



# PSE OPERATIONAL TRAINING CENTER

PUYALLUP, WA

100% CD SET

01-26-2024





### SITE INFORMATION

**SITE ADDRESS:** 325 TODD ROAD NW  
PUYALLUP, WA 98371

**PARCEL #** 0420211030

**LEGAL DESCRIPTION:** THAT PORTION OF THE WILLIAM BENSTON DONATION LAND CLAIM NO. 47 IN SECTIONS 16 AND 21, TOWNSHIP 20 NORTH, RANGE 4 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON, LYING SOUTHERNLY OF CHICAGO, MILWAUKEE & ST. PAUL RAILROAD RIGHT OF WAY AND LYING WESTERLY OF NORTH MERIDIAN (AKA SR 161) AND LYING NORTHERLY OF TODD ROAD NORTHWEST (AKA 23RD AVENUE NORTHWEST) AND LYING EASTERLY OF THAT 15 FOOT STRIP CONVEYED TO PIERCE COUNTY FOR ROAD PURPOSES (4TH STREET NORTHWEST, AKA DESHAUX LANE) NY DEED RECORDED UNDER RECORDING NO. 1783507.

**SITE SIZE:** 6.17 ACRES

**IMPERVIOUS SURFACE:** 154,965 SF

### PROJECT DESCRIPTION

THE PROPOSED PROJECT IS FOR A NEW OPERATIONAL TRAINING CENTER. THE PROJECT IS COMPOSED OF THE MAIN OTC BUILDING, AND OUTDOOR TRAINING AREA. IT WILL BE USED AS A VOCATIONAL SCHOOL FOR UTILITY FIRST RESPONDERS AND CONSTRUCTION TRADES.

THE OTC BUILDING IS 33,837 SF AND WILL CONSIST OF OFFICE/COMMERCIAL/INSTRUCTIONAL SPACES, AND 8,673 SF OF COVERED AREA.

THE OUTDOOR TRAINING AREA WILL CONSIST OF 2,510 SF OF MULTIPLE ENCLOSED SINGLE STORY STRUCTURES.

### SEPARATE PERMITS

- FIRE SPRINKLERS
- FIRE ALARM

**CITY OF PUYALLUP**  
Planning Division Approved Site Plan  
(253) 864-4165  
MINIMUM SETBACK REQUIREMENTS

Front Yard: 20 ft Rear Yard: 0 ft  
Interior Side Yard: Left: 0 ft Right: 0 ft  
Street Side Yard: 10 ft  
Zoning District: ML  
Permit #: PRCNC20241576

Additional Conditions/Comments

Staff: RNBrown  
Date: 12/13/2024

Front, rear, and side yard property lines shall be marked with string from surveying pins prior to footing inspection.

**City of Puyallup**  
Development Engineering APPROVED

See permit conditions.  
AHunt  
10/24/2024  
10:33:44 AM

The approved construction plans, documents, and all engineering must be posted on the job at all inspections in a visible and readily accessible location.

Full sized legible color plans are required to be provided by the permittee on site for inspection.

Approval of submitted plans is not an approval of omissions or oversights by this office or non compliance with any applicable regulations of local government. The contractor is responsible for making sure that the building complies with all applicable codes and regulations of the local government.

**City of Puyallup**  
Building Reviewed FOR COMPLIANCE

BSnowden  
10/17/2024  
7:55:43 AM

Trash Enclosure permit only.  
See permit PRCNC20240216 for the Main OTC Building.

### OWNER

TC NORTHWEST DEVELOPMENT, INC.  
600 UNIVERSITY STREET, SUITE 2912  
SEATTLE, WA 98101  
CONTACT: ALEX GARCIA MENDOZA

### DESIGN TEAM

**ARCHITECT :**  
**ZERVAS**  
209 PROSPECT STREET  
BELLINGHAM, WA 98225  
PH : 360.734.4744  
CONTACT : MATT REEVES

**STRUCTURAL ENGINEER :**  
**KINGWORKS CONSULTING ENGINEERS**  
600 DUPONT STREET  
SUITE B  
BELLINGHAM, WA 98225  
PH : 360.714.8260  
CONTACT : DAN LINKHART

**MECHANICAL ENGINEER :**  
**MACDONALD-MILLER**  
17930 INTERNATIONAL BLVD, SUITE 120  
SEATAC, WA 98188  
PH : 206.768.3838  
CONTACT : BROCK LEE

**ELECTRICAL ENGINEER :**  
**COFFMAN ENGINEERS, INC.**  
1101 2ND AVE, SUITE 400  
SEATTLE, WA 98101  
PH : 206.521.0736  
CONTACT : CHRIS BARKER

**CIVIL ENGINEER :**  
**FREELAND & ASSOCIATES**  
2500 ELM STREET  
BELLINGHAM, WA 98225  
PH : 360.650.1408  
CONTACT : MILES MCEATHRON

**LANDSCAPE ARCHITECT :**  
**PACIFIC LANDSCAPE ARCHITECTURE**  
1814 BROADWAY STREET  
BELLINGHAM, WA 98225  
PH: 360.684.4295  
CONTACT: SUSAN WILLHOFT

### ARCHITECTURAL SYMBOLS

CENTERLINE

NORTH ARROWS

GRID HEAD

WALL TAG

FLOOR TAG

ROOF TAG

CEILING TAG

DOOR TAG

WINDOW TAG

RELITE TAG

ROOM TAGS

EXTERIOR CLADDING TAG

INTERIOR MATERIAL TAG

EXTERIOR ELEVATION TAG

INTERIOR ELEVATION TAG

INTERIOR CABINET TAG

WIDTH

HEIGHT

DEPTH

### ARCHITECTURAL ABBREVIATIONS

&	AND
AB	AIR BARRIER
ACT	ACOUSTICAL CEILING TILE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
AV	AUDIO / VISUAL
BRSS	BACKER ROD AND SEALANT
BSMT	BASEMENT
BR	BEDROOM
BLKG	BLOCKING
BOT	BOTTOM
BO	BOTTOM OF
BLDG	BUILDING
CPT	CARPET
CT	CERAMIC TILE
CL	CENTER LINE
CLG	CEILING
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CONT	CONTINUOUS
CI	CONTINUOUS INSULATION
CJ	CONTROL JOINT
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
DEMO	DEMOLISH OR DEMOLITION
DTL	DETAIL
DIA	DIAMETER
DIM(S)	DIMENSION(S)
DW	DISHWASHER
DN	DOWN
DS	DOWNSPOT
DR	DOOR
DWG	DWG
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION OR ELEVATOR
EQ	EQUAL
(E)	EXISTING
EXIST	EXISTING
EJ	EXPANSION JOINT
EXT	EXTERIOR
FO	FACE OF
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FC	FIBER CEMENT
FFL	FINISHED FLOOR ELEVATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISHED FACE OR FINISHED FLOOR
FRT	FIRE RETARDANT TREATED
FIN	FINISH
FLR	FLOOR
FD	FLOOR DRAIN
FTG	FOOTING
GALV	GALVANIZED
GA	GAUGE
GC	GENERAL CONTRACTOR
GLB	GLUE LAMINATED BEAM
GWB	GYPSON WALLBOARD
HM	HOLLOW METAL
HB	HOSE BIB
HR	HOUR
HSS	HOLLOW STEEL SECTION
ILO	IN LIEU OF
INSUL	INSULATION OR INSULATED
ID	INSIDE DIAMETER
INT	INTERIOR
LAV	LAVATORY
LF	LINEAL FEET
MAX	MAXIMUM
MFR	MANUFACTURER
MO	MASONRY OPENING
MECH	MECHANICAL
MTL	METAL
MIN	MINIMUM
MISC	MISCELLANEOUS
NFVA	NET FREE VENTILATION AREA
(N)	NEW
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
OH	OPPOSITE HAND OR OVERHEAD
OTO	OUT TO OUT
OTS	OPEN TO STRUCTURE
OD	OUTSIDE DIAMETER
ORWL	OVERFLOW RAINWATER LEADER
ORD	OVERFLOW ROOF DRAIN
OFCC	OWNER FURNISHED, CONTRACTOR COORDINATED
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
PNT	PAINT
PERF	PERFORATED
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD
PT	PRESSURE TREATED
RWL	RAINWATER LEADER
REF	REFERENCE
RCP	REFLECTED CEILING PLAN
REOD	REQUIRED
REV	REVISION
R	RISER
RD	ROOF DRAIN
RM	ROOM
RO	ROUGH OPENING
SCHED	SCHEDULE
SAM	SELF-ADHERED MEMBRANE
SHT	SHEET
SIM	SIM
SOG	SLAB ON GRADE
SC	SOLID CORE
SPEC	SPECIFICATION
SQ	SQUARE
SF	SQUARE FEET
SS	STAINLESS STEEL
STL	STEEL
STRUC	STRUCTURAL
T&G	TONGUE AND GROOVE
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOJ	TOP OF JOIST
TOP	TOP OF PLYWOOD
TOSOG	TOP OF SLAB ON GRADE
TOS	TOP OF STEEL
TOTS	TOP OF TOPPING SLAB
T	TREAD
TS	TUBE STEEL
TYP	TYP
UNO	UNLESS NOTED OTHERWISE
VB	VAPOR BARRIER
VF	VERIFY IN FIELD
VG	VERTICAL GRAIN
VCT	VINYL COMPOSITION TILE
WC	WATER CLOSET
WH	WATER HEATER
WRB	WEATHER RESISTIVE BARRIER
WWF	WELDED WIRE FABRIC
WWW	WELDED WIRE MESH
WF	WIDE FLANGE
W	WITH
WO	WITHOUT
WD	WOOD



100% CD SET

REV	ISSUED FOR	DATE

NORTH SCALE: 1/4" = 1'-0"

**PSE OPERATIONAL TRAINING CENTER**

**PROJECT INFORMATION**

PROJECT#	202202_06
DRAWN	MR   CHECK: AK
ISSUED:	01/26/24

**G0.01**

**DRAWING INDEX**

**GENERAL**

- G0.00 : COVER
- G0.01 : PROJECT INFORMATION
- G0.02 : DRAWING INDEX AND CODE ANALYSIS
- G0.03 : LIFE SAFETY PLAN - OTC BUILDING
- G0.04 : ASSEMBLIES
- G0.05 : WASHINGTON STATE ENERGY CODE - OTC BUILDING
- G0.06 : WASHINGTON STATE ENERGY CODE - OTC BUILDING

**CIVIL (SEPARATE PERMIT)**

- C0.0 : CIVIL COVER SHEET
- C0.1 : OVERALL EXISTING CONDITIONS
- C0.2 : OVERALL IMPROVEMENT PLAN
- PRIVATE IMPROVEMENTS**
- C1.0 : SITE PLAN
- C1.1A : EARLIER PHASES TESC & SURCHARGE PLAN
- C1.1B : LATER PHASES TESC PLAN
- C1.1 : TESC PLAN
- C1.2 : WATER & SEWER PLAN
- C1.3A : DRAINAGE PLAN
- C1.3B : DRAINAGE PLAN
- C1.3C : DRAINAGE PLAN
- C1.4A : GRADING & PAVING PLAN
- C1.4B : GRADING & PAVING PLAN
- C1.4C : GRADING & PAVING PLAN
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- C1.6 : TRAINING VILLAGE UTILITY PLAN
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- C2.0 : FRONTAGE PLAN & SHEET LAYOUT
- C2.1 : TESC PLAN
- C2.2A : SEWER PLAN & PROFILE (7TH ST NW)
- C2.2B : SEWER PLAN & PROFILE (7TH ST NW)
- C2.2C : SEWER PLAN & PROFILE (TODD RD NW)
- C2.2D : SEWER PLAN & PROFILE (TODD RD NW)
- C2.2E : WATER & SEWER PLAN & PROFILE (TODD RD NW)
- C2.2F : WATER PLAN & PROFILE (TODD RD NW)
- C2.2G : WATER PLAN & PROFILE (TODD RD NW)
- C2.3D : ROAD & DRAINAGE PLAN & PROFILE (TODD RD NW)
- C2.3E : ROAD & DRAINAGE PLAN & PROFILE (TODD RD NW)
- C2.3F : ROAD & DRAINAGE PLAN & PROFILE (TODD RD NW)
- C2.3G : ROAD & DRAINAGE PLAN & PROFILE (TODD RD NW)

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- C3.2 : SANITARY SEWER DETAILS
- C3.3 : WATER DETAILS
- C3.4 : WATER DETAILS
- C3.5 : DRAINAGE DETAILS
- C3.6 : DRAINAGE DETAILS
- C3.7 : DRAINAGE DETAILS
- C3.8 : STORMWATER MANAGEMENT DETAILS
- C3.9 : PAVING DETAILS
- C3.10 : PAVING DETAILS
- C3.11 : PAVING DETAILS
- C3.12 : SITE DETAILS
- C3.13 : SITE SECTION & DETAIL GRADING
- C3.14 : GENERAL NOTES

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- L1.0 : LANDSCAPE SITE PLAN
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- L1.2 : PLANTING PLAN CENTRAL
- L1.3 : PLANTING PLAN EAST
- L1.4 : PLANT SCHEDULE
- L2.1 : DETAIL SHEET
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- L2.3 : DETAIL SHEET
- L2.4 : DETAIL SHEET
- IR1.1 : IRRIGATION PLAN WEST
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- IR1.4 : IRRIGATION SCHEDULES
- IR2.1 : IRRIGATION DETAILS

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- A4.01 : BUILDING SECTIONS
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- A4.03 : WALL SECTIONS
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- A8.03 : INTERIOR DETAILS

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- S0.03 : STRUCTURAL NOTES
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- S1.00 : OUTDOOR TRAINING SITE STRUCTURES - OVERVIEW PLAN
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- S2.03 : ROOF FRAMING PLAN - SOUTH
- S2.04 : ROOF FRAMING PLAN - NORTH
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- S6.03 : EQUIPMENT PADS - FOUNDATION / ELEVATIONS AND DETAILS
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- P0.03 : SCHEDULES - PLUMBING
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- P1.01A : UNDERGROUND SECTOR PLAN - PLUMBING
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- P1.01C : UNDERGROUND SECTOR PLAN - PLUMBING
- P1.01D : UNDERGROUND SECTOR PLAN - PLUMBING
- P2.02 : 1ST FLOOR PLAN - PLUMBING
- P2.02A : 1ST FLOOR SECTOR PLAN - PLUMBING
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- M0.02 : SCHEDULES
- M0.03 : SCHEDULES
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- M2.01A : 1ST FLOOR SECTOR A PLAN - HVAC
- M2.01B : 1ST FLOOR SECTOR B PLAN - HVAC
- M2.01C : 1ST FLOOR SECTOR C PLAN - HVAC
- M2.01D : 1ST FLOOR SECTOR D PLAN - HVAC
- M2.02 : ROOF PLAN - HVAC
- M4.01 : APPLIANCE LAB - SECTIONS
- M6.01 : DETAILS HVAC
- MP0.01S : SITE PLAN - FITTING
- MP2.01 : 1ST FLOOR PLAN - FITTING
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- MP2.01B : 1ST FLOOR SECTOR B PLAN - FITTING
- MP2.01C : 1ST FLOOR SECTOR C PLAN - FITTING
- MP2.01D : 1ST FLOOR SECTOR D PLAN - FITTING
- MP2.02 : ROOF PLAN - FITTING
- MP4.01 : VRF DIAGRAMS - FITTING
- MP4.02 : SPLIT SYSTEM DIAGRAMS - FITTING
- MP4.03 : NATURAL GAS RISER DIAGRAM - FITTING
- MP6.01 : DETAILS - FITTING

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**FIRE PROTECTION (SEPARATE PERMIT)**

- FP-1 : FIRE PROTECTION PLAN
- FP-2 : FIRE PUMP ROOM PLAN & DETAILS

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- E0.02 : GENERAL NOTES
- E0.03 : LUMINAIRE SCHEDULE
- E0.04 : MECHANICAL EQUIPMENT CONNECTION SCHEDULE
- E0.05 : NREC
- E0.06 : NREC
- E0.07 : NREC - CONTROL BUILDING
- E0.08 : NREC - CONTROL BUILDING
- E1.01 : OVERALL ELECTRICAL SITE PLAN
- E1.02 : PARTIAL ELECTRICAL SITE PLAN
- E2.01 : LIGHTING PLAN
- E2.02 : LIGHTING PLAN
- E3.01 : POWER & SYSTEMS PLAN
- E3.02 : POWER & SYSTEMS PLAN
- E3.03 : MECHANICAL POWER PLAN
- E3.04 : ROOF POWER PLAN
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- E5.01 : ONE-LINE DIAGRAM
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- E6.06 : PANEL SCHEDULES
- E6.07 : PANEL SCHEDULES
- E6.08 : PANEL SCHEDULES
- E7.01 : DETAILS

**SURVEY**

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- 2 OF 4 : SITE-02
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**2018 IBC ANALYSIS - OTC BUILDING**

THE FOLLOWING IS A PARTIAL LISTING OF REQUIREMENTS, ALL APPLICABLE CODES TO APPLY

**CHAPTER 3 - USE AND OCCUPANCY CLASSIFICATION:**

- A. BUSINESS, GROUP B: OFFICE BUILDING AND VOCATIONAL SCHOOL

**CHAPTER 5 - GENERAL BUILDING HEIGHTS AND AREAS:**

BUILDING TO BE CONSTRUCTION TYPE V-B, SPRINKLERED

- A. PER TABLE 504.3 ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE
  - 1. OCCUPANCY GROUP 'B' ALLOWABLE: 60'-0" PROPOSED: 26'-2"
- B. PER TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE
  - 1. OCCUPANCY GROUP 'B' ALLOWABLE: 3 STORIES PROPOSED: 1 STORIES
- C. PER TABLE 506.2 ALLOWABLE AREA FACTOR IN SQUARE FEET
  - 1. OCCUPANCY GROUP 'B' ALLOWABLE: 36,000 SF PROPOSED: 42,510 SF
- D. ALLOWABLE AREA PER SECTION 506.2.1 EQUATION 5-1:  $A_a = A_t + (NS \times If)$ 
  - 1. ALLOWABLE BUILDING AREA =  $36,000 + (9,000 \times 0.75) = 42,750$  SF
  - 2. PROPOSED BUILDING AREA = 42,510 SF

**CHAPTER 6 - TYPES OF CONSTRUCTION:**

- A. PER TABLE 601 NO FIRE RESISTANCE REQUIREMENTS FOR TYPE 'V-B' BUILDING ELEMENTS.
- B. FIRE-RESISTANCE RATING (HRS) OF EXTERIOR WALLS PER TABLE 602
  - 1. FIRE-SEPARATION DISTANCE =  $\geq 10'$ , FIRE RATING REQUIRED = 0

**CHAPTER 8 - INTERIOR FINISHES:**

- A. INTERIOR FINISH REQUIREMENTS BASED ON OCCUPANCY PER TABLE 803.13
  - 1. EXIT ENCLOSURES AND PASSAGEWAYS: B
  - 2. CORRIDORS: C
  - 3. ROOMS AND ENCLOSED SPACES: C

**CHAPTER 9 - FIRE PROTECTION SYSTEMS:**

- A. PER SECTION 906 PORTABLE FIRE EXTINGUISHERS SHALL BE PROVIDED
  - 1. SIZE AND DISTRIBUTION PER TABLE 906.3.(1) LIGHT HAZARD OCCUPANCY
    - a. MINIMUM RATED SINGLE EXTINGUISHER = 2A
    - b. MAXIMUM FLOOR AREA PER UNIT OF A = 3,000 SQ.FT.
    - c. MAXIMUM FLOOR AREA FOR EXTINGUISHER = 11,250 SQ.FT.
    - d. MAXIMUM TRAVEL DISTANCE TO EXTINGUISHER = 75'

**CHAPTER 10 - MEANS OF EGRESS:**

- A. SECTION 1004 DESIGN OCCUPANT LOAD PER TABLE 1004.5: SEE OCCUPANT LOAD TABLE
- B. SECTION 1005.3.2 OTHER EGRESS COMPONENTS
  - 1. EGRESS COMPONENTS: OCCUPANT LOAD SERVED X 0.15
    - a. PROPOSED MAXIMUM:  $122 \times 0.15 = 19'$  REQUIRED, 33" PROVIDED
- C. PER TABLE 1006.2.1 SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY
  - 1. MAXIMUM OCCUPANT LOAD
    - a. B OCCUPANCY: ALLOWABLE - 49
  - 2. MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (WITH SPRINKLER SYSTEM)
    - a. B OCCUPANCY: ALLOWABLE - 100'
- D. SECTION 1017 EXIT ACCESS TRAVEL DISTANCE PER TABLE 1017.2
  - 1. B OCCUPANCIES. ALLOWABLE: 300'-0" WITH A SPRINKLER SYSTEM. PROPOSED MAXIMUM: 151'-0"
- E. PER TABLE 1020.2 COORIDOR FIRE-RESISTANCE RATING, B OCCUPANCIES WITH AN OCCUPANT LOAD GREATER THAN 30, THAT HAVE A SPRINKLER SYSTEM, ARE REQUIRED TO HAVE A FIRE-RESISTANCE RATING OF 0 HOURS

**CHAPTER 11 - ACCESSIBILITY:**

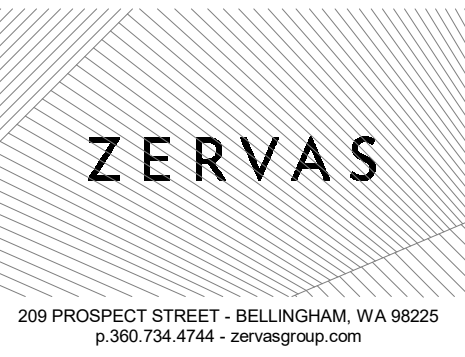
- A. PER SECTION 1103.2.9
  - 1. SPACES FREQUENTED ONLY BY SERVICE PERSONNEL FOR MAINTENANCE, REPAIR OR OCCASIONAL MONITORING OF EQUIPMENT ARE NOT REQUIRED TO COMPLY WITH THIS CHAPTER.
- B. PER TABLE 1106.2 ACCESSIBLE PARKING SPACES
  - 1. 51 TO 75 SPACES REQUIRE 3 ACCESSIBLE STALLS, 68 SPACES ARE PROPOSED.
    - a. 3 ACCESSIBLE PARKING STALLS ARE PROPOSED.
- C. PER SECTION 1106.6 VAN SPACES. FOR EVERY SIX OR FRACTION OF SIX ACCESSIBLE PARKING SPACES, AT LEAST ONE SHALL BE A VAN-ACCESSIBLE PARKING SPACE.
  - 1. 3 ACCESSIBLE PARKING STALLS / 6 = 0.5. 1 VAN SPACE WILL BE PROVIDED

**CHAPTER 29 - PLUMBING SYSTEMS:**

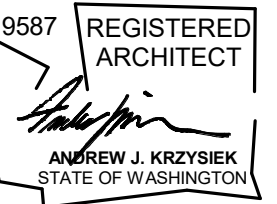
- A. SECTION 2902.1.1 FIXTURE CALCULATIONS.
  - 1. TOTAL OCCUPANT LOAD =  $494.494 / 2 = 247$ , HALF OF OCCUPANT LOAD
- B. MIN. NUMBER OF REQUIRED PLUMBING FIXTURES FROM THE WASHINGTON STATE AMENDMENTS PER TABLE 2902.1 AND 2902.5.1.
  - 1. WATERCLOSETS, GROUP B: 1 PER 25 FOR THE FIRST 50, 1 PER 50 FOR REMAINING
    - a. MALE WATERCLOSETS:  $2 + [(247-50)/50] = 6$  REQUIRED, 6 PROVIDED
    - b. FEMALE WATERCLOSETS:  $2 + [(247-50)/50] = 6$  REQUIRED, 6 PROVIDED
  - 2. LAVATORIES, GROUP B: 1 PER 40 FOR THE FIRST 80, 1 PER 80 FOR REMAINING
    - a. MALE LAVATORIES:  $2 + [(247-80)/80] = 5$  REQUIRED, 5 PROVIDED
    - b. FEMALE LAVATORIES:  $2 + [(247-80)/80] = 5$  REQUIRED, 5 PROVIDED
  - 3. DRINKING FOUNTAINS: 1 PER 150 FOR THE FIRST 150, 1 PER 500 FOR REMAINING
    - a. 495 OCCUPANTS:  $1 + [(494-150)/500] = 2$  REQUIRED, 2 PROVIDED
- C. PER TABLE 2902.1 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES
  - 1. SERVICE SINK, GROUP B: 1 REQUIRED, 1 PROVIDED

**ADDITIONAL REQUIREMENTS:**

- A. THE STRUCTURE WILL REQUIRE AN EMERGENCY RESPONDER RADIO ANALYSIS TO BE CONDUCTED (IFC 510). ANY DEFICIENCIES FOUND WILL NEED TO BE CORRECTED PRIOR TO CERTIFICATE OF OCCUPANCY ISSUANCE.



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PRCNC20241576

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REV	ISSUED FOR	DATE

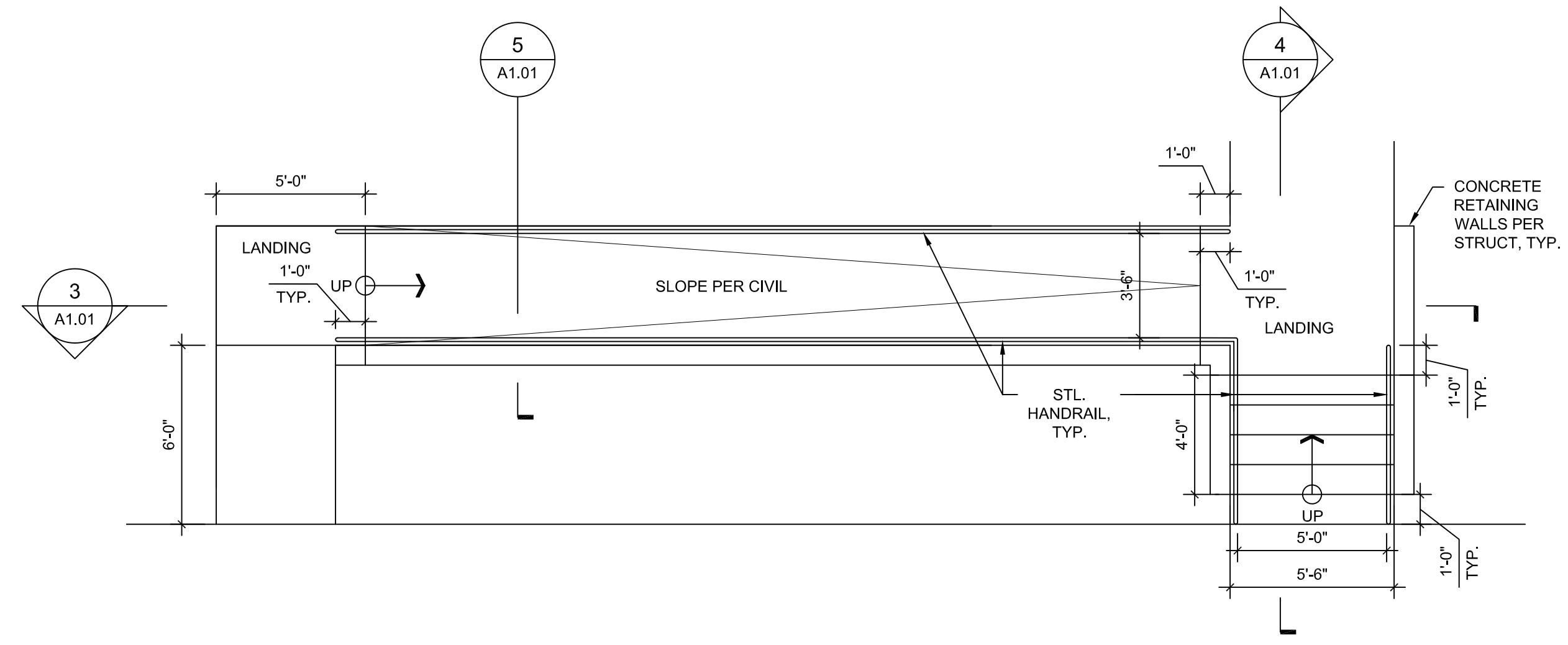
NORTH SCALE:	PLAN
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PSE OPERATIONAL TRAINING CENTER

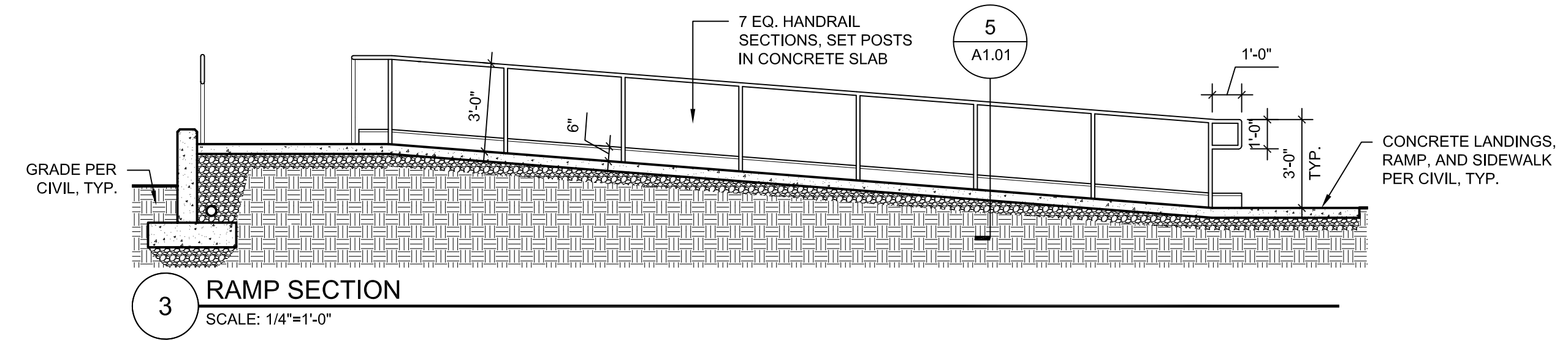
DRAWING INDEX AND CODE ANALYSIS

PROJECT#	202202_06
DRAWN	MR   CHECK: AK
ISSUED:	01/26/24

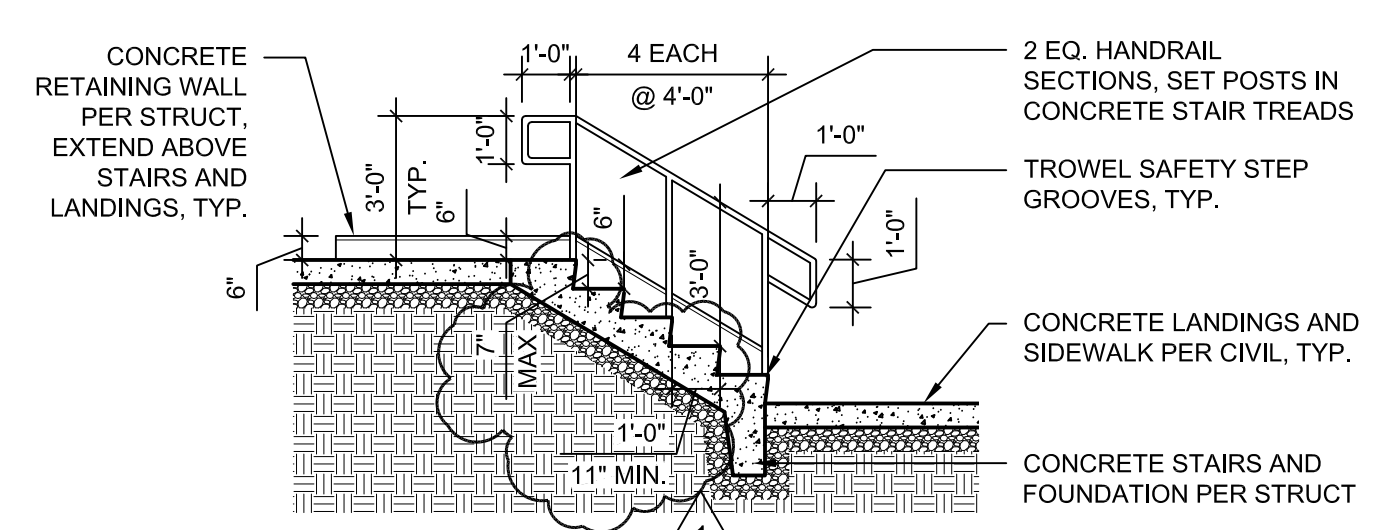
**G0.02**



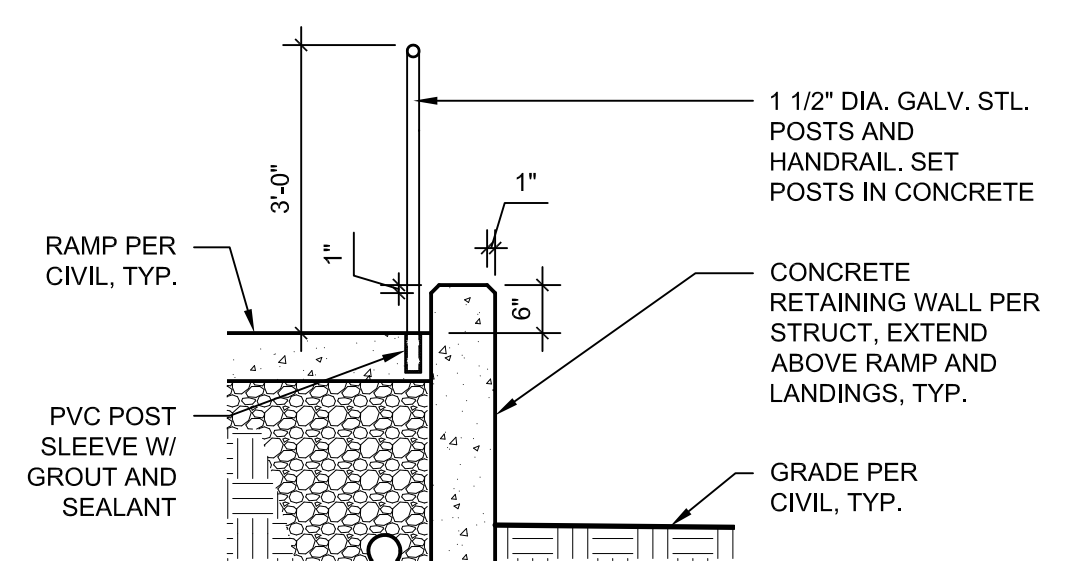
**2 ENLARGED RAMP AND STAIR PLAN**  
SCALE: 1/4"=1'-0"



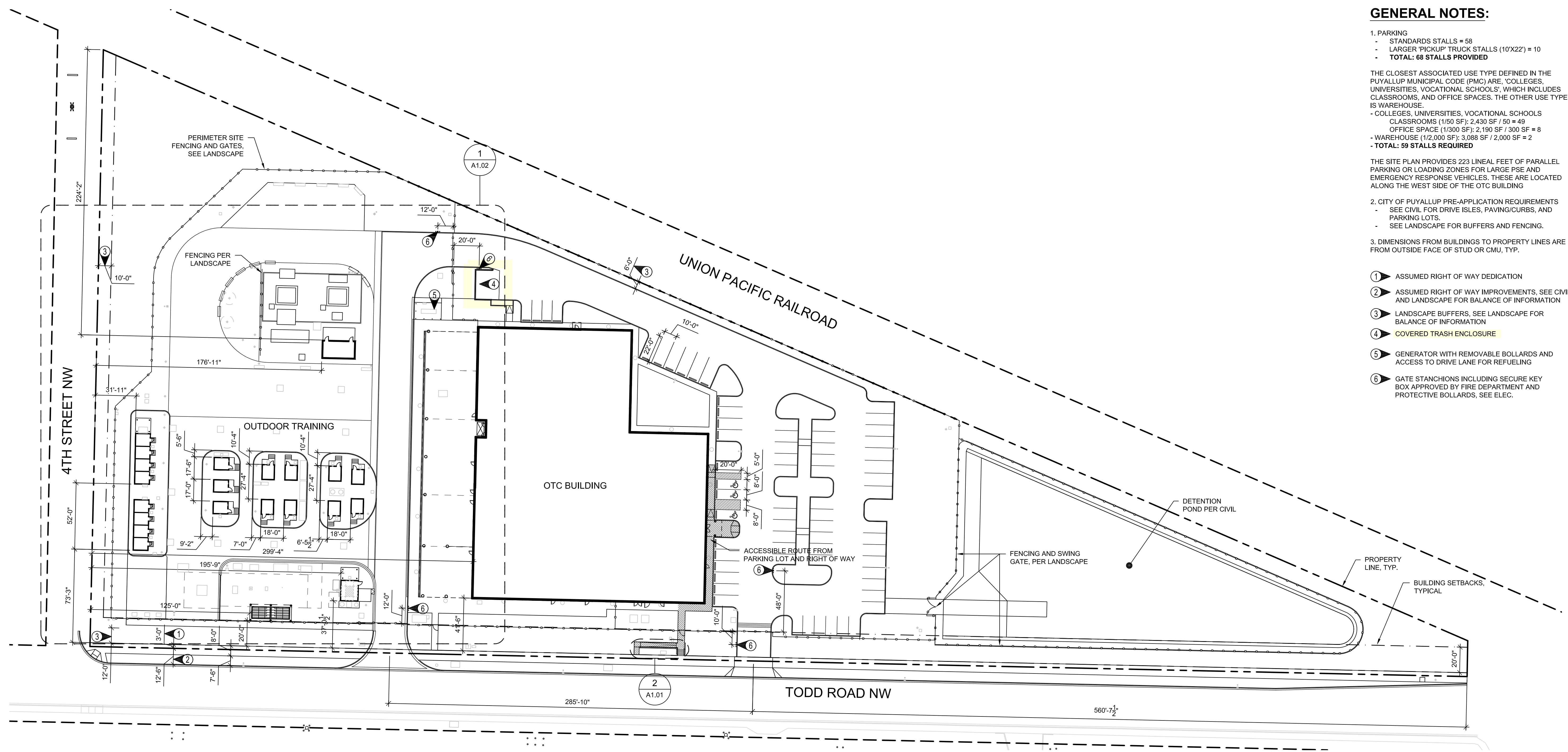
**3 RAMP SECTION**  
SCALE: 1/4"=1'-0"



**4 STAIR SECTION**  
SCALE: 1/4"=1'-0"



**5 HANDRAIL DETAIL @ RAMP, STAIR SIM.**  
SCALE: 1/2"=1'-0"



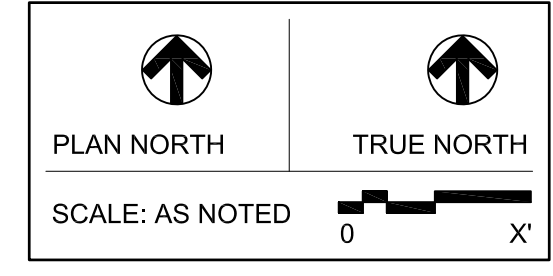
**1 SITE PLAN**  
SCALE: 1"=40'-0"

**GENERAL NOTES:**

1. PARKING
  - STANDARDS STALLS = 58
  - LARGER "PICKUP" TRUCK STALLS (10'X22') = 10
  - TOTAL: 68 STALLS PROVIDED
- THE CLOSEST ASSOCIATED USE TYPE DEFINED IN THE PUYALLUP MUNICIPAL CODE (PMC) ARE: 'COLLEGES, UNIVERSITIES, VOCATIONAL SCHOOLS', WHICH INCLUDES CLASSROOMS, AND OFFICE SPACES. THE OTHER USE TYPE IS WAREHOUSE.
  - COLLEGES, UNIVERSITIES, VOCATIONAL SCHOOLS
    - CLASSROOMS (1/50 SF): 2,430 SF / 50 = 49
    - OFFICE SPACE (1/300 SF): 2,190 SF / 300 SF = 8
  - WAREHOUSE (1/2,000 SF): 3,088 SF / 2,000 SF = 2
  - TOTAL: 59 STALLS REQUIRED
- THE SITE PLAN PROVIDES 223 LINEAL FEET OF PARALLEL PARKING OR LOADING ZONES FOR LARGE PSE AND EMERGENCY RESPONSE VEHICLES. THESE ARE LOCATED ALONG THE WEST SIDE OF THE OTC BUILDING
2. CITY OF PUYALLUP PRE-APPLICATION REQUIREMENTS
  - SEE CIVIL FOR DRIVE ISLES, PAVING/CURBS, AND PARKING LOTS.
  - SEE LANDSCAPE FOR BUFFERS AND FENCING.
3. DIMENSIONS FROM BUILDINGS TO PROPERTY LINES ARE FROM OUTSIDE FACE OF STUD OR CMU, TYP.
- ① ASSUMED RIGHT OF WAY DEDICATION
- ② ASSUMED RIGHT OF WAY IMPROVEMENTS. SEE CIVIL AND LANDSCAPE FOR BALANCE OF INFORMATION
- ③ LANDSCAPE BUFFERS. SEE LANDSCAPE FOR BALANCE OF INFORMATION
- ④ COVERED TRASH ENCLOSURE
- ⑤ GENERATOR WITH REMOVABLE BOLLARDS AND ACCESS TO DRIVE LANE FOR REFUELING
- ⑥ GATE STANCHIONS INCLUDING SECURE KEY BOX APPROVED BY FIRE DEPARTMENT AND PROTECTIVE BOLLARDS, SEE ELEC.

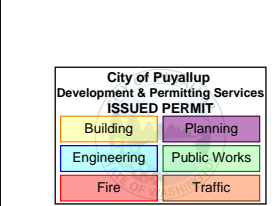
**100% CD SET**

REV	ISSUED FOR	DATE
1	BUILDING PERMIT REVISION	05/21/2024



**PSE - OPERATIONAL TRAINING CENTER**  
**OVERALL SITE PLAN**  
PROJECT No: 202202.06  
DRAWN BY: MR  
CHECKED BY: AK  
DATE ISSUED: 01/26/24

**A1.01**



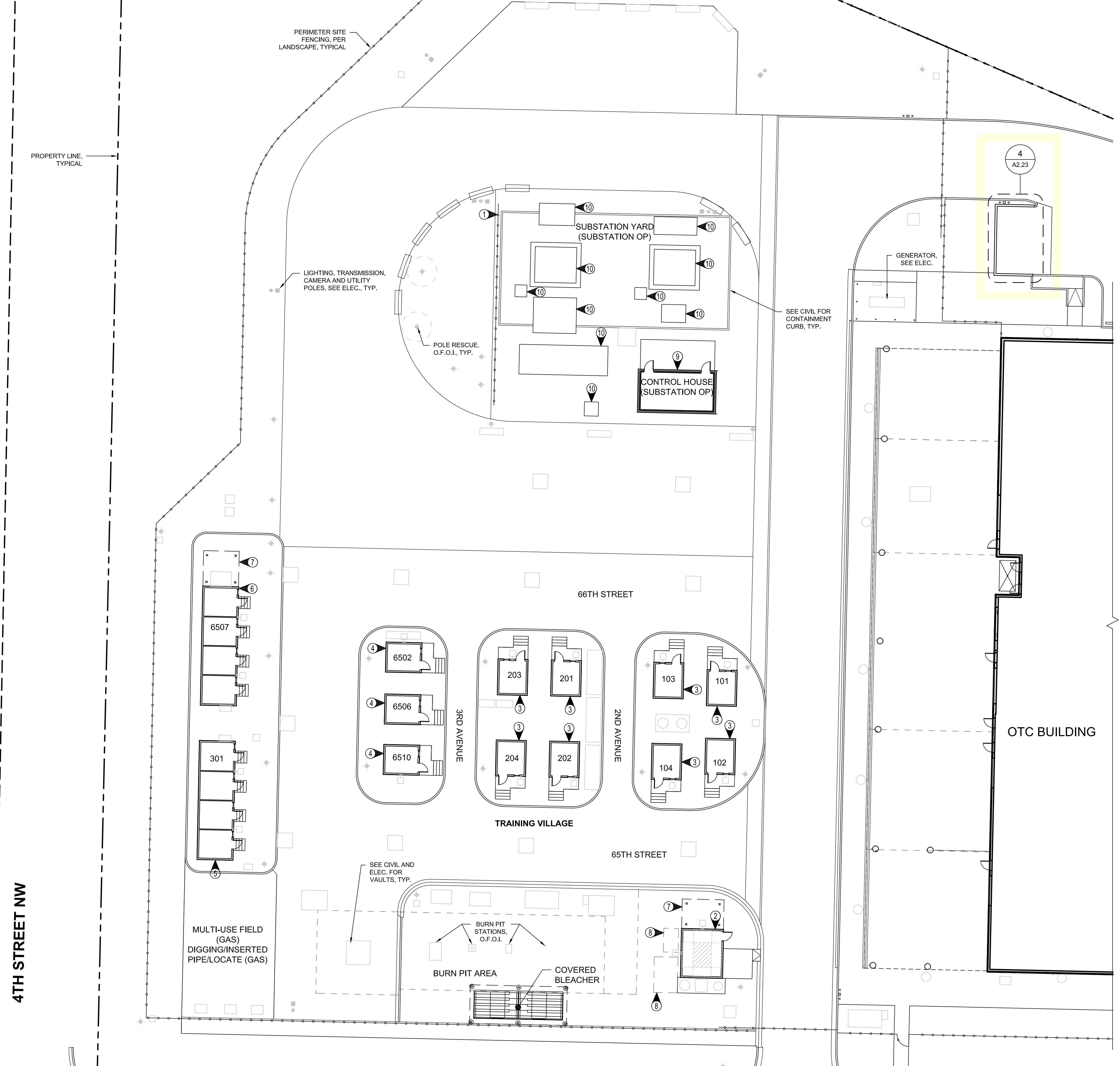
ARCHITECTURE | INTERIOR DESIGN  
zervasgroup.com  
209 Prospect Street  
Bellingham, WA 98225  
360.734.4744



PRCNC20241576

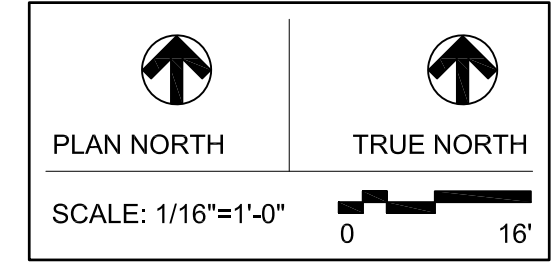
**GENERAL NOTES:**

- ① SUBSTATION FENCING, PER LANDSCAPE
- ② COMPRESSOR BUILDING
- ③ RESIDENTIAL "VILLAGE" UNITS
- ④ COMMERCIAL "VILLAGE" UNITS
- ⑤ RESIDENTIAL MULTI-FAMILY 4-PLEX BUILDING WITH FOUR METER MANIFOLD TO SIMULATE METER MIXES & MNS TRAINING
- ⑥ MULTI-UNIT COMMERCIAL 4-PLEX BUILDING
- ⑦ COVERED MANIFOLD SETS
- ⑧ PSE MOCK UP AREA. NO WORK BY GC
- ⑨ CONTROL HOUSE
- ⑩ SUBSTATION EQUIPMENT BY PSE. PROVIDE CONCRETE PADS FOR SUBSTATION EQUIPMENT PER PSE SUBSTATION TYPICAL DETAILS, SEE CIVIL AND STRUCT.



**1** OUTDOOR TRAINING SITE PLAN  
SCALE: 1/16"=1'-0"

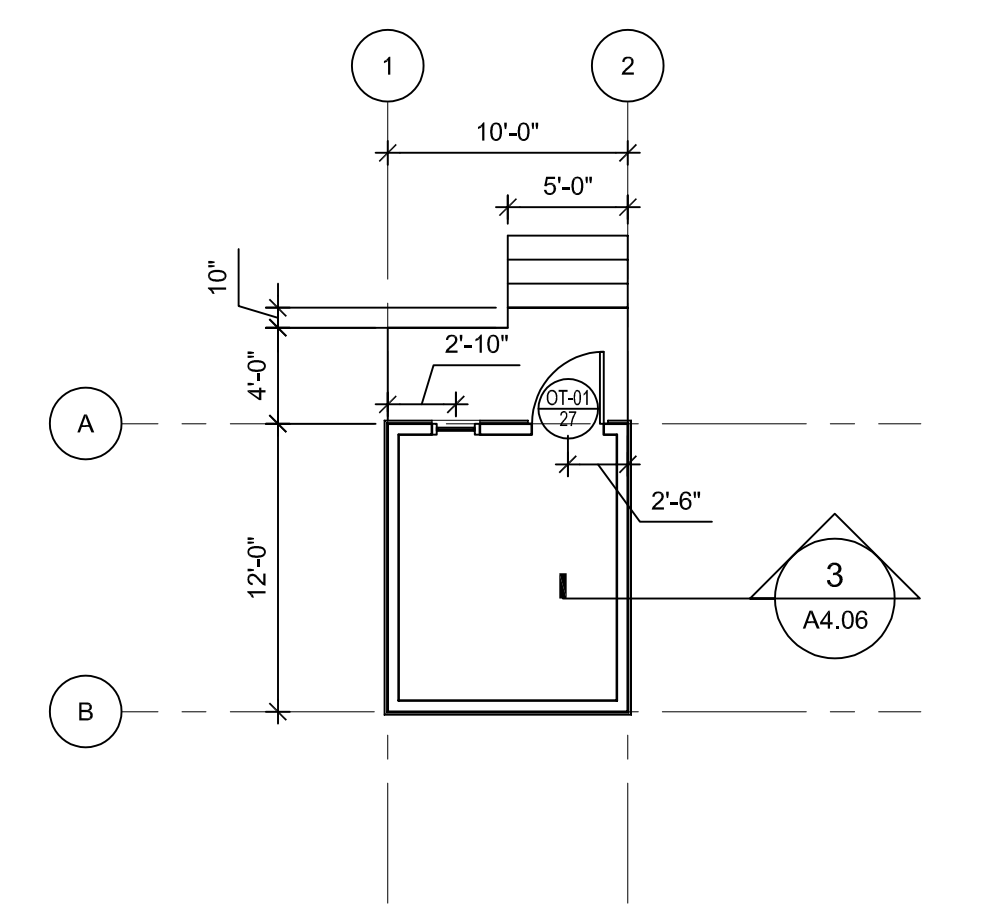
100% CD SET		
REV	ISSUED FOR	DATE



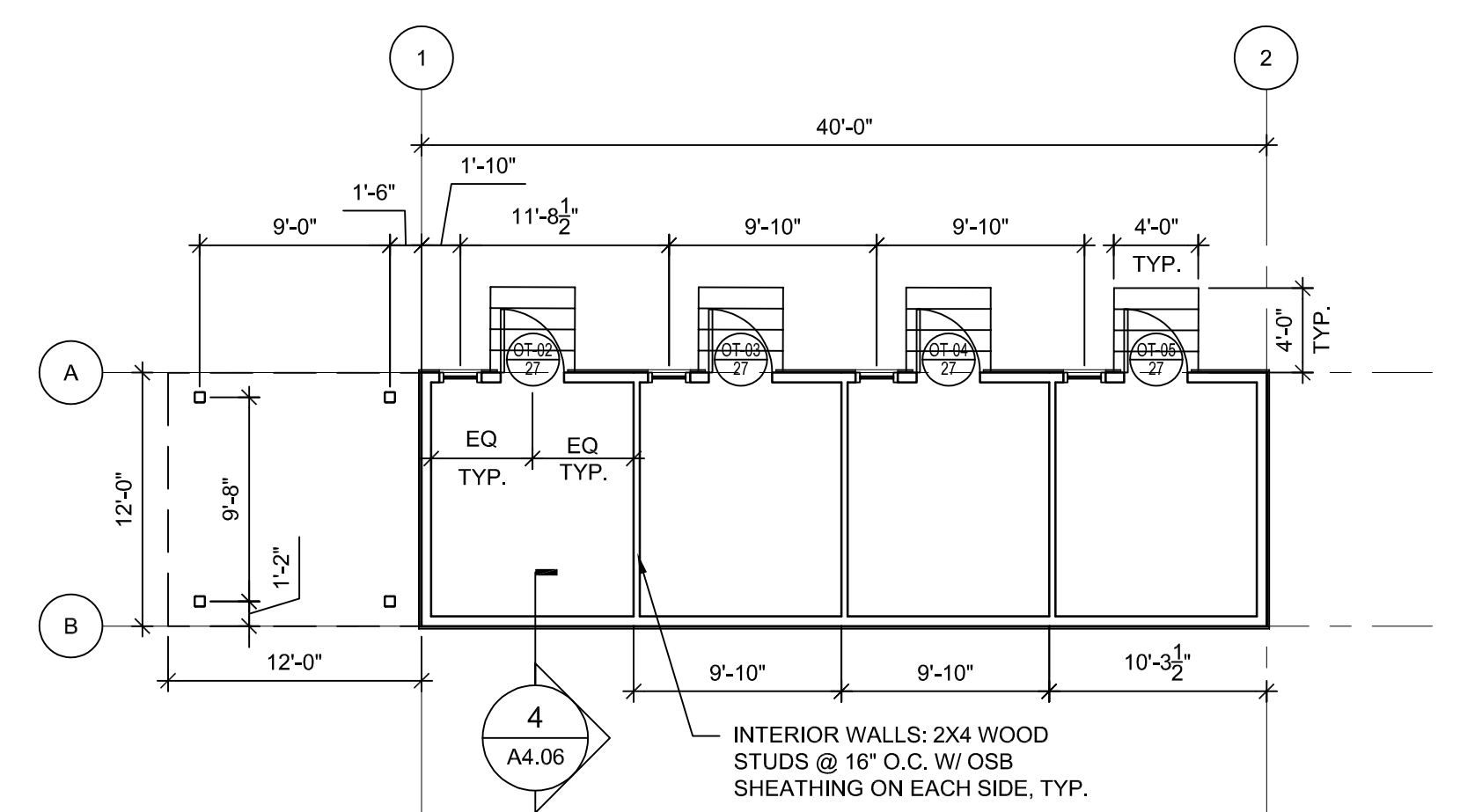
**PSE - OPERATIONAL TRAINING CENTER**  
**OUTDOOR TRAINING SITE PLAN**

PROJECT No: 202202.06  
DRAWN BY: MR  
CHECKED BY: AK  
DATE ISSUED: 01/26/24

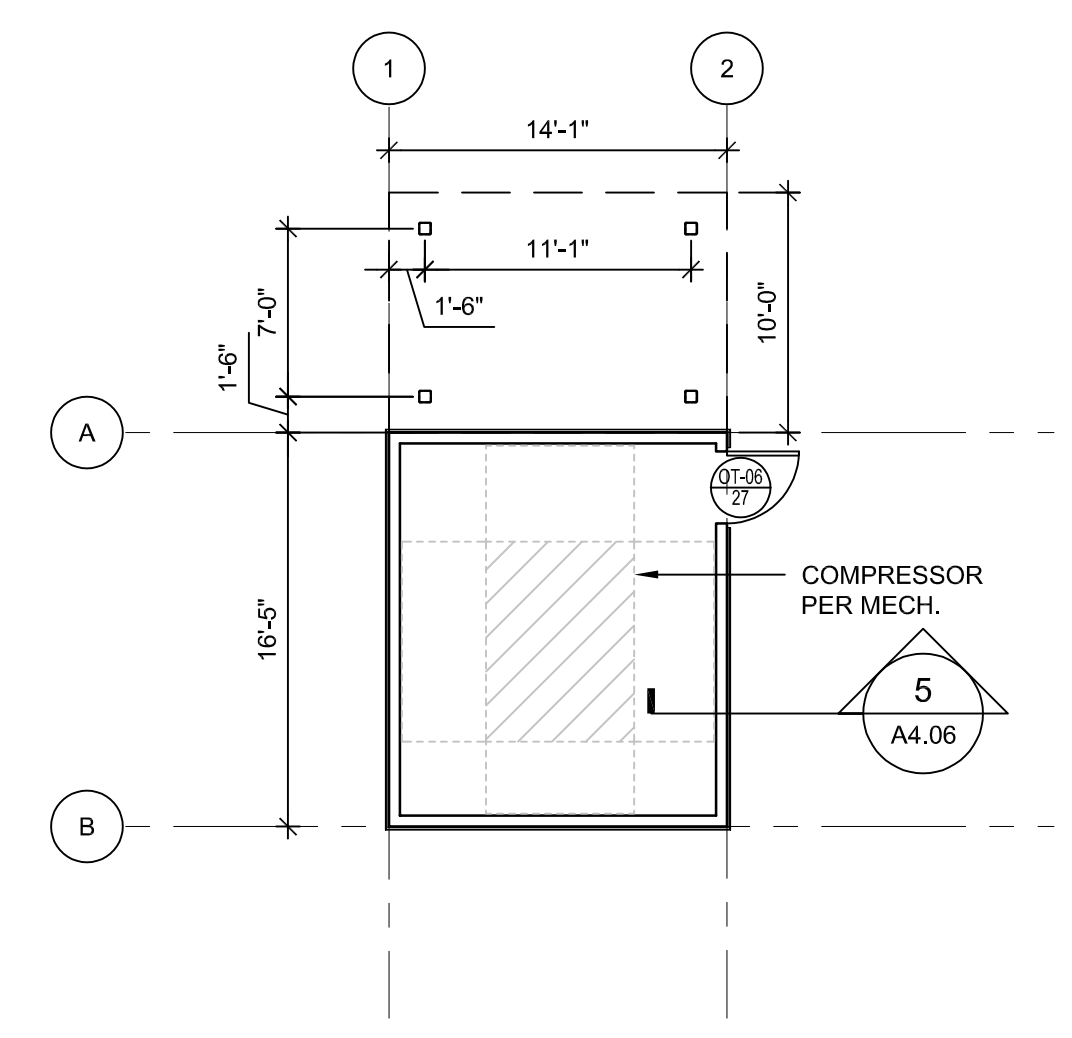
**A1.02**



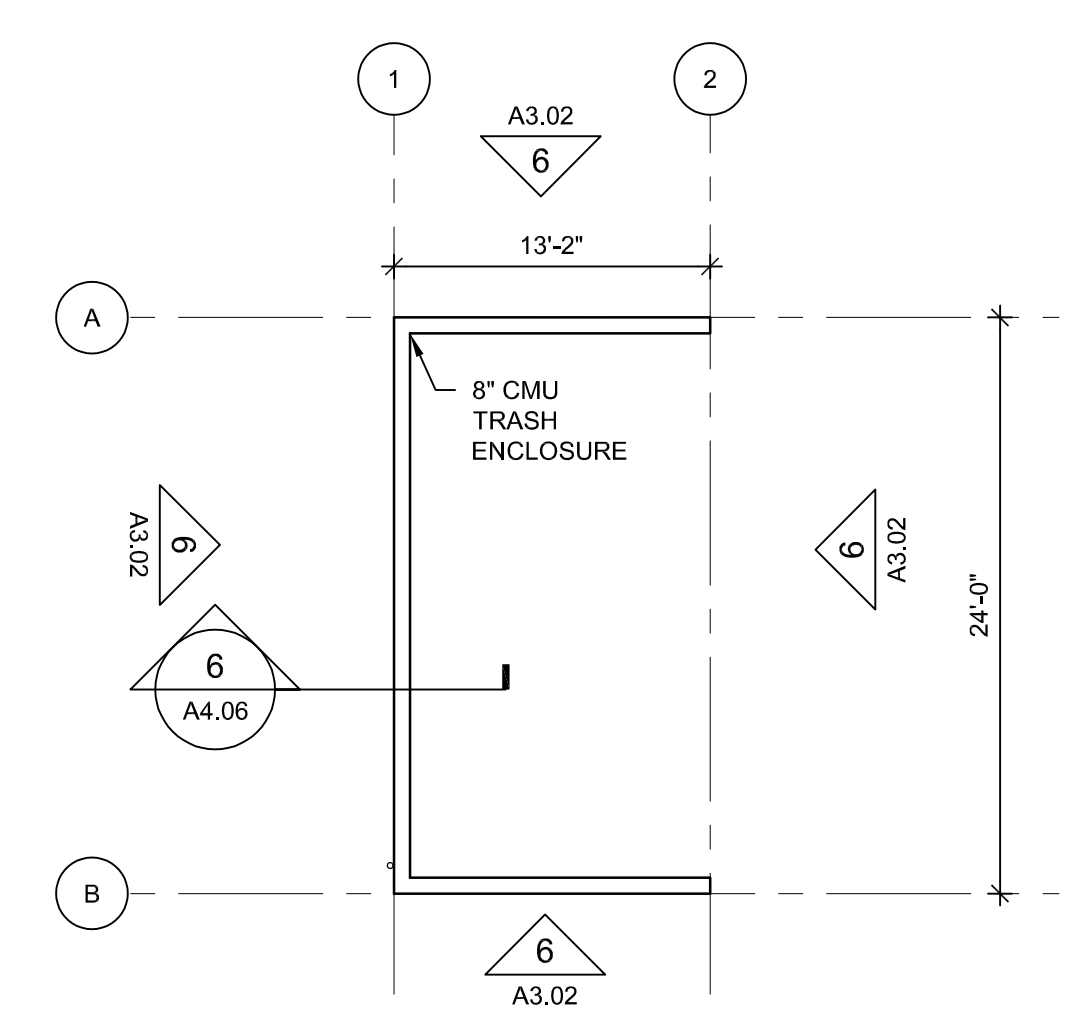
1 "VILLAGE" UNIT FLOOR PLAN, TYP. OF 11  
 1/8" = 1'-0"



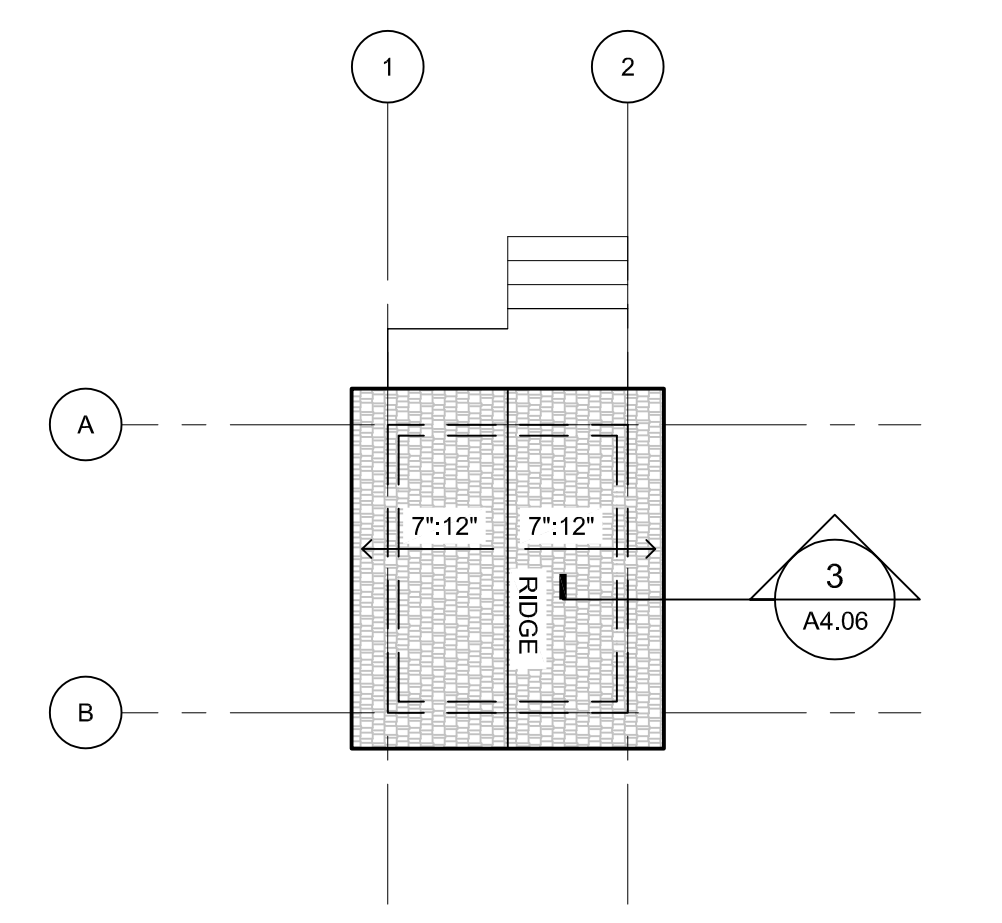
2 4-PLEX BUILDING UNIT FLOOR PLAN, TYP. OF 2  
 1/8" = 1'-0"



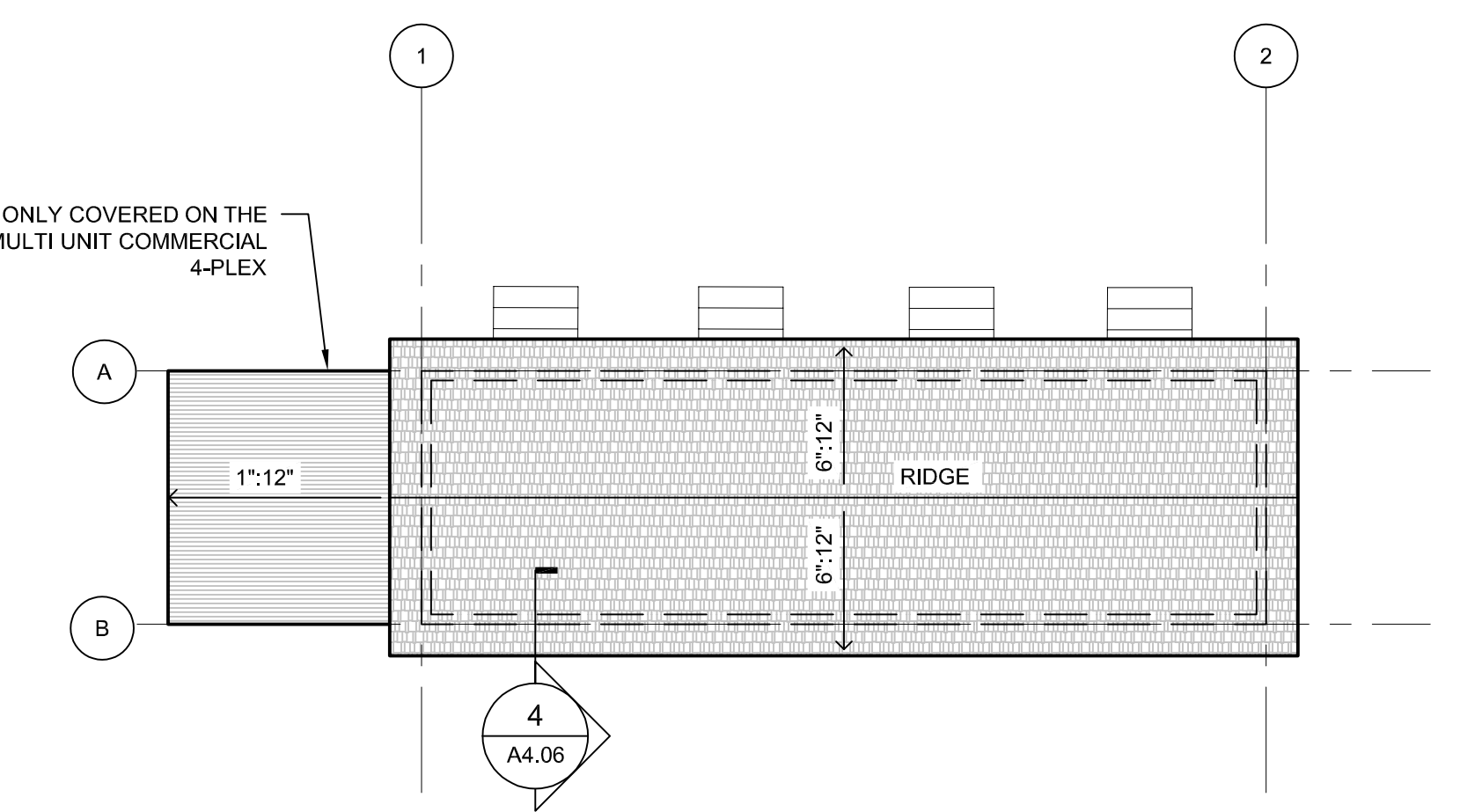
3 COMPRESSOR BUILDING FLOOR PLAN  
 1/8" = 1'-0"



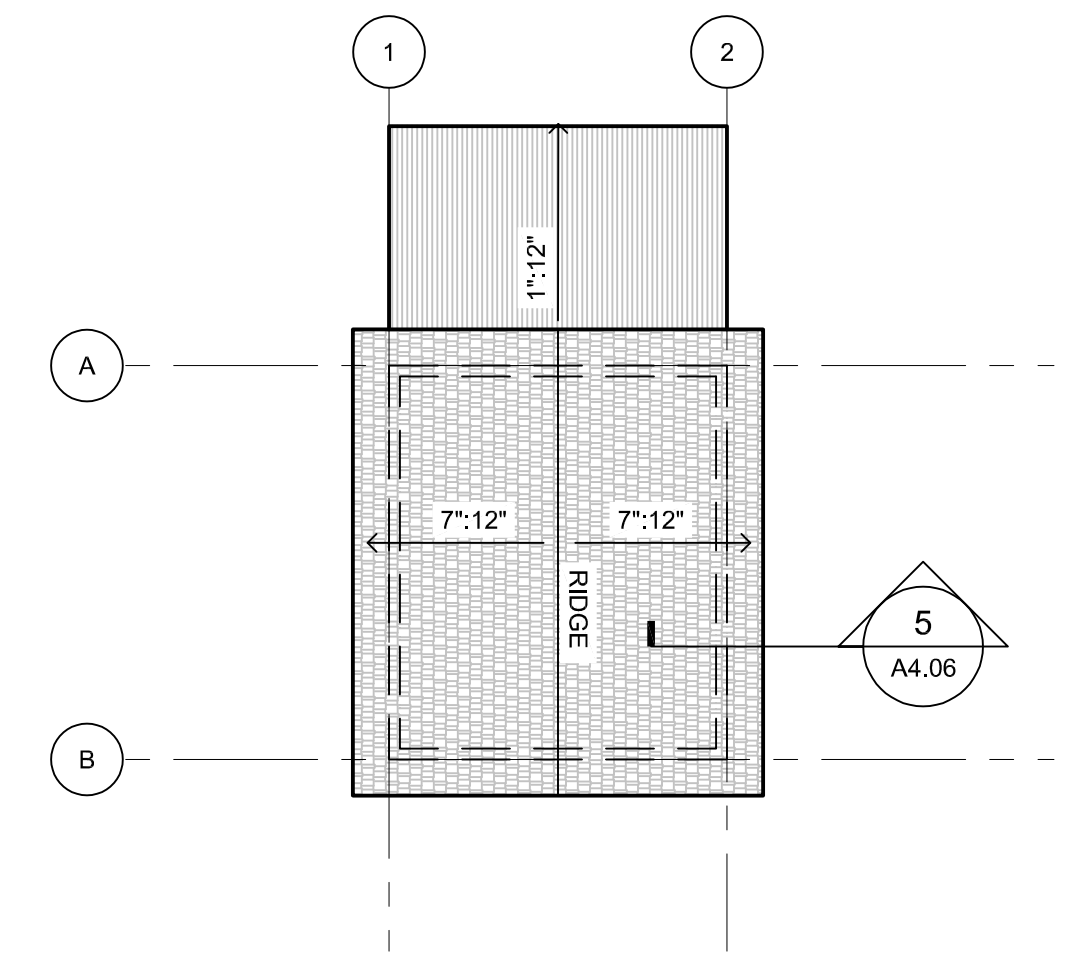
4 TRASH ENCLOSURE FLOOR PLAN  
 1/8" = 1'-0"



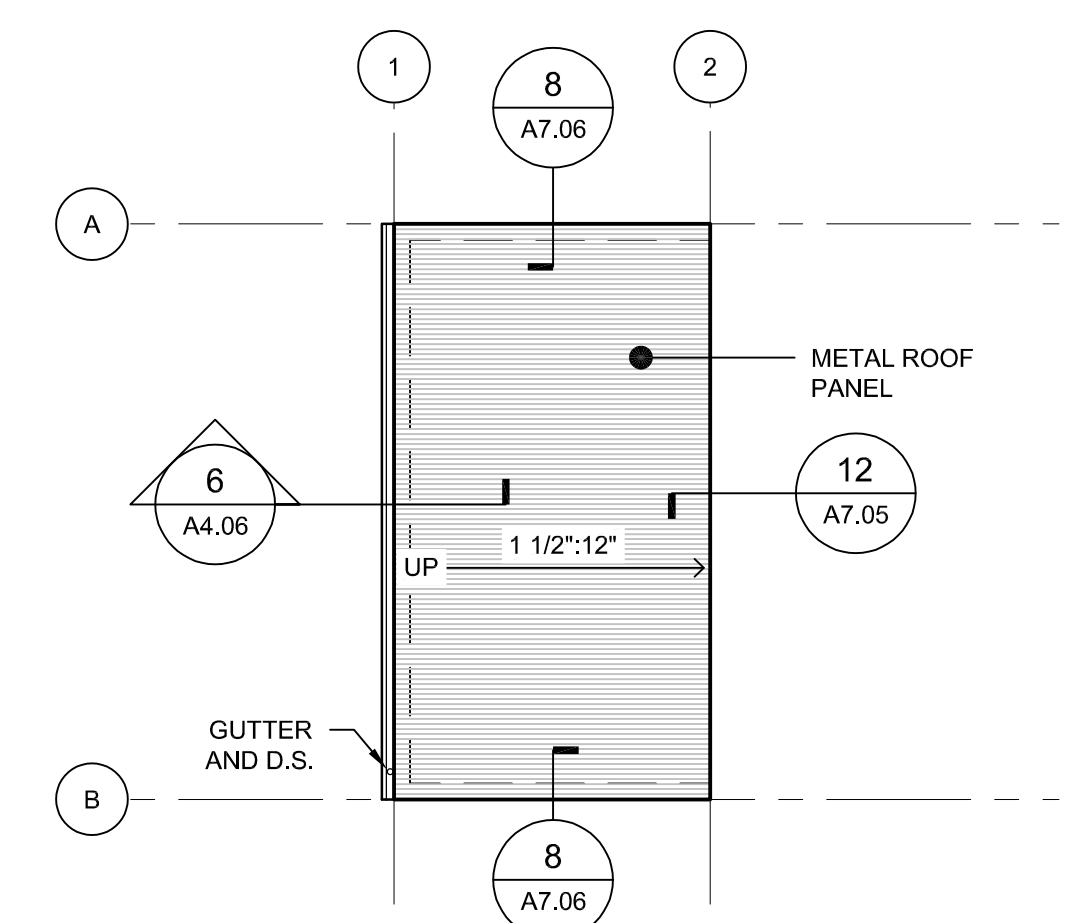
5 "VILLAGE" UNIT ROOF PLAN, TYP.  
 1/8" = 1'-0"



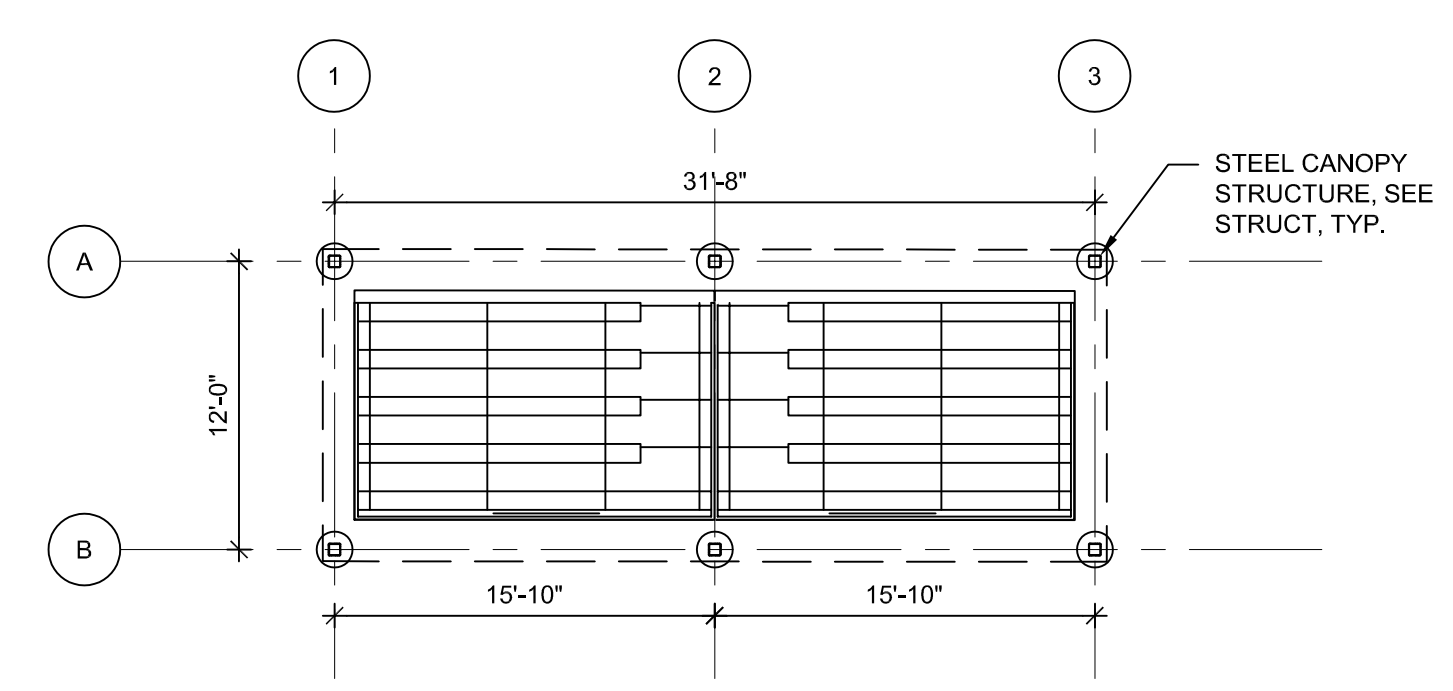
6 4-PLEX BUILDING UNIT ROOF PLAN, TYP.  
 1/8" = 1'-0"



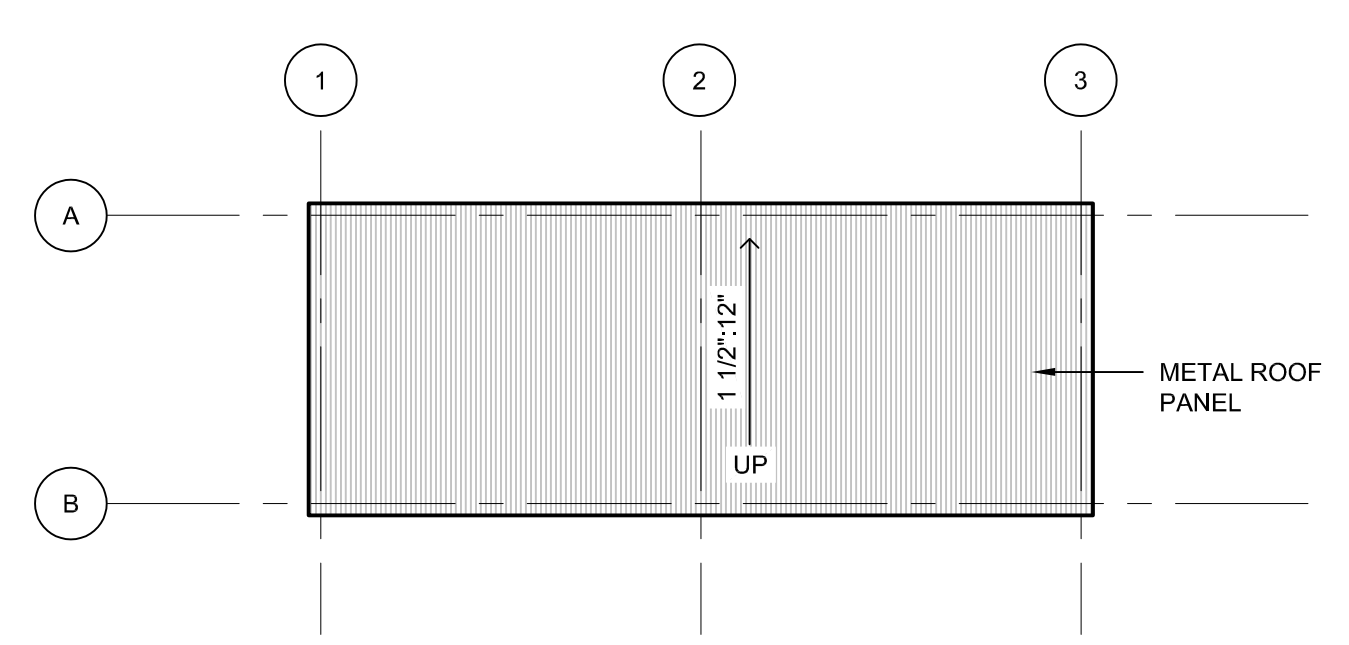
7 COMPRESSOR BUILDING ROOF PLAN  
 1/8" = 1'-0"



8 TRASH ENCLOSURE ROOF PLAN  
 1/8" = 1'-0"



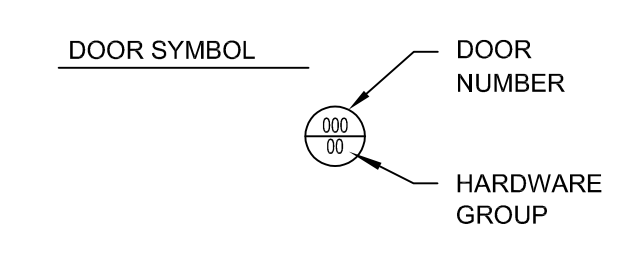
9 COVERED BLEACHERS FLOOR PLAN  
 1/8" = 1'-0"



10 COVERED BLEACHERS ROOF PLAN  
 1/8" = 1'-0"

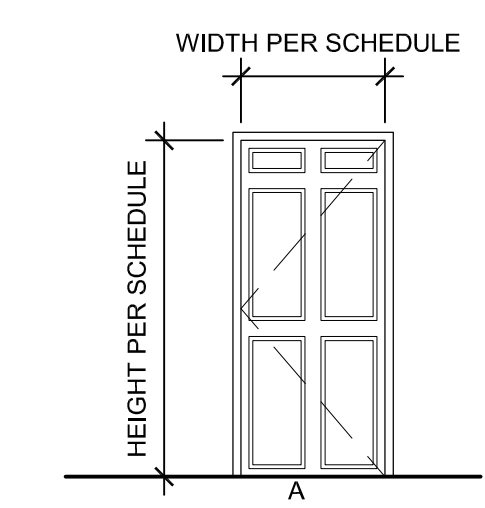
DOOR #	DOOR SIZE	DOOR TYPE	THICK. (1)	DOOR CONST. (2)	FACING / FINISH (3)	GLASS (4)	FRAME TYPE	FRAME CONST.	FIRE RATING	HARDWARE GROUP	NOTES
OT-01	3'-0" X 7'-0"	A	1-3/4"	HM	MP	-	1	WD	-	27	PRE-HUNG DOORS
OT-02	3'-0" X 7'-0"	A	1-3/4"	HM	MP	-	1	WD	-	27	PRE-HUNG DOORS
OT-03	3'-0" X 7'-0"	A	1-3/4"	HM	MP	-	1	WD	-	27	PRE-HUNG DOORS
OT-04	3'-0" X 7'-0"	A	1-3/4"	HM	MP	-	1	WD	-	27	PRE-HUNG DOORS
OT-05	3'-0" X 7'-0"	A	1-3/4"	HM	MP	-	1	WD	-	27	PRE-HUNG DOORS
OT-06	3'-0" X 7'-0"	A	1-3/4"	HM	MP	-	1	WD	-	27	PRE-HUNG DOORS

DOOR SCHEDULE - OUTDOOR TRAINING  
 1/4" = 1'-0"



- ALL DOOR 1-3/4" THICK UNLESS OTHERWISE NOTED
- DOOR CONSTRUCTION:  
 TYPICAL=SOLID-CORE-WOOD  
 HM=INSULATED-HOLLOW-METAL  
 AL=ALUMINUM&GLASS  
 MFR=PER-MANUFACTURER
- FACING & FINISH  
 MP=METAL-PAINTED  
 PL=PLASTIC-LAMINATE  
 AL=ALUMINUM  
 MFR=PER-MANUFACTURER
- GLASS  
 SI = PROVIDE SEALED INSULATING GLASS UNITS AT ALL EXTERIOR DOORS & SIDELIGHTS, U.N.O.  
 SL = PROVIDE SINGLE SAFETY LAMINATED GLAZING AT ALL INTERIOR DOORS & SIDELIGHTS, U.N.O.  
 SG = SECURITY GRADE LAMINATED GLAZING
- DOOR TYPES:  
 OW = OPERABLE WALL  
 CD = COILING DOOR  
 SD = SECTIONAL DOOR

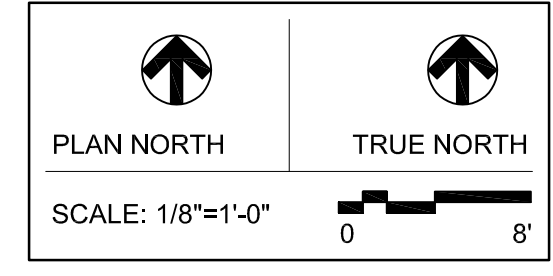
DOOR SCHEDULE NOTES  
 1/4" = 1'-0"



DOOR TYPES  
 1/4" = 1'-0"

**100% CD SET**

REV	ISSUED FOR	DATE

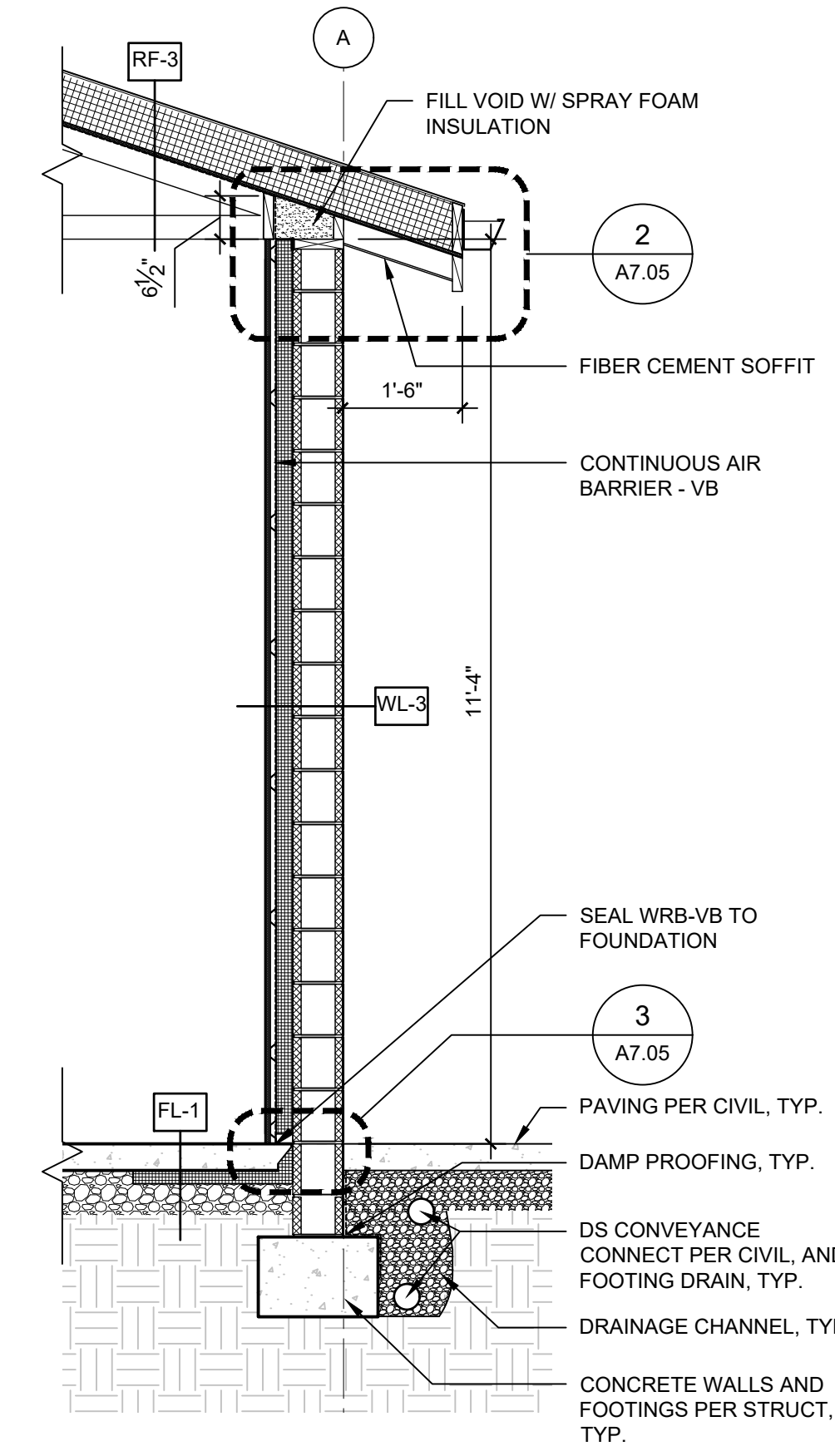


**PSE - OPERATIONAL TRAINING CENTER**

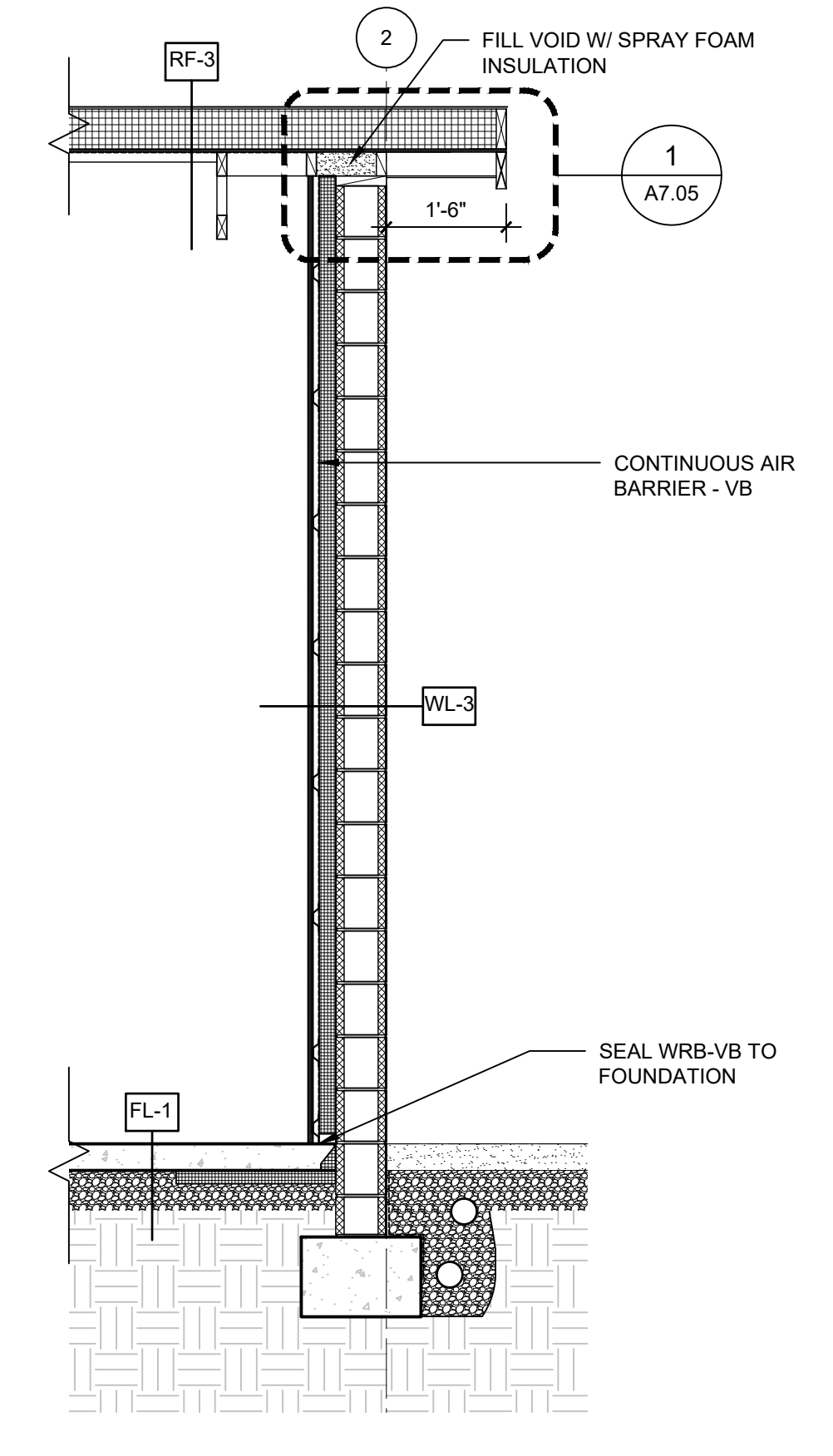
**OUTDOOR TRAINING PLANS AND DOOR SCHEDULE**

PROJECT No: 202202.06  
 DRAWN BY: MR  
 CHECKED BY: AK  
 DATE ISSUED: 01/26/24

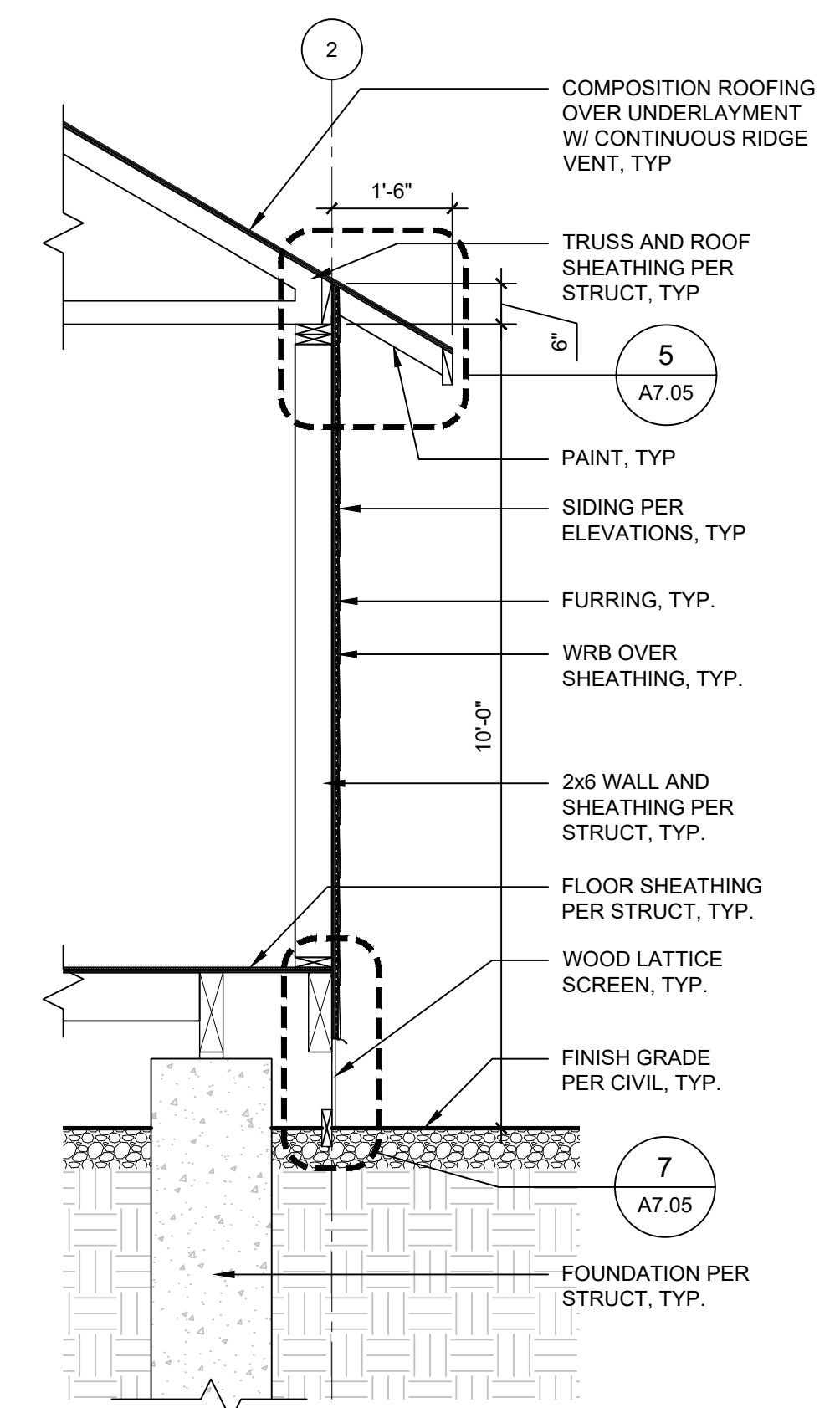




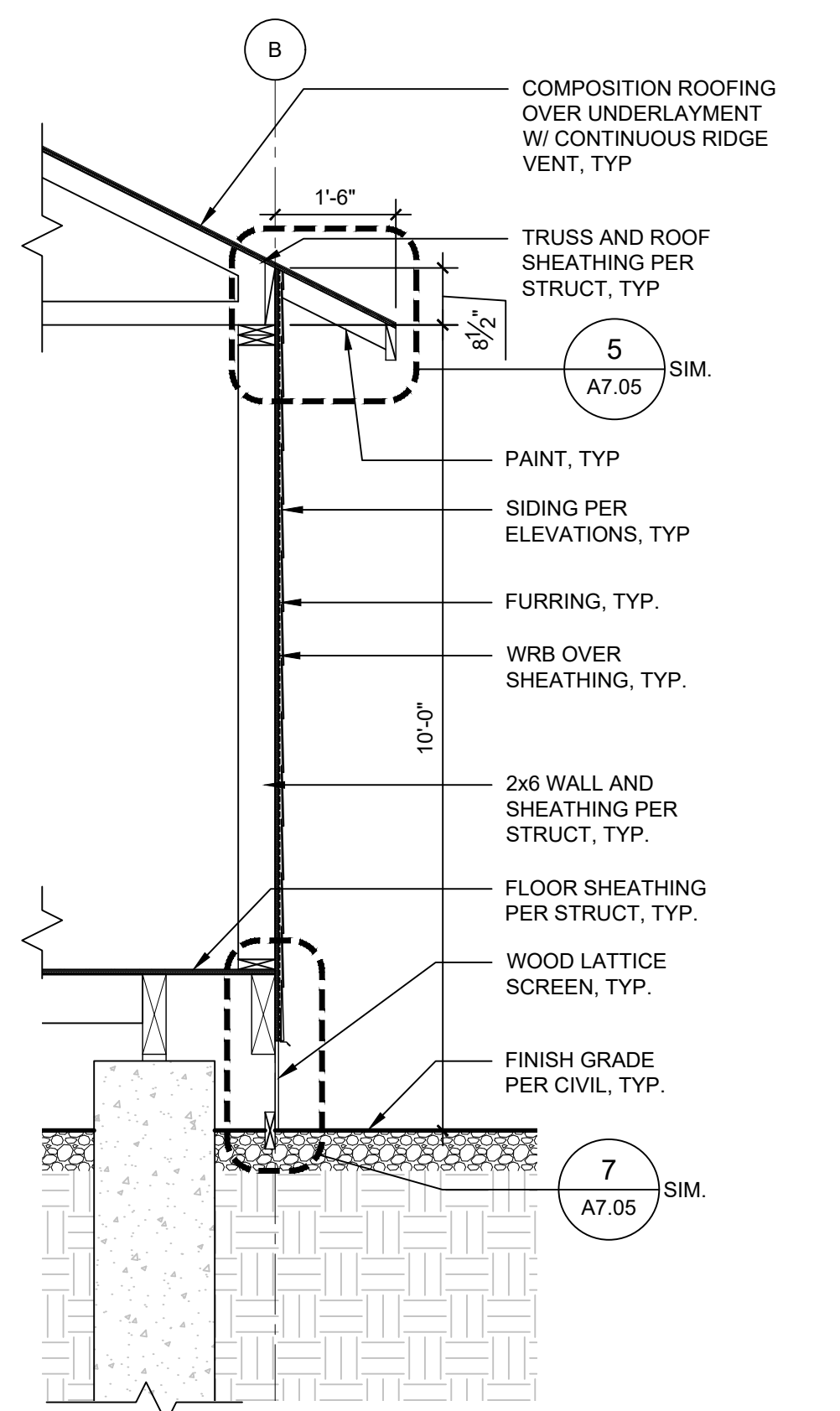
1 CONTROL HOUSE WALL SECTION  
 1/2" = 1'-0"



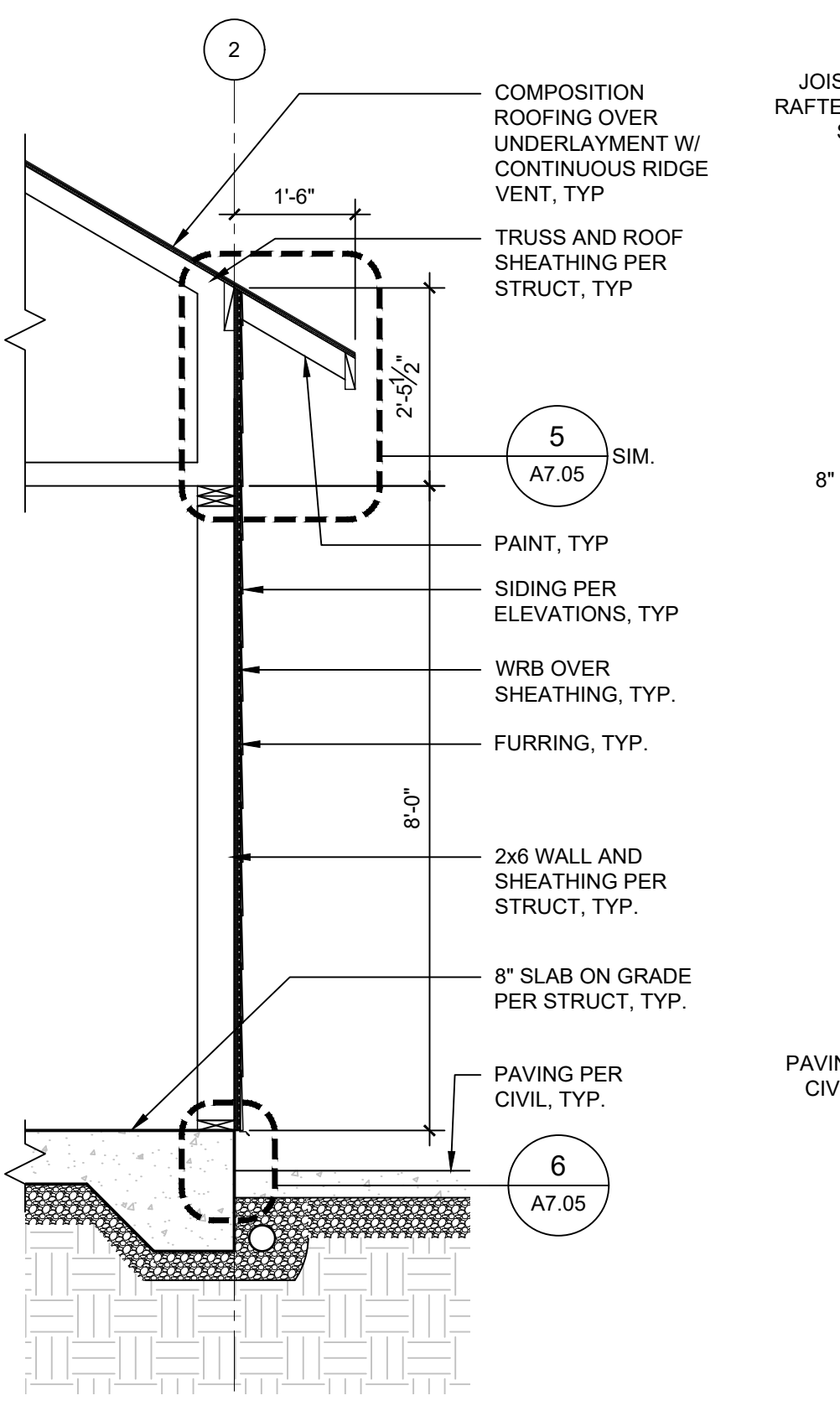
2 CONTROL HOUSE WALL SECTION  
 1/2" = 1'-0"



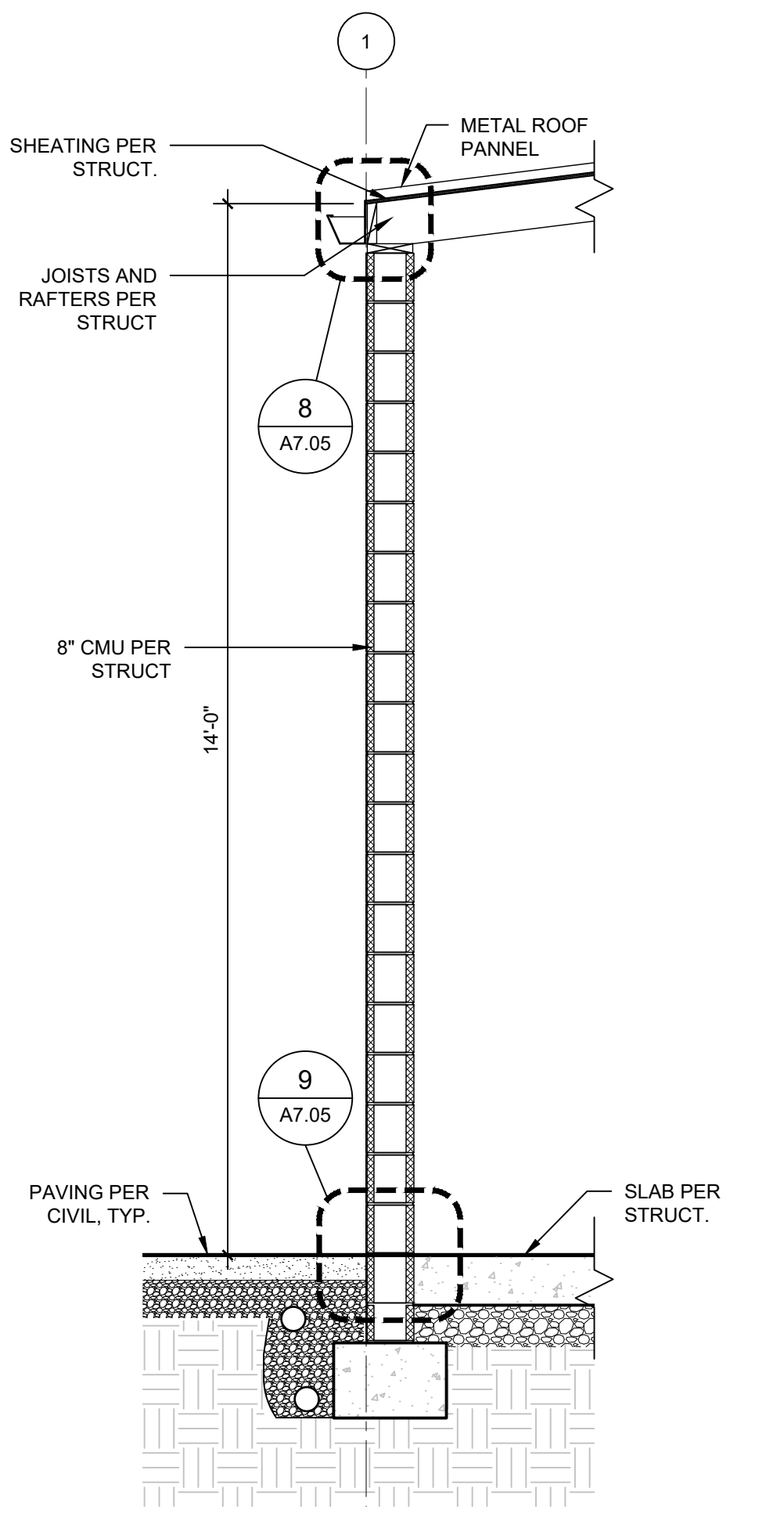
3 "VILLAGE" UNIT WALL SECTION, TYP.  
 1/2" = 1'-0"



4 4-PLEX BUILDING UNIT WALL SECTION  
 1/2" = 1'-0"



5 COMPRESSOR BUILDING WALL SECTION  
 1/2" = 1'-0"



6 TRASH ENCLOSURE WALL SECTION  
 1/2" = 1'-0"

100% CD SET

REV	ISSUED FOR	DATE

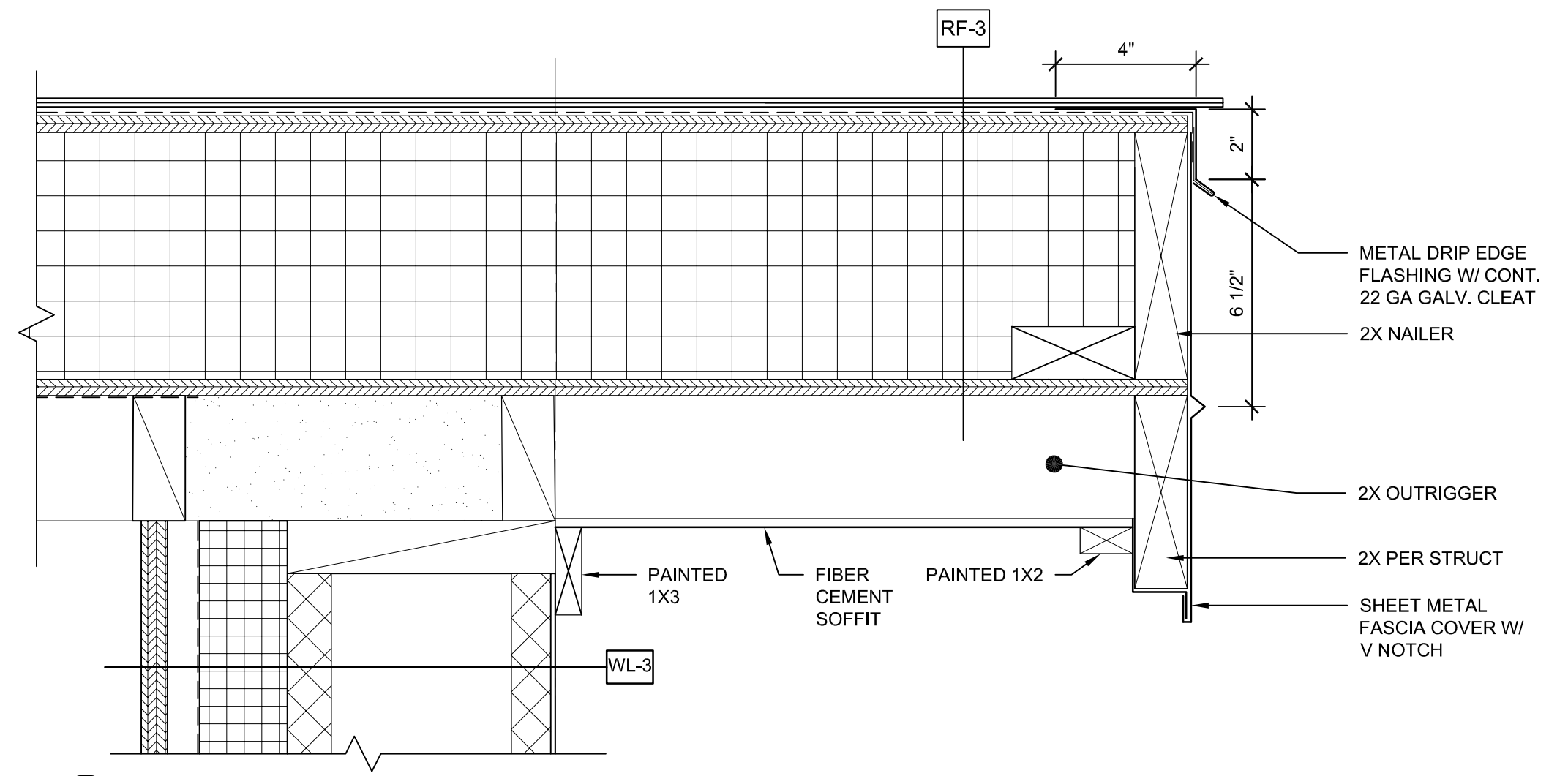
SCALE: AS NOTED  
 0 1 2 3 4 5 6 7 8 9 10'

PSE - OPERATIONAL TRAINING CENTER

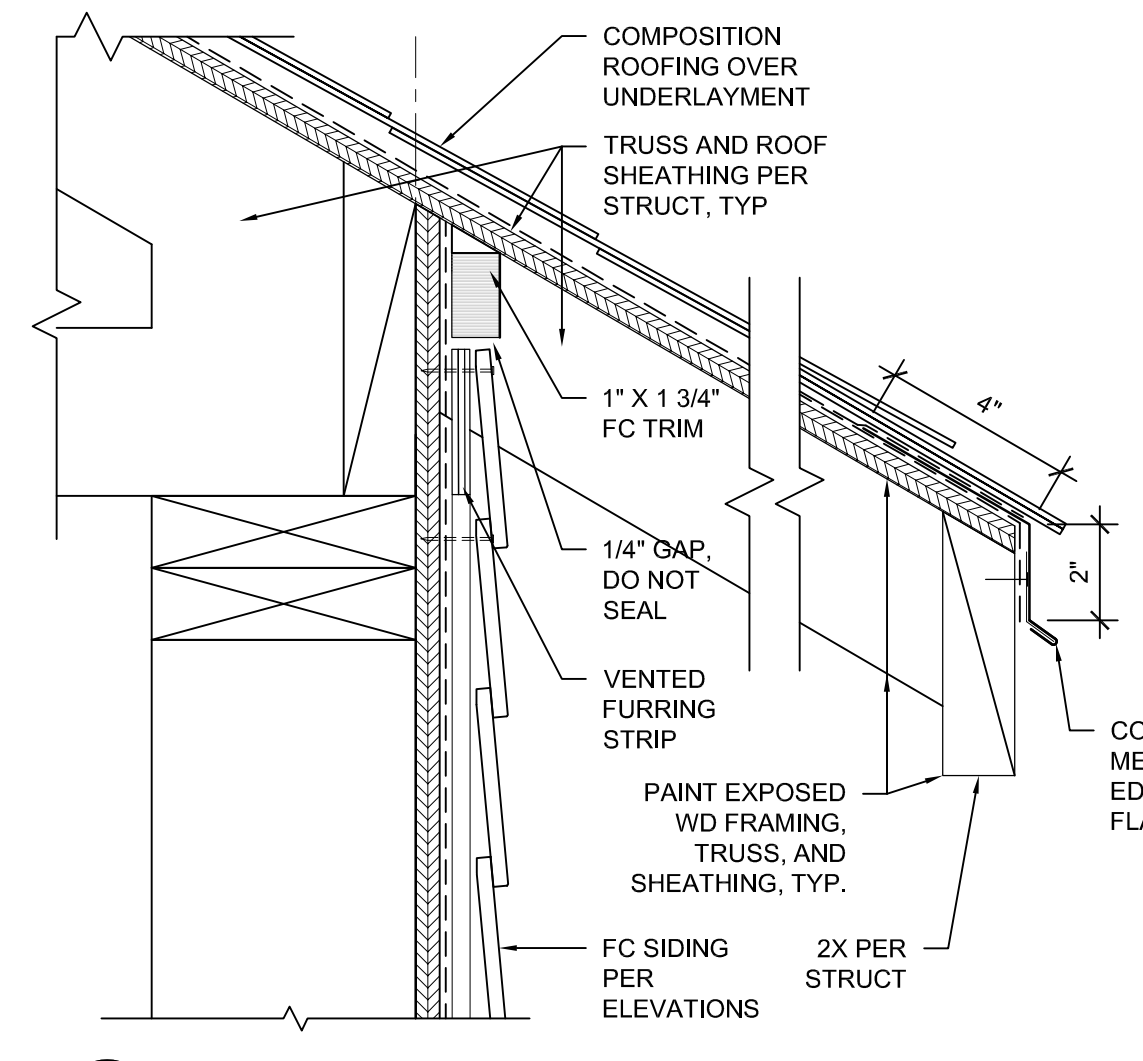
WALL SECTIONS  
 OUTDOOR TRAINING

PROJECT No: 202202.06  
 DRAWN BY: MR  
 CHECKED BY: AK  
 DATE ISSUED: 01/26/24

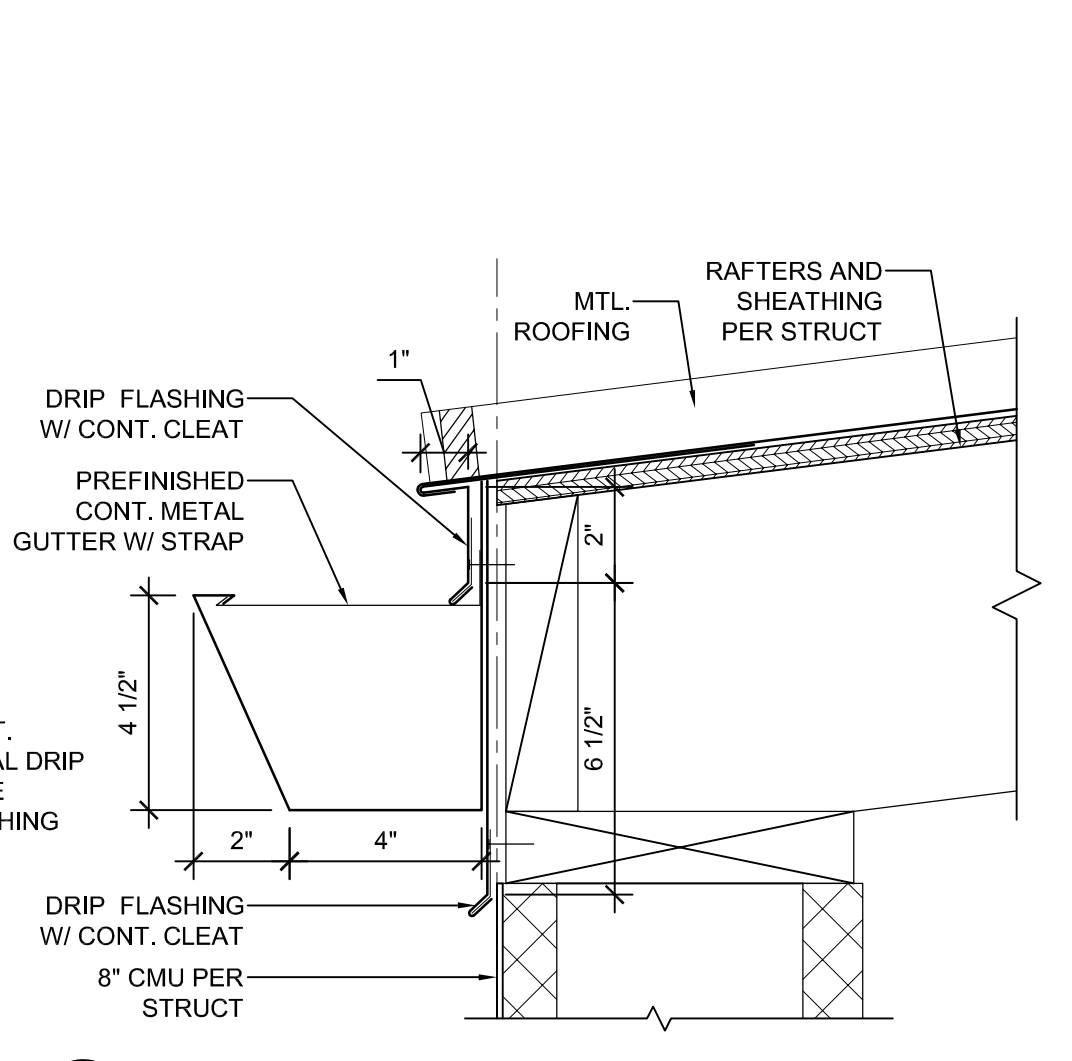
A4.06



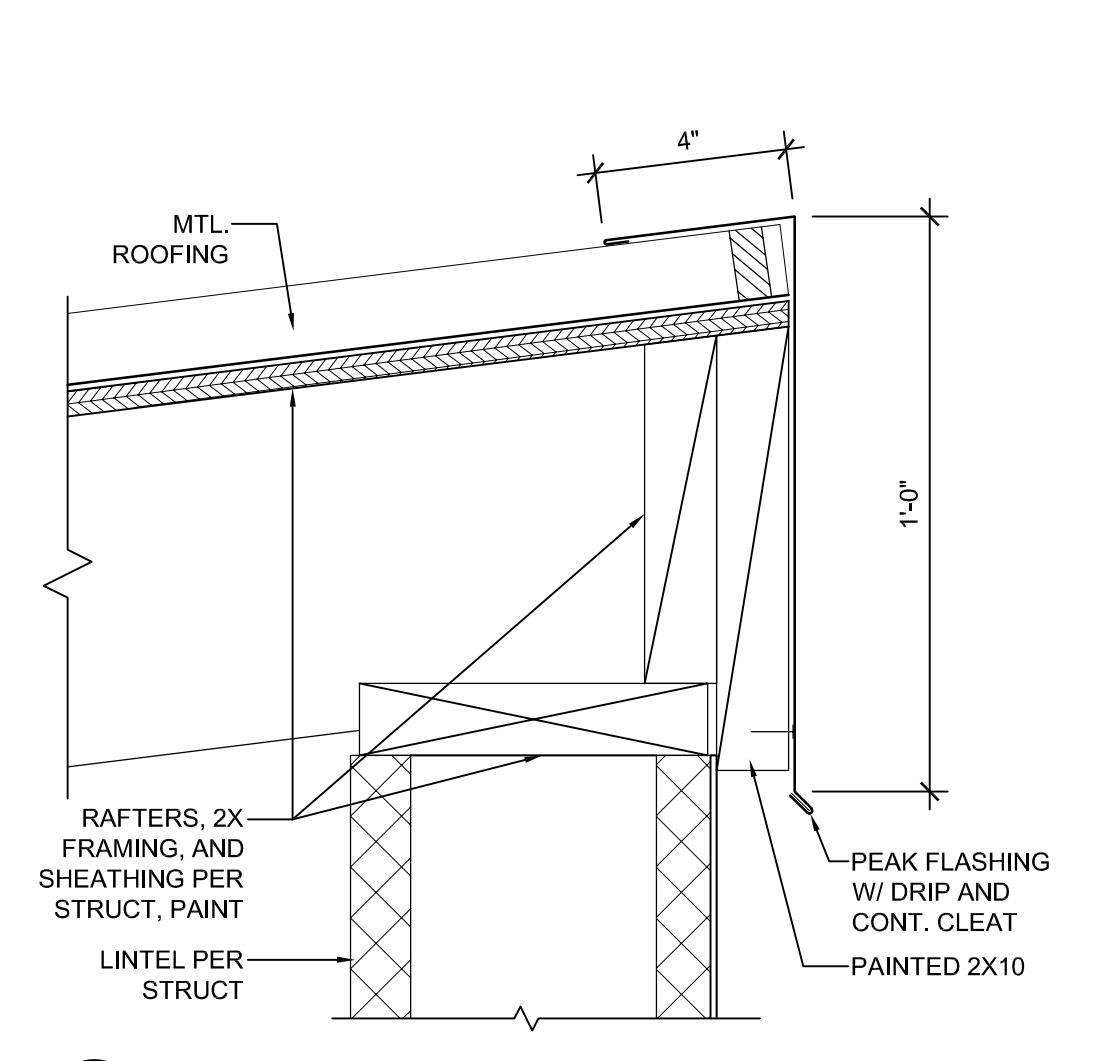
1 RAKE EDGE  
SCALE: 3" = 1'-0"



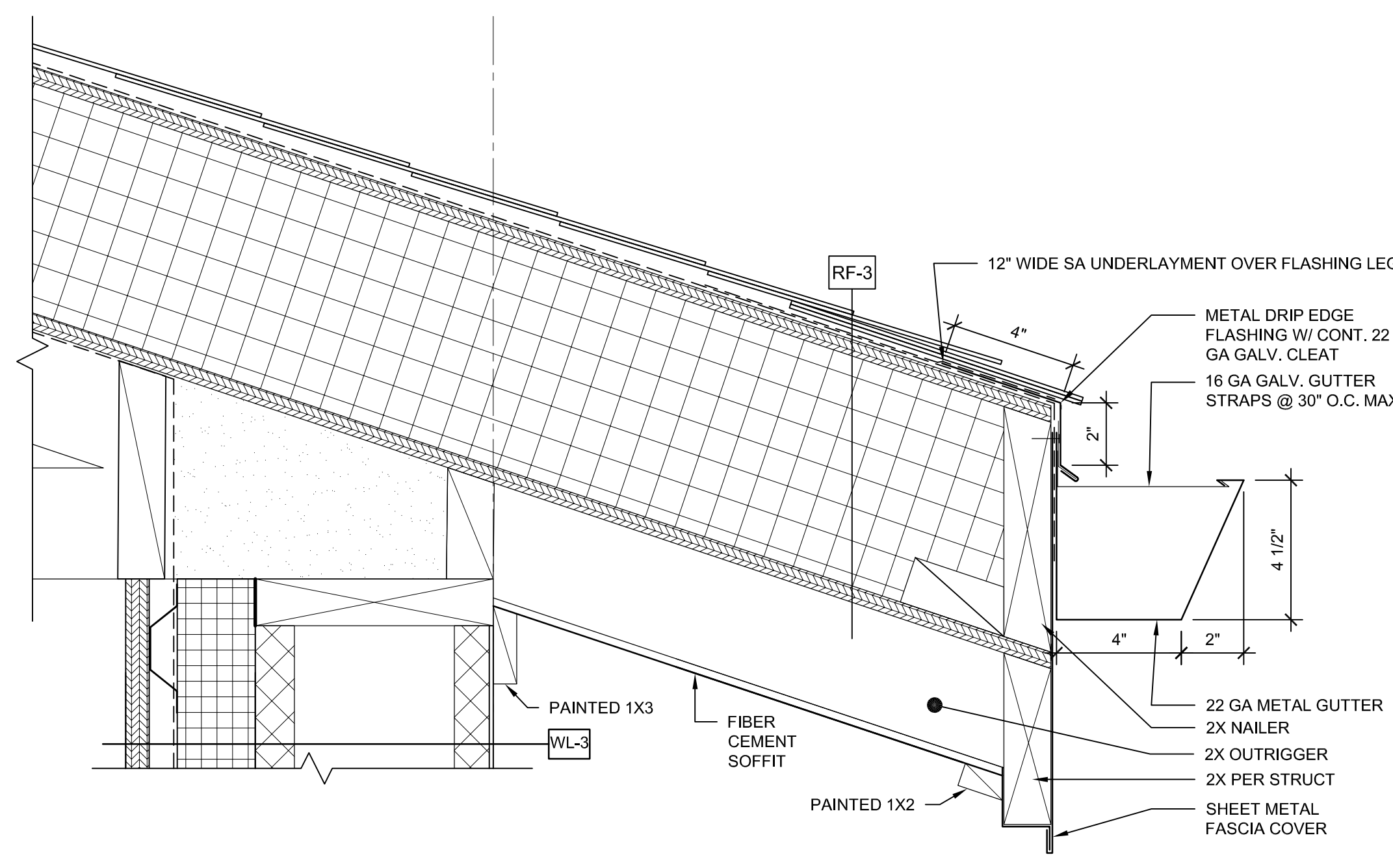
5 EAVE @ LAP SIDING  
SCALE: 3" = 1'-0"



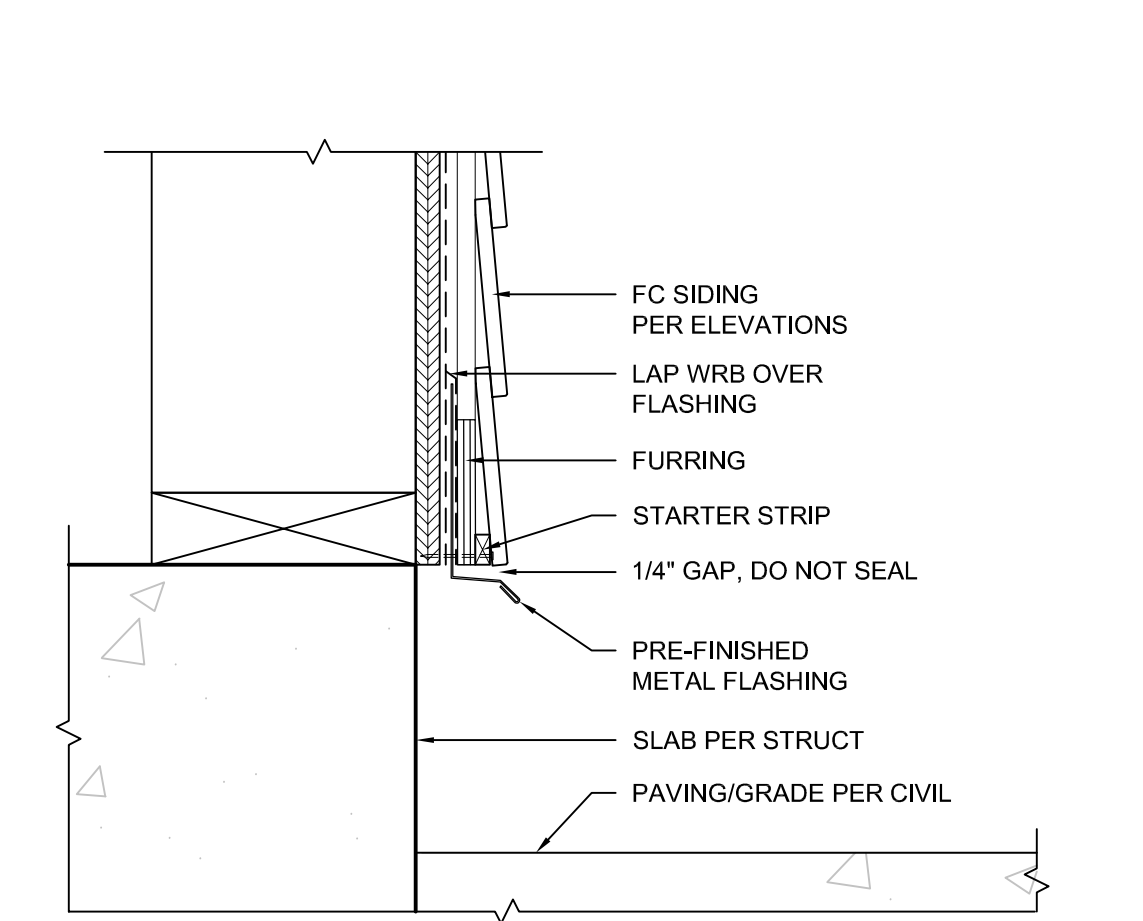
8 LOW EAVE TRASH ENCLOSURE  
SCALE: 3" = 1'-0"



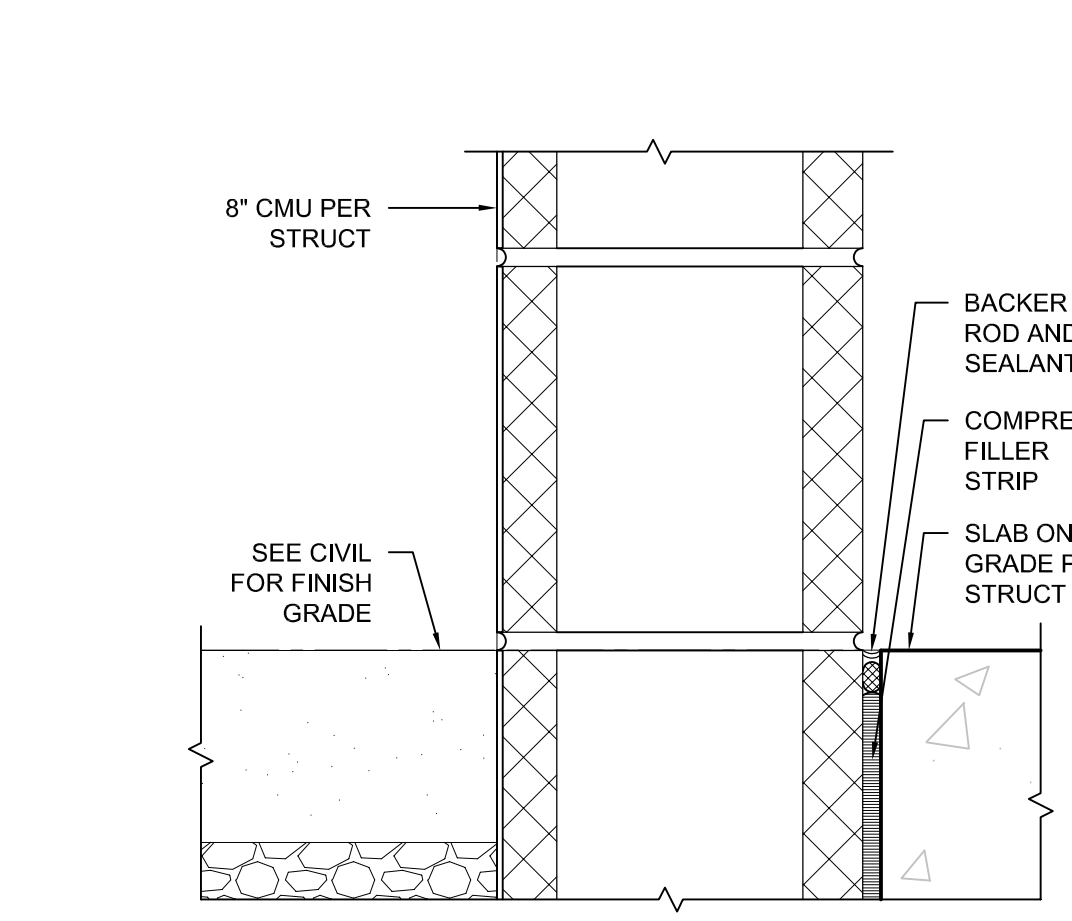
12 HIGH EAVE TRASH ENCLOSURE  
SCALE: 3" = 1'-0"



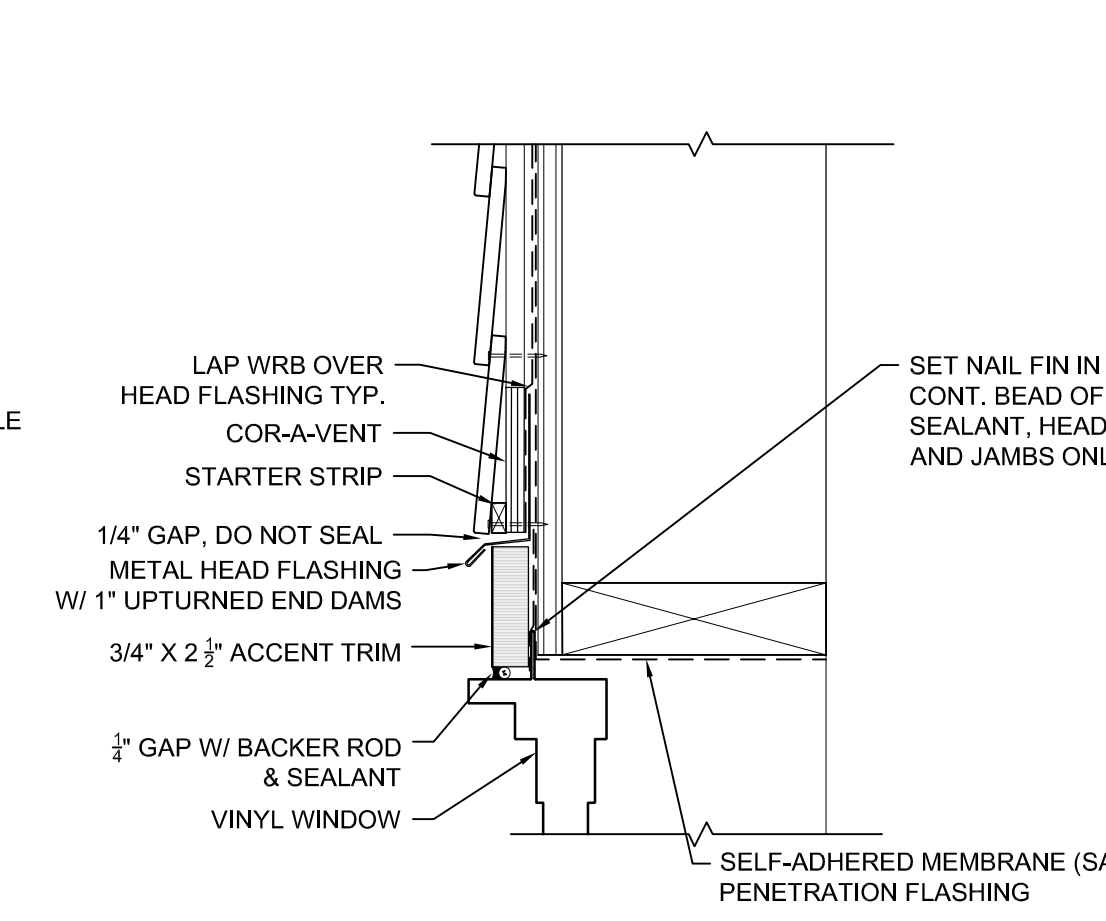
2 EAVE AND GUTTER  
SCALE: 3" = 1'-0"



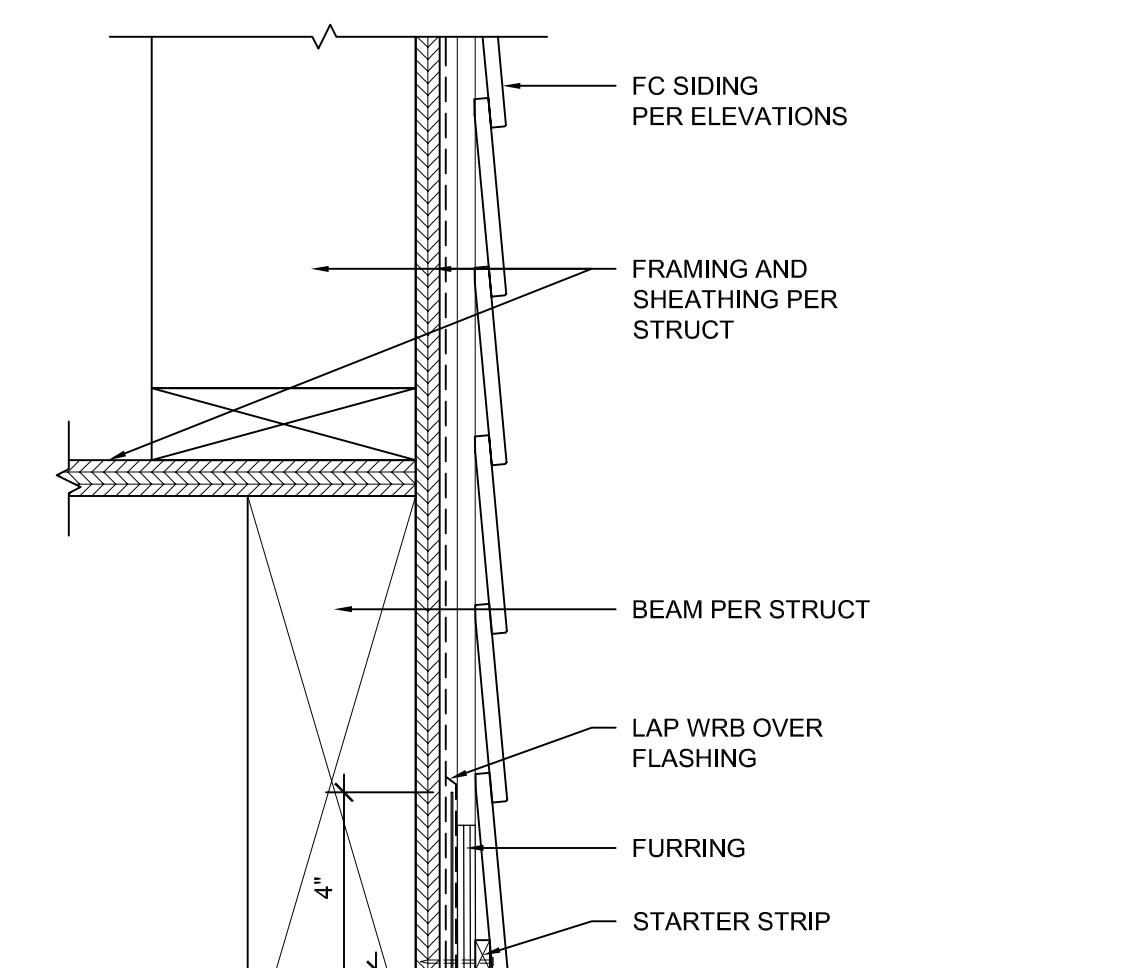
6 LAP SIDING @ COMPRESSOR BASE  
SCALE: 3" = 1'-0"



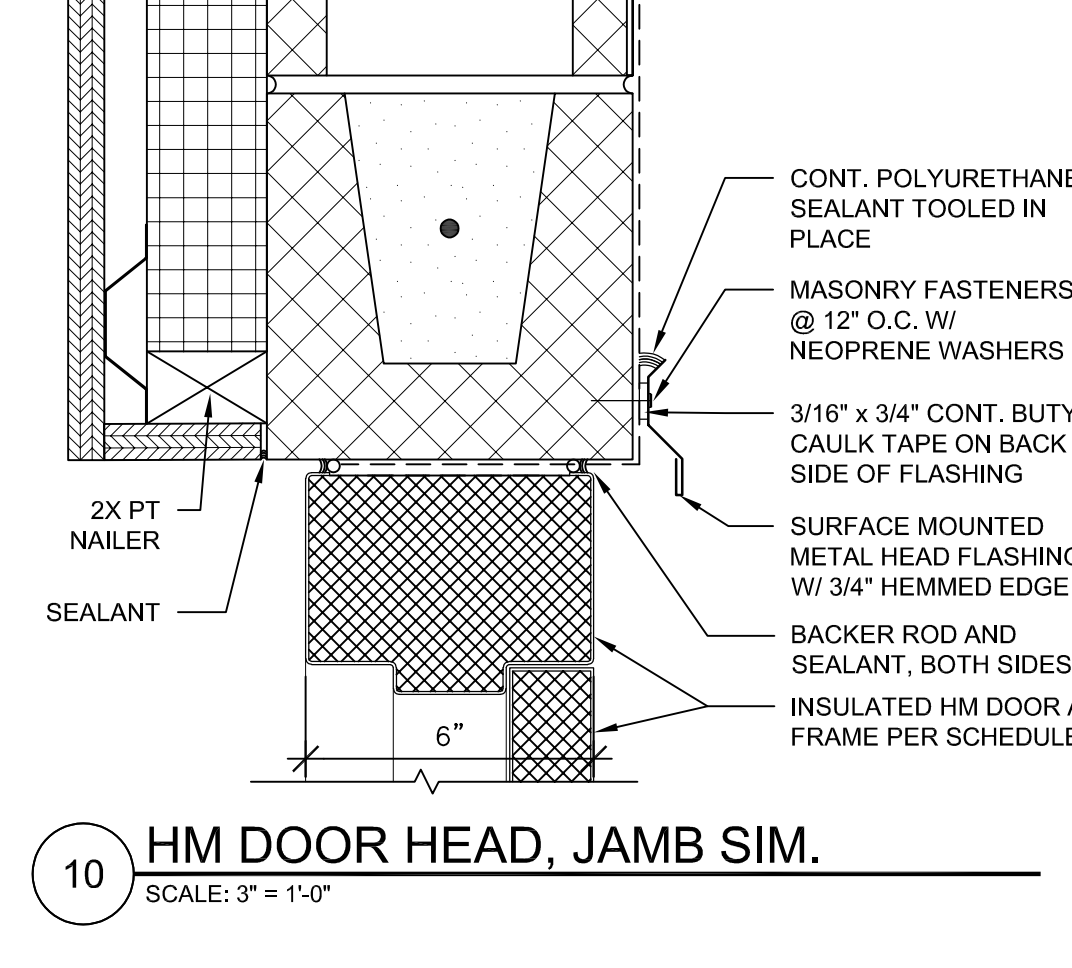
9 TRASH ENCLOSURE BASE  
SCALE: 3" = 1'-0"



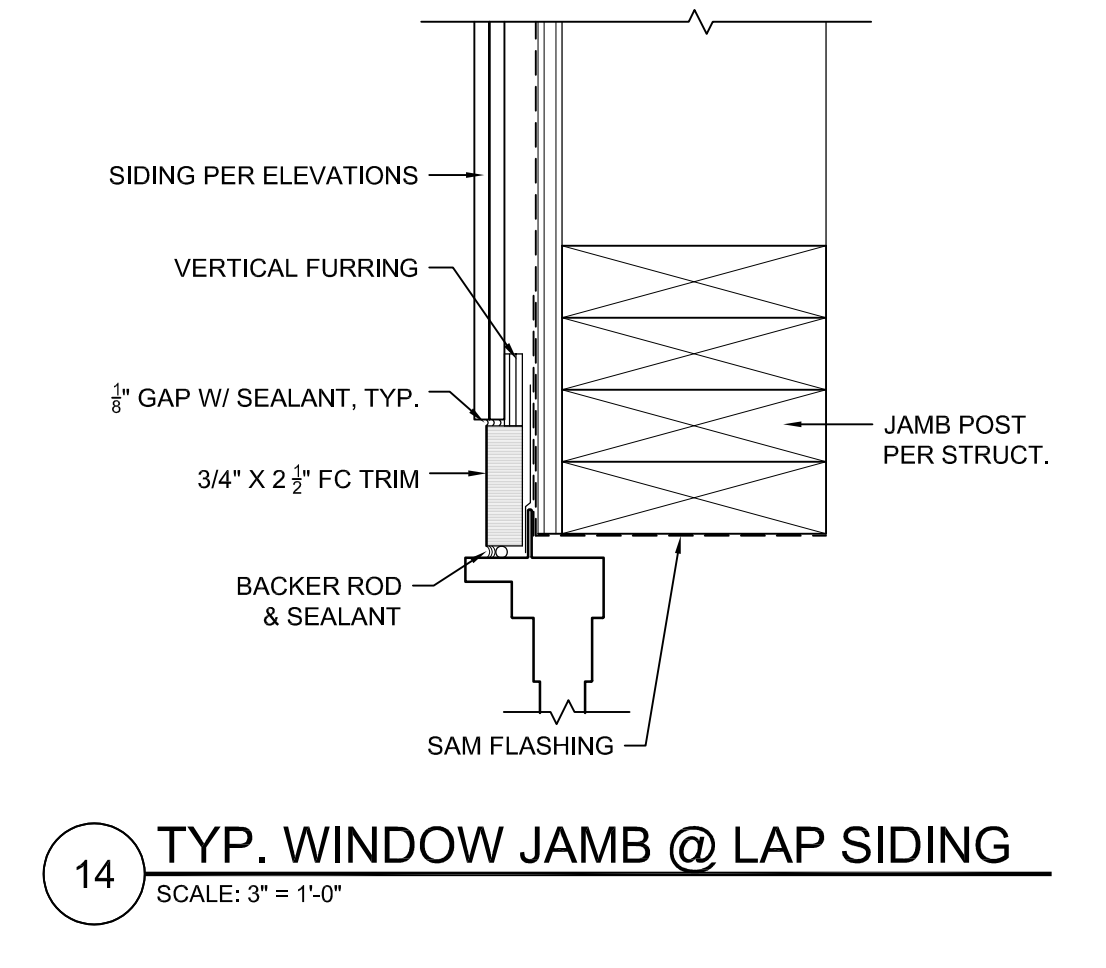
13 TYP. WINDOW HEAD @ LAP SIDING  
SCALE: 3" = 1'-0"



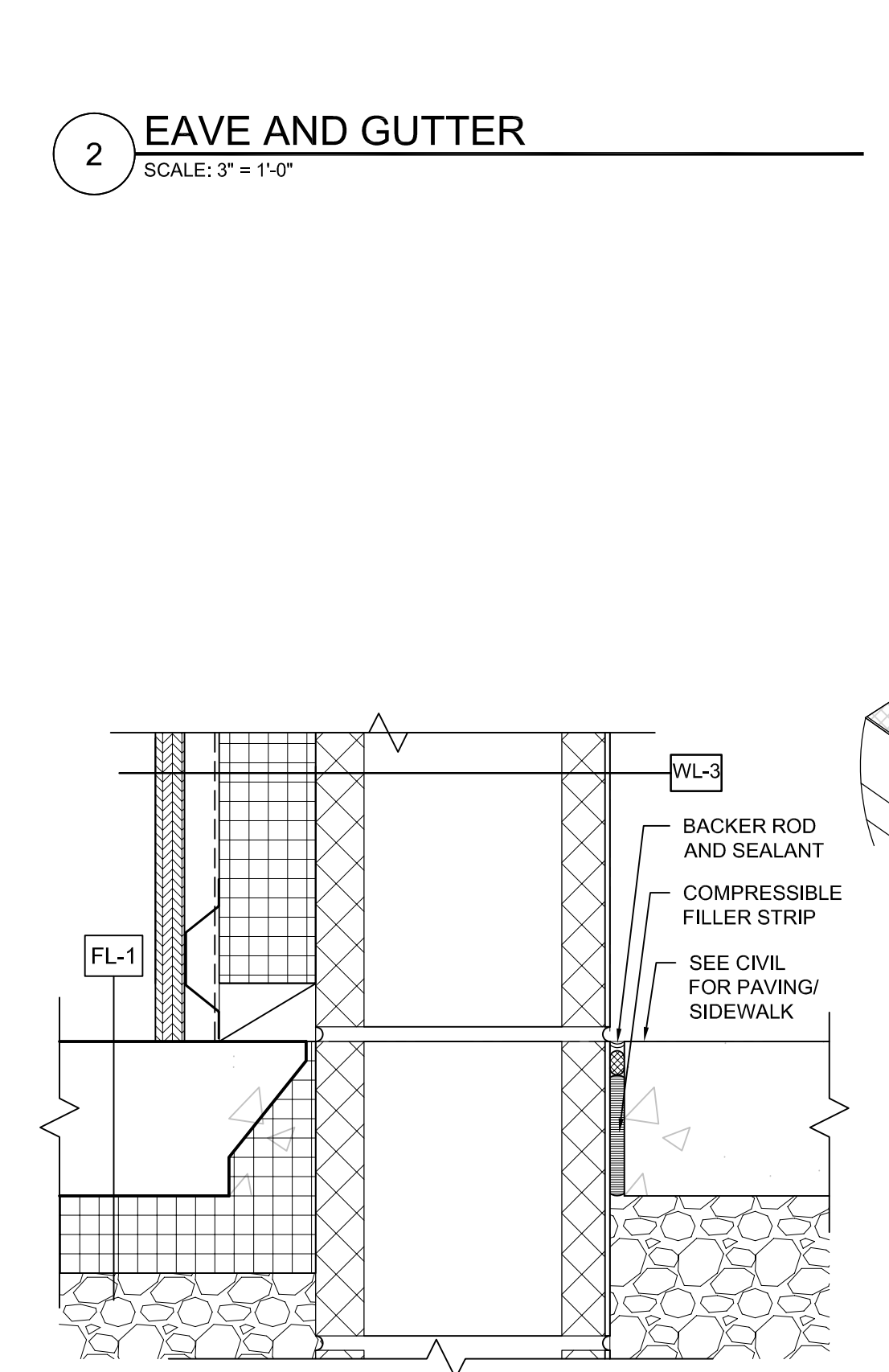
7 VILLAGE/4-PLEX LAP SIDING BASE  
SCALE: 3" = 1'-0"



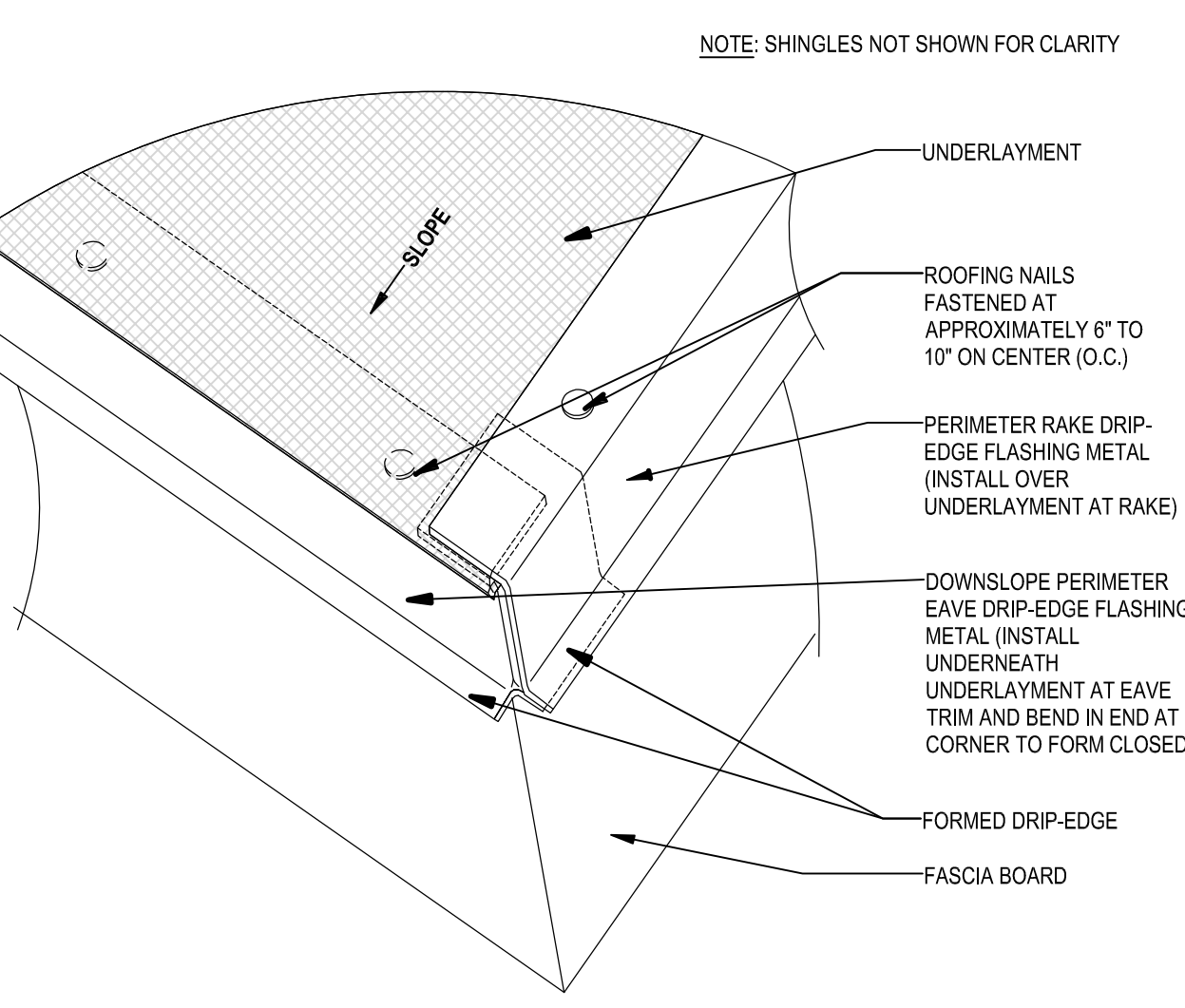
10 HM DOOR HEAD, JAMB SIM.  
SCALE: 3" = 1'-0"



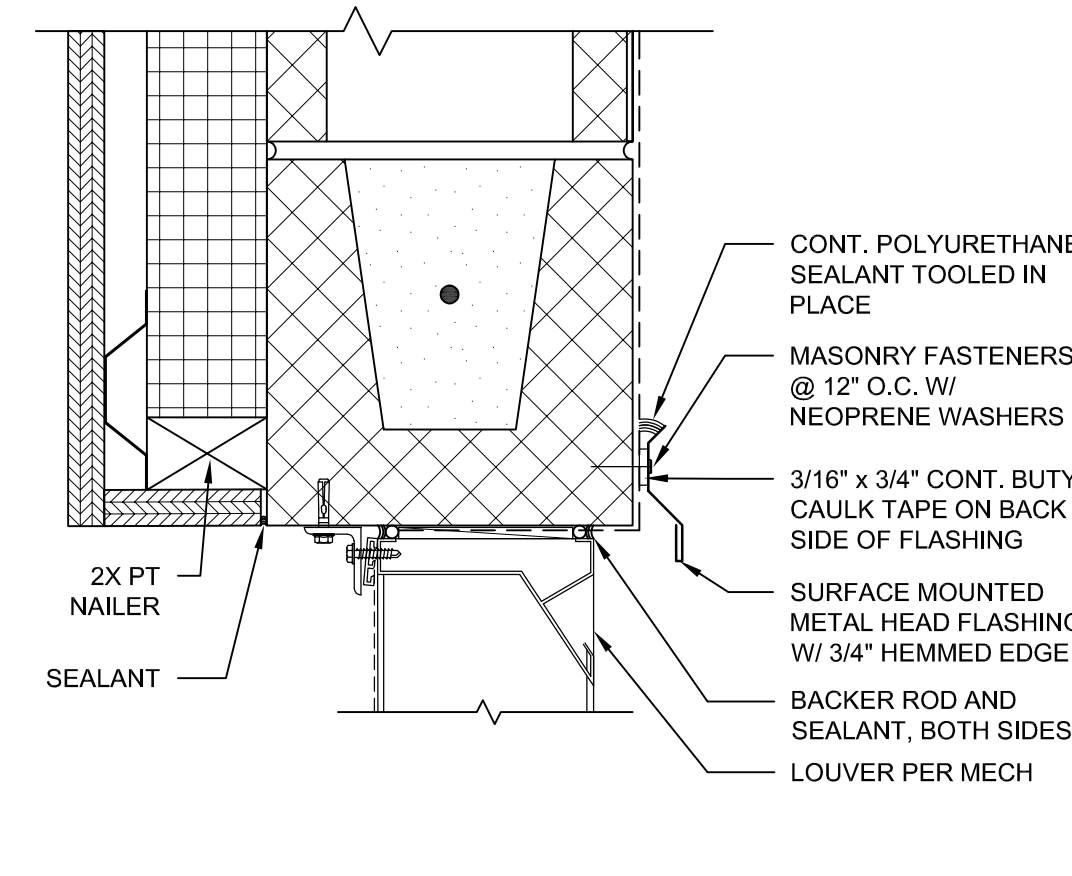
14 TYP. WINDOW JAMB @ LAP SIDING  
SCALE: 3" = 1'-0"



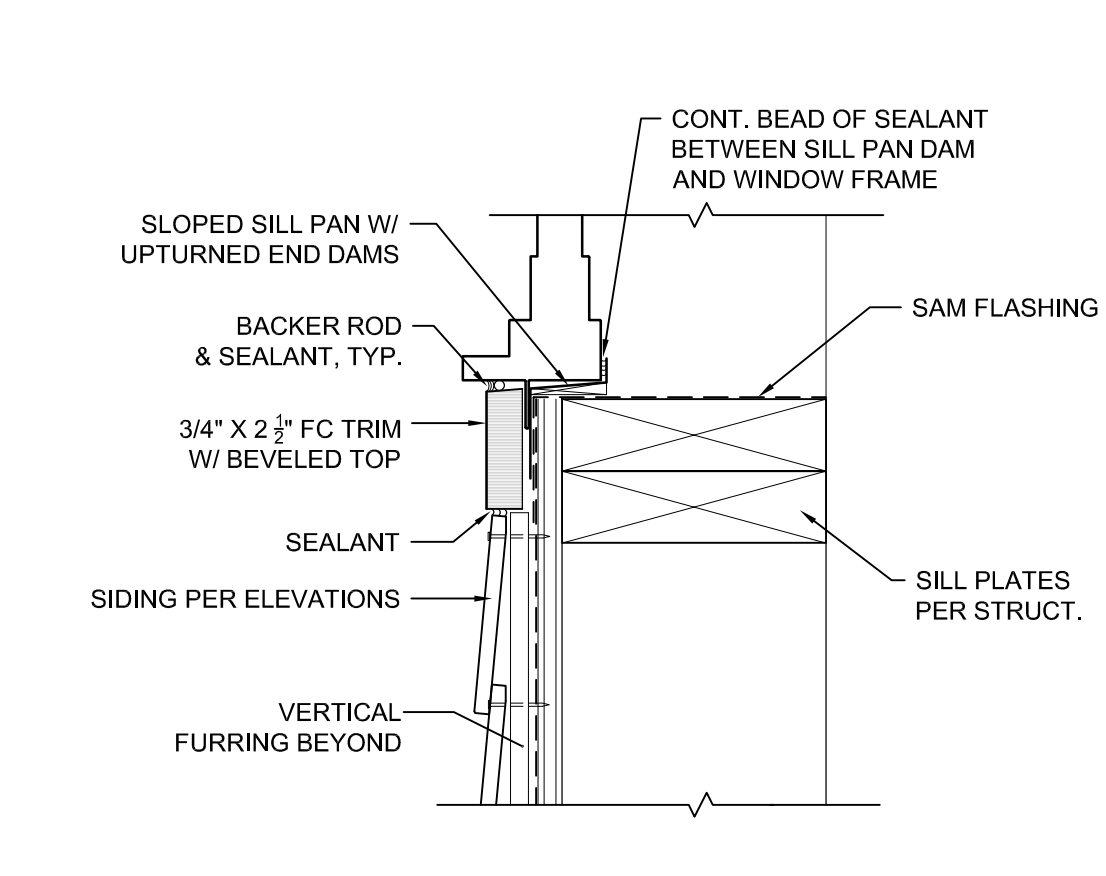
3 CMU BASE @ CONCRETE  
SCALE: 3" = 1'-0"



4 TYP. EDGE MTL @ RAKE/EAVE CORNER  
SCALE: 1 1/2" = 1'-0"



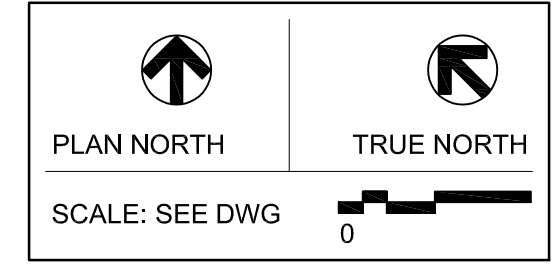
11 LOUVER HEAD, JAMB SIM.  
SCALE: 3" = 1'-0"



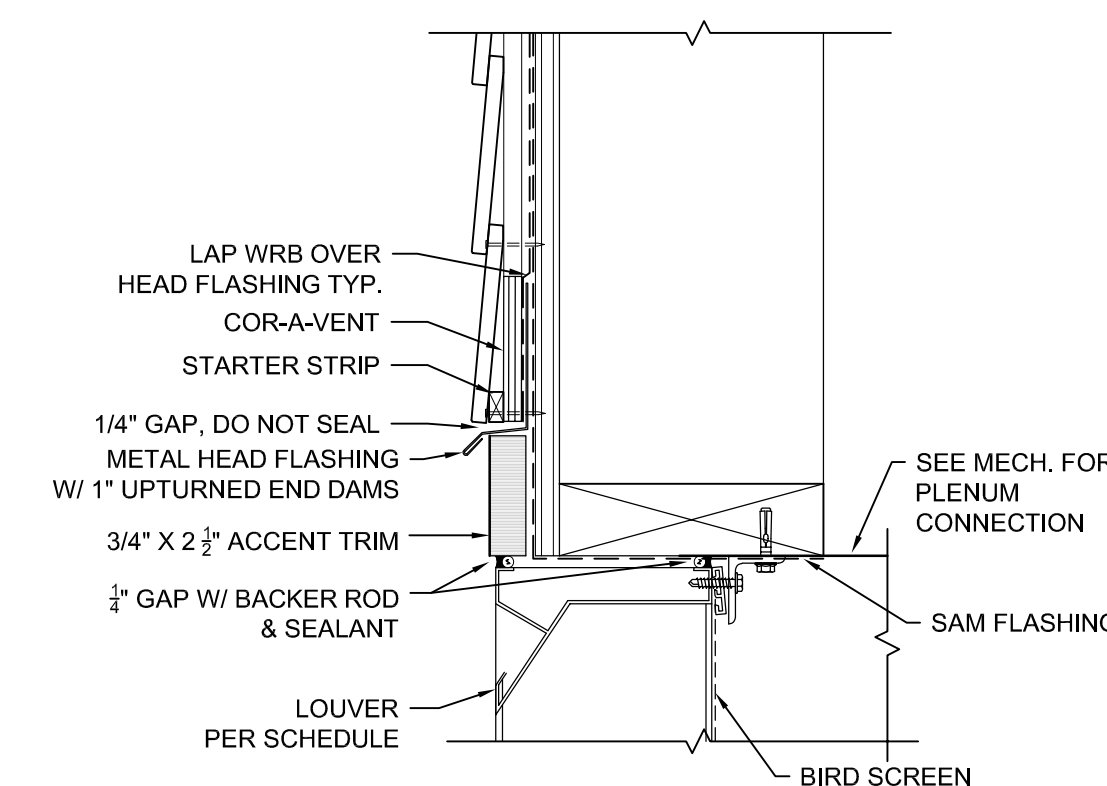
15 TYP. WINDOW SILL @ LAP SIDING  
SCALE: 3" = 1'-0"

100% CD SET

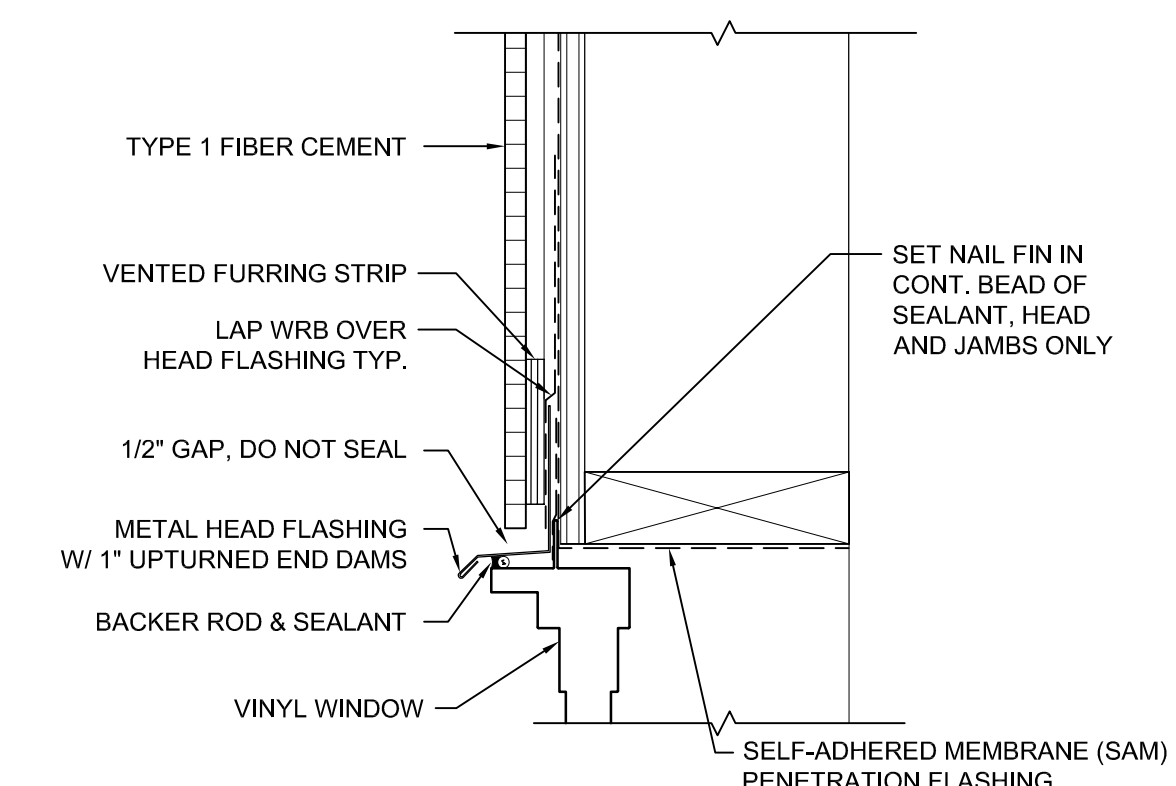
REV	ISSUED FOR	DATE



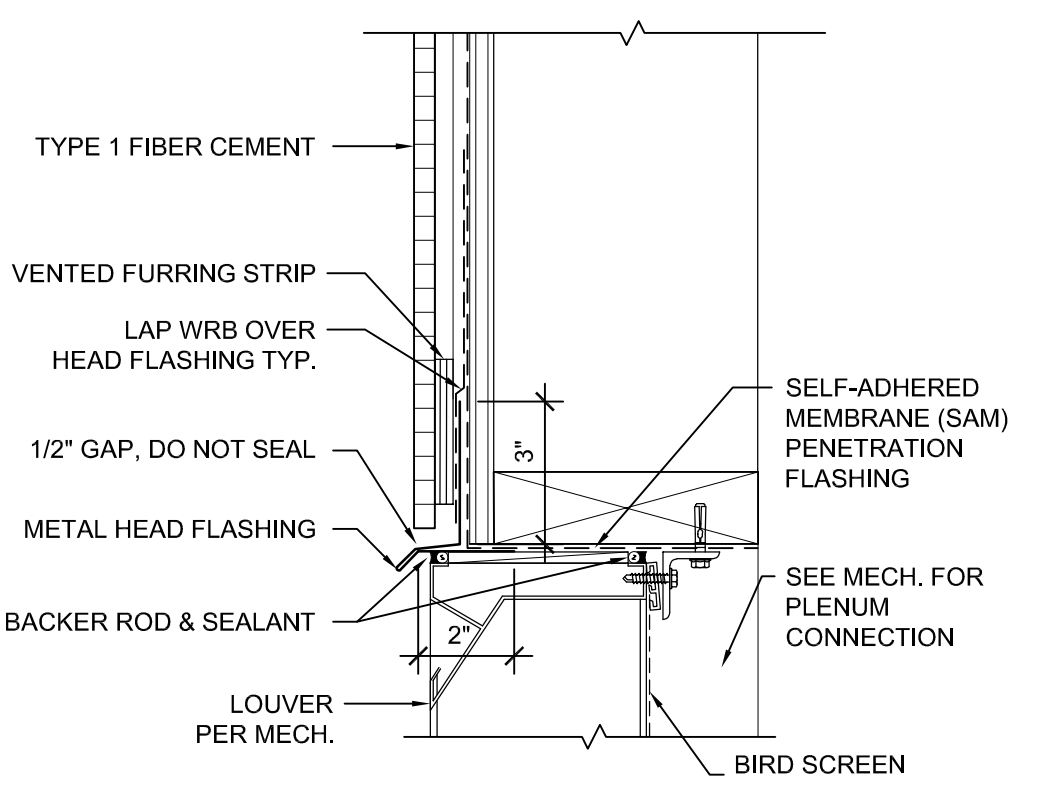
PSE - OPERATIONAL TRAINING CENTER  
EXTERIOR DETAILS - OUTDOOR TRAINING  
PROJECT No: 202202.06  
DRAWN BY: MR  
CHECKED BY: AK  
DATE ISSUED: 01/26/24



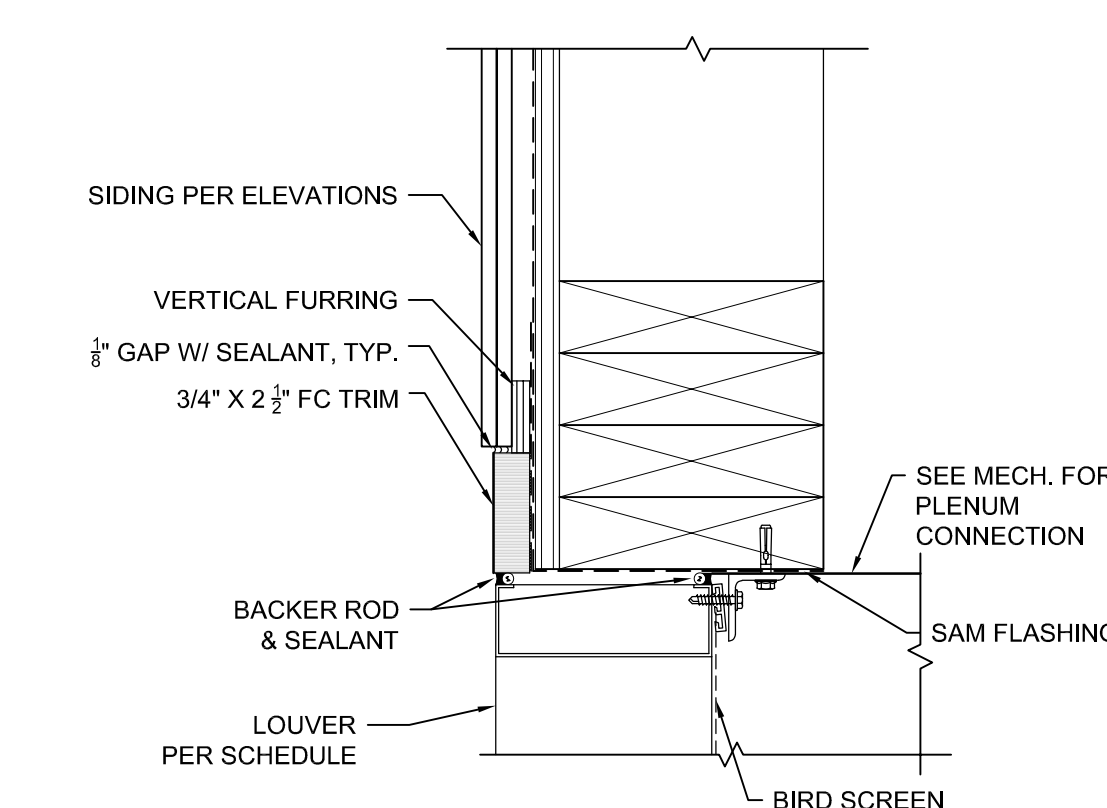
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SCALE: 3" = 1'-0"



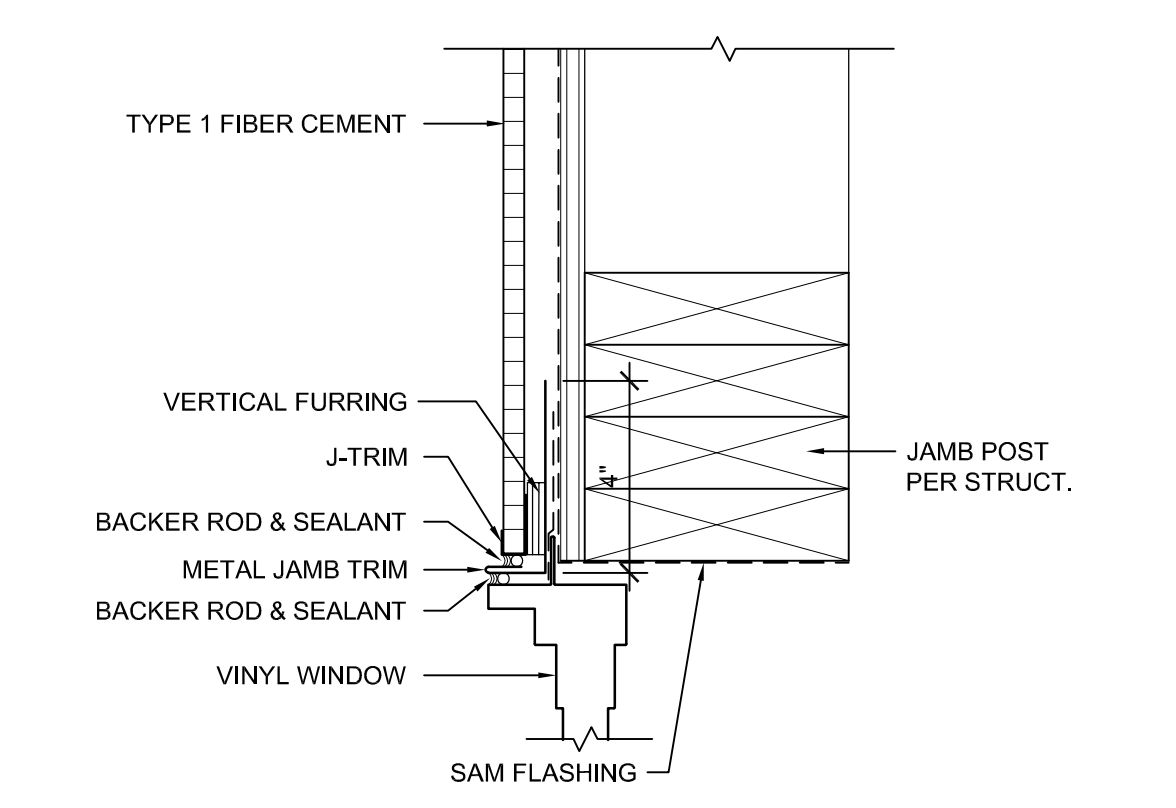
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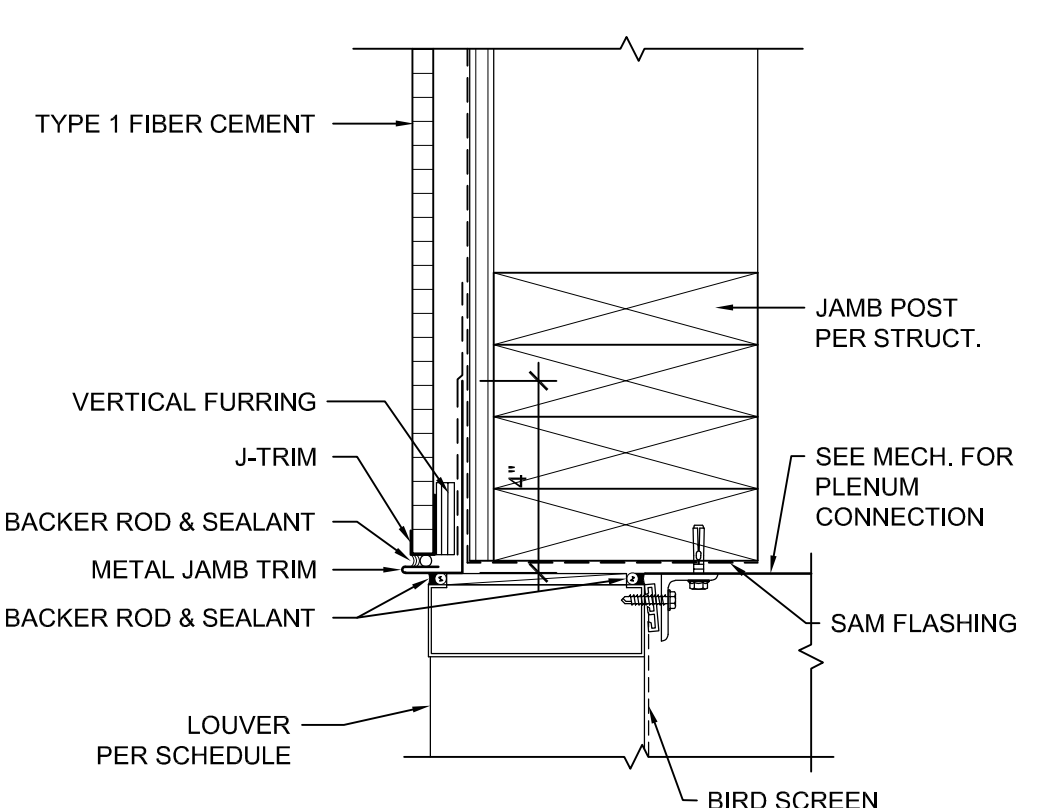
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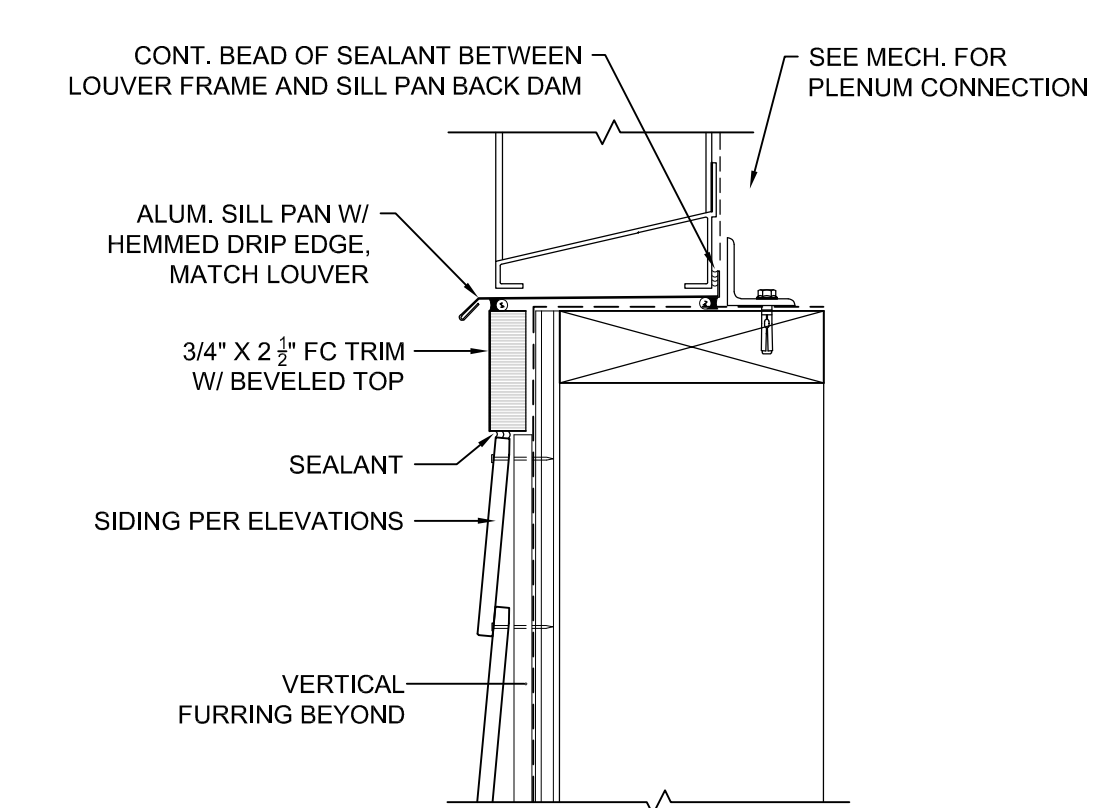
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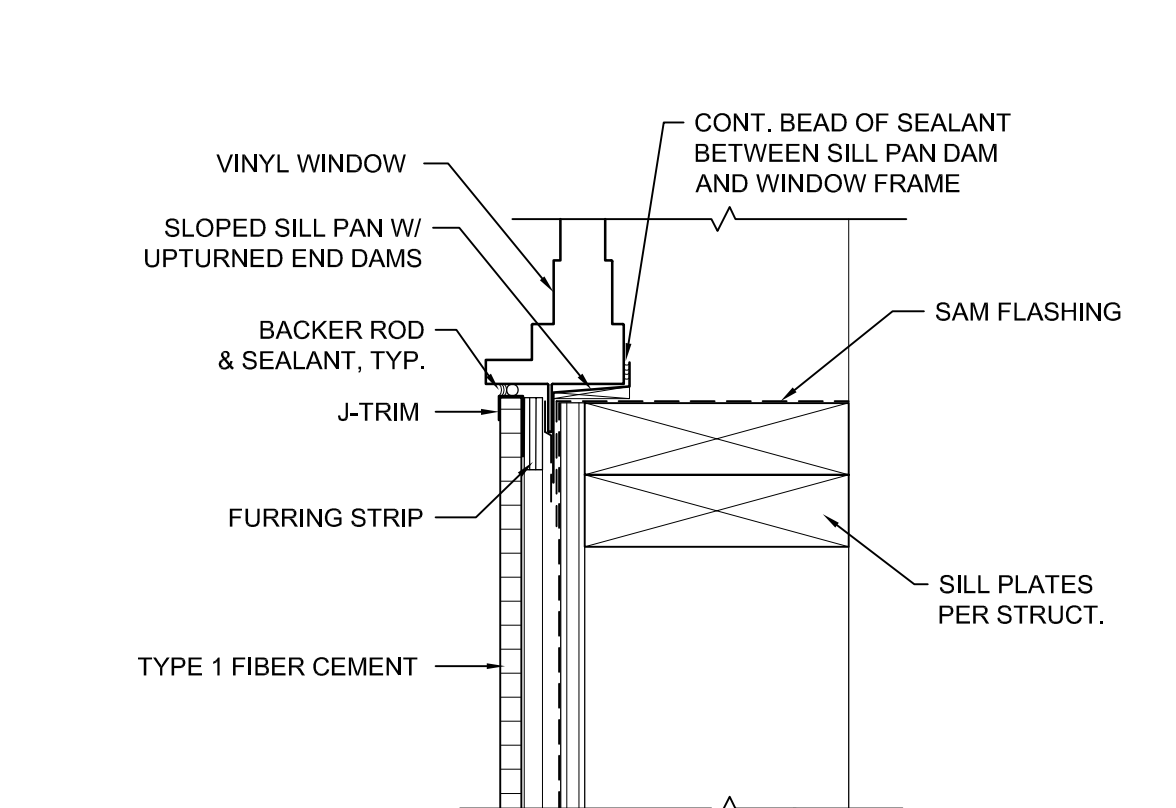
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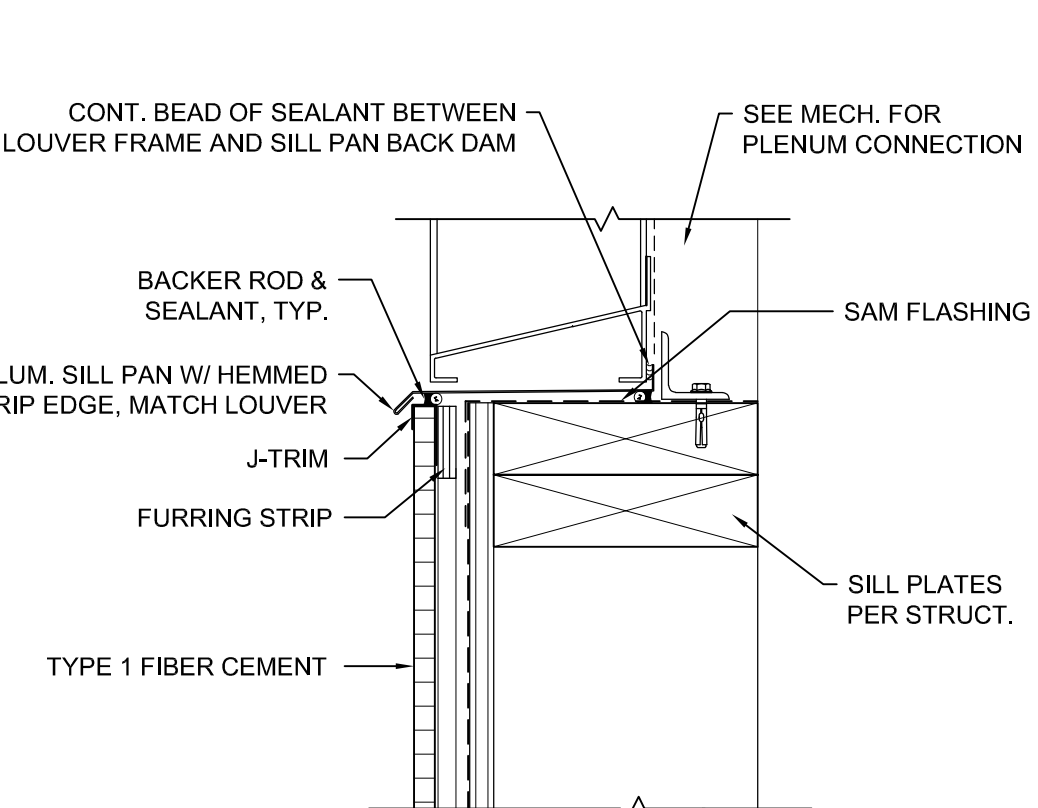
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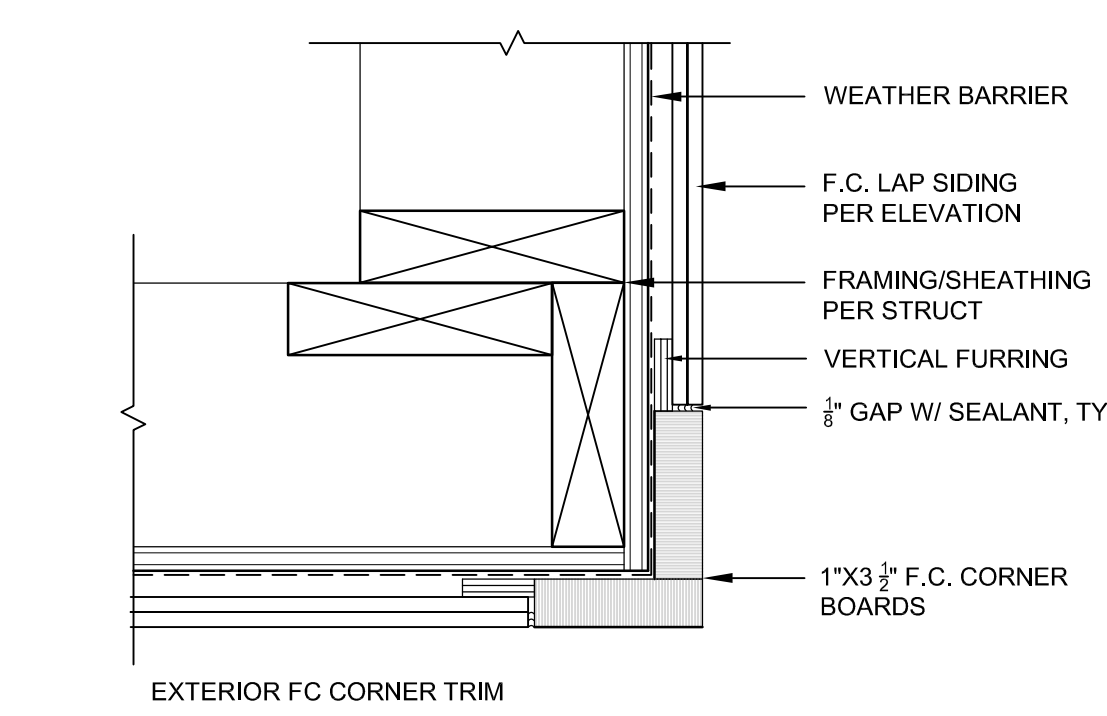
3 TYP. LOUVER SILL @ LAP SIDING  
SCALE: 3" = 1'-0"



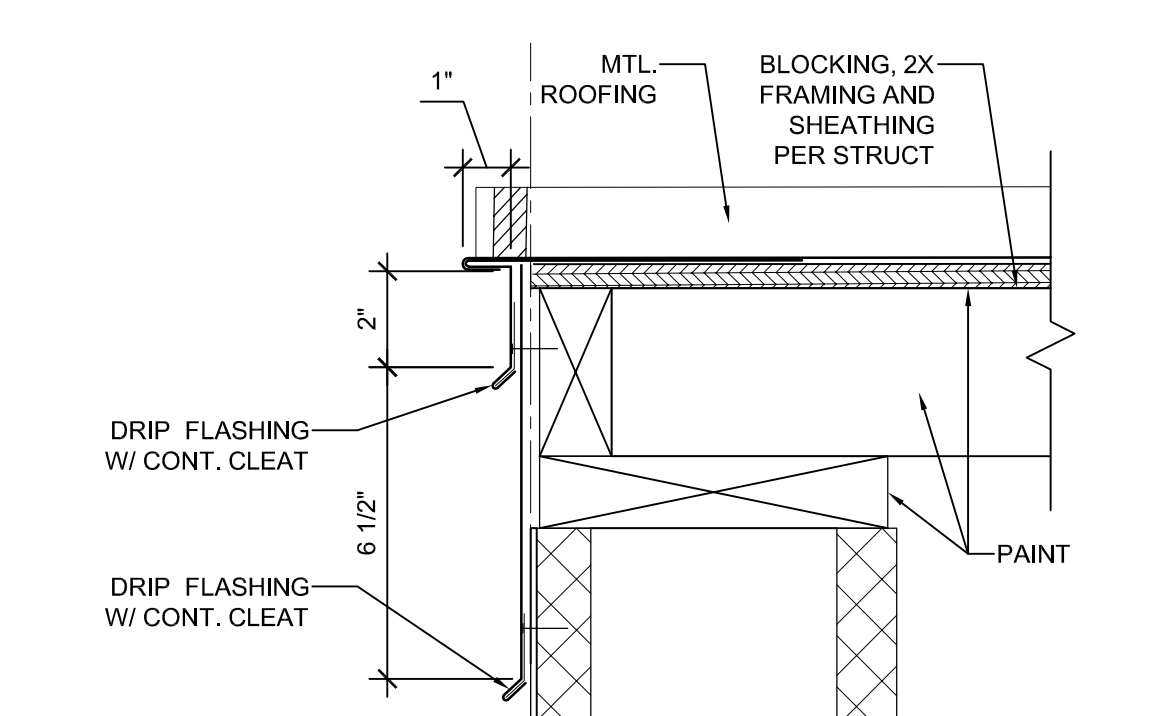
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SCALE: 3" = 1'-0"



11 TYP. LOUVER SILL @ TYPE 1 FC  
SCALE: 3" = 1'-0"



4 F.C. LAP SIDING TRIM DETAILS  
SCALE: 3" = 1'-0"



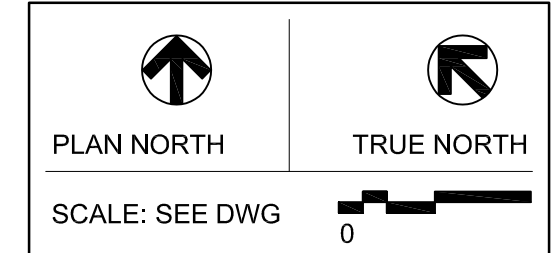
8 RAKE @ TRASH ENCLOSURE  
SCALE: 3" = 1'-0"



12 NOT USED  
SCALE: 3" = 1'-0"

100% CD SET

REV	ISSUED FOR	DATE



PSE - OPERATIONAL TRAINING CENTER

EXTERIOR DETAILS - OUTDOOR TRAINING

PROJECT No: 202202.06  
DRAWN BY: MR  
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DATE ISSUED: 01/26/24

A7.06

-- GENERAL NOTES --

- DESIGN BASIS: Designed in accordance with the 2018 International Building Code (IBC).
- RISK CATEGORY: II (per IBC Table 1604.5)
- DESIGN DEAD / LIVE LOADS
  - Roof Dead Load: 23 PSF Typical (Incl. Framing and 5 PSF solar allowance)
  - Roof Live Load: 20 PSF Typical
- DESIGN SNOW LOADS (ASCE 7-16)
  - Ground Snow Load: Pg = 20 PSF
  - Flat Roof Snow Load: Pf = 20 PSF
  - Uniform Roof Design Snow Load = 20 PSF
  - Thermal Factor: Ct = 1.20 (unheated), 1.0 (heated) / Exposure Factor: Ce = 1.0 / Snow Load Importance Factor: Is = 1.0
  - Snow Drift: See OWSJ load diagrams
- DESIGN WIND LOADS (ASCE 7-16)
  - V = 98 MPH / V(asd) = 76 MPH
  - Exposure: B / Internal Pressure Coefficient: +/- 0.18
  - Components & Cladding: Components and cladding wind pressures to be used for the design of exterior components and cladding (by others) shall be determined in accordance with ASCE 7 and the IBC.
- DESIGN SEISMIC LOADS (ASCE 7-16)
  - Site Class = E
  - Seismic Design Category = D / Importance Ie = 1.0
  - Ss = 1.277 / S1 = 0.439
  - Sds = 1.022 / Sd1 = 0.679
  - Building System: Building Frame
  - SFRS: Buckling Restrained Braced Frame
  - Response Modification Factor Used: R = 8.0
  - Seismic Response Coefficient: Cs = 0.128
  - Design Base Shear: V = 189 kips
  - Analysis Procedure: Equivalent Lateral Force Procedure
- QUALITY: Contractor shall ensure high standards of workmanship throughout, with strict adherence to the contract documents and all governing codes and standards.
- DESIGN RESPONSIBILITY: Kingworks is responsible only for the design of the primary structural system as shown in the contract documents. Design of all secondary structure or non-structural elements are by others.
- DISCREPANCIES: Notify the Architect immediately of any discrepancies between these notes, the contract drawings, the specification, or the governing code. The Architect shall reply in writing. Any related work performed by the Contractor prior to receiving a reply from the Architect is at the Contractor's sole risk. For purposes of bidding, the most stringent of the conflicting documents shall apply.
- VERIFICATIONS: Verify all existing conditions; verify all dimensions in the field; verify architectural, mechanical and electrical openings for size, location and number; notify the Architect of any discrepancies, substandard existing conditions, or conditions not included in or contrary to the Contract Documents prior to shop drawing submittal or construction.
- DRAWING COORDINATION: Coordinate the structural drawings with drawings from all other disciplines (including but not limited to Architectural, Civil, Mechanical, and Electrical).
- COMPLETED FORM: The structure shown in these drawings is designed to be stable and to resist the loads above only in a fully completed form. Contractor shall ensure that the structure is adequately braced and shored during construction for all temporary loads until all elements are in place, and shall ensure that temporary loadings do not exceed the allowable capacity of any structural elements both before and after these elements are in place.
- MEANS AND METHODS: Contractor is solely responsible for site safety, coordination, procedures, construction methodology, shoring, bracing, sequencing, and all other "means and methods" of construction except where specifically shown in the Contract Documents.
- PROTECTION AND BRACING: Contractor is solely responsible for the protection of existing buildings, utilities, streets, equipment, etc. during construction. Provide temporary bracing and protection as required.
- SCALING: Do not scale drawings. See architectural drawings for dimensions, and notify the Architect of any discrepancies.
- ALTERATIONS: Any holes or other alterations to the structure which are not specifically detailed on the Contract Drawings shall be submitted to the engineer for approval.
- LOAD COORDINATION: The design of all pre-engineered components shall include provisions for precise locations and weights of all mechanical units and other concentrated loads. Concentrated loads are not necessarily indicated on the Structural Drawings, and must be coordinated by the General Contractor, who shall also inform the Architect of any significant loads not shown in the contract documents. The Contractor shall assume full responsibility for coordination of weights, locations, hanger spacings, methods of attachment and seismic bracing of all mechanical units, sprinklers, pipes, ductwork, and other miscellaneous MEP assemblies.
- MEP CONNECTIONS TO STRUCTURE: Unless specifically shown otherwise in the Contract Documents, all anchorage, support, and seismic bracing of mechanical and electrical equipment, piping, ceilings, fixtures and other non-structural components shall be designed by a Washington State Licensed Professional Engineer and installed by the Contractor. The engineer shall be retained by the Contractor, and the Contractor is responsible for all associated engineering, component, and installation costs. Design shall be per ASCE 7 Chapter 13.
- DELIVERY, STORAGE AND HANDLING: All products shall be delivered, stored, and handled according to the Manufacturer's recommendations and installation instructions. Protect all items from damage, moisture, corrosion, or other deterioration before, during and after installation.
- COPYRIGHT: These drawings, and all designs shown within these drawings, are copyrighted by Kingworks Structural Engineers. Duplication is not permitted without written permission. The designs shown herein are intended for this project only and may not be used on any other project or for any other purpose.

-- SUBMITTALS --

- GENERAL: Provide PDF of all submittals to the Architect. Allow two weeks for review. Submittals will be reviewed for general conformance to the contract documents. Responsibility for adherence to the contract documents lies solely with the Contractor, including but not limited to dimensions, sizes, connections, and quantities.
- CONTRACTOR REVIEW: Contractor shall review, mark, and stamp all submittals before submittal to the Architect. Unreviewed or unstamped submittals will be returned to the Contractor without review.
- RESUBMITTALS: Resubmittals shall have all revisions clearly identified with "drawing clouds" and revision dates. KW shall not be responsible for review of any unmarked revisions.
- SHOP DRAWINGS: To include typical and unique conditions and all connections, shall be submitted to the Structural Engineer of Record for the following products prior to fabrication. Shop drawings shall clearly demonstrate the Contractor's understanding of the contract documents. The following shall be considered minimum structural submittals for this project.
  - Concrete / Masonry Reinforcing Steel (incl. wall elevations)
  - Concrete / Grout Mix Designs (confirm Fc & fm prior to construction)
  - Slab-on-Grade Jointing Plan
  - Structural Steel
  - Metal Roof Deck (Layout and Material Specification)
  - Metal Roof Deck Fasteners (Plan and Material Specification)
  - Fiberglass Trench Grate
  - Non-Shrink Grout Material Specification and MFR Installation Recommendations
- DEFERRED SUBMITTALS: Shall be designed by a Specialty Component Engineer (SCE) retained by the Contractor. SCE shall be a licensed Professional Engineer in the State of Washington, with 5-years minimum experience in design of the components included in the deferred submittal. Submittals shall clearly indicate all loads and reactions to be imposed on the primary structure. Submittals shall include all components and connections required to perform the work. Where the Contract Documents indicate member or connection qualities and/or quantities, these shall be considered a minimum and remain the design responsibility of the SCE to increase as required to satisfy load and deflection requirements. Deferred submittals shall include calculation set. Both the calculation set and all related shop drawings of the deferred submittal shall be sealed prior to submission. The Architect shall forward deferred submittals to the Building Official where required. The following shall be considered Deferred Submittals on this project.
  - Buckling Restrained Braces
  - Open Web Steel Joists (OWSJ)
  - Cold Formed Steel Framing - Interior and Exterior
  - Metal Plate Connected Wood Trusses (MPCWTS)
- SUBMITTAL REVIEW COMMENTS: Engineer marks and comments on shop drawings and other submittals are a normal and expected part of the submittal process, and are not to be used as a basis for change orders except in cases where these marks result in or derive from substantial changes to the Contract Drawings. Time required to revise and resubmit any submittal shall be considered inherent to the submittal review process and shall not be deemed a change order. If discrepancies are discovered between the submittals and the Contract Documents (either before, during, or after submittal review), the Contract Documents shall govern and be implemented unless specifically directed otherwise.

-- SPECIAL INSPECTIONS, TESTING, AND STRUCTURAL OBSERVATION --

- GENERAL: A special inspection agency shall be retained by the owner to perform inspections according to IBC Chapter 17. The following scheduled structural special inspection and testing regimen shall be cross-referenced with the IBC and its referenced standards for more specific requirements and exceptions. Special inspection and test reports shall be submitted to the Building Official, Architect and Structural Engineer in accordance with IBC 1704.2.4.
- NONSTRUCTURAL COMPONENTS: Nonstructural components are also subject to special inspection for conformance to the Seismic Design Requirements of ASCE 7-16 Chapter 13. The support and seismic bracing of nonstructural components shall be designed by a Washington State Licensed Engineer, who shall be retained by the Contractor. Nonstructural components subject to seismic design and periodic special inspection requirements of ASCE 7-16 and IBC Chapter 17 include (but are not limited to) the following:
  - Architectural components (IBC 1705.12.5)
  - Nonstructural components (IBC 1705.13.2)
  - MEP Components (IBC 1705.12.6)
  - Reference the architectural, electrical, and mechanical drawings and/or specifications for additional special inspection and testing requirements.
- STRUCTURAL OBSERVATION: Kingworks will perform Structural Observations in accordance with IBC Section 1704.6 if/as required. These observations provide intermittent checks of general conformance to the design intent and are in addition to (not replacing) the third-party special inspection regimen. It shall be the Contractor's responsibility to keep the Structural Engineer apprised of the general schedule of construction, such that observations may be made at appropriate stages before significant structural components (such as reinforcing bars, framing members, or wall holdowns) are obscured.

-- STRUCTURAL SPECIAL INSPECTION SCHEDULE --

STRUCTURAL ITEM	FREQUENCY (C=continuous, P=periodic)	REFERENCE (2018 IBC Section, uon)
1 STEEL		1705.2, 1705.12.1
- Material Verification - Steel Members	P	AISC 360-16 Chap N
- High Strength Bolting - Material Verification & Installation	P	AISC 360-16 Chap N
- Weld Filler Material Verification	P	AISC 360-16 Chap N
- Complete Joint Penetration and Partial Joint Penetration Groove Welds	C	AISC 360-16 Chap N
- Multipass Fillet Welds	C	AISC 360-16 Chap N
- Single Pass Fillet Welds > 5/16"	C	AISC 360-16 Chap N
- Plug and Slot Welds	C	AISC 360-16 Chap N
- Single Pass Fillet Welds ≤ 5/16"	P	AISC 360-16 Chap N
- Field-Installed Welded Studs	P	AISC 360-16 Chap N
- Welding of Stairs and Railing Systems	P	AISC 360-16 Chap N
- Cold-Formed Steel	P	1705.11.2, 1705.12.3, AWS D1.3
- Nonstructural Steel	Varies	1705.13.2
- SFRS Steel	Varies	AISC 360-16 Chap N, AISC 341-16 Appx Q, 1705.13
- Open Web Steel Joists/Girders	P	Table 1705.2.3
- Steel Deck	P	1705.2.2
2 CONCRETE		1705.3, ACI 318-14 26.13
- Reinf Welding	P (C for shearwall or other shear reinf)	1705.3.1, Table 1705.3
- Reinf Placement	P (and prior to all pours)	Table 1705.3, ACI 318-14 26.6.2
- Anchor Placement	P (and prior to all pours)	Table 1705.3
- Concrete Placement	C	Table 1705.3
- Concrete Testing	Per ACI 318-14 26.12	Table 1705.3
- Formwork & Curing	P	Table 1705.3
3 MASONRY		1705.4, 2105, TMS 402/602
- Mortar Proportions & Joints	P	TMS 402-16 Table 3.1.2
- Reinf Placement	P (and prior to grouting)	TMS 402-16 Table 3.1.2
- Type/Size/Location (Elements)	P	TMS 402-16 Table 3.1.2
- Type/Size/Location (Anchors)	P (and prior to grouting)	TMS 402-16 Table 3.1.2
- Cold Weather Measures	P	TMS 402-16 Table 3.1.2
- Grout Placement	C	TMS 402-16 Table 3.1.2
- Prism Testing	P (not req'd for Unit Strength Method)	2105, ACI 530.13 Table 3.1.2
5 POST-INSTALLED ANCHORS		Table 1705.3
- Epoxy or Adhesive Anchors Used in Horizontal or Overhead Position	C	See ICC-ES report
- All Other Anchors Installed in Hardened Concrete or Masonry	P (except where C req'd by ICC-ES report)	See ICC-ES report
6 SOILS & FOUNDATIONS		1705.6, Table 1705.6, Geotech Report
- Subgrade Adequacy	P (beneath fill and/or foundations)	Table 1705.6
- Excavation Depth	P	Table 1705.6
- Fill Materials	P	Table 1705.6
- Fill Placement & Compaction	C	Table 1705.6

-- FOUNDATIONS & SUBGRADE --

- SOIL ALLOWABLE BEARING PRESSURE: 2500 PSF (x 1.33 when subjected to wind or seismic loadings).
- GEOTECHNICAL REPORT: Reference Terra Associates geotechnical report dated April 6, 2023 for subgrade preparation, backfill, surcharge program, compaction, wet weather work, and other recommendations. All provisions of the geotechnical report shall be enacted by the Contractor.
- GEOTECHNICAL VERIFICATION: The Owner shall retain a geotechnical inspection agency to inspect the excavations and confirm that the provisions of the Geotechnical Report are followed. All recommendations of the geotechnical inspector shall be followed and communicated with the design team via inspection report. Contractor shall coordinate this inspection effort with the Owner.
- UTILITIES: Utilities are not to pass through or beneath footings, stemwalls, and other concrete work on grade except as shown in specific details.
- MISCELLANEOUS VERIFICATIONS: Verify sizes, slopes and locations of tunnels, electrical cells, pits, pipes, floor drains, trenches and floor recesses with architectural, mechanical and electrical contractors.
- ALIGNMENT: All footings shall be centered below columns and walls, unless dimensioned otherwise.
- BACKFILL: Do not backfill against below-grade walls until strength has been achieved and floor framing is in place.
- FROST PROTECTION: Maintain minimum 1'-6" soil cover, measured from finished grade to the bottom of the footing, for perimeter wall foundations and isolated exterior foundations.
- EXCAVATION SLOPE: Excavation slope shall not exceed that permitted by local regulation, except as specifically approved by the geotechnical engineer.

-- REINFORCED CONCRETE --

- REFERENCED STANDARDS: Reinforced concrete shall conform to the requirements of the following documents, except as modified in these drawings.
  - ACI 301-16 "Standards Specifications for Structural Concrete"
  - ACI 318-14 "Building Code Requirements for Structural Concrete"

-- CONCRETE MATERIAL SCHEDULE --

	Fc (PSI)	W/C (MAX)	COARSE AGG (MAX)	AIR ENT	MIN FLY ASH AND/OR SLAG	MAX FLY ASH AND/OR SLAG
CONTROLLED DENSITY FILL	1000	-	SAND	-	-	-
FOUNDATIONS / STEM WALLS (1'-7" OR MORE BELOW GRADE)	3500	0.55	1"	-	30%	50%
FOUNDATIONS / STEM WALLS (1'-6" OR LESS BELOW GRADE)	4500	0.45	1"	6%	20%	40%
SLAB ON GRADE (EXTERIOR)	4500	0.45	3/4"	6%	20%	40%
SLAB ON GRADE (INTERIOR - 6+ INCHES)	4000	0.50	3/4"	-	20%	40%
SLAB ON GRADE (INTERIOR - 4-5 INCHES)	3500	0.55	3/4"	-	30%	50%
PILASTERS/PIERS	4500	0.45	3/4"	6%	20%	40%

-- REINFORCED CONCRETE --

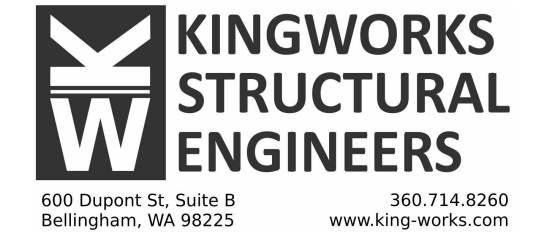
- MATERIALS
  - Required concrete strength "fc" shall be evaluated at 28 days (56 days OK for fly ash or slag concrete).
  - Conform to following concrete material schedule requirements.
  - Cementitious Materials: Provide Type I or II Cement per ASTM C150 (Type III OK for Precast) or Type II Blended Hydraulic Cement per ASTM C595. Cementitious materials for use in concrete exposed to soil or weather must meet or exceed the S1 exposure class per ACI 318-14 Table 19.3.2.1.
  - Fly Ash: Class F per ASTM C618.
  - Slag: GGBF Slag per ASTM C989, Grade 100 minimum.
  - Air Entrainment: Provide air entrainment per concrete mix table +/- 1.5%, all other locations exposed to weather shall have air entrainment of 6% (+/- 1.5%).
  - All 8-inch thick slabs shall have 28-day maximum shrinkage of 0.050%. Submit test data for a minimum of 3 specimens of the proposed mix in conformance with ASTM C157 for review.
  - Typical Reinforcing Steel: ASTM A615, Grade 60
  - Weldable Reinforcing Steel: ASTM A706, Grade 60
  - Welded Wire Fabric: ASTM A185
- SPLICES: All reinforcing steel lap splices are to be per typical schedule unless noted otherwise. All welded wire reinforcement lap slices shall be the greater of one space plus 2 inches or 6 inches, unless otherwise noted.
- CONTINUITY: Horizontal reinforcing steel in walls and wall footings shall be continuous around corners, same size and spacing. At intersections of walls or footings, extend all bars as far as possible into continuous element and terminate with standard hook.
- CLEAR COVER: Provide clear cover from outermost reinforcing to surface of concrete in accordance with the following:
  - Elements cast against and permanently exposed to earth: 3" clr
  - Elements formed and exposed to earth or weather: 2" clr (#6-#18), 1 1/2" clr (#3-#5)
  - Slabs, Walls, Joists NOT exposed to weather or in contact w/ ground: 3/4" clr (#3-#11)
  - Columns, Pilasters, Piers (longitudinal, hoops, ties, stirrups, spirals): 1 1/2" clr
- INTEGRAL COLUMN & WALL FOOTINGS: Where column footings are shown integral with wall strip footings, transverse wall footing bars need not continue through width of column footing. Longitudinal wall footing bars shall extend continuous through column footing, in addition to column footing bars per typical detail.
- ACCESSORIES: Provide all accessories, chairs, spacer bars and supports necessary to secure steel in accordance with ACI Code of Standard Practice.
- CHAMFER: Chamfer all exposed corners and edges above grade per the Architect.
- FORM STRIPPING: Do not strip forms until concrete has reached adequate strength.
- SLEEVES / OPENINGS: Furnish and place all sleeves and openings as shown on the drawings or as specified.
- REINFORCING FABRICATION: All reinforcing shall be shop fabricated. Exception: #3 or #4 bars may be field bent one time in any location, do not rebend or restraighten.
- HOOKS: All hooked bars shall be a standard shop fabricated hook with bend radii and length per ACI 318, UON.
- TESTING: Test cylinders shall be taken by qualified personnel according to ACI 318-14 Section 28.12
- MEMBRANE: Provide vapor barrier (per spec) directly below slab-on-grade (above compacted fill), reinforce all seams and repair tears as necessary.
- WEATHER PROVISIONS: Observe all ACI recommendations for hot or cold weather concreting cure slabs using an approved curing compound or wet cure system per ACI recommendations, with special consideration for slag and fly ash concrete as appropriate.
- CONSTRUCTION JOINTS: All construction joint locations shall be submitted to the Architect for approval. Roughen joints to 1/4-inch minimum amplitude, remove all laitance. Soak joint continuously for 2 hours minimum, then remove all standing water, immediately prior to second pour. Unless noted otherwise, all reinforcing shall be spliced/continuous across the construction joints.
- FIBER REINFORCEMENT: See spec for requirements.

-- STRUCTURAL MASONRY --

- SPECIFICATION: Masonry construction and materials shall conform to all requirements of "Specification for Masonry Structures" (TMS 602-16), unless noted otherwise.
- UNIT STRENGTH: The concrete masonry design is based on a specified compressive strength of masonry (fm) of 1500 psi at 28 days. The compressive strength of masonry shall be determined by the unit strength method in accordance with TMS 602-16.
- MATERIALS
  - Hollow concrete masonry units: ASTM C90, Grade N, Type I, normal weight units, net area compressive strength of masonry units = 2150 psi
  - Mortar: ASTM C270, Type S portland cement/lime mortar
  - Grout: maximum aggregate size of 3/8", compressive strength equal or greater than the strength of masonry units at 28 days (AND not less than 2000 psi in any case)
  - Reinforcing Steel: ASTM A615, Grade 60 typical (A706 for weldable bars)
  - Portland Cement: Cement in mortar and grout shall contain 0.6% or less alkali by weight
- BELOW GRADE: All masonry below grade shall be grouted solid.
- DEVELOPMENT: All masonry reinforcing shall be developed and lapped in solid grout per typical schedule.
- WALL GROUTING: Walls indicated as partially grouted on the structural drawings may not be fully grouted without written approval from the Structural Engineer.
- POUR AND LIFT HEIGHTS: Maximum "pour height" shall not exceed 12'-0". Each "pour height" shall be divided into separate "lift heights" not to exceed 5'-4" each. Each "lift height" shall be individually consolidated (vibrated), including consolidation penetrating into the lower uncurd lifts.
- CLEANOUTS: Cleanouts are required in the bottom course of masonry for each grout pour when the "pour height" exceeds 5'-4". Cleanouts shall meet the criteria of TMS 602-16 Section 3.2F.
- REINFORCEMENT ALIGNMENT: Vertical reinforcement shall be centered within cells unless noted otherwise. Use approved spacers to ensure alignment within cells. See details for other bar alignment criteria.
- HORIZONTAL REINFORCEMENT: Horizontal reinforcement shall be tied to vertical reinforcement, continuous, and terminate with standard 180-degree hook around vertical bar at wall ends or jamps, or 90-degree bends extending one lap length at wall corners. Where CMU wall intersects with concrete wall, dowel all horizontal bars similar to typical corner or tee details.
- STOPPAGE KEYS: When the grouting is stopped for one hour or longer, horizontal construction joints shall be formed by stopping the grout pour 1-1/2" below the top of the uppermost unit.
- BOND BEAM MINIMUM REINFORCEMENT: Reinforce all bond beams with #2 #4 continuous bars, unless noted otherwise.
- CLEAR COVER: Minimum clear cover from face of masonry to face of reinforcing shall be 1-1/2" minimum for #5 bars or smaller, and 2" minimum for #6 bars or larger. See details for typical reinforcement alignment.
- CONTROL JOINTS: Refer to architectural and structural drawings for locations and details of vertical control joints. Verify all joint locations with Architect.
- HOOKS: All hooked bars shall be a standard shop fabricated hook with bend radii and extension per TMS 402-16 Table 6.1.8



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REV	ISSUED FOR	Date

PLAN NORTH

SCALE:

PSE - OPERATIONAL TRAINING CENTER

STRUCTURAL NOTES

PROJECT#: 21239  
DRAWN BY: GK  
CHECKED BY: DL  
DATE ISSUED: 1/26/24

S0.01

-- ANCHORAGE TO CONCRETE OR MASONRY --

- MATERIALS (unless noted otherwise in the drawings)
  - Concrete or grout must cure for a minimum of 21 days prior to drilling any holes or placing post-installed anchors.
  - Anchor type shall be according to the drawings. All post-installed anchors installed in concrete shall have ICC-ES reports demonstrating IB compliance for use in cracked concrete and for seismic loading. Substitutions not permitted without written permission by KW.
  - Pre-approved Epoxy for post-installed threaded rod or reinforcing in concrete base material: HILTI HIT-RE 500 V3 or Simpson Strong-3G.
  - Pre-approved Epoxy for post-installed threaded rod or reinforcing in solid grouted CMU base material: HILTI-HY 70.
  - Pre-approved "Expansion Anchors" in concrete base material: HILTI Kwik-Bolt TZ or Simpson Strong-Bolt 2, or DEWALT/Powers Power-Stud+SD2.
  - Pre-approved "Expansion Anchors" in solid grouted CMU base material: HILTI Kwik-Bolt TZ or Simpson Strong-Bolt 2, or DEWALT/Powers Power-Stud+SD1.
  - Pre-approved "Screw Anchors" in concrete base material: HILTI HUS-EZ or Simpson Titen HD or DEWALT/Powers Screw-Bolt+.
  - Pre-approved "Screw Anchors" in solid grouted CMU base material: HILTI HUS-EZ or Simpson Titen HD or DEWALT/Powers Wedge-Bolt+.
  - Pre-approved "Powder Actuated Fasteners" in concrete or CMU base material: HILTI or approved equal, with diameter/type per the Structural Drawings (0.145" UON).
  - Post-installed or Cast-in-Place Threaded Rod (Anchor): ASTM A36
  - Post-installed Reinforcing: ASTM A615 Grade 60
- EMBEDMENT: Anchor embedment in base material shall be per the drawings, which shall govern over the typical values shown below. Where not otherwise indicated, provide embedment as follows:
  - Epoxy to Concrete: Min Embed = 12 x (Rod/Bar Ø) for 5/8"Ø (#5) or smaller, 14 x (Rod/Bar Ø) for 3/4"Ø (#6) or larger
  - Epoxy to Solid-Grouted CMU: Min Embed = 9 x (Rod/Bar Ø)
  - Expansion Anchor to Concrete: Min Embed = 8 x (Anchor Ø)
  - Expansion Anchor to Solid-Grouted CMU: Min Embed = 7.5 x (Anchor Ø)
  - Screw Anchor to Concrete: Min Embed = 9 x (Anchor Ø)
  - Screw Anchor to Solid-Grouted CMU: Min Embed = 7.5 x (Anchor Ø)
  - PAF to Concrete or CMU: Min Embed = 1 1/4", Min Edge Distance = 3"
  - PAF to Structural Steel: Point of PAF shall penetrate through base steel where base steel thickness is 1/2-inch or less. Where base steel thickness is greater than 1/2-inch, point penetration shall be 1/2-inch minimum.
  - Cast-In-Place Anchor: Min Embed = 9" to top of embedded washer or hook
- INSTALLATION: Post-installed anchor hole diameter, drilling depth, cleaning and installation procedure shall be in accordance with the current Manufacturer's Printed Installation Instructions (MPII) provided in the ICC/ES report. Holes shall be drilled with rotohammer equipment. Core-drilled holes are not permitted unless specifically noted otherwise.
- COLD-WEATHER INSTALLATION: Do not use epoxy or adhesive anchors outside of their rated temperature range. Contact the Structural Engineer for alternate if the base material temperature may be less than 40 degrees during installation or curing.
- CAST-IN-PLACE ANCHORS: Cast-in-place anchors shall have nut and washer at embedded end. UON. Anchors shall be affixed to the form to prevent movement during pouring, vibration, or set-up and shall not be "stabbed" into wet concrete or grout. Verify adequate length of exposed thread to fully engage all attached work.
- FINISHES: All anchors used at exterior, or where subject to moisture, or where in contact with pressure treated wood, shall be hot-dip galvanized per ASTM A153 or stainless steel, including matching washers and nuts.
- ANCHOR PLACEMENT IN CMU BASE MATERIAL: Where anchors are installed in face-of-wall condition, no holes shall be permitted within vertical (head) joints nor within 1 1/2" horizontal each way of head joints (exception: HILTI HIT-HY 70 may be used in or near fully-mortared head joints). Where anchors installed in top-of-wall condition, holes shall be drilled into grouted cores only (do not drill into head joints or block shell). Notify KW of any potential conflicts with head joints prior to shop drawing submittal. Anchors in hollow (ungrouted) CMU cells are not permitted UON.
- REINFORCEMENT LOCATIONS: All post-installed anchors shall be located to avoid drilling into reinforcement, unless specifically approved by the Engineer. Reinforcement shall be placed with consideration for locations of post-installed anchors. Do not damage reinforcing during drilling operations.

-- STRUCTURAL STEEL --

- REFERENCED STANDARDS: Fabrication, erection and dimensional tolerances of structural steel members shall be in accordance with AISI 303-16 "Code of Standard Practice for Steel Buildings and Bridges" and ASTM A6.
- MATERIALS (unless otherwise noted on drawings)
  - Wide Flange and WT shapes: ASTM A992, fy=50 ksi.
  - Hollow Structural Sections (HSS): A500 Grade B, Rectangular fy=46 ksi, Round fy=42 ksi.
  - Pipe Sections: A53 Grade B, fy=35 ksi.
  - Bolts: A325(X or N or -SC per details) Type 1 high strength bolts with A563 nuts and F436 washers unless noted otherwise.
  - Welding Electrodes: E70XX
  - Anchor Rods: ASTM F1554 Grade 36 (see drawings for braced frame anchor rods)
  - Headed Studs: ASTM A108 Grade 1010 - 1020 (Type 2, Fu=60 ksi min)
  - Angles / Channels / Plates / Rods / Miscellaneous: ASTM A36
- WELDING: All welding to be performed by qualified welders and shall conform to A.W.S. D1.1.
- GALVANIZING: All steel elements and fasteners exposed to the exterior shall be hot-dip galvanized in accordance with ASTM A153/A123, except where a suitable exterior-grade paint system is indicated by the Architect.
- GALVANIZING REPAIR: Repair all damage to hot-dip galvanized coating by hot-slick or high-zinc paint method in accordance with ASTM A780. Where welding of galvanized steel is required, all galvanizing on the area of steel to be welded, plus 3/4-inch each side of the welded area, shall be ground off prior to welding; affected area shall be repaired per ASTM A780.

-- STRUCTURAL STEEL --

- PRIMING: All structural steel and miscellaneous metals shall be prime painted with minimum one (1) shop coat of primer (zinc-rich primer at exterior applications), except where hot-dip galvanized or specified otherwise by the architect. Touch up all disturbed areas.
- PAINT SYSTEM: Paint system, where required, shall be per the Architect. Touch up all disturbed areas.
- ERECTION: Contractor shall comply with all current OSHA/WISHA requirements concerning steel erection. This may require additional bolts, shims, guys, bracing, and other elements that are not detailed in the Contract Documents but remain the Contractor's responsibility to implement.
- AESS: All steel designated as "AESS" (Architecturally Exposed Structural Steel) shall conform to Section 10 of the AISI Code of Standard Practice for Steel Buildings and Bridges.
- BOLT SPECIFICATION: All bolted connections shall conform to the current "RCSC Specification for Structural Joints Using High-Strength Bolts". "-SC" bolts shall be approved twist-off tension-control type per ASTM F1852 or shall utilize compressible-washer-type direct tension indicators per ASTM F959.
- BOLT INSTALLATION: Bolts shall be snug-tightened (-ST) unless noted as "-SC". "-ST" bolts shall be tightened as needed to bring all plies of the connection into firm contact, achieved by a few impacts of an impact wrench or the full effort of an iron worker using an ordinary spud wrench. "-SC" bolts shall be pretensioned with Class A faying surfaces per the RCSC Spec.
- BOLT HOLES: Bolt holes in steel shall be 1/16" larger than bolt diameter, except where specifically detailed otherwise.
- GROUT: Grout for baseplates, sleeves, and embedded steel shall be an approved nonshrink cementitious grout containing natural aggregates delivered to the job site in factory prepackaged containers requiring only the addition of water. The minimum 28-day compressive strength shall be at least 1000 psi higher than the supporting concrete strength, UON. Grout shall be mixed, applied, and cured strictly in accordance with the manufacturer's printed instructions. For grouting under base plates, grout shall be proportioned as a flowable mix. When a flowable mix does not provide the required strength, an epoxy grout shall be used. Grout thickness shall be per the typical details.

-- SEISMIC FORCE RESISTING SYSTEM (STEEL) --

- SCOPE: The Seismic Force Resisting System (SFRS) includes all buckling-restrained braces (BRBs), columns and beams connected to BRBs, Drag Struts (DS), and any other members indicated as SFRS on the drawings. All connections between these elements shall also be considered part of the SFRS.
- REFERENCED STANDARDS: SFRS steel members and connections shall comply with ANSI/AISC 341-16 (and 358-16 where applicable).
- WELDS: All welds used in the SFRS shall be considered "demand critical" and shall be performed in strict adherence to ANSI/AISC 341-16 (and 358-16 where applicable), including but not limited to conformance to a written welding procedure specification (WPS) per AWS D1.1.
- QUALITY ASSURANCE PLAN: Contractor and special inspection agency shall conform to all requirements of ANSI/AISC 341-16 Chapter J.
- PROTECTED ZONES: See the drawings for portions of steelwork classified as "protected zones". Within the protected zone, discontinuities created by fabrication or erection operations, such as tack welds, erection aids, air-arc gouging and thermal cutting shall be repaired as required by the engineer of record. Welded, bolted, screwed or shot in attachments for perimeter edge angles, non-bearing walls, exterior facades, duct work, piping, or other construction shall not be placed within the protected zone except as specifically indicated.

-- OPEN WEB STEEL JOISTS (OWSJ's) --

- REFERENCED STANDARD: Open web steel joists shall conform to SJI 100-2015 Standard Specifications, 44th ed.
- BRIDGING: Design, provide, and install bridging in accordance with the SJI Standard Specification. Provide and install anchorage of each bridging line to structural wall per the typical details. Provide and install diagonal bridging where required. All bridging lines and bridging anchorage shall be clearly indicated in the submitted shop drawings.
- BRIDGING LOCATIONS: Bridging is not shown on the structural plans; bridging locations shall be per the supplier. Where bridging lines are indicated on the structural drawings, locations and quantity shown are approximate. Final locations, sizes, and quantities shall be per the supplier in accordance with the SJI Standard Specifications.
- ROOF OPENINGS: See drawings for typical requirements at roof openings. All roof opening locations shall be per the structural drawings, or where not specifically shown, shall be submitted to the Architect for approval.
- DEFLECTION: Deflection of joists due to design snow load shall not exceed the criteria shown in the drawings.
- ERECTION: Erection stability and handling shall be the sole responsibility of the contractor, and shall be performed in accordance with state regulations and the SJI Standard Specifications. Contractor shall comply with all OSHA/WISHA requirements for steel erection. This may require erection bolts and other miscellaneous items that are not shown on the Contract Drawings but remain the Contractor's sole responsibility.
- BOLT HOLE COORDINATION: Where OWSJ's utilize bolted end connections (for erection purposes or otherwise), Contractor shall coordinate all bolt hole locations and sizes prior to the structural steel submittal.
- MEP COORDINATION: See General Notes for Contractor responsibilities. Joist web layout shall remain consistent along each run of joists as required to facilitate straight runs of ductwork occurring within the web clear space.
- CAMBER: Typical joists shall have SJI-specified camber. Where "Reduced Camber" [RC] is indicated on the plans, the OWSJ camber shall be two-thirds (2/3) the SJI-specified camber.

-- STEEL DECK --

- REFERENCED STANDARD: Deck shall be fabricated and installed in accordance with SDI Short Form Specifications and SDI Code of Standard Practice (COSP17)
- MATERIALS
  - Exposed metal roof deck shall be AEP Span HR-36 with gage per the drawings.
  - 3" steel roof deck shall be Type N with 24-inch wide typical profile (Verco N-24 or approved equal) and gage per the drawings.
  - All deck shall conform to ASTM A446 with minimum yield strength of 33 ksi.
- FINISHES: Deck shall be painted or galvanized as specified by the Architect. Where the decking is exposed to exterior humidity and/or moisture, finish shall be galvanized G90.
- ALTERNATES: Alternate deck products submitted for approval shall meet or exceed the span and diaphragm strength and stiffness properties of the referenced (basis of design) Verco products.
- CONTINUITY: Deck shall be installed with minimum 2-span condition for any piece, uon.
- END SUPPORT: Ends of each decking piece shall occur over structural supports as indicated in the drawings. Provide 2" minimum end edge overlap over structural support, uon.
- FASTENING: Fastening at supports and sidelaps shall be per the typical details.
- WELDING: All welding to be performed by qualified welders in conformance to AWS D1.3.
- CONSTRUCTION LOADS: Composite deck is designed to support the indicated loads only after concrete has reached design strength. Ensure that construction loads do not exceed the capacity recommended by the deck manufacturer for an unshored non-composite (prior to concrete achieving design strength) condition, or provide temporary shoring as required to support loads that exceed this capacity. Under no circumstances shall any loads be applied that exceed the rated capacity of the floor or roof deck.
- BURN-THROUGHS: Contractor shall review the deck installation and notify the Architect and joist supplier of any burn-throughs of OWSJ top chords. Repair all burn-throughs per OWSJ manufacturer's recommendations.

-- COLD-FORMED STEEL FRAMING - CONTRACTOR DESIGNED --

- REFERENCED STANDARD: All work shall conform to AISI S100-16.
- SCOPE AND GENERAL REQUIREMENTS: All cold-formed steel elements on this project are Contractor-designed. Exterior studs are non-bearing and shall be 6-inch depth unless noted otherwise. Interior studs are non-bearing and shall be of depth indicated by the Architect.
- DESIGN RESPONSIBILITY: The Contractor shall retain a Specialty Component Engineer (SCE) for design of all exterior and interior cold-formed steel stud walls, parapets, soffits, and ceilings. Design shall include all components required for load resistance and stability, including but not limited to: bracing, bridging, bridging anchorage, accommodation of openings and special conditions, and connections to primary structure. See the "Deferred Submittals" section of these notes for additional requirements.
- DESIGN LOADS: Exterior wall component and cladding wind pressures are indicated elsewhere in these drawings. Seismic loads shall be determined per ASCE 7-16. Interior walls shall be designed for 5 PSF (ASD) minimum horizontal pressure for typical walls, 7.5 PSF (ASD) for elevator shafts. Other loads may be indicated elsewhere in these drawings. Any MEP, fixture, or other miscellaneous loads to be supported by steel stud walls shall be coordinated by the Contractor. In all cases, meet or exceed the load requirements of ASCE 7-16.
- DEFLECTION CRITERIA: Wind or seismic deflection shall not exceed span times (1/360) where brittle finishes occur, (1/240) elsewhere.
- CONNECTIONS: Connections of cold-formed steel to primary structure shall satisfy the following requirements:
  - Account for vertical structural deflection of 1.0 inches maximum downward and 1.0 inches maximum upward due to live, snow, and/or wind loading. Install after all dead loads are in place to account for construction tolerances.
  - Wall connections accounting for vertical structural deflection shall utilize slotted tracks and/or slotted clips as required and in accordance with any schematic details shown in the Structural Drawings.
  - At exterior walls only, account for horizontal structural drift of 1.0 inches each direction due to seismic loads. "Drift type" connections with slotted holes parallel to roof edge shall be used according to manufacturer instructions.
  - Wall connections shall not induce torsional or unbalanced stresses in structural members unless specifically detailed as such in the Structural Drawings. Braces, reinforcing, and/or ties shall be designed and supplied by the Contractor, as required to resolve all load eccentricities and negate torsional effects in all structural members.
  - Horizontal and vertical reactions from all wall connections and related work shall be clearly indicated in the submittal package for review by the Structural Engineer for effects on the primary structure. Contractor shall also coordinate these reactions with the designs of any other Deferred Submittal components.
- SCREWS: All screws shall be self-tapping and self-drilling in compliance with ASTM C1513, SAEJ78, and ICC-ES AC118.
  - Screws shall have a Type II coating in accordance with ASTM B633 and have tested resistance to hydrogen embrittlement.
  - Steel-to-steel screws shall have a minimum projection of 3 threads through the last joined ply of material. No gap shall be permitted between joined plies.
  - Screws shall have a minimum center to center spacing and edge distance of three times the screw diameter unless noted otherwise on the drawings.
  - Tighten screws per manufacturer recommendations. Stripped screws or holes are to be considered ineffective and shall be replaced with screws of the next larger diameter.

-- WOOD FRAMING --

- REFERENCED STANDARD: All work shall conform to 2018 IBC unless otherwise indicated.
- MATERIALS (unless otherwise noted in the drawings)
  - Posts / Beams: Hem Fir #1
  - Solid Sawn Studs: Hem Fir #2
  - Sills / Plates: Equal to stud grade
  - Joists / Rafters: Hem Fir #2
  - Rimboard: LSL or LVL, 1.5E min
  - Blocking / Bridging: Hem Fir "Stud"
  - Glulam Beam (GLB): 24F-1.8E (-V4 Typical, -V8 at Cantilever or Continuous only) per AITC 117
  - Glulam Post or Column: Combination 3 per AITC 117
  - Laminated Veneer Lumber (LVL): 2.0E min (1 3/4" thickness), 1.8E min (1 1/2" thickness), 1.5E min (1 1/4" thickness)
  - Bolts / Lags: ASTM A36 or A307, hex-head, washer under head & nut
- MOISTURE CONTENT: All sawn lumber, including heavy timber, shall be kiln-dried to a maximum moisture content of 19%. For pressure-treated framing, kiln-drying shall occur after treatment.
- NAILS: Nail sizes shown are common (not "box") uon. 8d = 0.131"x2.5", 10d = 0.148"x3", 12d = 0.165"x3.25", 16d = 0.182"x3.5". Typical nailing not otherwise shown in the drawings shall be per IBC Table 2304.10.1. Where nailing occurs in two or more rows, the on-center spacing indicated in the drawings shall be for each row. Where on-center nail spacing for a single row is less than 6" (for 12d and larger) or less than 4" (for 10d and smaller), stagger each row of nails into two rows offset by 1/2" min. All nails shall maintain 3/8" min to framing or sheathing edges.
- HOLES: Bolt holes in wood for through-bolt connections shall equal bolt diameter plus 1/16" maximum, 1/32" minimum. Bolt holes in steel fixtures shall be per the steel section of these notes. Wood screws and lag screws (lag bolts) shall be hex head and shall have predrilled pilot holes equal to approximately 60% of the fastener diameter (70% for 7/8" and larger lag screws) and shall be installed by turning; do not hammer into hole. Soap lubrication on threads is acceptable. Provide cut washer beneath all hex heads and nuts uon.
- SPLITTING: Though very tight nail and screw spacings are used in many locations on this project, splitting of wood members by driving nails or screws is not acceptable. If splitting occurs, or if splitting may occur as wood dries in place, predrill all holes as required to approximately 60% of the nail or screw diameter. Omission of predrilling for fasteners is at the Contractor's sole risk, and as such, all split members shall be replaced at the Contractor's sole expense.
- ALTERATIONS: Do not notch any structural wood members. See typical detail for allowable hole locations and sizes (for mechanical or electrical utility passage).
- STUD WALLS: All stud walls shown on the structural plans are structural walls and shall be constructed per the structural notes and details of these drawings. Typical structural walls are constructed with single sill and double top plate.
- STUD WALL BRACING: All bearing walls rely on gwb and/or sheathing to brace the studs against buckling. Where gwb or sheathing is not provided on at least one face of studs, provide full depth blocking at 4'-0" max on-center in each stud bay, in addition to diagonal bracing for full length of wall (Simpson WB in "X" configuration at approximately 45-deg, install per catalog, typ uon).
- SISTERING (BUILT-UP MULTIPLE STUDS AND BLOCKING): Where multiple 2x studs blocking occur, each added ply after the first shall be sistered to the previous ply by face nailing. At shearnails, sistering nails for studs or blocking shall be 0.148"x3" at spacing equal to "EN" per schedule. At non-shearnail multiple studs, sistering nails shall be 0.148"x3" at 12" on-center, uon. Sistering nails shall be staggered in all instances.
- RAFTERS/JOISTS: Provide full-depth blocking or bridging lines at no less than 8'-0" on center between supports. At bearing supports bear rafters and joists 2" minimum on plates or beams, uon. At other supports provide hangers per the typical details. Where no detail applies use as a minimum Simpson LU series face mount hangers. Provide a doubled joist (minimum) beneath each parallel wall, including partition walls.
- BEAMS: Bear beams full length and width on supporting wall plates and/or posts, unless shown otherwise per typical details. Provide glulam beam camber equal to 3500-foot radius for all simple span beams, except where special camber is indicated on the plans; install with upward curvature (highest at midspan). Do not camber cantilever beams unless specifically noted. Beams exposed to view shall be Architectural Appearance grade in accordance with AITC 110, with finish per the Architect.
- POSTS: Unless noted otherwise, provide Simpson BC or AC caps at all post to beam and post to beam (below) connections. At post to concrete provide Simpson ABU or CB post bases, uon. Posts in walls may bear on the sill with connection hardware per typical details. At wood or steel posts/columns continuous through floor framing, block tight all-around at floor to prevent lateral movement or buckling.
- CONNECTORS: Connectors and/or fasteners called out by letters & numbers in the drawings shall be manufactured by Simpson Strong-Tie, or approved equal. All connecting hardware shall be installed per the Manufacturer's recommendations and requirements, as per current catalog and related publications. Fill all fastener holes with the fastener type (diameter and length) indicated by the Manufacturer, uon. Where light-gage connector occurs at steel column, weld 1/8" all-around, uon.
- PRESSURE TREATMENT: Except where specifically noted otherwise, the following member types shall be pressure treated in accordance with the following guidelines, in addition to any such members noted in the plans or details. Treatment shall be with waterborne preservatives in accordance with AWPA Standard U1 to the requirements of the "Use Category" as described below. Treatment shall be required regardless of use of sill or flashings.
  - Interior wood against concrete or masonry: AWPA UC2
  - Wood exposed to exterior, humidity, or within 8" of soil: AWPA UC3B
  - Wood in contact with ground: AWPA UC4B
  - Laminated Veneer Lumber: Pacific Woodtech PWT LVL UC3B
  - Borate-treated lumber is acceptable in locations where protected from rainfall or other potential repeated moisture, such as sill plates in an enclosed wall cavity and interior ledgers.
- FIELD TREATMENT: Field treat all cuts, ends, and holes in pressure treated lumber with copper naphthenate applied per manufacturer's recommendations.
- EXTERIOR WOOD PROTECTION: Provide flashings, sealants and finishes per the Architect in order to protect all exterior wood surfaces and post/beam ends from moisture.
- GALVANIZING: All steel components, hardware, or fasteners for wood framing members exposed to moisture, high humidity, or in contact with pressure treated lumber shall be hot-dip galvanized per ASTM A153. Light gage connectors shall be galvanized per ASTM A653, G185 minimum (Simpson "Z-max" or approved equal). The above described galvanizing requirements specifically include, but are not limited to: nails, screws, bolts, washers, nuts, anchor bolts, threaded rods, cast-in-place and post-installed anchors, Simpson hardware, and weldments. (Exception: not required for SBX/DOT borate-treated wood protected from weather.)

-- WOOD FRAMING --

- MEMBRANE PROTECTION: Where specified steel hardware in contact with pressure treated wood is unavailable in HDG or G185 finish, Grace Vykor (or approved eq) membrane shall be placed per manufacturer's recommendations to isolate the hardware from the treated wood. HDG fasteners shall be used in such instances.
- SHEATHING: Place roof and floor sheathing with face grain oriented in the direction of span. Offset adjacent rows of sheathing panels by 24" minimum, with all panel ends bearing on joists, beams, or walls. Place cantis or crickets over continuous basic roof sheathing with drilled vent holes per the Architect. Install wall sheathing in either the horizontal or up-right orientation. Adjust all sheathing layouts so that no panel is less than 24" in length or width. Where edges are not required to be blocked per schedule, provide Simpson PSCA clips at spacing per catalog recommendation. All sheathing shall be APA rated, with type/blocking/fastening per the following schedule. Provide 1/8" gaps between abutting sheet edges, typical.
- SHEATHING FASTENING: Minimum nailing per the following schedule shall apply at all locations, except where larger nails and/or smaller spacing are required by plans or details. Shearwall nailing is shown by schedule on the plans. Where "boundary nailing" (BN) and/or "edge nailing" (EN) are referenced in these drawings, panel edge values per the schedule shall apply. Blocking for edges shall be 2x4 flat, minimum, unless a greater size is required to avoid splitting. See plans for zones of special nailing requirements.

-- WOOD SHEATHING SCHEDULE --

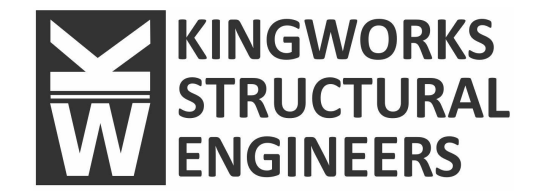
USE	TYPE	BLOCK EDGES	MIN EDGE NAILING	MIN FIELD NAILING
Shearwalls	15/32" PLY or OSB	Yes	Per SW Sched (EN)	10d @ 12"
Other Sheathed Walls	15/32" PLY or OSB	No	8d @ 6"	8d @ 12"
Floor	23/32" T&G PLY	Yes	10d @ 6" (BN)	10d @ 12"
Roof	15/32" PLY	Yes	8d @ 6" (BN)	8d @ 12"

-- METAL PLATE CONNECTED WOOD TRUSSES (MPCWT's) --

- REFERENCED STANDARDS: The design, manufacture, and quality assurance of MPCWT shall be in accordance with ANSI/TPI 1-14. In addition, all requirements of 2018 IBC Section 2303.4 shall be satisfied.
- SUBMITTAL PACKAGE: The truss submittal package provided by the manufacturer shall consist of individual truss design drawings (including cricet overframing), a truss placement diagram, truss member permanent bracing plan and details, any other structural details germane to the trusses, and sealed cover sheet/truss index sheet.
- DESIGN / PLACEMENT DRAWINGS: The truss design drawings for each individual truss shall include all information required by IBC Section 2303.4.1.1. The truss placement diagram shall be in accordance with IBC Section 2303.4.2.
- LOADS: Trusses shall be designed by the manufacturer for the following minimum non-superimposed loads, in addition to roof live, snow, seismic and/or wind loads indicated elsewhere in these drawings or notes: Top Chord Dead Load = 15 psf. Bottom Chord Dead Load = 15 psf. Bottom Chord Live Load = 10 psf. See plan and details for additional special loads. Contractor shall coordinate locations and amplitudes of special loads prior to shop drawing submittal.
- COMPONENT / CONNECTION DESIGN: The Specialty Component Engineer (SCE) is responsible for all the design of all truss components and connections as required to form a fully functional roof system, except where specifically detailed in these drawings.
- TOP CHORD: Top chord depth shall be no less than indicated in the architectural or structural drawings.
- DEFLECTION: Deflection of roof trusses shall not exceed L/360 or 1 inch for live or snow load, nor L/240 for total load.
- PERMANENT BRACING: Truss manufacturer shall design and provide all components required for permanent bracing of the truss system. Permanent bracing shall conform to IBC Section 2303.4.1.2 and the WTCAT/PI "Building Component Safety Information" (BCSI) guide, current edition. The bracing design shall include, but not be limited to: plan layout, bracing sizes, "scabs" or other reinforcement, connections of braces to chords, web members, and supporting structure. The bracing design shall be clearly indicated in the truss submittal package.
- SPACING: MPCWT spacing indicated on plans shall be considered to be a maximum allowable and shall be decreased as required to meet zones of high loading (including but not limited to snow drift or mechanical unit loads).
- MULTI-PLY TRUSSES: Multiple ply (girder) trusses, where required by plan and/or by the manufacturer's engineer, shall be sistered per the manufacturer to ensure equal load distribution between members.
- MEP COORDINATION: See Specifications and Mechanical Drawings for critical duct locations/sizes that may affect truss profiles and design parameters. General Contractor shall coordinate all such requirements and all special circumstances shall be clearly indicated in the truss submittal package. See General Notes for additional coordination responsibilities.



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DRAWN BY:	GK
CHECKED BY:	DL
DATE ISSUED:	1/26/24

S0.02

## CHAPTER J QUALITY CONTROL AND QUALITY ASSURANCE

This chapter addresses requirements for quality control and quality assurance.

**User Note:** All requirements of *Specification* Chapter N also apply, unless specifically modified by these Provisions.

The chapter is organized as follows:

- J1. Scope
- J2. Fabricator and Erector Documents
- J3. Quality Assurance Agency Documents
- J4. Inspection and Nondestructive Testing Personnel
- J5. Inspection Tasks
- J6. Welding Inspection and Nondestructive Testing
- J7. Inspection of High-Strength Bolting
- J8. Other Steel Structure Inspections
- J9. Inspection of Composite Structures
- J10. Inspection of Piling

### J1. SCOPE

Quality Control (QC) as specified in this chapter shall be provided by the fabricator, erector or other responsible contractor as applicable. Quality Assurance (QA) as specified in this chapter shall be provided by others when required by the authority having jurisdiction (AHJ), applicable building code (ABC), purchaser, owner or engineer of record (EOR). Nondestructive testing (NDT) shall be performed by the agency or firm responsible for Quality Assurance, except as permitted in accordance with *Specification* Section N6.

**User Note:** The quality assurance plan of this section is considered adequate and effective for most seismic force-resisting systems and should be used without modification. The quality assurance plan is intended to ensure that the seismic force resisting system is significantly free of defects that would greatly reduce the ductility of the system. There may be cases (for example, nonredundant major transfer members, or where work is performed in a location that is difficult to access) where supplemental testing might be advisable. Additionally, where the fabricator's or erector's quality control program has demonstrated the capability to perform some tasks this plan has assigned to quality assurance, modification of the plan could be considered.

*Seismic Provisions for Structural Steel Buildings*, July 12, 2016  
American Institute of Steel Construction

9.1-128 FABRICATOR AND ERECTOR DOCUMENTS [Sect. J2.]

### J2. FABRICATOR AND ERECTOR DOCUMENTS

#### 1. Documents to be Submitted for Steel Construction

In addition to the requirements of *Specification* Section N3.1, the following documents shall be submitted for review by the EOR or the EOR's designee, prior to fabrication or erection of the affected work, as applicable:

- (a) Welding procedure specifications (WPS)
- (b) Copies of the manufacturer's typical certificate of conformance for all electrodes, fluxes and shielding gasses to be used
- (c) For demand critical welds, applicable manufacturer's certifications that the filler metal meets the supplemental notch toughness requirements, as applicable. When the filler metal manufacturer does not supply such supplemental certifications, the fabricator or erector, as applicable, shall have the necessary testing performed and provide the applicable test reports
- (d) Manufacturer's product data sheets or catalog data for shielded metal arc welding (SMAW), flux cored arc welding (FCAW), and gas metal arc welding (GMAW) composite (cored) filler metals to be used
- (e) Bolt installation procedures
- (f) Specific assembly order, welding sequence, welding technique, or other special precautions for joints or groups of joints where such items are designated to be submitted to the engineer of record

#### 2. Documents to be Available for Review for Steel Construction

Additional documents as required by the EOR in the contract documents shall be available by the fabricator and erector for review by the EOR or the EOR's designee prior to fabrication or erection, as applicable.

The fabricator and erector shall retain their document(s) for at least one year after substantial completion of construction.

#### 3. Documents to be Submitted for Composite Construction

The following documents shall be submitted by the responsible contractor for review by the EOR or the EOR's designee, prior to concrete production or placement, as applicable:

- (a) Concrete mix design and test reports for the mix design
- (b) Reinforcing steel shop drawings
- (c) Concrete placement sequences, techniques and restriction

#### 4. Documents to be Available for Review for Composite Construction

The following documents shall be available from the responsible contractor for review by the EOR or the EOR's designee prior to fabrication or erection, as applicable, unless specified to be submitted:

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Sect. J4.] INSPECTION AND NONDESTRUCTIVE TESTING PERSONNEL 9.1-129

- (a) Material test reports for reinforcing steel
- (b) Inspection procedures
- (c) Nonconformance procedure
- (d) Material control procedure
- (e) Welder performance qualification records (WPQR) as required by *Structural Welding Code—Reinforcing Steel* (AWS D1.4/D1.4M)
- (f) QC Inspector qualifications

The responsible contractor shall retain their document(s) for at least one year after substantial completion of construction.

### J3. QUALITY ASSURANCE AGENCY DOCUMENTS

The agency responsible for quality assurance shall submit the following documents to the authority having jurisdiction, the EOR, and the owner or owner's designee:

- (a) QA agency's written practices for the monitoring and control of the agency's operations. The written practice shall include:
  - (1) The agency's procedures for the selection and administration of inspection personnel, describing the training, experience and examination requirements for qualification and certification of inspection personnel; and
  - (2) The agency's inspection procedures, including general inspection, material controls, and visual welding inspection
- (b) Qualifications of management and QA personnel designated for the project
- (c) Qualification records for inspectors and NDT technicians designated for the project
- (d) NDT procedures and equipment calibration records for NDT to be performed and equipment to be used for the project
- (e) For composite construction, concrete testing procedures and equipment

### J4. INSPECTION AND NONDESTRUCTIVE TESTING PERSONNEL

In addition to the requirements of *Specification* Sections N4.1 and N4.2, visual welding inspection and NDT shall be conducted by personnel qualified in accordance with AWS D1.8/D1.8M clause 7.2. In addition to the requirements of *Specification* Section N4.3, ultrasonic testing technicians shall be qualified in accordance with AWS D1.8/D1.8M clause 7.2.4.

**User Note:** The recommendations of the International Code Council *Model Program for Special Inspection* should be considered a minimum requirement to establish the qualifications of a bolting inspector.

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9.1-130 INSPECTION TASKS [Sect. J5.]

### J5. INSPECTION TASKS

Inspection tasks and documentation for QC and QA for the seismic force-resisting system (SFRS) shall be as provided in the tables in Sections J6, J7, J8, J9 and J10. The following entries are used in the tables:

- 1. **Observe (O)**  
The inspector shall observe these functions on a random, daily basis. Operations need not be delayed pending observations.
- 2. **Perform (P)**  
These inspections shall be performed prior to the final acceptance of the item.
- 3. **Document (D)**  
The inspector shall prepare reports indicating that the work has been performed in accordance with the contract documents. The report need not provide detailed measurements for joint fit-up, WPS settings, completed welds, or other individual items listed in the tables. For shop fabrication, the report shall indicate the piece mark of the piece inspected. For field work, the report shall indicate the reference grid lines and floor or elevation inspected. Work not in compliance with the contract documents and which the noncompliance has not been satisfactorily repaired shall be noted in the inspection report.

#### 4. Coordinated Inspection

Where a task is stipulated to be performed by both QC and QA, coordination of the inspection function between QC and QA is permitted in accordance with *Specification* Section N5.3.

### J6. WELDING INSPECTION AND NONDESTRUCTIVE TESTING

Welding inspection and nondestructive testing shall satisfy the requirements of the *Specification*, this section and AWS D1.8/D1.8M.

**User Note:** AWS D1.8/D1.8M was specifically written to provide additional requirements for the welding of seismic force resisting systems, and has been coordinated when possible with these Provisions. AWS D1.8/D1.8M requirements related to inspection and nondestructive testing are organized as follows, including normative (mandatory) annexes:

- 1. General Requirements
- 7. Inspection
- Annex F. Supplemental Ultrasonic Technician Testing
- Annex G. Supplemental Magnetic Particle Testing Procedures
- Annex H. Flaw Sizing by Ultrasonic Testing

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Sect. J6.] WELDING INSPECTION AND NONDESTRUCTIVE TESTING 9.1-131

### 1. Visual Welding Inspection

All requirements of the *Specification* shall apply, except as specifically modified by AWS D1.8/D1.8M.

Visual welding inspection shall be performed by both quality control and quality assurance personnel. As a minimum, tasks shall be as listed in Tables J6.1, J6.2 and J6.3.

### 2. NDT of Welded Joints

In addition to the requirements of *Specification* Section N5.5, nondestructive testing of welded joints shall be as required in this section.

#### 2a. CJP Groove Weld NDT

Ultrasonic testing (UT) shall be performed on 100% of complete-joint-penetration (CJP) groove welds in materials  $\frac{3}{8}$  in. (8 mm) thick or greater. UT in materials less than  $\frac{3}{8}$  in. (8 mm) thick is not required. Weld discontinuities shall be accepted or rejected on the basis of AWS D1.1/D1.1M Table 6.2. Magnetic particle testing (MT) shall be performed on 25% of all beam-to-column CJP groove welds. The rate of UT and MT is permitted to be reduced in accordance with Sections J6.2g and J6.2h, respectively.

Exception: For ordinary moment frames in structures in risk categories I or II, UT and MT of CJP groove welds are required only for demand critical welds.

**User Note:** For structures in risk category III or IV, *Specification* Section N5.5b requires that the UT be performed by QA on all CJP groove welds subject to transversely applied tension loading in butt, T- and corner joints, in material  $\frac{3}{8}$  in. (8 mm) thick or greater.

#### 2b. Column Splice and Column to Base Plate PJP Groove Weld NDT

UT shall be performed by QA on 100% of partial-joint-penetration (PJP) groove welds in column splices and column to base plate welds. The rate of UT is permitted to be reduced in accordance with Section J6.2g.

UT shall be performed using written procedures and UT technicians qualified in accordance with AWS D1.8/D1.8M. The weld joint mock-ups used to qualify procedures and technicians shall include at least one single-bevel PJP groove welded joint and one double-bevel PJP groove welded joint, detailed to provide transducer access limitations similar to those to be encountered at the weld faces and by the column web. Rejection of discontinuities outside the groove weld throat shall be considered false indications in procedure and personnel qualification. Procedures qualified using mock-ups with artificial flaws  $\frac{1}{16}$  in. (1.5 mm) in their smallest dimension are permitted.

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9.1-132 WELDING INSPECTION AND NONDESTRUCTIVE TESTING [Sect. J6.]

TABLE J6.1 Visual Inspection Tasks Prior to Welding				
Visual Inspection Tasks Prior to Welding	QC		QA	
	Task	Doc.	Task	Doc.
Material identification (Type/Grade)	O	—	O	—
Welder identification system	O	—	O	—
Fit-up of Groove Welds (including joint geometry)				
—Joint preparation				
—Dimensions (alignment, root opening, root face, bevel)	P/O**	—	O	—
—Cleanliness (condition of steel surfaces)				
—Tacking (tack weld quality and location)				
—Backing type and fit (if applicable)				
Configuration and finish of access holes	O	—	O	—
Fit-up of Fillet Welds				
—Dimensions (alignment, gaps at root)	P/O**	—	O	—
—Cleanliness (condition of steel surfaces)				
—Tacking (tack weld quality and location)				
** Following performance of this inspection task for ten welds to be made by a given welder, with the welder demonstrating understanding of requirements and possession of skills and tools to verify these items, the Perform designation of this task shall be reduced to Observe, and the welder shall perform this task. Should the inspector determine that the welder has discontinued performance of this task, the task shall be returned to Perform until such time as the Inspector has re-established adequate assurance that the welder will perform the inspection tasks listed.				

TABLE J6.2 Visual Inspection Tasks During Welding				
Visual Inspection Tasks During Welding	QC		QA	
	Task	Doc.	Task	Doc.
WPS followed				
—Settings on welding equipment				
—Travel speed				
—Selected welding materials				
—Shielding gas type/flow rate	O	—	O	—
—Preheat applied				
—Interpass temperature maintained (min/max.)				
—Proper position (F, V, H, OH)				
—Intermix of filler metals avoided unless approved				
Use of qualified welders	O	—	O	—
Control and handling of welding consumables				
—Packaging	O	—	O	—
—Exposure control				
Environmental conditions				
—Wind speed within limits	O	—	O	—
—Precipitation and temperature				
Welding techniques				
—Interpass and final cleaning	O	—	O	—
—Each pass within profile limitations				
—Each pass meets quality requirements				
No welding over cracked tanks	O	—	O	—

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Sect. J6.] WELDING INSPECTION AND NONDESTRUCTIVE TESTING 9.1-133

TABLE J6.3 Visual Inspection Tasks After Welding				
Visual Inspection Tasks After Welding	QC		QA	
	Task	Doc.	Task	Doc.
Welds cleaned	O	—	O	—
Size, length, and location of welds	P	—	P	—
Welds meet visual acceptance criteria				
—Crack prohibition	P	D	P	D
—Weld/base-metal fusion				
—Crater cross section				
—Weld profiles and size				
—Undercut				
—Porosity				
k-area <sup>1</sup>	P	D	P	D
Placement of reinforcing or contouring fillet welds (if required)	P	D	P	D
Backing removed, weld tabs removed and finished, and fillet welds added (if required)	P	D	P	D
Repair activities	P	—	P	D

<sup>1</sup> When welding of doubler plates, continuity plates or stiffeners has been performed in the k-area, visually inspect the web k-area for cracks within 3 in. (75 mm) of the weld. The visual inspection shall be performed no sooner than 48 hours following completion of the welding.

UT examination of welds using alternative techniques in compliance with AWS D1.1/D1.1M Annex Q is permitted.

Weld discontinuities located within the groove weld throat shall be accepted or rejected on the basis of criteria of AWS D1.1/D1.1M Table 6.2, except when alternative techniques are used, the criteria shall be as provided in AWS D1.1/D1.1M Annex Q.

#### 2c. Base Metal NDT for Lamellar Tearing and Laminations

After joint completion, base metal thicker than  $\frac{1}{2}$  in. (38 mm) loaded in tension in the through-thickness direction in T- and corner-joints, where the connected material is greater than  $\frac{3}{4}$  in. (19 mm) and contains CJP groove welds, shall be ultrasonically tested for discontinuities behind and adjacent to the fusion line of such welds. Any base metal discontinuities found within  $\frac{1}{4}$  of the steel surface shall be accepted or rejected on the basis of criteria of AWS D1.1/D1.1M Table 6.2, where  $t$  is the thickness of the part subjected to the through-thickness strain.

#### 2d. Beam Cope and Access Hole NDT

At welded splices and connections, thermally cut surfaces of beam copes and access holes shall be tested using magnetic particle testing or penetrant testing, when the flange thickness exceeds  $1\frac{1}{2}$  in. (38 mm) for rolled shapes, or when the web thickness exceeds  $1\frac{1}{2}$  in. (38 mm) for built-up shapes.

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9.1-134 WELDING INSPECTION AND NONDESTRUCTIVE TESTING [Sect. J6.]

### 2e. Reduced Beam Section Repair NDT

MT shall be performed on any weld and adjacent area of the reduced beam section (RBS) cut surface that has been repaired by welding, or on the base metal of the RBS cut surface if a sharp notch has been removed by grinding.

#### 2f. Weld Tab Removal Sites

At the end of welds where weld tabs have been removed, MT shall be performed on the same beam-to-column joints receiving UT as required under Section J6.2a. The rate of MT is permitted to be reduced in accordance with Section J6.2h. MT of continuity plate weld tab removal sites is not required.

#### 2g. Reduction of Percentage of Ultrasonic Testing

The reduction of percentage of UT is permitted to be reduced in accordance with *Specification* Section N5.5e, except no reduction is permitted for demand critical welds.

#### 2h. Reduction of Percentage of Magnetic Particle Testing

The amount of MT on CJP groove welds is permitted to be reduced if approved by the engineer of record and the authority having jurisdiction. The MT rate for an individual welder or welding operator is permitted to be reduced to 10%, provided the reject rate is demonstrated to be 5% or less of the welds tested for the welder or welding operator. A sampling of at least 20 completed welds for a job shall be made for such reduction evaluation. Reject rate is the number of welds containing rejectable defects divided by the number of welds completed. This reduction is prohibited on welds in the k-area, at repair sites, backing removal sites, and access holes.

### J7. INSPECTION OF HIGH-STRENGTH BOLTING

Bolting inspection shall satisfy the requirements of *Specification* Section N5.6 and this section. Bolting inspection shall be performed by both quality control and quality assurance personnel. As a minimum, the tasks shall be as listed in Tables J7.1, J7.2 and J7.3.

### J8. OTHER STEEL STRUCTURE INSPECTIONS

Other inspections of the steel structure shall satisfy the requirements of *Specification* Section N5.8 and this section. Such inspections shall be performed by both quality control and quality assurance personnel. Where applicable, the inspection tasks listed in Table J8.1 shall be performed.

**User Note:** The protected zone should be inspected by others following completion of the work of other trades, including those involving curtainwall, mechanical, electrical, plumbing and interior partitions. See Section A4.1.

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Sect. J8.] OTHER STEEL STRUCTURE INSPECTIONS 9.1-135

TABLE J7.1 Inspection Tasks Prior To Bolting				
Inspection Tasks Prior To Bolting	QC		QA	
	Task	Doc.	Task	Doc.
Proper fasteners selected for the joint detail	O	—	O	—
Proper bolting procedure selected for joint detail	O	—	O	—
Connecting elements, including the faying surface condition and hole preparation, if specified, meet applicable requirements	O	—	O	—
Pre-installation verification testing by installation personnel observed for fastener assemblies and methods used	P	D	O	D
Proper storage provided for bolts, nuts, washers and other fastener components	O	—	O	—

TABLE J7.2 Inspection Tasks During Bolting				
Inspection Tasks During Bolting	QC		QA	
	Task	Doc.	Task	Doc.
Fastener assemblies placed in all holes and washers (if required) are positioned as required	O	—	O	—
Joint brought to the snug tight condition prior to the pretensioning operation	O	—	O	—
Fastener component not turned by the wrench prevented from rotating	O	—	O	—
Bolts are pretensioned progressing systematically from the most rigid point toward the free edges	O	—	O	—

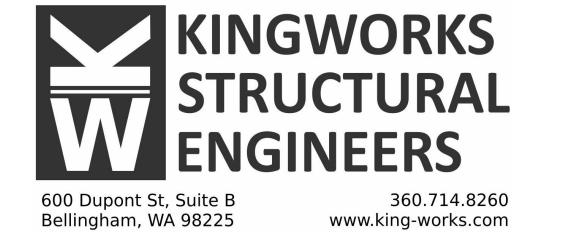
TABLE J7.3 Inspection Tasks After Bolting				
Inspection Tasks After Bolting	QC		QA	
	Task	Doc.	Task	Doc.
Document accepted and rejected connections	P	D	P	D

TABLE J8.1 Other Inspection Tasks				
Other Inspection Tasks	QC		QA	
	Task	Doc	Task	Doc.
RBS requirements, if applicable				
—Contour and finish	P	D	P	D
—Dimensional tolerances				
Protected zone—no holes and unapproved attachments made by fabricator or erector, as applicable	P	D	P	D

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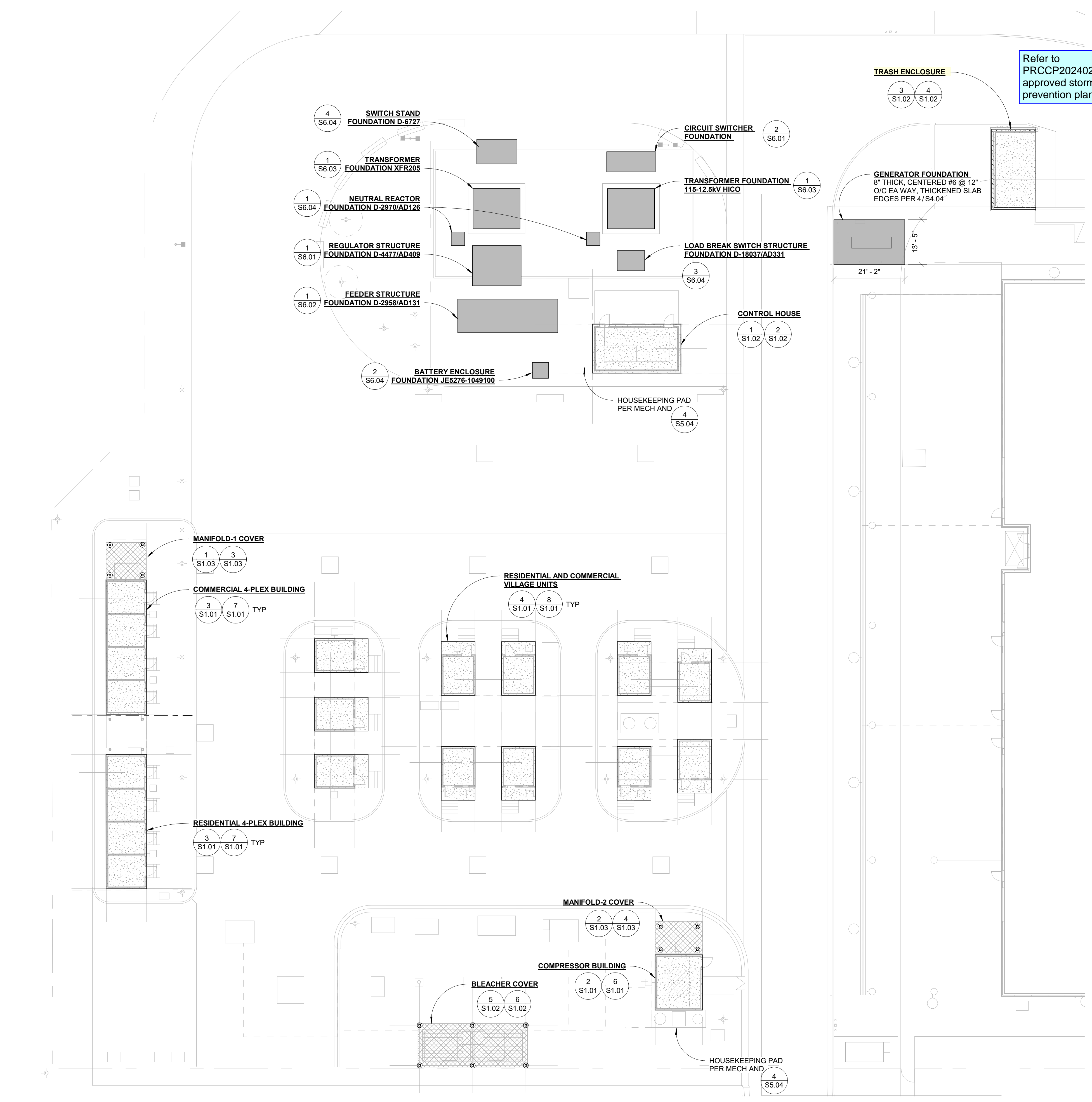
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REV	ISSUED FOR	Date

PLAN NORTH
SCALE:
6" = 1'-0"

PSE - OPERATIONAL TRAINING CENTER	
SEISMIC QC/QA REQMTS	
PROJECT#:	21239
DRAWN BY:	GK
CHECKED BY:	DL
DATE ISSUED:	1/26/24

<b>S0.04</b>	
PRINT: 1/22/2024 9:51:56 AM	© 2024



Refer to PRCCP20240215 for approved stormwater prevention plan.

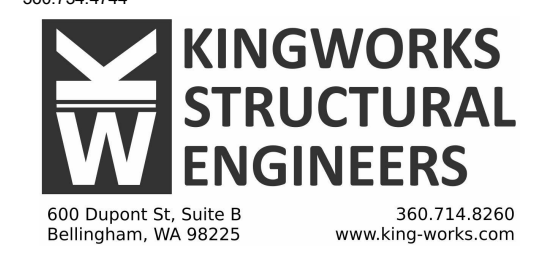
Roof downspout control is required. Steps shall be taken to prevent drainage onto adjacent lots. Refer to City standard details 02.05.01 & 02.05.03 for typical control methods. Stormwater runoff shall not concentrate to neighbors.

No proposed footings, posts, or supports shall be constructed on or above any existing public utility connections without first relocating the utility services or protecting it in place.



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PLAN NORTH  
SCALE:  
1/16" = 1'-0"

PSE - OPERATIONAL TRAINING CENTER  
OUTDOOR TRAINING SITE STRUCTURES - OVERVIEW PLAN

PROJECT#: 21239  
DRAWN BY: GK  
CHECKED BY: DL  
DATE ISSUED: 1/29/24

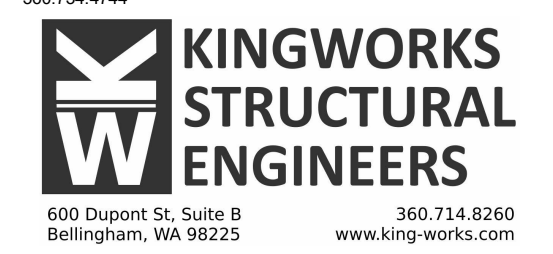
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1 OUTDOOR TRAINING SITE STRUCTURES - FOUNDATION PLAN  
1/16" = 1'-0"

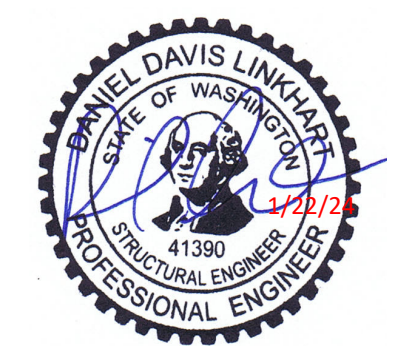


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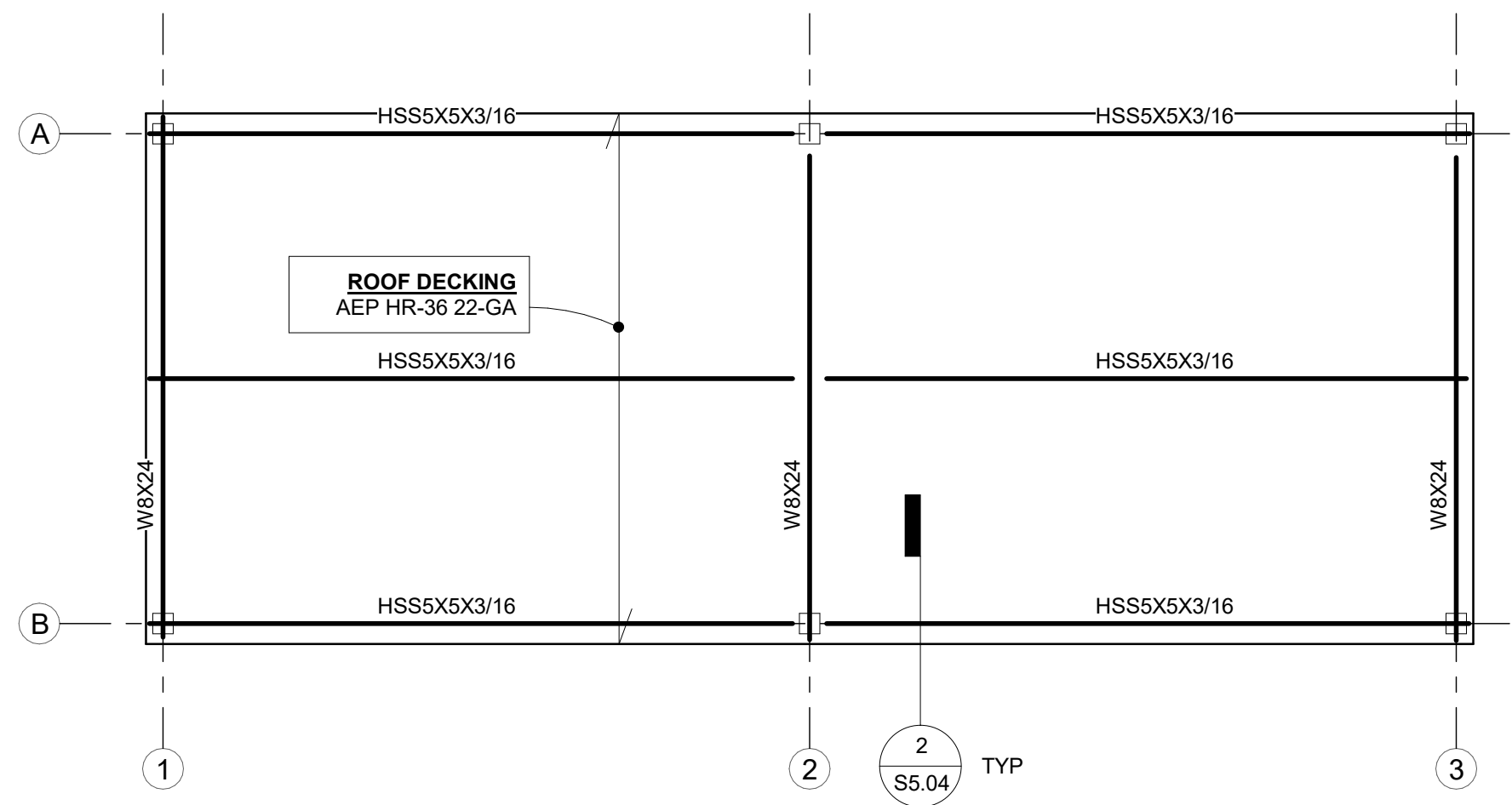
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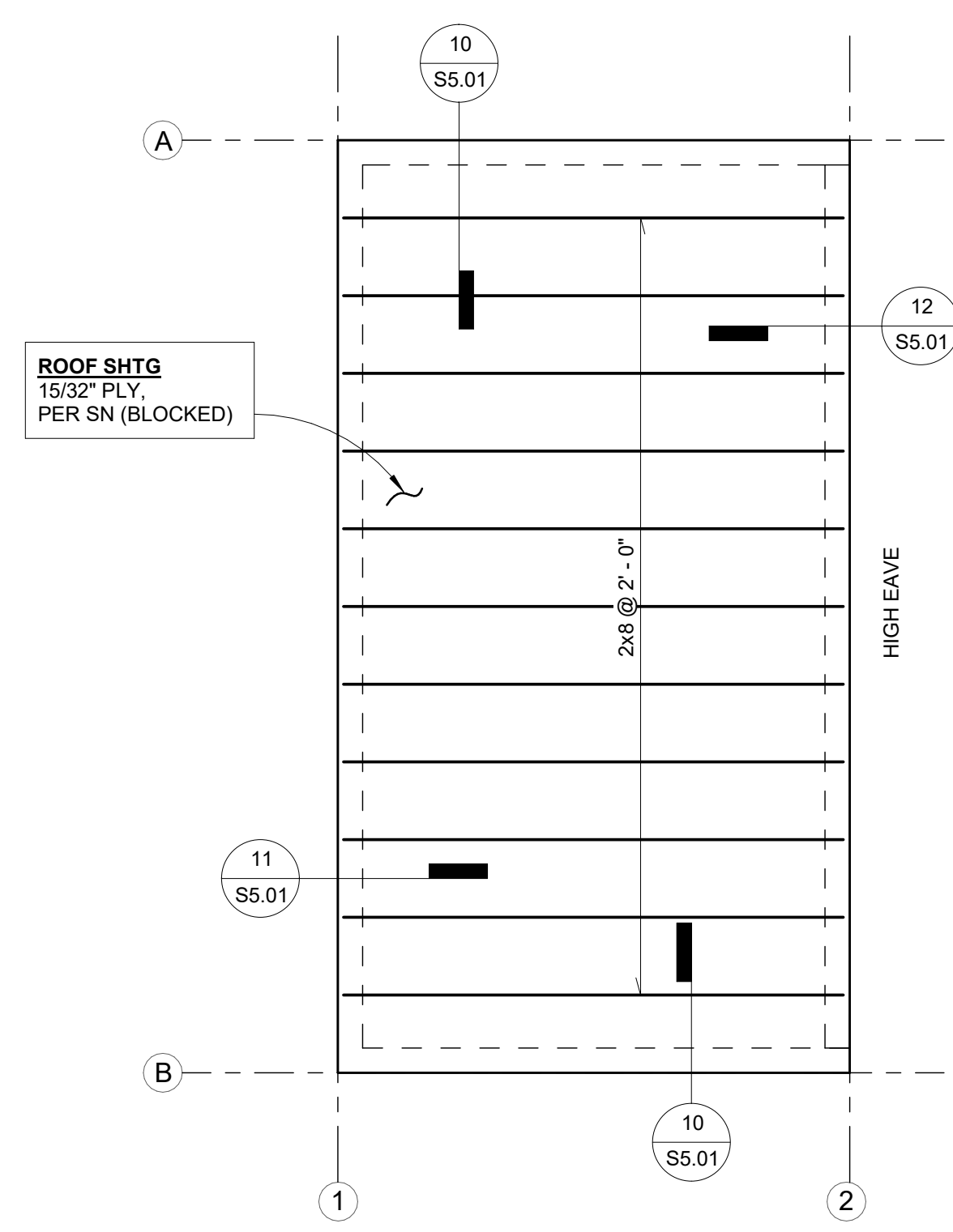
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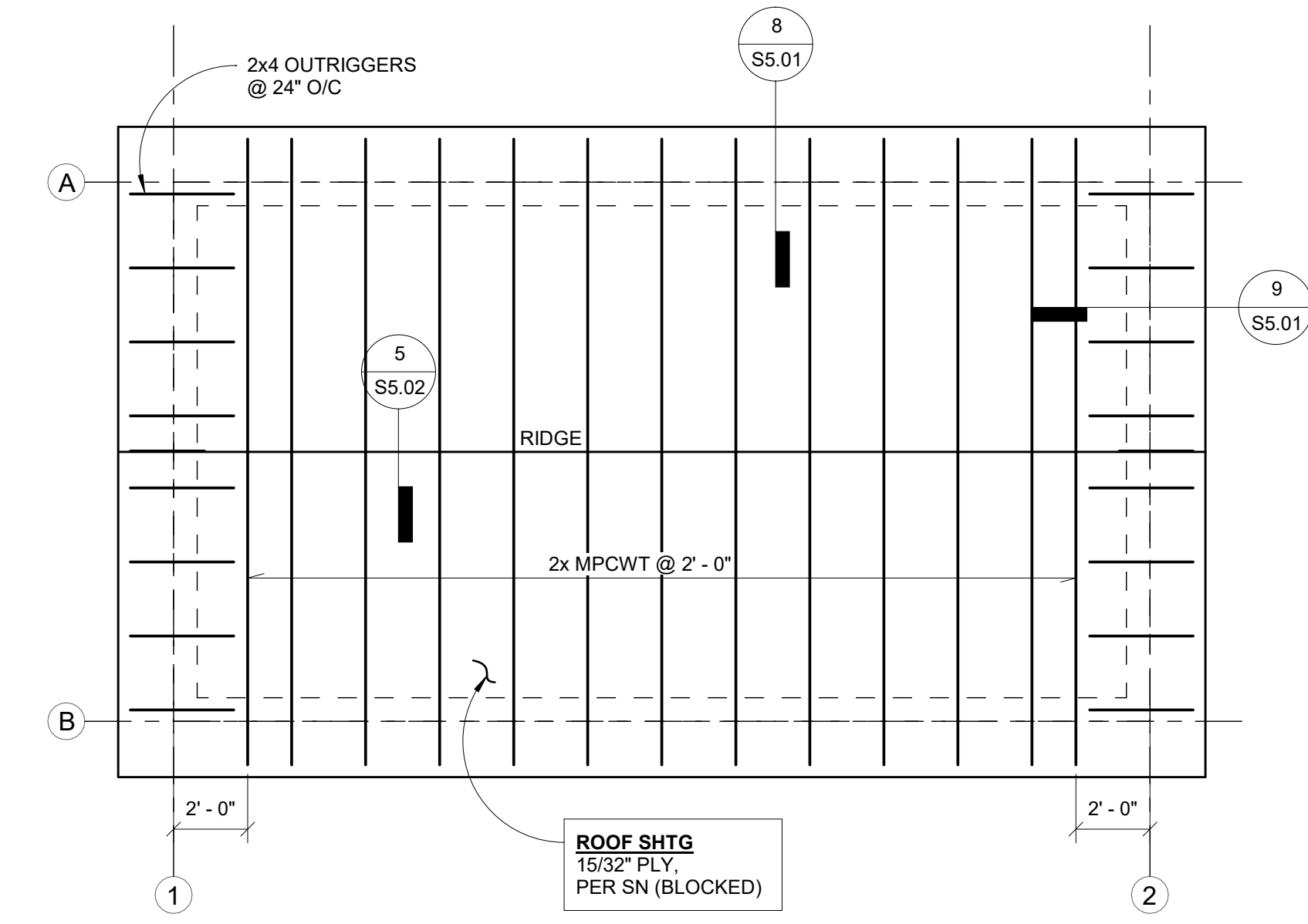
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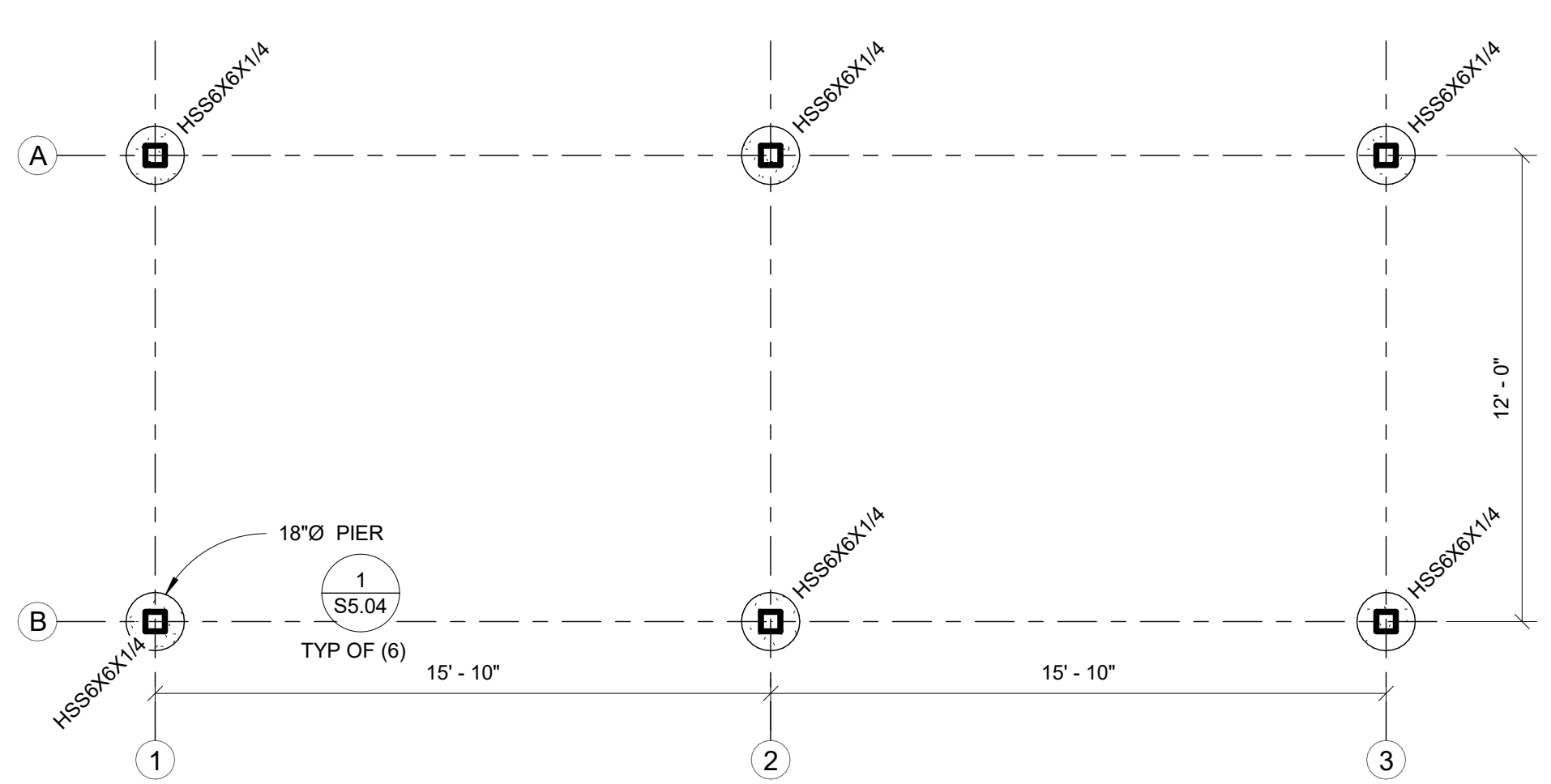
6 BLEACHER COVER - ROOF FRAMING PLAN  
1/4" = 1'-0"



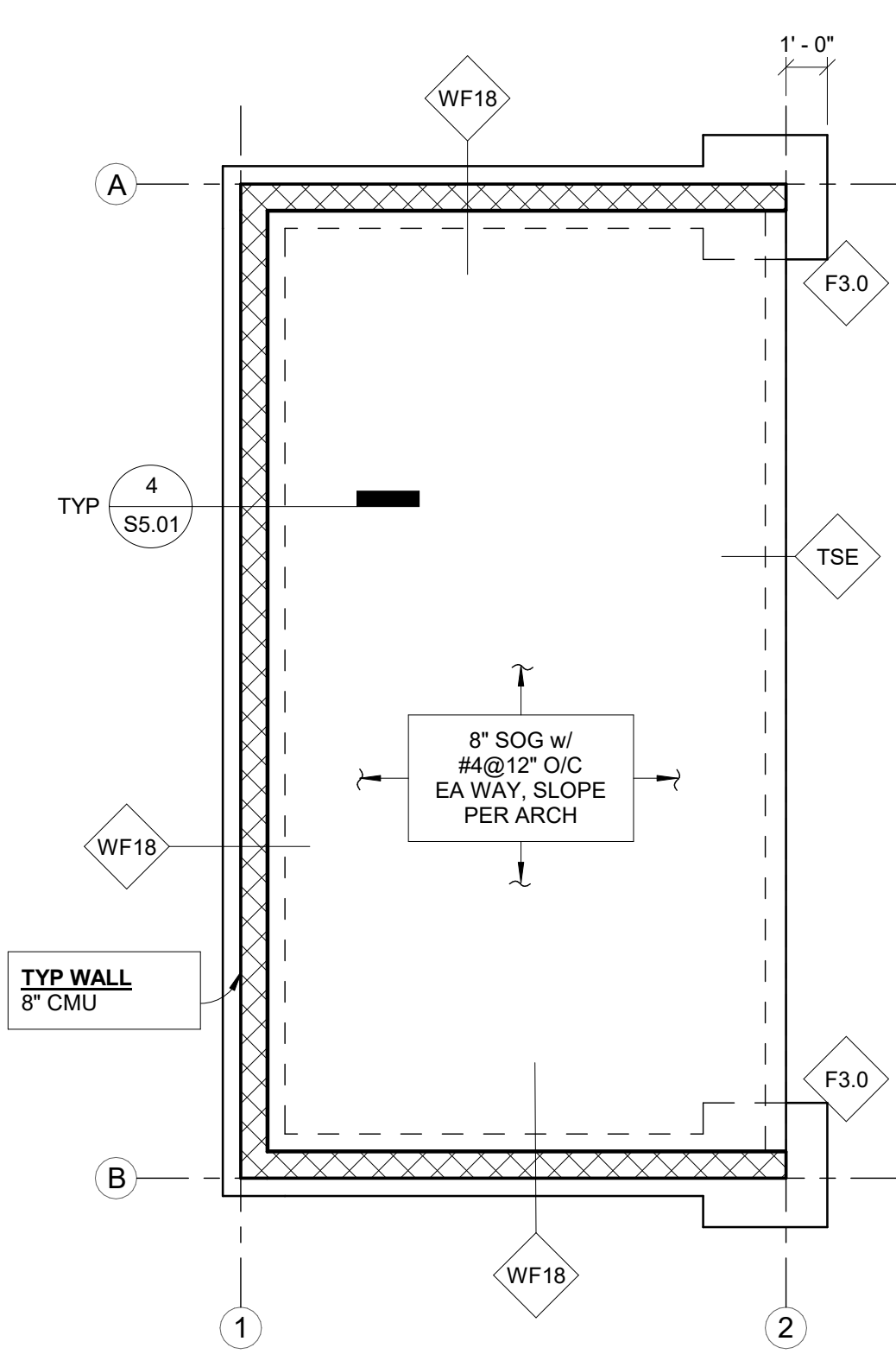
4 TRASH ENCLOSURE - ROOF FRAMING PLAN  
1/4" = 1'-0"



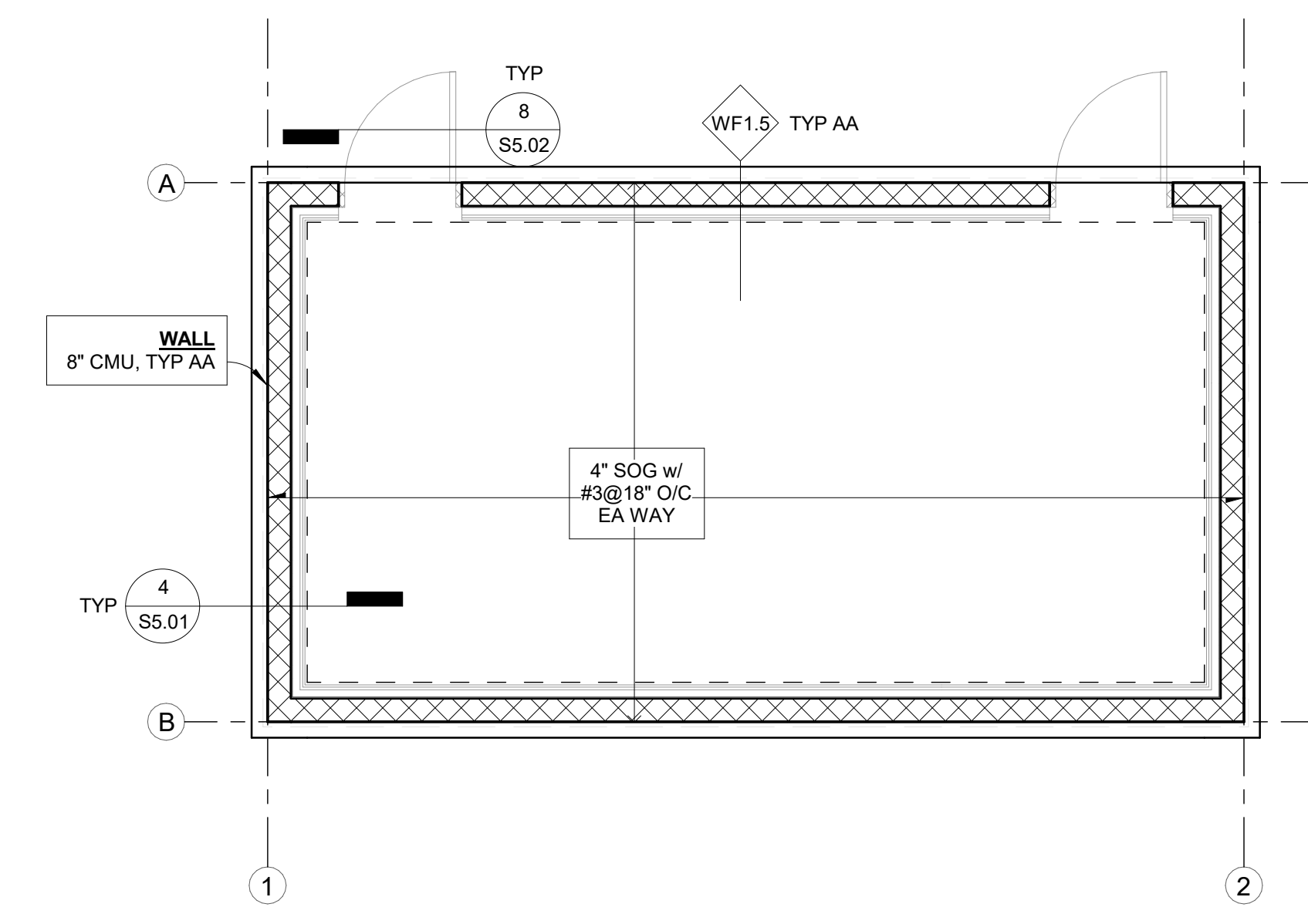
2 CONTROL HOUSE - ROOF FRAMING PLAN  
1/4" = 1'-0"



5 BLEACHER COVER - FOUNDATION PLAN  
1/4" = 1'-0"



3 TRASH ENCLOSURE - FOUNDATION PLAN  
1/4" = 1'-0"



1 CONTROL HOUSE - FOUNDATION PLAN  
1/4" = 1'-0"

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REV	ISSUED FOR	Date

PLAN NORTH  
SCALE:  
1/4" = 1'-0"

PSE -  
OPERATIONAL  
TRAINING CENTER

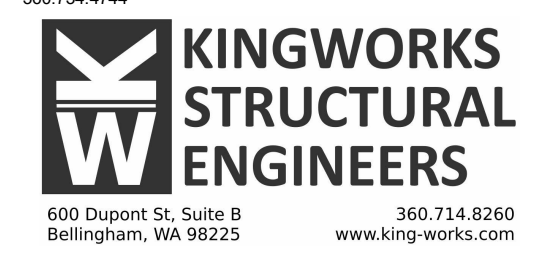
SITE STRUCTURES

PROJECT#: 21239  
DRAWN BY: GK  
CHECKED BY: DL  
DATE ISSUED: 1/29/24

**S1.02**



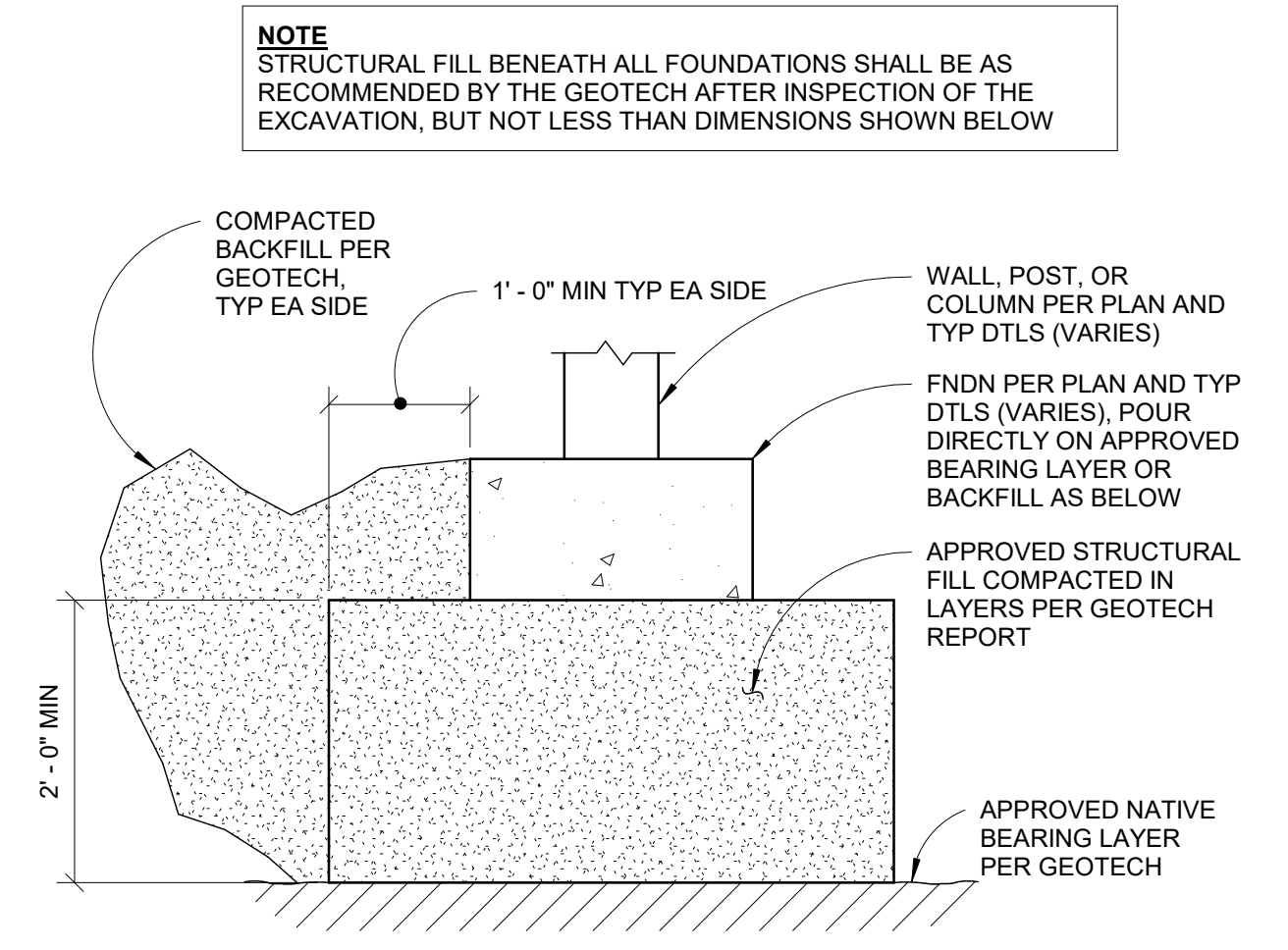
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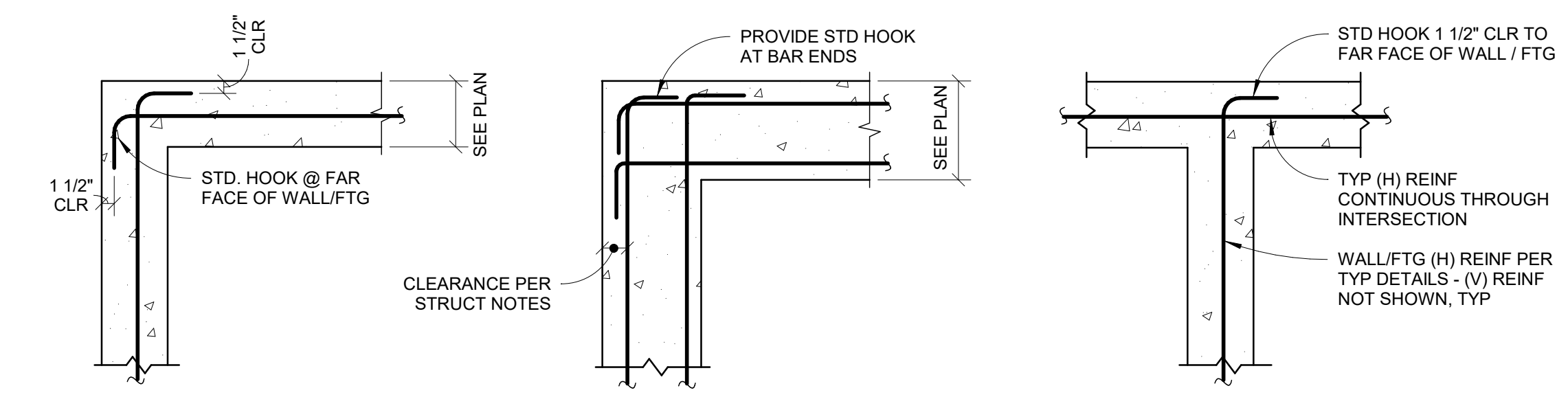
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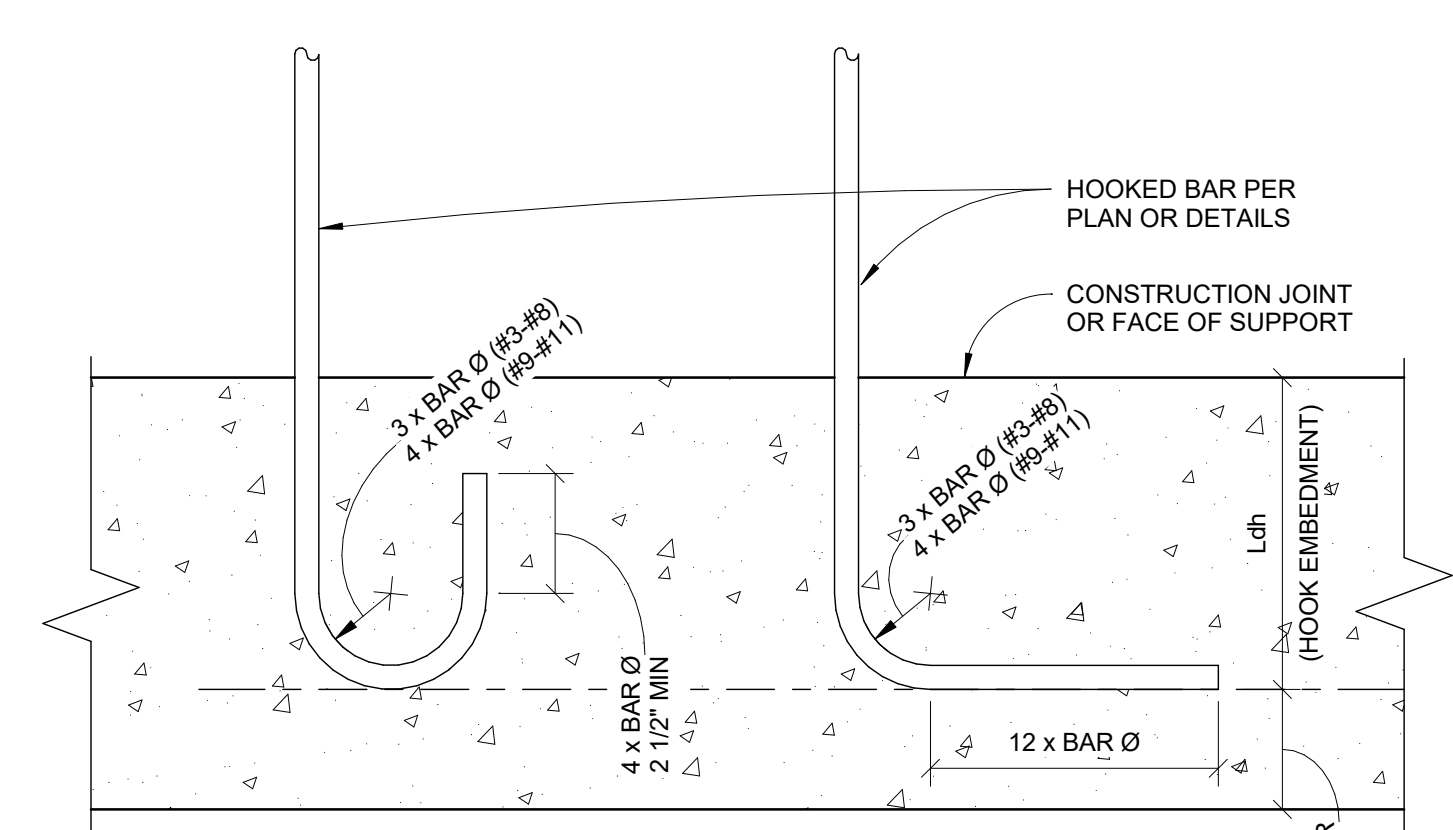
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7 TYP STRUCTURAL FILL BELOW FTGS  
3/4" = 1'-0"



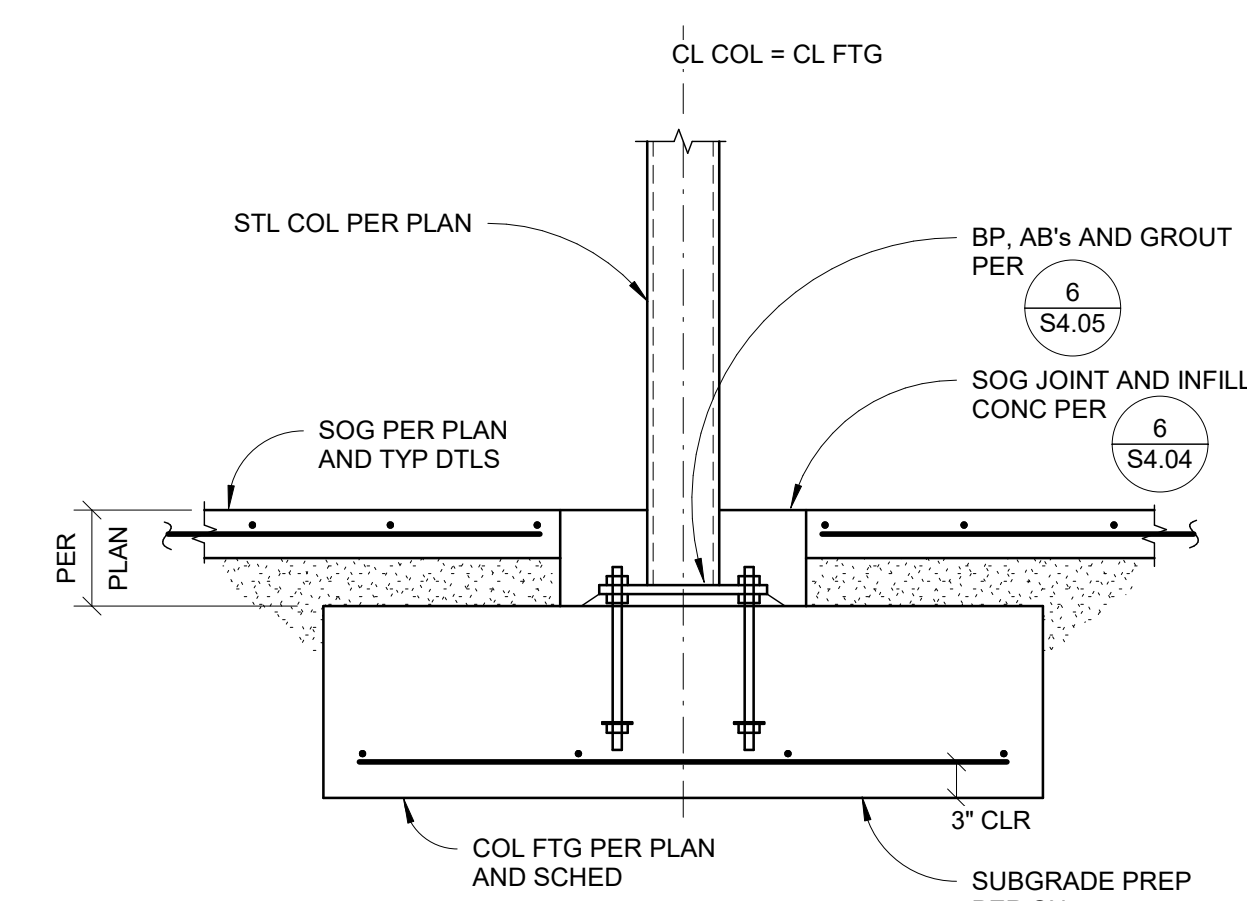
6 TYP CONC REINF AT CORNERS/TEES  
3/4" = 1'-0"



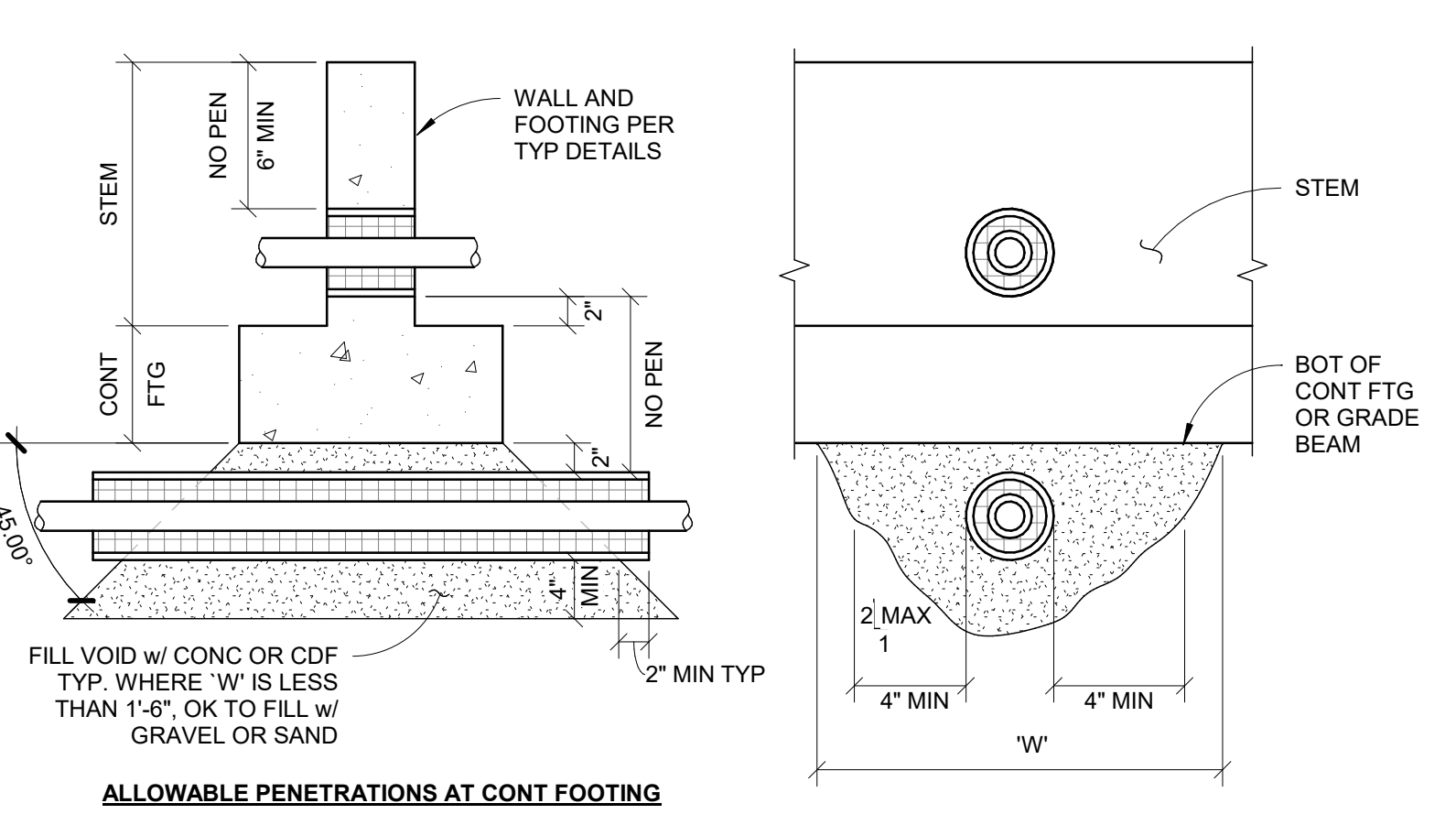
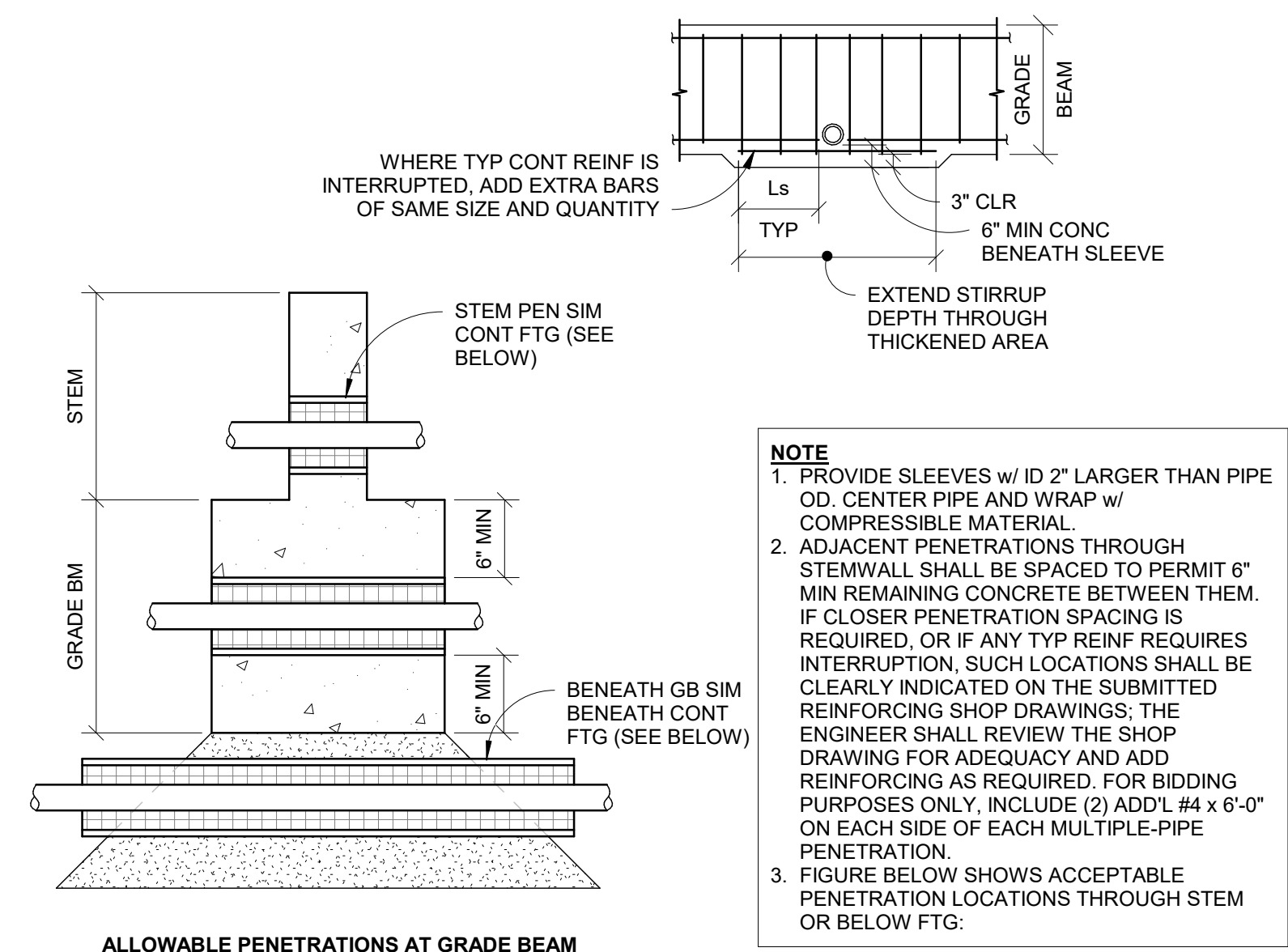
4 TYP REINFORCING - STANDARD HOOKS  
3" = 1'-0"

BAR SIZE	CONC DESIGN STRENGTH (f <sub>c</sub> )			
	3,000 PSI	4,000 PSI	5,000 PSI	6,000 PSI
#3	6"	6"	6"	6"
#4	8"	7"	6"	6"
#5	10"	9"	8"	7"
#6	12"	10"	9"	9"
#7	14"	12"	11"	10"
#8	16"	14"	12"	11"
#9	18"	15"	14"	13"
#10	20"	17"	16"	14"
#11	22"	19"	17"	16"

NOTES  
1. FOR CONC STRENGTHS NOT INDICATED, USE NEXT LOWEST TABULATED f<sub>c</sub> VALUE.  
2. PROVIDE 2 1/2" SIDE COVER AND 2" END COVER FOR HOOKS.  
3. TABULATED VALUES ARE APPLICABLE FOR GRADE 60 UNCOATED REINF BARS.



3 TYP INT STL COLUMN FTG  
3/4" = 1'-0"



1 TYP PERIMETER FOUNDATION DRAINS  
1" = 1'-0"

PERIMETER FOUNDATION DRAIN NOTES  
1. DRAIN PIPES ABOVE MUST DISCHARGE BY GRAVITY OR MECHANICAL MEANS TO AN APPROVED DRAINAGE SYSTEM THAT COMPLIES WITH THE INTERNATIONAL PLUMBING CODE  
2. MINIMUM SLOPE FOR DRAIN PIPE RUNS IS 0.25%  
3. DO NOT CONNECT FOUNDATION DRAIN SYSTEMS TO RAIN LEADERS OR DOWN SPOUTS.  
4. PROVIDE APPROVED CLEANOUTS FOR ALL DRAIN PIPE AT ENDS, CORNERS, AND NO MORE THAN 120' ON CENTER.  
5. SEE CIVIL DRAWINGS FOR GRADES AND DISCHARGE POINTS. SEE GEOTECHNICAL REPORT FOR ADDITIONAL REQUIREMENTS.  
6. SUBMIT A FOUNDATION DRAINAGE PLAN TO THE ARCHITECT FOR REVIEW.  
7. DRAIN ROCK/BASE MATERIAL CONSISTS OF GRAVEL OR STONE WITH LESS THAN 10% OF MATERIAL PASSING THROUGH A NUMBER 4 SIEVE.

**f<sub>c</sub> ≤ 3,500 PSI CONCRETE**

BAR SIZE	DEVELOPMENT LENGTHS (L <sub>d</sub> )		LAP SPLICE LENGTHS (L <sub>s</sub> )	
	TOP	OTHER	TOP	OTHER
#3	16 in	12 in	18 in	16 in
#4	22 in	18 in	28 in	22 in
#5	32 in	24 in	42 in	32 in
#6	43 in	33 in	56 in	43 in
#7	69 in	53 in	90 in	69 in
#8	86 in	66 in	111 in	86 in
#9	103 in	80 in	135 in	103 in
#10	124 in	96 in	162 in	124 in
#11	146 in	112 in	190 in	146 in

**f<sub>c</sub> ≥ 4,000 PSI CONCRETE**

BAR SIZE	DEVELOPMENT LENGTHS (L <sub>d</sub> )		LAP SPLICE LENGTHS (L <sub>s</sub> )	
	TOP	OTHER	TOP	OTHER
#3	16 in	12 in	18 in	16 in
#4	20 in	15 in	24 in	20 in
#5	28 in	22 in	36 in	28 in
#6	38 in	30 in	50 in	38 in
#7	60 in	46 in	78 in	60 in
#8	74 in	57 in	96 in	74 in
#9	90 in	69 in	116 in	90 in
#10	108 in	83 in	140 in	108 in
#11	126 in	97 in	164 in	126 in

NOTES  
1. TABULATED VALUES ARE APPLICABLE FOR GRADE 60 UNCOATED REINF BARS.  
2. BAR C/C SPACING MUST BE GREATER THAN TWICE THE BAR DIAMETER AND COVER GREATER THAN ONE BAR DIAMETER.  
3. "TOP" BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF FRESH CONCRETE CAST BELOW THE BARS, INCLUDING WALL HORIZONTALS.  
4. AT LOCATIONS WHERE L<sub>d</sub> IS CALLED OUT BUT CANNOT BE ACHIEVED, EXTEND BAR AS FAR AS POSSIBLE AND PROVIDE STANDARD HOOK PER TYP DETAIL.

100% CD SET

REV	ISSUED FOR	Date

PLAN NORTH  
SCALE:  
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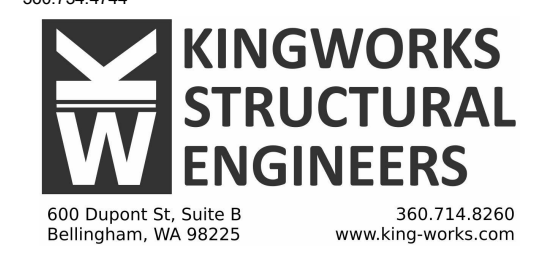
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PROJECT#: 21239  
DRAWN BY: GK  
CHECKED BY: DL  
DATE ISSUED: 1/26/24

S4.01



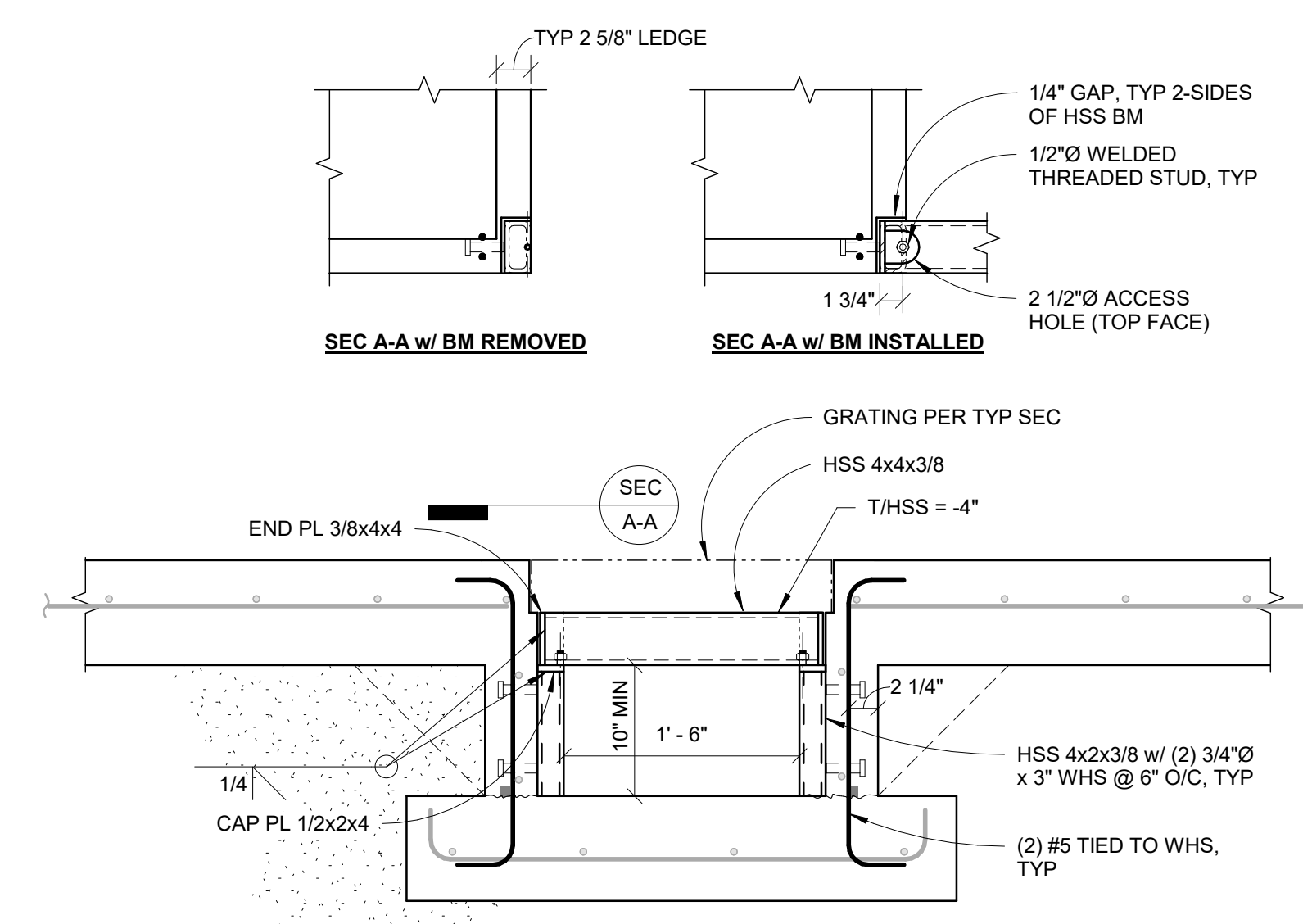
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Zervasgroup.com  
209 Prospect Street  
Bellingham, WA 98225  
360.734.4744



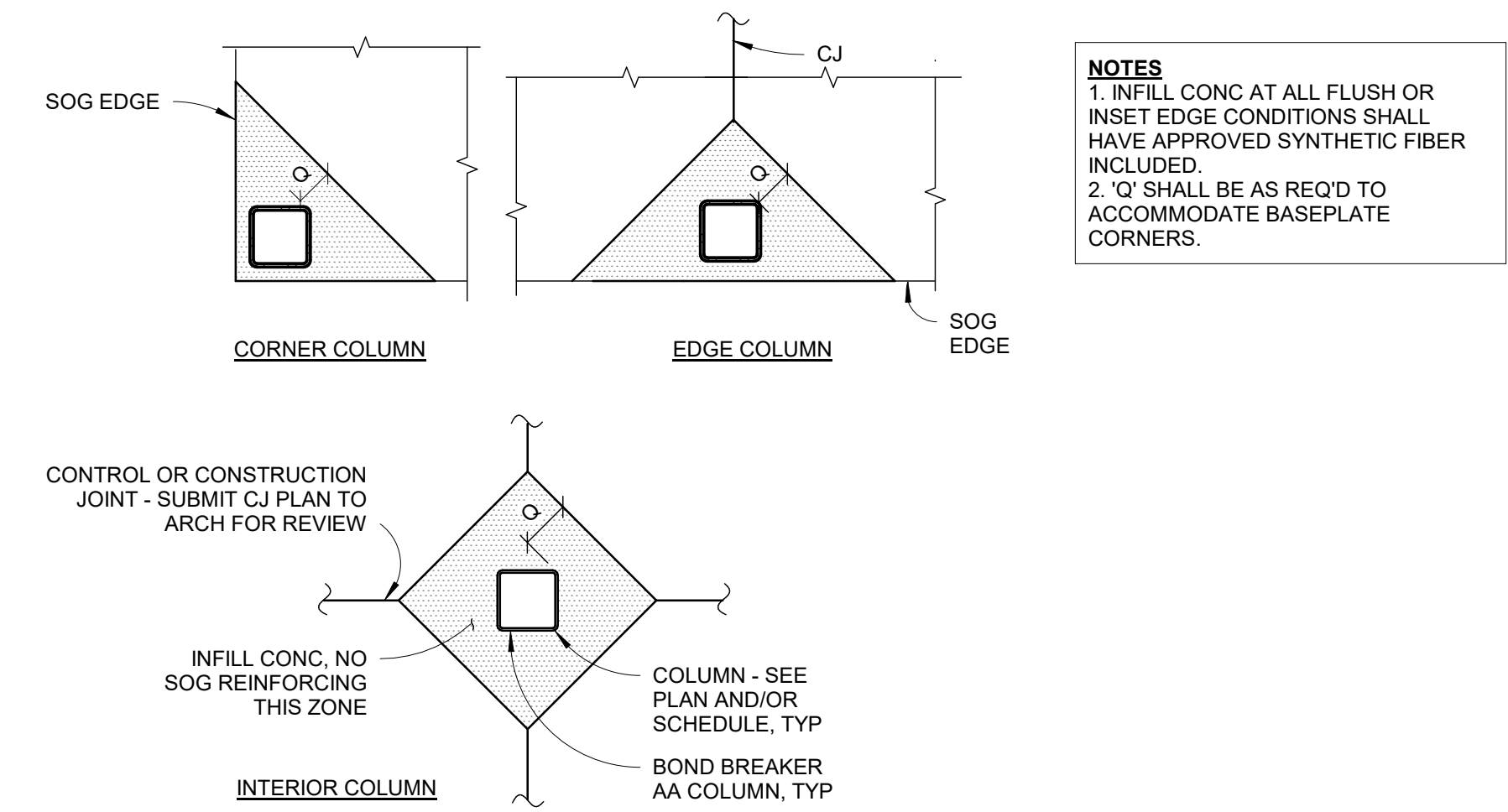
600 DuPont St. Suite B  
Bellingham, WA 98225  
360.714.8260  
www.king-works.com



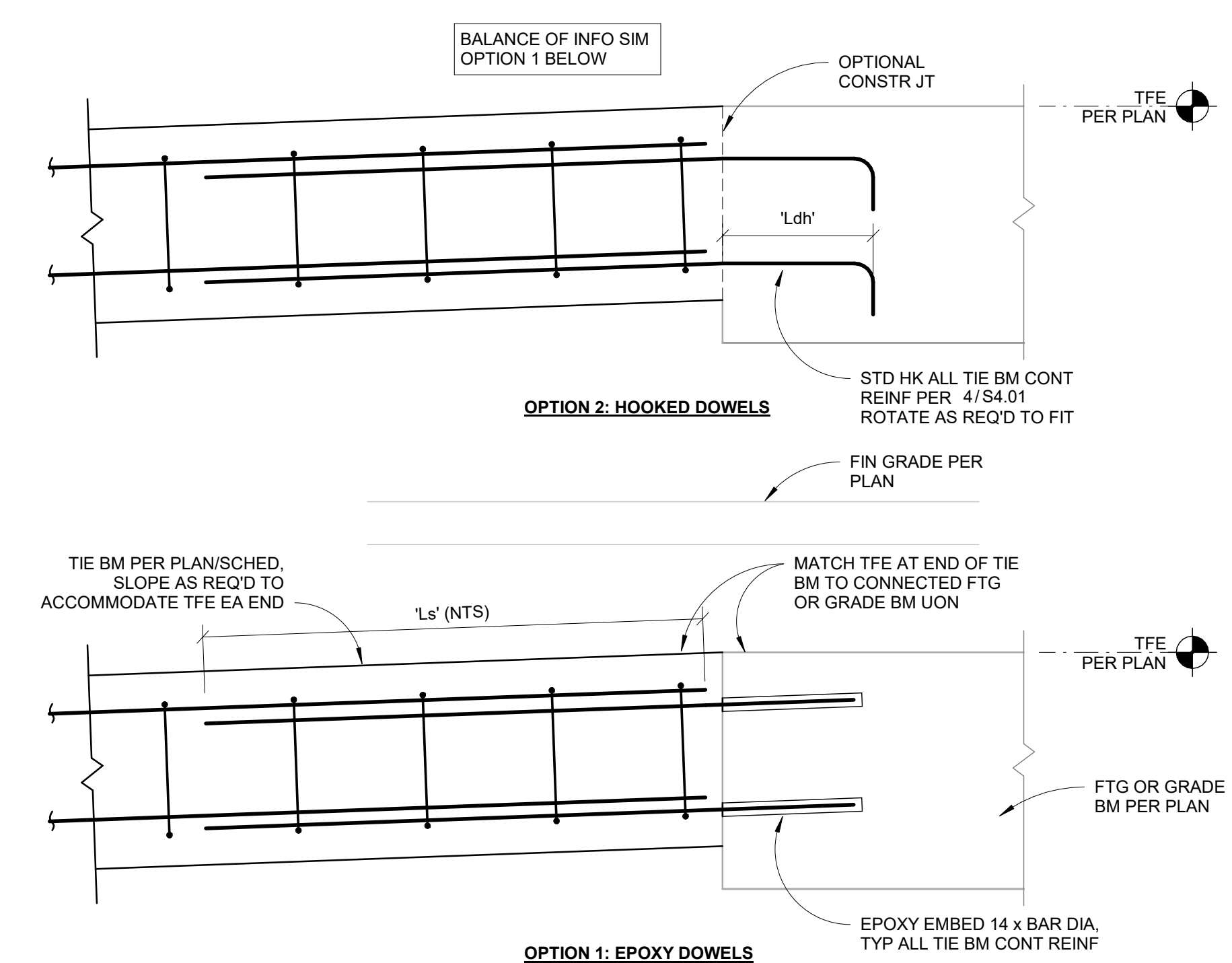
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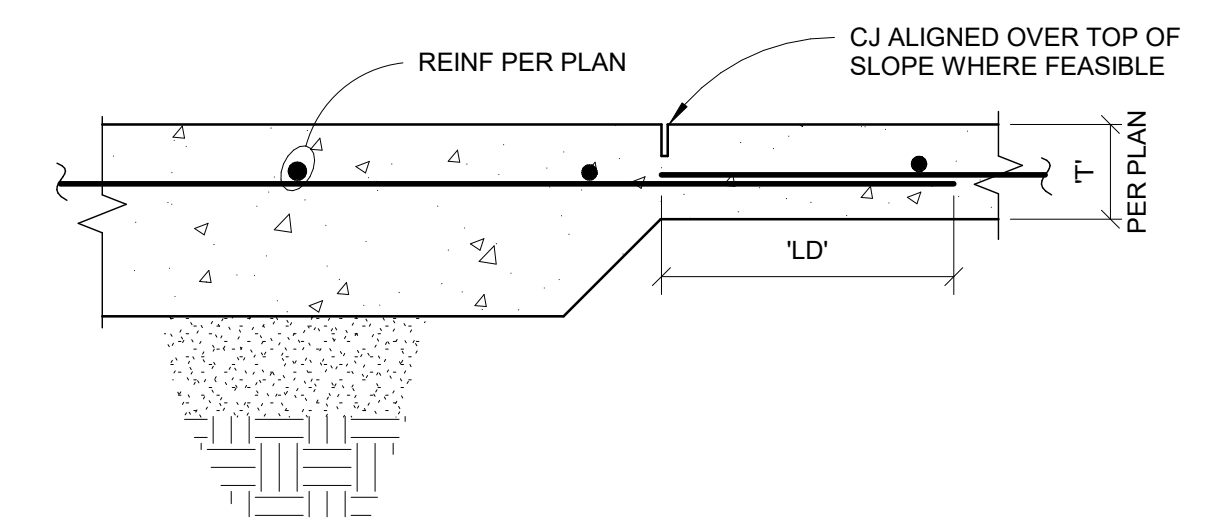
9 TRENCH GRID - TYP BEAMS AT CORNERS/TEES  
1" = 1'-0"



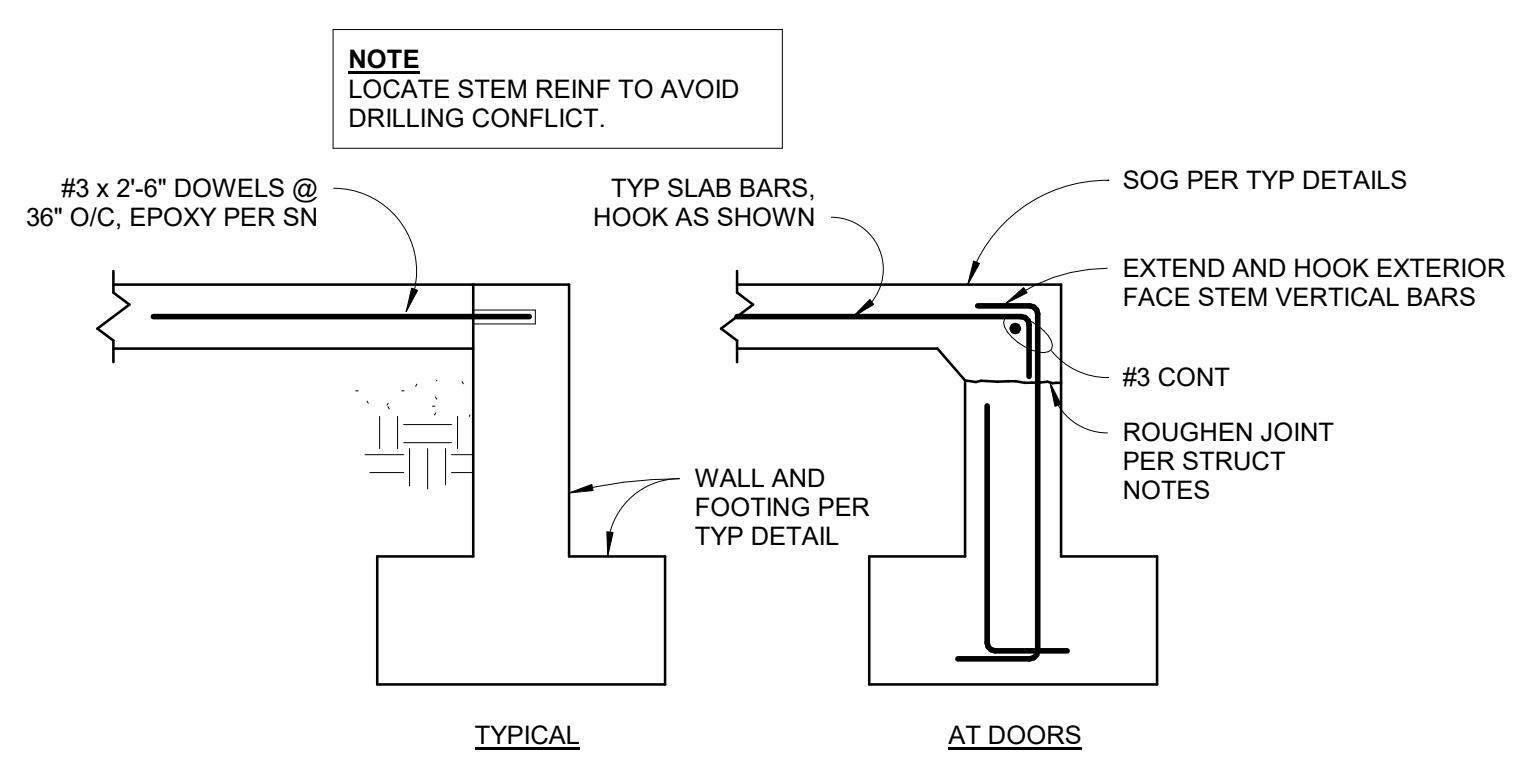
6 TYP SOG JOINTS @ COLUMNS  
3/4" = 1'-0"



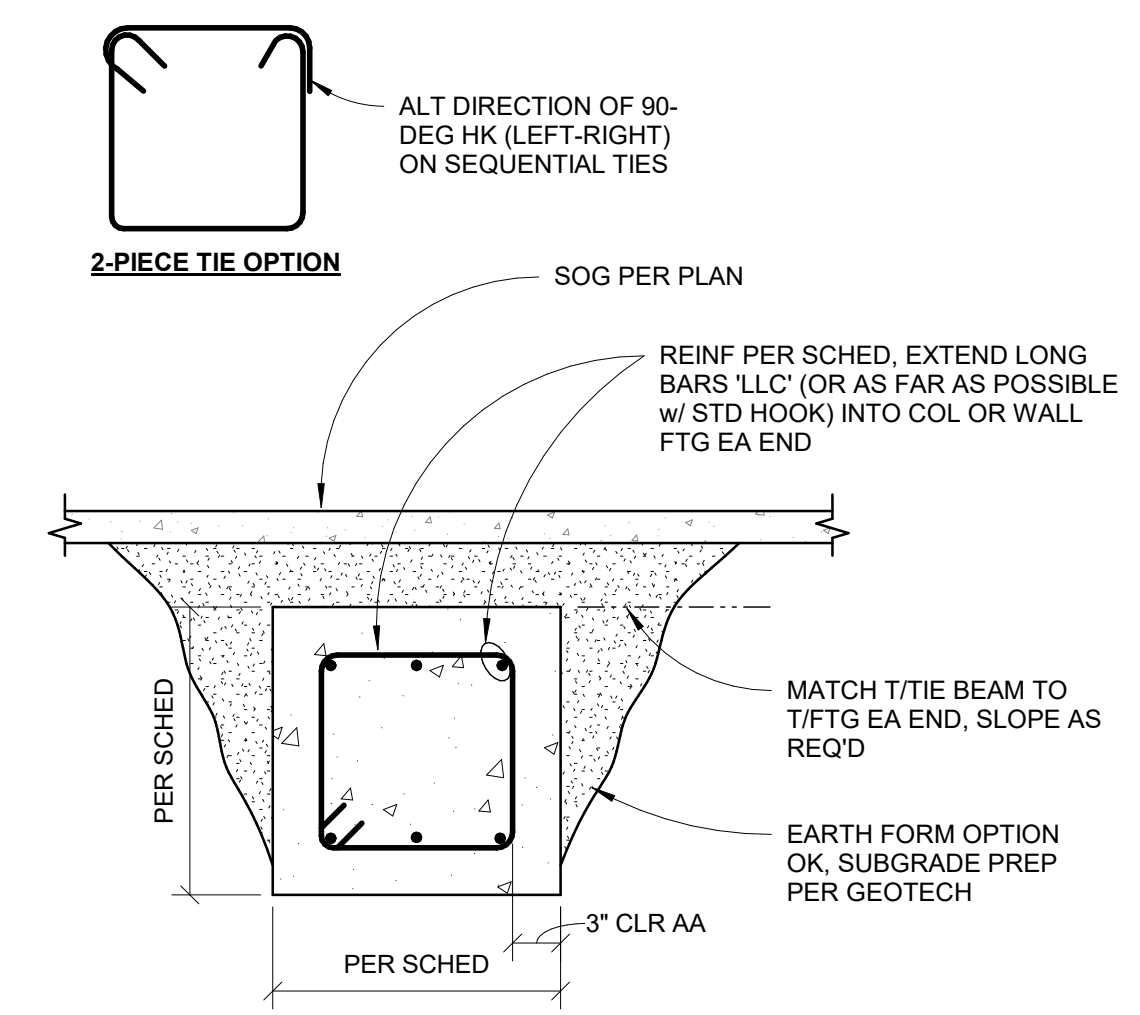
3 TYP TIE BEAM AT FTG OR GRADE BM  
1" = 1'-0"



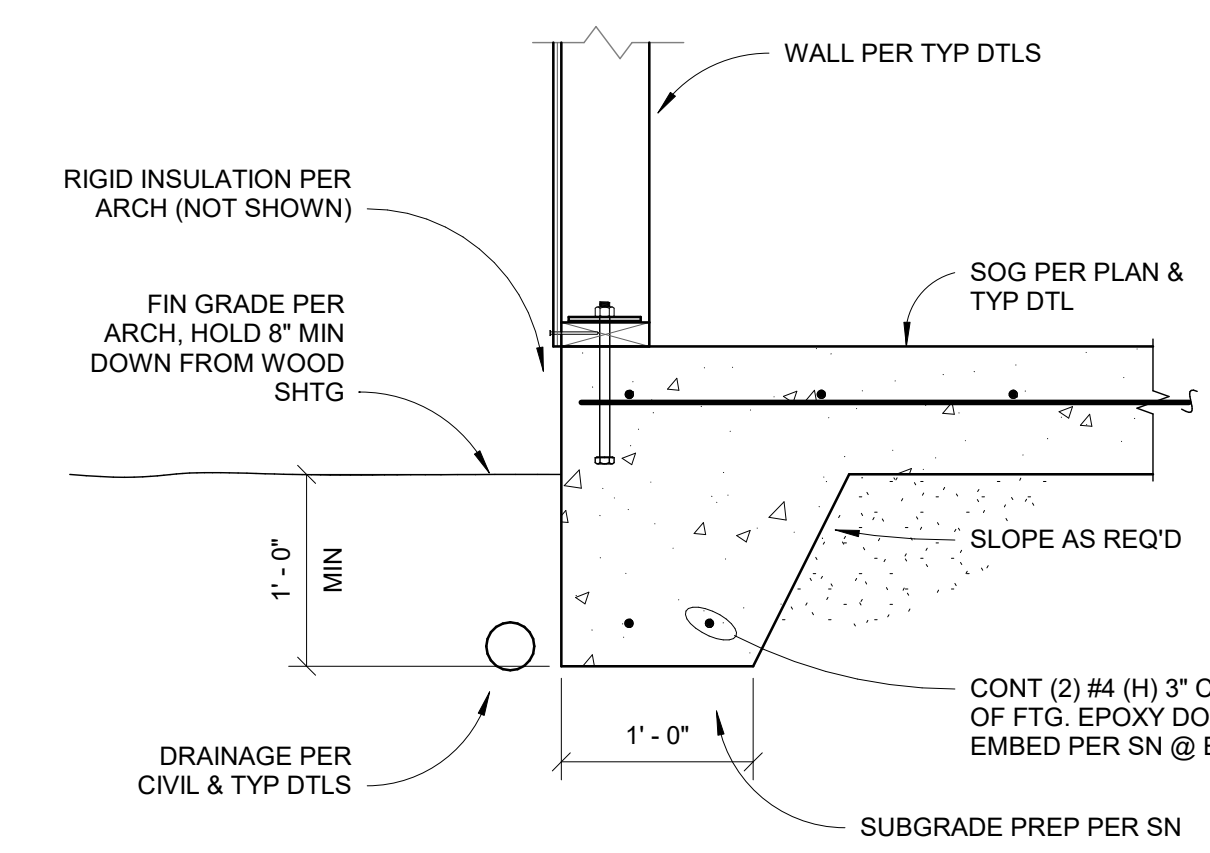
8 TYP SOG DEPTH TRANSITION  
1 1/2" = 1'-0"



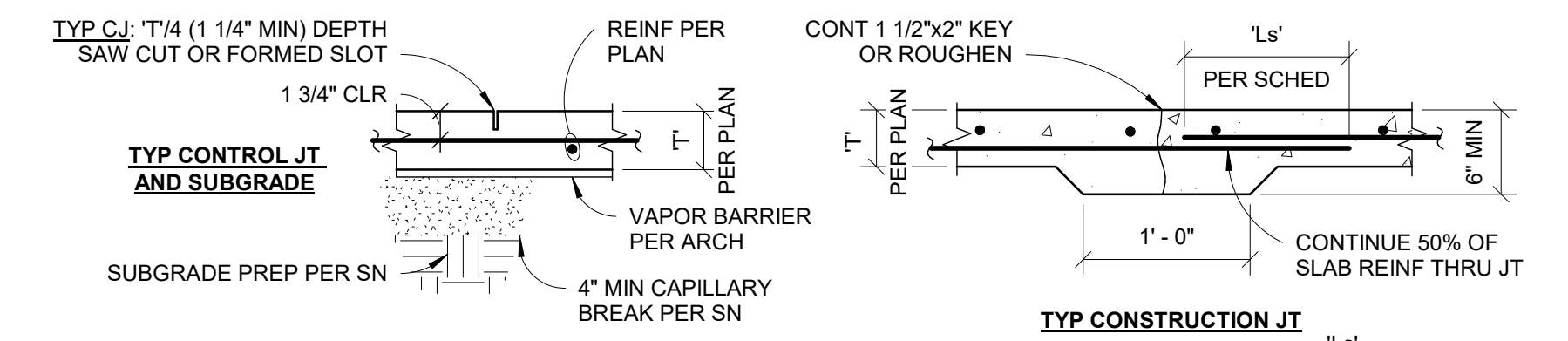
5 TYP SLAB TO STEM DOWELS  
1" = 1'-0"



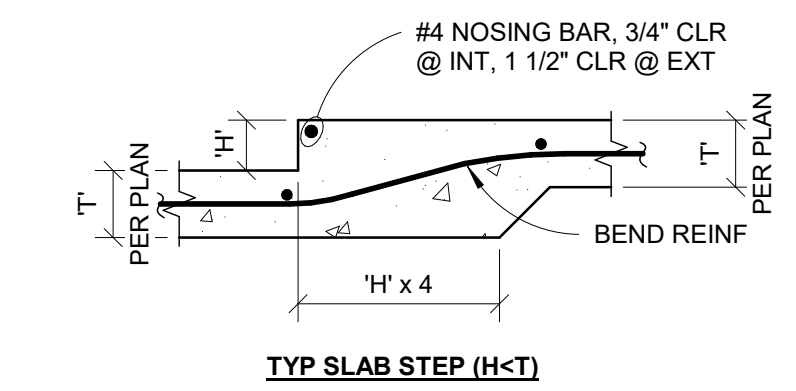
2 TYP FOUNDATION TIE BEAM  
1" = 1'-0"



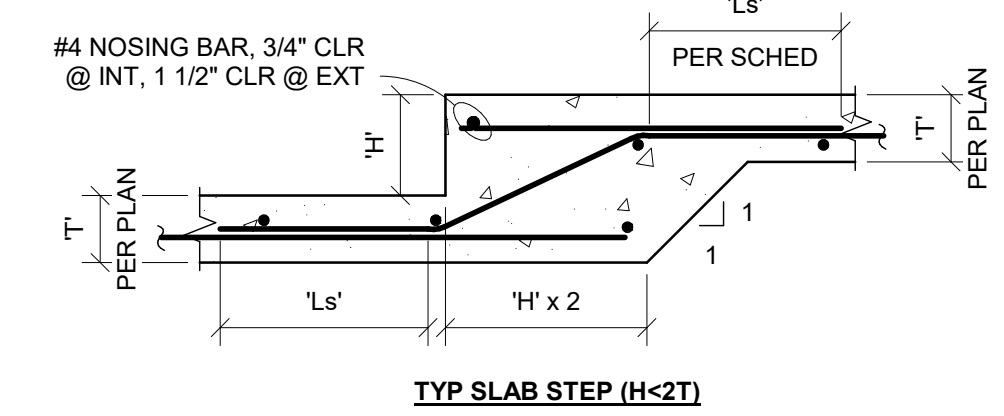
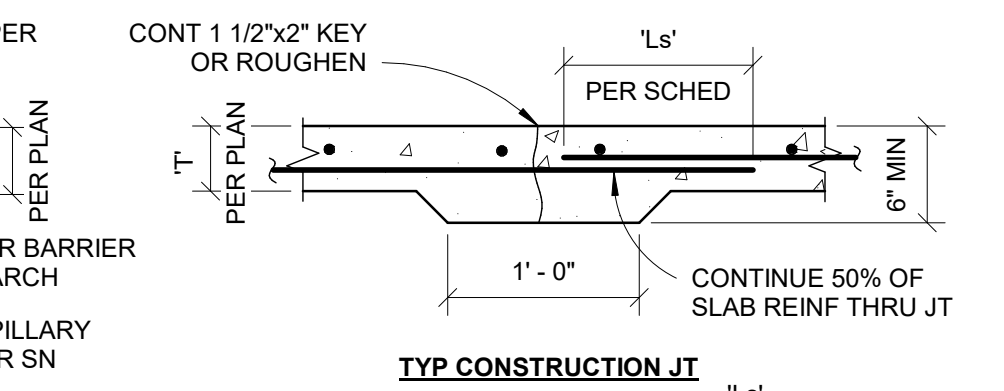
7 TYP PERIMETER WOOD WALL AT TSE  
1" = 1'-0"



TYP CONTROL JT AND SUBGRADE



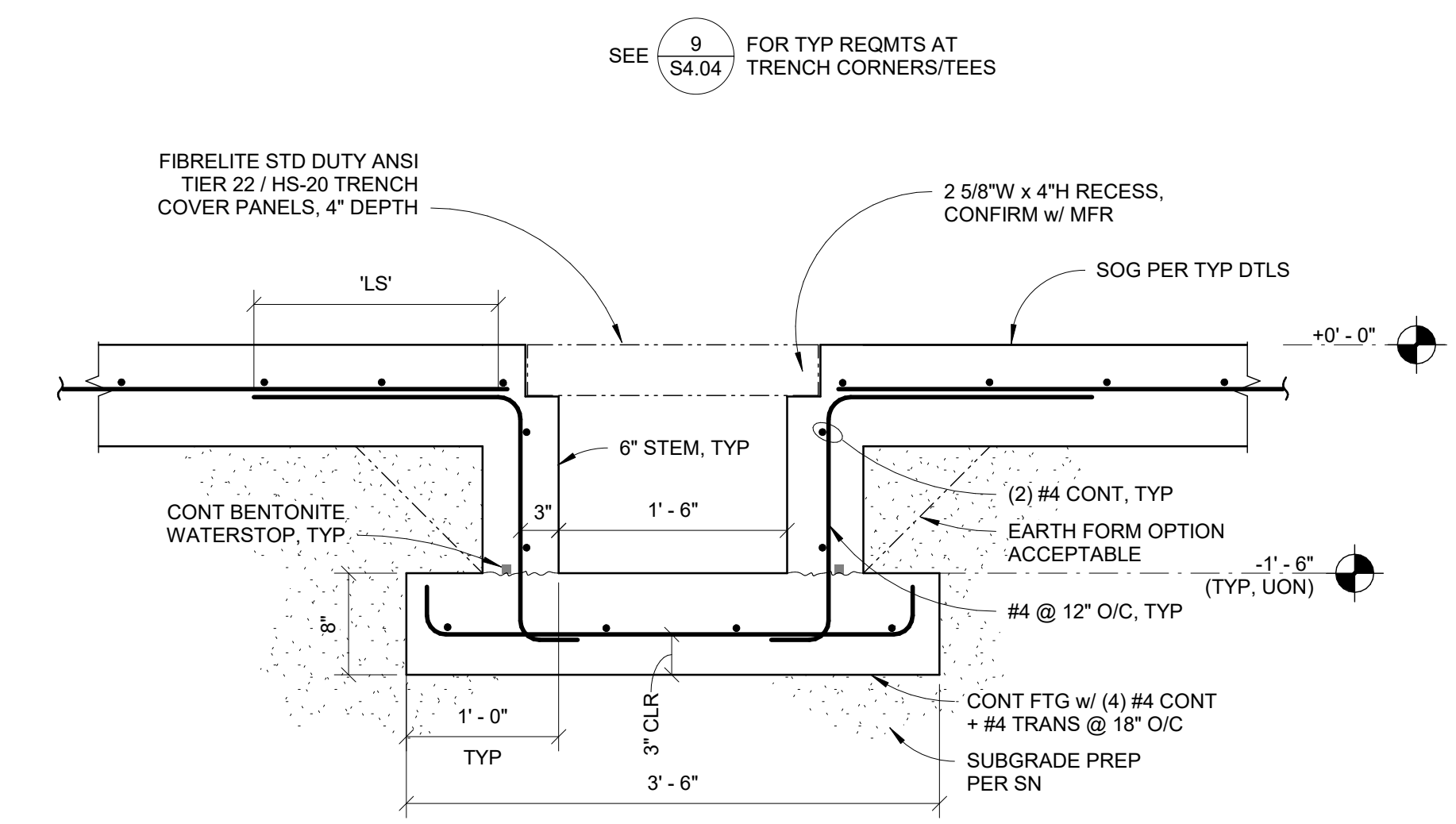
TYP SLAB STEP (H<T)



TYP SLAB STEP (H>T)

- NOTE**
1. PLACE CONTROL JOINTS AND CONST JOINTS AT NO MORE THAN 12'-0" O/C, EW. ALIGN JOINTS WITH COLS AND SLAB CORNERS WHERE POSSIBLE.
  2. CUT CJS AFTER CONC HAS SUFFICIENTLY HARDENED TO PREVENT SPALLING OR TEARING BUT NO MORE THAN 12 HOURS AFTER POUR.
  3. SUBMIT A SLAB PLAN SHOWING CONTROL & CONSTRUCTION JOINT LAYOUT AND POUR SEQUENCE FOR APPROVAL.
  4. THE SUBGRADE SHOWN ABOVE SHALL BE THE MINIMUM REQUIRED AT ANY LOCATION, AND SHALL BE INCREASED OR MODIFIED AS RECOMMENDED IN THE GEOTECH. REPORT.
  5. SEE SPEC AND ARCH/MECH/CIVIL DRAWINGS FOR SLAB EXTENTS, SLOPES, STEPS, DRAINS, ELEVATIONS, CHAMFERS, FINISHES AND OTHER RELATED INFORMATION. MAINTAIN MIN THICKNESS PER PLAN THROUGHOUT.
  6. WHERE SINGLE PENETRATION (OR COMBINED GROUPING OF MULTIPLE PENETRATIONS, SUCH AS AT GROUPS OF PIPES OR CONDUIT) LARGER THAN 10" ANY DIRECTION, PROVIDE ADD'L #3 EA SIDE EXTENDING 18" MIN BEYOND THE PENETRATION EXTENTS.
  7. AT INT CORNERS, PROVIDE (2) ADD'L #3x36" @ 2" O/C, PLACED AT 45-DEG AND 2" CLR TO THE INT CORNER OF SOG.
  8. EXTERIOR SOG OR SIDEWALK - SEE CIVIL DRAWINGS.

4 TYP SLAB-ON-GRADE DETAILS  
1" = 1'-0"



1 TRENCH GRID SECTION  
1" = 1'-0"

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PLAN NORTH

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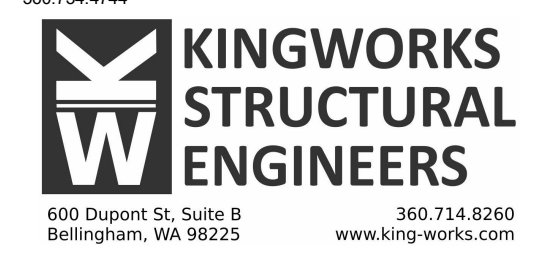
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PROJECT#: 21239  
DRAWN BY: GK  
CHECKED BY: DL  
DATE ISSUED: 1/26/24

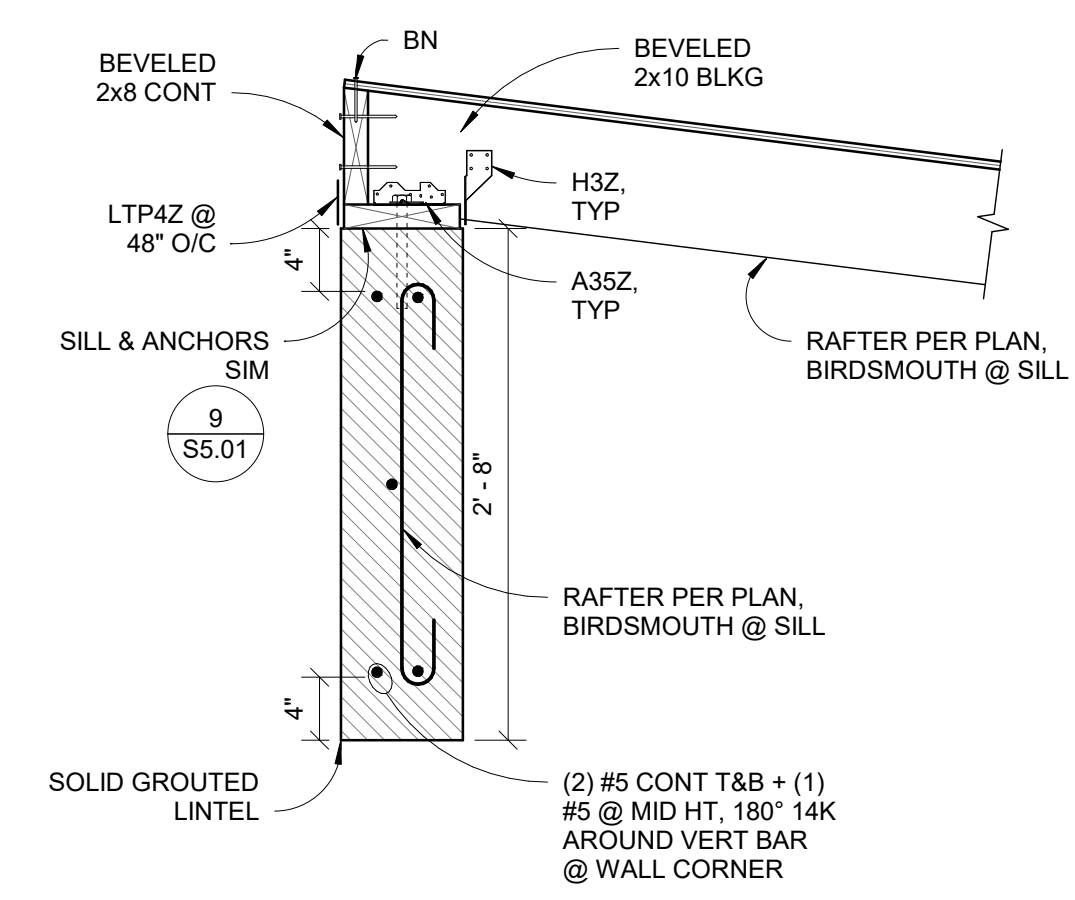
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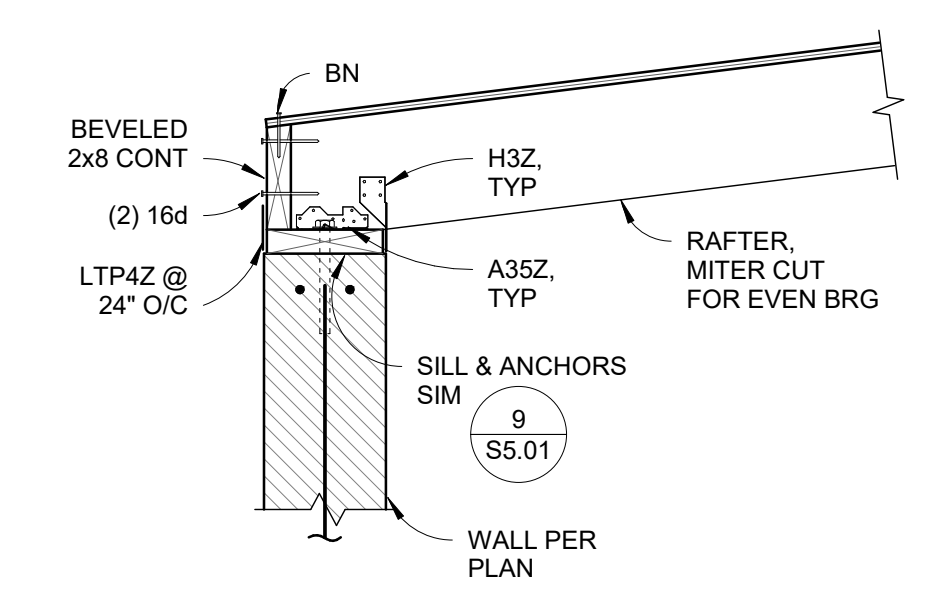
ARCHITECTURE | INTERIOR  
DESIGN  
zervasgroup.com  
209 Prospect Street  
Bellingham, WA 98225  
360.734.4144



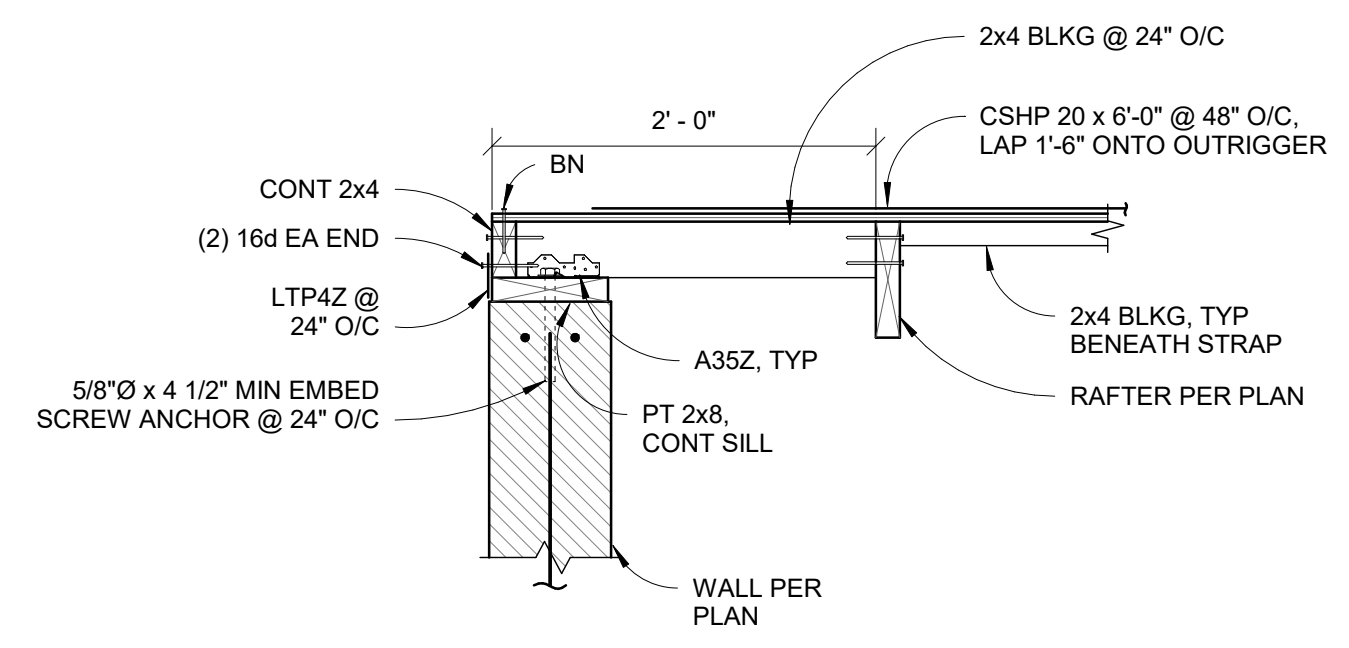
600 Dupont St. Suite B  
Bellingham, WA 98225  
360.714.8260  
www.king-works.com  
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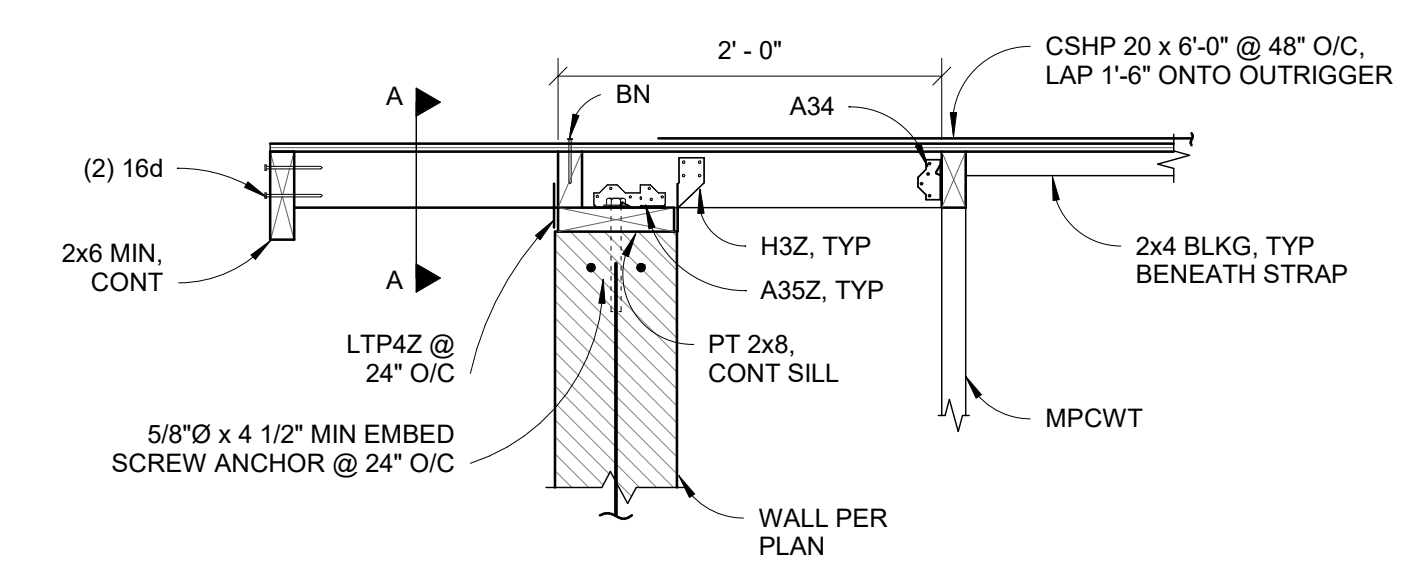
12 TRASH ENCLOSURE - HIGH EAVE  
1" = 1'-0"



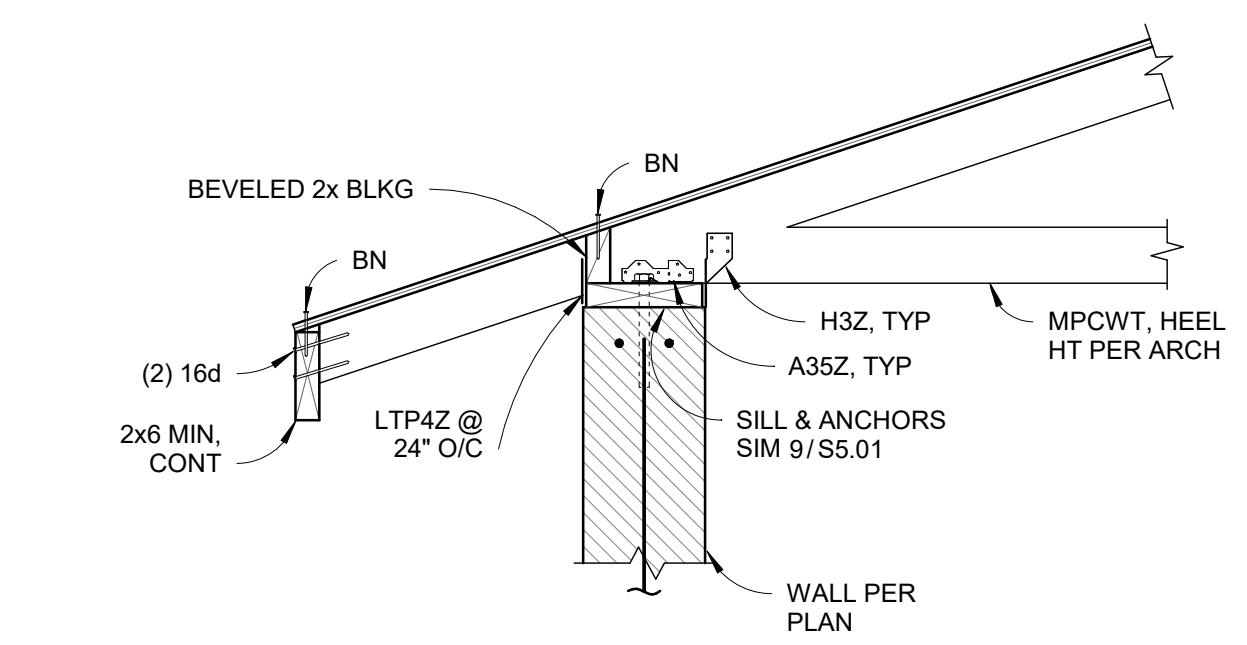
11 TRASH ENCLOSURE - LOW EAVE  
1" = 1'-0"



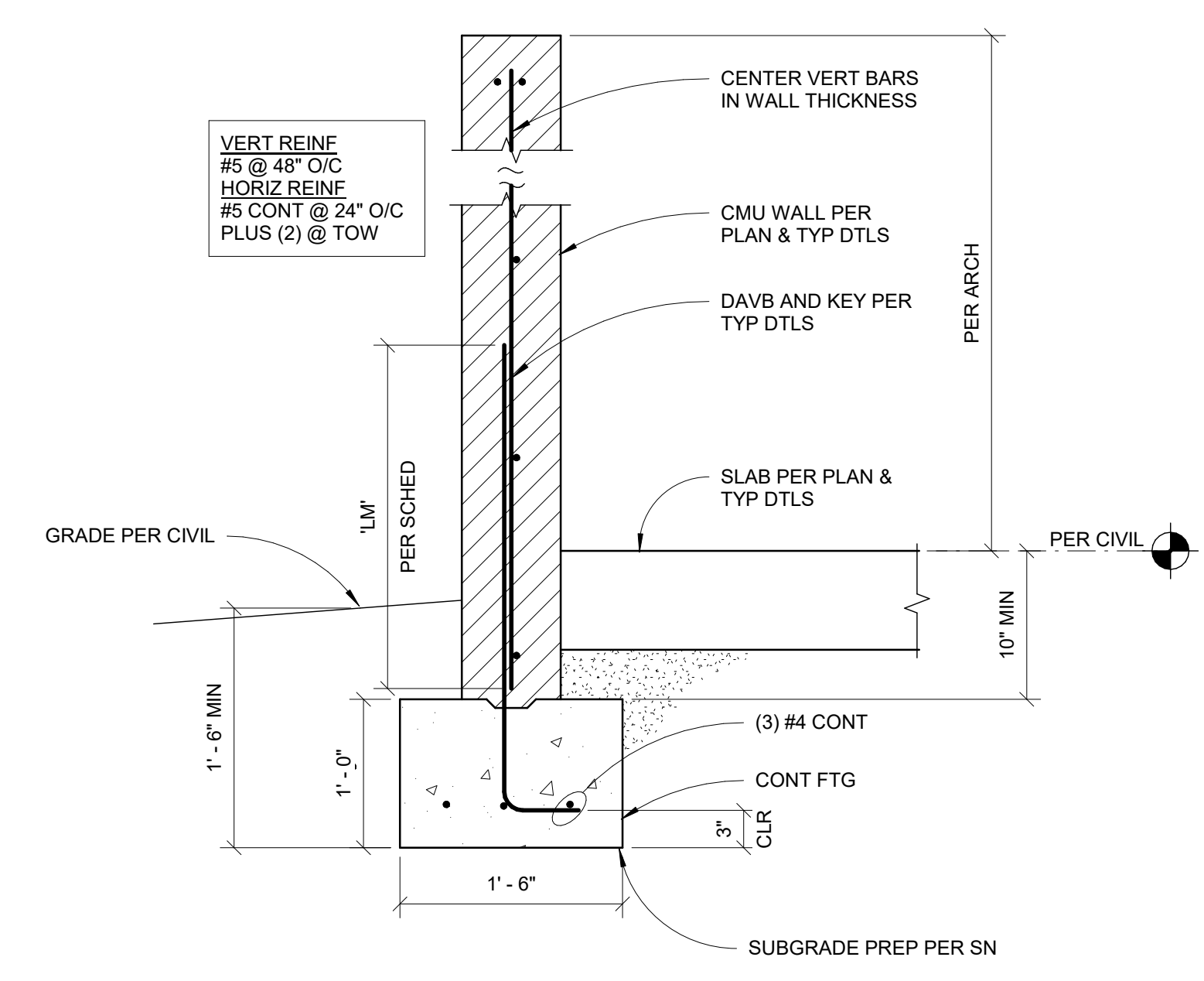
10 TRASH ENCLOSURE - TYP RAKE EDGE @ ROOF  
1" = 1'-0"



9 CONTROL HOUSE - TYP RAKE EDGE @ ROOF  
1" = 1'-0"

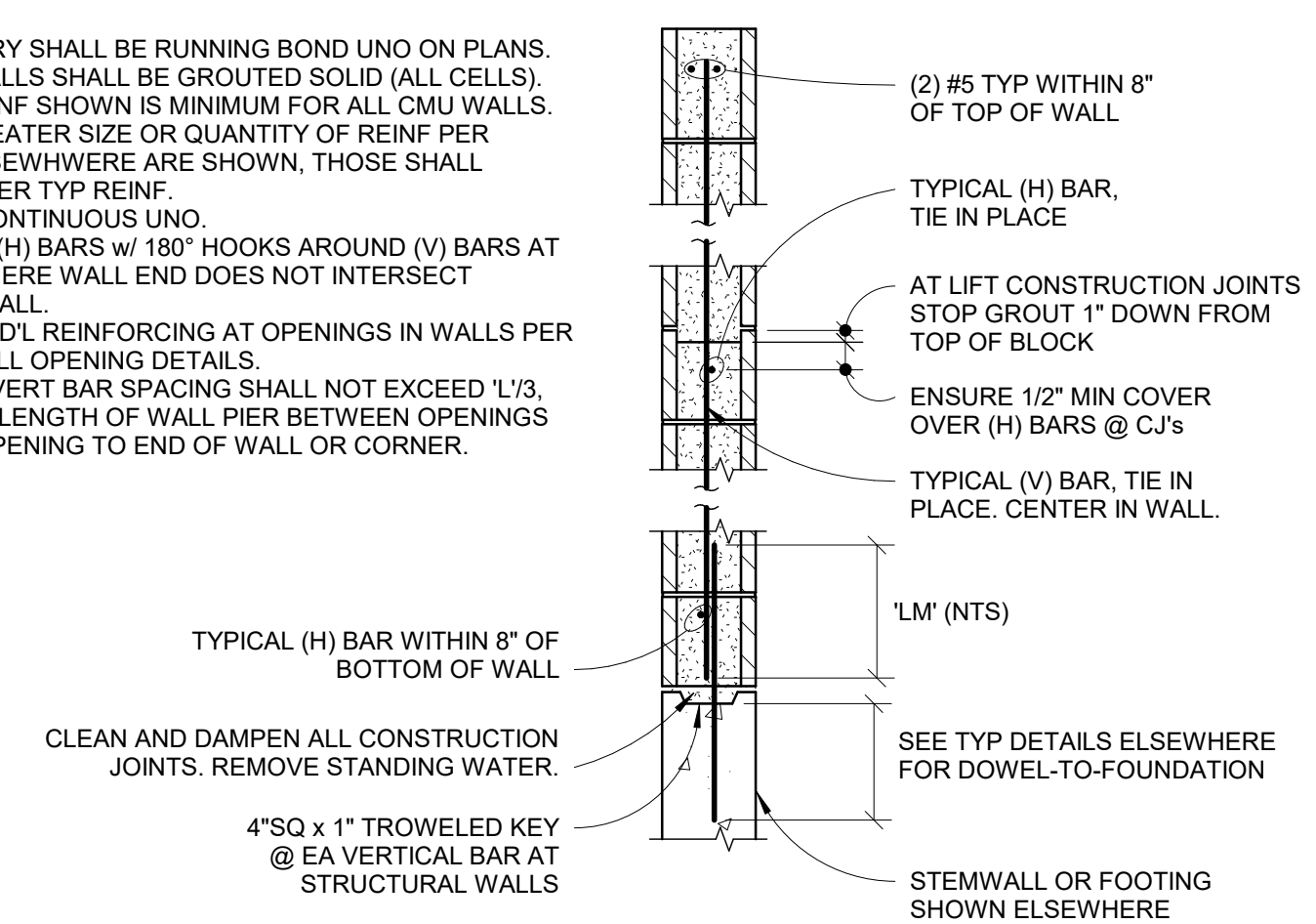


8 CONTROL HOUSE - TYP EAVE @ ROOF  
1" = 1'-0"



4 TYP SECTION AT CMU WALL FOOTING  
1" = 1'-0"

**NOTE**  
1. ALL MASONRY SHALL BE RUNNING BOND UNO ON PLANS.  
2. ALL CMU WALLS SHALL BE GROUTED SOLID (ALL CELLS).  
3. TYPICAL REINF SHOWN IS MINIMUM FOR ALL CMU WALLS. WHERE GREATER SIZE OR QUANTITY OF REINF PER DETAILS ELSEWHERE ARE SHOWN, THOSE SHALL GOVERN OVER TYP REINF.  
4. ALL BARS CONTINUOUS UNO.  
5. TERMINATE (H) BARS w/ 180° HOOKS AROUND (V) BARS AT JAMBS & WHERE WALL END DOES NOT INTERSECT ANOTHER WALL.  
6. PROVIDE ADDL REINFORCING AT OPENINGS IN WALLS PER TYPICAL WALL OPENING DETAILS.  
7. HORIZ AND VERT BAR SPACING SHALL NOT EXCEED 1/3, WHERE 1" = LENGTH OF WALL PIER BETWEEN OPENINGS OR FROM OPENING TO END OF WALL OR CORNER.



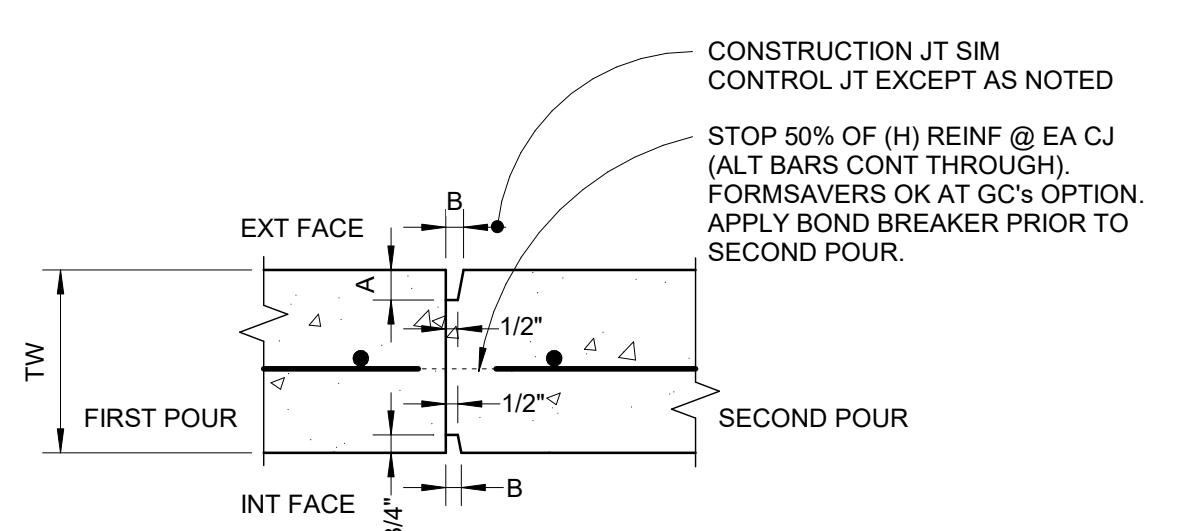
7 TYP MASONRY LAP SCHEDULE  
1 1/2" = 1'-0"

6 TYP CMU WALL SECTION  
3/4" = 1'-0"

5 TYP CMU VERT REINFORCING LAYOUT  
3/4" = 1'-0"

BAR SIZE	MASONRY LAP SPLICE LENGTH / DEVELOPMENT LENGTH 'LM' (INCHES)					
	1.5	2	2.5	3.5	4.5	5.5
#3	19	15	15	15	15	15
#4	34	25	20	20	20	20
#5	52	39	31	25	25	25

**NOTES**  
1. POSITION ALL BARS IN WALLS PER DETAILS.  
2. ENSURE 1/2" MIN GROUT COVER BETWEEN REBAR AND MASONRY UNIT WALL.  
3. PROVIDE MINIMUM 1 1/2" COVER FROM OUTSIDE FACE OF MASONRY.  
4. PROVIDE 1 1/2" MINIMUM CLEAR SPACE BETWEEN PARALLEL BARS.



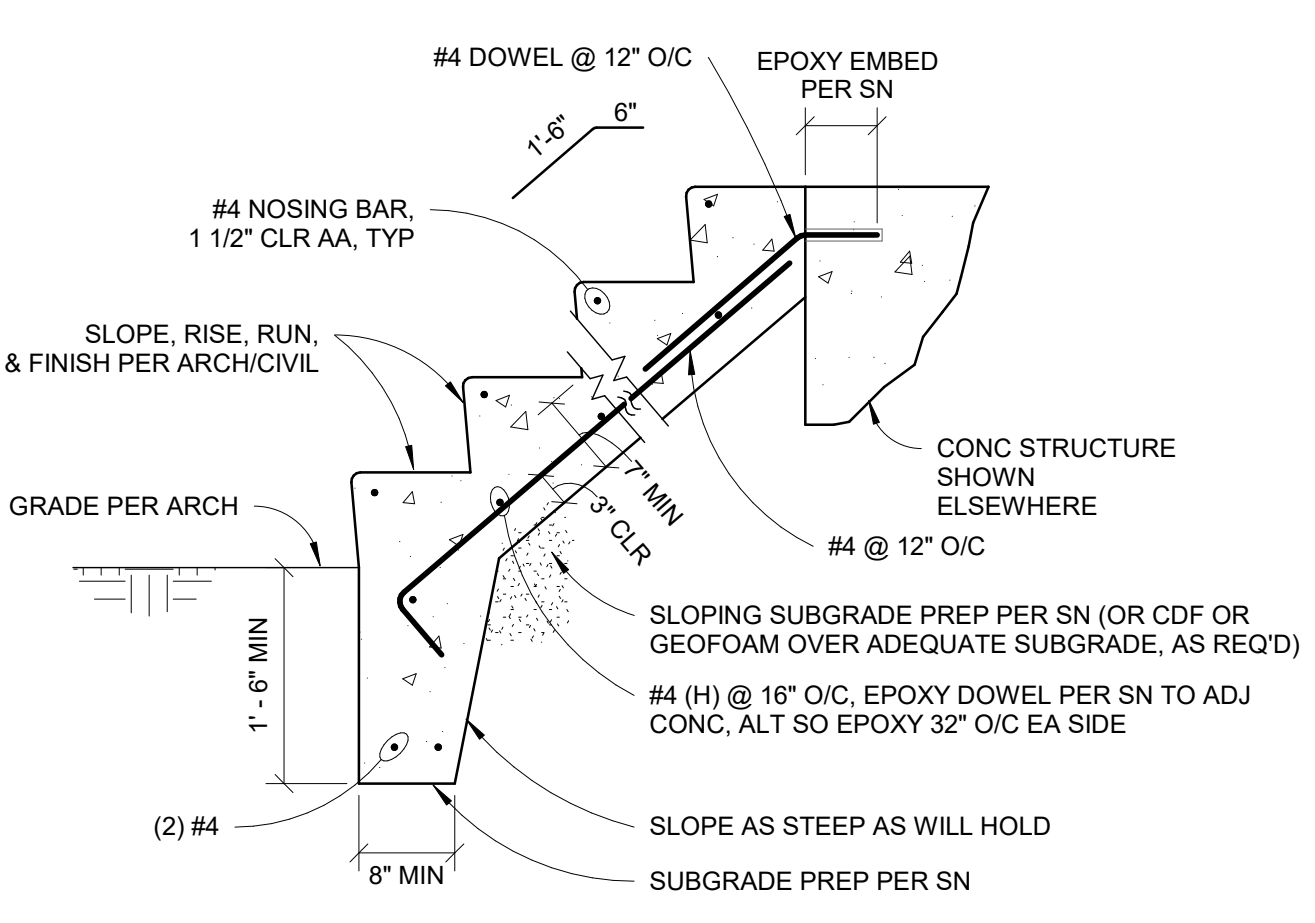
**NOTES**  
1. VERTICAL JTS SHALL BE SPACED AND ALIGNED PER ARCH, BUT SHALL NOT EXCEED SPACING PER SCHEDULE, NOR EXCEED 15-FT FROM A CORNER, WHERE NOT OTHERWISE INDICATED, PROVIDE FLEXIBLE WATERPROOF JOINT COVER PER ARCH.  
2. AT WALL SURFACES AGAINST EARTH, PROVIDE WATERSTOP PER ARCH AT ALL JOINTS (NOT SHOWN).  
3. PROVIDE CJ SUBMITTAL INDICATING PROPOSED LOCATIONS AND MATERIALS TO ARCH FOR REVIEW.

TW	8"
A	1 1/4"
B	PER ARCH, 3/4" MIN

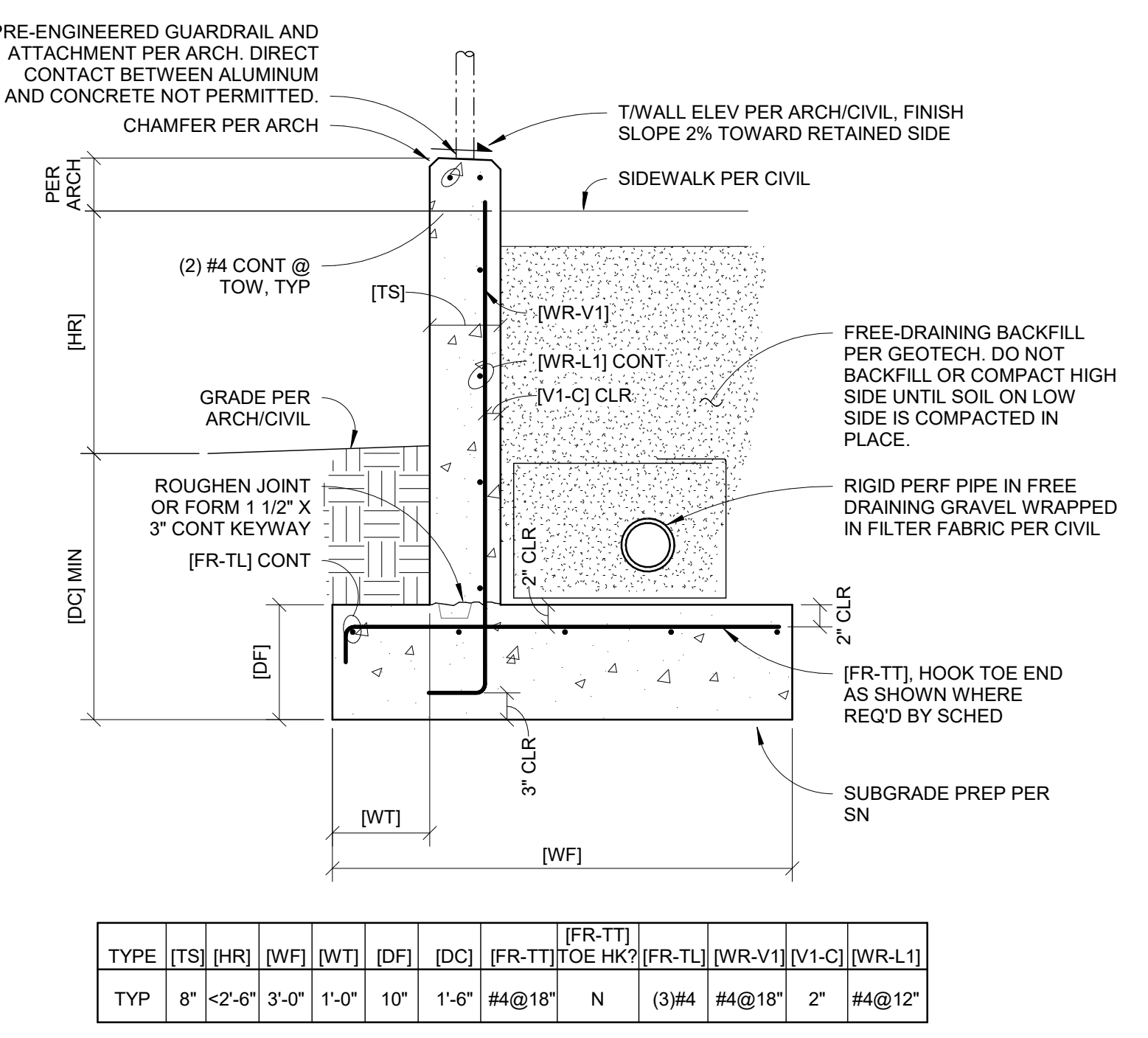
  

WALL HT 'H'	H<3'-0"
MAX JT SPCG	9'-0"

3 TYP CONC WALL CONTROL AND CONSTR JOINTS  
1 1/2" = 1'-0"



2 TYP CONC STAIR ON GRADE  
3/4" = 1'-0"



1 TYP RETAINING WALL  
3/4" = 1'-0"

TYPE	[TS]	[HR]	[WF]	[WT]	[DF]	[DC]	[FR-TT] TOE HK?	[FR-TL]	[WR-V1]	[V1-C]	[WR-L1]	
TYP	8"	<2'-6"	3'-0"	1'-0"	10"	1'-6"	#4@18"	N	(3)#4	#4@18"	2"	#4@12"

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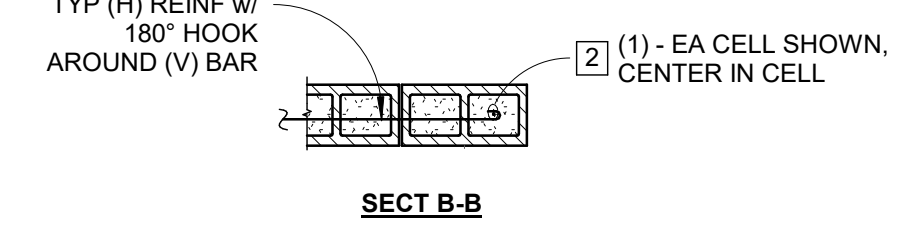
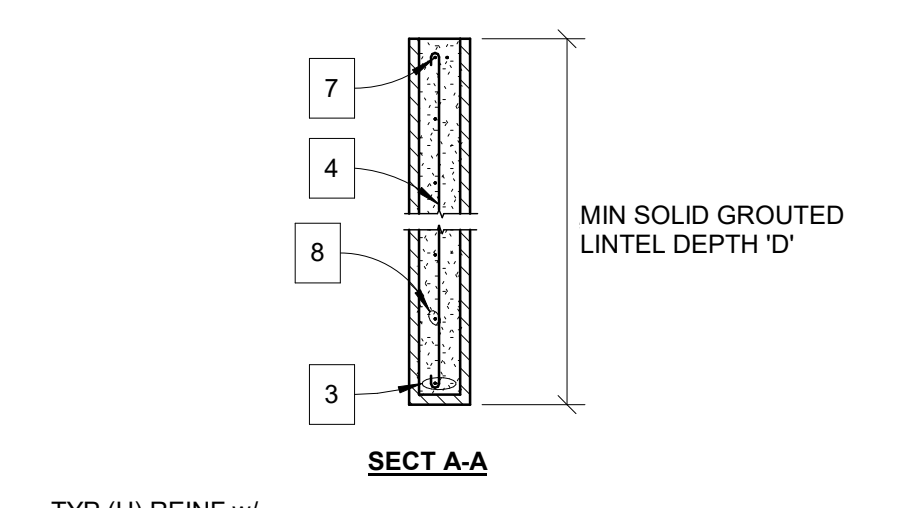
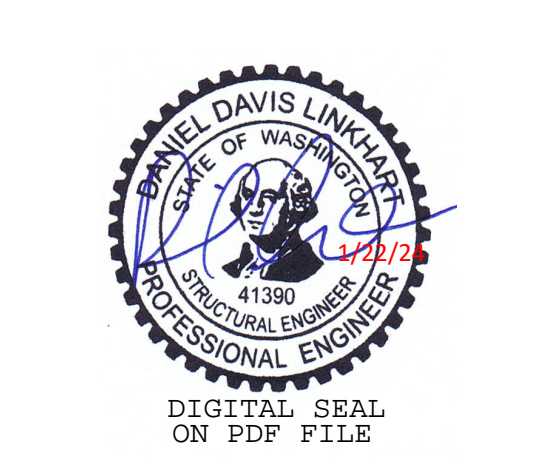
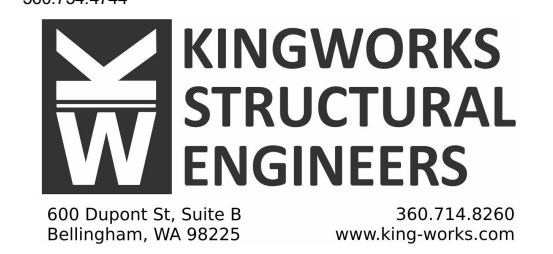
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PROJECT#:	21239
DRAWN BY:	GK
CHECKED BY:	DL
DATE ISSUED:	1/29/24

S5.01



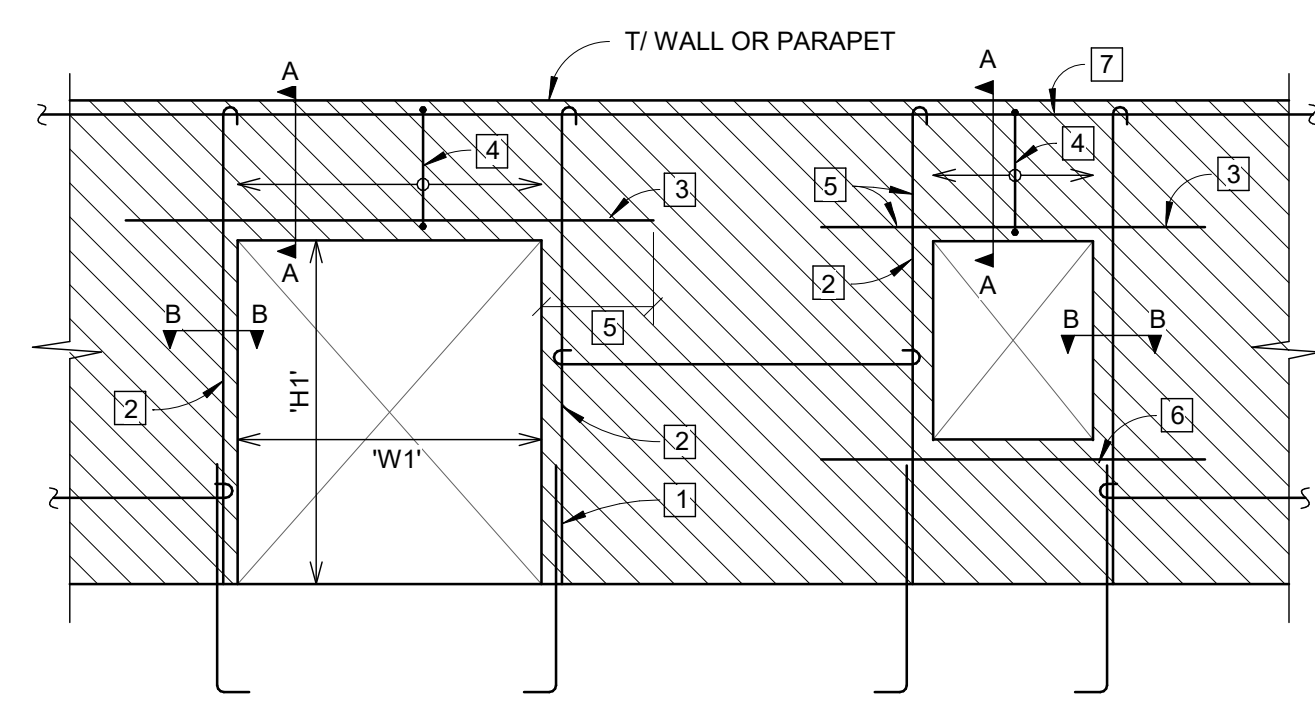
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209 Prospect Street  
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360.734.4744



**NOTE**  
ALL REINF SHOWN IS MINIMUM @ OPENINGS ONLY, SEE ELEVATIONS AND DETAILS FOR OTHER WALL REINF REQ'D.

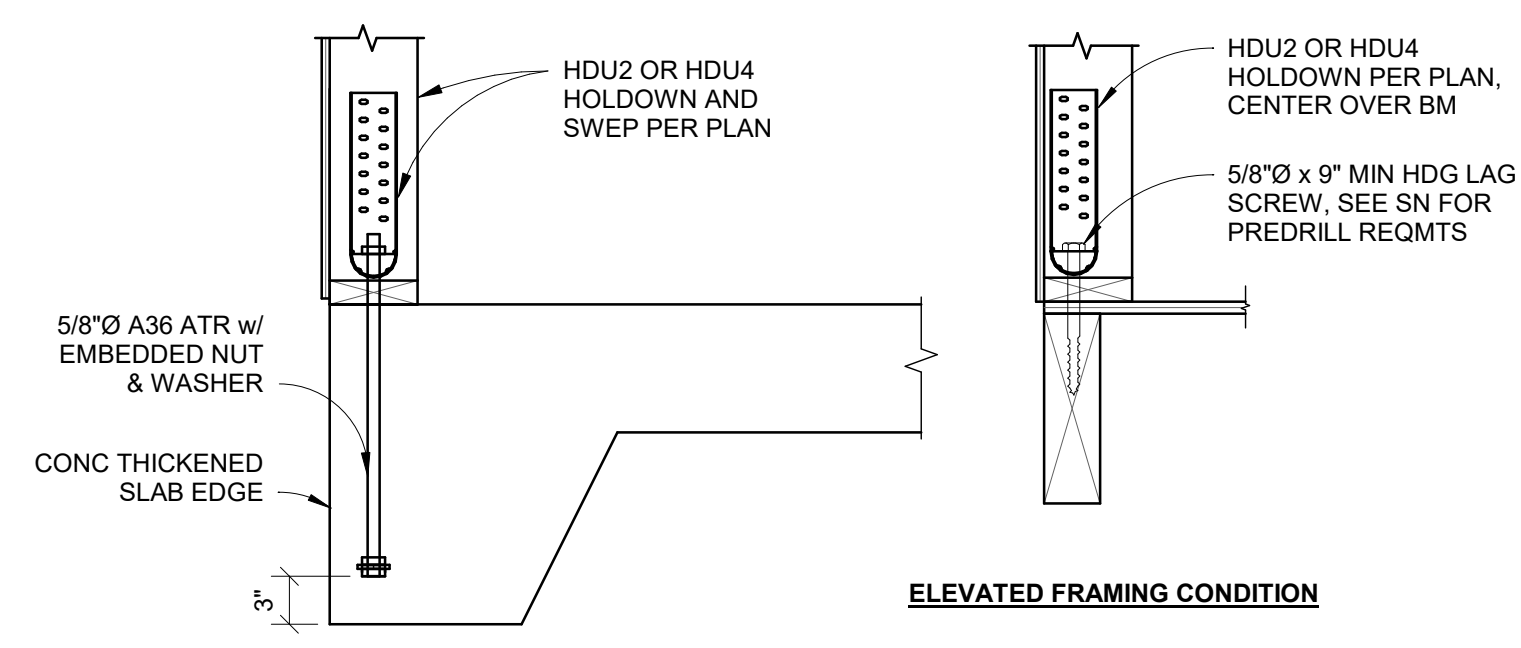
"W1" MIN REQ'D	2 JAMB REINF	3 LINTEL REINF	4 LINTEL STIRRUPS	8 (H) LINTEL REINF
<4'-0"	(1)#5 EA CELL	(1)#5	#4@16" O/C	#5@24" O/C

- 1 DOWEL ALL (V) BARS, LAP PER SCHEDULE.
- 2 JAMB REINF PER SCHED AND SECT B-B. AT DOOR OPENINGS EXTEND JAMB REINF FULL STORY HT OR AS FAR AS POSSIBLE TERMINATING IN 180° HOOK.
- 3 LINTEL FLEXURAL REINF PER SCHED AND SECT A-A.
- 4 LINTEL SHEAR REINF PER SCHED AND SECT A-A, IN ADDITION TO TYP FULL HT (V) REINF (NOT SHOWN). USE (1) LEG STIRRUP FOR 8" WALLS.
- 5 EXTEND (1) LAP LENGTH BEYOND RO OR AS FAR AS POSSIBLE w/ 180° HOOK AROUND (V) END / CORNER BAR, TYP.
- 6 (1)#5(H) MIN WITHIN 8" OF BOT OF RO.
- 7 TOP OF WALL CONT REINF

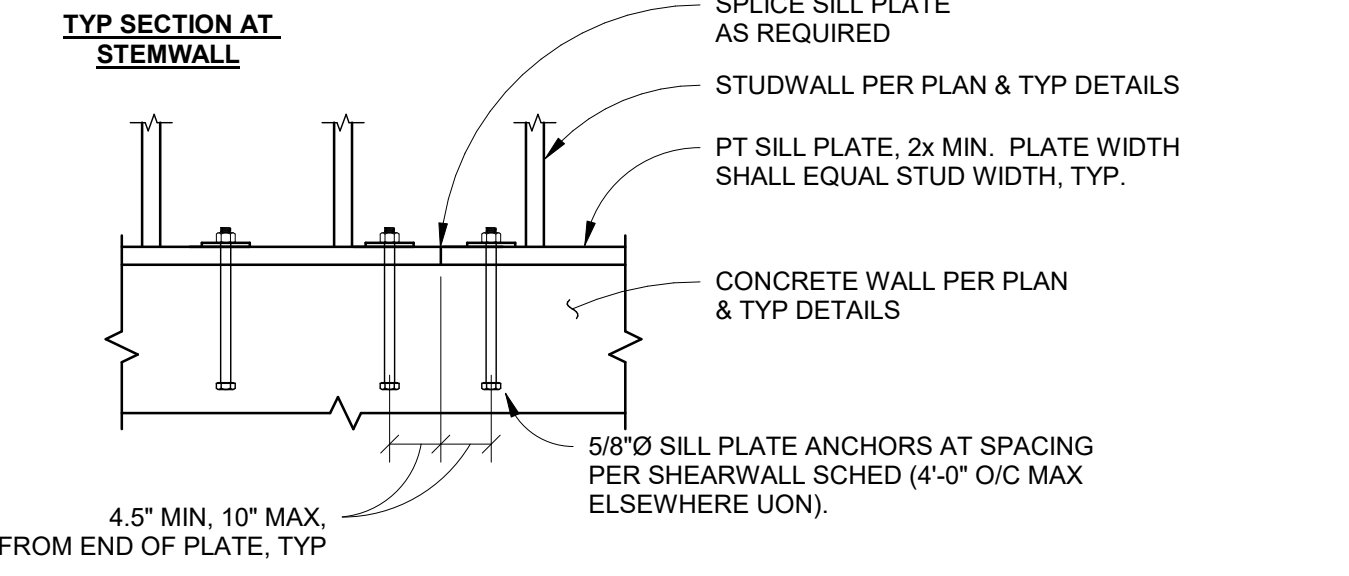
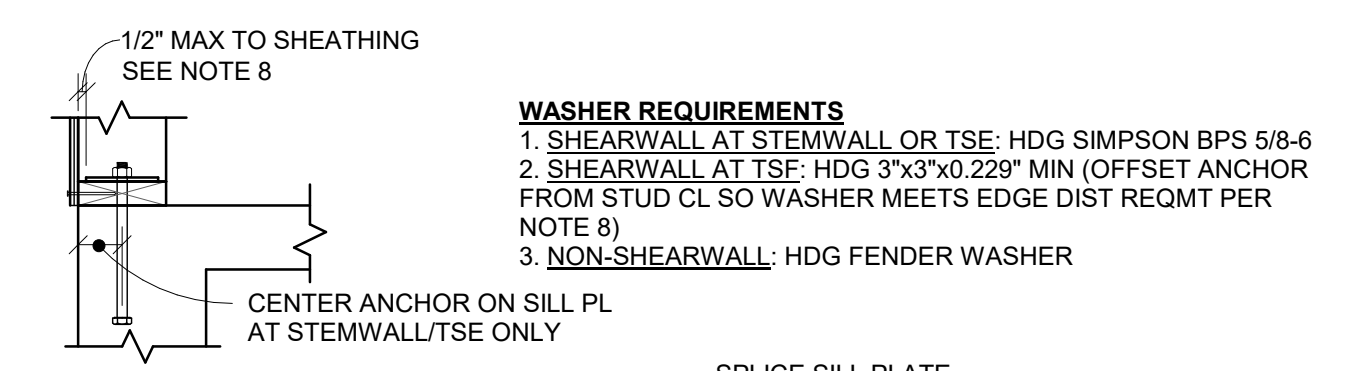


7 TYP SHEARWALL HOLDOWNS  
1" = 1'-0"

**NOTES**  
1. ALIGN HOLDOWNS TO CONTINUOUS FULL HT KING STUDS - DO NOT LAP ONTO JACK STUDS. SEE HEADER DETAIL FOR ADD'L INFO.  
2. HOLDOWN SHIM, IF/WHERE REQ'D FOR ALIGNMENT, SHALL CONSIST OF 6'-0" MIN LENGTH OF 2x6. SISTER SHIM TO OTHER PLIES w/ NAILS EQ TO 'EN'. HOLDOWN SCREW LENGTHS SHALL BE INCREASED BY THE SHIM THICKNESS.



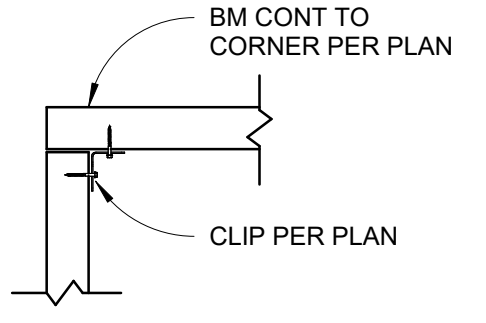
THICKENED SLAB EDGE CONDITION  
ELEVATED FRAMING CONDITION



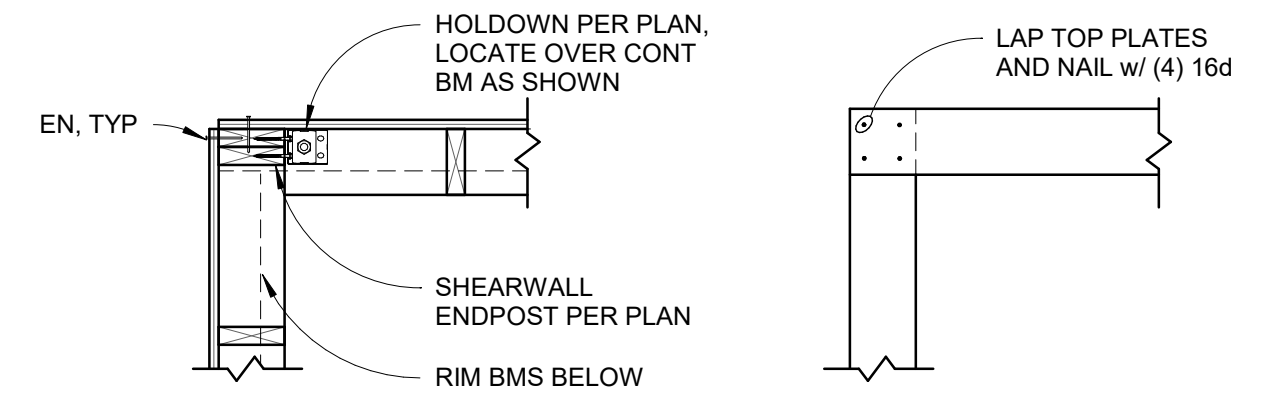
**SILL ANCHOR OPTIONS**  
OPTION 1: CAST-IN-PLACE ANCHOR RODS; 7" MIN EMBEDMENT WITH 2" HOOK OR HEADED BOLT.  
OPTION 2: MECH GALV SIMPSON TITEN HD ANCHORS. 3 1/2" MIN EMBEDMENT  
OPTION 3: EPOXY ANCHORS PER SN, 5" MIN EMBEDMENT

**NOTES**  
1. SET SILL PLATE FOR EVEN BEARING. PLACE MORTAR UNDER PLATE WHEN GAP EXCEEDS 1/8".  
2. SEE SHEAR WALL SCHEDULE FOR ANCHOR SPACING AT SHEAR WALLS.  
3. USE ONLY HOT DIP GALVANIZED SILL ANCHORS, WASHERS, CONNECTORS AND FASTENERS IN PRESSURE TREATED WOOD EXCEPT WHERE BORATE TREATED SILLS ARE USED. SEE STRUCTURAL NOTES FOR ADD'L INFORMATION.  
4. THIS DETAIL DOES NOT APPLY TO HOLDOWN ANCHORS. SEE DETAIL ELSEWHERE.  
5. POST-INSTALLED ANCHORS SHALL BE INSTALLED PER MFR'S RECOMMENDATIONS AND REQUIRE SPECIAL INSPECTION. SEE STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.  
6. HOLE Ø IN SILL PLATE SHALL BE 1/16" MAX LARGER THAN THE ANCHOR Ø.  
7. HOLE IN PL WASHER MAY BE 1/16" MAX LARGER THAN THE ANCHOR Ø OR DIAGONALLY SLOTTED WITH MAX SLOT LENGTH OF 1 3/4", PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN PLATE WASHER AND NUT.  
8. ALL PLATE WASHERS AT SHEARWALLS SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE ON THE SHEATHED SIDE(S).

6 TYP WALL SILL ANCHORS AT CONCRETE  
1" = 1'-0"

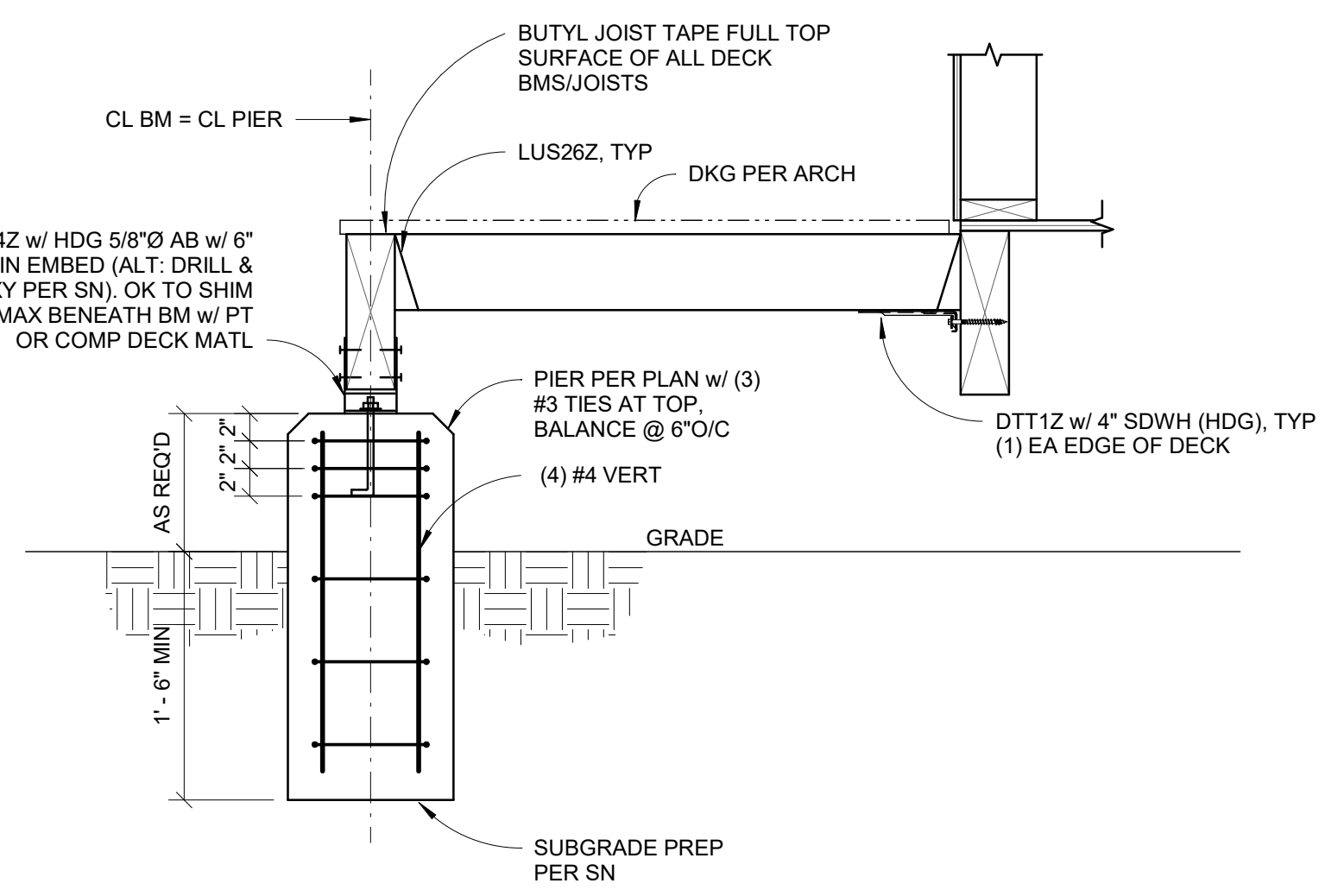


TYP RIM BEAMS AT CORNER

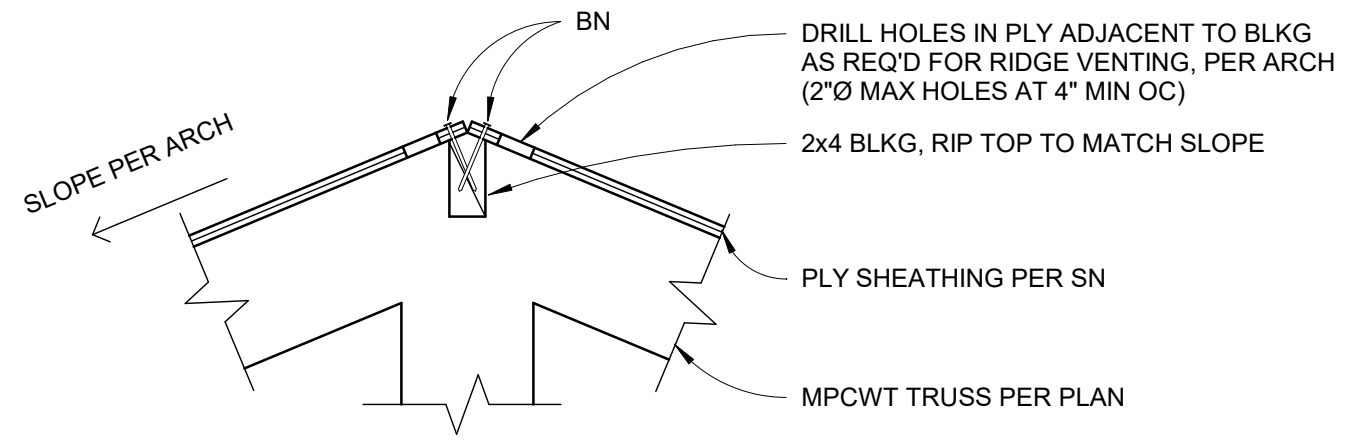


TYP WALL FRAMING AT CORNER  
TYP TOP PLATES AT CORNER

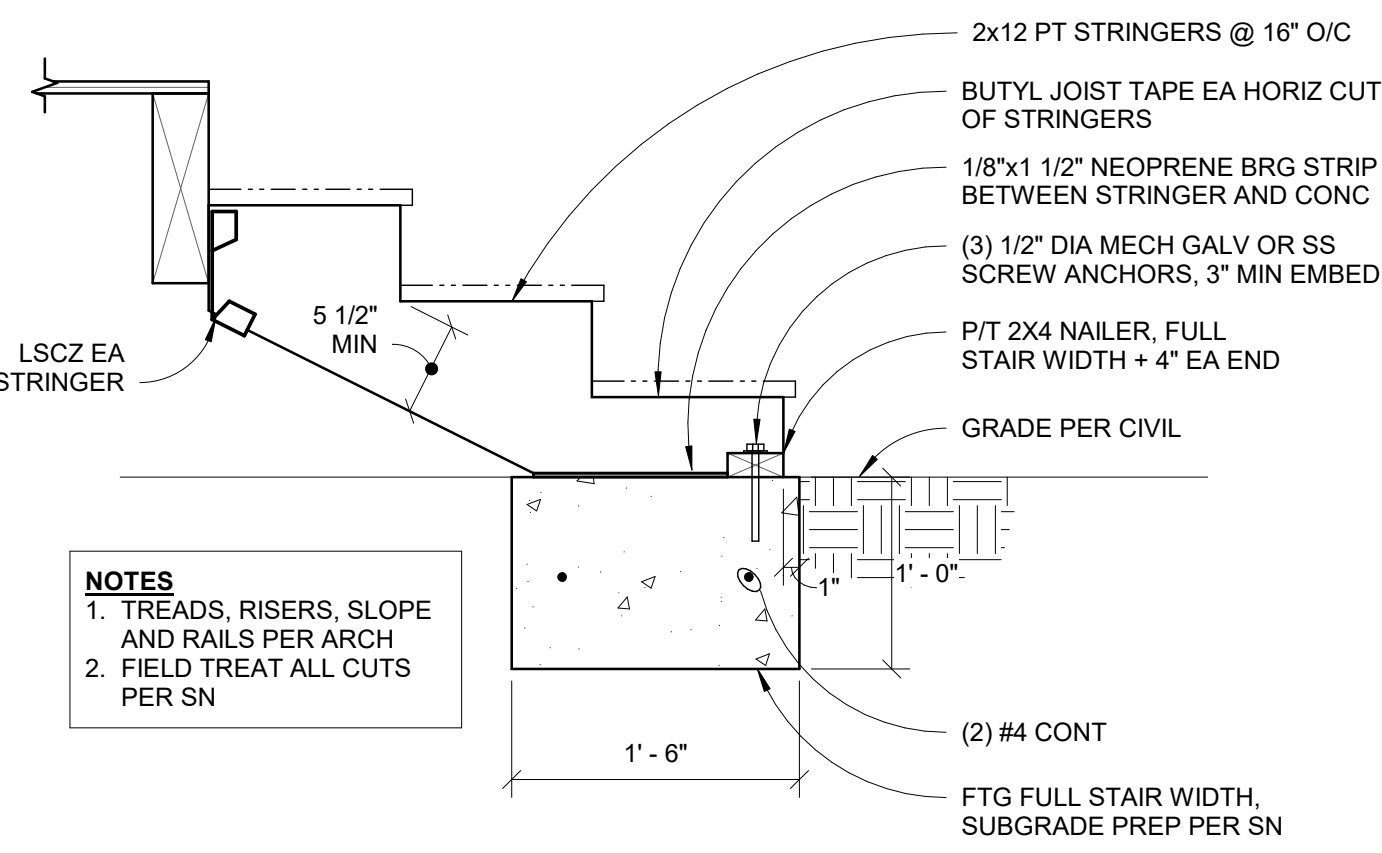
4 VILLAGE - TYP FLOOR AND WALL CORNER FRAMING  
3/4" = 1'-0"



1 VILLAGE - TYP DECK SECTION  
1" = 1'-0"

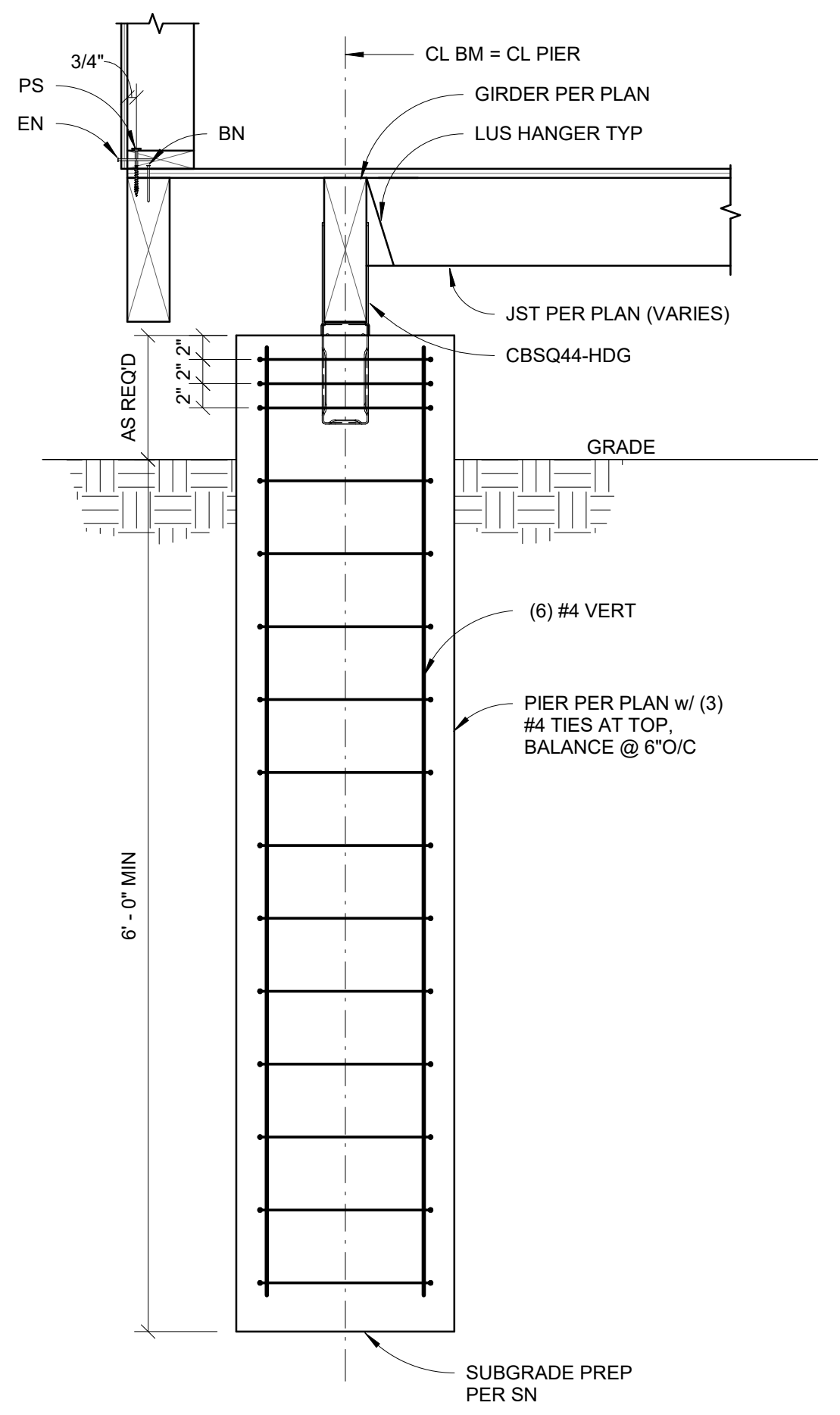


5 TYP ROOF RIDGE BLOCKING  
1 1/2" = 1'-0"



**NOTES**  
1. TREADS, RISERS, SLOPE AND RAILS PER ARCH  
2. FIELD TREAT ALL CUTS PER SN

2 VILLAGE - TYP WOOD STAIRS  
1" = 1'-0"



3 VILLAGE - TYP SECTION AT PIER BENEATH BUILDING  
1" = 1'-0"

8 TYP REINF AT CMU WALL OPENINGS  
1/4" = 1'-0"

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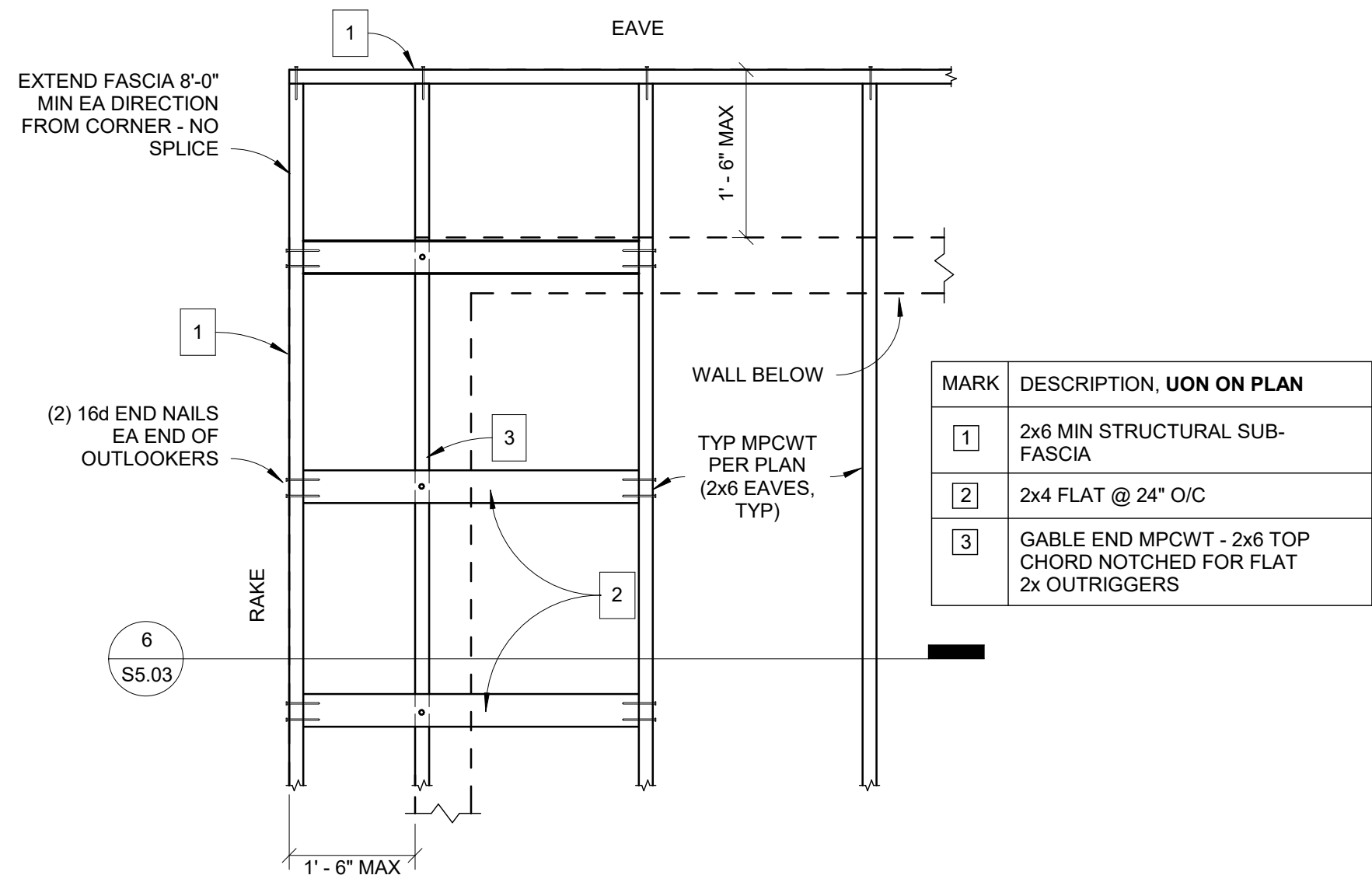
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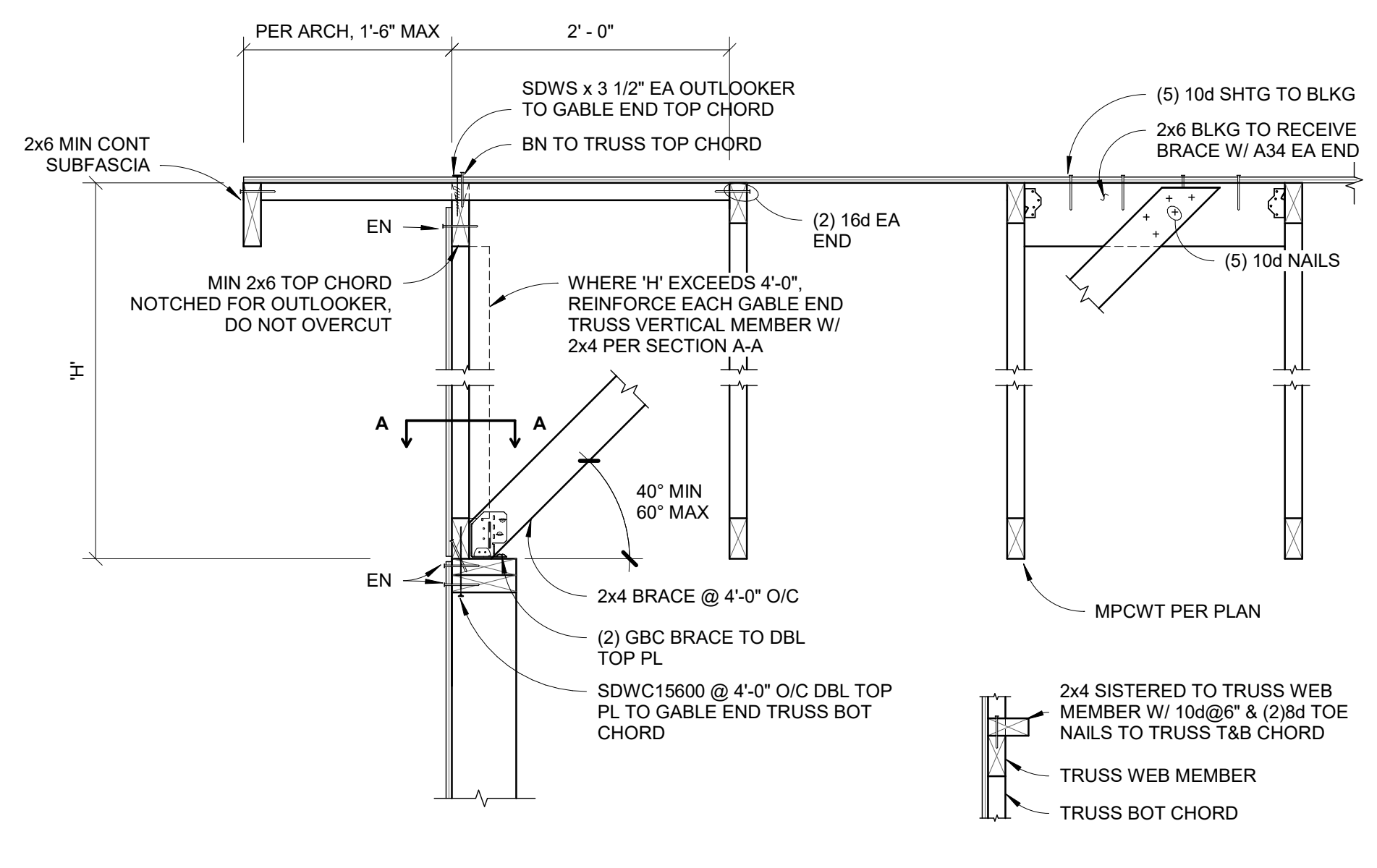
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PROJECT#:	21239
DRAWN BY:	GK
CHECKED BY:	DL
DATE ISSUED:	1/26/24

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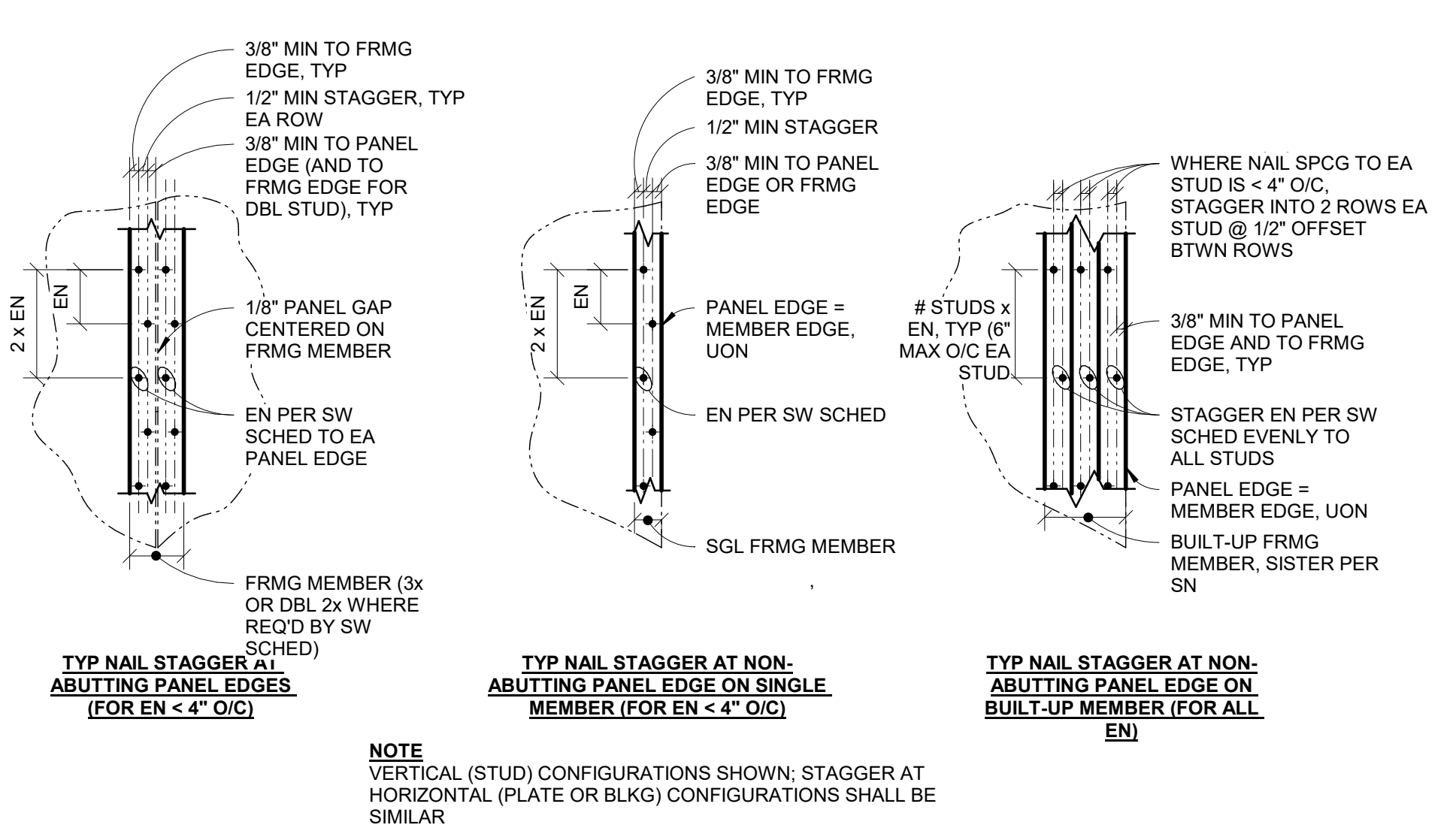


7 WOOD FRAMING - TYP ROOF EAVE CORNERS  
3/4" = 1'-0"

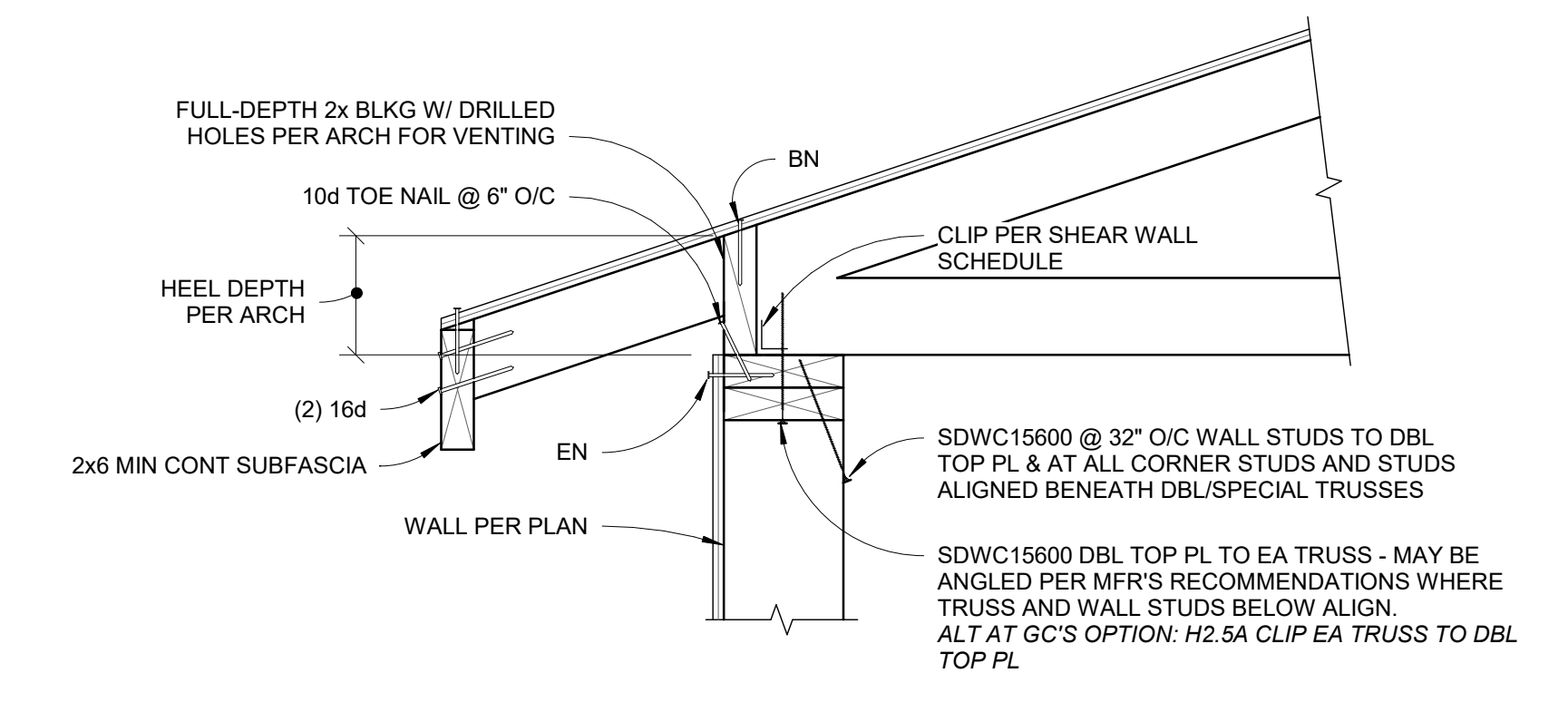


5 TYP MPCWT BEARING  
1 1/2" = 1'-0"

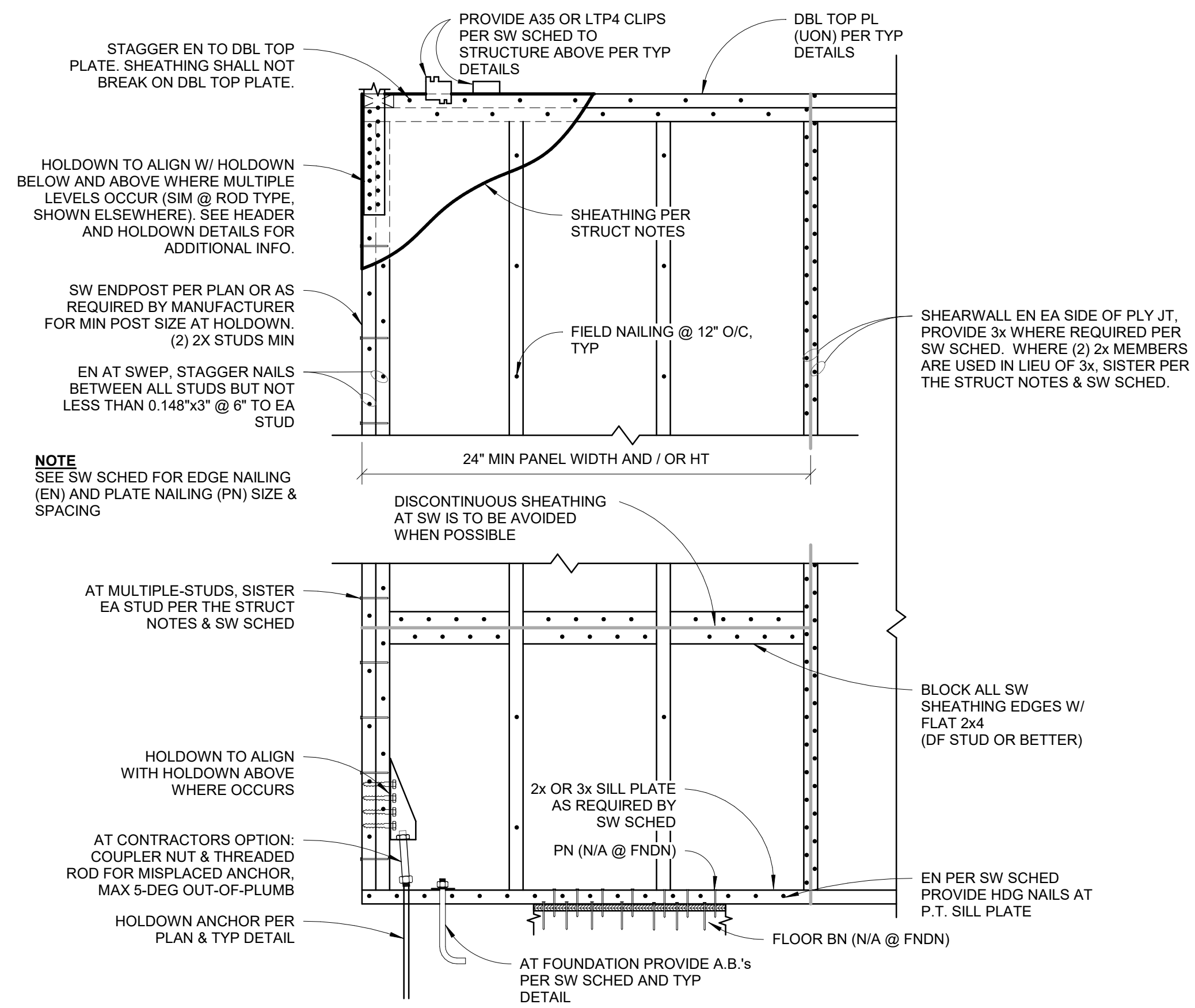
6 TYP GABLE END BRACING AT WOOD WALL  
1" = 1'-0"



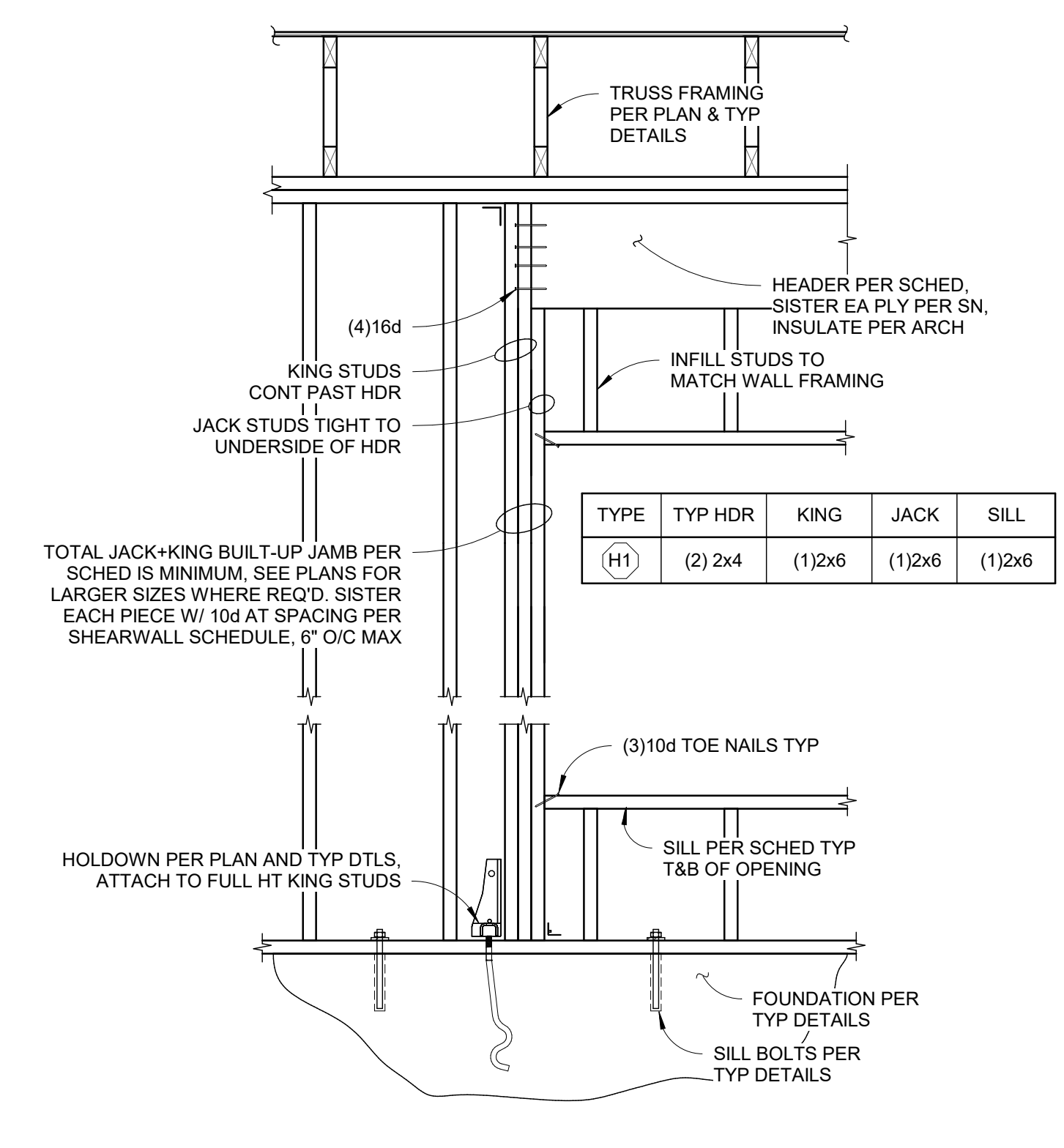
3 TYP SHEARWALL NAIL STAGGER  
1 1/2" = 1'-0"



4 TYP ROOF SHEATHING LAYOUT  
1/4" = 1'-0"



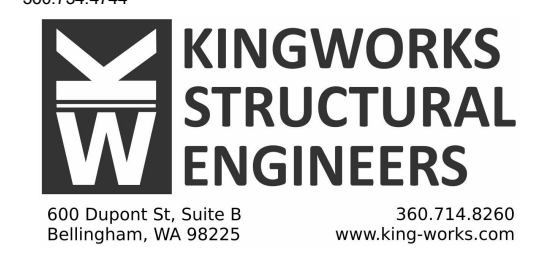
2 TYP SHEARWALL CONSTRUCTION  
1" = 1'-0"



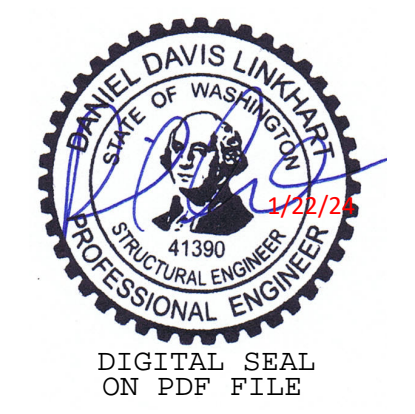
1 WOOD FRAMING - TYP HEADER FRAMING  
3/4" = 1'-0"



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REV	ISSUED FOR	Date

PLAN NORTH  
SCALE:  
As indicated

PSE - OPERATIONAL TRAINING CENTER

SITE STRUCTURE DETAILS

PROJECT#:	21239
DRAWN BY:	GK
CHECKED BY:	DL
DATE ISSUED:	1/26/24

S5.03