

US Army Corps of Engineers  
Huntsville Division

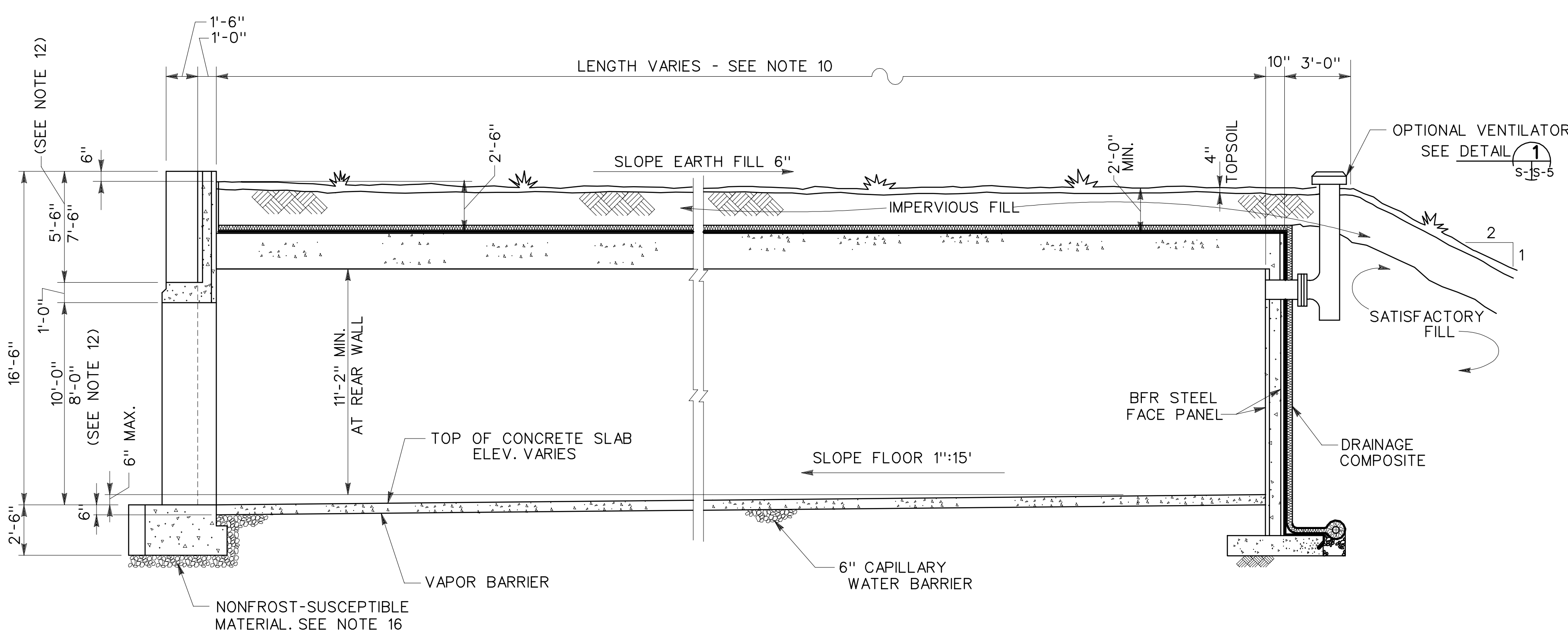
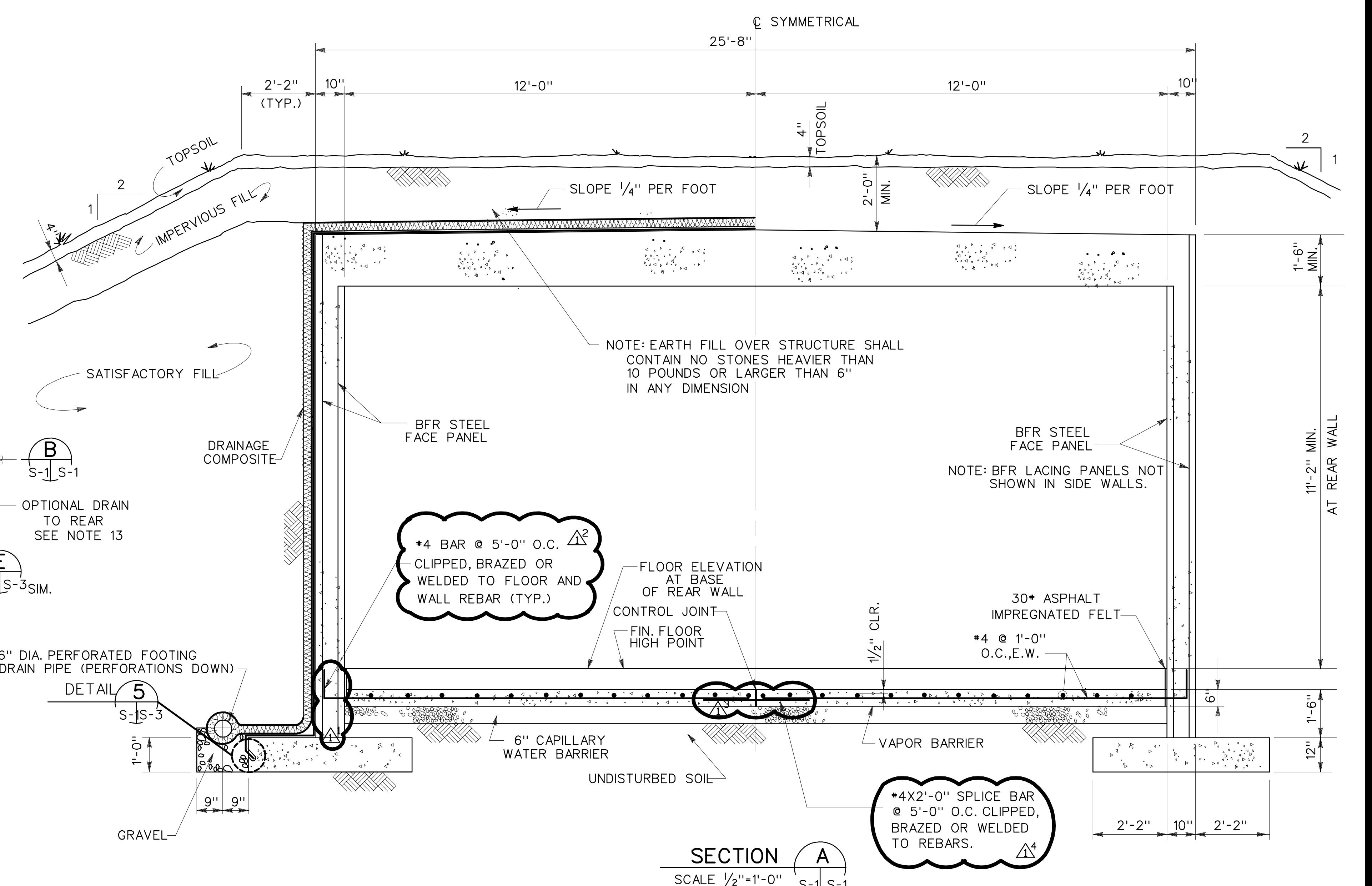
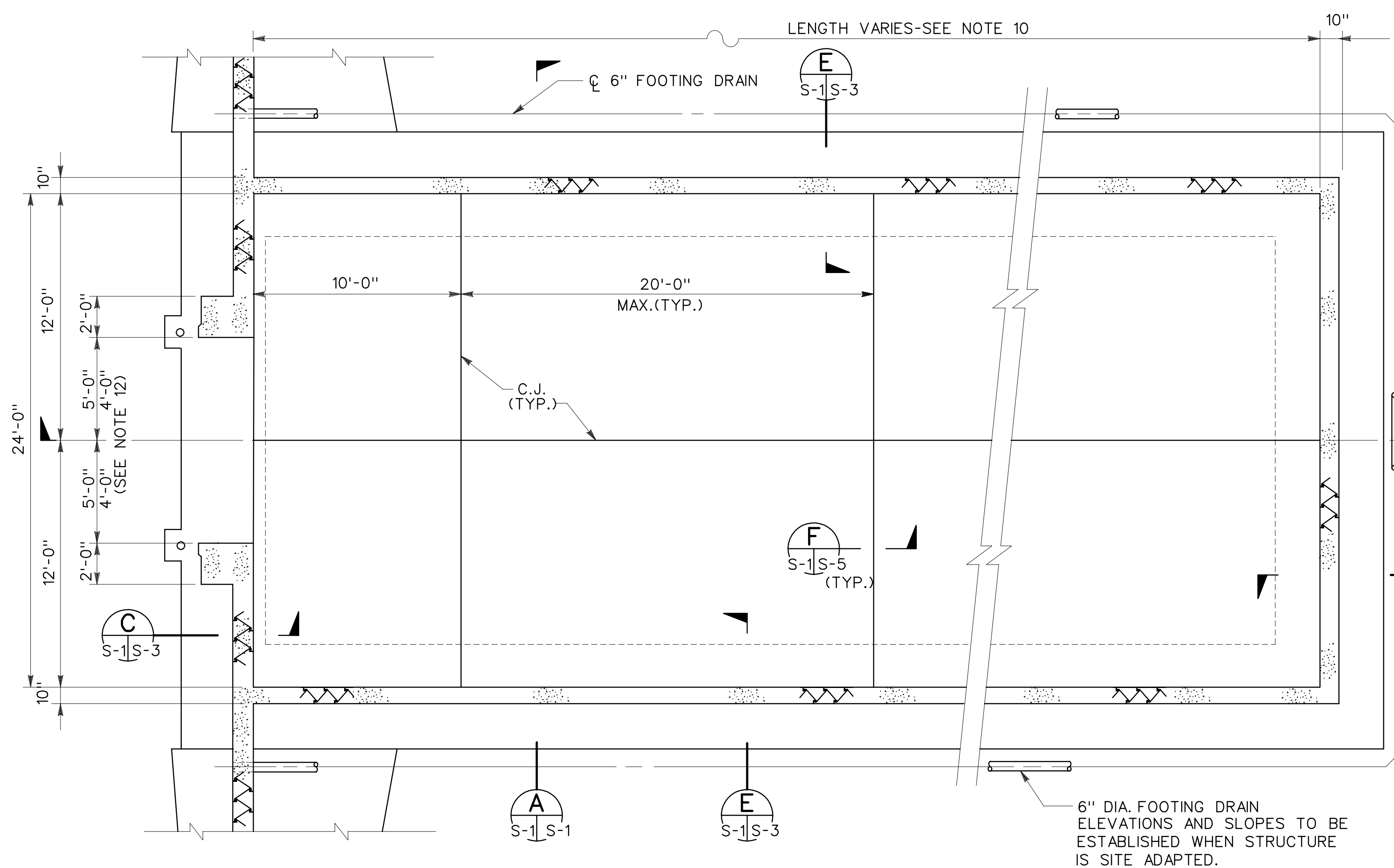
# Magazine, Steel and Concrete Box, Earth Covered

## Standard Design 421-80-02

### DRAWING INDEX

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Approved Functional Adequacy DAVID K. WALLACE, CAPT., 09FEB 93 CHAIRMAN, DOD EXPLOSIVES DATE SAFETY BOARD					
PREPARED BY					
PRINCIPAL, A/E FIRM DATE					
CONSTRUCTIBILITY REVIEW					
CHIEF, CONSTRUCTION DIV. DATE					
REVIEWED BY :					
CHIEF, CS DIVISION DATE					
REVIEWED BY :					
CHIEF, ME DIVISION DATE					
RECOMMENDED BY :					
DIRECTOR OF ENGINEERING DATE					
APPROVED BY :					
DIVISION ENGINEER DATE					
SYMBOL		DESCRIPTION		DATE APPROVED	
SITE ADAPT A/E :		US ARMY ENGINEER DIVISION, HUNTSVILLE CORPS OF ENGINEERS HUNTSVILLE, ALABAMA			
DWN. BY RDP		CKD. BY JMS		MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED DRAWING INDEX & COVER SHEET	
REVIEWED BY :		DATE : 15 DEC 92		SHEET REFERENCE NUMBER : DESIGN FILE NO. 65820	
APPROVED BY :		DRAWING CODE : STD 421-80-02		REV : G-1 SHEET 1 OF 11	



GENERAL NOTES:

- THIS MAGAZINE SHALL BE CONSTRUCTED USING THE BLAST AND FRAGMENT RESISTANT (BFR) WALL SYSTEM, ALSO KNOWN AS THE AGAN STEEL PANEL (ASP) WALL SYSTEM. THIS SYSTEM IS PROTECTED BY U.S. PATENT NUMBER 4,433,522.
- BFR WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PATENT HOLDER AND THE SPECIFICATIONS.
- ALL BFR STEEL FACE PANELS AND LACING PANELS SHALL CONFORM TO ASTM A446, GRADE B, GALVANIZED, WITH MINIMUM YIELD STRENGTH OF 36,000 PSI. STEEL THICKNESSES SHALL BE AS SHOWN. DIMENSIONS AND CORRUGATION PATTERN SHALL BE AS SHOWN OR SHALL PROVIDE STEEL AREA AND SECTION PROPERTIES EQUAL TO OR GREATER THAN THOSE SHOWN.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
- ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
- ALL STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO ASTM A36, UNLESS OTHERWISE NOTED.
- ALL WELDING FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH AWS D 1.1.
- NO WELDING OF REINFORCING BARS SHALL BE PERMITTED.
- UNLESS SHOWN OTHERWISE, ALL REINFORCING BAR HOOKS AND CONCRETE COVER OVER REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI 318-89.
- THE MAGAZINE IS NORMALLY CONSTRUCTED IN LENGTHS OF 60'-0" OR 80'-0", ALTHOUGH OTHER LENGTHS CAN BE CONSTRUCTED. MAXIMUM LENGTH OF THE MAGAZINE WITH THE FLOOR SLOPE SHOWN IS 90'-0".
- ALL METAL PARTS, TO INCLUDE REINFORCEMENT, LOUVERS, VENTILATOR, DOOR, DOOR FRAME, ETC., SHALL BE MADE ELECTRICALLY CONTINUOUS BY CLIPPING, BRAZING OR WELDING. ELECTRICAL CONTINUITY SHALL BE PROVIDED CROSS FLOOR CONSTRUCTION JOINTS AND ACROSS FLOOR ISOLATION JOINTS TO ARCH REINFORCEMENT AT 5 LINEAR FEET INTERVALS. ACCEPTABLE ELECTRICAL CONTINUITY METHODS ARE REINFORCEMENT BARS, COPPER STRAPS, ETC.
- OVERALL PLAN DIMENSIONS OF THE MAGAZINE ARE NOMINAL AS SHOWN. AT THE CONTRACTOR'S OPTION, THE LENGTH AND WIDTH OF THE MAGAZINE AND THE LENGTH OF THE WINGWALLS CAN BE INCREASED TO THE LENGTH NECESSARY TO USE THE NEXT HIGHEST INTEGRAL NUMBER OF BFR MODULAR UNITS. HEIGHT OF THE MAGAZINE SHALL BE AS SHOWN.
- THE DOOR OPENING SHALL BE SIZED FOR EITHER THE 10'-0" OR 8'-0" DOOR AS DESIRED.
- THE DRAINAGE SYSTEM SHALL BE EITHER THE DRAINAGE COMPOSITE FILTER SYSTEM OR THE ALTERNATE SAND AND GRAVEL SYSTEM, AT THE CONTRACTOR'S OPTION. DRAINS SHALL BE SITE ADAPTED TO DRAIN TO EITHER THE FRONT OR REAR OF THE MAGAZINE.
- ALL BURIED BFR STEEL SURFACES AND THE MAGAZINE ROOF SHALL BE WATERPROOFED. FOR THE SAND AND GRAVEL FILTER DRAINAGE SYSTEM, FLUID-APPLIED WATERPROOFING MEMBRANE SHALL BE USED. FOR THE DRAINAGE COMPOSITE SYSTEM, ELASTOMERIC MEMBRANE WATERPROOFING SHALL BE USED.

Symbol	Description	Date	Approved
⚡	GENERAL REVISION FOR LIGHTNING PROTECTION	11JUN98	WAW

U.S. ARMY ENGINEER DIVISION,  
HUNTSVILLE, ALABAMA

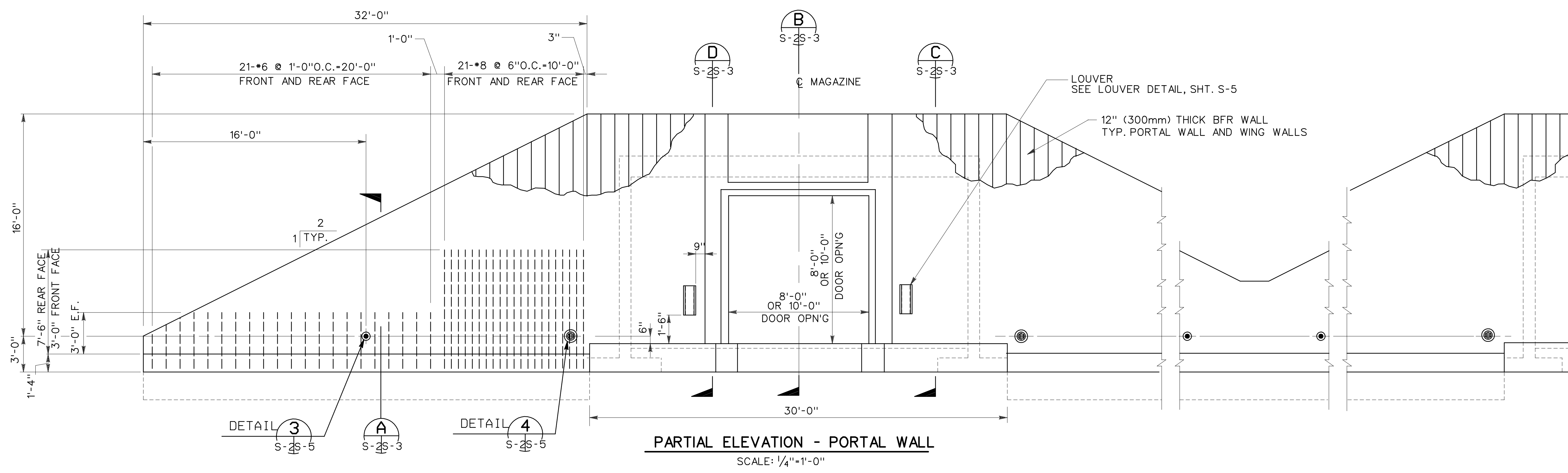
Site adapt A/E: MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED

FLOOR PLAN AND SECTIONS

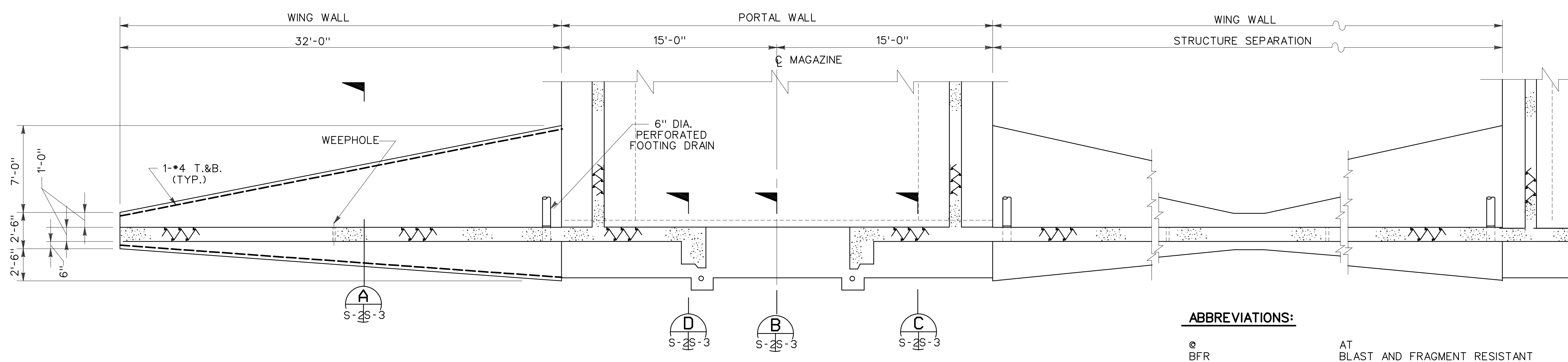
Dwn. by: RP  
Ckd. by: JMS

Reviewed by: \_\_\_\_\_ Date: 15 DEC 92  
Sheet reference number: \_\_\_\_\_ Design file no.: 65821

Approved by: \_\_\_\_\_ Drawing code: STD 421-80-02  
Sheet 2 of 11



**PARTIAL ELEVATION - PORTAL WALL**  
SCALE: 1/4"=1'-0"



**PARTIAL PLAN - PORTAL WALL**  
SCALE: 1/4"=1'-0"

**EXPLOSIVE SAFETY REQUIREMENTS:**

1. THE MAXIMUM NET EXPLOSIVE WEIGHT (NEW) STORED IN EACH MAGAZINE SHALL BE 500,000 POUNDS, CLASS/DIVISION 1.1.
2. SITING OF MAGAZINES SHALL BE IN ACCORDANCE WITH DOD 6055.9-STD, "AMMUNITION AND EXPLOSIVES SAFETY STANDARDS".
3. MODIFICATIONS TO THE STRUCTURE, EXCEPT FOR SITE ADAPTATION OF WING WALLS AND FOUNDATIONS, ARE NOT PERMITTED. IF ANY MODIFICATIONS ARE MADE, THE MAGAZINE SHALL BE CONSIDERED NON-STANDARD AND LIMITED TO 250,000 POUNDS NEW AND SHALL BE SITED ACCORDINGLY.

**ABBREVIATIONS:**

⊙	BFR	BLAST AND FRAGMENT RESISTANT
C.J.	C.J.	CONSTRUCTION JOINT
⊖	CLR	CENTERLINE
CONC.	CONC.	CONCRETE
CY	CY	CUBIC YARD
DIA.	DIA.	DIAMETER
E.F.	E.F.	EACH FACE
ELEV.	ELEV.	ELEVATION
E.W.	E.W.	EACH WAY
EXP.	EXP.	EXPANSION
GALV.	GALV.	GALVANIZED
GA.	GA.	GAUGE
LG.	LG.	LONG
MAX.	MAX.	MAXIMUM
MIN.	MIN.	MINIMUM
mm	mm	MILLIMETERS
MS	MS	MILLISECONDS
NEW	NEW	NET EXPLOSIVE WEIGHT
NOM.	NOM.	NOMINAL
O.C.	O.C.	ON CENTER
OP'G	OP'G	OPENING
PL	PL	PLATE
PCF	PCF	POUNDS PER CUBIC FOOT
PSF	PSF	POUNDS PER SQUARE FOOT
PSI	PSI	POUNDS PER SQUARE INCH
R.	R.	RADIUS
REQ'D	REQ'D	REQUIRED
SHT.	SHT.	SHEET
SIM.	SIM.	SIMILAR
STD.	STD.	STANDARD
SYM.	SYM.	SYMMETRICAL
T.&B.	T.&B.	TOP AND BOTTOM
TYP.	TYP.	TYPICAL
W/	W/	WITH
W	W	NET EXPLOSIVE WEIGHT

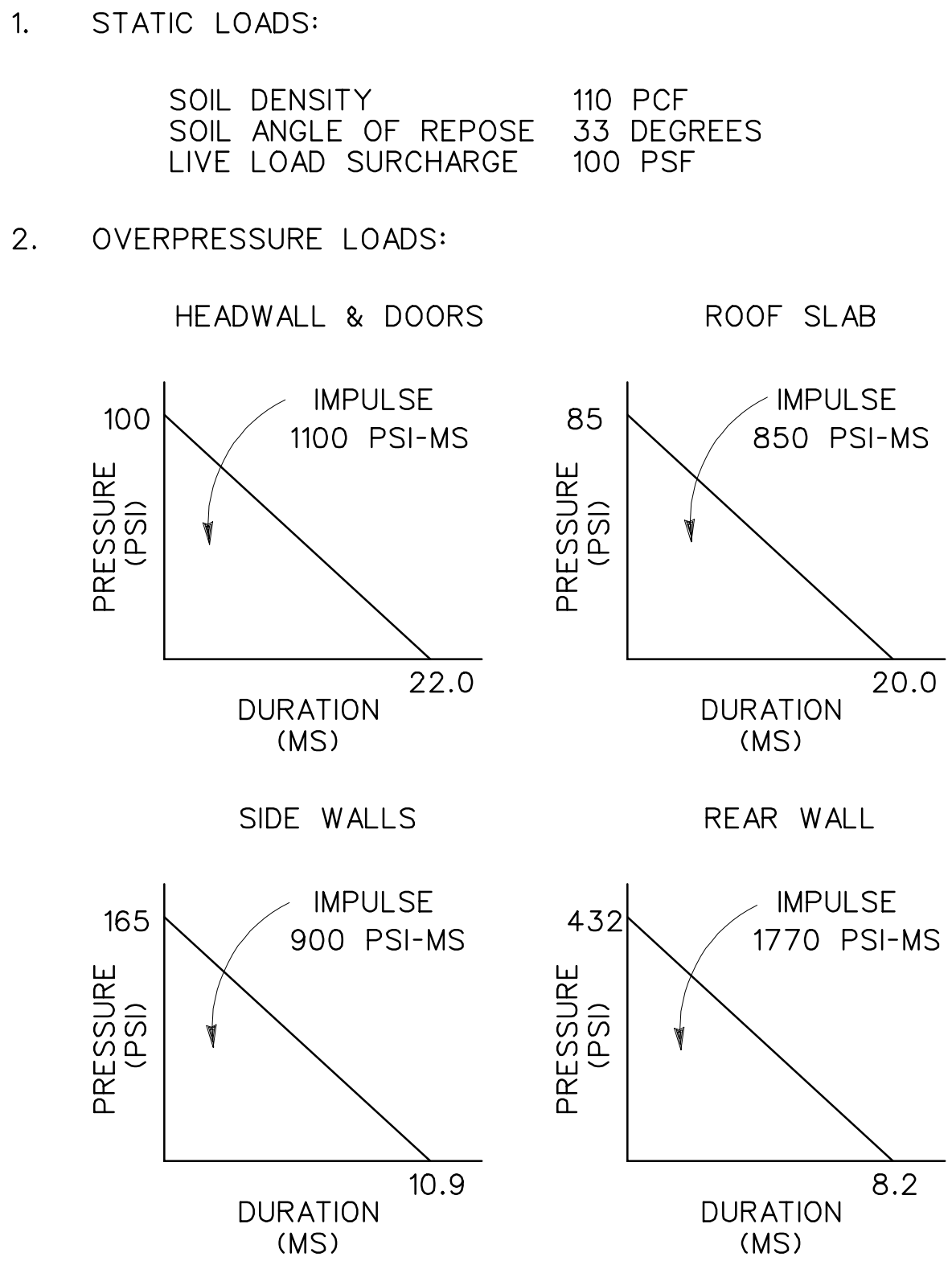
**GRAPHIC SCALES:**



**GENERAL NOTES:** (CONTINUED FROM S-1)

15. REINFORCING STEEL, BFR STEEL PANELS, AND ALL OTHER METAL SHALL BE MADE ELECTRICALLY CONTINUOUS. SEE NOTE 9 ON SHEET E-1.
16. FOUNDATIONS SHOWN ARE DESIGNED FOR A FROST DEPTH OF 2'-6" OR LESS. IF FROST DEPTH IS DEEPER, PROVIDE NON-FROST-SUSCEPTIBLE MATERIAL UNDER HEADWALL FOOTINGS OR LOWER FOOTINGS.
17. IF AS A RESULT OF THE FOUNDATION INVESTIGATION OR LOCAL FROST CONDITIONS, IT IS DETERMINED THAT ANY OR ALL WALL FOOTINGS MUST BE LOWERED, THE APPROPRIATE WALL AND FOOTING DESIGNS MUST BE CHECKED AND ADJUSTED TO SUIT THESE CONDITIONS.
18. FOOTINGS ARE DESIGNED FOR A SOIL BEARING PRESSURE OF 3,000 PSF. FOOTINGS MUST BE REDESIGNED IF THE SOILS INVESTIGATION DOES NOT CONFIRM THIS MINIMUM BEARING CAPACITY.
19. LOUVERS AND VENTILATORS ARE OPTIONAL. THEIR NECESSITY AND SIZE SHALL BE DETERMINED DURING THE SITE ADAPTATION PROCESS BASED ON MATERIAL TO BE STORED AND GEOGRAPHICAL LOCATIONS. THE LOUVER WIDTH OF 6 INCHES SHALL BE MAINTAINED. THE LOUVER HEIGHT MAY BE VARIED AS REQUIRED.
20. WINGWALLS AND FOUNDATIONS ARE DESIGNED USING THE STATIC LOAD SOIL PROPERTIES GIVEN BELOW. WINGWALLS AND FOUNDATIONS SHALL BE REDESIGNED AS REQUIRED FOR SITE-SPECIFIC SOIL CONDITIONS.

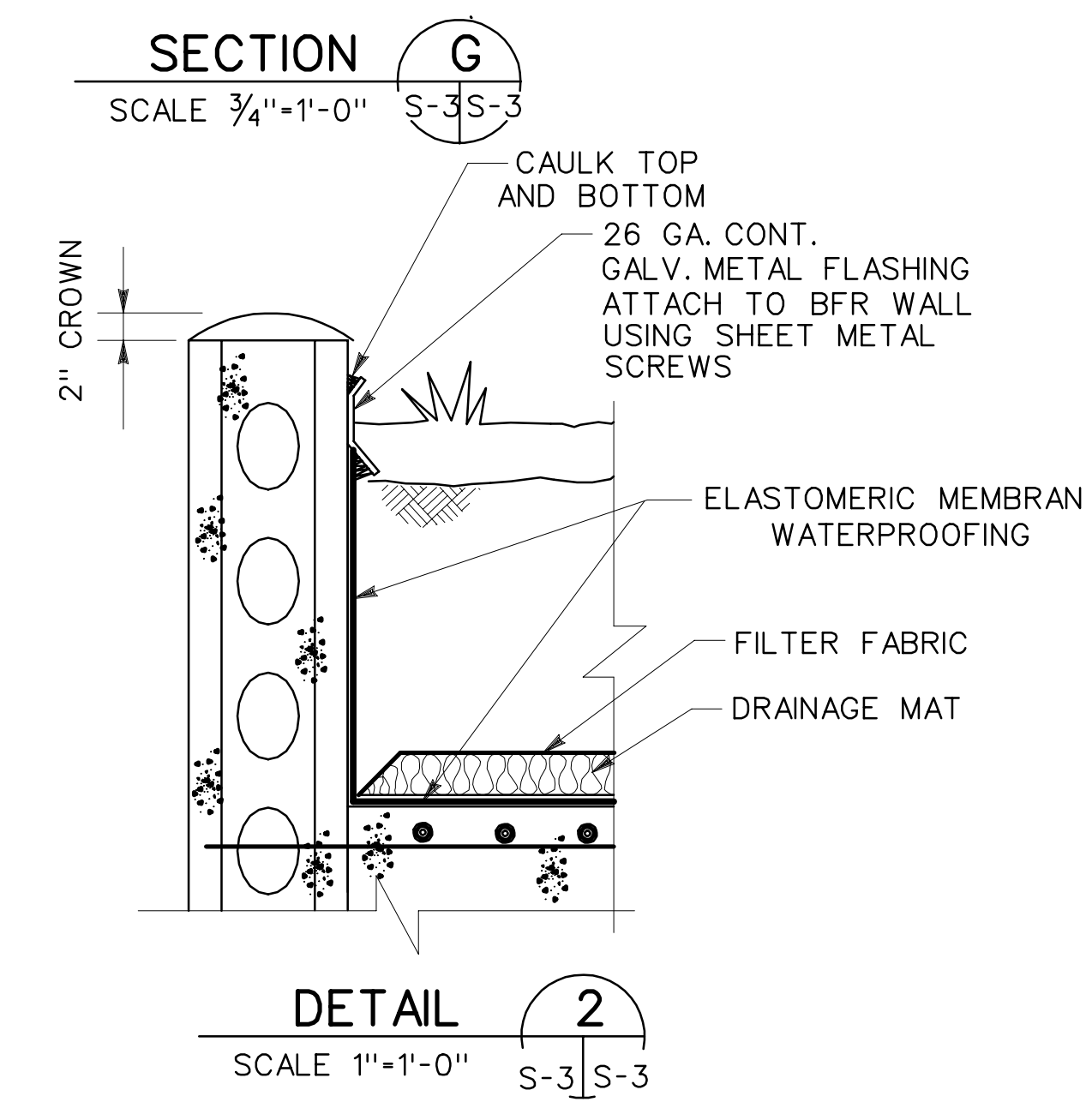
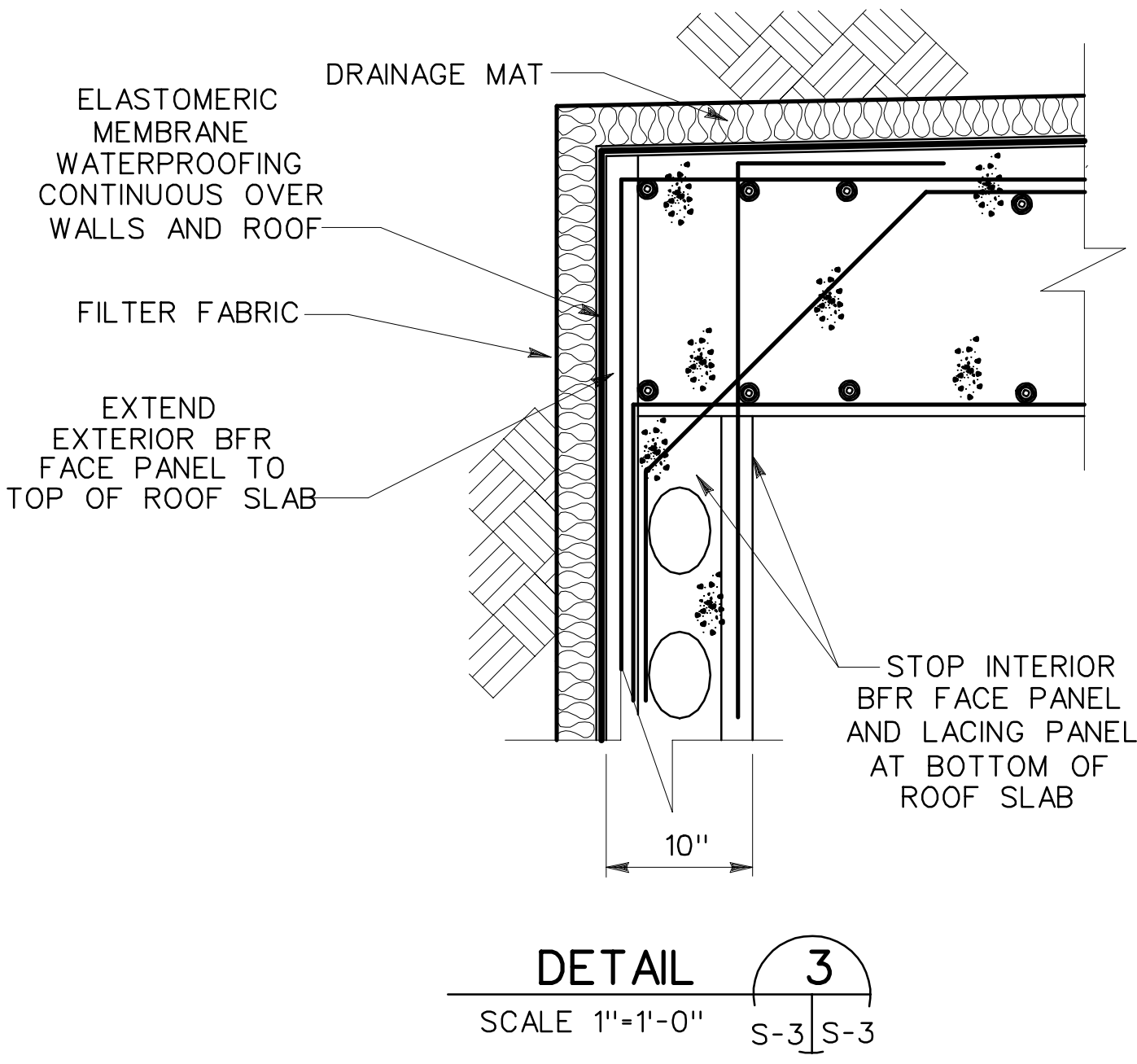
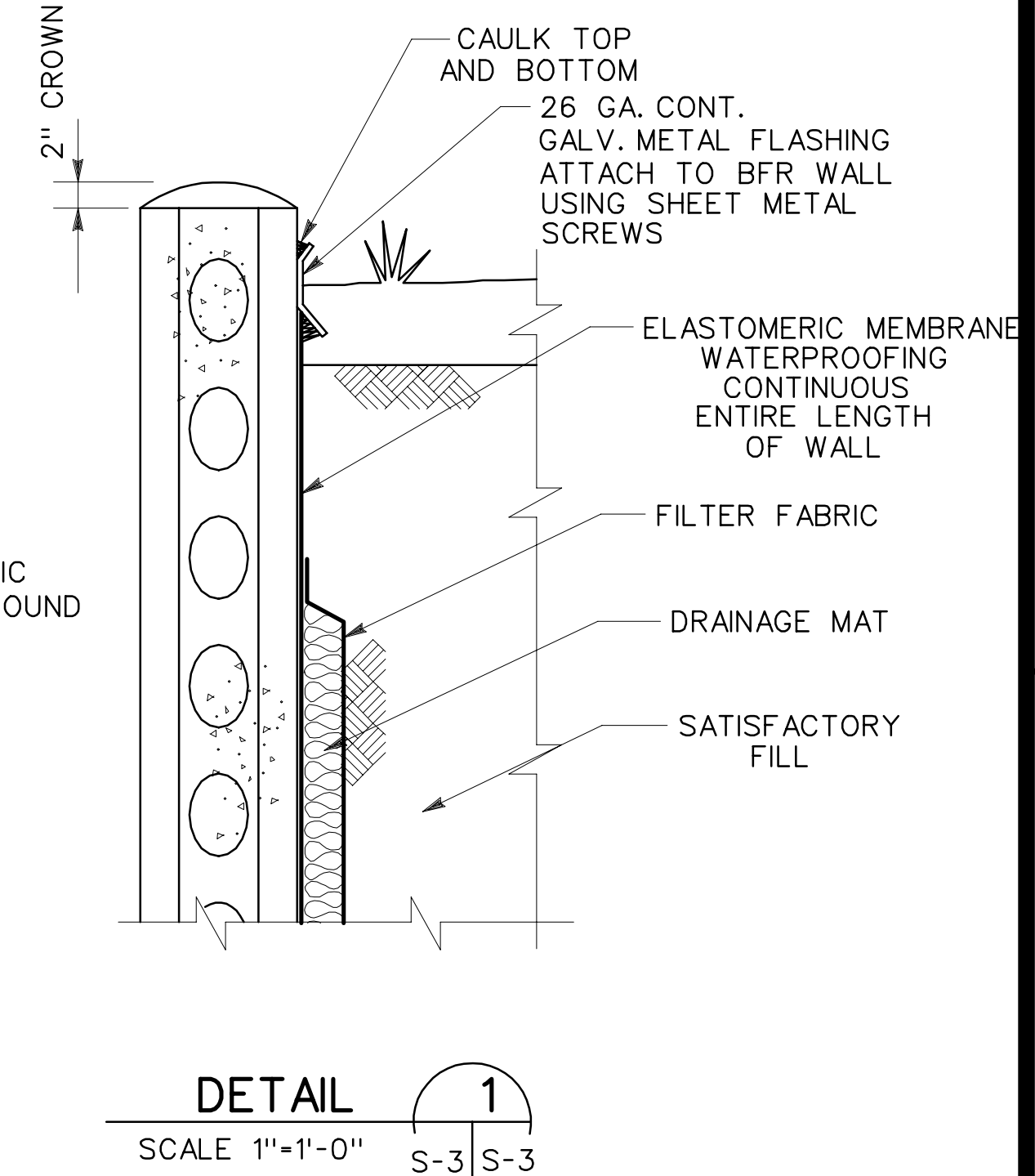
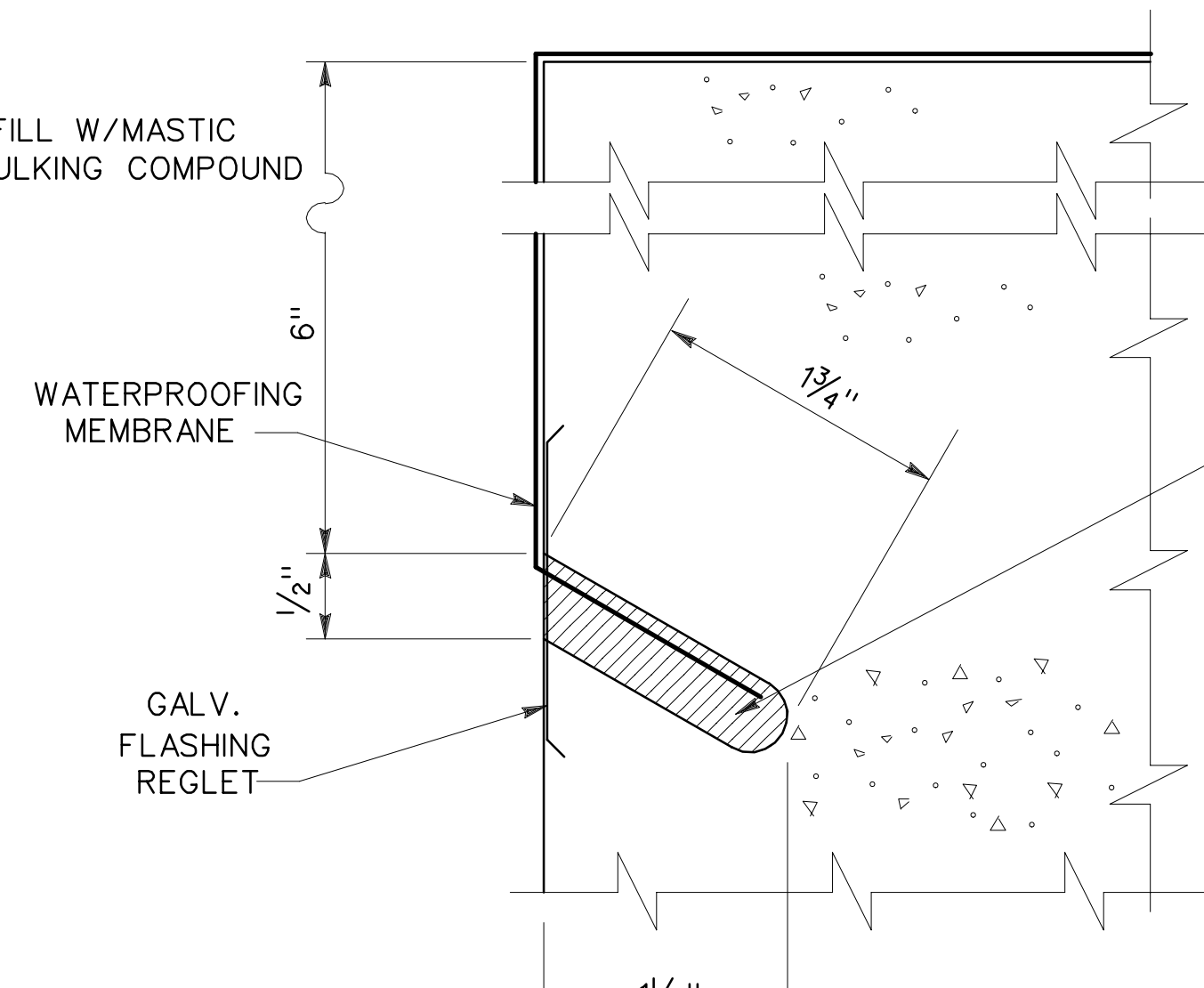
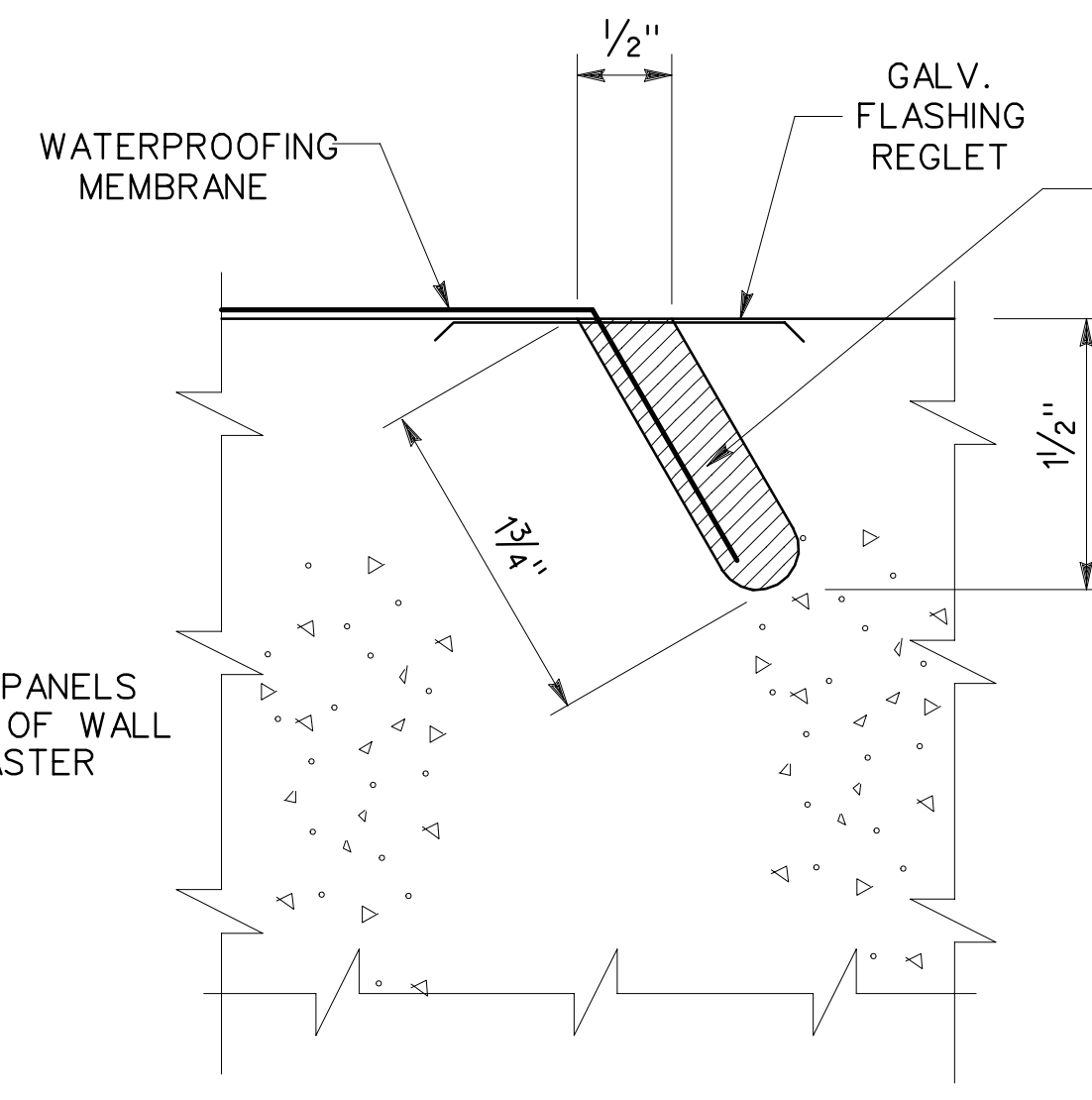
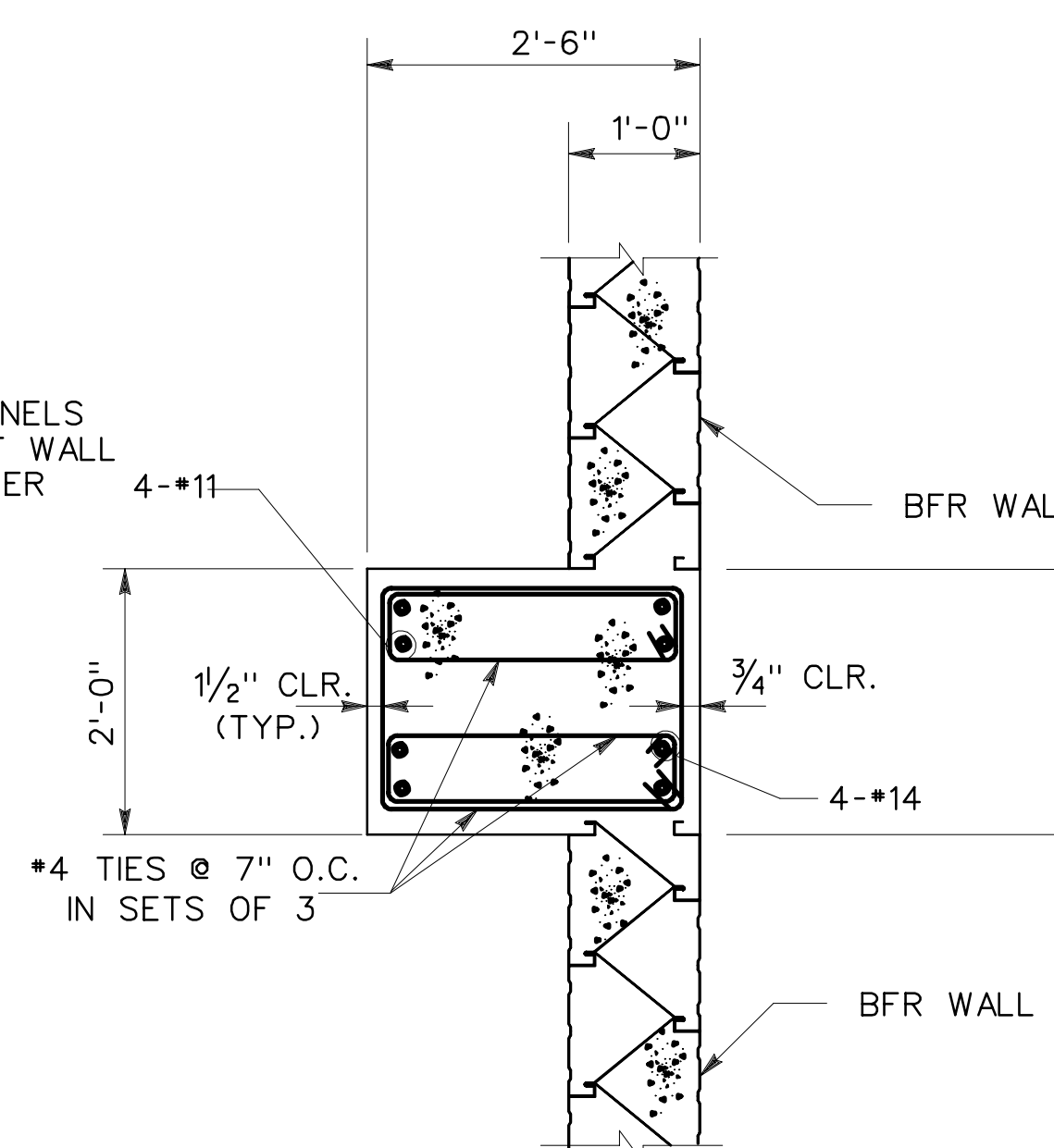
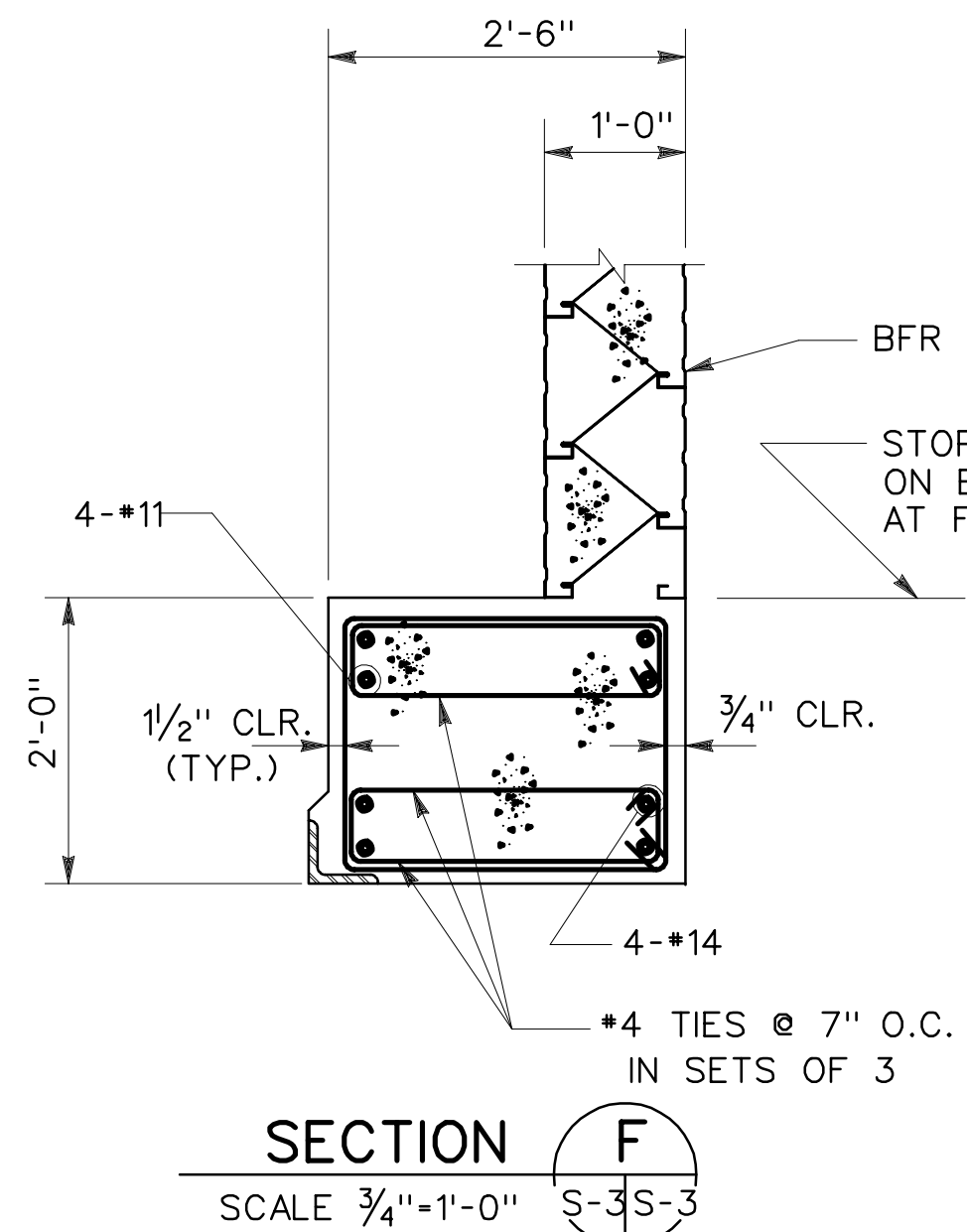
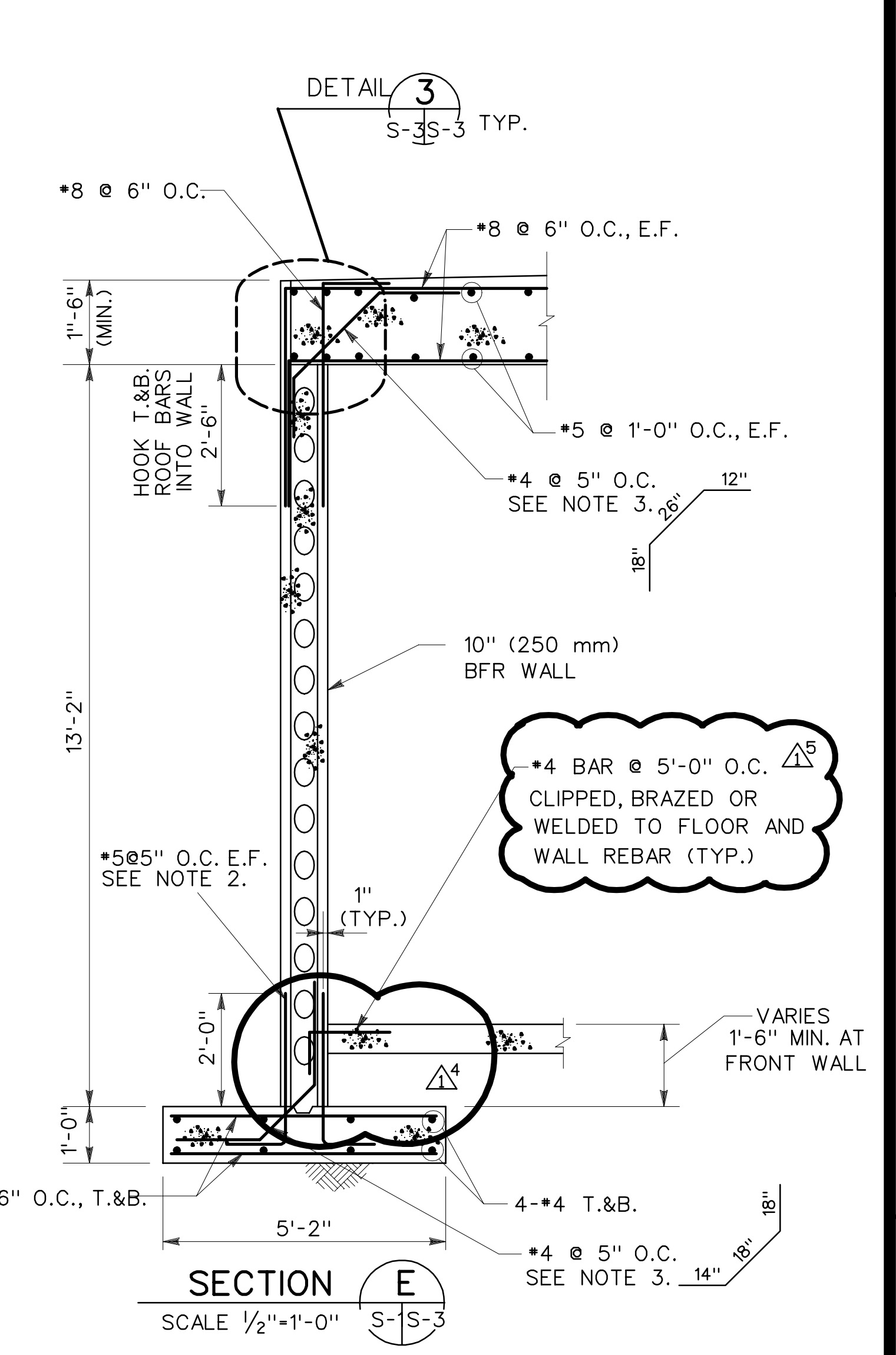
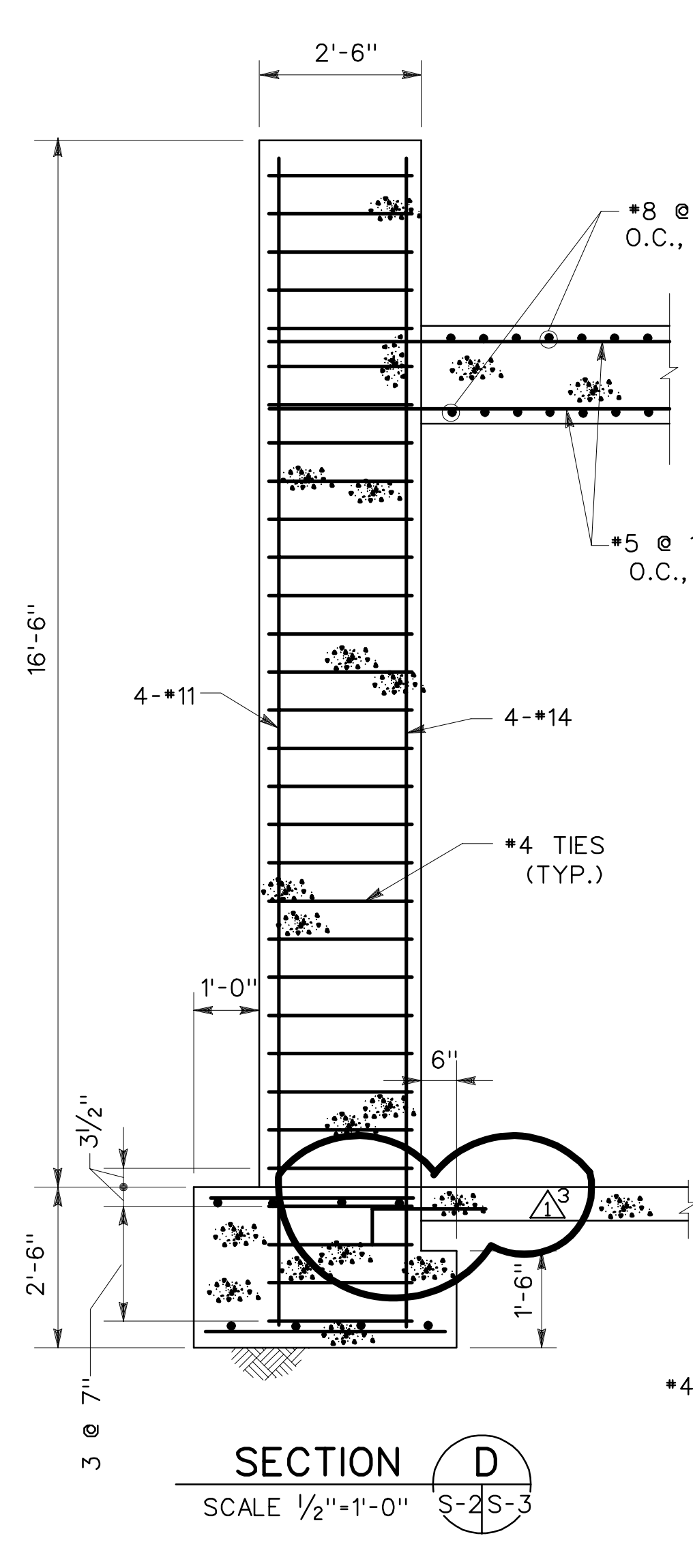
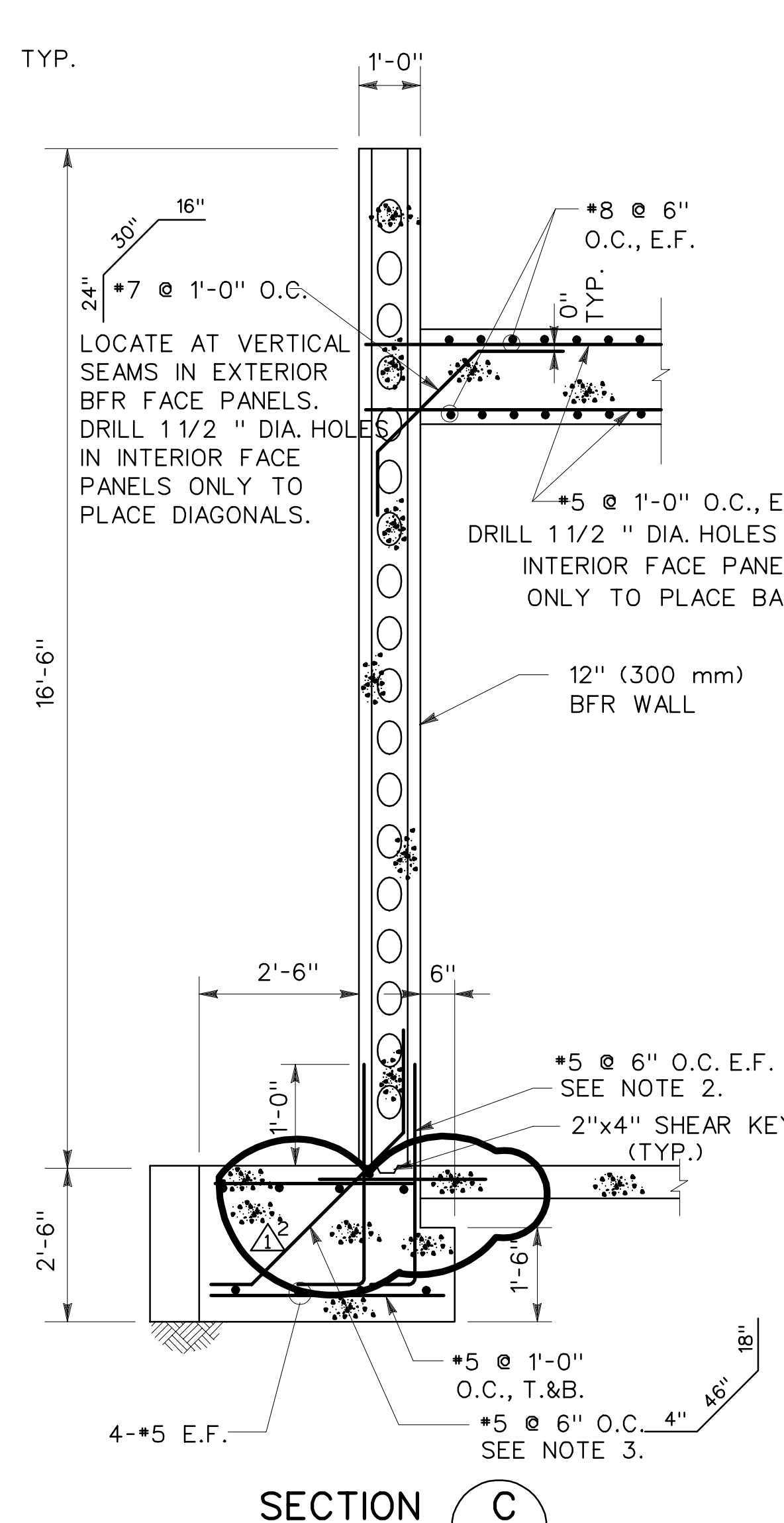
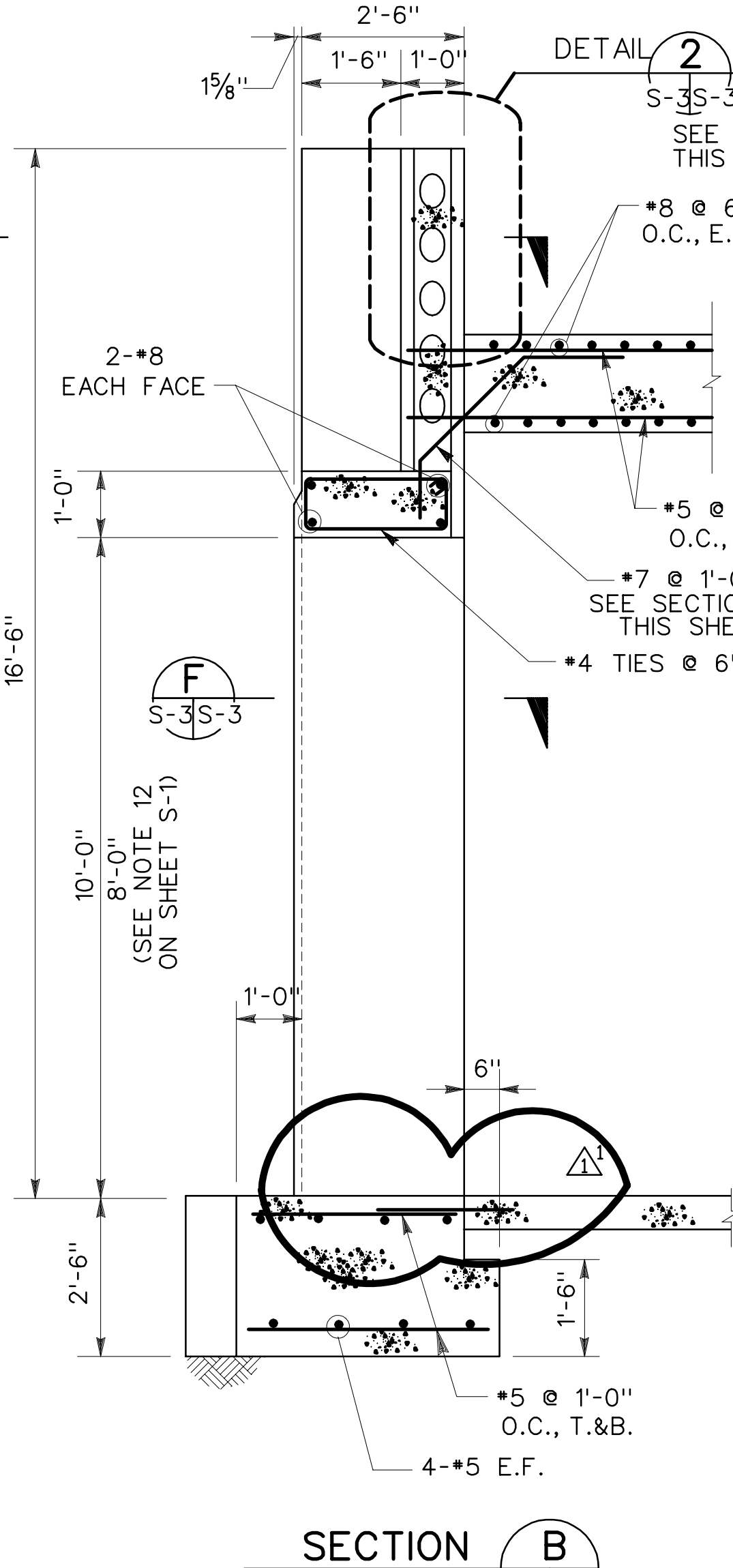
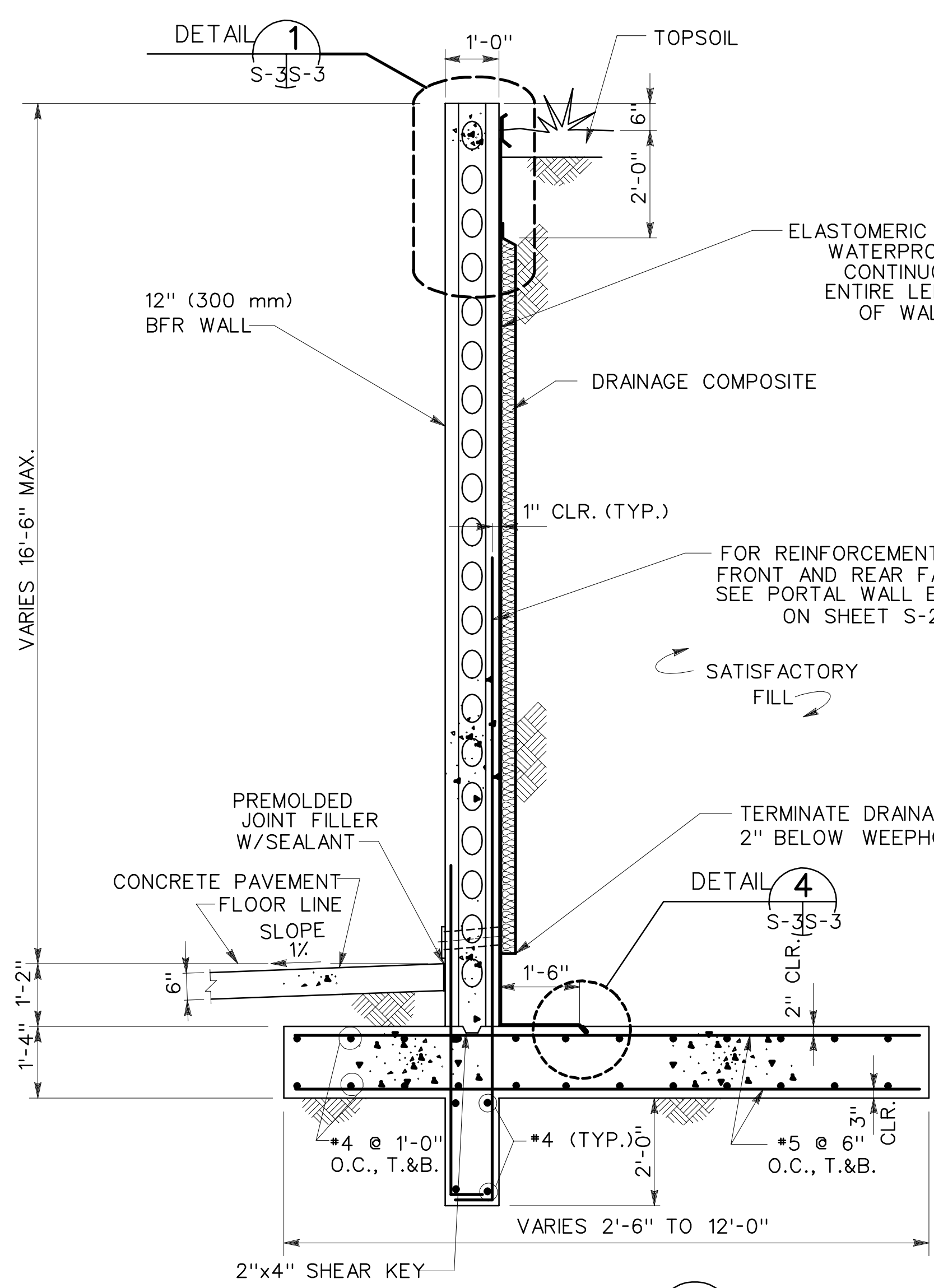
**DESIGN LOADS:**



OVERPRESSURE LOADS FOR HEADWALL, DOORS AND REAR WALL ARE FROM FRONT-TO-REAR SPACING OF 2.0W. LOADS FOR ROOF AND SIDE WALLS ARE FROM SIDE-TO-SIDE SPACING OF 1.25W.

Symbol	Description	Date	Approved

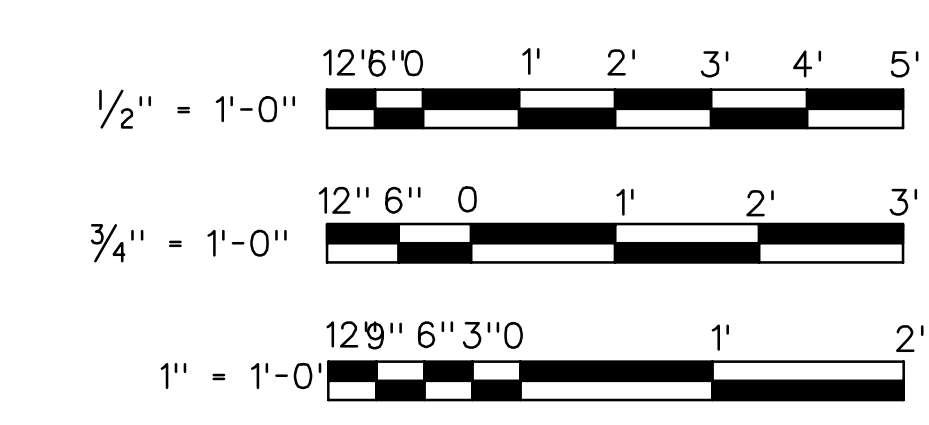
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Site adapt A/E :	<b>MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED</b>
Dwn. by: RP	Ckd. by: JMS
Reviewed by :	Date : 15 DEC 92
Approved by :	Drawing code : STD 421-80-02
Sheet reference number :	Design file no.: 65822
	Rev. :
	Sheet 3 of 11



**NOTES:**

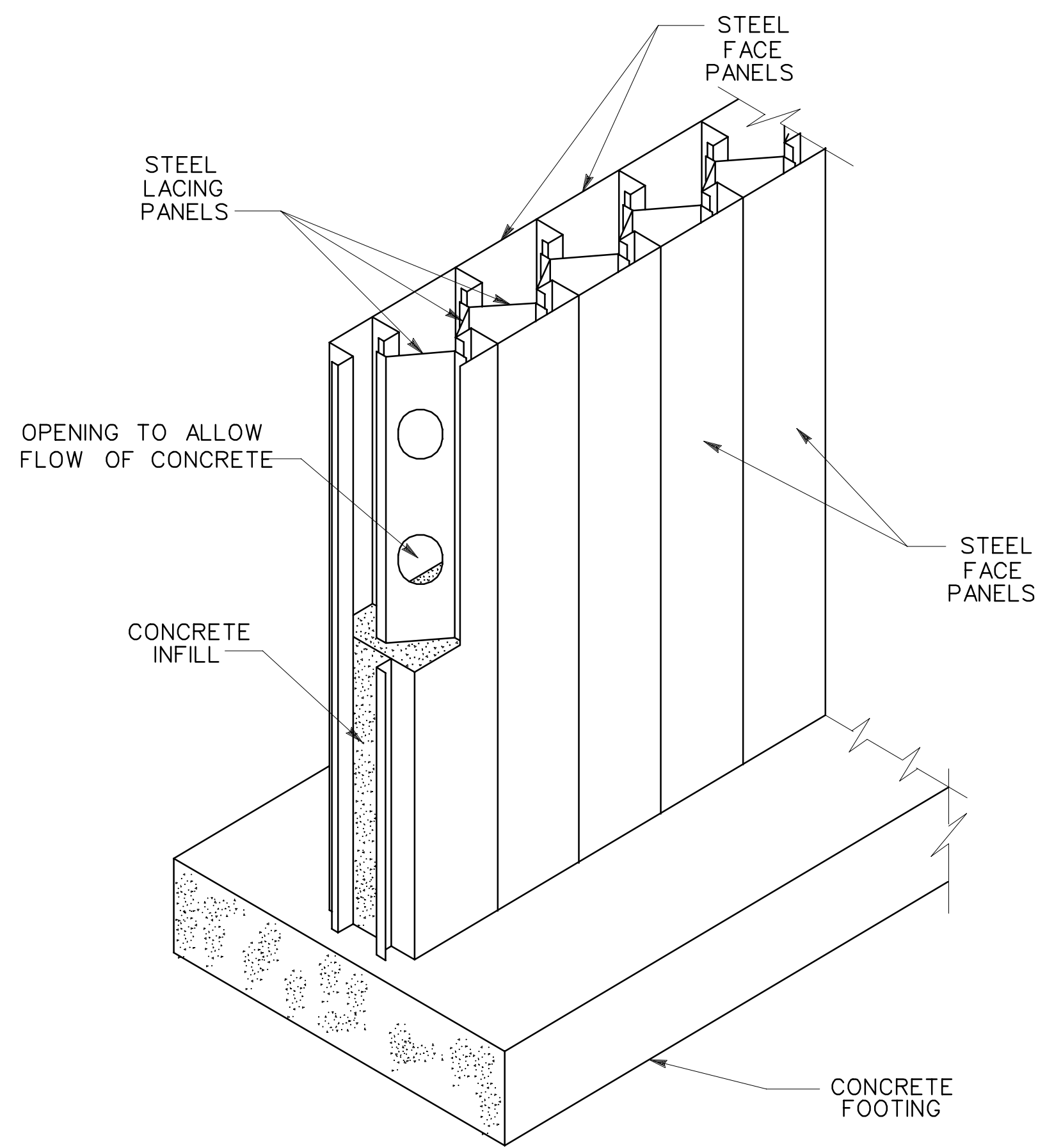
- USE DETAIL 2 ON THIS SHEET FOR COMPOSITE DRAINAGE SYSTEM. USE DETAIL 2A ON SHEET S-4 FOR SAND AND GRAVEL FILTER FILTER SYSTEM.
- CONTRACTOR SHALL CAREFULLY LOCATE REBARS BETWEEN THE FOUNDATIONS AND WALLS, SO THE REBARS CLEAR THE BFR STEEL FACE PANELS AND LACING PANELS, BEFORE POURING CONCRETE.
- LOCATE DIAGONAL REBARS AT THE VERTICAL SEAMS IN THE BFR STEEL FACE PANELS, IN ORDER TO CLEAR THE LACING PANELS.

**GRAPHIC SCALES:**

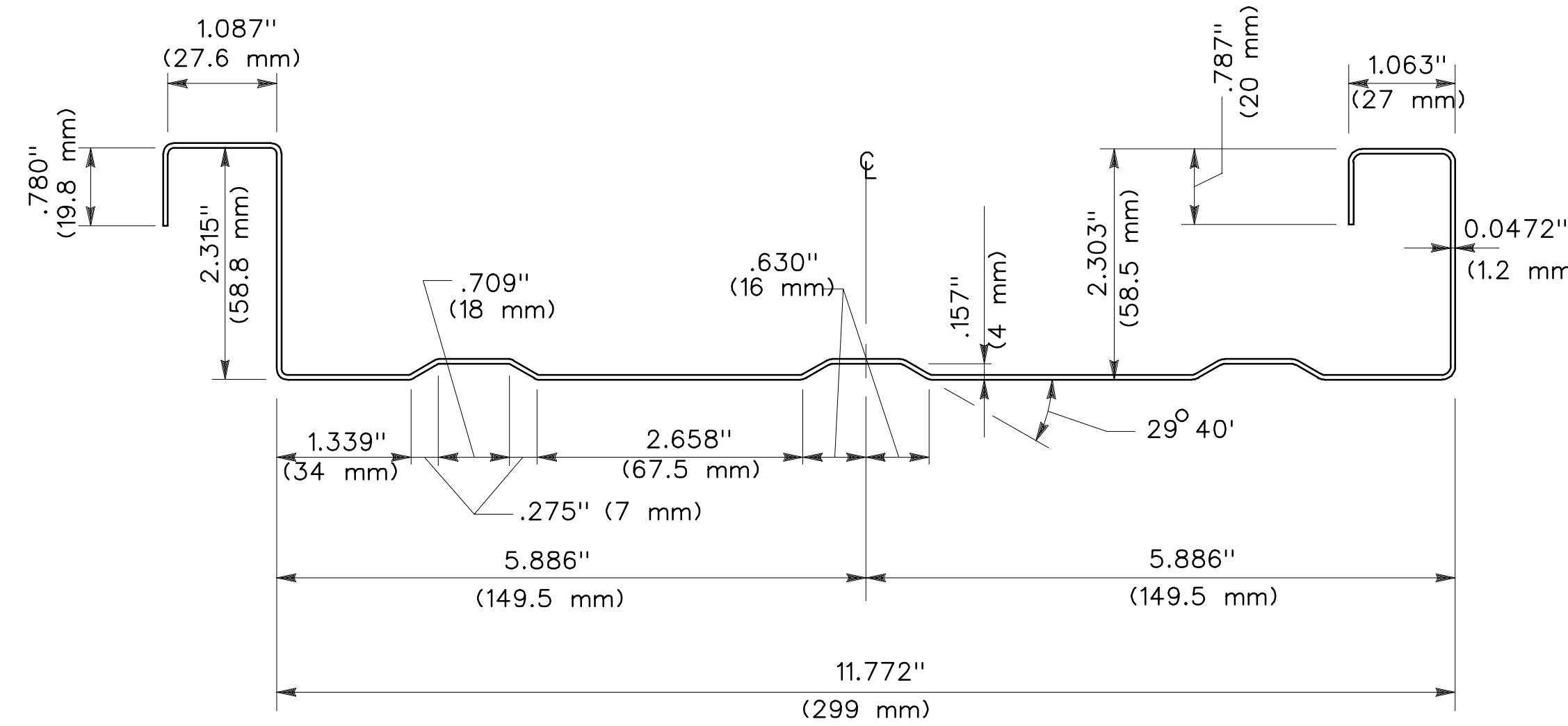


**REGLET DETAILS**

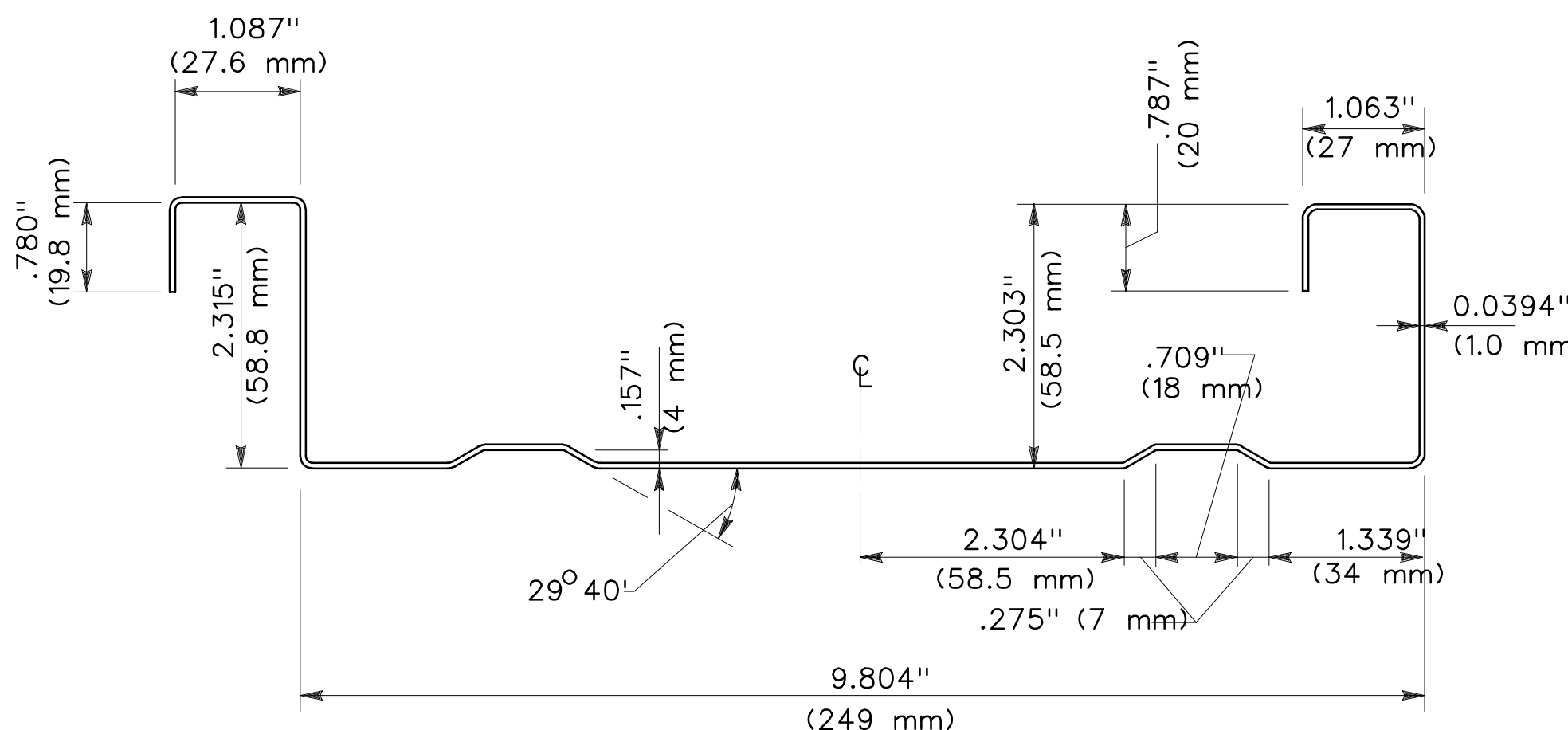
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<b>SECTIONS AND DETAILS</b>	
Dwn. by: RDP	Ckd. by: JMS
Reviewed by:	Date: 15 DEC 92
Approved by:	Drawing code: STD 421-80-02
Sheet reference number:	Design file no.: 65823
<b>S-3</b>	
Sheet 4 of 11	



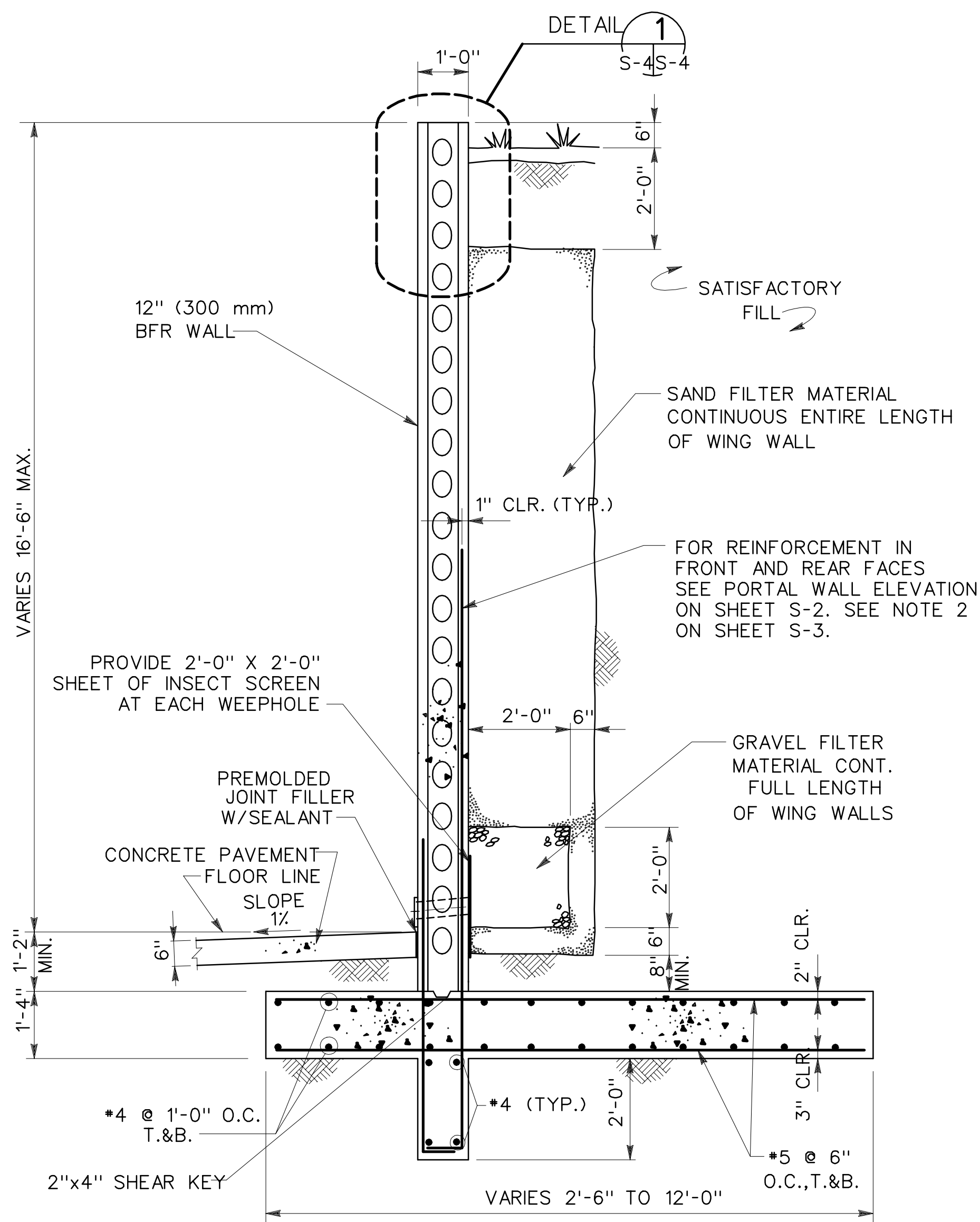
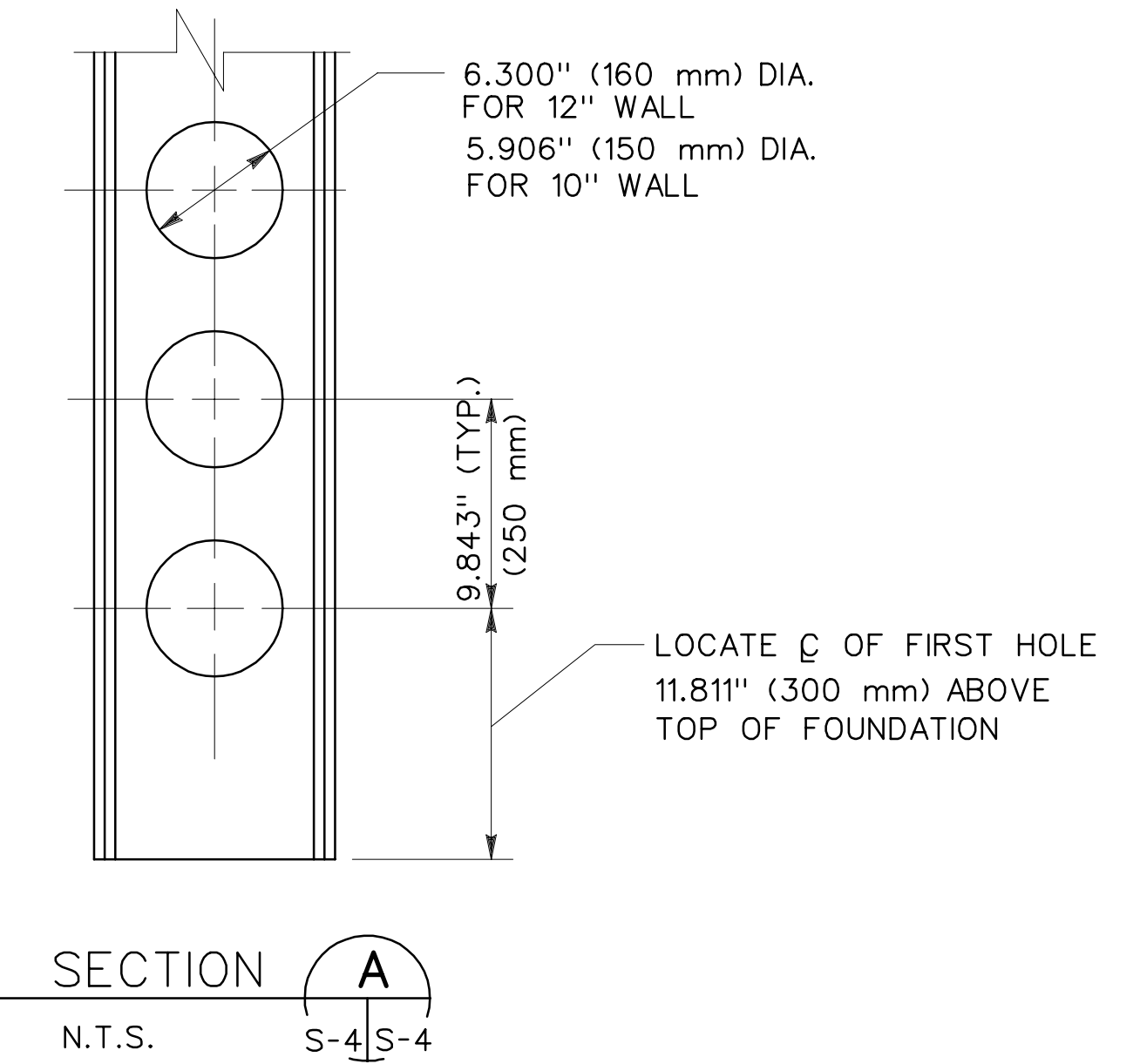
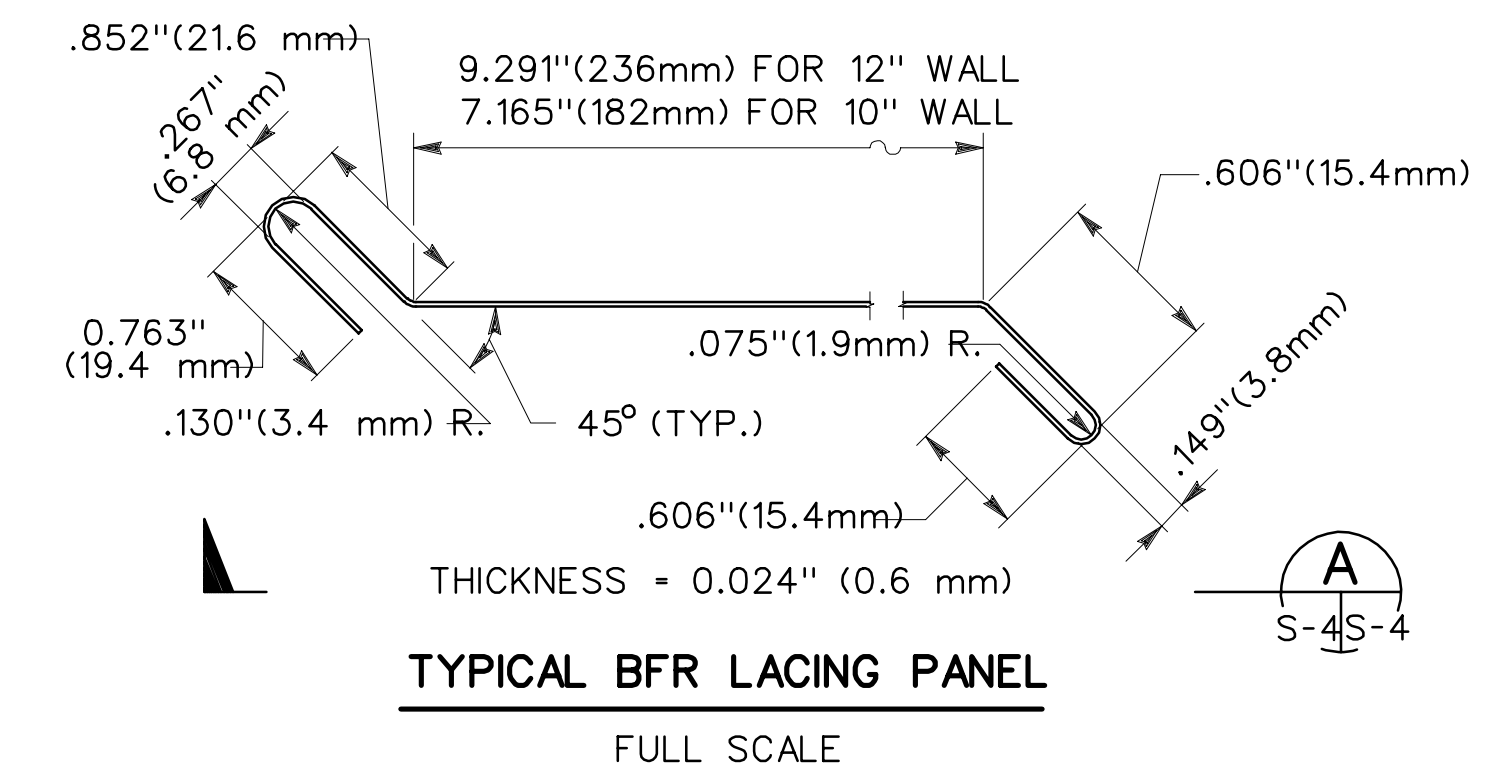
TYPICAL BFR WALL ASSEMBLY  
NO SCALE



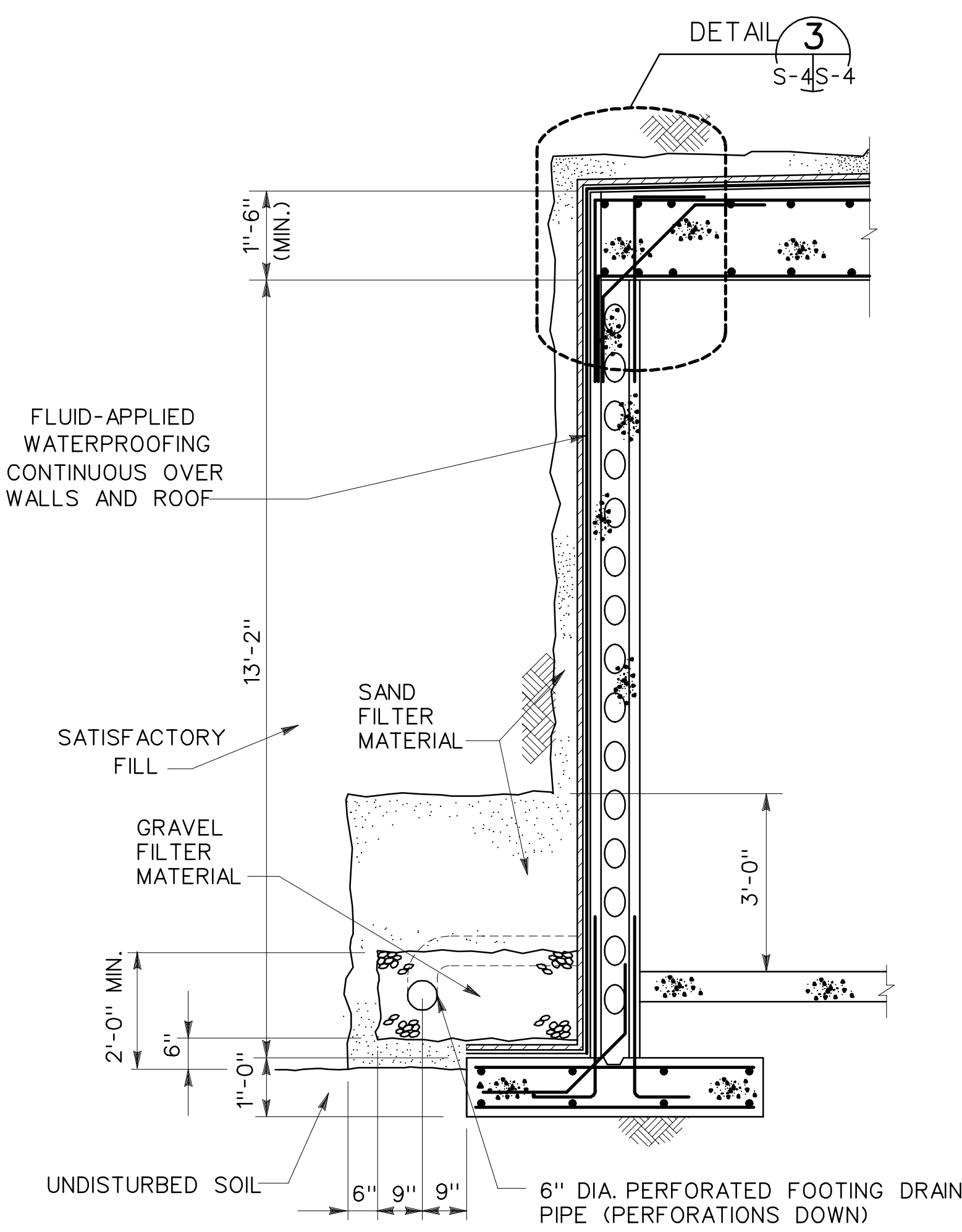
12" BFR WALL FACE PANEL  
SCALE: 3/4



10" BFR WALL FACE PANEL  
SCALE: 3/4

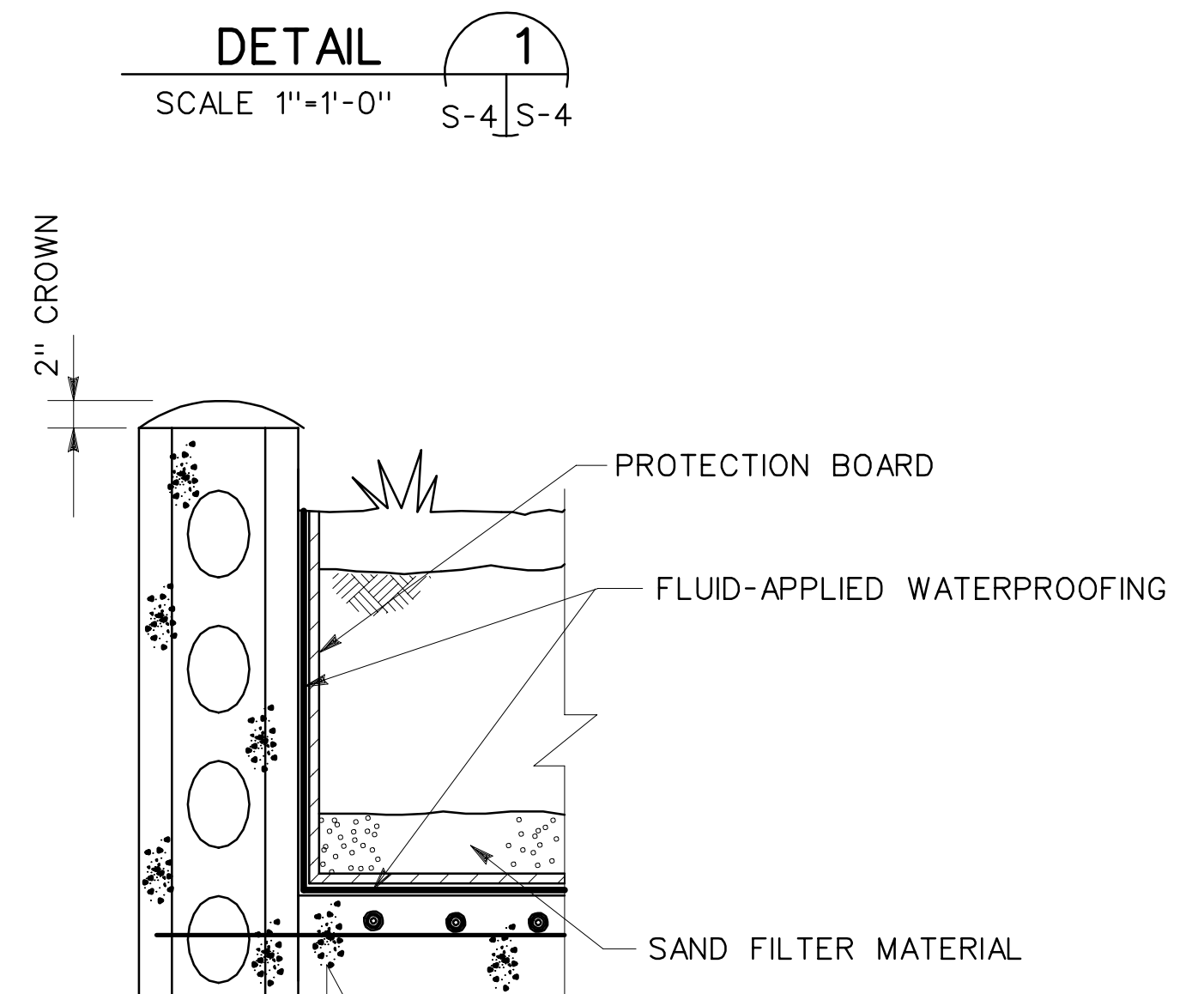
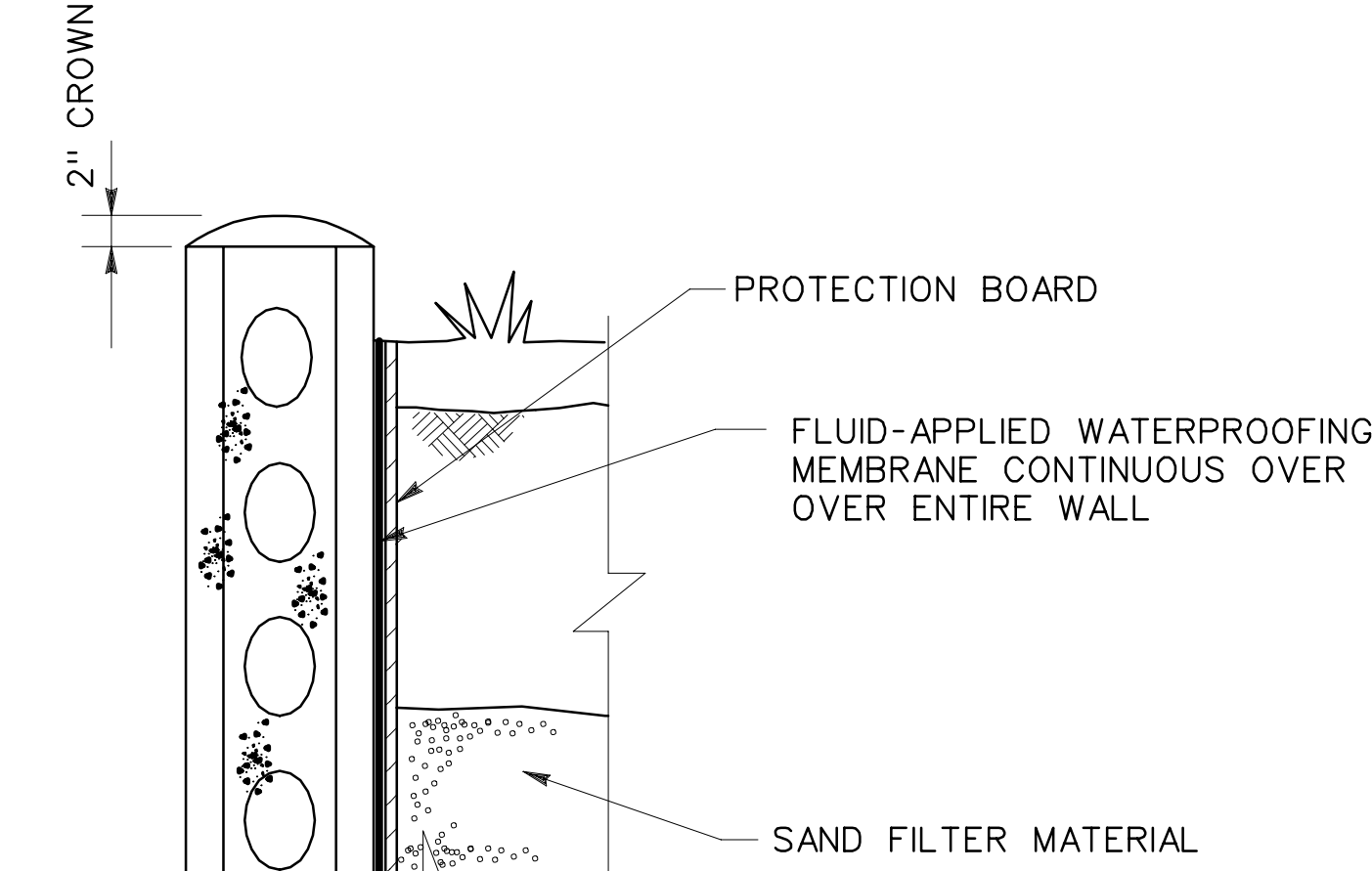


DRAINAGE SYSTEM AT WING WALLS  
SCALE 1/2"=1'-0"

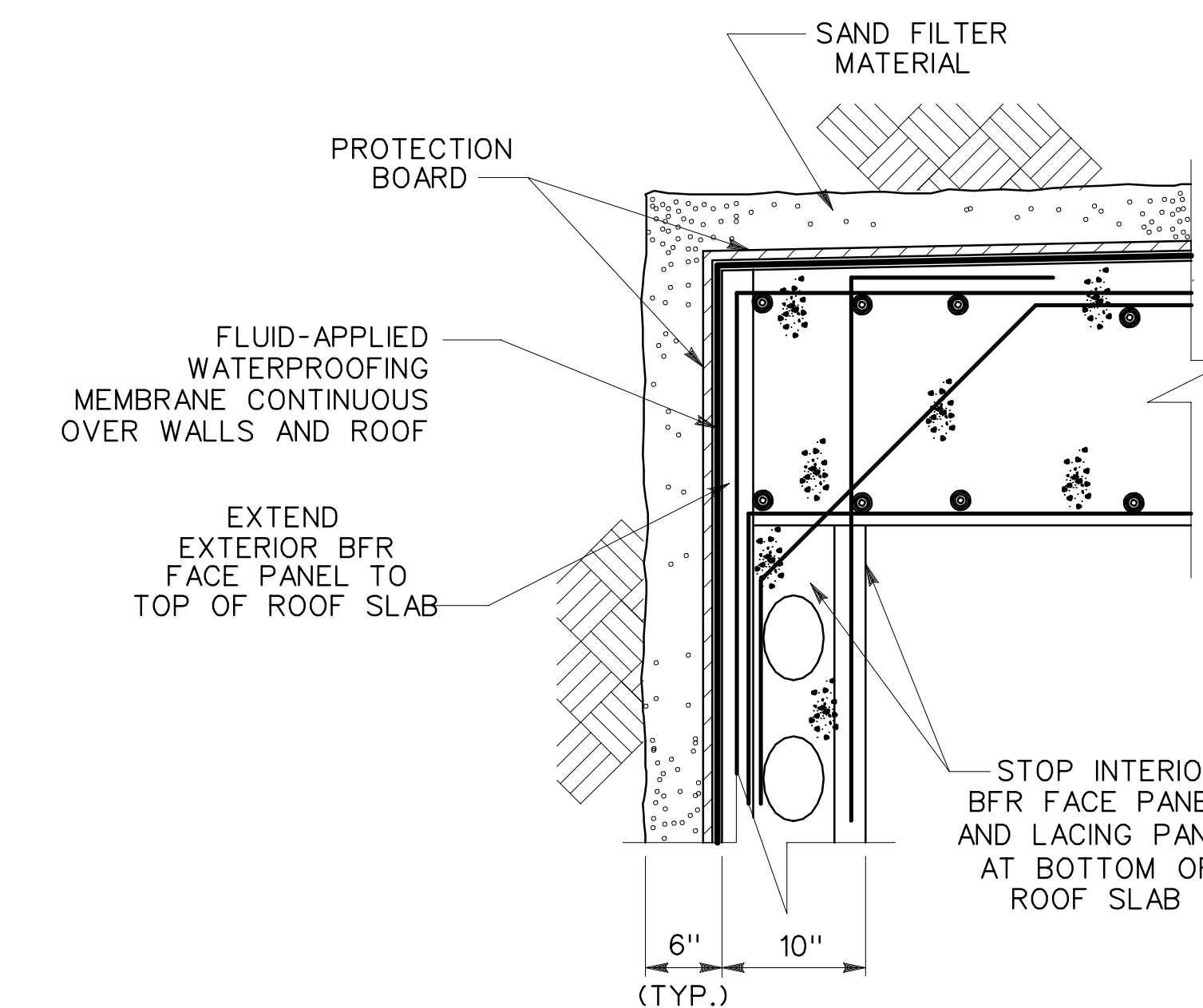


DRAINAGE SYSTEM AROUND MAGAZINE SIDE AND REAR WALLS  
SCALE 1/2"=1'-0"

ALTERNATE DRAINAGE SYSTEM



DETAIL 2A  
SCALE 1"=1'-0" S-3/S-4



DETAIL 3  
SCALE 1"=1'-0" S-4/S-4

GRAPHIC SCALES :



Symbol	Description	Date	Approved

U.S. ARMY ENGINEER DIVISION  
HUNTSVILLE  
CORPS OF ENGINEERS  
HUNTSVILLE, ALABAMA

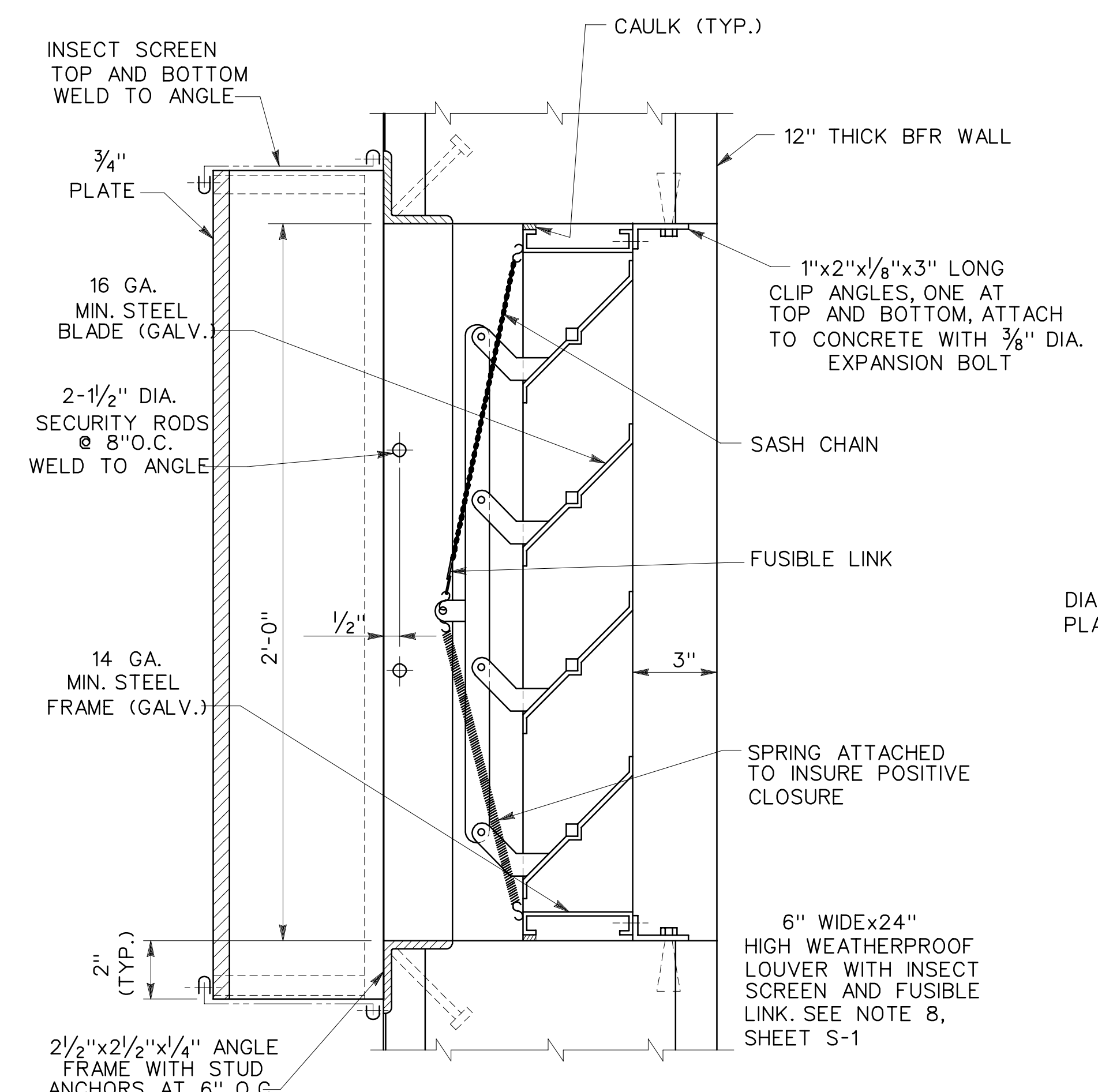
Site adapt A/E : MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED

SECTIONS AND DETAILS

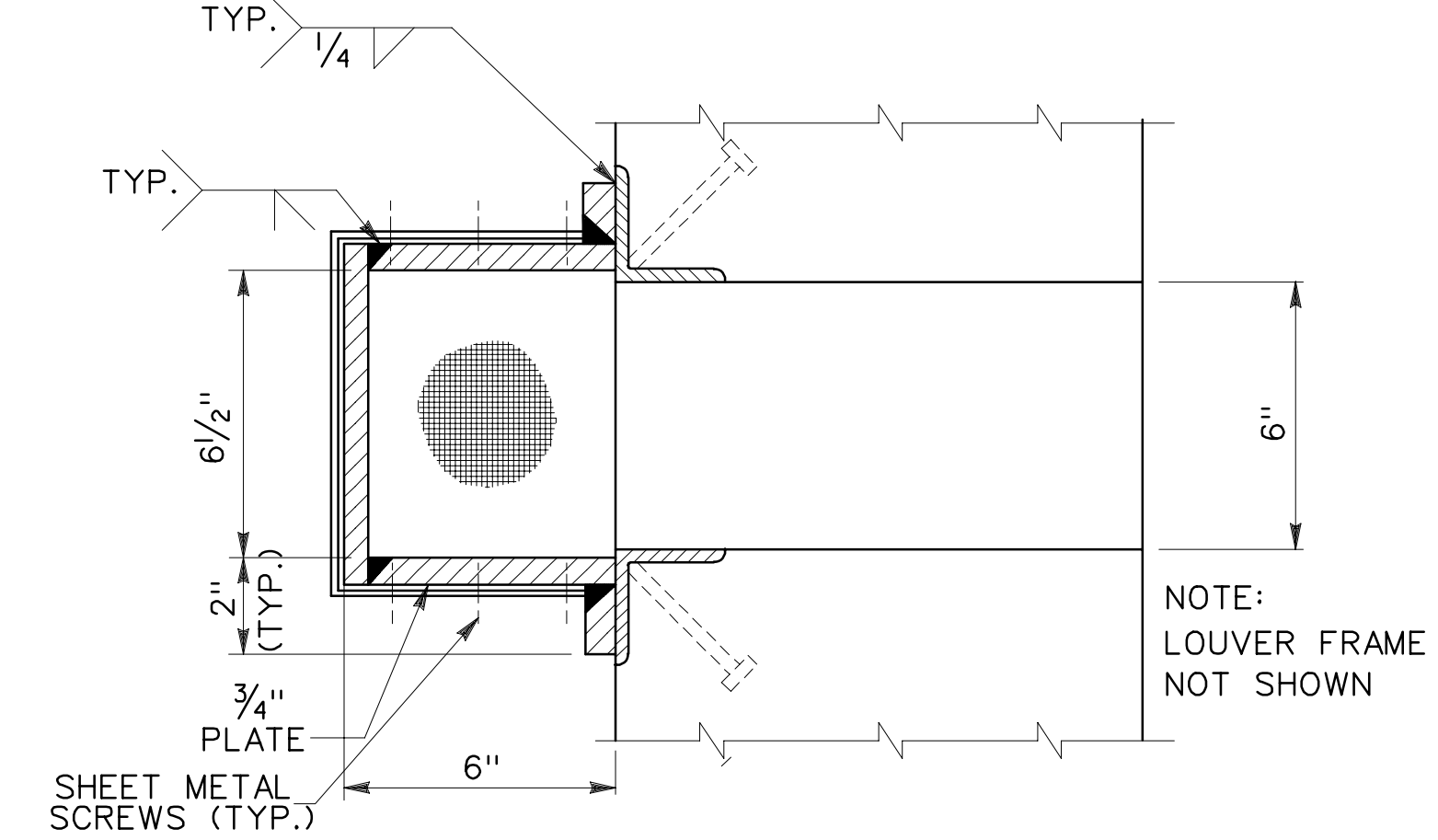
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Reviewed by: Date: 15 DEC 92  
Approved by: Drawing code: STD 421-80-02

Design file no.: 65824  
Rev. 1  
Sheet 5 of 11

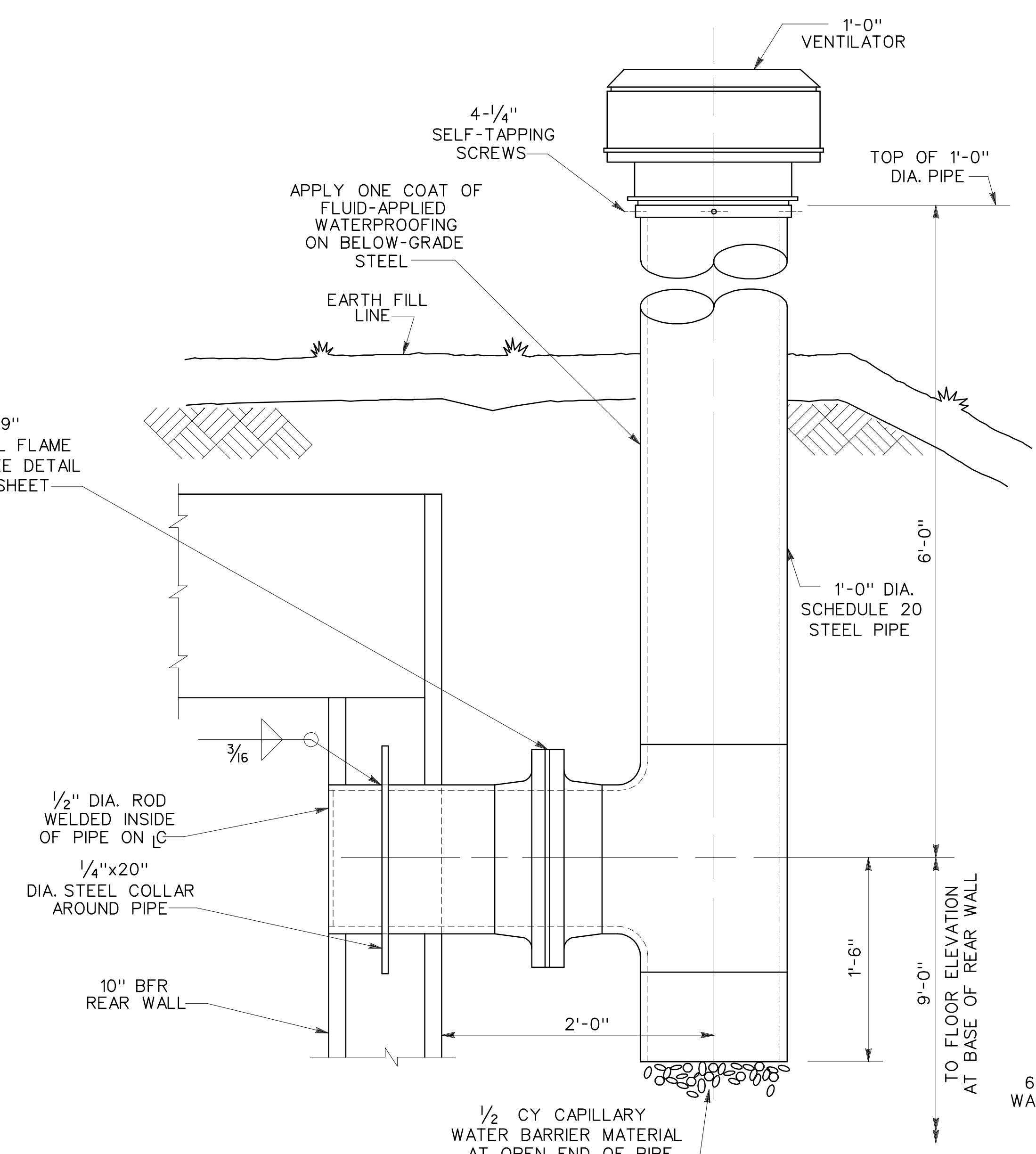
S-4



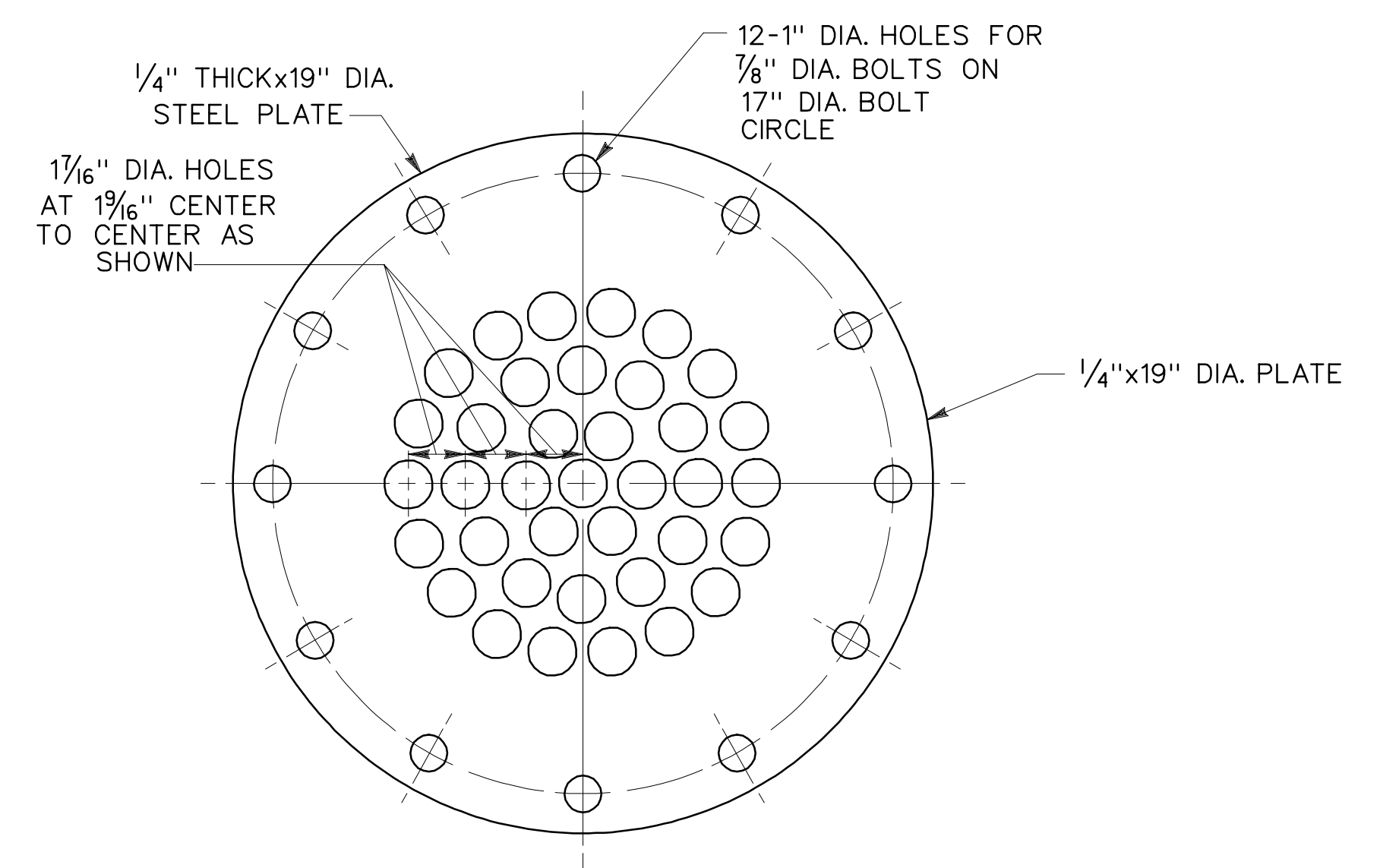
LOUVER DETAIL  
SCALE 3"-1'-0"



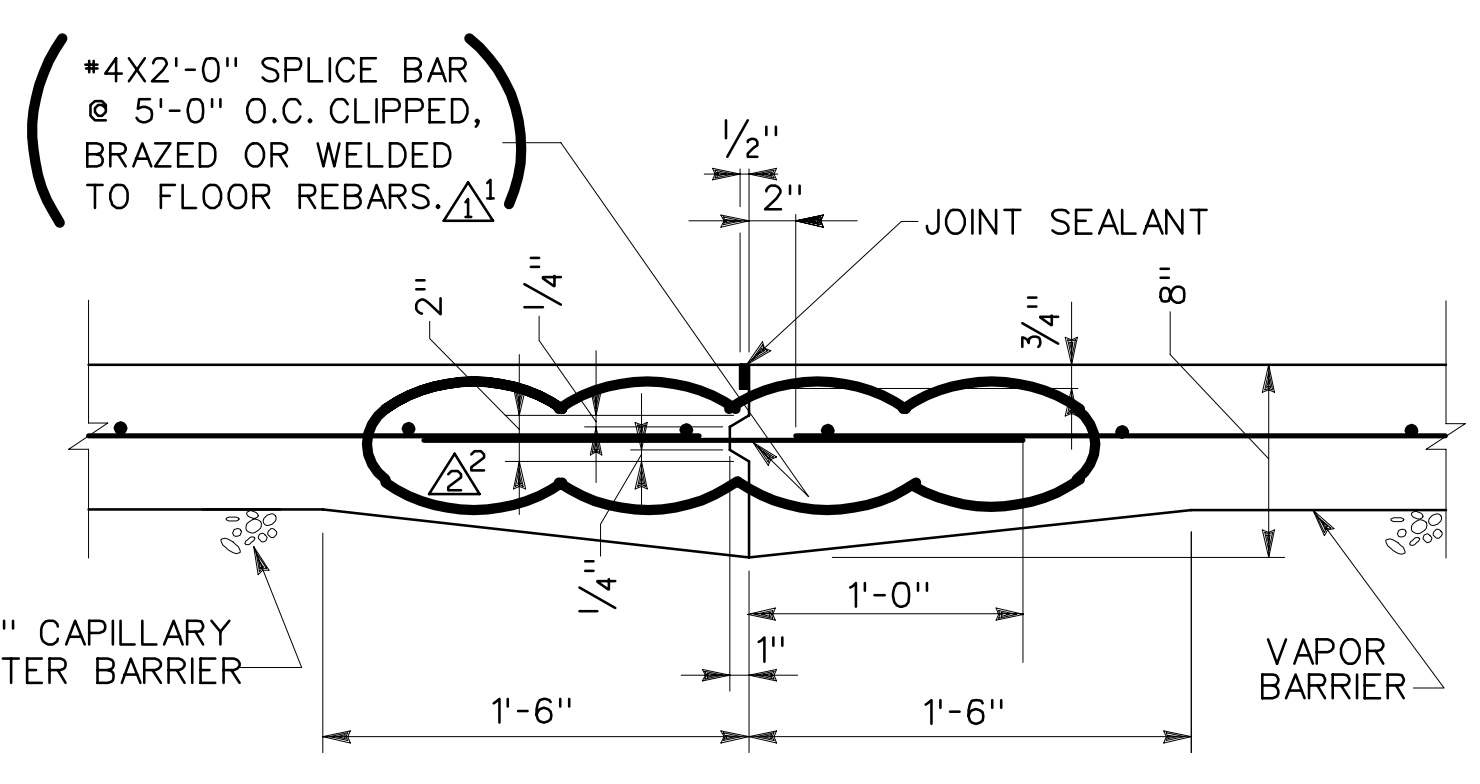
SECTION A  
SCALE 3"-1'-0" S-5 | S-5



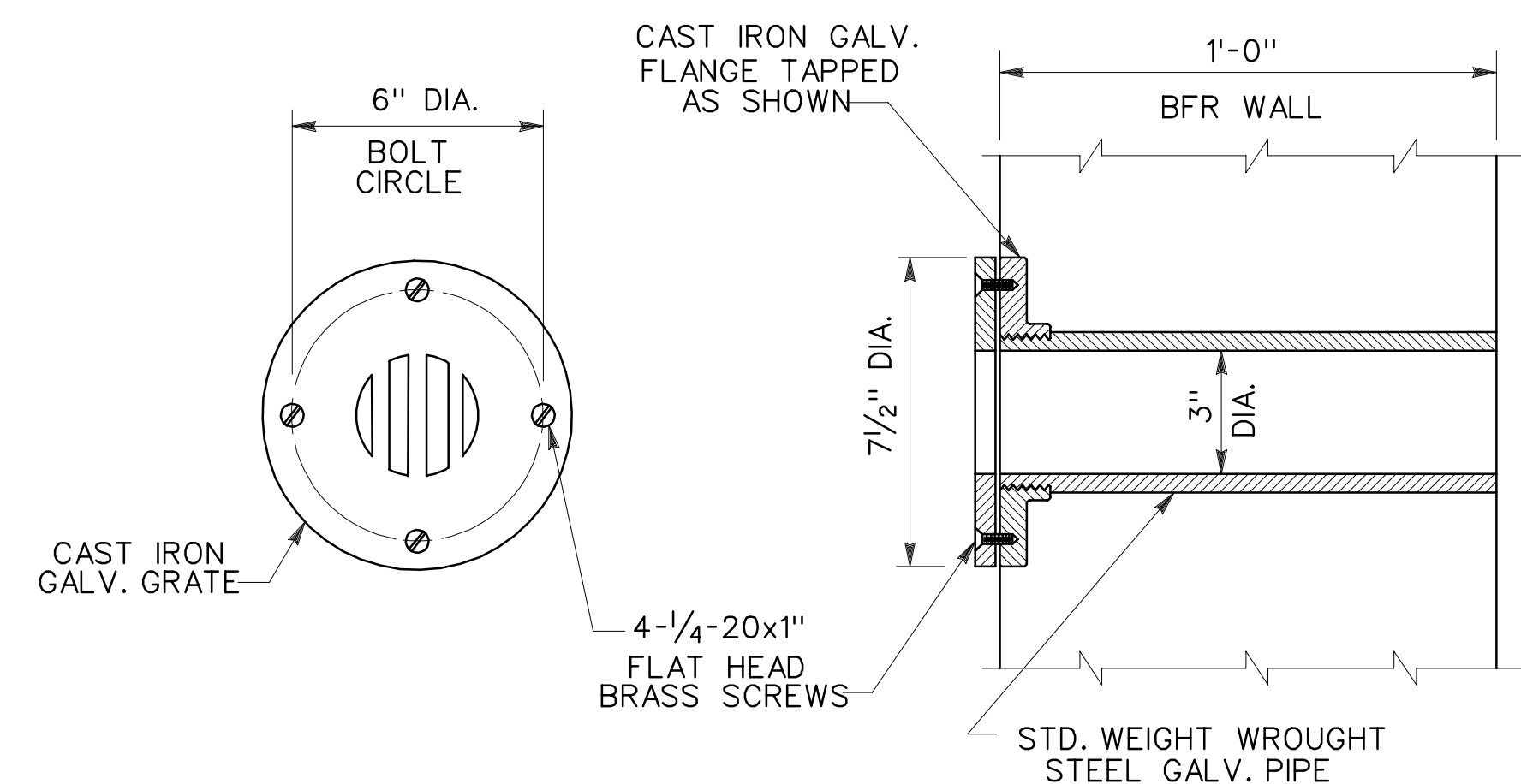
VENTILATOR DETAIL 1  
SCALE 1/2"-1'-0" S-1 | S-5



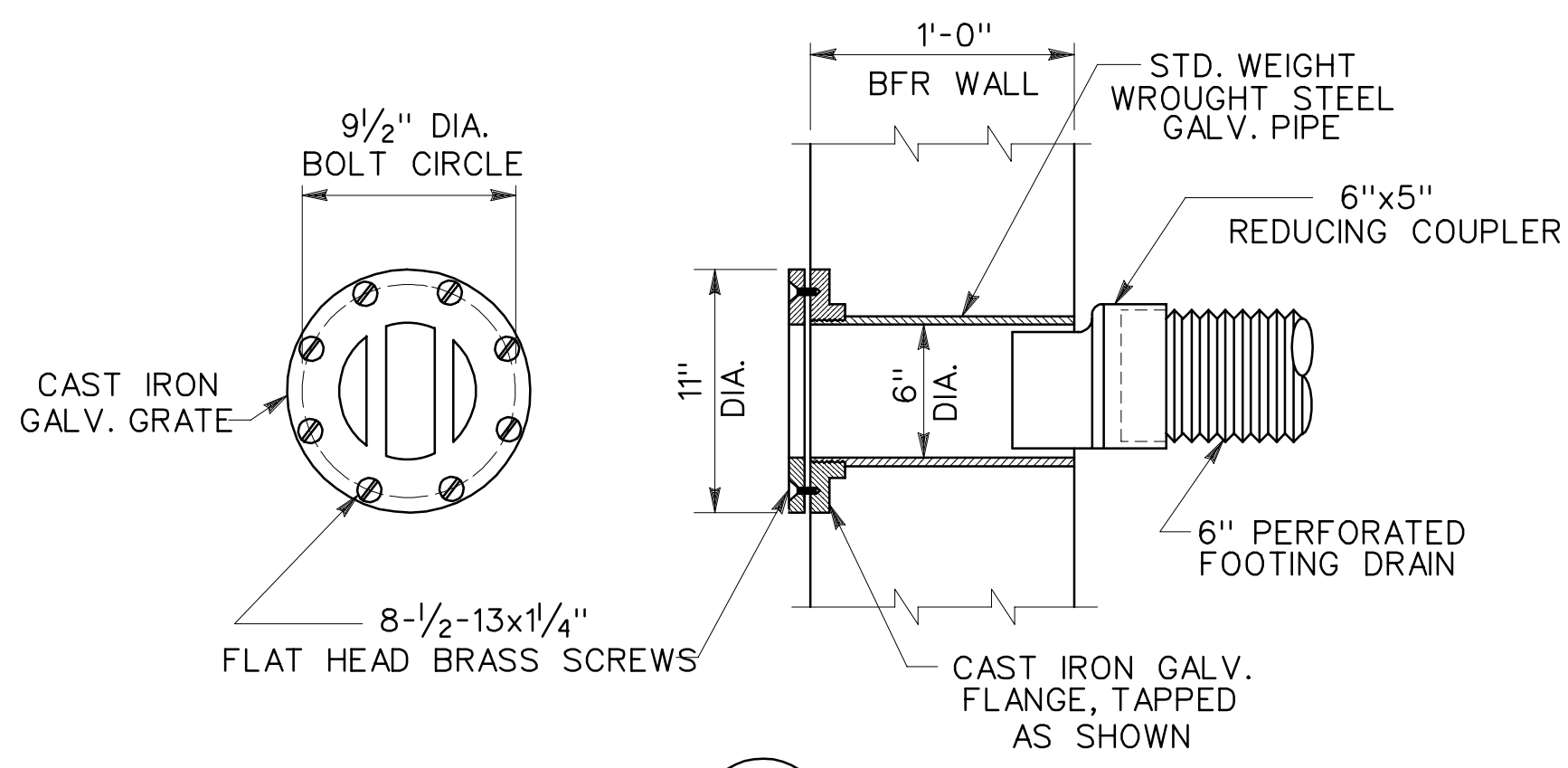
VENTILATOR FLAME PLATE DETAIL  
SCALE 3"-1'-0"



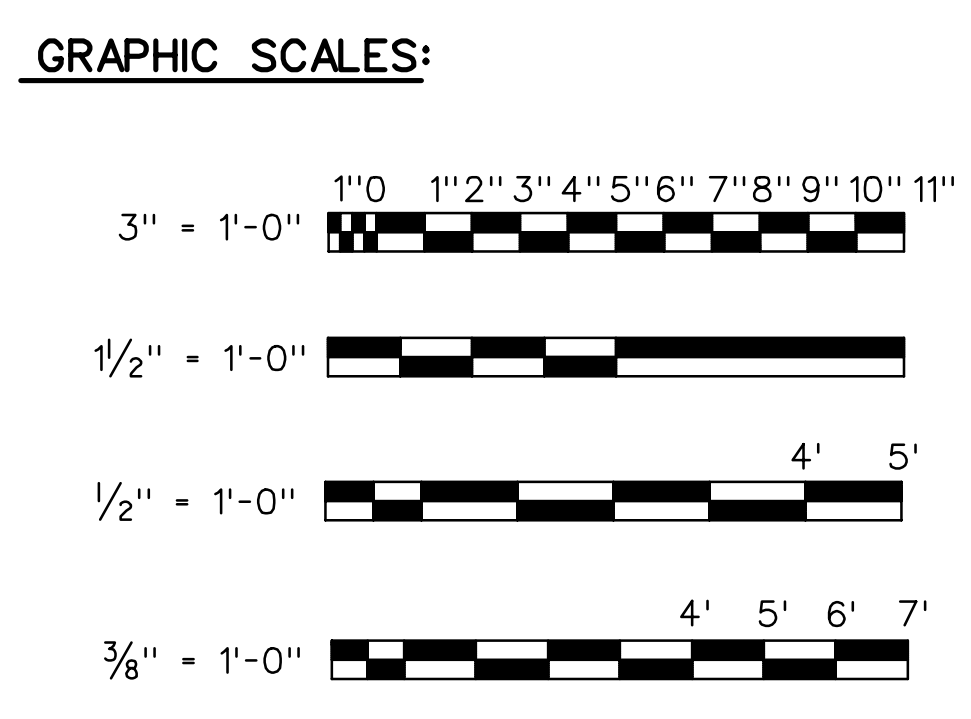
FLOOR CONSTRUCTION JOINT  
SECTION F  
NO SCALE S-1 | S-5



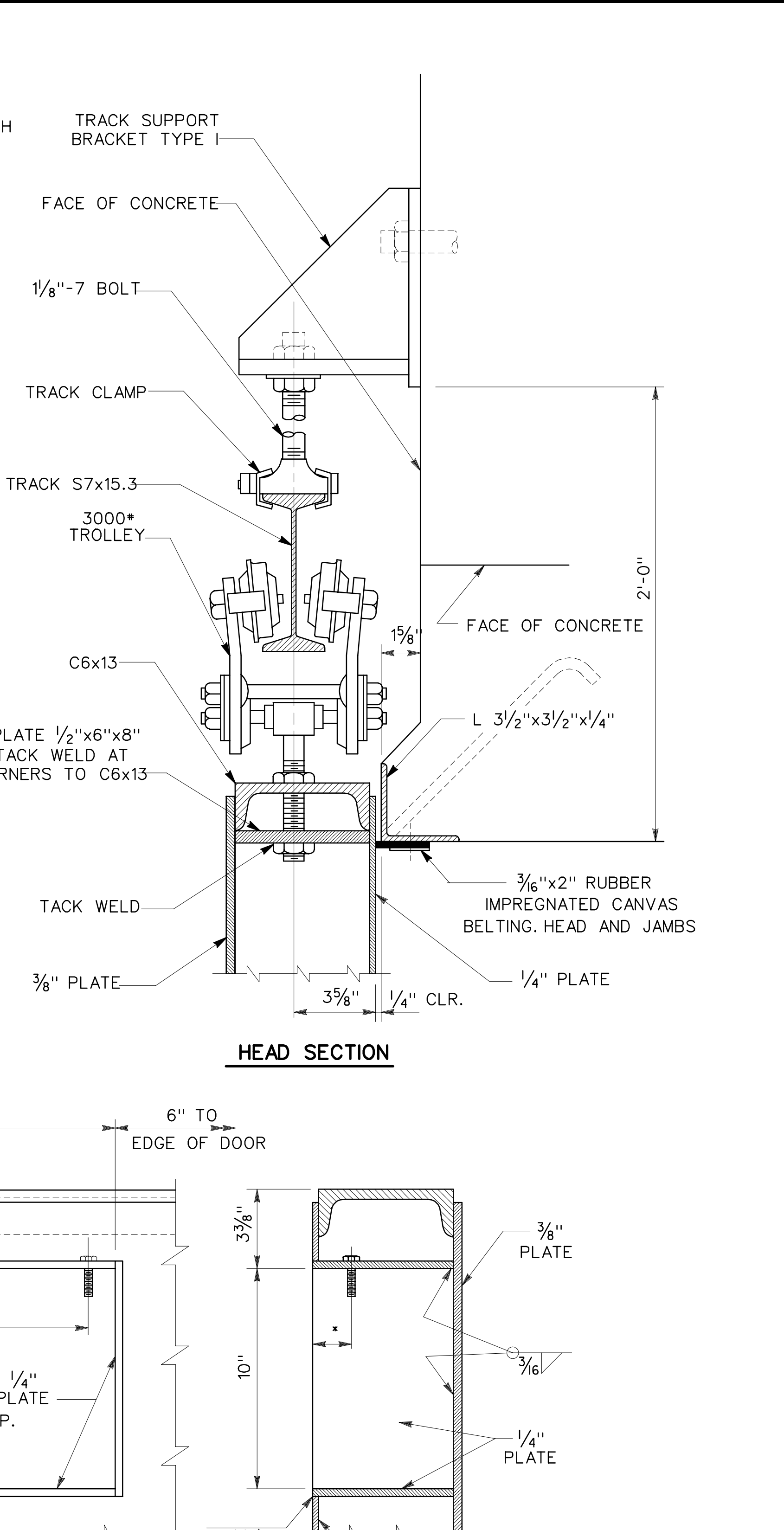
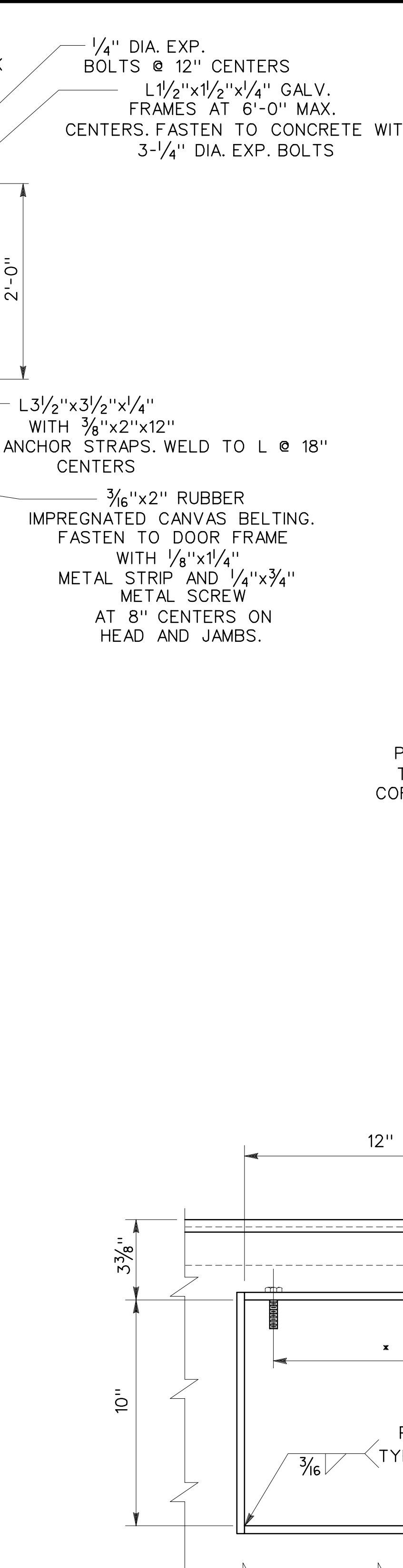
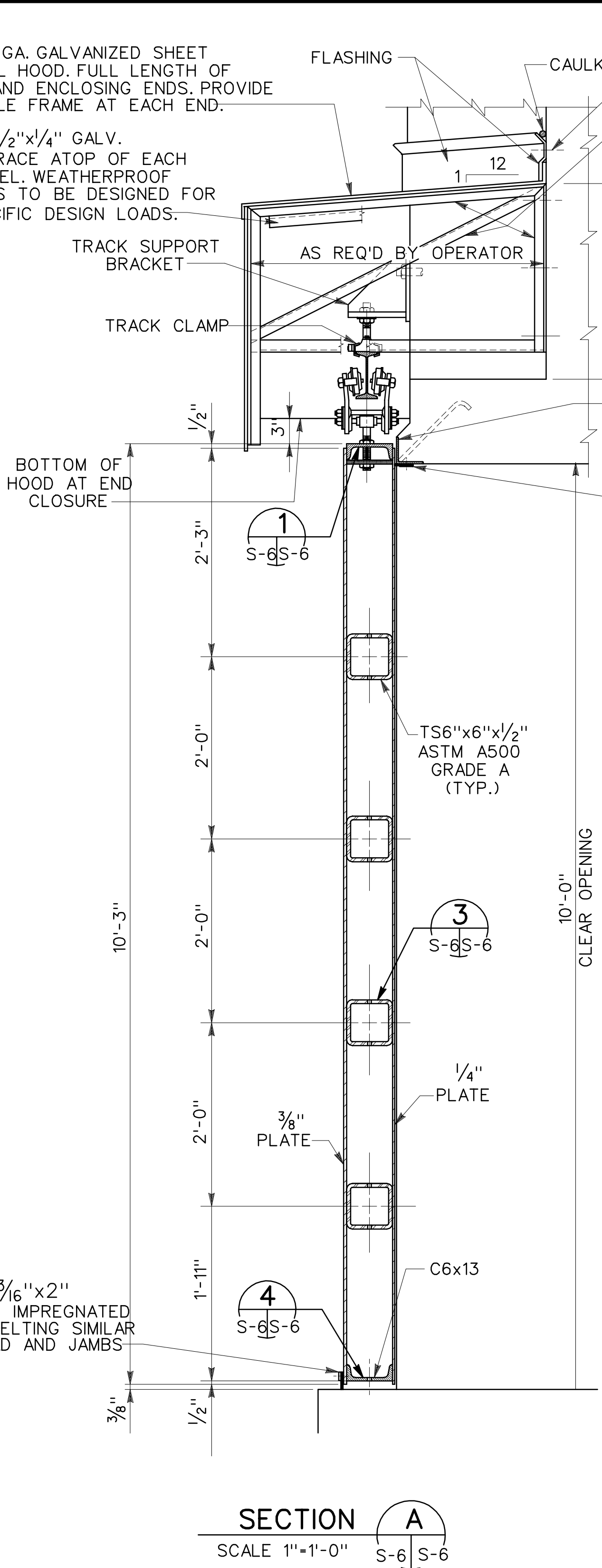
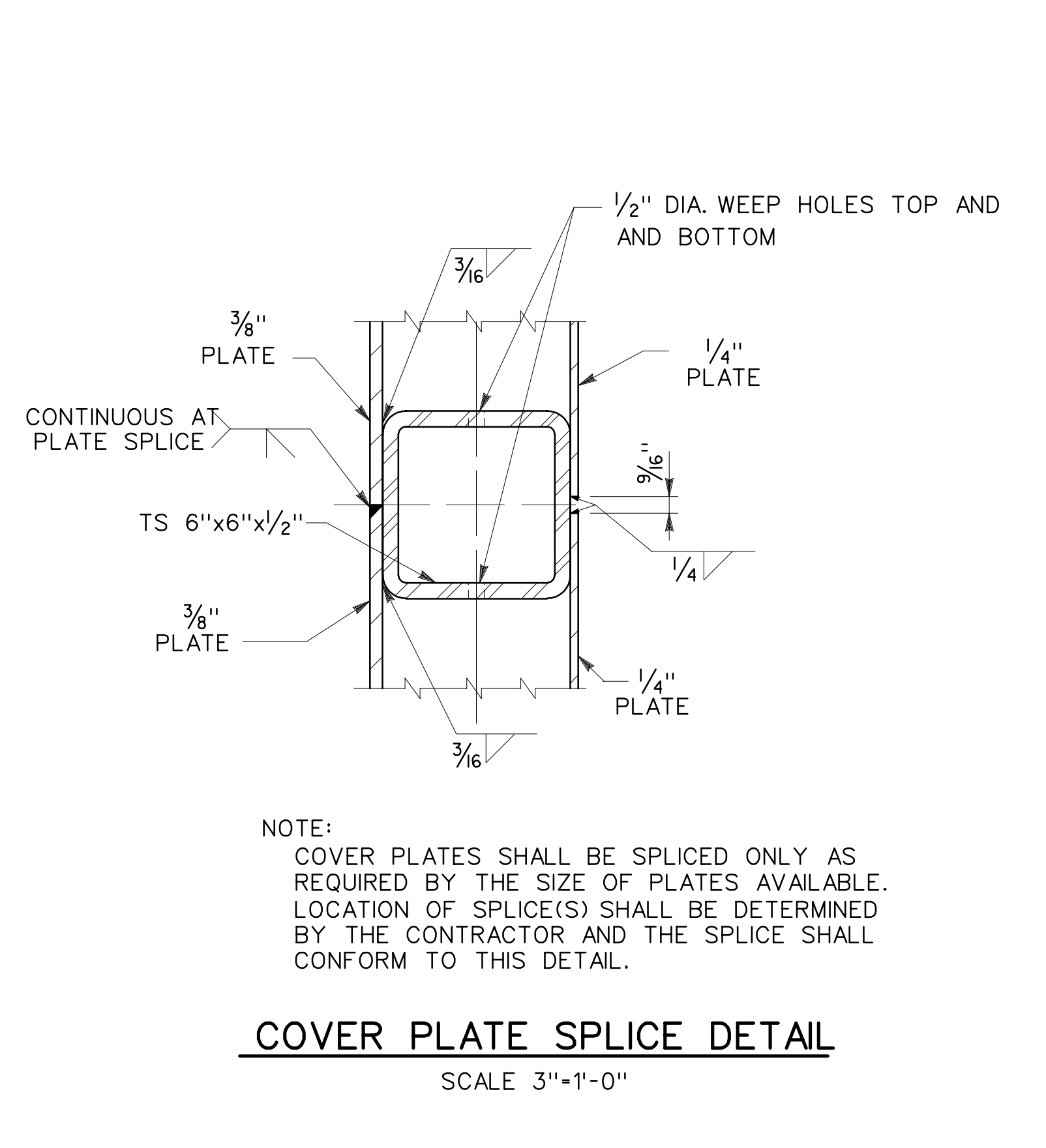
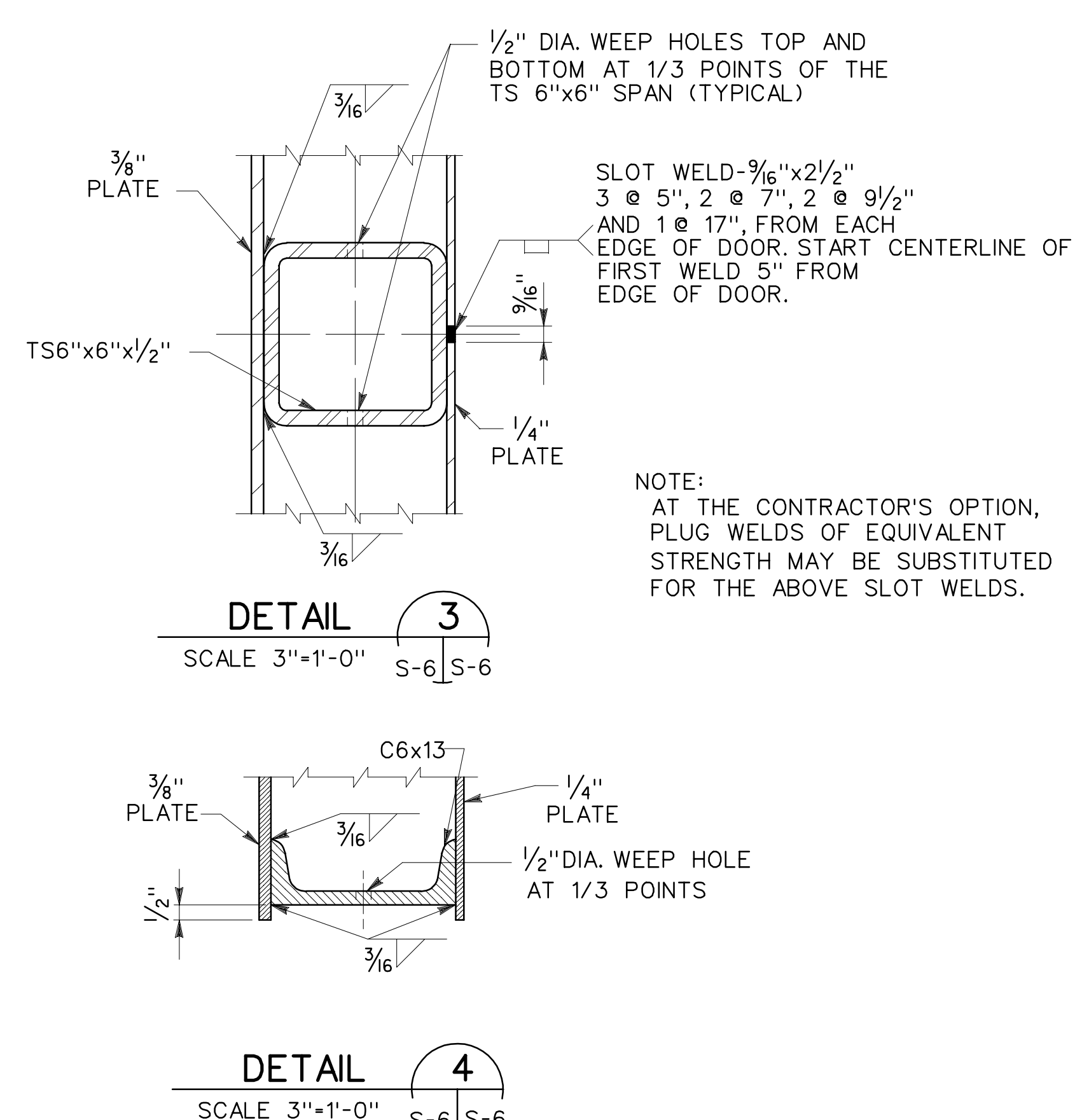
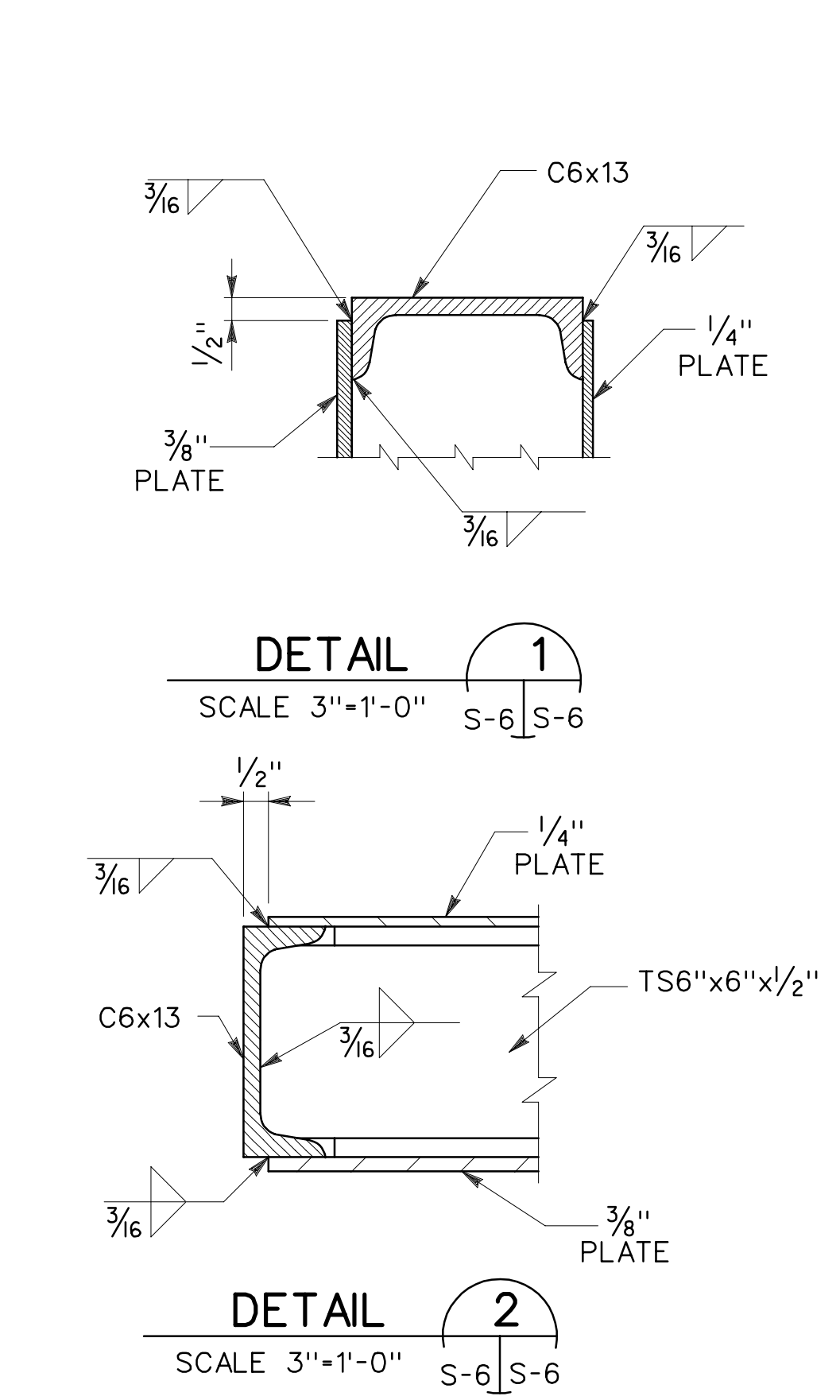
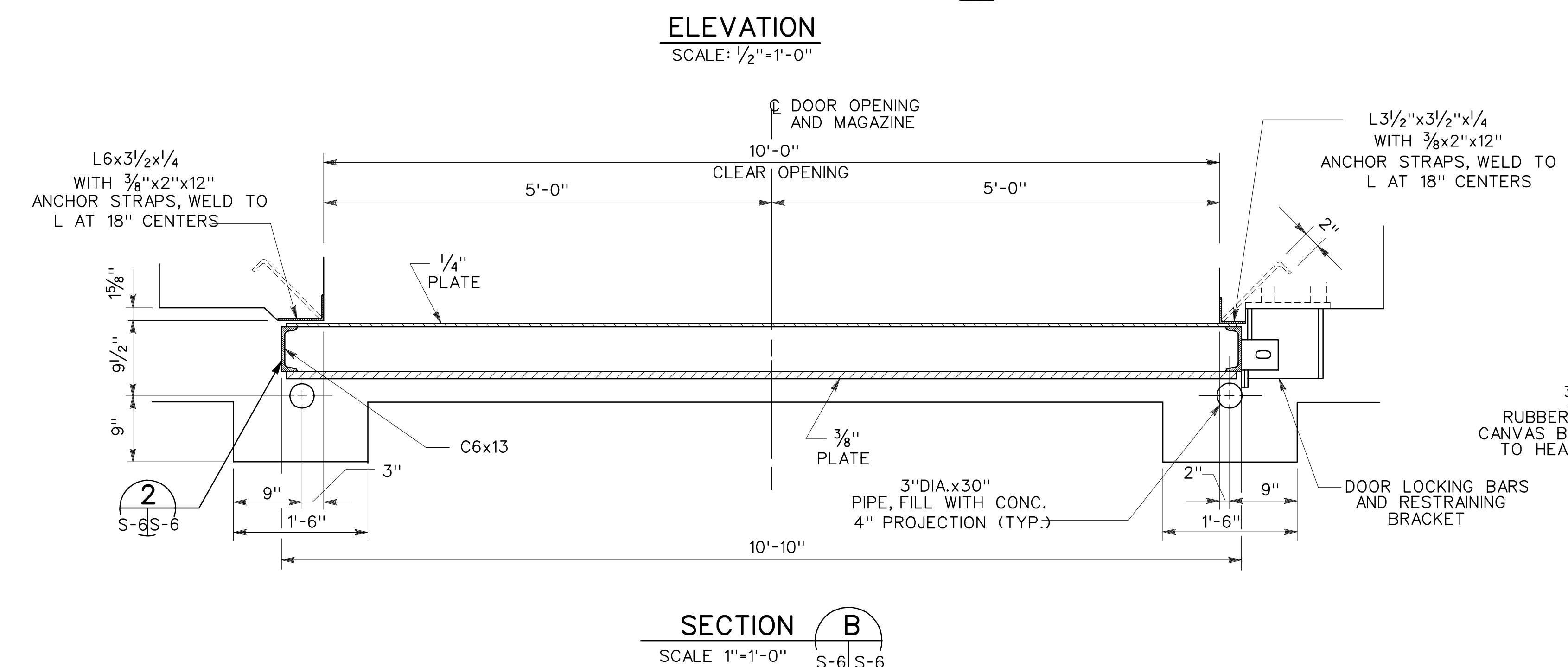
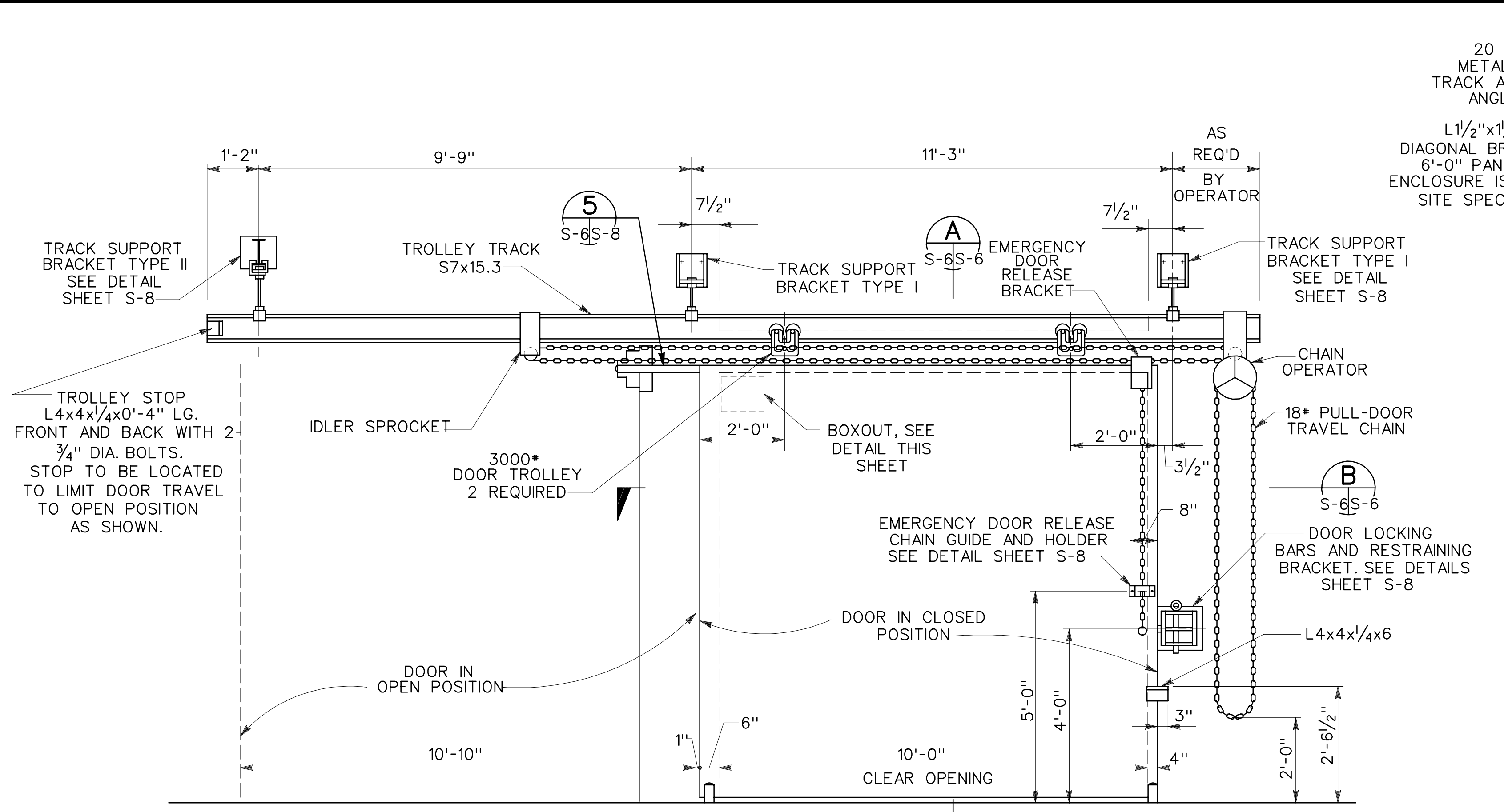
DETAIL 3  
SCALE 3"-1'-0" S-2 | S-5



DETAIL 4  
SCALE 1/2"-1'-0" S-2 | S-5



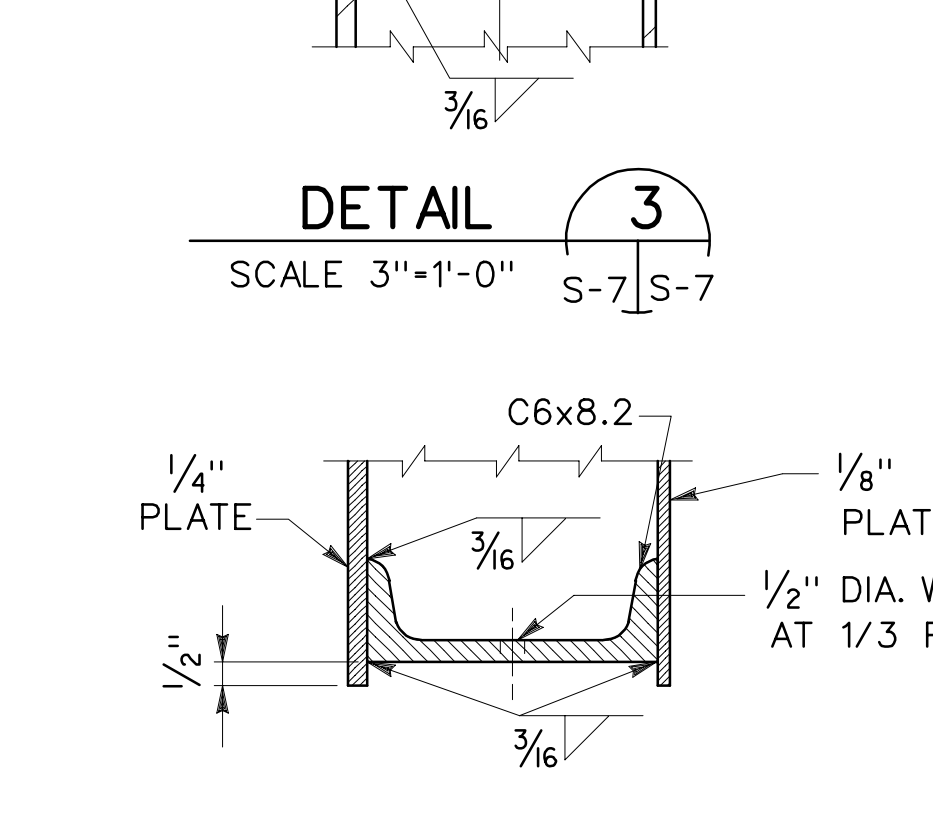
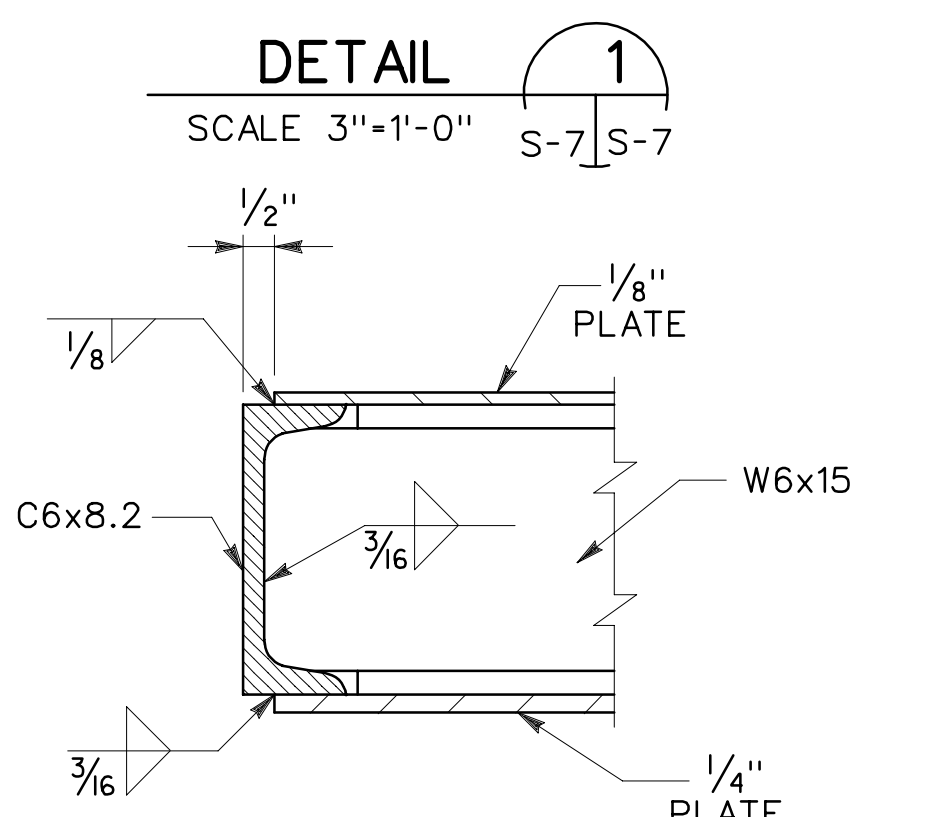
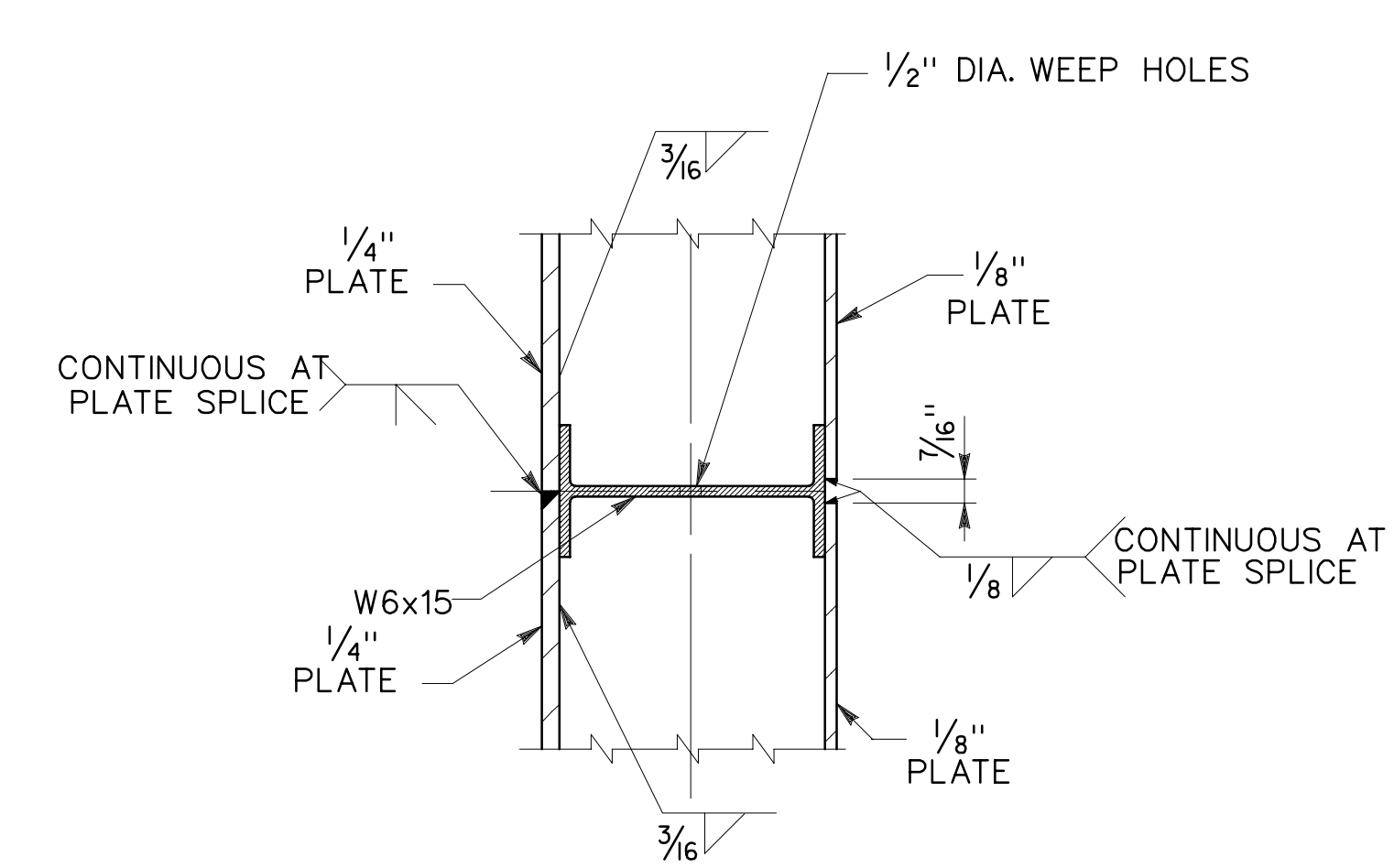
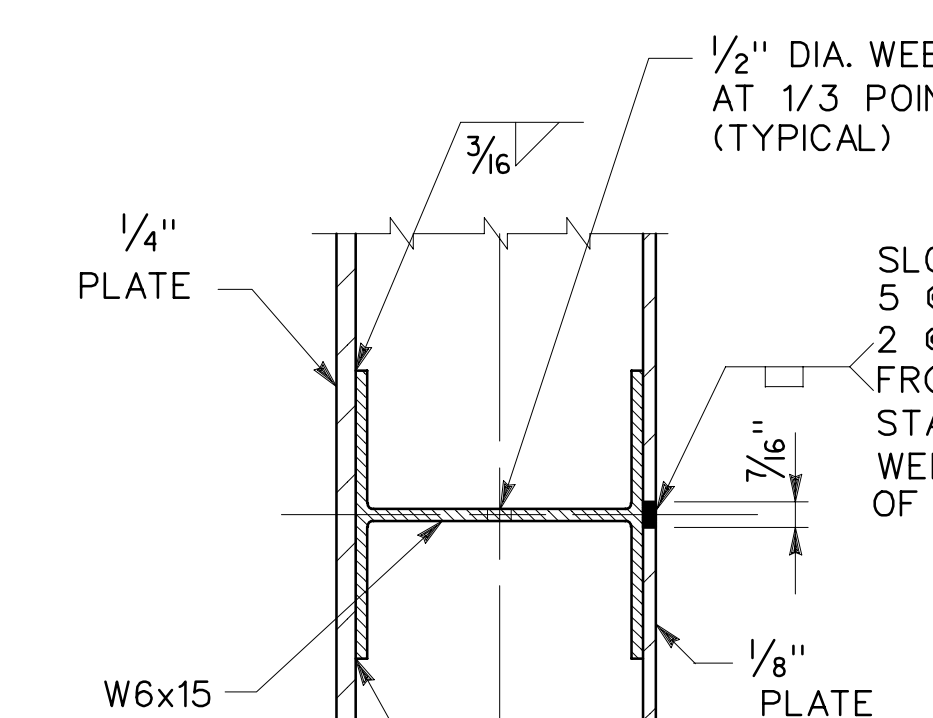
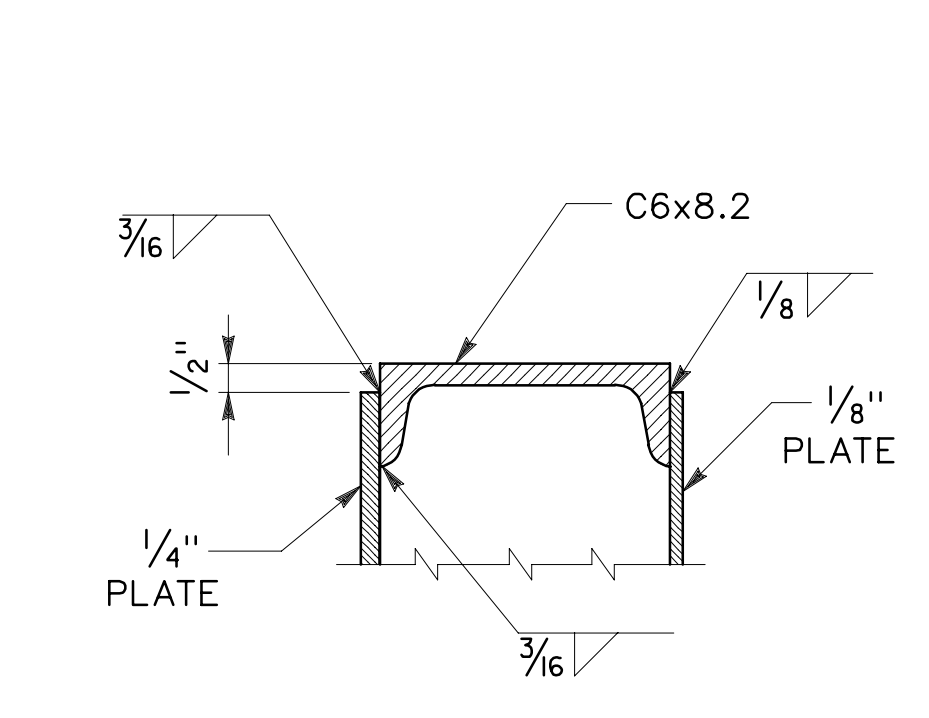
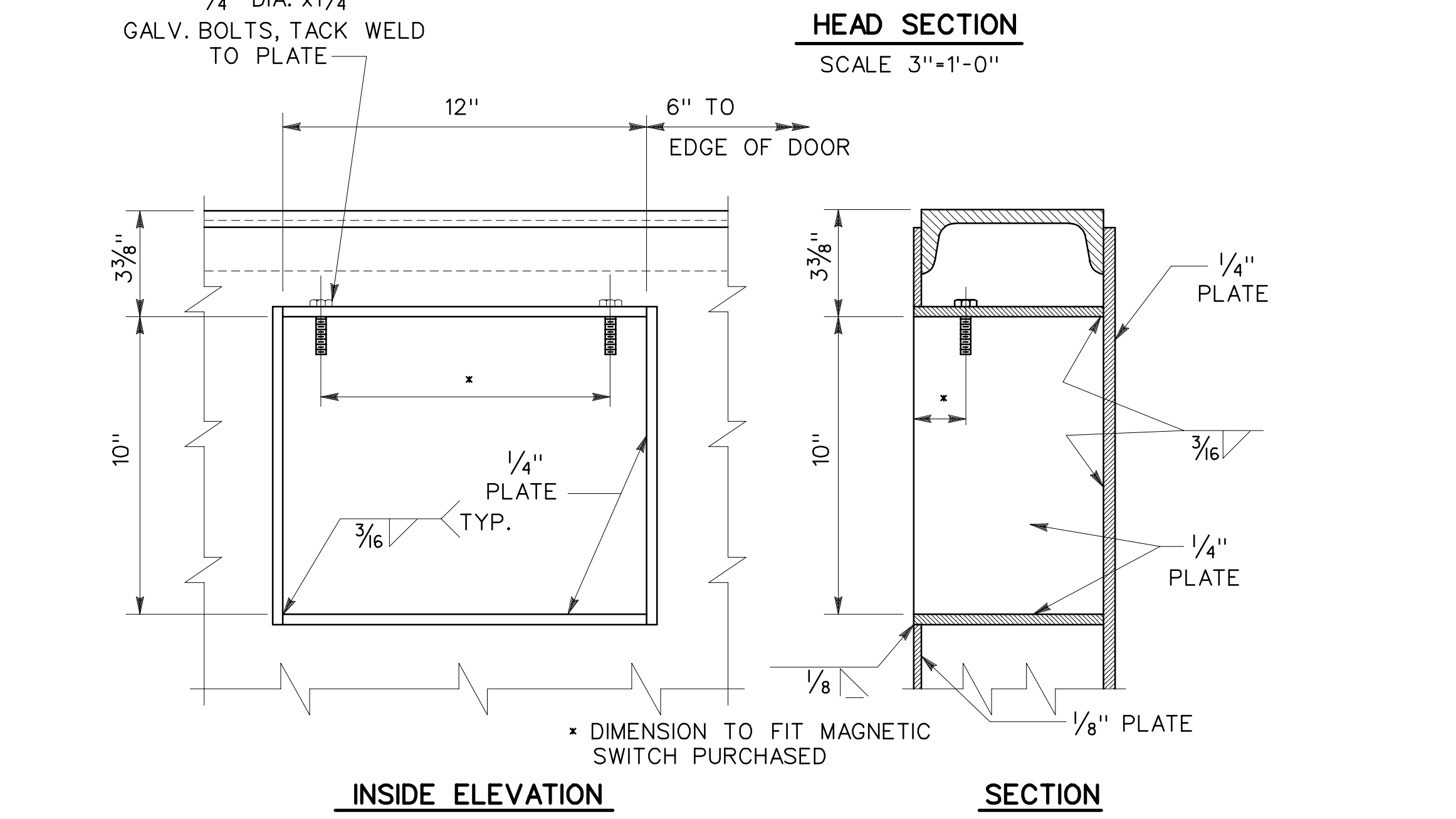
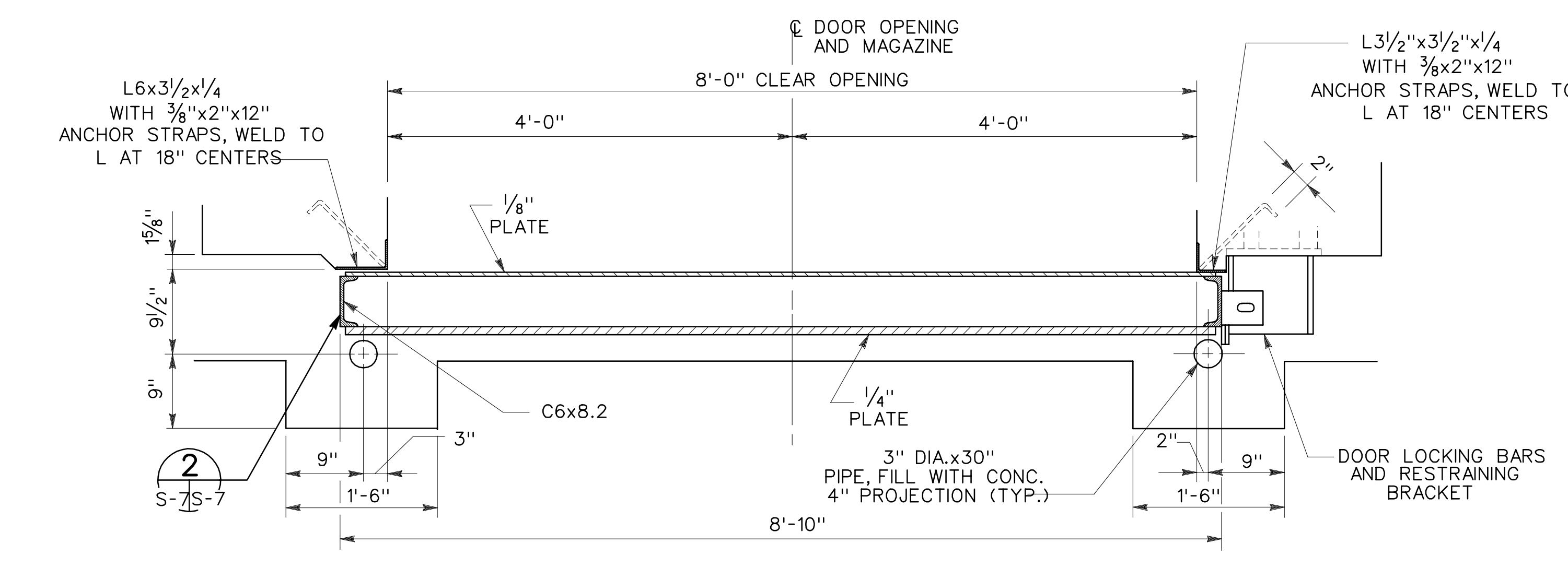
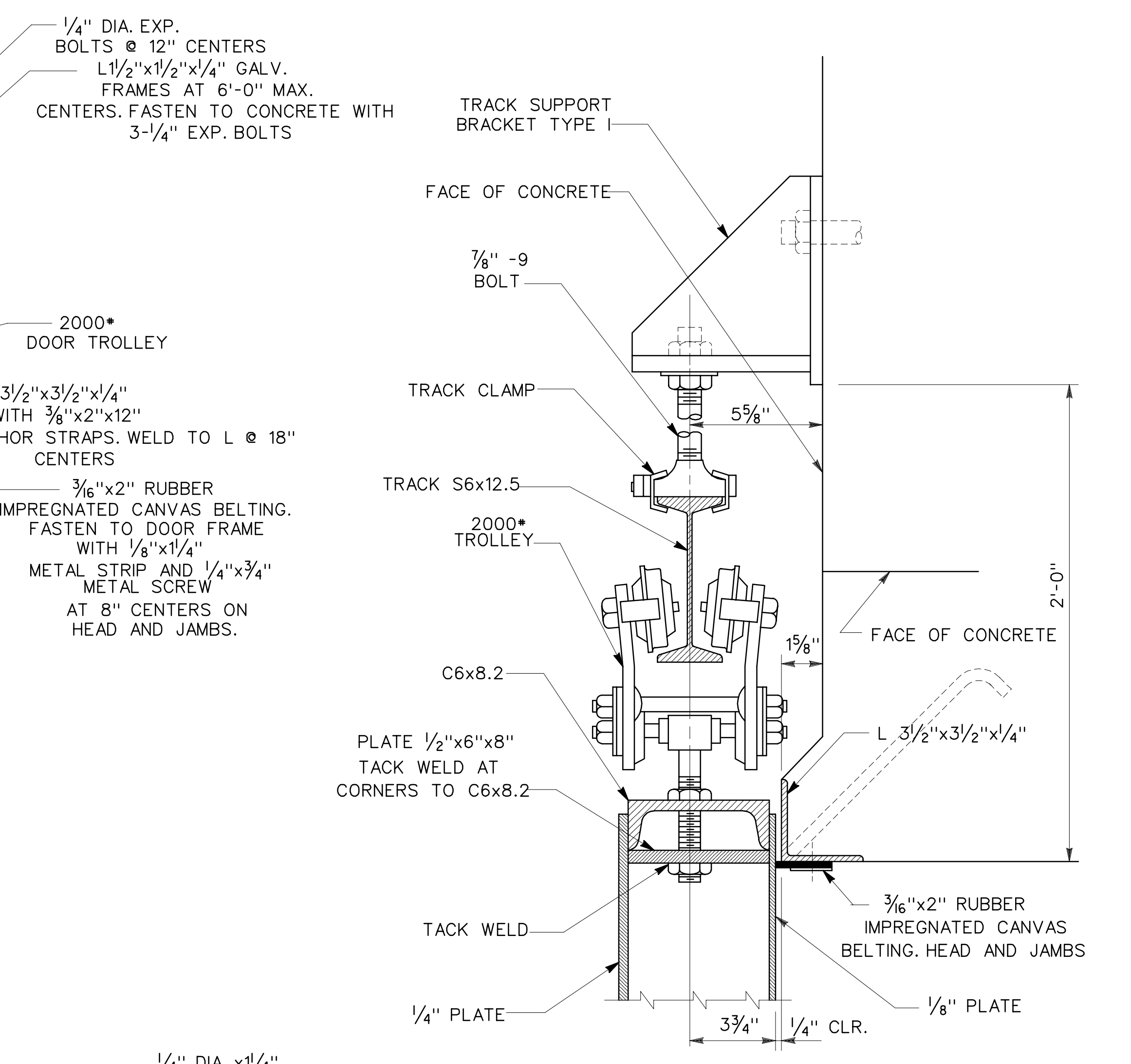
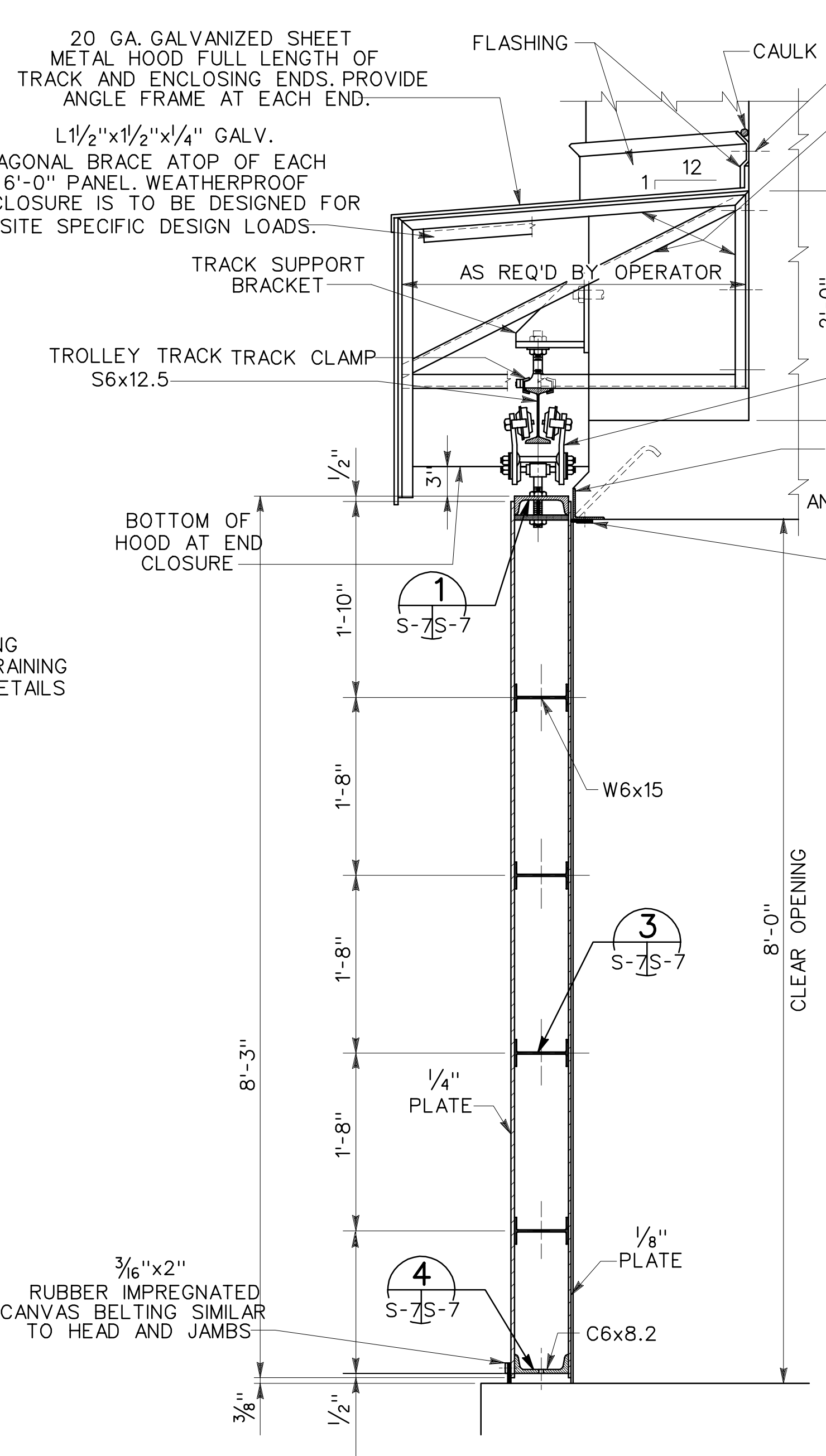
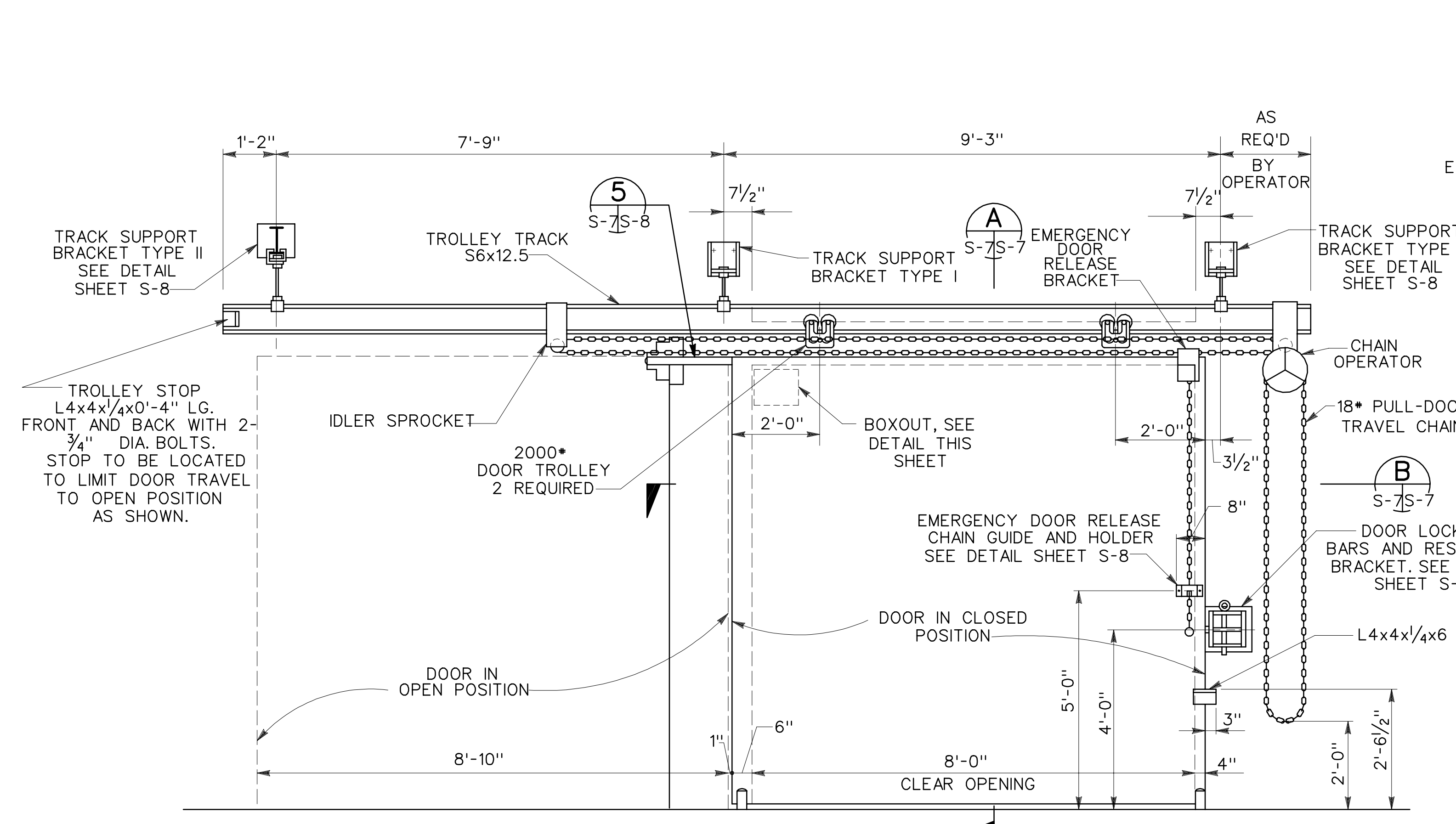
GENERAL REVISION FOR LIGHTNING PROTECTION		11JUN88	WAW
Symbol	Description	Date	Approved
U.S. ARMY ENGINEER DIVISION, HUNTSVILLE CORPS OF ENGINEERS HUNTSVILLE, ALABAMA			
Site adapt A/E :	<b>MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED</b>		
Dwn. by: RP	Ckd. by: JMS	MISC. DETAILS AND SECTIONS	
Reviewed by :	Date : 15 DEC 92	Sheet reference number :	Design file no.: 65825
Approved by :	Drawing code : STD 421-80-02	<b>S-5</b>	Rev. 6 of 11



Symbol	Description	Date	Approved

Site adapt A/E:	U.S. Army Corps of Engineers	HUNTSVILLE DIVISION, HUNTSVILLE CORPS OF ENGINEERS HUNTSVILLE, ALABAMA
Dwn. by:	Ckd. by:	<b>MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED</b>
RP	JMS	
Reviewed by:	Date:	10'-0" BLAST DOOR
Approved by:	15 DEC 92	Sheet reference number: 65826
		Design file no.: 65826
		number: S-6
		Sheet 7 of 11

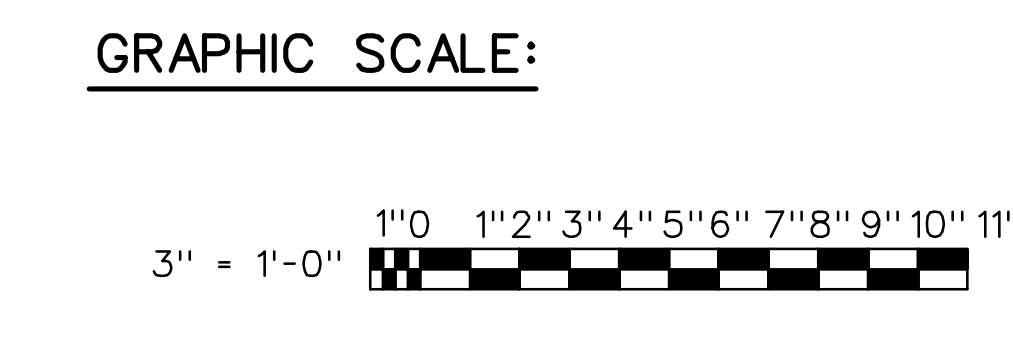
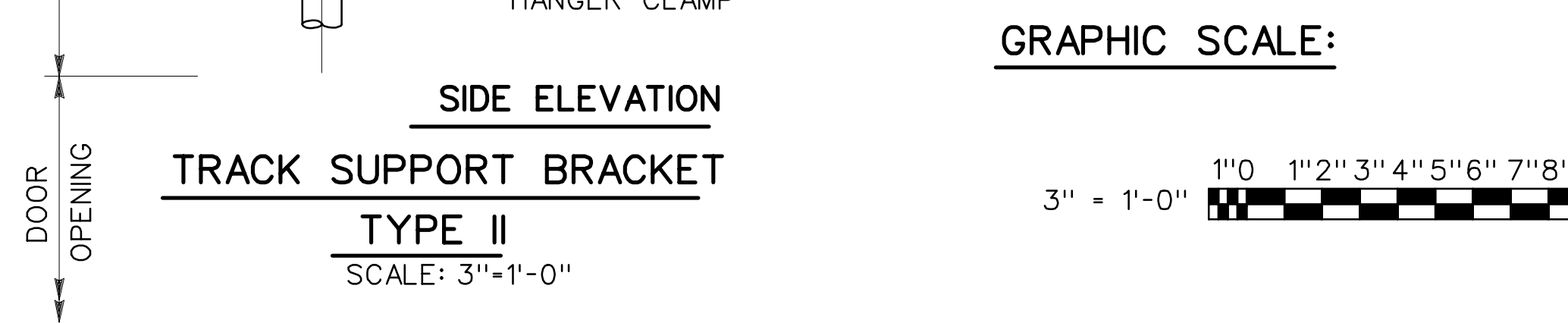
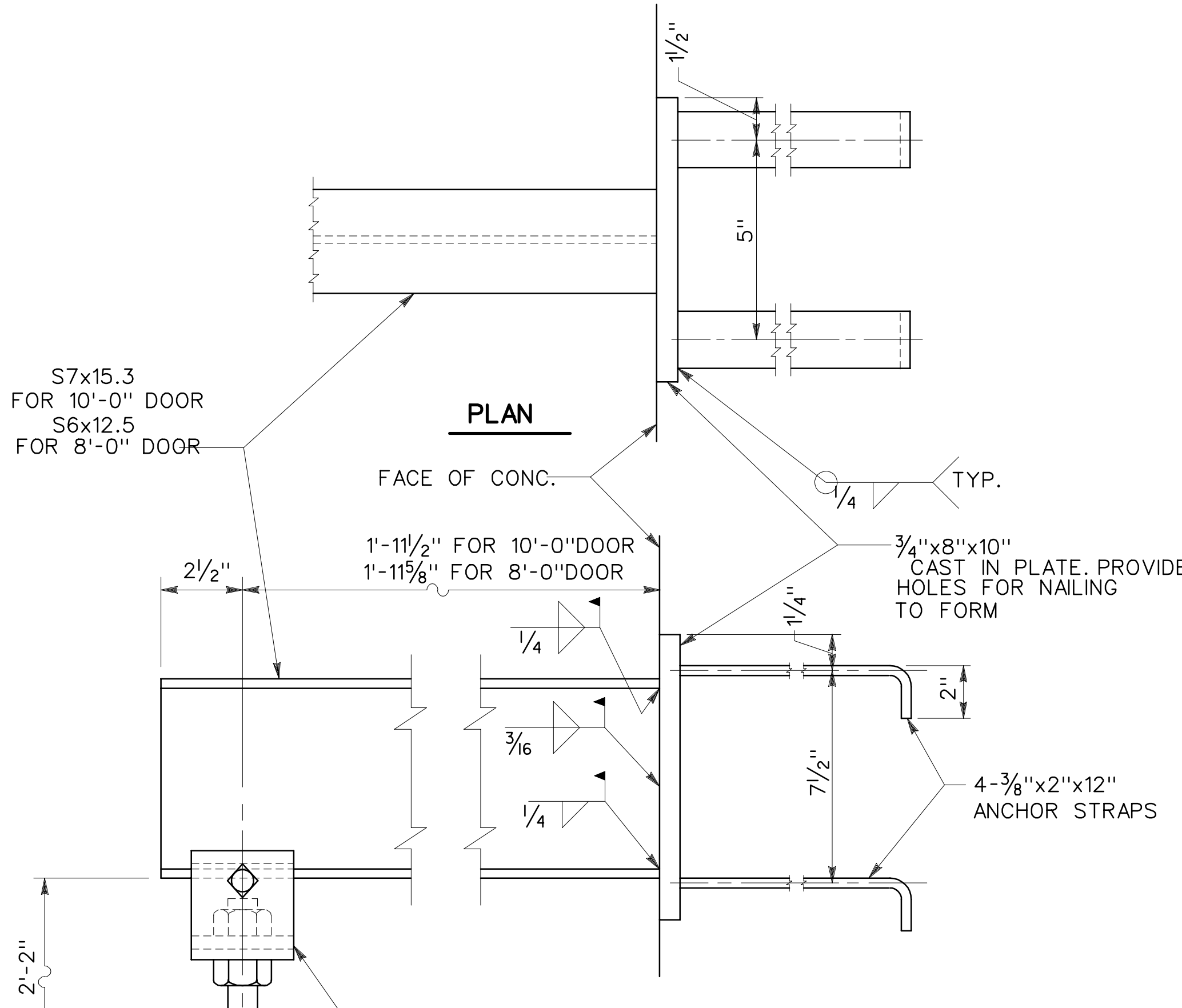
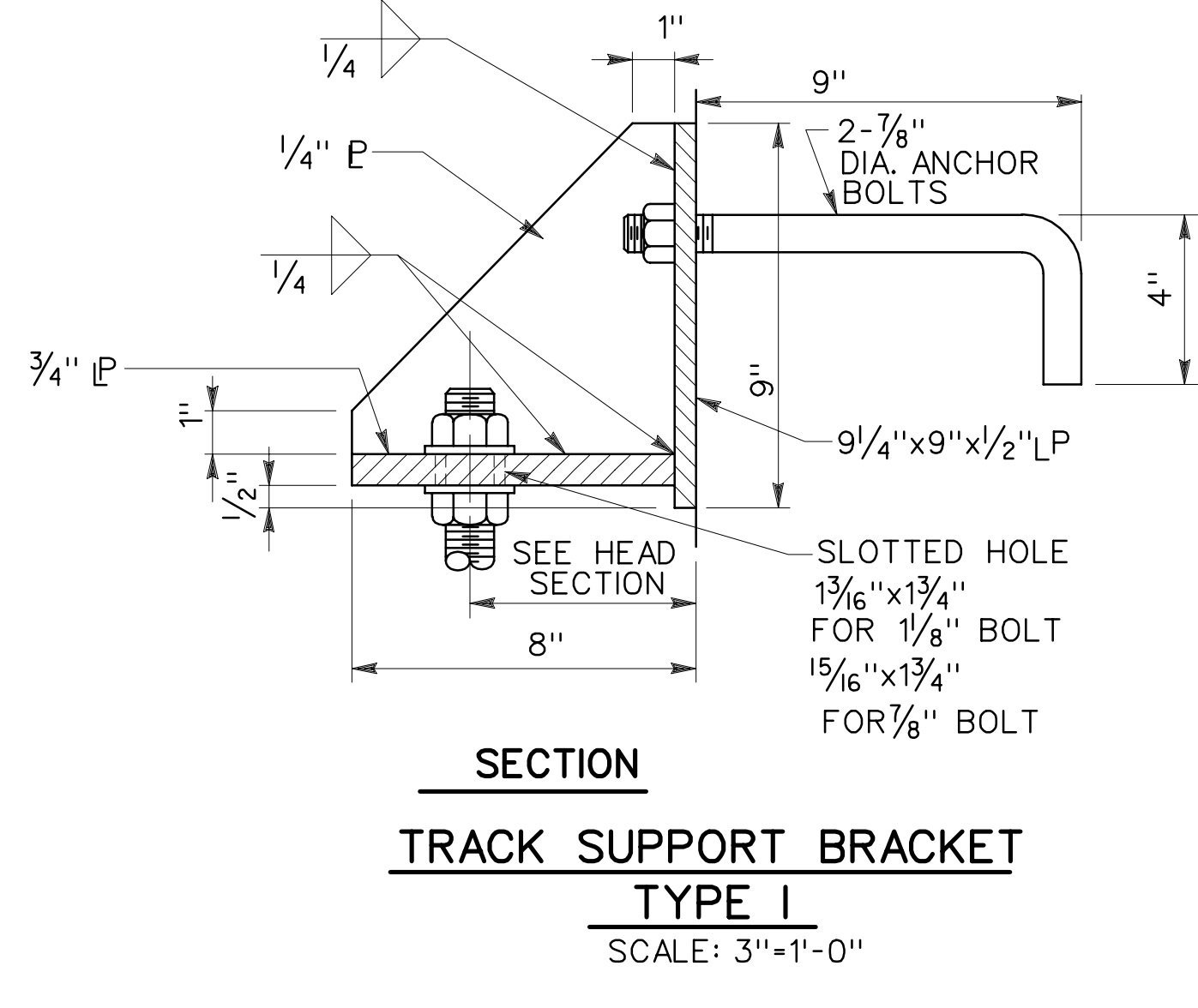
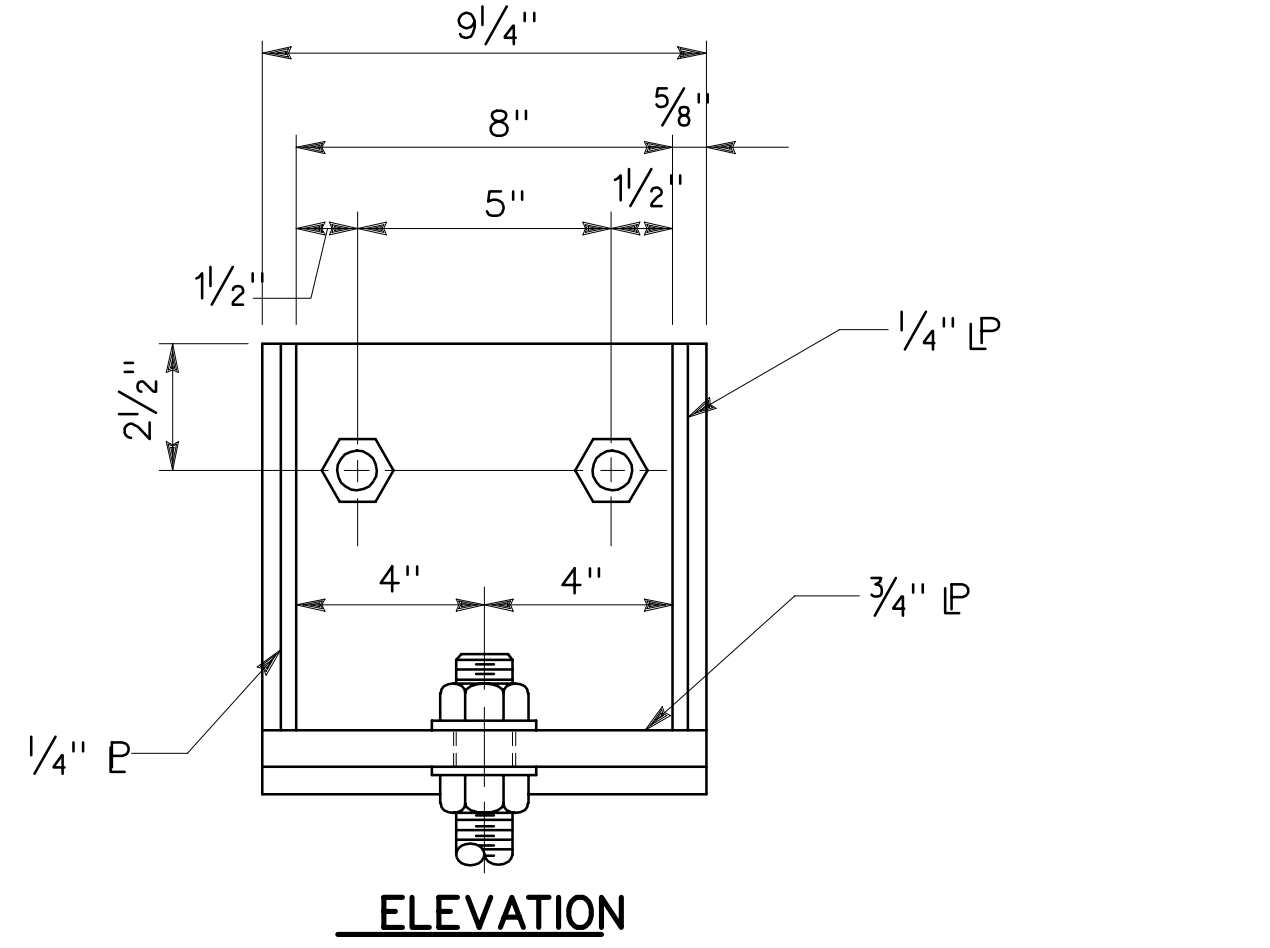
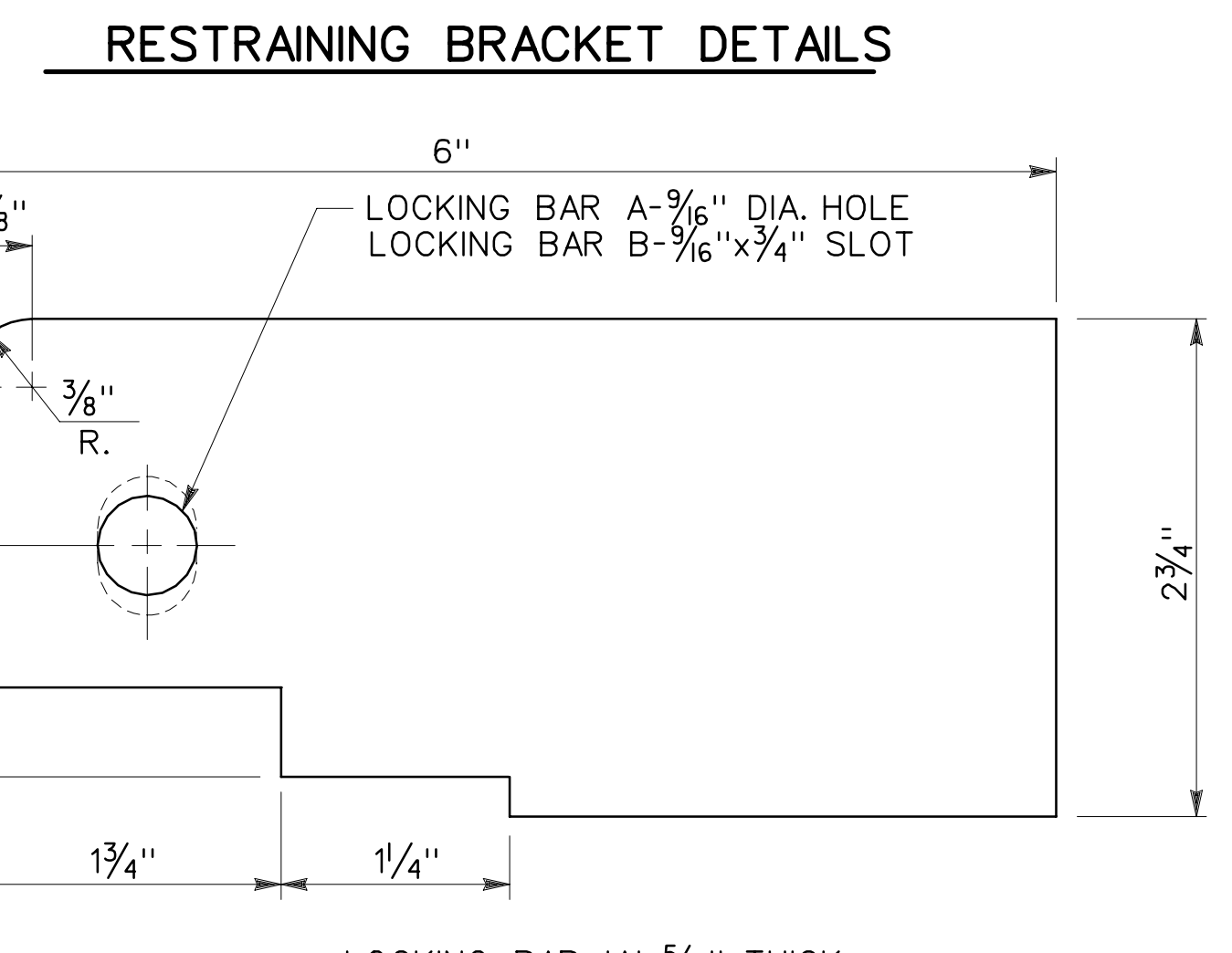
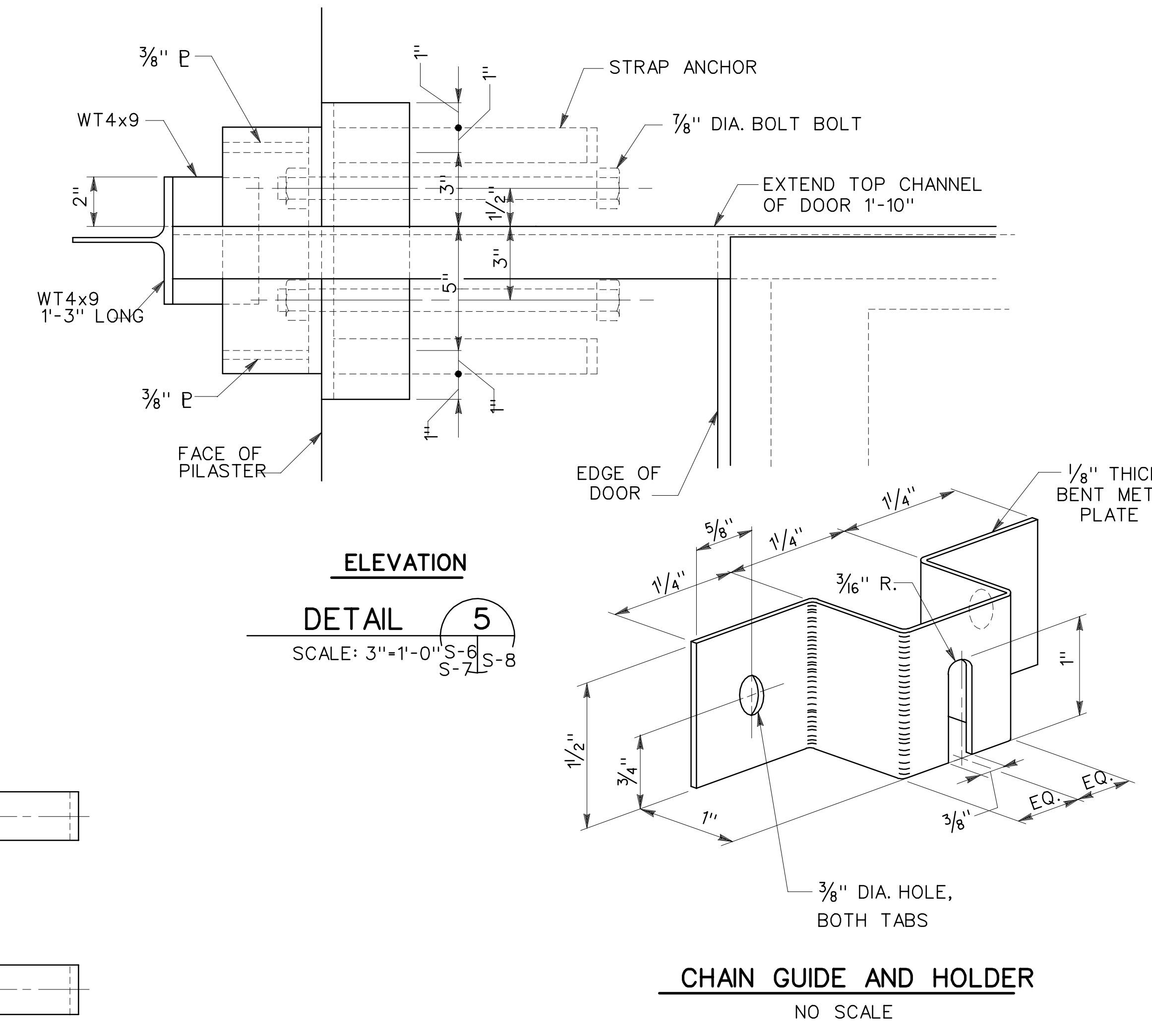
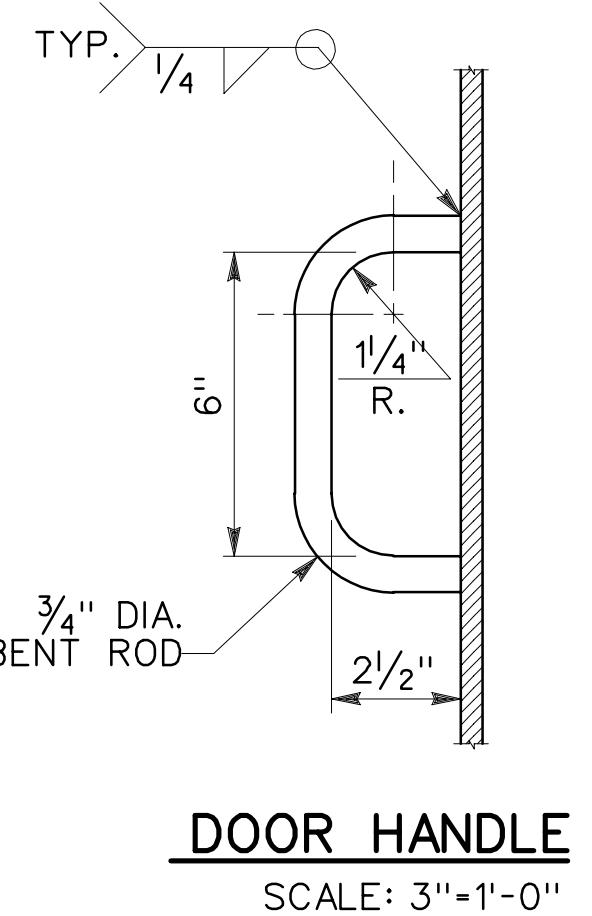
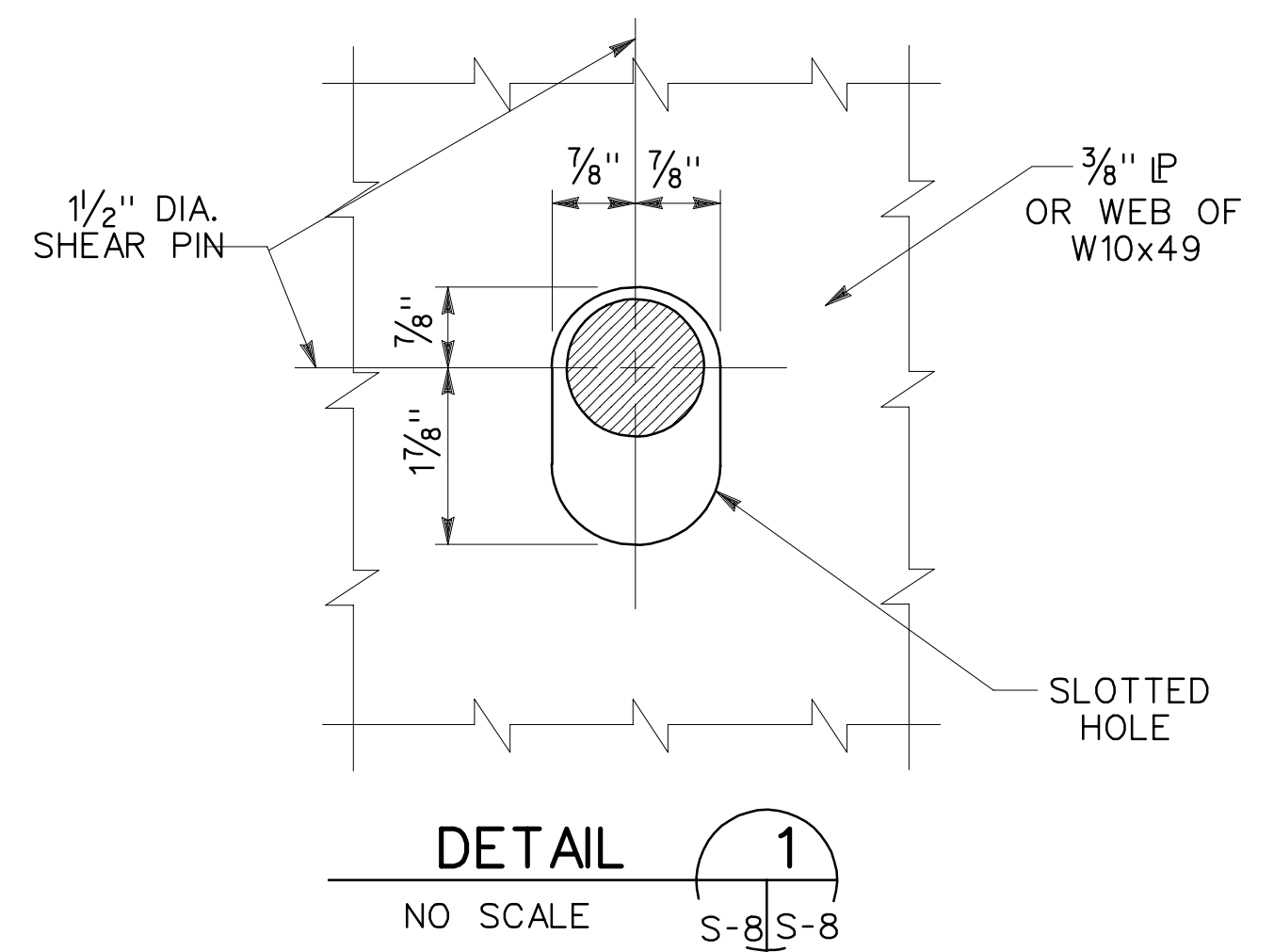
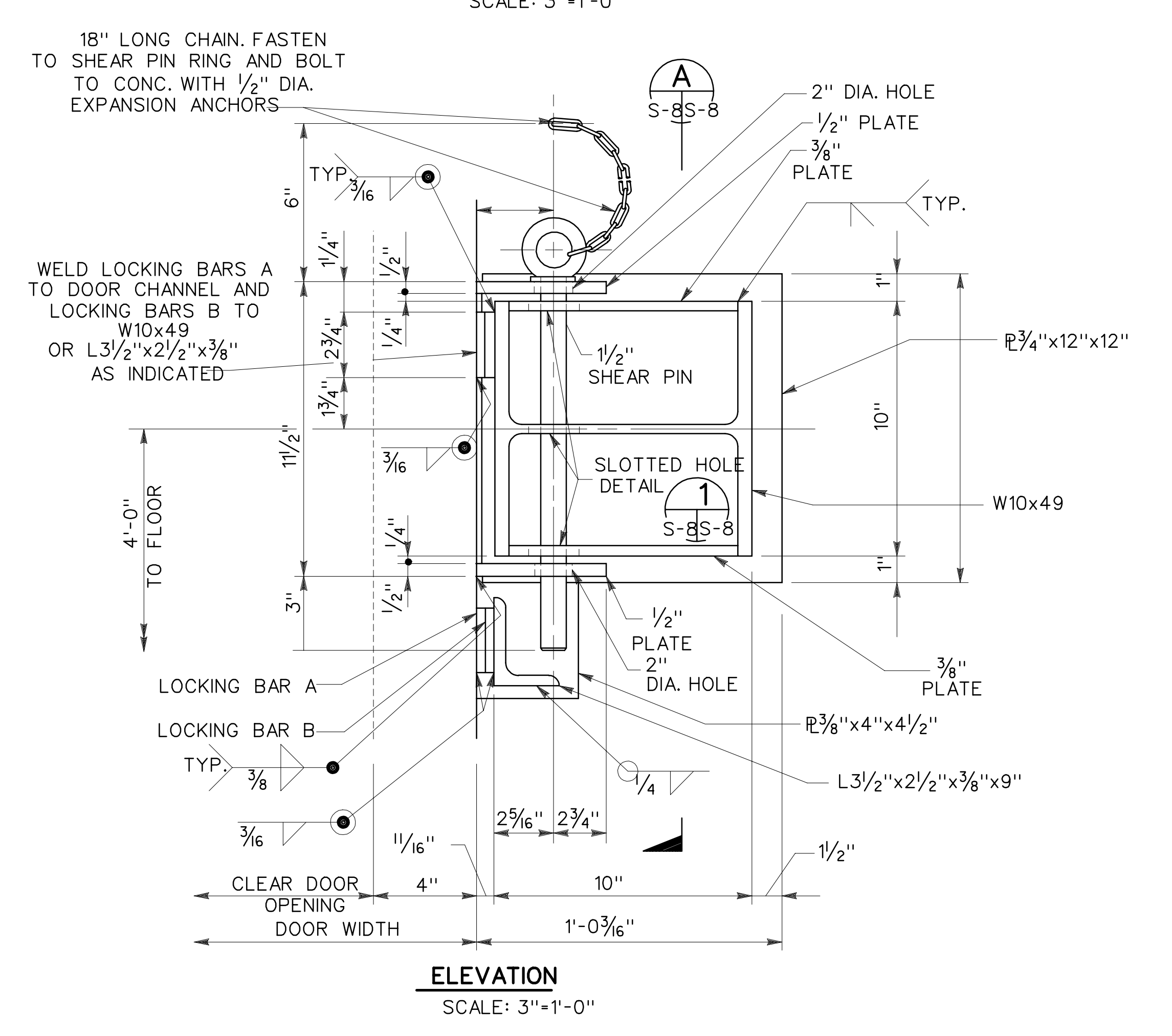
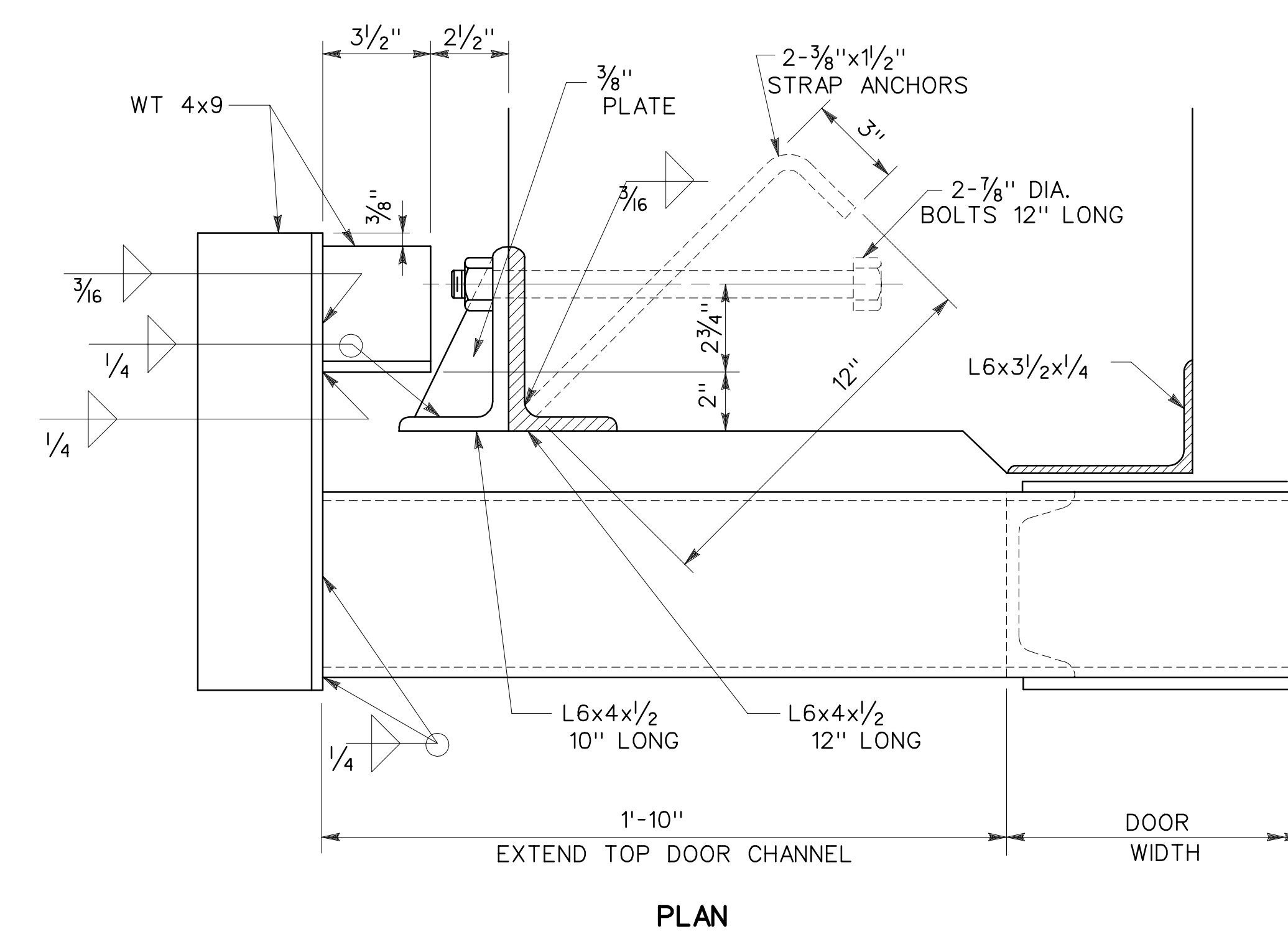
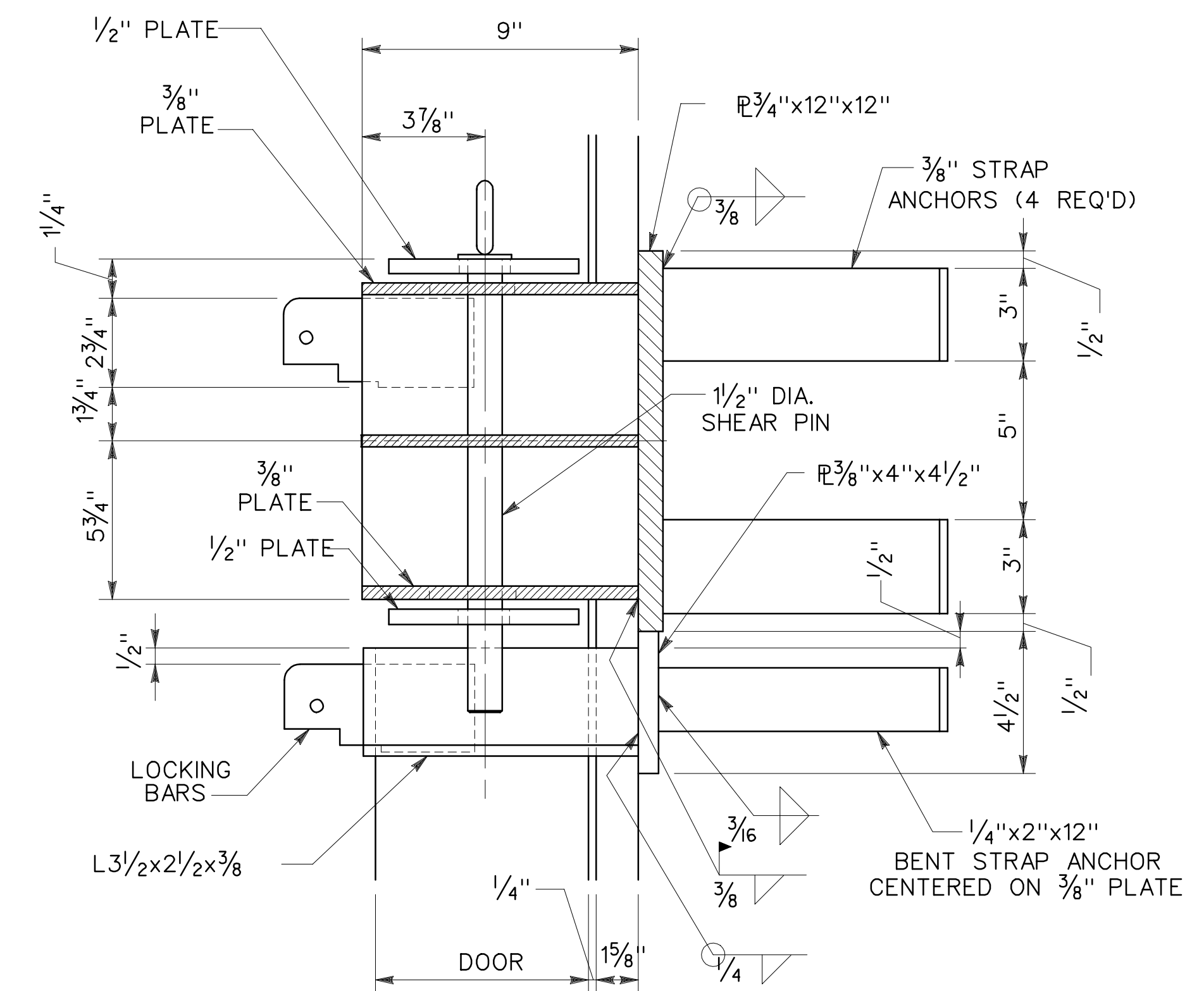
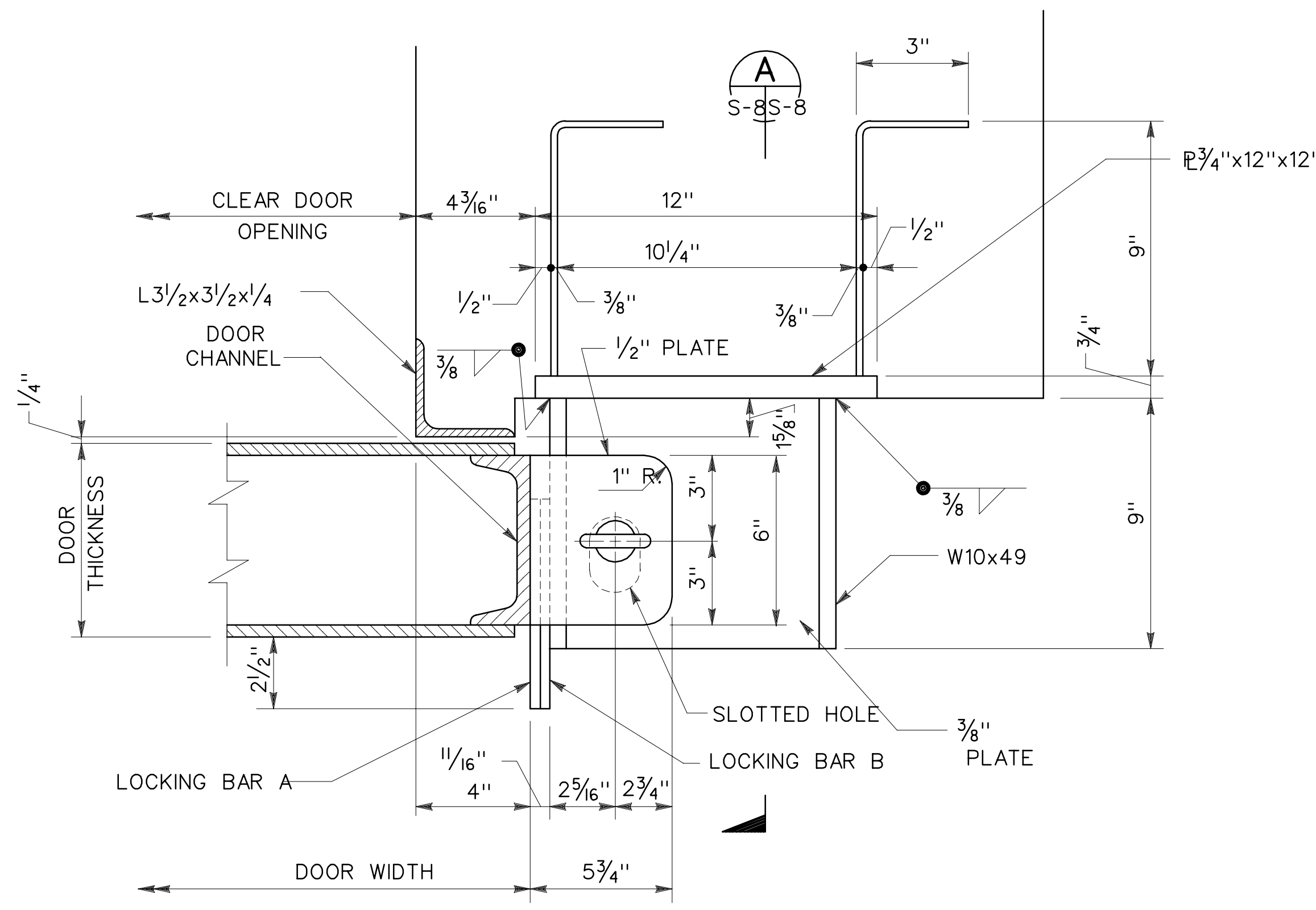


Symbol	Description	Date	Approved

Site adapt A/E :		U.S. ARMY ENGINEER DIVISION, HUNTSVILLE, ALABAMA	
Dwn. by: RP		CORPS OF ENGINEERS HUNTSVILLE, ALABAMA	
Ckd. by: JMS		<b>MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED</b>	
Reviewed by :		8'-0" BLAST DOOR	
Date :	15 DEC 92	Sheet reference number :	65827
Approved by :	Drawing code : STD 421-80-02	S-7	Design file no. : 85827
			Rev. :
			Sheet 8 of 11





Symbol	Description	Date	Approved
U.S. ARMY ENGINEER DIVISION, HUNTSVILLE, ALABAMA			
<b>MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED</b>			
<b>BLAST DOOR DETAILS</b>			
Site adapt A/E :			
Dwn. by: RP	Ckd. by: JMS		
Reviewed by :	Date : 15 DEC 92	Sheet reference number :	Design file no.: 65828
Approved by :	Drawing code : STD 421-80-02	S-8	Rev. 1 Sheet 9 of 11

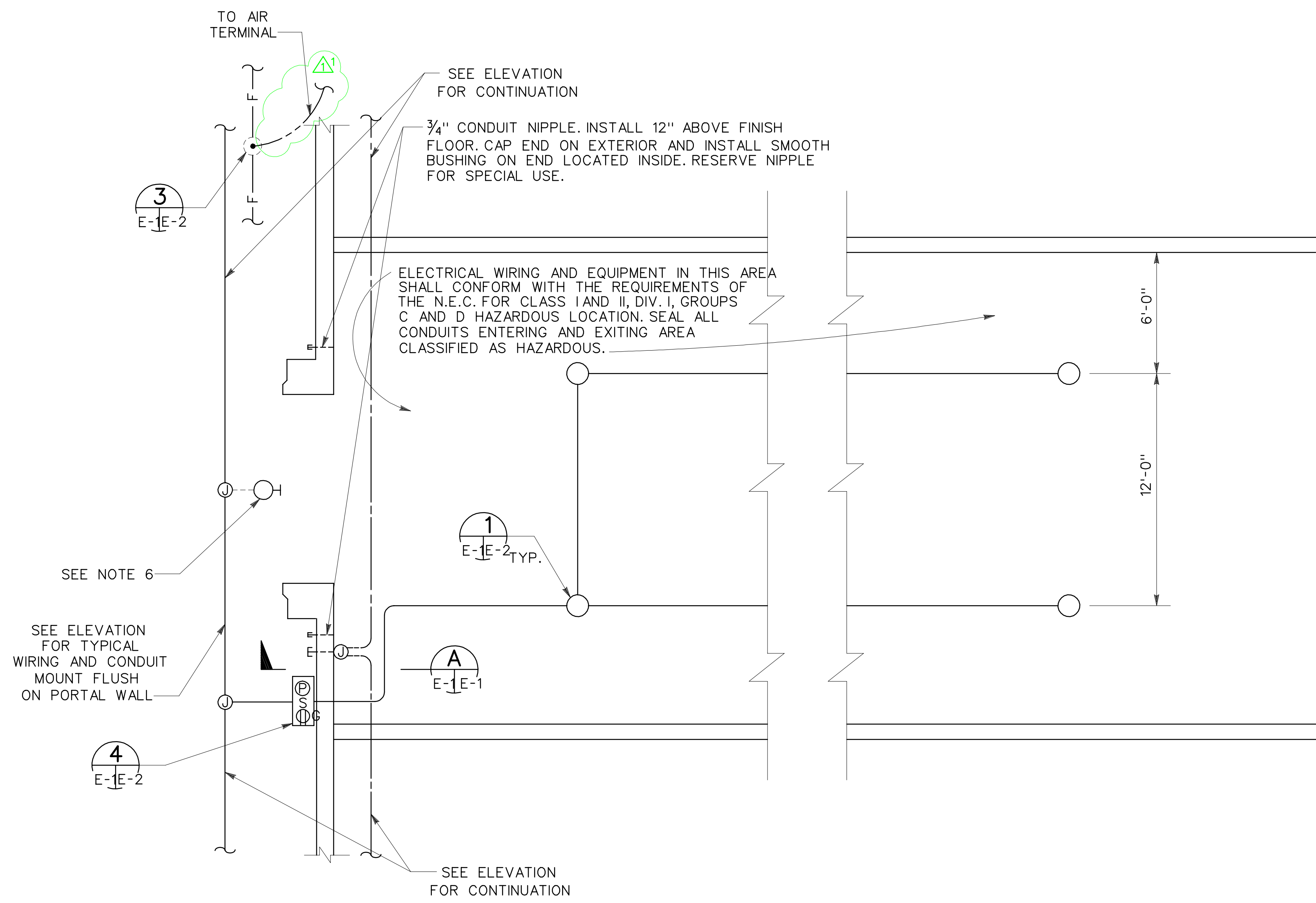
LEGEND (FOR SHEETS E-1 AND E-2)

- WALL MOUNTED LIGHTING FIXTURE. SEE NOTE 6.
- CEILING MOUNTED LIGHTING FIXTURE. SEE DETAIL 1 E-1E-2
- ⊕ 3-GANG OUTLET BOX WITH SINGLE GANG COVER FOR PILOT LAMP, SINGLE POLE SWITCH AND DUPLEX CONVENIENCE OUTLET WITH GROUND FAULT INTERRUPTER ALL SUITABLE FOR USE OUTDOORS.
- ⊕ JUNCTION BOX, CAST METAL WITH THREADED WALLS OR HUBS.
- CONDUIT RUN CONCEALED BELOW GRADE OR FLOOR SLAB. NOTE: ANY CONDUIT RUN NOT OTHERWISE INDICATED SHALL BE 1/2" AND CONTAIN THREE NO. 12 AWG WIRES. A GREATER NUMBER OF WIRES ARE SHOWN WITH CROSS LINES AS FOLLOWS: --- GROUND CONDUCTOR
- THE LONG CROSS LINE INDICATES THE IDENTIFIED GROUNDED NEUTRAL CONDUCTOR AND THE SHORT CROSS LINES INDICATES THE PHASE CONDUCTORS. UNLESS OTHERWISE INDICATED, ALL CONDUCTORS ARE NO. 12 AWG (3.5SQ.MM)
- CONDUIT RUN INSTALLED EXPOSED ON WALLS OR CEILING. WIRING SHALL BE SAME AS IN NOTE FOR CONCEALED CONDUIT RUN.
- AUXILIARY EMPTY CONDUIT RUN CONCEALED BELOW GRADE OR FLOOR SLAB SIZED AS INDICATED.
- CONDUIT TERMINATED WITH A PLUGGED COUPLING.
- VALVE TYPE SECONDARY SURGE ARRESTER (L.A.)
- ⊕ LIGHTNING AIR TERMINAL. EXTEND 4'-0" ABOVE PROTECTED OBJECT.
- GROUND ROD
- FACILITY COUNTERPOISE SYSTEM, NO. 1/0 AWG. BARE COPPER WIRE. RUN 2'-6" BELOW GRADE.
- DOWN CONDUCTOR FROM AIR TERMINAL, NO. 2 AWG. BARE COPPER WIRE.

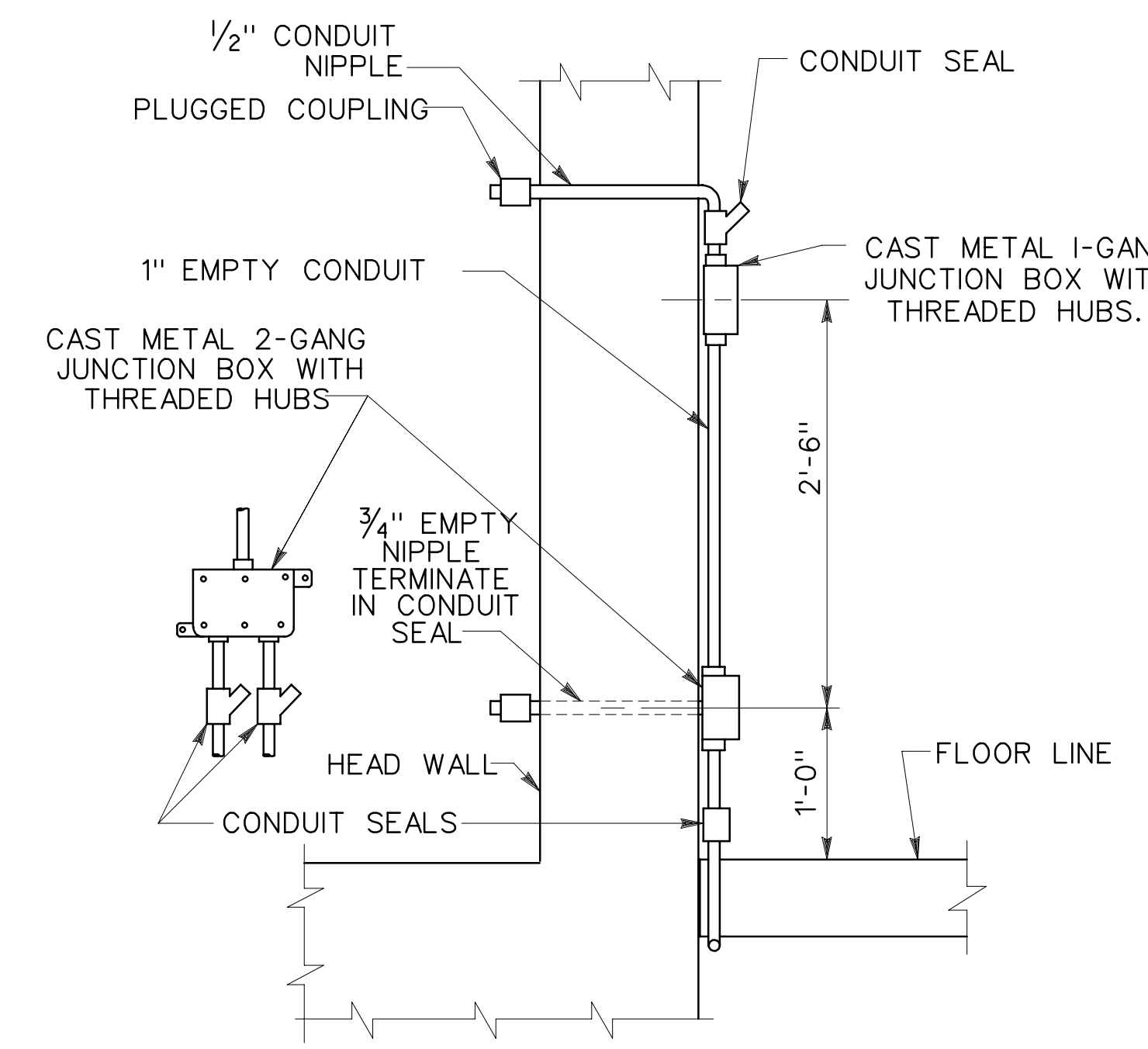
NOTES: (FOR SHEETS E-1 AND E-2)

1. HOLES SHALL NOT BE MADE IN CONCRETE ROOFING FOR INSTALLATION OF ELECTRICAL WORK.
2. THE CONDUIT SYSTEM ON THE FRONT OF STRUCTURE IS TO HAVE SUPPORTS SPACED NOT MORE THAN 8'-0", SUPPORTS ON EACH SIDE OF CONSTRUCTION JOINTS SHALL NOT EXCEED 5'-0".
3. RUNNING THREAD COUPLING CONNECTIONS ARE NOT PERMITTED FOR THE RIGID CONDUIT SYSTEMS.
4. FOR THE 120/240 VOLT, SINGLE PHASE, 3-WIRE SERVICE, INSTALL A 1/2" EMPTY CONDUIT 2'-0" BELOW FINISHED GRADE AND TERMINATE WITH A PLUGGED COUPLING NOT LESS THAN 5'-0" BEYOND PAVED AREA.
5. FOR THE INSTALLATION BY OTHERS OF A TELEPHONE TYPE CABLE, INSTALL 2 1/2" CONDUITS WITH PULL WIRE, 2'-0" BELOW FINISHED GRADE AND TERMINATE WITH A PLUGGED COUPLING NOT LESS THAN 5'-0" BEYOND PAVED AREA.
6. THE LIGHTING FIXTURE SHOULD BE INCANDESCENT TYPE. ALL EXTERIOR LIGHTS SHALL BE CONNECTED ON THE SAME CIRCUIT TO FACILITATE CONTROL AT THE PANEL BOARD. HOWEVER, NOT MORE THAN EIGHT FIXTURES SHALL BE CONNECTED TO ANY ONE 20 AMP CIRCUIT.
7. THE NUMBER OF INTERIOR LIGHTING FIXTURES VARIES, DEPENDING ON INTERNAL LENGTH OF MAGAZINE, AS FOLLOWS:
 

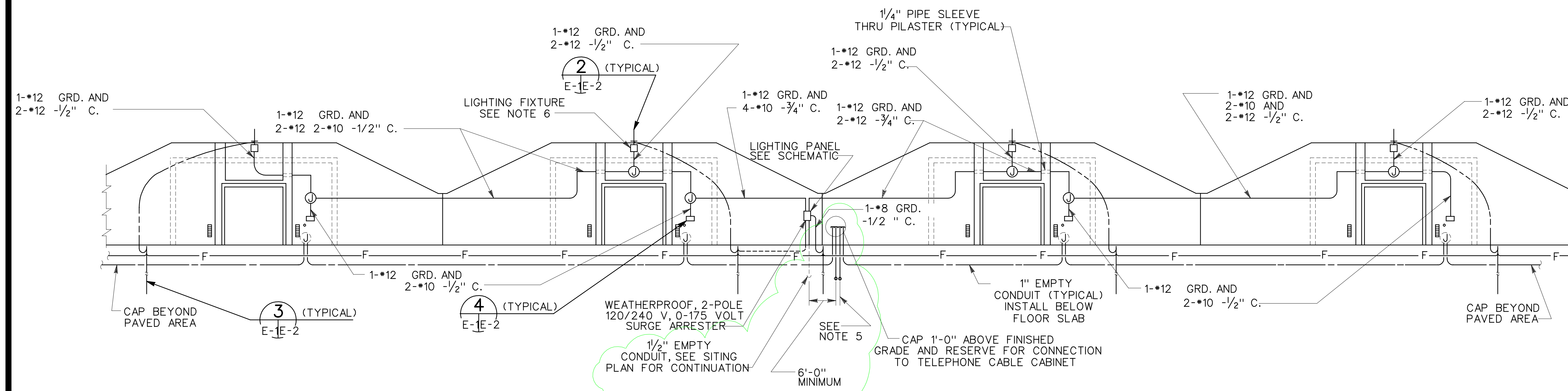
LENGTH OF MAGAZINE	NO. OF FIXTURES
20'-24'	4
25'-36'	4
37'-48'	4
49'-60'	6
61'-89'	8
8. INSTALL AN INTERMEDIATE AIR TERMINAL ANCHORED TO STRUCTURE ROOF OVER STRUCTURE WHERE INTERIOR LENGTH OF MAGAZINE EXCEEDS 37 FEET. SPACING BETWEEN 4 FEET AIR TERMINALS SHALL NOT EXCEED 37 FEET. (SEE SHEET E-2.)
9. STEEL PANELS SHALL BE BONDED TO REINFORCING STEEL EVERY 20 FEET AND AT EACH CORNER. OPTIONAL EQUIPMENT SUCH AS LOUVERS SHALL BE GROUNDED TO THE STEEL PANELS.



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



SECTION A SCALE: 1" = 1'-0"



ELEVATION NOT TO SCALE



Symbol	Description	Date	Approved
Δ	GENERAL REVISION/LIGHTNING PROTECTION	11JUN98	WLS

U.S. ARMY ENGINEER DIVISION, HUNTSVILLE, ALABAMA

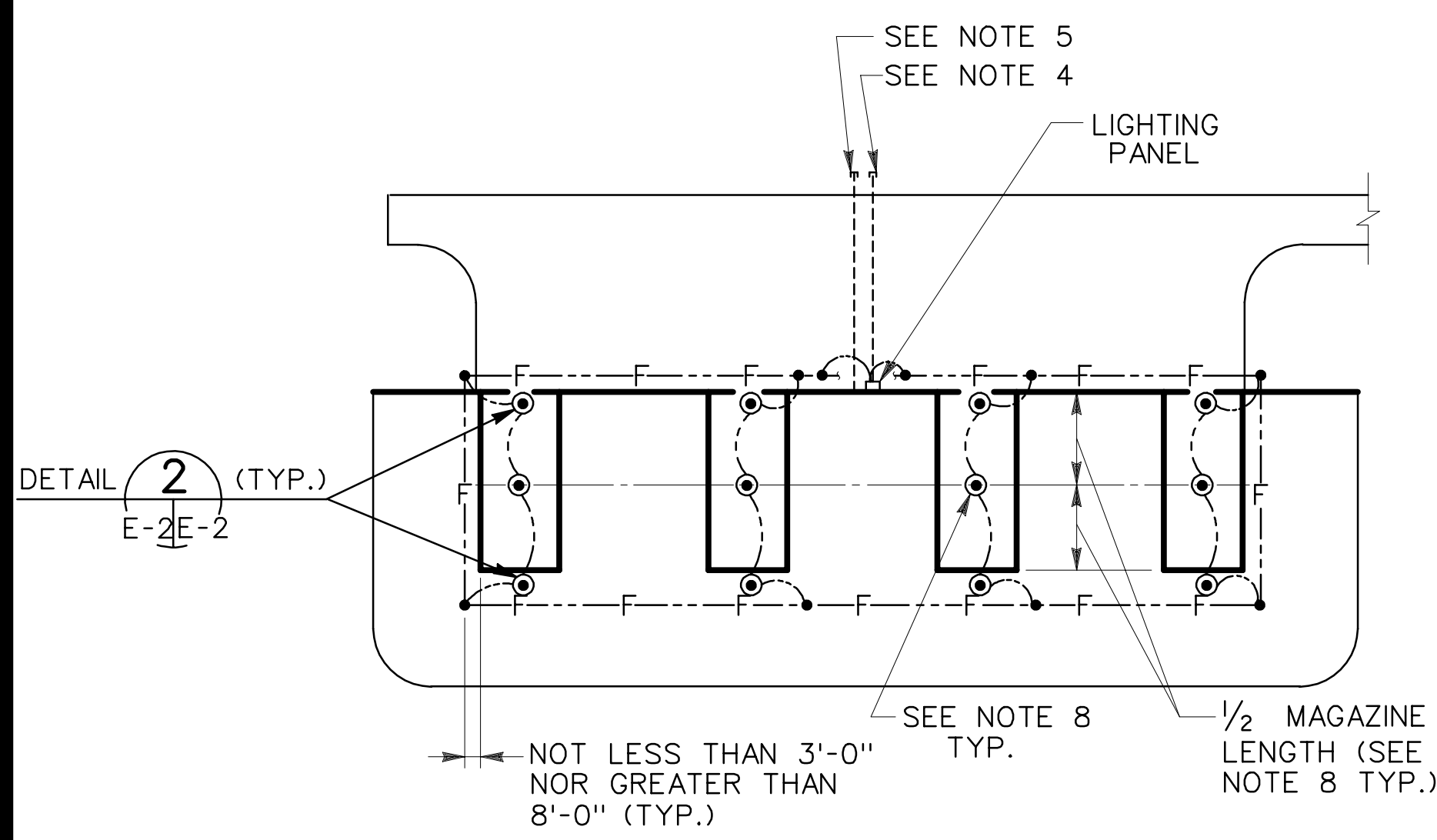
**MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED ELECTRICAL PLAN AND SECTIONS**

Site adapt A/E : MLY

Dwn. by: MLY Ckd. by: FH

Reviewed by : Date : 15 DEC 92 Sheet reference number : Design file no.: 65829

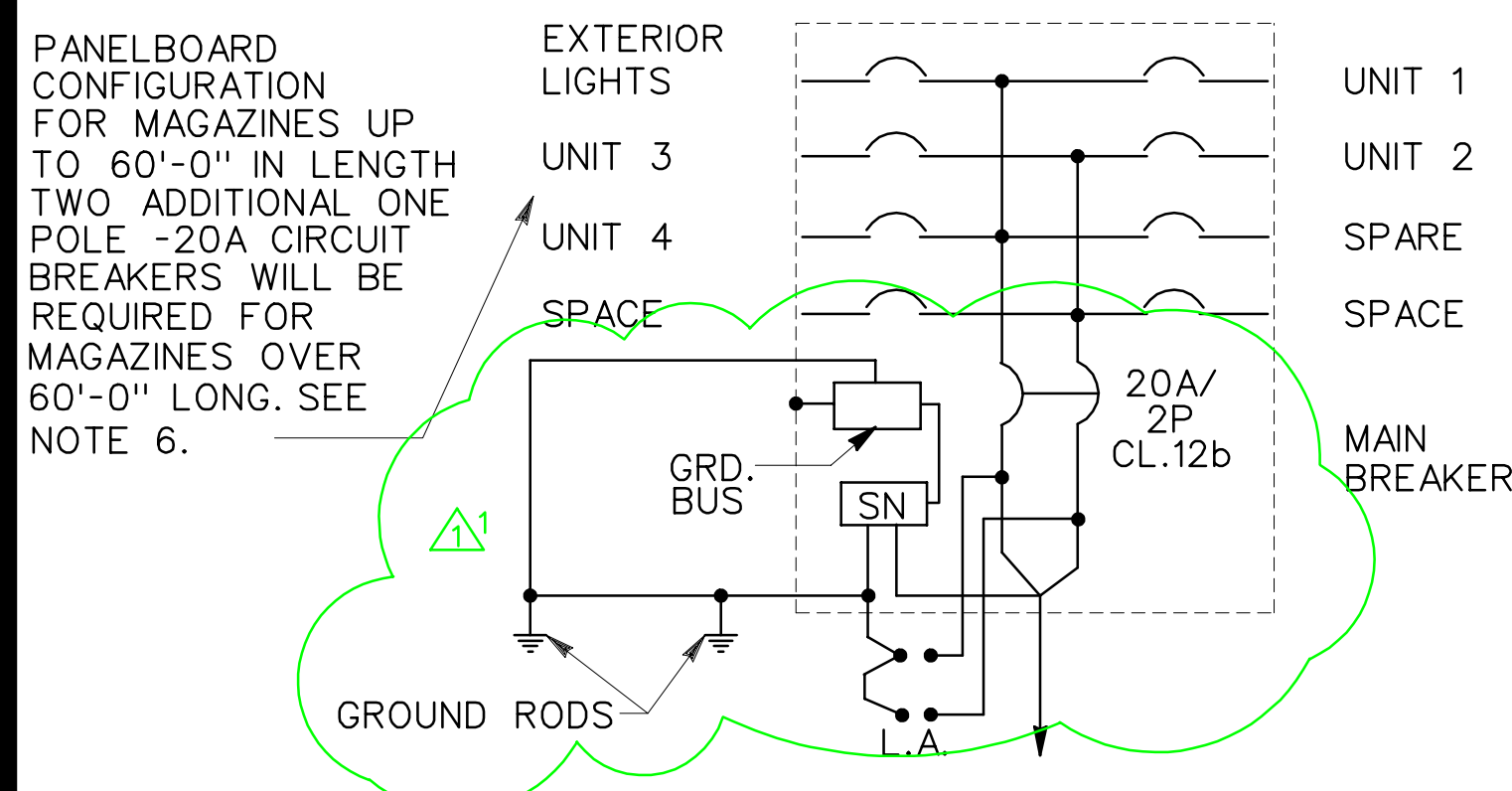
Approved by : Drawing code : STD 421-80-02 **E-1** Sheet 10 of 11



SITING PLAN NOT TO SCALE

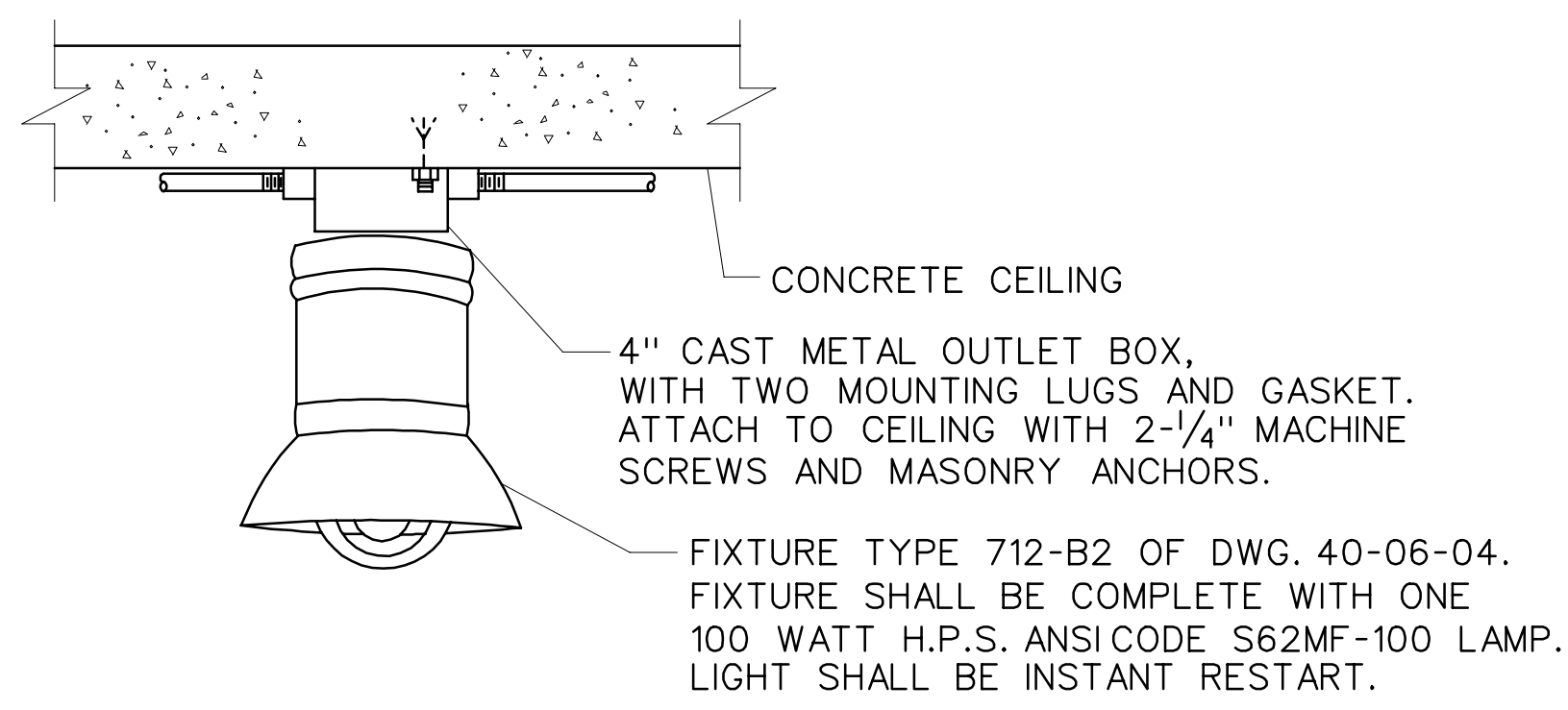
CONNECTED LOAD PER UNIT			TOTAL (WATTS) ① ②
LIGHTING (WATTS)	RECEPTACLES (WATTS)		
EXTERIOR	INTERIOR	200	1256
250	806		

- ① ASSUMING A 60 FT. MAGAZINE
- ② MAX. LOAD - 4 BAYS - 90 FT. MAGAZINE : 5.06 KVA

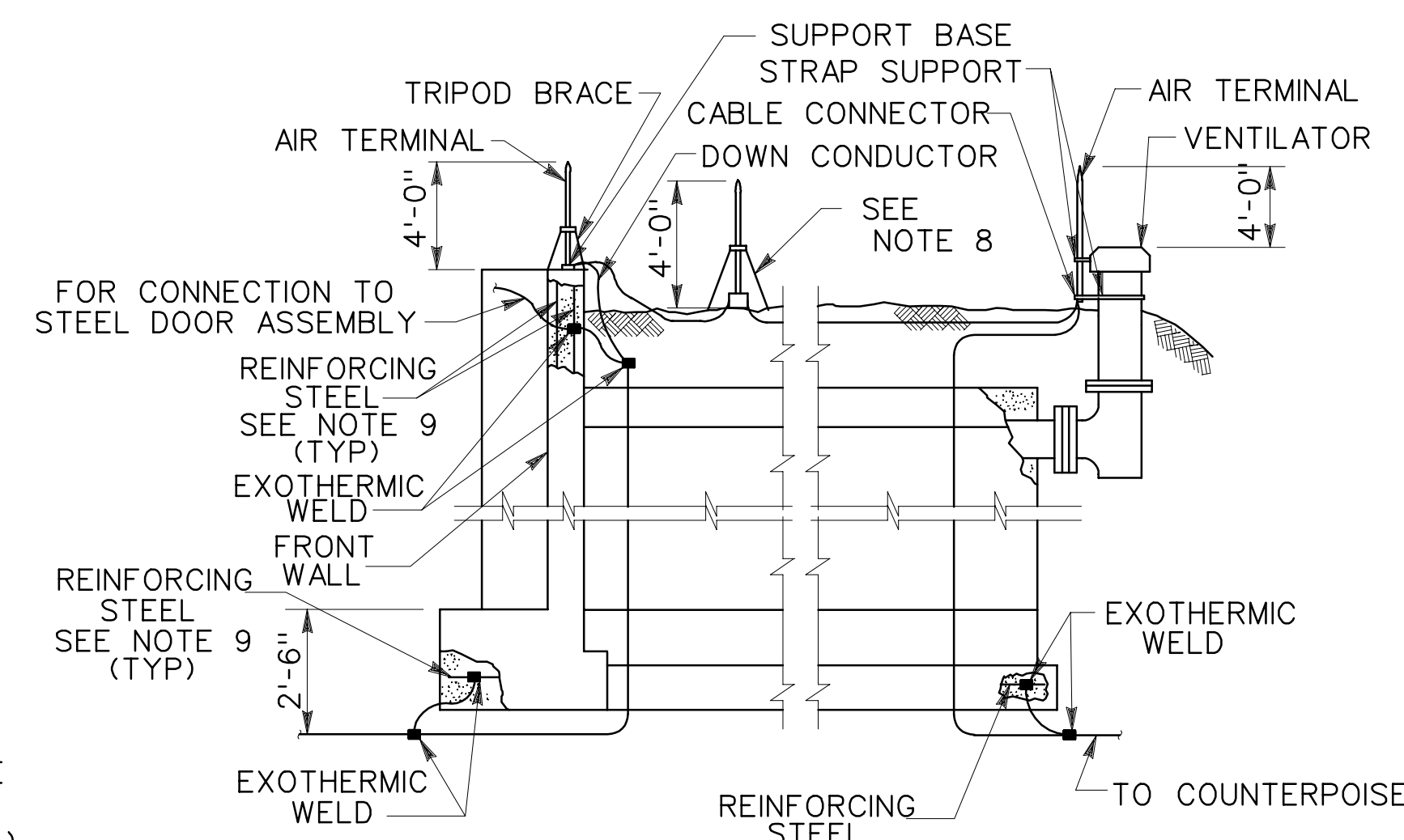


120/240, 10-3W WITH GROUND BUS, SURFACE MOUNTED IN WEATHERPROOF ENCLOSURE WITH 100 A. MAINS. ALL C/B'S RATED 20A-1P, CL. 12a EXCEPT AS NOTED OTHERWISE. SOLID NEUTRAL BUS SHALL BE CONNECTED TO THE GROUND BUS ONLY IN THE PANELBOARD. BOND PANELBOARD ENCLOSURE TO GROUND BUS.

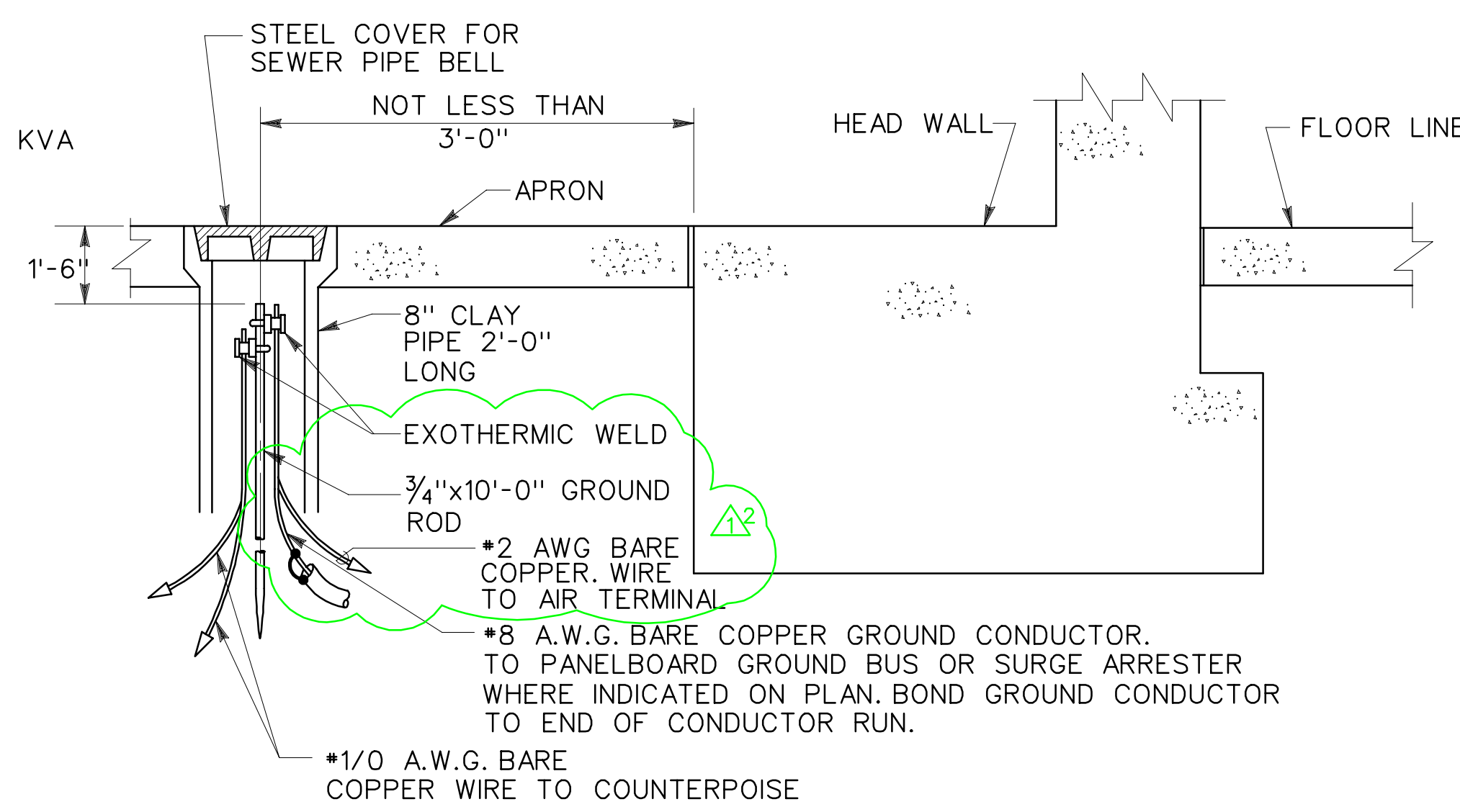
LIGHTING PANELBOARD SCHEMATIC



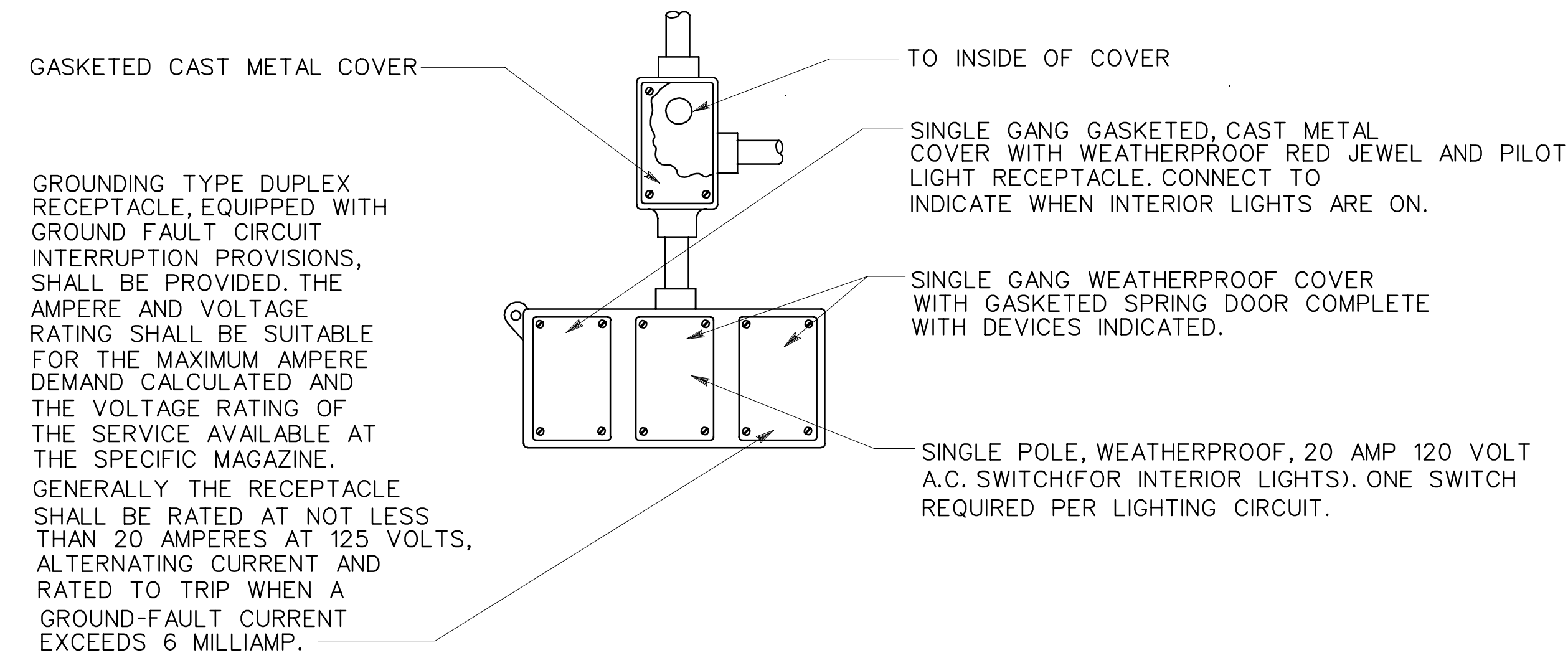
DETAIL 1 NOT TO SCALE E-1|E-2



DETAIL 2 NOT TO SCALE E-1|E-2



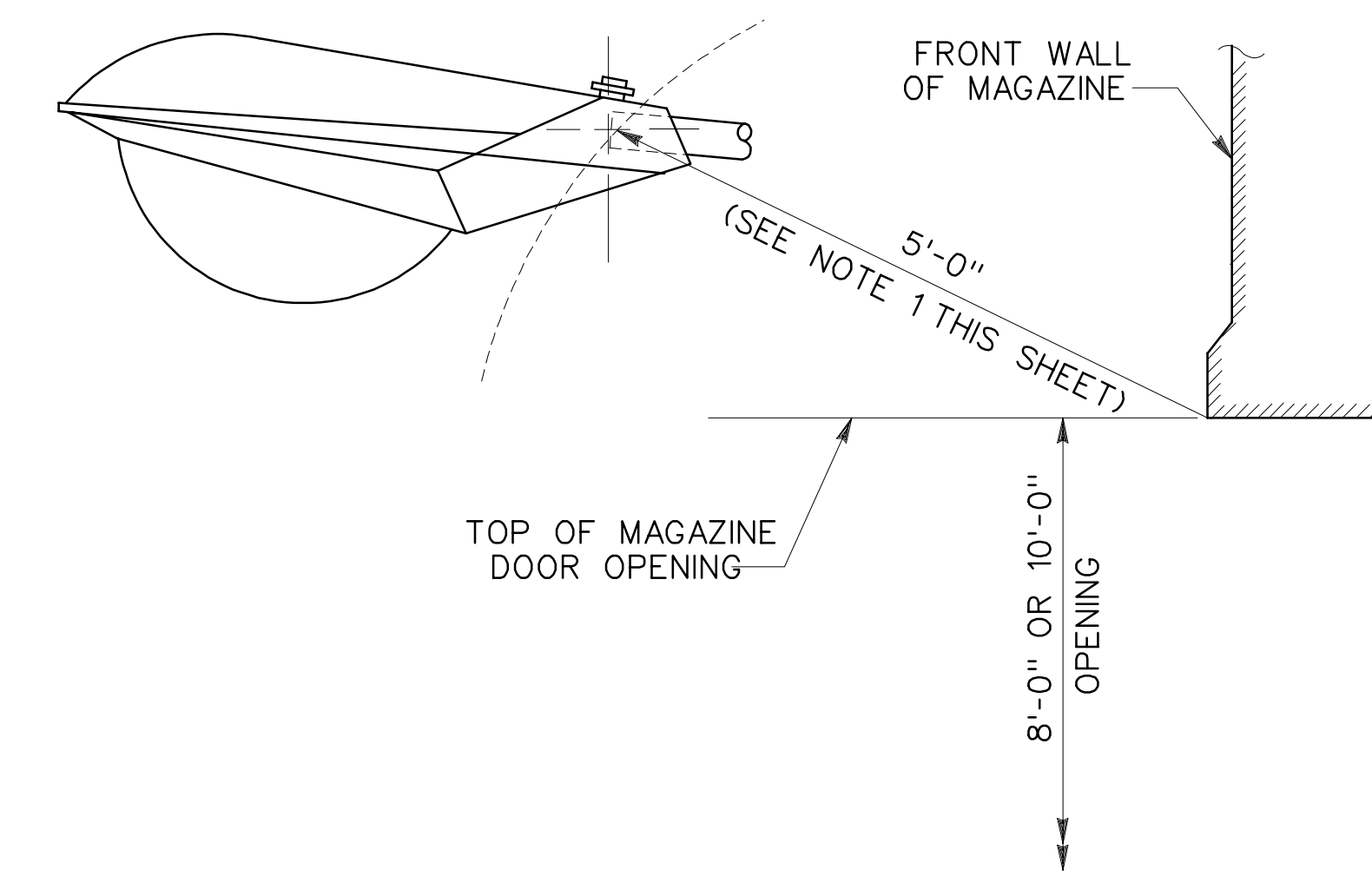
DETAIL 3 NOT TO SCALE E-1|E-2



DETAIL 4 NOT TO SCALE E-1|E-2

NOTE:

1. THE TYPE 402 LIGHT FIXTURE SHALL BE LOCATED ON THE C OF THE MAGAZINE AND OUTSIDE OF A 5'-0" RADIUS FROM THE FRONT TOP EDGE OF THE MAGAZINE DOOR OPENING. THE DOOR TRACK HOOD SHOULD NOT BLOCK DIRECT LIGHTING ON THE LOWER TWO-THIRDS OF THE DOOR.
2. REFER TO SHEET E-1 FOR NOTES AND LEGEND.



FIXTURE TYPE 402-C-3, 125 WATT HIGH PRESSURE SODIUM NOT TO SCALE U.S. ARMY CORPS OF ENGINEERS STD. DWG. NO. 40-06-04 SHEET 52, DATED 1991

Symbol	Description	Date	Approved
Δ	GENERAL REVISION/LIGHTNING PROTECTION	11JUN98	WLS

U.S. ARMY ENGINEER DIVISION, HUNTSVILLE, ALABAMA  
CORPS OF ENGINEERS HUNTSVILLE, ALABAMA

Site adapt A/E : MAGAZINE, STEEL AND CONCRETE BOX, EARTH COVERED

ELECTRICAL DETAILS

Dwn. by: MLY Ckd. by: FH

Reviewed by: Date: 15 DEC 92 Sheet reference number: Design file no.: 65830

Approved by: Drawing code: STD 421-80-02 E-2 Sheet 11 of 11