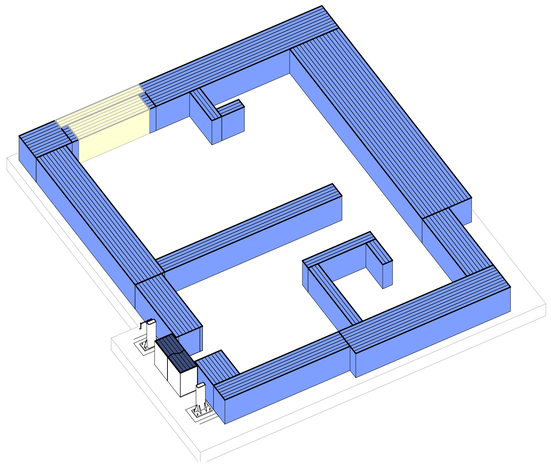
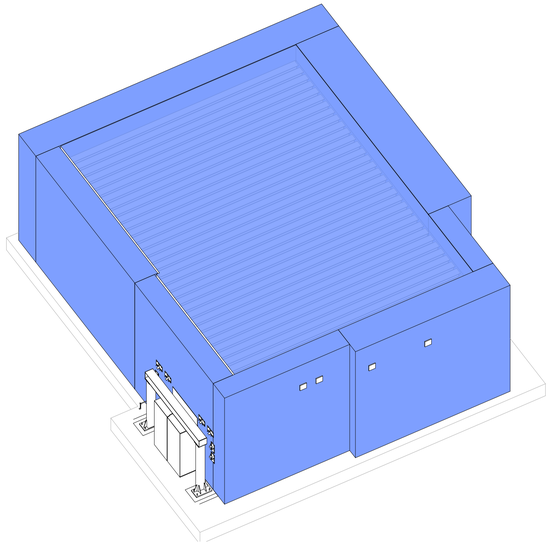
veritas Medical Solutions®
160 Cassell Road
Harleysville, PA 19438
484-991-8928
www.veritas-medicalsolutions.com

The Quality Management of Veritas Medical Solutions is certified to ISO 9001:2015

VeriShield® Mevion S250 Cyclotron Vault & 25" Bi-Parting Door

Auburn University - Proton Radiation Testing Facility
Lot 4, Mark C. Smith Drive
Huntsville, Alabama 35801
United States of America





DRAWING INDEX			
Drawing Number	Drawing Title	Current Drawing Set / Milestone	Current Drawing Date
X-000	COVER SHEET	Review Set (DD 90%)	21 March 2025
X-100	CONTEXT PLAN	Review Set (DD 90%)	21 March 2025
X-110	WALL SHIELDING PLAN	Review Set (DD 90%)	21 March 2025
X-130	CEILING SHIELDING PLAN	Review Set (DD 90%)	21 March 2025
X-300	SECTIONS	Review Set (DD 90%)	21 March 2025
X-301	SECTIONS	Review Set (DD 90%)	21 March 2025
XS-001	GENERAL STRUCTURAL NOTES	Review Set (DD 90%)	21 March 2025
XS-100	PRELIMINARY LOADING PLAN	Review Set (DD 90%)	21 March 2025
XS-110	WALL REINFORCING PLAN	Review Set (DD 90%)	21 March 2025
XS-200	VAULT FRAMING PLAN	Review Set (DD 90%)	21 March 2025
XS-210	BEARING PLATE PLAN	Review Set (DD 90%)	21 March 2025
XS-300	STRUCTURAL DETAILS	Review Set (DD 90%)	21 March 2025
XS-500	STEEL DETAILS	Review Set (DD 90%)	21 March 2025
XS-515	STEEL DETAILS FRAMED DOOR OPENING	Review Set (DD 90%)	21 March 2025

SUPPORT DOCUMENT INDEX			
Drawing Number	Drawing Title	Current Drawing Set / Milestone	Current Drawing Date
BP-001	DOOR POWER & CONTROL DIAGRAM (BI-PART)	Provided with Layout Set	05 February 2025
BP-002	DOOR DEVICE DETAILS (BI-PART)	Provided with Layout Set	05 February 2025

REVIEW SET COORDINATION NOTES:

COORDINATION ITEM:	PARTY:	COMMENT / ACTION ITEM:	
DOOR CONTROLS	(CLIENT/REP)	***REVIEW***:	DOOR POWER & CONTROL DIAGRAM PRELIMINARY DOOR CONTROL LOCATIONS — **PROVIDED WITH LAYOUT SET** ***SEE SHEET: X-100***
		COORDINATE:	FINAL DOOR CONTROL LOCATIONS WITH VERITAS
GENERAL MEP	(CLIENT/ REP)	***NOTES***:	INITIAL SERVICE ROUTES CAPTURED IN LAYOUT SET DISCUSSED DURING COORDINATION CALL ON ***01/31/2025***.
			(4) 4" I.D. SERVICE SLEEVES + TEST SLEEVE PROVIDED IN LAYOUT SET FOR REVIEW.
		REVIEW:	NEW SERVICE ROUTES DISCUSS DURING RECENT COORDINATION CALL ON ***03/18/2025***.
			SEE SHEETS (X-110) & (XS-110) FOR PLACEMENT IN PLAN.
			SEE SECTIONS ON SHEET (X-300) FOR SLEEVE HEIGHTS.
			NEW SLEEVE QUANTITIES & NOTES:
			(5) 5" I.D. SLEEVES RESTING ON COURSE 29 IN [W1] WALL
			(5) 4" I.D. SLEEVES RESTING ON COURSE 26 IN [W1] WALL
			(1) 4" I.D. SLEEVE RESTING ON COURSE 29 IN [W7] WALL - (SPLIT SYSTEM)
			(1) 4" I.D. SLEEVE MID WALL ON DOUBLE 45 DEGREE ANGLE IN [W7] WALL - (TESTING PORT) *LOW END* ON EXTERIOR SIDE - ***PLEASE IDENTIFY APPROXIMATE DESIRED HEIGHT*** *HIGH END* ON INTERIOR SIDE
			(1) 4" I.D. SLEEVE RESTING ON COURSE 29 IN [W8] WALL
APPROVALS	(CLIENT/REP)	***NOTE***:	THIS ***REVIEW SET*** TO SERVE AS THE ***(DD 90%) DESIGN DEVELOPMENT DELIVERABLE*** OF THE VERITAS SCOPE OF WORK FOR THE DESIGN ONLY CONTRACT.
			PLEASE PROVIDE FEEDBACK FOR ANY CHANGES REQUIRED FOR FINAL APPROVAL.
			IF NO ADDITIONAL CHANGES ARE REQUIRED, ***PLEASE EXPRESS WRITTEN APPROVAL*** THAT THE DESIGN SOLUTION IS ACCEPTABLE AND THE TEAM IS READY TO ADVANCE TO THE ***FULL BUILD & CD*** (CONSTRUCTION DOC.) PHASE, ***UNDER SEPARATE CONTRACT***.

Review Set - 03/21/2025

NOT FOR CONSTRUCTION

VERITAS PHYSICS & DESIGN ONLY ESTIMATE # 5195-01
VERITAS PHYSICS & DESIGN ONLY PROJECT# 24-136-5195

VERITAS FULL BUILD ESTIMATE # xxxx-xx
VERITAS FULL BUILD PROJECT# xx-xxx-xxxx

PRELIMINARY - NOT FOR CONSTRUCTION

SEAL

veritas Medical Solutions
160 CASSELL RD.
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CONDITIONS OF USE

VeriShield Mevion S250 Cyclotron Vault & 25" Bi-Parting Door
Auburn University - Proton Radiation Testing Facility
Lot 4, Mark C. Smith Drive
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United States of America

DRAWING ISSUE LOG

#	ISSUE TITLE	Date
	Layout Set	02/05/2025
	Review Set	03/21/2025

VERITAS PROJECT TEAM

SALES REP:	Greg Shearer
PHYSICIST:	El Hassane Bentefour
DESIGNER:	Jay DiRaimondo
PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

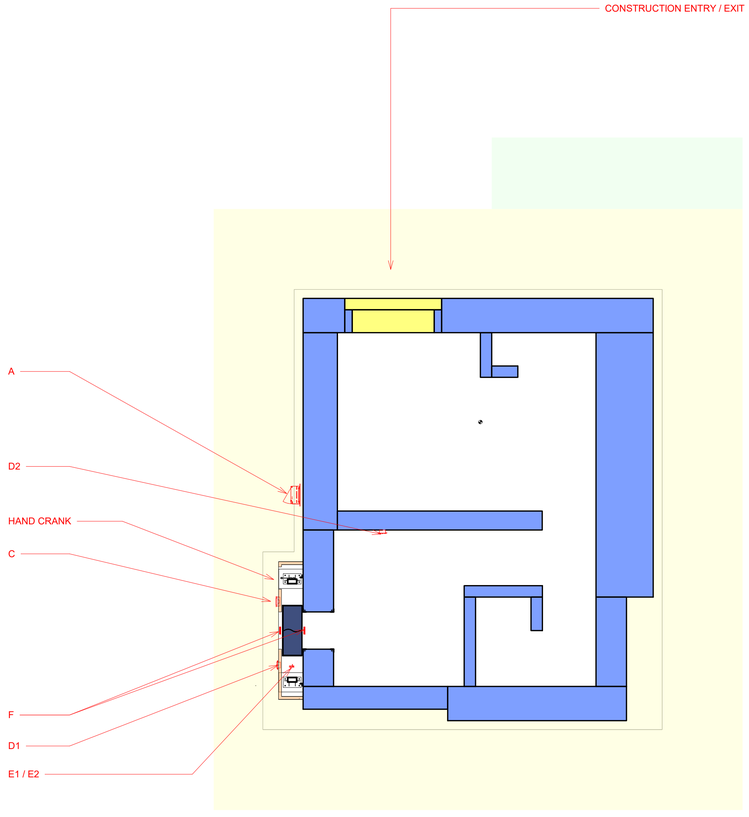
PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

DRAWING TITLE

COVER SHEET

DRAWING NUMBER

X-000



1 Context Plan
1/8" = 1'-0"

VERITAS WORKSPACE (YELLOW REGION)
NO OTHER TRADES UNTIL VERITAS WORK IS COMPLETED
KEEP CLEAR OF FITOUT, SERVICES, ETC.

COORDINATE STAGING, ROUTING & ENTRY ACCESS WITH VERITAS PROJECT MANAGER.

VERITAS STAGING / LAYDOWN AREA (GREEN REGION)

DOOR CONTROL COORINATION NOTES:

*DOOR CONTROL LOCATIONS SHOWN ARE **PLACEHOLDERS**.*
COORDINATE LOCATIONS OF ITEMS: [A] , [C], [D1], & [D2] w/ VERITAS PROJECT MANAGER.
VERITAS RECOMMENDS TO COORDINATE WITH END USERS TO BEST LOCATE BASED ON DAILY ROUTINE.

DOOR CONTROLS: SEE DOOR PLANNING INFO FOR DOOR POWER & CONTROLS

A	DOOR CONTROL CABINET PREFERABLY LOCATED WITHIN SIGHT OF DOORS
C	[HMI] TOUCH SCREEN - LOCATE AT / NEAR TREATMENT ROOM ENTRANCE (*OUTSIDE OF SAFETY SENSOR FIELD*)
D1	[PBOS] PUSH BUTTON OP. STATION - LOCATE NEAR CONTROL DESK - IN CONTROL ROOM.
D2	[PBOS] IN ROOM - KEYED, AWAY FROM DOOR, NOT IN PRIMARY BEAM PATH
E1, E2, & F	INTERLOCK SWITCHES & SAFETY SENSORS LOCATED IN DOOR CAVITY & FINISHED DOOR OPENING.
HAND CRANK	HAND CRANK CAN BE LOCATED ON EITHER POST. ACCESS IS REQUIRED, RECOMMENDED: 2'-6" x 7'-0" DOOR (BY OTHERS)

SCOPE OF WORK - *DESIGN ONLY* (VERITAS SHIELDING PACKAGE):

1. VERITAS SHIELDING SCOPE OF WORK IS LIMITED TO:

   DESIGN ONLY
   DESIGN COORDINATION THROUGH REVIEW SET (90% DD)
   BUILD PORTION OF PROJECT & CD's IN SEPARATE CONTRACT

   PER THE AGREED SCOPE OF WORK SUMMARY DEFINED IN THE PROPOSAL / BUDGET ESTIMATE # *5195-01* , DATED (*11/22/2024*)

2. ALL OF VERITAS' SCOPE OF WORK OCCURS ABOVE TREATMENT LEVEL SLAB. ALL FOOTING, FOUNDATIONS, OR SLAB REINFORCING DESIGN DUE TO APPLIED LOADS FROM SHIELDING OR DOOR PRODUCTS (BY OTHERS).

3. EXTENT OF INTERIOR FINISHES (BY VERITAS) ARE LIMITED TO:
   DOOR SHELLS

   NO LAMINATE:
   PROVIDE RUST PROHIBITIVE PAINT / PRIMER COATING.

4. VERITAS' STRUCTURAL CONSULTANTS' SCOPE IS LIMITED TO (ABOVE SLAB) ELEMENTS REQUIRED TO ADEQUATELY SUPPORT VERITAS PROVIDED ITEMS. (VERISHIELD, SUPPLEMENTAL SHIELDING, & SMART DOOR PRODUCTS ONLY).

5. REFER TO THE STANDARD DOOR PACKAGE(S) FOR:
   - DOOR FINISH SELECTIONS (SUBMITTED SEPARATELY)
   - DOOR POWER & CONTROL INFO (SUBMITTED SEPARATELY)

LOGISTICS & STAGING NOTES:

1. LOGISTICS FOR PROJECT DELIVERY TO BE COORDINATED WITH VERITAS PROJECT MANAGEMENT TEAM.

   PLEASE IDENTIFY:
   - BEST DELIVERY ROUTE (VIA SATELITE IMAGES)
   - UNLOADING LOCATION
   - STAGING / STORAGE AREAS
   - ACCESS PATH FROM STAGING TO INSTALLATION SITE

2. RESERVE A SECURE PLACE FOR VERITAS STAGING & MATERIAL STORAGE.

3. PROVIDE CLEAR PATH & FORKLIFT ACCESS FROM STAGING AREA TO TREATMENT ROOM.

4. KEEP PATH & TREATMENT ROOM AREA CLEAR DURING VERITAS INSTALLATION. DO NOT INSTALL WALLS, FURNITURE, FINISHES, ETC. UNTIL SHIELDING HAS BEEN COMPLETED.

5. VERITAS TO REVIEW STAGING CONTROL AREA WITH CLIENT AND CONTRACTOR, PRIOR TO THE START OF WORK, TO DETERMINE IF ANY SPECIAL STAGING OR WORKING HOUR RESTRICTIONS APPLY FOR THIS PROJECT (TYP.)

DRAWING REFERENCES:

PROVIDED BACKGROUNDS:
- PLEASE PROVIDE AN UPDATED AUTOCAD BACKGROUND FOR CONTEXT & LOGISTICS

GENERAL SCALE NOTE:
THE SCALE OF THE DRAWINGS ARE APPROXIMATE.
ALL EXISTING INTERIOR & EXTERIOR WALLS, OPENINGS, ETC. ARE REPRODUCTIONS OF FIELD MEASUREMENTS & OBSERVED EXISTING CONDITIONS PROVIDED BY THE CLIENT / CLIENTS' DESIGN REPRESENTATIVE IN THE FORM OF DIGITAL / ELECTRONIC BACKGROUND DRAWINGS & MODELS OR DATED FIELD VERIFIED NOTES.

EXISTING SITE CONDITIONS NOTE:
ALL EXISTING CONDITIONS TO BE FIELD VERIFIED UPON SITE PREP LAYOUT PRIOR TO COMMENCEMENT OF SHIELDING INSTALLATION.

ANY DISCREPANCIES INCLUDING, BUT NOT LIMITED TO UNIDENTIFIED OBSTRUCTIONS OR CONDITIONS THAT WOULD REQUIRE MODIFICATIONS TO ANY SHIELDING OR SHIELD LOCATION MUST BE IMMEDIATELY BROUGHT TO THE VERITAS TEAMS' ATTENTION PRIOR TO ADVANCING WORK IN THE FIELD.

ISOCENTER NOTE:
ISOCENTER IS THE CONTROL POINT FROM WHICH THE APPROPRIATE SHIELDING DESIGN IS DEVELOPED THROUGH PHYSICS EVALUATION. THIS POINT IS NOT DETERMINED OR LOCATED IN THE FIELD BY VERITAS.

PLEASE ENSURE THAT ISOCENTER IS PROPERLY LOCATED AND IDENTIFIED IN THE FIELD PRIOR TO VERITAS' ARRIVAL FOR SITE LAYOUT ACTIVITIES.

MASONRY GROWTH NOTE:
ALL DIMENSIONS REGARDING VERISHIELD BLOCK & INDIVIDUAL LAYERS OF SHIELDING BARRIERS COMPRISED OF VERISHIELD BLOCK ARE TO BE UNDERSTOOD AS NOMINAL DIMENSIONS ONLY.

EXPECTED GROWTH FACTOR BETWEEN EACH LAYER OF VERISHIELD TO BE APPROXIMATELY 1/8" (3mm) TO ACCOUNT FOR IRREGULARITIES IN SHAPE OF BLOCK & CONSTRUCTION TOLERANCES.

OVERALL SHIELDING BARRIER THICKNESS DIMENSIONS REFLECTED IN VERITAS DRAWINGS TO INCLUDE 1/8" (3mm) SPACE BETWEEN LAYERS TO ACCOUNT FOR THIS ANTICIPATED GROWTH.

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PRELIMINARY - NOT FOR CONSTRUCTION

DRAWING ISSUE LOG

#	ISSUE TITLE	Date
	Layout Set	02/05/2025
	Review Set	03/21/2025

VERITAS PROJECT TEAM

SALES REP:	Greg Shearer
PHYSICIST:	El Hassane Bentefour
DESIGNER:	Jay DiRaimondo
PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

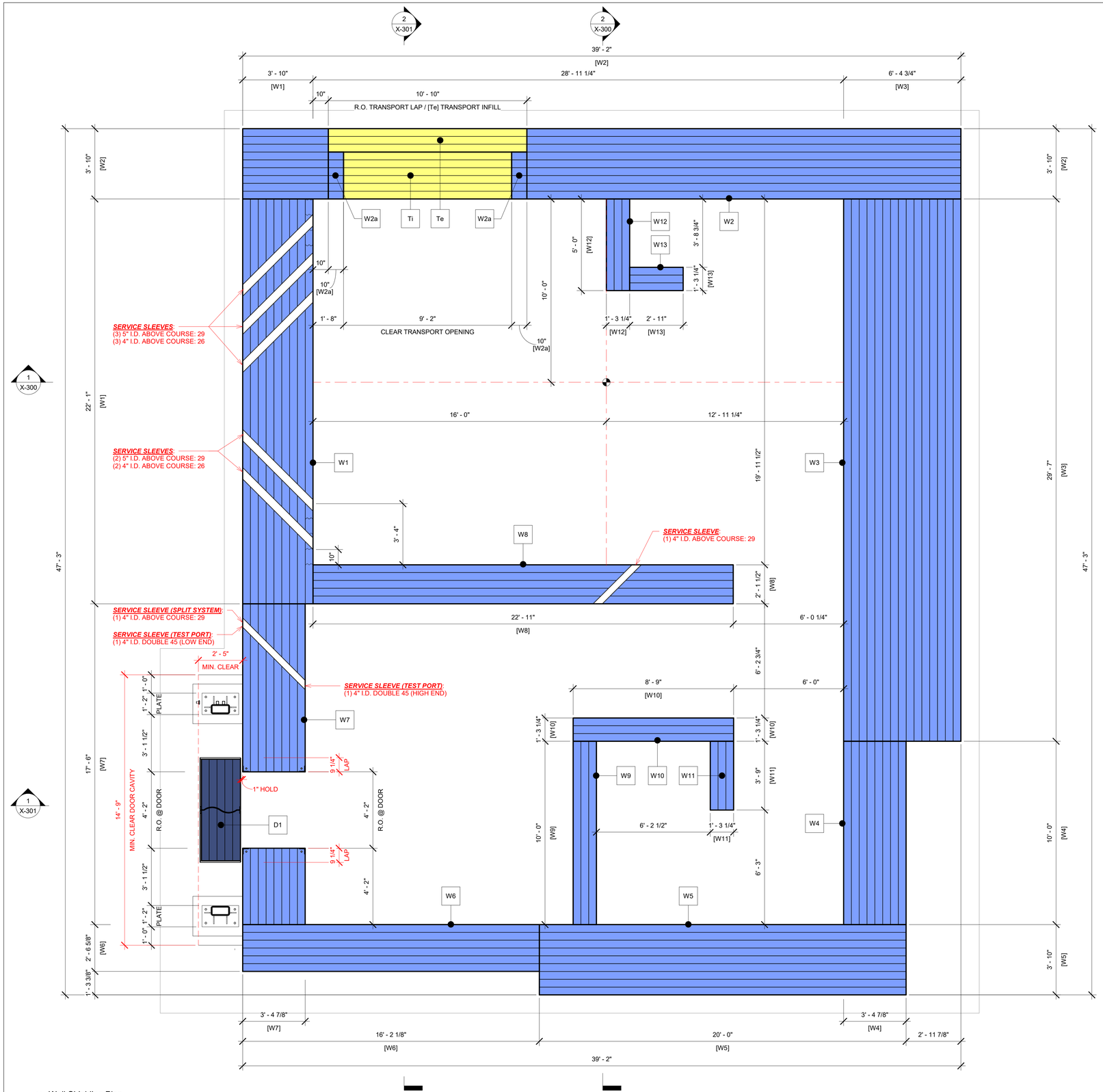
PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

DRAWING TITLE

CONTEXT PLAN

DRAWING NUMBER

X-100



1 Wall Shielding Plan
3/8" = 1'-0"

Wall Shield Schedule		
Shielding Region P1 - P12	Type - Layers	Comments
D1	V300 - 5	Shielding in Door Shell
Te	V220 - 3	Transport Opening Infill - 3 Exterior Layers
Ti	V220 - 6	Transport Opening Infill - 6 Interior Layers
W1	V220 - 9 Bearing	
W2	V220 - 9	
W2a	V220 - 6	Transport Opening Laps
W3	V220 - 15 Bearing	
W4	V220 - 8 Bearing	
W5	V220 - 9	
W6	V220 - 6	
W7	V220 - 8 Bearing	
W8	V220 - 5	
W9	V220 - 3	
W10	V220 - 3	
W11	V220 - 3	
W12	V220 - 3	
W13	V220 - 3	

SLIDING & BI-PARTING DOOR CAVITY NOTES:

FLOOR SLAB CONDITIONS:

1. SLAB REINFORCING / FOUNDATION WORK BY OTHERS
   REFER TO SHEET XS-100 FOR DOOR LOAD INFORMATION.

2. RECOMMENDED SLAB THICKNESS BELOW DOOR BASE PLATES: 24" (610mm)
   REQUIRED MINIMUM SLAB BELOW DOOR BASE PLATES: 18" (457mm)
   TYPICAL MIN. DOOR ANCHOR EMBED: 12" (305mm)

   * PLEASE COORDINATE LOCATION SLAB REINFORCING OUTSIDE OF BASE PLATE FOOTPRINT TO PREVENT DAMAGE TO REBAR OR DELAYS TO INSTALLATION.

3. FINISHED TREATMENT LEVEL FLOOR SLAB CONDITION MUST BE FLAT / LEVEL WITH A TOLERANCE NOT TO EXCEED 1/8" OVERALL WITHIN THE DOOR CAVITY.

4. DOOR FINISH CAVITY BY OTHERS.
   MINIMUM CAVITY SIZE REQUIREMENTS VARY PER DOOR TYPE & MODEL.
   ACCESS IS REQUIRED ON ONE SIDE FOR HAND CRANK & SERVICE
   • RECOMMENDATION: A 2'-6" (762mm) x 7'-0" (2,134mm) ACCESS DOOR.
   ACCESS IS REQUIRED ABOVE CEILING ALONG THE FRONT OF DOOR SUPPORT BEAM.
   • RECOMMENDATION: UTILIZE REMOVABLE CEILING TILES (ACT) OR PROVIDE ACCESS PANELS

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DESIGNER:	Jay DiRaimondo
PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

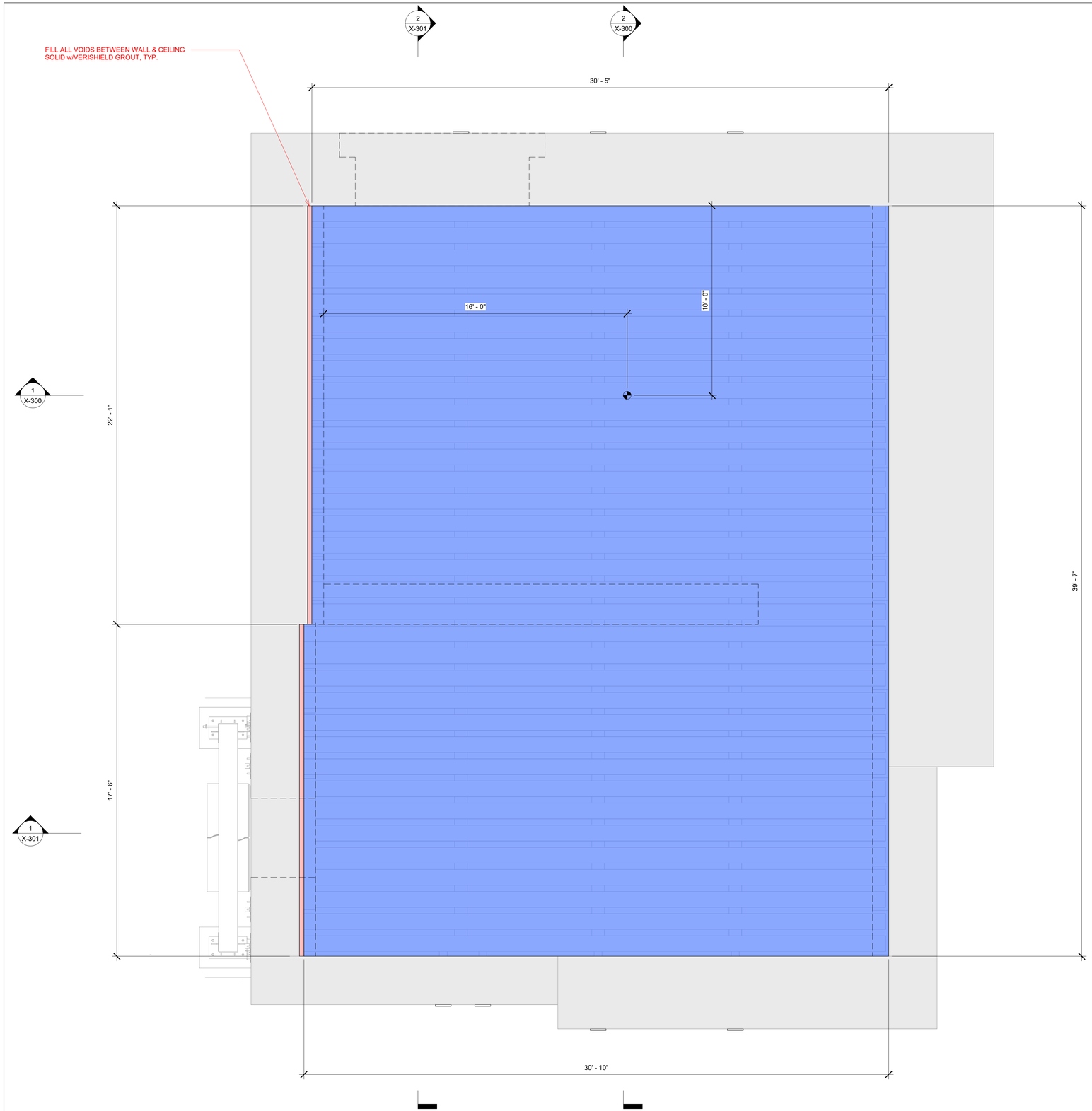
DRAWING TITLE

WALL SHIELDING PLAN

DRAWING NUMBER

X-110

PRELIMINARY - NOT FOR CONSTRUCTION



1 Ceiling Shielding Plan
3/8" = 1'-0"

Wall Shield Schedule		
Shielding Region P1 - P12	Type - Layers	Comments
D1	V300 - 5	Shielding in Door Shell
Te	V220 - 3	Transport Opening Infill - 3 Exterior Layers
Ti	V220 - 6	Transport Opening Infill - 6 Interior Layers
W1	V220 - 9 Bearing	
W2	V220 - 9	
W2a	V220 - 6	Transport Opening Laps
W3	V220 - 15 Bearing	
W4	V220 - 8 Bearing	
W5	V220 - 9	
W6	V220 - 6	
W7	V220 - 8 Bearing	
W8	V220 - 5	
W9	V220 - 3	
W10	V220 - 3	
W11	V220 - 3	
W12	V220 - 3	
W13	V220 - 3	

Ceiling Shield Schedule		
Shielding Region C1-3 & L1-2	Type - Thickness	Comments
C1	V220 - 6	

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PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

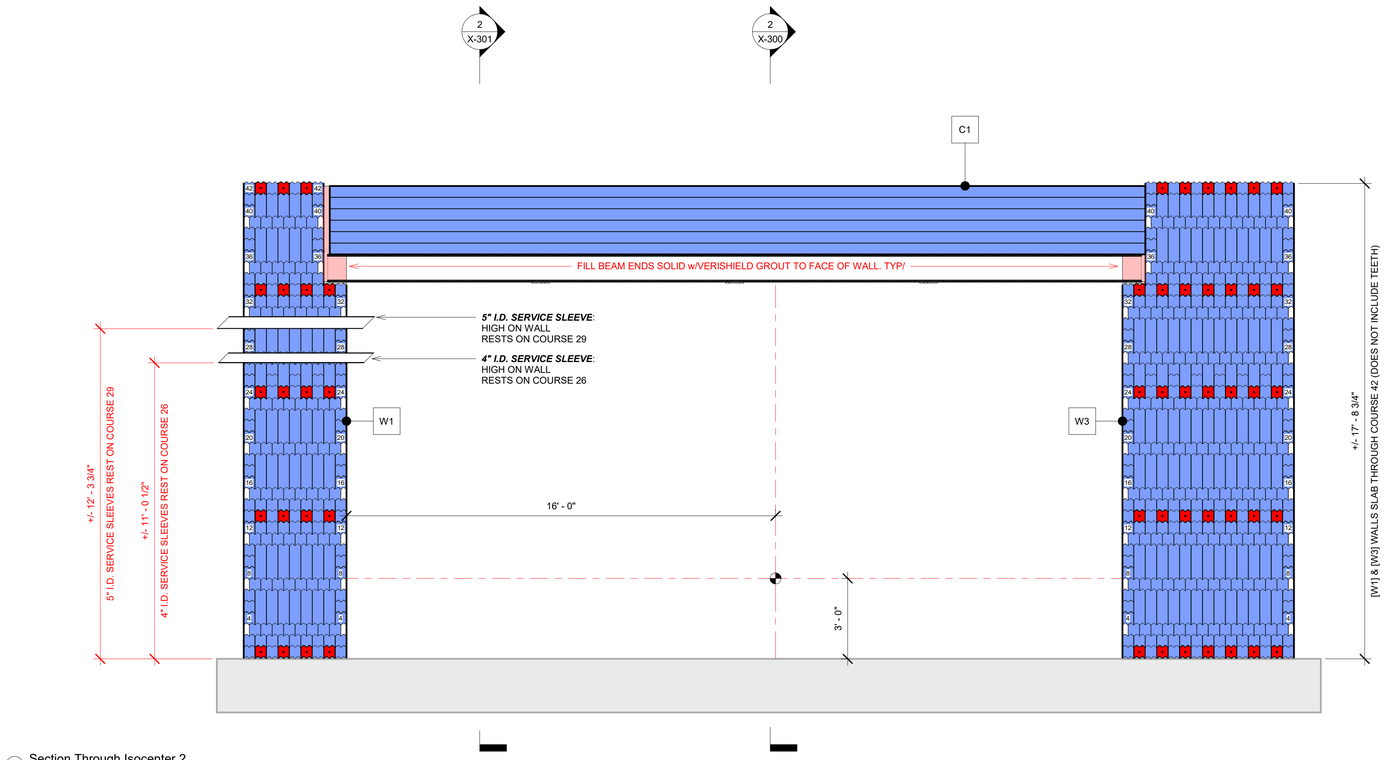
DRAWING TITLE

CEILING SHIELDING PLAN

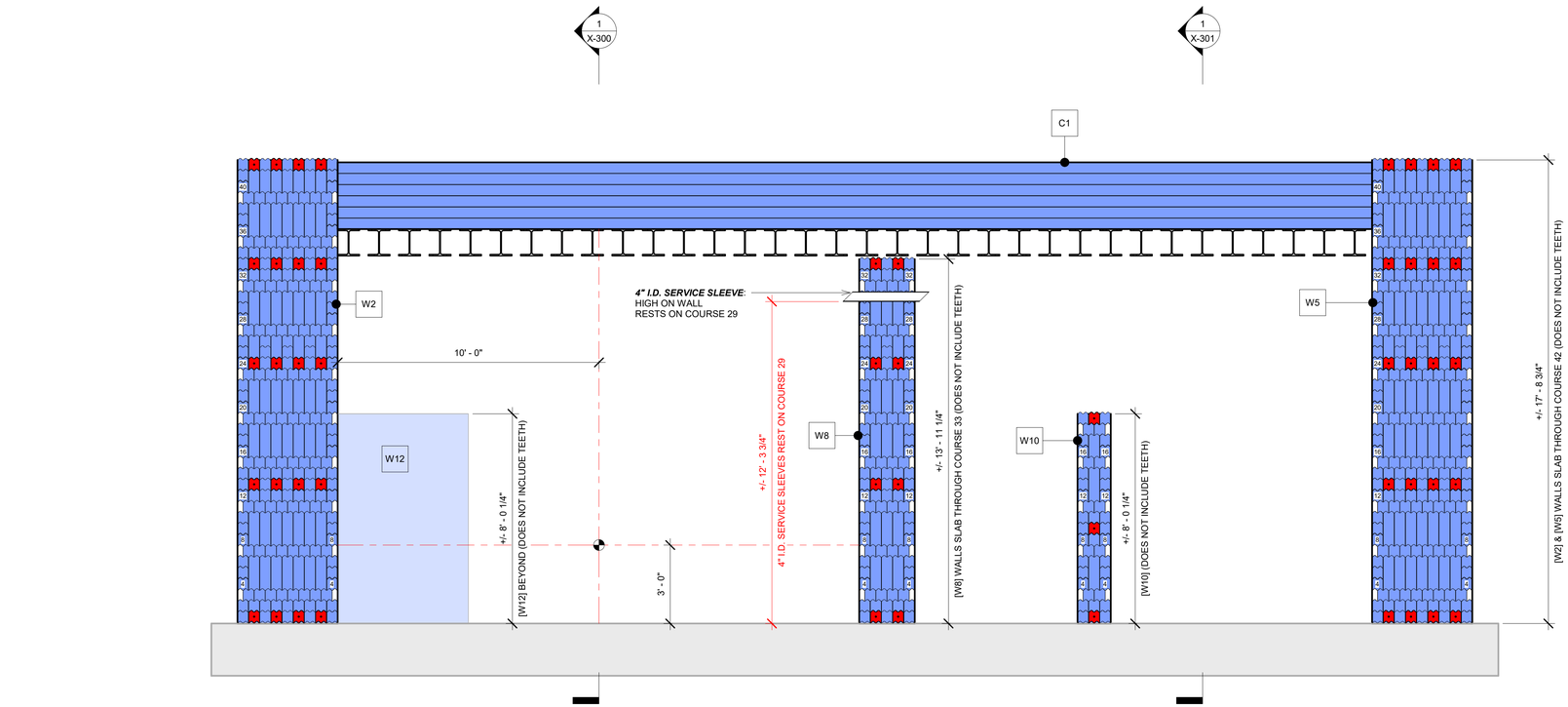
DRAWING NUMBER

X-130

PRELIMINARY - NOT FOR CONSTRUCTION



1 Section Through Isocenter
3/8" = 1'-0"



2 Section Through Isocenter
3/8" = 1'-0"

Wall Shield Schedule		
Shielding Region P1 - P12	Type - Layers	Comments
D1	V300 - 5	Shielding in Door Shell
Te	V220 - 3	Transport Opening Infill - 3 Exterior Layers
Ti	V220 - 6	Transport Opening Infill - 6 Interior Layers
W1	V220 - 9 Bearing	
W2	V220 - 9	
W2a	V220 - 6	Transport Opening Laps
W3	V220 - 15 Bearing	
W4	V220 - 8 Bearing	
W5	V220 - 9	
W6	V220 - 6	
W7	V220 - 8 Bearing	
W8	V220 - 5	
W9	V220 - 3	
W10	V220 - 3	
W11	V220 - 3	
W12	V220 - 3	
W13	V220 - 3	

Ceiling Shield Schedule		
Shielding Region C1-3 & L1-2	Type - Thickness	Comments
C1	V220 - 6	

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PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

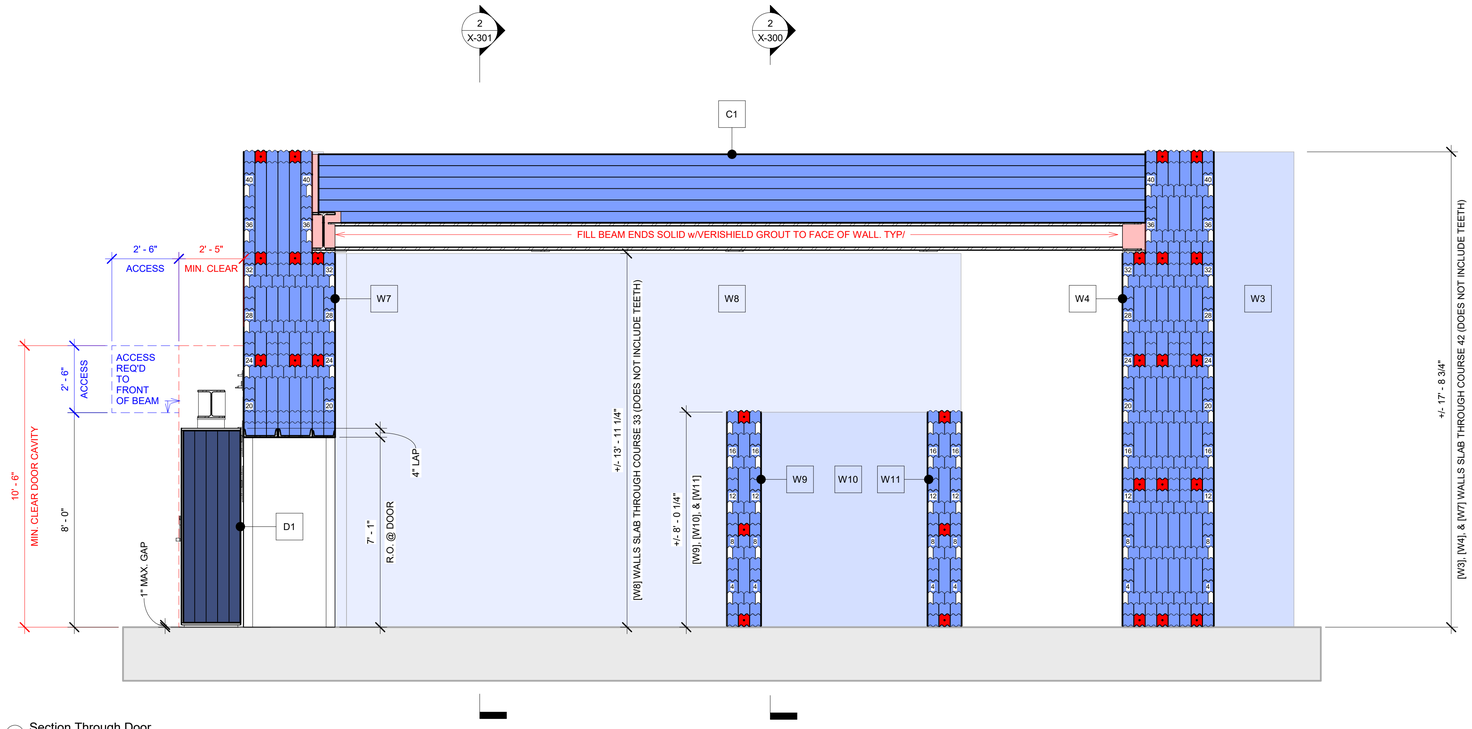
DRAWING TITLE

SECTIONS

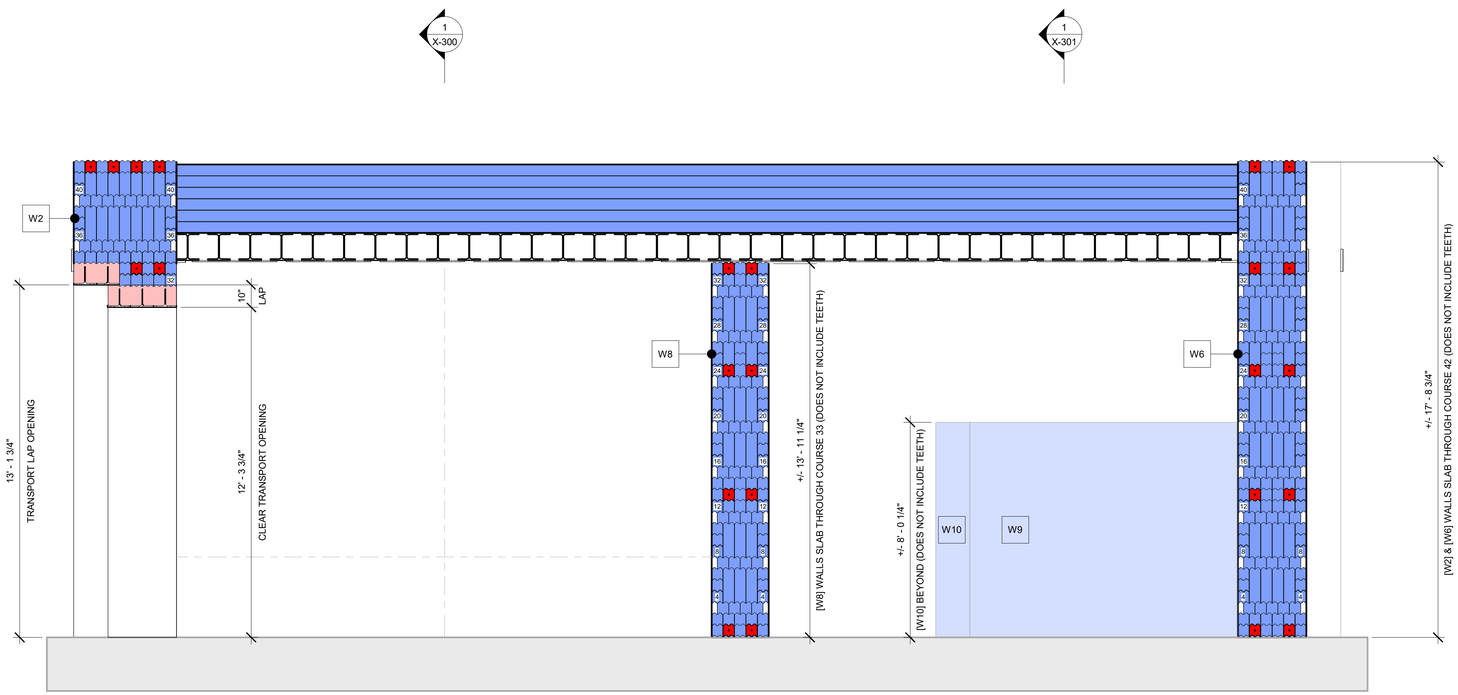
DRAWING NUMBER

X-300

PRELIMINARY - NOT FOR CONSTRUCTION



1 Section Through Door
3/8" = 1'-0"



2 Section Through Transport Opening
3/8" = 1'-0"

Wall Shield Schedule		
Shielding Region P1 - P12	Type - Layers	Comments
D1	V300 - 5	Shielding in Door Shell
Te	V220 - 3	Transport Opening Infill - 3 Exterior Layers
Ti	V220 - 6	Transport Opening Infill - 6 Interior Layers
W1	V220 - 9 Bearing	
W2	V220 - 9	
W2a	V220 - 6	Transport Opening Laps
W3	V220 - 15 Bearing	
W4	V220 - 8 Bearing	
W5	V220 - 9	
W6	V220 - 6	
W7	V220 - 8 Bearing	
W8	V220 - 5	
W9	V220 - 3	
W10	V220 - 3	
W11	V220 - 3	
W12	V220 - 3	
W13	V220 - 3	

Ceiling Shield Schedule		
Shielding Region C1-3 & L1-2	Type - Thickness	Comments
C1	V220 - 6	

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PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

DRAWING TITLE

SECTIONS

DRAWING NUMBER

X-301

DESIGN CRITERIA

CODE: 2021 INTERNATIONAL BUILDING CODE (IBC), REFERED TO AS "THE CODE"

GOVERNING JURISDICTION: HUNTSVILLE, ALABAMA 35801

LIVE LOADS:
LIVE LOAD 20 PSF [320 kg/m^2] CONSTRUCTION / CEILING

OTHER LOADS:

(PE)	POLYETHYLENE	57 PCF	[913 kg/m^3]	(DEAD LOAD)
(BPE)	5% BORATED POLYETHYLENE	60 PCF	[961 kg/m^3]	(DEAD LOAD)
(V150)	BLOCK SHIELDING	150 PCF	[2,403 kg/m^3]	(DEAD LOAD)
(V220)	BLOCK SHIELDING	220 PCF	[3,524 kg/m^3]	(DEAD LOAD)
(V250)	BLOCK SHIELDING	250 PCF	[4,005 kg/m^3]	(DEAD LOAD)
(V300)	BLOCK SHIELDING	300 PCF	[4,806 kg/m^3]	(DEAD LOAD)
(Fe)	STEEL SHIELDING	490 PCF	[7,849 kg/m^3]	(DEAD LOAD)
(Pb)	LEAD SHIELDING	709 PCF	[11,357 kg/m^3]	(DEAD LOAD)

SEISMIC ANALYSIS: EQUIVALENT STATIC LATERAL FORCE PROCEDURE HAS BEEN USED;

SITE CLASSIFICATION: D
OCCUPANCY CATEGORY: II
S_S 0.261 g
S_1 0.117 g
S_{DS} 0.277 g
S_{DI} 0.184 g
TL 12 Secs

SEISMIC DESIGN CATEGORY: C

R: 2.0 ORDINARY REINFORCED MASONRY SHEAR WALLS
I: 1.0
Ω_o: 2.5
C_S: 0.1384

BASE SHEAR: 485 kips

GENERAL

1) THE SHIELDING STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, AS INDICATED IN DESIGN CRITERIA.
ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE BUILDING CODE AND ALL LOCAL GOVERNING AUTHORITIES.

2) ALL CONTRACTORS ARE RESPONSIBLE FOR ADHERING TO THE REQUIREMENTS AS SPECIFIED IN THESE NOTES. ALL PARTIES MUST CAREFULLY STUDY ALL NOTES FOR ITEMS WHICH MAY PERTAIN TO THEIR TRADES.
FAILURE TO READ THESE NOTES DOES NOT PERMIT THE CONTRACTOR(S) TO DEVIATE FROM THEIR REQUIREMENTS. ANY QUESTIONS WILL BE ANSWERED BY THE SER. SUBMIT QUESTIONS IN RFI FORMAT.

3) THE CONTRACTOR(S) SHALL VERIFY ALL CONDITIONS, CHECK ALL MEASUREMENTS AND BE RESPONSIBLE FOR SAME.

4) WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LOCAL LAWS, BYLAWS, ORDINANCES, AND REGULATIONS IN ANY MANNER AFFECTING THE CONDUCT OF THIS WORK AS WELL AS ALL ORDERS

OR DECREES WHICH HAVE BEEN PROMULGATED OR ENACTED BY ANY LEGAL BODIES OR TRIBUNALS HAVING AUTHORITY OR JURISDICTION OVER THE WORK, MATERIALS, EMPLOYEES OR CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PERSONNEL SAFETY ON THE JOBSITE. GUIDELINES FOR CONSTRUCTION SAFETY SHALL BE IN ACCORDANCE WITH, BUT NOT LIMITED TO, THE CONSTRUCTION INDUSTRY OSHA SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION (PART 1926 STANDARDS), AND ANY LOCAL ORDINANCES OR CODES THAT MAY BE APPLICABLE.

5) ALL EXISTING CONDITIONS SHALL BE VERIFIED IN FIELD PRIOR TO BEGINNING ANY WORK.
IF FIELD CONDITIONS DO NOT PERMIT THE INSTALLATION OF WORK IN ACCORDANCE WITH THE DETAILS AS SHOWN, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE DESIGN PROFESSIONAL IMMEDIATELY AND PROVIDE A SKETCH OF THE CONDITION WITH PROPOSED MODIFICATION FOR REVIEW BY THE DESIGN PROFESSIONAL.

6) ALL CODES AND STANDARDS REFERENCED IN THESE NOTES, INCLUDING ALL SPECIFICATIONS REFERENCED WITHIN, AND ALL LOCAL REGULATIONS APPLY TO THE DESIGN, CONSTRUCTION, DEMOLITION, QUALITY CONTROL AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT.
USE THE LATEST ADOPTED EDITIONS OF THE CODES AND STANDARDS.

7) THIS PROJECT HAS BEEN DESIGNED FOR WEIGHTS OF THE MATERIALS INDICATED ON THE DRAWINGS.

8) ACCEPTANCE OF DEVIATIONS FROM ANY OF THE REQUIREMENTS OF THESE NOTES SHALL BE AT THE SOLE DISCRETION OF THE ENGINEER. ACCEPTANCE OF A DEVIATION FROM ANY REQUIREMENT SHALL NOT BE CONSTRUED AS PERMITTING ANY OTHER DEVIATION.

9) ALL CONSTRUCTION WORK SHALL BE COORDINATED WITH OWNER TO MINIMIZE INTERFERENCE WITH EXISTING FACILITY OPERATIONS.

10) SEE DESIGN DRAWINGS FOR THE FOLLOWING:
10.1 SIZE AND LOCATION OF ALL DOOR OPENING, EXCEPT AS NOTED.
10.2 SIZE AND LOCATION OF ALL INTERIOR NON-BEARING PARTITIONS.
10.3 SIZE AND LOCATION OF ALL ROOF OPENINGS EXCEPT AS SHOWN.
10.4 DIMENSIONS AND ELEVATION NOT SHOWN IN STRUCTURAL DRAWINGS.

11) SEE MECHANICAL, PLUMBING, & ELECTRICAL DRAWINGS FOR THE FOLLOWING:
11.1 PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC., EXCEPT AS SHOWN OR NOTED.
11.2 ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS & SLABS.
11.3 CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL, OR PLUMBING FIXTURES.
11.4 SIZE & LOCATION OF MACHINE OR EQUIPMENT BASES, ANCHOR BOLTS FOR MOTOR MOUNTS.

12) STRUCTURAL DESIGN BASED ON DRAWINGS BY VERITAS MEDICAL SOLUTIONS.
ALL ROOM DIMENSIONS AND SHIELDING THICKNESSES ARE BY VERITAS AND REVIEWED BY THEIR PHYSICIST FOR SHIELDING ACCURACY.
CONTACT VERITAS & VERITAS' STRUCTURAL CONSULTANT SHOULD ANY DISCREPANCIES BE FOUND.

EXISTING CONDITIONS / DEMOLITION

1) WHERE BUILDING ALTERATIONS INVOLVE THE EXISTING SUPPORTING STRUCTURE, PROVIDE SHORING AND REQUIRED PROTECTION, ENSURING THE STRUCTURAL INTEGRITY OF THE EXISTING STRUCTURE.

2) EXISTING COMPONENTS RECEIVING NEW MEMBERS OR FORCES SHALL BE INSPECTED BY A QUALIFIED TESTING / INSPECTION AGENCY RETAINED BY THE CONTRACTOR TO EVALUATE EXISTING WELDS, BOLTED CONNECTIONS, FRAMING MEMBERS. ANY DISCREPANCIES WITH THE ORIGINAL BUILDING CONSTRUCTION DOCUMENTS OR DEFICIENCIES SHALL BE REPORTED TO VERITAS BEFORE ANY WORK IS PERFORMED. A WRITTEN REPORT SHALL BE SUBMITTED TO VERITAS BY THE TESTING / INSPECTING AGENCY DOCUMENTING EXISTING CONNECTIONS EXAMINED.

UNIT MASONRY

1) MASONRY WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING:
(ACI 530 / ASCE 5) "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES & COMMENTARY"
(ACI 530.1 / ASCE 6) "SPECIFICATION FOR MASONRY STRUCTURES "

2) MASONRY SHALL BE DRY STACKED IN RUNNING BOND, UNLESS INDICATED OTHERWISE.

3) PLACE & SECURE REINFORCEMENT IN REQUIRED POSITION WITHIN TOLERANCES STIPULATED BY ACI.

4) CONSTRUCT PIERS & PILASTERS INTEGRALLY WITH WALLS & CONTINUE WALL REINFORCEMENT THROUGH SAME.

5) GROUT PIERS, PILASTERS AND WALLS MONOLITHICALLY.

6) GROUT PLACEMENT SHALL NOT START UNTIL PLACEMENT OF REINFORCING HAS BEEN INSPECTED AND APPROVED BY THE OWNER'S DESIGNATED REPRESENTATIVE.

7) MASONRY INSPECTION IS REQUIRED PER THE LATEST EFFECTIVE EDITIONS OF (ACI 530.1 / ASCE 6) AND LOCAL BUILDING CODES BY A QUALIFIED INSPECTION AGENCY.

8) ALL ONE-STORY WALLS SHALL HAVE A BOND BEAM AT THE ROOF AND SHALL TIE INTO THE VERTICAL REINFORCEMENT.

9) REINFORCEMENT IN MASONRY SHALL BE LAPPED 48 BAR DIAMETERS, UNLESS NOTED OTHERWISE.

10) ALLOW MORTAR AND MASONRY GROUT IN WALLS TO CURE A MINIMUM OF 48 HOURS BEFORE IMPOSING CONCENTRATED OR OTHER LOADS.

11) PROVIDE A MINIMUM OF 5" (127mm) DEEP AND 10" (254mm) LENGTH OF SOLID GROUTED MASONRY BELOW BEARING ENDS OF BEAMS.

12) PROVIDE REQUIRED TEMPORARY BRACING AND SUPPORT FOR ALL MASONRY WORK UNTIL PERMANENT CONSTRUCTION IS IN PLACE IN ACCORDANCE WITH NCMA's RECOMMENDATIONS.

13) DESIGN GROUT STRENGTH = 2,500 PSI (175.7674 kg/cm²) FOR UNIT STRENGTH METHOD
DESIGN BLOCK STRENGTH = 3,700 PSI (260.1357 kg/cm²) FOR UNIT STRENGTH METHOD

14) DESIGN f'm = 2500 PSI FOR CMU CONSTRUCTION.
DETERMINE COMPLIANCE WITH COMPRESSIVE STRENGTH USING EITHER THE UNIT STRENGTH METHOD PER CODE SECTION 2105.2.2.1 OR PRISM TESTING PER CODE SECTION 2105.2.2.2.

STRUCTURAL STEEL

1) STRUCTURAL STEEL MATERIAL, DESIGN, DETAILING, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING REFERENCES:
(AISC) "SPECIFICATION FOR STRUCTURAL STEEL BUILDING"
(AWS) "STRUCTURAL WELDING CODE, AWS D1.1"
(AISC) "ENGINEERING FOR STEEL CONSTRUCTION"
(AISC) "DETAILING FOR STEEL CONSTRUCTION"
(AISC) "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"

2) STRUCTURAL STEEL ROLLED SHAPES SHALL CONFORM TO ASTM A992, UNLESS NOTED OTHERWISE. ANGLES, CHANNELS, PLATES AND RODS SHALL CONFORM TO ASTM A36.

3) ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 36, UNLESS NOTED OTHERWISE.

4) BOLTS SHALL BE DESIGNED AS BEARING TYPE BOLTS, EXCEPT AS NOTED HEREIN OR ON PLAN. BEARING BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE "SNUG TIGHT" CONDITION AS OUTLINED IN THE (AISC) "SPECIFICATIONS FOR STRUCTURAL JOINTS, USING ASTM A325 OR A490 BOLTS", LATEST REVISION.
CONNECTION BOLTS SHALL HAVE A HARDENED WASHER PLACED UNDER THE TURNED ELEMENT.

5) ALL CONNECTIONS SHALL BE MADE WITH FRAMING ANGLES, UNLESS OTHERWISE NOTED ON DRAWINGS.

6) STEEL CONNECTIONS SHALL BE BOLTED WITH 3/4" (19.05mm) MIN. DIAMETER, A325-TC HIGH-STRESS BOLTS OR WELDED, UNLESS NOTED OR APPROVED OTHERWISE.
BOLTS SHALL BE SPACED 3" (76.2mm) MIN., O.C., UNLESS APPROVED OTHERWISE BY SEOR.

7) USE DOUBLE ANGLE END CONNECTIONS ON ALL GIRDERS, UNLESS AN ALTERNATE TYPE OF `` CONNECTION IS APPROVED BY THE SEOR.

8) ONE-SIDED CONNECTIONS SHALL BE FULL DEPTH WITH MIN. 3/8" (9.525mm) THICK CONNECTION MATERIAL.

9) ALL WELDING SHALL BE DONE BY AWS CERTIFIED WELDERS IN ACCORDANCE WITH (AWS D1.1) (LATEST EDITION). MIN. FILLET WELD SHALL BE 3/16" (4.7625mm).

10) ALL FULL-PENETRATION FIELD WELDS SHALL BE ULTRASONICALLY TESTED.

11) STEEL WELDING RODS SHALL BE E70XX, LOW HYDROGEN

12) WELDS LEFT EXPOSED ON THE FINISHED STRUCTURE SHALL BE GROUND SMOOTH.

13) WELDING OF REINFORCING BARS TO STRUCTURAL STEEL SHALL USE E90XX SERIES ELECTRODES.

14) SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED ON CONTRACT DOCUMENTS IS PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL OF THE SEOR AS TO LOCATION, TYPE OF SPLICE AND CONNECTION TO BE MADE.

15) FABRICATE AND ERECT BEAMS WITH MILL CAMBER UP.

16) STEEL SHALL HAVE A SHOP COAT OF A VOC COMPLIANT RUST-INHIBITIVE PRIMER.
ALL STEEL SHALL BE THOROUGHLY CLEANED BY POWER TOOL CLEANING (SSPC-SP3) PRIOR TO PAINTING, UNLESS NOTED OTHERWISE. NOTE: PRIMER CAN BE OMITTED ONLY IF STEEL IS CLEANED FREE OF RUST PRIOR TO INSTALLATION & VERIFIED BY INSPECTOR.

17) FRAMING MEMBERS SHALL BE EQUALLY SPACED AND PARALLEL OR AT RIGHT ANGLES TO ONE ANOTHER WITH THEIR WEBS IN A VERTICAL PLANE, UNLESS NOTED OTHERWISE.

18) PROVIDE HOLES, AS REQUIRED, FOR ATTACHING OTHER MATERIALS TO STRUCTURAL STEEL; REFER TO VERITAS DRAWINGS.

19) PROVIDE TEMPORARY BRACING, AS REQUIRED AND DETERMINED BY FABRICATOR OR ERECTOR, TO RESIST LATERAL LOADS, CONSTRUCTION LOADS, ETC. DURING CONSTRUCTION.
BRACING SHALL REMAIN IN PLACE UNTIL THE STRUCTURE IS CAPABLE OF SUSTAINING ALL SUCH LOADS.

20) PROVIDE BEARING PLATES AND ANCHOR BOLTS, STUDS, AND / OR WALL ANCHORS FOR ALL WALL BEARING BEAMS, AS APPROVED BY THE SEOR.

21) BEARING FOR STEEL LINTELS SHALL BE 8" (203.2mm) MINIMUM.

22) NOTIFY THE SEOR OF ANY FABRICATION AND ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.

23) FABRICATOR SHALL TAKE FULL RESPONSIBILITY FOR ERRORS AND REQUIRED CORRECTIONS TO STEEL FABRICATED PRIOR TO SEOR's AND VERITAS' APPROVAL OF SHOP DRAWINGS.

24) HEADED CONCRETE ANCHORS SHALL BE AS MANUFACTURED BY NELSON STUD WELDING, INC. OR APPROVED EQUAL, AND SHALL CONFORM TO (ASTM A108), GRADES 1015 THROUGH 1020. ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD.

25) DEFORMED BAR ANCHORS (DBA) SHALL BE AS MANUFACTURED BY NELSON STUD WELDING, INC. OR APPROVED EQUAL, AND SHALL BE MADE FROM COLD-DRAWN WIRE CONFORMING TO (ASTM A496). ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD.

26) ALL STRUCTURAL STEEL SURFACES THAT ARE ENCASED IN CONCRETE, MASONRY, OR SPRAY ON FIREPROOFING, OR ARE ENCASED BY BUILDING FINISH, SHALL BE LEFT UNPAINTED.

27) UNLESS NOTED OTHERWISE, GROUT UNDER BASE PLATES SHALL BE ONE OF THOSE LISTED BELOW AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS:
a. SIKA SIKAGROUT 212
b. VERITAS HIGH DENSITY GROUT MIX
c. ALTERNATE APPROVED BY VERITAS' STRUCTURAL CONSULTANT

SPECIAL INSPECTION

A) SPECIAL INSPECTIONS IDENTIFIED ON PLANS ARE IN ADDITION TO, AND NOT SUBSTITUTE FOR, THOSE INSPECTIONS REQUIRED TO BE PERFORMED BY THE GOVERNING JURISDICTION.
SPECIFICALLY INSPECTED WORK WHICH IS INSTALLED OR COVERED WITHOUT THE APPROVAL OF AN INSPECTOR FROM THE GOVERNING JURISDICTION IS SUBJECT TO REMOVAL OR EXPOSURE.

B) FOR CONTINUOUS INSPECTION, WHEN WORK IN MORE THAN ONE CATEGORY OF WORK REQUIRING SPECIAL INSPECTION IS TO BE PERFORMED SIMULTANEOUSLY, OR THE GEOGRAPHIC LOCATION OF THE WORK IS SUCH THAT IT CANNOT BE CONTINUOUSLY OBSERVED IN ACCORDANCE WITH THE PROVISIONS OF THE CODE, IT IS THE AGENT'S RESPONSIBILITY TO EMPLOY A SUFFICIENT NUMBER OF INSPECTORS TO ASSURE THAT ALL WORK IS INSPECTED IN ACCORDANCE WITH THOSE PROVISIONS.

C) THE SPECIAL INSPECTOR(S) MUST BE CERTIFIED BY THE GOVERNING JURISDICTION IN THE CATEGORY OF WORK REQUIRED TO HAVE SPECIAL INSPECTION.

EXCEPTIONS
1) SOILS INSPECTIONS BY THE SOILS ENGINEER OR RECORD
2) SMOKE CONTROL SYSTEM, BY THE MECHANICAL ENGINEER OF RECORD.
3) WHEN WAIVED BY THE GOVERNING JURISDICTION

D) IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THE SPECIAL INSPECTOR OR INSPECTION AGENCY AT LEAST ONE WORKING DAY PRIOR TO PERFORMING ANY WORK THAT REQUIRES SPECIAL INSPECTION.
ALL WORK PERFORMED WITHOUT REQUIRED SPECIAL INSPECTION IS SUBJECT TO REMOVAL.

E) CERTIFICATE OF SATISFACTORY COMPLETION OF WORK REQUIRING SPECIAL INSPECTION MUST BE COMPLETED AND SUBMITTED TO THE GOVERNING JURISDICTION.

F) THE SPECIAL INSPECTOR FOR EPOXY ANCHORS SHALL VERIFY THE DRILLING OF ANY HOLES, THE CLEANLINESS OF THE HOLE, THE MOISTURE IN THE HOLE, MIXING OF THE EPOXY, THE BRAND OF THE EPOXY, AND THE PROPER MATERIAL FOR ASSEMBLY.

G) THE SPECIAL INSPECTOR(S) SHALL PROVIDE A FINAL REPORT TO THE STRUCTURAL ENGINEER.

H) THE CONSTRUCTION MATERIALS TESTING LABORATORY MUST BE APPROVED BY THE GOVERNING JURISDICTION, FOR TESTING OF MATERIALS, SYSTEMS, COMPONENTS, AND EQUIPMENTS.

THE FOLLOWING ELEMENTS OF CONSTRUCTION SHALL REQUIRE SPECIAL INSPECTION PER: CHAPTER 17 OF THE CODE:

STEEL: SPECIAL INSPECTION TASK	CONT.	PERIODIC
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL:		
A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS	-	X
B. MANUFACTURERS' CERTIFIED MILL TEST REPORTS	-	X
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:		
A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATIONS PER APPROVED CONSTRUCTION DOCUMENTS	-	X
B. MANUFACTURERS' CERTIFICATE OF COMPLIANCE	-	X
5. INSPECTION OF WELDING (A. STRUCTURAL STEEL):		
1. COMPLETE & PARTIAL PENETRATION GROOVE WELDS.	X	-
2. MULTIPASS FILLET WELDS.	X	-
3. SINGLE PASS FILLET WELDS > 5/16" [7.94mm]	X	-
4. SINGLE PASS FILLET WELDS < 5/16" [7.94mm]	-	X
7. SHOP WELDING: SPECIAL INSPECTION IS NOT REQ'D WHERE THE WORK IS DONE ON THE PREMESIS OF A FABRICATOR APPROVED BY THE GOVERNING JURISDICTION.	-	-

CONCRETE: SPECIAL INSPECTION TASK	CONT.	PERIODIC
12. POST INSTALLED ANCHORS OR DOWELS	X	-

MASONRY: SPECIAL INSPECTION TASK (LEVEL 1)	CONT.	PERIODIC
1. AT THE BEGINNING OF MASONRY CONSTRUCTION, THE FOLLOWING SHALL BE VERIFIED:		
A. PROPORTIONS OF SITE PREPARED MORTAR	-	X
B. CONSTRUCTION OF MORTAR JOINTS	-	X
C. LOCATION OF REINFORCEMENT, CONNECTORS	-	X
2. THE INSPECTION PROGRAMS SHALL VERIFY:		
A. SIZE & LOCATION OF STRUCTURAL ELEMENTS	-	X
B. TYPE, SIZE, & LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION.	X	-
C. SPECIFY SIZE, GRADE, & TYPE OF REINFORCEMENT.	-	X
3. PRIOR TO GROUTING, VERIFY THE FOLLOWING:		
A. GROUT SPACE IS CLEAN	-	X
B. PLACEMENT OF REINFORCEMENT, CONNECTORS	-	X
C. PROPORTIONS OF SITE PREPARED MORTAR	-	X
D. CONSTRUCTION OF MORTAR JOINTS	-	X
4. GROUT PLACEMENT SHALL BE VERIFIED TO ENSURE COMPLIANCE WITH CODE & CONSTRUCTION DOCUMENT PROVISIONS.	X	-
5. PREPARATION OF ANY GROUT & MORTAR SPECIMENS AND/OR PRISIMS.	X	-
6. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS.	-	X
7. POST-INSTALLED ANCHORS.	X	-

STRUCTURAL OBSERVATION

REQUIRED FOR:
SEISMIC DESIGN CATEGORIES: C or HIGHER
OCCUPANCY CATEGORIES: III or IV

STRUCTURAL OBSERVATION PER THE REQUIREMENTS OF THE CODE IS REQUIRED.
REGISTERED DESIGN PROFESSIONAL TO VISIT THE PROJECT AT THE FOLLOWING STAGES OF CONSTRUCTION.

ITEM	STAGE
SHEAR WALL REINFORCING	DURING WALL LAY-UP
STRUCTURAL STEEL	AFTER ERECTION

STRUCTURAL OBSERVATION NOTES:

A) STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE INSPECTIONS REQUIRED BY CODE.

B) ALL OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNERS' REPRESENTATIVE, SPECIAL INSPECTOR(S), AND CONTRACTOR.
THE REGISTERED DESIGN PROFESSIONAL SHALL SUBMIT A FINAL WRITTEN STATEMENT TO THE GOVERNING JURISDICTION THAT SITE VISITS HAVE BEEN MADE AND IDENTIFYING ANY REPORTED DEFICIENCIES THAT HAVE NOT BEEN RESOLVED. THE STRUCTURE WILL NOT BE IN COMPLIANCE UNTIL THE REGISTERED DESIGN PROFESSIONAL HAS NOTIFIED THE GOVERNING JURISDICTION THAT ALL DEFICIENCIES ARE RESOLVED.

SHOP DRAWINGS / SUBMITTALS

1) THE STRUCTURAL SHOP DRAWINGS REVIEW IS INTENDED TO HELP THE ENGINEER VERIFY HIS/HER DESIGN CONCEPT. IT IS CONTRACTOR'S RESPONSIBILITY TO CHECK HIS/HER OWN SHOP DRAWINGS.

2) THE STRUCTURAL SHOP DRAWINGS WILL BE RETURNED FOR RE-SUBMITTAL IF A CURSORY REVIEW SHOWS MAJOR ERRORS WHICH SHOULD HAVE BEEN FOUND BY THE CONTRACTOR'S CHECKING.

3) THE FOLLOWING SHOP DRAWINGS ARE NOT REQUIRED FOR SUBMITTAL FOR STRUCTURAL REVIEW:
a. SHORING & BRACING
b. PICK UP INSERT
c. WINDOW MULLIONS & ARCHITECTURAL ITEMS NORMALLY ENGINNERED BY THE CONTRACTOR
d. UN-SPLICED REBAR AT SLAB-ON-GRADE AND SPREAD FOOTINGS
e. FORMWORK
f. STRUCTURAL STEEL MILL REPORTS
g. MESH FOR CONCRETE OVER COMPOSITE STEEL DECK

4) THE FOLLOWING SHOP DRAWINGS AND CALCULATIONS, WHEN APPLICABLE, ARE REQUIRED FOR SUBMITTAL FOR STRUCTURAL REVIEW:
a. REINFORCING STEEL
b. STRUCTURAL STEEL
c. WELDING PROCEDURE SPECIFICATIONS
d. MISCELLANEOUS STRUCTURAL STEEL SHOWN ON STRUCTURAL DRAWINGS

5) ANY SUBMITTAL OF DETAIL SHEET WITH ADDED INFORMATION SHALL BE ACCOMPANIED BY LOCATION PLAN IDENTIFYING THE MEMBERS INVOLVED AND CLOUDING AROUND ADDED INFORMATION.

6) ANY ENGINEERING SUBMITTED FOR REVIEW SHALL BE APPROPRIATELY SEALED.
FULL RESPONSIBILITY OF SUCH ENGINEERING RESTS WITH THE PERSON SEALING THE DESIGN.

REINFORCING STEEL (FOR CONCRETE & MASONRY)

1) REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 19 OF THE CODE, ASTM A615, GRADE 60 U.N.O. DEFORMATIONS SHALL BE IN ACCORDANCE WITH ASTM A-305.

2) BARS SHALL BE CLEAN OF RUST, GREASE, OR OTHER MATERIALS LIKELY TO IMPARE BOND.
ALL REINFORCING BAR BENDS SHALL BE MADE COLD.

3) REINFORCING BAR SPLICES SHALL BE MADE AS INDICATED ON THE DRAWINGS. MINIMUM SPLICE LENGTH FOR REINFORCING STEEL BARS IN MASONRY SHALL BE 48 BAR DIA. OR 24" MINIMUM, WHICHEVER IS LARGER. MINIMUM SPLICE LENGTH FOR REINFORCING STEEL BARS IN CONCRETE SHALL BE PER THE CODE, SECTION 1912.
LAP ALL HORIZINTAL BARS AT CORNERS AND INTERSECTIONS.
DOWEL ALL VERTICAL REBAR TO FOUNDATIONS.
ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL BY STRUCTURAL ENGINEER.
PROVIDE REQUIRED SHOP DRAWINGS AND FABRICATE AFTER ENGINEER'S REVIEW.

REBAR LAP SPLICES

REBAR SIZE	ROD / BAR DIAMETER	MINIMUM LAP SPLICE DIMENSION IN MASONRY = 48 x BAR DIAMETER
#3	3/8" DIA.	1' - 6" (MINIMUM DEVELOPMENT LENGTH)
#4	1/2" DIA.	2' - 0" (MINIMUM DEVELOPMENT LENGTH)
#5	5/8" DIA.	2' - 6" (MINIMUM DEVELOPMENT LENGTH)
#6	3/4" DIA.	3' - 0" (MINIMUM DEVELOPMENT LENGTH)
#7	7/8" DIA.	3' - 6" (MINIMUM DEVELOPMENT LENGTH)

4) ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION IS MADE.

5) WHERE WELDING OF REINFORCING IS APPROVED BY THE STRUCTURAL ENGINEER, IT SHALL BE DONE BY AWS CERTIFIED WELDERS USING E9018 OR APPROVED ELECTRODES.
WELDING PROCEDURES SHALL CONFORM TO THE REQUIREMENTS OF STRUCTURAL WELDING CODE: AWS-D1.4 LATEST REVISION.
REINFORCING BARS TO BE WELDED SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-706.

6) REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE "A.C.I." 315, LATEST EDITION.

7) COMPLETE & DETAILED REINFORCING PLACEMENT DRAWINGS SHALL BE PREPARED & SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION IN ACCORDANCE WITH SPECIFICATIONS AND APPLICABLE CODES.
THESE DRAWINGS SHALL BE AVAILABLE ON THE JOB SITE PRIOR TO PLACING OF CONCRETE.

8) REBAR SPACING GIVEN ARE MAXIMUM, ON-CENTER, WHETHER STATED AS "O.C.", OR NOT.
ALL REBAR IS CONTINUOUS WHETHER STATED "CONT.", OR NOT.

9) MILL TEST REPORTS FOR GRADE 60 BARS SHALL BE SUBMITTED PRIOR TO PLACEMENT OF CONCRETE.

CONCRETE ANCHORS

EPOXY ANCHORS:
UNLESS NOTED OTHERWISE, EPOXY ANCHORS IN CONCRETE AND MASONRY SHALL BE ONE OF THOSE LISTED BELOW AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. SPECIAL INSPECTION IS REQUIRED FOR ALL EPOXY ANCHORS, (U.N.O.).

SEE SCHEDULES BELOW FOR MINIMUM:
MEMBER THICKNESSES, EMBED DEPTHS, EDGE DISTANCES, AND SPACING

a. HILTI HIT-RE500-SD (ESR-2322) FOR CONCRETE
b. HILTI HY-200 (ESR-1967) FOR MASONRY
c. ALTERNATE APPROVED BY VERITAS' STRUCTURAL CONSULTANT

EXISTING REINFORCING BARS IN THE CONCRETE OR MASONRY STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS INDICATED ON THE STRUCTURAL DRAWINGS. UNLESS NOTED OTHERWISE, THE REINFORCING BARS MAY NOT BE CUT. THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS (IF AVAILABLE) AND SHALL TAKE STEPS TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE CONCRETE ANCHORS USING NON-DESTRUCTIVE TESTING (FERROSCAN, GPR, X-RAY OR OTHER APPROVED METHOD).

THREADED RODS OR REBAR IN CONCRETE

ROD DIAMETER REBAR SIZE		MIN. MEMBER THICKNESS		MINIMUM EMBED DEPTH		MINIMUM EDGE DISTANCE		MINIMUM SPACING	
US	METRIC	US	METRIC	US	METRIC	US	METRIC	US	METRIC
3/8", #3	10mm, #10	3.68"	94mm	2.43"	62mm	1 7/8"	29mm	1 7/8"	29mm
1/2", #4	13mm, #13	4.06"	104mm	2.81"	72mm	2 1/2"	64mm	2 1/2"	64mm
5/8", #5	16mm, #16	4.39"	112mm	3.14"	80mm	3 1/8"	80mm	3 1/8"	80mm
3/4", #6	19mm, #19	4.94"	126mm	3.44"	88mm	3 3/4"	96mm	3 3/4"	96mm
7/8", #7	22mm, #22	5.46"	140mm	3.71"	95mm	3.71"	95mm	4 3/8"	112mm

THREADED RODS OR REBAR IN MASONRY

ROD DIAMETER REBAR SIZE		MIN. MEMBER THICKNESS		MINIMUM EMBED DEPTH		MINIMUM EDGE DISTANCE		MINIMUM SPACING	
US	METRIC	US	METRIC	US	METRIC	US	METRIC	US	METRIC
3/8", #3	10mm, #10	5.06"	129mm	3 3/8"	86mm	4"	102mm	4"	102mm
1/2", #4	13mm, #13	6.75"	172mm	4 1/2"	115mm	4"	102mm	4"	102mm
5/8", #5	16mm, #16	8.44"	215mm	5 5/8"	143mm	4"	102mm	4"	102mm
3/4", #6	19mm, #19	10.1"	257mm	6 3/4"	172mm	4"	102mm	4"	102mm

PRELIMINARY - NOT FOR CONSTRUCTION

SEAL

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160 CASSELL RD.
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(484) 991-8928

CONDITIONS OF USE

Pennoni Associates Inc.
81 Highland Ave., Suite 230
Bethlehem, PA 18017
PAI Job No. VMDSO 25 003

RESPONSIBILITY IS LIMITED TO THE STRUCTURAL DESIGN OF THE SHIELDING SYSTEM PREPARED BY PENNONI ASSOCIATES, INC.

VeriShield Mevion S250 Cyclotron Vault & 25" Bi-Parting Door
Auburn University - Proton Radiation Testing Facility
Lot 4, Mark C. Smith Drive
Huntsville, Alabama 35801
United States of America

DRAWING ISSUE LOG

#	ISSUE TITLE	Date
	Review Set	03/21/2025

VERITAS PROJECT TEAM

SALES REP:	Greg Shearer
PHYSICIST:	El Hassane Bentefour
DESIGNER:	Jay DiRaimondo
PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

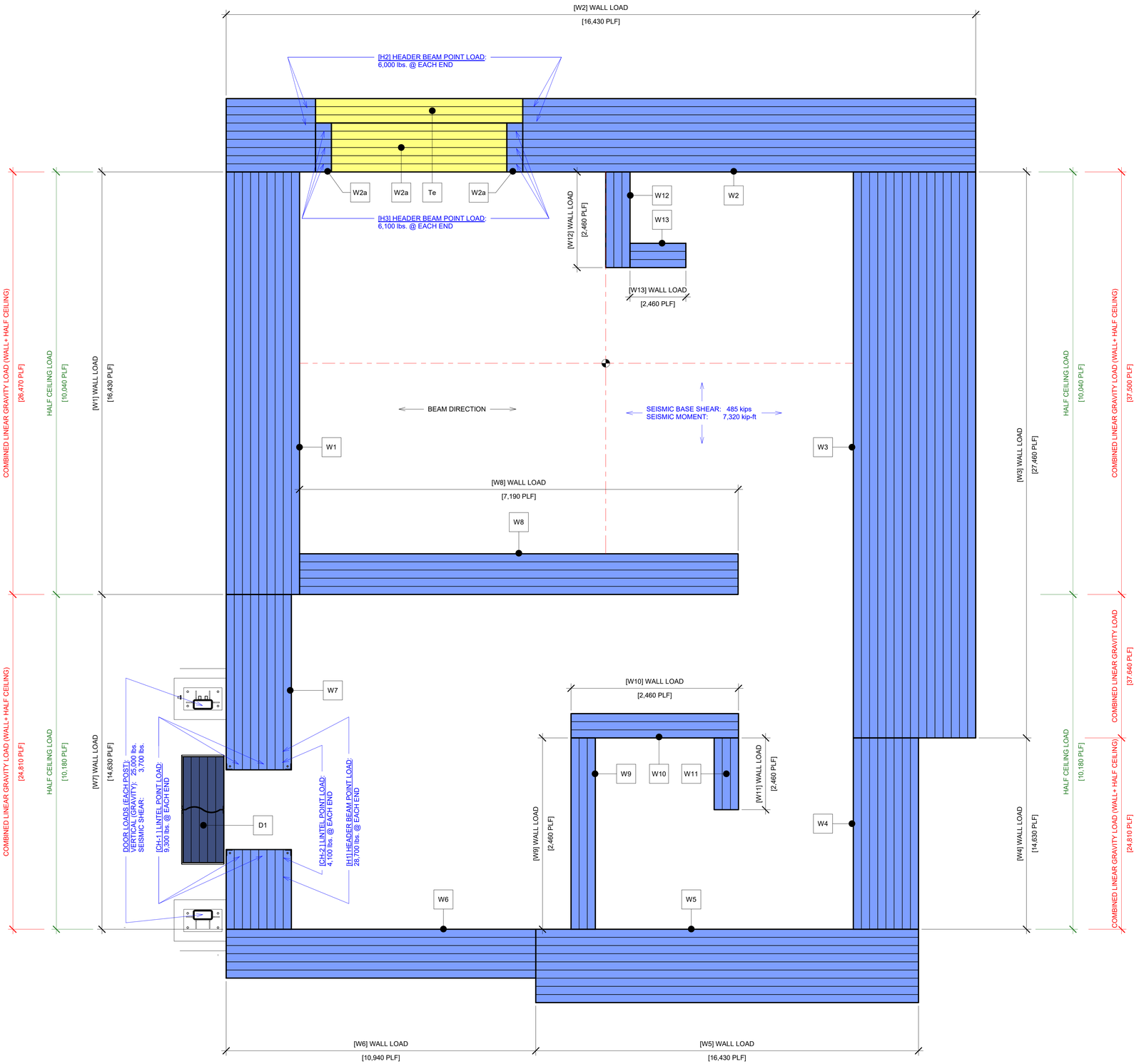
PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

DRAWING TITLE

GENERAL STRUCTURAL NOTES

DRAWING NUMBER

XS-001



1 Loading Plan
3/8" = 1'-0"

Loading Schedule - Wall Shielding...			
Shielding Region P1 - P12	Type - Layers	Wall Loading (PLF)	
Te	V220 - 3		← PARTIAL INFILL, SEE [W2] FOR FULL WALL LOAD
Ti	V220 - 6		← PARTIAL INFILL, SEE [W2] FOR FULL WALL LOAD
W1	V220 - 9 Bearing	16430	
W2	V220 - 9	16430	
W2a	V220 - 6		← PARTIAL INFILL, SEE [W2] FOR FULL WALL LOAD
W3	V220 - 15 Bearing	27460	
W4	V220 - 8 Bearing	14630	
W5	V220 - 9	16430	
W6	V220 - 6	10940	
W7	V220 - 8 Bearing	14630	
W8	V220 - 5	7190	
W9	V220 - 3	2460	
W10	V220 - 3	2460	
W11	V220 - 3	2460	
W12	V220 - 3	2460	
W13	V220 - 3	2460	

VAULT LOADING PLAN NOTES:

1) ALL LOADS SHOWN ARE PRELIMINARY & BASED ON DESIGN OF CURRENT MILESTONE (LAYOUT SET OR REVIEW SET).

   FINAL LOADS TO BE PROVIDED IN THE CONSTRUCTION SET.
   ANY ADJUSTMENTS TO DESIGN MAY EFFECT LOADING.

   LOADS PROVIDED HAVE BEEN UPDATED FOR THE CURRENT ***REVIEW SET***
   PER VERITAS' STRUCTURAL CONSULTANT REVIEW.
   THE LOADING INFORMATION IS STILL PRELIMINARY / NOT FINALIZED.

2) LOADS FROM UTILITY PENETRATION SHIELDING & SUPPORT:
   N/A NO UTILITY PENETRATIONS TO BE SUPPORTED
   THROUGH-WALL SLEEVES ONLY

3) WALL & CEILING SHIELDING LOADS INCLUDE A 10% INCREASE AS A SAFETY FACTOR.

4) SLIDING DOOR PRODUCTS GENERATE POINT LOADS AT THE DOOR FRAME POSTS. REFER TO PLAN FOR LOADING INFORMATION. REINFORCE THE SLAB BELOW POSTS APPROPRIATELY.

   SWING DOOR PRODUCTS GENERATE POINT LOADS AT THE HINGE POINT. REFER TO PLAN FOR LOADING INFORMATION. REINFORCE THE SLAB BELOW LOWER HINGE PLATE APPROPRIATELY.
   N/A DOOR TYPE NOT IN SCOPE

5) LOADS APPLIED TO FRAMING DESIGN ACCOUNTS FOR VERITAS SCOPE ITEMS ONLY (BEAMS, SUPPLEMENTAL SHIELDING, CEILING SHIELDING, ETC.).

   ANY ADDITIONAL LOADS THAT WOULD BE APPLIED TO FRAMING MUST BE PROVIDED FOR REVIEW / APPROVAL AS THE LOADS MAY REQUIRE RE-SIZING OF BEAMS, INCUR ADDITIONAL COSTS, AND MAY POTENTIALLY PUSH SCHEDULE IF A CHANGE IS REQUIRED LATE IN VERITAS' DESIGN PROCESS.

   UNLESS NOTED OTHERWISE, TOTAL ACCEPTABLE MACHINE EQUIPMENT LOADS (POST / BRACKET MOUNTED TO BEAMS) WITHOUT THE NEED OF REVIEW / APPROVAL: *MAX. 100 lbs (45.36 kg) PER INSTANCE*, TYP.

6) POINT LOADS ARE NOT INCLUDED IN THE LINEAR LOADS SHOWN. THEY ARE IN ADDITION TO THE LINEAR LOADS.

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CONDITIONS OF USE

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DRAWING ISSUE LOG

#	ISSUE TITLE	Date
	Layout Set	02/05/2025
	Review Set	03/21/2025

VERITAS PROJECT TEAM

SALES REP:	Greg Shearer
PHYSICIST:	El Hassane Bentefour
DESIGNER:	Jay DiRaimondo
PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

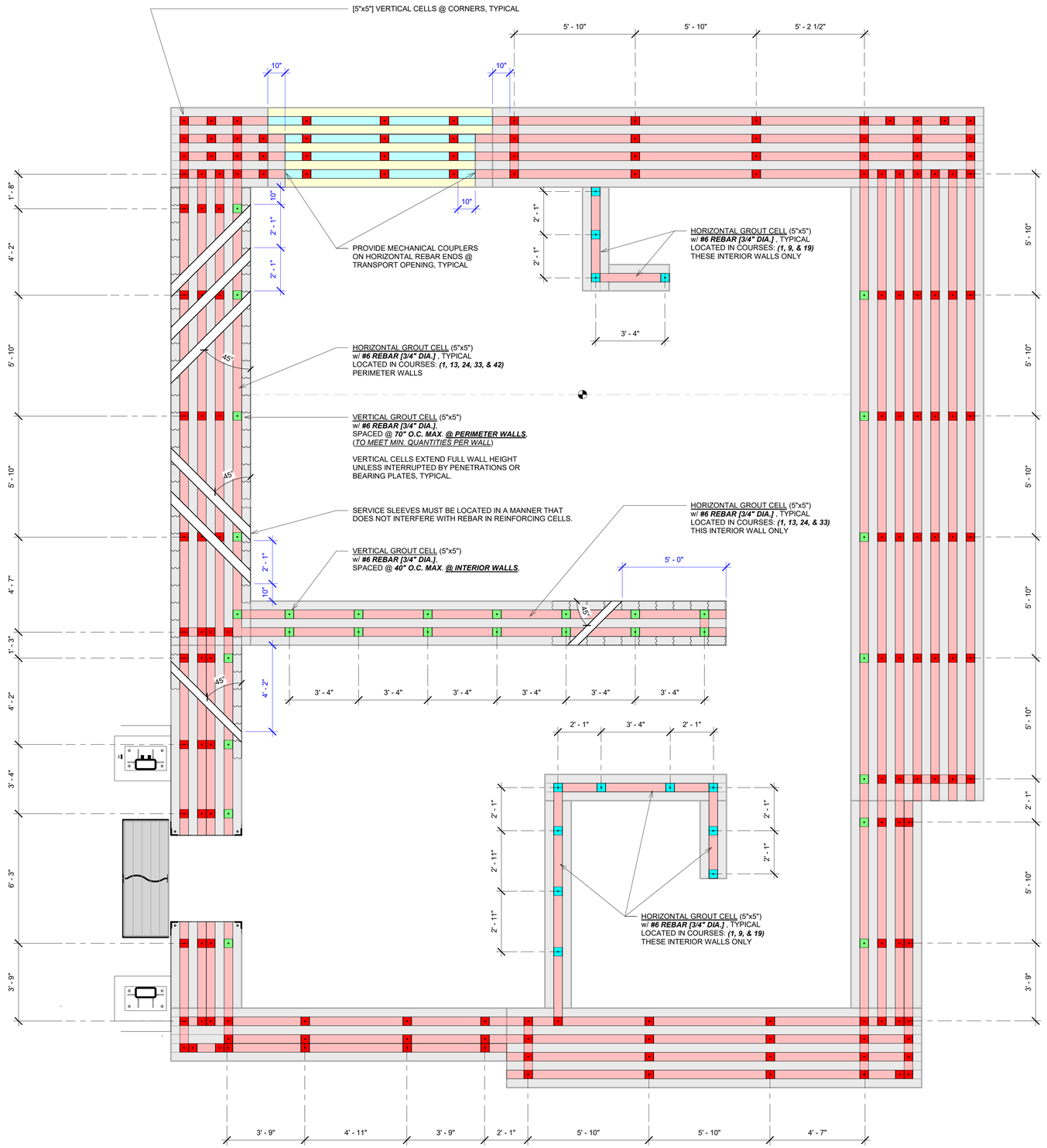
DRAWING TITLE

PRELIMINARY LOADING PLAN

DRAWING NUMBER

XS-100

PRELIMINARY - NOT FOR CONSTRUCTION



1 Wall Reinforcing Plan
3/8" = 1'-0"

REINFORCING PLAN NOTES:

1) HORIZONTAL & VERTICAL CELLS TO UTILIZE VERISHIELD GROUT OF COMPARABLE DENSITY & ATTENUATION PROPERTIES OF THE WALL SHIELDING THEY OCCUPY IN ORDER TO MAINTAIN APPROPRIATE SHIELDING BARRIERS PER THE PHYSICS REQUIREMENTS.

ALL GROUT CELLS & FILL REGIONS TO BE: *V220 DENSITY*
ALL HALF BLOCK TO BE: *V220 DENSITY*
LEVELING BEDS LESS THAN 1/4" [6mm] CAN BE: STANDARD GROUT

2) HORIZONTAL & VERTICAL REBAR TO BE: #6 [3/4"], UNLESS NOTED OTHERWISE

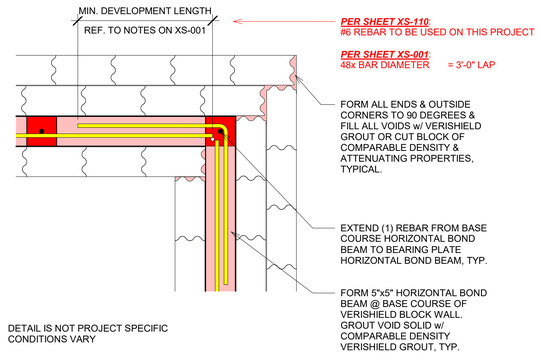
6" MIN. [152 mm] EMBED INTO (E) CONCRETE, WHERE APPLICABLE w/ HILTI HIT-HY200 (USA) OR HIT-RE500 (INTERNATIONAL) INJECTION ADHESIVE, OR APPROVED EQUIVALENT.

3) WALL TIES AND DIAPHRAGM STRAPS PROVIDE ADDITIONAL LATERAL REINFORCING TO THE SYSTEM.

THESE ITEMS CAN BE FOUND ON THE BEARING PLATE PLAN(S), AS THEY ARE LOCATED AT THE BOTTOM OF STEEL BEAMS.

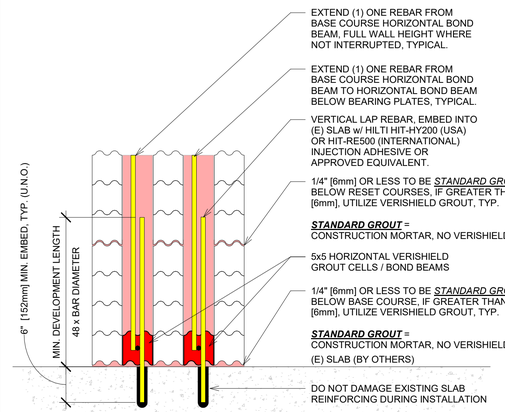
SYMBOL	VERTICAL CELL NOTE	HEIGHT	QTY
•	SLAB THRU COURSE 19	8.02'	13
•	SLAB THRU COURSE 33	13.94'	30
•	SLAB THRU COURSE 42	17.73'	164

V Vertical Cell Schedule
3/4" = 1'-0"



DETAIL IS NOT PROJECT SPECIFIC CONDITIONS VARY

3 CORNER REINFORCING - PLAN DETAIL
1" = 1'-0"



STANDARD THL DETAIL [D-014]

REFER TO WALL REINFORCING DRAWING(S) FOR REBAR SIZES AND MINIMUM EMBEDS.

2 TYPICAL REBAR EMBED DETAIL
1" = 1'-0"

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CONDITIONS OF USE

Pennoni Associates Inc.
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Bethlehem, PA 18017
PAI Job No. VM250 25 003

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VeriShield Mevion S250 Cyclotron Vault & 25" Bi-Parting Door
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Auburn University - Proton
Lot 4, Mark C. Smith Drive
Huntsville, Alabama 35801
United States of America

DRAWING ISSUE LOG

#	ISSUE TITLE	Date
	Review Set	03/21/2025

VERITAS PROJECT TEAM

SALES REP:	Greg Shearer
PHYSICIST:	El Hassane Bentefour
DESIGNER:	Jay DiRaimondo
PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

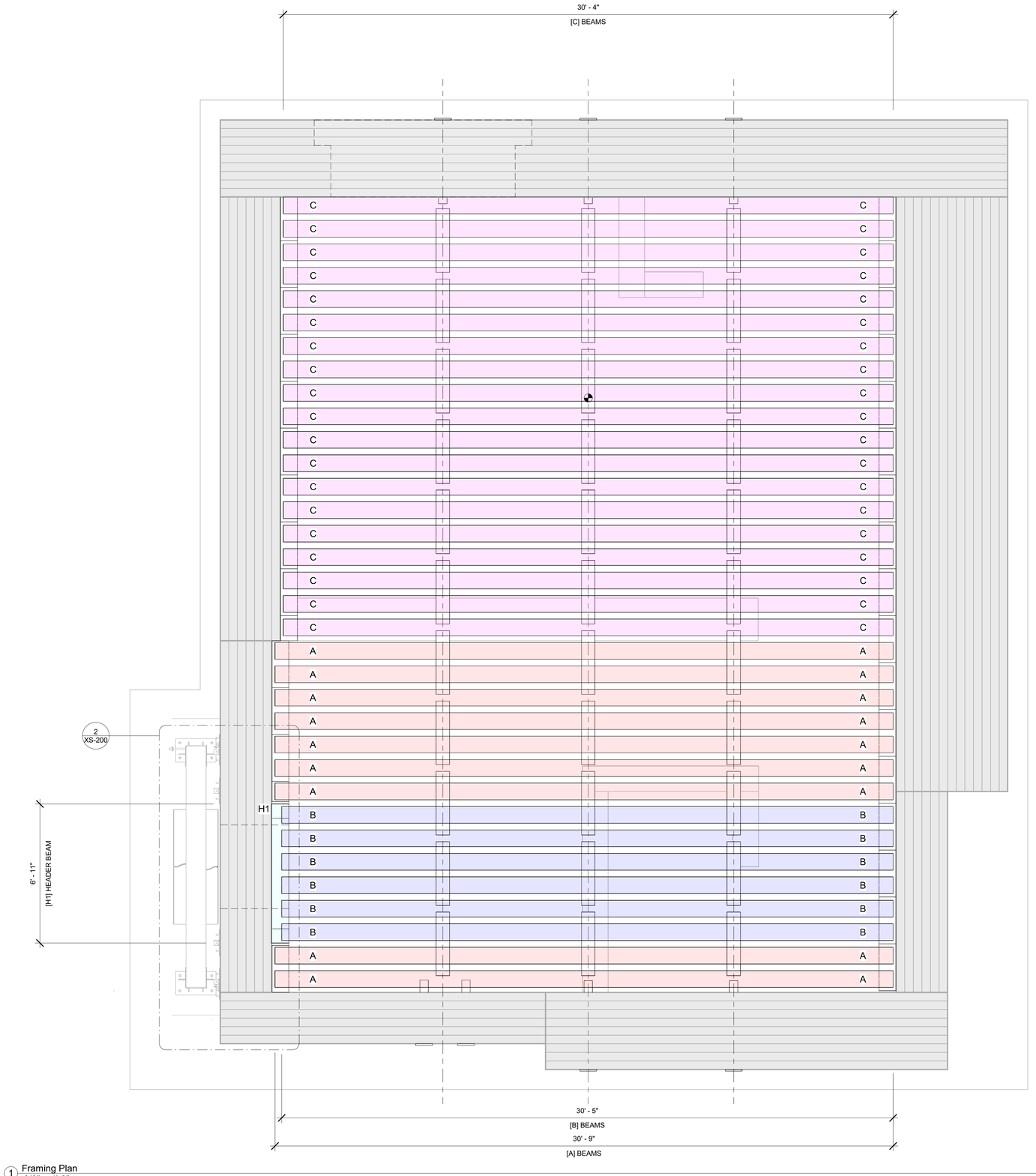
PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

DRAWING TITLE

WALL REINFORCING PLAN

DRAWING NUMBER

XS-110



1 Framing Plan
3/8" = 1'-0"

Structural Framing Schedule (XS-200)				
Mark	Type	Length (ft-in)	Count	Comments
A	W12X58	30' - 9"	9	
B	W12X58	30' - 5"	6	
C	W12X58	30' - 4"	19	
CH-1	C15X50	5' - 6"	2	Loose Lintels Over Door Opening
CH-2	C10X30	5' - 6"	1	Loose Lintels Over Door Opening
H1	W16X89	6' - 11"	1	Header Beam Above Door (High)
H2	WT8X38.5	12' - 4"	2	Inverted "T" Header Beams
H3	WT8X38.5	10' - 8"	3	Inverted "T" Header Beams

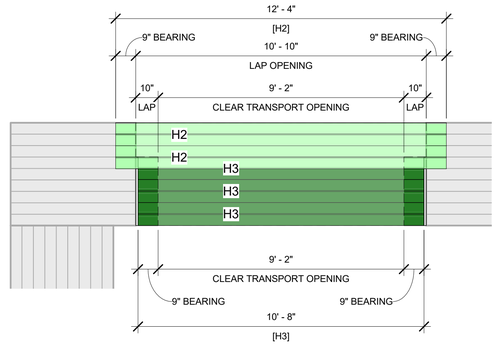
FRAMING NOTES:

1) BEAMS TO BEAR A MINIMUM OF:
   - 8" [203.2mm] ON 10" [254mm] BEARING PLATES
   - 4" [102mm] ON 5" [127mm] BEARING PLATES

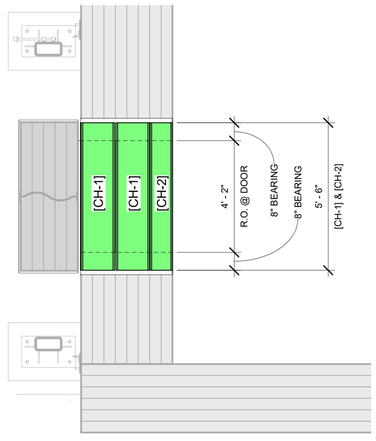
2) BEAMS TO BE FIELD WELDED TO ACCESSABLE LEADING EDGES ALONG BEARING POINTS. REFER TO STRUCTURAL DETAIL: (6 / XS-300)

3) BEAMS ENDS SET ON BEARING PLATES IN WALLS @ T.O. BEARING PLATE ELEVATION INDICATED ON SECTIONS (X-300).

4) ANTICIPATED / ALLOWABLE BEAM DEFLECTION RANGE TO BE [1" TO 1 1/2" MAX]. DEFLECTION WILL VARY PER PROJECT, SPAN, & LOADING CONDITONS.



3 Headers Over Transport Opening
3/8" = 1'-0"



2 Lintels Over Door Opening
3/8" = 1'-0"

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CONDITIONS OF USE

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PAI Job No. VM250 25 003

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DRAWING ISSUE LOG

#	ISSUE TITLE	Date
	Review Set	03/21/2025

VERITAS PROJECT TEAM

SALES REP:	Greg Shearer
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PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

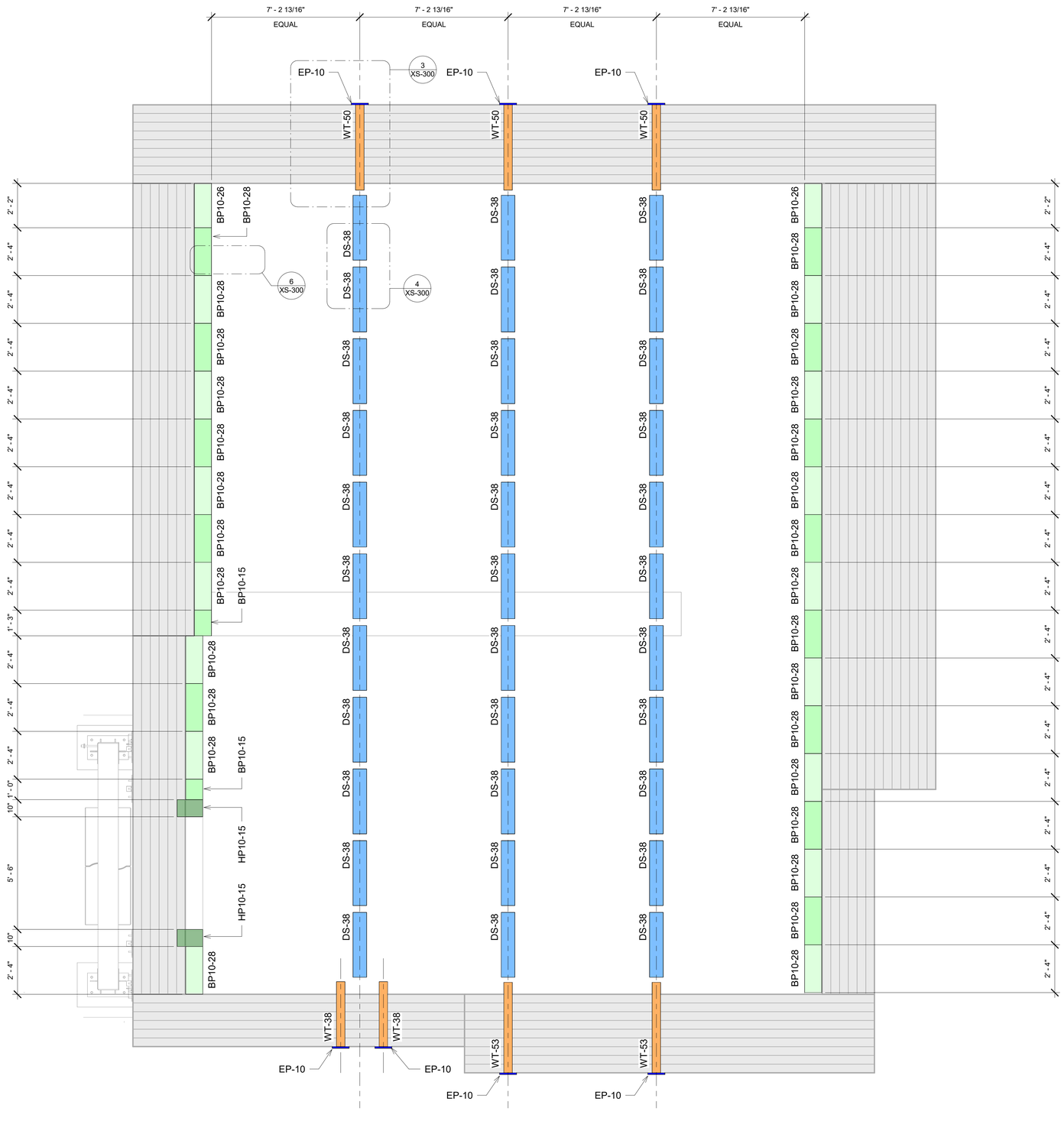
PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

DRAWING TITLE

VAULT FRAMING PLAN

DRAWING NUMBER

XS-200



1 Bearing Plate Plan
3/8" = 1'-0"

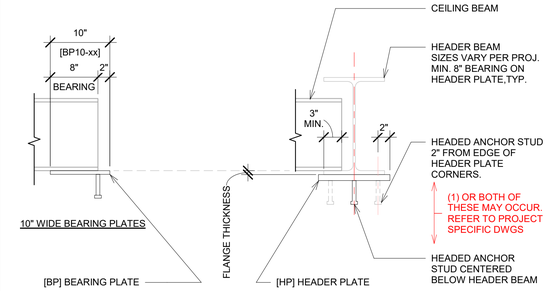
Bearing Plate Schedule (XS-210)				
Mark	Plate Thickness	BP Width	BP Length	Count
BP10-12	3/4"	10"	12"	1
BP10-15	3/4"	10"	15"	1
BP10-26	3/4"	10"	26"	2
BP10-28	3/4"	10"	28"	28
HP10-15	1"	10"	15"	2

BEARING PLATE NOTES:

1) SHOP WELD 4" [101mm] LONG, 5/8" [15.875mm] DIA. HEADED ANCHOR STUDS TO BEARING PLATES.

2) REFER TO STRUCTURAL DETAILS FOR SPACING & WELD REQUIREMENTS.

3) TOP OF HEADER PLATES [HPxx-xx] TO BE SET LOWER THAN T.O. BEARING PLATE ELEVATION BY THE THICKNESS OF THE HEADER BEAM FLANGE DIMENSION.



2 BEARING DETAILS
1" = 1'-0"

Diaphragm Strap & Wall Tie Schedule (XS-210)				
Mark	Plate Thickness	Plate Width	Plate Length	Count
DS-38	5/8"	8"	38"	33
EP-10	1"	10"	10"	7
WT-38	1"	5"	38"	2
WT-50	1"	5"	50"	3
WT-53	1"	5"	53"	2

WALL TIE & DIAPHRAGM STRAP NOTES:

1) REFER TO THE STRUCTURAL DETAILS FOR FIELD WELD REQUIREMENTS.

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CONDITIONS OF USE

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PAI Job No. VM250 25 003

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DRAWING ISSUE LOG

#	ISSUE TITLE	Date
	Review Set	03/21/2025

VERITAS PROJECT TEAM

SALES REP:	Greg Shearer
PHYSICIST:	El Hassane Bentefour
DESIGNER:	Jay DiRaimondo
PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

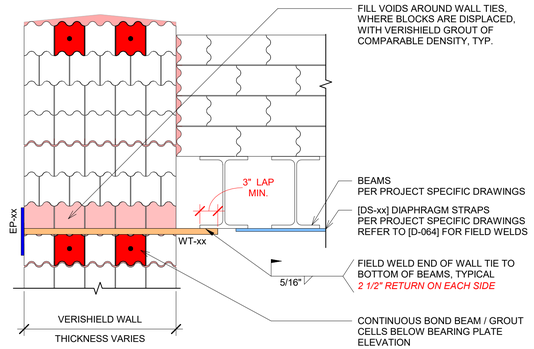
DRAWING TITLE

BEARING PLATE PLAN

DRAWING NUMBER

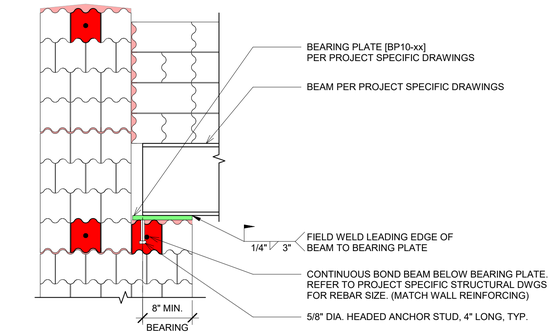
XS-210

PRELIMINARY - NOT FOR CONSTRUCTION



STANDARD THL DETAIL [D-065]

5 WALL TIE TO BEAM - SECTION DETAIL
1" = 1'-0"



STANDARD THL DETAIL [D-060]

6 BEAM TO BEARING PLATE DETAIL
1" = 1'-0"

STANDARD THL DETAIL [D-066]

3 WALL TIE TO BEAM - PLAN DETAIL
1" = 1'-0"

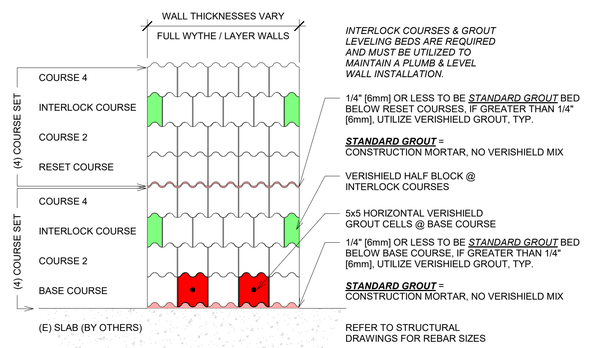
STANDARD THL DETAIL [D-064]

4 DIAPHRAGM STRAP TO BEAM DETAIL
1" = 1'-0"

ANCHOR, CONNECTION, & SUPPORT CHART

ITEM	DIAMETER	LENGTH	MIN. EMBED	DESCRIPTION (USE / LOCATION)	NOTES
HILTI HAS E-B	1" [25.4 mm]	16" [406.4 mm]	12" [304.8 mm]	***BI-PART*** & ***SLIDING*** DOOR FRAME BASE PLATE ANCHORS	UTILIZE APPROVED INJECTION ADHESIVE
HILTI HIT-Z	3/4" [19.05 mm]	9 3/4" [247.65 mm]	6" [152.4 mm]	***BI-PART*** & ***SLIDING*** DOOR FRAME WALL TIE-BACK ANCHORS	UTILIZE APPROVED INJECTION ADHESIVE
NELSON H4L	5/8" [15.875 mm]	4" [101.6 mm]	NOT APPLICABLE	WELD TO BEARING PLATES & LINTELS	SPACING & QUANTITY PER DETAILS ON XS-50x SHEET(S)
REBAR	VARIES, AS REQ'D	VARIES, AS REQ'D	6" [152.4 mm]	REINFORCING CELLS, 6" MIN. EMBED (SLAB)	SEE XS-110 WALL REINFORCING PLAN FOR REBAR SIZE(S)
HILTI HIT-HY 200(R)	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	APPROVED INJECTION ADHESIVE (USA)	(R = REGULAR), HOUR AND A HALF CURE TIME
UNLESS NOTED / DETAILED OTHERWISE, ALL HOLES PROVIDED FOR ANCHORS TO BE A MIN. OF 1/16" [1.59mm] LARGER THAN & NO GREATER THAN A MAX. 1/8" [3.175mm] LARGER THAN BOLT DIA.					

A Anchor, Connection, & Support Chart
3/8" = 1'-0"



STANDARD THL DETAIL [D-016]

2 Typical Coursing Diagram - Full Layer
1" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

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CONDITIONS OF USE

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PAI Job No. VM250 25 003

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DRAWING ISSUE LOG

#	ISSUE TITLE	Date
	Review Set	03/21/2025

VERITAS PROJECT TEAM

SALES REP:	Greg Shearer
PHYSICIST:	El Hassane Bentefour
DESIGNER:	Jay DiRaimondo
PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

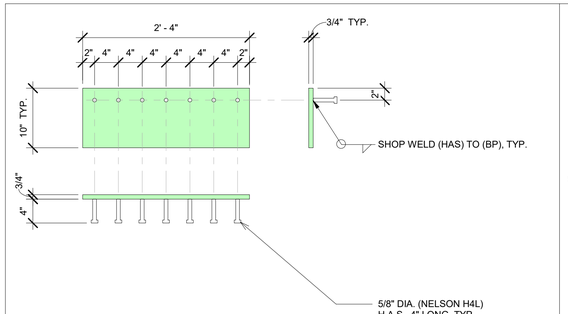
PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

DRAWING TITLE

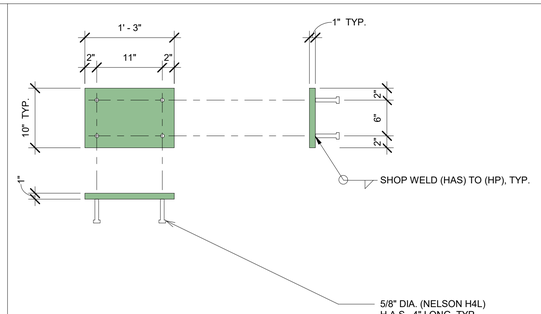
STRUCTURAL DETAILS

DRAWING NUMBER

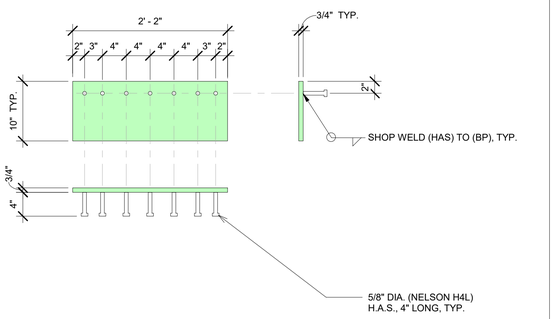
XS-300



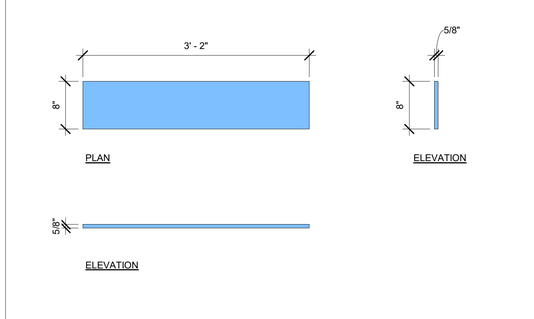
[BP10-28]
3/4" THICK BEARING PLATE — SCALE: 1" = 1'-0"



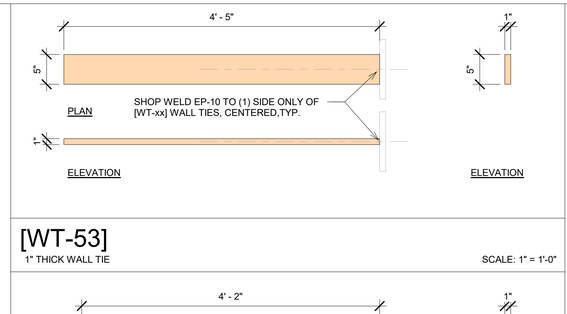
[HP10-15]
1" THICK HEADER PLATE — SCALE: 1" = 1'-0"



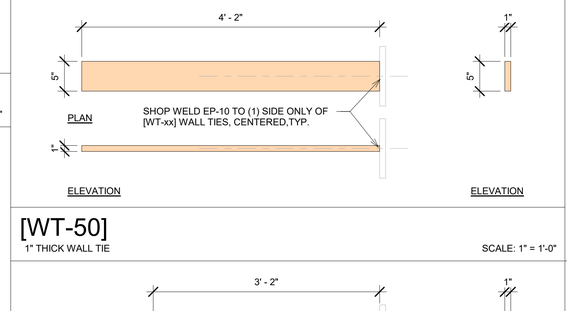
[BP10-26]
3/4" THICK BEARING PLATE — SCALE: 1" = 1'-0"



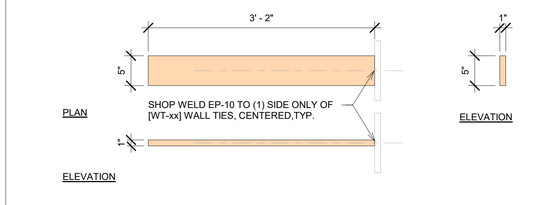
[DS-38]
5/8" THICK DIAPHRAGM STRAP — SCALE: 1" = 1'-0"



[WT-53]
1" THICK WALL TIE — SCALE: 1" = 1'-0"



[WT-50]
1" THICK WALL TIE — SCALE: 1" = 1'-0"

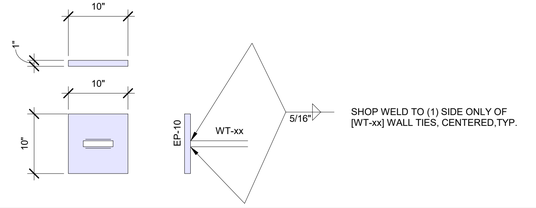


[WT-38]
1" THICK WALL TIE — SCALE: 1" = 1'-0"

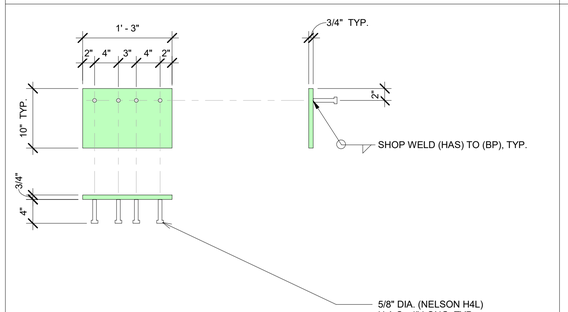
Bearing Plate Schedule (XS-210)				
Mark	Plate Thickness	BP Width	BP Length	Count
BP10-12	3/4"	10"	12"	1
BP10-15	3/4"	10"	15"	1
BP10-26	3/4"	10"	26"	2
BP10-28	3/4"	10"	28"	28
HP10-15	1"	10"	15"	2

Diaphragm Strap & Wall Tie Schedule (XS-210)				
Mark	Plate Thickness	Plate Width	Plate Length	Count
DS-38	5/8"	8"	38"	33
EP-10	1"	10"	10"	7
WT-38	1"	5"	38"	2
WT-50	1"	5"	50"	3
WT-53	1"	5"	53"	2

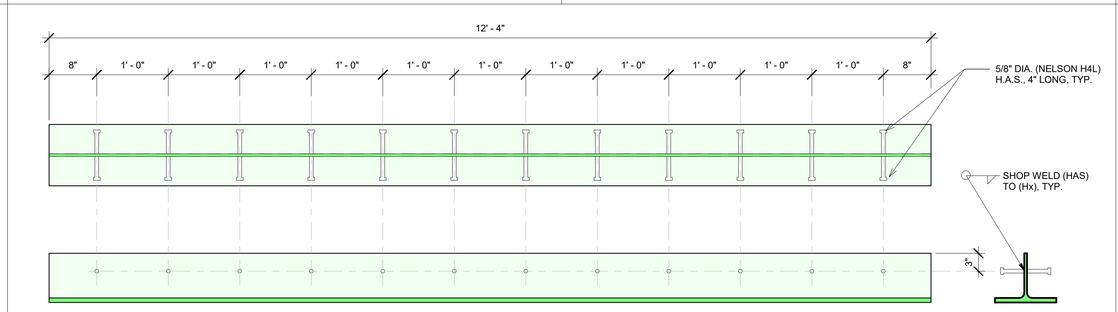
Structural Framing Schedule (XS-200)				
Mark	Type	Length (ft-in)	Count	Comments
A	W12X58	30' - 9"	9	
B	W12X58	30' - 5"	6	
C	W12X58	30' - 4"	19	
CH-1	C15X50	5' - 6"	2	Loose Lintels Over Door Opening
CH-2	C10X30	5' - 6"	1	Loose Lintels Over Door Opening
H1	W16X89	6' - 11"	1	Header Beam Above Door (High)
H2	WT8X38.5	12' - 4"	2	Inverted "T" Header Beams
H3	WT8X38.5	10' - 8"	3	Inverted "T" Header Beams



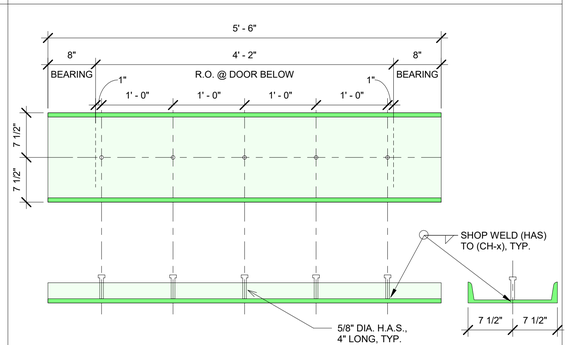
[EP-10]
1" END PLATE — SCALE: 1" = 1'-0"



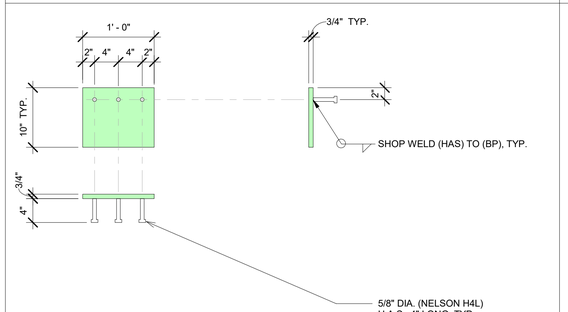
[BP10-15]
3/4" THICK BEARING PLATE — SCALE: 1" = 1'-0"



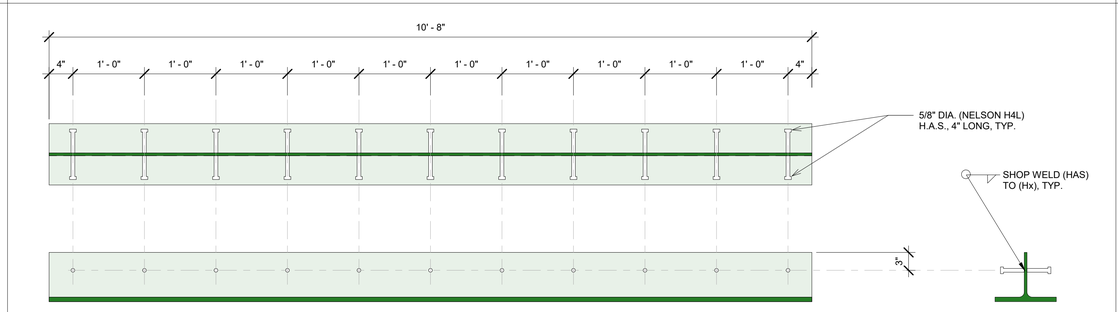
[H2]
WT8x38.5 HEADER BEAMS OVER TRANSPORT OPENING — SCALE: 1" = 1'-0"



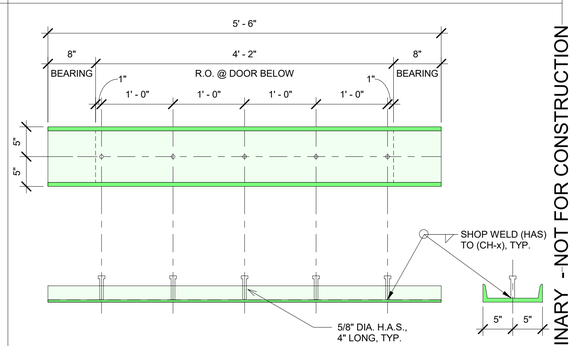
[CH-1]
C15x50 CHANNEL - LOOSE LINTEL OVER DOOR OPENING — SCALE: 1" = 1'-0"



[BP10-12]
3/4" THICK BEARING PLATE — SCALE: 1" = 1'-0"



[H3]
WT8x38.5 HEADER BEAMS OVER TRANSPORT OPENING — SCALE: 1" = 1'-0"



[CH-2]
C10x30 CHANNEL - LOOSE LINTEL OVER DOOR OPENING — SCALE: 1" = 1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

SEAL

veritas Medical Solutions
160 CASSELL RD.
HARLEYSVILLE, PA 19438
(484) 991-8928

CONDITIONS OF USE

Pennoni Associates Inc.
81 Highland Ave., Suite 230
Bethlehem, PA 18017
PAI Job No. VM250 25 003

VeriShield Mevion S250 Cyclotron Vault & 25" Bi-Parting Door
Auburn University - Proton Radiation Testing Facility
Lot 4, Mark C. Smith Drive
Huntsville, Alabama 35801
United States of America

DRAWING ISSUE LOG

#	ISSUE TITLE	Date
	Review Set	03/21/2025

VERITAS PROJECT TEAM

SALES REP:	Greg Shearer
PHYSICIST:	El Hassane Bentefour
DESIGNER:	Jay DiRaimondo
PROJECT MANAGER:	Susan Heid

VERITAS PROJECT INFORMATION

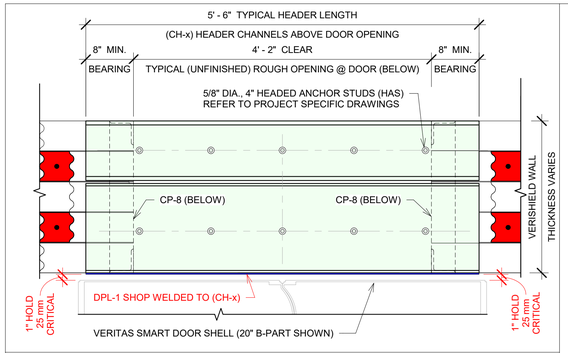
PROJECT #	24-136-5195
PROSPECT #	5195-01
PHYSICS REPORT:	
SHIELDED DOOR(S):	BP25 (3060-501)
MACHINE:	Mevion S250
MACHINE ENERGY:	

DRAWING TITLE

STEEL DETAILS

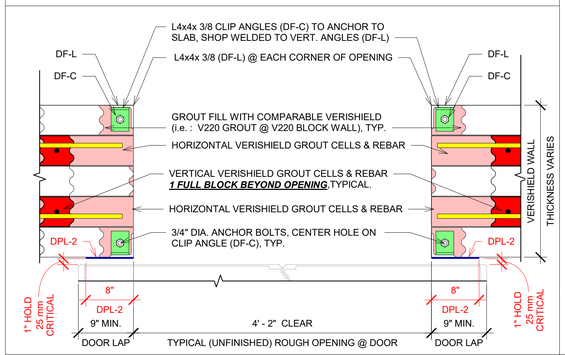
DRAWING NUMBER

XS-500



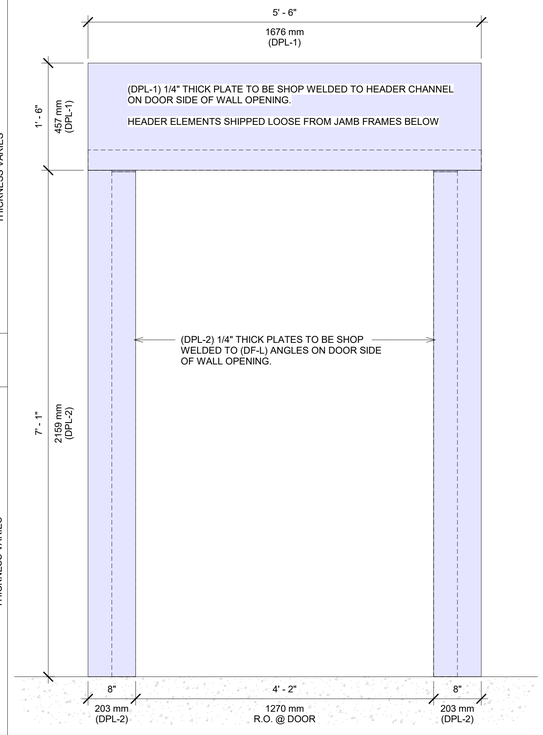
Plan Above Header Channels

(CH-x) HEADER CHANNEL LEVEL - CHANNELS VARY PER PROJECT



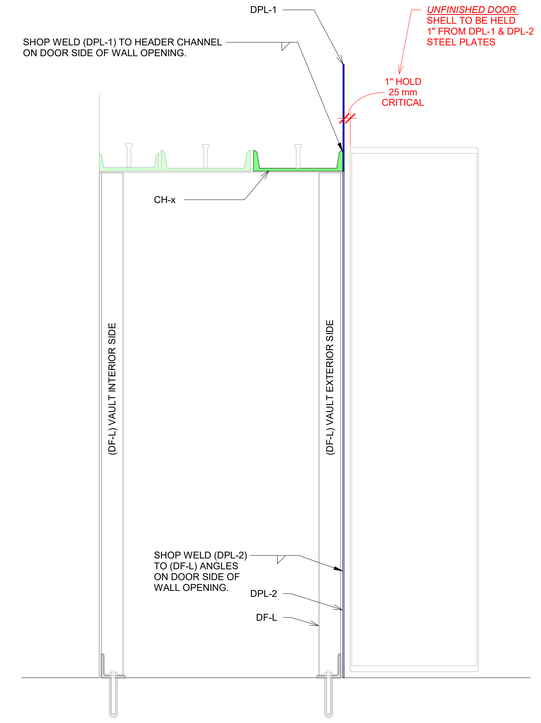
Plan @ Base Course

TYPICAL FRAMED OPENING @ SLIDING DOORS — SCALE: 1" = 1'-0"



Elevation from Vault Exterior

1/4" Steel Plates (DOOR NOT SHOWN FOR CLARITY) — SCALE: 1" = 1'-0"



Section Through Header Channels

DPL1 TO HEADER & DPL-2 TO DFL ANGELS — SCALE: 1" = 1'-0"

FRAMED OPENING ASSEMBLY SCHEDULE (APPLIES TO BIPARTING DOOR ONLY)				
MARK / TAG	*DESCRIPTION*	*DIMENSIONS*	*COMMENTS*	*QUANTITY*
CH-x	*PER SCHEDULE ON XS-200*	5'-6" LONG, TYP.	*SCHEDULED ON: XS-200 DETAILED ON: XS-50x*	*PER: XS-200*
CP-8	1/4" THICK STEEL CAP PLATE	4" WIDE, TYP.	***3'-4 7/8" LONG***	2 / OPENING
DF-C	L4x4x3/8 CLIP ANGLE (FLOOR)	3" WIDE, TYP.		4 / OPENING
DF-L	L4x4x3/8 FRAME ANGLE	7"-0 3/4" LONG, TYP.		4 / OPENING
DPL-1	1/4" THICK STEEL PLATE	5'-6" LONG, TYP.	WELDED TO CHANNEL	1 / OPENING
DPL-2	1/4" THICK STEEL PLATE	8" x 7'-1", TYP.		2 / OPENING
2x4	TEMPORARY WOOD SPACER	LENGTH VARIES		2 / OPENING

NOTES:

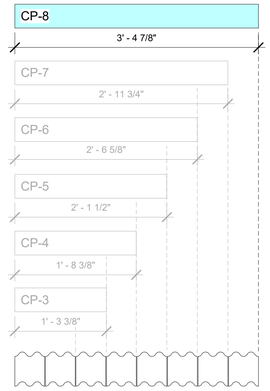
HEADER CHANNEL SIZES & QUANTITIES OVER DOOR OPENINGS WILL VARY PER PROJECT SPECIFIC NEEDS.

CP-x CAP PLATES WILL VARY PER PROJECT AND ARE BASED ON WALL THICKNESSES.
SEE DIAGRAM BELOW TO DETERMINE APPROPRIATE LENGTHS.

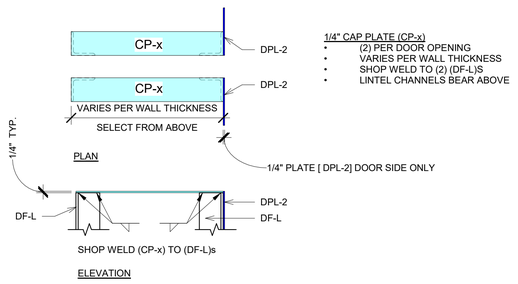
2x4 WOOD SPACER WITH PRE-DRILLED HOLES TO BE BOLTED AND SHIPPED WITH FRAME.
WOOD SPACERS TO REMAIN ATTACHED UNTIL FRAME IS ANCHORED TO FLOOR SLAB.

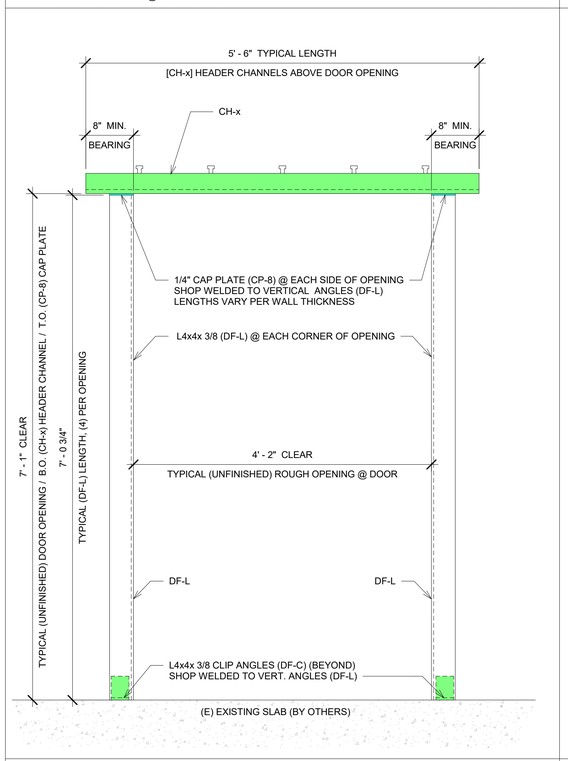
Typical Bill of Materials

FRAMED OPENING ASSEMBLY



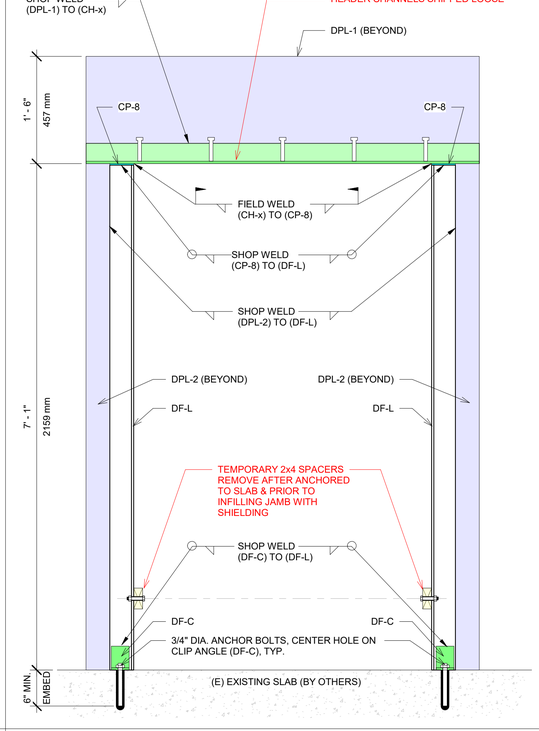
FULL WYTHE WALLS





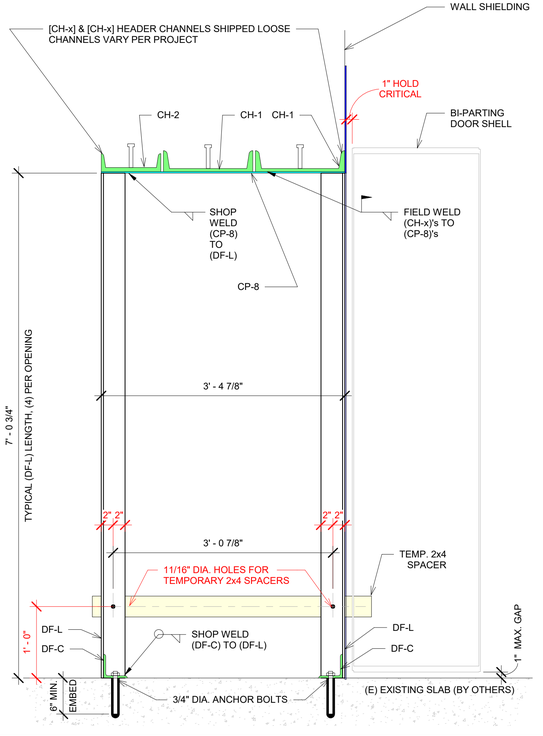
Elevation from Vault Interior

SCALE: 1" = 1'-0"



Section Through Exterior Header Channel

LOOKING TOWARD VAULT EXTERIOR SIDE DFL POSTS — SCALE: 1" = 1'-0"

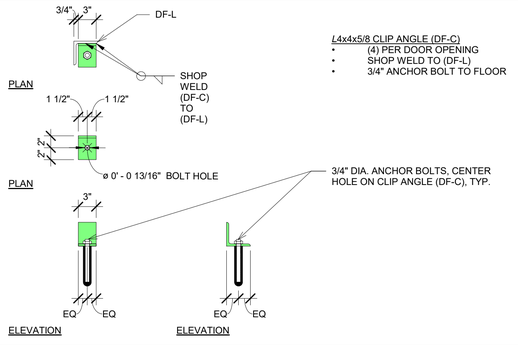


Section Through Header Channels

HEADER TO FRAME OPENING ASSEMBLY — SCALE: 1" = 1'-0"

[CP-XX]

1/4" THICK CAP PLATE — SCALE: 1" = 1'-0"



[DF-C]

L4x4x3/8 CLIP ANGLE - (TO ANCHOR FRAME ASSEMBLY TO FLOOR SLAB) — SCALE: 1" = 1'-0

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MACHINE:	Mevion S250
MACHINE ENERGY:	

DRAWING TITLE

STEEL DETAILS
FRAMED DOOR
OPENING

DRAWING NUMBER

XS-515