair, should such repairs be necessary during the first two years of the Roofer's liability or during any extension thereof.
4. Neither Berridge nor Roofer shall have any liability or responsibility under or in connection with either this 20-Year Watertightness Limited Warranty or the Roof, if any one or more of the following shall occur:

- (a) Deterioration caused by marine (salt water) atmosphere or by regular spray of either salt or fresh water.
- (b) Corrosion caused by heavy fallout or exposure to corrosive chemicals, ash or fumes from any chemical plant, foundry, plating works, kiln, fertilizer manufacturing, paper plant, and the like.
- (c) Deterioration caused by any corrosive substance or any condensate of any harmful substance contained, generated or released inside the building.
- (d) Damage caused by worker(s) on the roof.
- (e) Any other cause beyond Berridge's control.
- (f) Damage to the Roof caused by natural disasters, including, but not limited to, lightning, or any strong gale, hurricane, tornado, or earthquake.
- (g) Failure by any contractor or subcontractor to follow Berridge's recommended installation instructions for the layout, design and installation of the Roof.

- (h) If, after installation of the Roof by Roofer, there are any alterations, such as, but not limited to, structures, fixtures, or utilities being placed upon or attached to the roof without prior written authorization from Berridge, or
- (i) If there is any failure by the Owner or lessee or other occupant or user to use reasonable care in maintaining the Roof, or
- (j) If Owner fails to comply with every term and/or condition stated in this 20-Year Watertightness Limited Warranty, or
- (k) If any panels or other parts are installed in a manner that does not permit drainage of water from all surfaces.
- (l) Berridge shall not have any liability or responsibility with leakage caused by ridge vents.
- (m) Berridge shall not have any liability or responsibility with failure of gutters and gutter accessories.
- (n) Failure of roofing installation and the materials supplied by Berridge for the flashings and metal roofing due to reaction of dissimilar metals will not be the responsibility of Berridge and Berridge will not be held liable for any claims due to failures caused by dissimilar metals.
5. Berridge shall not have any liability or responsibility under or in connection with either this 20-Year Watertightness Limited Warranty or the Roof in the event of a failure by any contractor or subcontractor to use approved installation details for roof curbs, roof jacks, sealants, mastics, subframing, and flashing furnished by Berridge, [or to substitute therefor only products approved in writing in advance by Berridge as equal (if provided by the contractor or subcontractor)].
6. During the term of this Warranty, Berridge, its Sales Representatives and employees, shall have free access to the roof during regular business hours.
7. Berridge shall not have any obligation under this 20-Year Watertightness Limited Warranty until (a) Shop drawings outlining the application of roofing materials are submitted to Berridge by the Roofer and accepted in writing by Berridge. Such drawings must show the exact number, size and location of all roof penetrations and rooftop equipment and (b) Photographs of the roof installation showing the items described in subparagraph (a) above as well as any items required in Berridge field inspection reports are submitted to Berridge by the Roofer.
8. This Warranty is not valid until a fully executed original has been returned to Berridge
9. Berridge shall not have any obligation under this 20-Year Watertightness Limited Warranty until all invoices for installation, supplies and services have been paid in full to each of Berridge and Roofer and each material supplier.
10. Neither Berridge nor Roofer shall be responsible for any consequential damages or loss to the building, its contents or other materials.
11. Neither Berridge nor Roofer's failure at any time to enforce any of the terms or conditions stated herein shall be construed to be a waiver of such provision or of the right to exercise any right in the future.
12. This 20-Year Watertightness Limited Warranty supersedes and is in lieu of any and all other warranties (whether express or implied) that are either in addition to or in conflict with the term(s) and condition(s) stated herein. **ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE WHICH EXCEED OR DIFFER FROM THE WARRANTIES HEREIN EXPRESSED ARE DISCLAIMED BY EACH AND ALL OF SAID PARTIES AND EXCLUDED FROM THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY.**
13. If the subject roof is covered by products of more than one roofing products manufacturer, this 20-Year Watertightness Limited Warranty applies only to those portions of such roof which are covered solely by Berridge manufactured products.
14. Notwithstanding any other provision of this 20-Year Watertightness Limited Warranty, Berridge shall not have any liability or responsibility at any time for or as a consequence of any condensation or underside corrosion which is or was caused at any time in part or wholly by any condensation resulting from either or both of the following: (a) The use of an inadequate vapor barrier where the insulation is installed immediately beneath the roof panels. An adequate vapor barrier is defined as one which has a perm rating of .05 or less with sealed joints and perimeter.(b) Inadequate ventilation of the attic space between a roof panel and insulation, when insulation is installed directly on top of an existing roof.
15. Roofing installation must be supervised by an authorized Berridge Installer or an individual that has been factory trained in the installation of Berridge roofing products.
16. Berridge roof panels must be made of a material supplied by Berridge or approved by Berridge.

WARRANTY RESPONSIBILITY:

1st through 2nd Year, plus any applicable extension period(s) as described hereinabove:

— ROOFER

The thereafter remaining balance of the first 20 years from date of completion of installation of the subject Roof.

— BERRIDGE MFG. CO.

This 20-Year Watertightness Limited Warranty is tendered for the sole benefit of the original purchaser as named below and is not transferable or assignable. It becomes valid only when signed by each of Roofer, Owner and Berridge.

EXCEPT ONLY AS EXPRESSLY PROVIDED HEREIN, BERRIDGE MAKES NO REPRESENTATION(S) OR WARRANTY(IES) OF MERCHANTABILITY AND WARRANTY(IES) OF FITNESS FOR ANY PARTICULAR PURPOSE, ALL OF WHICH ARE EXPRESSLY DISCLAIMED, WITH RESPECT TO THE GOODS AND/OR SERVICES COVERED HEREBY. NOR DOES BERRIDGE MAKE ANY WARRANTY OR ASSUME ANY OBLIGATION WITH RESPECT TO THE VALIDITY OF ANY PATENT(S), DESIGN(S), COPYRIGHT(S), OR TRADEMARK(S) WHICH MAY COVER ANY OF SUCH GOODS. THE CONDITIONS OF LIABILITY, RIGHTS, OBLIGATIONS AND REMEDIES OF THE PARTIES RELATING TO CLAIMS ARISING FROM ANY DEFECTIVE GOODS AND/OR WORKMANSHIP SHALL BE GOVERNED EXCLUSIVELY BY THE TERMS HEREOF. THIS 20-YEAR WATERTIGHTNESS LIMITED WARRANTY MAY NOT BE CHANGED ORALLY.

This 20-Year Watertightness Limited Warranty shall be governed by and construed and enforced in accordance with the laws of the State of Texas. Berridge, Roofer and Owner specifically agree that any legal action brought relating to this Warranty will be brought and tried in the United States District Court For the Southern District of Texas, Houston Division, or, in absence of federal jurisdiction, in a District Court of Harris County, Texas, in Houston, Texas.

Roofing Contractor/Installer:

Company Name _____

Signature _____

Typewritten Name _____ Title _____ Date _____

Owner:

Company Name _____

Signature _____

Typewritten Name _____ Title _____ Date _____

Berridge Manufacturing Company _____

Date _____

Sheet Metal color finishes will be delivered to BSA. Please provide selected color finish in submittal response.



Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090



SUBMITTAL REVIEW

Submittal No.: 076200-002

Description: Roof Sheet Metal Flashing and Trim - PD

Project Name: UT Austin - SEA

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

BY:

DATE: 2020/08/19

Submittal Comments:



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0314

PROJECT: UT Seay Building Addition

DATE: 08/11/2020

TO: BSA Lifestructures
AL

RE: Roof Sheet Metal Flashing and Trim - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 08/25/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|------------------------|
| 1 | Submittal | | 076200-002 | 1 | | 08/11/2020 | Roof Sheet Metal Flashing and Trim - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE

COMMENTS NOTED

REVISE AND RESUBMIT

OTHER:

DATE 8/11/2020 SPEC# 076200

REVIEWED BY tanner.hawkins

SUBMITTAL# 076200-002

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins



1212 E. Anderson Lane Austin Texas 78752

SARAH & CHARLES SEAY BLDG.

SHEET METAL & FLASHING 076200

1. KIDD WORKMANSHIP WARRANTY
2. BERRIDGE FINISH WARRANTY
3. BERRIDGE LEED v4
4. BERRIDGE COIL
5. BERRIDGE COLOR CHART
6. APOLIC FINISH WARRANTY
7. APOLIC LEED DATA SHEET
8. ALPOLIC METAL & FINISHES
9. CONCEALER FASTENERS
10. BLIND RIVETS
11. TRIANGLE FASTENERS
12. WIP 300HT
13. SPECTREM 2
14. SPECTREM 2 – LEED v

07/21/2020

LIMITED COMMERCIAL WORKMANSHIP WARRANTY

01

Project:**SAMPLE****2 YEARS****Project Address:**

D. R. Kidd Company, Inc. - "DRKCI" - hereby warrants, subject to the terms and conditions set forth herein, that it will, at no cost to the "Buyer", make all repairs to leaks which result from defects in workmanship and materials furnished by DRKCI, which occur within the **YEARS (2)** year term of this warranty beginning the date of substantial completion : ~~06/11/2014~~

This warranty is made under and subject to the following terms and conditions:

- (a) "Buyer" must notify DRKCI of any leaks which may require repairs under this warranty. In order to pursue a claim that DRKCI has not honored this warranty, written notice of the leak must be given to DRKCI at the address listed below. DRKCI shall make the required repairs as soon as practical upon notification of reported defects.
- (b) Repairs made by others than DRKCI shall invalidate this warranty unless preapproved by DRKCI.
- (c) Nothing in this warranty shall be construed to hold DRKCI as liable for any damage to "Buyer's" premises or any contents thereof, including the roof decking, facia and rafters. It is the "Buyer's" responsibility to periodically inspect roof, wall panels, ceilings and overhangs for signs of leakage and promptly report them to DRKCI.
- (d) DRKCI will not be responsible for any leaks caused by (1) lightning, hail, hurricane, tornado, windstorm or other weather phenomena; (2) structural elements of the building, including cracking, movement, settlement, deflection, nails, staples or other fasteners not part of DRKCI's installation which have backed out of the roof deck, deterioration and decomposition of the walls, foundation or the roof deck; (3) parapet walls, copings, chimneys, skylights, vents equipment supports and other edge conditions and penetrations of the roofing work unless the leak is caused by faulty installation of accessories which were performed by DRKCI or if such accessories were furnished by DRKCI; (4) service to or maintenance of any roof top equipment or traffic of any nature on the roof; (5) abuse, misuse, accident or negligence by any person other than DRKCI; (6) atypical flashing (height) installation(s) that are non-compliant to NRCA/SMACNA provisions due to architectural design; (7) improper drainage due to, but not limited to, existing gutters/drains/downspouts by non-compliance to construction codes or poor pitch.
- (e) Any alterations or additions to the roof surface after completion of installation by DRKCI must be approved by DRKCI in writing and DRKCI shall have the right to submit its recommendations for any new roofing or flashing materials required. Failure of the "Buyer" to adhere to these recommendations will result in cancellation of this warranty. Owners responsibility to provide roof access. Kidd not responsible for removing or replacing roof coverings. I.E deck/pavers.
- (f) This warranty shall accrue only to the benefit of the original "Buyer" named herein. It is not transferable to any other person except with the prior written consent of DRKCI.
- (g) DRKCI shall have no obligation pursuant to this warranty until all bills for installation, supplies and services in connection with the roofing covered by this warranty have been paid in full.
- (h) DRKCI will not be liable for fasteners that back out of the roof deck or substrate which penetrate the roofing materials. This disclaimer does not relate to fasteners installed by DRKCI.
- (i) This warranty and the proposal/contract of which this warranty is a part, constitute the entire agreement between DRKCI and the "Buyer" and no other representations or agreements pertaining to the work performed by DRKCI have been made. DRKCI shall have no obligation with respect to the roof upon the expiration of the warranty period set forth above which begins on the date of substantial completion of the work as determined by DRKCI.
- (j) Any claim arising out of or relating to this contract, or breach thereof, shall be settled by arbitration, binding on both parties, in accordance with the construction industry arbitration rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

DRKCI SHALL NOT BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL INCIDENTAL OR OTHER DAMAGES. "BUYER'S SOLE REMEDY UNDER THIS WARRANTY IS THE RIGHT TO HAVE DRKCI REPAIR AT NO COST TO THE "BUYER" THOSE LEAKS IN THE ROOF WHICH RESULT FROM DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY DRKCI. THIS WARRANTY IS GIVEN AND ACCEPTED IN LIEU OF ALL OTHER LIABILITY OR WARRANTIES ON THE PART OF DRKCI, EXPRESS OR IMPLIED, IN FACT OR IN LAW. ALL IMPLIED WARRANTIES AND SPECIFICALLY THE IMPLIED WARRANTIES OF MERCHANTABILITY, HABITABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED AND DISCLAIMED.

THIS LIMITED WORKMANSHIP WARRANTY SHALL ONLY BE IN EFFECT IF THE CONTRACT WITH D. R. KIDD COMPANY, INC HAS BEEN PAID IN FULL



1212 E. Anderson Ln | Ste 200
Austin, Texas 78752
(512) 671-7791 FAX (512) 671-8707

EXPIRES:



20 YEAR

02

Kynar 500® or Hylar 5000™ Limited Warranty

MATERIAL DESCRIPTION:

JOB NAME:

SOLD TO:

INVOICE NUMBER(S):

OWNER:

EFFECTIVE DATE:

DATE OF ISSUE:

Berridge Manufacturing Company warrants that Kynar 500® or Hylar 5000™ 70% full-strength Fluoropolymer finish will perform for twenty (20) years from date of installation as an effective surfacing material within the scope of the conditions and limitations defined in this warranty document.

EFFECTIVE SURFACING MATERIAL IS DEFINED TO MEAN:

1. Freedom from cracking, chipping or peeling due to the deterioration of the finish for a period of twenty (20) years from date of purchase, exclusive of mechanical damage or other abnormal contingencies. (See Para 2).
2. Freedom from any color changes in excess of 5 NBS Units (Using the NBS unit of color notation as measured on the MEECO Colormaster: ASTM-D-2244) for a period of twenty (20) years from date of purchase.
3. Freedom from chalking in excess of Number 8 Rating (ASTM-D-659-80) for a period of twenty (20) years from date of installation.

TERMS AND CONDITIONS OF WARRANTY:

1. Berridge shall not have any obligation under this Warranty until all invoices for installation, supplies and services have been paid in full to Berridge and to the Roofer.

2. BERRIDGE HAS NO OBLIGATION NOR RESPONSIBILITY FOR DAMAGE TO FINISH OR MATERIALS CAUSED BY THE FOLLOWING CONDITIONS:

- A. Materials installed in corrosive or aggressive environments including, but not limited to, areas subject to marine conditions, salt water, salt water spray, chemicals, or harmful gases with the exception of normal air pollution.
- B. Acts of God, falling objects, fire or external forces.
- C. Abnormal or harmful gases, fumes or chemicals other than general air pollution.
- D. Physical damage after installation, intentional or unintentional, whether caused by abuse, misuse, negligence, vandalism, or excessive foot traffic on roof area.
- E. Any act or acts which damages finish after installation of materials on project.
- F. Physical damage caused during the forming process due to machinery or roll forming process used.
- G. Slopes of the roof or sections with a pitch of less than one in twenty-four or otherwise as to allow puddling or staining.
- H. Deterioration of finish or materials due to improper storage prior to or during installation process.
- I. Deterioration of the finish or substrate caused by standing water or condensation.
- J. Discoloration or damage to panel finish caused by failure to remove factory-applied protective strippable plastic film.

3. **CUSTOMER MUST NOTIFY BERRIDGE MANUFACTURING COMPANY IN WRITING WITHIN THIRTY (30) DAYS FROM DISCOVERY OF THE CONDITION WHICH IS THE BASIS OF ANY CLAIM AND ALLOW AN INSPECTION OF THE MATERIALS DURING NORMAL BUSINESS HOURS.**

4. **BERRIDGE MANUFACTURING COMPANY'S OBLIGATION WITH RESPECT TO THIS WARRANTY IS LIMITED AS FOLLOWS:**

- A. In the event of a valid claim, Berridge Manufacturing Company shall, at its option: a.) assume the reasonable costs to restore the finish on the materials; b.) furnish replacement materials; or c.) refund the original purchase price paid to Berridge for the materials less five percent (5%) for each year which has lapsed since the date of purchase of the materials.
- B. Berridge Manufacturing Company's maximum liability for any claim under this Limited Warranty will be the lesser of the three amounts calculated pursuant to a, b, or c of paragraph 4A above.
- C. It will be at the sole discretion of Berridge Manufacturing Company to determine which action will be taken with respect to any claim under this Limited Warranty.
- D. In no event shall Berridge Manufacturing Company's liability exceed the lesser of the cost of replacing or restoring the defective panels.
- E. The warranty on any repaired or replaced product shall be for the remainder of the warranty period applicable to the original purchase.
- F. **EXCEPT AS SET FORTH HEREIN, BERRIDGE MANUFACTURING COMPANY MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND HEREBY EXPRESSLY DENIES THE SAME.**
5. This warranty is tendered for the sole benefit of the original owner of the project named herein and is not transferable or assignable.
6. Berridge's only liability and responsibility is to the terms and conditions of this Warranty. This Warranty supersedes and is in lieu of any and all other warranties (whether express or implied) that are either in addition to or in conflict with the term(s) and condition(s) stated herein.
7. In the event a court of competent jurisdiction rules that any portion of this Limited Warranty is unenforceable, the remainder of this Limited Warranty shall be construed and enforced as if the stricken portion was not a part hereof originally.

What is LEED®?

Leadership in Energy and Environmental Design (LEED) is an internationally recognized certification system established by the U.S. Green Building Council (USGBC) whose goal is to promote integrated, whole-building design practices and standards for green, sustainable building and community designs emphasizing energy savings, water efficiency, CO₂ emissions reductions, improved indoor environmental quality, and stewardship of resources and their impacts on the environment.

LEED® for New Construction and Major Renovations is one component of LEED v4 and is the latest version of the USGBC's green building certification program. It recognizes the following key areas:

Sustainable Sites (SS) – 10 Possible Points

Materials & Resources (MR) – 13 Possible Points

Water Efficiency (WE) – 11 Possible Points

Innovation – 6 Possible Points

Indoor Environmental Quality (IEQ) – 16 Possible Points

Energy & Atmosphere (EA) – 33 Possible Points

Regional Priority – 4 Possible Points

Points are awarded to each category listed above depending on building performance on certain requirements and standards set forth by LEED® v4. Points are then totaled and LEED certification is granted based on the total point levels shown below:

LEED Certified – 40 to 49 Points

LEED Silver – 50 to 59 Points

LEED Gold – 60 to 79 Points

LEED Platinum – 80 to 110 Points

Summary

The use of Berridge Manufacturing metal roofing products can directly contribute up to 2 LEED® v4 credits for Heat Island Reduction, but when a “whole-building design” approach is implemented, metal roofing combined with other concerted efforts, products and building systems can contribute to other LEED® v4 credits mentioned herein as well as other credits not listed.

While every effort has been made to provide accurate information, applicants for LEED® Certification should verify compliance with a LEED® expert. For more information on LEED® v4 certification, visit www.usgbc.org.

HOW CAN USING BERRIDGE PRODUCTS CONTRIBUTE TO A LEED® CERTIFICATION ON NEW CONSTRUCTION OR MAJOR RENOVATIONS?

Sustainable Sites –

Berridge Manufacturing Company cool metal roofs have Solar Reflectance Index values that meet or exceed LEED® v4 criteria for the Heat Island Reduction credit as detailed below.

SS Credit 5: Heat Island Reduction (2 points excluding Healthcare, 1 point Healthcare)

Intent: To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

Requirements: Use roofing materials that have an SRI equal to or greater than the values in Table 1. Meet the three-year aged SRI value. If three-year aged value information is not available, use materials that meet the initial SRI value.

Table 1. Minimum solar reflectance index value, by roof slope

| | Slope | Initial SRI | 3 Year Aged SRI |
|-------------------|-------|-------------|-----------------|
| Low Sloped Roof | <2:12 | 82 | 64 |
| Steep Sloped Roof | >2:12 | 39 | 32 |

Refer to the chart of SRI values for information on solar reflectance, thermal emissivity and Solar Reflectance Index (SRI) values for all Berridge cool metal roof colors.

Disclaimer: Due to different testing methods employed by various laboratories and paint suppliers these values may vary slightly. Refer to www.berridge.com technical bulletins for the most up to date information or contact BMC directly.

| Berridge Colors | Solar Reflectance | Emissivity | Initial SRI |
|--------------------------|-------------------|------------|-------------|
| Aged Bronze | 0.30 | 0.86 | 30 |
| Almond | 0.65 | 0.83 | 77 |
| Antique Copper Cote | 0.51 | 0.85 | 59 |
| Award Blue | 0.17 | 0.83 | 11 |
| Bristol Blue | 0.33 | 0.85 | 33 |
| Buckskin | 0.32 | 0.83 | 32 |
| Burgundy | 0.29 | 0.85 | 29 |
| Champagne | 0.40 | 0.85 | 43 |
| Charcoal Grey | 0.31 | 0.84 | 30 |
| Cityscape | 0.48 | 0.85 | 54 |
| Colonial Red | 0.33 | 0.85 | 34 |
| Copper Brown | 0.30 | 0.85 | 29 |
| Copper-Cote | 0.51 | 0.85 | 59 |
| Dark Bronze | 0.28 | 0.85 | 27 |
| Deep Red | 0.39 | 0.84 | 41 |
| Evergreen | 0.30 | 0.83 | 29 |
| Forest Green | 0.25 | 0.83 | 22 |
| Hartford Green | 0.28 | 0.83 | 26 |
| Hemlock Green | 0.31 | 0.83 | 30 |
| Lead-Cote | 0.36 | 0.86 | 38 |
| Matte Black | 0.26 | 0.89 | 26 |
| Medium Bronze | 0.31 | 0.85 | 31 |
| Natural White | 0.76 | 0.84 | 93 |
| Parchment | 0.52 | 0.83 | 58 |
| Patina Green | 0.34 | 0.86 | 36 |
| Preweathered Galvalume | 0.40 | 0.85 | 43 |
| Royal Blue | 0.26 | 0.85 | 25 |
| Shasta White | 0.60 | 0.84 | 70 |
| Sierra Tan | 0.39 | 0.85 | 42 |
| Teal Green | 0.27 | 0.87 | 27 |
| Terra-Cotta | 0.32 | 0.83 | 31 |
| Zinc-Cote | 0.53 | 0.83 | 59 |
| Zinc Grey | 0.39 | 0.85 | 42 |
| Acrylic Coated Galvalume | 0.67 | 0.06 | 55 |

SS Credit 4: Rainwater Management (1-3 points)

Berridge Manufacturing Company cool metal roofs can be used as a surface for non-potable rainwater collection and thus can contribute LEED® v4 criteria for water efficiency when integrated with rainwater collection systems.

Intent: To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site, based on historical conditions and undeveloped ecosystems in the region.

Requirements:

Option 1. Percentile of rainfall events

Path 1. 95th percentile (2 points excluding Healthcare, 1 point Healthcare)

In a manner best replicating natural site hydrology processes, manage on-site the runoff from the developed site for the 95th percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure.

Use daily rainfall data and the methodology in the U.S. Environmental Protection Agency (EPA) Technical Guidance on Implementing the Storm Water Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act to determine the 95th percentile amount.

OR

Path 2. 98th percentile (3 points excluding Healthcare, 2 points Healthcare)

Achieve Path 1 but for the 98th percentile of regional or local rainfall events, using LID and green infrastructure.

OR

Path 3. Zero lot line projects only – 85th Percentile (3 points excluding Healthcare, 2 points Healthcare)

The following requirement applies to zero lot line projects in urban areas with a minimum density of 1.5 FAR. In a manner best replicating natural site hydrology processes, manage on site the runoff from the developed site for the 85th percentile of regional or local rainfall events, using LID and green infrastructure.

Materials & Resources –

Berridge Manufacturing Company's metal products are made from 32.3% recycled content and are 100% recyclable at the end of their life. Reusing, recycling, or salvaging Berridge metal products can help contribute to the following LEED® v4 credits:

MR Credit 1: Building Life-Cycle Impact Reduction: Building and Material Reuse (2-5 points)

Intent: To encourage adaptive reuse and optimize the environmental performance of products and materials.

Requirements: Demonstrate reduced environmental effects during initial project decision-making by reusing existing building resources or demonstrating a reduction in materials use through life-cycle assessment.

Points for reuse of building materials:

| Percentage of Completed Project Surface Area Reused | Points BD&C | Points BD&C (Core and Shell) |
|---|-------------|------------------------------|
| 25% | 2 | 2 |
| 50% | 3 | 3 |
| 75% | 4 | 5 |

MR Credit 2: Building Product Disclosure and Optimization- Environmental Product Declarations (1-2 points)

Intent: To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.

Requirements:

Achieve one or more of the options for a maximum of 2 points.

Primary Steel Mills:

Processing Location: Indiana Harbor West Plant, East Chicago, IN 46312

Extraction Location: United Taconite, Ishpeming, MI 49849

Northshore Mine, Silver Bay, MN 55614

Processing Location: Fairfield Works, Fairfield, AL 35064

Extraction Location: Minntac, Mt. Iron, MN 55768

Keetac, Keewatin, MN 55753

Manufacturing Locations:

Painted: Berridge Manufacturing Company, San Antonio, TX 78218

Manufactured: Berridge Manufacturing Company, Seguin, TX 78155

Alternate Manufacturing Location: Location of Berridge Portable Roll Former used to site-form panels

All Berridge Manufacturing Company's architectural metal products are made from AZ-50 Galvalume steel extracted, harvested, or recovered from various mines in the United States as noted above. Documentation from Berridge's steel providers is inconclusive in regards to the exact extraction locations for all raw materials and recycled content. Therefore, it is not possible for Berridge to verify or document a primary extraction, harvesting, or recovery location. As such, Berridge recommends verifying compliance with a LEED® expert.

MR Credit 5: Construction and Demolition Waste Management (1-2 points)

Intent: To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovery, reusing, and recycling materials.

Requirements: Recycle and/or salvage nonhazardous construction and demolition materials. Calculations can be by weight or volume but must be consistent throughout.

Exclude excavated soil, land-clearing debris from calculations. Include materials destined for alternative daily cover (ADC) in the calculations as waste (not diversion). Include wood waste converted to fuel (bio-fuel) in the calculations; other types of waste-to-energy are not considered diversion for this credit.

Indoor Environmental Quality—

Berridge Manufacturing Company recommends using Tremco Spectrum I, Dow Corning 790, Pecora 890NST, DuraLink or Titebond Metal Roof Sealant with Berridge architectural metal products. When Berridge metal products are used for indoor product applications, the aforementioned sealants meet LEED® v4 criteria for IEQ Credits as indicated below:

Tremco Spectrum I contains 0 g/L of VOC

Dow Corning 790 contains 50 g/L of VOC

Pecora 890NST contains 98 g/L of VOC

DuraLink contains less than 19 g/L of VOC

Titebond Metal Roof Sealant contains 9 g/L of VOC

IEQ Credit 2: Low Emitting Materials (Possible 3 Points)

Intent: To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment

Requirements: This credit includes requirements for product manufacturing as well as project teams. It covers volatile organic compound (VOC) emissions in the indoor air and the VOC content of materials, as well as the testing methods by which indoor VOC emissions are determined. Different materials must meet different requirements to be considered compliant for this credit. The building interior and exterior are organized in seven categories, each with different thresholds of compliance. The building interior is defined as everything within the waterproofing membrane. The building exterior is defined as everything outside and inclusive of the primary and secondary weatherproofing system, such as waterproofing membranes and air and water resistive barrier materials.



04

Coil

AS NEEDED

HOME / PRODUCTS / COIL AND FLAT SHEET / COIL

PRODUCT INFO



Product Information

Berridge Manufacturing Company offers premium, fluoropolymer coated Galvalume® coil material in **24 & 22 Gauge** painted with full-strength Kynar

500®/Hylar 5000® resins. Kynar 500®/Hylar 5000® afford maximum exterior durability due to outstanding resistance to ultraviolet radiation. (See chart of [Berridge's SRI Values](#).) Full-strength Kynar 500®/Hylar 5000® color finishes carry a **20-year guarantee** against cracking, peeling and fading (not to exceed 5 N.B.S. units). These are the highest quality exterior finishes available! All Berridge colors are completely processed and finished on Berridge's continuous coil coating line in San Antonio, Texas and are proprietary finishes of Berridge Manufacturing Company. They are available on all Berridge products and are also available in sheet and coil form. For a preview of all Berridge's colors, view our [color chart](#). Custom colors are also available.

Materials

Standard material is 24-Gauge, Galvalume®

Optional 22-Gauge Galvalume®

Finishes: Kynar 500®/Hylar 5000® Finish or Acrylic Coated Galvalume® (Unfinished)

Galvalume® coating is an alloy composed of 55% aluminum and approx. 45% zinc by weight applied according to ASTM A792

Grade 40, 40 ksi steel

0.032 and **0.040** Aluminum

3105-H14 Aluminum

Specifications

All Berridge coils are slit from either 42" or 48" master coils.

Standard nominal coil widths are 14", 16", 21", and 24". Actual coil sizes are 13 7/8", 15 7/8", 20 7/8", and 23 7/8" respectively.

Berridge can provide any custom coil width required from 48" and 42" master coils. Odd width slitting charge applies for non-standard sizes, and customer is responsible for any drop coils.

Installation

Strippable plastic film is applied over all prefinished coils. This film must not be exposed to sun or moisture and must be removed prior to material installation.

Keep all materials stored in a well ventilated, dry area and out of sunlight.

Coils are wrapped in cardboard and banded eye-to-the-sky



BERRIDGE MANUFACTURING COMPANY

KYNAR 500®/HYLAR 5000® COLOR FINISHES

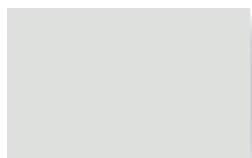
AS NEEDED

(210) 650-3050

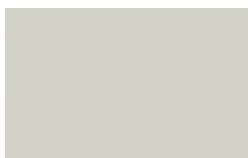
05

www.berridge.com

Standard Colors



Shasta White



Parchment



Almond



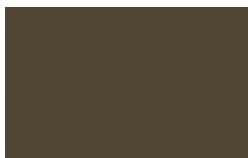
Sierra Tan



Buckskin



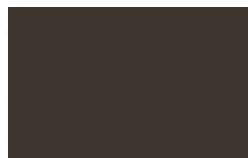
Medium Bronze



Aged Bronze



Copper Brown



Dark Bronze



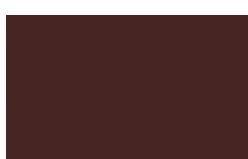
Terra-Cotta



Deep Red



Colonial Red



Burgundy



Bristol Blue



Royal Blue



Patina Green



Hemlock Green



Teal Green



Forest Green



Evergreen



Hartford Green



Cityscape



Zinc Grey



Charcoal Grey



Matte Black

Premium Colors

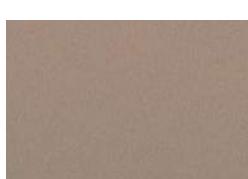
Berridge premium colors require a nominal surcharge.



Natural White



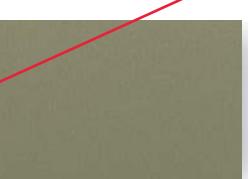
Award Blue



Champagne



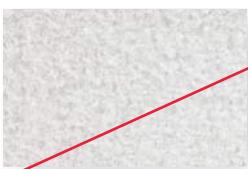
Copper-Cote™



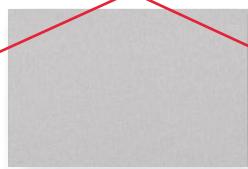
Antique
Copper-Cote

Natural Metal Finish

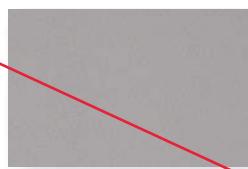
Berridge Acrylic-Coated Galvalume® is a coated sheet product that combines the corrosion resistance of Galvalume® steel sheet with a clear, organic resin applied to the top side and bottom side of Galvalume® substrate.



Acrylic-Coated
Galvalume®



Zinc-Cote™



Lead-Cote™



Preweathered
Galvalume®

Please consult the BMC Technical department at Technical@Berridge.com for LEED and Energy Star compliance information.
Due to limitations in the printing process, please request actual color chips for accurate color viewing.



Energy Star is
only valid in the
United States

BERRIDGE STOCK AVAILABILITY AND COLOR DETAILS

05

S - Stock Color N - Non-Stocking Color N/A - Not Available

| Standard Colors | 24 Gauge | | 22 Gauge* | | 0.032 Aluminum* | | 0.040 Aluminum* | | SR | EM | SRI |
|---------------------------|----------|-----|-----------|-----|-----------------|-----|-----------------|-----|------|------|-----|
| | 48" | 42" | 48" | 42" | 48" | 42" | 48" | 42" | | | |
| Aged Bronze | S | S | S | N | S | N | S | N/A | 0.30 | 0.86 | 30 |
| Almond | S | S | S | N | S | N | S | N/A | 0.65 | 0.83 | 77 |
| Bristol Blue | S | S | N | N | N | N | N | N/A | 0.33 | 0.85 | 33 |
| Buckskin | S | S | S | N | N | N | N | N/A | 0.32 | 0.83 | 32 |
| Burgundy | S | S | N | N | N | N | N | N/A | 0.29 | 0.85 | 29 |
| Charcoal Grey | S | S | S | N | N | N | N | N/A | 0.31 | 0.84 | 30 |
| Cityscape | S | S | N | N | N | N | N | N/A | 0.48 | 0.85 | 54 |
| Colonial Red | S | S | N | N | N | N | N | N/A | 0.33 | 0.85 | 34 |
| Copper Brown | S | S | N | N | N | N | N | N/A | 0.30 | 0.85 | 29 |
| Dark Bronze | S | S | S | N | S | N | S | N/A | 0.28 | 0.85 | 27 |
| Deep Red | S | S | N | N | N | N | N | N/A | 0.39 | 0.84 | 41 |
| Evergreen | S | S | N | N | N | N | N | N/A | 0.30 | 0.83 | 29 |
| Forest Green | S | S | S | N | N | N | N | N/A | 0.25 | 0.83 | 22 |
| Hartford Green | S | S | N | N | N | N | N | N/A | 0.28 | 0.83 | 26 |
| Hemlock Green | S | S | N | N | N | N | N | N/A | 0.31 | 0.83 | 30 |
| Matte Black | S | S | N | N | N | N | N | N/A | 0.26 | 0.89 | 26 |
| Medium Bronze | S | S | S | N | S | N | S | N/A | 0.31 | 0.85 | 31 |
| Parchment | S | S | S | N | S | N | S | N/A | 0.52 | 0.83 | 58 |
| Patina Green | S | S | N | N | N | N | N | N/A | 0.34 | 0.86 | 36 |
| Royal Blue | S | S | N | N | N | N | N | N/A | 0.26 | 0.85 | 25 |
| Shasta White | S | S | S | N | S | N | S | N/A | 0.60 | 0.84 | 70 |
| Sierra Tan | S | S | S | N | S | N | S | N/A | 0.39 | 0.85 | 42 |
| Teal Green | S | S | N | N | N | N | N | N/A | 0.27 | 0.87 | 27 |
| Terra - Cotta | S | S | N | N | N | N | N | N/A | 0.32 | 0.83 | 31 |
| Zinc Grey | S | S | S | N | S | N | S | N/A | 0.39 | 0.85 | 42 |
| Acrylic-Coated Galvalume® | S | S | S | S | N/A | N/A | N/A | N/A | 0.67 | 0.20 | 59 |
| Premium Colors* | | | | | | | | | | | |
| Award Blue | S | S | N | N | N | N | N | N/A | 0.17 | 0.83 | 11 |
| Natural White | S | S | N | N | N | N | N | N/A | 0.76 | 0.84 | 93 |
| Metallic Colors* | | | | | | | | | | | |
| Antique Copper-Cote | S | S | N | N | N | N | N | N/A | 0.33 | 0.84 | 34 |
| Champagne | S | S | N | N | N | N | N | N/A | 0.40 | 0.85 | 43 |
| Copper-Cote™ | S | S | N | N | N | N | N | N/A | 0.51 | 0.85 | 59 |
| Lead-Cote™ | S | S | N | N | N | N | N | N/A | 0.46 | 0.84 | 50 |
| Prewheathered Galvalume® | S | S | N | N | N | N | N | N/A | 0.40 | 0.85 | 43 |
| Zinc-Cote™ | S | S | N | N | N | N | N | N/A | 0.53 | 0.83 | 59 |

S - Stock Color; Not subject to a minimum order

N - Non-Stock Color; Subject to inventory on hand; 4,500 sf minimum order for 22 Gauge and 0.032 & 0.040 Aluminum

N/A - Not Available

* Consult BMC on product availability for 22 Gauge and 0.032 and 0.040 Aluminum. Premium and Metallic colors are subject to a surcharge, contact BMC for additional information

| | | | | | |
|--|--|--|--|---|--|
| BMC SAN ANTONIO BRANCH FACILITY 6515 Fratt Rd. San Antonio, TX 78218 210-650-3050 Fax: 210-650-0379 | BMC HOUSTON BRANCH FACILITY 1720 Maury St. Houston, TX 77026 713-223-4971 Fax: 713-236-9422 | BMC DALLAS BRANCH FACILITY 2015 California Crossing Dallas, TX 75220 972-506-8496 Fax: 972-506-8478 | BMC DENVER BRANCH FACILITY 7505 E. 41st Ave. Denver, CO 80216 303-322-3703 Fax: 303-322-3810 | BMC CHICAGO BRANCH FACILITY 1175 Carolina Dr. W. Chicago, IL 60185 630-231-7495 Fax: 630-231-7520 | BMC RALEIGH BRANCH FACILITY 1100 Corporation Pkwy #129 Raleigh, NC 27610 919-537-5705 Fax: 210-650-0379 |
| BMC PHOENIX BRANCH FACILITY 5717 W. Washington St. Phoenix, AZ 85043 602-385-1237 Fax: 210-650-0379 | BMC ATLANTA BRANCH FACILITY 319 Lee Industrial Blvd. Austell, GA 30168 770-941-5141 Fax: 770-941-7344 | BMC OKLAHOMA CITY BRANCH FACILITY 1400 Exchange Ave. Oklahoma City, OK 73108 405-248-7404 Fax: 210-650-0379 | BMC KANSAS CITY BRANCH FACILITY 1235 Southwest Blvd. Kansas City, KS 66103 913-227-0855 Fax: 210-650-0379 | BERRIDGE CALIFORNIA SALES CORPORATION** 8442 Sultana Ave. Fontana, CA 92335 562-402-2081 Fax: 562-865-7878 | BERRIDGE FLORIDA SALES CORPORATION** 8802 Venture Cove Tampa, FL 33637 813-335-4505 Fax: 210-650-0379 |

**Berridge California and Florida Sales Corporations are separate entities from Berridge Manufacturing Company



BERRIDGE MANUFACTURING COMPANY

Corporate & Sales Headquarters

2610 Harry Wurzbach San Antonio, TX 78209

210-650-3050 • Fax 210-650-0379

Manufacturing Facility

2201 Rudeloff Rd. Seguin, TX 78155

830-401-5200 • Fax: 830-303-0530

Testing results for Kynar 500®/Hylar 5000® coil coating applications:

- Specular Gloss: (ASTM D-523) Low and medium gloss only
- Color Uniformity: (ASTM D-2244) Color controlled both instrumentally and visually
- Dry Film Thickness: (ASTM D-7091, ASTM D-1005, NCCA 11-13, 11-14, 11-15) Primer 0.20 ± 0.05 mil, Topcoat 0.75 ± 0.05 mil
- Hardness: (ASTM D-3363, NCCA 11-12, Eagle Turquoise Pencils) HB Minimum
- Adhesion (X-Cut): (ASTM D-3359) No adhesion loss
- Adhesion (Crosshatch): (ASTM D-3359) No adhesion loss
- Abrasion Coefficient: (ASTM D-968) 100 liters/mil topcoat
- Direct Impact Flexibility: (ASTM D-2794, Gardner Impact Tester, 1/10" Distortion) Excellent, no removal
- Reverse Impact Flexibility: (NCCA Spec. 11, ASTM D-2794, Gardner Impact Tester, 5/8" ball) Impact force in inch pounds equal to metal thickness) Excellent, no cracking or loss of adhesion
- Formability: (ASTM D-4145, 180° T-Bend on 1/8 Mandrel) No cracks or loss of adhesion
- Erosion: (20 years, 45° South Florida) Maximum 15% loss
- Humidity Resistance: (ASTM D-2247) Passes 2000 hours on Galvalume® and 4000 hours on Aluminum
- Acid Resistance: (ASTM D-1308, Proc. 3.1.1, 10% Sulfuric Acid spot test, 24 hour exposure) Excellent, no effect
- Salt Spray Resistance: (ASTM B-117) Passes 2000 hours on Galvalume® and 4000 hours on Aluminum
- Alkali Resistance: (ASTM D-1308, Proc. 5.2, 10% Sodium Hydroxide, 24 hour exposure) Excellent, no effect
- Detergent Resistance: (ASTM D-2248, 72 hours immersion in 3% solution at 100°F) Excellent, no effect
- Resistance to Acid Pollutants: (ASTM D 1308 Proc. 3.1.1, 24 hour exposure 10% HNO₃ vapors) Excellent, no effect
- Weathering - Color Retention: (ASTM D-2244, 20 years, 45° South Florida) Maximum 5 NBS units color change
- Weathering - Chalk Resistance: (ASTM D-4214, 20 years, 45° South Florida) Not worse than No. 8 rating

Notes:

1. ASTM - American Society for Testing Materials

2. NCCA - National Coil Coaters Association

3. Galvalume® is 55% Aluminum-Zinc alloy coated sheet steel and is a registered trademark of BIEC International Inc.

Roofs of Distinction

www.berridge.com

Spring 2018 - Berridge Color Chart - 15M Printed in the U.S.A.

ANODIZED FINISH WARRANTY**5 YEAR**

To: ("Customer")

From:

Mitsubishi Chemical Composites America, Inc.

Project Name and Location:

Complete Physical Address Required
Including City - State or Province - Zip or Postal Code

Commencement Date of Warranty: Required

Color: Required

Subject to the conditions set forth below, Mitsubishi Chemical Composites America, Inc. (MCCA) warrants its finishes to perform as follows under normal atmospheric conditions when utilized on exterior architectural building components during the term of this warranty, beginning at the commencement date, with warranty period not to exceed five years from date of shipment

- A. No visible peeling or cracking within the stated warranty period. This excludes any cracking due to brake bends or other forming operations performed on components after the anodized finish has been applied.
- B. No chalking within the stated warranty period. This only applies to any powdery residue formed by the breakdown of the anodized finish. It does not apply to any foreign residue deposited on the surface of the anodized finish by the surrounding atmosphere (soot, dust, etc.).
- C. No significant visible fading within the stated warranty period.

This warranty is subject to the following conditions:

1. This warranty is made for the benefit of the original purchaser only. It is non-transferable and non-assignable, and MCCA precludes the original purchaser from claiming, representing or implying that this warranty remains with the product but any remedy for failure must be obtained by the original purchaser. Violation of this term by the original purchaser, its agents or representatives shall release MCCA from the obligation of this warranty.
2. Any refinishing of a component supplied under this warranty shall be warranted as provided herein only for the remainder of the warranty period applicable to the original finish purchased.
3. This warranty only covers finishes which are exposed to normal weather conditions and used exclusively within the continental United States, and will be extended to other geographic areas only upon advance written consent by MCCA. Normal weather conditions exclude corrosive atmospheric conditions such as those contaminated with the chemical fumes, direct salt spray, including areas within 1500 feet of a body of salt water, or surface temperatures which exceed 200 degrees Fahrenheit.
4. This warranty will be effective only if normal maintenance and cleaning practices are followed. Anodized finishes should be cleaned with a mild, non-detergent solution of soap and water annually.

ANODIZED FINISH WARRANTY

5 YEAR

5. Customer shall maintain adequate records of performance of an established Cleaning and Maintenance Program in accordance with AAMA 609 and 610-15.
6. This warranty expressly excludes any defect, damage or failure which is caused by acts of God, falling objects, external forces, explosion, fire, riot, civil commotion, acts of war, vandalism, radicalism, mishandling or any other similar or dissimilar occurrences beyond the control of MCCA.
7. Any failure caused by improper handling by the original purchaser, including but not limited to, improper equipment fabrication, storage, transportation, erection or placement. Since certain chemicals such as acids and alkalies will stain an anodized finish, MCCA is in no way liable for any type of finish degradation caused by those chemicals.
8. In the event of a finish warranted by MCCA is determined by MCCA to be not in compliance with this warranty, then MCCA shall have the absolute discretion to refinish the component in question. MCCA herewith reserves the right to approve and/or negotiate any contract for any such work not performed by MCCA.
9. It is understood and agreed that the liability of MCCA herein whether in contract, in tort, under any warranty, in negligence or otherwise, shall not exceed the cost to reanodize the component(s) in question or the original purchase price of the finish paid by the original purchaser. Under no circumstances shall MCCA be liable for special, indirect, or consequential damages.
10. All claims made under this warranty must be made to MCCA in writing within thirty days after the original purchaser discovers the subject defect, or should have reasonably discovered the defect, and MCCA must be given a reasonable opportunity to inspect any material claimed to be defective. Each claim shall include the order number, date of shipment and date of installation of the allegedly defective panel.
12. This warranty will not extend to or cover damage to finish caused by moisture, condensation or other contamination resulting from improper storage, packaging, handling, processing or installation or damages as a result of standing water on the component.
13. The original purchaser shall maintain adequate records to establish identification of any covered finish and the dates of receipt and installation of the same. In the event of a claim under this warranty, the original purchaser shall demonstrate that the alleged defect or condition covered by this warranty was due to breach of warranty stated herein.
14. MCCA reserves the right to terminate this warranty program at any time upon thirty days advance written notice, addressed to the original purchaser except with respect to any material which has already been shipped to the original purchaser.
15. No terms or conditions other than those stated herein, and no agreement or understanding oral or written, in any way purporting to modify this warranty shall be binding on MCCA unless made in writing and signed by its authorized representative.
16. The original purchaser understands, agrees and accepts this warranty. Warranty becomes effective only when signed by a duly authorized agent of Mitsubishi Chemical Composites America, Inc. and issued.

ANODIZED FINISH WARRANTY

5 YEAR

17. MERGER CLAUSE: It is further agreed that there are no understandings, agreements, or representations, express or implied, not specified herein resecting this warranty and the terms mentioned, and this instrument contains the entire agreement between the parties and is binding upon both parties. Further, the Seller's salesman may have made oral statements about the service described in the contract. Such statements do not constitute warranties, shall not be relied on by the original purchaser and are not a part of the contract for sale or warranty. The entire warranty is embodied in this writing.
18. DISCLAIMER OF UNSTATED WARRANTIES: The above warranty is the only warranty applicable to this purchase. All other warranties express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed.
19. LIMITATION OF LIABILITY: It is understood and agreed that the Seller's liability whether in contract, in tort, under any warranty, in negligence or otherwise shall not exceed the refinishing or original purchase price of the finish and under no circumstances shall the Seller be liable for special, indirect or consequential damages. The price stated for the finish is a consideration in limiting the Seller's liability. No action, regardless of form, arising over of the transactions under this agreement may be brought by the original purchaser more than one year after the cause of the action has occurred.

All notices given under or pursuant to this warranty shall be in writing in English and sent by Registered or Certified Mail, postage prepaid, return receipt requested to:

Mitsubishi Chemical Composites America, Inc.
ALPOLIC Division
Customer Service
401 Volvo Parkway
Chesapeake, VA 23320

Accepted By:

MITSUBISHI CHEMCIAL COMPOSITES AMERICA, INC.

Date

ALPOLIC

LEED CONTRIBUTION DATA SHEET

The following has been developed to provide the information needed by the LEED project team for the determination of the contribution of the ALPOLIC Anodized ACM sheets towards specific LEED New Construction and Major Renovation points. In the event further information is required contact ALPOLIC.

ALPOLIC Anodized Aluminum Composite Material Fire Retardant and Polyethylene Core

Innovation in Design

The ALPOLIC Anodized ACM sheets provide a highly durable and long life time cladding option.

Building Product Disclaimer

Environmental Product Declaration (EPD) and Product Transparency Declaration (PTD) reports are available for download from our website, www.alpolic-americas.com.

Materials and Resources

The recycle content is determined as the sum of the post consumer recycled content plus one half of the pre consumer recycle content. For material assemblies, such as cladding systems, the recycled content value shall be determined by weight.



Revision 4

| | % weight of panel | % Post Consumer Recycle Content | % Pre Consumer Recycle Content | Total = 100% Post Consumer + 50% Pre Consumer Recycle Content |
|----------------------|-------------------|---------------------------------|--------------------------------|---|
| 4 mm ACM fr | | | | |
| Top Aluminum Skin | 17.7 | 0 | 0 | 0 |
| Bottom Aluminum Skin | 17.7 | 12.5 | 64.2 | 44.6 |
| fr Core | 64.6 | 0 | 0 | 0 |
| 4 mm Panel | 100 | 2.2 | 11.3 | 7.9 |
| | | | | |
| 6 mm ACM fr | | | | |
| Top Aluminum Skin | 12.4 | 0 | 0 | 0 |
| Bottom Aluminum Skin | 12.4 | 12.5 | 64.2 | 44.6 |
| fr Core | 75.2 | 0 | 0 | 0 |
| 6 mm Panel | 100 | 1.6 | 8.0 | 5.5 |
| | | | | |
| 4 mm ACM PE | | | | |
| Top Aluminum Skin | 24.7 | 0 | 0 | 0 |
| Bottom Aluminum Skin | 24.7 | 12.5 | 64.2 | 44.6 |
| PE Core | 50.5 | 0 | 50 | 25.0 |
| 4 mm Panel | 100 | 3.1 | 41.1 | 23.6 |
| | | | | |
| 6 mm ACM PE | | | | |
| Top Aluminum Skin | 18.5 | 0 | 0 | 0 |
| Bottom Aluminum Skin | 18.5 | 12.5 | 64.2 | 44.6 |
| PE Core | 63 | 0 | 50 | 25 |
| 6 mm Panel | 100 | 2.3 | 43.4 | 18.2 |

Note: The total recycle content of the sheets should be combined with the other components of the cladding system to determine the contribution of the wall cladding to the overall project point qualification.

The ALPOLIC Anodized ACM sheets are produced from several different materials such as aluminum coil, polyethylene, and protective film. Due to the nature of these materials, specifically their high recycle content, it is not possible to identify and quantify the initial extraction location or all of the subsequent processing points. For this reason it is recommended that ALPOLIC Anodized ACM not be included in the calculations for local content credit.

Listed under
Specification
074213.23

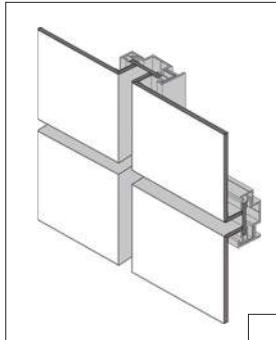
ALPOLIC®
METAL COMPOSITE MATERIALS

MITSUBISHI CHEMICAL COMPOSITES AMERICA, INC.

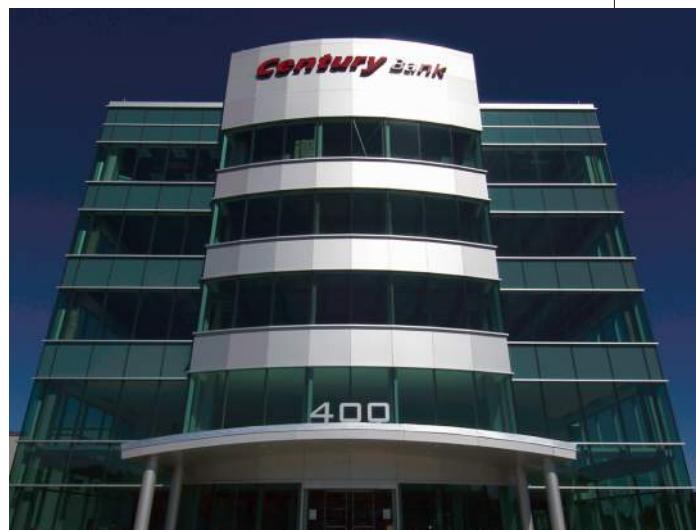
AS NEEDED

anodized

ALPOLIC®/fr Anodized aluminum composite material with a fire resistant mineral filled core is stocked in a clear anodized Class 1 finish. Many custom anodized finishes are available and any of the different panel finishes will provide a dramatic statement to a building or design element.



CONSTRUCTION INFORMATION



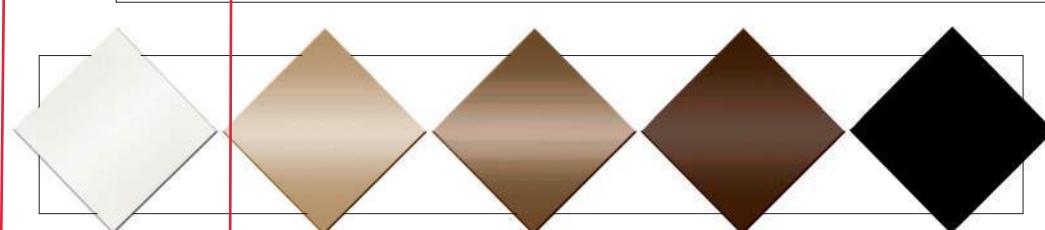
PROJECT: Century Bank

ARCHITECT: Beacon Architecture

PRODUCT: ALPOLIC® Clear Anodized

GENERAL INFORMATION

We stock both 50-inch and 62-inch panels in Clear Anodized and untreated for custom anodized finishes. Material is manufactured with 1100 alloy aluminum.



CLEAR ANODIZED
4-1CLR

CHAMPAGNE ANODIZED
4-1CMR
(Custom Color)

LIGHT BRONZE
ANODIZED 4-1LBR
(Custom Color)

MEDIUM BRONZE
ANODIZED 4-1MBR
(Custom Color)

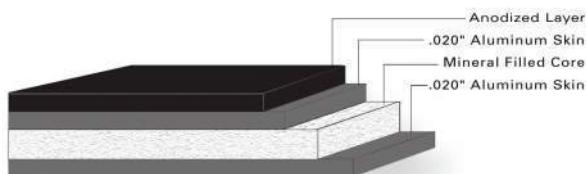
BLACK ANODIZED
4-1BLK
(Custom Color)

ALPOLIC®/fr anodized

INTERIOR AND EXTERIOR SURFACING
INTERIOR AND EXTERIOR SIGNAGE

SURFACE TREATMENT

ALPOLIC®/fr Anodized material is a sandwiched aluminum skinned composite panel with a Class 1 anodized finish on the top side. Available stock Anodized finish is CLR Clear Anodized. Custom colors and untreated panels available.



STANDARD PANEL SIZE

Standard stock widths are 50" (1270mm) and 62" (1575mm) and lengths of 148" (3759mm) and 198" (5029mm). Panels are stocked in 4mm thickness. Standard crate is 32 pieces and 24 pieces for 62 x 196. Custom lengths, thickness, and standard polyethylene core available. Please contact ALPOLIC® Customer Service for current available stock and additional information.

FINISH TOLERANCE

Color: DE 5.0 (CMC) variation within one lot*

Gloss: Nominal +/-10 units

*Please note that Anodized panels can not be color controlled as tightly as painted panels and some color variation should be expected.

PRODUCT TOLERANCE

Width: $\pm 0.08"$ (2mm)

Length: $\pm 0.16"$ (4mm)

Thickness: 4mm: $\pm 0.008"$ (0.2mm)
6mm: $\pm 0.012"$ (0.3mm)

Bow: maximum 0.5% of length
and/or width

Squareness: maximum 0.2" (5mm)

Peel Strength: >22 in lb/in (ASTM D1781)

ALPOLIC® material is trimmed and squared with cut edges to offer the best panel edge conditions in the industry.

FIRE PERFORMANCE

Fire resistant ALPOLIC®/fr Anodized finish panels with a mineral filled core have been tested by independent testing laboratories using nationally recognized tests.

This material meets all requirements of the International Building Code for non-combustible construction:

IBC Listed

Please visit www.alpolic-northamerica.com or call technical support for complete report listings and additional information.

WARRANTY

Standard panel warranty: 10 Year

Finish warranty: 5 Year

Call ALPOLIC® Customer Service for exclusions and warranty details.

PRODUCT NOTES

- Panels should be stored flat in a dry, indoor environment.
- Fabricate panels at temperatures above 55°F.
- Protective film should be removed from panels soon after installation.
- Please refer to ALPOLIC® Anodized Fabrication Manual for routing and fabrication recommendations.
- Crating fees apply to orders for less than standard piece crate.
- For best color consistency, ALPOLIC® recommends ordering all required Anodized paint finish panels at one time in the same width and maintaining consistent panel orientation during installation.
- Different lots of Anodized finish should not be mixed on building elevation.

**FOR TECHNICAL INFORMATION, PLEASE
CALL 1.800.422.7270**

U.S. HEADQUARTERS

 MITSUBISHI CHEMICAL COMPOSITES AMERICA, INC.

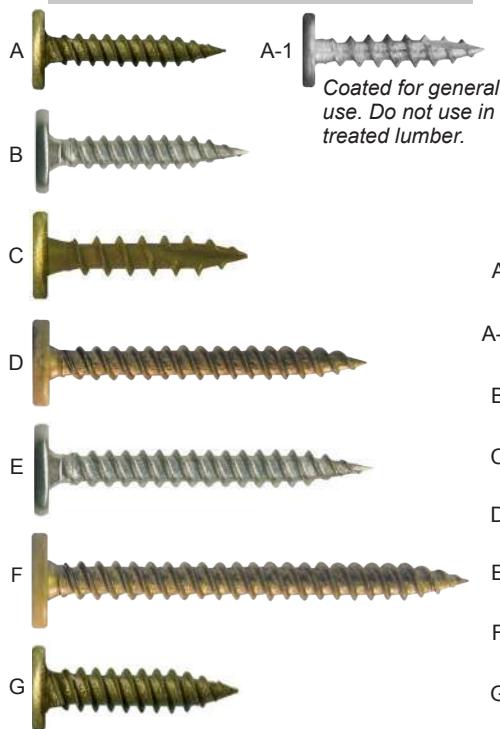
401 Volvo Parkway, Chesapeake, VA 23320

Telephone: 800-422-7270, Facsimile: 757-436-1896

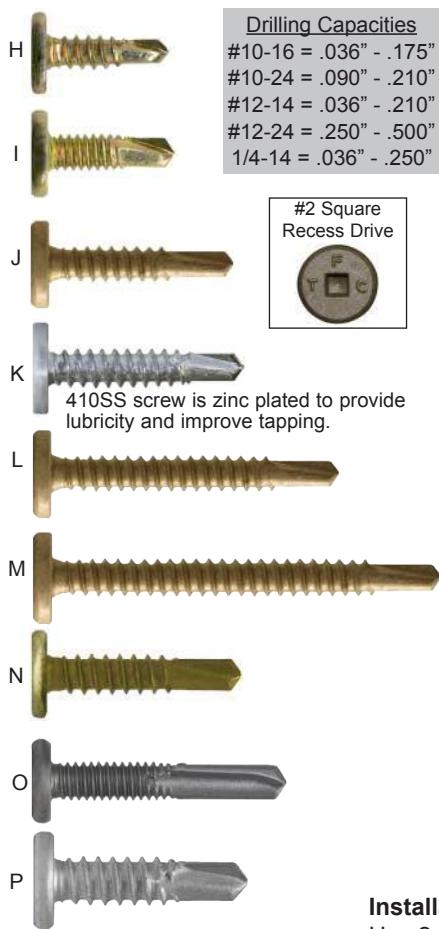
www.alpolic-americas.com e-mail: info@alpolic.com

WOOD OR THIN METAL

Piercing Capacity: CS & 410SS <=20 ga



METAL SUBSTRATES



#10, #12, & 1/4" PIERCING POINTS AND DRILL POINTS

CONCEALOR® low profile head fasteners are engineered to perform in a variety of applications. They are specified in many metal roofing systems to attached SSR clips to metal or wood. They are easy to install and provides optimal strength.

Sizes

| | Description | Load Bearing Length (Max) | Part Number | Box Quantity | WT Per Box |
|-----|---|---------------------------|----------------|--------------|------------|
| A | #10-13 X 1" GP Long-life TRI-SEAL® coated | 1" | 10100SPCGCSTS | 5,000 pcs | 36.0 lbs. |
| A-1 | #10-9 X 1" Type 17 Coated for general use | 1" | 10100SPC17CSCZ | 5,000 pcs | 36.0 lbs. |
| B | #10-13 X 1" GP 302 Stainless Steel | 1" | 10100SPCGS3 | 5,000 pcs | 39.0 lbs. |
| C | #10-9 X 1-1/8" TYPE 17 Long-life TRI-SEAL® coated | 1-1/8" | 10112SPC17CSTS | 5,000 pcs | 40.0 lbs. |
| D | #10-13 X 1-1/2" GP Long-life TRI-SEAL® coated | 1-1/2" | 10150SPCGCSTS | 3,000 pcs | 31.0 lbs. |
| E | #10-13 X 1-1/2" GP 302 Stainless Steel | 1-1/2" | 10150SPCGS3 | 3,000 pcs | 32 lbs. |
| F | #10-13 X 2" GP Long-life TRI-SEAL® coated | 2" | 10200SPCGCSTS | 1,500 pcs | 19.0 lbs. |
| G | #12-11 X 1" GP Long-life TRI-SEAL® coated | 1" | 12100SPCGCSTS | 5,000 pcs | 44.0 lbs. |
| H | #10-16 X 5/8" DP3 .0003" Zinc and Yellow | .125" | 10062SPC3CS | 5,000 pcs | 27.0 lbs. |
| I | #10-24 X 5/8" DP3 .0003" Zinc and Yellow | .125" | 10062PPC3CSYZ | 5,000 pcs | 27.0 lbs. |
| J | #10-16 X 1" DP3 Long-Life TRI-SEAL® coated | .500" | 10100SPC3CSTS | 5,000 pcs | 37.0 lbs. |
| K | #10-16 X 1" DP3 410 Stainless Steel / ZP for lubricity. | .500" | 10100SPC3S4 | 5,000 pcs | 37.0 lbs. |
| L | #10-16 X 1-1/2" DP3 Long-Life TRI-SEAL® coated | 1" | 10150SPC3CSTS | 3,000 pcs | 32.0 lbs |
| M | #10-16 X 2" DP3 Long-Life TRI-SEAL® coated | 1.5" | 10200SPC3CSTS | 1,500 pcs | 21.0 lbs. |
| N | #12-14 X 1" DP3 Long-Life TRI-SEAL® coated | .375" | 12100SPC3CSTS | 5,000 pcs | 43.0 lbs. |
| O | #12-24 X 1-1/4" DP5 Long-Life TRI-SEAL® coated | .500" | 12125SPC5CSTS | 4,000 pcs | 52.0 lbs. |
| P | #12-24 X 1-1/2" DP5 Long-Life TRI-SEAL® coated | .625" | 12150SPC5CSTS | 4,000 pcs | 43.8 lbs. |
| M | 1/4-14 X 1" DP3 Long-Life TRI-SEAL® coated | .325" | 14100SPC3CSTS | 2,500 pcs | 27.0 lbs. |

Bagged 250 pcs. per bag for your convenience!

SPECIAL APPLICATIONS

We can assemble CONCEALOR® with a bonded sealing washer that locks out weather and looks appealing!



We can color match to your exact requirements in three days or less!

**Installation:** Do not use impact drivers!

Use 2,500 RPM max variable speed screw drivers with torque control or depth sensing nosepiece.

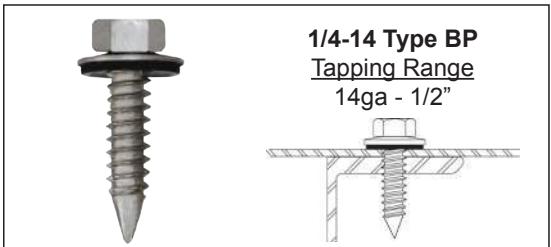
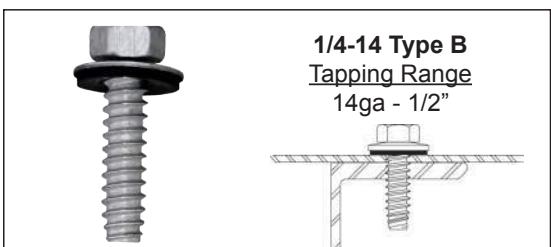
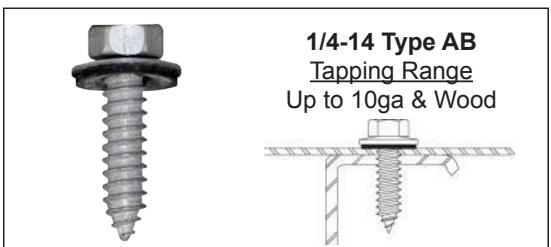
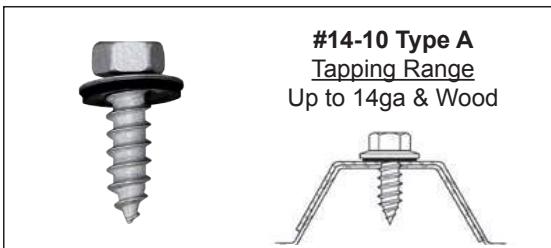
Army Corps of Engineers

Kalida-Kote™
In-House Painting
Available For Custom
Color Matching, Fast!


AS NEEDED
In-Stock Colors
#42 - #43 - #44
Call for Sizes

| | |
|----------------|-----------------|
| Aged Copper | Matte Black |
| Almond | Medium Bronze |
| Ash Gray | Musket Gray |
| Aztec Gold | Pacific Blue |
| Banner Red | Polar White |
| Bone White | Red Clay |
| Burnish Slate | Roman Bronze |
| Cape Clue | Royal Blue |
| Charcoal Gray | Rustic Red |
| Cherokee Blue | Sage |
| Classic Green | Sahara Tan |
| Cocoa Brown | Sierra Tan |
| Colonial Red | Seaport |
| Colony Green | Slate Blue |
| Copper Penny | Slate Gray |
| Cordovan | Snow White |
| Country Red | Snowdrift White |
| Dark Bronze | Stone White |
| Desert Sand | Teal Green |
| Emerald Green | Terra Cotta |
| Fern Green | |
| Hartford Green | Winter Blue |
| Hawaiian Blue | |
| Light Stone | |
| Mansard Brown | |

| Buttonhead Material | D Rivet Dia. Inch (mm) | Drill No. & Hole Size (mm) | H Head Dia. Nom. Inch (mm) | E Head Height Max. Inch (mm) | L Rivet Length Max. Inch (mm) | Grip Range Inch (mm) | Typical Ultimate Strength (Lbs.) (newtons) | Shear Tensile |
|--|------------------------------|------------------------------------|-------------------------------------|---------------------------------------|---|--|--|------------------|
| Plated-Steel Rivet Steel Mandrel Open End | | | | | .212 (5.4) .275 (7.0) .337 (8.6) .400 (10.2) .462 (11.7) .525 (13.4) .650 (16.5) .775 (19.7) | .032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) | | |
| | 1/8" (.125) 3.2 | #30 (.129-.133) 3.3 (3.28-3.38) | .250 6.35 | .040 1.02 | | | 280 1240 | 410 1820 |
| | 3/16" (.187) 4.8 | #11 (.192-.196) 4.9 (4.88-4.98) | .375 9.53 | .055 9.53 | .325 (8.3) .450 (11.5) .575 (14.6) .700 (17.8) .825 (21.0) .950 (24.2) .1.075 (27.3) .1.200 (30.5) | .062-.125 (1.6-3.2) .126-.250 (3.3-6.4) .251-.375 (6.5-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) .626-.750 (16.0-19.1) .751-.875 (19.1-22.2) .876-1.000 (22.3-25.4) | 600 2665 | 870 3870 |
| 5056 Aluminum Rivet Steel Mandrel Open End | | | | | .212 (5.4) .275 (7.0) .337 (8.6) .400 (10.2) .462 (11.7) .525 (13.4) .650 (16.5) .775 (19.7) | .032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) | | |
| | 1/8" (.125) 3.2 | #30 (.129-.133) 3.3 (3.28-3.38) | .250 6.35 | .040 1.02 | | | 180 800 | 270 1200 |
| | 3/16" (.187) 4.8 | #11 (.192-.196) 4.9 (4.88-4.98) | .375 9.53 | .055 1.40 | .325 (8.3) .450 (11.5) .575 (14.6) .700 (17.8) .825 (21.0) .950 (24.2) .1.200 (30.5) | .062-.125 (1.6-3.2) .126-.250 (3.3-6.4) .251-.375 (6.5-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) .626-.750 (16.0-19.1) .751-1.00 (19.1-25.4) | 440 1950 | 700 3110 |
| Aluminum Rivet Aluminum Mandrel Open End | | | | | .212 (5.4) .275 (7.0) .337 (8.6) .400 (10.2) .462 (11.7) .525 (13.4) .650 (16.5) .775 (19.7) | .032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) | | |
| | 1/8" (.125) 3.2 | #30 (.129-.133) 3.3 (3.28-3.38) | .250 6.35 | .040 1.02 | | | 150 660 | 180 800 |
| | 3/16" (.187) 4.8 | #11 (.192-.196) 4.9 (4.88-4.98) | .375 9.53 | .055 1.40 | .325 (8.3) .450 (11.5) .575 (14.6) .700 (17.8) .825 (21.0) .950 (24.2) .1.450 (36.8) | .062-.125 (1.6-3.2) .126-.250 (3.3-6.4) .251-.375 (6.5-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) .626-.750 (16.0-19.1) .751-1.00 (19.2-25.4) | 280 1240 | 430 1910 |
| Stainless Rivet Stainless Steel Mandrel IFI Grade 51 Open End | | | | | .212 (5.4) .275 (7.0) .337 (8.6) .400 (10.2) .462 (11.7) .525 (13.4) .650 (16.5) .775 (19.7) | .032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) | | |
| | 1/8" (.125) 3.2 | #30 (.129-.133) 3.3 (3.28-3.38) | .250 6.35 | .040 1.02 | | | 520 2310 | 600 2660 |
| | 3/16" (.187) 4.8 | #11 (.192-.196) 4.9 (4.88-4.98) | .375 9.53 | .055 1.40 | .325 (8.3) .450 (11.5) .575 (14.6) .700 (17.8) .825 (21.0) .950 (24.2) .1.120 (30.5) | .062-.125 (1.6-3.2) .126-.250 (3.3-6.4) .251-.375 (6.5-9.5) .376-.500 (9.6-12.7) .501-.625 (12.8-15.9) .626-.750 (16.0-19.1) .751-1.00 (19.2-25.4) | 1150 5110 | 1300 5780 |
| #110 Copper Rivet Brass Mandrel IFI Grade 20 Open End | 1/8" (.125) 3.2 | #30 (.129-.133) 3.3 (3.28-3.38) | .125 6.35 | .040 1.02 | .275 (7.0) .400 (10.2) | .063-.125 (1.7-3.2) .126-.250 (4.9-6.4) | 215 950 | 300 1330 |
| #5056 Aluminum Rivet Steel Mandrel Closed End | 1/8" (.125) 3.2 | #30 (.129-.133) | .236 | .035 | .296 (7.52) .355 (9.02) .414 (10.52) .473 (11.10) .532 (13.51) .591 (15.06) | .032-.062 (0.8-1.6) .063-.125 (1.7-3.2) .126-.187 (3.3-4.8) .188-.250 (4.9-6.4) .251-.312 (6.5-7.9) .313-.375 (8.0-9.5) | 240 1060 | 280 1240 |



Used for alignment into structure.



**Need a Back-out Resistant
Tapping Screw?**

VRT® Technology produces 3-1/2 times more back-out resistance than a standard thread. Supplied with TRI-SEAL™ long life coating.

Sizes (X = Available)

| Description | Point Type | Carbon Steel | Stainless Cap Head | Zinc Cap Head | Box Qty. | Wgt. Per M |
|-----------------|------------|--------------|--------------------|---------------|----------|------------|
| #14-10 x 3/4" | Type A | X | | | 2,500 | 10.8 |
| #14-10 x 1" | Type A | X | | X | 2,500 | 14.2 |
| #14-10 x 1-1/2" | Type A | X | | X | 1,500 | 19.1 |
| #14-10 x 2" | Type A | X | | | 1,000 | 23.4 |
| #14-10 x 2-1/2" | Type A | X | | | 1,000 | 28.1 |
| #14-10 x 3" | Type A | X | | | 500 | 34.1 |
| #14-10 x 4" | Type A | X | | | 500 | 45.5 |
| #14-10 x 5" | Type A | X | | | 300 | 52.8 |
| #14-10 x 6" | Type A | X | | | 250 | 60.1 |
| 1/4-14 x 3/4" | Type AB | X | X | X | 2,500 | 12.5 |
| 1/4-14 x 1" | Type AB | X | X | X | 2,500 | 14.9 |
| 1/4-14 x 1-1/2" | Type AB | X | | | 1,500 | 19.7 |
| 1/4-14 x 1-3/4" | Type AB | | | | 2,000 | 23.4 |
| 1/4-14 x 1" | Type B | X | | | 2,500 | 14.1 |
| 1/4-14 x 1-1/2" | Type B | X | | | 1,500 | 19.5 |
| 1/4-14 x 2" | Type B | X | | | 1,000 | 23.1 |
| 1/4-14 x 2-1/2" | Type B | X | | | 1,000 | 29.0 |
| 1/4-14 x 3" | Type B | X | | | 500 | 33.3 |
| 1/4-14 x 4" | Type B | X | | | 500 | 43.4 |
| 1/4-14 x 5" | Type B | X | | | 300 | 53.5 |
| 1/4-14 x 6" | Type B | | | | 250 | 62.2 |
| 1/4-14 x 8" | Type B | | | | 200 | 81.0 |
| 1/4-14 x 1" | Type BP | | | | 2,000 | 17.0 |
| 1/4-14 x 1-3/4" | Type BP | | | | 2,000 | 23.4 |
| #17-14 x 1" | Type AB | 'X | 'X | X | 2,000 | 18.9 |
| #17-14 x 1-1/2" | Type AB | X | | X | 1,500 | 28.4 |

'Available with VRT® technology.
Refer to the back for technical information and drill bit size.

Screwgun Speed: 1,000 rpm maximum

**Oversize or special sealing
washers available!**

Available Head Styles



**3/8" Hex Head
(Standard)**



**3/8" Hex Washer Head
(#17-14 VRT® Only)**



3/8" Zinc Cap Head



5/16" Stainless Cap Head

WIP 300HT High-Temperature Protection Self-Adhering Roofing Underlayment

WIP 300HT

WATER & ICE PROTECTION

HIGH-TEMPERATURE PROTECTION

WIP 300HT is a high-tensile-strength rubberized asphalt underlayment specifically designed to withstand temperatures up to 250°F (121°C). Ideal for use under metal including copper, zinc and COR-TEN® (consult technical department for installation instructions), WIP 300HT can also be used under synthetic, concrete and clay tiles and asphalt shingles. This strong, skid-resistant membrane is available in either black or white and provides superior protection from water penetration caused by wind-driven rain and ice dams.

Features and Benefits

- Protects the roof structure from water seepage caused by ice dams and wind-driven rains
- Resists temperatures up to 250°F without degradation of the adhesive
- Seals around roofing nails, staples and screws
- Split-release film provides easier, faster installation
- Resists cracking, drying and rotting, providing long-term waterproofing performance and low lifecycle cost
- Concealed waterproofing system will not detract from the architectural aesthetics of the primary roofing system
- Exposed rubberized asphalt bead along the membrane edge ensures watertightness of lap seams

Standards

- UL Classified
- ICC-ES ESR #2206
- 2009 and 2012 International Building Code™
- 2007 Florida Building Code Approved Product #6785
- Meets ASTM D1970
- Miami-Dade County Product Control Approved

Storage

WIP 300HT roofing underlayment rolls should be stored on their side, under cover and in areas where the temperature is between 40° and 100°F (4.4° and 38°C). **Do not double-stack pallets.**

Warranty

Carlisle WIP products are backed by Carlisle's industry-leading warranty. Carlisle WIP Products will display optimal performance when stored under recommended conditions and used within one year of date of manufacture. Product installed after one year of date of manufacture is not covered under defect warranty. Visit our website for warranty details.

Installation

WIP 300HT underlayment is applied when the roof deck is dry and the substrate temperature is 40°F (4.4°C) or higher. At temperatures below 40°F, nailing or priming should be used to temporarily hold the membrane in place while adhesion develops. WIP 300HT is designed to be covered with the primary roofing system and should not be exposed to sunlight for more than 60 days. White underlayment offers exposure time of 120 days.

Substrate must be free of any moisture. If moisture is present, it may inhibit adhesion. Prepare the roof deck by removing all loose objects, dirt, dust and debris. For re-roofing applications, remove all old materials from the roof deck in the area to be covered with WIP 300HT underlayment. Replace water-damaged sheathing and sweep roof deck thoroughly.



WIP 300HT High-Temperature Protection Self-Adhering Roofing Underlayment

Priming

Priming is not required on clean, dry wood, metal or most polyisocyanurate surfaces (polyiso paper facer does require priming). Masonry and exterior gypsum boards (such as DensDeck®) should be primed using an appropriate primer or adhesive. Some rigid insulation boards with porous or dusty surfaces may require priming to promote initial adhesion. Priming is required on all substrates when air or substrate temperatures are below 40°F (4.4°C). Adhesives such as CCW-702, CCW-702WB, CAV-GRIP™ and CCW-AWP are approved for use with WIP products. Refer to your local building codes to determine acceptable product for use in your region.

Selection of roof deck or insulation substrate and/or use of a primer or adhesive are the responsibility of the architect, specifier or roofing contractor to determine based on the roof assembly and environmental conditions.

Valleys, Hips & Ridges

Cut WIP 300HT roofing underlayment into manageable lengths. Align over the center of the valley, hip or ridge. Remove release film. Press the middle of the membrane first before working toward the edges. For open valleys, cover WIP 300HT roofing underlayment with metal valley liners.

Eaves & Rakes

Cut WIP 300HT underlayment into 10–15' pieces. Remove 2–3' of release film and align the edge of the membrane, sticky side down, so it overhangs the drip edge by $\frac{3}{8}$ " (10 mm). Continue to remove release film and press as you move across the roof. Use a hand roller and/or hand pressure to press into place. Overlap end laps a minimum of 6". WIP roofing underlayment should reach a point 2' inside the interior wall line. Local codes may require additional courses. If additional courses are required, the top lap must be at least 3 $\frac{1}{2}$ ".

Drip Edges

At the rake edge, apply WIP 300HT underlayment first and place drip edge on top. At the eave, apply drip edge first and place WIP underlayment on top of the drip edge so that it overhangs drip edge by $\frac{3}{8}$ " (10 mm).

For standard installation details, follow the WIP detail drawings. For non-standard installation instructions, contact your local Carlisle WIP representative.

Metal Roof Underlayment

Under water-shedding metal roof systems or low-slope metal roofs with a minimum $\frac{1}{2}$ " slope, start at the low point and apply WIP 300HT over the full surface of the roof deck. Review the metal roofing manufacturer's instructions for limitations and precautions. Beginning at the eaves, apply underlayment from the low point to the high point of the roof, running the roll horizontally.

Lap Edges

Lap edge seams should be hand rolled to ensure maximum adhesion.

Limitations

- WIP 300HT should be installed when air, roof deck and membrane temperatures are at or above 40°F (4.4°C).
- WIP 300HT should not be left exposed to sunlight for more than 60 days for black membrane or 120 days for white membrane.
- WIP 300HT membrane should not be folded over the roof edge unless protected by a gutter or other flashing materials.
- The primary roof system must be ventilated to prevent excessive moisture build-up in the interior structure.
- Use caution during the installation of the membrane as it may become slippery when wet or covered with frost.
- WIP 300HT must not be used in contact with PVC material.
- WIP 300HT is not approved for use in foam set tile applications.
- WIP 300HT is not designed for wall assemblies.

| PRODUCT SPECIFICATIONS | | |
|--|---|------------|
| PHYSICAL PROPERTIES | | |
| Surface | Black/White Engineered Polyolefin Composite Film with Factory-applied Anti-skid Coating | |
| Membrane | Rubberized Asphalt | |
| PRODUCT CHARACTERISTIC | UNITS | RESULTS |
| Roll Length | feet | 66 |
| Roll Weight | lbs | 55 |
| Roll Size | sq ft | 198 |
| Roll Width | inches | 36 |
| TYPICAL PERFORMANCE PROPERTIES | TEST METHOD | RESULTS |
| Thickness | ASTM D1970 | 40 mils |
| Low Temperature Flexibility | ASTM D1970 | -45°F |
| Adhesion to Plywood at 75°F | ASTM D1970 | 35 lbs/ft |
| Lap Seam Adhesion at 75°F | ASTM D1970 | 21 lbs/ft |
| Sealability Around Nail | ASTM D1970 | Pass |
| Slip Resistance | ASTM D1970 | Pass |
| Thermal Stability | ASTM D1970 | Pass |
| Moisture Vapor Permeance | ASTM D1970 | 0.02 perms |
| Water Absorption | ASTM D1970 | 0.5% |
| Tensile Strength Machine Direction | ASTM D412 | 250 psi |
| Tensile Strength Transverse Direction | ASTM D412 | 1390 psi |
| Elongation at Break Machine Direction | ASTM D412 | 250% |
| Elongation at Break Transverse Direction | ASTM D412 | 170% |
| PACKAGING INFORMATION | | |
| Boxes (rolls) per pallet | | 25 |


MIAMI-DADE COUNTY APPROVED



AS NEEDED

Spectrem® 2

Single-Component, Neutral-Cure Silicone Sealant for 2-Sided Structural Glazing

13

Product Description

Spectrem® 2 is a high-performance, single-component, neutral-cure, medium-modulus silicone sealant.

Basic Uses

Spectrem 2 is ideal for a variety of perimeter caulking and glazing applications, including 2-sided structural glazing. Spectrem 2 may be used on substrates such as aluminum, glass, steel, painted metal, plastic, stone, concrete and brick.

Features and Benefits

- With medium modulus, can be used as a structural tensile bead and weather sealant.
- Offering excellent adhesion to a variety of substrates including glass and metal, a single product can be used for a variety of applications on the same job from 2-sided structural glazing to perimeter caulking and joint filling.
- Resistance to driving rain, ozone, ultraviolet light, and temperature extremes safeguards against water penetration with exceptional weatherability in all climate zones.
- Wide variety of colors to choose from with custom colors and color matching also available for a particular project.
- No mixing required, so product is always ready to use for immediate application with conventional caulking equipment.
- Greenguard Gold certification ensures safety for use in the most sensitive indoor environments including hospitals and schools.

Availability

Immediately available from your local Tremco Sales Representative, Tremco distributor or warehouse.

Packaging

10.1-oz (300-mL) cartridges

20-oz (600-mL) sausages

2-gal (7.6-L) and 4.5-gal (17-L) pails

55-gal (208.2-L) drums

All colors are not available in all package sizes. Contact Tremco Customer Service for more information.

Colors

Aluminum Stone, Anodized Aluminum, Black, Bronze, Gray, Limestone, Off White, Precast White, White, Clear and Light Bronze

Limitations

- Do not apply to damp or contaminated surfaces.
- Use with adequate ventilation.
- Not intended for continuous water immersion.
- Only black silicones are recommended for structural glazing applications.

Substrate Preparation

Surfaces must be sound, clean, and dry. Contact surfaces should be free of loose dirt, dust, oils, and any other contaminants. Tremco recommends that air temperatures be 40 °F (5 °C) or above before applying any sealant. If colder weather is imminent, please refer to the Tremco Guide for Cold Weather Applications at www.tremcosealants.com.



Applicable Standards

Spectrem 2 meets or exceeds the requirements of the following specifications:

- ASTM C920 Type S, Grade NS, Class 50, Use NT, M, G, A and O
- ASTM C1248 Standard Test Method for Staining of Porous Substrate by Joint Sealants
- ASTM C1184 Standard Specifications for Structural Silicone Sealants
- U.S. Federal Specification TT-S-001543A (COM-NBS) Class A
- CAN/CGSB 19.13-M87
- U.S. Federal Specification TT-S-00230C (COM-NBS) Class A, Type II
- Black meets all of AAMA 802.3-92 (Type I and II), 805.2-94 (Group C), and 808.3-92
- Conforms to ASTM C1184 Use G and O (Aluminum)

Application

Spectrem 2 is easy to apply with conventional caulking equipment. Fill joint completely and tool. At 75 °F (23.9 °C), 50% RH, a durable skin will form typically within fewer than 10 minutes. Please visit www.tremcosealants.com for complete application instructions.

Joint Design

May be used in any joint designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement, but not less than 1/4" (6 mm) wide.

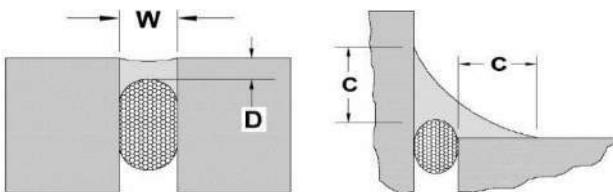
Joint Backing

Approved structural glazing tapes, such as SGT 900 Series Tape, compatible silicone, or SCR spacer gaskets are approved to promote properly dimensioned tensile beads when used in 2-sided structural glazing applications.

When Spectrem 2 sealant is used in non-structural glazing applications, closed-cell polyethylene backer rod is preferred as joint backing to control depth of sealant bead. Where depth of joint will prevent use of joint backing, an adhesive-backed polyethylene tape should be installed to prevent three-sided adhesion. Joint backing must be dry at time of sealant application.

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



EXPANSION JOINTS - The minimum width and depth of any sealant application should be $1/4'' \times 1/4''$ (6 mm by 6 mm). The depth (D) of sealant may be equal to the width (W) of joints that are less than $1/2''$ (13 mm) wide.

For joints ranging from $1/2''$ to $1''$ (13 mm to 25 mm) wide, the sealant depth should be approximately one-half of the joint width. The maximum depth (D) of any sealant application should be $1/2''$ (13 mm). For joints that are wider than $1''$ (25 mm) contact Tremco Technical Services or your local Tremco Sales Representative.

WINDOWS PERIMETERS- For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area [C] of $1/4''$ (6 mm) onto each substrate. Proper joint backing or bond breaking should be provided to allow for anticipated movement.

STRUCTURAL GLAZING: Special consideration must be taken when using Spectrem 2 in structural glazing applications; therefore, the above sealant dimension guidelines do not apply in these applications. Consult Tremco Technical Services for structural glazing reviews and recommendations.

Clean Up

Tooling is recommended immediately after application to ensure firm, intimate contact with the joint interface. Dry tooling is preferred. Cleaning can be

accomplished with solvents such as IPA, Xylene, Toluene or MEK while sealant is in an uncured state.

Warranty

Tremco warrants its Products to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace, or refund the purchase price of the quantity of Tremco Products proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|---|----------------|-----------------------------------|
| As Supplied: | | |
| Flow, sag or slump inches | ASTM C639 | Nil |
| Sag | ASTM D2202 | 0" to 0.03" (0 mm to 0.1 mm) |
| Tack free time | ASTM C679 | 20 to 40 min |
| Tooling Time | Skin Formation | 10 to 15 min |
| As Cured: After 14 days at 77 °F (25 °C), 50%RH | | |
| Cyclic Movement | ASTM C719 | ±50% |
| Elongation | ASTM D412 | 235 to 260% |
| Hardness (shore A) | ASTM C661 | 37 to 40 |
| Peel Strength Aluminum and Glass | ASTM C794 | 16 to 22 pli (2.81 to 3.86 kN/M) |
| Staining of Porous Substrates White Marble Primed & Unprimed | ASTM C1248 | No Stain |
| Tear strength, die ("C") | ASTM D624 | 35 to 40 pli (6.14 to 7.02 kN/M) |
| Tensile Strength at 100% Elongation | ASTM C1135 | 90 to 100 psi (0.62 to 0.69 MPa) |
| Tensile Strength at Max Elongation | ASTM D412 | 220 to 230 psi (1.52 to 1.59 MPa) |
| As Cured: After 21 days at 77 °F (25 °C), 50%RH | | |
| Ultimate Elongation | ASTM C1135 | 261% |
| Ultimate Tensile Strength | ASTM C1135 | 123 psi (0.85 MPa) |

0517/SPEC2DS-ST

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

Tremco Commercial Sealants & Waterproofing

3735 Green Rd
Beachwood OH 44122
216.292.5000 / 800.321.7906

1451 Jacobson Ave
Ashland OH 44805
419.289.2050 / 800.321.6357

220 Wicksteed Ave
Toronto ON M4H1G7
416.421.3300 / 800.363.3213

1445 Rue de Coulomb
Boucherville QC J4B 7L8
514.521.9555



Tremco Incorporated

3735 Green Road Beachwood, OH 44122 216.292.5000 www.tremcosealants.com



January 22, 2019

To Whom It May Concern:

RE: Spectrem 2—Green Building Product Information (LEED v4 Information)

Tremco Incorporated is an organization that is committed to quality, our employees, and our environment. We are responsive to both internal and external customers, and we pledge to treat everyone with good stewardship and respect.

Tremco Incorporated certifies the following for Spectrem 2:

Building Product Disclosure and Optimization:

Spectrem 2 is manufactured in Toronto, Ontario, Canada.

No single extracted material is used to produce the majority of this product.

Recycled content for Spectrem 2 is not available, and for the purposes of LEED reporting should be assumed to be zero.

Low Emitting Materials - VOC Content Information:

Spectrem 2 is a silicone sealant with a VOC content of 42g/L equaling 3% as applied/mixed. As such, VOC levels are lower than the limits set by SCAQMD rule 1168.

Note: VOC content values are as reported for the highest VOC content color for all Spectrem 2 colors. Other colors may have a lower VOC content reported on the MSDS .

This product is Greenguard certified, meaning it has met some of the world's most difficult and complete standards for low emissions of VOC's into indoor air. This product also adheres to the California Department of Public Health (CDPH) Standard Method V1.1-2010, a standard vital to demonstrate compliance with LEED.

Green Chemistry:

Tremco Incorporated is dedicated to the environment and prides itself on making its products as sustainable as possible.



Tremco Incorporated3735 Green Road Beachwood, OH 44122 216.292.5000 www.tremcosealants.com**Manufacture Inventory (reported to 1000ppm):**

| Chemical Name or Role | CAS Number | Amount | GHS Hazard |
|--|------------|--------|---------------|
| Calcium Carbonate (Limestone) | 1317-65-3 | | |
| Calcium carbonate | 471-34-1 | | |
| Silicone Reactive Polymer Resin | | 20-60% | Non-Hazardous |
| Silicone Nonreactive Polymer Resin | | <15% | Non-Hazardous |
| Amorphous silica | 7631-86-9 | | |
| Crosslinker | | <5% | Non-Hazardous |
| Prepolymer | | <1% | Non-Hazardous |
| Copolymer | | <1% | Non-Hazardous |
| Carbon Black | 1333-86-4 | | |
| Additive | | <1% | Non-Hazardous |
| Pigment | | <1% | Non-Hazardous |
| Stearic acid | 57-11-4 | | |
| Aminosilane | 919-30-2 | | |
| Adhesion Promoter | | <1% | Non-Hazardous |
| Titanium dioxide | 13463-67-7 | | |
| Octamethylcyclotetrasiloxane | 556-67-2 | | |
| Copper phthalocyanine | 147-14-8 | | |
| Crystalline Silica (Quartz)/ Silica Sand | 14808-60-7 | | |

Additional Information:

Should you have any questions or require additional information, please do not hesitate to contact Technical Services or your local Tremco Field Representative.

Sincerely,

Amy Woodard
Manager
Compliance and Regulatory

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 079200-001

Description: Joint Sealants - PD

Project Name: UT Austin - Seay

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.



Darryl Castleberry

BY:

DATE: 2020/05/26

Submittal Comments:



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0190

PROJECT: UT Seay Building Addition

DATE: 05/19/2020

TO: BSA Lifestructures
AL

RE: Joint Sealants - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | | SUBMITTED FOR: | ACTION TAKEN: |
|--|--|---|--|
| <input type="checkbox"/> Shop Drawings | | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | | <input checked="" type="checkbox"/> Due Date: 06/02/2020 |
| <input checked="" type="checkbox"/> Submittal: | | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|-------------------------------|------------------------|
| 1 | Submittal | | 079200-001 | 1 | | 05/19/2020 | Joint Sealants - Product Data | Submitted for Approval |

| |
|--|
| SpawGlass Contractors, Inc. |
| REVIEWED FOR COMPLIANCE <input checked="" type="checkbox"/> |
| COMMENTS NOTED <input type="checkbox"/> |
| REVISE AND RESUBMIT <input type="checkbox"/> |
| OTHER: <input type="checkbox"/> |
| DATE 5/19/2020 SPEC# 079200 |
| REVIEWED BY tanner.hawkins |
| SUBMITTAL# 079200-001 |
| APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS |

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins



SUBMITTAL COVER SHEET

PROJECT NAME: UT Seay

ARCHITECT: BSA Life Structures

SPECIFICATION SECTION: 079200 – Joint Sealants

DATE PREPARED: 5/15/2020

CONTRACTOR: Spawglass

SUBCONTRACTOR'S NAME: Chamberlin Roofing and Waterproofing

SUBCONTRACTOR'S PHONE: 512.275.1600

MANUFACTURER'S NAME: Tremco

MANUFACTURER'S PHONE: See Product Data

ITEM: See Table of Contents

NUMBER OF PAGES w/ COVER: 19

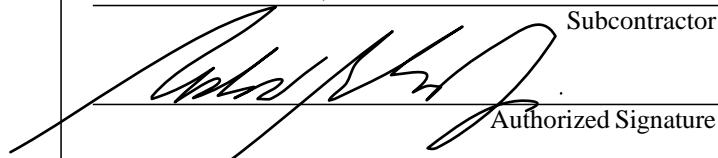
| Architect's Approval | Contractor's Approval |
|----------------------|---|
| | <p>The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer, and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.</p> <p>Chamberlin Austin, LLC</p> <p> Subcontractor</p> <p>5/18/2020</p> <p>Authorized Signature</p> <p>Date</p> |



TABLE OF CONTENTS

1. Spectrem 3.....15 Pages

Product Description: Single-component, neutral-cure, low-modulus, construction grade sealant with patented advanced silicone technology.

Product Location: Furnish and install joint sealant to the masonry control joins, cast stone sill to masonry joints, and at the relief angles per plans and specs.

- a. Product Data
- b. Application Instructions
- c. Certification
- d. LEED
- e. Sample Warranty
- f. Color Chart

2. Titan Foam Backer Rod.....2 Pages

Product Description: soft, grey, non-gassing, non-staining, pliable backer rod, with an impervious outer skin, used as a backing for elastomeric and other cold applied sealants.

- a. Product Data

Product Description

Spectrem® 3 is a single-component, neutral-cure, low-modulus, construction grade sealant with patented advanced silicone technology. Non-staining and low polar attraction to dirt increases aesthetic appearance.

Basic Uses

Spectrem 3 has a patented chemistry that has been specifically formulated to seal porous stone, EIFS, metal panels, masonry and pre-cast concrete joints.

Features and Benefits

- A 20-yr non-stain warranty when pre-approved and tested by Tremco in accordance with ASTM C1248.
- Low polar attraction to dirt makes buildings easier to clean and maintain.
- Low-modulus and low Shore A hardness reduce chance of EIFS substrate failures when compared to applications with medium-modulus sealants.
- Primerless adhesion to most porous substrates.
- Extended tooling time and workability in high temperatures.
- Ease of use reduces the risk of application failure.
- Matte finish affords an aesthetically pleasing appearance with EIFS and stone substrates.
- No cure inhibition with Spectrem 1, Spectrem 2, Dymonic® FC when applied "wet-to-wet," minimizing the chance of leakage when sealants abut at glazing and other façade intersects.
- Low-VOC and zero-solvent content satisfies the LEED Indoor Environmental Criteria.
- Greenguard Gold certification ensures safety for use in the most sensitive indoor environments including hospitals and schools.

Availability

Immediately available from your local Tremco Sales Representative, Tremco Distributor or Tremco Warehouse.

Packaging

10.1-oz (300-mL) cartridges

20-oz (600-mL) sausages

All colors are not available in all package sizes. Special colors and packaging available upon request. Minimum order requirements exist. Contact Tremco Customer Service for more information.

Colors

Adobe Tan, Aluminum Stone, Anodized Aluminum, Black, Bronze, Buff, Champagne, Charcoal, Dark Bronze, Dusty Rose, Gray, Hartford Green, Ivory, Light Bronze, Limestone, Off White, Precast White, Rustic Brick, Sandstone, White.

Limitations

- Do not apply to damp or contaminated surfaces.
- Use with adequate ventilation.
- Not intended for continuous water immersion.

Substrate Preparation

Surfaces must be sound, clean, and dry. Contact surfaces should be free of loose dirt, dust, oils, and any other contaminants. Tremco recommends that air temperatures be 40 °F (5 °C) or above before applying any sealant. If colder weather is imminent, please refer to the Tremco Guide for Cold Weather Applications at www.tremcosealants.com.

Applicable Standards

Spectrem 3 meets or exceeds the requirements of the following specifications:

- ASTM C920 Type S, Grade NS, Class 50*, Use NT, M, G, A and O
- ASTM C1248
- ASTM C1382
- U.S. Federal Specification TT-S-001543A Class A
- U.S. Federal Specification TT-S-00230, Type II Class A
- CAN/CGSB 19.13-M87
- EIMA Test Method 300.01

Application

Spectrem 3 is easy to apply with conventional caulking equipment. Fill joint completely and tool. At 75 °F (23 °C), 50% RH, tooling time is 1 hr. Please visit www.tremcosealants.com for complete application instructions.

Priming

If priming is deemed necessary use Tremco® Silicone Porous Primer for porous substrates and Tremco Silicone Metal Primer for non-porous substrates.

Joint Design

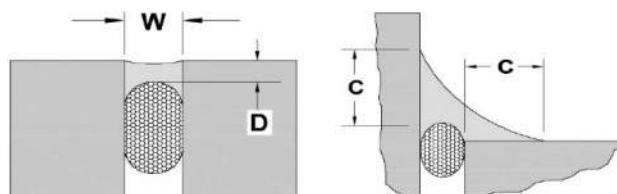
May be used in joints designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement, but not less than 1/4" (6 mm) wide.

Joint Backing

Closed-cell polyethylene backer rods are preferred as a joint backing material to control depth of sealant bead. Where depth of joint will prevent use of joint backing, an adhesive-backed polyethylene tape should be installed to prevent three-sided adhesion. Joint backing must be dry at the time of sealant application.

Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



Expansion Joints- The minimum width and depth of any sealant application should be 1/4" x 1/4" (6 mm x 6 mm). The depth (D) of sealant may be equal to width (W) of joints less than 1/2" wide. For joints from 1/2" to 1" (13 mm to 25 mm) wide, the sealant depth should be approximately one-half of the joint width. The maximum depth (D) of any sealant application should be 1/2" (13 mm). For joints that are wider than 1" (25 mm) contact Tremco Technical Services or your local Tremco Sales Representative.

Window Perimeter- For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area [C] of 1/4" (6 mm) onto each substrate, with provisions for release at the heel of the angle using backer rod or bond breaker tape.

Clean Up

Tooling is recommended immediately after application to ensure firm, intimate contact with the joint interface. Dry tooling is preferred. Cleaning can be accomplished with solvents such as IPA, MEK, Toluene or Xylol while sealant is in an uncured state.

Spectrem® 3

Single-Component, Neutral-Cure, Non-Staining Silicone Sealant

Warranty

Tremco warrants its Products to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco Products. Tremco's sole obligation shall be, at its option, to replace, or refund the purchase price of the quantity of Tremco Products proven to be defective and Tremco shall not be liable for any loss or damage.

Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

NOTE: All Tremco Safety Data Sheets (SDS) are in alignment with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) requirements.

TEST RESULTS

TYPICAL PHYSICAL PROPERTIES

| PROPERTY | TEST METHOD | TYPICAL VALUES |
|---|------------------------|----------------------|
| As Supplied: | | |
| Tack free time | ASTM C679 | 2 hr |
| Tooling Time | Skin Formation | 40 min |
| As Cured: After 14 days at 77 °F (25 °C), 50%RH | | |
| Joint Movement Capability Extension Compression | ASTM C719 | ±50%* |
| Hardness (shore A) | ASTM C661 | 15 |
| Peel Strength Aluminum and Glass | ASTM C794 | 25 to 35 pli minimum |
| Service Temperature Range | | |
| Stain & Color Change | ASTM C510 TT-S-001543A | No Stain |
| Staining of Porous Substrates White Marble Primed & Unprimed | ASTM C1248 | No Stain |
| Tear strength, die ("C") | ASTM D624 | 25 to 30 pli minimum |
| Tensile Strength at Max Elongation | ASTM D412 | 155 psi |
| Tensile Strength at Max Elongation 100% Modulus | ASTM D412 | 55 psi |
| Tensile Strength at Max Elongation 50% Modulus | | 40 psi |
| Tensile Strength at Max Elongation 25% Modulus | | 25 psi |

*Modified ASTM C719 test

0220/SPEC3DS-ST Please refer to our website at www.tremcosealants.com for the most up-to-date Product Data Sheets.

Tremco Commercial Sealants & Waterproofing

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APPLICATION INSTRUCTIONS**1. Selecting the silicone sealant**

The intended function of sealant determines the specific product that will be appropriate for use in the application. A brief overview of selection guidelines is found in this section. If further assistance with silicone sealant selection is required, then contact Tremco's technical services or consult Tremco's Sealant Selection Guide; this guide is available at tremcosealants.com. Provided below is a list of items to consider while selecting a silicone sealant:

Movement capability

Many joints into which sealants are installed must be considered dynamically moving entities, and the sealant must be able to accommodate the magnitude of dynamic movement that the joint will experience. The sealant's ability to accommodate joint movement is provided as ratings for the extension and compression capabilities. The movement capability of a silicone sealant is published on the product data sheet and reported under the "Applicable Standards" section as the "class" distinction within ASTM C920 – *Standard Specification for Elastomeric Joint Sealants*.

Modulus

The modulus property of a sealant is a relative value measured as a ratio of stress to strain during joint extension. To define this property simply, modulus describes the amount of force, load, or stress required to extend a sealant to a predetermined strain or elongation. Low-modulus sealants exhibit less stress at the location of the sealant-substrate bond line when the sealant is exposed joint movement; generally, low-modulus sealants demonstrate greater movement capabilities when compared to their higher-modulus counterparts. Low-modulus sealants are a more forgiving selection for high movement joints, joints that have opposing substrates with dissimilar coefficients of thermal expansion, and joints that have interfaces that can be pulled apart by movement stresses maintained by higher-modulus sealant materials. Low-modulus silicone sealants are the preferred selection for joints that interface with EIFS. Medium-modulus and high-modulus sealants can provide durability in joints where a less significant amount of joint movement is expected and when the substrate is rigid enough to accept higher levels of stress; some of these medium- and high-modulus sealants have been formulated to be strong enough to perform as a structural component in a specific type of glazing called structural glazing.

Single-component or multi-component

This portion of selection pertains to equipment available to dispense the sealant, speed of sealant cure-through and preference of the applicator. A multi-component sealant is usually packaged in bulk containers and requires mixing as well as specialized dispensing equipment, while single-component sealants are ready for immediate dispensing from packaging types that have a smaller volume, such as cartridges or sausages

Non-sag or pourable

A non-sag material is required in applications marked with joints in vertically-oriented substrates and can be used in skyward facing horizontal joints; pourable sealants cannot be used in vertically-oriented joints and may be preferred in skyward facing horizontal joints as they

promote ease of use by reducing the intensity of tooling that the applicator must perform after the sealant is initially applied. The "gun-grade" and "non-sag" sealant terms are synonymous. The "self-leveling" sealant term is descriptive for "pourable sealant"

Paintability

Where sealant joints are to be painted, silicone sealants are not typically recommended as the only type of commonly used paints or coatings that will develop adhesion to them are also composed of silicone based chemical structures.

Contact Tremco Technical Services if you have any questions regarding the sealant selection process.

2. Testing

Tremco recommends project-specific testing be completed prior to starting production at any job-site conditions. Upon request, Tremco's technical services laboratory performs in-house testing of sealant for adhesion, compatibility and potential staining on submitted project substrate materials. Project-specific recommendations regarding surface preparation, primer use, and silicone sealant product recommendation are made after the completion of Tremco's project-specific testing process. Contact Tremco's technical services for details on how to initiate, complete, and interpret laboratory testing procedures, requirements, and results. Consult Tremco's technical services [bulletin](#) for more detailed information pertaining to each test performed within Tremco's technical services laboratory.

In some instances, [in-field testing](#) may be adequate for qualifying a sealant for use in a specific application. Contact a local Tremco sales representative for assistance with testing at the job site.

3. Storage

Prior to use, all silicone sealants must be stored in a cool, dry location. The optimal storage temperature range is 60-80°F (15-27°C). Once the packaging of a single-component sealant is opened, the material will begin to cure. Preserving the sealant from developing an undesired cure of the material can be achieved by promptly closing the sealant's container immediately after completion of use.

The curing mechanism of single-component silicone sealants is initiated with the introduction of airborne water vapor to the exposed sealant. The seals of Tremco sealant containers are effective at isolating the sealant from the atmosphere, and the water vapor that it contains, for extended periods of time.

Storage of packaged silicone sealants in locations that experience significant temperature fluctuations and/or cyclic temperature changes may be problematic, as these conditions are known to accelerate the migration of air and water vapor into the sealant container, unduly exposing the sealant to conditions that will ultimately reduce the effective shelf life of the material or the overall performance of the sealant when applied. Therefore, it is recommended to ensure that the storage of silicone sealants be in a temperature-controlled environment with a stable ambient air temperature.

Silicone Sealant Application Instructions

If the volume of either component of two-component silicone sealant container measures five or more gallons, then it is recommended to utilize the follower plate of the appropriate dispensing equipment as a functional seal that mitigates the diffusion of air to the contents of the container. The container of either component of a two-component silicone sealant should only be opened immediately before it is to be dispensed with suitable sealant delivery equipment. It is recommended that the follower plate be lowered into the sealant container immediately after the container is opened and should remain inserted into this container until the contents have either been completely consumed or are to be removed for disposal.

4. Surface preparation

The five key steps for a successful sealant installation can be summarized as: clean, prime (if necessary), pack with joint backing material, gun the sealant, and tool the surface of the sealant. Specific instructions for each of these installation steps are provided in subsequent sections within this document below.

Two-cloth cleaning method

The two-cloth cleaning method is completed by first wiping the substrate with a clean, white, lint-free cloth that is dampened with an approved cleaning solvent, such as isopropyl alcohol. The cleaning cloth should never be introduced or inserted directly into the solvent vessel or its contents to prevent contamination. Immediately follow the solvent-wipe, before the cleaning solvent has flashed off the substrate surface, with wipe of a second cloth that is dry, clean, white, and lint-free to remove loosened dirt or oil. It is recommended to clean non-porous substrates using this cleaning method immediately before applying a silicone sealant, and the substrate must be cleaned again if two or more hours have elapsed between the time that the substrate was cleaned, and the sealant is applied.

Taping of surfaces surrounding the joint

Applying masking tape at the perimeter of a sealant joint is optional and is generally to support aesthetically favorable appearances of the sealant joint and to promote easier clean-up procedures. The masking tape must be removed immediately after the sealant's surface is tooled and before the sealant begins to develop a skinned surface.

Masonry

Concrete and masonry surfaces must be fully cured, stable, clean, dry, and free of contaminants. If film-forming curing aids or form release agents are present on a concrete substrate, they must be completely removed. If non-film-forming curing or form release agents have been used, adhesion testing must be employed to determine if they would be deleterious to adhesion.

The rough surfaces of these substrates can be prepared by sandblasting, mechanically abrading, wire brushing, grinding, or any combination of these preparation methods. These abrasive surface preparation procedures will introduce dust and other particles to the application area that must be treated as contaminants and thoroughly removed by blowing the affected substrate with oil-free compressed air or by brushing the contaminants away from the application area with a soft bristle brush.

Recommendation on the use of primer is determined via project-specific testing. Specifics on priming substrates of this type can be found in section 5 of this document, "Priming." These substrates are porous in nature; TREMprime Silicone Porous Primer is to be used if a primer is required for the sealant to develop adequate adhesion.

Glass, porcelain, tile, etc.

These surfaces must be clean, dry, and free of any contaminants. Clean the substrate using the two-cloth cleaning method described above. Preventing oily fingerprints from being introduced onto these substrates is an important precaution to maintain cleanliness and create an ideal surface for the sealant to develop adhesion to.

Recommendation on the use of primer is determined via project-specific testing. Specifics on priming substrates of this type can be found in section 5 of this document, "Priming." These substrates are non-porous in nature; therefore, Tremco Silicone Metal Primer is to be used if a primer is required for the sealant to develop adequate adhesion.

Wood

Tremco's silicone sealants will typically develop adhesion to dry, fresh wood that is clean and free of any contaminants. Many species of wood, such as teak, contain oils that dry out very slowly. Oil bearing woods are usually not suitable substrates for silicone sealants to develop adhesion with unless sufficient time has been allotted for the oils to vacate the substrate. Applications of silicone sealant onto wood that will be painted or stained at a later time must utilize adequate masking techniques to ensure that silicone sealant does not get onto surfaces to be painted or stained.

When applying silicone sealants to painted wood surfaces and adhesion will develop with the paint, it is important to note that the bond between the sealant and the paint is of no more value than the bond between the paint and the wood. Recognize the need for additional prudence because stresses of movement introduced to the sealant joint will be transferred to the paint material at the bond line. Use of a low-modulus sealant would be preferable to a medium- or high-modulus sealant to minimize such transfer of movement stress. Tremco recommends that any paint on the surface of the wood at the bonding area be removed mechanically, so bare wood is the exposed surface for the silicone sealant to bond to. Where paint is not fully removed from wood and well-bonded residual paint is left after scraping or abrading, a low-modulus sealant is the preferred selection. Silicone sealants have historically been found to readily develop adhesion with a wide variety of different types of paint, but it is always recommended to confirm this with the implementation of project-specific testing with the materials present at the application site.

Silicone Sealant Application Instructions

Metal

The bonding surface of the silicone sealant must be clean, dry, and free of any contaminants. Metal substrates must be cleaned using the two-cloth cleaning method described previously within this document. Preventing oily fingerprints from being introduced onto these substrates is an important precaution to maintain cleanliness and create an ideal surface for the sealant to develop adhesion to.

Metals that have the potential to corrode via oxidation pose a threat to the long-term adhesion of a sealant as oxidation can creep beneath the sealant bond line over time to cause failure. It is for that reason that factory-applied primers are recommended on steel substrates.

Recommendation on the use of primer is determined via project-specific testing. Specifics on priming substrates of this type can be found in section 5 of this document, "Priming." Metal substrates are non-porous in nature; therefore, Tremco Silicone Metal Primer is to be used if a primer is required for the sealant to develop adequate adhesion.

Plastics

Plastic surfaces must be clean, dry, and free of contaminants prior to the application of silicone sealant. These substrates must be cleaned using the two-cloth cleaning method described previously within this document. Preventing oily fingerprints from being introduced onto these substrates is an important precaution to maintain cleanliness and create an ideal surface for the sealant to develop adhesion to.

Recommendation on the use of primer is determined via project-specific testing. Specifics on priming substrates of this type can be found in section 5 of this document, "Priming." Plastic substrates are non-porous in nature; therefore, Tremco Silicone Metal Primer is to be used if a primer is required for the sealant to develop adequate adhesion.

5. Priming

Porous substrates

Tremco commercial silicone sealants will typically develop adhesion without the need of a primer to most common porous construction materials. When priming is determined to be necessary, by conclusions derived from results from testing with project-specific materials, then TREMprime Silicone Porous Primer is recommended. This is a single-component primer that used to enhance the adhesion of silicone sealants to porous surfaces, such as concrete, limestone, or brick. TREMprime Silicone Porous Primer also provides a barrier to moisture at the bonding area when the substrate becomes wet and begins to wick moisture throughout its body.

TREMprime Silicone Porous Primer is to be applied generously with a soft bristle brush; implement care to ensure that no bristles are inadvertently deposited from the brush onto the substrate at the location of application. The dry time for this primer is approximately 30 to 40 min at 70°F (21°C). This primer must be completely dry before the sealant may be applied; applying the sealant to a surface that is still wet with freshly applied primer will become a detriment to the sealant's ability to cure appropriately, develop adhesion to the substrate, and/or achieve its expected physical properties.

Silicone sealants can be applied onto a primed substrate for up to eight hours after primer has been applied; if sealant has not been applied to the primed substrate after eight hours has elapsed, the surface must be cleaned and primed with TREMprime Silicone Porous Primer again.

Non-porous substrates

Tremco commercial silicone sealants will typically develop adhesion without the need of primers to most common non-porous construction materials. When priming is determined to be necessary, by conclusions derived from results acquired with testing of project-specific materials, then Tremco Silicone Metal Primer recommended. This is a single-component primer used to enhance adhesion of silicone sealants on non-porous surfaces, such as glass, metal, or plastics. When Tremco Silicone Metal Primer is applied to the bonding surface, the time required for the silicone sealant to reach complete adhesion to the substrate is often reduced, when compared to applications of the sealant onto identical unprimed substrates.

Tremco Silicone Metal Primer is approved for use in ASTM C1401 complaint structural glazing applications, when all procedures found in Tremco's Structural Glazing Manual are also followed. When the glazing application of silicone sealants is intended to serve a structural role within the glazing system, it is required to confirm the adhesion characteristics of the tensile bead within Tremco's technical services laboratory and also complete a structural glazing shop drawing review with the assistance of Tremco's technical services. Contact Tremco's technical services for specific information pertaining to the procedures required for all projects featuring structurally glazed conditions.

To apply the Tremco Silicone Metal Primer, the primer must be applied directly to a clean, lint-free, white cloth; the cloth used for this primer's application should never be inserted directly into the container of Tremco Silicone Metal Primer, as this significantly increases the potential for the primer to become contaminated. Before the primer can be applied to the substrate, it is recommended to remove all excess primer from cloth, so the cloth is merely dampened with the primer; this will help prevent the over-application of primer onto the substrate. Apply Tremco Silicone Metal Primer from the dampened cloth directly onto the substrate as a thin layer. When applied correctly, this primer dries after approximately 15 min, at conditions of 70°F (21°C). The primer must be completely dry before applying sealant; applying the sealant to a surface that is still wet with freshly applied primer will become a detriment to the sealant's ability to cure appropriately, develop adhesion to the substrate, and/or achieve its expected physical properties.

Silicone sealants can be applied onto a primed surface for up to six hours after primer has been applied; if the sealant has not been applied to the primed substrate within six hours, then the surface must be cleaned using the two-cloth cleaning method and primed with Tremco Silicone Metal Primer again.

6. Application

Backing materials

Backing materials, such as backer rods, are included in appropriately designed sealant joints to control the depth of the sealant bead, to promote an hour-glass sealant bead geometry, and to prevent three-sided adhesion.

The depth of the sealant bead, in applications where the sealant is not being used in a structural glazing application, is to abide by the guidelines provided below. The geometry and dimension of silicone sealants used as a tensile bead in structural glazing applications is to be provided by Tremco's technical services after the completion of a structural glazing shop drawing review; contact Tremco's technical services for specific information pertaining to the procedures required for all projects featuring structurally glazed conditions.

Expansion joints: The minimum joint width (W) and sealant contact depth (C) of any silicone sealant application is $1/4"$ by $1/4"$ (6.35 mm by 6.35 mm). It is recommended that the sealant joint depth (D), when measured from the face of the sealant bead to the crown of the backer rod, be equal to one-half the sealant joint width (W), known as 2:1 width-to-depth joint ratio. For silicone sealants, the minimum sealant joint depth (D) at crown of backer rod is $1/8"$ (3 mm) and the maximum sealant joint depth at crown of backer rod is $1/2"$ (13 mm).

For joints that are wider than $1"$ (25 mm), contact Tremco's technical services or the Tremco sales representative nearest to the application site for additional support.

Window perimeter joints: For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum sealant contact depth [C] of $1/4"$ (6.34 mm) onto each substrate. Proper joint backing or bond breaking must be implemented to allow the sealant to perform when exposed to joint movement.

Structural glazing: Special consideration must be taken when using a silicone sealant as a tensile bead in structural glazing applications; therefore, the above sealant dimension guidelines do not apply in these applications. Consult Tremco's technical services for a structural glazing shop drawing review and recommendations.

Applying sealant

After joint is verified to be clean, dry and free of contaminants, primer has been applied (if necessary), and the backing material has been properly installed, the application of silicone sealant may begin.

The process of gunning sealant is completed by dispensing sealant from its packaging, through a nozzle, and into the sealant joint.

Joint Designs and Dimensions

Tremco recommends that individuals responsible for designing sealant joints and those who are to apply Tremco silicone sealants become familiar with the versions of the following industry guidelines and best practices that have been published most recently:

- ASTM C1193 – *Standard Guide for Use of Joint Sealants*
- ASTM C1472 – *Standard Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width*

All silicone sealant joints that are not a structural tensile bead must be designed and installed in accordance with ASTM C1193 and ASTM C1472

W = Sealant joint width

D = Sealant joint depth

C = Sealant Contact depth.

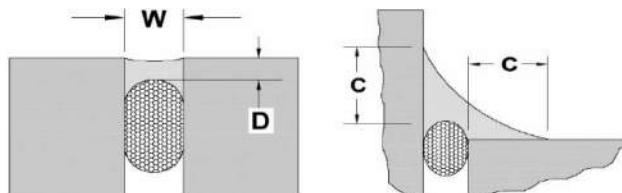


Figure 1 Non-structural sealant bead width and depth recommendations and appropriate joint design

Two considerations must be acknowledged when gunning the sealant:

1. The joint is to be filled from the backside to the front side. It is not recommended practice to fill the joint from front to back, as this introduces the potential for air to become entrapped within the body of the sealant bead. If air becomes encapsulated within the body of the sealant bead, then the sealant joint may demonstrate a reduced capacity to perform when exposed to dynamic movement.
2. Complete contact between the sealant and joint bonding surfaces of the substrate is required for the sealant to be expected to perform as intended when the sealant joint was designed. Substrate joint surfaces must be fully "wetted" with sealant, meaning that there must be contact between the silicone sealant and the substrate along the entire depth of the sealant-substrate interface. If the sealant does not fully contact the substrate along the bond line from the face of the sealant joint to the backer rod, then there is assumed potential for the sealant joint to be ineffective at preventing leaks and/or fail prematurely when exposed to a load or stress. Some force exerted during gunning of the sealant may be required to accomplish full "wetting" of the sealant onto the bonding surfaces as tooling, alone, may not be sufficient to force the sealant fully into the joint.

Silicone Sealant Application Instructions

Tooling

Tooling is always a required step within the installation of a sealant bead to achieve an optimally performing sealant joint. Tooling the sealant joint will assist to create an installation that has full “wetting” of the sealant onto the joint interfaces, to achieve the desired hour-glass shaped cross-sectional joint geometry, and to shape the visible surface of the sealant joint to a clean and consistent appearance. The sealant joint should be deliberately tooled to a shape to actively shed water and prevent the ponding of water on the surface of the joint.

Tooling can only be accomplished prior to the sealant achieving a skinned surface; once the sealant has begun to form a skinned surface, the joint can no longer be effectively tooled. For information regarding the skin time of any Tremco's sealants, consult the data sheet created for the specific sealant or contact Tremco's technical services.

Tooling is the process of applying consistent pressure to the sealant body through the exposed face of the sealant bead by running a rounded tip spatula along exterior surface of the sealant bead. A slightly concave surface at the exterior surface of the sealant bead is one characteristic of a properly tooled sealant bead. Pressure is applied by the applicator with the tooling spatula to the face of the sealant bead of a substantial enough magnitude to ensure the sealant is completely filled into the joint. The use of controlled force while tooling is a practice that is intended to provide additional assurance that the sealant has fully “wetted” the bonding interfaces of the substrates. The applied pressure is also effective in ensuring that the installed sealant

has achieved complete contact with the backing material; care must be observed while tooling the joint to not introduce enough pressure to displace the joint backing material.

Tremco recommends dry tooling be used to tool the surface of the sealant joint. The practice of dry tooling is completed without the use of tooling agents, such as water, soap or detergent solutions. Sealant joints should be tooled to shed water and eliminate ponding.

Curing and adhesion development

The applied sealant bead must be left undisturbed until it has sufficiently cured to resist damage or deformation when contacted. The rate at which a one-component sealant will cure is heavily dependent on the environmental conditions, most notably temperature and relative humidity, that it is exposed to. Sealant will cure at an accelerated rate at elevated temperatures and in humid conditions; low temperatures and/or a dry atmosphere will cause the sealant to cure at a decreased rate. When a silicone sealant is exposed to conditions of 40% to 70% relative humidity and 50° to 80°F (10° to 20°C), the exposed surface of silicone sealants will quickly achieve a “skin,” and will cure-through in approximately a week or less.

The development of adhesion occurs more slowly than the cure-through which is why adhesion testing may require two or more weeks before executing.

0818/SSAI-AI

Please refer to our website at www.tremcosealants.com for the most up-to-date Application Instructions

Tremco Commercial Sealants & Waterproofing

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We certify that Spectrem® 3 manufactured by Tremco Incorporated, Cleveland, Ohio has been tested against ASTM C 920, Standard Specification for Elastomeric Joint Sealants and does conform to the specification requirements and is classified as follows:

Type: S (Single Component)
Grade: NS (Non-sag)
Class: 50 (+/- 50% joint movement)
Use: NT (Non-traffic)
M (Mortar)
G (Glass)
A (Aluminum)
O (Other)

Spectrem 3 has been tested and passed ASTM C 1382, "Standard Test Method for Determining Tensile Adhesion Properties of Sealants when used in Exterior Insulation and Finish Systems (EIFS) Joints." Third party verification is available upon request.

Spectrem 3 passes EIMA Test Method 300.01.

Spectrem 3 is listed to AAMA 800-92, Voluntary Specifications and Test Methods for Sealants, for Section 1.1, Back Bedding Glazing Compounds, 802.3 Types I and II and Section 1.4, Exterior Perimeter Sealing Compound, 808.3.

We further certify that Spectrem 3 conforms to the requirements of the following Federal Specifications:

TT-S-00230C (COM-NBS), Type II, Class A

TT-S-001543A (COM-NBS) Class A

Spectrem 3 meets CAN/CGSB-19.13-M87.

Although Spectrem 3 is not NSF registered, or previously authorized by USDA, it does meet the requirements for use in Federally inspected food processing facilities provided it is not used in areas where food is being processed, prepared or packaged. The material must also be applied in a manner which prevents any direct or indirect contamination of food. Additionally, before any food product can be placed in the area of treatment, the sealant must be allowed to cure according to manufacturer's recommendations and the area should be sufficiently free of odor to prevent food contamination.

January 22, 2019

To Whom It May Concern:

RE: Spectrem 3—Green Building Product Information (LEED v4 Information)

Tremco Incorporated is an organization that is committed to quality, our employees, and our environment. We are responsive to both internal and external customers, and we pledge to treat everyone with good stewardship and respect.

Tremco Incorporated certifies the following for Spectrem 3:

Building Product Disclosure and Optimization:

Spectrem 3 is manufactured in Toronto, Ontario, Canada.

No single extracted material is used to produce the majority of this product.

Recycled content for Spectrem 3 is not available, and for the purposes of LEED reporting should be assumed to be zero.

Low Emitting Materials - VOC Content Information:

Spectrem 3 is a silicone sealant with a VOC content of 18g/L equaling 1% as applied/mixed. As such, VOC levels are lower than the limits set by SCAQMD rule 1168.

Note: VOC content values are as reported for the highest VOC content color for all Spectrem 3 colors. Other colors may have a lower VOC content reported on the MSDS .

This product is Greenguard certified, meaning it has met some of the world's most difficult and complete standards for low emissions of VOC's into indoor air. This product also adheres to the California Department of Public Health (CDPH) Standard Method V1.1-2010, a standard vital to demonstrate compliance with LEED.

Green Chemistry:

Tremco Incorporated is dedicated to the environment and prides itself on making its products as sustainable as possible.



Manufacture Inventory (reported to 1000ppm):

| Chemical or Role | CAS Number | Amount | GHS Hazard |
|--|------------|--------|---------------|
| Calcium carbonate | 471-34-1 | | |
| Polymer | | 20-60% | Non-Hazardous |
| Butyl benzyl phthalate | 85-68-7 | | |
| Plasticizer | | <5% | Non-Hazardous |
| Calcium oxide | 1305-78-8 | | |
| Additive | | <1% | Non-Hazardous |
| Titanium dioxide | 13463-67-7 | | |
| Stearic acid | 57-11-4 | | |
| Filler | | <1% | Non-Hazardous |
| Rheology Modifier | | <1% | Non-Hazardous |
| Chain End Capper | | <1% | Non-Hazardous |
| Filler | | <1% | Non-Hazardous |
| Rheology Modifier | | <1% | Non-Hazardous |
| Crosslinker | | <1% | Non-Hazardous |
| Tosyl isocyanate | 4083-64-1 | | |
| Hydrotreated heavy naphthenic distillate | 64742-52-5 | | |
| UV Stabilizer | | <1% | Non-Hazardous |
| Adhesion Promoter | | <1% | Non-Hazardous |
| Colorant | | <1% | Non-Hazardous |
| Octamethylcyclotetrasiloxane | 556-67-2 | | |
| Silicon Reactive Polymer Resin | | <1% | Non-Hazardous |
| Carbon Black | 1333-86-4 | | |
| Iron oxide | 1309-37-1 | | |
| Vinyltrimethoxysilane | 2768-02-7 | | |
| Phthalocyanine green | 1328-53-6 | | |
| Piment | | <1% | Non-Hazardous |
| Aluminum oxide | 1344-28-1 | | |

Tremco Incorporated

3735 Green Road Beachwood, OH 44122 216.292.5000 www.tremcosealants.com



Additional Information:

Should you have any questions or require additional information, please do not hesitate to contact Technical Services or your local Tremco Field Representative.

Sincerely,

Amy Woodard
Manager
Compliance and Regulatory

Tremco Incorporated3735 Green Road • Beachwood, Ohio 44122 • 216-292-5000 www.tremcosealants.com

Warranty No: *****
Today's Date: *****
Exp: *****

Commercial Sealants & Waterproofing**Silicone Sealant Material Warranty****PROJECT
NAME****ARCHITECT/
ENGINEER****OWNER****PRODUCT(S)****APPLICATOR****GENERAL
CONTRACTOR****DATE OF
SUBSTANTIAL
COMPLETION****TYPE
OF WORK**

Tremco Incorporated ("Tremco") hereby warrants to the Owner, subject to the terms, conditions and limitations stated herein, that the Tremco Sealant specified above is free of manufacturing defects and conforms to published physical properties and quality control standards in force at the time product was purchased and, when installed in accordance with Tremco's written Application Instructions and in applications approved by Tremco as suitable for the Product, will have a useful life under normal service conditions for a period of #year(s) from the date of substantial completion.

In the event the Product is proven not to have performed in accordance with the Warranty during the warranty period, the Owner shall immediately notify Tremco and confirm such notice in writing within thirty (30) days. Tremco's sole responsibility under this Warranty shall be, at its option, either to refund the purchase price or provide sufficient replacement material to replace the non-conforming product, and such refund or replacement shall constitute the limit of the Company's liability and obligation. During the term of this Warranty, agents or employees of Tremco shall be afforded opportunities to inspect any such areas at such time as Tremco may reasonably request.

Tremco makes no warranty with respect to appearance or color.

Tremco's obligations under this Warranty are expressly conditioned upon receipt of full payment for the Product and the Owner's compliance with each of its responsibilities described in this Warranty document. Any delay in full payment to Tremco shall not extend the Warranty Period.

No representative of Tremco has the authority to make any representations or provisions except as stated herein. This Warranty is issued to the above-named Owner and is transferable with the written consent of Tremco.

THE ABOVE WARRANTY IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, EXCEPT AS EXPRESSLY PROVIDED HEREIN. TREMCO SHALL NOT BE LIABLE FOR DAMAGE TO THE PROJECT STRUCTURE OR INTERIOR CONTENTS OR FOR ANY OTHER CONSEQUENTIAL, SPECIAL OR OTHER DAMAGES ARISING FROM OR RELATED TO, DIRECTLY OR INDIRECTLY, THIS WARRANTY OR THE PERFORMANCE OF THE MATERIALS COVERED BY THIS WARRANTY, WHETHER BASED ON BREACH OF WARRANTY, NEGLIGENCE OR OTHER THEORY OF LIABILITY.

TREMCO INCORPORATED
Commercial Sealants & Waterproofing

Michael J. Soeder, VP Sales, NA

TO EXPEDITE PROCESSING, THIS DOCUMENT WILL BE COMPLETED AND DELIVERED IN ELECTRONIC FORM ONLY. AN ELECTRONIC SIGNATURE FROM A TREMCO REPRESENTATIVE ON A COMPLETED WARRANTY DOCUMENT IS VALID AND BINDING AND IS ENFORCEABLE TO THE SAME EXTENT AS A PENNED SIGNATURE.

Spectrem® 3

Standard Colors

Colors shown are approximate and may not reflect the shade precisely. Different lighting conditions can influence color appearance, for truer color please view in daylight. Colors are not stocked in all available package types. Minimum order quantities will apply for custom colors and alternative packaging. For more information, please contact Tremco Customer Service.

PRECAST
WHITE

ANODIZED
ALUMINUM

IVORY

GRAY

OFF WHITE

LIMESTONE

SANDSTONE

BUFF

DUSTY
ROSE

ADOBE TAN

CHAMPAGNE

ALUMINUM
STONE

LIGHT
BRONZE

RUSTIC
BRICK

CHARCOAL

HARTFORD
GREEN

BRONZE

DARK
BRONZE

BLACK

WHITE

Tremco®

Spectrem® 3

Single-Component, Non-Staining Sealant with Advanced Silicone Technology

Spectrem® 3 is a single-component, neutral-cure, low-modulus, construction grade sealant with Advanced Silicone Technology. Spectrem 3 is non-staining and has low polar attraction to dirt.

Applicable Standards

ASTM C 920 Type S, Grade NS, Class 50*, Use NT, M, G, A, and O; ASTM C1248; ASTM C1382;
CAN/CGSB-19.13-M87; U.S. Federal Specification TT-S-001543A Class A;
U.S. Federal Specification TT-S-00230 Class A, Type II; EIMA Test Method 300.01.

*Modified ASTM C719 test

Tremco Commercial Sealants & Waterproofing

3735 Green Road, Beachwood, OH 44122 // Phone: 216.292.5000 // 800.321.7906
220 Wicksteed Avenue, Toronto, ON M4H 1G7 // Phone: 416.421.3300 // 800.363.3213
1451 Jacobson Avenue, Ashland, OH 44805 // Phone: 419.289.2050 // 800.321.6457



Backer Rod Mfg. Inc.

TECHNICAL DATA SHEET

TITAN FOAM™

BI-CELLULAR SOFT CELL POLYETHYLENE BACKER ROD

1. PRODUCT NAME

TITAN FOAM

2. EXCLUSIVELY SOLD BY:

Backer Rod Mfg. Inc.
4244 N Broadway
Denver, CO 80216
Phone: 800-595-2950
Fax: 303-308-0393
Web: www.backerrod.com

3. PRODUCT DESCRIPTION

Per ASTM C 1330 type B, **TITAN FOAM** is a soft, grey, **non-gassing**, non-staining, pliable backer rod, with an impervious outer skin, used as a backing for elastomeric and other cold applied sealants. **TITAN FOAM** controls the depth of the applied sealants and ensures cross-sectional hour-glass configuration.

SPECIFIC USES: **TITAN FOAM** is suited for specialty applications such as irregular and varying joint widths where standard closed cell backer rods are not appropriate. Common applications include but are not limited to: concrete expansion and contraction joints, curtain walls, parking decks, bridge and highway construction, pavement maintenance, window glazing and log home chinking.

4. COMPOSITION AND MATERIAL

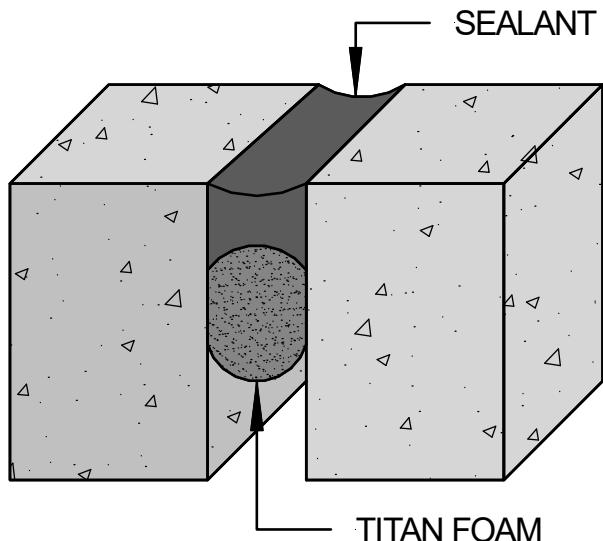
TITAN FOAM is an extruded polyethylene bi-cellular foam product which when punctured per ASTM C 1253 does not exhibit any out-gassing. **TITAN FOAM** has an impervious outer skin that resists moisture. It is easily compressible, flexible and pliable for easy installation. It is furnished in a wide variety of sizes listed in section 8 under packaging information.

5. INSTALLATION

Prior to installing **TITAN FOAM**, all joints must be free from all contaminants such as curing compounds and form-release agents, as well as loose and foreign materials. Install **TITAN FOAM** under 25% minimum, 50% maximum compression to the depth recommended by the sealant manufacturer. Before applying sealant, all joints must be clean and dry.

6. COMPATIBILITY

TITAN FOAM is an inert material and therefore is compatible with virtually all known cold applied sealants including silicones, polyurethanes, acrylics, polysulfide, and butyl.



7. PHYSICAL PROPERTIES

| Physical Properties | | |
|----------------------|------------------------------|------------------|
| Property | Value | ASTM Test Method |
| Density | 1.8 - 2.5 lb/ft ³ | D 1622 |
| Out-gassing | NONE | C 1253 |
| Compression Recovery | 95% min | D 5249 |
| Tensile Strength PSI | 39 - 50 PSI | D 1623 |
| Temperature Range | -90°F to 210°F | D 5249 |
| Water Absorption | < .03 g/cc | C 1016 – Proc. B |



8. PACKAGING INFORMATION

| Packaging Information | | | | Weights and Measurements | | |
|---------------------------------|-------------|--------------|------------|--------------------------|--|------------|
| Linear Feet Per Unit / (metric) | | | | | | |
| Diameter | Mini Box | Standard Box | Super Box | Mini Carton | 18-1/4" x 18-1/4" x 15" | 7 lbs ea. |
| 3/8" (10mm) | 1800 (549m) | 3600 (1097m) | | Standard Carton | 18-1/4" x 18-1/4" x 30-1/2" | 13 lbs ea. |
| 5/8" (16mm) | 775 (236m) | 1550 (472m) | | Super Carton | 13-1/2" x 13-1/2" x 74-1/4" | 15 lbs ea. |
| 7/8" (22mm) | 425 (129m) | 850 (257m) | | Mini Carton | <ul style="list-style-type: none"> • 1 spool per carton | |
| 1-1/8" (28mm) | 220 (67m) | 500 (152m) | | Standard Carton | <ul style="list-style-type: none"> • 3/8" through 7/8" - 2 spools per carton | |
| 1-1/2" (38mm) | | | 420 (128m) | Super Carton | <ul style="list-style-type: none"> • 1-1/8" - 1 spool per carton | |
| 2" (51mm) | | | 252 (77m) | | <ul style="list-style-type: none"> • 1-1/2" through 4" manufactured in 6' lengths | |
| 2-1/2" (63mm) | | | 162 (49m) | | | |
| 3" (76mm) | | | 102 (31m) | | | |
| 4" (102mm) | | | 54 (16m) | | | |

9. LIMITATIONS

Do not use with hot applied sealants.

10. AVAILABILITY AND COST

TITAN FOAM is marketed nationally and internationally by select authorized distributors. For name, address and telephone number of your nearest distributor please contact us at: 800-595-2950 or sales@backerrod.com

11. WARRANTY

Unless otherwise agreed to in writing, **TITAN FOAM** is sold without warranty, express or implied. Buyer must make their own determination as to the suitability of the product and application. Sizes and lengths of product shown are at time of packaging and will vary with climate conditions after manufacture.

12. TECHNICAL SERVICES

Please contact Backer Rod Mfg. Inc. for technical guidance, special project engineering designs and drawings.



MADE IN THE U.S.A.

PROJECT: UT Seay Building Addition

DATE: 08/04/2020

TO: BSA Lifestructures
AL

RE: Interior Expansion Joint Cover Assemblies - Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 08/18/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 079513-001 | 1 | | 08/04/2020 | Interior Expansion Joint Cover Assemblies - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE
COMMENTS NOTED
REVISE AND RESUBMIT
OTHER:

DATE 8/4/2020 SPEC# 079513

REVIEWED BY tanner.hawkins

SUBMITTAL# 079513-001

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY, COMPLETENESS, QUANTITIES, DIMENSIONS, AND COMPLIANCE WITH CONTRACT DOCUMENTS



Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

NO EXCEPTIONS NOTED
 SUBMIT SPECIFIED ITEM
 ACTION NOT REQUIRED

EXCEPTIONS NOTED
 REVISE AND RESUBMIT
 NOT REVIEWED

REVIEWED BY: Darryl Castleberry
DATE: 2020 08 04

1. Not an envelope related waterproofing submittal.

REMARKS:

CC:

Signed: Tanner Hawkins
Tanner Hawkins



SUBMITTAL COVER SHEET

PROJECT NAME: UT Seay

ARCHITECT: BSA Life Structures

SPECIFICATION SECTION: 079513 – Expansion Control

DATE PREPARED: 5/28/2020

CONTRACTOR: Spawglass

SUBCONTRACTOR'S NAME: Chamberlin Roofing and Waterproofing

SUBCONTRACTOR'S PHONE: 512.275.1600

MANUFACTURER'S NAME: Balco

MANUFACTURER'S PHONE: See Product Data

ITEM: See Table of Contents

NUMBER OF PAGES w/ COVER 28

| Architect's Approval | Contractor's Approval |
|-----------------------------|---|
| | <p>The Subcontractor and the Contractor named below hereby certify this submittal has been checked prior to submission to Designer, and conforms to the requirements of the Contract Documents for work represented hereby. This submittal does not deviate from requirements of the Contract Documents. It has been checked for: field conditions; correlation of dimensions and quantities; safety precautions; construction means, methods, techniques, schedules, sequences, procedures and fabrication processes; for errors and omissions in this submittal; and for coordination of the work of the trades.</p> <p>Chamberlin Austin, LLC _____ Subcontractor  _____ Authorized Signature</p> <p>06/12/2020 _____ Date</p> |



TABLE OF CONTENTS

1) **Balco NBAF-2**

Product Description: Floor expansion joint cover with extruded aluminum side frames and a cover plate held in place with seismic centering device.

Product Location: Furnish and install expansion joint where the floor line butts up to the existing building.

- a) Product Data
- b) Installation Instructions
- c) Manufacture Details

2) **Balco Metablock Fire Barrier**

Product Description: Resilient fire barrier for use in horizontal and vertical applications.

Product Location: To be used in conjunction with floor expansion joint cover

- a) Product Data
- b) Installation Instructions
- c) Manufacture Details

3) **Balco BCSW – 200**

Product Description: Pre-compressed polyurethane microcell foam

Product Location: Furnish and install a 2" vertical foam expanding joint to the exterior expansion joint where the curtainwall butts up to the existing building.

- a) Product Data
- b) Installation Instructions
- c) Manufacture Details

TECHNICAL DATA

NBAF and NBAFL Floor Expansion Joint Covers

07 95 00



PRODUCT DESCRIPTION

"No Bump" floor expansion joint cover with extruded aluminum side frames and a cover plate held in place with a seismic centering device. The "No Bump" design allows for frequent thermal movement as well as seismic movement.

IDEAL FOR

- Applications such as hospitals, where bumps in the floor must be minimized.

PERFORMANCE

Loading



PEDESTRIAN



GURNEY/BED



X-RAY



GOLF CART

For detailed load information, refer to Balco Load Data Sheet, available online. Contact factory for analysis of project-specific load cases.

Joint Sizes

1" - 10" (25mm - 254mm)

Movement Capabilities:

Permits unrestrained movement of the joint without disengagement of the cover.



Expansion/contraction



Lateral shear



Vertical shear*

Contact factory for details



SEISMIC

THERMAL



WIND

Per ASTM E1399

ADA Compliant

ADVANTAGES

- Easy to clean and maintain
- Flush "no bump" design

LIMITATIONS

- Provided in 10'-0" (3048mm) maximum lengths

*Lateral shear movement requires specific accommodations at wall terminations, contact factory for details.

NBAF AND NBAFL FLOOR EXPANSION JOINT COVERS

MATERIALS

- Aluminum extrusions: 6063-T5, 6005A-T61, ASTM B221
- Aluminum plate: 5052-H32, ASTM B209
- Standard fasteners provided for assembly and installation
- All surfaces in contact with masonry or concrete will be protected by a factory-applied coating.

OPTIONS

- Fire Barrier
- Water Barrier

FINISH

Aluminum extrusions: Mill finish

Aluminum plate: Directional textured finish

RELATED PRODUCTS

- NBSF and NBSFL Series
- NBR and NBRL Series

ADDITIONAL DOCUMENTATION

- Product details
- Installation instructions
- Maintenance and cleaning
- ASTM E1399
- Warranty
- SDS documentation
- LEED documentation

WARRANTY

Standard Warranty: 1 year

Optional Warranty: 5 years with Certified Installer

Sample warranty available upon request.

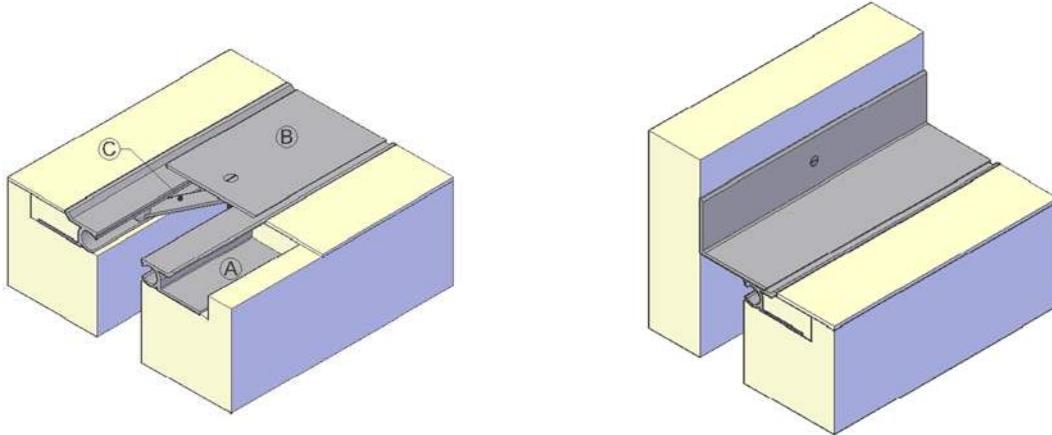
NBAF(L) & NBSF(L)Floor Systems

Installation Instructions

NBAF(L) & NBSF(L) Floor Systems - The following installation instructions are very important. Read them carefully, and be sure you understand them completely, before you begin any work. Refer to Balco shop drawings for placement dimensions and anchor spac-

Parts:

- A. Base Member
- B. Cover Plate
- C. Centering Bar
- D. Centering Bar Bolt
- E. Anchors

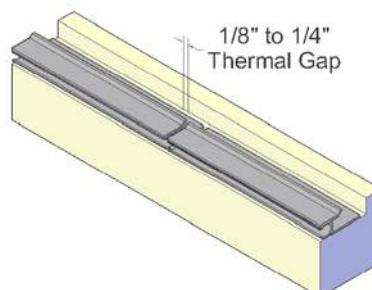


Step 1:

This system requires that the floor slab be blocked-out for installation. Reference Balco approved shop drawings for block-out dimensions. Ensure that the block-out is level and that the concrete has completely set before proceeding with installation.

Important Note:

For installations exposed to significant daily or seasonal temperature changes, it is necessary to leave a gap between adjoining base member extrusions. This gap allows for thermal expansion. An 1/8" gap is recommended for extrusions 10'-0" in length or less; a 1/4" gap is recommended for extrusions exceeding 10'-0" in length.



Step 2: Drill Base Member Anchor Holes

Clean block-out of any loose materials. Grout where necessary to level the setting bed. Mark and drill base member anchor locations. Using the drilled base member as a template, mark and drill slab anchor holes. Anchors should be spaced a maximum of 3" (76mm) from each end. Reference Balco approved shop drawings for O.C. spacing requirements.

If fire barrier is to be installed with the expansion joint cover, anchor hole spacing should reflect fire barrier anchor spacing requirements.

- ◆ Repeat for each subsequent base member and opposite side of the joint for floor-floor models.

Step 3: Install Fire Barrier / Water Barrier (*If Applicable*)

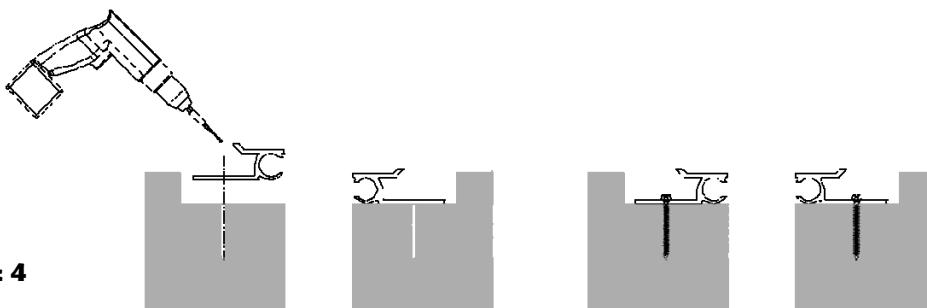
If required, fire barrier or water barrier should be installed at this time. Reference the appropriate instructions for information on how to install these products.

Step 4: Secure Base Members to Slab

Select a section of the previously drilled base member and place it into position for installation. Ensuring that the extrusion is level and aligned, fasten the base member to the slab using the factory provided anchors.

- ◆ Repeat for each subsequent base member and opposite side of the joint for floor-floor models.

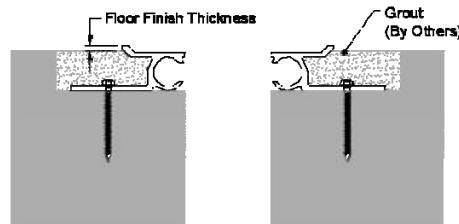
Steps 2 & 4



Step 5: Apply Grout

Apply grout (provided by others) continuously between the base members and the block-out. Remove any excess grout from the exposed surfaces of the aluminum base members.

- ◆ Repeat as necessary for the opposite side of the

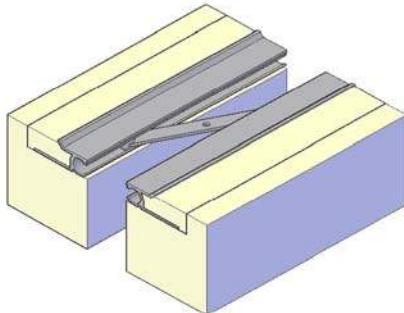


Step 5: Install Centering Bars (*Applies to Floor-to-Floor Models Only*)

Select a section of cover plate and the appropriate number of centering bars for the section of cover plate being installed. Each pre-drilled cover plate bolt hole requires (1) centering bar and (1) bolt.

Select a centering bar and insert the spheres into the base member's track using the notch provided in the center of each section of base member. Use the cover plate's pre-drilled bolt holes as a reference for positioning each centering bar.

- ◆ Repeat as necessary until all successive centering bars have been installed.
Centering bars must be installed parallel to one another.



Step 6: Attach the Cover Plate

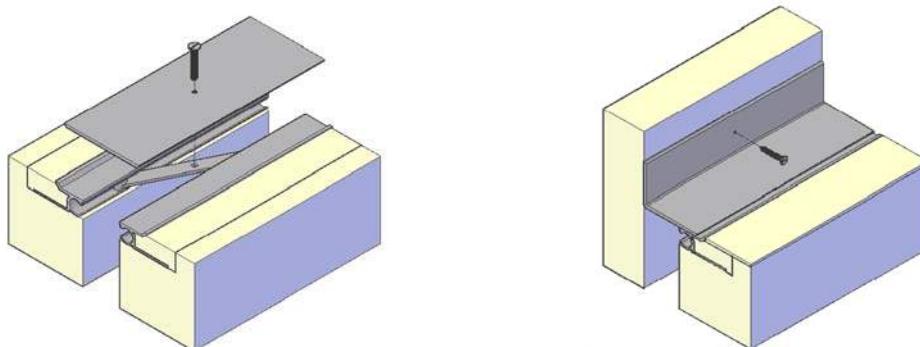
Floor to Floor Models:

Select a section of cover plate and place it into position for installation. Using the centering bar bolts provided, attach the cover plate to each centering bar. The centering bar bolts should be tightened by hand until snug. Do not over-tighten.

Floor-to-Wall Models:

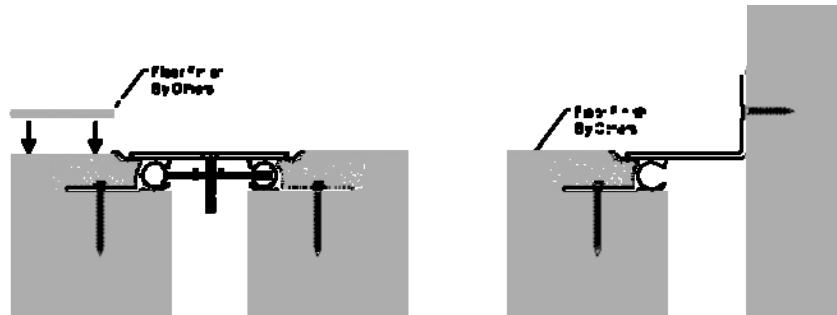
Select a section of cover plate for installation. If the cover plate's anchor holes were not drilled at the factory, mark and drill the anchor holes on the cover plate. Using the cover plate as a template, mark and drill the anchor holes on the wall. Fasten the cover plate to the wall using the factory provided anchors.

- ◆ Repeat as necessary for each successive section of cover plate.



Step 7: Install Floor Finish

If required, floor finish material is to be installed at this time. Install floor finish material in accordance with the instructions provided by the floor finish manufacturer.



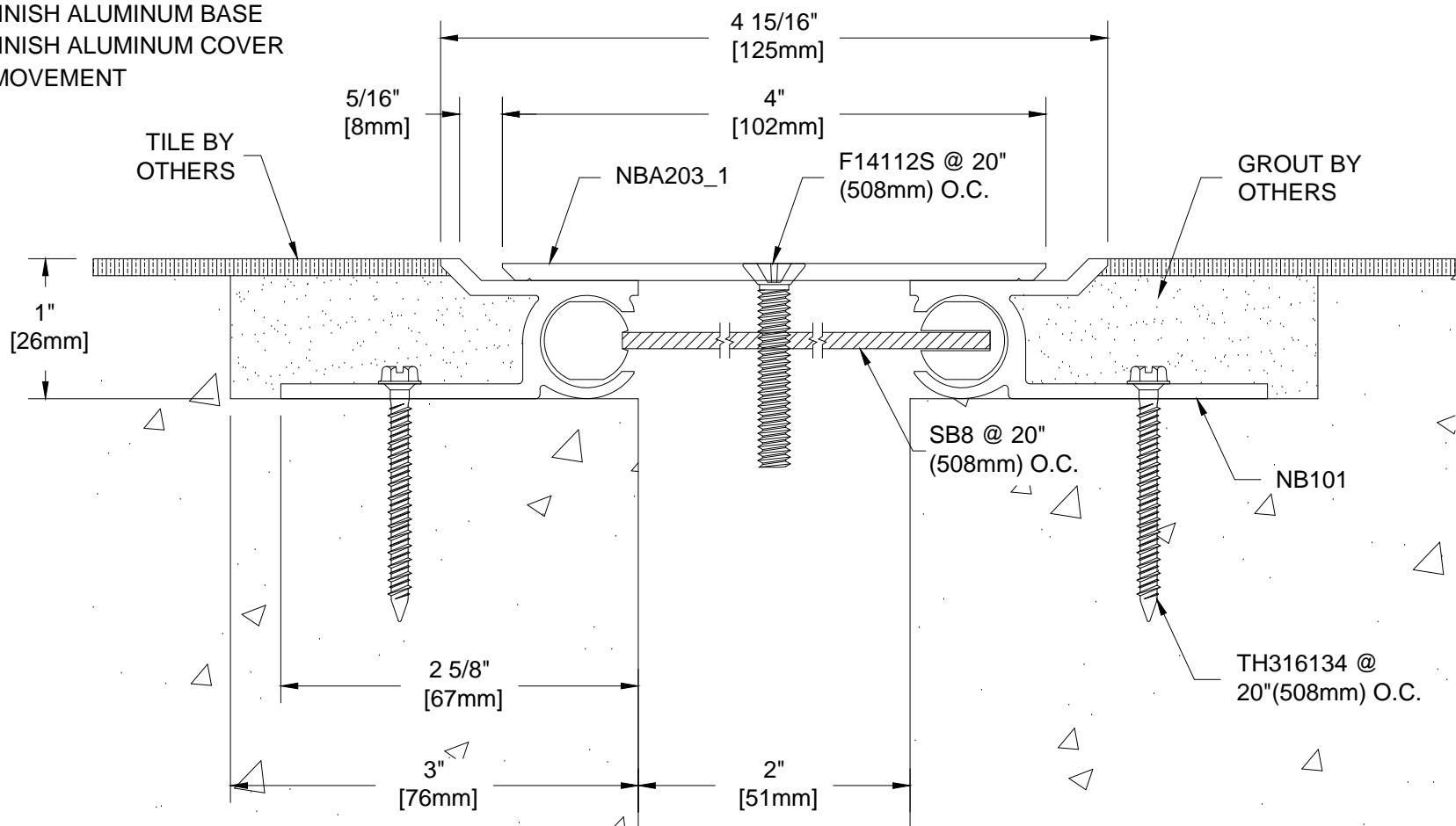
NBAF-2

NO-BUMP FLOOR TO FLOOR SYSTEM

MILL FINISH ALUMINUM BASE

MILL FINISH ALUMINUM COVER

100% MOVEMENT



| | | | |
|---------------------|--------|------|-------|
| Project: | | | |
| Customer: | | | |
| SO# | | | |
| Date: | | | |
| Page _____ of _____ | Length | Qty. | Color |
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Drawn By: DEB

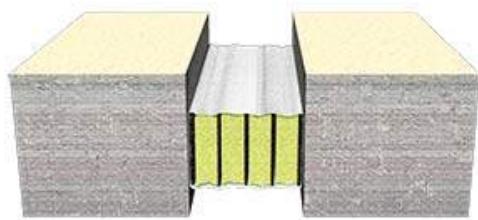


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A CSW Industrials Company

MetaBlock® Expansion Joint Fire Barrier



PRODUCT DESCRIPTION

MetaBlock® is a patented **resilient fire barrier** for use in horizontal and vertical applications that installs without mechanical fasteners. MetaBlock® is protected under US patents US 8,720,138 and US 8,601,760.

IDEAL FOR

- Use in conjunction with elastomeric seals where attachment with mechanical fasteners is not possible
- Applications requiring many transitions
- Wall and floor applications where a quick, simple installation is desired
- 1, 2, 3, or 4 hour fire-rated construction

PERFORMANCE

Joint Sizes

1" - 6" (25mm - 152mm) Maximum opening

Movement Capabilities

MetaBlock™ permits unrestrained movement of the joint without compromising the integrity of the barrier.



Expansion/contraction

Lateral and vertical shear
Contact factory for details

Per ASTM E1399

Fire resistance ratings

1, 2, 3, and 4 hours in accordance with ASTM E1966 and UL 2079.

ADVANTAGES

- Easy to install, splice, and transition
- Reduces installation costs
- Does not require mechanical fasteners, caulk, or sealants
- Contains no asbestos
- Contains no solvents or other hazardous ingredients
- May be used with a variety of joint cover systems and cover materials.

LIMITATIONS

- To be used only in assemblies that meet or exceed tested conditions.

ADDITIONAL DOCUMENTATION

- Product details
- Installation instructions
- U.L. listings
- ASTM E1399
- Warranty
- MSDS documentation
- LEED documentation

WARRANTY

Standard Warranty: 1 year

Optional Warranty: 5 years with Certified Installer
Sample warranty available upon request.

MetaBlock® Expansion Joint Fire Barrier

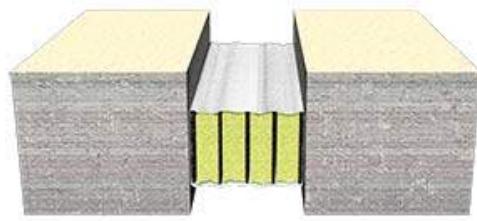
| Fire Barrier | Application | Fire Rating | U.L. Listings |
|---------------------|--------------------|--------------------|--|
| MBF2H0125 | FLOOR/ROOF | 2 HOUR | FF-S-0035, FF-D-0059 |
| MBF2H0238 | FLOOR/ROOF | 2 HOUR | FF-S-1038, FF-D-1071, FF-D-0066 |
| MBF2H0350 | FLOOR/ROOF | 2 HOUR | FF-S-1038, FF-D-1071, FF-D-0078 |
| MBF2H0450S | FLOOR/ROOF | 2 HOUR | FF-S-1038, FF-D-1071, FF-D-0078 |
| MBF2H0600 | FLOOR/ROOF | 2 HOUR | FF-D-1137, FF-D-1138, FF-D-1139, FF-D-1140 |
| MBF3H0125 | FLOOR/ROOF | 3 HOUR | FF-D-1160 |
| MBF3H0238 | FLOOR/ROOF | 3 HOUR | FF-D-1160 |
| MBF3H0350 | FLOOR/ROOF | 3 HOUR | FF-D-0066, FF-S-1038, FF-D-1160 FF-D-1078 |
| MBF3H0450S | FLOOR/ROOF | 3 HOUR | FF-S-1038, FF-D-1160, FF-D-1078 |
| MBF3H0600 | FLOOR/ROOF | 3 HOUR | FF-D-1137 |
| MBF4H0125 | FLOOR/ROOF | 4 HOUR | FF-D-1161 |
| MBF4H0238 | FLOOR/ROOF | 4 HOUR | FF-D-1161 |
| MBF4H0350 | FLOOR/ROOF | 4 HOUR | FF-D-1161 |
| MBF4H0450S | FLOOR/ROOF | 4 HOUR | FF-D-1038, FF-D-1161, FF-D-1078 |
| MBW2H0125 | WALL | 2 HOUR | WW-D-1076, WW-D-0050 |
| MBW2H0238 | WALL | 2 HOUR | WW-D-0072, WW-D-1076, WW-D-1069 |
| MBW2H0350 | WALL | 2 HOUR | WW-D-0071, WW-D-1076, WW-D-1069 |
| MBW2H0450S | WALL | 2 HOUR | WW-D-0071, WW-D-1076, WW-D-1069 |
| MBW3H0125 | WALL | 3 HOUR | WW-D-1175 |
| MBW3H0238 | WALL | 3 HOUR | WW-D-1175 |
| MBW3H0350 | WALL | 3 HOUR | WW-D-1175 |
| MBW3H0450S | WALL | 3 HOUR | WW-D-1175 |
| MBW4H0125 | WALL | 4 HOUR | WW-D-1176 |
| MBW4H0238 | WALL | 4 HOUR | WW-D-1176 |
| MBW4H0350 | WALL | 4 HOUR | WW-D-1176 |
| MBW4H0450S | WALL | 4 HOUR | WW-D-1176 |

INSTALLATION INSTRUCTIONS



A CSW Industries Company

MetaBlock®



MBF2H0125, MBF2H0238, MBF2H0350, MBF2H0450S

IMPORTANT

The following instructions are very important.

Read them carefully, and be sure you understand them completely before you begin any work.

Store this product in the horizontal position in a clean, dry location. This is a finished product. Store this product in a protected area. Do not stack anything on top of this product.

Review approved Balco shop drawings for types and locations prior to beginning work.

RECOMMENDED TOOLS

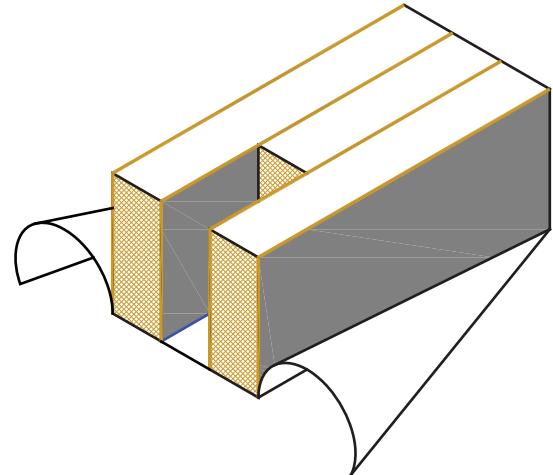
CLEAN RAGS / MINERAL SPIRITS / UTILITY KNIFE / MITER BOX AND SAW

STEP ONE

If splicing is not required, proceed to **Step Five**.

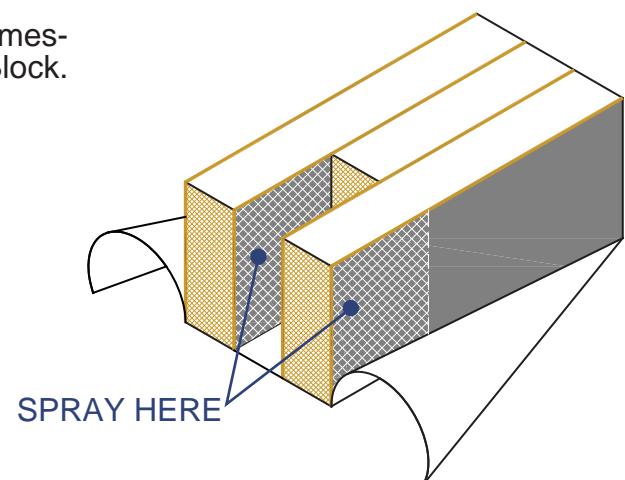
If splicing is required, select the mating pieces of MetaBlock® and the provided spray adhesive.

Fold back the aluminum scrim a nominal 6" (152mm) to reveal the mating ends of each section.



STEP TWO

Spray adhesive onto the overlap sections of intumescent mat on one of the mating sections of MetaBlock.



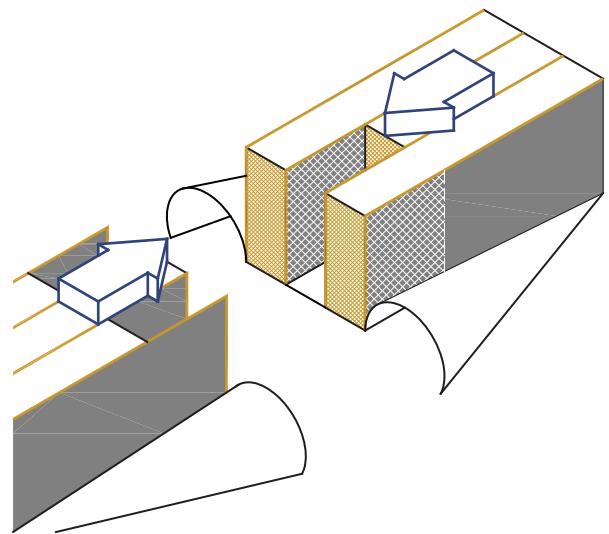
MetaBlock® 2 Hour Floor Expansion Joint Fire Barrier, Sizes 0125 - 0450S

STEP THREE

Compress the mating sections of the MetaBlock® together so that the fingers and grooves fit together, the foam ends are pressed snuggly together and the overlapped intumescent mat strips are glued to one another.

NOTE:

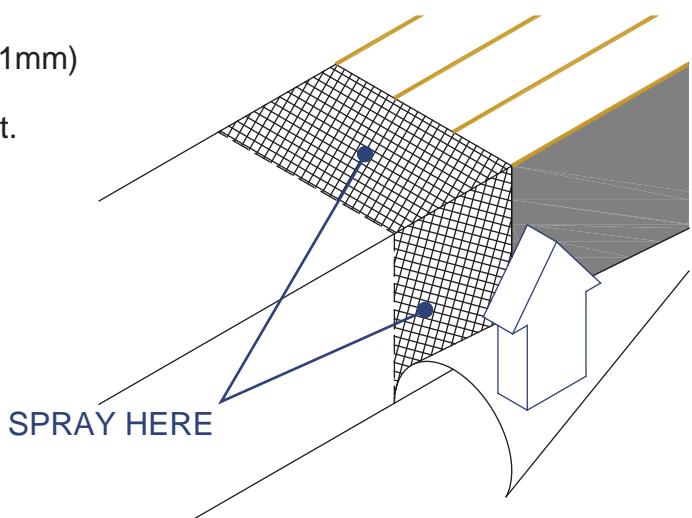
It is not necessary to glue the ends of the foam to one another.



STEP FOUR

The aluminum scrim sections should overlap a nominal 2" (51mm)

Apply spray adhesive to the overlap of the scrim and close it.

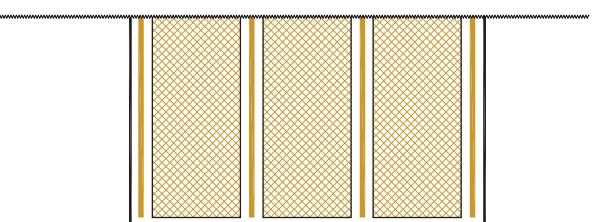


STEP FIVE

Trim the MetaBlock® to length, as required.

Use a hand saw with a fine-toothed blade (approx. 32 teeth per inch) and a miter box to trim the MetaBlock® to length. Take care not to crush the MetaBlock®.

If the saw does not cut completely through the MetaBlock®, use a utility knife to trim the remaining scrim.



MetaBlock® 2 Hour Floor Expansion Joint Fire Barrier, Sizes 0125 - 0450S

STEP SIX

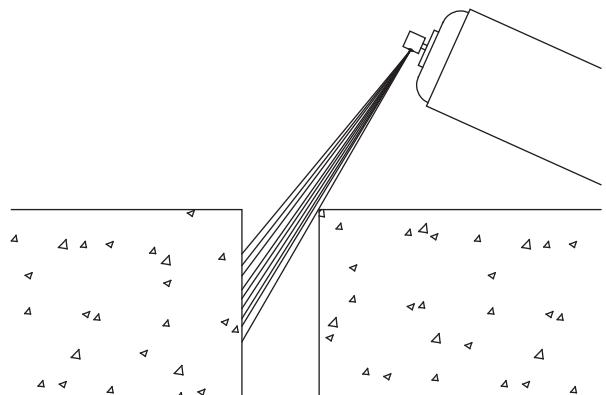
Option 1

Select the spray adhesive.

Spray adhesive onto the area of both joint interface walls that will contact the respective sides of the MetaBlock®.

Ensure that the adhesive is not sprayed onto the surfaces that will receive the joint cover sealants or adhesives. A piece of cardboard may be used to shield these surfaces as the adhesive is applied.

Compress the MetaBlock® into the joint so that it contacts the adhesive coated areas of the joint interface walls, leaving no gaps.

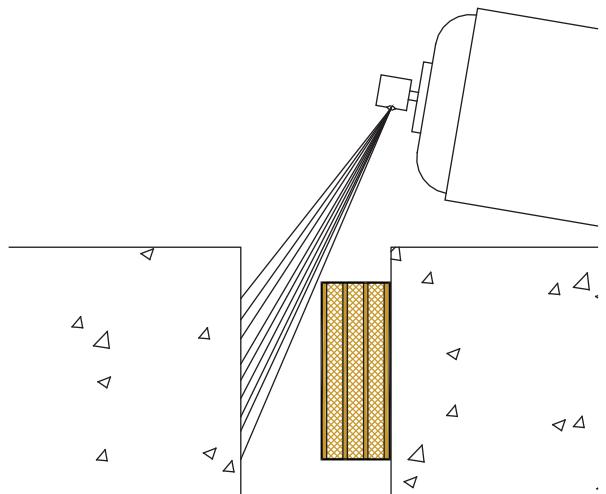


Option 2

In some cases, it is easier to use an alternate installation method.

First, insert the MetaBlock® into the joint. Then, working from one end of the joint to the other, use your hand to pull the barrier away from the joint and spray adhesive on the joint surface behind the barrier.

Repeat this process on both sides of the installed fire barrier, ensuring no kinks or gaps develop in the MetaBlock®.



STEP SEVEN

Complete the installation of the joint cover system in accordance with the installation instructions appropriate for the system.

MetaBlock® 2 Hour Floor Expansion Joint Fire Barrier, Sizes 0125 - 0450S

TRANSITIONS

90 DEGREE TRANSITIONS IN THE SAME PLANE

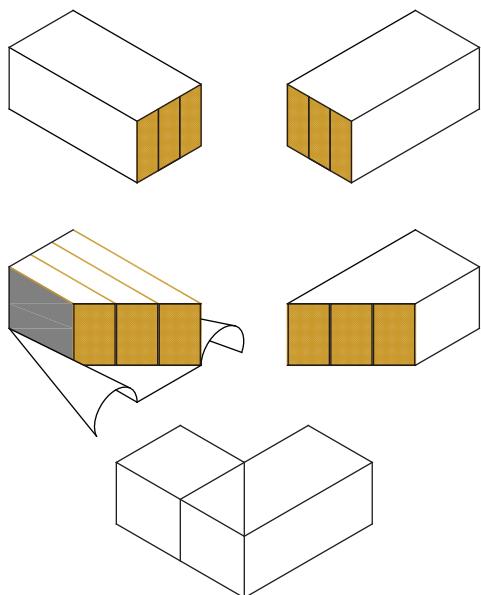
To transition MetaBlock® in the same plane, first trim both mating pieces of MetaBlock® so that both the block and encapsulating scrim of each section are flush. (See **Step Five**.)

Select one mating piece of MetaBlock® and miter the mating end (both block and scrim) at a 45 degree angle.

Select the other mating piece of MetaBlock® and miter only the block at the matching 45 degree angle. Do not trim the scrim of this piece.

Mate the two pieces together, then use the included spray adhesive to adhere the aluminum scrim together.

Install the finished MetaBlock® transition in accordance with **Steps One through Seven**.



90 DEGREE FLOOR TO WALL TRANSITIONS

To transition floor and wall MetaBlock®, first trim both mating pieces of MetaBlock® so that both the block and encapsulating scrim of each section are flush. (See **Step Five**.)

Firmly abut both mating pieces of MetaBlock® and install in accordance with the appropriate installation instructions.

MBF2H0238

METABLOCK® FLOOR

2 HOUR RATED FIRE BARRIER SYSTEM

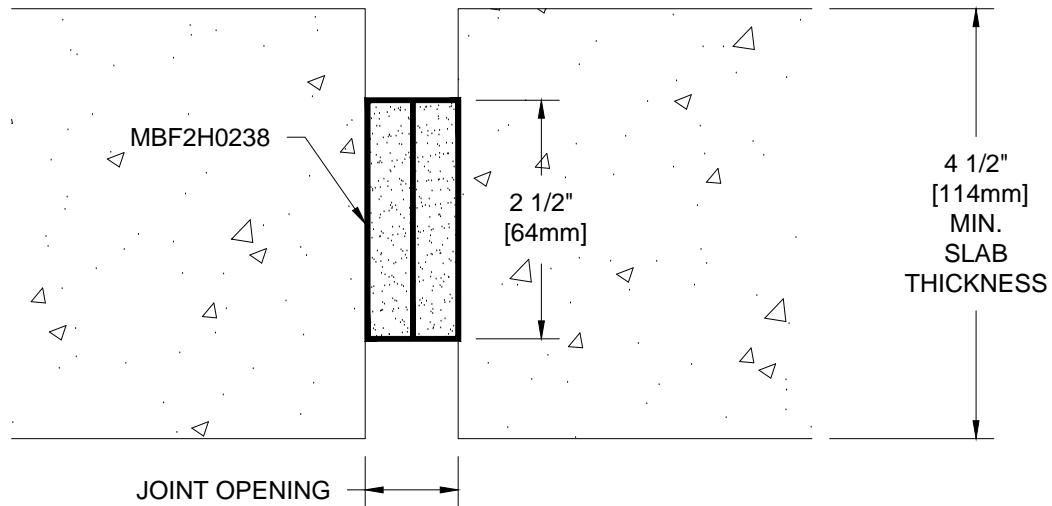
APPLICATION:

FOR USE WITH METAL EXPANSION JOINT
COVERS AND ELASTOMERIC SEALS

NOTES:

FIRE RATING IS DETERMINED NOT ONLY BY THE METABLOCK® FIRE BARRIER, BUT ALSO BY THE PERFORMANCE CAPABILITIES OF THE SURROUNDING CONSTRUCTION

AVAILABLE IN 7'-0" (2134mm) PIECES



| MBF2H0238 - 2 HOUR FLOOR FIRE BARRIER | | | | | | |
|---------------------------------------|---------------|------------------|---------------|-------------------|---------------|---------------------------------|
| INSTALLATION RANGE | | THERMAL MOVEMENT | | SEISMIC MOVEMENT* | | |
| MINIMUM | MAXIMUM | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM | UL LISTINGS |
| 3/4" (19mm) | 2 3/8" (60mm) | 3/8" (10mm) | 2 3/8" (60mm) | 3/8" (10mm) | 2 3/8" (60mm) | FF-S-1038, FF-D-1071, FF-D-0066 |

*NOTE: FIRE BARRIERS HAVE BEEN TESTED PER UL2079 STANDARDS AT FULL THERMAL MAX OPENING FOR THE DURATION OF THE HOURLY RATING INDICATED.

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| Date: |
| Page _____ of _____ |
| Scale: NTS |

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Drawn By: HRS

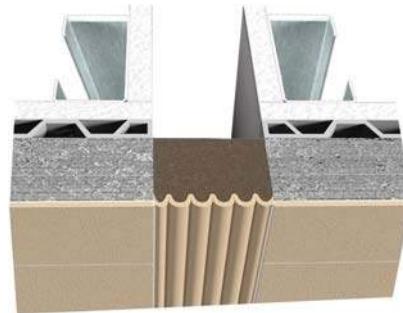


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A CSW Industries Company

BCSW Wall Compression Seals



PRODUCT DESCRIPTION

Pre-compressed polyurethane microcell foam, impregnated with a hydrophobic polymer compound that is UV stable and chemically resistant. The exposed surface is coated with a colorized silicone coating. When installed in a properly sized joint, BCSW forms a watertight, dust-proof, airtight, sound resistant insulated seal.

IDEAL FOR

- Expansion joints in glass curtain walls and other applications where mechanical fasteners are impractical or not permitted
- Watertight applications
- Interior and exterior walls

PERFORMANCE

Joint Sizes

½" - 8" (13mm - 203mm)

Movement Capabilities:

Permits unrestrained movement of the joint without damage to the seal.

Expansion/contraction

Per ASTM E1399
SEISMIC THERMAL WIND

PHYSICAL CHARACTERISTICS

- 15 Shore A durometer silicone coating per ASTM C661
- Density: 10 lb/ft³ (160kg/m³)
- Thermal Conductivity: 0.05W/m.°C
- Temperature Stability Range: -40°F - 185°F
- Flash Point: 509°F

ADVANTAGES

- Ease of installation
- Excellent mildew resistance
- Excellent compression recovery
- Does not require mechanical fasteners
- Available in a wide range of colors
- Not based on asphaltic or bitumastic impregnation
- Conforms to joint irregularities, provided they are not sudden or extreme.

OPTIONS

- Fire Barrier

LIMITATIONS

- Limited shear movement capabilities
- Must be installed within recommended temperature range (50° – 80°F 10° – 26°C)
- Seals for joint sizes ½" and above are provided in 5' lengths.

FINISH

Seal available in all Dow Corning 790 colors

RELATED PRODUCTS

- BBSW
- 2FRBCSW / 3FRBSCW
- BCSF-SL
- 2FRBCSF-SL / 3FRBCSF-SL
- BCSWE
- BHFE

BCSW Wall Compression Seals

PERFORMANCE DATA

Tensile Strength:

Meets 21 psi min., per ASTM 3574

Ultimate Elongation:

125% ± 20% per ASTM 3574

Resistance to Compression Set:

Max 2.5%

Air Leakage:

< 0.01 cfm/ft² (< 0.3 L/s/m²) at 1.6 psf (75 Pa) per ASTM E283

< 0.01 cfm/ft² (< 0.3 L/s/m²) at 6.2 psf (300 Pa) per ASTM E283

Uniform load net deflection:

≤ 0.012" (.3mm) at ± 202.76 psf (± 9708 Pa) per ASTM E330

Uniform load net permanent set:

≤ 0.012" (.3mm) at ± 202.76 psf (± 9708 Pa) per ASTM E330

Water Resistance:

Pass at 104.43 psf (5000 Pa) per ASTM E547 and ASTM E331

Pass at 35 psi (241317 Pa) per AAMA501.2

Sound Transmission Loss:

50 STC, 46 OITC per ASTM E90

Effects of Accelerated Weathering and UV:

Subjected to 5000 hours of exposure per ASTM G155 with no tackiness, blisters, voids, crazing, chalking, cracking or hardening.

R-Value:

3.2-R per inch of material thickness

Flammability:

Self-extinguishing, flame spread 0 per ASTM E84

ADDITIONAL DOCUMENTATION

- Product details
- Installation instructions
- Maintenance and cleaning
- ASTM E1399
- Warranty
- SDS documentation
- LEED documentation

WARRANTY

Standard Warranty: 1 year

Optional Warranty: 5 years with Certified Installer

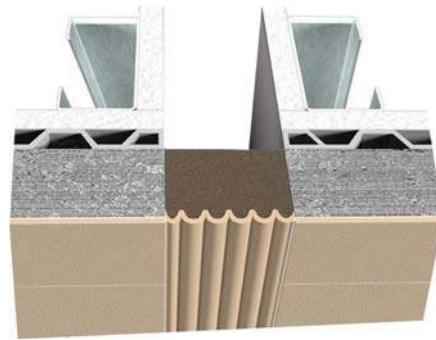
Sample warranty available upon request.

INSTALLATION INSTRUCTIONS



A CSW Industries Company

BCSW Wall Compression Seals



IMPORTANT

The following instructions are very important.

Read them carefully, and be sure you understand them completely before you begin any work.

Store this product in the horizontal position in a clean, dry location. This is a finished product. Store this product in a protected area. Do not stack anything on top of this product.

Review approved Balco shop drawings for types and locations prior to beginning work.

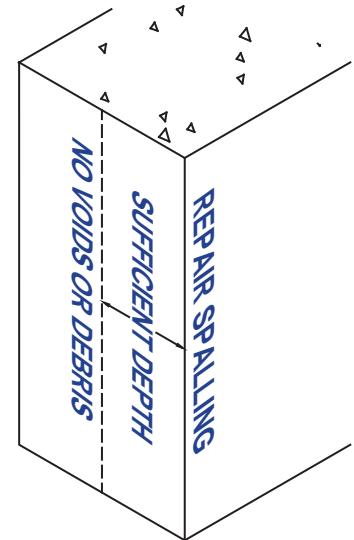
RECOMMENDED TOOLS

TAPE MEASURE / CHOP SAW / SHARP KNIFE / MASKING TAPE / MINERAL SPIRITS / CLEAN CLOTH / PUTTY KNIFE / CAULKING GUN / DUCT TAPE (FOR EPOXY INSTALLATION) / TROWEL (FOR EPOXY INSTALLATION) / CLEAN BUCKETS (FOR EPOXY INSTALLATION)

JOINT PREPARATION

Measure the joint width every 5' to 7' (1.5m - 2.1m) to verify the joint is correctly sized. This should be performed prior to receiving product.

Verify the joint is clean, uniform, and of sufficient depth for the seal to be recessed 1/8" - 1/4" (3mm - 6mm)



IMPORTANT:

Concrete adjacent to the expansion joint system must be sound. This should be confirmed by tapping these areas with a hammer. If a hollow sound is heard or the concrete cracks, crumbles or loosens, the unsound concrete must be removed and repaired with a structural repair mortar. Confirm repaired areas are sound by the same method described above.

SEAL PREPARATION

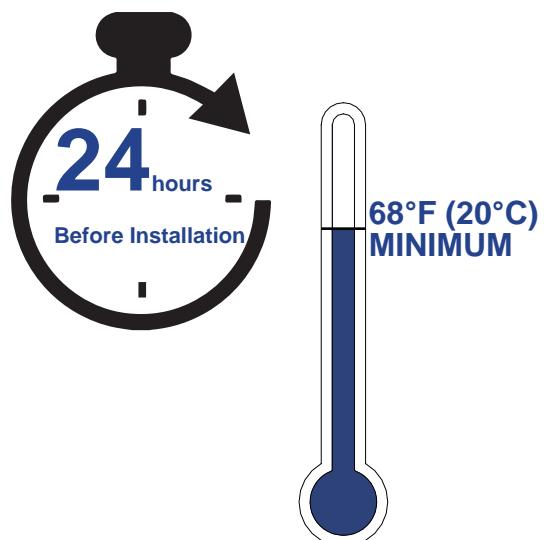
Store materials at a minimum temperature of 68°F (20°C) for a minimum of 24 hours prior to installation.

Store materials in a clean, dry location away from direct sunlight.

NOTE:

Material will expand faster when hot and slower when cold.

In hot temperatures, do not store material in an enclosed container where temperatures exceed 100°F (38°C).



BCSW Wall Compression Seals

STEP ONE

If fire barrier is provided in conjunction with the BCSW, install the fire barrier at this time.

Install the fire barrier in accordance with the applicable fire barrier installation instructions and Balco shop drawings or details.

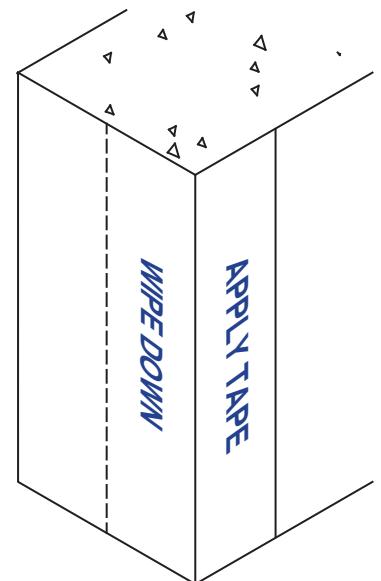
STEP TWO

Apply tape to the deck surfaces adjacent to the joint opening.

For installations without epoxy bonding adhesive, use blue painters tape.

For installations with epoxy bonding adhesive, such as 6" (152mm) or larger nominal joints or installations with fire barrier, use duct tape.

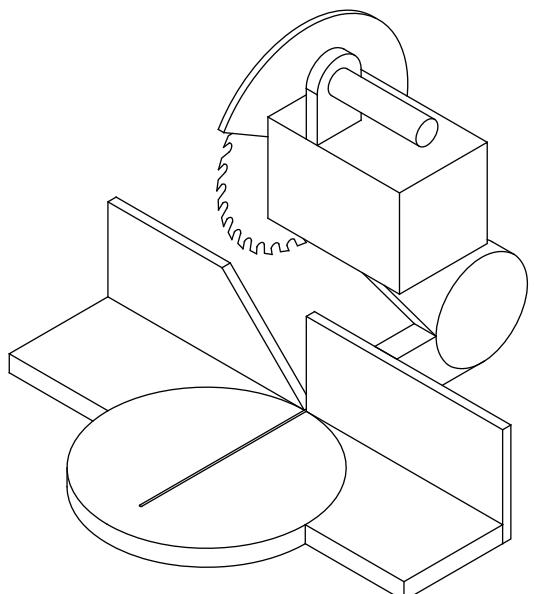
Apply water or alcohol to a clean cloth and wipe the joint walls to the depth of the seal material plus 1" (25mm).



STEP THREE

Use a miter saw to make any cuts to the BCSW prior to removing the clear shrink packaging. All starting and ending pieces must be square to the termination point.

Use a sharp knife to make any cuts after the packaging and wooden boards have been removed. Apply mineral spirits to the knife to aid cutting.



IMPORTANT:

Do not remove the shrink packaging until ready to install in the joint. Install the material directly after removing the shrink packaging to ensure the material does not expand past the joint.

BCSW Wall Compression Seals

STEP FOUR

For installations without epoxy bonding adhesive, proceed to **Step Six**.

For installations with epoxy bonding adhesive, such as 6" (152mm) or larger nominal joints or installations with fire barrier, select both parts of the epoxy Bonding Adhesive.

Mix Part A and Part B separately.

Transfer the entire contents of Part A, THEN the entire contents of Part B into a clean container. Mix the material thoroughly with a low speed (300rpm) drill or jiffy mixer.

Mix until the black and white are evenly blended, leaving no streaks of either color.

Transfer the final mixture into a separate clean container to prevent unmixed residue streaking and contaminating final mixture.

EPOXY NOTES:

- Mix only the required amount of epoxy that will be used within 30 minutes
- Epoxy will not cure when the temperature is below 40°F (4.4°C).
- Greater volume = less time to cure
- Smaller volume = more time to cure
- For every +17°f (10°C), Epoxy cures twice as fast
- For every -17°f (10°C), Epoxy cures half as fast
- To increase the pot life of Epoxy, split up the mixed material into smaller units.

STEP FIVE

When fully prepared to install, apply a 40mils (1mm) coating of the epoxy to both joint walls, to a depth of the seal plus 1/2" (13mm).

Begin installation at the bottom of the joint and work upward. The installed sticks of BCSW will support subsequent sticks until full expansion is achieved. For horizontal installations, work from one end to the other.

Once epoxy is applied, proceed to **Step Seven**.

NOTE:

Epoxy must be wet upon installation of BCSW. The working time for epoxy is approximately 30 minutes, temperature dependant.

If the epoxy hardens prior to installation, another coat can be applied within 8 hours. After 8 hours, the joint surface must be abraded prior to re-coating with epoxy.

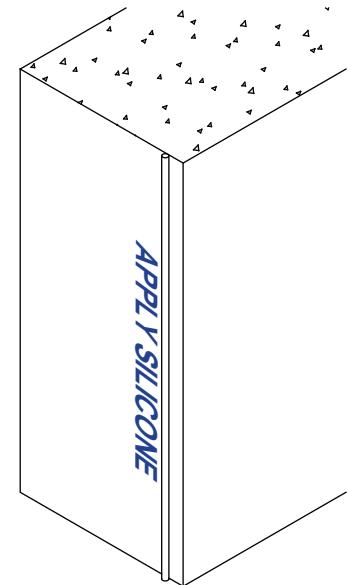
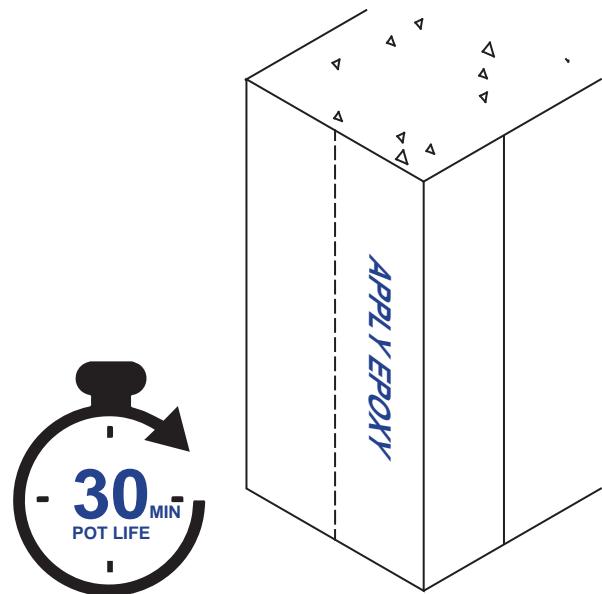
STEP SIX

For installations without epoxy bonding adhesive, apply a 1/4" (6mm) bead of the supplied silicone adhesive along both joint walls, approximately 1/2" - 3/4" (13mm-19mm) back from the surface of the substrate.

Begin installation at the bottom of the joint and work upward. The installed sticks of BCSW will support subsequent sticks until full expansion is achieved. For horizontal installations, work from one end to the other.

NOTE:

When a continuous joint cannot be finished, the silicone should stop at the last stick installed, and silicone should not be applied to the end of the installed material until the next piece is ready to be installed.



BCSW Wall Compression Seals

STEP SEVEN

When fully prepared to install, open the material by cutting the clear shrink packaging along the wooden boards.

Remove the boards and release lining from both sides of the BCSW.

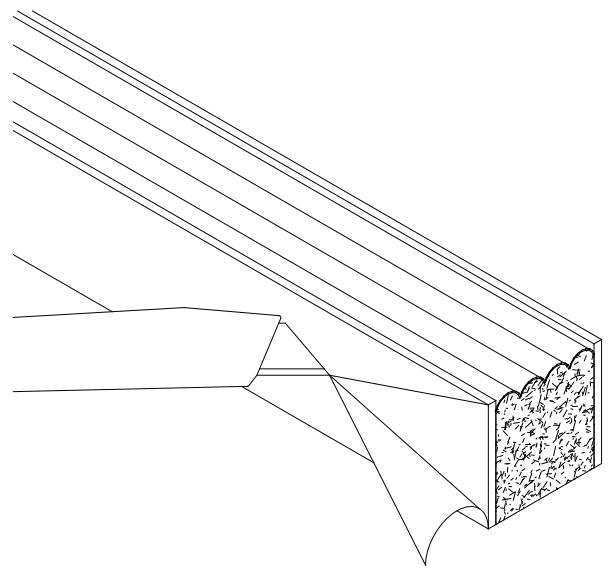
IMPORTANT:

Do not remove the shrink packaging until ready to install the BCSW in the joint.

Do not cut the colored face of the material.

Do not twist or pull the material to avoid tearing the release liner.

Once the packaging is removed, be prepared to install the material immediately after removing the shrink packaging to ensure the material does not expand past the joint.



STEP EIGHT

Place the material into the joint while gently pushing the pressure sensitive adhesive against the side of the joint. The silicone coating of the seal should be flush with, not protruding above, the substrate surface.

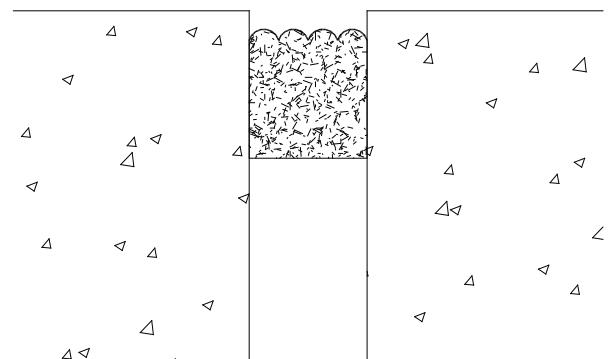
Once the material is in place, use a clean margin trowel to firmly press the adhesive to the substrate.

Allow the material to expand to fill the joint.

Allow 72 hours for full expansion and material equalization. Expansion and equalization rates are affected by temperature.

NOTE:

If the pressure sensitive adhesive is hampering installation, use a spray bottle of water to wet the adhesive surface of the BCSW.



STEP NINE

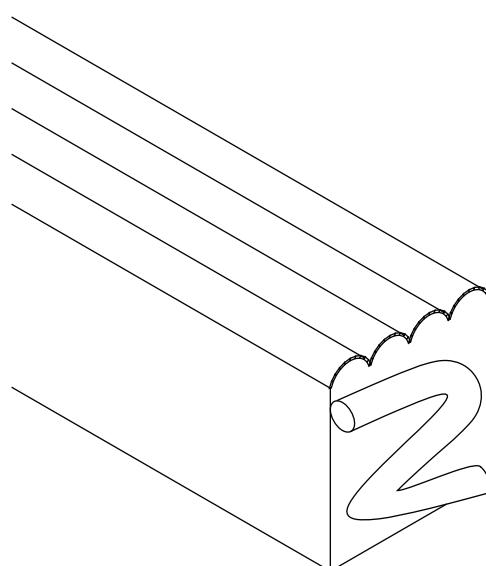
If splicing is not required, proceed to **Step Ten**.

If splicing is required, select the piece of BCSW to be spliced. To ensure proper fit and provide for compression at splices, cut the final piece of seal for each run 1/2" (13mm) longer than the joint opening. Verify both ends of the seal are cut square for proper seams. All pieces must be square to the termination point. Refer to **Step Three** as necessary.

Apply a minimum 1/4" (6mm) bead of sealant to the mating end of the seal to be installed.

Firmly compress new seal to seal already installed in joint.

Butt seam all "Tee" "Cross" and corner intersections. For horizontal to vertical transitions, install the horizontal material first, then butt the vertical material to the horizontal material.



BCSW Wall Compression Seals

STEP TEN

Once all seals are installed, tool silicone over all seams and transitions using a small caulking tool.

Evenly spread the silicone on exposed seams for a clean, aesthetically pleasing finish. Fill any holes or voids in seams with the silicone to fill and seal the joint.

Run a bead of silicone along each edge of the joint to fill any irregularities in the substrate.

NOTE:

BCSW does not require an external fillet bead to provide a watertight seal.

STEP ELEVEN

Remove tape from adjacent areas and clean the installation area. Ensure that any remaining sealants or epoxy are stored or disposed of properly.

NOTE:

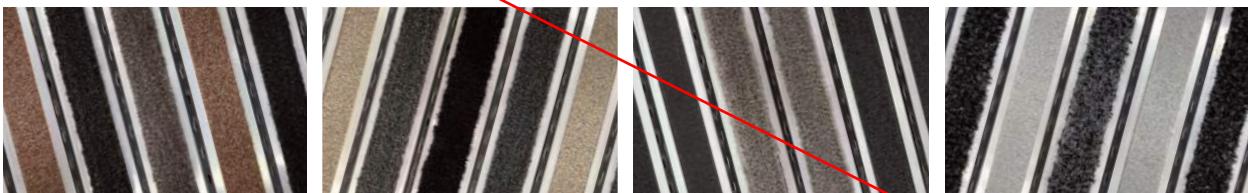
Do not allow epoxy or sealant to cure before removing the tape.

DESIGNER STYLE PATTERNS

NEW

Repeating rail patterns of abrasive and carpet tread. Learn more at balco.us/designer.

COLOR THEMES



Oxidized Alloy

Repeating pattern of:
• Red Stone Abrasive
• Gunmetal Carpet
• Black Granite Carpet

Obscure Fossil*

Repeating pattern of:
• Graphite Carpet
• Blackout HD Carpet
• Graphite Carpet
• Brown Bark Abrasive

Obsidian

Repeating pattern of:
• Black Abrasive
• Black Abrasive
• Ash HD Carpet
• Ash HD Carpet

Ore Mine*

Repeating pattern of:
• Nickel Gray Abrasive
• Gray Quartz HD Carpet
• Nickel Gray Abrasive
• Black Onyx HD Carpet

SILICONE OPTIONS

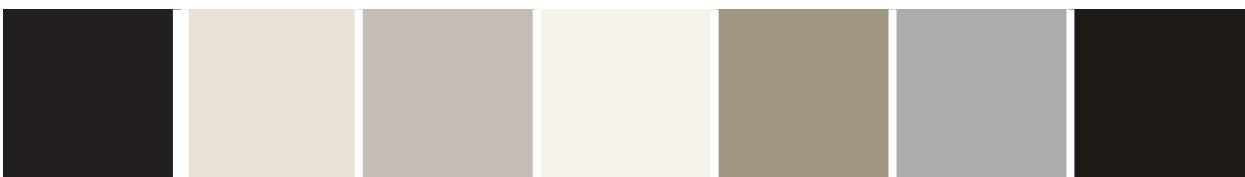
A/E, PLEASE SELECT COLOR

Dow Corning® 790

"Other" colors subject to 100-foot-per-product minimum order quantity or setup charges, applicable to all Michael Rizza™ (RR, RW & PCS) products. For EV & IS, standard colors are Black, White, Gray, Bronze and Sandstone. For BCS, all colors are standard.

STANDARD

OTHER



Black

Precast White

Limestone

White

Natural Stone

Gray

Bronze



Sandstone

Adobe Tan

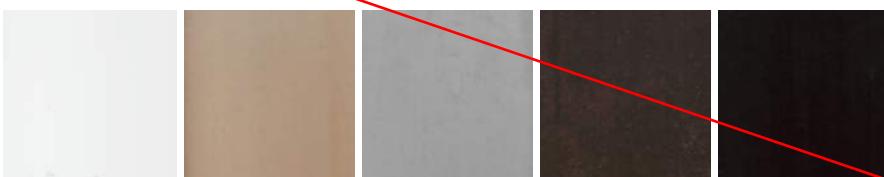
Dusty Rose

Rustic Brick

Blue Spruce

Charcoal

SANTOPRENE OPTIONS



White**

Tan

Gray

Bronze

Black

*Designer styles Obscure Fossil and Ore Mine have been updated, replacing obsolete Gravel Gray with Brown Bark and Silver Gray with new Nickel Gray, respectively.

**White not available for floor applications.

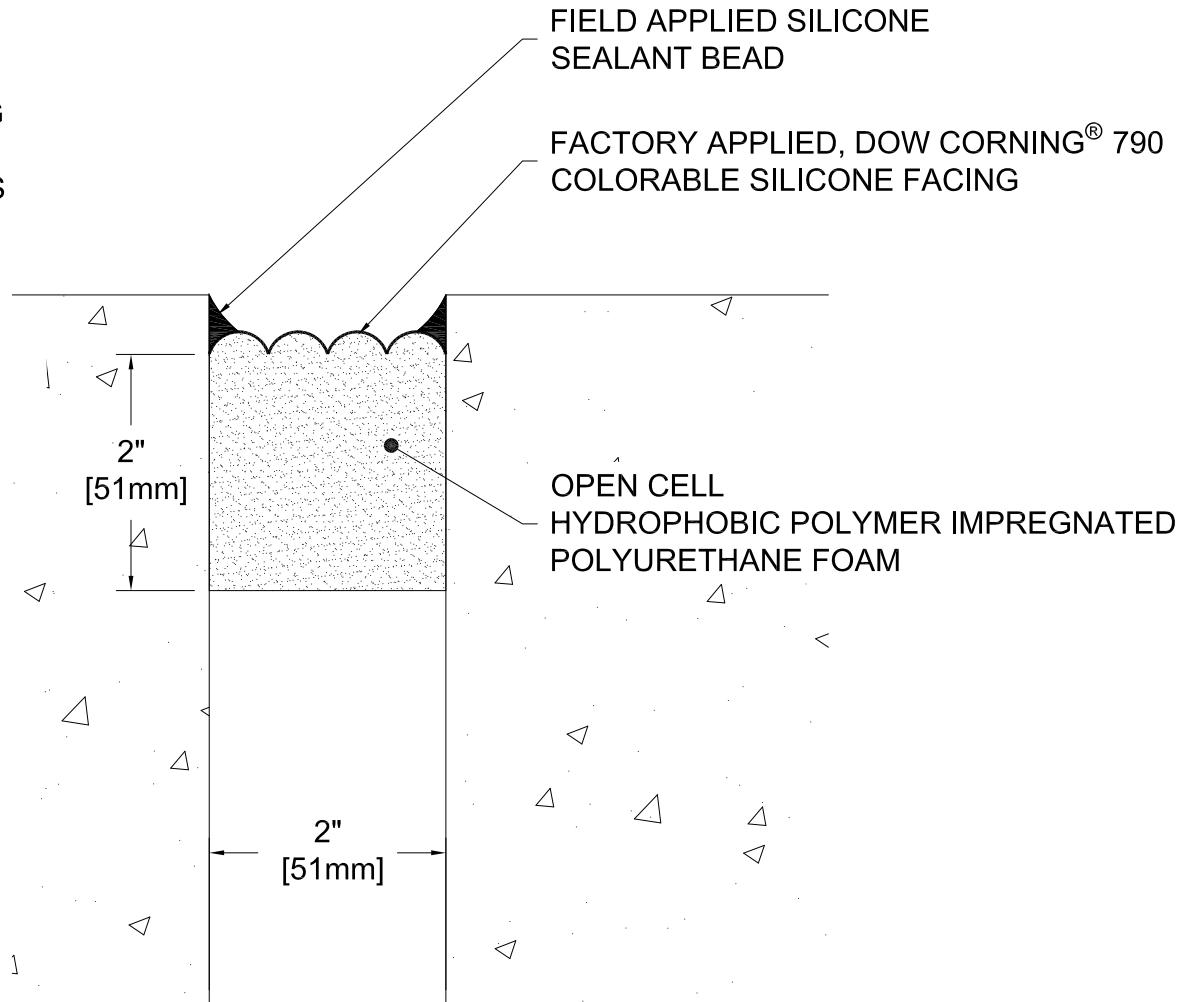
BCSW-200

PRECOMPRESSED WALL SEAL
WITH COLORIZED SILICONE FACING
±50% MOVEMENT
AVAILABLE IN 5'-0" (1524mm) PIECES

COLOR: _____
(SEE COLOR SELECTOR FOR
AVAILABLE COLORS)

NOTE:
THE BCSW HAS A DESIGNATED
SHELF LIFE. PLEASE REFERENCE
BALCO INSTALLATION
INSTRUCTIONS AND COORDINATE
MATERIAL ORDER WITH YOUR
INSTALLATION SCHEDULE.

NOTE:
EXTERIOR SEAL SYSTEMS AND
ACCESSORIES ARE
NON-RETURNABLE ITEMS.
PLEASE BE SURE TO FIELD
VERIFY JOINT SIZE AND LENGTHS
BEFORE RELEASING YOUR ORDER
FOR FABRICATION.



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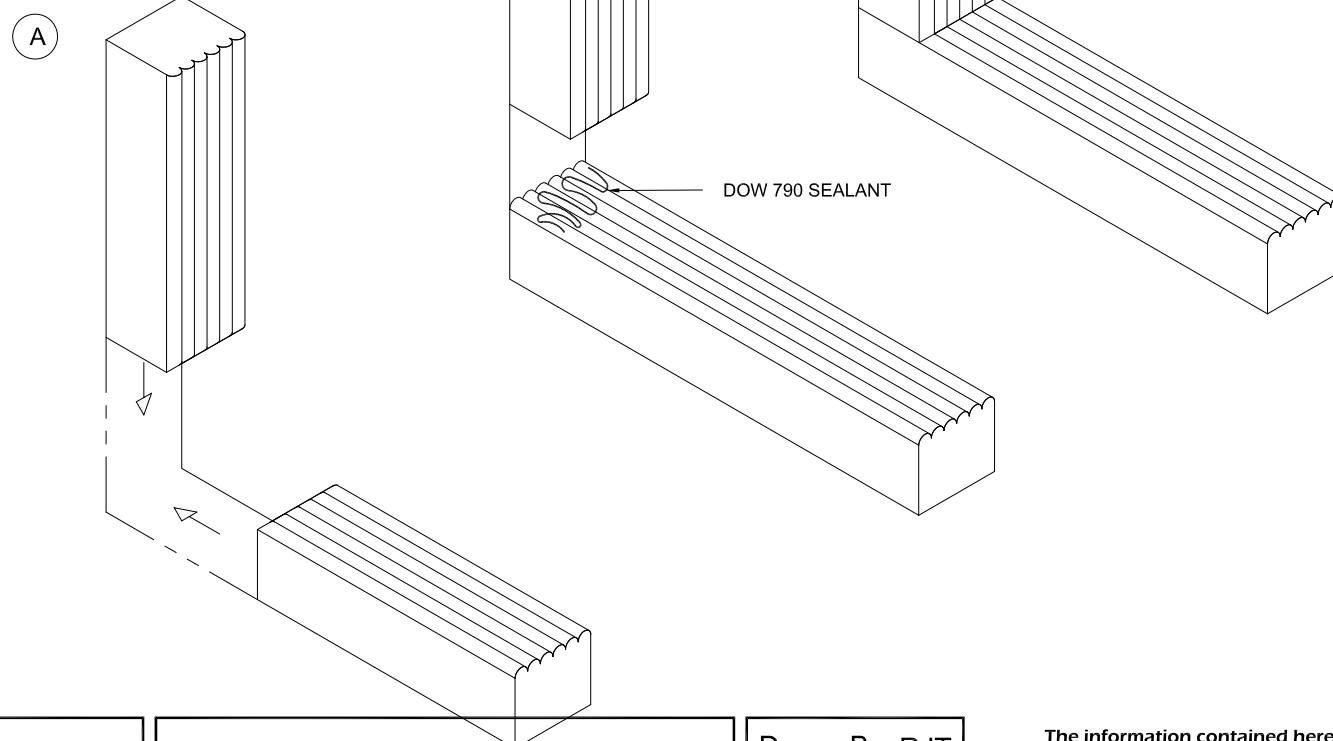
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Wichita, Kansas 67217-0249 USA
P: +1-316-945-9328 F: +1-316-945-0789

**BCSW TRANSITION INSTRUCTIONS
FROM HORIZONTAL TO VERTICAL**

1. INSTALL THE HORIZONTAL SECTION OF THE SEAL AS DESCRIBED IN THE INSTALLATION INSTRUCTIONS.
2. USING A PUTTY KNIFE, APPLY A THIN FILM OF DOW 790 ONTO THE TOP OF THE INSTALLED HORIZONTAL SECTION OF THE SEAL,
3. INSTALL THE VERTICAL SECTION OF THE SEAL AS DESCRIBED IN THE INSTALLATION INSTRUCTIONS. PRESS THE MATING SECTION OF THE SEAL TOGETHER WITH THE INSTALLED HORIZONTAL SECTION OF THE SEAL.
4. ENSURE THAT THE DOW 790 DOES NOT SMEAR ONTO THE SEAL'S PRESSURE SENSITIVE ADHESIVE.
5. ALLOW THE INSTALLED SEAL TO COMPLETELY EXPAND.



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Drawn By: RJT

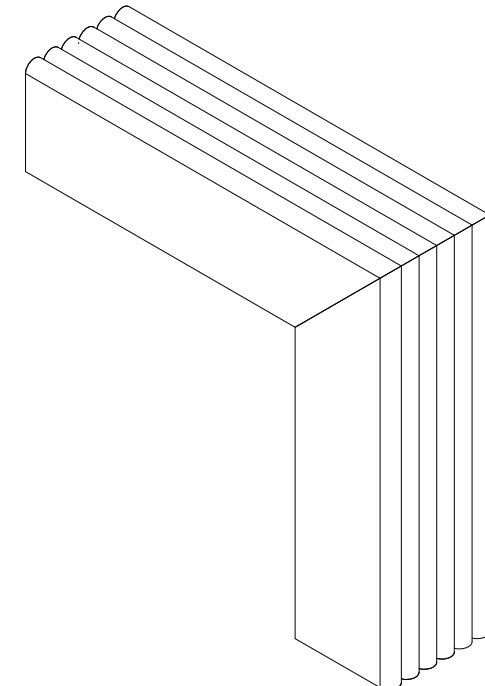
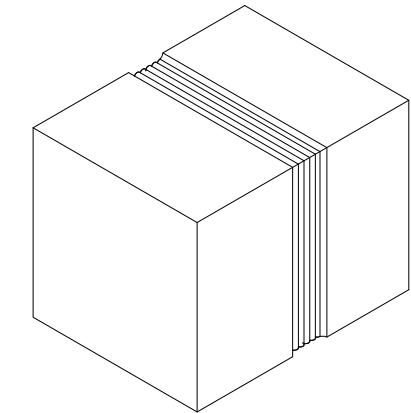
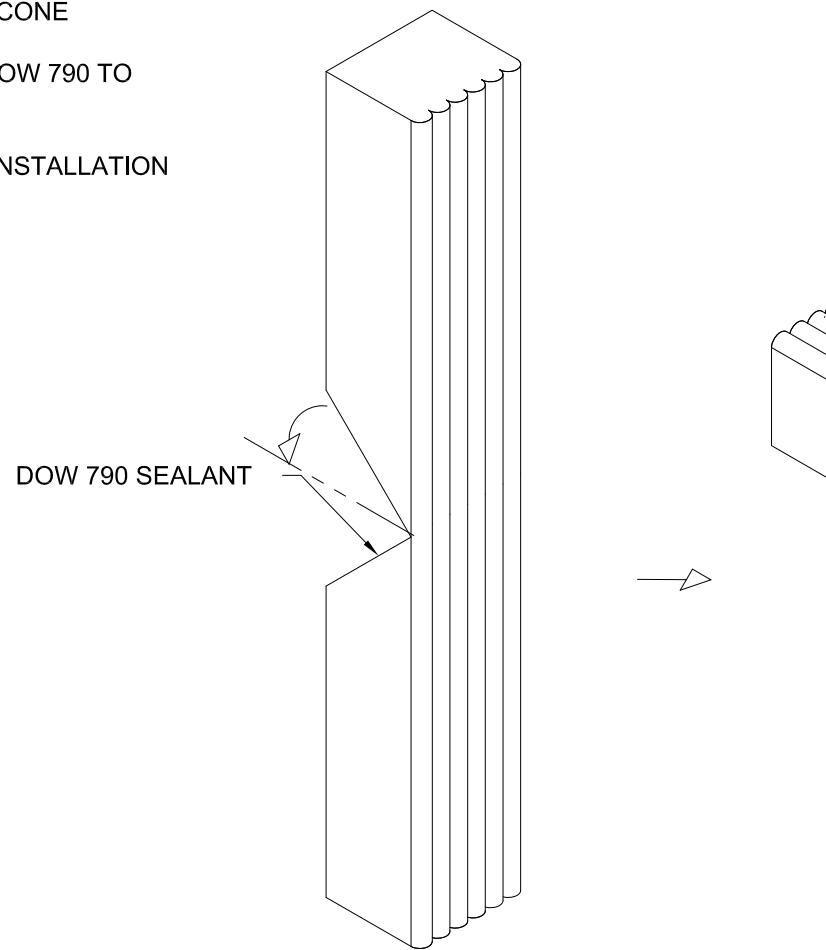
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BCSW TRANSITION INSTRUCTIONS FROM VERTICAL TO HORIZONTAL

1. CUT RELIEF INTO BACK OF SEAL AT 45° ANGLES. DO NOT CUT IN TO SILICONE FACING.
2. USING A PUTTY KNIFE, APPLY DOW 790 TO THE INSIDE FACES.,
3. FOLD THE SEAL
4. INSTALL AS DESCRIBED IN THE INSTALLATION INSTRUCTIONS.
5. ALLOW THE INSTALLED SEAL TO COMPLETELY EXPAND.



| | |
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| Project: | |
| Customer: | |
| SO# | |
| Date: | |
| Page _____ of _____ | Scale: NTS |

| Length | Qty. | Color |
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Drawn By: RJT

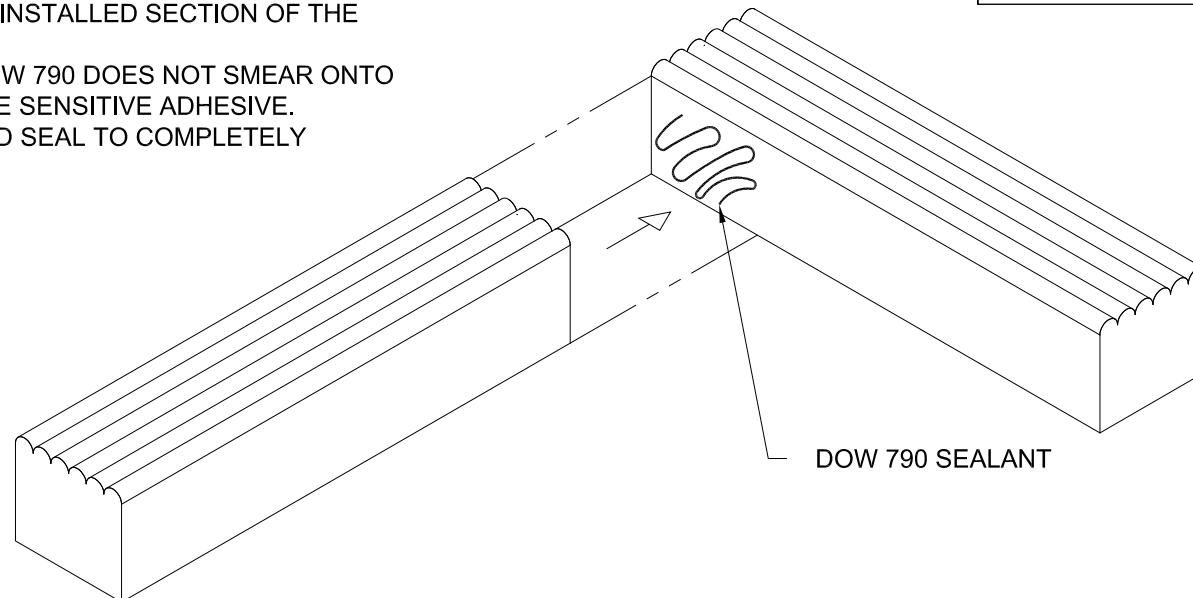
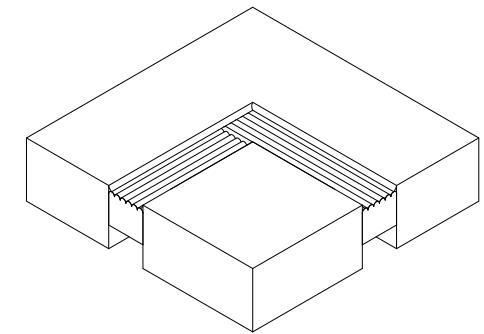
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2626 S. Sheridan PO Box 17249
Wichita, Kansas 67217-0249 USA
P: +1-316-945-9328 F: +1-316-945-0789

BCSW TRANSITION INSTRUCTIONS FOR 90° TURN HORIZONTAL SURFACE

1. USING A PUTTY KNIFE, APPLY A THIN FILM OF DOW 790 ONTO THE END OF THE INSTALLED SECTION OF THE SEAL,
2. INSTALL THE MATING SECTION OF THE SEAL AS DESCRIBED IN THE INSTALLATION INSTRUCTIONS. PRESS THE MATING SECTION OF THE SEAL TOGETHER WITH THE INSTALLED SECTION OF THE SEAL.
3. ENSURE THAT THE DOW 790 DOES NOT SMEAR ONTO THE SEAL'S PRESSURE SENSITIVE ADHESIVE.
4. ALLOW THE INSTALLED SEAL TO COMPLETELY EXPAND.



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Drawn By: RJT

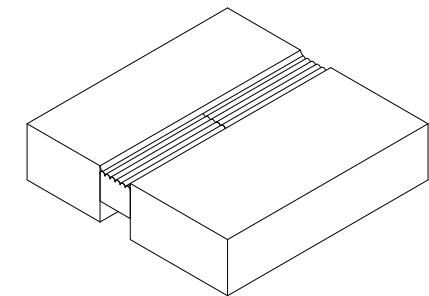
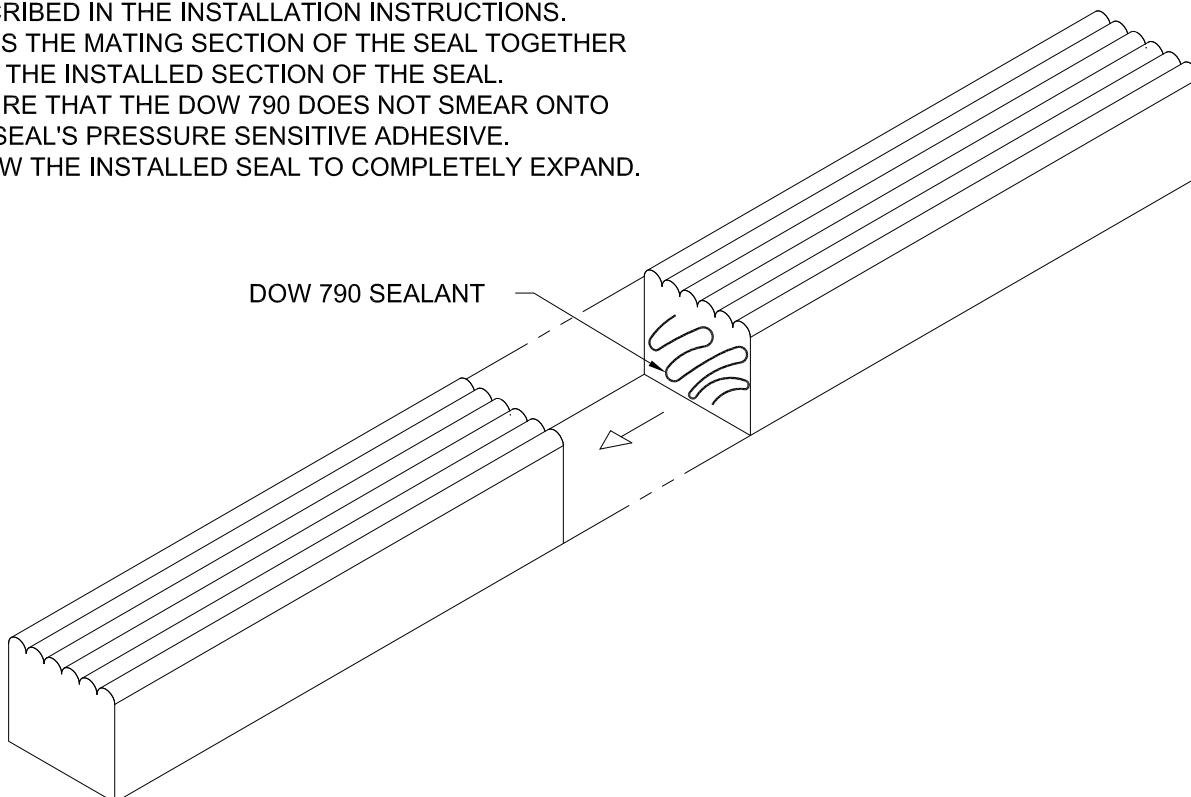
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BCSW SPLICING INSTRUCTIONS

1. USING A PUTTY KNIFE, APPLY A THIN FILM OF DOW 790 ONTO THE END OF THE INSTALLED SECTION OF THE SEAL,
2. INSTALL THE MATING SECTION OF THE SEAL AS DESCRIBED IN THE INSTALLATION INSTRUCTIONS. PRESS THE MATING SECTION OF THE SEAL TOGETHER WITH THE INSTALLED SECTION OF THE SEAL.
3. ENSURE THAT THE DOW 790 DOES NOT SMEAR ONTO THE SEAL'S PRESSURE SENSITIVE ADHESIVE.
4. ALLOW THE INSTALLED SEAL TO COMPLETELY EXPAND.



| | |
|---------------------|------------|
| Project: | |
| Customer: | |
| SO# | |
| Date: | |
| Page _____ of _____ | Scale: NTS |

| Length | Qty. | Color |
|--------|------|-------|
| | | |

Drawn By: RJT

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Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090

ZERO / SIX
C o n s u l t i n g
Envelope Architecture

SUBMITTAL REVIEW

Submittal No.: 084113-001

Description: Aluminum -Framed Entrances and Storefronts - PD

Project Name: UT Austin SEAY Building Addition

Project No.: 3108105

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the info- the information given in contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

- NO EXCEPTIONS NOTED
- SUBMIT SPECIFIED ITEM
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

BY:

DATE: 06/17/2020

Submittal Comments:

1. Per spec section 07 92 00 2.8B - Backer rod material is indicated to be closed cell foam.



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0221

PROJECT: UT Seay Building Addition

TO: BSA Lifestructures
AL

DATE: 06/09/2020

RE: Aluminum-Framed Entrances and Storefronts -
Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 06/23/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|---|--------|
| 1 | Submittal | | 084113-001 | 1 | | 06/09/2020 | Aluminum-Framed Entrances and Storefronts - Product Data | |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE
COMMENTS NOTED
REVISE AND RESUBMIT
OTHER:

DATE 6/9/2020 SPEC# 084113

REVIEWED BY tanner.hawkins

SUBMITTAL# 084113-001

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

CC:

Signed: Tanner Hawkins

Tanner Hawkins



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.4 Action Submittals
B. Product Data

A Proven Performer Recognized for Economical Installation



Taking center stage in Kawneer's lineup, the EnCORE™ Framing System is a two-piece face-and-gutter system that offers thermal economy, a structural silicone glazed (SSG) option and numerous design choices. Engineered for easy installation and lower costs, features include the unique QuickSeal™ self-sealing system, a broad selection of system depths and a 1-3/4" (44.5 mm) minimal sightline. The EnCORE™ Framing System readily adapts to remodel projects and new construction, whether traditional or modern architecture.

ECONOMY

EnCORE™ is a QuickSeal™ dry-glazed self-sealing framing system and is the first to eliminate joint sealant at horizontal joints, making it more cost effective. The vertical gasket runs through, and when "pinched" by the head, sill and intermediate horizontals, a watertight seal is created, eliminating the need for sealant.

By using the same extrusions for horizontal and vertical mullions, metal utilization is maximized. In addition, the tongue on the extrusions eliminates the need for a secondary, continuous water deflector, thus economizing on installation costs and time.

EnCORE™ Framing System also requires no setting block chair at intermediate horizontals. And at the sill, the system utilizes a simple setting block chair that fits snugly within the glazing pocket and requires no fastening. The system accepts standard 1" (25.4 mm) or 1/4" (6.4 mm) infills and can also be adapted to accept other infills in 1/8" (3.2 mm) increments.

The top-loaded glazing gaskets are the same as those used in the Kawneer flagship Trifab™ Framing Systems, which helps reduce field labor and minimize inventory requirements.

Providing single-source responsibility, Kawneer entrances, windows, curtain walls and slope glazing are compatible with the EnCORE™ Framing System.

PERFORMANCE

A specially engineered thermal clip eliminates metal-to-metal contact by snapping onto the mullion. The cover then snaps onto the clip for true thermal integrity. In addition, the clip has an extended leg on one side, which acts as a "w" block and prevents shifting of glass due to climate changes and building movement.

Engineered to meet or exceed certified performance requirements for air and water infiltration, the EnCORE™ Framing System has been fully tested according to ASTM E283 and ASTM E331. Thermal testing was completed in accordance with AAMA 1503.

The EnCORE™ Framing System also offers architects and building owners the ability to determine project-specific U-factors by referring to thermal tables in our architectural manual. Unique to Kawneer, these tables enable U-factor calculations for each project by utilizing the total glass percentage and the project's center of glass (COG) U-factor.

AESTHETICS

For additional freedom of expression, the EnCORE™ Framing System offers front or center glazing options. An SSG option is also available. And to provide greater design flexibility, the face-and-gutter system offers system depths of 3-9/16" (90.5 mm), 4-1/2" (114.3 mm) or 6" (152.4 mm) front glazed and 4-1/2" (114.3 mm) center glazed.

The 1-3/4" (44.5 mm) minimal sightline provides consistent design aesthetics, while a 1-1/4" (31.75 mm) perimeter sightline is also available. Since the exterior face and interior mullions are separate pieces, two-color design considerations are easily realized.



**Customer Service Center, Blue Cross and Blue Shield of Louisiana
Baton Rouge, Louisiana**

ARCHITECT

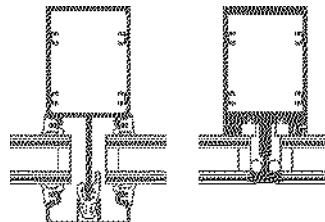
Architectural Group of Baton Rouge, Baton Rouge, Louisiana

GLAZING CONTRACTOR

Louisiana Glass Company, Baton Rouge, Louisiana

PHOTOGRAPHY

© Gordon Schenck



Another key feature of the EnCORE™ Framing System's separate components is that they are easily adapted to curved applications. The framing is available in three fabrication methods: screw spline, shear block or Type B, which is a combination of both.

FOR THE FINISHING TOUCH

Permanodic™ anodized finishes are available in Class I and Class II in seven different color choices.

Painted finishes, including fluoropolymer, that meet or exceed AAMA 2605 are offered in many standard choices and an unlimited number of specially designed colors.

Solvent-free powder coatings add the green element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.

500 STANDARD ENTRANCES



Single-Source Packages Generate Versatile First Impressions



Curtis Culwell Center
Garland, Texas

ARCHITECT

HKS, Inc., Dallas, Texas

GLAZING CONTRACTOR

B & B Glass, Inc., Dallas, Texas

PHOTOGRAPHER

© Blake Marvin - HKS

Tough yet attractive, Kawneer's Standard Entrances are designed as a single-source package of door, door frame and hardware that is easily adaptable to custom requirements. Designed to complement new or remodel construction as well as modern or traditional architecture, they are engineered, constructed and tested to make a good first impression while withstanding the rigors of constant use by occupants and visitors.

PERFORMANCE

To resist both lever arm and torsion forces that constantly act on any door, all three entrances feature welded corner construction with Sigma deep penetration and fillet welds plus mechanical fastenings at each corner – a total of 16 welds per door. Each door corner comes with a limited lifetime warranty, good for the life of the door under normal use. It is transferable from building owner to owner and is in addition to the standard two-year warranty covering material and workmanship of each Kawneer door.



1. Thermoplastic elastomer weatherstrip in blade stop of frame jambs, header or transom bar.
2. Integral polymeric fin attached to adjustable astragal, creating an air barrier between pairs of doors.
3. Optional surface-applied bottom weatherstrip with flexible blade gasket. Extruded raised lip on threshold to provide continuous contact for bottom weatherstrip.
4. Standard 1/4" beveled glass stops to sheet water and dirt off without leaving residue.
5. Available in all finishes offered by Kawneer.

ECONOMY

Kawneer's Sealair™ bulb neoprene weatherstripping forms a positive seal around the door frame and provides a substantial reduction in air infiltration, resulting in improved comfort and economies in heating and cooling costs. The system is wear- and temperature-resistant and replaces conventional weatherproofing. The bottom weatherstrip at the interior contains a flexible blade gasket to meet and contact the threshold, enhancing the air and water infiltration performance characteristics.

190 NARROW STILE ENTRANCE

- Is engineered for moderate traffic in applications such as stores, offices and apartment buildings
- Vertical stile measures 2-1/8", top rail 2-1/4" and bottom rail 3-7/8"
- Results in a slim look that meets virtually all construction requirements

350 MEDIUM STILE ENTRANCE

- Provides extra strength for applications such as schools, institutions and other high-traffic applications
- Vertical stiles and top rails measure 3-1/2"
- Bottom rail measures 6-1/2" for extra durability

500 WIDE STILE ENTRANCE

- Creates a monumental visual statement for applications such as banks, libraries and public buildings
- Vertical stiles and top rail measures 5"; bottom rail measures 6-1/2"
- Results in superior strength for buildings experiencing heavy traffic conditions

GENERAL

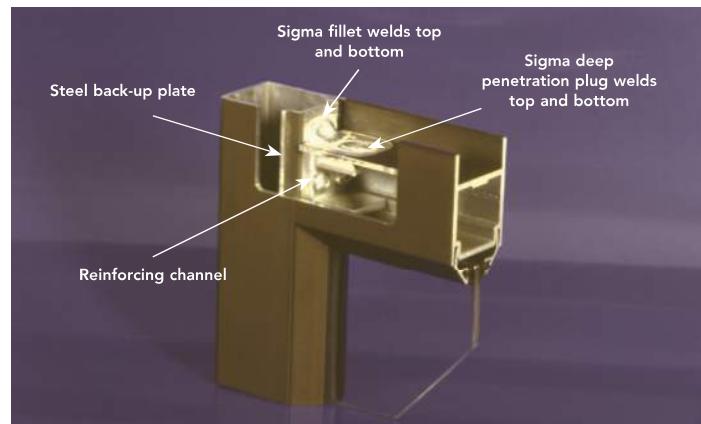
- Heights vary up to 10'; widths range from approximately 3' to 4'
- Door frame face widths range to a maximum of 4", while depths range to 6"
- Door operation is single- or double-acting with maximum security locks or touch bar panics standard
- Architect's classic 1" round, bent bar push/pull hardware is available in various finishes and sizes
- Infills range from under 1/4" to more than 1"

FOR THE FINISHING TOUCH

Architectural Class I anodized aluminum finishes are available in clear and Permanodic™ color choices.

Painted finishes, including fluoropolymer, that meet AAMA 2605 are offered in many standard choices and an unlimited number of specially designed colors.

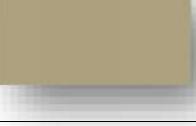
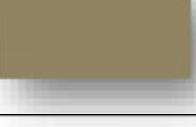
Solvent-free powder coatings add the "green" element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.



Kawneer Anodize finishes

Kawneer gives you a wide variety of anodized finishes with attractive alternatives. The benefit of a durable, anodized finish is married to the beauty of some very dynamic and exciting colors.

At the start of every design, there's a choice of how you want to finish. Contact your Kawneer sales rep for the information on these and other finishes available from Kawneer.

| KAWNEER FINISH NO. | COLOR | ALUMINUM ASSOCIATION SPECIFICATION | OTHER COMMENTS |
|---|----------------------|--|---|
|  | #14 CLEAR | AA-M10C21A41 / AA-M45C22A41 | Architectural Class I (.7 mils minimum) |
|  | #17 CLEAR | AA-M10C21A31 | Architectural Class II (.4 mils minimum) |
|  | #18 CHAMPAGNE | AA-M10C21A44 | Architectural Class I (.7 mils minimum) |
|  | #26 LIGHT BRONZE | AA-M10C21A44 | Architectural Class I (.7 mils minimum) |
|  | #28 MEDIUM BRONZE | AA-M10C21A44 | Architectural Class I (.7 mils minimum) |
|  | #40 DARK BRONZE | AA-M10C21A44 / AA-M45C22A44 | Architectural Class I (.7 mils minimum) |
|  | #29 BLACK | AA-M10C21A44 | Architectural Class I (.7 mils minimum) |

MULJ(((itOVER®



Good Design is Simply Obvious.

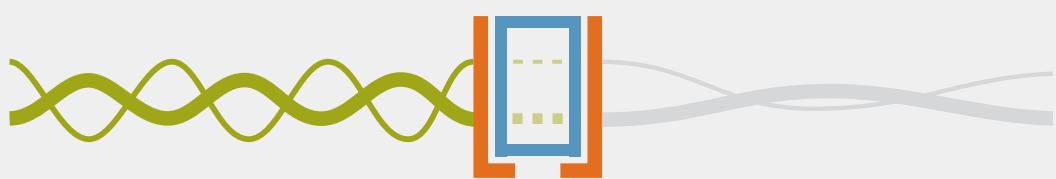
Sound Solutions for Glass Buildings.



There's a key six inches of space around the perimeter of every glass building. A transition space that was poorly detailed. Until now.

Glass buildings are definitely beautiful. They let in natural light and provide great views. But it's a given that glass buildings are noisy. And, until now, all attempts to "tone it down" have amounted to a band-aid, not a real solution.

The Mull-It-Over® Mullion Trim Cap stems from our understanding of building construction. We know that curtain wall manufacturers primarily focus on weather-related factors. And we know that interior manufacturers focus on drywall sound insulation which ends at the slab edge of a building. Yet there's a gap: Adjacent to a building's interior and integral to the exterior curtain wall is the grid of hollow aluminum tubes that hold the glass in place. And these tubes—six inches of space around the entire perimeter of glass buildings—serve as open air gaps that conduct noise and cannot stop fires. It affects productivity, privacy and safety (including, of course, HIPAA compliance). White noise devices aren't sufficient; a more comprehensive solution is needed. And now there is one.



Sound reasons to spec Mull-It-Over® Mullion Trim Caps.

Problem

HIPAA Violations, Lost Sleep, Unhappy Occupants,
Confidential Conversations, Noise, Fire, Risk,
Code Violations, Lost Productivity, Stress, Litigation

Solution

HIPAA Safeguards, Better Sleep, Happy Occupants,
Confidentiality, Noise Reduction, Life Safety Requirements,
Code Approval, Increased Productivity



The Mull-It-Over® Sound Barrier Mullion Trim Cap.

We weren't trying to eavesdrop, but we easily overheard a confidential doctor/patient conversation in an adjacent exam room in a gorgeous glass building. It inspired our development of the Mull-It-Over® Mullion Trim Cap. We ran the design through a battery of tests in the sound chambers of Architectural Testing in York, PA. We refined it and re-tested. Then did it again. And again. Finally, quantifiable results clearly proved how this mullion trim cap system would re-create the sound-deadening capability of a well-constructed drywall partition all the way out to the face of the glass.

Whether the installation is in a patient room, a boardroom or a bedroom, noise transfer can now be resolved. This isn't a "me too" solution. There's been nothing else like it. Until Now.



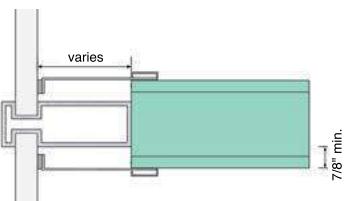
The Facts

- A standard mullion has an STC rating of 28. If left exposed, sound transfer between rooms will be a problem due to the poor noise deadening performance of the mullion.
- The Mull-It-Over Mullion Trim Cap increases the STC rating at the mullion to minimize sound flanking.
- Fire Rated Sound Barrier Mullion Trim Cap Options meet UL 2079/JLC S115 requirements.
- FGI Guidelines for Health Care Construction and International Building Code for Multi-Family Housing have minimum STC requirements for demising walls. When tested as an assembly, minimum code requirements will not be met if a demising wall terminates at an exposed mullion.
- The Mull-It-Over Mullion Trim Cap is a simple and clean trim detail for the exposed end of a partition wall that allows for differential movement between the partition and glass systems.
- Easy to install during new construction or added during retrofit to correct existing sound transfer problems or code violations.
- The Mull-It-Over Mullion Trim Cap has become the standard design detail for many leading architectural firms.

Patent No. 8,572,914 & 8,782,977

Specifications and Options

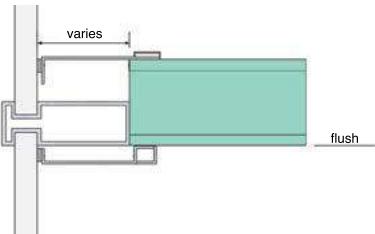
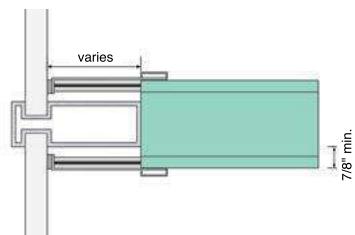
STC 55 Options



Classic Sound Barrier Mullion Trim Cap

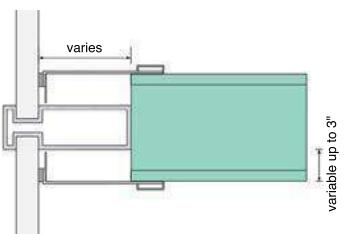
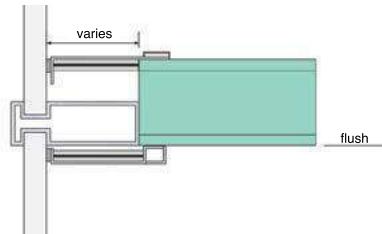
With a low profile 7/8" return leg, this mullion cap delivers high performance in a compact size. This mullion cap is compatible with most curtain wall systems with standard demising wall construction making it the standard wall termination detail for buildings with storefront, curtain wall or ribbon window facades.

STC 60 Options



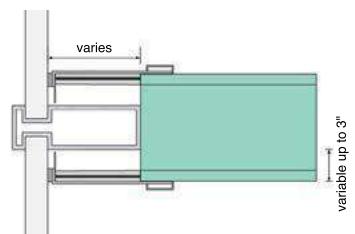
Flush Sound Barrier Mullion Trim Cap

For locations where the dimension between the face of the demising wall and face of the mullion is less than 7/8". This mullion cap provides a clean transition solution while maintaining a high STC.



Wide Sound Barrier Mullion Trim Cap

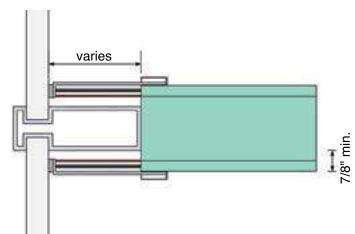
This mullion cap has an extra wide return leg extension for locations with wide dimension walls or offset wall construction. Custom profiles available.



Classic Sound Barrier Mullion Trim Cap with 1-Hour or 2-Hour Fire Rating

A layer of intumescent foam is added to the Classic sound barrier mullion trim cap to provide a 1-Hour Fire Rating. Certified to UL/ULC 2079/S115 testing. UL Assembly No. WW-S-1039

A layer of intumescent foam with thermal blanket are added to the Classic sound barrier mullion trim cap to provide a 2-Hour Fire Rating. Certified to UL/ULC 2079/S115 testing. UL Assembly No. WW-S-1041



Gasket Options - Leading edge gasket available in 1/2", 1", or 1-1/2" thick in light gray or charcoal.

Custom finishes are available to match curtain wall finishes. Custom profile and design assistance available.

Patent No. 8,572,914 & 8,782,977

MULLITOVER®

Sound Solutions for Glass Buildings

mullitoverproducts.com



Technical Data Sheet

DOWSIL™ 795 Silicone Building Sealant

Neutral, one part silicone sealant

Features & Benefits

- Suitable for most new construction and remedial sealing applications
- Versatile – high performance structural glazing and weather sealing from a single product
- Available in 15 standard colors; custom colors also available
- Excellent weatherability virtually unaffected by sunlight, rain, snow, ozone and temperature extremes of -40°F (-40°C) to 300°F (149°C)
- Excellent unprimed adhesion to a wide variety of construction materials and building components, including anodized, alodined, most coated and many Kynar painted aluminums
- Ease of application – ready to use as supplied
- Ease of use – all temperature gunnability, easy tooling and low-odor cure byproduct
- Meets global standards (Americas, Asia and Europe)

Composition

- One-part, neutral cure, RTV silicone sealant

Applications

- Structural and nonstructural glazing
- Structural attachment of many panel systems
- Panel stiffener applications
- Weather sealing of most common construction materials including glass, aluminum, steel, painted metal, EIFS, granite and other stone, concrete, brick and plastics

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

| Test ¹ | Property | Unit | Result |
|--------------------|---------------------------------------|-------------|------------|
| As Supplied | | | |
| ASTM C 679 | Tack Free Time, 50% RH | hours | 3 |
| | Curing Time at 25°C (77°F) and 50% RH | days | 7–14 |
| | Full Adhesion | days | 14–21 |
| ASTM C 639 | Flow, Sag or Slump | inches (mm) | 0.1 (2.54) |
| | Working Time | minutes | 20–30 |
| | VOC Content ² | g/L | 32 |

1. ASTM: American Society for Testing and Materials
2. Based on South Coast Air Quality Management District of California. Maximum VOC is listed both inclusive and exclusive of water and exempt compounds.

UNRESTRICTED – May be shared with anyone

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DOWSIL™ 795 Silicone Building Sealant

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Form No. 61-885-01 T (AMERICAS)

Typical Properties (Cont.)

| Test | Property | Unit | Result |
|--|---|---------------|------------|
| As Cured After 21 days at 25°C (77°F) and 50% RH | | | |
| ASTM D 2240 | Durometer Hardness, Shore A | points | 35 |
| ASTM C 794 | Peel Strength | lb/in (kg/cm) | 32 (5.7) |
| | Tension Adhesion Strength | | |
| ASTM C 1135 | At 25% Extension | psi (MPa) | 45 (0.310) |
| | At 50% Extension | psi (MPa) | 60 (0.414) |
| ASTM C 719 | Joint Movement Capability | percent | ± 50 |
| ASTM C 1248 | Staining (granite, marble, limestone, brick and concrete) | | None |
| As Cured After 21 days at 25°C (77°F) and 50% RH Followed by 10,000 Hours in a QUV Weatherometer, ASTM G 53 | | | |
| | Tensile Adhesion Strength | | |
| ASTM C 1135 | At 25% Extension | psi (MPa) | 35 (0.241) |
| | At 50% Extension | psi (MPa) | 50 (0.345) |

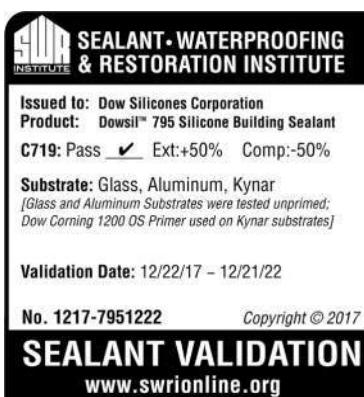
Description

DOWSIL™ 795 Silicone Building Sealant is a one-part, neutral-cure, architectural-grade sealant that easily extrudes in any weather and cures quickly at room temperature. This cold-applied, non-sagging silicone material cures to a medium modulus silicone rubber upon exposure to atmospheric moisture. The cured sealant is durable and flexible enough to accommodate ± 50 percent movement of original joint dimension when installed in a properly designed weather seal joint. In a properly designed structurally glazed joint, the sealant is strong enough to support glass and other panel materials under high wind load.

Approvals/ Specifications

DOWSIL™ 795 Silicone Building Sealant meets the requirements of:

- Federal Specification TT-S 001 543A (COM-NBS) Class A for silicone building sealants
- Federal Specification TT-S-00230C (COM-NBS) Class A for one-part building sealants
- ASTM Specification C 920 Type S, Grade NS, Class 50, Use NT, G, A and O
- ASTM Specification C 1184 for structural silicone sealants
- Canadian Specification CAN2-19.13- M82



UNRESTRICTED – May be shared with anyone

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DOWSIL™ 795 Silicone Building Sealant

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Colors

DOWSIL™ 795 Silicone Building Sealant is available in 15 colors: white, limestone, champagne, natural stone, gray, black, bronze, sandstone, adobe tan, dusty rose, rustic brick, blue spruce, anodized aluminum, charcoal, and ivy green. Custom colors may be ordered to match virtually any substrate.

How To Use

Please consult the *Dow Americas Technical Manual*, Form No. 62-1112, for detailed information on state-of-the-art application methods and joint design.

Preparation

Clean all joints, removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealants or glazing compounds and protective coatings.

Application Method

Install backing material or joint filler, setting blocks, spacer shims and tapes. Mask areas adjacent to joints to ensure neat sealant lines. Primer is generally not required on non-porous surfaces, but may be necessary for optimal sealing of certain porous surfaces. A test placement is always recommended. Apply DOWSIL™ 795 Silicone Building Sealant in a continuous operation using positive pressure. (The sealant can be applied using many types of air-operated guns and most types of bulk dispensing equipment.) Before a skin forms (typically within 15 minutes), tool the sealant with light pressure to spread the sealant against the backing material and joint surfaces. Remove masking tape as soon as the bead is tooled.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life And Storage

When stored at or below 27°C (80°F), DOWSIL™ 795 Silicone Building Sealant has a shelf life of 12 months from the date of manufacture. Refer to product packaging for "Use By Date."

Packaging Information

DOWSIL™ 795 Silicone Building Sealant is supplied in 10.3 fl oz. (305 mL) disposable plastic cartridges that fit ordinary caulking guns, 20 fl oz. (590 mL) sausages and 2 and 4.5 gal (7.5 and 17 L) bulk containers.

Limitations

DOWSIL™ 795 Silicone Building Sealant should not be used:

- In structural applications without prior review and approval by your local sales application engineer
- In below grade applications
- When surface temperatures exceed 50°C (122°F) during installation
- On surfaces that are continuously immersed in water
- On building materials that bleed oils, plasticizers or solvents that may affect adhesion
- On frost laden or wet surfaces
- In totally confined joints (the sealant requires atmospheric moisture for cure)
- If the sealant is intended to be painted (paints do not typically adhere to most silicone sealants)
- To surfaces in direct contact with food or other food-grade applications

UNRESTRICTED – May be shared with anyone

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DOWSIL™ 795 Silicone Building Sealant

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Limitations (Cont.)

Health And Environmental Information

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

dow.com

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

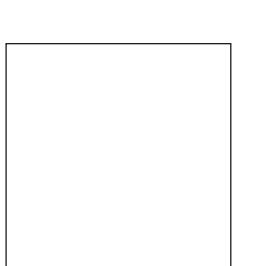


Sealant Color Selection Guide

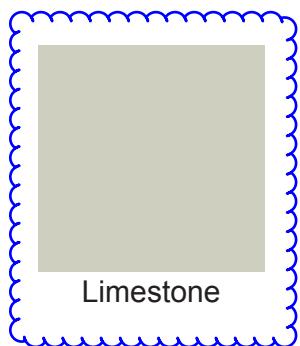
- Please check the availability of the different colors.
- Please refer to product literature for applications and technical information.

The colors shown are a close approximation of the actual sealant colors. However, for best results, submit color samples or swatches to our lab for color testing and matching.

Standard Colors



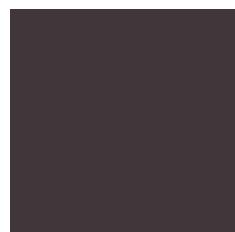
White



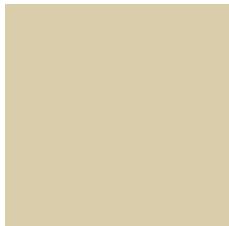
Limestone



Gray



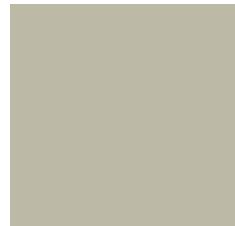
Window Bronze



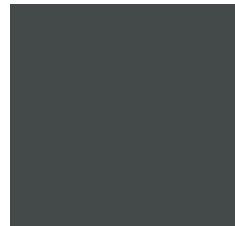
Sandstone



Aluminum



Antique White



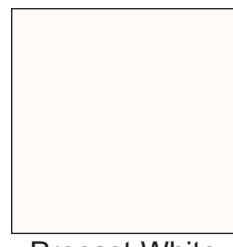
Charcoal



Black



Bronze



Precast White

FillPro™ Open Cell

Polyurethane Foam Backer Rod



FillPro Open Cell Backer Rod (formerly Tundra Foam) is a pliable open cell polyurethane foam material used for filling irregular joints. It is chemically inert and will resist oil, gasoline and most other solvents. The material will not stain, or adversely adhere to sealant or caulking materials.

Project specifications indicate closed cell backer rod (ZSC)

APPLICATIONS

Commonly used in expansion and contraction joints, window glazing, curtain wall construction partitions, precast assemblies and copings, parking decks, bridge construction, etc.

BENEFITS

FillPro Open Cell is an ideal non-gassing backer rod used to control sealant and caulking depth and create a back stop to allow proper sealant tooling and configuration, to allow proper sealant airing and to yield a proper bond break between backup material and sealant. Limiting the depth of the sealant prevents excessive use, saving on caulk or sealant. Compressibility is ideal for non-uniform joint sizes.

INSTALLATION

The joint depth must be great enough to allow for the proper installation of the FillPro Open Cell backer rod and the hot or cold sealant or caulking material. Joint walls must be smooth, even and be free of any loose materials. Joints should also be dry and frost free. With a correctly-sized tool or by hand, insert FillPro Open Cell rod into joint at a level recommended by the sealant manufacturer. Cold applied sealants generally recommend that the depth of the joint after the backer rod is installed be one half the width. In hot pour applications, it is generally recommended the depth of the joint be a 1:1 of backer rod to sealant.

Features:

- Open cell
- Highly compressible for easy installation in irregular joints
- Chemically inert
- Resistant to oil, gas and other solvents
- Made in Canada

Compatible With:

- Virtually all known hot pour and cold applied sealant including silicone and rubber asphalt

Stocked Options:

- Available in black or yellow
- Available in a wide of sizes
(See reverse side)

Technical Data: FillPro™ Open Cell Backer Rod (Formerly Tundra Foam)

Description: Flexible, open cell polyurethane foam backer rod in continuous coils.

Typical Properties

| Property | Value | Test Methods |
|----------------------------------|----------------|--------------|
| Density (nominal) | 1.7 lbs/cu.ft | ASTM D1622 |
| Outgassing (# of bubbles) | 0 | ASTM C1253 |
| Tensile Strength psi (kPa) | 25 lbs maximum | ASTM D3575 |
| Compression Recovery, %, min | > 98 | ASTM D5249 |
| Compression Deflection psi (kPa) | 1.4 | ASTM D5249 |
| Temperature Range | -60°F to 500°F | - |
| Elongation | 75% min | ASTM D3574 |
| Compression Set @ 90% | 15% (max) | ASTM C3574 |

Sizes

| Diameter | Sleeves / Pk | Bags / Sleeve | Feet Per Bag | Feet Per Sleeve | Feet / 6 Pk | Metric Diameter | Meters / Sleeve |
|----------|--------------|---------------|--------------|-----------------|-------------|-----------------|-----------------|
| 3/8" | 6 | 4 | 750 | 3000 | 18000 | 9 mm | 914 |
| 5/8" | 6 | 4 | 500 | 2000 | 12000 | 15 mm | 609 |
| 7/8" | 6 | 2 | 525 | 1050 | 6300 | 22 mm | 320 |
| 1-1/8" | 6 | 2 | 300 | 600 | 3600 | 28 mm | 182 |
| 1-1/2" | 6 | 2 | 175 | 350 | 2100 | 38 mm | 106 |
| 2" | 6 | 2 | 100 | 200 | 1200 | 50 mm | 60 |

Size and lengths per pack are those at time of packaging and may vary with climatic condition after manufacture.

One size fits many joints, though 25 to 50% larger is a good basis for a tight seal.

Shipping Information

- Sold in soft, compressed bundles, containing (6) packs.
- Each 6-pack measures approximately 24" x 24" x21" and has a circumference or girth measurement of approximately 108". Some carriers have maximum girth restrictions.
- Typically, 1 skid will hold (8) 6-packs.
- 6-pack weighs 60 lbs. (27kgs)



Armacell Canada Inc.

153 Van Kirk Drive
Brampton, ON L7A 1A4
TOLL FREE: 800-387-3847 ext. 161401
TEL: 905.846.3666
Fax: 905.846.0363

Web: www.armacell.us

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**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.4 Action Submittals
D. Samples for Initial Selection

(Samples are on order and will be delivered under a separate transmittal)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.4 Action Submittals
E. Samples for Verification

(Samples are on order and will be delivered under a separate transmittal)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.4 Action Submittals
F. Delegated-Design Submittal

(Calculations booklet will be submitted after shop drawings approval)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
A. Sustainable Design Submittal



To: PERFORMANCE GLASS & ALUM
Date: 5/1/2020
Subject: LEED v4 Kawneer Information and Documentation

Dear Lucas Glider,

In recognition of the U.S. Green Building Council's (USGBC) LEED v4 Building Rating System, Kawneer has the ability to provide products that can apply toward multiple credit categories, along with supporting documentation. Please see the information below to help you achieve LEED building certification. Supporting documentation including high recycled content information, will only be assured to the extent that the content is expressly specified in a Kawneer Material Proposal issued for your particular project (as identified by project number), and in a corresponding Kawneer-accepted Purchase Order.

LEED v4 Building Design & Construction

- Energy & Atmosphere
 - Optimize Energy Performance
 - Renewable Energy Production
- Materials & Resource
 - Building Disclosure and Optimization – Environmental Product Declarations
 - Option 1: Environmental Product Declarations (EPDs) - Kawneer has an EPD that is applicable for each of our products. Kawneer EPDs used the new Window Product Category Rule (PCR) specifically for use in North America and our EPDs have been third-party validated. Please visit the Kawneer Sustainability [Product Transparency page](#) for the current version.
 - Building Disclosure and Optimization – Sourcing Raw Material
 - Option 1: Raw Material Source and Extraction Reporting – Arconic publishes a self-declared annual sustainability report that follows the Global Reporting Initiative (GRI). The current version can be found on the [Arconic Sustainability Report page](#).
 - Option 2: Recycled Content – High recycled content extrusions will be supplied with a minimum of 50% recycled content achieved through a combination of pre-consumer and post-consumer recycled content; or as specified on Kawneer's Material Proposal. Recycled content may range from 50-70%. Project specific documentation will be sent once the product has been shipped, but a sample of our LEED Materials Reporting Form for recycled content is attached.
 - ❖ Please note that design professionals should be cautioned to be consistent in application when specifying anodized finishes where high-recycled content is required. The chemistry of secondary billet causes the anodized finish of an extrusion to look different than a similar extrusion made from prime billet. This different appearance would typically relate to gloss level of the finish and/or streaks or die lines. Kawneer suggests that anodized aluminum made from secondary billet not be used on or near anodized aluminum products made from primary billet due to these finish variations.
 - Building Disclosure and Optimization – Material Ingredients
 - Option 1: Material Ingredient Reporting – Kawneer has a variety of applicable programs that report chemical inventory information and comply with LEED requirements, including: Cradle-to-Cradle, DECLARE and Kawneer's Manufacturers Inventory known as the Material Transparency Summary; many of which are LBC compliant and Red List free. Please visit the Kawneer Sustainability [Product Transparency page](#) for the current version.
 - Option 2: Material Ingredient Optimization – Kawneer has several products that have a Cradle-to-Cradle Silver Level Material Health Certificate eligible for this credit option. Please visit the Kawneer Sustainability [Product Transparency page](#) for the current version.



- PBT Source Reduction – Specifying anodized finish will avoid lead or cadmium that can be found in paints and comply with this credit. Attached is documentation that outlines paint offerings for Kawneer products that also comply and do not contain lead or cadmium.
- Construction & Demolition Waste Management
 - Option 1: Diversion – Aluminum is 100% recyclable and is accepted in majority of areas so it's easy for the construction team to divert from landfill.
 - Option 2: Reduction of Total Waste Material – Kawneer has systems that can be prefabricated which helps to reduce waste at the construction site.
- Indoor Environmental Quality
 - Thermal Comfort – Specifying Kawneer operable windows can help naturally condition spaces as one method to help achieve the options for this credit.
 - Daylight – Kawneer products are a great way to provide daylight into the building, but Kawneer sunshades also help to reduce glare and the Kawneer light shelf helps to reflect daylight deeper into the interior occupied space enhancing natural light.
 - Quality Views – All Kawneer products provide a window to the outdoors and can help achieve views of the surrounding natural environment.
 - Acoustic Performance – All Kawneer products have a sound transmission class (STC) rating that can be found on the product specification; be sure to check the STC when specifying products.

For more information, please go to the [Sustainability](#) page at Kawneer.com. This provides an overview of Kawneer's current capabilities, commitment to sustainable practices and support for the USGBC's LEED Building Rating System. Please note that this page may be updated from time to time. You should always be in contact with your Kawneer Sales Representative during your project planning or bidding phase, to make sure you are working with the most up-to-date information possible.

Sincerely,

Andy Nag

Andy Nag
Director, Customer Operations
KCIArchitecturalServices@arconic.com

Recycled Content Reporting Form

For use on LEED and additional green building certifications referencing product recycled content

Project Name:

Project Location:

Date Prepared:

Customer:

Prepared By:

1

KAWNEER



AN ARCONIC COMPANY

- NOTES:**

1. Post-Consumer and Pre-Consumer Recycled Content defined by current USGBC LEED Reference Guide for Green Building Design and Construction

2. Point of Recovery is recognized as the location of the aluminum cast house providing recycled content raw material.

3. None of the products listed above are recognized as reused, salvaged, rapidly renewable, or FSC-certified materials.

Manufacturer's Certification:

The undersigned does hereby certify that the material information contained herein is an accurate representation of the material provided by Kawneer Company Inc.

Signature of Kawneer Representative:

The LEED green building rating system -- developed and administered by the U.S. Green Building Council, a Washington D.C.-based, nonprofit coalition of building industry leaders -- is designed to promote design and construction practices that increase profitability while reducing the negative environmental impacts of buildings and improving occupant health and well-being.

(NO MTS) LEED v4 BD+C Materials & Resources Reporting Form**INSTRUCTIONS**

Enter Project Information Data:

- 1: Project Name
- 2: Select Product from drop down list
- 3: Project Location (City, State)
- 4: Customer Name
- 5: Date Prepared
- 6: Prepared By

SAMPLE

(NO MTS) LEED v4 BD+C Materials & Resources Reporting Form

PROJECT INFORMATION

Project Name: _____
Product: _____
Project Location: _____ Customer: _____
Date Prepared: _____ Prepared By: _____

CREDIT DETAILS

MR BPDO - Environmental Product Declarations (EPD)

- This product complies with **Option 1 - Environmental Product Declaration**

Name of EPD Program Operator: UL Environment

EPD Type: Type III Product Specific Industry Wide (generic) LCA Product Specific

A summary of the product EPD & full EPD document verifying compliance can be found online.

- This product complies with **Option 2 - Multi-Attribute Optimization**

A summary of optimization and documentation verifying compliance can be found online.

MR BPDO - Sourcing of Raw Materials

- This product complies with **Option 1 - Raw Material Source and Extraction Reporting**

Corporate Sustainability Report Type: Manufacture Self-Declared Third-Party Verified

- This product complies with **Option 2 - Leadership Extraction Practices**

Type of Extraction Practice: Extended Producer Responsibility Percent:

Bio-based Materials Percent: Material Reuse Percent Salvaged or Reused:

Recycled Content* - when requested

Percent Pre-Consumer: 50%

Percent Post-Consumer: 0%

Wood Products:

Percent FSC:

*Project specific recycled content is provided once the product has been shipped.

MR BPDO - Material Ingredients

- This product complies with **Option 1 - Material Ingredient Reporting**

Type of Material Ingredient Reporting: Manufacture Inventory Health Product Declaration

Cradle to Cradle v3 Bronze or Higher

Declare Label

A summary of the product documentation verifying compliance can be found online.

- This product complies with **Option 2 - Material Ingredient Optimization**

Type of Optimization: GreenScreen Benchmark

Cradle to Cradle v3 Silver or higher

(MTS ONLY) LEED v4 BD+C Materials & Resources Reporting Form**INSTRUCTIONS**

Enter Project Information Data:

- 1: Project Name
- 2: Select Product from drop down list
- 3: Project Location (City, State)
- 4: Customer Name
- 5: Date Prepared
- 6: Prepared By

SAMPLE

(MTS ONLY) LEED v4 BD+C Materials & Resources Reporting Form

PROJECT INFORMATION

Project Name: _____
Product: _____
Project Location: _____ Customer: _____
Date Prepared: _____ Prepared By: _____

CREDIT DETAILS

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Percent FSC:

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- This product complies with **Option 2 - Material Ingredient Optimization**

Type of Optimization: GreenScreen Benchmark

Cradle to Cradle v3 Silver or higher

(MTS DECLARE) LEED v4 BD+C Materials & Resources Reporting Form**INSTRUCTIONS**

Enter Project Information Data:

- 1: Project Name
- 2: Select Product from drop down list
- 3: Project Location (City, State)
- 4: Customer Name
- 5: Date Prepared
- 6: Prepared By

SAMPLE

(MTS DECLARE) LEED v4 BD+C Materials & Resources Reporting Form

PROJECT INFORMATION

Project Name: _____
Product: _____
Project Location: _____ Customer: _____
Date Prepared: _____ Prepared By: _____

CREDIT DETAILS

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Bio-based Materials Percent: Material Reuse Percent Salvaged or Reused:

Recycled Content* - when requested

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Percent Post-Consumer: 0%

Wood Products:

Percent FSC:

*Project specific recycled content is provided once the product has been shipped.

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Type of Material Ingredient Reporting: Manufacture Inventory Health Product Declaration

Cradle to Cradle v3 Bronze or Higher

Declare Label

A summary of the product documentation verifying compliance can be found online.

- This product complies with **Option 2 - Material Ingredient Optimization**

Type of Optimization: GreenScreen Benchmark

Cradle to Cradle v3 Silver or higher

(C2C) LEED v4 BD+C Materials & Resources Reporting Form**INSTRUCTIONS**

Enter Project Information Data:

- 1: Project Name
- 2: Select Product from drop down list
- 3: Project Location (City, State)
- 4: Customer Name
- 5: Date Prepared
- 6: Prepared By

SAMPLE

(C2C) LEED v4 BD+C Materials & Resources Reporting Form

PROJECT INFORMATION

Project Name: _____
Product: _____
Project Location: _____ Customer: _____
Date Prepared: _____ Prepared By: _____

CREDIT DETAILS

MR BPDO - Environmental Product Declarations (EPD)

- This product complies with **Option 1 - Environmental Product Declaration**

Name of EPD Program Operator: UL Environment

EPD Type: Type III Product Specific Industry Wide (generic) LCA Product Specific

A summary of the product EPD & full EPD document verifying compliance can be found online.

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Bio-based Materials Percent: Material Reuse Percent Salvaged or Reused:

Recycled Content* - when requested

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Wood Products:

Percent FSC:

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Type of Optimization: GreenScreen Benchmark

Cradle to Cradle v3 Silver or higher



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
B. Qualification Data



Date: 5/1/2020

Customer: PERFORMANCE GLASS & ALUM
11111 ROJAS
EL PASO TX, 79935

RE: UT-Seay Building Addition

To Whom It May Concern:

This letter is to confirm that PERFORMANCE GLASS & ALUM, is a Kawneer customer. (PERFORMANCE GLASS & ALUM has purchased architectural products and systems from Kawneer and has been a customer since 9/24/2003).

Fabrication and installation instructions for Kawneer systems are available to Kawneer customers. Installation and fabrication training classes are available to the employees of Kawneer customers. *Kawneer is not an installer and does not approve or certify its customers or any other parties as installers and does not approve or certify installations.*

It is the customer's responsibility to ensure the Kawneer products and systems are fabricated and installed properly by customer's employees or subcontractors in accordance with Kawneer's published installation instructions. Refer to Kawneer Standard Warranty Terms and Conditions of sale for details. Kawneer Company, Inc. disclaims all liabilities for, and is not responsible or liable for any damages or costs that may result from improper installation of its products.

Kawneer Company, Inc.

Andy Nag

Director, Customer Operations

Project Name: UT Austin – Seay Building Addition
Contractor: SpawGlass
Regarding: Section 084113 – Paragraph 1.5, Section B – Qualification Data

To whom it may concern,

Established in 1978, The Glass House, Inc. is an El Paso-based commercial glazing contractor recognized for superior glass installation throughout west Texas and southern New Mexico.

Operating from a 16,000 square foot fabrication facility, our projects range in scope from select residential properties to large-scale retail and industrial centers including primary schools, universities, medical research facilities, hospitals, municipal and federal government buildings, military facilities, and jails. We fabricate and install aluminum doors, frames, door hardware, storefronts, curtain walls and architectural glass products and can meet specific requirements like bullet resistance and blast mitigation.

For every Glass House project, we use top quality products including Kawneer, Tubelite and YKK architectural aluminum systems and Vitro, Guardian and Pilkington glazing products.

From standard installations to custom orders our team of over 50 professional and dedicated personnel ensure that jobs are executed to specification and in a timely manner. We also participate in the U.S. Department of Labor certified apprenticeship training program and AGC/OSHA approved safety training program.

Let us put our 42 years of experience work for you.

Robert Alvarez
Project Engineer

The Glass House, Inc.
El Paso, TX 79935
915.592.5583 ph.
915.592.5770 fax
ralvarez@glasshousetexas.com
www.glasshousetexas.com





**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
C. Energy Performance Certificates

11.0 CERTIFICATE OF COMPLIANCE

Certificate Authorization

Name:

Signature:

| OVERALL RATING | |
|--|--|
| U-Factor: (Btu/h•ft ² •°F) | |
| SHGC: | |

Directions: Fill out form completely. Determine the Overall Rating for this project by using the C.O.G. U-Factor and C.O.G. SHGC from Table 1 and looking up the overall rating from Table 2. Indicate the Overall Rating in the space above. Linear interpolation is permitted.

Company:

Date:

CERTIFIES THAT THE MATERIALS LISTED ON THIS CERTIFICATE WERE INSTALLED ON THE PROJECT IDENTIFIED

PROJECT INFORMATION:

UT Austin - Seay Building Addition

Street Address:

108 E. Dean Keeton

City:

Austin

State:

TX

Zip:

78712

GLAZING CONTRACTOR / INSTALLER:

Performance Glass & Aluminum

Street Address:

501 W. Powell, Ste. 211

City:

Austin

Contact Person:

Lucas Glider

Phone Number:

512-632-4656

State:

TX

Zip:

78753

GLAZING MATERIAL SUPPLIER:

Oldcastle Building Envelope

Street Address:

1101 Fountain Parkway

City:

Grand Prairie

Glass and Spacer Type:

Contact Person:

Diane Lacy

Phone Number:

469-348-2950

State:

TX

Zip:

75050

Center-of-glass (C.O.G.) U-factor:

Center-of-glass (C.O.G.) SHGC:

Btu/h•ft²•°F

TABLE 1 – GLAZING

FRAMING MATERIAL SUPPLIER:

Kawneer Company

Street Address:

710 Gateway, Ste. 140

City:

Coppell

Contact Person:

Steve Kesterson

Phone Number:

972-829-7160

State:

TX

Zip:

75019

Product Line:

EnCore Window Wall System

The overall ratings for U-factor and SHGC are based on a size of 2000 mm x 2000 mm (78.75in x 78.75 in) as required in NFRC 100.

Overall U-factors and Solar Heat Gain Coefficients (SHGC) listed in the matrix were determined in accordance with NFRC 100 and NFRC 200 respectively by a NFRC accredited laboratory.

ACCREDITED LABORATORY:

Quality Testing, Inc.

Reference Test Report #:

C2009-410E0A0

TABLE 2 – FRAMING

U-factor Matrix (Btu/h•ft²•°F)

SHGC Matrix

| C.O.G. U-factor | OVERALL U-factor | C.O.G. SHGC | OVERALL SHGC |
|--------------------|---------------------|----------------|-----------------|
| 0.48 | .61 | 0.75 | .68 |
| 0.46 | .59 | 0.70 | .64 |
| 0.44 | .58 | 0.65 | .59 |
| 0.42 | .56 | 0.60 | .55 |
| 0.40 | .55 | 0.55 | .50 |
| 0.38 | .53 | 0.50 | .46 |
| 0.36 | .51 | 0.45 | .41 |
| 0.34 | .50 | 0.40 | .37 |
| 0.32 | .48 | 0.35 | .33 |
| 0.30 | .46 | 0.30 | .28 |
| 0.28 | .45 | 0.25 | .24 |
| 0.26 | .43 | 0.20 | .19 |
| 0.24 | .42 | 0.15 | .15 |
| 0.22 | .40 | 0.10 | .10 |
| 0.20 | .38 | 0.05 | .06 |

CERTIFICATE OF COMPLIANCE

Certificate Authorization

Name:

Signature:

| OVERALL RATING | |
|--|--|
| U-Factor: (Btu/h•ft ² •°F) | |
| SHGC: | |

Company:

Date:

CERTIFIES THAT THE MATERIALS LISTED ON THIS CERTIFICATE WERE INSTALLED ON THE PROJECT IDENTIFIED

PROJECT INFORMATION:

UT Austin - Seay Building Addition

Street Address:

108 E. Dean Keeton

City:

Austin

State:

TX

Zip:

78712

GLAZING CONTRACTOR / INSTALLER:

Performance Glass & Aluminum

Street Address:

501 W. Powell, Ste. 211

City:

Austin

Contact Person:

Lucas Glider

Phone Number:

512-632-4656

State:

TX

Zip:

78753

| TABLE 1 - GLAZING | GLAZING MATERIAL SUPPLIER: | | Center-of-glass (C.O.G.) SHGC: |
|-------------------|--|---------------|--------------------------------|
| | Street Address: | City: | |
| | Oldcastle Building Envelope 1101 Fountain Parkway | Grand Prairie | |

Contact Person:

Diane Lacy

Phone Number:

469-348-2950

State:

TX

Zip:

75050

| TABLE 2 - FRAMING | FRAMING MATERIAL SUPPLIER: | | Product Line: |
|--|--|----------------|--|
| | Street Address: | City: | |
| | Kawneer Company 710 Gateway, Ste. 140 | Coppell | 500 / 500 Tuffline / 500 Heavy Wall Door Pair |
| U-factor Matrix (Btu/h•ft ² •°F) | | SHGC Matrix | |
| C.O.G. U-factor | OVERALL U-factor | C.O.G. SHGC | OVERALL SHGC |
| 0.47 | 0.82 | 0.75 | 0.41 |
| 0.46 | 0.82 | 0.70 | 0.38 |
| 0.44 | 0.81 | 0.65 | 0.36 |
| 0.42 | 0.80 | 0.60 | 0.34 |
| 0.40 | 0.79 | 0.55 | 0.31 |
| 0.38 | 0.78 | 0.50 | 0.29 |
| 0.36 | 0.77 | 0.45 | 0.26 |
| 0.34 | 0.77 | 0.40 | 0.24 |
| 0.32 | 0.76 | 0.35 | 0.21 |
| 0.30 | 0.75 | 0.30 | 0.19 |
| 0.28 | 0.74 | 0.25 | 0.17 |
| 0.26 | 0.73 | 0.20 | 0.14 |
| 0.24 | 0.72 | 0.15 | 0.12 |
| 0.22 | 0.71 | 0.10 | 0.09 |
| 0.20 | 0.70 | 0.05 | 0.07 |
| 0.18 | 0.70 | | |
| 0.16 | 0.69 | | |
| 0.14 | 0.68 | | |
| 0.12 | 0.67 | | |
| 0.10 | 0.66 | | |

The overall ratings for U-factor and SHGC are based on a size of 1920 mm x 2090 mm (75.5 in x 82.375 in) as required in NFRC 100.

Overall U-factors and Solar Heat Gain Coefficients (SHGC) listed in the matrix were determined in accordance with NFRC 100 and NFRC 200 respectively by a NFRC accredited laboratory.

ACCREDITED LABORATORY:

Architectural Testing

Reference Test Report #:

A8170.04-116-45

Directions: Fill out form completely. Determine the Overall Rating for this project by using the C.O.G. U-Factor and C.O.G. SHGC from Table 1 and looking up the overall rating from Table 2. Indicate the Overall Rating in the space above. Linear interpolation is permitted.



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
D. Product Test Reports



TEST REPORT TRANSMITTAL

Date Generated: 5/1/2020
Project Name: UT-Seay Building Addition
Project Location: Austin, TX
Company: PERFORMANCE GLASS & ALUM
Requested By: Lucas Glider

Attached, please find Kawneer's standard test reports for project submittals. These reports have been witnessed and prepared by an independent testing agency and adhere to industry guidelines and recommendations. These tests are performed for customers, general contractors, architects, specifiers and building owners to compare performance characteristics of various products by all manufacturers.

These test reports are generic in nature. The configurations and size of the tested specimens are dictated by industry standards and may not reflect the exact building requirements or conditions for the particular project.

By providing a copy of this or these test reports, Kawneer Company, Inc. does not imply or guarantee that this or these products will achieve the same performance levels as recorded in this or these test reports when installed in a building or project. These performance levels were achieved in a laboratory setting under optimum conditions and are not representative of project conditions and may not be repeatable in the field. If field testing is required, it is encouraged that it be done as early as possible and is conducted per AAMA 502-08, or AAMA 503-08. Please reference Note below from these AAMA documents when performing field tests.

Note:

The default pressures used for water penetration resistance tests conducted in the field are not the same as the laboratory test pressure to allow for field conditions and test methods that vary from the laboratory test conditions and test methods. These conditions are primarily related to the ambient environmental conditions and the installation. The product performance is based on laboratory testing performed under controlled laboratory conditions. The temperature, wind, and barometric pressure conditions during a field test will typically vary from the standard laboratory conditions. The field installations also influence the product performance. Products tested in the laboratory are typically installed near - perfect for plumb, level, and square within a precision opening. Field test specimens, although installed within acceptable industry tolerances, are rarely perfectly plumb, level and square. Shipping, handling, acts of subsequent trades, aging and other environmental conditions all may have an adverse effect upon the performance of the installed specimen. A 1/3 reduction of the test pressure for field testing is specified as a reasonable adjustment for the differences between a laboratory test environment and a field test environment.

Kawneer Company, Inc.

Andy Nag

Director, Customer Operations



REPORT
ETL TESTING LABORATORIES, INC.⁴⁵⁷

2.07.5

INDUSTRIAL PARK

CORTLAND, NEW YORK 13045

ORDER NO. 67097-217

AUGUST 11, 1993

REPORT NO. 520662-R

RENDERED TO

KAWNEER COMPANY, INC.

AIR INFILTRATION, STRUCTURAL PERFORMANCE
AND FORCED-ENTRY RESISTANCE TESTS OF A
PAIR OF "KAWNEER" 350 ALUMINUM EXTERIOR
SWINGING ENTRANCE DOORS

General:

This report provides the results of tests of a "Kawneer" 350 Aluminum Exterior Swinging Entrance Door Mock-up. The work was authorized by personal application of and coordinated through Mr. James Evans, representing the client. The tests were witnessed by ETL representative Mr. William Penuel and Brittingham & Associates Mr. Mac Brittingham, P.E. at the client's laboratory at Norcross, GA on June 26, 1992.

Test Methods:

Tests were conducted in general in accordance with ASTM Standard's for Air Infiltration and Structural Performance and AAMA Forced-Entry Resistance Standard for Aluminum Exterior Swinging Entrance Doors.

Air Infiltration:

Designation: ASTM E-283-84 - Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

Structural Performance:

Designation: ASTM E-330-90 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

Forced-Entry Resistance:

Designation: AAMA 1303.3 - Standard for Forced-Entry Resistant Commercial Swinging Aluminum Doors.

An independent organization testing for safety, performance and certification.

Report No. 520662-R

Page 2

Description of Mock-up:Model: 350 Aluminum Exterior Swinging Entrance Door.Overall Size: 75-1/2 in. wide x 85-3/4 in. high.Doors: Two (2) each - 35-3/4 in. wide x 83-1/4 in. high.Weatherstripping: A single vinyl bulb in frame head and jambs. A single vinyl flap in an applied adapter at each panel bottom rail. A single pile with integral plastic fin in an adjustable metallic adapter at the active lock stile. One 6-3/4 in. long pile strip at the lock at the active lock stile.Operators: A two-point lock system in the active lock stile, 32 in. from the bottom, operating a throw bolt into the inactive stile and a throw bolt into the threshold. The lock was key operated on the interior and exterior. A concealed, manually operated, lever and threshold was constructed of a steel rod with a plastic plunger attached to the end. One aluminum horizontal push bar on the interior of each panel, approximately 44 in. from the bottom and one aluminum pull handle on the exterior of each panel lock stile, approximately 39 in. from the bottom.Glazing: 3/16 in. tempered glass. Interior and exterior glazed using an extruded aluminum snap-in glazing bead with a vinyl wedge between the glass and each bead per panel.Weepholes: None.Muntins: None.Reinforcement: None.Additional Description: A 4 in. wide flush mount threshold. An applied aluminum weatherstrip adapter attached to the bottom of each panel using five No. 6 x 3/8 in. screws. A 3-1/2 in. wide extrusion used in the vertical stiles of each door panel

Report No. 520662-R

Page 3

Results of Tests:

| <u>Air Infiltration Test:</u> <u>ASTM E-283-84</u> | <u>Results</u> | <u>Allowable</u> |
|---|------------------|------------------|
| Air Infiltration @ 1.57 psf | 0.79 cfm/lin.ft. | 1.00 cfm/lin.ft. |

Uniform Load Structural Test:
ASTM E-330-90

| | | |
|------------------------|-----------|-----------|
| Positive Load @ 54 psf | No Damage | No Damage |
| Negative Load @ 54 psf | No Damage | No Damage |

Note: Permanent Deformation measured 0.00 in. for the positive and negative structural loads.

| <u>Forced-Entry Resistance</u> | <u>Load Applied, lbs.</u> | <u>Load Required, lbs.</u> |
|--|-------------------------------|--------------------------------|
| 4.1.2.1: Within 6 in. of the lock - active stile. | 300 | 300 |
| 4.1.2.2: Within 6 in. of the lock - inactive stile. | 300 | 300 |
| 4.1.2.3: Within 6 in. of the top of the lock stile-active door. | 300 | 300 |
| 4.1.2.4: Within 6 in. of the bottom of the lock stile-active door. | 300 | 300 |
| 4.1.2.5: Within 6 in. of the top of the lock stile-inactive door. | 300 | 300 |
| 4.1.2.6: Within 6 in. of the bottom of the lock stile-inactive door. | 300 | 300 |

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Results of Tests (cont.)

Forced-Entry Test Performance Requirements:

5.1: Doors must not open during any of the forced-entry tests.

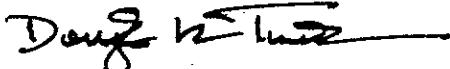
5.2: Hand operated hardware must not be accessible for operation from the exterior when any of the loads are applied.

5.3: Doors and hardware must be operable at the completion of the forced-entry tests, with the glass intact.

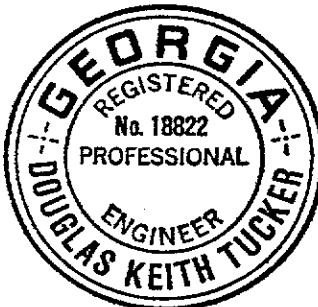
Note: The specimen passed the minimum requirements for the following specifications, referenced as follows:

ASTM E-283-84, ASTM E-330-90, & AAMA 1303.3.

Report Approved By:



Douglas K. Tucker, P.E.
Staff Engineer



Tests Witnessed By:



William D. Penuel

Note: The Appendix consists of the client's drawings describing the specimen and forms a part of this report.



1832
95438-89

**NFRC U-FACTOR, SHGC, VT, &
CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT**

**Rendered to:
KAWNEER COMPANY, INC.**

SERIES/MODEL:

190 Pair Door

**350 Tuffline Pair Door / 350 Heavy Wall Pair Door / 350 Pair Door
500 Tuffline Pair Door / 500 Heavy Wall Pair Door / 500 Pair Door**

**Report Number: A8170.04-116-45
Report Date: 03/03/11**



**NFRC U-FACTOR, SHGC, VT, & CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT**

Rendered to:
KAWNEER COMPANY, INC.
555 Guthridge Court
Norcross, Georgia 30092

Report Number: A8170.04-116-45
Simulation Date: 03/03/11
Report Date: 03/03/11

Project Summary:

Architectural Testing, Inc. was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance, and Condensation Resistance* computer simulations in accordance with the National Fenestration Rating Council (NFRC). The products were evaluated in full compliance with NFRC requirements to the standards listed below.

**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

- NFRC 100-2010:** *Procedure for Determining Fenestration Product U-Factors*
NFRC 200-2010: *Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*
NFRC 500-2010: *Procedure for Determining Fenestration Product Condensation Resistance Values*

Software:

- Frame and Edge Modeling:** THERM 6.3.19
Center-of-Glass Modeling: WINDOW 6.3.9
Total Product Calculations: WINDOW 6.3.9
Spectral Data Library: 18.0

Simulations Specimen Description:

- Series/Model:** 190 Pair Door
350 Tuffline Pair Door / 350 Heavy Wall Pair Door / 350 Pair Door
500 Tuffline Pair Door / 500 Heavy Wall Pair Door / 500 Pair Door
Type: Swinging Door , Double Leaf Entrance Door
Frame Material: AL Aluminum (Non-thermally broken)
Sash Material: AL Aluminum (Non-thermally broken)
Standard Size: 1920mm x 2090mm

Technical Interpretations:

None

Modeling Assumptions:

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.
- 2) The 350 Tuffline, 350 Heavy Wall and 350 Door were grouped with the 350 Tuffline as the group leader per CMA Approved groupings and is not in compliance with NFRC standard grouping rules
- 3) The 500 Tuffline, 500 Heavy Wall and 500 Door were grouped with the 500 Tuffline as the group leader per CMA Approved groupings and is not in compliance with NFRC standard grouping rules

Specialty Products Table:

The specialty products method allow the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 5.2. The method gives overall product SHGC and VT indexed on center of glass properties. All values used in the calculations are truncated to six decimal place precision.

| 190 Pair Doors: | No Dividers | Dividers < 1 | Dividers > 1 |
|-----------------|-------------|--------------|--------------|
| SHGC0 | 0.031870 | 0.034724 | 0.037366 |
| SHGC1 | 0.660887 | 0.576386 | 0.498184 |
| VT0 | 0.000000 | 0.000000 | 0.000000 |
| VT1 | 0.629018 | 0.541662 | 0.460818 |

| 350 Pair Doors: | No Dividers | Dividers < 1 | Dividers > 1 |
|-----------------|-------------|--------------|--------------|
| SHGC0 | 0.038280 | 0.040977 | 0.043461 |
| SHGC1 | 0.599261 | 0.519423 | 0.445884 |
| VT0 | 0.000000 | 0.000000 | 0.000000 |
| VT1 | 0.560981 | 0.478447 | 0.402423 |

| 500 Pair Doors: | No Dividers | Dividers < 1 | Dividers > 1 |
|-----------------|-------------|--------------|--------------|
| SHGC0 | 0.044319 | 0.046835 | 0.049139 |
| SHGC1 | 0.530513 | 0.456017 | 0.397528 |
| VT0 | 0.000000 | 0.000000 | 0.000000 |
| VT1 | 0.486194 | 0.409182 | 0.338681 |

$$\text{SHGC} = \text{SHGC0} + \text{SHGCc} (\text{SHGC1} - \text{SHGC0})$$

$$\text{VT} = \text{VT0} + \text{VTc} (\text{VT1} - \text{VT0})$$

Validation Matrix:

The following products are part of a validation matrix. Only one is required for validation testing.

| <i>Product Line</i> | <i>Report Number</i> |
|---------------------|----------------------|
| None | - |

Spacer Option Description

| <i>Sealant</i> | | | |
|--------------------|----------------|------------------|------------------|
| <i>Spacer Type</i> | <i>Primary</i> | <i>Secondary</i> | <i>Desiccant</i> |
| Aluminum Spacer | Butyl Rubber | Butyl Rubber | Yes |

Grid Option Description

| <i>Grid Size</i> | <i>Grid Type</i> | <i>Grid Pattern</i> |
|------------------|------------------|---------------------|
| None | - | - |

Reinforcement Option Description

| <i>Location</i> | <i>Material</i> |
|-----------------|-----------------|
| None | - |

Gas Filling Technique Description

| <i>Fill Type</i> | <i>Method</i> |
|------------------|--------------------|
| 84.5% Xenon | Single probe timed |
| 76.1% Argon | Single probe timed |
| 85.8% Argon | Single probe timed |
| 83% Argon | Single probe timed |
| 88.7% Argon | Single probe timed |
| 87.4% Argon | Single probe timed |
| 65% Argon | Single probe timed |
| 74.7% Argon | Single probe timed |
| 60.8% Argon | Single probe timed |
| 62.4% Argon | Single probe timed |
| 86% Argon | Single probe timed |
| 81.7% Xenon | Single probe timed |
| 94.6% Xenon | Evacuated chamber |
| 76.9% Krypton | Single probe timed |
| 71.6% Xenon | Single probe timed |
| 76.5% Krypton | Single probe timed |
| 66.7% Xenon | Single probe timed |
| 82.2% Xenon | Single probe timed |

Edge-of-Glass Construction

| | |
|---------------------------|-------------------------------------|
| <i>Interior Condition</i> | EPDM gasket between frame and glass |
| <i>Exterior Condition</i> | EPDM gasket between frame and glass |

Weatherstripping

| Type | Quantity | Location |
|-------------------|----------|---|
| EPDM flap gasket | 1 row | Bottom sash rail |
| Vinyl bulb gasket | 1 row | Top frame rail and jamb stiles |
| Nylon pile | 2 rows | Meeting Stile - 190, 350 and 500 Series |
| Nylon pile | 1 row | Meeting Stile - 350 and 500 Series |

Frame/Sash Materials Finish

| | |
|-----------------|------------------|
| <i>Interior</i> | Painted Aluminum |
| <i>Exterior</i> | Painted Aluminum |

NFRC 100/200/500 Summary Sheet
500 Tuffline Pair Door / 500 Heavy Wall Pair Door / 500 Pair Door

| ID | Pane Thickness 1 | Gap Width 1 | Pane Thickness 2 | Gap Width 2 | Pane Thickness 3 | Gap Width 3 | Pane Thickness 4 | Gap Fill | Low-e (Surface#) | Tint | Spacer | Grid Type |
|----|----------------------|---|------------------|-------------|------------------|-------------|------------------|---|------------------|------|--------|-----------|
| | U-Factor | Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1) | | | | | | Visible Transmittance (VT) Grids (None / <1 / >=1) | | | | |
| 39 | COG=0.4735 (Clr/Clr) | 0.225 | 0.500 | 0.225 | | | | AIR | | CL | A1-D | N |
| | U-Factor | 0.82 | SHGC (N) | | | | 0.39 | VT (N) | 0.38 | CR | | 16 |
| 40 | COG=0.4400 | 0.222 | 0.500 | 0.225 | | | | XEN84.48 | | CL | A1-D | N |
| | U-Factor | 0.81 | SHGC (N) | | | | 0.38 | VT (N) | 0.36 | CR | | 16 |
| 41 | COG=0.4200 | 0.222 | 0.500 | 0.225 | | | | ARG76.1 | 0.652(#2) | GY | A1-D | N |
| | U-Factor | 0.80 | SHGC (N) | | | | 0.17 | VT (N) | 0.11 | CR | | 16 |
| 42 | COG=0.4000 | 0.220 | 0.500 | 0.225 | | | | ARG85.82999 | 0.566(#2) | GY | A1-D | N |
| | U-Factor | 0.79 | SHGC (N) | | | | 0.17 | VT (N) | 0.10 | CR | | 16 |
| 43 | COG=0.3800 | 0.226 | 0.500 | 0.225 | | | | ARG83.03 | 0.471(#2) | OT | A1-D | N |
| | U-Factor | 0.78 | SHGC (N) | | | | 0.13 | VT (N) | 0.07 | CR | | 16 |
| 44 | COG=0.3600 | 0.220 | 0.500 | 0.225 | | | | ARG88.65 | 0.395(#2) | GY | A1-D | N |
| | U-Factor | 0.77 | SHGC (N) | | | | 0.11 | VT (N) | 0.03 | CR | | 16 |
| 45 | COG=0.3400 | 0.232 | 0.500 | 0.225 | | | | ARG87.41 | 0.318(#2) | GY | A1-D | N |
| | U-Factor | 0.77 | SHGC (N) | | | | 0.27 | VT (N) | 0.28 | CR | | 16 |
| 46 | COG=0.3200 | 0.223 | 0.500 | 0.225 | | | | ARG64.98 | 0.215(#2) | CL | A1-D | N |
| | U-Factor | 0.76 | SHGC (N) | | | | 0.34 | VT (N) | 0.36 | CR | | 16 |
| 47 | COG=0.3000 | 0.233 | 0.500 | 0.225 | | | | ARG74.7 | 0.166(#2) | CL | A1-D | N |
| | U-Factor | 0.75 | SHGC (N) | | | | 0.26 | VT (N) | 0.26 | CR | | 16 |
| 48 | COG=0.2800 | 0.223 | 0.500 | 0.225 | | | | ARG60.78 | 0.087(#2) | CL | A1-D | N |
| | U-Factor | 0.74 | SHGC (N) | | | | 0.31 | VT (N) | 0.37 | CR | | 16 |



NFRC 100/200/500 Summary Sheet

500 Tuffline Pair Door / 500 Heavy Wall Pair Door / 500 Pair Door

| ID | Pane Thickness 1 | Gap Width 1 | Pane Thickness 2 | Gap Width 2 | Pane Thickness 3 | Gap Width 3 | Pane Thickness 4 | Gap Fill | Low-e (Surface#) | Tint | Spacer | Grid Type | | | |
|---------------|------------------|-------------|---|-------------|------------------|-------------|------------------|-------------|---|---|--------|-----------|-------------------------|--|--|
| | U-Factor | | Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1) | | | | | | | Visible Transmittance (VT) Grids (None / <1 / >=1) | | | Condensation Resistance | | |
| 49 COG=0.2600 | | | | | | | | | | | | | | | |
| | 0.223 | 0.500 | 0.225 | | | | | ARG62.43 | 0.035(#2) | CL | A1-D | N | | | |
| | U-Factor | 0.73 | SHGC (N) | | 0.23 | | VT (N) | | 0.34 | CR | | 16 | | | |
| 50 COG=0.2400 | | | | | | | | | | | | | | | |
| | 0.223 | 0.500 | 0.223 | | | | | ARG86.02 | 0.035(#2) / 0.035(#3) | CL | A1-D | N | | | |
| | U-Factor | 0.72 | SHGC (N) | | 0.22 | | VT (N) | | 0.30 | CR | | 16 | | | |
| 51 COG=0.2200 | | | | | | | | | | | | | | | |
| | 0.223 | 0.500 | 0.223 | | | | | XEN81.67 | 0.018(#2) / 0.018(#3) | CL | A1-D | N | | | |
| | U-Factor | 0.71 | SHGC (N) | | 0.17 | | VT (N) | | 0.25 | CR | | 16 | | | |
| 52 COG=0.2000 | | | | | | | | | | | | | | | |
| | 0.223 | 0.500 | 0.223 | | | | | XEN94.6 | 0.018(#2) / 0.018(#3) | CL | A1-D | N | | | |
| | U-Factor | 0.70 | SHGC (N) | | 0.17 | | VT (N) | | 0.25 | CR | | 16 | | | |
| 53 COG=0.1800 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.221 | | | KRY76.87AIR | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.028(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.70 | SHGC (N) | | 0.16 | | VT (N) | | 0.21 | CR | | 16 | | | |
| 54 COG=0.1600 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.223 | | | XEN71.59AIR | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.018(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.69 | SHGC (N) | | 0.16 | | VT (N) | | 0.22 | CR | | 16 | | | |
| 55 COG=0.1400 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.223 | | | KRY76.46 | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.018(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.68 | SHGC (N) | | 0.16 | | VT (N) | | 0.22 | CR | | 16 | | | |
| 56 COG=0.1200 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.223 | | | XEN66.67 | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.018(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.67 | SHGC (N) | | 0.16 | | VT (N) | | 0.22 | CR | | 16 | | | |
| 57 COG=0.1000 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.223 | | | XEN82.15 | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.018(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.66 | SHGC (N) | | 0.16 | | VT (N) | | 0.22 | CR | | 16 | | | |

The Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.

Ratings values included in this report are for submittals to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy.

Architectural Testing, Inc. is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The NFRC procedure requires that the computational results be verified through actual test results.

Detailed drawings, simulation data files, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire. Results obtained are simulated values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the product simulated. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:

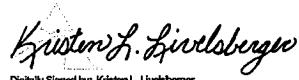
SIMULATED BY:



Digitally Signed by: Kevin Louder

Kevin S. Louder
Project Engineer

REVIEWED BY:



Digitally Signed by: Kristen L. Livelsberger

Kristen L. Livelsberger
Senior Simulation Technician
Simulator-In-Responsible-Charge

KSL:ksl

A8170.04-116-45

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A: Drawings and Bills of Material (54)

Revision Log

| <u>Rev. #</u> | <u>Date</u> | <u>Page(s)</u> | <u>Revision(s)</u> |
|----------------------|--------------------|-----------------------|---------------------------|
| .01 R0 | 3/3/2011 | All | Original Report Issue |



REPORT
ETL TESTING LABORATORIES, INC.

688
95438-24

4317-A PARK DRIVE, NW

NORCROSS, GA 30093

Order No. J98029800

Date: January 7, 1999

Report No. J98029800-001 (Revised)

Rendered To

Kawneer Company, Inc.

Air Infiltration, Static Water Penetration, &

Structural Performance Tests Of a "Kawneer"

EnCORE (Type "A") 1-3/4 in. (44mm) x 4-1/2 in. (114mm)

Front Glazed Screw Spline System (1 in. Glass)

General:

This report provides the results of tests of a "Kawneer" EnCORE (Type "A") 1-3/4 in. (44mm) x 4-1/2 in. (114mm) Front Glazed Screw Spline System Mock-up. The work was authorized by personal application of and coordinated through Mr. Robert Magoon, representing the client. The tests were witnessed by ETL representative Mr. William Penuel at the client's laboratory at Norcross, GA on August 10, 1998.

Test Methods:

Tests were conducted in general in accordance with Methods of Test for Exterior Walls (AAMA 501-94), published by American Architectural Manufacturers Association and specific Standards published by American Society for Testing and Materials (ASTM):

Air Infiltration:

Designation: ASTM E-283-91 - Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

Static Water Penetration:

Designation: ASTM E-331-96 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

An independent organization testing for safety, performance, and certification.

All services undertaken subject to the following general policy: Reports are submitted for exclusive use of the clients to whom they are addressed. Their significance is subject to the adequacy and representative character of the samples and to the comprehensiveness of the tests, examinations or surveys made. No quotations from reports or use of ETL's name is permitted except as expressly authorized by ETL in writing.

Test Methods (cont.)

Structural Performance:

Designation: ASTM E-330-97 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

Description of Specimen:

Type: ENCORE (Type "A") 1-3/4 in. (44mm) x 4-1/2 in. (114mm) Front Glazed Screw Spline System.

Elevation: 94-3/4 in. (2407mm) wide x 94-3/4 in. (2407mm) high.

Materials: Framing members, setting chairs, and flashing were extruded aluminum. Snap-on glazing clips were molded thermal polyester with ultra violet stabilizer. Setting blocks and weathering were extruded elastomeric material. All lites were glazed with a push-on extruded elastomeric weathering on both the exterior and interior. All wet seals were made with tooled-in-place medium modulus silicone sealant.

Frame Construction: The framing members were joined together with #8 screws and snapped together split mullion half's. Weathering was applied to the verticals and jambs. The horizontal members were butted between the weathered verticals without sealant and attached with #8 screws. Weathering was added to the interior side of all horizontals after assembly. Framing was installed on flashing having a back bead of sealant and both ends were sealed. All perimeter fasteners were #10 wood screws. All perimeter fastener heads at the sill were sealed over and tooled down. A bead of sealant was placed at the bottom front flange of all verticals and jambs and tooled in place. Backer rod and sealant was applied to both the exterior and interior perimeter and tooled in place. Setting chairs, setting blocks, water deflectors, and glazing clips 12 in. on center were installed before glazing.

Glazing: The specimen consisted of (2) rows of (2) 1 in. clear insulating glass units composed of (2) lites of 1/4 in. annealed glass with a $\frac{1}{8}$ in. air space and edge spacer. Clear glass dimensions of all (4) lites measured 45- $\frac{1}{2}$ in. wide by 45-1/2 in. high. Glazing was performed from the exterior using removable temporary glazing clips to hold the glass in place before adding the covers. Weathered removable covers with glazing clips 12 in. on center were added in all locations.

Description of Specimen (cont.)

Drainage: EnCORE Screw Spline System is an internally drained system. Any water getting into the horizontals is directed to the bottom of the horizontal cover-and-out 1 in- weep holes on each end. Weeps are created by cutting back the bottom cover weathering 1 in. on each end. The verticals act as gutters, draining water to the sill flashing which then directs the water to the exterior.

Note: The Appendix consists of the client's drawings (175-984: Sheets 1&2) and forms a part of this report.

Results of Tests

1. Air Infiltration:

The Air Infiltration Test was conducted at a static pressure of 6.24 psf (300 Pa) (equal to a 50 mph wind) with an allowable air leakage of 0.06 cfm/sq.ft. (1.098 cm/hr/sqm) of fixed test area. The fixed test area was 64 sq.ft.

Air Infiltration

| Static Pressure, <u>psf</u> | Total, <u>cfm</u> | Area, <u>cfm/sq.ft.</u> (0.04 cm/hr/sqm) |
|-----------------------------------|----------------------|--|
| 6.24 (300 Pa) | 0.1 | 0.002 |

2. Static Pressure Water Penetration:

The Static Pressure Water Penetration Test was conducted with an average water application rate of 5.0 gallons per hour per square foot of the specimen for 15 minutes and at a uniform static air pressure of 8.0 psf (384 Pa) (with and without interior perimeter seal). There was to be no uncontrolled water leakage.

Results of Tests (cont.)

Static Pressure Water Penetration

| <u>Uniform Static Pressure, psf</u> | <u>Water Spray Rate, gals/hr/sq.ft.</u> | <u>Result of Test</u> |
|---|---|-------------------------|
| 8.0 psf (384 Pa) (with and without interior perimeter seal) | 5.0 | No Uncontrolled Leakage |

3. Structural Performance: Deflection

The Structural Performance Deflection Tests were conducted as follows with each load maintained for a period of 10 seconds:

- + 10.0 psf (480 Pa) (50% of positive pressure design load)
- + 20.0 psf (960 Pa) (100% of positive pressure design load)
- 10.0 psf (480 Pa) (50% of negative pressure design load)
- 20.0 psf (960 Pa) (100% of negative pressure design load)

Deflection of Vertical Mullion

| <u>Uniform Static Structural Test Pressure, psf</u> | <u>Average Gage No. 1 and Gage No. 3, in.</u> | <u>Gage No. 2, in.</u> | <u>Total, in.</u> |
|---|---|----------------------------|-----------------------|
| Positive 20.0 psf (960 Pa) | 0.16 (4.1mm) | 0.50 (12.7mm) | 0.34 (8.6mm) |
| Negative 20.0 psf (960 Pa) | 0.17 (4.3mm) | 0.56 (14.2mm) | 0.39 (9.9mm) |

Note: Deflection shall not exceed 0.526 in. (13.4mm) for the vertical mullion tested. The gaged span was 92 in. (2337mm). There was no glass breakage or permanent damage to any part of the specimen.

Results of Tests (cont.)

4. Structural Performance: Permanent Deformation

The Structural Performance Permanent Deformation Tests were conducted as follows with each load maintained for a period of 10 seconds:

- + 15 psf (720 Pa) (75% of positive pressure design load)
- + 30 psf (1440 Pa) (150% of positive pressure design load)
- 15 psf (720 Pa) (75% of negative pressure design load)
- 30 psf (1440 Pa) (150% of negative pressure design load)

Permanent Deformation of Vertical Mullion

| Uniform Static Structural Test Pressure, <u>psf</u> | Average Gage No. 1 and Gage No.*3, <u>in.</u> | Gage No. 2, <u>in.</u> | Total, <u>in.</u> |
|--|--|---------------------------|----------------------|
| Positive 30.0 psf (1440 Pa) | 0.02 (0.5mm) | 0.02 (0.5mm) | 0.00 |
| Negative 30.0 psf (1440 Pa) | 0.08 (2.0mm) | 0.10 (2.5mm) | 0.02 (0.5mm) |

Note: Permanent Deformation shall not exceed 0.184 in. (4.7mm) for the vertical mullion tested. The gaged span was 92 in. (2337mm). There was no glass breakage or permanent damage to any part of the specimen.

Report No. J98029800-001 Revised)

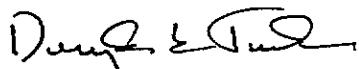
Page 6

Results of Tests (cont.)

Note: The specimen passed the minimum requirements for the following referenced standards:

AAMA 501-94, ASTM E-283-91, ASTM E-331-96, & ASTM E-330-97.

Report Approved By:



Douglas K. Tucker, P.E.



Tests Witnessed By:



William D. Penuel

Note: The Appendix consists of the client's drawings (175-984: Sheets 1&2) and forms a part of this report.

QUALITY TESTING INC.

3310 Hill Avenue, Everett, WA 98201
Phone: (425) 259-6799
FAX: (425) 259-4936
email: info@qtitest.com

NFRC SIMULATION REPORT

C2009-410_{E0A0}

REPORT TO: Kawneer Company, Inc.
555 Guthridge Court
Norcross, GA 30092

| | |
|--------------------------------------|------------|
| U-FACTOR BASELINE SIMULATION NUMBER: | C2009-410 |
| U-FACTOR BASELINE SIMULATION DATE: | 07/29/2009 |
| U-FACTOR BASELINE REPORT DATE: | 07/29/2009 |
| U-FACTOR REVISION DATE: | N/A |
| APPENDIX SIMULATION NUMBER: | N/A |
| APPENDIX SIMULATION DATE: | N/A |
| APPENDIX REVISION DATE: | N/A |
| SHGC REVISION DATE: | N/A |

PRODUCT: Series EnCore Window Wall System

WE TEST WINDOWS.....AND A WHOLE LOT MORE

| | |
|---|---|
| REPORT TO: | Kawneer Company, Inc. 555 Guthridge Court Norcross, GA 30092 |
| REPORT DATE: | 07/29/2009 |
| SIMULATION METHOD: | NFRC 100, Procedure for Determining Fenestration Product U-Factors (2004) NFRC 200, Procedure for Determining Fenestration Product Solar Heat Gain Coefficients at Normal Incidence(2004) Including all currently published Technical Interpretations |
| SIMULATION PROGRAMS: | Center of Glass: Windows 5.2.17 2-D Heat Transfer: THERM 5.2.14 |
| <hr/> | |
| MODEL/TYPE: | Series EnCore Window Wall System |
| CONFIGURATION: | OO |
| SIMULATED SIZE: | 2000mm X 2000mm (79" x 79") |
| FRAME TYPE AND FINISH: | Painted solid aluminum with pvc isolators |
| THERMAL BREAK TYPE: | 1 inch long and 12 inch on center "Valox" 357 glazing clip separators were utilized between the main extrusions and glazing cover extrusions. These are not full length and therefore were not included in the Therm simulations. |
| REINFORCEMENT: | NA |
| IG GLASS PARAMETERS: | IG units are nominal 1" O.A. 6.0mm glass thickness with 0.500" gap |
| GLAZING METHOD: | Interior and exterior EPDM gaskets were used on all members. |
| GAS FILL METHOD: | Single Probe with sensor |
| GAS FILL CONCENTRATION: (PROVIDED BY THE MANUFACTURER) | Varies per gas type |
| SPACERS: (MATERIALS AND CONSTRUCTION) | Dual seal aluminum with PIB/silicone sealant. (Type A1-D) Dual seal TB aluminum with PIB/silicone sealant (Type A2-D) |
| GRILLS (INTERNAL OR TDL): | NA |
| GRILLS (PATTERNS): | For SHGC and VT calculations a standard grid pattern not greater than 12" OC is used. |
| HARDWARE: | No continuous hardware. |
| WEATHERSTRIP: | NA |

ELECTRONIC DATA: Supporting information including THERM 5.2 and WINDOW 5.2 files are being submitted as part of this report.

FRAME GROUPING: None

ADDITIONAL INFORMATION: The manufacturer is capable of producing, in it's normal manufacturing process, products in sizes identical to the model sizes listed in the NFRC 100 Table 4-3 and have a least deviation of 0 within the tolerances of NFRC 100. All simulations are performed in the sizes and configurations listed in NFRC table 1 except that a non-standard size may be simulated and identified in the matrix to match the manufacturer's Physical test sample. Glass and Glazing types, Lowe placement, finishes and other required information is included in the NFRC U-Factor Simulation Summary Report and/or the NFRC SHGC/VT Simulation Summary Report included in this document. Additional supporting information and modeling assumptions are included in the individual reports obtained from the approved simulation programs and in the notes following the required summary reports.

NOTES:

- 1) All simulations use the emissivity from the NFRC approved files in IGDB Version 16.0
- 2) The following Simplifications to a Product Lines per NFRC 100 were applied:
 - A) For U-Factor purposes, all glazing options which vary only in glazing tint or obscurity are assumed to have the same U-Factor as glazing options without such tints or obscurity and are not simulated, PROVIDED that such options are not associated with a change in coating properties.
- 3) A default frame absorptance of 0.500 is assumed.
- 4) For Solar Heat Gain and Visible Light Transmittance, all frame, divider and glass options are grouped using the best case Center of Glass Frame values from the "U" Factor calculations as required by the simulation manual.
- 5) For SHGC and VT calculations standard default grid pattern established by Window 5.2 which is assumed to be closest to but not greater than 12" OC is used.
- 6) The As Tested product simulation was performed using Clear glass as allowed.

CONCLUSIONS

Detailed assembly drawings, cross-sectional drawings, and a bill of materials as supplied by the client were used as the basis for performing the simulations. Copies are attached to this report. The results were secured by using the designated methods and NFRC approved simulation programs as required by, and in full compliance with, the NFRC 100 procedure. This report does not constitute certification of this product. The results in this report apply to the sample as shown in the attached drawings, using the components and construction methods described herein. All rounding and unit conversions are in compliance with the applicable NFRC rules and methods. Quality testing does not warrant the accuracy of the computer programs used to obtain the results.

Ratings values included in this report are for submittal to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes.

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Randal J. Van Voorst
Simulator & Simulator in Responsible Charge

APPENDIX A

U-FACTOR, SHGC & VT SUMMARY

| Product Number | | | | | | | | | |
|----------------|----|------------|--------------|-------|-------|------------|-----|-----------------|--------|
| U-factor C-O-G | | | | | | | | | |
| Pane ID #1 | | Pane ID #2 | | Gap 1 | | Gap Fill 1 | | % of Gap Fill 1 | |
| 0.46 | 1 | 6mm CLEAR | 6mm CLEAR | 0.225 | 0.225 | 0.500 | ARG | 49 | A1-D N |
| 0.44 | 2 | 6mm CLEAR | 6mm CLEAR | 0.225 | 0.225 | 0.500 | AR3 | 10/90 | A1-D N |
| 0.42 | 3 | 6mm CLEAR | 6mm AFG B230 | 0.225 | 0.230 | 0.500 | ARG | 58 | A1-D N |
| 0.40 | 4 | 6mm CLEAR | 6mm AFG B720 | 0.225 | 0.226 | 0.500 | ARG | 26 | A1-D N |
| 0.38 | 5 | 6mm CLEAR | 6mm AFG B720 | 0.225 | 0.226 | 0.500 | ARG | 83 | A1-D N |
| 0.36 | 6 | 6mm CLEAR | 6mm AFG S108 | 0.225 | 0.221 | 0.500 | ARG | 91 | A1-D N |
| 0.34 | 7 | 6mm CLEAR | 6mm SG500 | 0.225 | 0.223 | 0.500 | ARG | 18 | A1-D N |
| 0.32 | 8 | 6mm CLEAR | 6mm SG500 | 0.225 | 0.223 | 0.500 | ARG | 65 | A1-D N |
| 0.30 | 9 | 6mm CLEAR | 6mm SG100 | 0.225 | 0.223 | 0.500 | ARG | 25 | A1-D N |
| 0.28 | 10 | 6mm CLEAR | 6mm SG100 | 0.225 | 0.223 | 0.500 | ARG | 67 | A1-D N |
| 0.26 | 11 | 6mm CLEAR | 6mm SB60 | 0.225 | 0.223 | 0.500 | ARG | 62 | A1-D N |
| 0.24 | 12 | 6mm SB60 | 6mm SB60 | 0.223 | 0.223 | 0.500 | ARG | 86 | A1-D N |
| 0.22 | 13 | 6mm SB60 | 6mm SB60 | 0.223 | 0.223 | 0.500 | AR3 | 6/90 | A1-D N |
| 0.20 | 14 | 6mm SB70XL | 6mm CLEAR | 0.223 | 0.223 | 0.500 | XE3 | 90/9 | A1-D N |

APPENDIX B

SHGC & VT ZERO & ONE VALUES

| SHGC0 NO GRID | SHGC0 <1" GRID | SHGC0 >=1" GRID | VT0 NO GRID | VT0 <1" GRID | VT0 >=1"GRID |
|---------------|----------------|-----------------|-------------|--------------|---------------|
| 0.0179 | 0.0213 | 0.0245 | 0.0000 | 0.0000 | 0.0000 |
| SHGC1 NO GRID | SHGC1 <1" GRID | SHGC1 >=1" GRID | VT1 NO GRID | VT1 <1" GRID | VT1 >=1" GRID |
| 0.9117 | 0.8103 | 0.7153 | 0.8938 | 0.7890 | 0.6908 |

Table 6.1 of NFRC 200-2001

A manufacturer may group infill Pane thicknesses per the following table:

Range of Thicknesses Use in Product

| mm | Inches | |
|---------------|--------------------|--------------|
| x≤2.0 | (x≤5/64) | Actual |
| 2.0 < x < 4.5 | (5/64 < x < 11/64) | 3.0mm (1/8") |
| 4.5 < x < 7.1 | (11/64 < x < 9/32) | 6.0mm (1/4") |
| 7.1 < x | (9/32 < x) | Actual |

FORMULAS:

$$\text{SHGC} = \text{SHGC0} + (\text{SHGCcog} * (\text{SHGC1}-\text{SHGC0}))$$

$$\text{VT} = \text{VT0} + (\text{Vtc} * (\text{VT1} - \text{VT0}))$$



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
E. Source Quality-Control Reports

(N/A)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
F. Field Quality-Control Reports

(N/A)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
G. Sample Warranties

LIMITED WARRANTY AND REMEDY ANODIZED FINISHES

This is to certify that Kawneer Company, Inc. (hereinafter "Kawneer") hereby warrants to its customers and all subsequent purchasers and owners of the project incorporating Kawneer products (hereinafter "Customer(s)"), subject to every term, condition and limitation stated herein, that the anodized finishes applied to the aluminum material (hereinafter "Metal") on the project identified as:

Job Name: *Your Job Name Here*

Order(s) #: *99999999*

for a period of two (2) years for Class II finishes and five (5) years for Class I finishes from the date of substantial completion of the project, provided however, that the Limited Warranty shall begin in no event later than six (6) months from the date of shipment by Kawneer for the start of the warranty period hereunder.

- Will not change color more than five (5) DEcmc as determined per AAMA 611.
- Will not crack, blister, check or peel.

THIS LIMITED WARRANTY WILL NOT APPLY TO OR COVER, AND KAWNEER HEREBY DISCLAIMS ALL LIABILITY FOR ANY OF THE FOLLOWING:

- defects caused by depreciation or normal wear or other occurrences beyond Kawneer's control;
- damage to the finish occasioned by moisture or other contamination detrimental to the finish because of improper storage of the finished Metal prior to installation;
- water damage due to condensation caused by improper repackaging of the finished Metal prior to installation;
- damage to the finished Metal caused by handling, shipping and/or installation, or by use of the Metal with any parts, gaskets, glazing materials, components or sealants of other manufacturers used with Kawneer products, or any lack of performance of Kawneer products attributable to such items;
- damage due to finished Metal caused by exposure to caustic or acidic materials;
- any particular application or selection of the Metal for any particular project or design;
- any application of the anodized finish on any Metal that is also hardware; and
- any product which has been subject to abuse, alterations, modification, neglect, misuse, abnormal use, accident, fire, war, flood, falling objects, external forces, earthquakes, acts of God, or to which parts not supplied by Kawneer have been added.

A systematic maintenance program must be instituted by the purchaser or user to prevent the build-up of deposits on the anodized surface such as dirt and salt. The surface must be cleaned at least annually in accordance with AAMA 609 & 610 so as to prevent the accumulation of these harmful deposits. More frequent cleaning may be reasonably required in some geographical environments such as heavy industrialized or coastal areas.

A FAILURE TO INSTITUTE AND REASONABLY EVIDENCE A SYSTEMATIC MAINTENANCE PROGRAM AS DESCRIBED ABOVE WILL VOID THIS WARRANTY.

All decisions regarding the existence of defects in material and workmanship and the occurrence of any of the matters described in the preceding paragraphs or affecting this Limited Warranty shall be made by Kawneer and shall be final and binding upon the parties.

The sole and exclusive remedy with respect to this Limited Warranty or with respect to any other claim relating to defects or any other condition or use of the products supplied by Kawneer, however caused, and whether such claim is based upon warranty, contract, negligence, strict liability or any other theory, is limited to, at Kawneer's sole discretion, replacement or refinishing of the defective Metal or repayment by Kawneer of the purchase price paid to it. Refinishing of the defective Metal shall be performed by using standard finishing practices and materials as selected by Kawneer. Kawneer reserves the right to approve any contract for refinishing of defective Metal. The warranty on any refinished and/or replacement coated Metal shall continue for the remainder of the original warranty period. At no time does this warranty confer upon the claiming party or any other party the right to proceed with repair, replacement or restoration, without written notice and agreement by a duly authorized officer of Kawneer. Any such work undertaken by the claiming party or any other party shall be for the claiming party's own account and shall result in this warranty becoming null and void.

IN NO EVENT SHALL KAWNEER BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF PROFITS OR GOOD WILL, OR OTHER COMMERCIAL LOSS OR INJURY.

Claims under this Limited Warranty must be made to Kawneer in writing within sixty (60) days after discovery of the defective finished Metal. Failure of the claiming party to notify Kawneer within such period shall automatically relieve Kawneer of any and all responsibility and/or liability. Kawneer must be given a reasonable opportunity to inspect the finished Metal claimed to be defective. In the event of a claim under the warranty, Customer shall furnish proof of the date of substantial completion and shall demonstrate that the failure of the product was due to a breach of the warranty stated herein.

This Limited Warranty will apply only to Metal which is supplied by Kawneer and used within North America (United States, including Hawaii, and Canada) unless Kawneer agrees otherwise in writing.

No terms or conditions other than those stated herein, and no agreement or understanding, oral or written, in any way purporting to modify this Limited Warranty shall be binding on Kawneer unless made in writing and signed by a duly authorized officer of Kawneer.

All notices given under or pursuant to this Limited Warranty shall be in writing and sent by registered mail, postage paid, return receipt requested, to the party to whom such notices are to be given, as follows:

- (a) Kawneer: Kawneer Company, Inc.
Attn: Diana Perreiah
555 Guthridge Court
Norcross, GA 30092
- (b) Customer: Your Company Name
Your Street Address
Anytown, USA 99999-0000

All such notices as set forth above shall be considered served when received.

Customer's agreement to and acceptance of this warranty shall be indicated by signing and returning a copy of this document to Kawneer.

Kawneer Company, Inc.

Diana B. Perreiah



President, Arconic Building and Construction Systems

Date Issued: 01/01/2015

Accepted By:

Customer: _____

By: _____

Signature: _____

Title: _____

Date Signed: _____

LIMITED WARRANTY AND REMEDY MATERIAL & WORKMANSHIP

This is to certify that Kawneer Company, Inc. or its applicable affiliate or subsidiary selling the Product ("Seller") warrants to its Customers and all subsequent purchasers and owners of the project incorporating Seller products (hereinafter "Customer(s)"), subject to every term, condition and limitation stated herein, that the products supplied by Seller on the project identified as:

Job Name: *Your Job Name Here*

Order(s) #: *99999999*

shall be free from material defect in materials and workmanship for a period of two (2) years from the date of substantial completion of the project, provided however, that the limited warranty period shall begin in no event later than six (6) months from the date of shipment by Seller for the start of the warranty hereunder.

This limited warranty ("Limited Warranty") applies only if Seller's products are installed and maintained according to Seller's recommended practices and installation instructions, and only to defects appearing within two (2) years from substantial completion of the project and only if Seller is notified in writing within sixty (60) days after such defect either (i) appears or (ii) should have been discovered after the exercise of reasonable diligence. Failure of the claiming party to notify Seller within such period shall automatically relieve Seller of any and all responsibility and/or liability under this Limited Warranty.

THE WARRANTIES SET FORTH IN THIS LIMITED WARRANTY AND REMEDY ARE IN LIEU OF ALL OTHER REPRESENTATIONS, WARRANTIES OR OTHER AGREEMENTS, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, WHICH ARE HEREBY DISCLAIMED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In addition to Seller's standard Limited Warranty and Remedy, and applying solely and exclusively to Kawneer doors with welded corner construction, the corner construction joinery of these doors shall be free from material defects in workmanship and material for the normal, useful life of the door.

In addition to Seller's standard Limited Warranty and Remedy, and applying solely and exclusively to Kawneer Flushline doors, the corner construction joinery, core and laminate shall be free from material defects in workmanship and material for the normal, useful life of the door.

This Limited Warranty does not cover, and Seller hereby disclaims all liability for, the installation of Seller's products, any particular application or selection of the product for any particular project or design, any parts, gaskets, glazing materials, components or sealants of other manufacturers used with Seller products, or any lack of performance of Seller products attributable to such items. Seller PRODUCTS ARE PRODUCED FOR COMMERCIAL APPLICATIONS. THIS LIMITED WARRANTY DOES NOT COVER, AND SELLER HEREBY DISCLAIMS ALL LIABILITY FOR, ANY PRODUCTS USED IN RESIDENTIAL INDIVIDUAL DETACHED SINGLE FAMILY DWELLINGS, ANY PRODUCTS WHICH HAVE BEEN SUBJECT TO ABUSE, ALTERATION, NEGLECT, MISUSE, ABNORMAL USE, ACCIDENT, FIRE, WAR, FLOOD, EARTHQUAKES, ACTS OF GOD, OR TO WHICH PARTS, NOT SUPPLIED BY SELLER HAVE BEEN ADDED, OR TO DEFECTS CAUSED BY DEPRECIATION OR NORMAL WEAR. All decisions regarding the existence of defects in material and workmanship and the occurrence of any of the matters described in the preceding paragraphs or affecting this Limited Warranty shall be made by Seller and shall be final and binding upon all parties.

The sole and exclusive remedy with respect to this Limited Warranty or with respect to any other claim relating to defect or any other condition or use of the products supplied by Seller, however caused, and whether such claim is based upon breach of representation, warranty, condition, contract (fundamental or otherwise), tort (including negligence), strict liability or any other theory is limited to, at Seller's option, repair or replacement of such products or repayment by Seller of the purchase price paid for it. The remedy with respect to claims made relating to Seller Doors excludes the replacement of glass, gaskets, hardware, immediate framing, temporary enclosures or any related labor or installation costs. In no event does Seller's warranty cover the cost of labor or sundry materials required to remove and/or replace any defective product.

The products repaired, replaced or otherwise restored shall be warranted to the same extent and to the expiration date from the original date of shipment, and this Limited Warranty shall not be deemed to have been extended from the date of such warranty work. At no time does this Limited Warranty confer upon the claiming party or any other party the right to proceed with repair, replacement or restoration, without the written notice and agreement by a duly authorized officer of Seller. Any such work undertaken by the claiming party or any other party shall be for the claiming party's own account and shall result in this Limited Warranty becoming null and void.

SELLER'S AGGREGATE TOTAL CUMULATIVE LIABILITY UNDER THIS LIMITED WARRANTY IS LIMITED TO THE DOLLAR AMOUNT OF THE PURCHASER'S ORIGINAL PAYMENT MADE TO SELLER FOR PRODUCT FURNISHED BY SELLER. IN CONSIDERATION OF THIS LIMITED WARRANTY, SELLER SHALL NOT BE LIABLE FOR SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF PROFITS OR GOODWILL, DAMAGES FOR NEGLIGENCE IN THE MANUFACTURE, DESIGN OR INSTALLATION OF THE PRODUCT, OR OTHER COMMERCIAL LOSS OR INJURY.

This is the only warranty made in connection with the sale and distribution of Seller's products. No representative or any other person is authorized to make or makes any warranty, representation or promise with respect to Seller's products. No terms or conditions other than those stated herein, and no agreement or understanding, oral or written, in any way purporting to modify this warranty shall be binding on Seller unless made in writing and signed by a duly authorized officer of Seller.

Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware or glazing materials, and assumes no responsibility therefor.

All notices given under or pursuant to this Limited Warranty shall be in writing and sent by registered mail, postage paid, return receipt requested, to the party to whom such notices is to be given, as follows:

- (a) Kawneer: Kawneer Company, Inc.
Attn: Warranty Dept
555 Guthridge Court
Norcross, GA 30092
- b) Customer: Your Company Name
Your Street Address
Anytown, USA 99999-0000

All such notices as set forth above shall be considered served when received.

Customer's agreement to and acceptance of this warranty shall be indicated by signing and returning a copy of this document to Kawneer.

Kawneer Company, Inc.

Diana B. Perreiah



President, Arconic Building and Construction Systems

Date Issued: 01/01/2015

Accepted By:

Customer: _____

By: _____

Signature: _____

Title: _____

Date Signed: _____

LIMITED WARRANTY AND REMEDY PAINTED FINISHES

This is to certify that Kawneer Company, Inc. (hereinafter "Kawneer") hereby warrants to its customers and all subsequent purchasers and owners of the project incorporating Kawneer products (hereinafter "Customer(s)") subject to every term, condition and limitation stated herein, that the painted finishes applied to the aluminum material (hereinafter "Metal") on the project identified as:

Job Name: *Your Job Name Here*
Order(s) #: *99999999*

shall comply with the scope of this Limited Warranty, during the period of time from substantial completion of the project as set forth in the table below, provided however, that the Limited Warranty shall begin in no event later than six (6) months from the date of shipment by Kawneer for the start of the warranty period hereunder. Kawneer warrants that the finish:

| Paint Type | | | |
|---|--|--|--|
| 70% Fluoropolymer (Standard Warranty ten (10) years) ¹ | Will not chalk more than that represented by a No. 8 rating for colors or No. 6 for whites, when measured in accordance with the standard procedures specified in ASTM D 4214, Test Method A ("Excessive Chalking"); | Will not change color more than five (5) Hunter Δ E units as determined by ASTM D 2244 ("Excessive Color Change").* | Will not crack, check or peel in such a way as to adversely affect the appearance of the Metal and result in damage to the Metal |
| 50% Fluoropolymer (Standard Warranty five (5) years) ² | Will not chalk more than that represented by a No. 6 when measured in accordance with the standard procedures specified in ASTM D 4214, Test Method A ("Excessive Chalking"); | Will not change color more than seven (7) Hunter Δ E units as determined by ASTM D 2244 ("Excessive Color Change").* | Will not crack, check or peel in such a way as to adversely affect the appearance of the Metal and result in damage to the Metal |
| Powder Paint (Standard Warranty five (5) years) ³ | Will not chalk more than that represented by a No. 8 rating when measured in accordance with the standard procedures | Will not change color more than five (5) Hunter Δ E units as determined by ASTM D 2244 ("Excessive Color Change").* | Will not crack, check or peel in such a way as to adversely affect the appearance of the Metal and result in damage to the Metal |

| | | | |
|--|---|--|--|
| | specified in ASTM D 4214, Test Method A ("Excessive Chalking"); | | |
|--|---|--|--|

* Metallic/mica flake colors are not color measurable and are not subject to the Excessive Color Change warranty set forth above, or any other color change warranty, express or implied.

¹ Maximum Extended Warranty is twenty (20) years for 70% Fluoropolymer Paint

² Maximum Extended Warranty is ten (10) years for 50% Fluoropolymer Paint

³ Maximum Extended Warranty is ten (10) years for Powder Paint

THIS LIMITED WARRANTY WILL NOT APPLY TO OR COVER, AND KAWNEER HEREBY DISCLAIMS ALL LIABILITY FOR THE FOLLOWING:

- damage to the finish occasioned by moisture or other contamination detrimental to the finish because of improper storage of the finished Metal prior to installation;
- failure to properly protect the installed finished Metal during the construction process;
- water damage due to condensation caused by improper repackaging of the finished Metal prior to installation;
- damage including but not limited to scratches and abrasions to the finished Metal caused by use, handling, shipping and/or installation, or by utilization of the Metal with any parts, gaskets, glazing materials, components or sealants of other manufacturers used with Kawneer products or any lack of performance of Kawneer products attributable to such items;
- damage to finished Metal caused by exposure to caustic agents, acidic agents, or harmful fumes or other destructive and/or foreign materials;
- damage due to improper maintenance e.g. the use of chemical cleaning agents, or applicators;
- corrosion of the Metal due to aggressive atmospheres including exposure to salt spray and/or salt mist;
- any particular application or selection of the Metal for any particular project or design;
- any product which has been subject to abuse, alteration, modification, neglect, misuse, abnormal use, accident, fire or other casualty or physical damage, war, flood, falling objects, external forces, earthquakes, acts of God, or to which parts not supplied by Kawneer have been added, and/or
- any defects caused by depreciation or normal wear or other occurrences beyond Kawneer's control.

A systematic maintenance program must be instituted by the Customer or user to prevent the build-up of dirt and salt deposits on the painted surface. The surface must be cleaned at least annually in accordance with AAMA 609 & 610 so as to prevent the accumulation of harmful deposits. More frequent cleaning is required in heavy industrialized environments or coastal environments. Coastal environments where salt spray or salt fog is present can be very detrimental to metal especially where the paint coating has been scratched or damaged. In coastal environments where metal is exposed to salt spray or salt fog or in heavy industrial environments, the metal surface must be cleaned at least once quarterly in accordance with AAMA 609 & 610 to prevent the accumulation of harmful deposits.

A FAILURE TO INSTITUTE AND REASONABLY EVIDENCE A SYSTEMATIC MAINTENANCE PROGRAM AS DESCRIBED ABOVE WILL VOID THIS WARRANTY.

Kawneer is not responsible for chalking or for fading or color changes that are less than the Excessive Chalking or Excessive Color Change referenced and warranted above. Normal weathering, such as the damaging effects of sunlight and exposure to the elements, such as

extremes of weather and atmosphere, may cause any colored surface to fade, chalk, or become soiled or stained. These changes may not be uniform if the surfaces are not equally exposed to the sun and elements. The degree to which normal weathering occurs will vary depending on the air quality, the building's location and many other factors over which Kawneer has no control. Metallic/mica flake colors are not color measurable and are not subject to the Excessive Color Change warranty set forth above, or any other color change warranty, express or implied.

All decisions regarding the existence of defects in material and workmanship and the occurrence of any of the matters described in the preceding paragraphs or affecting this Limited Warranty shall be made by Kawneer and shall be final and binding upon the parties.

The sole and exclusive remedy with respect to this Limited Warranty or with respect to any other claim relating to defects or any other condition or use of the products supplied by Kawneer, however caused, and whether such claim is based upon warranty, contract, negligence, strict liability or any other theory, is limited to, at Kawneer's sole discretion, replacement or refinishing of the defective Metal or repayment by Kawneer of the purchase price paid to it. Refinishing of the defective Metal shall be performed by using standard finishing practices and materials as selected by Kawneer. Kawneer reserves the right to approve any contract for refinishing of defective Metal. The warranty on any refinished, and/or replacement Metal shall continue for the remainder of the original warranty period. At no time does this warranty confer upon the claiming party or any other party the right to proceed with repair, replacement or restoration, without written notice and agreement by a duly authorized officer of Kawneer. Any such work undertaken by the claiming party or any other party shall be for the claiming party's own account and shall result in this warranty becoming null and void.

IN NO EVENT SHALL KAWNEER BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF PROFITS OR GOOD WILL, OR OTHER COMMERCIAL LOSS OR INJURY.

Claims under this Limited Warranty must be made to Kawneer in writing within sixty (60) days after discovery of the defective finished Metal. Failure of the claiming party to notify Kawneer within such period shall automatically relieve Kawneer of any and all responsibility and/or liability. Kawneer must be given a reasonable opportunity to inspect the finished Metal claimed to be defective. In the event of a claim under the warranty, Customer shall furnish proof of the date of substantial completion and shall demonstrate that the failure of the product was due to a breach of the warranty stated herein.

This Limited Warranty will apply only to Metal which is supplied by Kawneer and used within North America (United States, including Hawaii, and Canada) unless Kawneer agrees otherwise in writing.

No terms or conditions other than those stated herein, and no agreement or understanding, oral or written, in any way purporting to modify this Limited Warranty shall be binding on Kawneer unless made in writing and signed by a duly authorized officer of Kawneer.

All notices given under or pursuant to this Limited Warranty shall be in writing and sent by registered mail, postage paid, return receipt requested, to the party to whom such notices is to be given, as follows:

(a) Kawneer: Kawneer Company, Inc.
Attn: Diana Perreiah
555 Guthridge Court
Norcross GA 30092

(b) Customer: Your Company Name
Your Street Address
Anytown, USA 99999-0000

All such notices as set forth above shall be considered served when received.

Customer's agreement to and acceptance of this warranty shall be indicated by signing and returning a copy of this document to Kawneer.

Kawneer Company, Inc.

Diana B. Perreiah



President, Arconic Building and Construction Systems

Date Issued: 01/01/2015

Accepted By:

Customer: _____

By: _____

Signature: _____

Title: _____

Date Signed: _____

Forensic Architecture
Exterior Envelope Consulting
Water Infiltration Testing
Inspection Services

www.z6consulting.com
1027 Tremont Street
Galveston, TX 77550
Phone (409) 740-0090



SUBMITTAL REVIEW

Submittal No.: 084113-00R1

Description: Aluminum Framed Entrances and Storefronts - PD

Project Name: UT Austin - SEA

Project No.: 102-1219

- NO EXCEPTIONS TAKEN
- SUBMIT SPECIFIED ITEM(S)
- ACTION NOT REQUIRED
- EXCEPTIONS NOTED
- REVISE AND RESUBMIT
- NOT REVIEWED

Corrections and notations on Shop Drawings during this review do not relieve this Contractor from complying with the requirements of the Contract Documents. This review is only for check of general conformance with the design concept of the project and general compliance with the information given in contract documents. Contractor is responsible for confirming and coordinating all quantities and dimensions, selecting fabrication processes and techniques of construction, and performing his work in a safe manner.

BY:

DATE: 2020/09/08

Submittal Comments:



SpawGlass Contractors, Inc.
9331 Corporate Drive
Selma TX 78154

TRANSMITTAL

No. 0329

PROJECT: UT Seay Building Addition

TO: BSA Lifestyles
AL

DATE: 09/01/2020

RE: Aluminum-Framed Entrances and Storefronts -
Product Data

ATTN: Ramon Arteaga

JOB: 3018105

| WE ARE SENDING: | SUBMITTED FOR: | ACTION TAKEN: |
|--|---|--|
| <input type="checkbox"/> Shop Drawings | <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Approved as Submitted |
| <input type="checkbox"/> Letter | <input type="checkbox"/> Your Use | <input type="checkbox"/> Approved as Noted |
| <input type="checkbox"/> Prints | <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned After Loan |
| <input type="checkbox"/> Change Order | <input type="checkbox"/> Review and Comment | <input type="checkbox"/> Resubmit |
| <input type="checkbox"/> Plans | | <input checked="" type="checkbox"/> Submit |
| <input type="checkbox"/> Samples | SENT VIA: | <input type="checkbox"/> Returned |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Attached <input type="checkbox"/> Separate Cover | <input type="checkbox"/> Returned for Corrections |
| <input type="checkbox"/> Other: | | <input checked="" type="checkbox"/> Due Date: 09/15/2020 |
| <input checked="" type="checkbox"/> Submittal: | | <input type="checkbox"/> Other: |

| Line | Item | Package | Code | Cycle | Qty | Date | Description | Status |
|------|-----------|---------|------------|-------|-----|------------|--|------------------------|
| 1 | Submittal | | 084113-001 | 2 | | 09/01/2020 | Aluminum-Framed Entrances and Storefronts - Product Data | Submitted for Approval |

SpawGlass Contractors, Inc.

REVIEWED FOR COMPLIANCE
COMMENTS NOTED
REVISE AND RESUBMIT
OTHER:

DATE 9/1/2020 SPEC# 084113

REVIEWED BY tanner.hawkins

SUBMITTAL# 084113-001R1

APPROVAL DOES NOT RELIEVE THE SUBCONTRACTOR
OR SUPPLIER OF RESPONSIBILITY FOR ACCURACY,
COMPLETENESS, QUANTITIES, DIMENSIONS, AND
COMPLIANCE WITH CONTRACT DOCUMENTS

REMARKS:

SpawGlass comments
included

CC:

Signed: Tanner Hawkins
Tanner Hawkins



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.4 Action Submittals
B. Product Data

A Proven Performer Recognized for Economical Installation



Taking center stage in Kawneer's lineup, the EnCORE™ Framing System is a two-piece face-and-gutter system that offers thermal economy, a structural silicone glazed (SSG) option and numerous design choices. Engineered for easy installation and lower costs, features include the unique QuickSeal™ self-sealing system, a broad selection of system depths and a 1-3/4" (44.5 mm) minimal sightline. The EnCORE™ Framing System readily adapts to remodel projects and new construction, whether traditional or modern architecture.

ECONOMY

EnCORE™ is a QuickSeal™ dry-glazed self-sealing framing system and is the first to eliminate joint sealant at horizontal joints, making it more cost effective. The vertical gasket runs through, and when "pinched" by the head, sill and intermediate horizontals, a watertight seal is created, eliminating the need for sealant.

By using the same extrusions for horizontal and vertical mullions, metal utilization is maximized. In addition, the tongue on the extrusions eliminates the need for a secondary, continuous water deflector, thus economizing on installation costs and time.

EnCORE™ Framing System also requires no setting block chair at intermediate horizontals. And at the sill, the system utilizes a simple setting block chair that fits snugly within the glazing pocket and requires no fastening. The system accepts standard 1" (25.4 mm) or 1/4" (6.4 mm) infills and can also be adapted to accept other infills in 1/8" (3.2 mm) increments.

The top-loaded glazing gaskets are the same as those used in the Kawneer flagship Trifab™ Framing Systems, which helps reduce field labor and minimize inventory requirements.

Providing single-source responsibility, Kawneer entrances, windows, curtain walls and slope glazing are compatible with the EnCORE™ Framing System.

PERFORMANCE

A specially engineered thermal clip eliminates metal-to-metal contact by snapping onto the mullion. The cover then snaps onto the clip for true thermal integrity. In addition, the clip has an extended leg on one side, which acts as a "w" block and prevents shifting of glass due to climate changes and building movement.

Engineered to meet or exceed certified performance requirements for air and water infiltration, the EnCORE™ Framing System has been fully tested according to ASTM E283 and ASTM E331. Thermal testing was completed in accordance with AAMA 1503.

The EnCORE™ Framing System also offers architects and building owners the ability to determine project-specific U-factors by referring to thermal tables in our architectural manual. Unique to Kawneer, these tables enable U-factor calculations for each project by utilizing the total glass percentage and the project's center of glass (COG) U-factor.

AESTHETICS

For additional freedom of expression, the EnCORE™ Framing System offers front or center glazing options. An SSG option is also available. And to provide greater design flexibility, the face-and-gutter system offers system depths of 3-9/16" (90.5 mm), 4-1/2" (114.3 mm) or 6" (152.4 mm) front glazed and 4-1/2" (114.3 mm) center glazed.

The 1-3/4" (44.5 mm) minimal sightline provides consistent design aesthetics, while a 1-1/4" (31.75 mm) perimeter sightline is also available. Since the exterior face and interior mullions are separate pieces, two-color design considerations are easily realized.



**Customer Service Center, Blue Cross and Blue Shield of Louisiana
Baton Rouge, Louisiana**

ARCHITECT

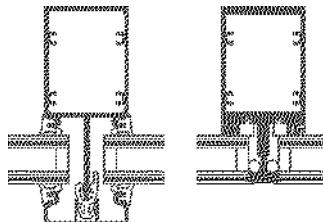
Architectural Group of Baton Rouge, Baton Rouge, Louisiana

GLAZING CONTRACTOR

Louisiana Glass Company, Baton Rouge, Louisiana

PHOTOGRAPHY

© Gordon Schenck



Another key feature of the EnCORE™ Framing System's separate components is that they are easily adapted to curved applications. The framing is available in three fabrication methods: screw spline, shear block or Type B, which is a combination of both.

FOR THE FINISHING TOUCH

Permanodic™ anodized finishes are available in Class I and Class II in seven different color choices.

Painted finishes, including fluoropolymer, that meet or exceed AAMA 2605 are offered in many standard choices and an unlimited number of specially designed colors.

Solvent-free powder coatings add the green element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.

500 STANDARD ENTRANCES



Single-Source Packages Generate Versatile First Impressions



Curtis Culwell Center
Garland, Texas

ARCHITECT

HKS, Inc., Dallas, Texas

GLAZING CONTRACTOR

B & B Glass, Inc., Dallas, Texas

PHOTOGRAPHER

© Blake Marvin - HKS

Tough yet attractive, Kawneer's Standard Entrances are designed as a single-source package of door, door frame and hardware that is easily adaptable to custom requirements. Designed to complement new or remodel construction as well as modern or traditional architecture, they are engineered, constructed and tested to make a good first impression while withstanding the rigors of constant use by occupants and visitors.

PERFORMANCE

To resist both lever arm and torsion forces that constantly act on any door, all three entrances feature welded corner construction with Sigma deep penetration and fillet welds plus mechanical fastenings at each corner – a total of 16 welds per door. Each door corner comes with a limited lifetime warranty, good for the life of the door under normal use. It is transferable from building owner to owner and is in addition to the standard two-year warranty covering material and workmanship of each Kawneer door.



1. Thermoplastic elastomer weatherstrip in blade stop of frame jambs, header or transom bar.
2. Integral polymeric fin attached to adjustable astragal, creating an air barrier between pairs of doors.
3. Optional surface-applied bottom weatherstrip with flexible blade gasket. Extruded raised lip on threshold to provide continuous contact for bottom weatherstrip.
4. Standard 1/4" beveled glass stops to sheet water and dirt off without leaving residue.
5. Available in all finishes offered by Kawneer.

ECONOMY

Kawneer's Sealair™ bulb neoprene weatherstripping forms a positive seal around the door frame and provides a substantial reduction in air infiltration, resulting in improved comfort and economies in heating and cooling costs. The system is wear- and temperature-resistant and replaces conventional weatherproofing. The bottom weatherstrip at the interior contains a flexible blade gasket to meet and contact the threshold, enhancing the air and water infiltration performance characteristics.

190 NARROW STILE ENTRANCE

- Is engineered for moderate traffic in applications such as stores, offices and apartment buildings
- Vertical stile measures 2-1/8", top rail 2-1/4" and bottom rail 3-7/8"
- Results in a slim look that meets virtually all construction requirements

350 MEDIUM STILE ENTRANCE

- Provides extra strength for applications such as schools, institutions and other high-traffic applications
- Vertical stiles and top rails measure 3-1/2"
- Bottom rail measures 6-1/2" for extra durability

500 WIDE STILE ENTRANCE

- Creates a monumental visual statement for applications such as banks, libraries and public buildings
- Vertical stiles and top rail measures 5"; bottom rail measures 6-1/2"
- Results in superior strength for buildings experiencing heavy traffic conditions

GENERAL

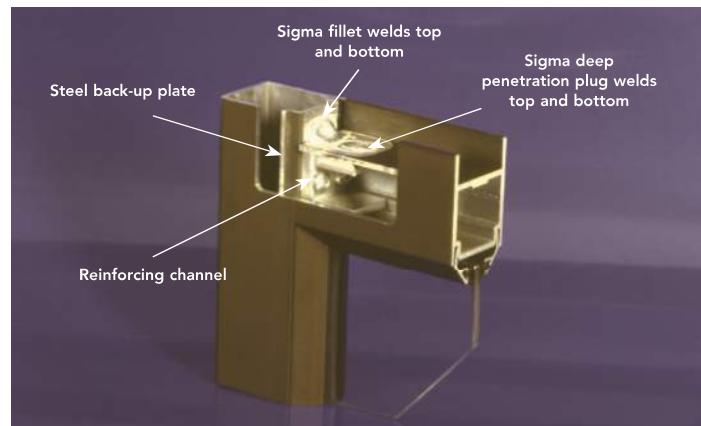
- Heights vary up to 10'; widths range from approximately 3' to 4'
- Door frame face widths range to a maximum of 4", while depths range to 6"
- Door operation is single- or double-acting with maximum security locks or touch bar panics standard
- Architect's classic 1" round, bent bar push/pull hardware is available in various finishes and sizes
- Infills range from under 1/4" to more than 1"

FOR THE FINISHING TOUCH

Architectural Class I anodized aluminum finishes are available in clear and Permanodic™ color choices.

Painted finishes, including fluoropolymer, that meet AAMA 2605 are offered in many standard choices and an unlimited number of specially designed colors.

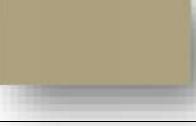
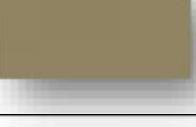
Solvent-free powder coatings add the "green" element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.



Kawneer Anodize finishes

Kawneer gives you a wide variety of anodized finishes with attractive alternatives. The benefit of a durable, anodized finish is married to the beauty of some very dynamic and exciting colors.

At the start of every design, there's a choice of how you want to finish. Contact your Kawneer sales rep for the information on these and other finishes available from Kawneer.

| KAWNEER FINISH NO. | COLOR | ALUMINUM ASSOCIATION SPECIFICATION | OTHER COMMENTS |
|---|----------------------|--|---|
|  | #14 CLEAR | AA-M10C21A41 / AA-M45C22A41 | Architectural Class I (.7 mils minimum) |
|  | #17 CLEAR | AA-M10C21A31 | Architectural Class II (.4 mils minimum) |
|  | #18 CHAMPAGNE | AA-M10C21A44 | Architectural Class I (.7 mils minimum) |
|  | #26 LIGHT BRONZE | AA-M10C21A44 | Architectural Class I (.7 mils minimum) |
|  | #28 MEDIUM BRONZE | AA-M10C21A44 | Architectural Class I (.7 mils minimum) |
|  | #40 DARK BRONZE | AA-M10C21A44 / AA-M45C22A44 | Architectural Class I (.7 mils minimum) |
|  | #29 BLACK | AA-M10C21A44 | Architectural Class I (.7 mils minimum) |

MULJ(((itOVER®



Good Design is Simply Obvious.

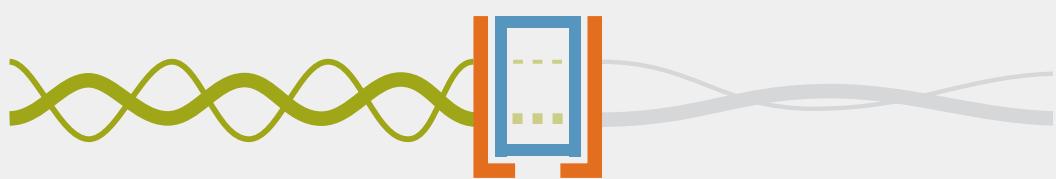
Sound Solutions for Glass Buildings.



There's a key six inches of space around the perimeter of every glass building. A transition space that was poorly detailed. Until now.

Glass buildings are definitely beautiful. They let in natural light and provide great views. But it's a given that glass buildings are noisy. And, until now, all attempts to "tone it down" have amounted to a band-aid, not a real solution.

The Mull-It-Over® Mullion Trim Cap stems from our understanding of building construction. We know that curtain wall manufacturers primarily focus on weather-related factors. And we know that interior manufacturers focus on drywall sound insulation which ends at the slab edge of a building. Yet there's a gap: Adjacent to a building's interior and integral to the exterior curtain wall is the grid of hollow aluminum tubes that hold the glass in place. And these tubes—six inches of space around the entire perimeter of glass buildings—serve as open air gaps that conduct noise and cannot stop fires. It affects productivity, privacy and safety (including, of course, HIPAA compliance). White noise devices aren't sufficient; a more comprehensive solution is needed. And now there is one.



Sound reasons to spec Mull-It-Over® Mullion Trim Caps.

Problem

HIPAA Violations, Lost Sleep, Unhappy Occupants,
Confidential Conversations, Noise, Fire, Risk,
Code Violations, Lost Productivity, Stress, Litigation

Solution

HIPAA Safeguards, Better Sleep, Happy Occupants,
Confidentiality, Noise Reduction, Life Safety Requirements,
Code Approval, Increased Productivity



The Mull-It-Over® Sound Barrier Mullion Trim Cap.

We weren't trying to eavesdrop, but we easily overheard a confidential doctor/patient conversation in an adjacent exam room in a gorgeous glass building. It inspired our development of the Mull-It-Over® Mullion Trim Cap. We ran the design through a battery of tests in the sound chambers of Architectural Testing in York, PA. We refined it and re-tested. Then did it again. And again. Finally, quantifiable results clearly proved how this mullion trim cap system would re-create the sound-deadening capability of a well-constructed drywall partition all the way out to the face of the glass.

Whether the installation is in a patient room, a boardroom or a bedroom, noise transfer can now be resolved. This isn't a "me too" solution. There's been nothing else like it. Until Now.

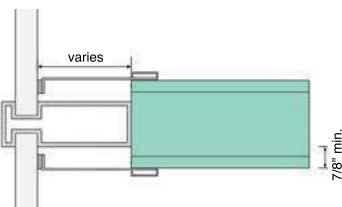


The Facts

- A standard mullion has an STC rating of 28. If left exposed, sound transfer between rooms will be a problem due to the poor noise deadening performance of the mullion.
- The Mull-It-Over Mullion Trim Cap increases the STC rating at the mullion to minimize sound flanking.
- Fire Rated Sound Barrier Mullion Trim Cap Options meet UL 2079/JLC S115 requirements.
- FGI Guidelines for Health Care Construction and International Building Code for Multi-Family Housing have minimum STC requirements for demising walls. When tested as an assembly, minimum code requirements will not be met if a demising wall terminates at an exposed mullion.
- The Mull-It-Over Mullion Trim Cap is a simple and clean trim detail for the exposed end of a partition wall that allows for differential movement between the partition and glass systems.
- Easy to install during new construction or added during retrofit to correct existing sound transfer problems or code violations.
- The Mull-It-Over Mullion Trim Cap has become the standard design detail for many leading architectural firms.

Patent No. 8,572,914 & 8,782,977

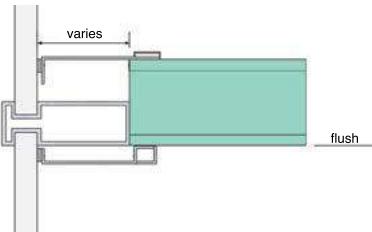
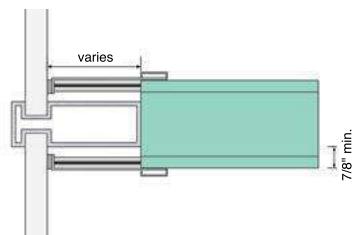
STC 55 Options



Classic Sound Barrier Mullion Trim Cap

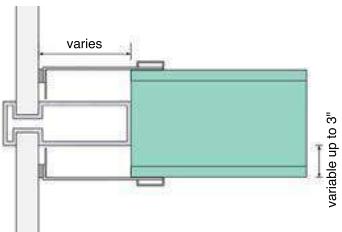
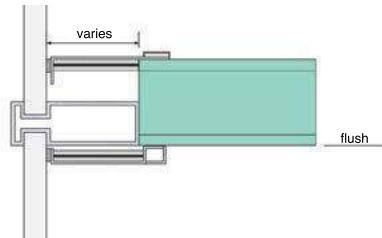
With a low profile 7/8" return leg, this mullion cap delivers high performance in a compact size. This mullion cap is compatible with most curtain wall systems with standard demising wall construction making it the standard wall termination detail for buildings with storefront, curtain wall or ribbon window facades.

STC 60 Options



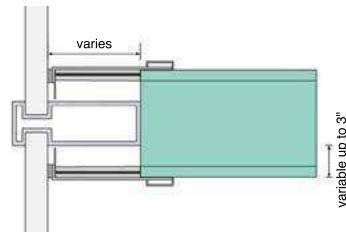
Flush Sound Barrier Mullion Trim Cap

For locations where the dimension between the face of the demising wall and face of the mullion is less than 7/8". This mullion cap provides a clean transition solution while maintaining a high STC.



Wide Sound Barrier Mullion Trim Cap

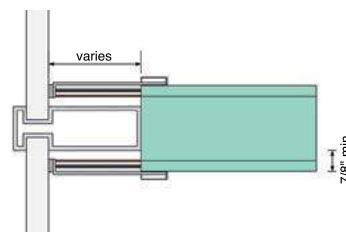
This mullion cap has an extra wide return leg extension for locations with wide dimension walls or offset wall construction. Custom profiles available.



Classic Sound Barrier Mullion Trim Cap with 1-Hour or 2-Hour Fire Rating

A layer of intumescent foam is added to the Classic sound barrier mullion trim cap to provide a 1-Hour Fire Rating. Certified to UL/ULC 2079/S115 testing. UL Assembly No. WW-S-1039

A layer of intumescent foam with thermal blanket are added to the Classic sound barrier mullion trim cap to provide a 2-Hour Fire Rating. Certified to UL/ULC 2079/S115 testing. UL Assembly No. WW-S-1041



Gasket Options - Leading edge gasket available in 1/2", 1", or 1-1/2" thick in light gray or charcoal.

Custom finishes are available to match curtain wall finishes. Custom profile and design assistance available.

Patent No. 8,572,914 & 8,782,977

MULLITOVER®

Sound Solutions for Glass Buildings

mullitoverproducts.com



Technical Data Sheet

DOWSIL™ 795 Silicone Building Sealant

Neutral, one part silicone sealant

Features & Benefits

- Suitable for most new construction and remedial sealing applications
- Versatile – high performance structural glazing and weather sealing from a single product
- Available in 15 standard colors; custom colors also available
- Excellent weatherability virtually unaffected by sunlight, rain, snow, ozone and temperature extremes of -40°F (-40°C) to 300°F (149°C)
- Excellent unprimed adhesion to a wide variety of construction materials and building components, including anodized, alodined, most coated and many Kynar painted aluminums
- Ease of application – ready to use as supplied
- Ease of use – all temperature gunnability, easy tooling and low-odor cure byproduct
- Meets global standards (Americas, Asia and Europe)

Composition

- One-part, neutral cure, RTV silicone sealant

Applications

- Structural and nonstructural glazing
- Structural attachment of many panel systems
- Panel stiffener applications
- Weather sealing of most common construction materials including glass, aluminum, steel, painted metal, EIFS, granite and other stone, concrete, brick and plastics

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

| Test ¹ | Property | Unit | Result |
|--------------------|---------------------------------------|-------------|------------|
| As Supplied | | | |
| ASTM C 679 | Tack Free Time, 50% RH | hours | 3 |
| | Curing Time at 25°C (77°F) and 50% RH | days | 7–14 |
| | Full Adhesion | days | 14–21 |
| ASTM C 639 | Flow, Sag or Slump | inches (mm) | 0.1 (2.54) |
| | Working Time | minutes | 20–30 |
| | VOC Content ² | g/L | 32 |

1. ASTM: American Society for Testing and Materials
2. Based on South Coast Air Quality Management District of California. Maximum VOC is listed both inclusive and exclusive of water and exempt compounds.

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DOWSIL™ 795 Silicone Building Sealant

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Form No. 61-885-01 T (AMERICAS)

Typical Properties (Cont.)

| Test | Property | Unit | Result |
|--|---|---------------|------------|
| As Cured After 21 days at 25°C (77°F) and 50% RH | | | |
| ASTM D 2240 | Durometer Hardness, Shore A | points | 35 |
| ASTM C 794 | Peel Strength | lb/in (kg/cm) | 32 (5.7) |
| | Tension Adhesion Strength | | |
| ASTM C 1135 | At 25% Extension | psi (MPa) | 45 (0.310) |
| | At 50% Extension | psi (MPa) | 60 (0.414) |
| ASTM C 719 | Joint Movement Capability | percent | ± 50 |
| ASTM C 1248 | Staining (granite, marble, limestone, brick and concrete) | | None |
| As Cured After 21 days at 25°C (77°F) and 50% RH Followed by 10,000 Hours in a QUV Weatherometer, ASTM G 53 | | | |
| | Tensile Adhesion Strength | | |
| ASTM C 1135 | At 25% Extension | psi (MPa) | 35 (0.241) |
| | At 50% Extension | psi (MPa) | 50 (0.345) |

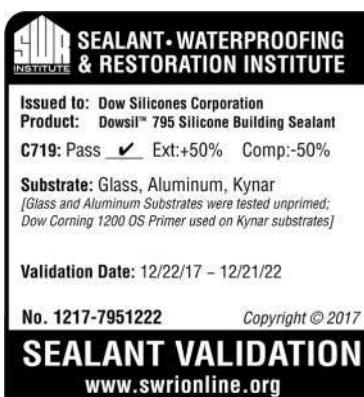
Description

DOWSIL™ 795 Silicone Building Sealant is a one-part, neutral-cure, architectural-grade sealant that easily extrudes in any weather and cures quickly at room temperature. This cold-applied, non-sagging silicone material cures to a medium modulus silicone rubber upon exposure to atmospheric moisture. The cured sealant is durable and flexible enough to accommodate ± 50 percent movement of original joint dimension when installed in a properly designed weather seal joint. In a properly designed structurally glazed joint, the sealant is strong enough to support glass and other panel materials under high wind load.

Approvals/ Specifications

DOWSIL™ 795 Silicone Building Sealant meets the requirements of:

- Federal Specification TT-S 001 543A (COM-NBS) Class A for silicone building sealants
- Federal Specification TT-S-00230C (COM-NBS) Class A for one-part building sealants
- ASTM Specification C 920 Type S, Grade NS, Class 50, Use NT, G, A and O
- ASTM Specification C 1184 for structural silicone sealants
- Canadian Specification CAN2-19.13- M82



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DOWSIL™ 795 Silicone Building Sealant

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Colors

DOWSIL™ 795 Silicone Building Sealant is available in 15 colors: white, limestone, champagne, natural stone, gray, black, bronze, sandstone, adobe tan, dusty rose, rustic brick, blue spruce, anodized aluminum, charcoal, and ivy green. Custom colors may be ordered to match virtually any substrate.

How To Use

Please consult the *Dow Americas Technical Manual*, Form No. 62-1112, for detailed information on state-of-the-art application methods and joint design.

Preparation

Clean all joints, removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealants or glazing compounds and protective coatings.

Application Method

Install backing material or joint filler, setting blocks, spacer shims and tapes. Mask areas adjacent to joints to ensure neat sealant lines. Primer is generally not required on non-porous surfaces, but may be necessary for optimal sealing of certain porous surfaces. A test placement is always recommended. Apply DOWSIL™ 795 Silicone Building Sealant in a continuous operation using positive pressure. (The sealant can be applied using many types of air-operated guns and most types of bulk dispensing equipment.) Before a skin forms (typically within 15 minutes), tool the sealant with light pressure to spread the sealant against the backing material and joint surfaces. Remove masking tape as soon as the bead is tooled.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life And Storage

When stored at or below 27°C (80°F), DOWSIL™ 795 Silicone Building Sealant has a shelf life of 12 months from the date of manufacture. Refer to product packaging for "Use By Date."

Packaging Information

DOWSIL™ 795 Silicone Building Sealant is supplied in 10.3 fl oz. (305 mL) disposable plastic cartridges that fit ordinary caulking guns, 20 fl oz. (590 mL) sausages and 2 and 4.5 gal (7.5 and 17 L) bulk containers.

Limitations

DOWSIL™ 795 Silicone Building Sealant should not be used:

- In structural applications without prior review and approval by your local sales application engineer
- In below grade applications
- When surface temperatures exceed 50°C (122°F) during installation
- On surfaces that are continuously immersed in water
- On building materials that bleed oils, plasticizers or solvents that may affect adhesion
- On frost laden or wet surfaces
- In totally confined joints (the sealant requires atmospheric moisture for cure)
- If the sealant is intended to be painted (paints do not typically adhere to most silicone sealants)
- To surfaces in direct contact with food or other food-grade applications

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DOWSIL™ 795 Silicone Building Sealant

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Limitations (Cont.)

Health And Environmental Information

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

dow.com

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

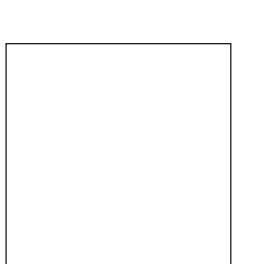


Sealant Color Selection Guide

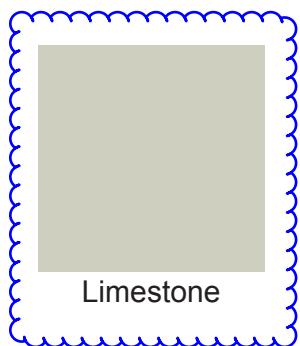
- Please check the availability of the different colors.
- Please refer to product literature for applications and technical information.

The colors shown are a close approximation of the actual sealant colors. However, for best results, submit color samples or swatches to our lab for color testing and matching.

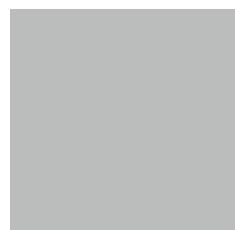
Standard Colors



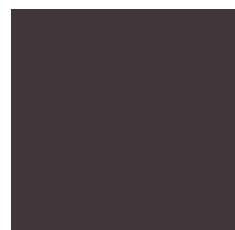
White



Limestone



Gray



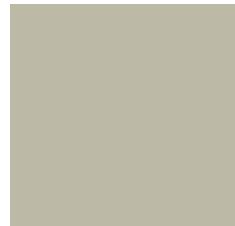
Window Bronze



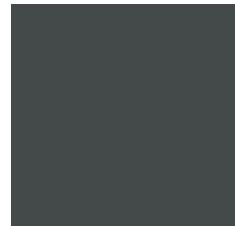
Sandstone



Aluminum



Antique White



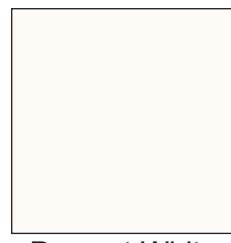
Charcoal



Black



Bronze



Precast White

SEALANT ACCESSORIES

FillPro Standard

FillPro® Standard Backer Rod (formerly ITP Standard) is an extruded round, closed-cell, low density polyethylene foam material with a skin-like outer texture. Standard backer rod is non-absorbent, flexible and compressible allowing for easy installation in joints as a backup material for sealants.

www.armacell.us



APPLICATIONS

Commonly used in glazing installations, window and door applications, expansion joints, curtain wall joints, partitions, log construction, pavement joints, repairs, pre-cast units and copings.

BENEFITS

FillPro Standard is an ideal non-absorbent backer rod used to control sealant depth and create a back stop to allow proper wetting of the joint surfaces and yield a proper bond breaker between the backer rod and the sealant. Limiting the depth of the sealant prevents excessive use, saving on caulk or sealant. Standard backer rod can also be used as a temporary joint seal.

INSTALLATION

Joint or opening must be clean, dry and free of obstructions. Using the Proper Sizing Chart on reverse side, select the proper rod diameter and cut to length or use directly from spool. With a blunt instrument or roller, uniformly install rod at the level recommended by the sealant manufacturer, specifier or architect involved. Generally, the depth of the joint after the backer rod is installed is one half the width. Very large and very small joints vary in terms of this depth ratio. Do not puncture, stretch or over compress.



FEATURES:

- // Closed-cell, non-absorbent, moisture resistant
- // Flexible, compressible
- // Smooth skin
- // Made in Canada
- // ASTM C1330 Type C
- // ASTM D5249 Type 3

COMPATIBLE WITH:

- // Butyl
- // Polysulfide
- // Acrylic polyurethane
- // Silicone
- // Most cold applied sealants

STOCKED OPTIONS:

- // Spool rod available in gray, 6 foot lengths available in white
- // Available in a wide variety of diameters (See reverse side)
- // Available in Pony Pac

 **armacell**
FillPro®

TECHNICAL DATA – FillPro® Standard Backer Rod (Formerly ITP Standard)

Description

Description: Flexible, gray or white, extruded round, closed-cell polyethylene foam backer rod in continuous coils or 6 foot lengths.

Typical Properties

| Property | Value | Test Method |
|---|----------------|-------------------------|
| Density (nominal) | > 1.5 | ASTM D1622 |
| Outgassing (# of bubbles) | <1 | ASTM C1253 |
| Tensile Strength psi (kPa) | > 24 | ASTM D1623 |
| Compression Recovery, %, min | > 96 | ASTM D5249 |
| Compression Deflection psi (kPa) | 7 PSI minimum | ASTM D5249 |
| Water Absorption | 0.03 gm/cc | ASTM C1016 –Procedure B |
| Temperature Range | -90°F to 210°F | - |
| Classification | Type 3 | ASTM D5249 |
| | Type C | ASTM C1330 |

Sizes

| Diameter | Shipping Format | Feet Per Carton | Metric Diameter | Meters Per Carton | Color | Fits Joint Width |
|----------|-----------------|-----------------|-----------------|-------------------|-------|------------------|
| *1/4" | 2 Spools | 4000 | 6 mm | 1219 | Gray | 1/8" - 3/16" |
| *3/8" | 1 Spool | 2100 | 9 mm | 640 | Gray | 3/16" - 1/4" |
| 1/2" | 2 Spools | 2500 | 12 mm | 762 | Gray | 1/4" - 3/8" |
| 5/8" | 2 Spools | 1550 | 15 mm | 472 | Gray | 3/8" - 1/2" |
| 3/4" | 1 Spool | 1100 | 19 mm | 335 | Gray | 1/2" - 5/8" |
| 7/8" | 1 Spool | 850 | 22 mm | 259 | Gray | 5/8" - 3/4" |
| 1" | 1 Spool | 600 | 25 mm | 182 | Gray | 3/4" - 7/8" |
| 1-1/4" | 1 Spool | 400 | 31 mm | 121 | Gray | 7/8" - 1" |
| 1-1/2" | 6' Lengths | 396 | 38 mm | 121 | Gray | 1" - 1-1/4" |
| 2" | 6' Lengths | 228 | 50 mm | 70 | Gray | 1-1/4" - 1 1/2" |
| 2-1/2" | 6' Lengths | 144 | 63 mm | 44 | White | 1-1/2" - 2" |
| 3" | 6' Lengths | 102 | 76 mm | 31 | White | 2" - 2-1/2" |
| 4" | 6' Lengths | 48 | 101 mm | 15 | White | 2-1/2" - 3" |
| 5" | 6' Lengths | 90 | 127 mm | 27 | White | 3" - 4-3/4" |
| 6" | 6' Lengths | 60 | 152 mm | 18 | White | 4-3/4" - 5-3/4" |

Size and lengths per spool are those at times of packaging and may vary with climatic condition after manufacture.

Carton Sizes and Weights

| Rod Diameter | Weight Per Carton | Cartons Per Skid | Carton Measurement |
|------------------|-------------------|------------------|--|
| 1/4" - 3/8" | 6 lbs | 36 | 18" x 18" x 15" 457 mm x 457 mm x 381 mm |
| 6 mm to 9 mm | 27 kgs | | |
| 1/2" - 1-1/4" | 11 lbs | 18 | 18" x 18" x 30" 457 mm x 457 mm x 762 mm |
| 12 mm to 31 mm | 50 kgs | | |
| 1-1/2" - 4" | 14 lbs | 20 | 17" x 10" x 74" 432 mm x 254 mm x 1880 mm |
| 38 mm to 101 mm | 64 kgs | | |
| 5" - 6" | 35 lbs | 8 | 17" x 23" x 74" 432 mm x 584 mm x 1880 mm |
| 127 mm to 152 mm | 159 kgs | | |

All data and technical information are based on results achieved under typical application conditions. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. By ordering/receiving product you accept the Armacell General Terms and Conditions of Sale applicable in the region. Please request a copy if you have not received these.

© Armacell, 2019 00133 | Armacell | FillPro Standard | Data Sheet | 112019 | NA | EN-NA | 5430

ABOUT ARMACELL

As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,100 employees and 24 production plants in 16 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

Pony Pac Bagged

| Size | Bags Per Box | Feet Per Bag |
|------|--------------|--------------|
| 1/4" | 6 | 500 feet |
| 3/8" | 6 | 230 feet |
| 1/2" | 6 | 130 feet |
| 5/8" | 6 | 75 feet |
| 3/4" | 6 | 55 feet |

Carton dimensions: 18" x 18" x 12"

// Box Cube: 2.25 Cubic feet

// Boxes per skid: 48

// ISO 9001:2015 Certified

Pony Pac Spool-less

| Size | Quantity Per Box |
|------|------------------|
| 1/4" | 2500 feet |
| 3/8" | 1400 feet |
| 1/2" | 800 feet |
| 5/8" | 550 feet |
| 3/4" | 400 feet |

Shipping Information

// Rectangular cartons with convenient hand holes for carrying, are ideal for warehousing and handling.

// Most other express services will accept all cartons for reshipment.

// Truckload quantities furnished on pallets and may be warehoused 2 pallets high to maximize space.

For more information, please visit:

www.armacell.us





**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.4 Action Submittals
D. Samples for Initial Selection

(Samples are on order and will be delivered under a separate transmittal)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.4 Action Submittals
E. Samples for Verification

(Samples are on order and will be delivered under a separate transmittal)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.4 Action Submittals
F. Delegated-Design Submittal

(Calculations booklet will be submitted after shop drawings approval)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
A. Sustainable Design Submittal



To: PERFORMANCE GLASS & ALUM
Date: 5/1/2020
Subject: LEED v4 Kawneer Information and Documentation

Dear Lucas Glider,

In recognition of the U.S. Green Building Council's (USGBC) LEED v4 Building Rating System, Kawneer has the ability to provide products that can apply toward multiple credit categories, along with supporting documentation. Please see the information below to help you achieve LEED building certification. Supporting documentation including high recycled content information, will only be assured to the extent that the content is expressly specified in a Kawneer Material Proposal issued for your particular project (as identified by project number), and in a corresponding Kawneer-accepted Purchase Order.

LEED v4 Building Design & Construction

- Energy & Atmosphere
 - Optimize Energy Performance
 - Renewable Energy Production
- Materials & Resource
 - Building Disclosure and Optimization – Environmental Product Declarations
 - Option 1: Environmental Product Declarations (EPDs) - Kawneer has an EPD that is applicable for each of our products. Kawneer EPDs used the new Window Product Category Rule (PCR) specifically for use in North America and our EPDs have been third-party validated. Please visit the Kawneer Sustainability [Product Transparency page](#) for the current version.
 - Building Disclosure and Optimization – Sourcing Raw Material
 - Option 1: Raw Material Source and Extraction Reporting – Arconic publishes a self-declared annual sustainability report that follows the Global Reporting Initiative (GRI). The current version can be found on the [Arconic Sustainability Report page](#).
 - Option 2: Recycled Content – High recycled content extrusions will be supplied with a minimum of 50% recycled content achieved through a combination of pre-consumer and post-consumer recycled content; or as specified on Kawneer's Material Proposal. Recycled content may range from 50-70%. Project specific documentation will be sent once the product has been shipped, but a sample of our LEED Materials Reporting Form for recycled content is attached.
 - ❖ Please note that design professionals should be cautioned to be consistent in application when specifying anodized finishes where high-recycled content is required. The chemistry of secondary billet causes the anodized finish of an extrusion to look different than a similar extrusion made from prime billet. This different appearance would typically relate to gloss level of the finish and/or streaks or die lines. Kawneer suggests that anodized aluminum made from secondary billet not be used on or near anodized aluminum products made from primary billet due to these finish variations.
 - Building Disclosure and Optimization – Material Ingredients
 - Option 1: Material Ingredient Reporting – Kawneer has a variety of applicable programs that report chemical inventory information and comply with LEED requirements, including: Cradle-to-Cradle, DECLARE and Kawneer's Manufacturers Inventory known as the Material Transparency Summary; many of which are LBC compliant and Red List free. Please visit the Kawneer Sustainability [Product Transparency page](#) for the current version.
 - Option 2: Material Ingredient Optimization – Kawneer has several products that have a Cradle-to-Cradle Silver Level Material Health Certificate eligible for this credit option. Please visit the Kawneer Sustainability [Product Transparency page](#) for the current version.



- PBT Source Reduction – Specifying anodized finish will avoid lead or cadmium that can be found in paints and comply with this credit. Attached is documentation that outlines paint offerings for Kawneer products that also comply and do not contain lead or cadmium.
- Construction & Demolition Waste Management
 - Option 1: Diversion – Aluminum is 100% recyclable and is accepted in majority of areas so it's easy for the construction team to divert from landfill.
 - Option 2: Reduction of Total Waste Material – Kawneer has systems that can be prefabricated which helps to reduce waste at the construction site.
- Indoor Environmental Quality
 - Thermal Comfort – Specifying Kawneer operable windows can help naturally condition spaces as one method to help achieve the options for this credit.
 - Daylight – Kawneer products are a great way to provide daylight into the building, but Kawneer sunshades also help to reduce glare and the Kawneer light shelf helps to reflect daylight deeper into the interior occupied space enhancing natural light.
 - Quality Views – All Kawneer products provide a window to the outdoors and can help achieve views of the surrounding natural environment.
 - Acoustic Performance – All Kawneer products have a sound transmission class (STC) rating that can be found on the product specification; be sure to check the STC when specifying products.

For more information, please go to the [Sustainability](#) page at Kawneer.com. This provides an overview of Kawneer's current capabilities, commitment to sustainable practices and support for the USGBC's LEED Building Rating System. Please note that this page may be updated from time to time. You should always be in contact with your Kawneer Sales Representative during your project planning or bidding phase, to make sure you are working with the most up-to-date information possible.

Sincerely,

Andy Nag

Andy Nag
Director, Customer Operations
KCIArchitecturalServices@arconic.com

Recycled Content Reporting Form

For use on LEED and additional green building certifications referencing product recycled content

Project Name:

Project Location:

Date Prepared:

Customer:

Prepared By:

1

KAWNEER



AN ARCONIC COMPANY

- NOTES:**

1. Post-Consumer and Pre-Consumer Recycled Content defined by current USGBC LEED Reference Guide for Green Building Design and Construction

1.2. Point of Recovery is recognized as the location of the aluminum cast house providing recycled content raw material.

2. Point of Recovery

3. None of the products listed above are recognized as reused, salvaged, rapidly renewable, or FSC-certified materials.

Manufacturer's Certification:

(b) (5)(B) The undersigned does hereby certify that the material information contained herein is an accurate representation of the material provided by Kawneer Company Inc. for disclosure's certification.

Signature of Kawneer Representative:

The LEED green building rating system -- developed and administered by the U.S. Green Building Council, a Washington D.C.-based, nonprofit coalition of building industry leaders -- is designed to promote design and construction practices that increase profitability while reducing the negative environmental impacts of buildings and improving occupant health and well-being.

(NO MTS) LEED v4 BD+C Materials & Resources Reporting Form**INSTRUCTIONS**

Enter Project Information Data:

- 1: Project Name
- 2: Select Product from drop down list
- 3: Project Location (City, State)
- 4: Customer Name
- 5: Date Prepared
- 6: Prepared By

SAMPLE

(NO MTS) LEED v4 BD+C Materials & Resources Reporting Form

PROJECT INFORMATION

Project Name: _____
Product: _____
Project Location: _____ Customer: _____
Date Prepared: _____ Prepared By: _____

CREDIT DETAILS

MR BPDO - Environmental Product Declarations (EPD)

- This product complies with **Option 1 - Environmental Product Declaration**

Name of EPD Program Operator: UL Environment

EPD Type: Type III Product Specific Industry Wide (generic) LCA Product Specific

A summary of the product EPD & full EPD document verifying compliance can be found online.

- This product complies with **Option 2 - Multi-Attribute Optimization**

A summary of optimization and documentation verifying compliance can be found online.

MR BPDO - Sourcing of Raw Materials

- This product complies with **Option 1 - Raw Material Source and Extraction Reporting**

Corporate Sustainability Report Type: Manufacture Self-Declared Third-Party Verified

- This product complies with **Option 2 - Leadership Extraction Practices**

Type of Extraction Practice: Extended Producer Responsibility Percent:

Bio-based Materials Percent: Material Reuse Percent Salvaged or Reused:

Recycled Content* - when requested

Percent Pre-Consumer: 50%

Percent Post-Consumer: 0%

Wood Products:

Percent FSC:

*Project specific recycled content is provided once the product has been shipped.

MR BPDO - Material Ingredients

- This product complies with **Option 1 - Material Ingredient Reporting**

Type of Material Ingredient Reporting: Manufacture Inventory Health Product Declaration

Cradle to Cradle v3 Bronze or Higher

Declare Label

A summary of the product documentation verifying compliance can be found online.

- This product complies with **Option 2 - Material Ingredient Optimization**

Type of Optimization: GreenScreen Benchmark

Cradle to Cradle v3 Silver or higher

(MTS ONLY) LEED v4 BD+C Materials & Resources Reporting Form**INSTRUCTIONS**

Enter Project Information Data:

- 1: Project Name
- 2: Select Product from drop down list
- 3: Project Location (City, State)
- 4: Customer Name
- 5: Date Prepared
- 6: Prepared By

SAMPLE

(MTS ONLY) LEED v4 BD+C Materials & Resources Reporting Form

PROJECT INFORMATION

Project Name: _____
Product: _____
Project Location: _____ Customer: _____
Date Prepared: _____ Prepared By: _____

CREDIT DETAILS

MR BPDO - Environmental Product Declarations (EPD)

- This product complies with **Option 1 - Environmental Product Declaration**

Name of EPD Program Operator: UL Environment

EPD Type: Type III Product Specific Industry Wide (generic) LCA Product Specific

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- This product complies with **Option 2 - Leadership Extraction Practices**

Type of Extraction Practice: Extended Producer Responsibility Percent:

Bio-based Materials Percent: Material Reuse Percent Salvaged or Reused:

Recycled Content* - when requested

Percent Pre-Consumer: 50%

Percent Post-Consumer: 0%

Wood Products:

Percent FSC:

*Project specific recycled content is provided once the product has been shipped.

MR BPDO - Material Ingredients

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Type of Material Ingredient Reporting: Manufacture Inventory Health Product Declaration

Cradle to Cradle v3 Bronze or Higher

Declare Label

A summary of the product documentation verifying compliance can be found online.

- This product complies with **Option 2 - Material Ingredient Optimization**

Type of Optimization: GreenScreen Benchmark

Cradle to Cradle v3 Silver or higher

(MTS DECLARE) LEED v4 BD+C Materials & Resources Reporting Form**INSTRUCTIONS**

Enter Project Information Data:

- 1: Project Name
- 2: Select Product from drop down list
- 3: Project Location (City, State)
- 4: Customer Name
- 5: Date Prepared
- 6: Prepared By

SAMPLE

(MTS DECLARE) LEED v4 BD+C Materials & Resources Reporting Form

PROJECT INFORMATION

Project Name: _____
Product: _____
Project Location: _____ Customer: _____
Date Prepared: _____ Prepared By: _____

CREDIT DETAILS

MR BPDO - Environmental Product Declarations (EPD)

- This product complies with **Option 1 - Environmental Product Declaration**

Name of EPD Program Operator: UL Environment

EPD Type: Type III Product Specific Industry Wide (generic) LCA Product Specific

A summary of the product EPD & full EPD document verifying compliance can be found online.

- This product complies with **Option 2 - Multi-Attribute Optimization**

A summary of optimization and documentation verifying compliance can be found online.

MR BPDO - Sourcing of Raw Materials

- This product complies with **Option 1 - Raw Material Source and Extraction Reporting**

Corporate Sustainability Report Type: Manufacture Self-Declared Third-Party Verified

- This product complies with **Option 2 - Leadership Extraction Practices**

Type of Extraction Practice: Extended Producer Responsibility Percent:

Bio-based Materials Percent: Material Reuse Percent Salvaged or Reused:

Recycled Content* - when requested

Percent Pre-Consumer: 50%

Percent Post-Consumer: 0%

Wood Products:

Percent FSC:

*Project specific recycled content is provided once the product has been shipped.

MR BPDO - Material Ingredients

- This product complies with **Option 1 - Material Ingredient Reporting**

Type of Material Ingredient Reporting: Manufacture Inventory Health Product Declaration

Cradle to Cradle v3 Bronze or Higher

Declare Label

A summary of the product documentation verifying compliance can be found online.

- This product complies with **Option 2 - Material Ingredient Optimization**

Type of Optimization: GreenScreen Benchmark

Cradle to Cradle v3 Silver or higher

(C2C) LEED v4 BD+C Materials & Resources Reporting Form**INSTRUCTIONS**

Enter Project Information Data:

- 1: Project Name
- 2: Select Product from drop down list
- 3: Project Location (City, State)
- 4: Customer Name
- 5: Date Prepared
- 6: Prepared By

SAMPLE

(C2C) LEED v4 BD+C Materials & Resources Reporting Form

PROJECT INFORMATION

Project Name: _____
Product: _____
Project Location: _____ Customer: _____
Date Prepared: _____ Prepared By: _____

CREDIT DETAILS

MR BPDO - Environmental Product Declarations (EPD)

- This product complies with **Option 1 - Environmental Product Declaration**

Name of EPD Program Operator: UL Environment

EPD Type: Type III Product Specific Industry Wide (generic) LCA Product Specific

A summary of the product EPD & full EPD document verifying compliance can be found online.

- This product complies with **Option 2 - Multi-Attribute Optimization**

A summary of optimization and documentation verifying compliance can be found online.

MR BPDO - Sourcing of Raw Materials

- This product complies with **Option 1 - Raw Material Source and Extraction Reporting**

Corporate Sustainability Report Type: Manufacture Self-Declared Third-Party Verified

- This product complies with **Option 2 - Leadership Extraction Practices**

Type of Extraction Practice: Extended Producer Responsibility Percent:

Bio-based Materials Percent: Material Reuse Percent Salvaged or Reused:

Recycled Content* - when requested

Percent Pre-Consumer: 50%

Percent Post-Consumer: 0%

Wood Products:

Percent FSC:

*Project specific recycled content is provided once the product has been shipped.

MR BPDO - Material Ingredients

- This product complies with **Option 1 - Material Ingredient Reporting**

Type of Material Ingredient Reporting: Manufacture Inventory Health Product Declaration

Cradle to Cradle v3 Bronze or Higher

Declare Label

A summary of the product documentation verifying compliance can be found online.

- This product complies with **Option 2 - Material Ingredient Optimization**

Type of Optimization: GreenScreen Benchmark

Cradle to Cradle v3 Silver or higher



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
B. Qualification Data



Date: 5/1/2020

Customer: PERFORMANCE GLASS & ALUM
11111 ROJAS
EL PASO TX, 79935

RE: UT-Seay Building Addition

To Whom It May Concern:

This letter is to confirm that PERFORMANCE GLASS & ALUM, is a Kawneer customer. (PERFORMANCE GLASS & ALUM has purchased architectural products and systems from Kawneer and has been a customer since 9/24/2003).

Fabrication and installation instructions for Kawneer systems are available to Kawneer customers. Installation and fabrication training classes are available to the employees of Kawneer customers. *Kawneer is not an installer and does not approve or certify its customers or any other parties as installers and does not approve or certify installations.*

It is the customer's responsibility to ensure the Kawneer products and systems are fabricated and installed properly by customer's employees or subcontractors in accordance with Kawneer's published installation instructions. Refer to Kawneer Standard Warranty Terms and Conditions of sale for details. Kawneer Company, Inc. disclaims all liabilities for, and is not responsible or liable for any damages or costs that may result from improper installation of its products.

Kawneer Company, Inc.

Andy Nag

Director, Customer Operations

Project Name: UT Austin – Seay Building Addition
Contractor: SpawGlass
Regarding: Section 084113 – Paragraph 1.5, Section B – Qualification Data

To whom it may concern,

Established in 1978, The Glass House, Inc. is an El Paso-based commercial glazing contractor recognized for superior glass installation throughout west Texas and southern New Mexico.

Operating from a 16,000 square foot fabrication facility, our projects range in scope from select residential properties to large-scale retail and industrial centers including primary schools, universities, medical research facilities, hospitals, municipal and federal government buildings, military facilities, and jails. We fabricate and install aluminum doors, frames, door hardware, storefronts, curtain walls and architectural glass products and can meet specific requirements like bullet resistance and blast mitigation.

For every Glass House project, we use top quality products including Kawneer, Tubelite and YKK architectural aluminum systems and Vitro, Guardian and Pilkington glazing products.

From standard installations to custom orders our team of over 50 professional and dedicated personnel ensure that jobs are executed to specification and in a timely manner. We also participate in the U.S. Department of Labor certified apprenticeship training program and AGC/OSHA approved safety training program.

Let us put our 42 years of experience work for you.

Robert Alvarez
Project Engineer

The Glass House, Inc.
El Paso, TX 79935
915.592.5583 ph.
915.592.5770 fax
ralvarez@glasshousetexas.com
www.glasshousetexas.com





**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
C. Energy Performance Certificates

11.0 CERTIFICATE OF COMPLIANCE

Certificate Authorization

Name:

Signature:

| OVERALL RATING | |
|--|--|
| U-Factor: (Btu/h•ft ² •°F) | |
| SHGC: | |

Directions: Fill out form completely. Determine the Overall Rating for this project by using the C.O.G. U-Factor and C.O.G. SHGC from Table 1 and looking up the overall rating from Table 2. Indicate the Overall Rating in the space above. Linear interpolation is permitted.

Company:

Date:

CERTIFIES THAT THE MATERIALS LISTED ON THIS CERTIFICATE WERE INSTALLED ON THE PROJECT IDENTIFIED

PROJECT INFORMATION:

UT Austin - Seay Building Addition

Street Address:

108 E. Dean Keeton

City:

Austin

State:

TX

Zip:

78712

GLAZING CONTRACTOR / INSTALLER:

Performance Glass & Aluminum

Street Address:

501 W. Powell, Ste. 211

City:

Austin

Contact Person:

Lucas Glider

Phone Number:

512-632-4656

State:

TX

Zip:

78753

GLAZING MATERIAL SUPPLIER:

Oldcastle Building Envelope

Street Address:

1101 Fountain Parkway

City:

Grand Prairie

Glass and Spacer Type:

Contact Person:

Diane Lacy

Phone Number:

469-348-2950

State:

TX

Zip:

75050

Center-of-glass (C.O.G.) U-factor:

Center-of-glass (C.O.G.) SHGC:

Btu/h•ft²•°F

TABLE 1 – GLAZING

FRAMING MATERIAL SUPPLIER:

Kawneer Company

Street Address:

710 Gateway, Ste. 140

City:

Coppell

Contact Person:

Steve Kesterson

Phone Number:

972-829-7160

State:

TX

Zip:

75019

Product Line:

EnCore Window Wall System

The overall ratings for U-factor and SHGC are based on a size of 2000 mm x 2000 mm (78.75in x 78.75 in) as required in NFRC 100.

Overall U-factors and Solar Heat Gain Coefficients (SHGC) listed in the matrix were determined in accordance with NFRC 100 and NFRC 200 respectively by a NFRC accredited laboratory.

ACCREDITED LABORATORY:

Quality Testing, Inc.

Reference Test Report #:

C2009-410E0A0

TABLE 2 – FRAMING

**U-factor Matrix
(Btu/h•ft²•°F)**

SHGC Matrix

| C.O.G. U-factor | OVERALL U-factor | C.O.G. SHGC | OVERALL SHGC |
|--------------------|---------------------|----------------|-----------------|
| 0.48 | .61 | 0.75 | .68 |
| 0.46 | .59 | 0.70 | .64 |
| 0.44 | .58 | 0.65 | .59 |
| 0.42 | .56 | 0.60 | .55 |
| 0.40 | .55 | 0.55 | .50 |
| 0.38 | .53 | 0.50 | .46 |
| 0.36 | .51 | 0.45 | .41 |
| 0.34 | .50 | 0.40 | .37 |
| 0.32 | .48 | 0.35 | .33 |
| 0.30 | .46 | 0.30 | .28 |
| 0.28 | .45 | 0.25 | .24 |
| 0.26 | .43 | 0.20 | .19 |
| 0.24 | .42 | 0.15 | .15 |
| 0.22 | .40 | 0.10 | .10 |
| 0.20 | .38 | 0.05 | .06 |

CERTIFICATE OF COMPLIANCE

Certificate Authorization

Name:

Signature:

| OVERALL RATING | |
|--|--|
| U-Factor: (Btu/h•ft ² •°F) | |
| SHGC: | |

Company:

Date:

CERTIFIES THAT THE MATERIALS LISTED ON THIS CERTIFICATE WERE INSTALLED ON THE PROJECT IDENTIFIED

PROJECT INFORMATION:

UT Austin - Seay Building Addition

Street Address:

108 E. Dean Keeton

City:

Austin

State:

TX

Zip:

78712

GLAZING CONTRACTOR / INSTALLER:

Performance Glass & Aluminum

Street Address:

501 W. Powell, Ste. 211

City:

Austin

Contact Person:

Lucas Glider

Phone Number:

512-632-4656

State:

TX

Zip:

78753

| TABLE 1 – GLAZING | GLAZING MATERIAL SUPPLIER: | | Center-of-glass (C.O.G.) SHGC: |
|-------------------|--|---------------|--------------------------------|
| | Street Address: | City: | |
| | Oldcastle Building Envelope 1101 Fountain Parkway | Grand Prairie | |

Contact Person:

Diane Lacy

Phone Number:

469-348-2950

State:

TX

Zip:

75050

| TABLE 2 – FRAMING | FRAMING MATERIAL SUPPLIER: | | Product Line: |
|--|--|----------------|--|
| | Street Address: | City: | |
| | Kawneer Company 710 Gateway, Ste. 140 | Coppell | 500 / 500 Tuffline / 500 Heavy Wall Door Pair |
| U-factor Matrix (Btu/h•ft ² •°F) | | SHGC Matrix | |
| C.O.G. U-factor | OVERALL U-factor | C.O.G. SHGC | OVERALL SHGC |
| 0.47 | 0.82 | 0.75 | 0.41 |
| 0.46 | 0.82 | 0.70 | 0.38 |
| 0.44 | 0.81 | 0.65 | 0.36 |
| 0.42 | 0.80 | 0.60 | 0.34 |
| 0.40 | 0.79 | 0.55 | 0.31 |
| 0.38 | 0.78 | 0.50 | 0.29 |
| 0.36 | 0.77 | 0.45 | 0.26 |
| 0.34 | 0.77 | 0.40 | 0.24 |
| 0.32 | 0.76 | 0.35 | 0.21 |
| 0.30 | 0.75 | 0.30 | 0.19 |
| 0.28 | 0.74 | 0.25 | 0.17 |
| 0.26 | 0.73 | 0.20 | 0.14 |
| 0.24 | 0.72 | 0.15 | 0.12 |
| 0.22 | 0.71 | 0.10 | 0.09 |
| 0.20 | 0.70 | 0.05 | 0.07 |
| 0.18 | 0.70 | | |
| 0.16 | 0.69 | | |
| 0.14 | 0.68 | | |
| 0.12 | 0.67 | | |
| 0.10 | 0.66 | | |

Directions: Fill out form completely. Determine the Overall Rating for this project by using the C.O.G. U-Factor and C.O.G. SHGC from Table 1 and looking up the overall rating from Table 2. Indicate the Overall Rating in the space above. Linear interpolation is permitted.



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
D. Product Test Reports



TEST REPORT TRANSMITTAL

Date Generated: 5/1/2020
Project Name: UT-Seay Building Addition
Project Location: Austin, TX
Company: PERFORMANCE GLASS & ALUM
Requested By: Lucas Glider

Attached, please find Kawneer's standard test reports for project submittals. These reports have been witnessed and prepared by an independent testing agency and adhere to industry guidelines and recommendations. These tests are performed for customers, general contractors, architects, specifiers and building owners to compare performance characteristics of various products by all manufacturers.

These test reports are generic in nature. The configurations and size of the tested specimens are dictated by industry standards and may not reflect the exact building requirements or conditions for the particular project.

By providing a copy of this or these test reports, Kawneer Company, Inc. does not imply or guarantee that this or these products will achieve the same performance levels as recorded in this or these test reports when installed in a building or project. These performance levels were achieved in a laboratory setting under optimum conditions and are not representative of project conditions and may not be repeatable in the field. If field testing is required, it is encouraged that it be done as early as possible and is conducted per AAMA 502-08, or AAMA 503-08. Please reference Note below from these AAMA documents when performing field tests.

Note:

The default pressures used for water penetration resistance tests conducted in the field are not the same as the laboratory test pressure to allow for field conditions and test methods that vary from the laboratory test conditions and test methods. These conditions are primarily related to the ambient environmental conditions and the installation. The product performance is based on laboratory testing performed under controlled laboratory conditions. The temperature, wind, and barometric pressure conditions during a field test will typically vary from the standard laboratory conditions. The field installations also influence the product performance. Products tested in the laboratory are typically installed near - perfect for plumb, level, and square within a precision opening. Field test specimens, although installed within acceptable industry tolerances, are rarely perfectly plumb, level and square. Shipping, handling, acts of subsequent trades, aging and other environmental conditions all may have an adverse effect upon the performance of the installed specimen. A 1/3 reduction of the test pressure for field testing is specified as a reasonable adjustment for the differences between a laboratory test environment and a field test environment.

Kawneer Company, Inc.

Andy Nag

Director, Customer Operations



REPORT
ETL TESTING LABORATORIES, INC.⁴⁵⁷

2.07.5

INDUSTRIAL PARK

CORTLAND, NEW YORK 13045

ORDER NO. 67097-217

AUGUST 11, 1993

REPORT NO. 520662-R

RENDERED TO

KAWNEER COMPANY, INC.

AIR INFILTRATION, STRUCTURAL PERFORMANCE
AND FORCED-ENTRY RESISTANCE TESTS OF A
PAIR OF "KAWNEER" 350 ALUMINUM EXTERIOR
SWINGING ENTRANCE DOORS

General:

This report provides the results of tests of a "Kawneer" 350 Aluminum Exterior Swinging Entrance Door Mock-up. The work was authorized by personal application of and coordinated through Mr. James Evans, representing the client. The tests were witnessed by ETL representative Mr. William Penuel and Brittingham & Associates Mr. Mac Brittingham, P.E. at the client's laboratory at Norcross, GA on June 26, 1992.

Test Methods:

Tests were conducted in general in accordance with ASTM Standard's for Air Infiltration and Structural Performance and AAMA Forced-Entry Resistance Standard for Aluminum Exterior Swinging Entrance Doors.

Air Infiltration:

Designation: ASTM E-283-84 - Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

Structural Performance:

Designation: ASTM E-330-90 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

Forced-Entry Resistance:

Designation: AAMA 1303.3 - Standard for Forced-Entry Resistant Commercial Swinging Aluminum Doors.

An independent organization testing for safety, performance and certification.

Report No. 520662-R

Page 2

Description of Mock-up:**Model:** 350 Aluminum Exterior Swinging Entrance Door.**Overall Size:** 75-1/2 in. wide x 85-3/4 in. high.**Doors:** Two (2) each - 35-3/4 in. wide x 83-1/4 in. high.**Weatherstripping:** A single vinyl bulb in frame head and jambs. A single vinyl flap in an applied adapter at each panel bottom rail. A single pile with integral plastic fin in an adjustable metallic adapter at the active lock stile. One 6-3/4 in. long pile strip at the lock at the active lock stile.**Operators:** A two-point lock system in the active lock stile, 32 in. from the bottom, operating a throw bolt into the inactive stile and a throw bolt into the threshold. The lock was key operated on the interior and exterior. A concealed, manually operated, lever and threshold was constructed of a steel rod with a plastic plunger attached to the end. One aluminum horizontal push bar on the interior of each panel, approximately 44 in. from the bottom and one aluminum pull handle on the exterior of each panel lock stile, approximately 39 in. from the bottom.**Glazing:** 3/16 in. tempered glass. Interior and exterior glazed using an extruded aluminum snap-in glazing bead with a vinyl wedge between the glass and each bead per panel.**Weepholes:** None.**Muntins:** None.**Reinforcement:** None.**Additional Description:** A 4 in. wide flush mount threshold. An applied aluminum weatherstrip adapter attached to the bottom of each panel using five No. 6 x 3/8 in. screws. A 3-1/2 in. wide extrusion used in the vertical stiles of each door panel

Report No. 520662-R

Page 3

Results of Tests:

| <u>Air Infiltration Test:</u> <u>ASTM E-283-84</u> | <u>Results</u> | <u>Allowable</u> |
|---|------------------|------------------|
| Air Infiltration @ 1.57 psf | 0.79 cfm/lin.ft. | 1.00 cfm/lin.ft. |

Uniform Load Structural Test:
ASTM E-330-90

| | | |
|------------------------|-----------|-----------|
| Positive Load @ 54 psf | No Damage | No Damage |
| Negative Load @ 54 psf | No Damage | No Damage |

Note: Permanent Deformation measured 0.00 in. for the positive and negative structural loads.

| <u>Forced-Entry Resistance</u> | <u>Load Applied, lbs.</u> | <u>Load Required, lbs.</u> |
|--|-------------------------------|--------------------------------|
| 4.1.2.1: Within 6 in. of the lock - active stile. | 300 | 300 |
| 4.1.2.2: Within 6 in. of the lock - inactive stile. | 300 | 300 |
| 4.1.2.3: Within 6 in. of the top of the lock stile-active door. | 300 | 300 |
| 4.1.2.4: Within 6 in. of the bottom of the lock stile-active door. | 300 | 300 |
| 4.1.2.5: Within 6 in. of the top of the lock stile-inactive door. | 300 | 300 |
| 4.1.2.6: Within 6 in. of the bottom of the lock stile-inactive door. | 300 | 300 |

Report No. 520662-R

Page 4

Results of Tests (cont.)

Forced-Entry Test Performance Requirements:

5.1: Doors must not open during any of the forced-entry tests.

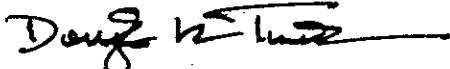
5.2: Hand operated hardware must not be accessible for operation from the exterior when any of the loads are applied.

5.3: Doors and hardware must be operable at the completion of the forced-entry tests, with the glass intact.

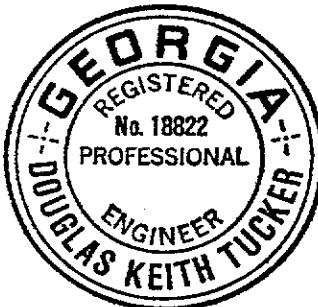
Note: The specimen passed the minimum requirements for the following specifications, referenced as follows:

ASTM E-283-84, ASTM E-330-90, & AAMA 1303.3.

Report Approved By:



Douglas K. Tucker, P.E.
Staff Engineer



Tests Witnessed By:



William D. Penuel

Note: The Appendix consists of the client's drawings describing the specimen and forms a part of this report.



1832
95438-89

**NFRC U-FACTOR, SHGC, VT, &
CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT**

**Rendered to:
KAWNEER COMPANY, INC.**

SERIES/MODEL:

190 Pair Door

**350 Tuffline Pair Door / 350 Heavy Wall Pair Door / 350 Pair Door
500 Tuffline Pair Door / 500 Heavy Wall Pair Door / 500 Pair Door**

**Report Number: A8170.04-116-45
Report Date: 03/03/11**



**NFRC U-FACTOR, SHGC, VT, & CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT**

Rendered to:
KAWNEER COMPANY, INC.
555 Guthridge Court
Norcross, Georgia 30092

Report Number: A8170.04-116-45
Simulation Date: 03/03/11
Report Date: 03/03/11

Project Summary:

Architectural Testing, Inc. was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance, and Condensation Resistance* computer simulations in accordance with the National Fenestration Rating Council (NFRC). The products were evaluated in full compliance with NFRC requirements to the standards listed below.

**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

- NFRC 100-2010:** *Procedure for Determining Fenestration Product U-Factors*
NFRC 200-2010: *Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*
NFRC 500-2010: *Procedure for Determining Fenestration Product Condensation Resistance Values*

Software:

- Frame and Edge Modeling:** THERM 6.3.19
Center-of-Glass Modeling: WINDOW 6.3.9
Total Product Calculations: WINDOW 6.3.9
Spectral Data Library: 18.0

Simulations Specimen Description:

- Series/Model:** 190 Pair Door
350 Tuffline Pair Door / 350 Heavy Wall Pair Door / 350 Pair Door
500 Tuffline Pair Door / 500 Heavy Wall Pair Door / 500 Pair Door
Type: Swinging Door , Double Leaf Entrance Door
Frame Material: AL Aluminum (Non-thermally broken)
Sash Material: AL Aluminum (Non-thermally broken)
Standard Size: 1920mm x 2090mm

Technical Interpretations:

None

Modeling Assumptions:

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.
- 2) The 350 Tuffline, 350 Heavy Wall and 350 Door were grouped with the 350 Tuffline as the group leader per CMA Approved groupings and is not in compliance with NFRC standard grouping rules
- 3) The 500 Tuffline, 500 Heavy Wall and 500 Door were grouped with the 500 Tuffline as the group leader per CMA Approved groupings and is not in compliance with NFRC standard grouping rules

Specialty Products Table:

The specialty products method allow the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 5.2. The method gives overall product SHGC and VT indexed on center of glass properties. All values used in the calculations are truncated to six decimal place precision.

| 190 Pair Doors: | No Dividers | Dividers < 1 | Dividers > 1 |
|-----------------|-------------|--------------|--------------|
| SHGC0 | 0.031870 | 0.034724 | 0.037366 |
| SHGC1 | 0.660887 | 0.576386 | 0.498184 |
| VT0 | 0.000000 | 0.000000 | 0.000000 |
| VT1 | 0.629018 | 0.541662 | 0.460818 |

| 350 Pair Doors: | No Dividers | Dividers < 1 | Dividers > 1 |
|-----------------|-------------|--------------|--------------|
| SHGC0 | 0.038280 | 0.040977 | 0.043461 |
| SHGC1 | 0.599261 | 0.519423 | 0.445884 |
| VT0 | 0.000000 | 0.000000 | 0.000000 |
| VT1 | 0.560981 | 0.478447 | 0.402423 |

| 500 Pair Doors: | No Dividers | Dividers < 1 | Dividers > 1 |
|-----------------|-------------|--------------|--------------|
| SHGC0 | 0.044319 | 0.046835 | 0.049139 |
| SHGC1 | 0.530513 | 0.456017 | 0.397528 |
| VT0 | 0.000000 | 0.000000 | 0.000000 |
| VT1 | 0.486194 | 0.409182 | 0.338681 |

$$\text{SHGC} = \text{SHGC0} + \text{SHGCc} (\text{SHGC1} - \text{SHGC0})$$

$$\text{VT} = \text{VT0} + \text{VTc} (\text{VT1} - \text{VT0})$$

Validation Matrix:

The following products are part of a validation matrix. Only one is required for validation testing.

| <i>Product Line</i> | <i>Report Number</i> |
|---------------------|----------------------|
| None | - |

Spacer Option Description

| <i>Sealant</i> | | | |
|--------------------|----------------|------------------|------------------|
| <i>Spacer Type</i> | <i>Primary</i> | <i>Secondary</i> | <i>Desiccant</i> |
| Aluminum Spacer | Butyl Rubber | Butyl Rubber | Yes |

Grid Option Description

| <i>Grid Size</i> | <i>Grid Type</i> | <i>Grid Pattern</i> |
|------------------|------------------|---------------------|
| None | - | - |

Reinforcement Option Description

| <i>Location</i> | <i>Material</i> |
|-----------------|-----------------|
| None | - |

Gas Filling Technique Description

| <i>Fill Type</i> | <i>Method</i> |
|------------------|--------------------|
| 84.5% Xenon | Single probe timed |
| 76.1% Argon | Single probe timed |
| 85.8% Argon | Single probe timed |
| 83% Argon | Single probe timed |
| 88.7% Argon | Single probe timed |
| 87.4% Argon | Single probe timed |
| 65% Argon | Single probe timed |
| 74.7% Argon | Single probe timed |
| 60.8% Argon | Single probe timed |
| 62.4% Argon | Single probe timed |
| 86% Argon | Single probe timed |
| 81.7% Xenon | Single probe timed |
| 94.6% Xenon | Evacuated chamber |
| 76.9% Krypton | Single probe timed |
| 71.6% Xenon | Single probe timed |
| 76.5% Krypton | Single probe timed |
| 66.7% Xenon | Single probe timed |
| 82.2% Xenon | Single probe timed |

Edge-of-Glass Construction

| | |
|---------------------------|-------------------------------------|
| <i>Interior Condition</i> | EPDM gasket between frame and glass |
| <i>Exterior Condition</i> | EPDM gasket between frame and glass |

Weatherstripping

| Type | Quantity | Location |
|-------------------|----------|---|
| EPDM flap gasket | 1 row | Bottom sash rail |
| Vinyl bulb gasket | 1 row | Top frame rail and jamb stiles |
| Nylon pile | 2 rows | Meeting Stile - 190, 350 and 500 Series |
| Nylon pile | 1 row | Meeting Stile - 350 and 500 Series |

Frame/Sash Materials Finish

| | |
|----------|------------------|
| Interior | Painted Aluminum |
| Exterior | Painted Aluminum |

NFRC 100/200/500 Summary Sheet
500 Tuffline Pair Door / 500 Heavy Wall Pair Door / 500 Pair Door

| ID | Pane Thickness 1 | Gap Width 1 | Pane Thickness 2 | Gap Width 2 | Pane Thickness 3 | Gap Width 3 | Pane Thickness 4 | Gap Fill | Low-e (Surface#) | Tint | Spacer | Grid Type |
|----|----------------------|---|------------------|-------------|------------------|-------------|------------------|---|------------------|------|--------|-----------|
| | U-Factor | Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1) | | | | | | Visible Transmittance (VT) Grids (None / <1 / >=1) | | | | |
| 39 | COG=0.4735 (Clr/Clr) | 0.225 | 0.500 | 0.225 | | | | AIR | | CL | A1-D | N |
| | U-Factor | 0.82 | SHGC (N) | | | | 0.39 | VT (N) | 0.38 | CR | | 16 |
| 40 | COG=0.4400 | 0.222 | 0.500 | 0.225 | | | | XEN84.48 | | CL | A1-D | N |
| | U-Factor | 0.81 | SHGC (N) | | | | 0.38 | VT (N) | 0.36 | CR | | 16 |
| 41 | COG=0.4200 | 0.222 | 0.500 | 0.225 | | | | ARG76.1 | 0.652(#2) | GY | A1-D | N |
| | U-Factor | 0.80 | SHGC (N) | | | | 0.17 | VT (N) | 0.11 | CR | | 16 |
| 42 | COG=0.4000 | 0.220 | 0.500 | 0.225 | | | | ARG85.82999 | 0.566(#2) | GY | A1-D | N |
| | U-Factor | 0.79 | SHGC (N) | | | | 0.17 | VT (N) | 0.10 | CR | | 16 |
| 43 | COG=0.3800 | 0.226 | 0.500 | 0.225 | | | | ARG83.03 | 0.471(#2) | OT | A1-D | N |
| | U-Factor | 0.78 | SHGC (N) | | | | 0.13 | VT (N) | 0.07 | CR | | 16 |
| 44 | COG=0.3600 | 0.220 | 0.500 | 0.225 | | | | ARG88.65 | 0.395(#2) | GY | A1-D | N |
| | U-Factor | 0.77 | SHGC (N) | | | | 0.11 | VT (N) | 0.03 | CR | | 16 |
| 45 | COG=0.3400 | 0.232 | 0.500 | 0.225 | | | | ARG87.41 | 0.318(#2) | GY | A1-D | N |
| | U-Factor | 0.77 | SHGC (N) | | | | 0.27 | VT (N) | 0.28 | CR | | 16 |
| 46 | COG=0.3200 | 0.223 | 0.500 | 0.225 | | | | ARG64.98 | 0.215(#2) | CL | A1-D | N |
| | U-Factor | 0.76 | SHGC (N) | | | | 0.34 | VT (N) | 0.36 | CR | | 16 |
| 47 | COG=0.3000 | 0.233 | 0.500 | 0.225 | | | | ARG74.7 | 0.166(#2) | CL | A1-D | N |
| | U-Factor | 0.75 | SHGC (N) | | | | 0.26 | VT (N) | 0.26 | CR | | 16 |
| 48 | COG=0.2800 | 0.223 | 0.500 | 0.225 | | | | ARG60.78 | 0.087(#2) | CL | A1-D | N |
| | U-Factor | 0.74 | SHGC (N) | | | | 0.31 | VT (N) | 0.37 | CR | | 16 |



NFRC 100/200/500 Summary Sheet

500 Tuffline Pair Door / 500 Heavy Wall Pair Door / 500 Pair Door

| ID | Pane Thickness 1 | Gap Width 1 | Pane Thickness 2 | Gap Width 2 | Pane Thickness 3 | Gap Width 3 | Pane Thickness 4 | Gap Fill | Low-e (Surface#) | Tint | Spacer | Grid Type | | | |
|---------------|------------------|-------------|---|-------------|------------------|-------------|------------------|-------------|---|---|--------|-----------|-------------------------|--|--|
| | U-Factor | | Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1) | | | | | | | Visible Transmittance (VT) Grids (None / <1 / >=1) | | | Condensation Resistance | | |
| 49 COG=0.2600 | | | | | | | | | | | | | | | |
| | 0.223 | 0.500 | 0.225 | | | | | ARG62.43 | 0.035(#2) | CL | A1-D | N | | | |
| | U-Factor | 0.73 | SHGC (N) | | 0.23 | VT (N) | | | 0.34 | CR | 16 | | | | |
| 50 COG=0.2400 | | | | | | | | | | | | | | | |
| | 0.223 | 0.500 | 0.223 | | | | | ARG86.02 | 0.035(#2) / 0.035(#3) | CL | A1-D | N | | | |
| | U-Factor | 0.72 | SHGC (N) | | 0.22 | VT (N) | | | 0.30 | CR | 16 | | | | |
| 51 COG=0.2200 | | | | | | | | | | | | | | | |
| | 0.223 | 0.500 | 0.223 | | | | | XEN81.67 | 0.018(#2) / 0.018(#3) | CL | A1-D | N | | | |
| | U-Factor | 0.71 | SHGC (N) | | 0.17 | VT (N) | | | 0.25 | CR | 16 | | | | |
| 52 COG=0.2000 | | | | | | | | | | | | | | | |
| | 0.223 | 0.500 | 0.223 | | | | | XEN94.6 | 0.018(#2) / 0.018(#3) | CL | A1-D | N | | | |
| | U-Factor | 0.70 | SHGC (N) | | 0.17 | VT (N) | | | 0.25 | CR | 16 | | | | |
| 53 COG=0.1800 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.221 | | | KRY76.87AIR | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.028(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.70 | SHGC (N) | | 0.16 | VT (N) | | | 0.21 | CR | 16 | | | | |
| 54 COG=0.1600 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.223 | | | XEN71.59AIR | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.018(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.69 | SHGC (N) | | 0.16 | VT (N) | | | 0.22 | CR | 16 | | | | |
| 55 COG=0.1400 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.223 | | | KRY76.46 | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.018(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.68 | SHGC (N) | | 0.16 | VT (N) | | | 0.22 | CR | 16 | | | | |
| 56 COG=0.1200 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.223 | | | XEN66.67 | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.018(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.67 | SHGC (N) | | 0.16 | VT (N) | | | 0.22 | CR | 16 | | | | |
| 57 COG=0.1000 | | | | | | | | | | | | | | | |
| | 0.223 | 0.250 | 0.003 | 0.250 | 0.223 | | | XEN82.15 | 0.018(#2) / 0.76(#3) / 0.11(#4) / 0.018(#5) | CL | A1-D | N | | | |
| | U-Factor | 0.66 | SHGC (N) | | 0.16 | VT (N) | | | 0.22 | CR | 16 | | | | |

The Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.

Ratings values included in this report are for submittals to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy.

Architectural Testing, Inc. is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The NFRC procedure requires that the computational results be verified through actual test results.

Detailed drawings, simulation data files, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire. Results obtained are simulated values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the product simulated. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:

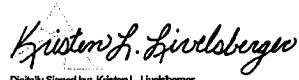
SIMULATED BY:



Digitally Signed by: Kevin Louder

Kevin S. Louder
Project Engineer

REVIEWED BY:



Digitally Signed by: Kristen L. Livelsberger

Kristen L. Livelsberger
Senior Simulation Technician
Simulator-In-Responsible-Charge

KSL:ksl

A8170.04-116-45

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix A: Drawings and Bills of Material (54)

Revision Log

| <u>Rev. #</u> | <u>Date</u> | <u>Page(s)</u> | <u>Revision(s)</u> |
|----------------------|--------------------|-----------------------|---------------------------|
| .01 R0 | 3/3/2011 | All | Original Report Issue |



REPORT
ETL TESTING LABORATORIES, INC.

688
95438-24

4317-A PARK DRIVE, NW

NORCROSS, GA 30093

Order No. J98029800

Date: January 7, 1999

Report No. J98029800-001 (Revised)

Rendered To

Kawneer Company, Inc.

Air Infiltration, Static Water Penetration, &

Structural Performance Tests Of a "Kawneer"

EnCORE (Type "A") 1-3/4 in. (44mm) x 4-1/2 in. (114mm)

Front Glazed Screw Spline System (1 in. Glass)

General:

This report provides the results of tests of a "Kawneer" EnCORE (Type "A") 1-3/4 in. (44mm) x 4-1/2 in. (114mm) Front Glazed Screw Spline System Mock-up. The work was authorized by personal application of and coordinated through Mr. Robert Magoon, representing the client. The tests were witnessed by ETL representative Mr. William Penuel at the client's laboratory at Norcross, GA on August 10, 1998.

Test Methods:

Tests were conducted in general in accordance with Methods of Test for Exterior Walls (AAMA 501-94), published by American Architectural Manufacturers Association and specific Standards published by American Society for Testing and Materials (ASTM):

Air Infiltration:

Designation: ASTM E-283-91 - Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

Static Water Penetration:

Designation: ASTM E-331-96 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

An independent organization testing for safety, performance, and certification.

All services undertaken subject to the following general policy: Reports are submitted for exclusive use of the clients to whom they are addressed. Their significance is subject to the adequacy and representative character of the samples and to the comprehensiveness of the tests, examinations or surveys made. No quotations from reports or use of ETL's name is permitted except as expressly authorized by ETL in writing.

Test Methods (cont.)

Structural Performance:

Designation: ASTM E-330-97 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

Description of Specimen:

Type: ENCORE (Type "A") 1-3/4 in. (44mm) x 4-1/2 in. (114mm) Front Glazed Screw Spline System.

Elevation: 94-3/4 in. (2407mm) wide x 94-3/4 in. (2407mm) high.

Materials: Framing members, setting chairs, and flashing were extruded aluminum. Snap-on glazing clips were molded thermal polyester with ultra violet stabilizer. Setting blocks and weathering were extruded elastomeric material. All lites were glazed with a push-on extruded elastomeric weathering on both the exterior and interior. All wet seals were made with tooled-in-place medium modulus silicone sealant.

Frame Construction: The framing members were joined together with #8 screws and snapped together split mullion half's. Weathering was applied to the verticals and jambs. The horizontal members were butted between the weathered verticals without sealant and attached with #8 screws. Weathering was added to the interior side of all horizontals after assembly. Framing was installed on flashing having a back bead of sealant and both ends were sealed. All perimeter fasteners were #10 wood screws. All perimeter fastener heads at the sill were sealed over and tooled down. A bead of sealant was placed at the bottom front flange of all verticals and jambs and tooled in place. Backer rod and sealant was applied to both the exterior and interior perimeter and tooled in place. Setting chairs, setting blocks, water deflectors, and glazing clips 12 in. on center were installed before glazing.

Glazing: The specimen consisted of (2) rows of (2) 1 in. clear insulating glass units composed of (2) lites of 1/4 in. annealed glass with a $\frac{1}{8}$ in. air space and edge spacer. Clear glass dimensions of all (4) lites measured 45- $\frac{1}{2}$ in. wide by 45-1/2 in. high. Glazing was performed from the exterior using removable temporary glazing clips to hold the glass in place before adding the covers. Weathered removable covers with glazing clips 12 in. on center were added in all locations.

Description of Specimen (cont.)

Drainage: EnCORE Screw Spline System is an internally drained system. Any water getting into the horizontals is directed to the bottom of the horizontal cover-and-out 1 in- weep holes on each end. Weeps are created by cutting back the bottom cover weathering 1 in. on each end. The verticals act as gutters, draining water to the sill flashing which then directs the water to the exterior.

Note: The Appendix consists of the client's drawings (175-984: Sheets 1&2) and forms a part of this report.

Results of Tests

1. Air Infiltration:

The Air Infiltration Test was conducted at a static pressure of 6.24 psf (300 Pa) (equal to a 50 mph wind) with an allowable air leakage of 0.06 cfm/sq.ft. (1.098 cm/hr/sqm) of fixed test area. The fixed test area was 64 sq.ft.

Air Infiltration

| Static Pressure, <u>psf</u> | Total, <u>cfm</u> | Area, <u>cfm/sq.ft.</u> (0.04 cm/hr/sqm) |
|-----------------------------------|----------------------|--|
| 6.24 (300 Pa) | 0.1 | 0.002 |

2. Static Pressure Water Penetration:

The Static Pressure Water Penetration Test was conducted with an average water application rate of 5.0 gallons per hour per square foot of the specimen for 15 minutes and at a uniform static air pressure of 8.0 psf (384 Pa) (with and without interior perimeter seal). There was to be no uncontrolled water leakage.

Results of Tests (cont.)

Static Pressure Water Penetration

| <u>Uniform Static Pressure, psf</u> | <u>Water Spray Rate, gals/hr/sq.ft.</u> | <u>Result of Test</u> |
|---|---|-------------------------|
| 8.0 psf (384 Pa) (with and without interior perimeter seal) | 5.0 | No Uncontrolled Leakage |

3. Structural Performance: Deflection

The Structural Performance Deflection Tests were conducted as follows with each load maintained for a period of 10 seconds:

- + 10.0 psf (480 Pa) (50% of positive pressure design load)
- + 20.0 psf (960 Pa) (100% of positive pressure design load)
- 10.0 psf (480 Pa) (50% of negative pressure design load)
- 20.0 psf (960 Pa) (100% of negative pressure design load)

Deflection of Vertical Mullion

| <u>Uniform Static Structural Test Pressure, psf</u> | <u>Average Gage No. 1 and Gage No. 3, in.</u> | <u>Gage No. 2, in.</u> | <u>Total, in.</u> |
|---|---|----------------------------|-----------------------|
| Positive 20.0 psf (960 Pa) | 0.16 (4.1mm) | 0.50 (12.7mm) | 0.34 (8.6mm) |
| Negative 20.0 psf (960 Pa) | 0.17 (4.3mm) | 0.56 (14.2mm) | 0.39 (9.9mm) |

Note: Deflection shall not exceed 0.526 in. (13.4mm) for the vertical mullion tested. The gaged span was 92 in. (2337mm). There was no glass breakage or permanent damage to any part of the specimen.

Results of Tests (cont.)

4. Structural Performance: Permanent Deformation

The Structural Performance Permanent Deformation Tests were conducted as follows with each load maintained for a period of 10 seconds:

- + 15 psf (720 Pa) (75% of positive pressure design load)
- + 30 psf (1440 Pa) (150% of positive pressure design load)
- 15 psf (720 Pa) (75% of negative pressure design load)
- 30 psf (1440 Pa) (150% of negative pressure design load)

Permanent Deformation of Vertical Mullion

| Uniform Static Structural Test Pressure, <u>psf</u> | Average Gage No. 1 and Gage No.*3, <u>in.</u> | Gage No. 2, <u>in.</u> | Total, <u>in.</u> |
|--|--|---------------------------|----------------------|
| Positive 30.0 psf (1440 Pa) | 0.02 (0.5mm) | 0.02 (0.5mm) | 0.00 |
| Negative 30.0 psf (1440 Pa) | 0.08 (2.0mm) | 0.10 (2.5mm) | 0.02 (0.5mm) |

Note: Permanent Deformation shall not exceed 0.184 in. (4.7mm) for the vertical mullion tested. The gaged span was 92 in. (2337mm). There was no glass breakage or permanent damage to any part of the specimen.

Report No. J98029800-001 Revised)

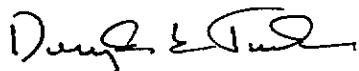
Page 6

Results of Tests (cont.)

Note: The specimen passed the minimum requirements for the following referenced standards:

AAMA 501-94, ASTM E-283-91, ASTM E-331-96, & ASTM E-330-97.

Report Approved By:



Douglas K. Tucker, P.E.



Tests Witnessed By:



William D. Penuel

Note: The Appendix consists of the client's drawings (175-984: Sheets 1&2) and forms a part of this report.

QUALITY TESTING INC.

3310 Hill Avenue, Everett, WA 98201
Phone: (425) 259-6799
FAX: (425) 259-4936
email: info@qtitest.com

NFRC SIMULATION REPORT

C2009-410_{E0A0}

REPORT TO: Kawneer Company, Inc.
555 Guthridge Court
Norcross, GA 30092

| | |
|--------------------------------------|------------|
| U-FACTOR BASELINE SIMULATION NUMBER: | C2009-410 |
| U-FACTOR BASELINE SIMULATION DATE: | 07/29/2009 |
| U-FACTOR BASELINE REPORT DATE: | 07/29/2009 |
| U-FACTOR REVISION DATE: | N/A |
| APPENDIX SIMULATION NUMBER: | N/A |
| APPENDIX SIMULATION DATE: | N/A |
| APPENDIX REVISION DATE: | N/A |
| SHGC REVISION DATE: | N/A |

PRODUCT: Series EnCore Window Wall System

WE TEST WINDOWS.....AND A WHOLE LOT MORE

| | |
|---|---|
| REPORT TO: | Kawneer Company, Inc. 555 Guthridge Court Norcross, GA 30092 |
| REPORT DATE: | 07/29/2009 |
| SIMULATION METHOD: | NFRC 100, Procedure for Determining Fenestration Product U-Factors (2004) NFRC 200, Procedure for Determining Fenestration Product Solar Heat Gain Coefficients at Normal Incidence(2004) Including all currently published Technical Interpretations |
| SIMULATION PROGRAMS: | Center of Glass: Windows 5.2.17 2-D Heat Transfer: THERM 5.2.14 |
| <hr/> | |
| MODEL/TYPE: | Series EnCore Window Wall System |
| CONFIGURATION: | OO |
| SIMULATED SIZE: | 2000mm X 2000mm (79" x 79") |
| FRAME TYPE AND FINISH: | Painted solid aluminum with pvc isolators |
| THERMAL BREAK TYPE: | 1 inch long and 12 inch on center "Valox" 357 glazing clip separators were utilized between the main extrusions and glazing cover extrusions. These are not full length and therefore were not included in the Therm simulations. |
| REINFORCEMENT: | NA |
| IG GLASS PARAMETERS: | IG units are nominal 1" O.A. 6.0mm glass thickness with 0.500" gap |
| GLAZING METHOD: | Interior and exterior EPDM gaskets were used on all members. |
| GAS FILL METHOD: | Single Probe with sensor |
| GAS FILL CONCENTRATION: (PROVIDED BY THE MANUFACTURER) | Varies per gas type |
| SPACERS: (MATERIALS AND CONSTRUCTION) | Dual seal aluminum with PIB/silicone sealant. (Type A1-D) Dual seal TB aluminum with PIB/silicone sealant (Type A2-D) |
| GRILLS (INTERNAL OR TDL): | NA |
| GRILLS (PATTERNS): | For SHGC and VT calculations a standard grid pattern not greater than 12" OC is used. |
| HARDWARE: | No continuous hardware. |
| WEATHERSTRIP: | NA |

ELECTRONIC DATA: Supporting information including THERM 5.2 and WINDOW 5.2 files are being submitted as part of this report.

FRAME GROUPING: None

ADDITIONAL INFORMATION: The manufacturer is capable of producing, in it's normal manufacturing process, products in sizes identical to the model sizes listed in the NFRC 100 Table 4-3 and have a least deviation of 0 within the tolerances of NFRC 100. All simulations are performed in the sizes and configurations listed in NFRC table 1 except that a non-standard size may be simulated and identified in the matrix to match the manufacturer's Physical test sample. Glass and Glazing types, Lowe placement, finishes and other required information is included in the NFRC U-Factor Simulation Summary Report and/or the NFRC SHGC/VT Simulation Summary Report included in this document. Additional supporting information and modeling assumptions are included in the individual reports obtained from the approved simulation programs and in the notes following the required summary reports.

NOTES:

- 1) All simulations use the emissivity from the NFRC approved files in IGDB Version 16.0
- 2) The following Simplifications to a Product Lines per NFRC 100 were applied:
 - A) For U-Factor purposes, all glazing options which vary only in glazing tint or obscurity are assumed to have the same U-Factor as glazing options without such tints or obscurity and are not simulated, PROVIDED that such options are not associated with a change in coating properties.
- 3) A default frame absorptance of 0.500 is assumed.
- 4) For Solar Heat Gain and Visible Light Transmittance, all frame, divider and glass options are grouped using the best case Center of Glass Frame values from the "U" Factor calculations as required by the simulation manual.
- 5) For SHGC and VT calculations standard default grid pattern established by Window 5.2 which is assumed to be closest to but not greater than 12" OC is used.
- 6) The As Tested product simulation was performed using Clear glass as allowed.

CONCLUSIONS

Detailed assembly drawings, cross-sectional drawings, and a bill of materials as supplied by the client were used as the basis for performing the simulations. Copies are attached to this report. The results were secured by using the designated methods and NFRC approved simulation programs as required by, and in full compliance with, the NFRC 100 procedure. This report does not constitute certification of this product. The results in this report apply to the sample as shown in the attached drawings, using the components and construction methods described herein. All rounding and unit conversions are in compliance with the applicable NFRC rules and methods. Quality testing does not warrant the accuracy of the computer programs used to obtain the results.

Ratings values included in this report are for submittal to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes.

This report is the joint property of Quality Testing and the client to whom it is issued. Permission to reproduce this report by anyone other than Quality Testing and the Client must be granted in writing by both of the above parties. This report may not be reproduced except in its entirety.



Randal J. Van Voorst
Simulator & Simulator in Responsible Charge

APPENDIX A

U-FACTOR, SHGC & VT SUMMARY

| Product Number | | | | | | | | | |
|----------------|----|------------|--------------|-------|-------|------------|-----|-----------------|--------|
| U-factor C-O-G | | | | | | | | | |
| Pane ID #1 | | Pane ID #2 | | Gap 1 | | Gap Fill 1 | | % of Gap Fill 1 | |
| 0.46 | 1 | 6mm CLEAR | 6mm CLEAR | 0.225 | 0.225 | 0.500 | ARG | 49 | A1-D N |
| 0.44 | 2 | 6mm CLEAR | 6mm CLEAR | 0.225 | 0.225 | 0.500 | AR3 | 10/90 | A1-D N |
| 0.42 | 3 | 6mm CLEAR | 6mm AFG B230 | 0.225 | 0.230 | 0.500 | ARG | 58 | A1-D N |
| 0.40 | 4 | 6mm CLEAR | 6mm AFG B720 | 0.225 | 0.226 | 0.500 | ARG | 26 | A1-D N |
| 0.38 | 5 | 6mm CLEAR | 6mm AFG B720 | 0.225 | 0.226 | 0.500 | ARG | 83 | A1-D N |
| 0.36 | 6 | 6mm CLEAR | 6mm AFG S108 | 0.225 | 0.221 | 0.500 | ARG | 91 | A1-D N |
| 0.34 | 7 | 6mm CLEAR | 6mm SG500 | 0.225 | 0.223 | 0.500 | ARG | 18 | A1-D N |
| 0.32 | 8 | 6mm CLEAR | 6mm SG500 | 0.225 | 0.223 | 0.500 | ARG | 65 | A1-D N |
| 0.30 | 9 | 6mm CLEAR | 6mm SG100 | 0.225 | 0.223 | 0.500 | ARG | 25 | A1-D N |
| 0.28 | 10 | 6mm CLEAR | 6mm SG100 | 0.225 | 0.223 | 0.500 | ARG | 67 | A1-D N |
| 0.26 | 11 | 6mm CLEAR | 6mm SB60 | 0.225 | 0.223 | 0.500 | ARG | 62 | A1-D N |
| 0.24 | 12 | 6mm SB60 | 6mm SB60 | 0.223 | 0.223 | 0.500 | ARG | 86 | A1-D N |
| 0.22 | 13 | 6mm SB60 | 6mm SB60 | 0.223 | 0.223 | 0.500 | AR3 | 6/90 | A1-D N |
| 0.20 | 14 | 6mm SB70XL | 6mm CLEAR | 0.223 | 0.223 | 0.500 | XE3 | 90/9 | A1-D N |

APPENDIX B

SHGC & VT ZERO & ONE VALUES

| SHGC0 NO GRID | SHGC0 <1" GRID | SHGC0 >=1" GRID | VT0 NO GRID | VT0 <1" GRID | VT0 >=1"GRID |
|---------------|----------------|-----------------|-------------|--------------|---------------|
| 0.0179 | 0.0213 | 0.0245 | 0.0000 | 0.0000 | 0.0000 |
| SHGC1 NO GRID | SHGC1 <1" GRID | SHGC1 >=1" GRID | VT1 NO GRID | VT1 <1" GRID | VT1 >=1" GRID |
| 0.9117 | 0.8103 | 0.7153 | 0.8938 | 0.7890 | 0.6908 |

Table 6.1 of NFRC 200-2001

A manufacturer may group infill Pane thicknesses per the following table:

Range of Thicknesses Use in Product

| mm | Inches | |
|---------------|--------------------|--------------|
| x≤2.0 | (x≤5/64) | Actual |
| 2.0 < x < 4.5 | (5/64 < x < 11/64) | 3.0mm (1/8") |
| 4.5 < x < 7.1 | (11/64 < x < 9/32) | 6.0mm (1/4") |
| 7.1 < x | (9/32 < x) | Actual |

FORMULAS:

$$\text{SHGC} = \text{SHGC0} + (\text{SHGCcog} * (\text{SHGC1}-\text{SHGC0}))$$

$$\text{VT} = \text{VT0} + (\text{Vtc} * (\text{VT1} - \text{VT0}))$$



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
E. Source Quality-Control Reports

(N/A)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
F. Field Quality-Control Reports

(N/A)



**THE UNIVERSITY OF TEXAS AT AUSTIN
SARAH M. & CHARLES E. SEAY BUILDING ADDITION**

Contractor: SpawGlass

Section 08 41 13
Aluminum-Framed Entrances and Storefronts

1.5 Informational Submittals
G. Sample Warranties

LIMITED WARRANTY AND REMEDY ANODIZED FINISHES

This is to certify that Kawneer Company, Inc. (hereinafter "Kawneer") hereby warrants to its customers and all subsequent purchasers and owners of the project incorporating Kawneer products (hereinafter "Customer(s)"), subject to every term, condition and limitation stated herein, that the anodized finishes applied to the aluminum material (hereinafter "Metal") on the project identified as:

Job Name: *Your Job Name Here*

Order(s) #: *99999999*

for a period of two (2) years for Class II finishes and five (5) years for Class I finishes from the date of substantial completion of the project, provided however, that the Limited Warranty shall begin in no event later than six (6) months from the date of shipment by Kawneer for the start of the warranty period hereunder.

- Will not change color more than five (5) DEcmc as determined per AAMA 611.
- Will not crack, blister, check or peel.

THIS LIMITED WARRANTY WILL NOT APPLY TO OR COVER, AND KAWNEER HEREBY DISCLAIMS ALL LIABILITY FOR ANY OF THE FOLLOWING:

- defects caused by depreciation or normal wear or other occurrences beyond Kawneer's control;
- damage to the finish occasioned by moisture or other contamination detrimental to the finish because of improper storage of the finished Metal prior to installation;
- water damage due to condensation caused by improper repackaging of the finished Metal prior to installation;
- damage to the finished Metal caused by handling, shipping and/or installation, or by use of the Metal with any parts, gaskets, glazing materials, components or sealants of other manufacturers used with Kawneer products, or any lack of performance of Kawneer products attributable to such items;
- damage due to finished Metal caused by exposure to caustic or acidic materials;
- any particular application or selection of the Metal for any particular project or design;
- any application of the anodized finish on any Metal that is also hardware; and
- any product which has been subject to abuse, alterations, modification, neglect, misuse, abnormal use, accident, fire, war, flood, falling objects, external forces, earthquakes, acts of God, or to which parts not supplied by Kawneer have been added.

A systematic maintenance program must be instituted by the purchaser or user to prevent the build-up of deposits on the anodized surface such as dirt and salt. The surface must be cleaned at least annually in accordance with AAMA 609 & 610 so as to prevent the accumulation of these harmful deposits. More frequent cleaning may be reasonably required in some geographical environments such as heavy industrialized or coastal areas.

A FAILURE TO INSTITUTE AND REASONABLY EVIDENCE A SYSTEMATIC MAINTENANCE PROGRAM AS DESCRIBED ABOVE WILL VOID THIS WARRANTY.

All decisions regarding the existence of defects in material and workmanship and the occurrence of any of the matters described in the preceding paragraphs or affecting this Limited Warranty shall be made by Kawneer and shall be final and binding upon the parties.

The sole and exclusive remedy with respect to this Limited Warranty or with respect to any other claim relating to defects or any other condition or use of the products supplied by Kawneer, however caused, and whether such claim is based upon warranty, contract, negligence, strict liability or any other theory, is limited to, at Kawneer's sole discretion, replacement or refinishing of the defective Metal or repayment by Kawneer of the purchase price paid to it. Refinishing of the defective Metal shall be performed by using standard finishing practices and materials as selected by Kawneer. Kawneer reserves the right to approve any contract for refinishing of defective Metal. The warranty on any refinished and/or replacement coated Metal shall continue for the remainder of the original warranty period. At no time does this warranty confer upon the claiming party or any other party the right to proceed with repair, replacement or restoration, without written notice and agreement by a duly authorized officer of Kawneer. Any such work undertaken by the claiming party or any other party shall be for the claiming party's own account and shall result in this warranty becoming null and void.

IN NO EVENT SHALL KAWNEER BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF PROFITS OR GOOD WILL, OR OTHER COMMERCIAL LOSS OR INJURY.

Claims under this Limited Warranty must be made to Kawneer in writing within sixty (60) days after discovery of the defective finished Metal. Failure of the claiming party to notify Kawneer within such period shall automatically relieve Kawneer of any and all responsibility and/or liability. Kawneer must be given a reasonable opportunity to inspect the finished Metal claimed to be defective. In the event of a claim under the warranty, Customer shall furnish proof of the date of substantial completion and shall demonstrate that the failure of the product was due to a breach of the warranty stated herein.

This Limited Warranty will apply only to Metal which is supplied by Kawneer and used within North America (United States, including Hawaii, and Canada) unless Kawneer agrees otherwise in writing.

No terms or conditions other than those stated herein, and no agreement or understanding, oral or written, in any way purporting to modify this Limited Warranty shall be binding on Kawneer unless made in writing and signed by a duly authorized officer of Kawneer.

All notices given under or pursuant to this Limited Warranty shall be in writing and sent by registered mail, postage paid, return receipt requested, to the party to whom such notices are to be given, as follows:

- (a) Kawneer: Kawneer Company, Inc.
Attn: Diana Perreiah
555 Guthridge Court
Norcross, GA 30092
- (b) Customer: Your Company Name
Your Street Address
Anytown, USA 99999-0000

All such notices as set forth above shall be considered served when received.

Customer's agreement to and acceptance of this warranty shall be indicated by signing and returning a copy of this document to Kawneer.

Kawneer Company, Inc.

Diana B. Perreiah



President, Arconic Building and Construction Systems

Date Issued: 01/01/2015

Accepted By:

Customer: _____

By: _____

Signature: _____

Title: _____

Date Signed: _____

LIMITED WARRANTY AND REMEDY MATERIAL & WORKMANSHIP

This is to certify that Kawneer Company, Inc. or its applicable affiliate or subsidiary selling the Product ("Seller") warrants to its Customers and all subsequent purchasers and owners of the project incorporating Seller products (hereinafter "Customer(s)"), subject to every term, condition and limitation stated herein, that the products supplied by Seller on the project identified as:

Job Name: *Your Job Name Here*

Order(s) #: *99999999*

shall be free from material defect in materials and workmanship for a period of two (2) years from the date of substantial completion of the project, provided however, that the limited warranty period shall begin in no event later than six (6) months from the date of shipment by Seller for the start of the warranty hereunder.

This limited warranty ("Limited Warranty") applies only if Seller's products are installed and maintained according to Seller's recommended practices and installation instructions, and only to defects appearing within two (2) years from substantial completion of the project and only if Seller is notified in writing within sixty (60) days after such defect either (i) appears or (ii) should have been discovered after the exercise of reasonable diligence. Failure of the claiming party to notify Seller within such period shall automatically relieve Seller of any and all responsibility and/or liability under this Limited Warranty.

THE WARRANTIES SET FORTH IN THIS LIMITED WARRANTY AND REMEDY ARE IN LIEU OF ALL OTHER REPRESENTATIONS, WARRANTIES OR OTHER AGREEMENTS, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, WHICH ARE HEREBY DISCLAIMED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In addition to Seller's standard Limited Warranty and Remedy, and applying solely and exclusively to Kawneer doors with welded corner construction, the corner construction joinery of these doors shall be free from material defects in workmanship and material for the normal, useful life of the door.

In addition to Seller's standard Limited Warranty and Remedy, and applying solely and exclusively to Kawneer Flushline doors, the corner construction joinery, core and laminate shall be free from material defects in workmanship and material for the normal, useful life of the door.

This Limited Warranty does not cover, and Seller hereby disclaims all liability for, the installation of Seller's products, any particular application or selection of the product for any particular project or design, any parts, gaskets, glazing materials, components or sealants of other manufacturers used with Seller products, or any lack of performance of Seller products attributable to such items. Seller PRODUCTS ARE PRODUCED FOR COMMERCIAL APPLICATIONS. THIS LIMITED WARRANTY DOES NOT COVER, AND SELLER HEREBY DISCLAIMS ALL LIABILITY FOR, ANY PRODUCTS USED IN RESIDENTIAL INDIVIDUAL DETACHED SINGLE FAMILY DWELLINGS, ANY PRODUCTS WHICH HAVE BEEN SUBJECT TO ABUSE, ALTERATION, NEGLECT, MISUSE, ABNORMAL USE, ACCIDENT, FIRE, WAR, FLOOD, EARTHQUAKES, ACTS OF GOD, OR TO WHICH PARTS, NOT SUPPLIED BY SELLER HAVE BEEN ADDED, OR TO DEFECTS CAUSED BY DEPRECIATION OR NORMAL WEAR. All decisions regarding the existence of defects in material and workmanship and the occurrence of any of the matters described in the preceding paragraphs or affecting this Limited Warranty shall be made by Seller and shall be final and binding upon all parties.

The sole and exclusive remedy with respect to this Limited Warranty or with respect to any other claim relating to defect or any other condition or use of the products supplied by Seller, however caused, and whether such claim is based upon breach of representation, warranty, condition, contract (fundamental or otherwise), tort (including negligence), strict liability or any other theory is limited to, at Seller's option, repair or replacement of such products or repayment by Seller of the purchase price paid for it. The remedy with respect to claims made relating to Seller Doors excludes the replacement of glass, gaskets, hardware, immediate framing, temporary enclosures or any related labor or installation costs. In no event does Seller's warranty cover the cost of labor or sundry materials required to remove and/or replace any defective product.

The products repaired, replaced or otherwise restored shall be warranted to the same extent and to the expiration date from the original date of shipment, and this Limited Warranty shall not be deemed to have been extended from the date of such warranty work. At no time does this Limited Warranty confer upon the claiming party or any other party the right to proceed with repair, replacement or restoration, without the written notice and agreement by a duly authorized officer of Seller. Any such work undertaken by the claiming party or any other party shall be for the claiming party's own account and shall result in this Limited Warranty becoming null and void.

SELLER'S AGGREGATE TOTAL CUMULATIVE LIABILITY UNDER THIS LIMITED WARRANTY IS LIMITED TO THE DOLLAR AMOUNT OF THE PURCHASER'S ORIGINAL PAYMENT MADE TO SELLER FOR PRODUCT FURNISHED BY SELLER. IN CONSIDERATION OF THIS LIMITED WARRANTY, SELLER SHALL NOT BE LIABLE FOR SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF PROFITS OR GOODWILL, DAMAGES FOR NEGLIGENCE IN THE MANUFACTURE, DESIGN OR INSTALLATION OF THE PRODUCT, OR OTHER COMMERCIAL LOSS OR INJURY.

This is the only warranty made in connection with the sale and distribution of Seller's products. No representative or any other person is authorized to make or makes any warranty, representation or promise with respect to Seller's products. No terms or conditions other than those stated herein, and no agreement or understanding, oral or written, in any way purporting to modify this warranty shall be binding on Seller unless made in writing and signed by a duly authorized officer of Seller.

Laws and building and safety codes governing the design and use of Kawneer products, such as glazed entrance, window and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware or glazing materials, and assumes no responsibility therefor.

All notices given under or pursuant to this Limited Warranty shall be in writing and sent by registered mail, postage paid, return receipt requested, to the party to whom such notices is to be given, as follows:

- (a) Kawneer: Kawneer Company, Inc.
Attn: Warranty Dept
555 Guthridge Court
Norcross, GA 30092
- b) Customer: Your Company Name
Your Street Address
Anytown, USA 99999-0000

All such notices as set forth above shall be considered served when received.

Customer's agreement to and acceptance of this warranty shall be indicated by signing and returning a copy of this document to Kawneer.

Kawneer Company, Inc.

Diana B. Perreiah



President, Arconic Building and Construction Systems

Date Issued: 01/01/2015

Accepted By:

Customer: _____

By: _____

Signature: _____

Title: _____

Date Signed: _____

LIMITED WARRANTY AND REMEDY PAINTED FINISHES

This is to certify that Kawneer Company, Inc. (hereinafter "Kawneer") hereby warrants to its customers and all subsequent purchasers and owners of the project incorporating Kawneer products (hereinafter "Customer(s)") subject to every term, condition and limitation stated herein, that the painted finishes applied to the aluminum material (hereinafter "Metal") on the project identified as:

Job Name: *Your Job Name Here*
Order(s) #: *99999999*

shall comply with the scope of this Limited Warranty, during the period of time from substantial completion of the project as set forth in the table below, provided however, that the Limited Warranty shall begin in no event later than six (6) months from the date of shipment by Kawneer for the start of the warranty period hereunder. Kawneer warrants that the finish:

| Paint Type | | | |
|---|--|--|--|
| 70% Fluoropolymer (Standard Warranty ten (10) years) ¹ | Will not chalk more than that represented by a No. 8 rating for colors or No. 6 for whites, when measured in accordance with the standard procedures specified in ASTM D 4214, Test Method A ("Excessive Chalking"); | Will not change color more than five (5) Hunter Δ E units as determined by ASTM D 2244 ("Excessive Color Change").* | Will not crack, check or peel in such a way as to adversely affect the appearance of the Metal and result in damage to the Metal |
| 50% Fluoropolymer (Standard Warranty five (5) years) ² | Will not chalk more than that represented by a No. 6 when measured in accordance with the standard procedures specified in ASTM D 4214, Test Method A ("Excessive Chalking"); | Will not change color more than seven (7) Hunter Δ E units as determined by ASTM D 2244 ("Excessive Color Change").* | Will not crack, check or peel in such a way as to adversely affect the appearance of the Metal and result in damage to the Metal |
| Powder Paint (Standard Warranty five (5) years) ³ | Will not chalk more than that represented by a No. 8 rating when measured in accordance with the standard procedures | Will not change color more than five (5) Hunter Δ E units as determined by ASTM D 2244 ("Excessive Color Change").* | Will not crack, check or peel in such a way as to adversely affect the appearance of the Metal and result in damage to the Metal |

| | | | |
|--|---|--|--|
| | specified in ASTM D 4214, Test Method A ("Excessive Chalking"); | | |
|--|---|--|--|

* Metallic/mica flake colors are not color measurable and are not subject to the Excessive Color Change warranty set forth above, or any other color change warranty, express or implied.

¹ Maximum Extended Warranty is twenty (20) years for 70% Fluoropolymer Paint

² Maximum Extended Warranty is ten (10) years for 50% Fluoropolymer Paint

³ Maximum Extended Warranty is ten (10) years for Powder Paint

THIS LIMITED WARRANTY WILL NOT APPLY TO OR COVER, AND KAWNEER HEREBY DISCLAIMS ALL LIABILITY FOR THE FOLLOWING:

- damage to the finish occasioned by moisture or other contamination detrimental to the finish because of improper storage of the finished Metal prior to installation;
- failure to properly protect the installed finished Metal during the construction process;
- water damage due to condensation caused by improper repackaging of the finished Metal prior to installation;
- damage including but not limited to scratches and abrasions to the finished Metal caused by use, handling, shipping and/or installation, or by utilization of the Metal with any parts, gaskets, glazing materials, components or sealants of other manufacturers used with Kawneer products or any lack of performance of Kawneer products attributable to such items;
- damage to finished Metal caused by exposure to caustic agents, acidic agents, or harmful fumes or other destructive and/or foreign materials;
- damage due to improper maintenance e.g. the use of chemical cleaning agents, or applicators;
- corrosion of the Metal due to aggressive atmospheres including exposure to salt spray and/or salt mist;
- any particular application or selection of the Metal for any particular project or design;
- any product which has been subject to abuse, alteration, modification, neglect, misuse, abnormal use, accident, fire or other casualty or physical damage, war, flood, falling objects, external forces, earthquakes, acts of God, or to which parts not supplied by Kawneer have been added, and/or
- any defects caused by depreciation or normal wear or other occurrences beyond Kawneer's control.

A systematic maintenance program must be instituted by the Customer or user to prevent the build-up of dirt and salt deposits on the painted surface. The surface must be cleaned at least annually in accordance with AAMA 609 & 610 so as to prevent the accumulation of harmful deposits. More frequent cleaning is required in heavy industrialized environments or coastal environments. Coastal environments where salt spray or salt fog is present can be very detrimental to metal especially where the paint coating has been scratched or damaged. In coastal environments where metal is exposed to salt spray or salt fog or in heavy industrial environments, the metal surface must be cleaned at least once quarterly in accordance with AAMA 609 & 610 to prevent the accumulation of harmful deposits.

A FAILURE TO INSTITUTE AND REASONABLY EVIDENCE A SYSTEMATIC MAINTENANCE PROGRAM AS DESCRIBED ABOVE WILL VOID THIS WARRANTY.

Kawneer is not responsible for chalking or for fading or color changes that are less than the Excessive Chalking or Excessive Color Change referenced and warranted above. Normal weathering, such as the damaging effects of sunlight and exposure to the elements, such as

extremes of weather and atmosphere, may cause any colored surface to fade, chalk, or become soiled or stained. These changes may not be uniform if the surfaces are not equally exposed to the sun and elements. The degree to which normal weathering occurs will vary depending on the air quality, the building's location and many other factors over which Kawneer has no control. Metallic/mica flake colors are not color measurable and are not subject to the Excessive Color Change warranty set forth above, or any other color change warranty, express or implied.

All decisions regarding the existence of defects in material and workmanship and the occurrence of any of the matters described in the preceding paragraphs or affecting this Limited Warranty shall be made by Kawneer and shall be final and binding upon the parties.

The sole and exclusive remedy with respect to this Limited Warranty or with respect to any other claim relating to defects or any other condition or use of the products supplied by Kawneer, however caused, and whether such claim is based upon warranty, contract, negligence, strict liability or any other theory, is limited to, at Kawneer's sole discretion, replacement or refinishing of the defective Metal or repayment by Kawneer of the purchase price paid to it. Refinishing of the defective Metal shall be performed by using standard finishing practices and materials as selected by Kawneer. Kawneer reserves the right to approve any contract for refinishing of defective Metal. The warranty on any refinished, and/or replacement Metal shall continue for the remainder of the original warranty period. At no time does this warranty confer upon the claiming party or any other party the right to proceed with repair, replacement or restoration, without written notice and agreement by a duly authorized officer of Kawneer. Any such work undertaken by the claiming party or any other party shall be for the claiming party's own account and shall result in this warranty becoming null and void.

IN NO EVENT SHALL KAWNEER BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF PROFITS OR GOOD WILL, OR OTHER COMMERCIAL LOSS OR INJURY.

Claims under this Limited Warranty must be made to Kawneer in writing within sixty (60) days after discovery of the defective finished Metal. Failure of the claiming party to notify Kawneer within such period shall automatically relieve Kawneer of any and all responsibility and/or liability. Kawneer must be given a reasonable opportunity to inspect the finished Metal claimed to be defective. In the event of a claim under the warranty, Customer shall furnish proof of the date of substantial completion and shall demonstrate that the failure of the product was due to a breach of the warranty stated herein.

This Limited Warranty will apply only to Metal which is supplied by Kawneer and used within North America (United States, including Hawaii, and Canada) unless Kawneer agrees otherwise in writing.

No terms or conditions other than those stated herein, and no agreement or understanding, oral or written, in any way purporting to modify this Limited Warranty shall be binding on Kawneer unless made in writing and signed by a duly authorized officer of Kawneer.

All notices given under or pursuant to this Limited Warranty shall be in writing and sent by registered mail, postage paid, return receipt requested, to the party to whom such notices is to be given, as follows:

(a) Kawneer: Kawneer Company, Inc.
Attn: Diana Perreiah
555 Guthridge Court
Norcross GA 30092

(b) Customer: Your Company Name
Your Street Address
Anytown, USA 99999-0000

All such notices as set forth above shall be considered served when received.

Customer's agreement to and acceptance of this warranty shall be indicated by signing and returning a copy of this document to Kawneer.

Kawneer Company, Inc.

Diana B. Perreiah



President, Arconic Building and Construction Systems

Date Issued: 01/01/2015

Accepted By:

Customer: _____

By: _____

Signature: _____

Title: _____

Date Signed: _____