

#### SHEET NOTES

- ① HOUSEKEEPING SLAB FOR MECHANICAL EQUIPMENT
- ② PROVIDE BOLLARDS TYPICAL PER TEST BED, SEE FLOOR PLANS
- ③ NOT USED
- ④ PROVIDE PROTECTION CURB & BOLLARDS AT CIRCUMFERENCE OF ROTATING BED, HT. TO VARY
- ⑤ NOT USED
- ⑥ (N) ASPHALTIC CONCRETE. SEE CIVIL DWGS 
- ⑦ (E) AC PAVING TO REMAIN. PATCH TO MATCH EXISTING. SEE CIVIL DWGS.
- ⑧ ELECTRIC PANELS & TRANSFORMER ON CONC PAD
- ⑨ CONCRETE PAD FOR FUTURE LOCATION OF ENVIRONMENTAL CHAMBER
- ⑩ RELOCATE (E) SHUTTLE BUS STOP
- ⑪ REMOVE OR COVER THE (E) PAINTED STRIPING AND GRAPHICS, PATCH AND REPAIR (E) ASPHALT @ THIS AREA. SEE CIVIL DWGS. 
- ⑫ (N) TRAFFIC STRIPING, S.C.D.
- ⑬ (N) SITE LIGHT, S.E.D.
- ⑭ (N) WEATHER STATION
- ⑮ PROVIDE AC PAVING @ NIC TEST BED 4 LOCATION 
- ⑯ SITE BOLLARDS. SEE CIVIL
- ⑰ (E) PAVING .
- ⑱ (N) ELEC VAULT
- ⑲ (E) CURB TO REMAIN
- ⑳ (E) FIRE HYDRANT
- ㉑ (N) FIRE ALARM BOX
- ㉒ (E) FDC CONNECION

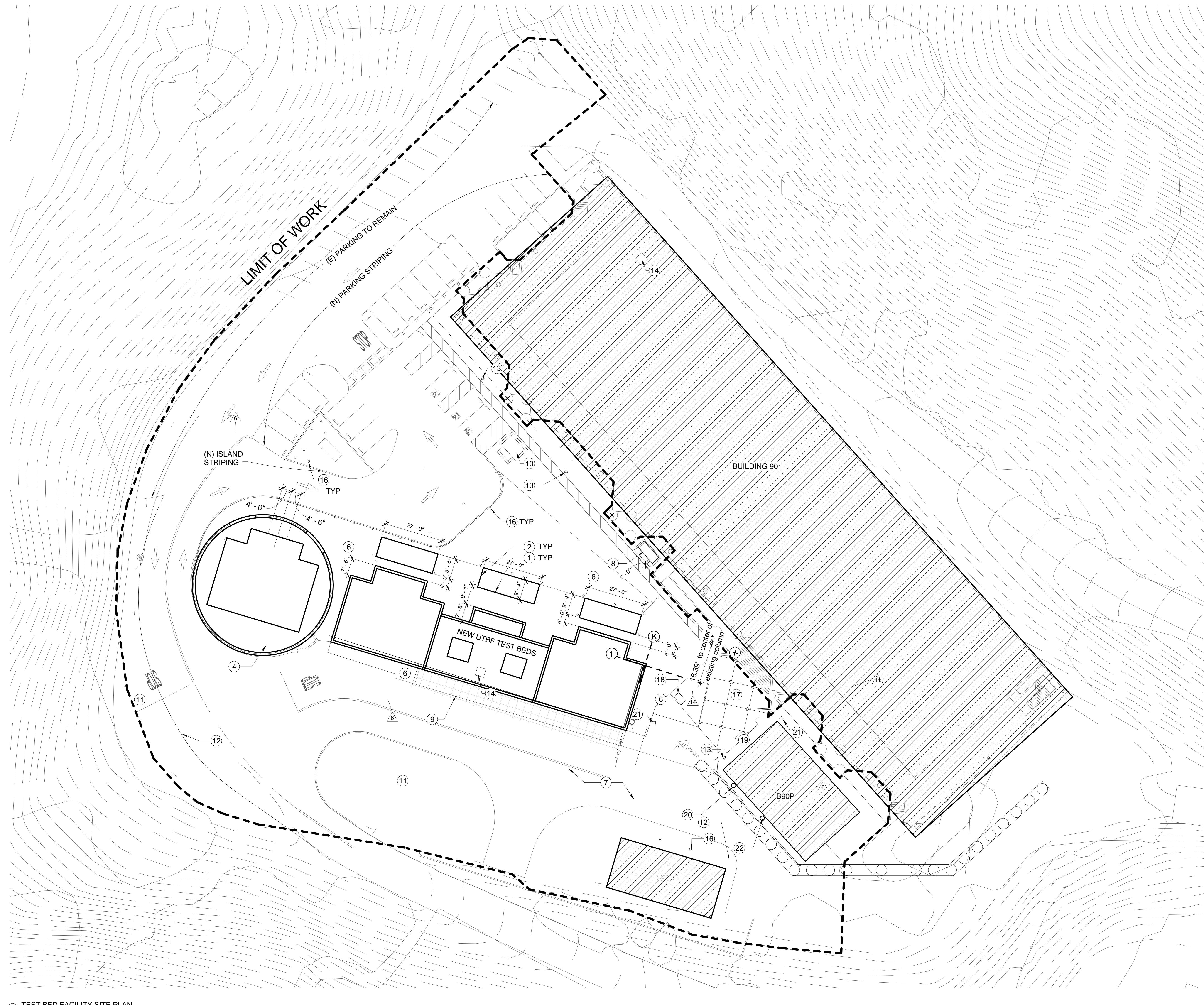
#### PARKING COUNT

32 EXISTING SPACES TO REMAIN  
7 ADA SPACES TO REPLACE EXISTING  
5 ORANGE CIRCLE SPACES TO REPLACE EXISTING  
9 NEW SPACES  
53 SPACES TOTAL

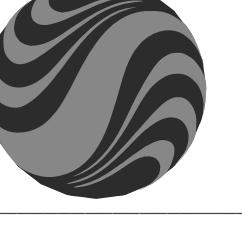
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0' 20' 50' 100'

 <b>Stantec</b> 901 Market Street San Francisco, CA 94103 Tel: (415) 281 5 xxx Fax: (415) 882 9563 <a href="http://www.stantec.com">www.stantec.com</a>				RECORD DRAWINGS 4/24/2014	Project name User Test Bed Facility (UTBF) Project Lawrence Berkeley National Laboratory University Of California				Drawn by	Date	
					⑥	05/11/2012	ISSUE FOR CONSTRUCTION	Checked by	Date		
  								Approved by	Date		
<span style="float: right;">CAD file path: <small>luc1365-030/workgroup/2014/active/01201002400_LBNL_UTBF4_Product01BMRVITLNE.../Overall site plan.dwg</small></span>		Title: SITE PLAN		Scale: 1" = 20'-0"		Sheet no: A.1.01		Project No: 6947816	Project ID: FNO100		
Architect	Consulting Firm	Consulting A/E Firm	Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)	Revision number	Drawn by	Checked by	Approved by	Date	Remarks	

ABBREVIATIONS		(ABBREVIATIONS LISTED ARE NOT NECESSARILY USED)		GRAPHIC SYMBOLS		(SYMBOLS LISTED ARE NOT NECESSARILY USED)		DRAWING INDEX		VICINITY MAP		
&	And	FFT	Floor Finish Transition	PAD	Powder Actuated Device	G0.01	PROJECT INFORMATION	GENERAL	Project name	User Test Bed Facility (UTBF) Project	Drawn by	Date
L@L	Angle	FG	Fitted Glazing	PB	Push Button Lockset	G0.02	APPLICABLE CODES, CODE SUMMARY, LIFE SAFETY PLAN		Checked by	Lawrence Berkeley National Laboratory	Checked by	Date
Centerline		FGT	Fitted Glass Transom	PEN	Penetration(s)	G0.03	LIFE SAFETY, EXISTING DRAWINGS		Approved by	University Of California	Approved by	Date
Diameter or Round		FHC	Fire Hose Cabinet	PIP	Poured-In-Place	G0.04	SITE SURVEY		CAD file path	Lawrence Berkeley National Laboratory	CAD file path	Title: PROJECT INFORMATION
#	Perspendicular	FIN	Fire Head Screw	PLAM	Plastic Laminate	TR.1.00	TREE REMOVAL PLAN		Scale: As indicated	LAWRENCE BERKELEY NATIONAL LABORATORIES	Scale: As indicated	Project No: 6947816
	Pound or Number	FLASH	Flash	PLAS	Plaster				Sheet no:	FACILITIES DIVISION	Sheet no:	4B90XG001
AAP	Area Alarm Panel	FLASH	Flashing	PLYWD	Plywood				Project ID:	FNO100	Project ID:	4B90XG001
AC	Above Concrete Slab	FLUOR	Fluorescent	PNTHS	Penthouse				Original sheet - A00 E			
ACC	Accessible	FS	Face Building	PR	Pair							
ACOUS	Acoustical	FOC	Face of Concrete	PRCST	Pre-cast							
ACP	Acoustical Ceiling Panel	FOF	Face of Finish	PT	Point							
ACT	Architectural Ceiling Tile	FOS	Face of Studs	PNTS	Paper Towel Dispenser							
AD	Area Drain	FPRF	Fireproof	PTS	Paper Towel Dispenser & Waste Receptacle							
ADDL	Additional	FS	Full Size	PTD	Partition							
ADJ	Adjustable	FSK	Footprint	PTD/PR	Pneumatic Tube Station							
AFF	Above Finish Floor	FSS	Folding Shower Seat	PTN	Partition							
AGGR	Aggregate	FT	Foot or Feet	PTS	Pneumatic Tube Station							
ALM	Door Alarm	FTG	Footing	QT	Quarry Tile							
AMM	ammunition	FUM	Functional Unit Module									
API	Assumed Property Line	FUR	Furnace									
APPROX	Approximate	FUT	Future									
AR(#)	Art (NIC)	FX	Fixture (as in LT. FX.)	R	Riser							
ARCH	Architectural	G/S	Gloves Dispenser/ Sharps Receptacle	RAD	Radius							
ASB	Asbestos	GA	Gauge	RD	Roof Drain							
ASPH	Asphalt	GALV	Galvanized	REF	Reference							
BB1.2	Bulletin Boards	GB	Grab Bars	REFR	Refrigerator							
BCS	Baby Changing Station	GEN	General	REINF	Reinforced							
BITUM	Bituminous	GFRG	Glass Fiber Reinforced	REL	Relief							
BLDG	Building	GL	Glass	RGTR	Register							
BLKG	Blocking	GND	Ground	RH	Robe Hook							
BM	Beam	GR	Grade	RM	Room							
BOT	Bottom	GRG	Glass Rolled Gypsum	RO	Rough Opening							
BTWN	Between	GYP	Gypsum	RSD	Recessed Soap Dish							
CG	Corner Guard	GWB	Gypsum Wall Board	RT	Recentile							
CAB	Cabinet			RWD	Redwood							
CABIN	Coat Basin			RWL	Rain Water Leader							
CEM	Common	HB	Hose Bibb	S	South							
CER	Ceramic	HC	Hollow Core	SC	Side-Mounted FEC							
CH	Coat Hook	HDWD	Hardwood	SCD	Solid Core							
CHLKB	Chalkboard	HDWE	Hardware	SCHED	Schedule							
CI	Cast Iron	HWALL	Headwall	SD	Soil Dispenser							
CJ	Compensation Joint	HI	Hi-Tension	SD-R	Soap Dish - Recessed							
CLG	Caulking	HGT	Height	SECT	Section							
CLKG	Caulking	HM	Hollow Metal	SPEC	See Electrical Drawings							
CLO	Closet	HO	Hold Open	SQ	Spandrel Glazing							
CLR	Clear	HORIZ	Hour	SIM	Shelf							
CMU	Concrete Masonry	HR	Horizontal	SMD	Stem Joint							
CNTR	Counter	HRC	Hot Rolled Channel	SM	See Mechanical Drawings							
COL	Telephone and Communications Room	ID	Inside Diameter (Dim.)	SMS	Sheet Metal							
COMP	Compensation	IDF	Intermediate Distribution Frame	SND	Sheet Metal Screw							
CONC	Concrete	INSUL	Insulation	SPT	Sanitary Napkin Dispenser							
CONN	Connection	INT	Intermediate Support	SP	Standpipe							
CONTR	Construction Continuous Corridor	IS	Infrared Tagging Sensor	SPC	Standpipe Cabinet							
CPT	Corridor	IT	Intravenous Hook	SPVC	Standpipe Valve Cabinet							
CR	Carpet	IVP	Isolated Room	SQ	Square							
CRC	Card Reader	JAN	Janitor	TERR	Terrazzo							
CSP	Cold Rolled Channel	JT	Joint	TER	Thick							
CCT	Ceramic Standpipe	KIT	Kitchen	THK	Thin							
CTR	Center	LAB	Laboratory	TOP	Top of insulation							
CTS	Countersunk	LAM	Laminate	TP	Top of Test Bed							
CU	Combination Unit	LAV	Lavatory	TC	Top of陶/Concrete							
DBL	Double	LD	Lock Down	TD	Trench Drain							
DD	Diaper Dispenser	LKR	Locker	TEL	Telephone							
DE	Delayed Egress	LL	Low Lit	TER	Terrazzo							
DEPT	Department	LO	Low Usework	TER	Thick							
DET	Detail	LWS	Air Grill	THK	Thin							
DF	Drinking Fountain	M	Mirror	TOP	Top of insulation							
DI	Door Holder	M/P/TD/S	Mirror/Paper Towel Dispenser	TOPD	Top of Test Bed							
DIA	Dimension	LT	Light	TOPR	Top of Test Bed							
DIM	Dimension	LWR	Low Wall	TOPS	Top of Soil							
DISP	Dispenser		Return Air Grill	TOPW	Top of Wall							
DT	Drip			TP	Top of Pavement/ Telephone Panelboard							
DWG	Drawing			TPD	Top of Paper Dispenser							
DWR	Diaper Waste			TPR	Towel Shelf							
DWS	Receptacle			TS	Toilet Seat Cover Dispenser							
DX	Drivwall Screw			TS	Television							
E	East			TS	Top of Wall							
(E)	Existing			TS	Typical							
EA	Each			TS	Vertical							
EB	Expansion Bolt			VEST	Vestibule							
EBF	Braced Frame			VIF	Verify In Field							
EIFS	Exterior Insulated Finish System			VG	Vision Glazing							
EIR	Environmental Impact Report			VLDT	Vertical Louver Drape Track							
EL	Elevation			ZVB	Zone Valve Box							
ELEV	Electrical Closet											
EMER	Emergency											
ENCL	Enclosure											
ESP	Edger On Slab											
EPB	Electrical Panelboard											
EQ	Equal											
EQPT	Equipment											
EWC	Expansion cooler											
EXPO	Exposed	NCC	Nitrogen Control Cabinet									
EXIST	Existing	NIC	Not In Contract									
EXT	Exterior	NO #	Number									
F	Fire Alarm	NOM	Nominal									
FB	Flat Bar	NTS	Not To Scale									
FDC	Fire Department Connection	O/B	Overbed (Light)									
FE	Foundation	OBS	Overall									
FEC	Fire Extinguisher Cab.	OC	Obscure	</td								

## PROJECT CODES / REGULATIONS

- A. Applicable provisions of Public Law 91-54, the Constitution and Laws of the State of California and the codes and regulations of the Department of Energy are hereby referred to and made a part of this Subcontract and all work performed shall be in accordance with such laws, regulations and the latest edition or supplement or amendment thereto in effect at the time of submittal of bid shall be considered to be the issue in effect (unless shown otherwise) of all applicable codes including, but not limited to the following:
1. California Code of Regulations (CCR), latest edition comprising:
    - a. Title 8, Industrial Relations.
    - b. Title 17, Public Health.
    - c. Title 19, Public Safety.
    - d. Title 20, Public Utilities and Energy.
    - e. Title 21, Public Works.
    - f. Title 24, California Building Standards Code, including:
      - 1) Part 1, Administrative Code.
      - 2) Part 2, California Building Code (CBC).
      - 3) Part 3, California Electrical Code (CEC) only listed exceptions from latest edition of NEC (NFPA 70) as included in CEC edition specified herein.
      - 4) Part 4, California Mechanical Code (CMC).
      - 5) Part 5, California Plumbing Code (CPC).
      - 6) Part 6, California Energy Code (CEC).
      - 7) Part 7, California Elevator Safety Construction Code (CESCC).
      - 8) Part 8, California Historical Building Code.
      - 9) Part 9, California Fire Code (CFC).
      - 10) Part 10, California Code for Building Conservation.
      - 11) Part 12, State Reference Standards Code.
    - g. Title 26, Toxic.
  2. NFPA National Fire Codes, latest edition, as applicable, at minimum:
    - a. NFPA 13: Standard for the Installation of Sprinkler Systems.
    - b. NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
    - c. NFPA 51B: Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes.
    - d. NFPA 70: National Electrical Code (NEC).
    - e. NFPA 70E: Standard for Electrical Safety in the Workplace, latest edition.
    - f. NFPA 72: National Fire Alarm and Signaling Code.
    - g. NFPA 101: Life Safety Code®.
    - h. NFPA 110: Standard for Emergency and Standby Power Systems.
    - i. NFPA 241: Standard for Emergency and Standby Power Systems.
  3. NFPA Standard 13, "Standard for the Installation of Sprinkler Systems," latest edition.
  4. NFPA 70: National Electrical Code (NEC), latest edition.
  5. NFPA 70E: Standard for Electrical Safety in the Workplace, latest edition.
  6. National Electrical Safety Code, ANSI C2, latest edition.
  7. Illuminating Engineering Society of North America (IES), latest edition.
  8. Occupational Safety and Health Act (OSHA).
  9. General Services Administration 41 CFR Part 101-19.
  10. Energy Conservation Performance Standards, 10 Code of Federal Regulations (CFR), Part 434 (Mandatory for Federal Buildings).
  11. American National Standards Institute (ANSI) Standards.
    - a. Individual standards as referenced on Drawing and in the individual Sections of the Specifications.
  12. The American Society of Heating and Air Conditioning Engineers (ASHRAE) Handbooks and Standards, latest edition.
    - a. Individual handbooks and standards as referenced on Drawing and in the individual Sections of the Specifications.
  13. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) Standards, latest edition. Exception: For seismic bracing see "Lateral Force Design Criteria", RD3.22.
  14. Americans with Disabilities Act (ADA).
  15. The American Society of Mechanical Engineers (ASME) Standards and Codes, latest edition.
    - a. Individual standards as referenced on Drawing and in the individual Sections of the Specifications.
  16. The American Society for Testing and Materials (ASTM) Standards, latest edition.
    - a. Individual standards as referenced on Drawing and in the individual Sections of the Specifications.
  17. Air Moving & Conditioning Association (AMCA) Fan Test Code, latest edition.
  18. Associated Air Balance Council (AABC) National Standards for Total System Balance.
  19. Factory Mutual Engineering Corp. (FM) Approval Guide and Loss Prevention Data Sheets, latest edition.
  20. Underwriters' Laboratories, Inc. (UL) Standards and "Building Materials, Fire Protection Equipment, and Fire Resistive Directories".
    - a. Individual standards as referenced on Drawing and in the individual Sections of the Specifications.
  21. Lawrence Berkeley National Laboratory:
    - a. LBNL "Long Range Site Development Plan", current version as approved by the Regents of the University of California and the DOE.
    - b. LBNL "Health and Safety Manual", Publication 3000, latest edition.
    - c. LBNL "Worker Safety and Health Plan".
    - d. LBNL "Lateral Force Design Criteria", RD3.22.
    - e. LBNL "Checking of Architecture and Engineering Documents", RD3.8.
  22. National Institute of Standards and Technology:
    - a. "Life Cycle Costing Manual for the Federal Energy Management Program", Handbook 135.
  23. The American Institute of Steel Construction (AISC):
    - a. "Manual of Steel Construction, Load and Resistance Factor Design, latest edition and AISC
    - b. "Seismic Provisions for Steel Buildings", latest edition.
  24. American Society of Civil Engineers "Manual of Professional Practice", Quality in the Construction Project, a manual published by the. See RD2.8.
  25. Codes and Standards listed in Division 01 Section "Environmental, Safety, and Health Procedures", and Health General Requirements, Paragraph 1.2, Codes and Standards

## BUILDING CRITERIA

**BUILDING OCCUPANCY**  
NEW TEST BEDS: S-1, STORAGE  
EXISTING BUILDING 90: B -OFFICE, OPEN WORK AREAS/ A-3 - CLASSROOM

**OCCUPANT LOAD FACTOR**  
NEW TEST BEDS: WAREHOUSE- 300 SF/PERSON  
EXISTING BUILDING 90: CLASSROOM- 20 SF/PERSON  
ASSEMBLY AREA - 50SF/PERSON  
OFFICE- 100 SF/PERSON

**GENERAL BUILDING LIMITATIONS**  
NEW BUILDINGS WILL BE SURROUNDED BY YARDS OR PUBLIC WAYS ON FOUR SIDES OF THE BUILDING. PER TABLE 602 EXTERIOR WALLS THAT ARE SEPARATED BY 30 FEET OR MORE HAVE NO REQUIREMENTS FOR WALL OR OPENING PROTECTION. EXTERIOR WALL SEPERATED BY BETWEEN 10-30 FEET WILL REQUIRE 1 HOUR RATED CONSTRUCTION.

**ALLOWABLE FLOOR AREA**  
NEW TEST BEDS: PER CBC TABLE 503 ALLOWABLE BUILDING AREA IS 9,000GSF. BUILDING COMPLIES.  
EXISTING BUILDING 90: N/A

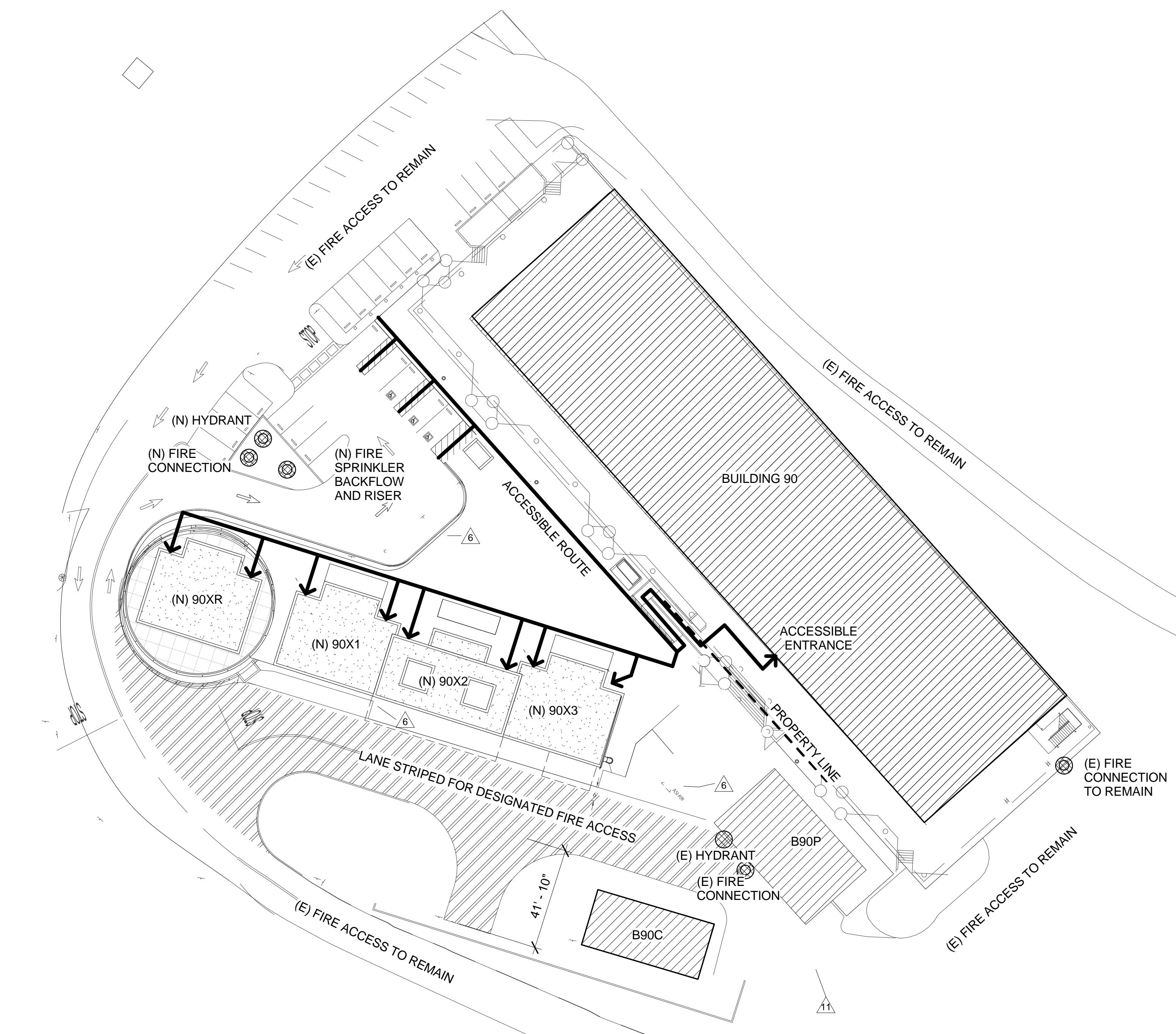
**MAXIMUM HEIGHT OF BUILDING**  
NEW TEST BEDS: PER CBC TABLE 503 ALLOWABLE BUILDING HEIGHT IS 40' (ONE STORY). BUILDING COMPLIES.  
EXISTING BUILDING 90: N/A

**REQUIREMENTS BASED ON TYPE OF CONSTRUCTION**

NEW TEST BEDS:  
PER CBC TABLE 601, TYPE V-B:  
FIRE RESISTANCE RATING OF STRUCTURAL FRAME: 0 HOUR - NO REQUIREMENT  
BEARING WALL - EXTERIOR 0 HOUR - NO REQUIREMENT, INTERIOR 0 HOUR - NO REQUIREMENT  
NONBEARING EXTERIOR WALLS - REQUIREMENTS LISTED UNDER GENERAL BUILDING LIMITATIONS ABOVE.  
NONBEARING INTERIOR WALLS - 0 HOUR - NO REQUIREMENT  
FLOOR CONSTRUCTION: 0 HOUR- NO REQUIREMENT  
ROOF CONSTRUCTION: 0 HOUR -NO REQUIREMENT

**BUILDING 90:**  
PER CBC TABLE 601, TYPE 3-N:  
NOTE: VERIFY WITH LBNL FIRE ASSESSMENT DOCUMENT  
FIRE RESISTANCE RATING OF STRUCTURAL FRAME: 1 HOUR  
BEARING WALL - EXTERIOR -N/A, INTERIOR - 1 HOUR (VERIFY)  
NONBEARING EXTERIOR WALLS - N/A  
NONBEARING INTERIOR WALLS - 1 HOUR (VERIFY)  
FLOOR CONSTRUCTION: 0 HOUR- 1 HOUR (VERIFY)  
ROOF CONSTRUCTION: 0 HOUR -N/A

**EXITING REQUIREMENTS**  
NEW TEST BEDS:  
PER TABLE 1010.2, B-UNOCCUPIED IN SINGLE STORY BUILDING W/ ZERO OCCUPANTS AND 100 FT. TRAVEL DISTANCE REQUIRE ONE MEANS OF EGRESS - PROJECT COMPLIES.  
EXISTING BUILDING 90:  
PER CBC TABLE 1016.1 FOR PERMITTED TRAVEL DISTANCES TO TWO MEANS OF EGRESS:  
CORRIDORS- 1 HOUR RATED  
STAIRWAYS- EXISTING STAIR ENCLOSURES PROVIDE REQUIRED MEANS OF EGRESS FOR PROJECT.

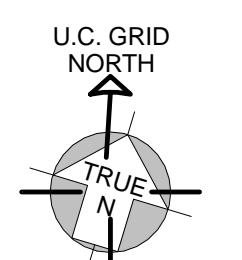


② LIFE SAFETY SITE PLAN  
1' = 30'-0"

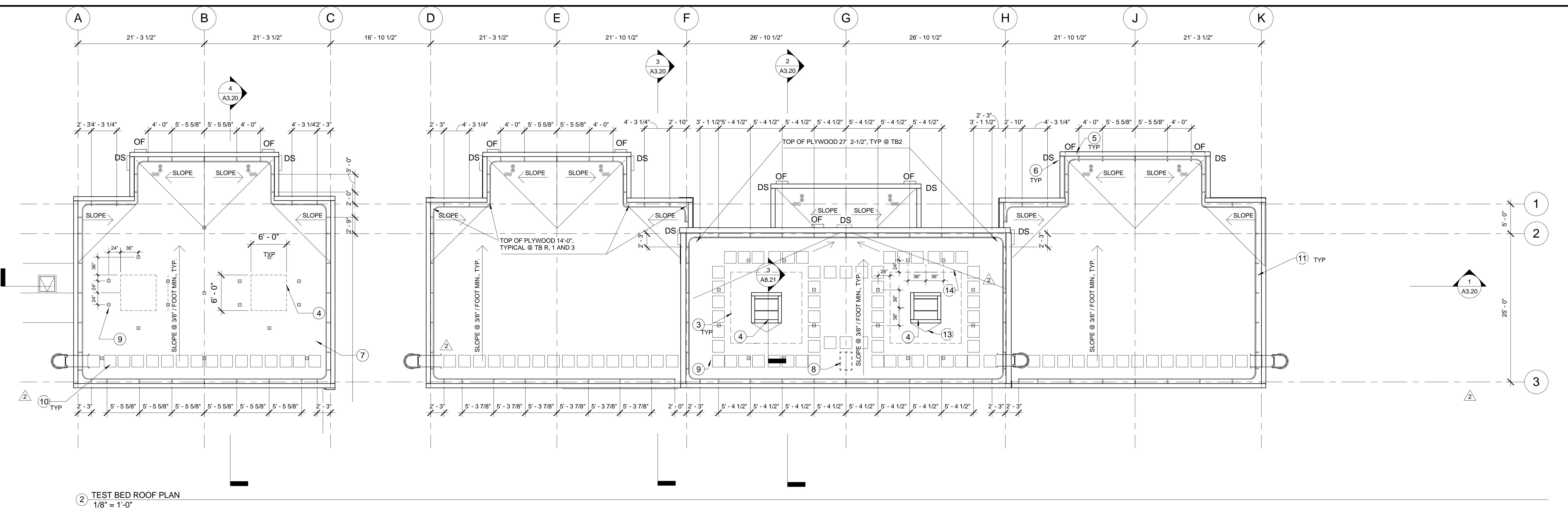
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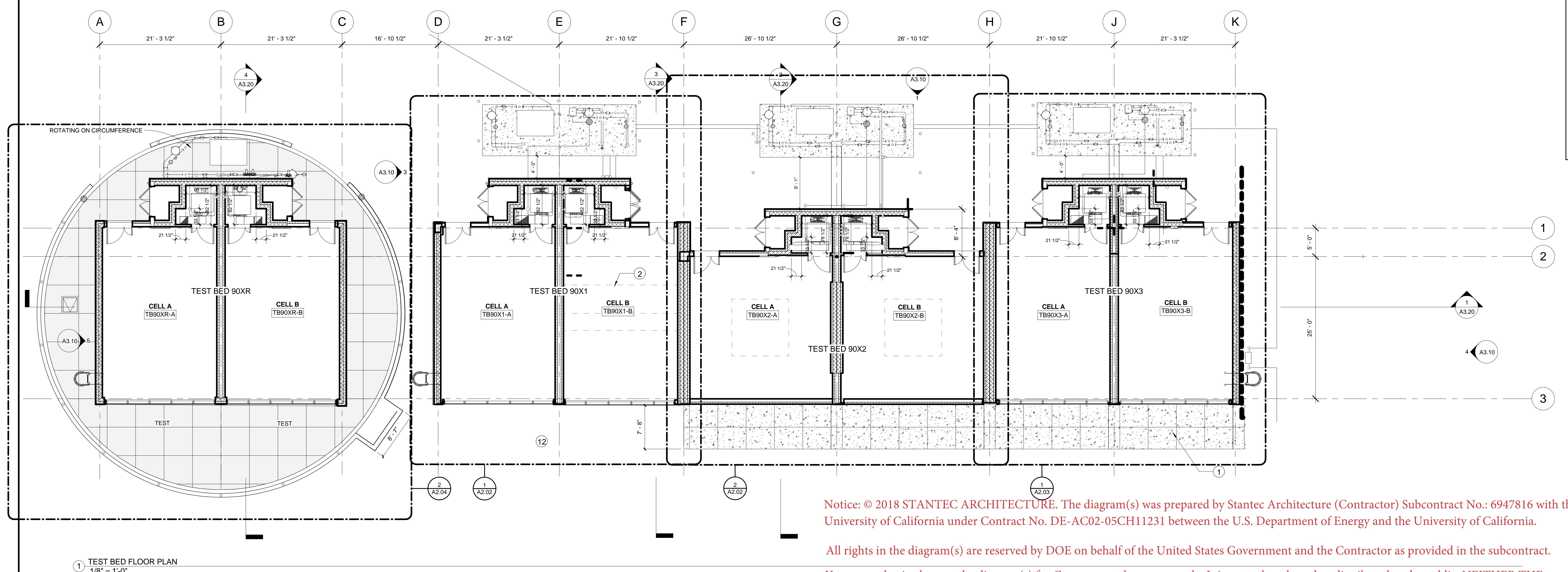
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						Approved by	Date	CAD file path	Issue 1305-030/workgroup/2014/active/01201002400_LBNL_UTBF_E_Product/01BM/REVIT/LE.../Overall site plan.dwg	Title: CODES, LIFE SAFETY PLAN	Checked by	Date
Architect	Consulting Firm	Consulting A/E Firm				Scale: As indicated	Sheet no:	G0.02			Project No: 6947816	Project ID: FNO100



- KEY NOTES**
- LOCATION OF FUTURE ENVIRONMENTAL CHAMBER CONSTRUCTION
  - PROVIDE FLUSH THREADED INSERTS @16" OC FOR FUTURE PARTITIONS @ 12', 15' AND 20' FROM SOUTH FAÇADE TYPICAL AT ALL TEST BEDS. CO-ORDINATE RADIANT ZONING AS REQUIRED.
  - PROVIDE FRAMING FOR 12' X12' OPENING AS REQUIRED FOR CHANGABLE SKYLIGHT CONFIGURATIONS. S.S.D
  - PROVIDE FRAMING FOR FUTURE 4'X4' OPENING AS REQUIRED FOR CHANGABLE SKYLIGHT CONFIGURATIONS
  - OVERFLOW SCUPPER (OF), TYP
  - CONDUCTOR HEAD & DOWNSPOUT LOCATION (DS), TYP
  - FOR TEST BED INSULATION VALUE SCHEDULE THIS SHEET
  - (N) WEATHER STATION
  - PROVIDE DETACHABLE ROOF ANCHOR FALL PROTECTION AS SHOWN
  - PROVIDE ROOF WALKWAY PADS
  - GALVANIZED GUARDRAILS ARE TO BE PAINTED WITH HIGH PERFORMANCE COATING PER SPECS. COLOR AND SHEEN TO MATCH EXTERIOR LOUVERS: SEAWOLF GRAY AND STAIN SHEEN
  - ASPHALTIC CONCRETE
  - CRICKETS AT SKYLIGHT CURB
  - CRICKET- 1/8" FT SLOPE AT VALLEY TYP
- ROOF INSULATION SCHEDULE**
- | TEST BED NUMBER | INSULATION VALUE                                   |
|-----------------|--|
| TBRA            | ASHRAE 90.1-2010 COMP - R-20 (4" RIGID)            |
| TBRB            | ANNUAL NET ZERO                                    |
| TB1A            | ASHRAE 90.1-1975 COMPLIANT- R-19; U-0.10           |
| TB1B            | ASHRAE 90.1-1975 COMPLIANT- R-19; U-0.10           |
| TB2A            | CA-T24-2013 COMPLIANT - R-20 (4" RIGID)            |
| TB2B            | CA-T24-2013 COMPLIANT - R-20 (4" RIGID)            |
| TB3A            | ASHRAE 90.1-2010 COMP - R-20 (4" RIGID)            |
| TB3B            | ASHRAE 90.1-2010 COMP - R-20 (4" RIGID)            |
| NIC             | TB4A-ALT.. CA-T24-2013 COMPLIANT - R-20 (4" RIGID) |



**ALTERNATE #1 • NIC**

-ADDITION OF TEST BED 90X4, INCLUDE ALL BUILDING SYSTEMS AND CONNECTIVITY TO SERVE THIS TEST BED.

-BASE SCHEME DOES NOT INCLUDE THIS TEST BED OR ANY INFRASTRUCTURE SPECIFICALLY REQUIRED TO SERVE ONLY THIS TESTBED.

-BASE SCHEME REQUIRES AN EXTERIOR WALL AT COLUMN LINE 'K', SIMILAR TO THE WALL SHOWN AT COLUMN LINE 'D', AND EXT. ROOF LADDER ATTACHED IN SAME LOCATION, RESPECTIVELY.

-BASE SCHEME REQUIRES ASPHALTIC CONCRETE AT NIC TEST BED 4 LOCATION

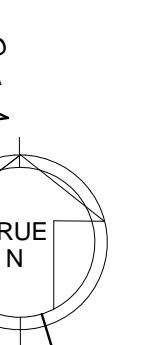
**GENERAL NOTES**

- PROVIDE THERMAL BRIDGING TEMPERATURE SENSORS IN ALL TEST BEDS (18 TOTAL) AS FOLLOWS:
  - FIRST MAIN AREA - AT CORNER COLUMNS OF TESTBED ROWS, AND AT COLUMN ENDS OF WALLS BETWEEN TESTBEDS AND BETWEEN CELLS.
  - SECOND MAIN AREA - INSIDE AIR GAP AT CENTER OF ANY WALL SEPARATING TESTBEDS OR CELLS THIS IS A DOUBLE WALL ASSEMBLY WITH AN AIR GAP BETWEEN
- SEE THIS SHEET, INTERIOR ELEVATIONS, REFLECTED CEILING PLANS, EXTERIOR DETAILS AND SENSOR PLAN A10.01 FOR LOCATION OF SENSORS. FINAL SENSOR LOCATIONS TO BE CONFIRMED BY SHOP DRAWING REVIEW.

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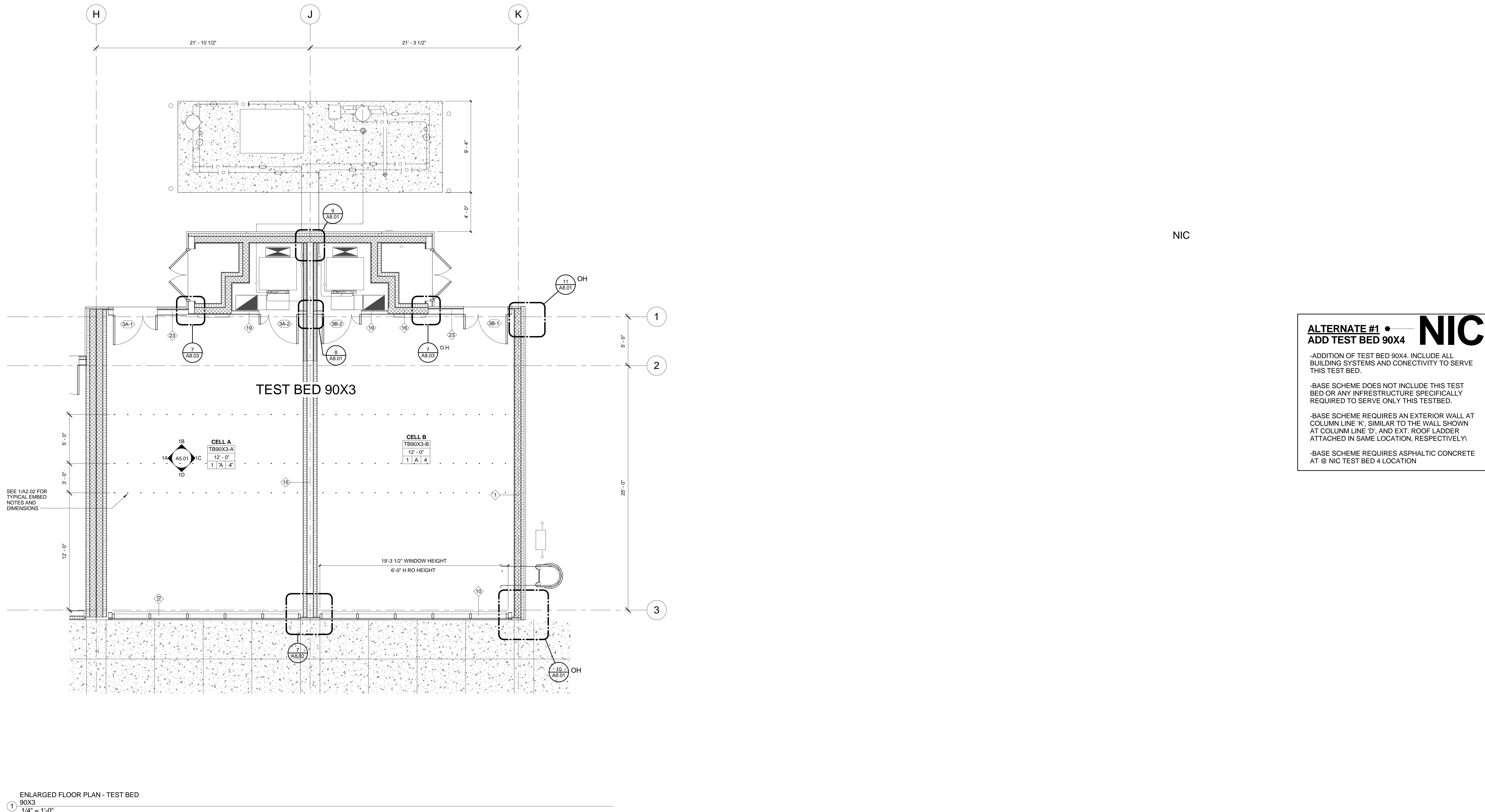


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								Approved by CAD file path Title: TEST BED PLANS					Checked by	Date	
LAWRENCE BERKELEY NATIONAL LABORATORIES FACILITIES DIVISION										Scale: As indicated	Sheet no:	A.2.01 4B90XA003			
Architect	Consulting Firm	Consulting A/E Firm	Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)	Revision number	Drawn by	Checked by	Approved by	Date	Remarks			Project No: 6947816	Original Sheet - A.2.01	Project ID: FNO100

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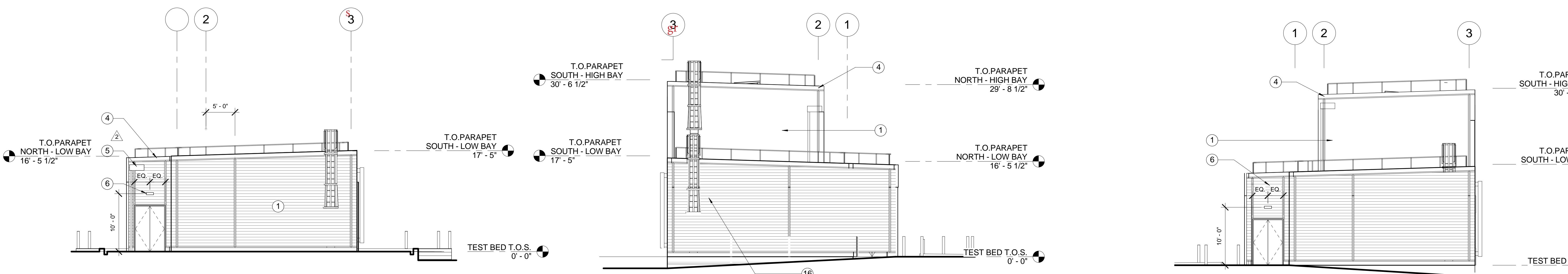
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**EXTERIOR MATERIAL KEY NOTES**

- ① -HORIZONTAL CORRUGATED METAL PANELS, TYP.
- ② - NOT USED
- ③ - HOLLOW METAL DOORS , TYP.
- ④ - METAL COPING TO MATCH METAL PANEL, TYP. LOCATE LAP SEAMS AS SHOWN.
- ⑤ - SHEET METAL CONDUCTOR HEADS & DOWN SPOUTS TO MATCH METAL PANEL, TYP.
- ⑥ - EXTERIOR LIGHT FIXTURE, TYP.
- ⑦ - SURFACE FASTENED CEMENT BOARD, TYP. SMOOTH FINISH
- ⑧ - ALUMINUM MULLIONS - SEE GLAZING SCHEDULE FOR TEST FIT OUT, TYP.
- ⑨ - METAL ACCESS LADDER, TYP.
- ⑩ - STL. GUARDRAIL, TYP.
- ⑪ - STL. STRUCTURE FOR FUTURE SUNSHADE, S.S.D. TYP.
- ⑫ - REVEAL AND EDGE TRIM TO MATCH METAL PANELS, TYP.
- ⑬ - BOARD FORMED CONCRETE, TYP.
- ⑭ - STL BOLLARDS, TYP.
- ⑮ - INTEGRAL METAL LOUVER TO MATCH METAL PANEL, TYP.
- ⑯ - LOCATE ANY UTILITIES (RISERS) NORTH OF LADDER TO AVOID CONFLICT



⑤ WEST ELEVATION - TEST BED 90XR  
1/8" = 1'-0"

④ EAST ELEVATION - TEST BED 90X3  
1/8" = 1'-0"

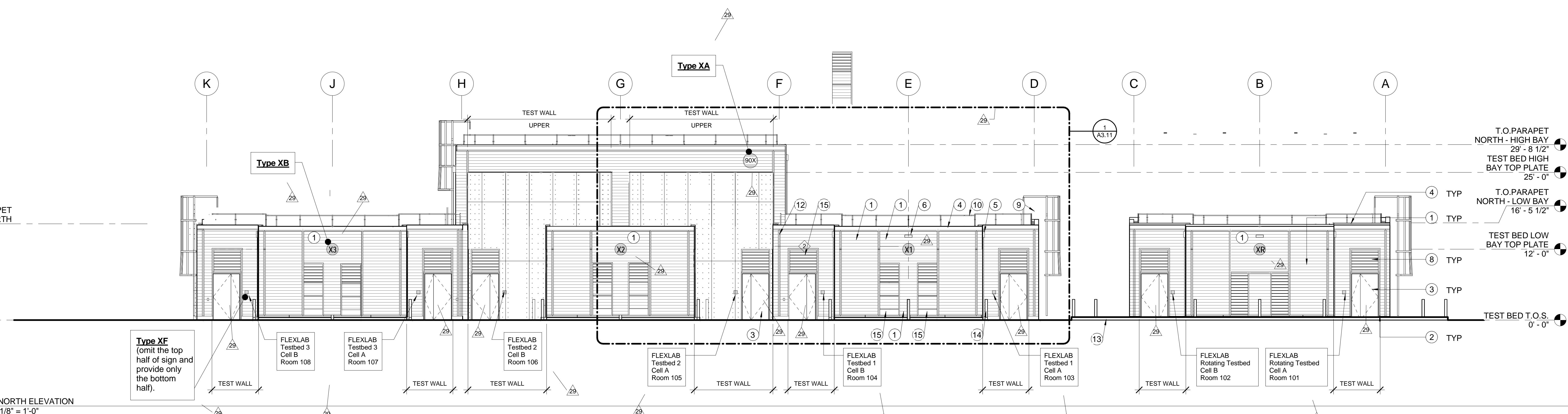
③ WEST EVATION - TEST BED 90X1  
1/8" = 1'-0"

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② SOUTH ELEVATION  
1/8" = 1'-0"



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11/11/2013

	2	01/19/2012	BID ADDENDUM # 2
	6	05/11/2012	ISSUE FOR CONSTRUCTION
	29	11/11/2013	ASI 27

Project name  
User Test Bed Facility (UTBF) Project  
Lawrence Berkeley National Laboratory  
University Of California

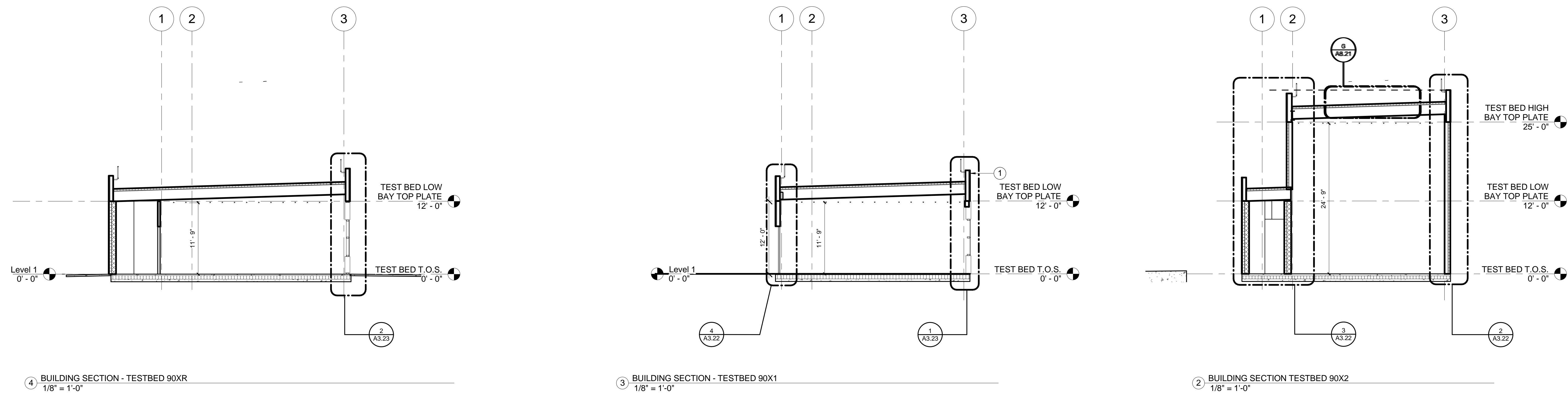
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Approved by	Date
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Title:	BUILDING ELEVATIONS

LAWRENCE BERKELEY NATIONAL LABORATORIES  
FACILITIES DIVISION

Scale: 1/8" = 1'-0"	Sheet no: A3.10
Project No: 6947816	Project ID: FNO100

### EXTERIOR MATERIAL KEY NOTES

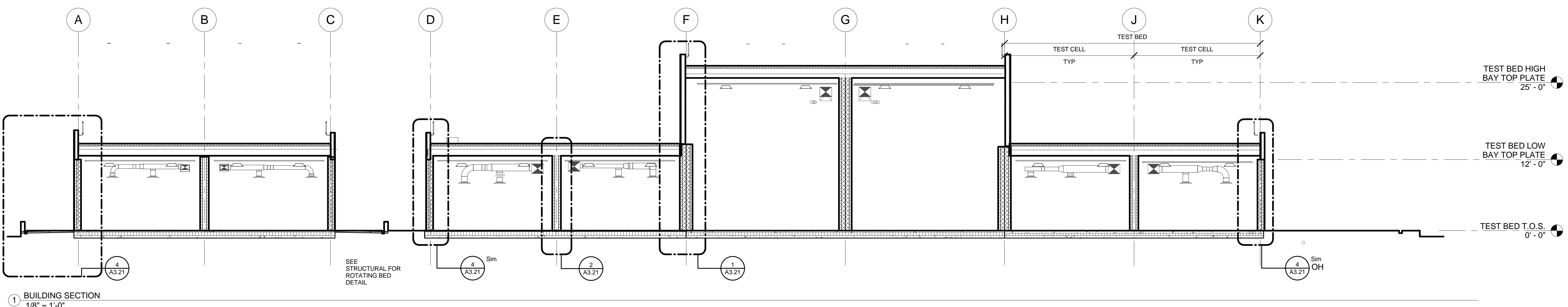
- ① VERTICAL CORRUGATED METAL PANELS
- ② UNISTRUT



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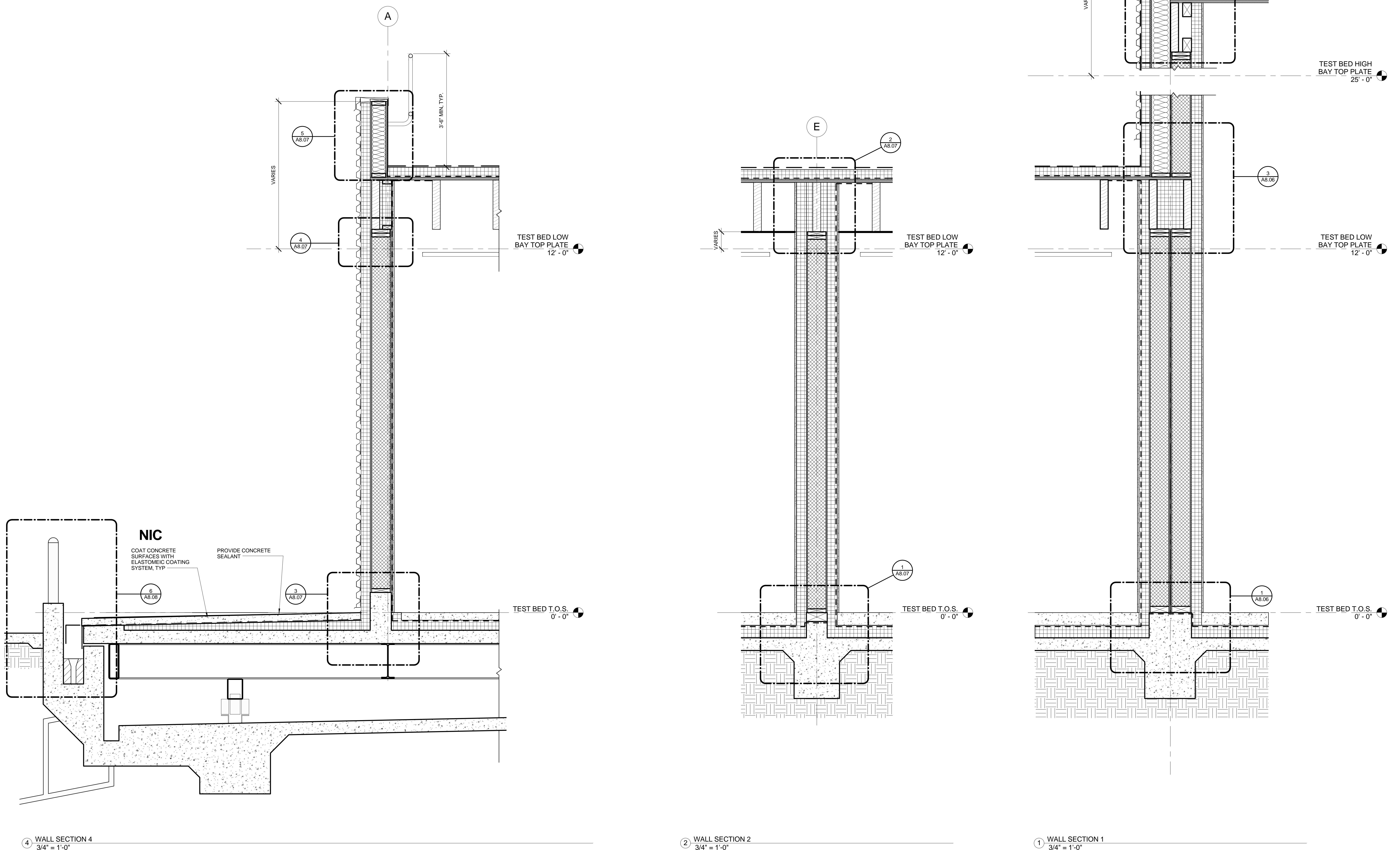


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					User Test Bed Facility (UTBF) Project	Checked by	Approved by	CAD file path	Title: BUILDING SECTIONS	Approved by	Date
Architect	Consulting Firm	Consulting A/E Firm	Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)	Revision number	Drawn by	Checked by	C:\Users\SDancer\Documents\LBNL-Testbeds\4-1_schade.xls	LAWRENCE BERKELEY NATIONAL LABORATORIES	Scale: 1/8" = 1'-0"	Sheet no: A3.20
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										Project ID: FNO100	

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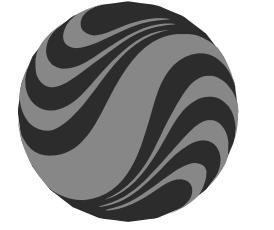
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④ WALL SECTION 4  
3/4" = 1'-0"

② WALL SECTION 2  
3/4" = 1'-0"

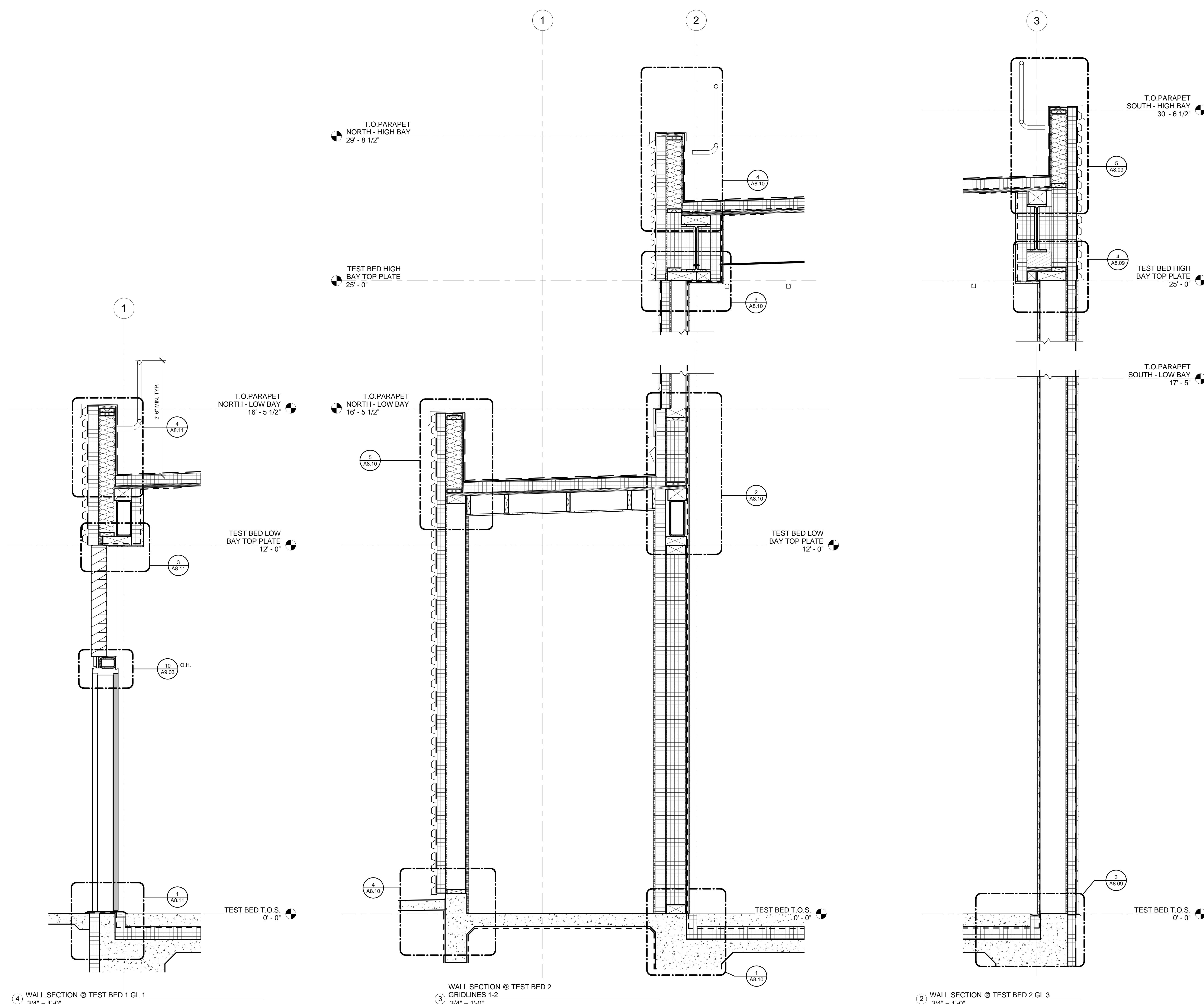
① WALL SECTION 1  
3/4" = 1'-0"

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						Project No:	6947816	
						Sheet no:	A3.21	
						Project ID:	FNO100	

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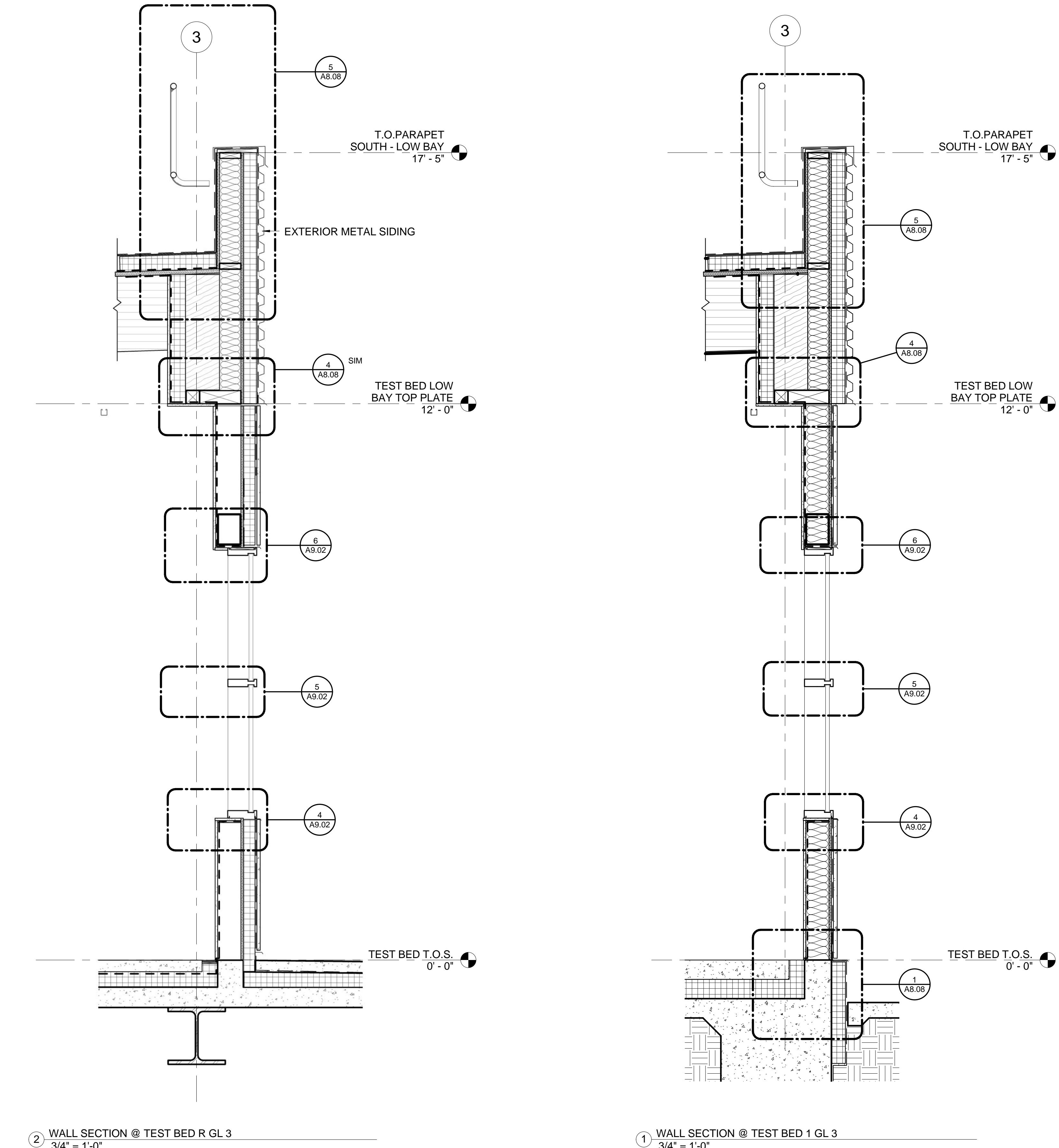


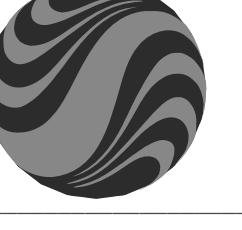
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Architect	Consulting Firm	Consulting A/E Firm	Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)	Revision number	Drawn by	Checked by	Approved by	Date	Remarks	LAWRENCE BERKELEY NATIONAL LABORATORIES FACILITIES DIVISION	CAD file path <a href="C:\Users\SDancer\Documents\LBNL-Testbeds\1-4_schade.kit">C:\Users\SDancer\Documents\LBNL-Testbeds\1-4_schade.kit</a>	Title: WALL SECTIONS
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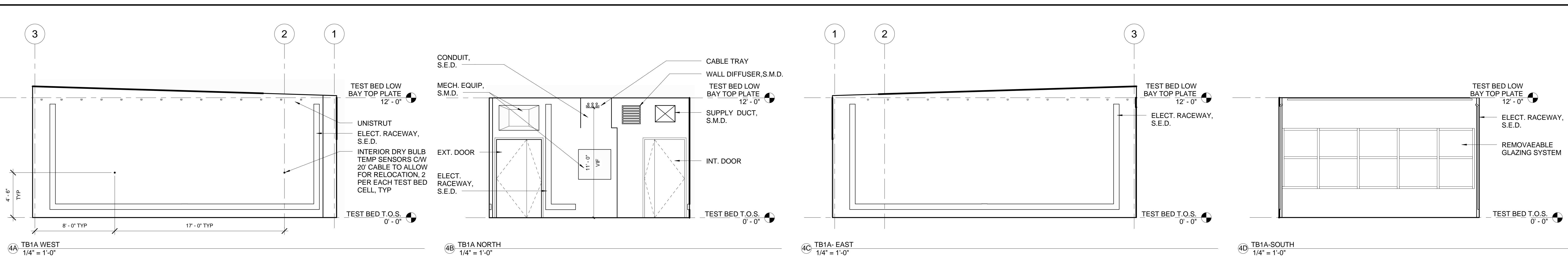
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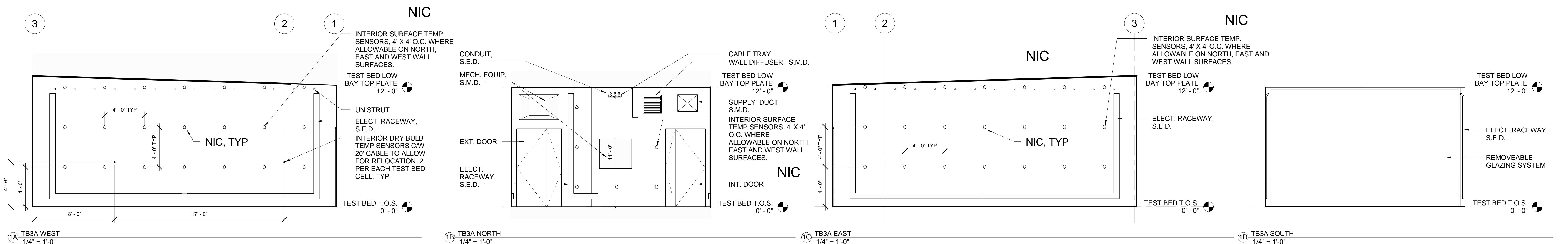
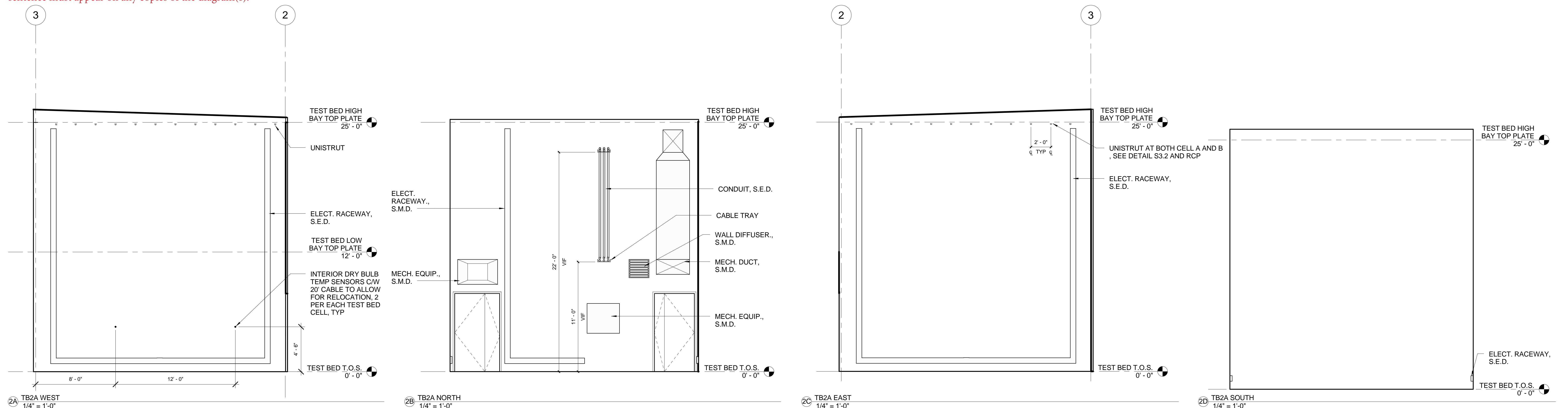
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Architect	Consulting Firm	Consulting A/E Firm	Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)	Revision number Drawn by Checked by Approved by Date Remarks	Sheet no: A5.01 Project No: 6947816 Project ID: FNO100
				6 05/11/2012 ISSUE FOR CONSTRUCTION		

## TEST FAÇADE SCHEDULE

NOTE: FOR FINISH MATERIALS SEE ELEVATION

### WALLS

#### SOUTH

TB-90xRA	ASHRAE 90.1 - 2010	- MTL. STUD W/ CONT RIGID INSUL
		- R-9 RIGID
TB-90xRB	ASHRAE 90.1 - 2010	- ASHRAE 90.1 - 2010
		- MTL. STUD W/ CONT RIGID INSUL
TB-90x1A	ASHRAE 90.1-1975	- R-20 RIGID
		- NET ZERO EQUIVALENT
TB-90x1B	ASHRAE 90.1-1975	- U-VALUE (ENTIRE FAÇADE) = .34
		- R-11 BATT
TB-90x1C	ASHRAE 90.1-1975	- U-VALUE (ENTIRE FAÇADE) = .34
		- R-11 BATT
TB-90x2A	N/A	CA-T24- 2013 COMPLIANT
TB-90x2B	N/A	- R-3 RIGID
TB-90x2C	N/A	- R-3 RIGID
TB-90x3A	ASHRAE 90.1 - 2010	= R-13 BATT W/ R-3.8 RIGID
TB-90x3B	ASHRAE 90.1 - 2010	= R-13 BATT W/ R-3.8 RIGID

NORTH		
TB-90xRA	ASHRAE 90.1 - 2010	- MTL. STUD W/ CONT RIGID INSUL
TB-90xRB	ASHRAE 90.1 - 2010	- R-9 RIGID
		- MTL. STUD W/ CONT RIGID INSUL
		- R-20 RIGID
TB-90x1A	ASHRAE 90.1-1975	- NET ZERO EQUIVALENT
		- U-VALUE (ENTIRE FAÇADE) = .34
TB-90x1B	ASHRAE 90.1-1975	- R-11 BATT
		- U-VALUE (ENTIRE FAÇADE) = .34
TB-90x2A	N/A	CA-T24- 2013 COMPLIANT
TB-90x2B	N/A	- R-3 RIGID
TB-90x2C	N/A	- R-3 RIGID
TB-90x3A	ASHRAE 90.1 - 2010	= R-13 BATT W/ R-3.8 RIGID
TB-90x3B	ASHRAE 90.1 - 2010	= R-13 BATT W/ R-3.8 RIGID

NIC

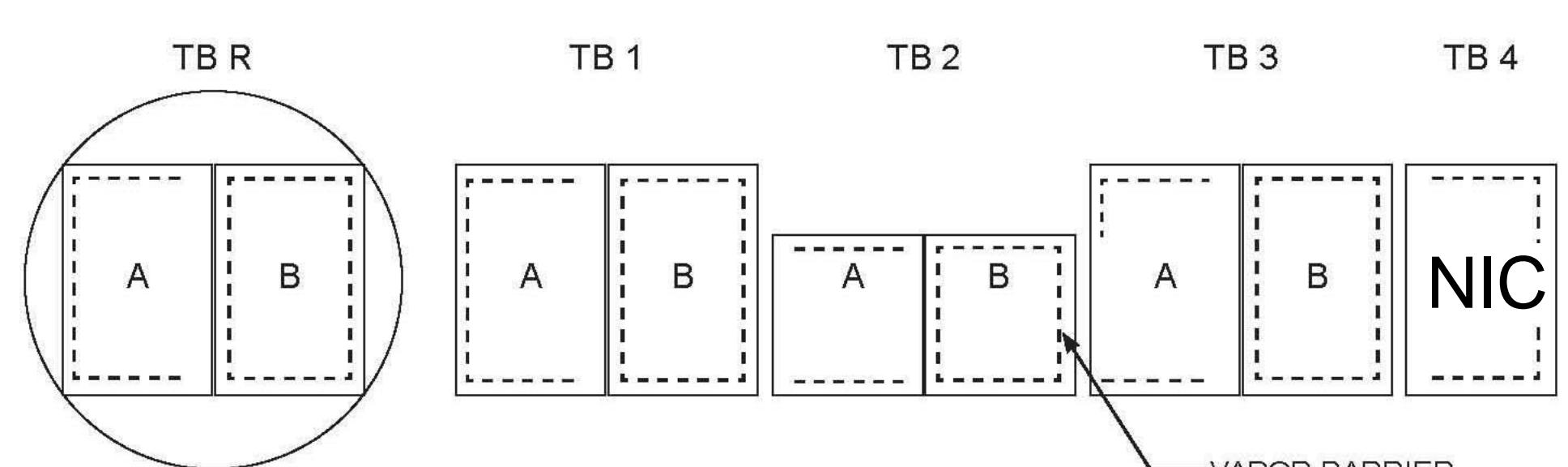
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### LBNL USER TEST BED FACILITY ENVIRONMENTAL OPERATIONS

The approach of this design is to maximize the temperature and humidity range of potential experiments while containing high temperature and humidity to Cell B. When condensation occurs between Cells or Test Beds, moisture will hopefully have the opportunity to escape to the Cell A side.

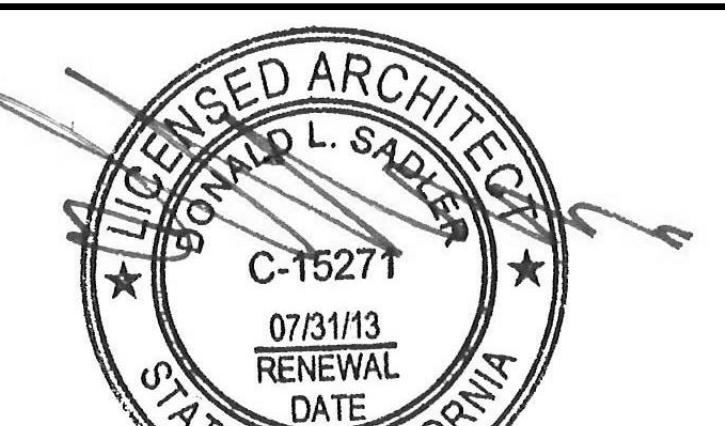


NOTE:  
REFER TO LOIOSO + UBBELONDE'S OCTOBER 24, 2011  
ADIABATIC WALL ANALYSIS REPORT, PAGE 4  
FOR PROPOSED ENVIRONMENTAL OPERATIONS

② VAPOR BARRIER LOCATION  
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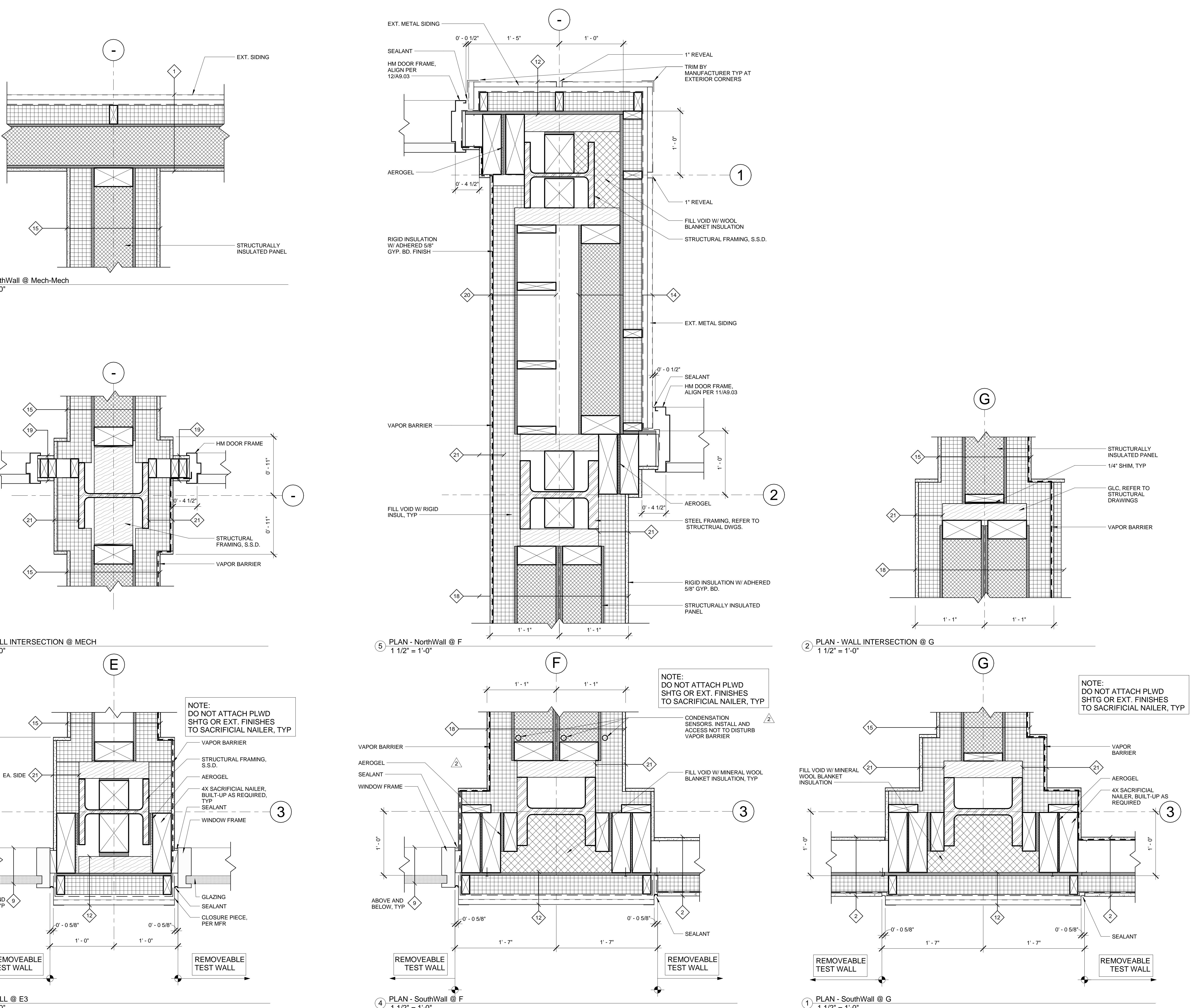
① WALL TYPES  
1 1/2" = 1'-0"

Architect	Consulting Firm	Consulting A/E Firm	Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)	Revision number	Drawn by	Checked by	Approved by	Date	Remarks	Project name	User Test Bed Facility (UTBF) Project Lawrence Berkeley National Laboratory University Of California	Drawn by	Date
<b>LAWRENCE BERKELEY NATIONAL LABORATORIES</b> <b>FACILITIES DIVISION</b>														
											Scale: As indicated	Sheet no: A8.00		
											Project No: 6947816	4B90XA026		
											Project ID: FNO100			

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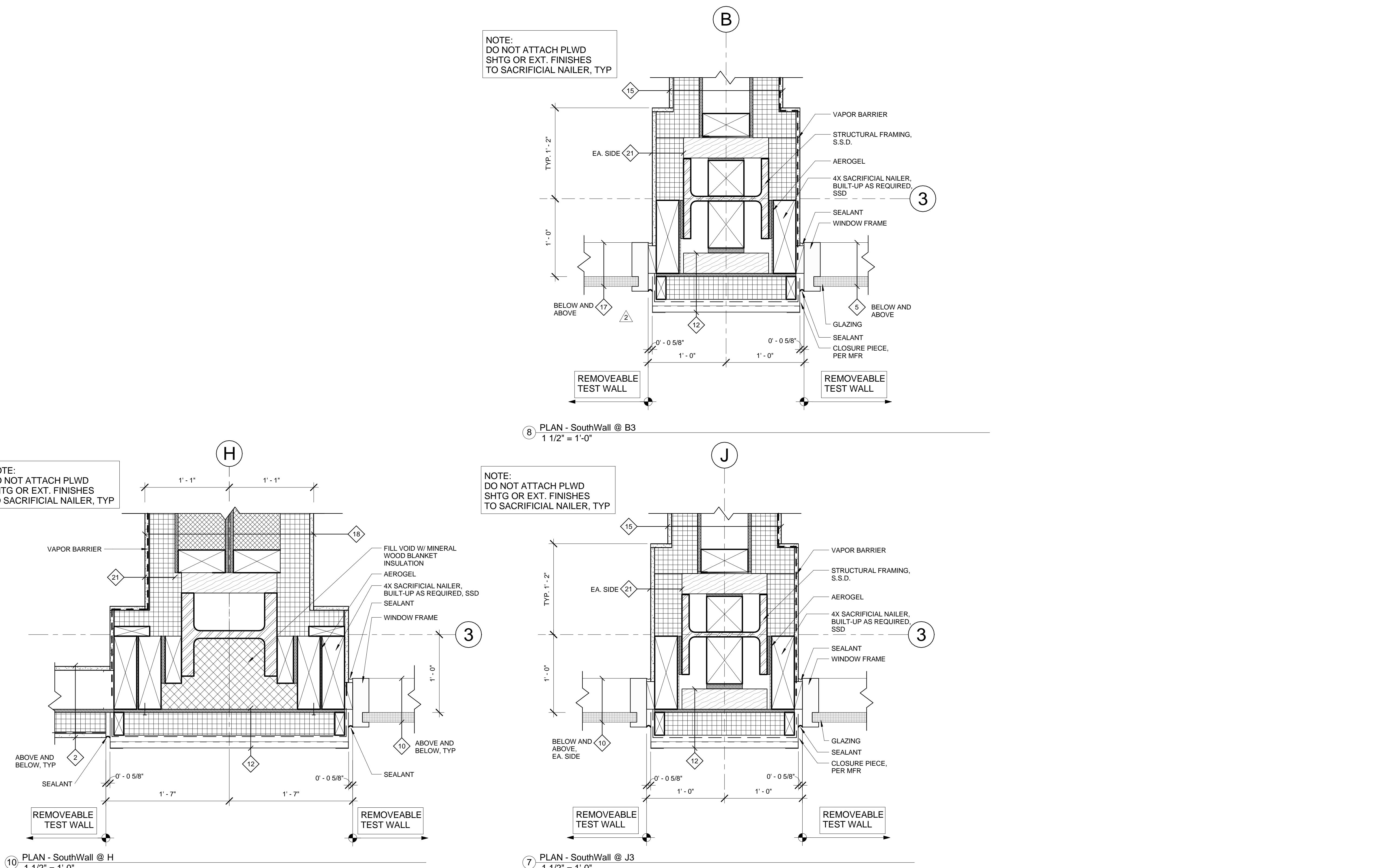
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4/24/2014 2:54:18 PM							

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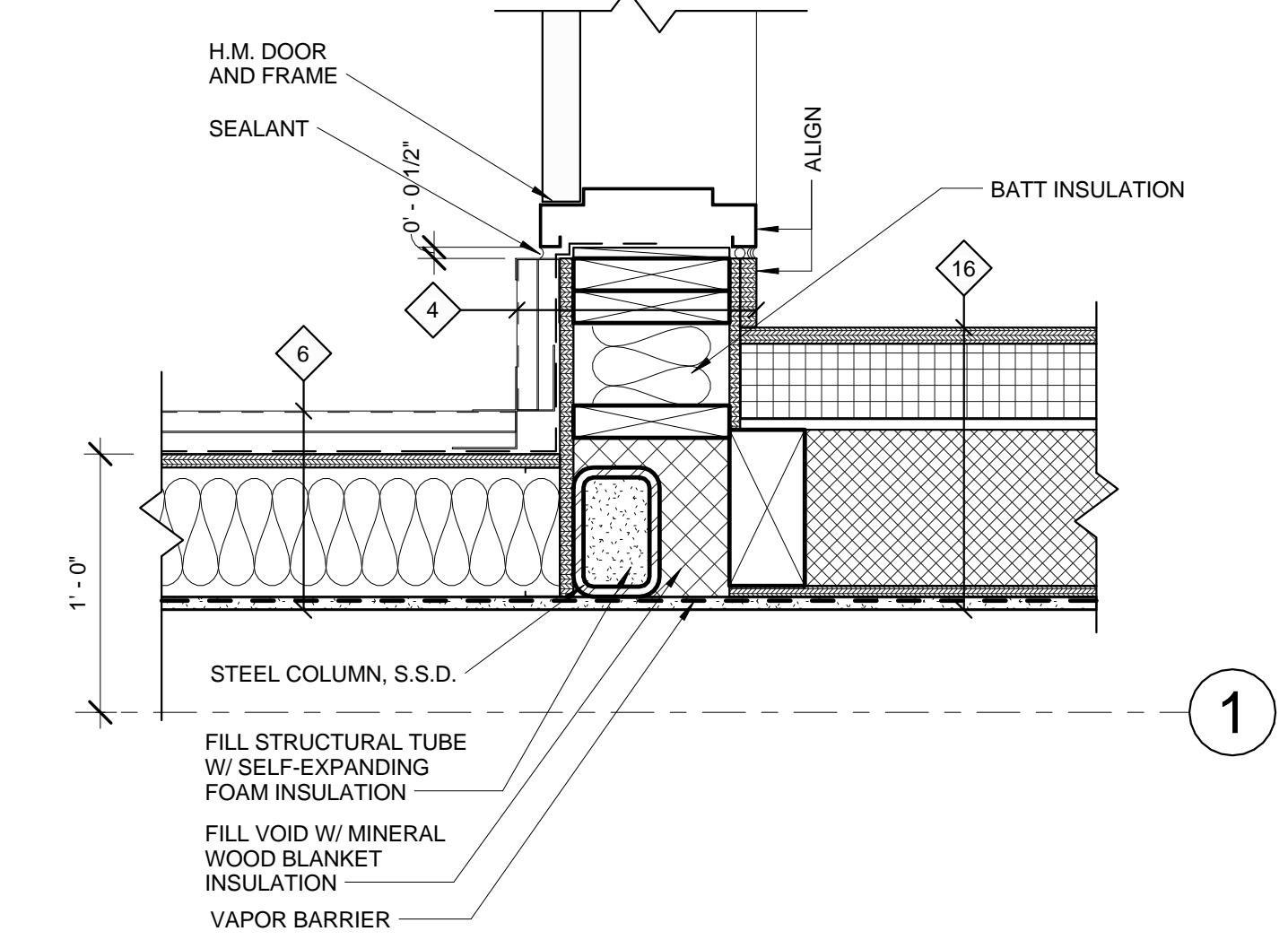
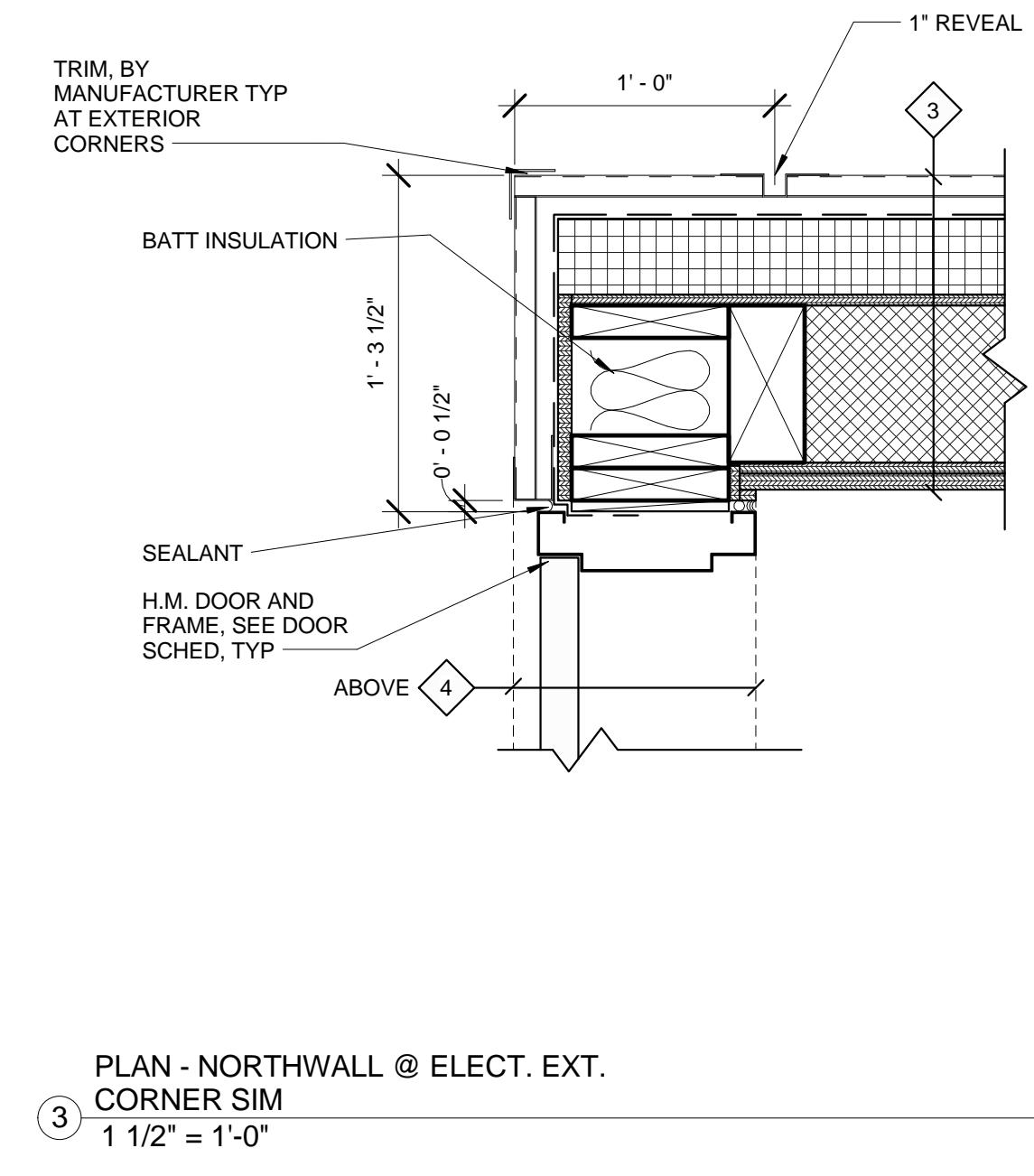


Stantec	Consulting Firm	Consulting A/E Firm	Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)	RECORD DRAWINGS 4/24/2014	Project name User Test Bed Facility (UTBF) Project Lawrence Berkeley National Laboratory University Of California	Drawn by	Date
901 Market Street San Francisco, CA 94103 Tel: (415) 281 5 xxx Fax: (415) 882 9563 www.stantec.com					2 6 01/19/2012 05/11/2012 ISSUE FOR CONSTRUCTION		Checked by	Date
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							Project ID:	FNO100

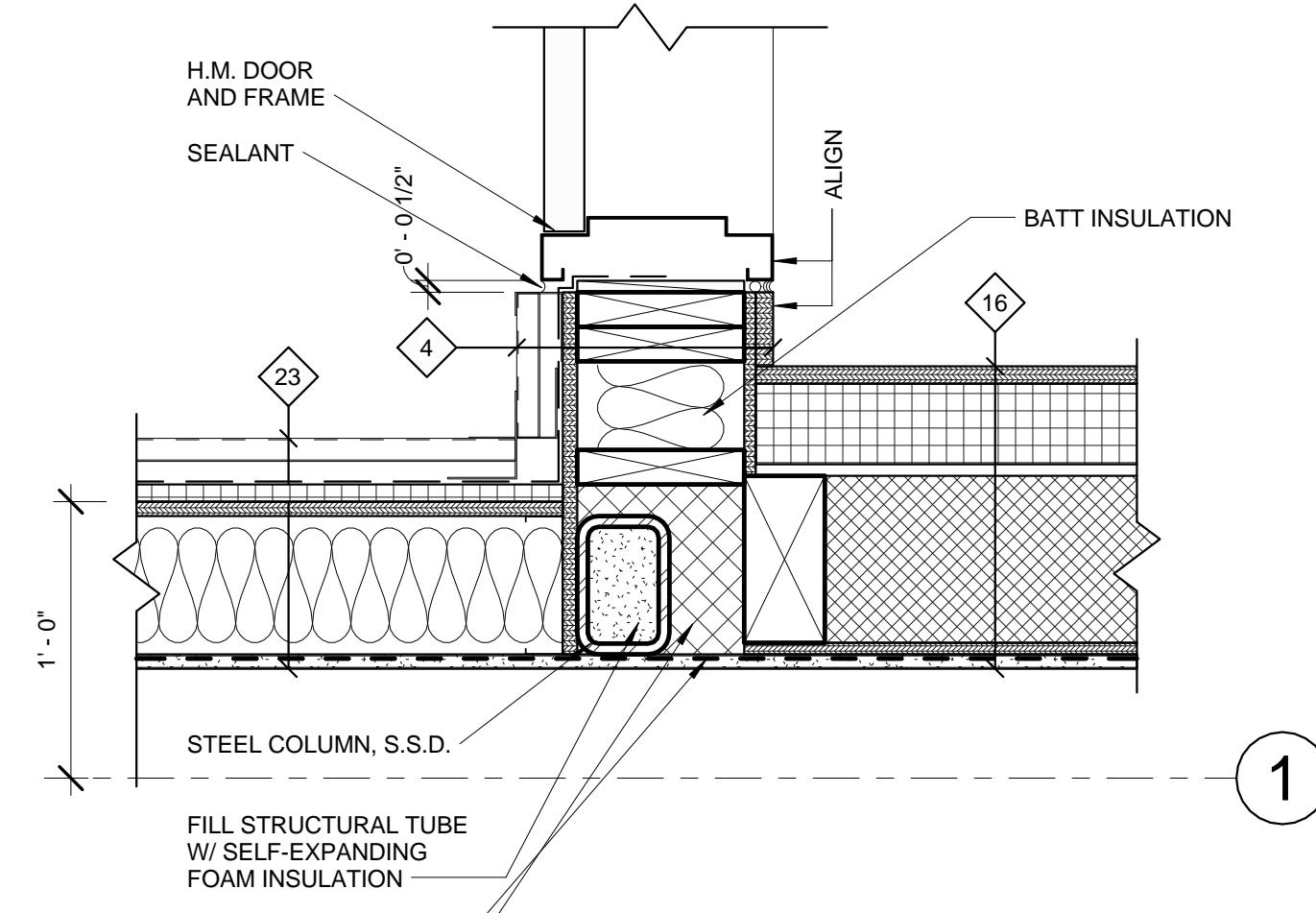
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**5 PLAN - INTERSECTION @ ELEC (TB1)**



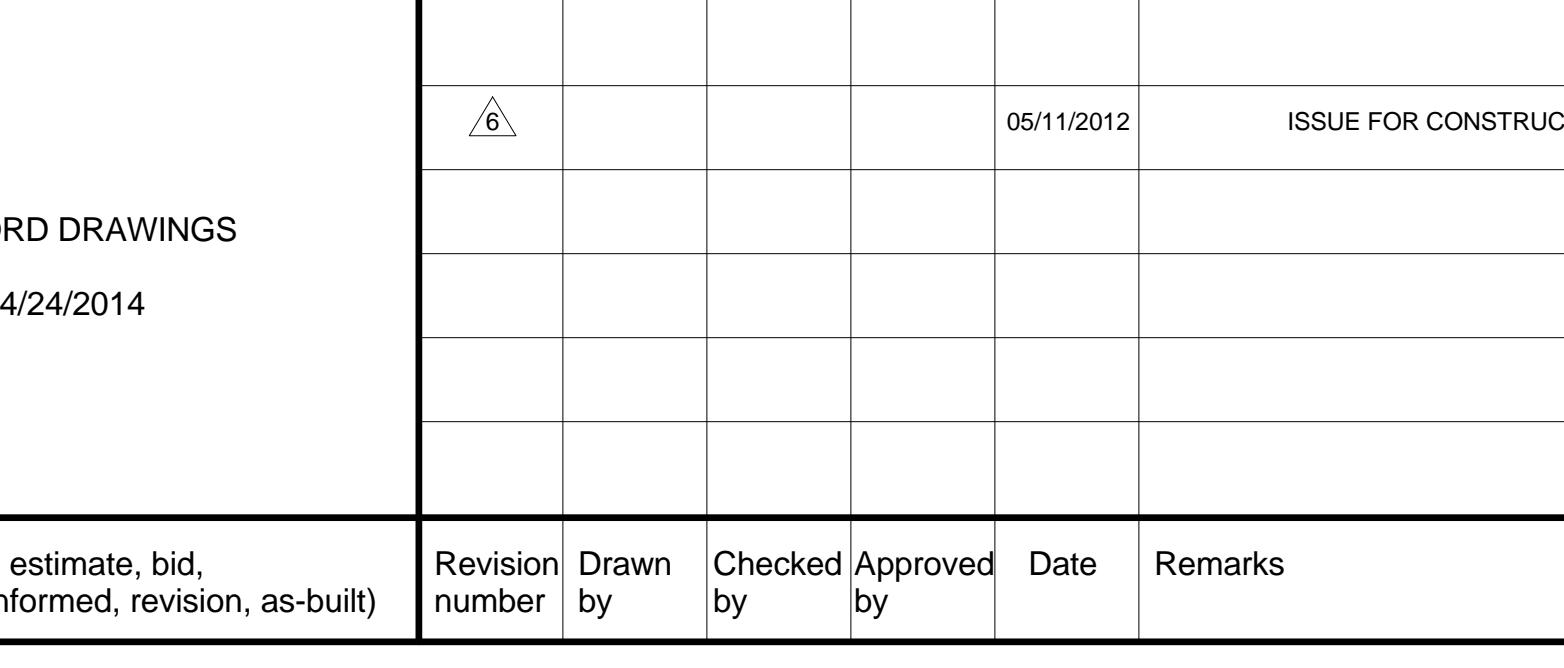
**7 PLAN - INTERSECTION @ ELEC (TB 3,R-A)  
1 1/2" = 1'-0"**



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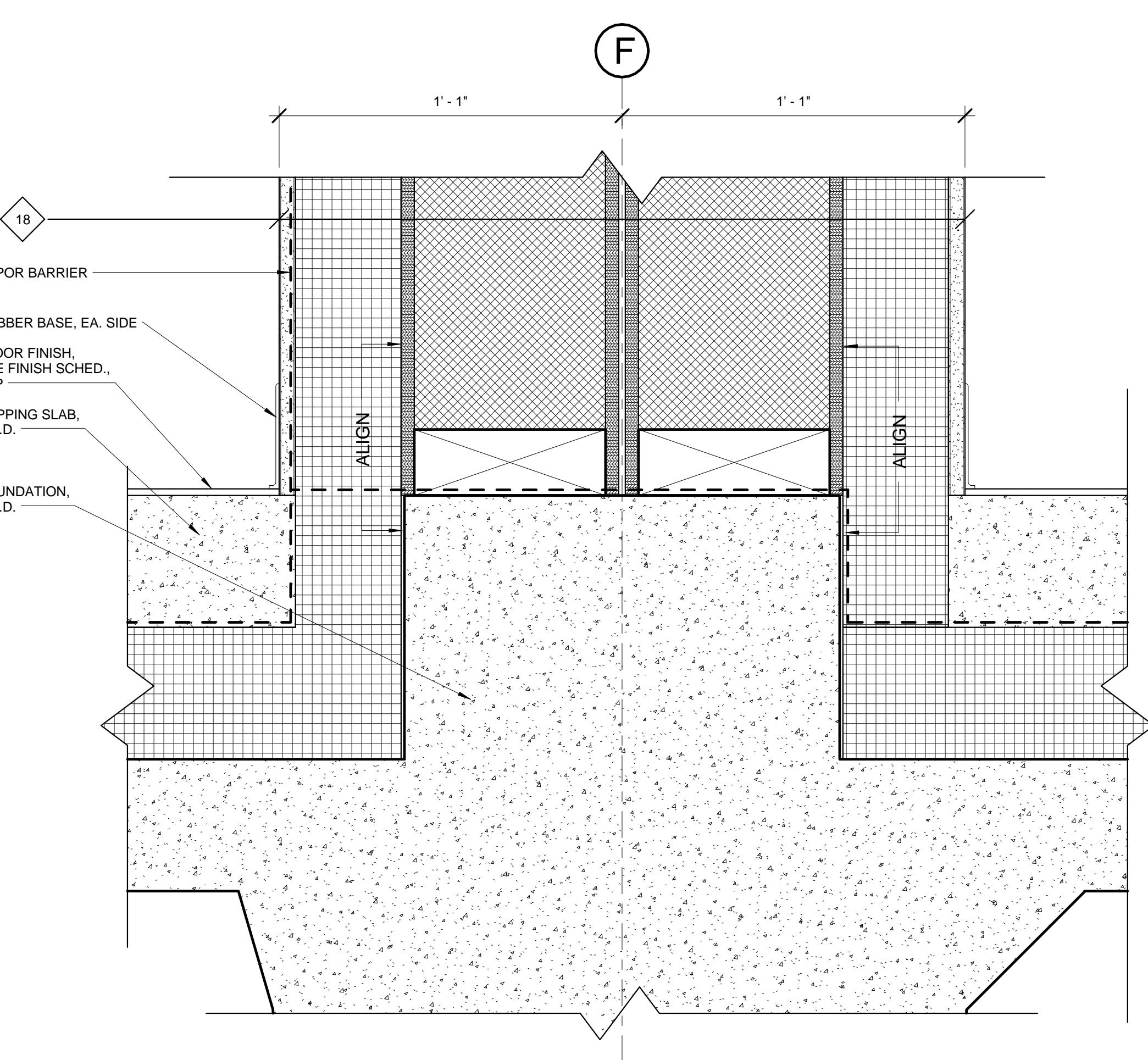
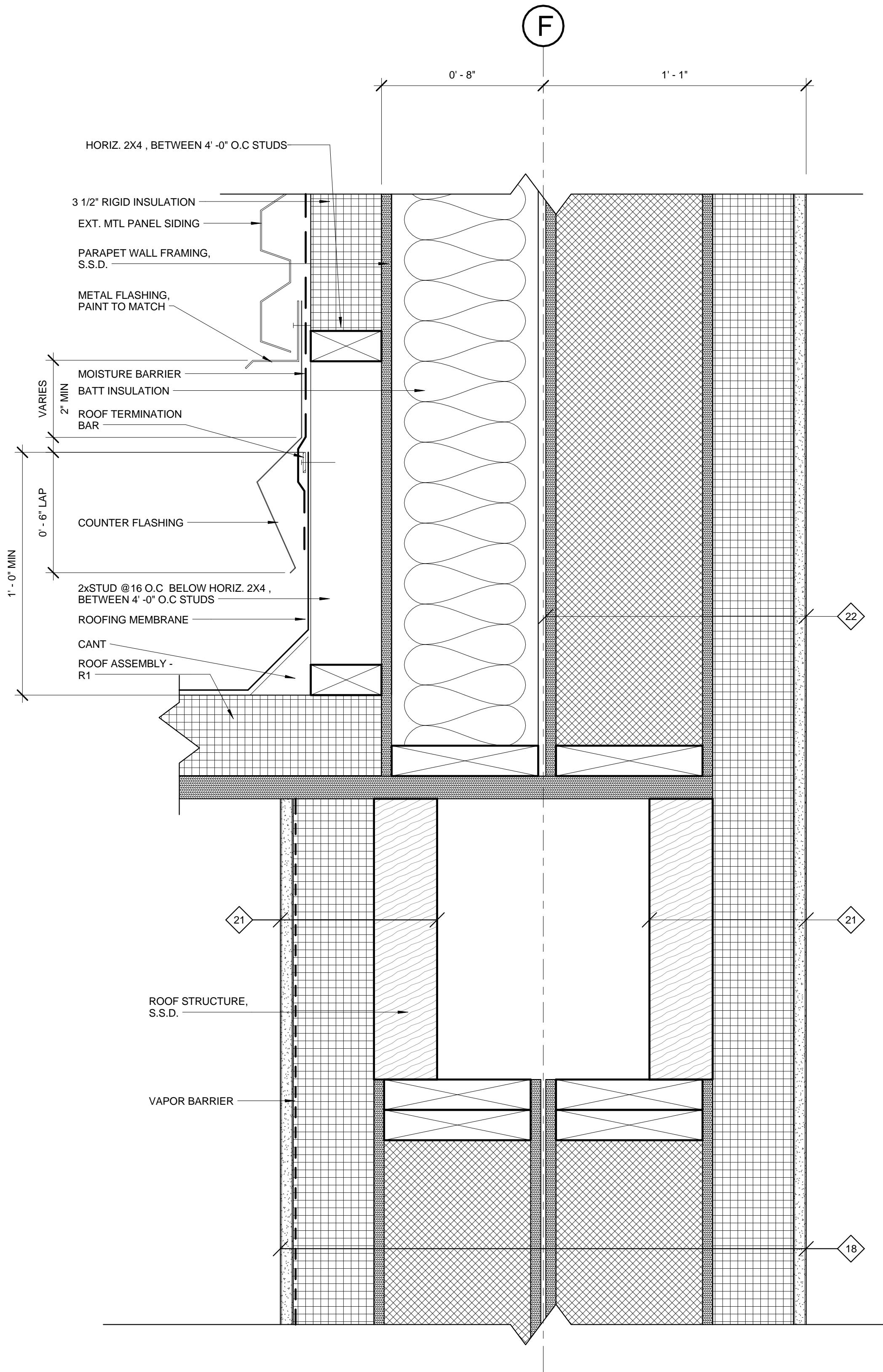
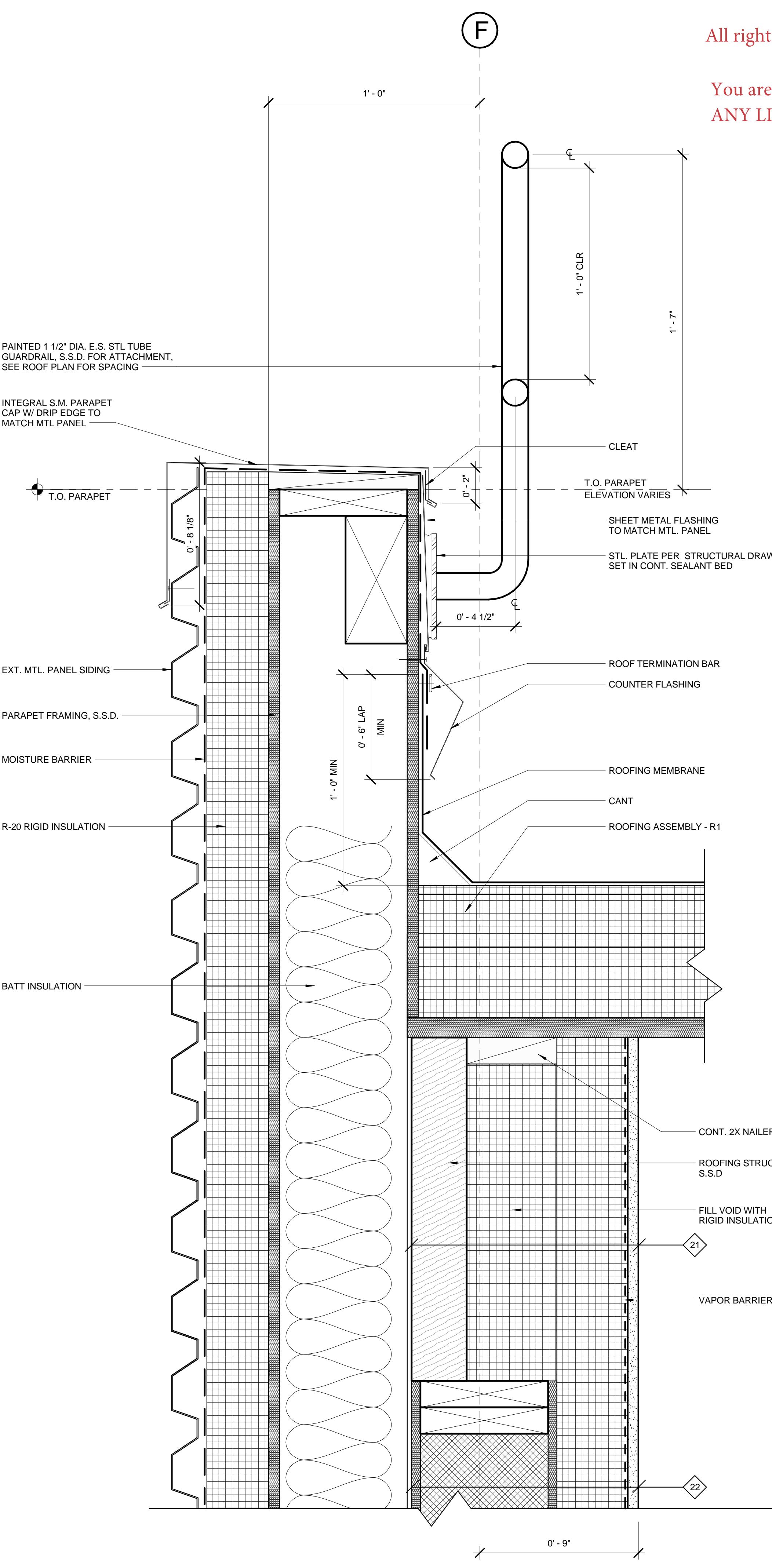
# RECORD DRAWINGS



Project name	Drawn by	Date
User Test Bed Facility (UTBF) Project Lawrence Berkeley National Laboratory University Of California	Checked by	Date
	Approved by	Date
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Title: EXTERIOR DETAILS		
LAWRENCE BERKELEY NATIONAL LABORATORIES FACILITIES DIVISION	Scale: 1 1/2" = 1'-0"	Sheet no:
	Project No: 6947816	A8.03
	Project ID: FNO100	4B90XA029

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(5) PARAPET DETAIL @ GL. F  
3" = 1'-0"

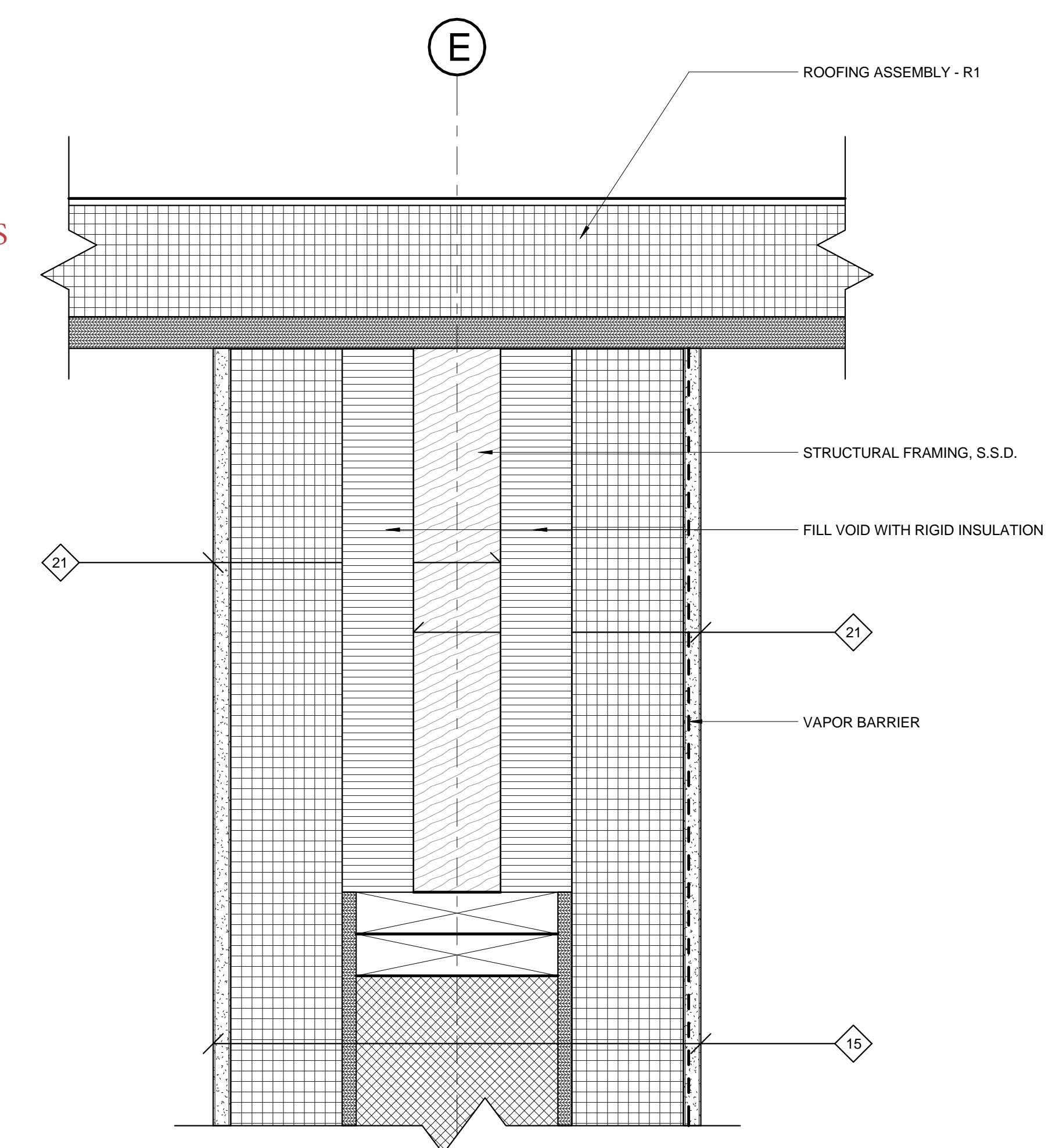
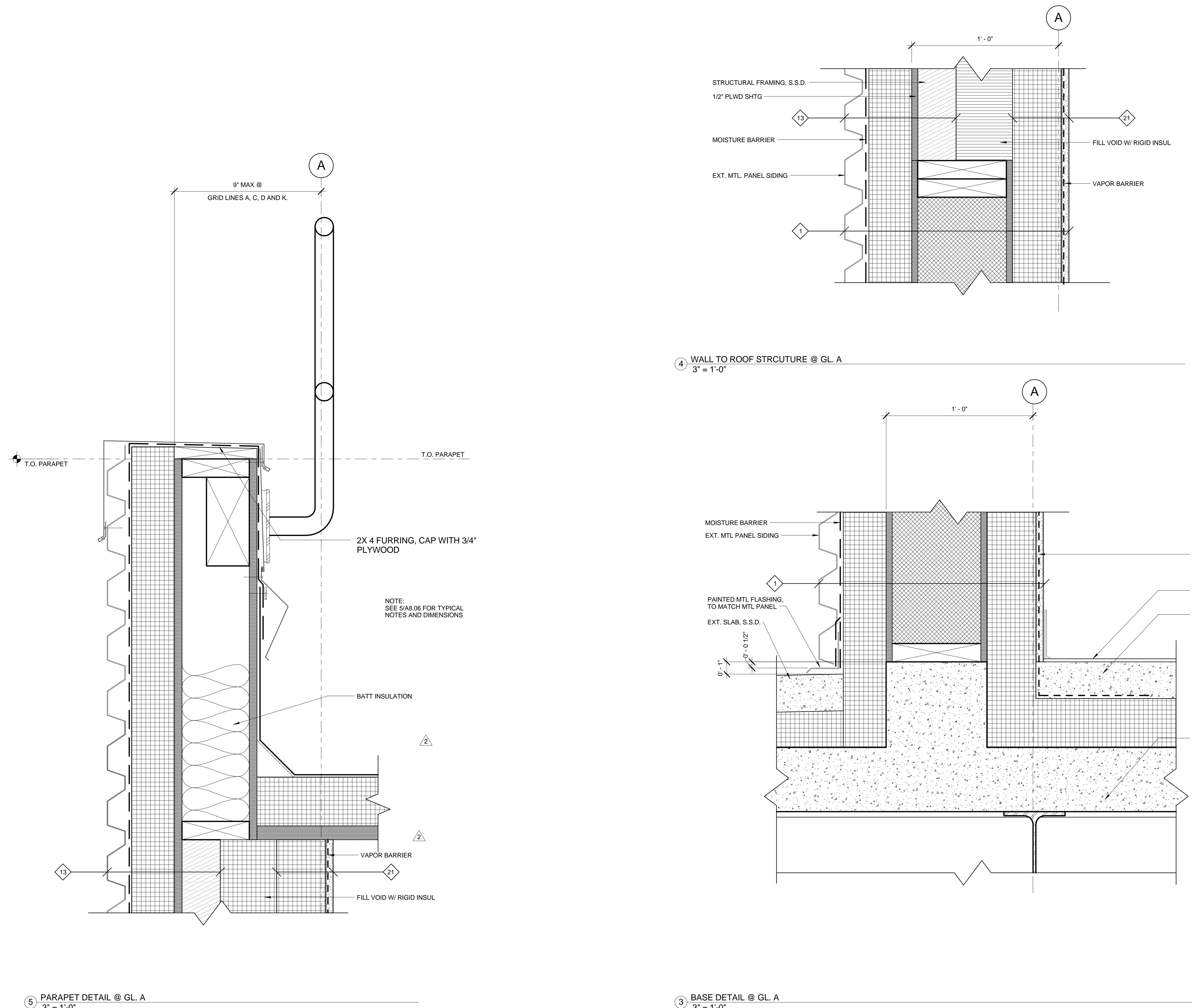
(3) WALL TO ROOF DETAIL @ GL. F  
3" = 1'-0"

(1) BASE DETAIL @ GL. F  
3" = 1'-0"

Project name	Drawn by	Date
User Test Bed Facility (UTBF) Project Lawrence Berkeley National Laboratory University Of California	Checked by	Date
Approved by		
CAD file path: C:\Users\Scande\Documents\LBNL-Testbed\1-4_schandek.dwg		
Title: DETAILS	Scale: 3" = 1'-0"	Sheet no: A8.06
LAWRENCE BERKELEY NATIONAL LABORATORIES FACILITIES DIVISION	Project No: 6947816 Project ID: FNO100	4B90XA030
Stantec 901 Market Street San Francisco, CA 94103 Tel: (415) 281 5 xxx Fax: (415) 882 9563 www.stantec.com	RECORD DRAWINGS 4/24/2014	Original Sheet - A8.06
Architect	Consulting Firm	Consulting A/E Firm
Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)	Revision number Drawn by Checked by Approved by Date Remarks

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	Approved by	Date
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Title: DETAILS		
Scale: 3" = 1'-0"	Sheet no:	A.07
Project No: 6947816		
Project ID: FNO100		



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RECORD DRAWINGS  
4/24/2014

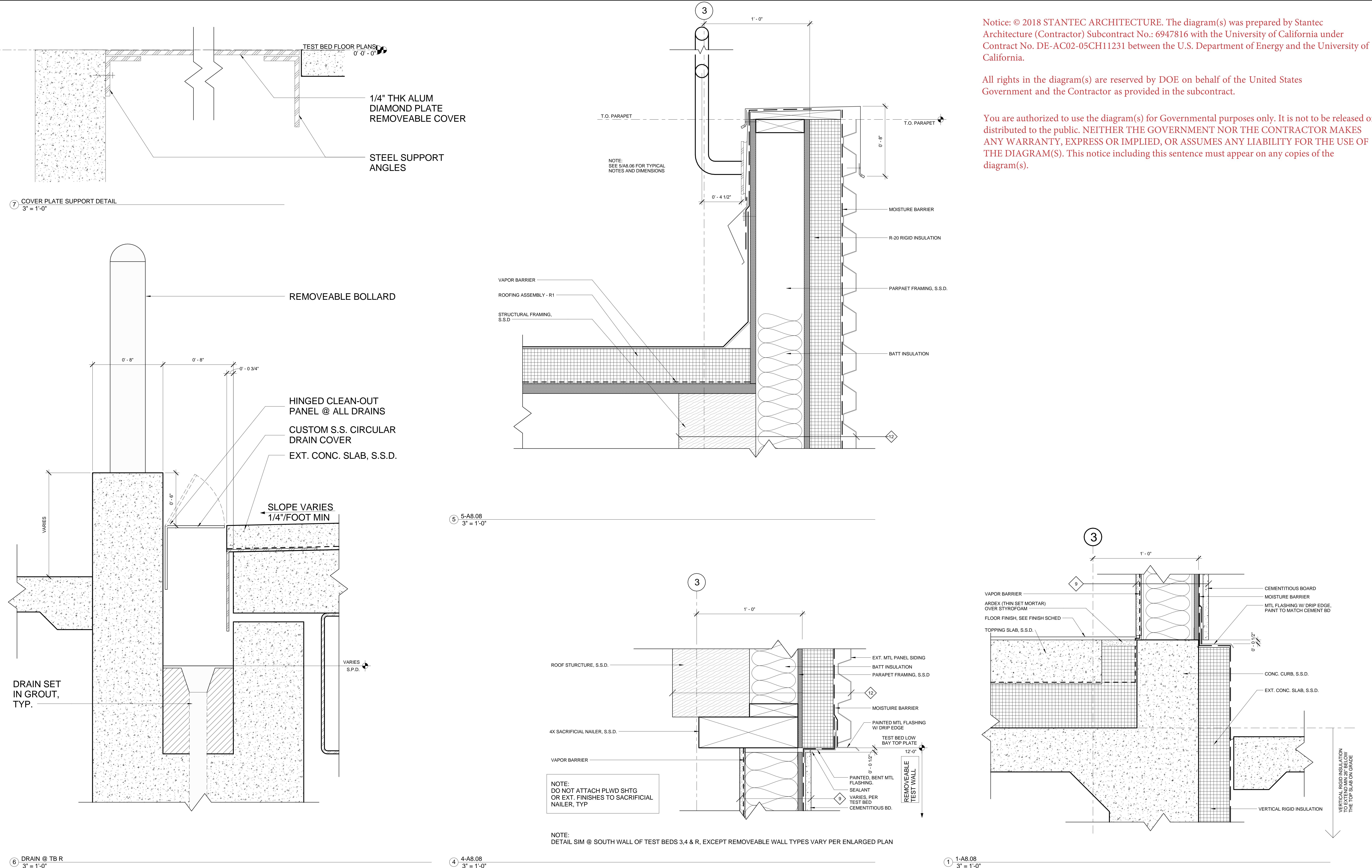
			01/19/2012	BID ADDENDUM # 2		

Issue (Progress, estimate, bid, construction, conformed, revision, as-built)  
Revision number Drawn by Checked by Approved by Date Remarks

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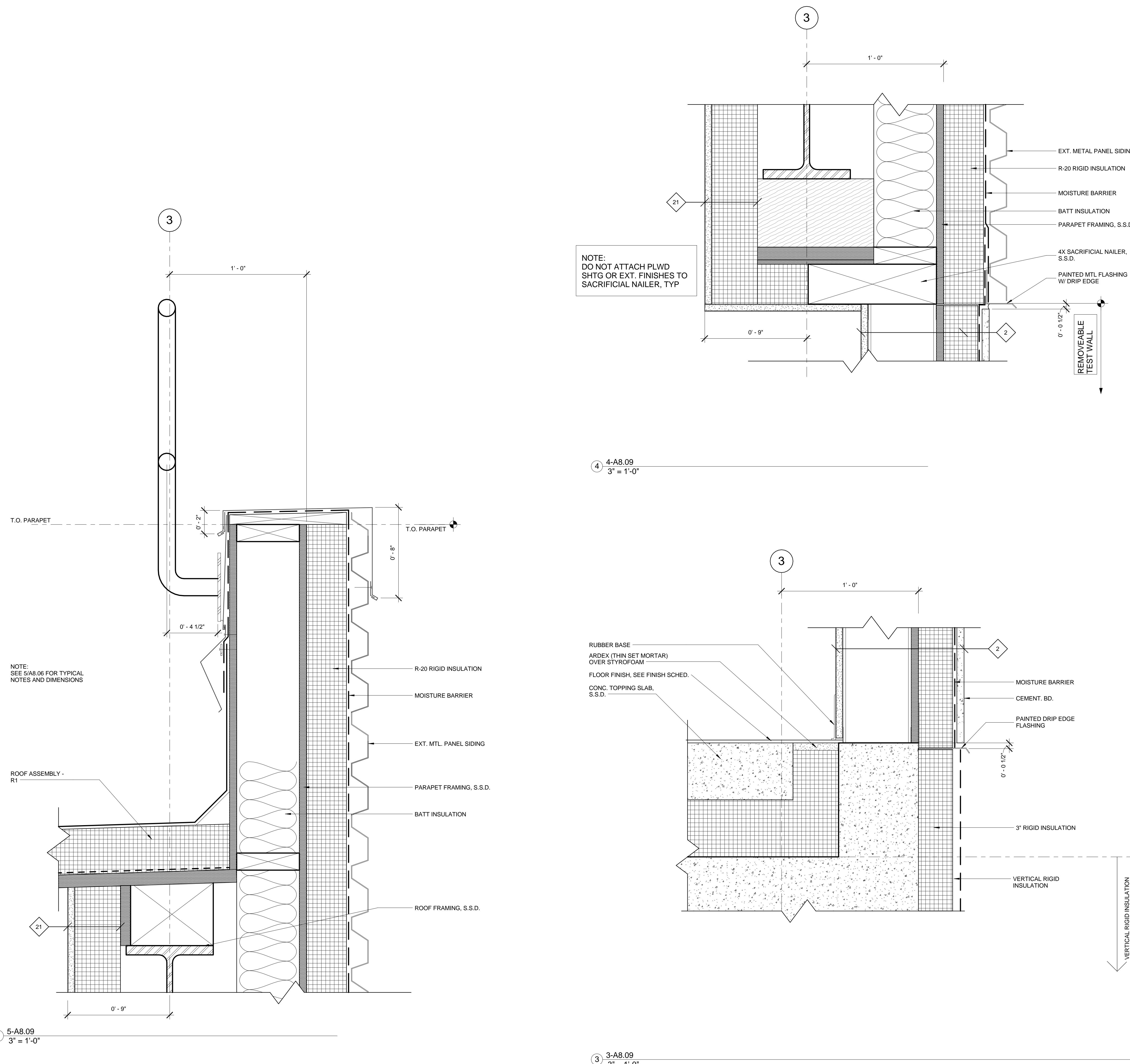
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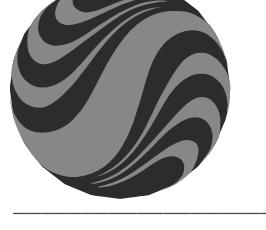


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901 Market Street San Francisco, CA 94103 Tel: (415) 281 5 xxx Fax: (415) 882 9563 www.stantec.com								Approved by	C:\users\schand\Documents\LBNL-Testbed-1-4_sander.kit	Date
								Title: DETAILS		
Architect	Consulting Firm	Consulting A/E Firm	Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)	Revision number	Drawn by	Checked by	Approved by	Date	Remarks
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Project No: 6947816 Project ID: FNO100										Sheet no: A.08
4B90XA032										

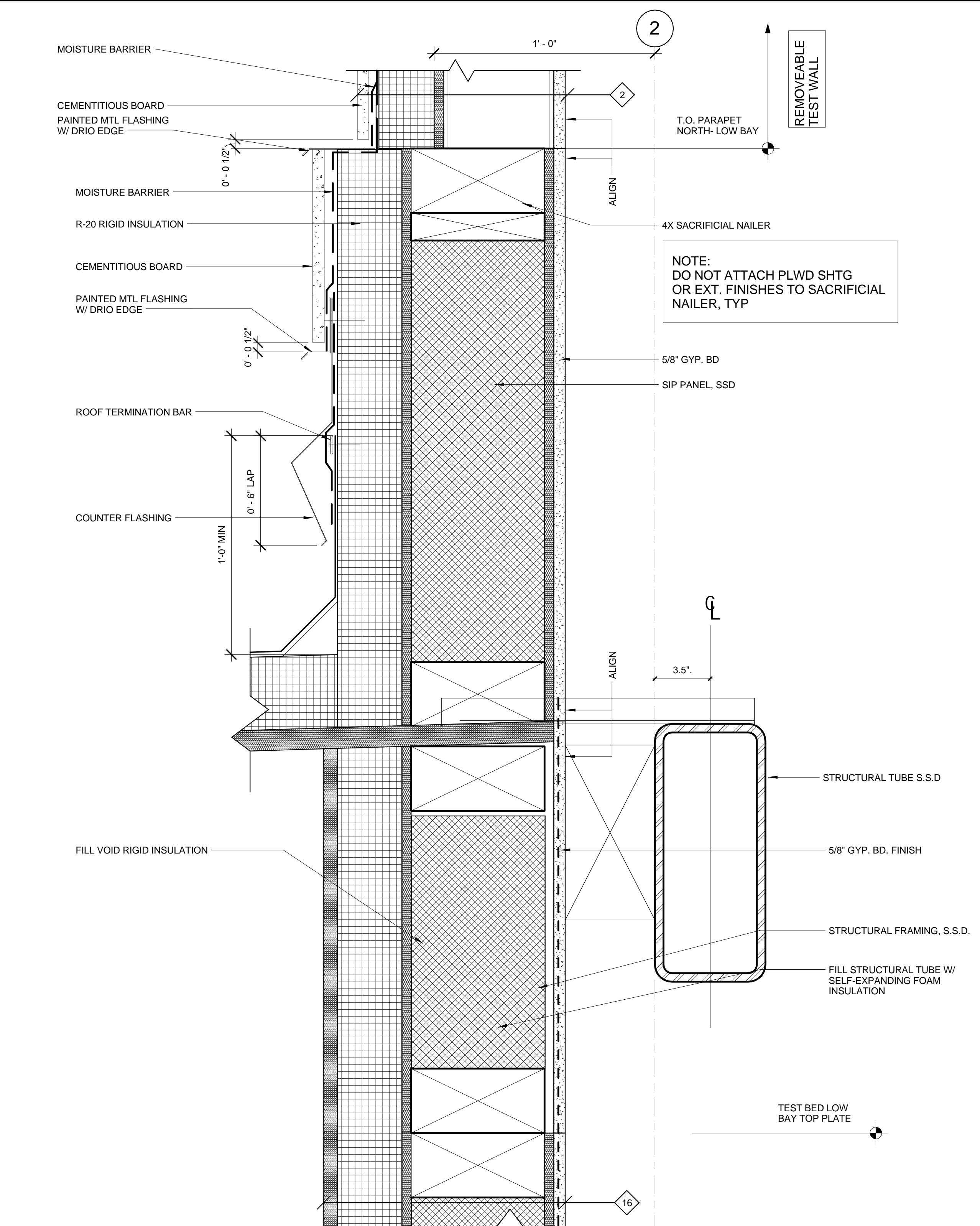
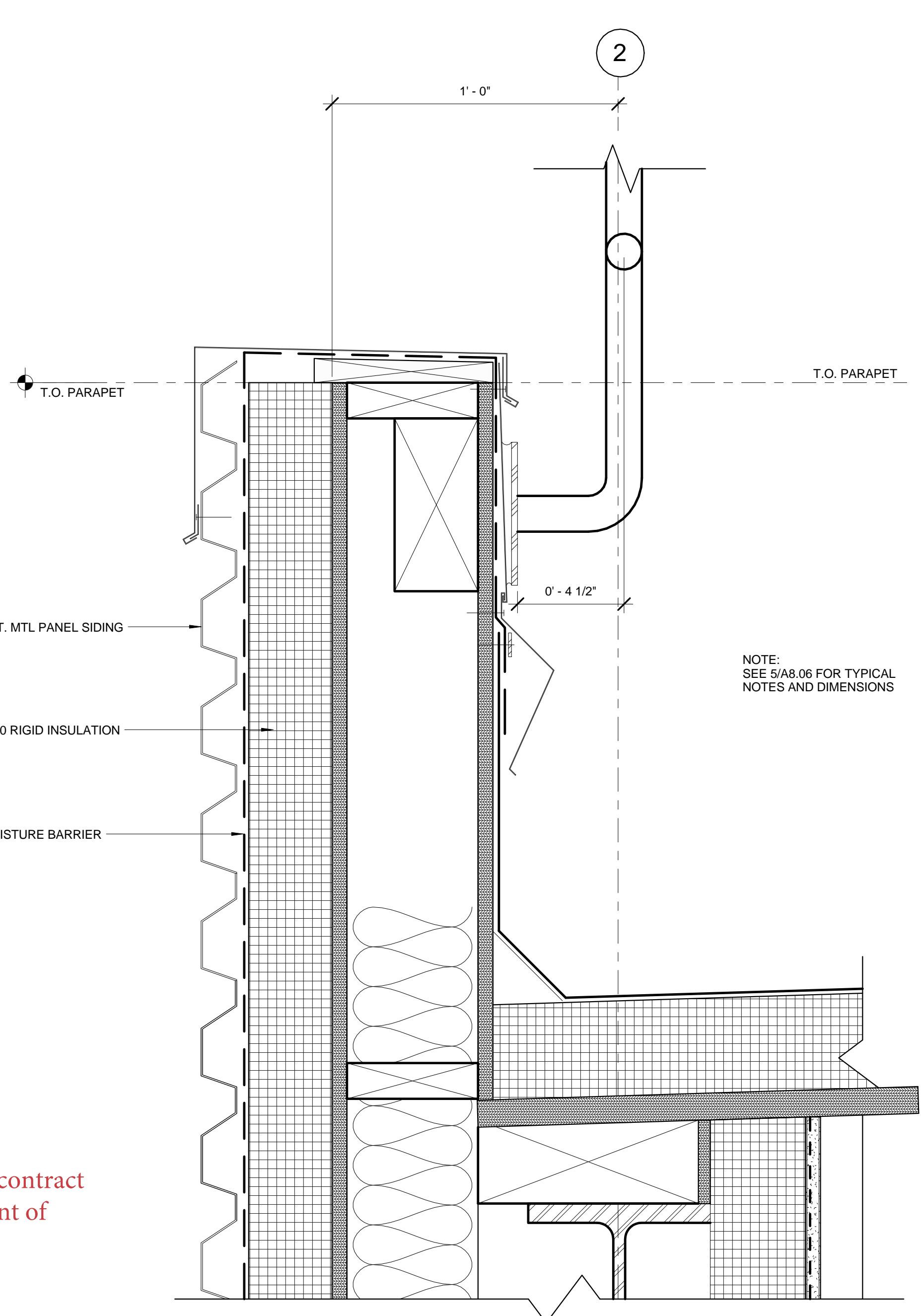
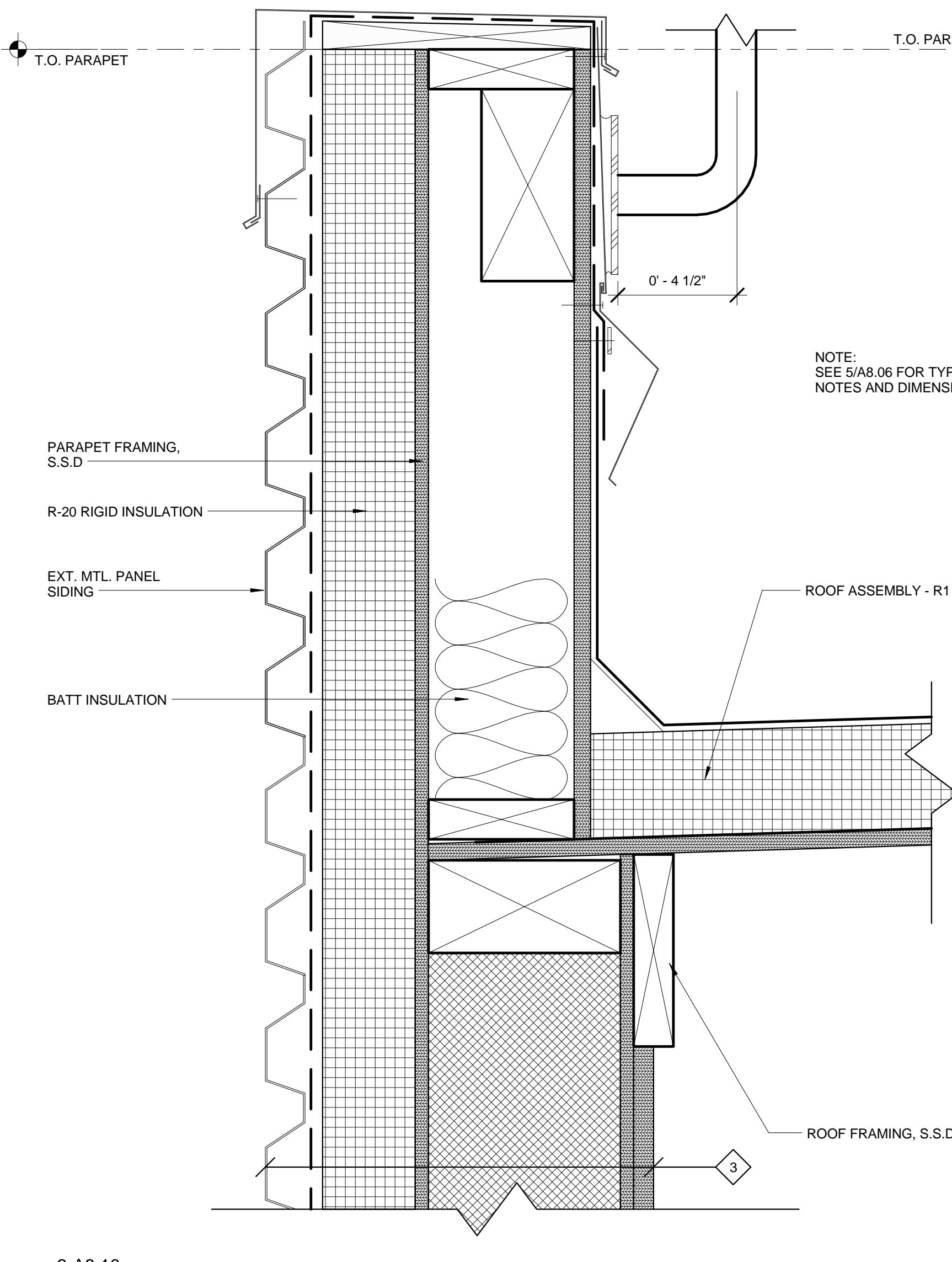
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Project name	Drawn by	Date
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	Approved by	Date
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	Project No: 6947816	
	Project ID: FNO100	4B90XA033
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Architect	Consulting Firm	Consulting A/E Firm
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		Remarks



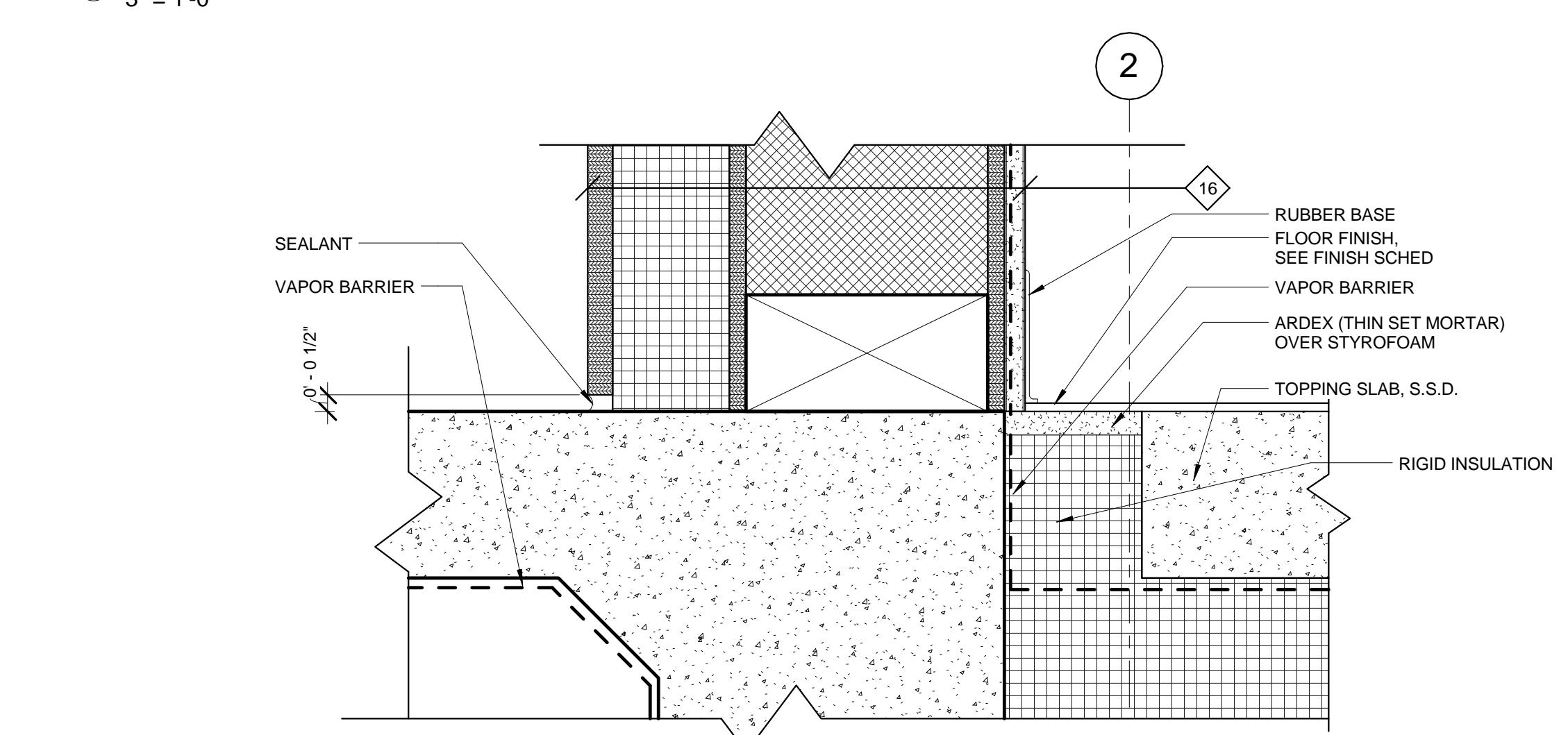
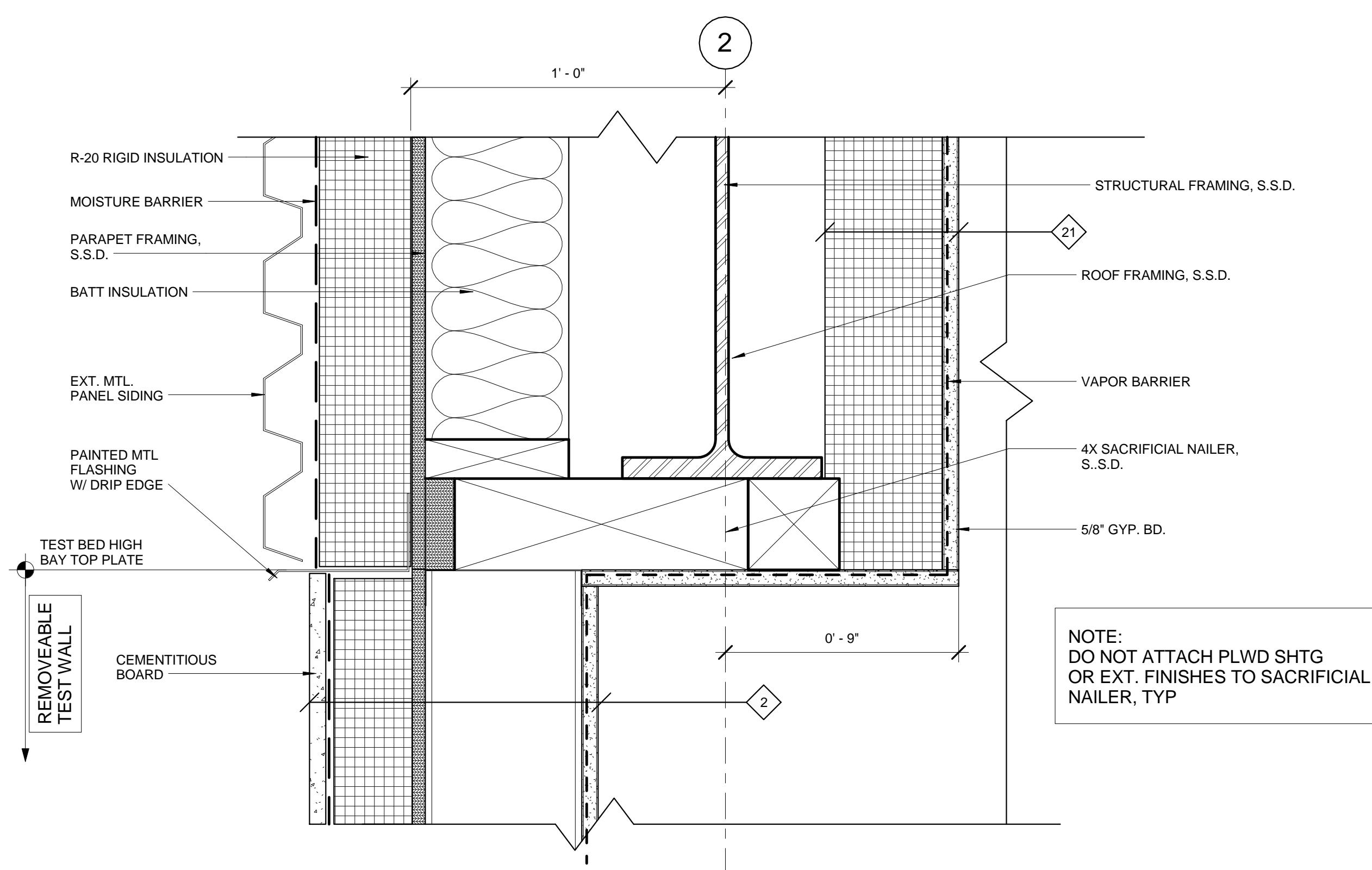
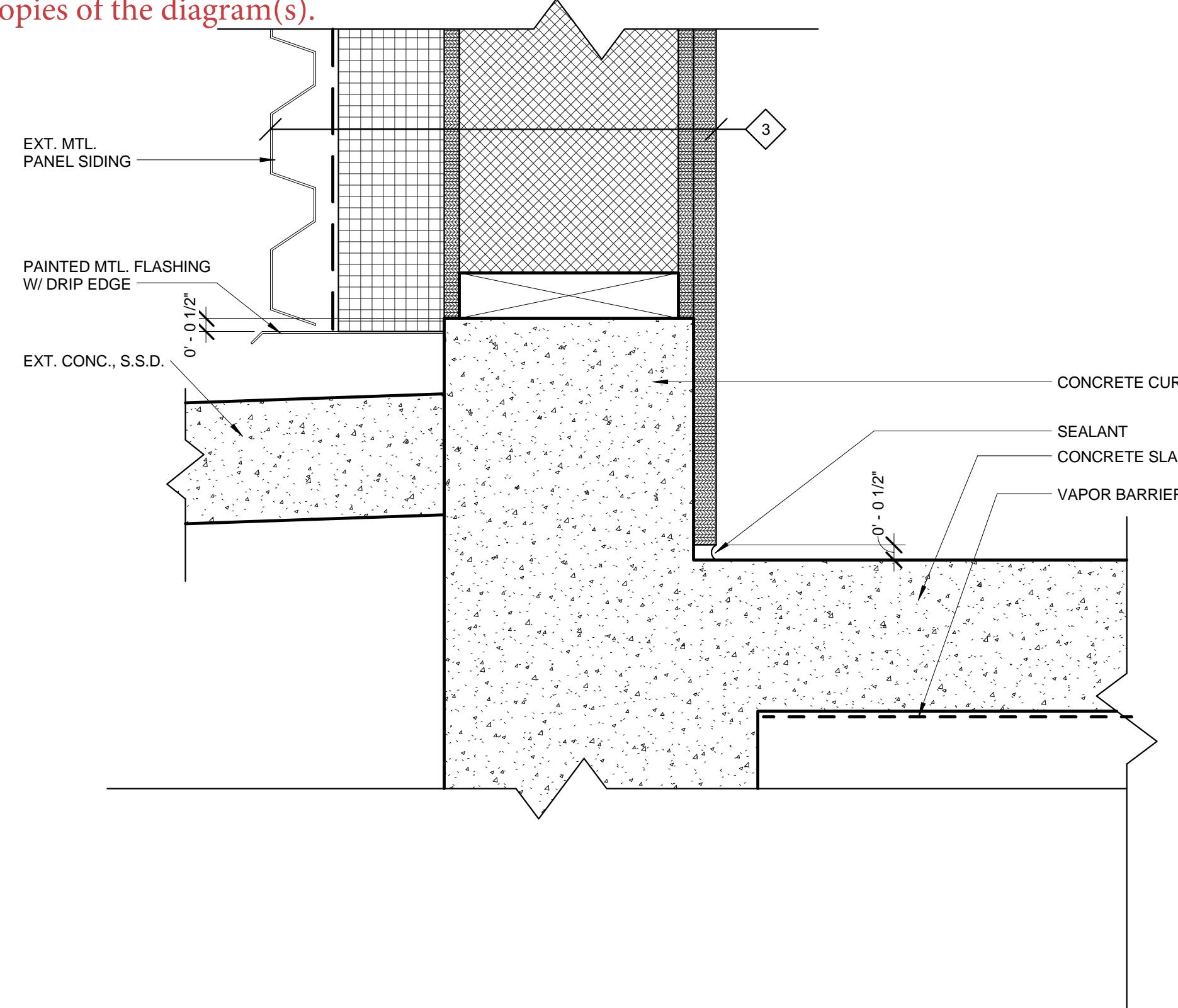


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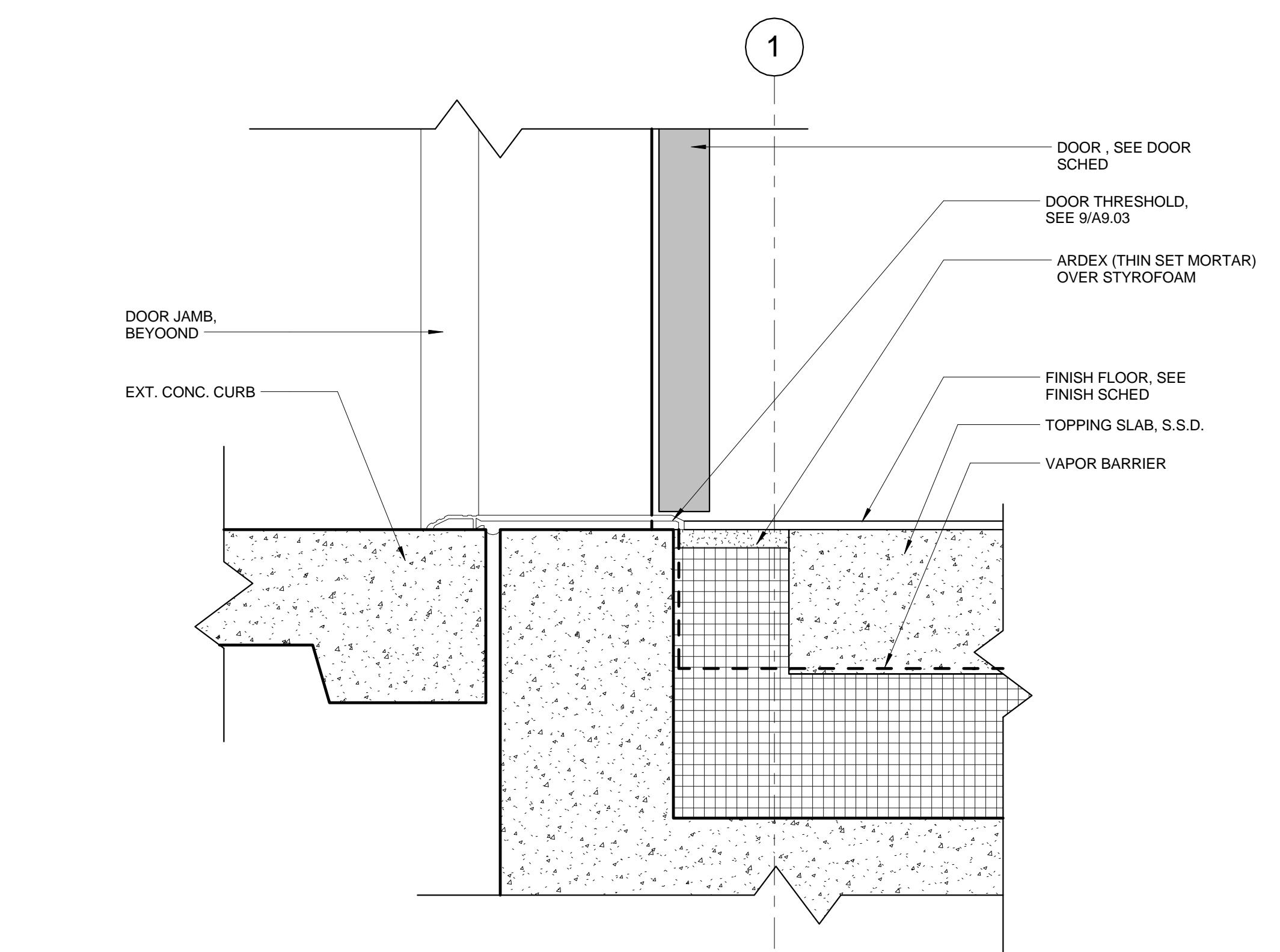
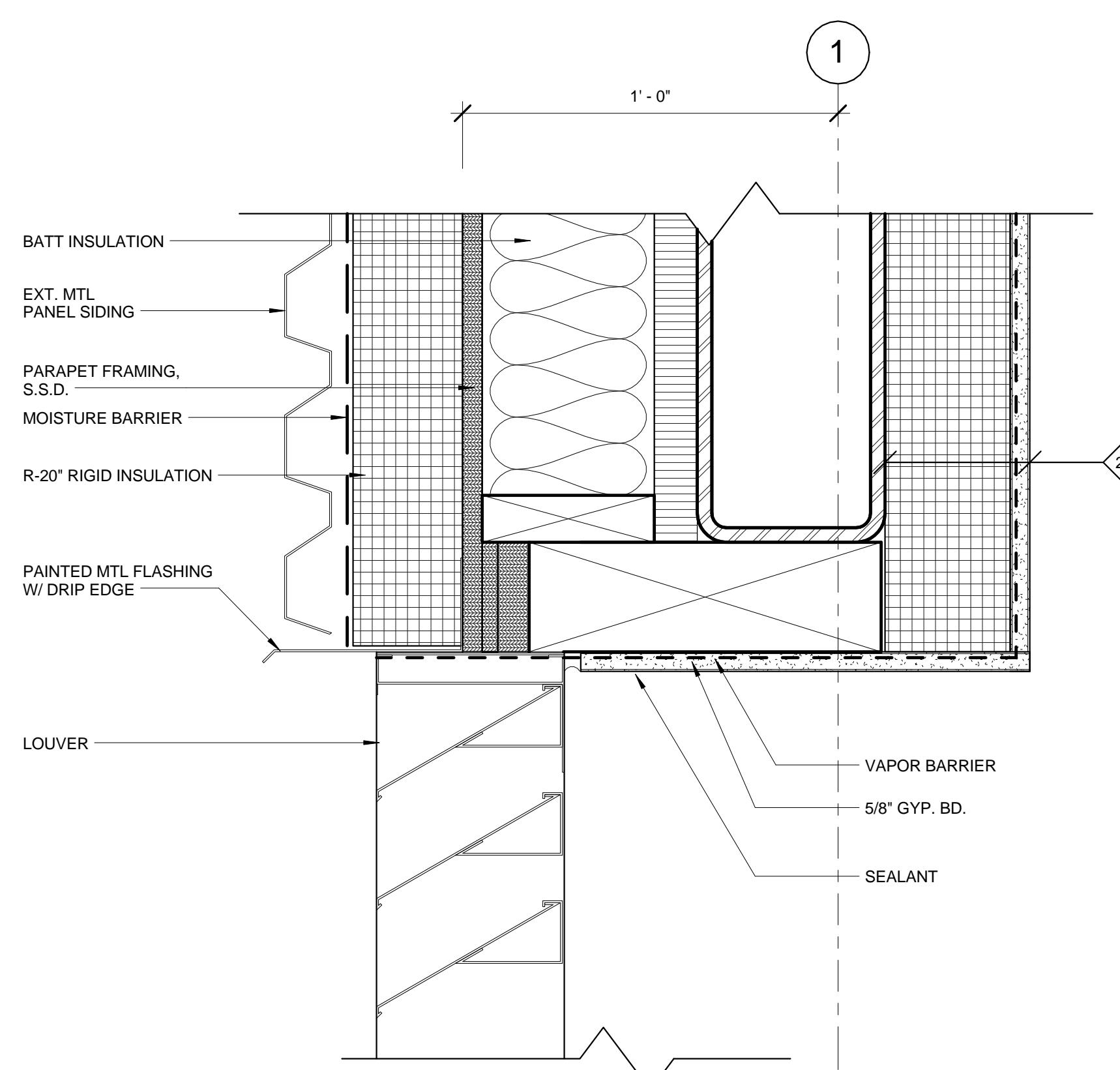
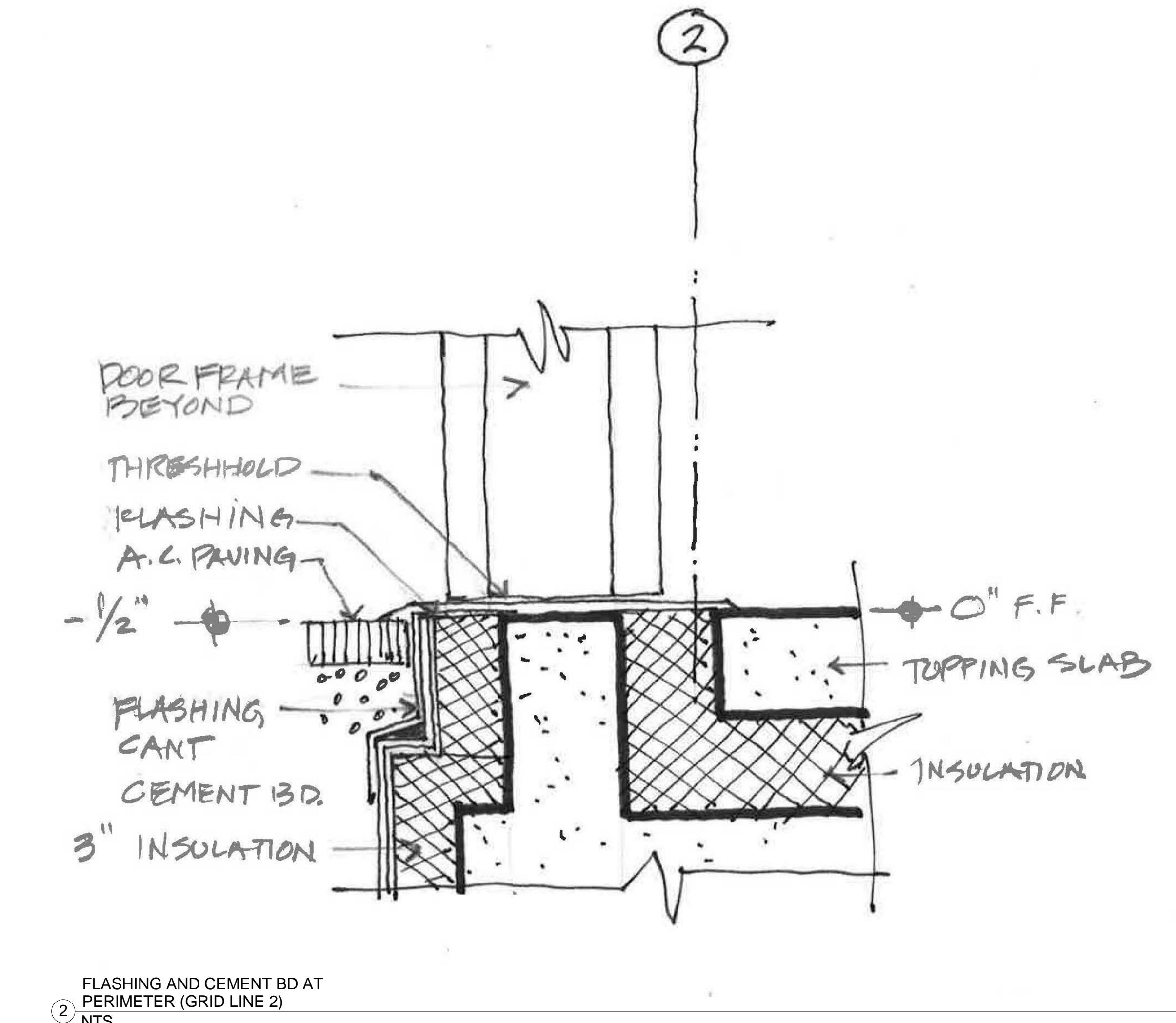
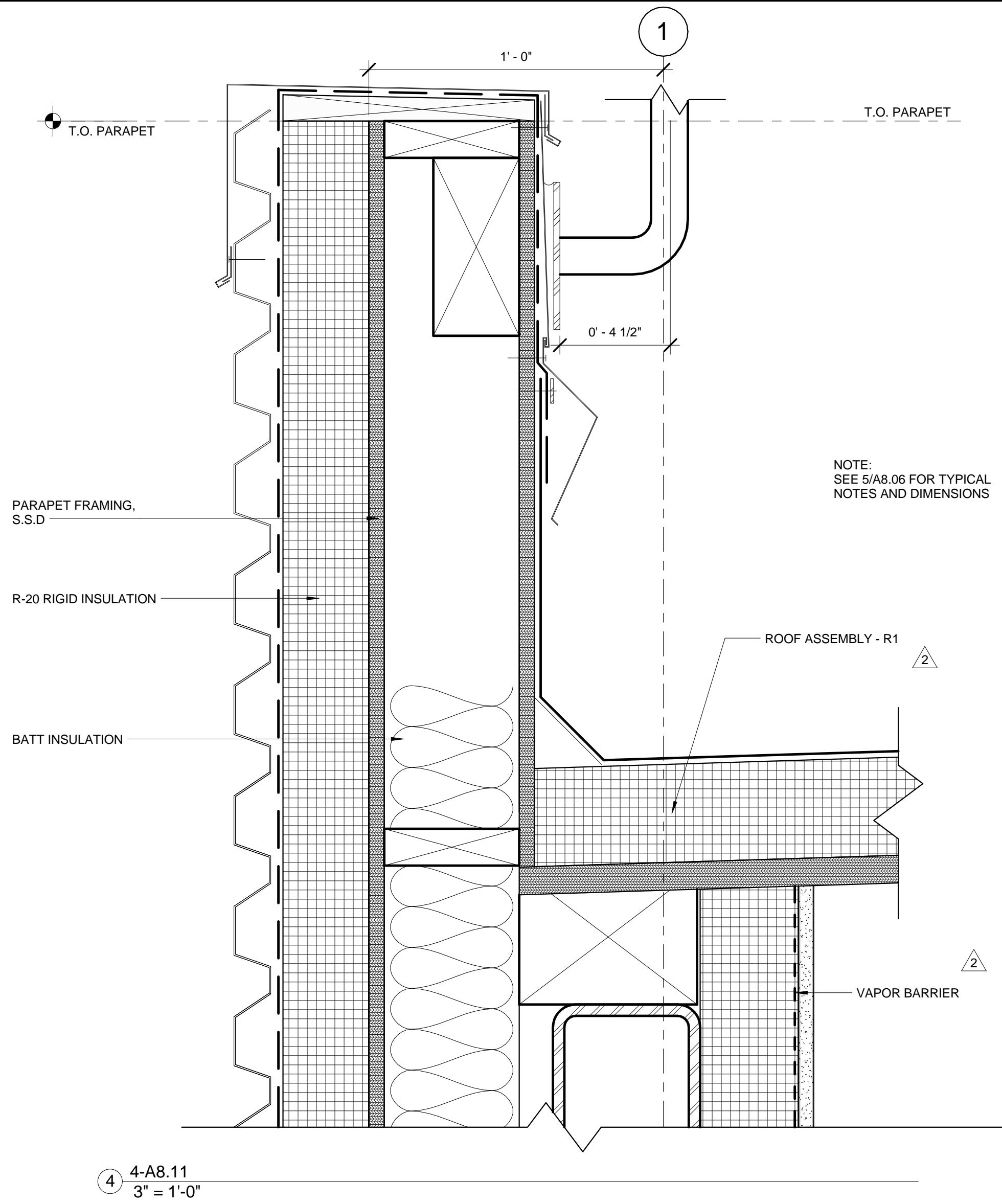
Project name	Drawn by	Date
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Approved by		
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Title: DETAILS	Scale: 3" = 1'-0"	Sheet no: A8.10
LAWRENCE BERKELEY NATIONAL LABORATORIES FACILITIES DIVISION	Project No: 6947816 Project ID: FNO100	4B90XA034
Stantec 901 Market Street San Francisco, CA 94103 Tel: (415) 281 5 xxx Fax: (415) 882 9563 www.stantec.com	RECORD DRAWINGS 4/24/2014	4/24/2014 2:54:35 PM
Consulting Firm	Professional Seal (if revision applies only to revised work)	Issue (Progress, estimate, bid, construction, conformed, revision, as-built)
Consulting A/E Firm	Revision number	Drawn by
Architect	Drawn by	Checked by
	Checked by	Approved by
	Date	Date
	Remarks	



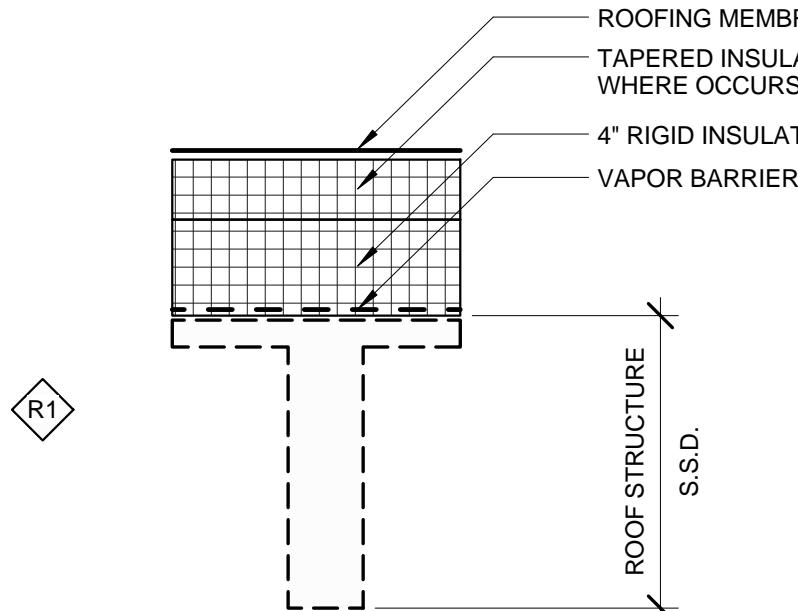
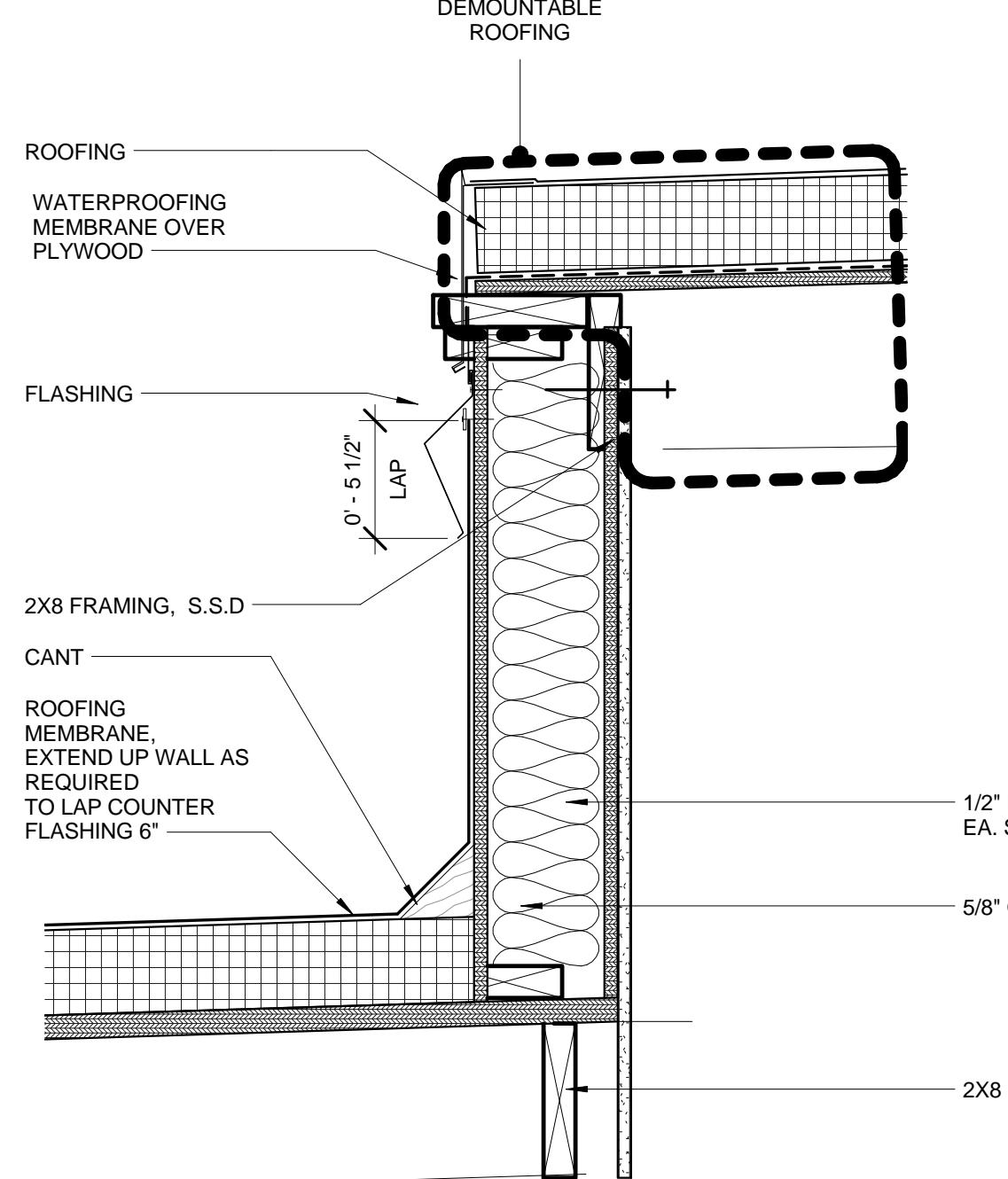
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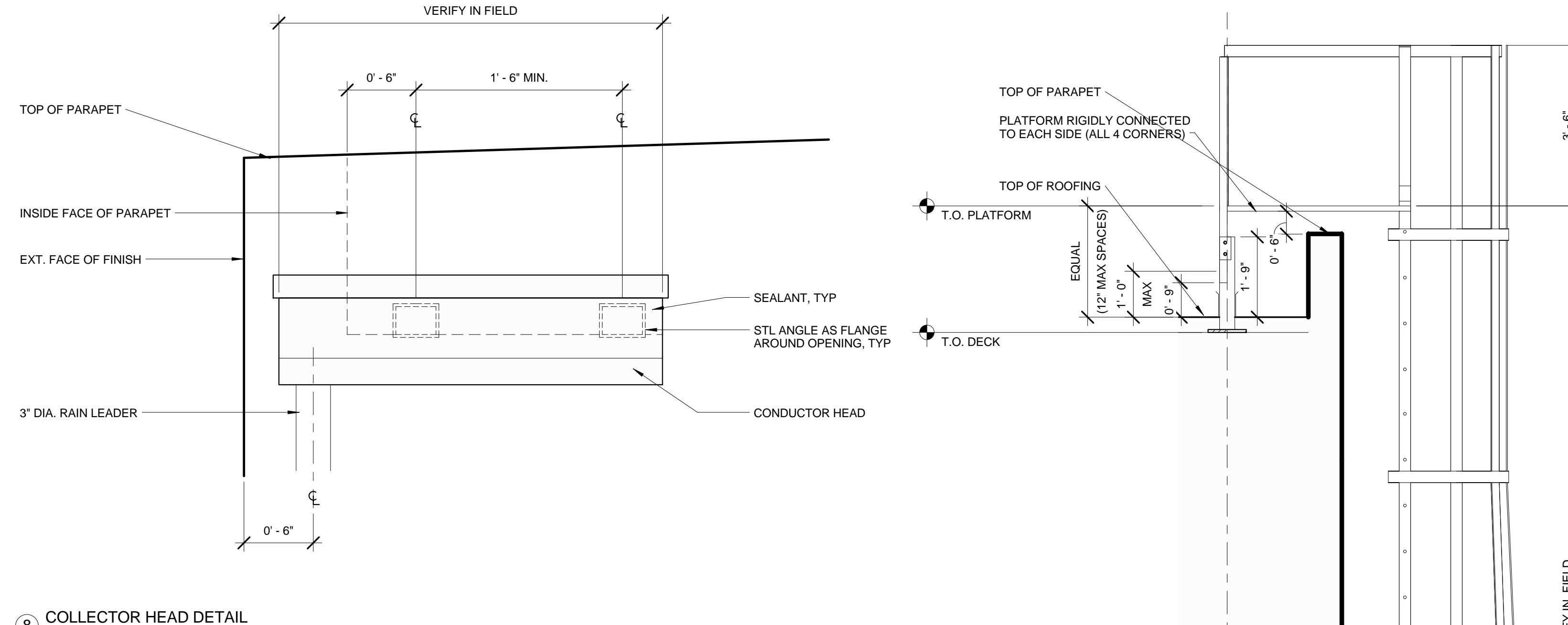


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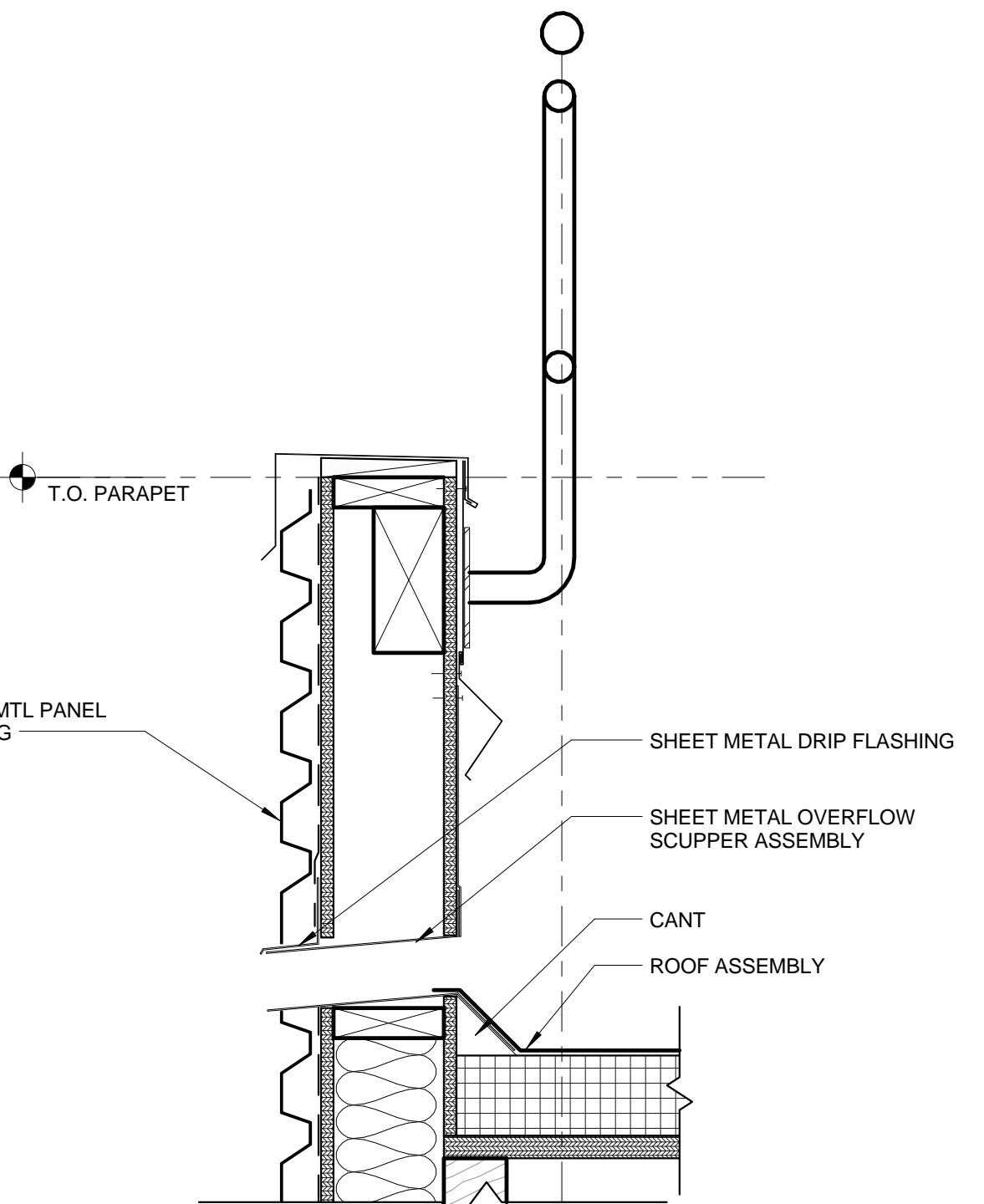


⑨ ROOF TYPE - R1  
1 1/2" = 1'-0"

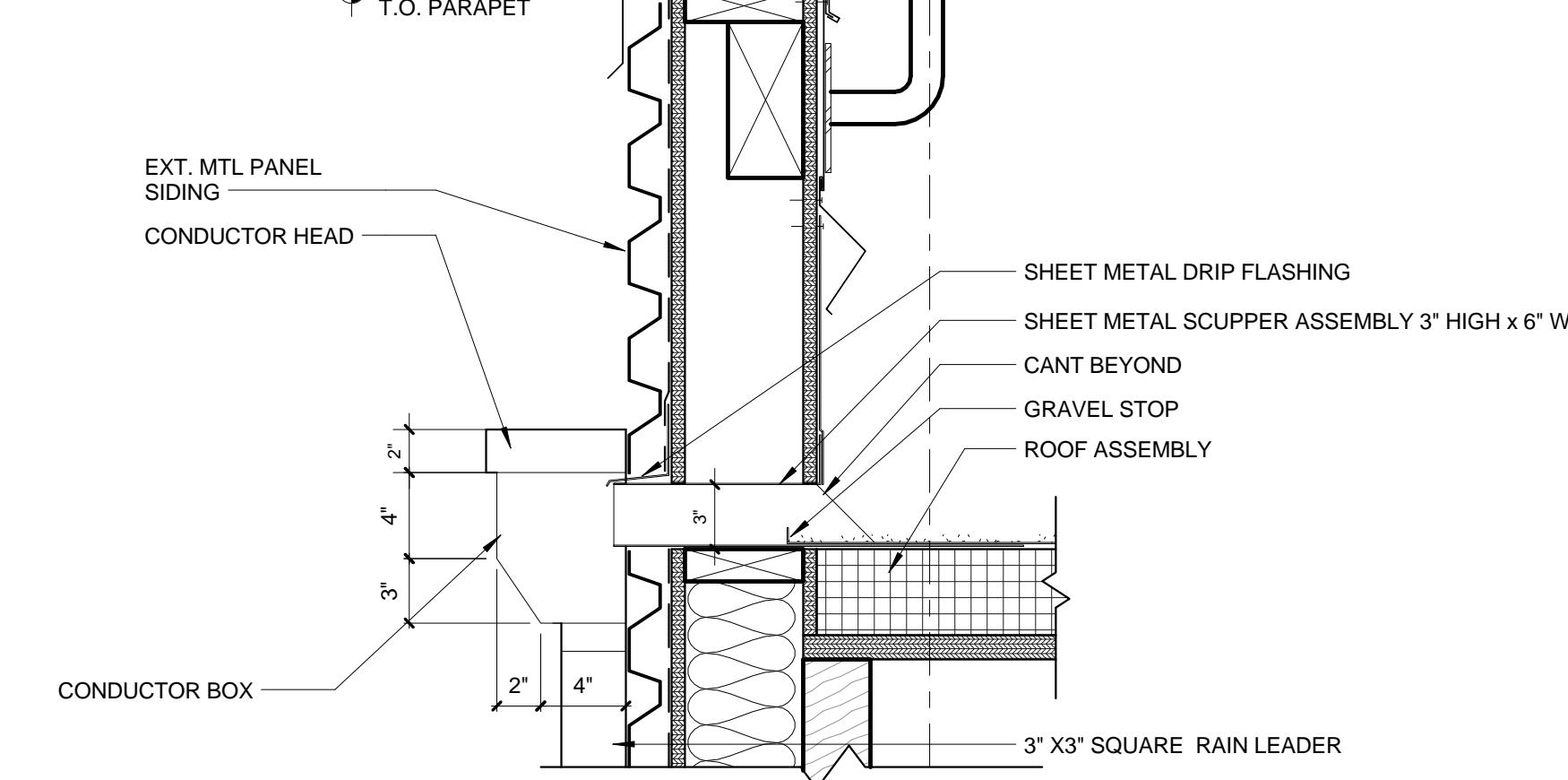
DEMOUNTABLE ROOF DETAIL AT SKYLIGHTS  
③ 1 1/2" = 1'-0"



⑧ COLLECTOR HEAD DETAIL  
1 1/2" = 1'-0"



⑩ OVERFLOW SCUPPER DETAIL  
1 1/2" = 1'-0"

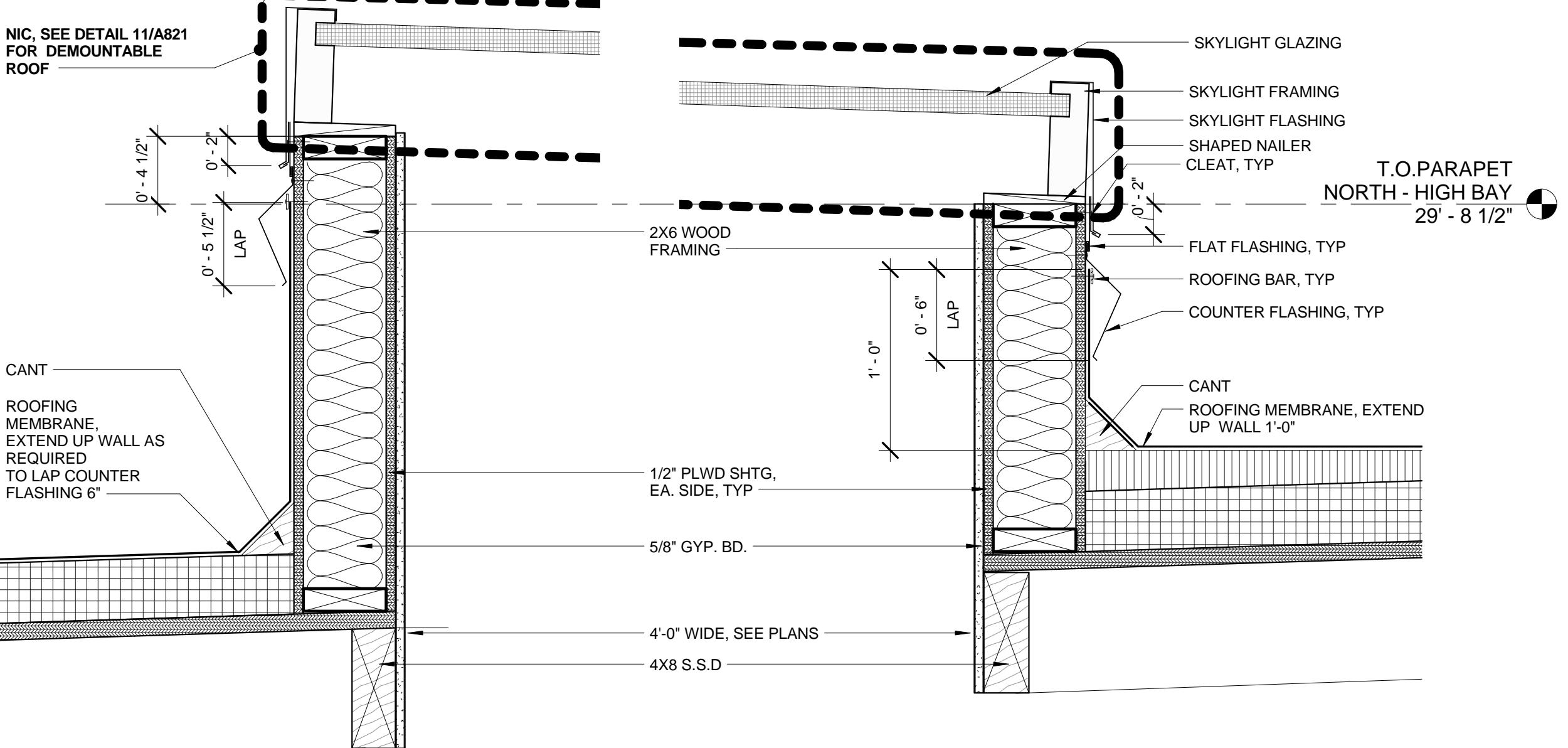


⑦ SCUPPER DETAIL  
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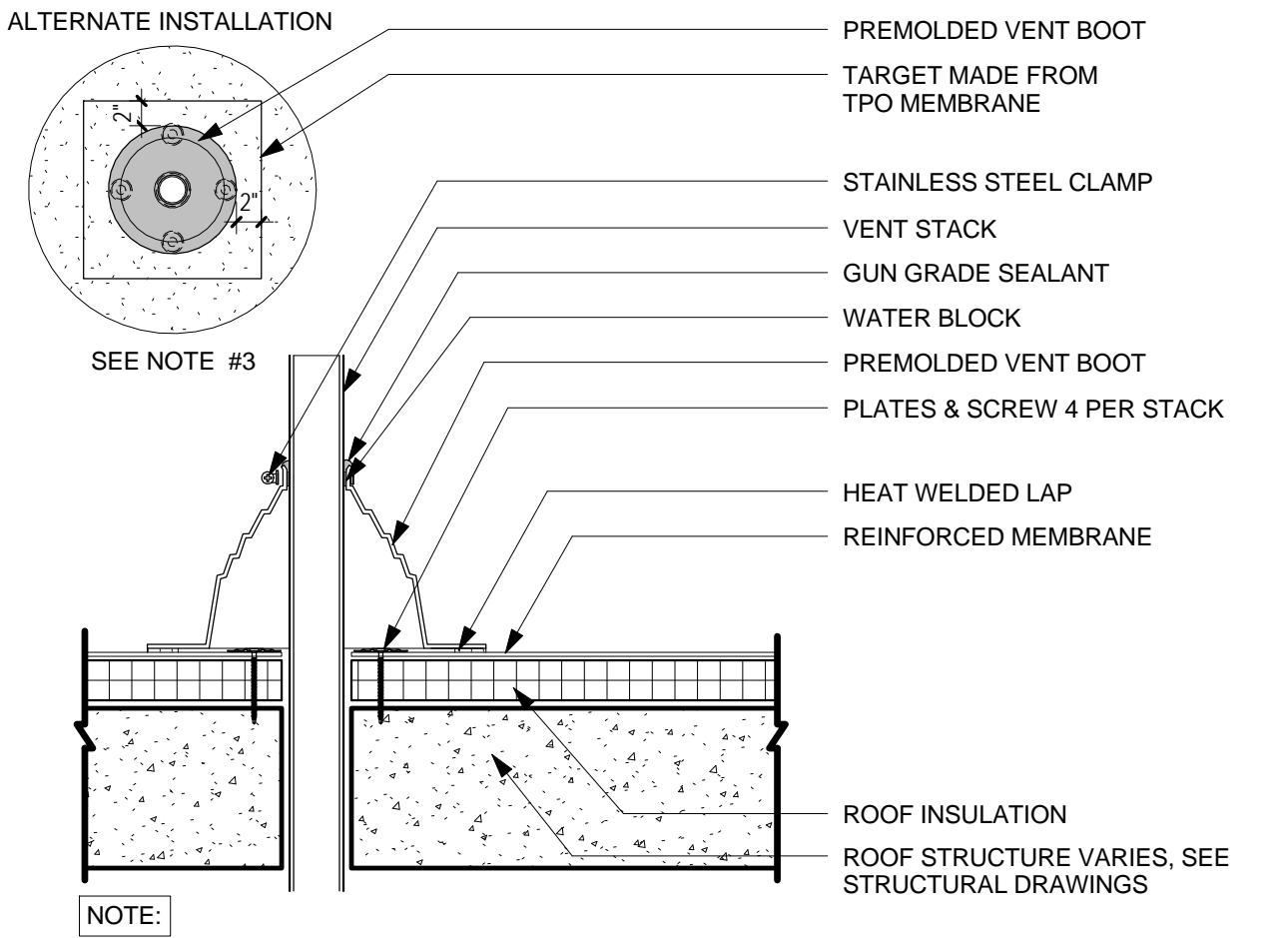
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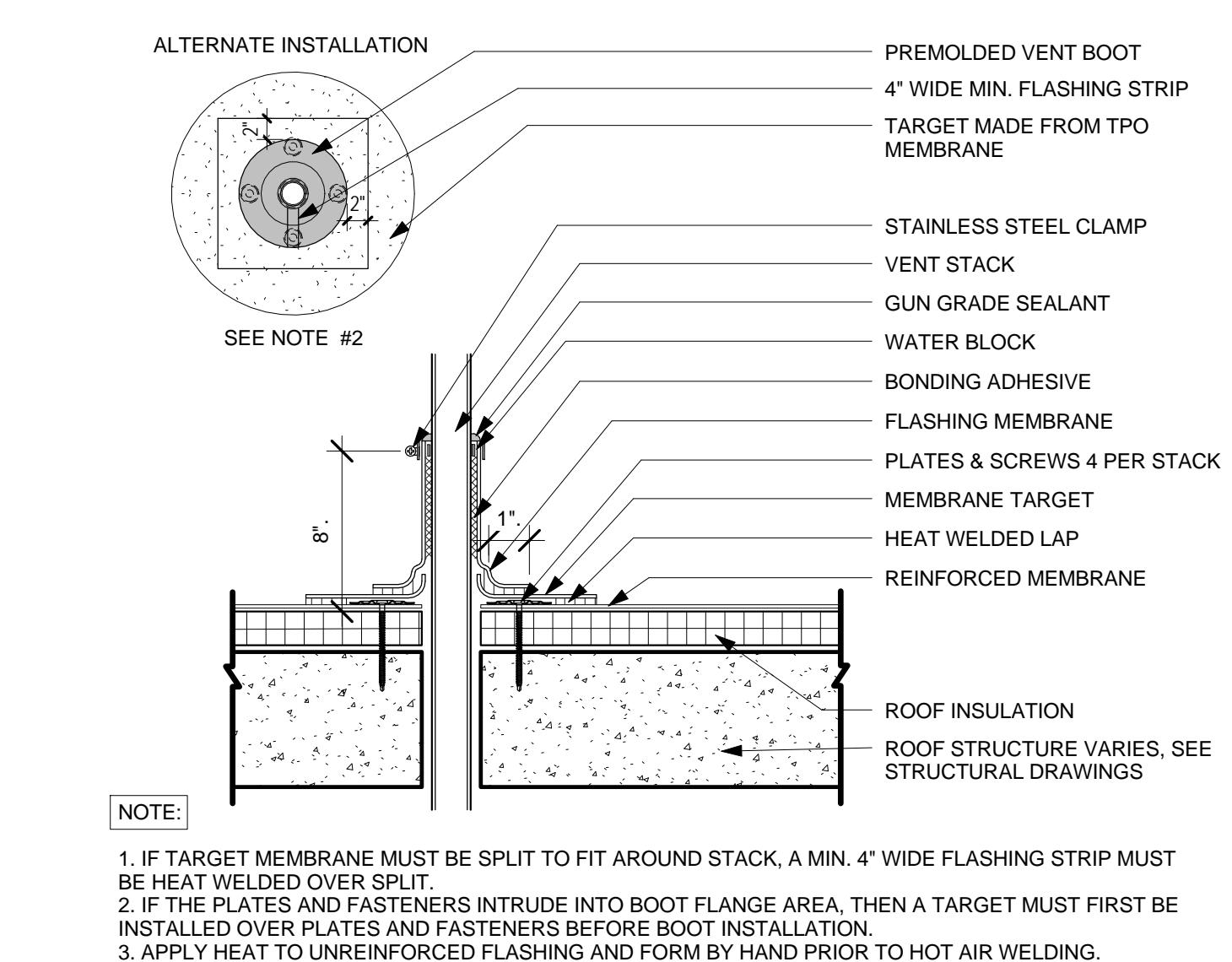
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⑥ FUTURE SKYLIGHT SECTION DETAIL  
1 1/2" = 1'-0"



② PREMOLDED VENT BOOT FLASHING  
NTS



① PENETRATION FLASHING  
NTS



RECORD DRAWINGS  
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											CAD file path	C:\Users\lischer\Documents\LBNL-Testbed\4-1-schade.dwg	Checked by	Date	
<b>LAWRENCE BERKELEY NATIONAL LABORATORIES</b>												<b>Facilities Division</b>	<b>Title: ROOF DETAILS</b>		
Scale: As indicated												Project No: 6947816	Sheet no: A.8.21		
Project ID: FNO100												4B90XA036			