

**SYMBOLS LEGEND**

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
YW1	WALLS, Y = (F)FOUNDATION, (C)IP CONC, (P)RECAST, (M)ASONRY, (W)OOD, (R)ETAINING, CIP CONC (S)HEARWALL		ELEVATION SYMBOL
	STEEL BEAM BEAM SIZE [30] c=1" SHEAR STUD QUANTITY CAMBER (INCHES) ELEVATION OF T/STEEL BEAM REACTION (KIPS)		SLOPE
	DECK TYPE ABOVE DECK CONCRETE THICKNESS TYPE DECK SPAN DIRECTION		KEY NOTE
	NEW GRID LINES		SUBGRADE
	EXISTING GRID LINES		FORM SAVER
			DRAWING REVISION NUMBER
			CURRENT REVISION CLOUD
			STRUCTURAL MASONRY WALL
			CONTROL JOINT
			CAST-IN-PLACE CONCRETE (ON PLAN)
			BUILDING SECTION OR DETAIL CUT
			ON SHEET DRAWN
			WELDED-WIRE REINFORCEMENT

**ABBREVIATIONS**

/	Per	FAB	Fabricate	OAE	Or Approved Equivalent
@	At	FF	Finished Floor	OC	On Center
AB	Anchor Bolt	FIN	Finish(ed)	OD	Outside Diameter
ADDNL	Additional	FLG	Flange	O.F.	Outside Face
AFF	Above Finished Floor	FLR	Floor	OH	Opposite Hand
ALT	Alternate	FND	Foundation	OPNG	Opening
ALUM	Aluminum	FO	Face Of	OPP	Opposite
APA	American Plywood Association	FP	Full Penetration or Fire Proofing	OVS	Oversized
APPROX	Approximate	FRAM	Framing	PAF	Power Actuated Fastener
ARCH	Architect or Architectural	FS	Far Side	PC	Precast
B/	Bottom of	FT	Foot or Feet	PEN	Penetration
BAL	Balance	FTG	Footing	PERP	Perpendicular
BD	Board	FV	Field Verify	PL	Plate (Steel)
BG	Backgouge	GA	Gage or Gauge	PLF	Pounds Per Lineal Foot
BL	Brick Ledge	GALV	Galvanized	PREFAB	Prefabricated
BLDG	Building	GL	Glu-lam	PRELIM	Preliminary
BLKG	Blocking	GR	Grade or Grind	PS	Prestressed
BM	Beam	GR BM	Grade Beam	PSF	Pounds Per Square Foot
BN	Boundary Nail	HDAR	Headed Anchor Rod	PSI	Pounds Per Square Inch
BO	Bottom of	HD	Headed or Holdown	PT	Point or Post-Tension
BOT or B	Bottom	HAS or HDAS	Headed Anchor Stud	QTY	Quantity
BOS	Bottom of Steel	HDG	Hot Dipped Galvanized	RAD or R	Radius
BRG	Bearing	HK	Hook	RB	Precast Rectangular Beam
BSMT	Basement	HORIZ	Horizontal	RC	Reinforced Concrete
BTWN	Between	HT	Height	RE: or REF	Refer to (Reference)
CC	Center to Center	HVAC	Heating-Ventilating and A/C	REINF	Reinforce(ng)(d)(ment)
CF	Cold Formed	ID	Inside Diameter	RET	Return
CG	Center of Gravity	I.F.	Inside Face	REQD	Required
CIP	Cast-in-Place	IN	Inch	REQT(S)	Requirement(s)
CJ	Control Joint	INT	Interior	RO	Rough Opening
CJP	Complete Joint Penetration	IT	Precast Inverted Tee Beam	ROF	Random Oriented Fiber
CL	Centerline	JST	Joist	(S)	Salvaged
CLG	Ceiling	JT	Joint	SC	Slip Critical
CLR	Clear	k	Kip	SCHED	Schedule
CMU	Concrete Masonry Unit	L or LG	Length	SECT	Section
COL	Column	LB(S)	Pound(s)	SIM	Similar
CONC	Concrete	LB	Precast L-Shaped Beam	SLH	Short Leg Horizontal
CONN	Connection	LCE	Compression Embedment	SLV	Slab on Grade
CONST	Construction	LCS	Compression Lap Splice	SOG	Slab on Grade
CONT	Continue or Continuous	LDH	Hook Development Length	S	South
CONTR	Contractor	LG	Light Gage	SP @	Space At
COORD	Coordinate	LL	Live Load	SP	Space(s)
CSJ	Construction Joint	LLH	Long Leg Horizontal	SPECS	Specifications
CTR(D)	Center(ed)	LLV	Long Leg Vertical	SPRT	Support
d	Penny	LOC(S)	Location(s) or Locate	SS	Stainless Steel
DAS	Deformed Anchor Stud	LONG	Longitudinal	STD	Standard
DBL	Double	LSL	Laminated Strand Lumber	STIFF	Stiffener
DIA or Ø	Diameter	LT	Light	STL	Steel
DIAG	Diagonal	LTE	Tension Embedment	STR	Structural
DIM	Dimension	LTS	Tension Lap Splice Length	SW	Shearwall
DL	Dead Load	LT WT	Lightweight	SYM	Symmetrical
DN	Down	LVL	Level or Laminated Veneer Lumber	T&B	Top & Bottom
DO	Ditto	LWC	Light Weight Concrete	T	Top
DP	Drilled Pier or Deep	MACH	Machine	T/	Top of
DT	Precast Double Tee	MACH RM	Machine Room	THK	Thick or Thickness
DTL(S)	Detail(s)	MAS	Masonry	TL	Total Load
DWG(S)	Drawing(s)	MATL	Material	T.O.	Top of
DWL(S)	Dowel(s)	MAX	Maximum	TOC	Top of Concrete
(E) or EXIST	Existing	MBS	Metal Building Supplier	TOF	Top of Footing
EA	Each	MCJ	Masonry Control Joint	TOM	Top of Masonry
EC	Epoxy Coated	MECH	Mechanical	TOPG	Topping
EE	Each End	MEP	Mech/Elect/Plumb	TOS	Top of Steel
EF	Each Face	MIN	Minimum	TOW	Top of Wall
EJ	Expansion Joint	MISC	Miscellaneous	TRANS	Transverse
EL	Elevation	ML	Micro-Lam	TYP	Typical
ELEV	Elevator	MLS	Masonry Lap Splice	ULT	Ultimate
EMBED	Embedded	mm	Millimeter	UNO	Unless Noted Otherwise
EN	Edge Nail	MNFR	Manufacturer	VERT	Vertical
ENGR	Engineer	MO	Masonry Opening	VIF	Verify in Field
EOR	Engineer-of-Record	MTL	Metal	W/O	Without
EOS	Edge of Slab	N	North	W/	With
EQ	Equal	NM	Non-Metallic	WD	Width or Wood
EQ SP	Equally Spaced	NS	Non-Shrink or Near Side	WF	Wide Flange
EQUIP	Equipment	N-S	North-South	WP	Working Point or Waterproofing
ES	Each Side	NIC	Not in Contract	WT	Weight
EW	Each Way	NO or #	Number	WWR	Welded Wire Reinforcement
E-W	East-West	NOM	Nominal	WxH	Width x Height
EXP ANCH	Expansion Anchor	NTS	Not To Scale		
EXP	Expansion	NWC	Normal Weight Concrete		
EXT	Exterior				

**STRUCTURAL DRAWING LIST**

SHEET NUMBER	SHEET TITLE
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S1.01	PLANS
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S3.11	TYP FOOTING DETAILS
S3.12	TYP FOOTING DETAILS
S3.13	TYP SOG DETAILS
S4.00	TYP MASONRY DETAILS
S4.01	TYP MASONRY DETAILS
S5.10	TYP METAL DECK DETAILS
S5.11	CF TRUSS LOADING
S5.12	TYP METAL DECK AND ROOF DETAILS

**University Theater ADA Elevator Addition**  
university of colorado | boulder colorado  
ucb project number: **PR002750**

ISSUED FOR	DATE
FOR CONSTRUCTION	08.28.09

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PROJECT NO.	DATE
19132.S.62	08.28.09

DESIGNER	CHECKED
EMG	BN

SYMBOLS LEGEND, ABBREVIATIONS  
AND DRAWING LIST

**S0.01**

## DESIGN CRITERIA

- 1. CODES AND STANDARDS:**  
**1A. GENERAL DESIGN**  
 - INTERNATIONAL BUILDING CODE 2006  
**1B. LOADS**  
 - ASCE/SEI 7-05 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"  
**1C. CONCRETE**  
 - ACI 301-05 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"  
 - ACI 318-05 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"  
**1D. MASONRY**  
 - ACI 530-05/ASCE 5-05: "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES"  
 - ACI 530.1-05/ASCE 6-05: "SPECIFICATION FOR MASONRY STRUCTURES"  
**1E. STEEL**  
 - ANS/AISC 341-05: "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS"  
 - ANS/AISC 360-05: "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
- 2. SEISMIC LOADS**  
 - SEISMIC DESIGN CATEGORY = B  
 - OCCUPANCY CATEGORY = III  
 - EARTHQUAKE IMPORTANCE FACTOR,  $I_e = 1.25$   
 - MAPPED SPECTRAL RESPONSE ACCELERATION,  $S_s = 23.8$   
 - MAPPED SPECTRAL RESPONSE ACCELERATION,  $S_1 = 5.9$   
 - DESIGN SPECTRAL RESPONSE COEFFICIENT,  $S_Ds = 0.254$   
 - DESIGN SPECTRAL RESPONSE COEFFICIENT,  $S_D1 = 0.094$   
 - SOIL SITE CLASS = D  
 - BASIC STRUCTURAL SYSTEM: BEARING WALL SYSTEM  
 - STRUCTURAL SEISMIC LATERAL SYSTEM: ORDINARY REINFORCED MASONRY SHEAR WALLS  
 - RESPONSE MODIFICATION FACTOR,  $R = 2.0$   
 - SEISMIC RESPONSE COEFFICIENT,  $C_s = .159$   
 - SYSTEM OVERSTRENGTH FACTOR,  $\Omega = 2.5$   
 - DESIGN BASE SHEAR EAST-WEST DIRECTION = [X] KIPS  
 - DESIGN BASE SHEAR NORTH-SOUTH DIRECTION = [X] KIPS  
 - SEISMIC ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
- 3. WIND LOADS**  
 - OCCUPANCY CATEGORY = III  
 - WIND IMPORTANCE FACTOR  $I_w = 1.15$   
 - BASIC WIND SPEED = 110 MPH  
 - EXPOSURE CATEGORY = C  
 - INTERNAL PRESSURE COEFFICIENT,  $G_{Cpi} = +/- 0.18$

**4. DESIGN WIND PRESSURE FOR COMPONENTS AND CLADDING AND ELEMENTS DESIGNED BY THE CONTRACTOR**

- PRESSURES LISTED BELOW ARE BASED ON 10 SF EFFECTIVE WIND AREA. FINAL CALCULATIONS TO BE COMPLETED BY CONTRACTOR
- TYPICAL WALL AREA INWARD PRESSURE = 37 PSF
- TYPICAL WALL AREA OUTWARD PRESSURE = 40 PSF
- WALL CORNERS(OUTWARD PRESSURE) = 50 PSF
- TYPICAL ROOF AREA (OUTWARD PRESSURE) = 35 PSF
- ROOF EAVES, RAKES, RIDGES AND CORNERS (OUTWARD) = 88 PSF

**5. LATERAL LOAD RESISTING SYSTEM DESCRIPTION:**

- WIND AND SEISMIC LOADS ARE CARRIED BY CONCRETE FLOOR AND METAL ROOF DECK DIAPHRAGMS TO MASONRY SHEAR WALLS.

**6. GRAVITY LOADS**

- 6A. SEE GRAVITY LOADS TABLE  
 6B. DRIFTING, SLIDING AND UNBALANCED SNOW  
 - GROUND SNOW LOAD = 25 PSF  
 - SNOW EXPOSURE FACTOR  $C_e = 1.0$   
 - SNOW LOAD IMPORTANCE FACTOR  $I_s = 1.1$   
 - THERMAL FACTOR  $C_t = 1.0$   
 - FLAT ROOF SNOW LOAD  $P_f = 30$  PSF

GRAVITY LOADS TABLE

LOCATION	SUPERIMPOSED DEAD LOAD (PSF)	LIVE LOAD (PSF)	LIVE LOAD REDUCTION	PARTITION LOAD (PSF)	POINT LOAD (LB)
ROOF	36 (INCLUDES 20 ROOFING LOAD)	30 MIN UNIFORM LOAD, SEE NOTE b FOR SNOW LOADS	No	--	--
LOBBIES, EXIT FACILITIES	20	100	No	--	2000
MECHANICAL ROOM UNDER LOBBY	20	150	No	--	--

## GENERAL NOTES

- 1. GENERAL:**  
**1A. ENGINEER:** REFERENCES ON THE STRUCTURAL DRAWINGS TO 'ENGINEER' MEAN THE STRUCTURAL ENGINEER OF RECORD. OTHER ENTITIES ARE SPECIFICALLY NOTED AS "CONTRACTOR'S ENGINEER", "MECHANICAL ENGINEER", ETC.  
**1B. THESE NOTES SUPPLEMENT THE SPECIFICATIONS, WHICH SHALL BE REFERENCED FOR ADDITIONAL REQUIREMENTS.**  
**1C. UNDERGROUND UTILITIES:** LOCATE EXISTING UTILITIES AND NOTIFY ARCHITECT OF EXISTING UTILITIES OR SUBGRADE CONDITIONS WHICH INTERFERE WITH WORK.  
**1D. STRUCTURAL ELEMENTS ARE CENTERED ON GRID LINES AND GRID LINE INTERSECTIONS UNLESS DIMENSIONED OTHERWISE.**
- 2. EXISTING STRUCTURES:**  
**2A. CONTRACT DOCUMENTS HAVE BEEN PREPARED USING AVAILABLE DRAWINGS AND SITE OBSERVATION AS PERMITTED BY ACCESS RESTRICTIONS DURING DESIGN.**  
**2B. DURING CONSTRUCTION, THE CONTRACTOR MAY ENCOUNTER EXISTING CONDITIONS WHICH ARE NOT NOW KNOWN OR ARE AT VARIANCE WITH PROJECT DOCUMENTATION. CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ALL CONDITIONS NOT PER THE CONTRACT DOCUMENTS. EXAMPLES INCLUDE:**  
 - SIZES OR DIMENSIONS OTHER THAN THOSE SHOWN  
 - DAMAGE OR DETERIORATION TO MATERIALS AND COMPONENTS  
 - CONDITIONS OF INSTABILITY OR LACK OF SUPPORT  
 - ITEMS NOTED AS EXISTING ON THE DRAWINGS BUT NOT FOUND IN THE FIELD  
**2C. PREPARE DIMENSIONAL DRAWINGS OF ALL DISCOVERED ITEMS.**  
**2D. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURAL CONDITIONS PRIOR TO SUBMITTING SHOP DRAWINGS.**  
**2E. CONTRACTOR SHALL MAKE ALLOWANCE FOR THE RESOLUTION OF SUCH DISCOVERIES IN THE CONSTRUCTION SCHEDULE.**  
**2F. SUBMIT A DIMENSIONED DRAWING OF ALL NEW OPENINGS THROUGH EXISTING STRUCTURE AND SECURE APPROVAL PRIOR TO CUTTING. DRAWING SHALL SHOW VERTICAL & HORIZONTAL LOCATION AND SIZE OF PROPOSED OPENING.**
- 3. USE OF DRAWINGS:**  
**3A. DO NOT SCALE DRAWINGS.**  
**3B. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN. DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. DETAILS NOTED TYPICAL APPLY TO ALL SIMILAR CONDITIONS. WHERE NO SPECIFIC DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ELSEWHERE ON THE PROJECT.**
- 4. TEMPORARY CONDITIONS:**  
**4A. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES. REFER TO "LATERAL LOAD RESISTING SYSTEM DESCRIPTION" IN DESIGN CRITERIA FOR ADDITIONAL INFORMATION.**  
**4B. FOUNDATION WALLS SHALL NOT BE BACKFILLED UNTIL THE SLABS-ON-GRADE AND UPPER SLABS ARE IN-PLACE AND REACH FULL STRENGTH UNLESS ADEQUATE BRACING IS PROVIDED. USE ONLY HAND OPERATED TOOLS FOR COMPACTION ADJACENT TO FOUNDATION WALLS AND GRADE BEAMS. GRADE BEAMS SHALL BE BACKFILLED EVENLY ON BOTH SIDES.**
- 5. SUBMITTALS AND SUBSTITUTIONS:**  
**5A. SUBMITTALS:** REFER TO SPECIFICATIONS FOR DETAILED REQUIREMENTS.  
 - IF THE CONTRACTOR REQUESTS A CHANGE FROM THE STRUCTURAL DRAWINGS, IT SHALL BE APPROVED BY THE ARCHITECT AND DESIGNED BY MARTIN/MARTIN, INC. PRIOR TO SUBMITTING SHOP DRAWINGS. VARIATION SHALL BE INDICATED ON THE SHOP DRAWINGS. CONTRACTOR SHALL COMPENSATE MARTIN/MARTIN, INC. FOR MAKING THE CHANGE.  
 - CONSTRUCTION DOCUMENTS SHALL NOT BE REPRODUCED FOR USE IN SUBMITTALS  
 - ALL SHOP DRAWINGS SHALL REFERENCE THE STRUCTURAL DRAWING NUMBER AND DETAIL USED TO PREPARE THE SUBMITTAL  
 - SUBMIT A STATEMENT OF RESPONSIBILITY FOR THE CONSTRUCTION THE LATERAL LOAD RESISTING SYSTEM IDENTIFIED IN THE DESIGN CRITERIA IN ACCORDANCE WITH IBC SECTION 1706  
**5B. SUBSTITUTIONS:** ARCHITECTS APPROVAL SHALL BE SECURED FOR ALL SUBSTITUTIONS  
**5C. NONCONFORMANCE:** NOTIFY ARCHITECT OF CONDITIONS NOT CONSTRUCTED PER THE CONTRACT DOCUMENTS PRIOR TO PROCEEDING WITH CORRECTIVE WORK. SUBMIT PROPOSED REPAIR TO THE ARCHITECT FOR ACCEPTANCE. CONTRACTOR SHALL COMPENSATE MARTIN/MARTIN, INC. FOR DESIGNING THE REPAIR.
- 6. OSHA STANDARDS:**  
**6A. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. NOTHING SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE CONSTRUED AS ELIMINATING THE NEED FOR THE CONTRACTOR TO COMPLY WITH ALL OSHA REQUIREMENTS.**
- 7. CONSTRUCTION ENGINEERING:**  
**7A. THE STRUCTURE DEFINED ON THE CONTRACT DOCUMENTS HAS BEEN DESIGNED ONLY FOR LOADS ANTICIPATED ON THE STRUCTURE DURING ITS SERVICE LIFE. PROVIDE ALL REQUIRED ENGINEERING AND OTHER MEASURES TO ACHIEVE THE MEANS, METHODS, AND SEQUENCES OF WORK. SUCH ENGINEERING MAY INCLUDE, BUT IS NOT LIMITED TO:**  
 - LAYOUT  
 - DESIGN FOR FORMWORK  
 - DESIGN OF CONCRETE MIXES  
 - ERECTION PROCEDURES  
 - DESIGN OF TEMPORARY BRACING OF WALLS FOR WIND, SEISMIC, OR SOIL LOADS  
 - EVALUATION OF TEMPORARY CONSTRUCTION LOADS ON STRUCTURE DUE TO EQUIPMENT AND MATERIALS  
 - STRUCTURAL ENGINEERING TO RESIST ANY OTHER LOADS NOT IDENTIFIED ON DESIGN DRAWINGS
- 8. COORDINATION:**  
**8A. STRUCTURAL DRAWINGS ARE NOT STAND-ALONE DOCUMENTS AND ARE INTENDED TO BE USED IN CONJUNCTION WITH CIVIL, ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND DRAWINGS FROM OTHER DISCIPLINES. THE CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS INTO SHOP DRAWINGS AND WORK.**  
**8B. COORDINATE DIMENSIONS OF ALL OPENINGS, BLOCKOUTS, DEPRESSIONS, ETC., WITH ARCHITECTURAL DRAWINGS, DRAWINGS FROM OTHER DISCIPLINES, AND FIELD CONDITIONS PRIOR TO SHOP DRAWING SUBMITTAL.**  
**8C. SEE ARCHITECTURAL PLANS FOR INTERIOR PARTITIONS. PARTITION FRAMING SHALL BE CONNECTED TO THE PRIMARY STRUCTURE IN SUCH A WAY SO AS TO ALLOW FOR VERTICAL LIVE LOAD DEFLECTIONS OF SPAN/360 OF THE FLOOR FRAMING. DO NOT MAKE RIGID VERTICAL AND HORIZONTAL CONNECTIONS TO THE PRIMARY STRUCTURE IN THE PLANE OF THE WALL.**
- 9. DEFERRED SUBMITTALS:**  
**9A. THE FOLLOWING PORTIONS OF THE STRUCTURAL DESIGN WILL NOT BE SUBMITTED AT THE TIME OF PERMIT APPLICATION. WHEN RECEIVED AND REVIEWED, THESE DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL BY THE CONTRACTOR:**  
 - LIGHT GAGE METAL ROOF FRAMING

## FOUNDATION NOTES

- 1. DESIGN CRITERIA:**  
 THE GEOTECHNICAL REPORT PREPARED BY GEOCAL, NUMBER G09.1224.000, DATED MARCH 20, 2009, PROVIDED CRITERIA FOR THE FOUNDATION DESIGN FOR THE PROJECT.
- 2. FOOTINGS:**  
 - MAXIMUM TOTAL LOAD SOIL BEARING PRESSURE = 3000 PSF  
 - MINIMUM DEAD LOAD SOIL BEARING PRESSURE = 800 PSF  
 - ULTIMATE COEFFICIENT OF FRICTION TO RESIST LATERAL LOADS = 0.35
- 3. RETAINING WALLS:**  
 EQUIVALENT FLUID PRESSURES USED FOR WALL DESIGN FOR ON-SITE SOILS:  
 - "ACTIVE" CONDITION,  $K_a = 0.31$   
 - "AT-REST" CONDITION,  $K_o = 0.47$   
 - "PASSIVE" CONDITION,  $K_p = 3.25$   
 - UNIT WEIGHT = 135 PCF  
 - LATERAL PRESSURE DUE TO SURCHARGE = 100 PSF  
 - MAXIMUM FOOTING TOTAL LOAD SOIL BEARING PRESSURE = 3000 PSF  
 - ULTIMATE COEFFICIENT OF FRICTION USED IN DESIGN TO RESIST LATERAL LOADS = 0.35

## CONCRETE NOTES

- 1. GENERAL:**  
**1A. ALL WORK SHALL CONFORM WITH ACI 301, LATEST EDITION, UNLESS NOTED OTHERWISE IN DRAWINGS OR PROJECT SPECIFICATIONS.**  
**1B. DETAIL BARS IN ACCORDANCE WITH THE LATEST EDITIONS OF PUBLICATION SP-66: "ACI DETAILING MANUAL" WITH ADDED REQUIREMENTS OF THE PROJECT SPECIFICATION AND ACI 318: "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE."**
- 2. REINFORCING MATERIALS:**  
**2A. SEE 'REINFORCING MATERIALS TABLE'**
- 3. REINFORCING FABRICATION:**  
**3A. SPLICES:**  
 - NO SPLICING OF REINFORCEMENT PERMITTED EXCEPT AS NOTED ON DRAWINGS. MAKE BARS CONTINUOUS AROUND CORNERS. WHERE PERMITTED, SPLICES MAY BE MADE BY CONTACT LAPS  
 - SEE 'LAP SPLICE SCHEDULE' FOR LAP LENGTHS.  
**3B. MISCELLANEOUS REINFORCING REQUIREMENTS:**  
 - PROVIDE ADDITIONAL BARS OR STIRRUPS REQUIRED TO SECURE REINFORCING IN PLACE DURING CONCRETE PLACEMENT.  
 - MAKE ALL REINFORCING BAR BENDS IN THE FABRICATOR'S SHOP UNLESS NOTED.  
 - NO WELDING OF REINFORCING PERMITTED UNLESS NOTED ON DRAWINGS.  
 - PROVIDE ADDED REINFORCING TO TRIM ALL OPENINGS, NOTCHES, AND REINFRANT CORNERS AS NOTED IN TYPICAL DETAILS.
- 4. STRUCTURAL CONCRETE MIX REQUIREMENTS:**  
**4A. SEE 'CONCRETE MIX TABLE'**
- 5. NON-SHRINK GROUT:**  
**5A. CONFORM TO ASTM C1107, GRADES B, OR C.**  
**5B. ACHIEVE 6000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.**
- 6. PLACING REINFORCEMENT:**  
**6A. REINFORCEMENT PROTECTION:**  
 - SEE 'CONCRETE COVER TABLE'  
 - SEE ACI 318-05 7.5 FOR REINFORCEMENT PLACING TOLERANCES AND ACI 117 FOR ADDITIONAL REQUIREMENTS  
**6B. PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING AND WELDED WIRE FABRIC AT POSITIONS SHOWN ON PLANS. ALL REINFORCING, DOWELS, BOLTS, AND EMBEDDED PLATES SHALL BE SET AND TIED IN PLACE BEFORE THE CONCRETE IS POURED. "STABBING" INTO PREVIOUSLY PLACED CONCRETE IS NOT PERMITTED.**
- 7. MEP AND OTHER OPENINGS AND EMBEDMENTS:**  
**7A. PROVIDE SLEEVES AT OPENINGS (SUCH AS THOSE REQUIRED FOR PLUMBING AND ELECTRICAL PENETRATIONS) BEFORE PLACING CONCRETE. REMOVE METAL DECK AT SLEEVES AFTER CONCRETE HAS CURED. DO NOT CUT REINFORCING WHICH MAY CONFLICT. CORING OF CONCRETE IS NOT PERMITTED.**  
**7B. REFER TO TYPICAL DETAILS FOR SPACING LIMITS ON SLEEVES AND FOR REQUIREMENTS FOR EMBEDDED CONDUIT AND PIPE.**

REINFORCING MATERIAL TABLE				
REINF ELEMENT	ASTM	Fy (KSI)	Fu (KSI)	COMMENTS
TYP REINFORCING	A615	60	90	--
WELDED & FIELD BENT REINF	A706	60	80	--
WELDED WIRE REINFORCING, SMOOTH	A185	65	75	--
WELDED WIRE REINFORCING, DEFORMED	A497	70	80	--
TENDONS	A416	--	270	--

CONCRETE COVER	
CASE	COVER (IN)
COLUMNS, GIRDERS, AND BEAMS	1 1/2
CONCRETE PLACED AGAINST EARTH	3
CONCRETE PLACED IN FORMS, EXPOSED TO WEATHER OR EARTH	2
CONCRETE PLACED ON VOID FORMS WITH MASONITE OR PLYWOOD COVERING	2
JOISTS	1 1/2
SLABS OR WALLS NOT EXPOSED TO EARTH OR WEATHER	1

CONCRETE MIX TABLE											
CONC MIX TYPE	INTENDED USE	28 DAY STRENGTH, $f_c$ (KSI)	CONCRETE WEIGHT	MAX W/C RATIO, INCLUDING FLY ASH	MIN CEMENT MATERIAL (#CY), INCLUDING FLY ASH	MAX AGGREGATE SIZE (IN), NOTE a	SLUMP LIMITS (IN), TOLERANCE = +1", -1"	TOTAL AIR CONTENT (%), NOTE b	CEMENT TYPE	REQUIRED ADMIXTURES, NOTE c	OTHER REQUIREMENTS, NOTE d
1	FOOTINGS, ELEVATOR PIT WALLS, STEM WALLS	3	NWC	-	470	1	4	5	I / II	AE	-
2	ALL CONC EXPOSED TO WEATHER OR DEICERS: BEAMS, SLABS, WALLS, COLUMNS	5	NWC	0.40	564	3/4	5	6	I / II	AE, WRA	--
3	INT TOPPING SLABS, INT SLABS ON GRADE, SLABS ON DECK	3.5	NWC	0.50	517	1	4	NP	I / II	--	--
4	ALL CONC OTHERWISE NOT SPECIFIED	4	NWC	0.50	517	3/4	4	6	I / II	AE	--

- CONCRETE MIX TABLE NOTES:**  
**a. FOR THE MAXIMUM COARSE AGGREGATE SIZE INDICATED, USE THE FOLLOWING AGGREGATE SIZE NUMBERS PER ASTM C33:**  
 3/4": #67 AGGREGATE  
 1": #57 AGGREGATE  
**b. TOTAL AIR CONTENT LIMITS INCLUDE BOTH ENTRAINED AND ENTRAPPED AIR +/- 1 1/2%. 'NP' IN COLUMN INDICATES ADDITION OF ENTRAINED AIR IS NOT PERMITTED.**  
**c. ABBREVIATIONS FOR REQUIRED ADMIXTURES AS FOLLOWS:**  
**AE = AIR-ENTRAINING ADMIXTURE. DO NOT USE ENTRAINED AIR FOR STEEL TROWELED FINISHED FLOORS.**  
**WRA = WATER REDUCING ADMIXTURE.**  
**d. FOR CONCRETE PLACED BY PUMPING PROVIDE CONCRETE MIX FLOWABILITY TO FACILITATE PUMPING. ENTRAINED AIR MAY BE USED IF IT CAN BE SHOWN THAT THE FLOOR WILL HAVE A FINISH ACCEPTABLE TO THE ARCHITECT WITHOUT BLISTERS.**

DESIGNERS: EMILY GUGLIELMO  
 DATE PRINTED: 8/26/2009 1:20:54 PM

MM JOB #: 19132.S.62  
 PRINCIPAL: BEN NELSON  
 EOR: BEN NELSON  
 PROJECT MANAGER: EMILY GUGLIELMO

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 DATE: 08.28.09  
 DRAWN BY: BN

DESIGN CRITERIA AND NOTES  
 SHEET NO.

S0.02

## MASONRY NOTES

- 1. DEFINITIONS:**  
 1A. STRUCTURAL MASONRY IS DEFINED AS BEING EITHER LOAD BEARING AND/OR SERVING AS PART OF THE LATERAL LOAD RESISTING SYSTEM. STRUCTURAL MASONRY IS SHOWN ON THE STRUCTURAL PLANS AND DEFINED IN SCHEDULES AND DETAILS ON THE STRUCTURAL DRAWINGS.  
 1B. SEE ARCHITECTURAL DRAWINGS FOR LOCATION, THICKNESS AND EXTENT OF MASONRY PARTITIONS. SEE DETAILS ON THE STRUCTURAL DRAWINGS FOR GENERAL MASONRY PARTITION REQUIREMENTS.  
 1C. SEE ARCHITECTURAL DRAWINGS FOR ALL MASONRY VENEER REQUIREMENTS. SEE DETAILS ON THE STRUCTURAL DRAWINGS FOR MASONRY VENEER LOOSE LINTELS.
- 2. DESIGN STRENGTH:**  
 2A. DEVELOP 2000 PSI COMPRESSIVE STRENGTH (f<sub>m</sub>) IN 28 DAYS.  
 2B. STEEL REINFORCING:  
 - PRIMARY REINFORCING: ASTM A615, 60 KSI  
 - HORIZONTAL JOINT REINFORCING: ASTM A82, PREFABRICATED, LADDER TYPE
- 3. SPLICES:**  
 3A. SEE MASONRY LAP SPLICE SCHEDULE FOR LAP LENGTHS
- 4. INSTALLATION REQUIREMENTS:**  
 4A. GROUT SOLID ALL CELLS CONTAINING REINFORCING, EMBEDDED ITEMS, AND ALL OTHER CELLS NOTED ON THE CONTRACT DOCUMENTS.

## STEEL NOTES

- 1. CONNECTIONS:**  
 1A. PROVIDE CONNECTIONS AS SHOWN IN THE DETAILS HEREIN.
- 2. WELDING REQUIREMENTS:**  
 2A. WELDERS: HAVE IN POSSESSION CURRENT EVIDENCE OF PASSING THE APPROPRIATE A.W.S. QUALIFICATION TESTS.  
 2B. MINIMUM WELDS: AISC SPECIFICATION, NOT LESS THAN 3/16" FILLET, CONTINUOUS UNLESS OTHERWISE NOTED.  
 2C. WELD SIZES AND LENGTHS CALLED FOR ON THE DRAWINGS ARE THE NET EFFECTIVE REQUIRED. INCREASE WELD SIZE IF GAPS EXIST AT THE FAYING SURFACE.  
 2D. WELD SIZES SHALL BE AS SHOWN UNLESS A GREATER SIZE IS REQUIRED BY ANSII/ISC 360-05 TABLES J2.3 AND J2.4.  
 2E. ALL GROOVE WELDS SHALL BE COMPLETE PENETRATION UNLESS NOTED.  
 2F. FIELD WELDING SYMBOLS INDICATE SUGGESTED CONSTRUCTION PROCEDURES.
- 3. COMPOSITE GRAVITY FRAMING:**  
 3A. COMPOSITE BEAMS ARE DESIGNED ASSUMING STUDS ARE INSTALLED IN THE WEAK POSITION (R<sub>p</sub> = 0.6). SEE TYPICAL METAL DECK DETAILS FOR PLACEMENT REQUIREMENTS.
- 4. METAL DECK:**  
 4A. SEE 'METAL DECK SCHEDULE' FOR MATERIALS, PROFILE, AND CONNECTIONS TO STRUCTURE.  
 4B. DECK DESIGN IS IN ACCORDANCE WITH STEEL DECK INSTITUTE (SDI) PUBLICATION NO. 31 AND DIAPHRAGM DESIGN MANUAL, LATEST EDITIONS.  
 4C. PLACE CONCRETE ON METAL DECK IN ACCORDANCE WITH SDI PUBLICATION NO. 31 TO LIMIT CONSTRUCTION LOADS TO ALLOWABLE MAGNITUDES.  
 4D. REINFORCE OPENINGS IN METAL ROOF DECK AND FLOOR DECK SUPPORTING CONCRETE FILL IN ACCORDANCE WITH TYPICAL DECK OPENING DETAILS.  
 4E. INSTALL DECK OVER 4 SUPPORTS (3 SPAN CONTINUOUS) UNLESS NOTED OTHERWISE. DO NOT INSTALL DECK AS SINGLE SPAN UNLESS SPECIFICALLY SHOWN ON DRAWINGS.  
 4F. PROVIDE DECK ATTACHMENTS AS NOTED ON DRAWINGS.  
 4G. HANGERS: SEE TYPICAL METAL DECK DETAILS FOR ALLOWABLE HANGER LOADS, SPACING AND ATTACHMENT.
- 5. STRUCTURAL COLD FORMED METAL FRAMING:**  
 5A. REFER TO SCHEDULE FOR REQUIRED STUD AND JOIST MATERIAL GRADES AND SECTION PROPERTIES. REFER TO DETAILS FOR CONNECTIONS AND OTHER REQUIREMENTS.  
 5B. COLD FORMED METAL FRAMING IS A PERFORMANCE SPECIFIED ITEM DESIGNED BY THE CONTRACTOR. PROVIDE STUD DEPTH INDICATED ON THE DRAWINGS. DO NOT EXCEED MAXIMUM SPACING INDICATED. VARY FLANGE WIDTH, GAGE, YIELD STRENGTH, BRACING, STUD SPACING, ETC. AS REQUIRED TO SATISFY PERFORMANCE CRITERIA IN THE CONTRACT DOCUMENTS. MINIMUM STUD GAGE SPECIFIED IS REQUIRED FOR ATTACHMENT OF OTHER MATERIALS TO STUDS. DO NOT BASE BIDS ON MINIMUM GAGE OR MAXIMUM SPACING SPECIFIED.  
 5C. REFER TO DETAILS FOR MINIMUM CONNECTIONS AND OTHER REQUIREMENTS. DEVELOP FORCES NOTED. DO NOT IMPOSE FORCES ON THE BUILDING STRUCTURE IN DIRECTIONS OR AT LOCATIONS OTHER THAN THAT SHOWN ON THE STRUCTURAL DRAWINGS. DO NOT IMPOSE FORCES LARGER THAN SPECIFIED. CONNECTIONS TO CONCRETE SHALL NOT USE PAFs TO RESIST TENSION LOADS.

METAL GAGE CONVERSION	
GAUGE	MINIMUM THICKNESS (MILS)
12	97
14	68
16	54
18	43
20	33
22	27

STEEL MATERIAL TABLE				
STEEL ELEMENT	ASTM/TYPE	Fy (KSI)	Fu (KSI)	COMMENTS
ADHESIVE	HILTI HY 150 OR EQUIV	--	--	
ADHESIVE ANCHORS	A193 B7	--	125	THREADED ROD
BOLTS	A325 OR F1852	--	120	BOLTS ARE 3/4"Ø UNO. USE TENSION-CONTROLLED WHERE POSSIBLE
COLD-FORMED STUDS/PLATE, 16 GAGE OR HEAVIER		50	--	--
COLD-FORMED STUDS/PLATE, 20-18 GAGE		33	--	--
COLD-FORMED TRACK, ALL GAGES		33	--	--
DAS	A496	70	80	--
EXPANSION ANCHORS	HILTI KWIK BOLT 3 OR EQUIV	--	--	SUBMIT ICC EVALUATION REPORT
HAS	A108	51	65	STUDS ARE 3/4"Ø UNO
OTHER SHAPES	A36	36	58	--
PLATES	A36	36	58	--
WELDING ELECTRODES	E70	--	--	PER AWS
WF, WT	A992	50	65	--

MM JOB #: 19132.S.62  
 PRINCIPAL: BEN NELSON  
 EOR: BEN NELSON  
 DESIGNERS: EMILY GUGLIELMO  
 DATE PRINTED: 8/26/2009 1:20:55 PM  
 PROJECT MANAGER: EMILY GUGLIELMO

University Theater ADA Elevator Addition

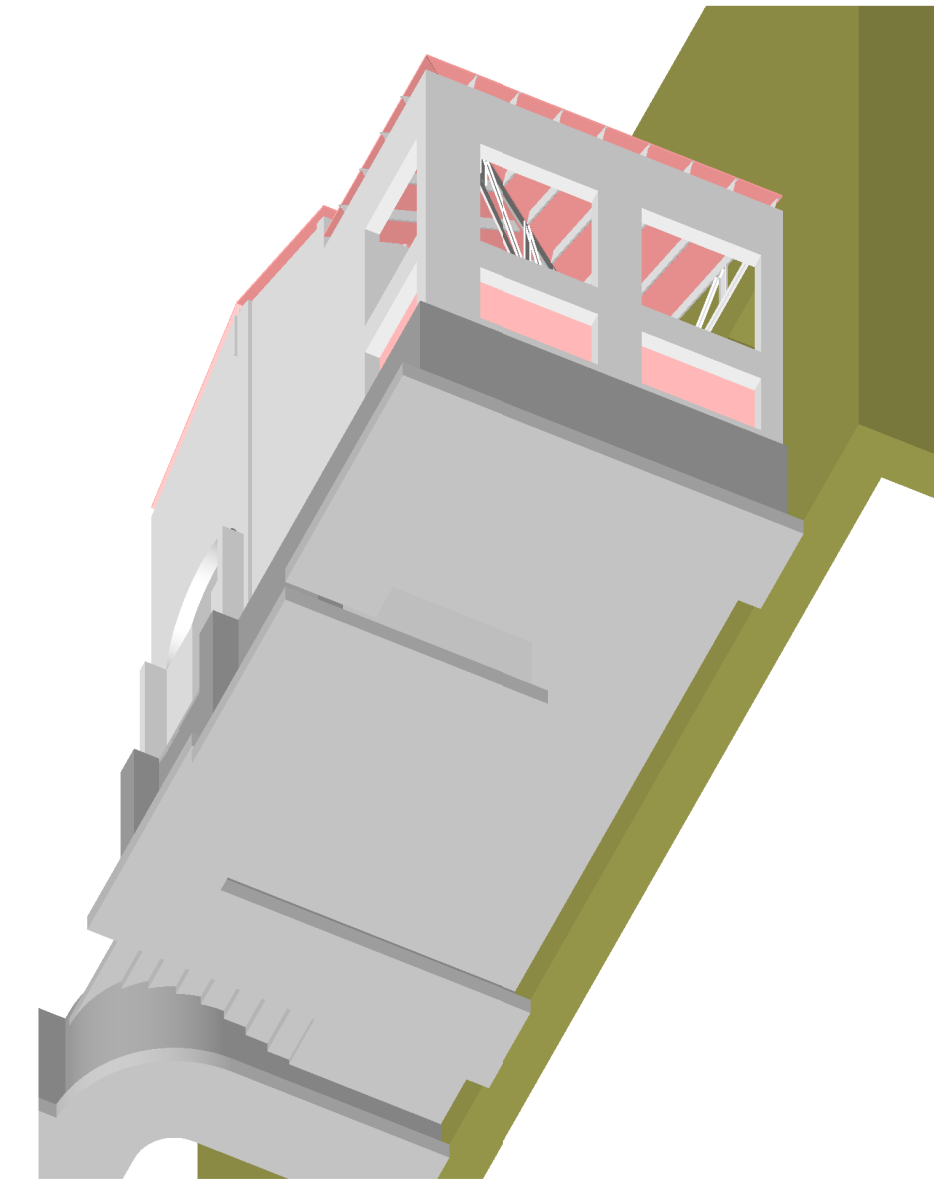
university of colorado | boulder colorado  
 ucbl project number: PR002750

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 PROJECT BY DATE TITLE  
 19132.S.62 08.28.09  
 DRAWN BY DATE CHECKED BY  
 EMG BN  
 SHEET TITLE  
 NOTES  
 SHEET NO.

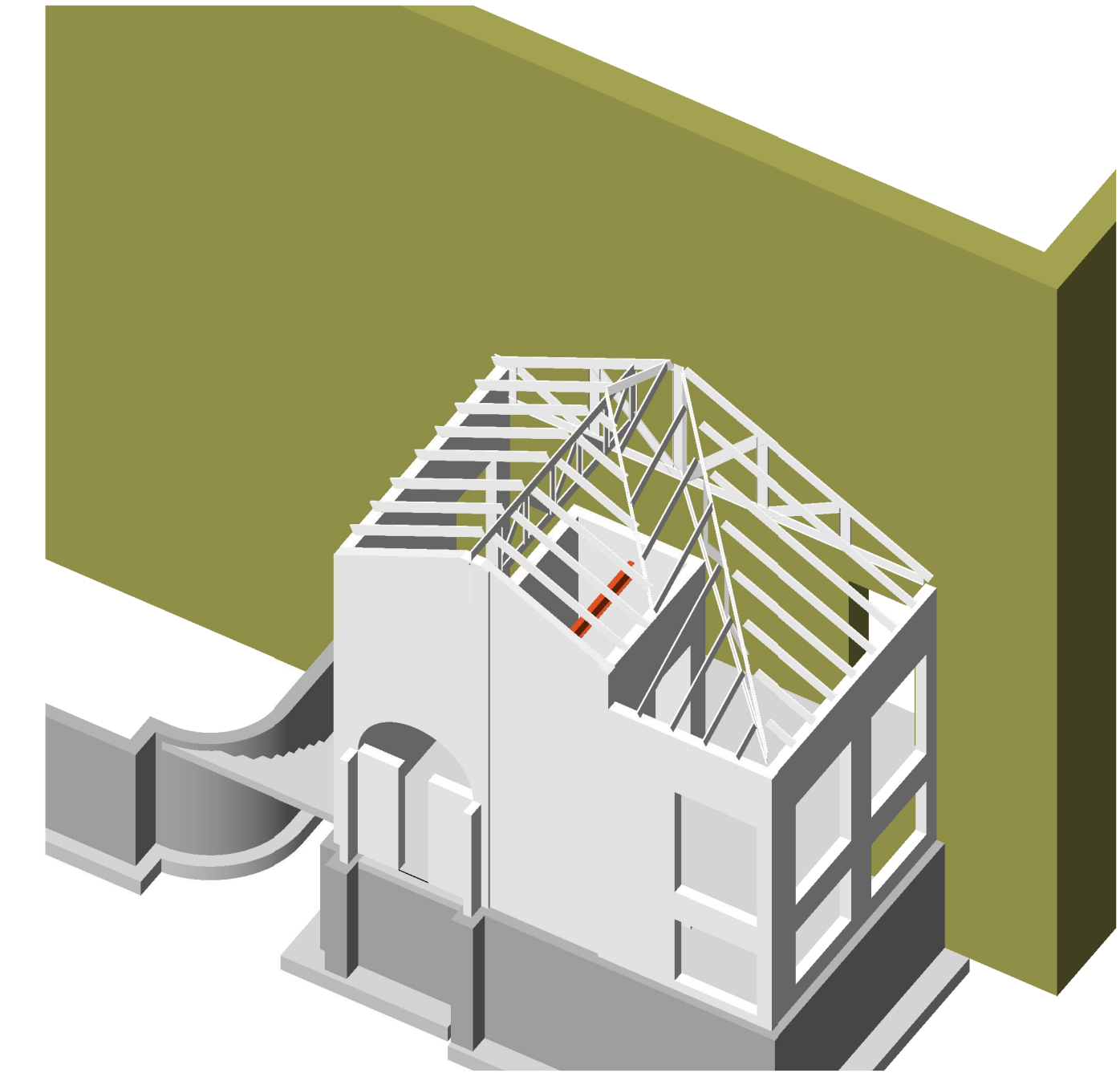
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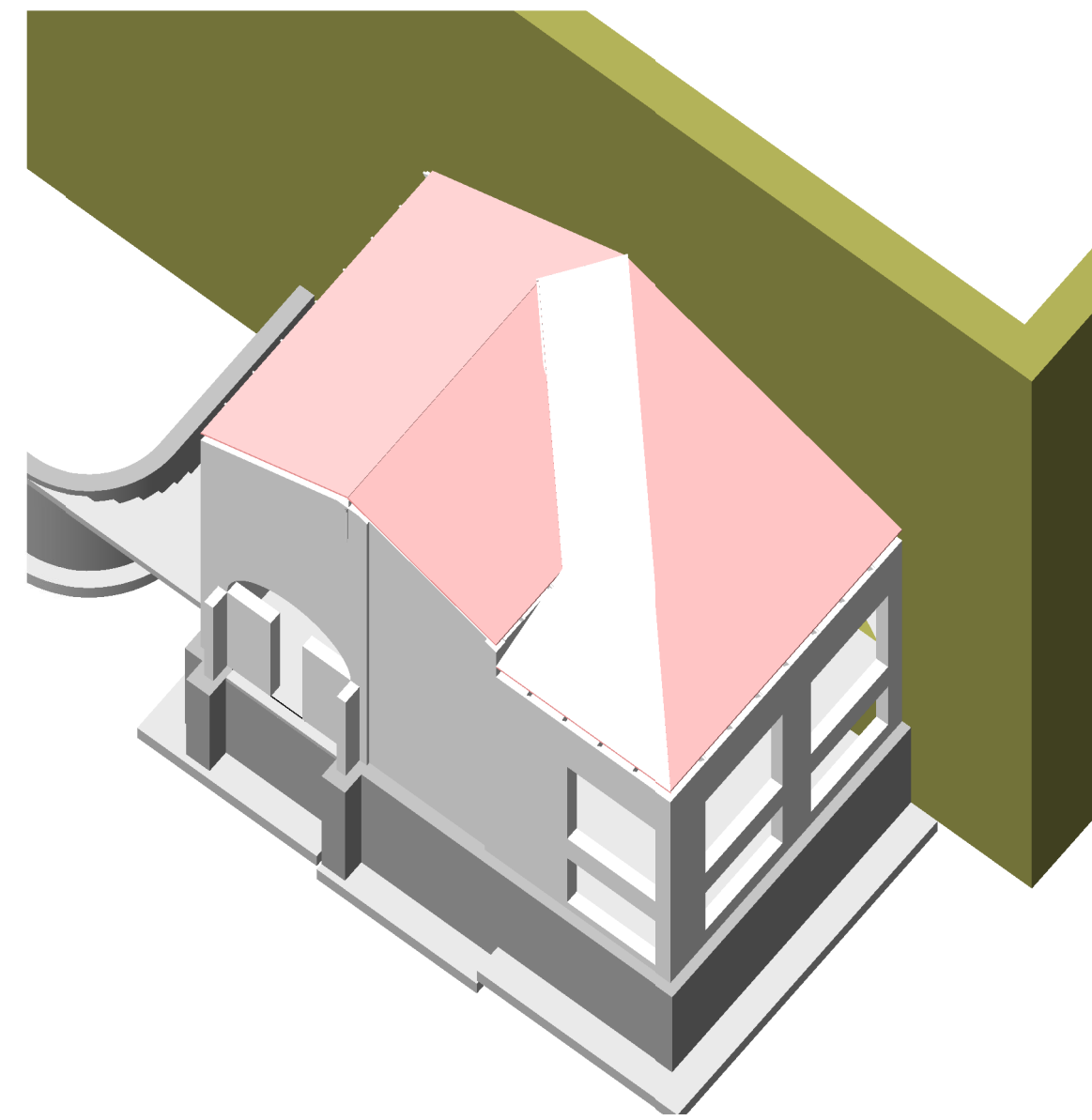
**BOTTOM VIEW**



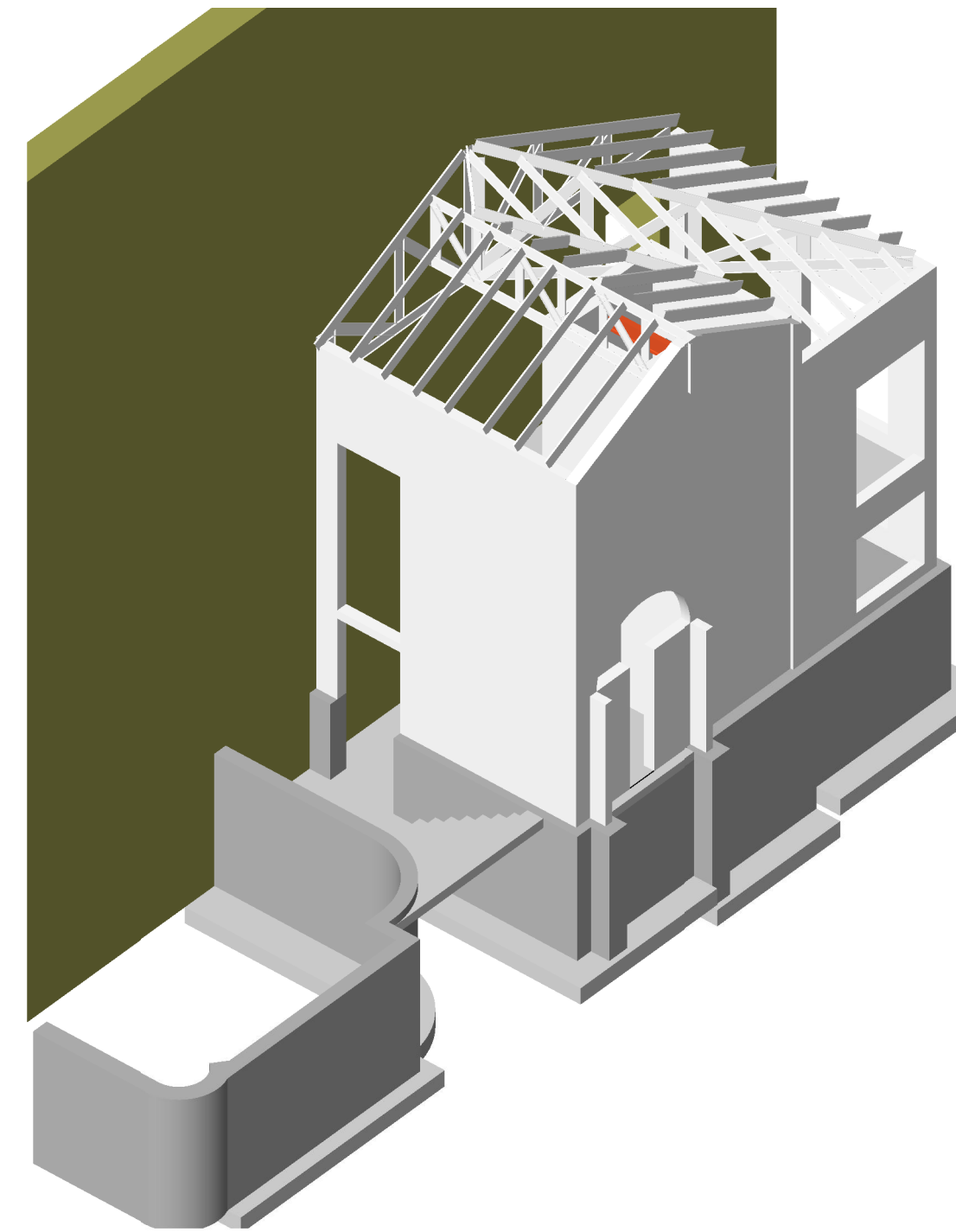
**LOWER SOUTH EAST VIEW**



**NORTH EAST VIEW**



**TOP VIEW**



**SOUTH EAST VIEW**

NOTE: ISOMETRIC DRAWINGS ARE FOR REFERENCE ONLY.  
CONTRACT DOCUMENTS CONTROL FOR ALL DISCREPANCIES.

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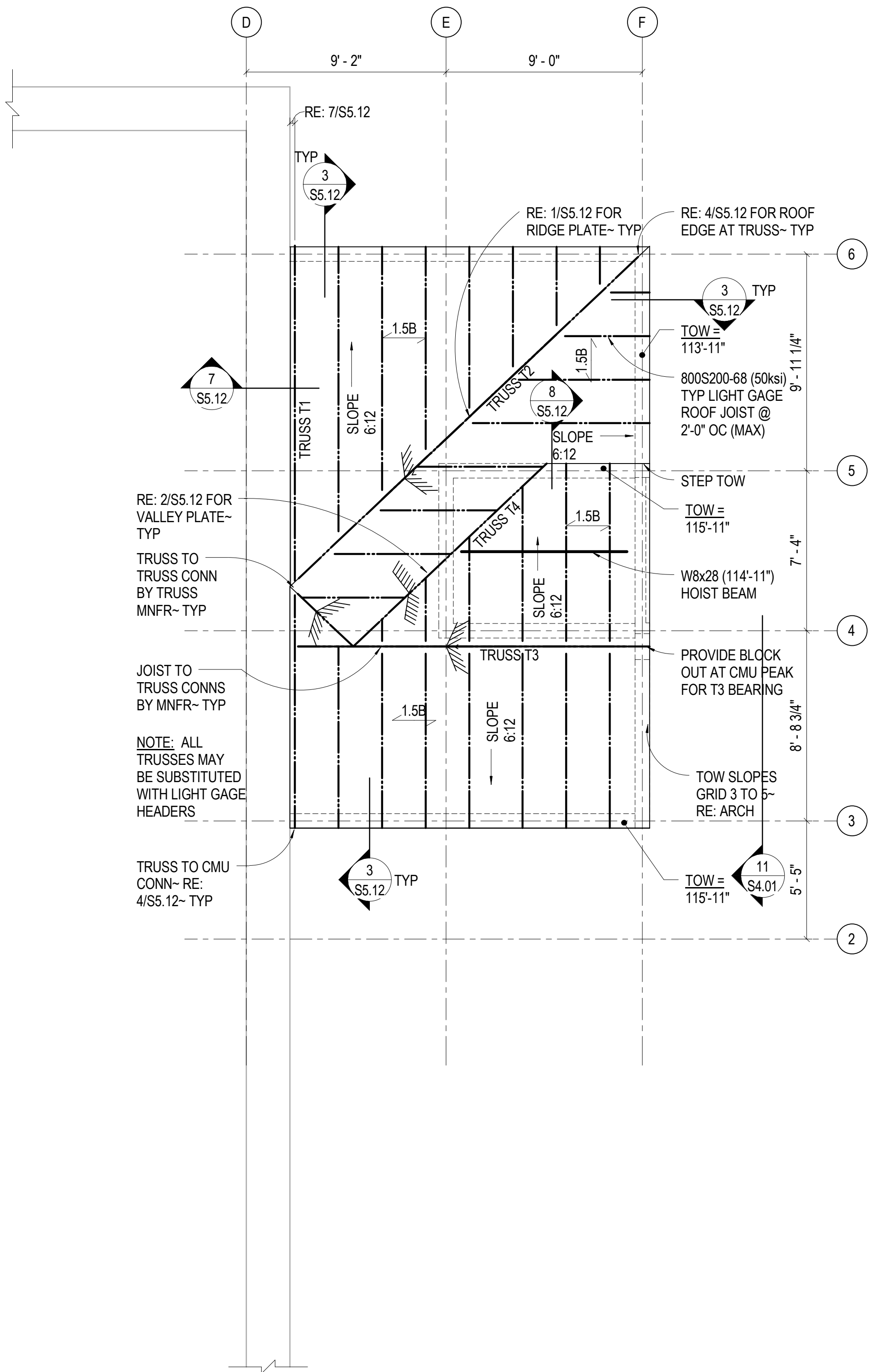
ISOMETRIC VIEWS  
SHEET NO.

**\$1.00**

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ucb project number: **PR002750**

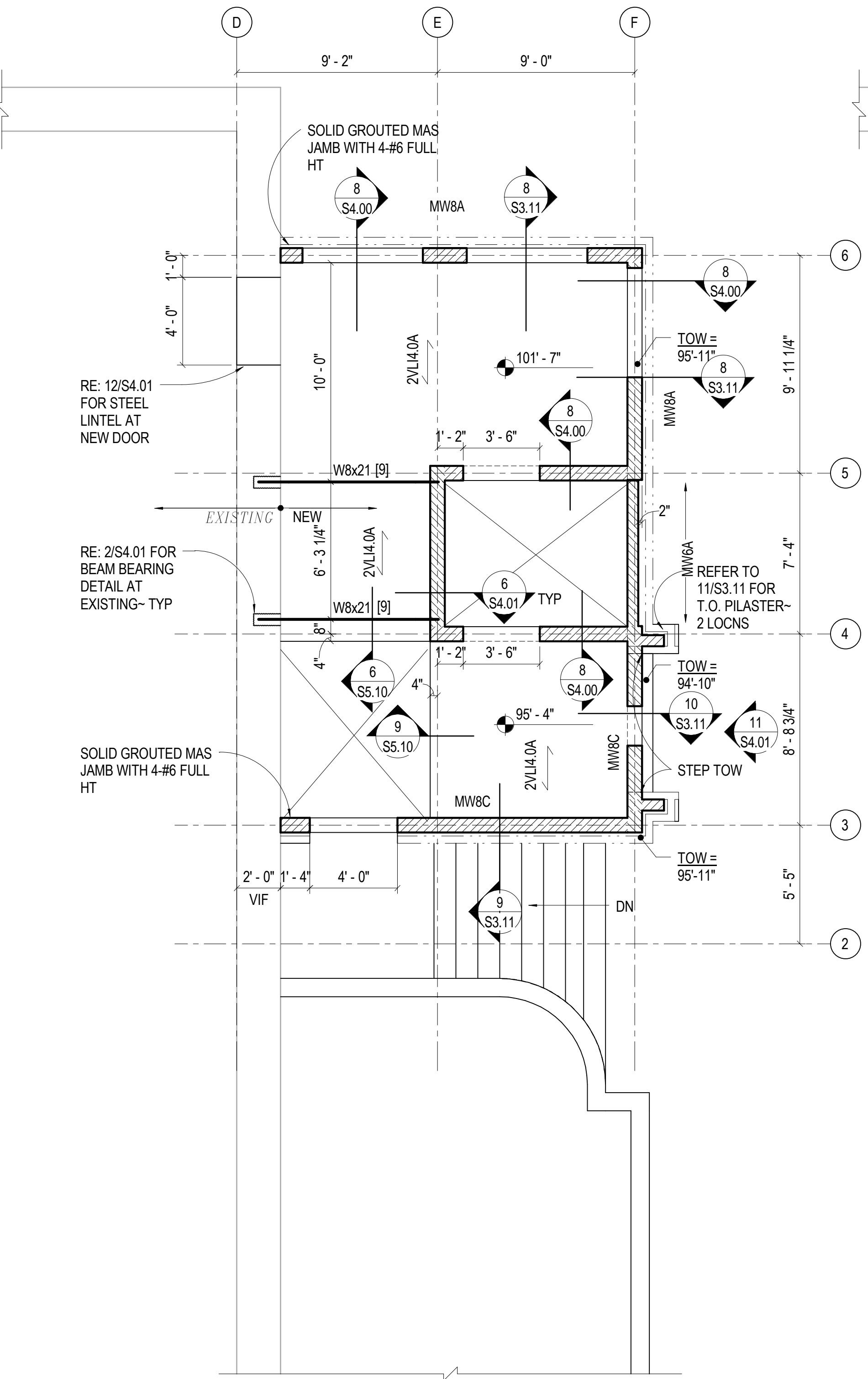
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PLANS	
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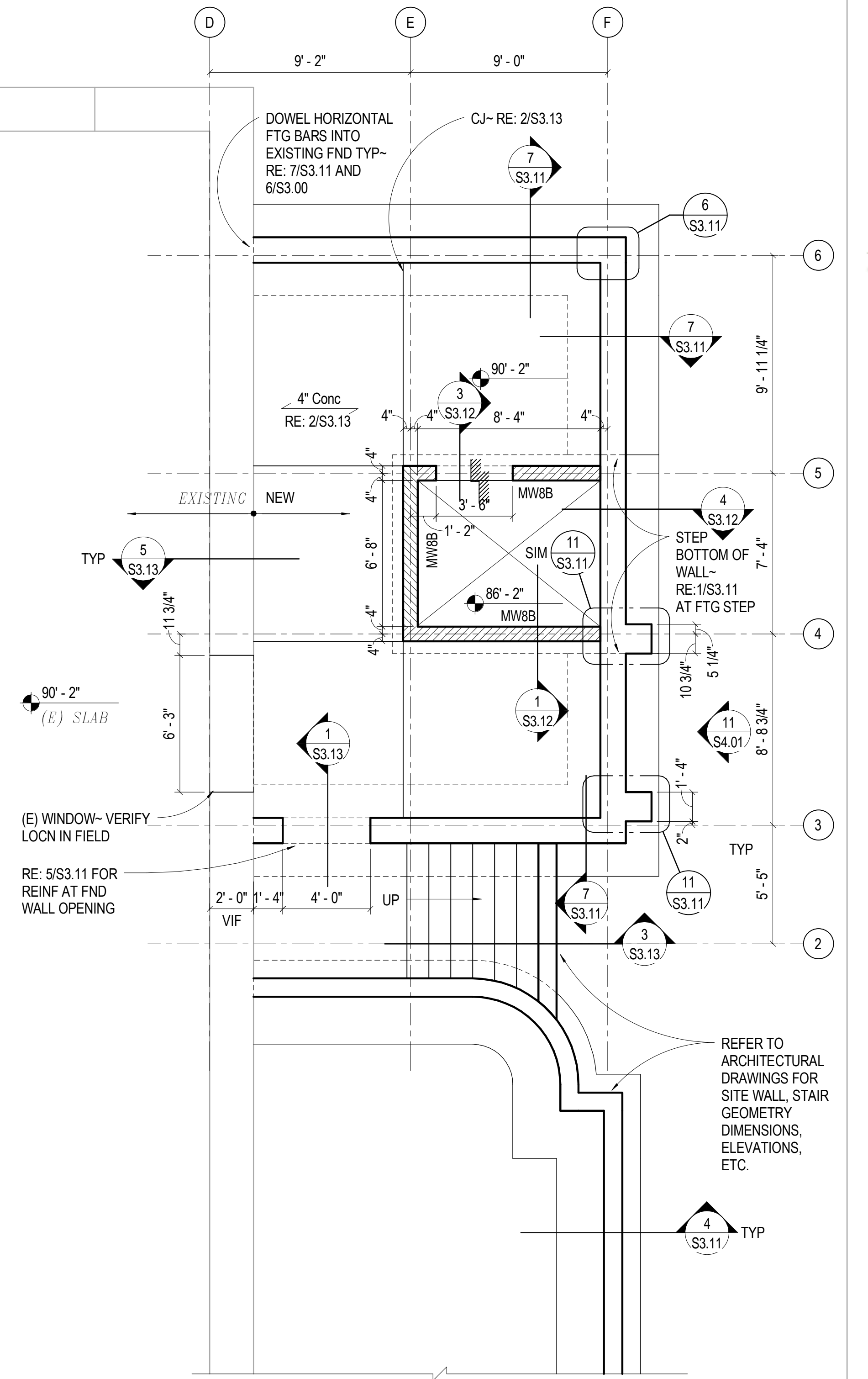
**3 ROOF PLAN**  
1/4" = 1'-0"  
N

- ROOF FRAMING PLAN NOTES
- SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
  - SEE S5 SERIES SHEETS FOR TYPICAL STEEL DETAILS.
  - SEE S5.10 FOR TYPICAL METAL DECK DETAILS AND SCHEDULE.
  - SEE S5.11 FOR ROOF TRUSS LOADING AND DESIGN CRITERIA.



**2 MAIN LEVEL**  
1/4" = 1'-0"  
N

- STEEL FLOOR FRAMING PLAN NOTES
- SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
  - SEE S5 SERIES SHEETS FOR TYPICAL STEEL DETAILS.
  - TOP OF CONCRETE ELEVATION NOTED ON PLAN.
  - SEE S5.01, S5.02 FOR TYPICAL METAL DECK DETAILS AND SCHEDULE.
  - SCREED CONCRETE TO PROVIDE CONSTANT THICKNESS.
  - SPACE BEAMS AND JOISTS EQUALLY BETWEEN GRID LINES UNLESS DIMENSIONED OTHERWISE.
  - TOP OF BEAM ELEVATION = BOTTOM OF METAL DECK UNLESS NOTED OTHERWISE ON PLAN.

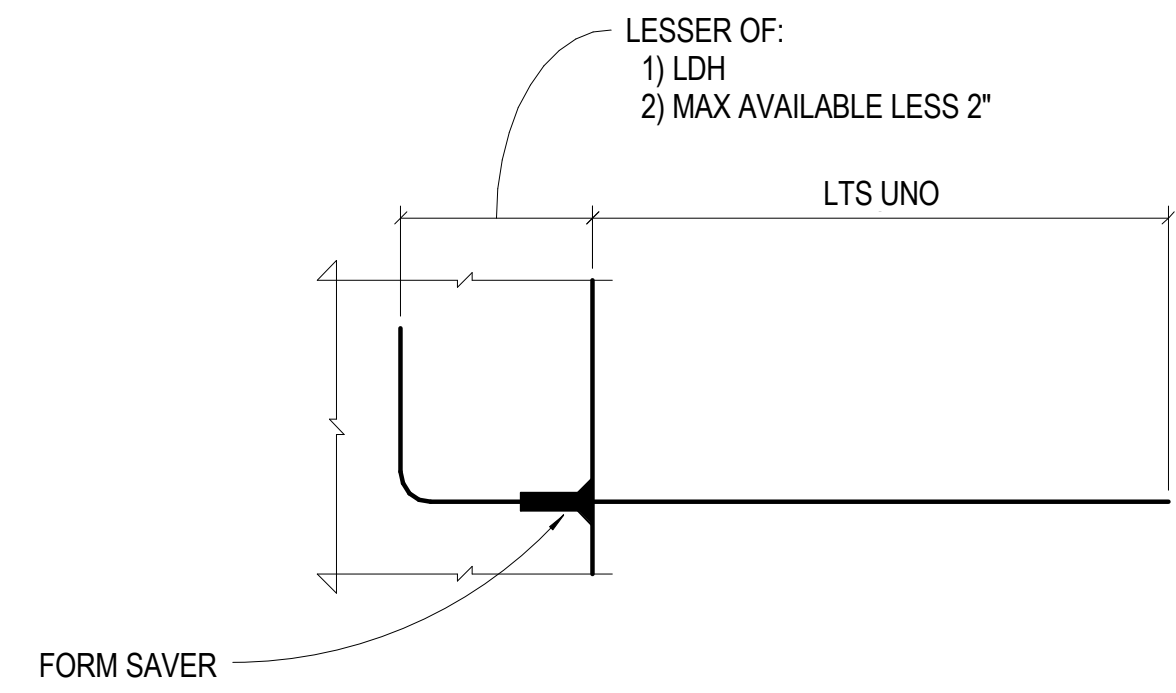


**1 LOWER LEVEL**  
1/4" = 1'-0"  
N

- FOUNDATION NOTES
- SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
  - SEE S3 SERIES SHEETS FOR TYPICAL CONCRETE DETAILS.
  - SEE S3.13 FOR TYPICAL SLAB-ON-GRADE DETAILS.
  - SEE ARCHITECTURAL DRAWINGS FOR VAPOR RETARDER LOCATIONS. CONTRACTOR SHALL INSTALL VAPOR RETARDER PER RECOMMENDATIONS OF PCA AND ACI 302.1R-04. TAKE PRECAUTIONS TO MINIMIZE SLAB CURLING. GRIND SLAB AS REQUIRED TO ACHIEVE SPECIFIED FLOOR FLATNESS AND LEVELNESS VALUES.
  - SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SLAB SLOPES, DEPRESSIONS, FILL, PADS, AND CURBS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
  - SEE S3.11, S3.12 FOR TYPICAL FOOTING DETAILS.
  - SEE S4.00, S4.01 FOR TYPICAL STRUCTURAL MASONRY WALL DETAILS.
  - MASONRY PARTITION WALLS ARE NOT SHOWN. SEE S4.02 FOR TYPICAL MASONRY PARTITION WALL DETAILS.
  - SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF ALL MASONRY WALLS.

MM JOB #: 19132.S.02  
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DATE PRINTED: 8/26/2009 1:21:00 PM



LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE (INCHES)																						
BAR SIZE (IN-LB)	BAR SIZE (METRIC)	F <sub>c</sub> = 3,000 PSI						F <sub>c</sub> = 4,000 PSI						F <sub>c</sub> = 5,000 PSI								
		COMP		TENSION				COMP		TENSION				COMP		TENSION						
		LCE	LCS	LDH	LTE TOP	LTE OTHER	LTS TOP	LTS OTHER	LCE	LCS	LDH	LTE TOP	LTE OTHER	LTS TOP	LTS OTHER	LCE	LCS	LDH	LTE TOP	LTE OTHER	LTS TOP	LTS OTHER
#3	#10	8	12	6	21	16	28	21	8	12	6	18	14	24	18	8	12	6	17	13	22	17
#4	#13	11	15	8	28	22	37	28	9	15	7	25	19	32	25	9	15	6	22	17	29	22
#5	#16	14	19	10	36	27	46	36	12	19	8	31	24	40	31	11	19	7	28	21	36	28
#6	#19	16	23	12	43	33	56	43	14	23	10	37	28	48	37	14	23	9	33	25	43	33
#7	#22	19	26	13	52	40	65	52	17	26	12	44	34	56	44	16	26	10	40	31	51	40
#8	#25	22	30	15	61	45	76	61	19	30	13	52	40	65	52	18	30	12	46	35	60	48
#9	#29	25	34	17	70	50	87	70	21	34	15	60	45	75	60	20	34	13	52	40	69	54
#10	#32	28	38	19	80	56	99	80	24	38	17	69	51	84	69	23	38	15	60	45	78	60
#11	#36	31	42	22	90	63	111	90	27	42	19	78	57	93	78	25	42	17	66	49	87	66

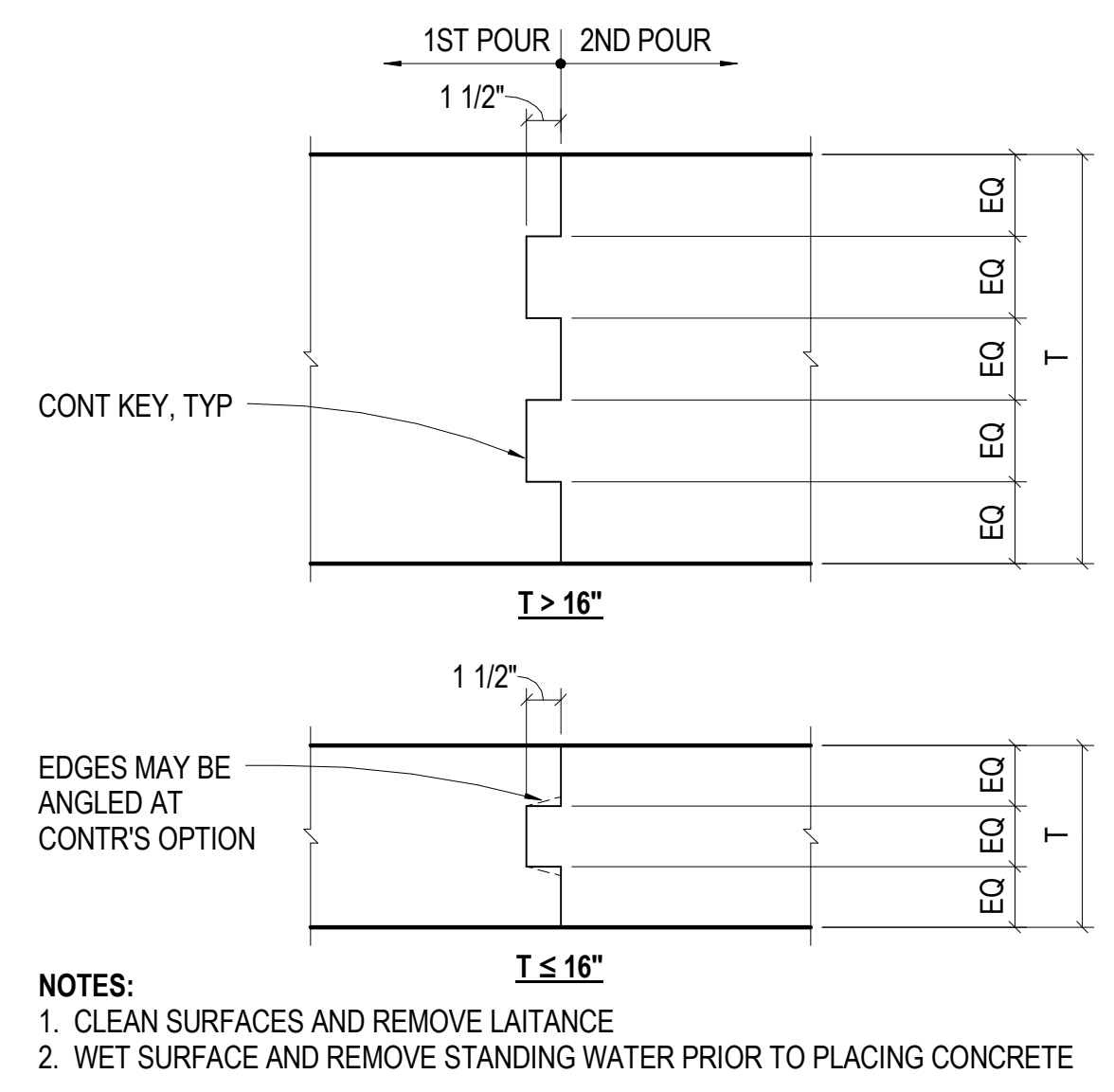
**GENERAL NOTES:**  
 1. 'LCE' = COMPRESSION EMBEDMENT LENGTH, 'LCS' = COMPRESSION LAP SPLICE LENGTH, 'LTE' = TENSION EMBEDMENT LENGTH, 'LTS' = TENSION LAP SPLICE LENGTH, 'LDH' = HOOK DEVELOPMENT LENGTH  
 2. 'TOP' BARS ARE HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 IN. OF FRESH CONCRETE IS CAST BELOW THE BAR  
 3. ALL BARS THAT ARE NOT 'TOP' BARS ARE 'OTHER' BARS  
 4. UNLESS NOTED OTHERWISE, ALL HOOK BARS SHALL EXTEND TO THE FAR FACE (LESS 2" COVER)

**LAP SPLICE NOTES:**  
 1. ALL SPLICES SHALL BE WIRED IN CONTACT AND STACKED VERTICALLY  
 2. ALL SPLICES ARE 'LTS' UNLESS NOTED OTHERWISE  
 3. SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPLICING DIFFERENT SIZED BARS  
 4. LAP LENGTHS SPECIFICALLY DETAILED ON DRAWINGS SHALL GOVERN IN LIEU OF LAP LENGTHS SCHEDULED  
 5. BUNDLED BAR SPLICES:  
 A. INDIVIDUAL BAR SPLICES WITHIN THE BUNDLE SHALL BE STAGGERED  
 B. INCREASE LAP LENGTH 20% FOR A 3 BAR BUNDLE  
 C. INCREASE LAP LENGTH 33% FOR A 4 BAR BUNDLE  
 6. IF A NOTE OR DETAIL CALLS FOR A BAR TO BE EMBEDDED L<sub>d</sub> (DEVELOPMENT LENGTH) INTO CONCRETE, THIS LENGTH SHALL CORRESPOND TO A 'LTE' LAP

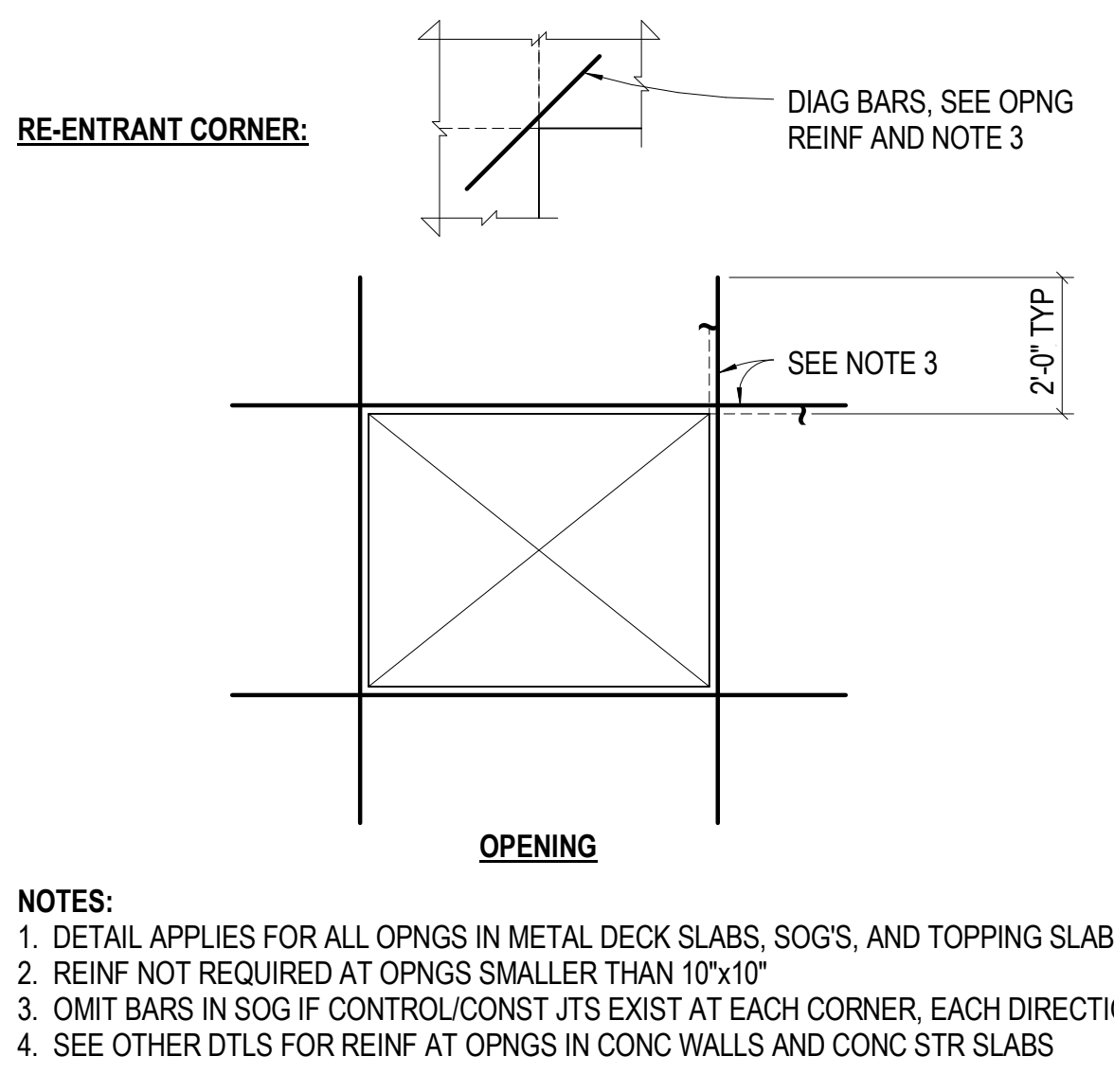
**ADJUSTMENTS TO GIVEN LAP LENGTHS:**  
 1. IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE SCHEDULED LAP LENGTHS BY 50%  
 2. IF LIGHTWEIGHT AGGREGATE IS SPECIFIED, INCREASE SCHEDULED LAP LENGTHS BY 30%  
 3. SCHEDULED LAP LENGTHS ASSUME:  
 A. CLEAR COVER IS GREATER THAN BAR DIAMETER, BUT NOT LESS THAN 3/4"  
 B. CLEAR SPACING BETWEEN BARS IS GREATER THAN 2 BAR DIAMETERS  
 C. IF EITHER CONDITION A OR B IS NOT MET FOR A GIVEN BAR, INCREASE LENGTHS BY 50%  
 4. SPLICE LENGTHS NOTED BASED ON F<sub>y</sub> = 60,000 PSI. FOR OTHER YIELD STRENGTHS, MULTIPLY SPLICE LENGTHS NOTED BY F<sub>y</sub>/60,000

**HOOK EMBEDMENT NOTES:**  
 1. SCHEDULED HOOK EMBEDMENT LENGTHS ASSUME:  
 A. SIDE COVER IS 2 1/2 INCHES OR GREATER  
 B. COVER BEYOND IS 2 INCHES OR GREATER  
 2. IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE SCHEDULED LAP LENGTHS BY 20%  
 3. IF LIGHTWEIGHT AGGREGATE IS SPECIFIED, INCREASE SCHEDULED LAP LENGTHS BY 30%  
 4. IF SIDE COVER IS LESS THAN 2 1/2 INCHES, INCREASE LENGTHS BY 40%

7 NO SCALE TYP FORMSAVER



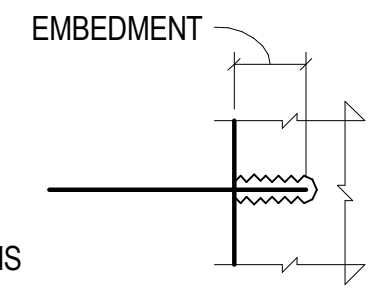
8 NO SCALE TYP KEYED CONST JT GEOMETRY



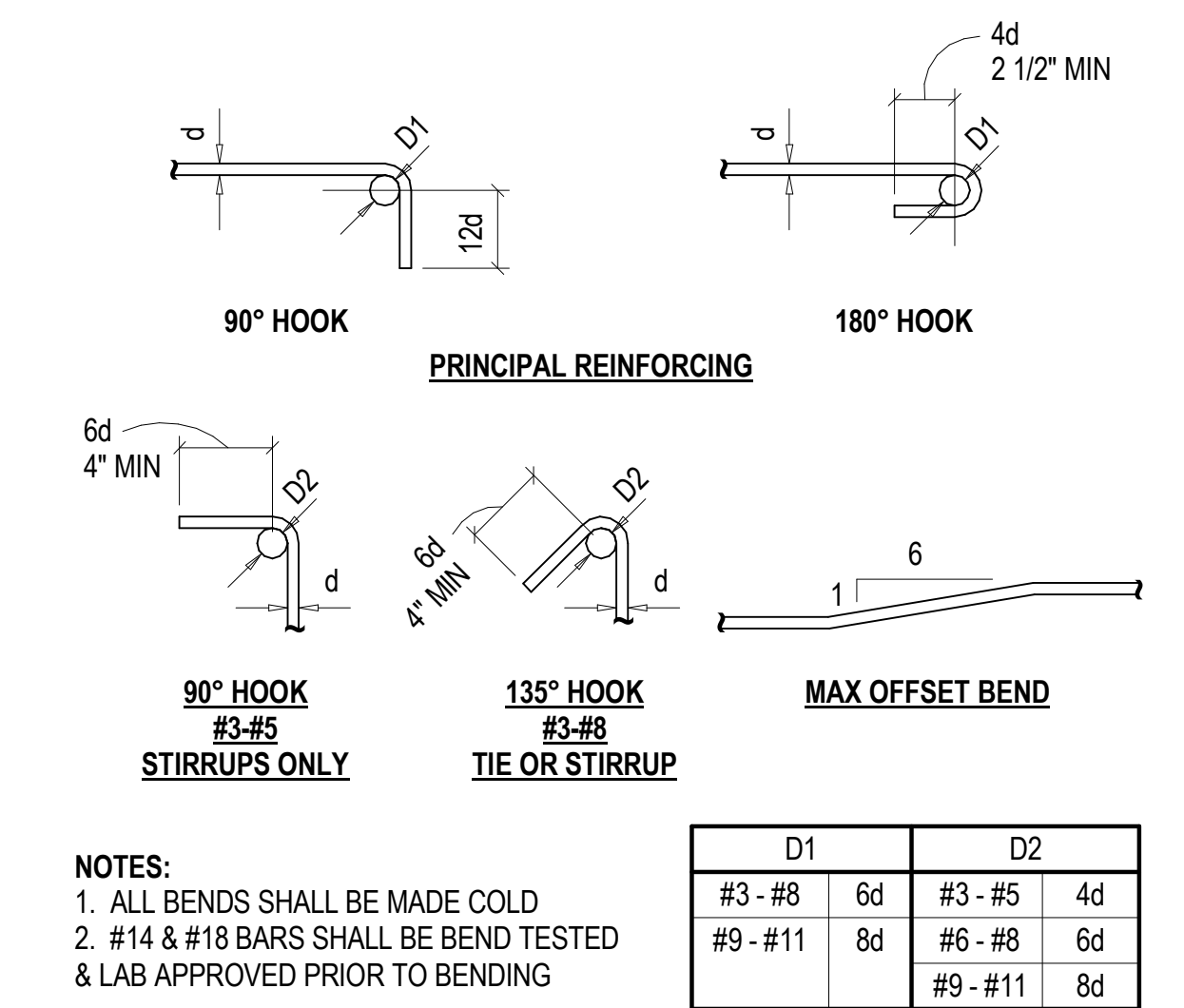
9 NO SCALE TYP TRIM REINF

5 NO SCALE LAP SPLICE & DEVELOPMENT LENGTH SCHEDULE

EMBEDMENT IN CONCRETE (UNO)		
REBAR SIZE	HILTI 'HIT RE 500' EPOXY ADHESIVE	HILTI 'HY 150' EPOXY ADHESIVE
#3	3 1/4"	4 1/2"
#4	4 1/2"	6 1/2"
#5	6"	8"
#6	6"	10"
#7	7 1/4"	12"
#8	9"	14"



**NOTES:**  
 1. INSTALL PER MFR'S RECOMMENDATIONS  
 2. MIN CONCRETE F<sub>c</sub> = 4000 PSI  
 3. DETAIL APPLIES ONLY WHERE REFERENCED ON DRAWINGS



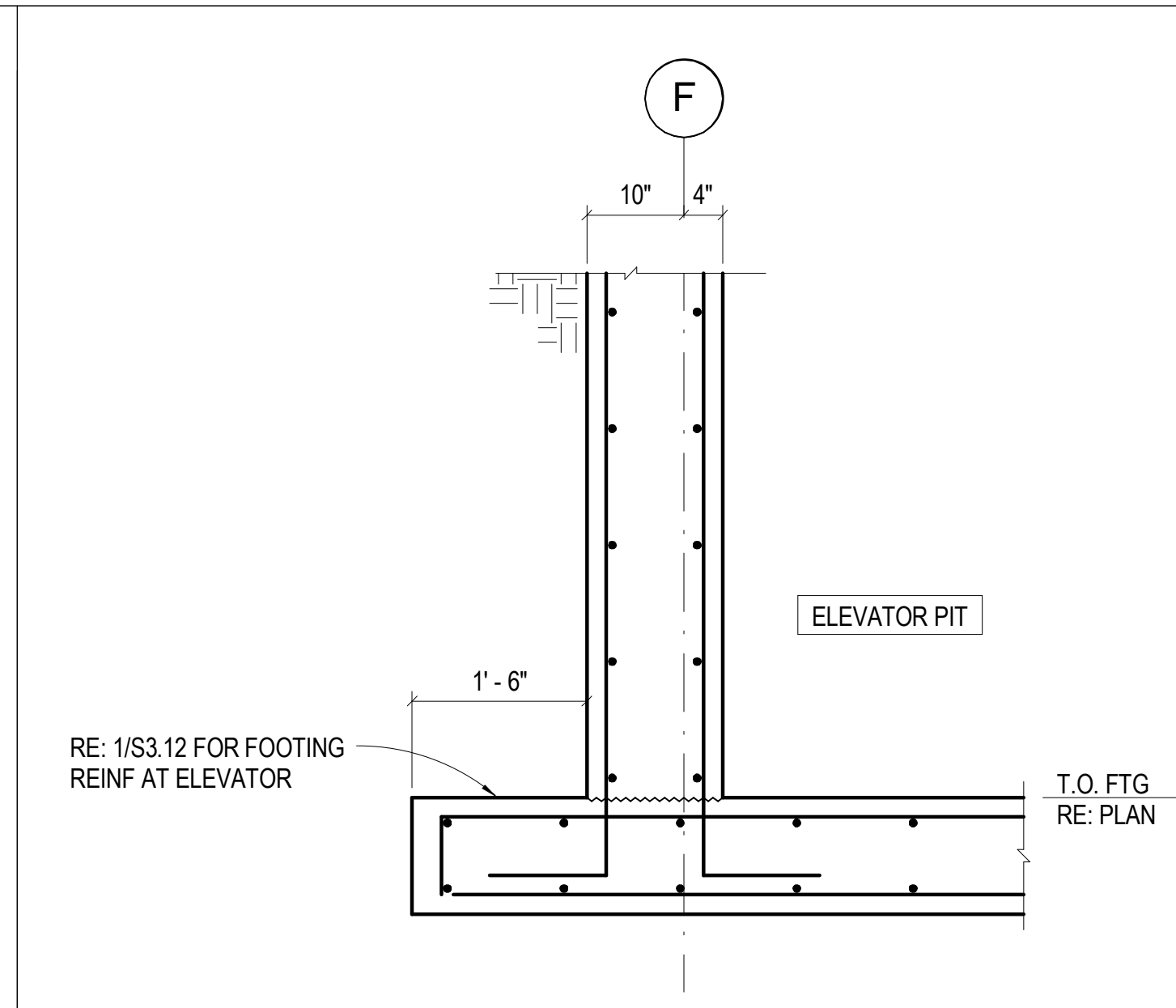
**NOTES:**  
 1. ALL BENDS SHALL BE MADE COLD  
 2. #14 & #18 BARS SHALL BE BEND TESTED & LAB APPROVED PRIOR TO BENDING

6 NO SCALE EPOXY BAR SCHEDULE

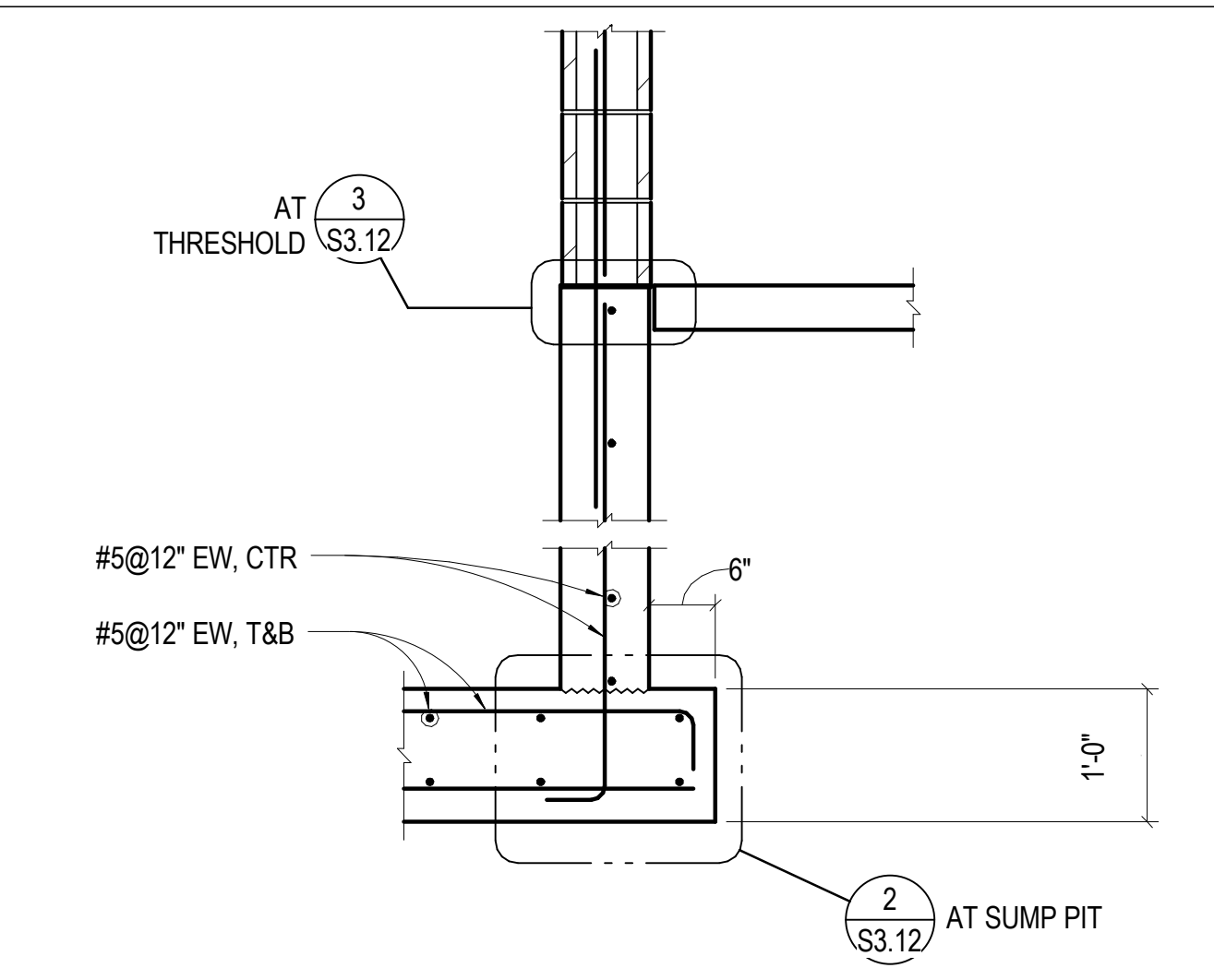
3 NO SCALE TYP BAR BEND DETAILS



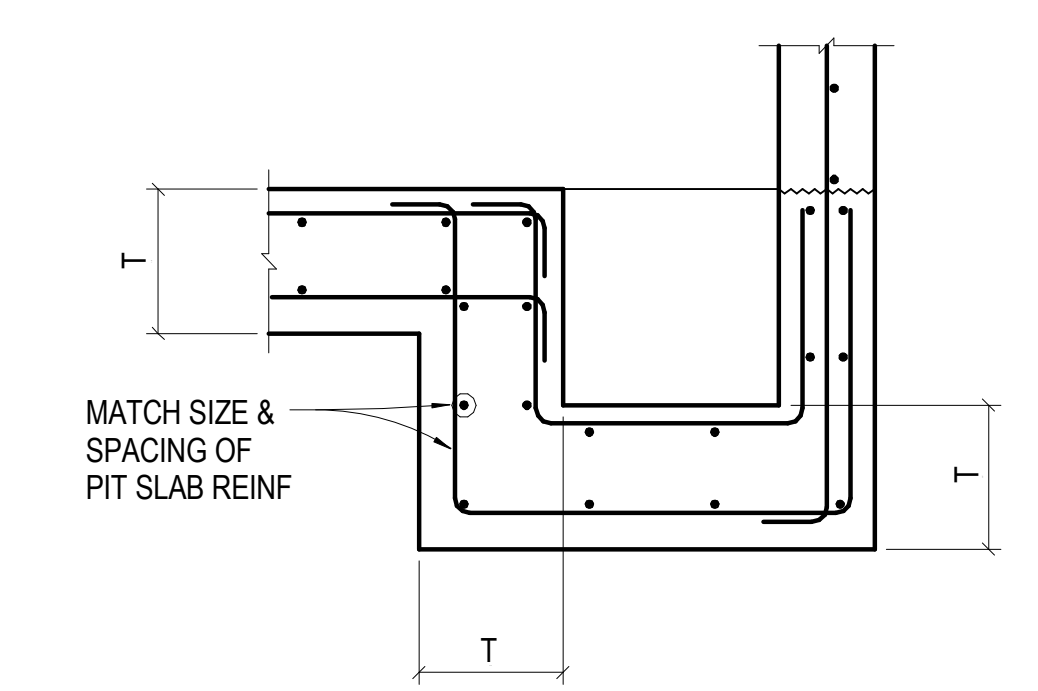
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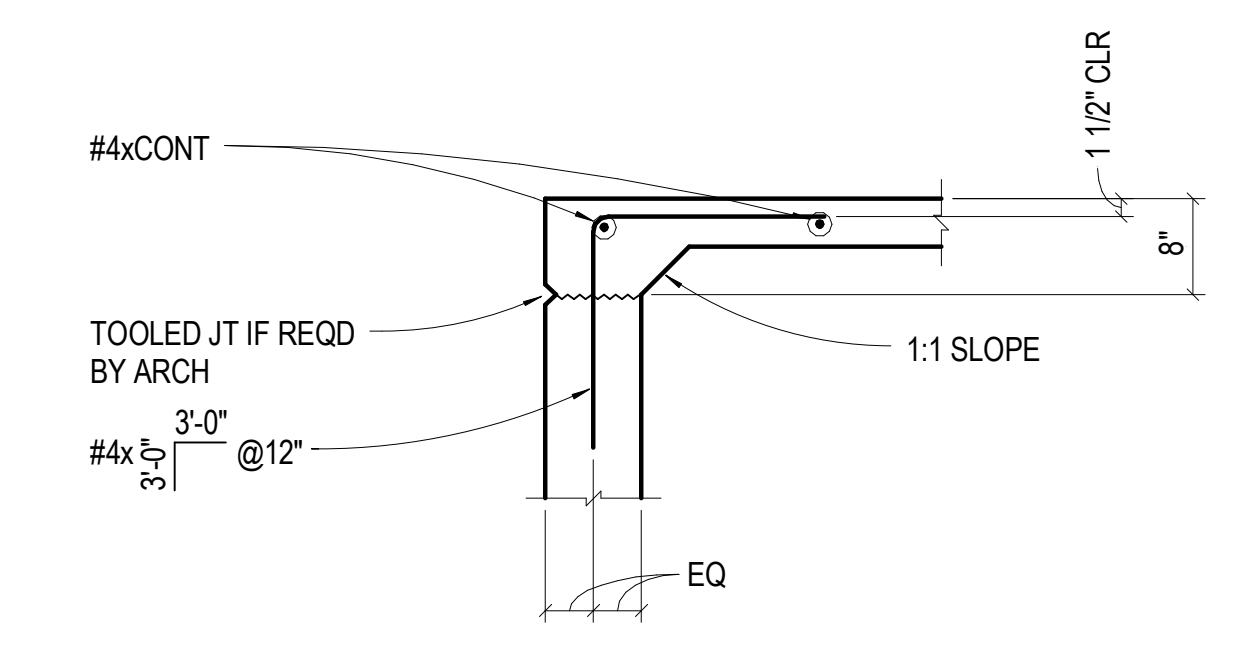
**4** 3/4" = 1'-0" EAST ELEVATOR WALL FOUNDATION



**1** 3/4" = 1'-0" TYP ELEVATOR PIT ON GRADE



**2** 3/4" = 1'-0" TYP ELEVATOR SUMP PIT ON GRADE



**3** 3/4" = 1'-0" SOG AT TOP OF WALL OR GR BM

University Theater ADA Elevator Addition

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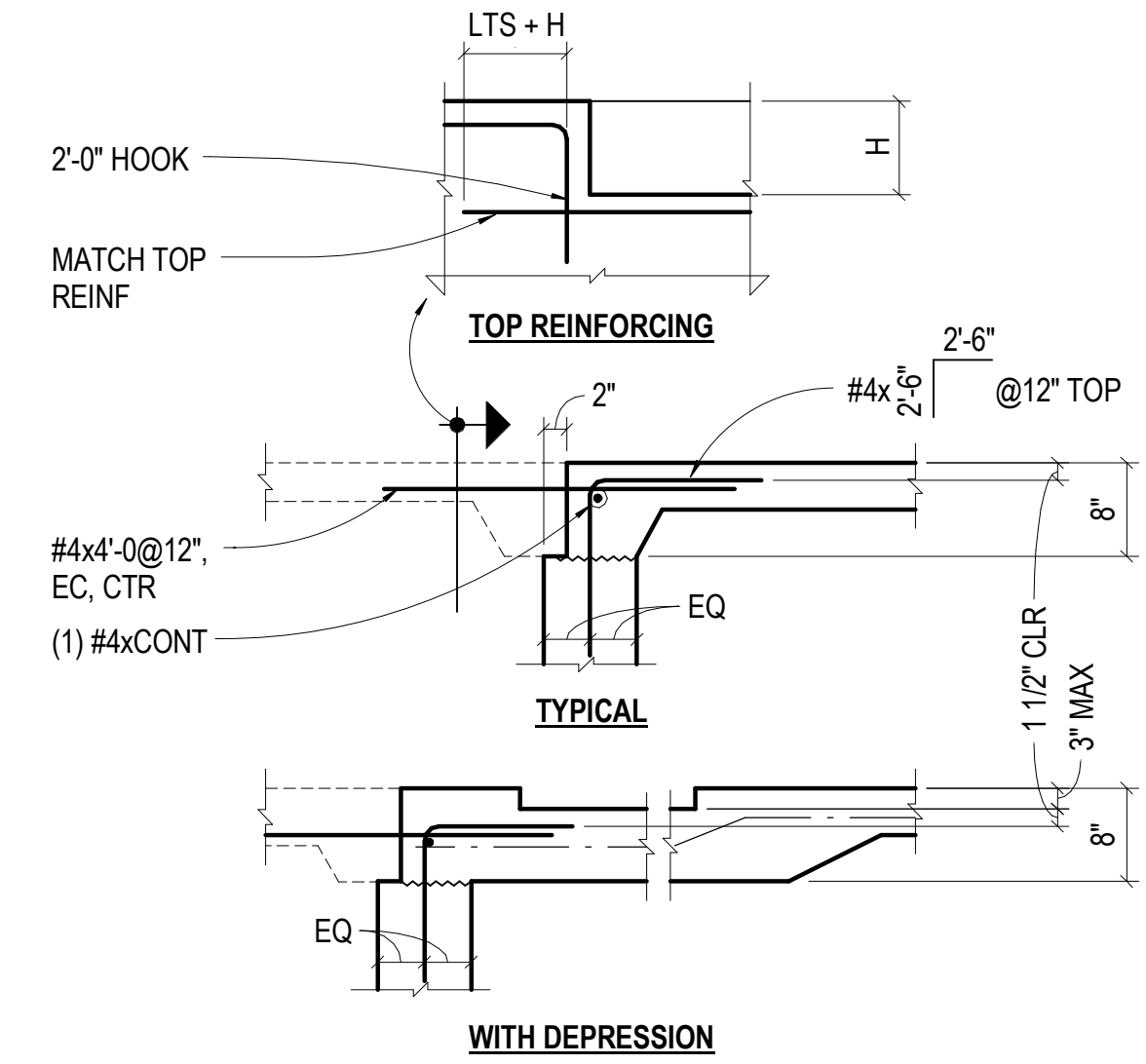
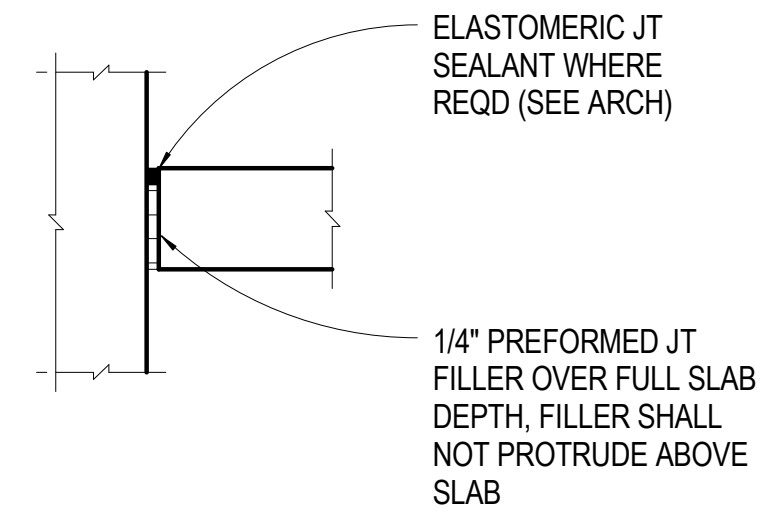
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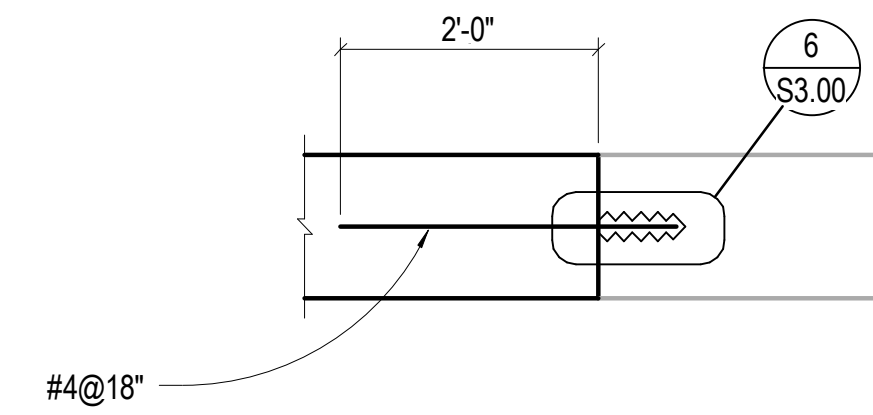
SHEET TITLE  
TYP SOG DETAILS

SHEET NO.

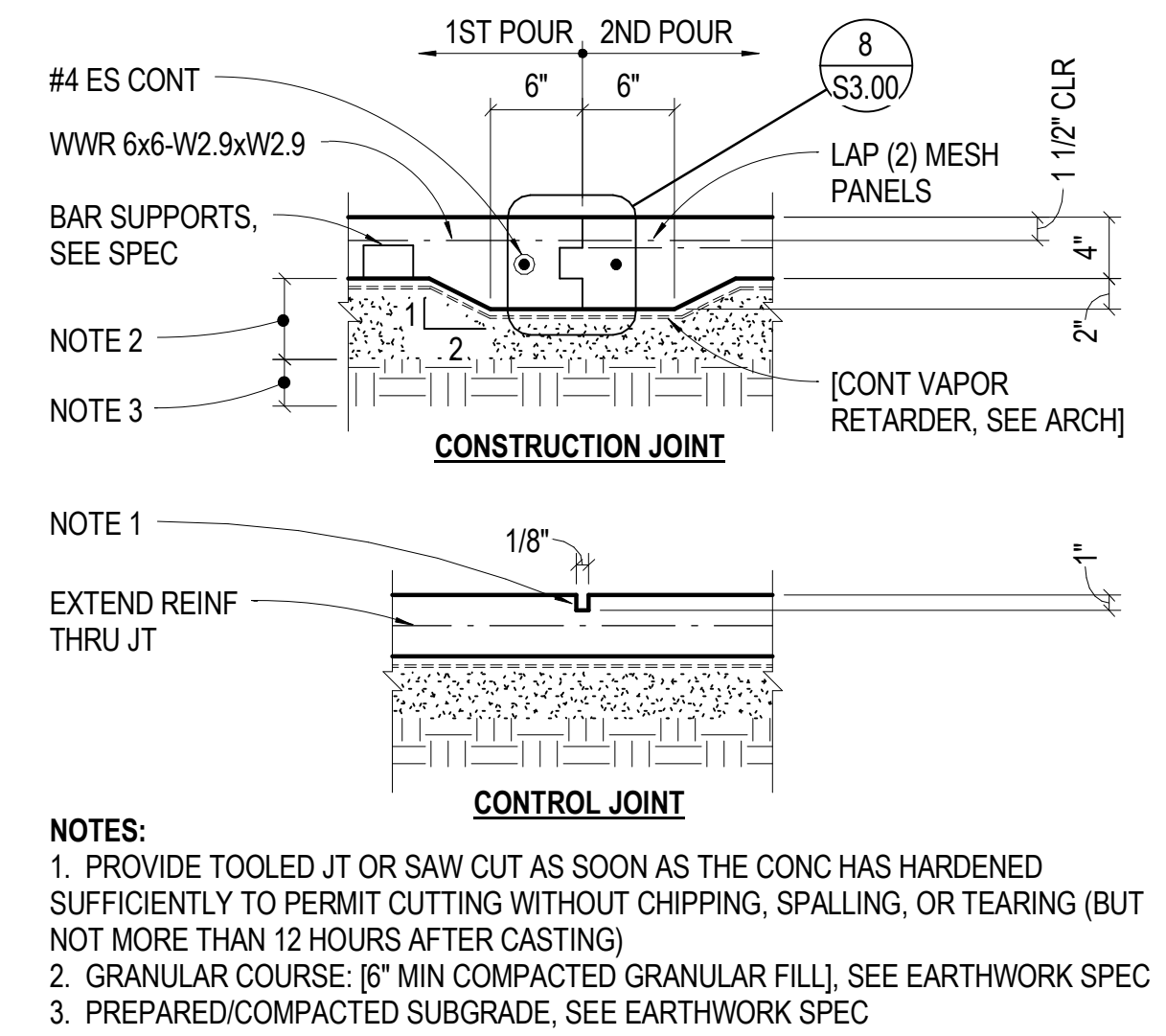
S3.13



4 NO SCALE TYP SOG ISOLATION JOINT

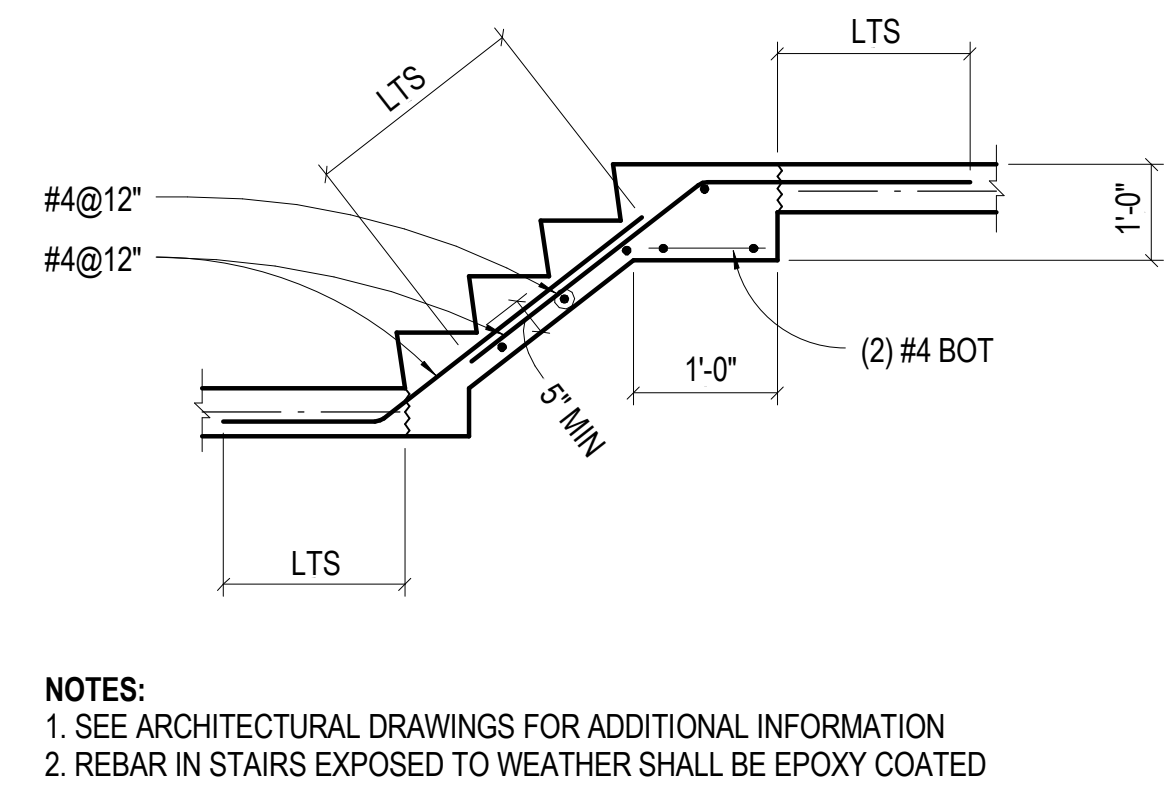


1 NO SCALE TYP SOG EXT THRESHOLD

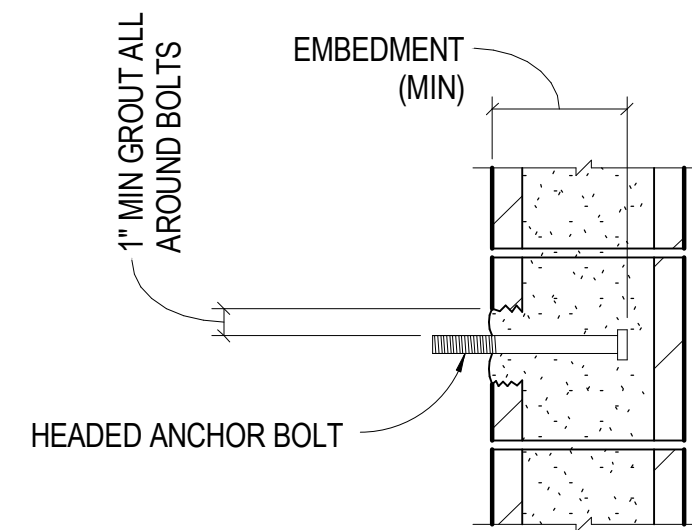


5 1 1/2" = 1'-0" SOG DOWEL TO EXISTING

2 NO SCALE TYP SOG - 4" THICK



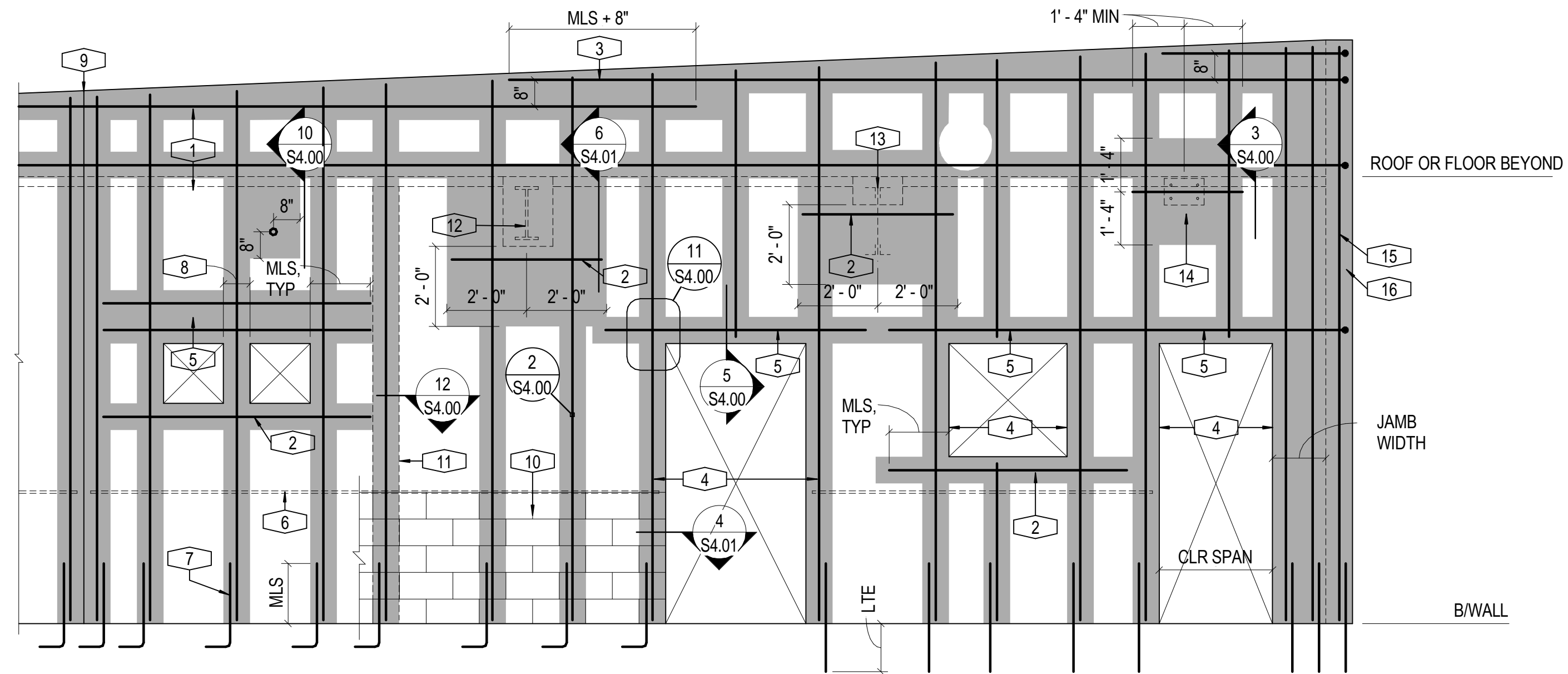
3 3/4" = 1'-0" TYP SOG STAIR



BOLT	EMBEDMENT	MIN SPACING	MIN EDGE DIST
1/2"Ø	4"	8"	4"
5/8"Ø	4"	8"	4"
3/4"Ø	5"	10"	5"
7/8"Ø	6"	12"	6"

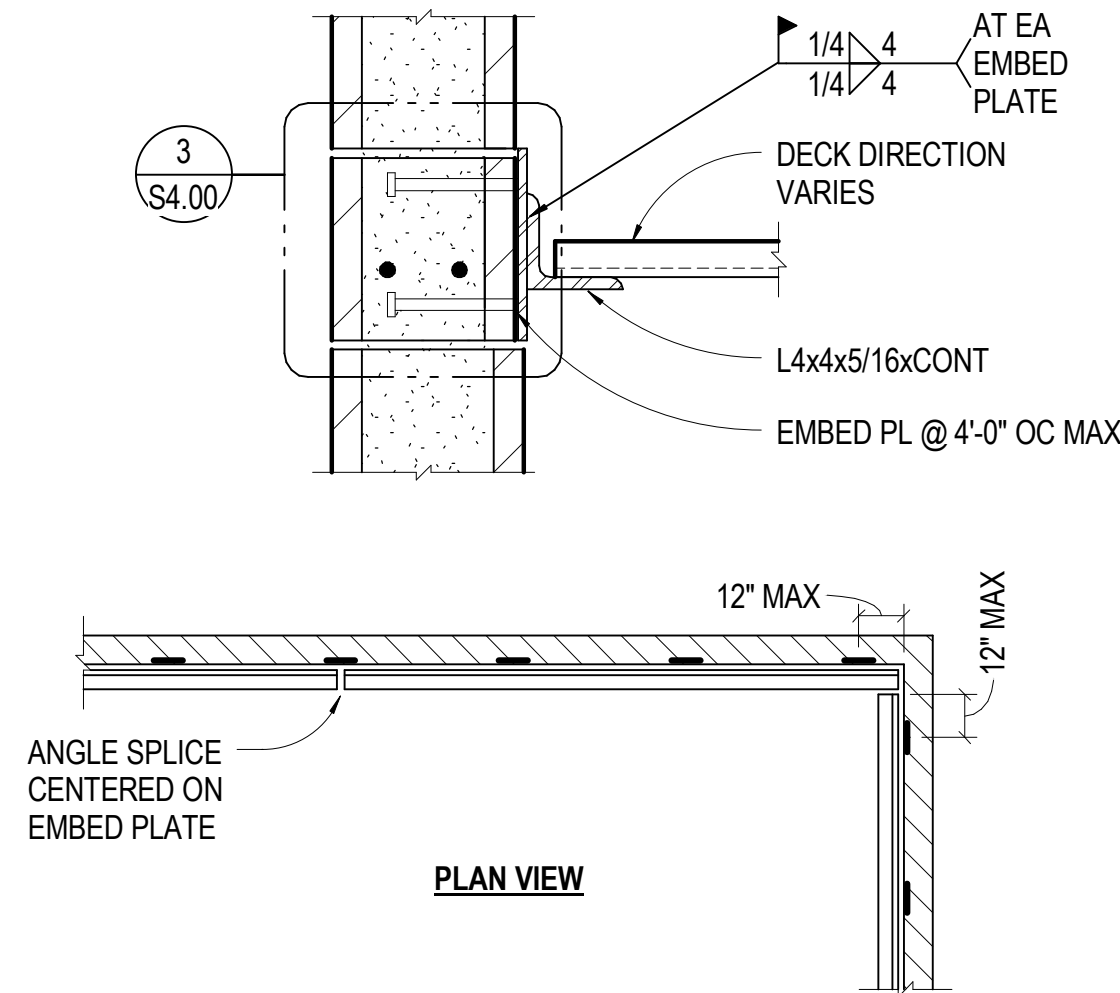
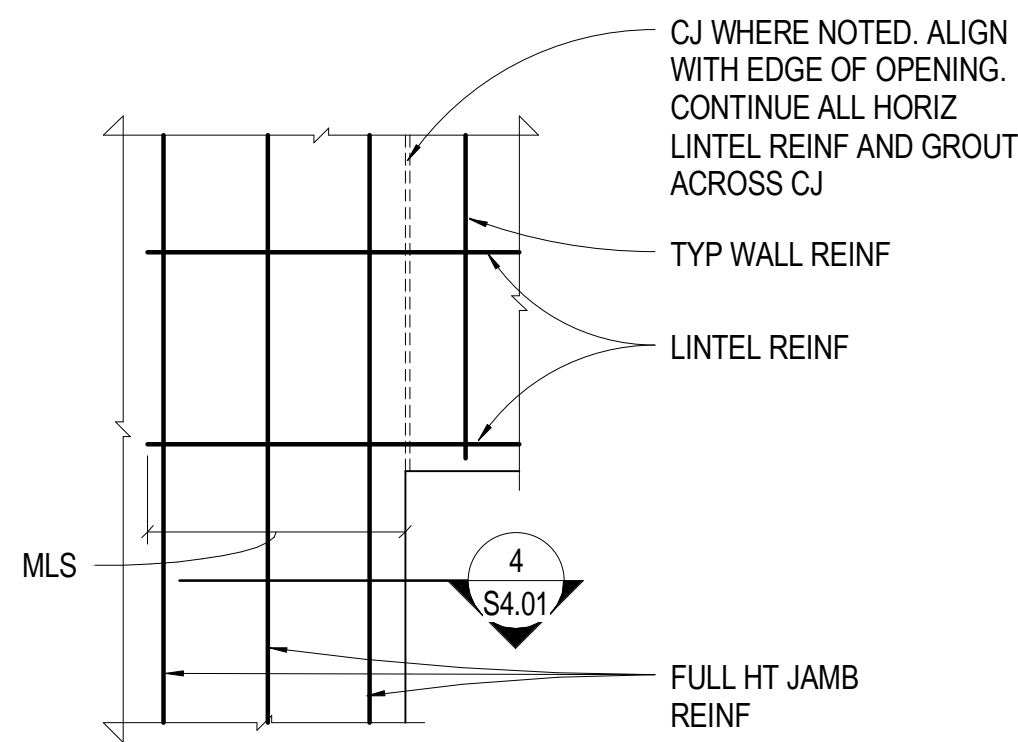
NOTES:  
1. PROVIDE 3/4"Ø ANCHOR BOLTS UNO.

- KEYNOTES:**
- BOND BEAM W/ (2) #4 AT T/PARAPET AND EACH FLOOR AND ROOF LEVEL
  - BOND BEAM W/ (2) #4 AT BOTTOM OF ALL OPNGS
  - STEP BOND BEAM
  - JAMB REINF EACH SIDE OF ALL OPENINGS, FULL HEIGHT
  - MASONRY LINTEL
  - HORIZ JOINT REINF, SEE 'STRUCTURAL WALL SCHEDULE'
  - DOWELS TO MATCH LOCATION OF VERTICAL BARS. HOOK IF STRAIGHT BAR CANNOT BE EMBEDDED INTO CONCRETE LTE
  - AT SERIES OF TWO OR MORE OPNGS, MASONRY LINTEL REINF SHALL BE CONT. IF SPACE BTWN OPNGS IS NOT SUFFICIENT TO ACCOMMODATE 'TYP JAMB REINF' FOR BOTH OPENINGS, USE OVERALL WIDTH OF SERIES OR OPNGS TO DETERMINE LINTEL DEPTH AND REINF
  - CONTROL JOINT (CJ) OR END OF WALL
  - RUNNING BOND PATTERN, TYP, UNO.
  - PERPENDICULAR WALL BEYOND
  - STEEL BEAM BEYOND
  - STEEL JOIST BEYOND
  - EMBED PLATE BEYOND
  - VERT REINF ALL CORNERS
  - GROUT CELLS WITH REINFORCEMENT AND ALL SHADED AREAS



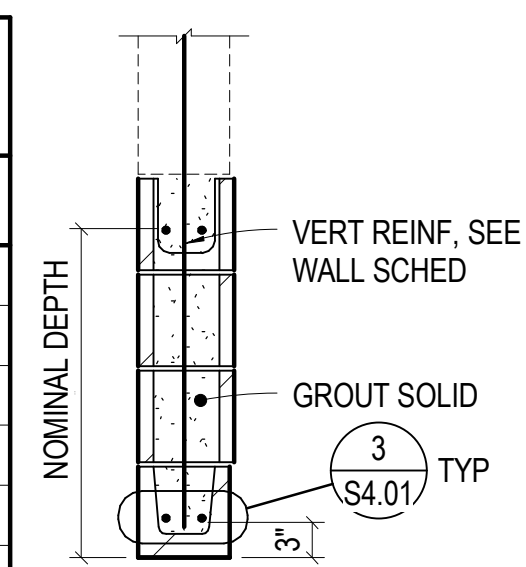
**10** NO SCALE TYP EMBED BOLT IN MAS SCHEDULE

**7** NO SCALE TYP STRUCTURAL MASONRY WALL ELEV



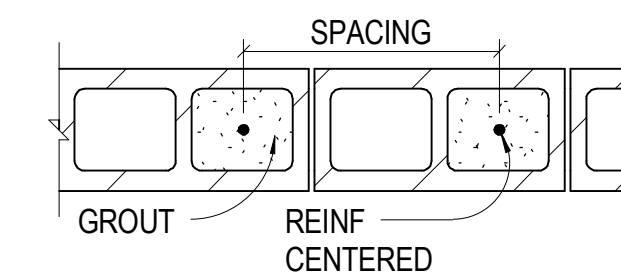
**REINFORCED MASONRY LINTEL SCHEDULE**

CLEAR SPAN, L	NOMINAL DEPTH	REINF
L ≤ 4'-0"	8"	(2) #4 BOT
4'-0" < L ≤ 8'-0"	16"	(2) #4 T&B
8'-0" < L ≤ 10'-0"	24"	(2) #5 T&B
10'-0" < L ≤ 12'-0"	32"	(2) #5 T&B
12'-0" < L ≤ 14'-0"	40"	(2) #6 T&B
14'-0" < L ≤ 16'-0"	48"	(4) #6 BOT (2 LAYERS) (2) #6 TOP
L > 16'-0"		REQUEST DESIGN FROM ENGINEER



**STRUCTURAL MASONRY WALL SCHEDULE**

MARK	WALL THK	JOINT	REINFORCING			GROUT SOLID
			VERT	HORIZ	DOWELS	
MW8A	8"	NOTE 2	#5@24"	-	#5@24"	NO
MW8B	8"	NOTE 2	#5@16"	2-#5 @ 4'-0" OC	#5@16"	YES
MW8C	8"	NOTE 2	#5@8"	-	#5@8"	YES
MW6A	6"	NOTE 2	#5@16"	2-#4 @ 4'-0" OC	#5@16"	YES



NOTES:  
1. ALL VERTICAL REINFORCEMENT SHALL BE CENTERED IN GROUTED CELLS  
2. PROVIDE 'LADDER' TYPE HORIZONTAL JOINT REINFORCEMENT WITH 2-W1.7 WIRES (MIN) AT 16" OC, TYPICAL, AND AT 8" OC IN PARAPETS.

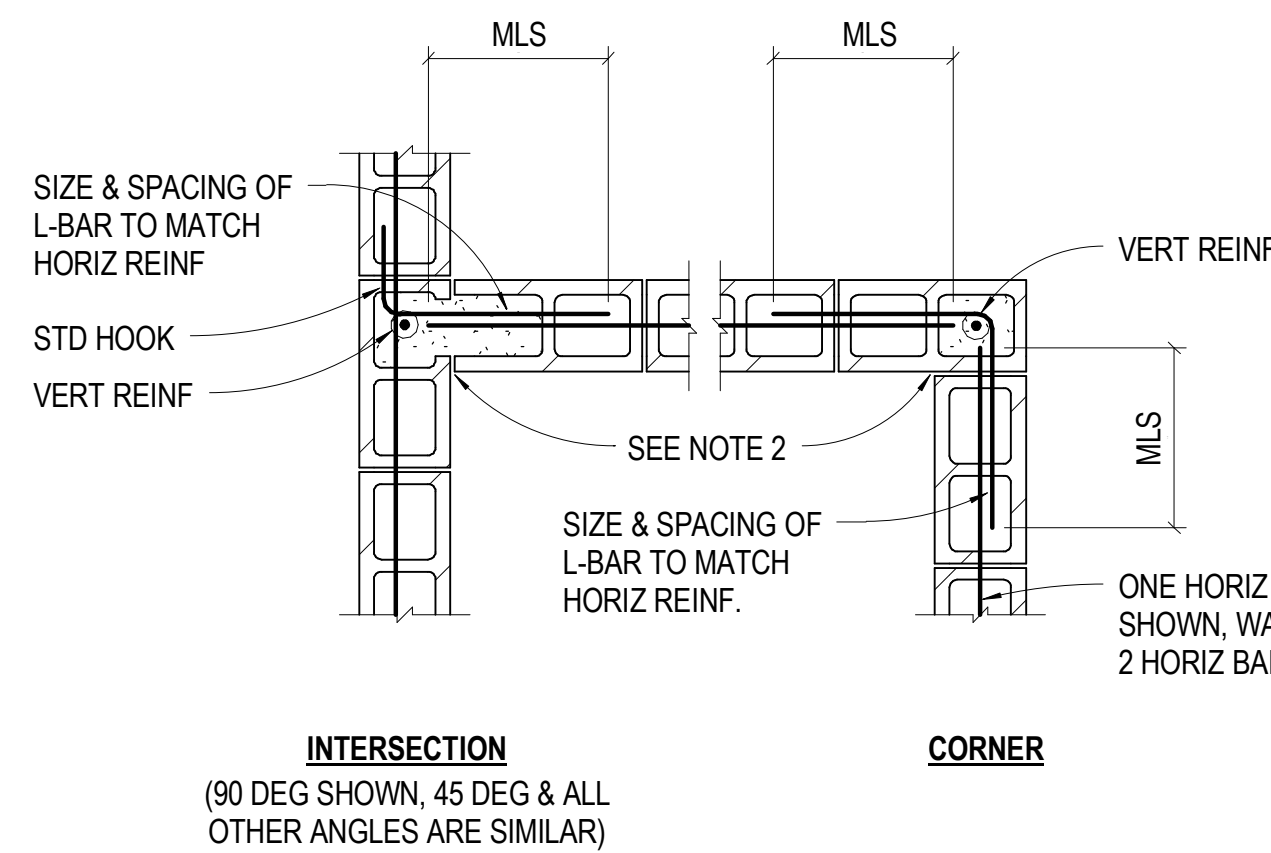
**11** NO SCALE TYP STR MAS LINTEL SUPPORT

**8** NO SCALE TYP STR MAS / MTL DECK

**5** NO SCALE TYP STR MAS LINTEL

**2** NO SCALE STR MASONRY WALL SCHEDULE

NOTES:  
1. 90 DEG CORNER & INTERSECTION IS SHOWN. WALLS MEETING AT OTHER ANGLES SHALL HAVE (a) BLOCK OVERLAPPING 4" MIN AT ALL HEAD JOINTS OR (b) FACE SHELL BROKEN OPEN AND COMMON CORE GROUTED  
2. IF HEAD JOINT ALIGNS OVER THE FULL WALL HEIGHT, BREAK OPEN FACE SHELLS AND GROUT WALLS TOGETHER FULL HEIGHT, TYP AT ALL CORNERS AND INTERSECTIONS

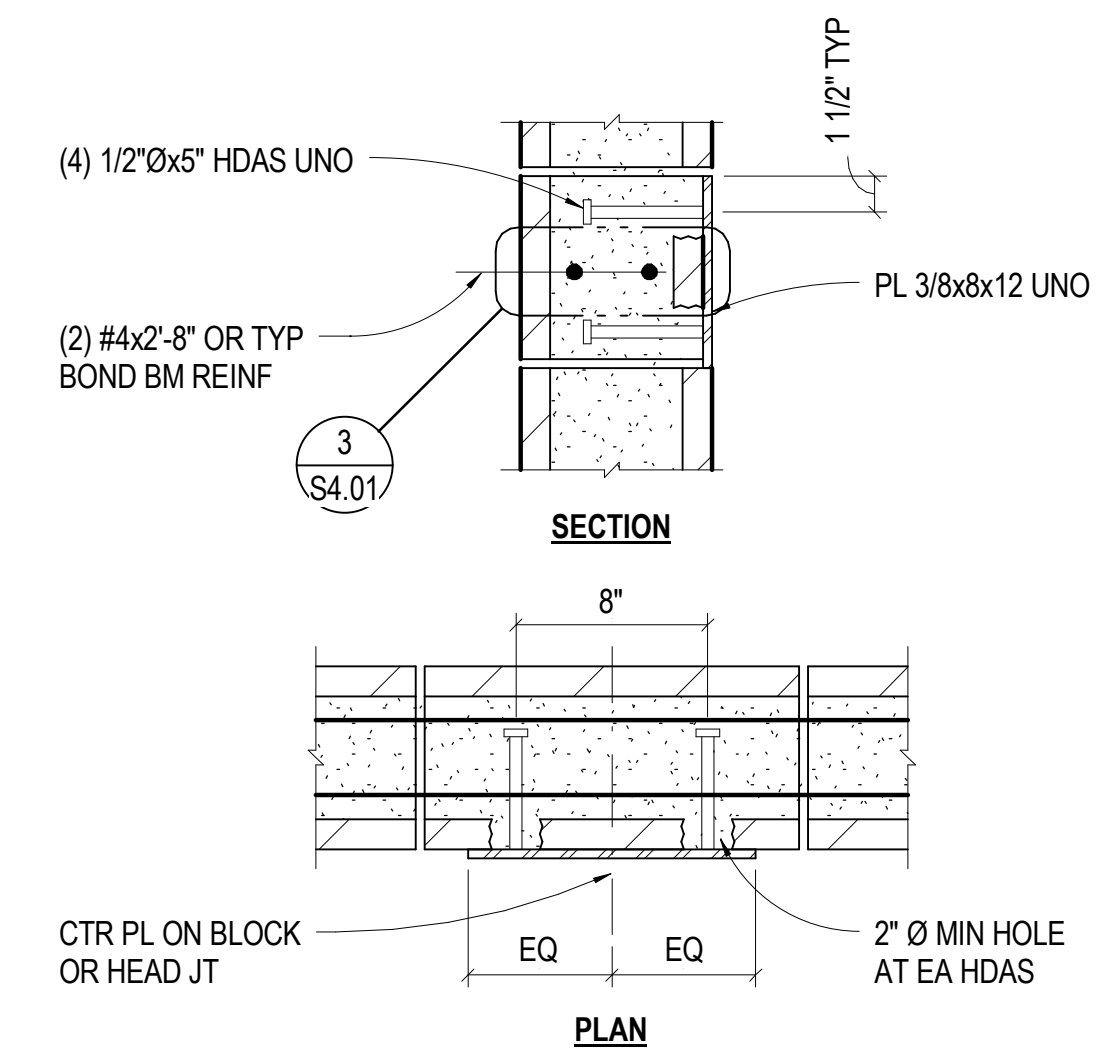


**MASONRY LAP SPLICE (MLS) & DEVELOPMENT LENGTH SCHEDULE**

$f_m = 1500 \text{ psi}$   
 $f_y = 60 \text{ ksi}$   
IBC 2006

BAR SIZE	ENGLISH	METRIC	8" CMU		12" CMU		8" CMU 2" CLR		12" CMU 2" CLR	
			REINF CENTERED (IN)	MIN REINF SPACING (IN)	REINF CENTERED (IN)	MIN REINF SPACING (IN)	REINF AT FACE (IN)	MIN REINF SPACING (IN)	REINF AT FACE (IN)	MIN REINF SPACING (IN)
#3	#10	16	8	16	8	16	8	16	8	
#4	#13	21	8	21	8	26	8	26	8	
#5	#16	26	16	26	8	40	16	40	8	
#6	#19	43	24	40	16	54	16	54	8	
#7	#22	60	24	46	24	63	24	63	16	
#8	#25	72	32	61	24	72	24	72	24	
#9	#29	81	40	73	32	81	32	81	24	

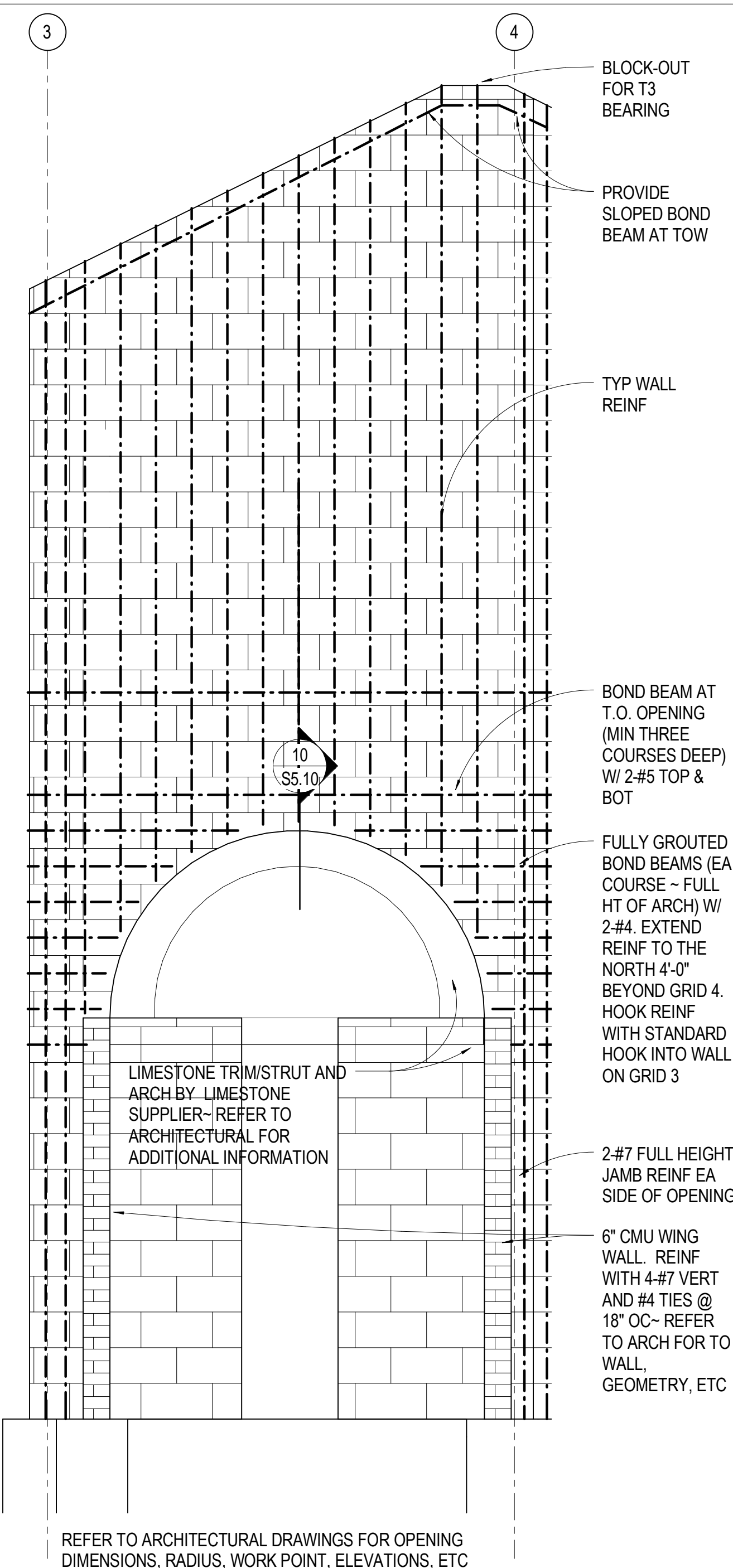
NOTES:  
1. IF REINF SPACING IS LESS THAN MINIMUM SPACING NOTED, USE LAP SPLICE LENGTH OF 72 x BAR DIAMETER.  
2. SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPlicing DIFFERENT SIZED BARS.  
3. LAP LENGTHS SPECIFICALLY DETAILED ON DRAWINGS SHALL GOVERN INSTEAD OF SCHEDULED LAP LENGTHS  
4. IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE LENGTHS BY 50%



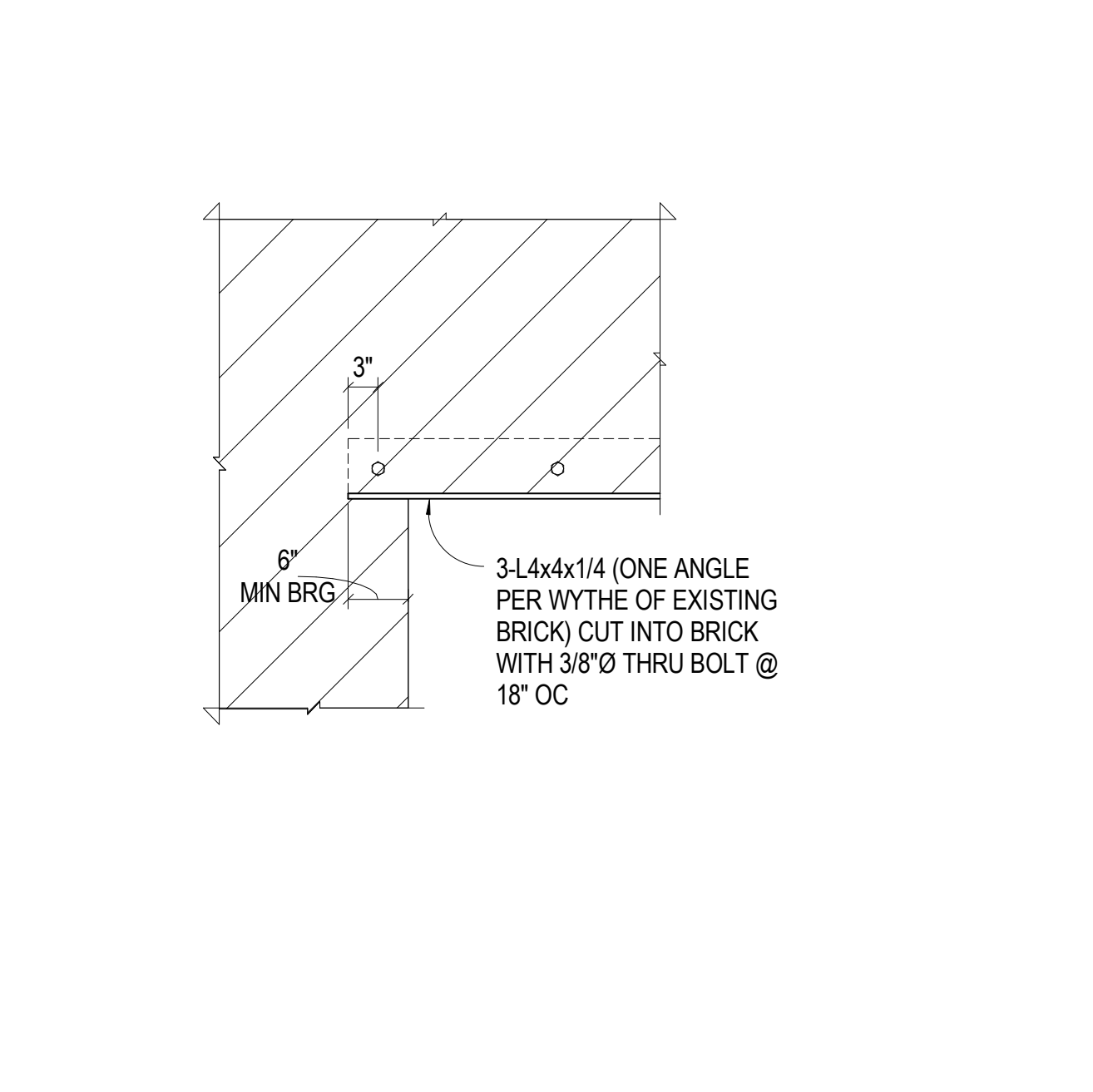
**12** NO SCALE TYP STR MASONRY WALL CORNER REINF

**6** NO SCALE MASONRY LAP SPLICE SCHEDULE

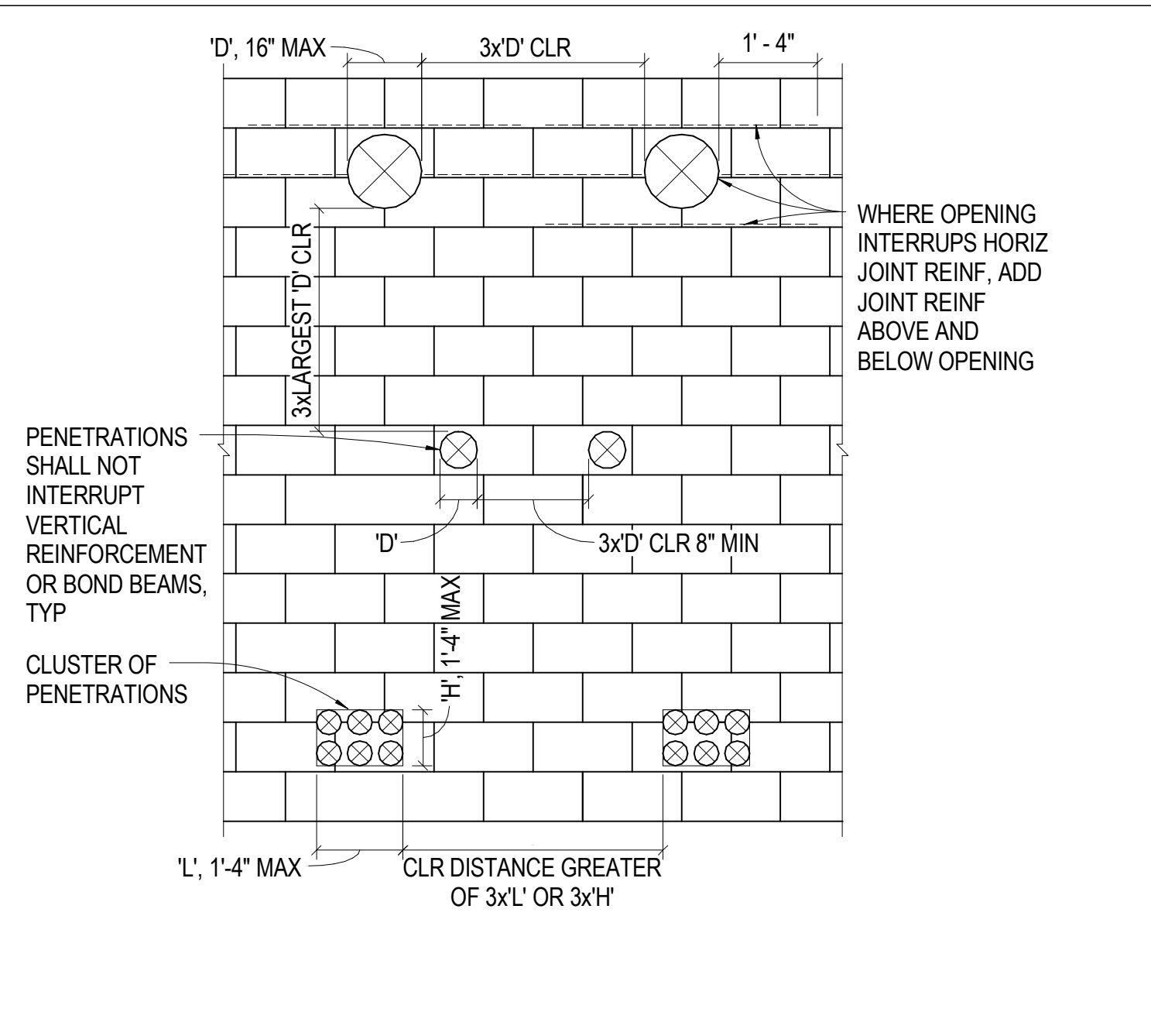
**3** NO SCALE TYP EMBED PLATE TO MAS WALL



**11** 1/2" = 1'-0" EAST WALL ELEVATION



**12** 3/4" = 1'-0" STEEL LINTEL AT EXISTING BRICK WALL

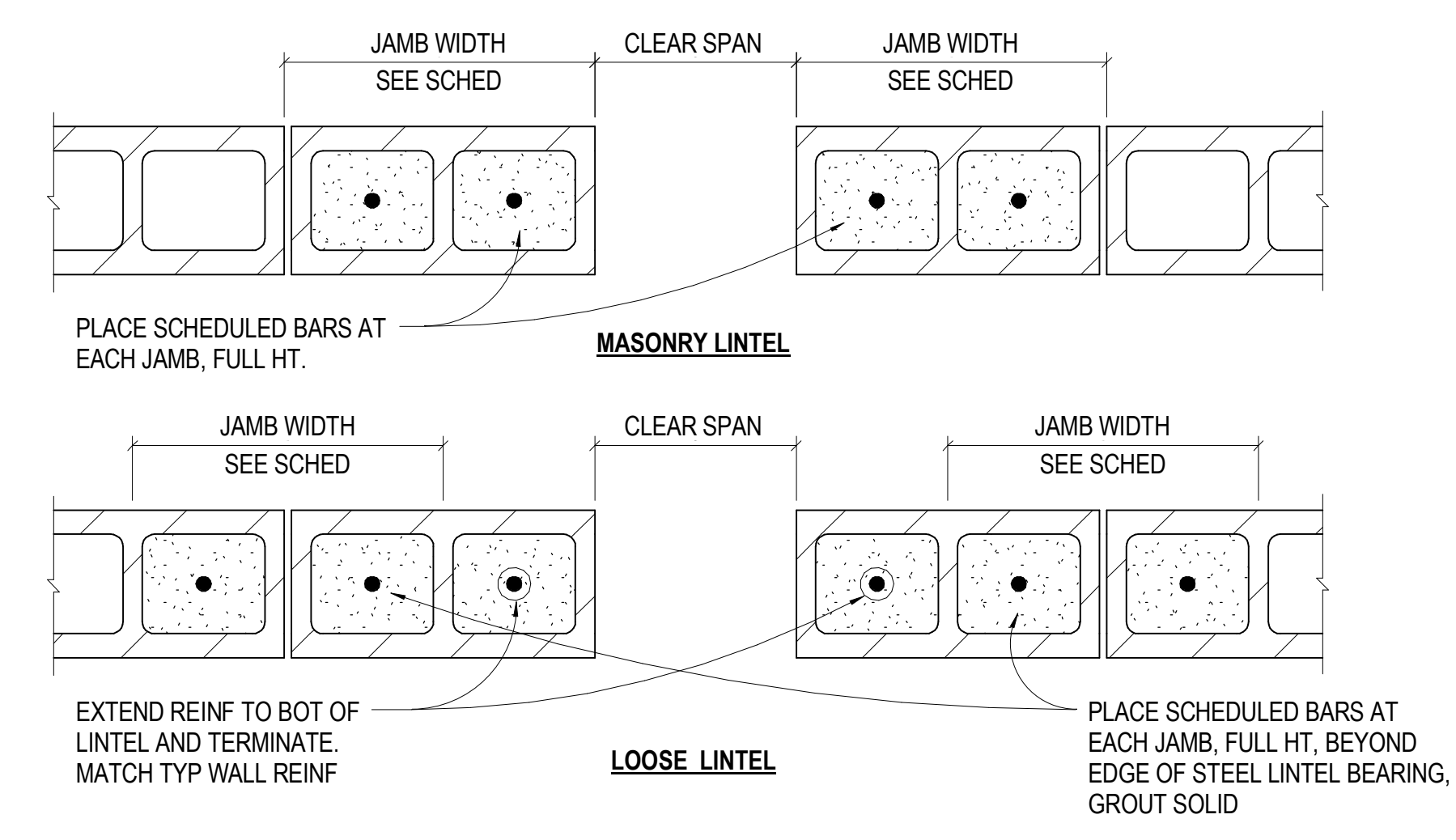


**INTERIOR MASONRY WALL JAMB SCHEDULE**

LINTEL CLEAR SPAN, L	REINF FULL HT WALL	JAMB WIDTH
L ≤ 4'-0"	(1) #4	8"
4'-0" < L ≤ 8'-0"	(2) #4	16"
8'-0" < L ≤ 12'-0"	(3) #4	24"

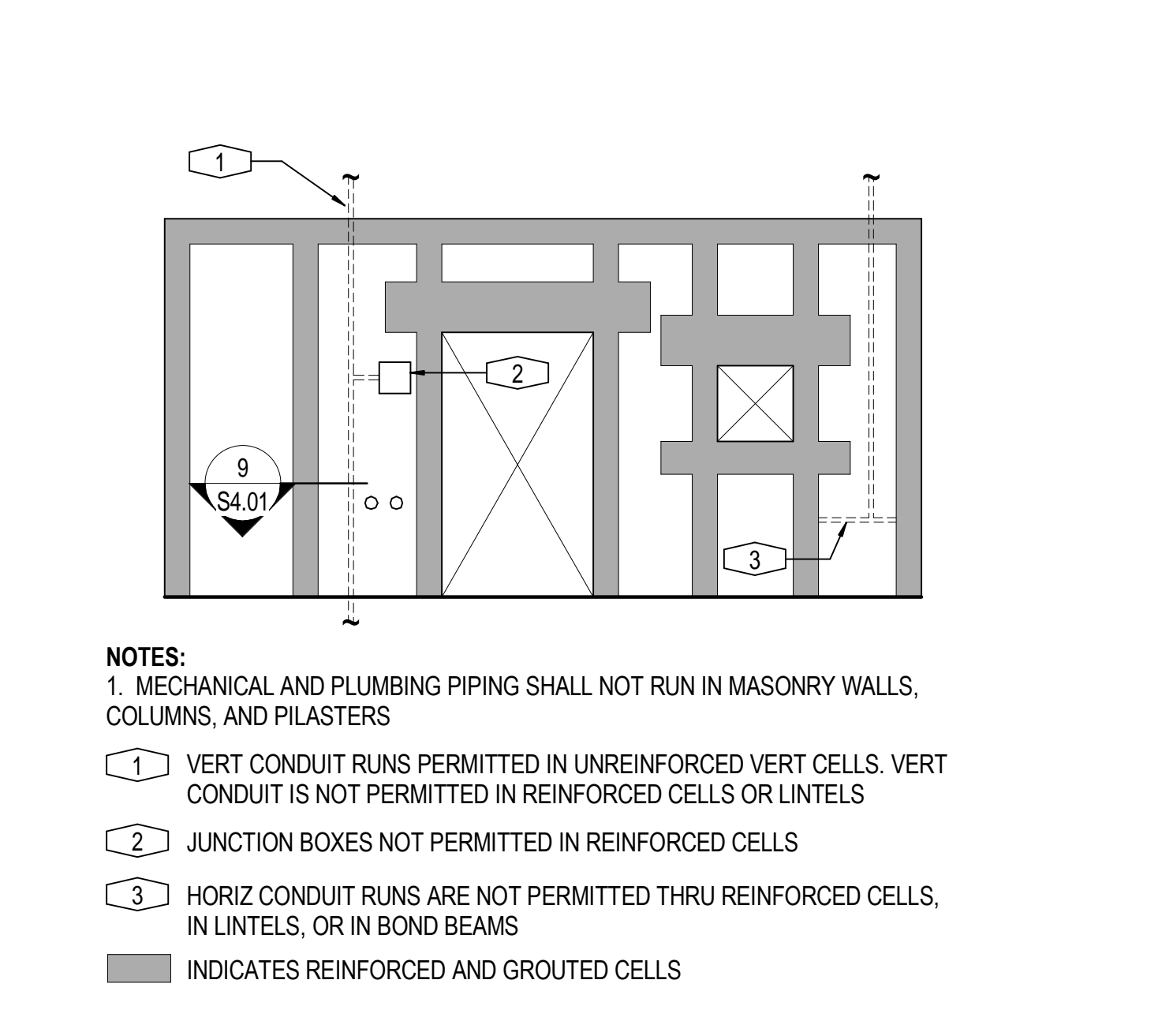
**EXTERIOR MASONRY WALL JAMB SCHEDULE**

LINTEL CLEAR SPAN	REINF FULL HT WALL	JAMB WIDTH
L ≤ 4'-0"	-	-
4'-0" < L ≤ 6'-8"	-	-
6'-8" < L ≤ 10'-0"	-	-
10'-0" < L ≤ 12'-0"	-	-
12'-0" < L ≤ 16'-0"	-	-
L < 16'-0"	REQUEST FROM ENGR	-

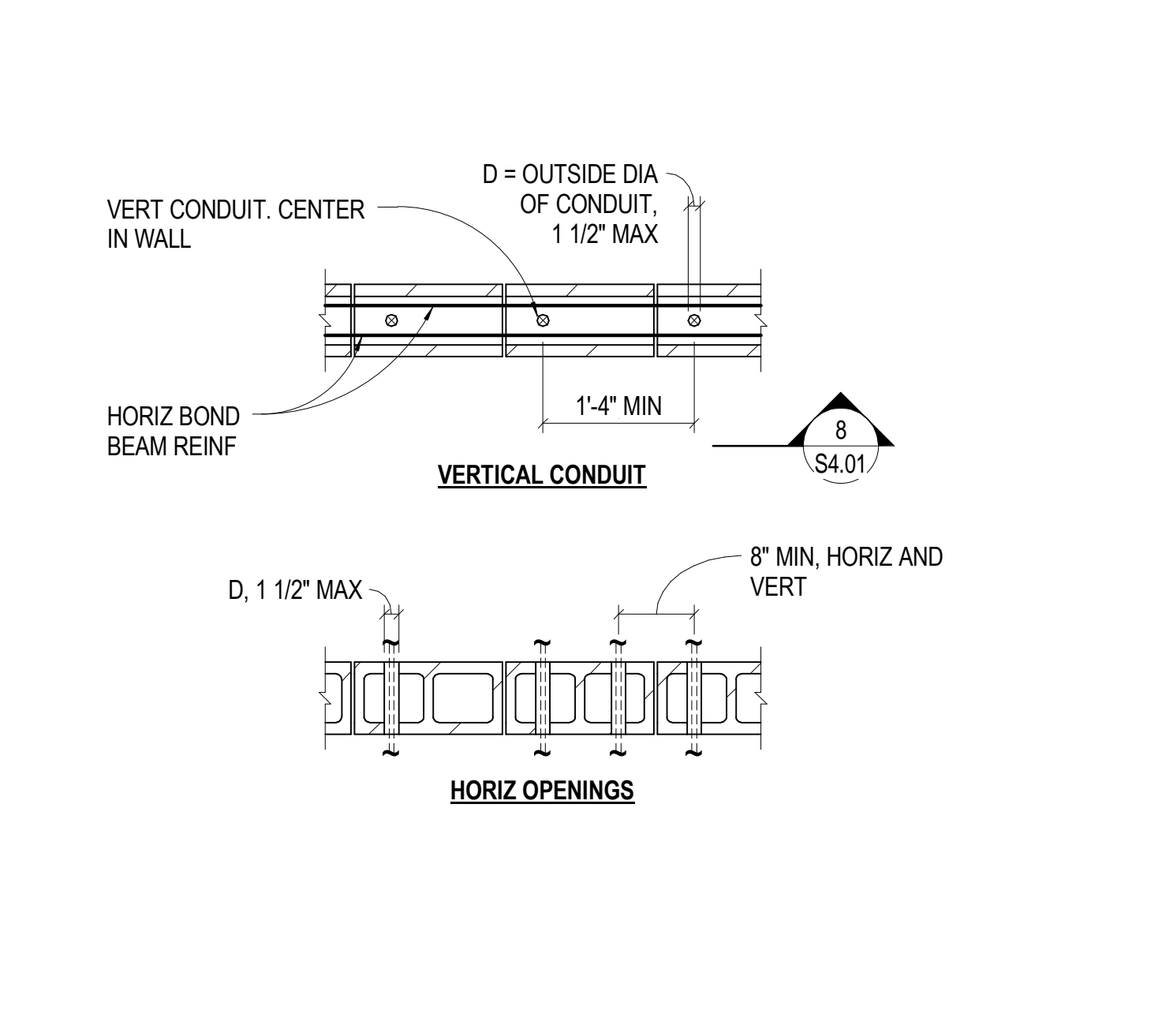


**4** NO SCALE TYP STR MAS JAMB SCHEDULES & DETAILS

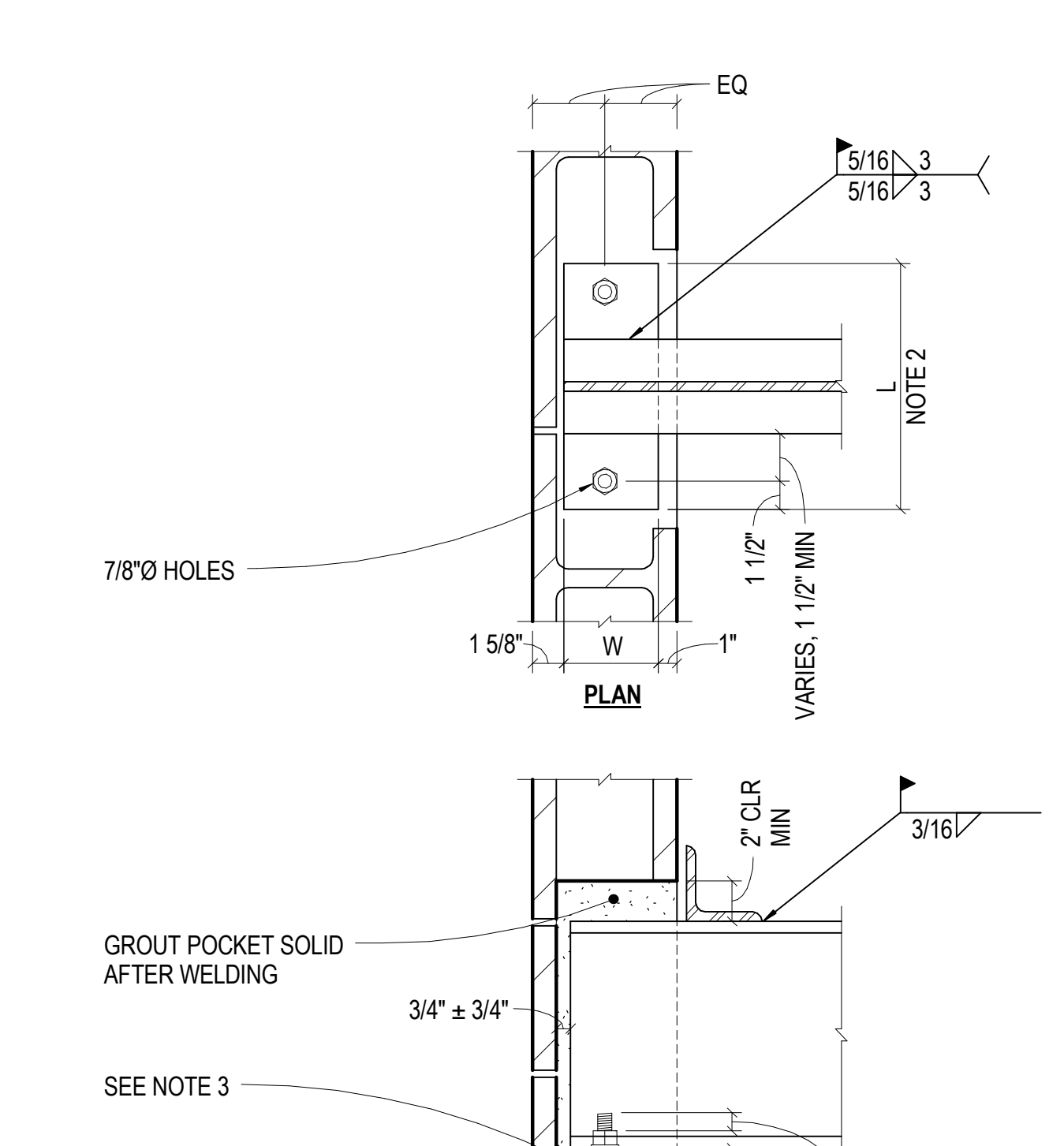
**7** NO SCALE TYP STR MAS / PIPING



**8** NO SCALE TYP STR MAS / CONDUIT ELEV



**9** NO SCALE TYP STR MAS / CONDUIT PLAN

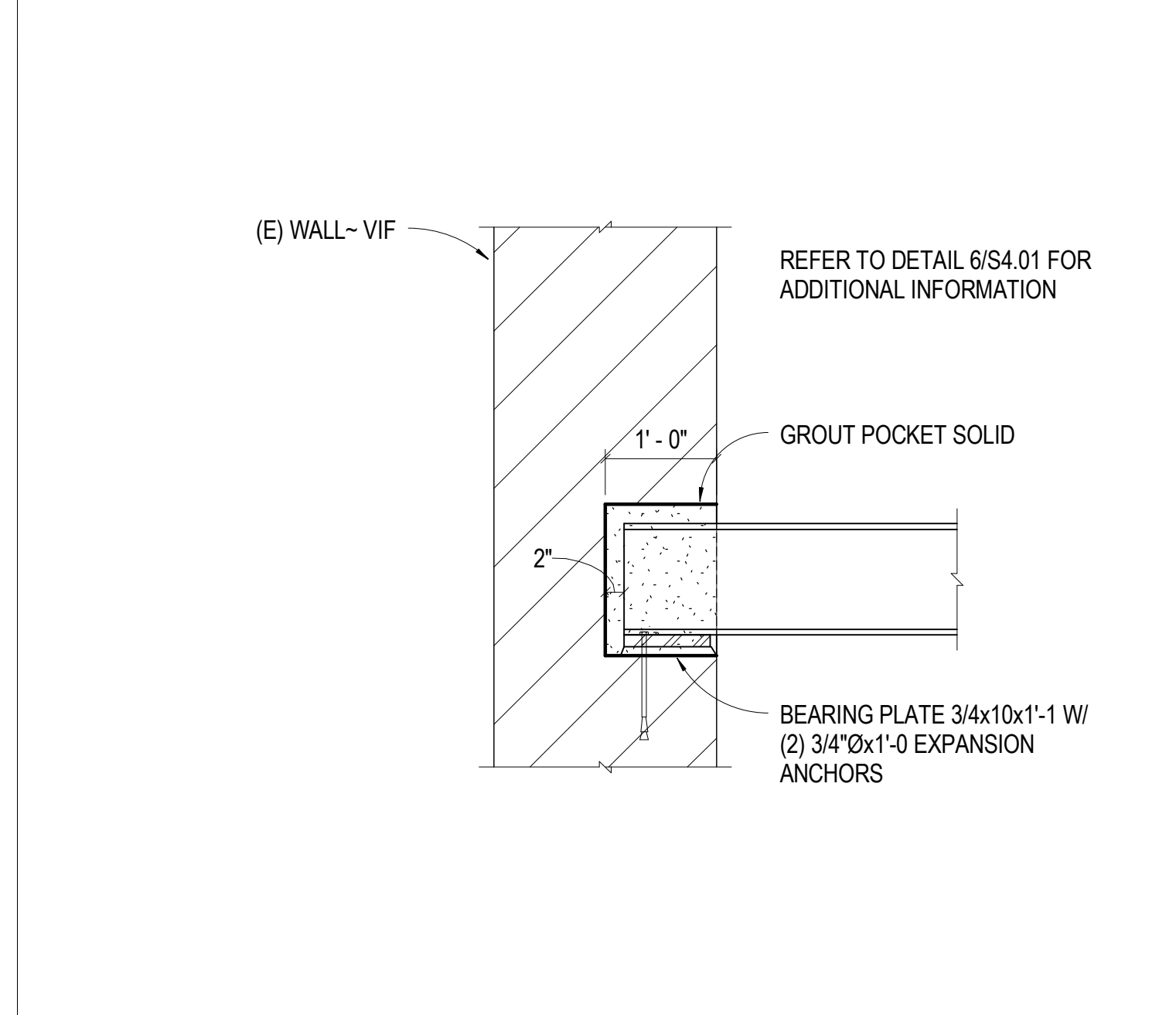


**BEAM BEARING PLATE SCHEDULE** f<sub>m</sub> = 2000 psi

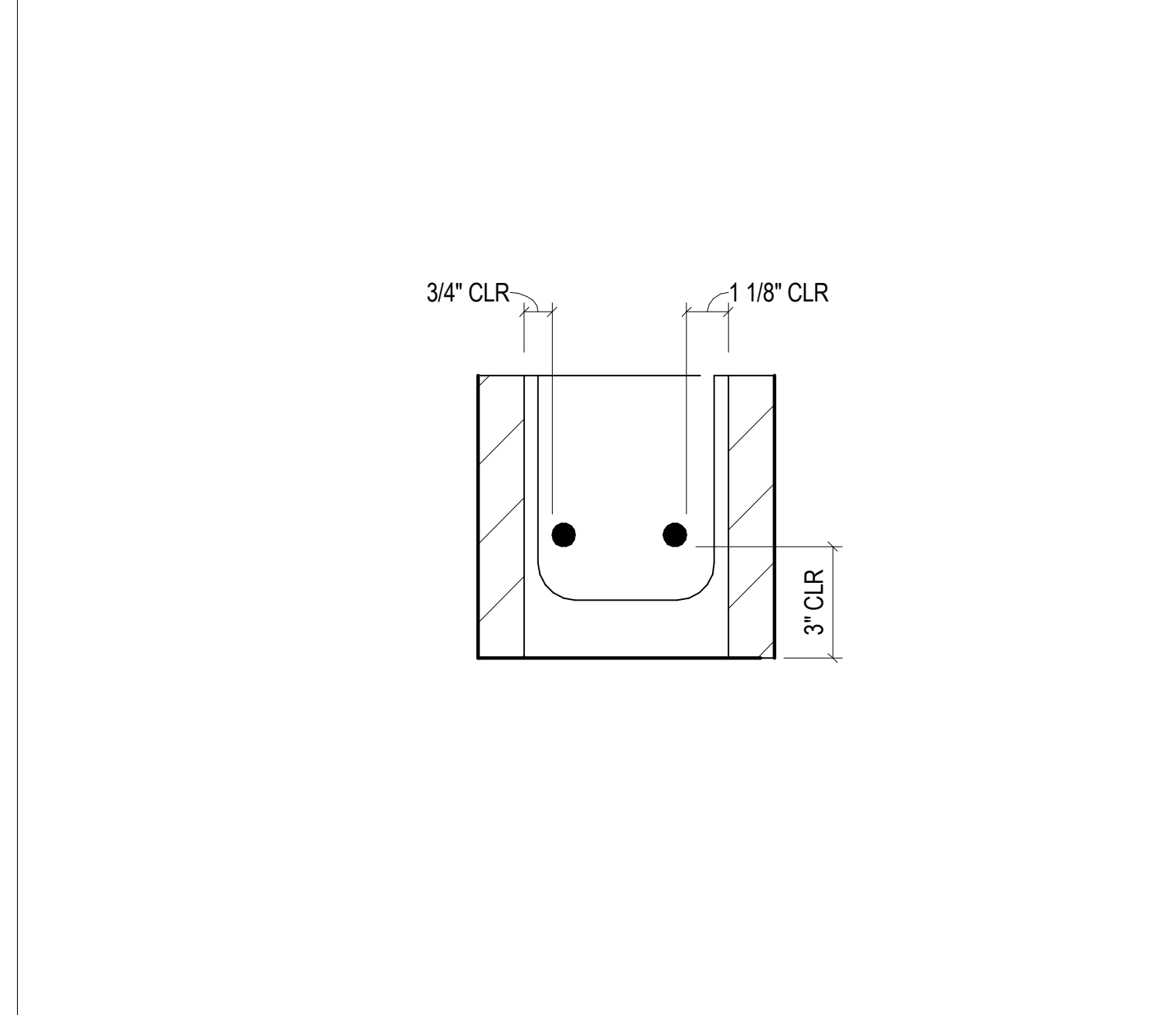
BM SIZE	PL t x W x L
8" CMU	
W8	3/4x5x1'-1

NOTES:  
1. IF REQD, INCREASE LENGTH OF BEARING PLATE TO PROVIDE 3" MIN ES OF BEAM FLANGE

**6** NO SCALE TYP STR MAS BM BEARING

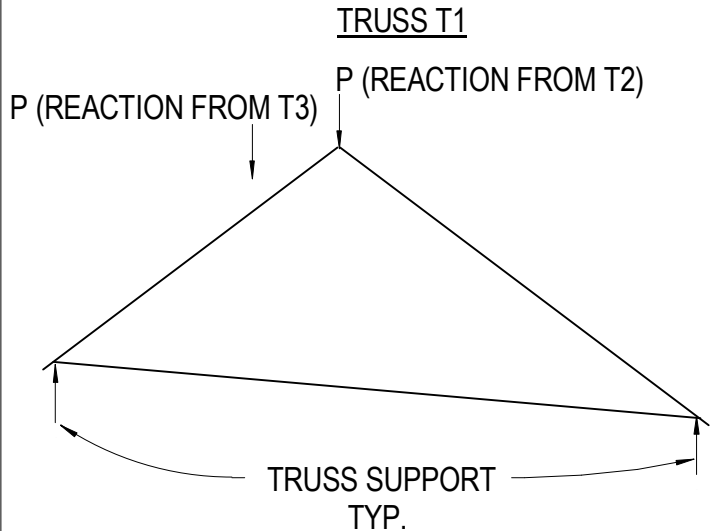
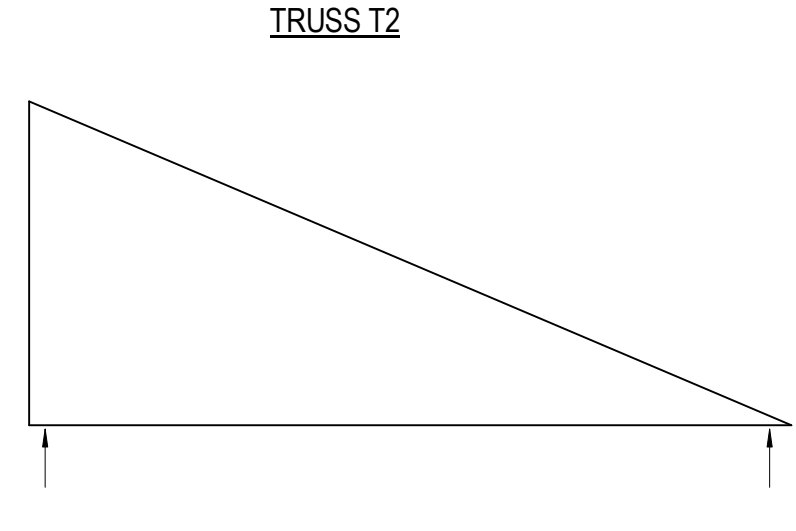
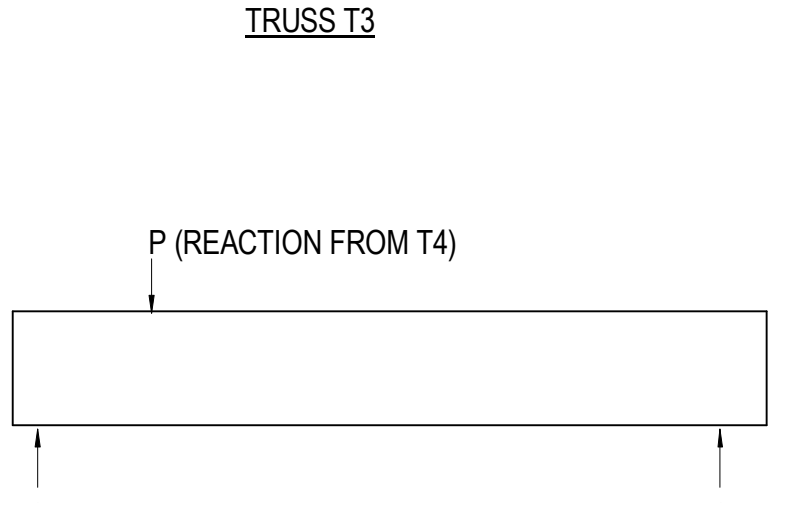
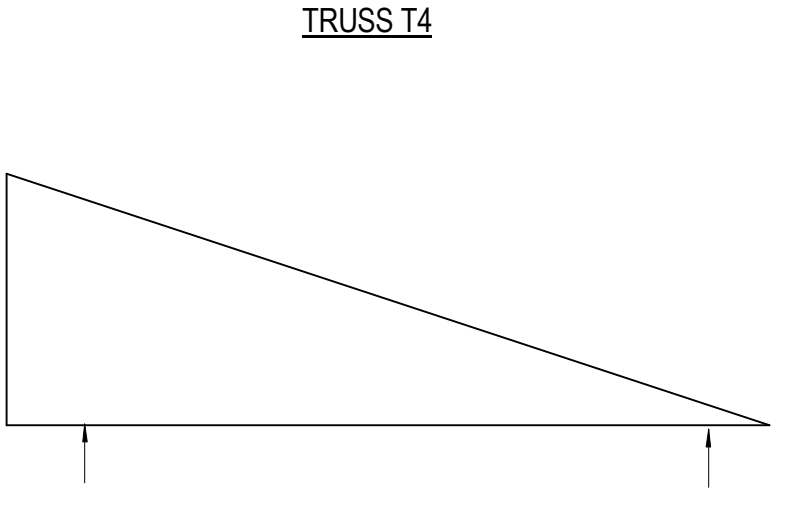
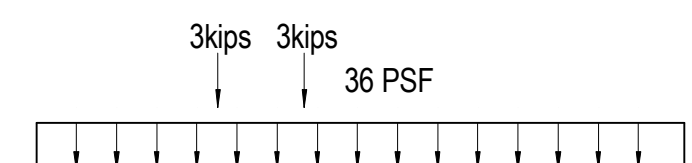
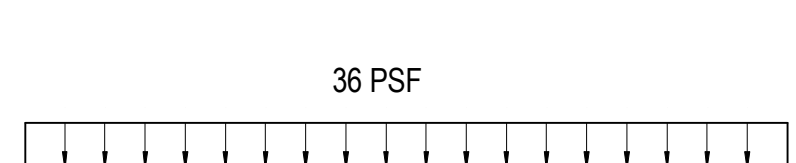
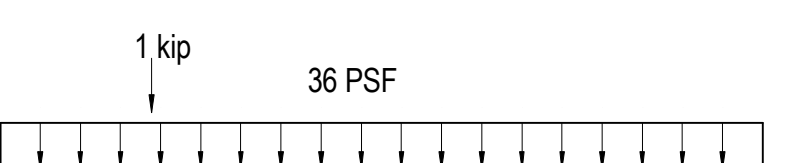
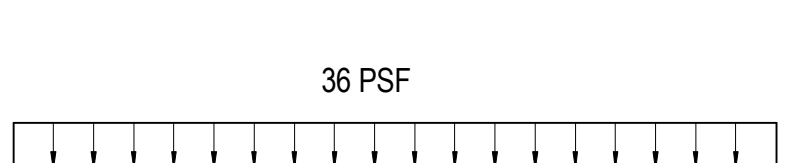
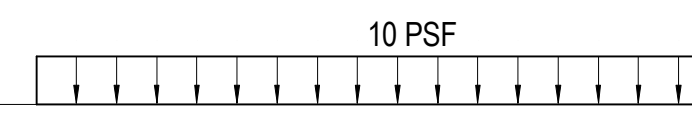
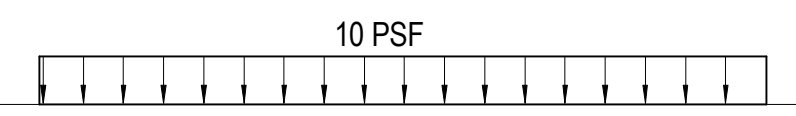
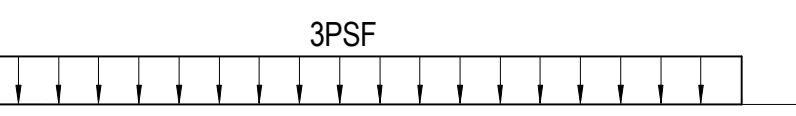
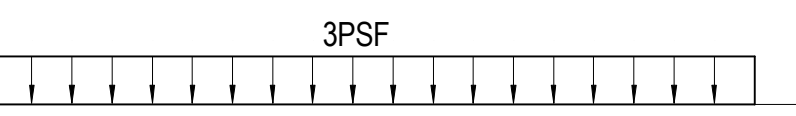
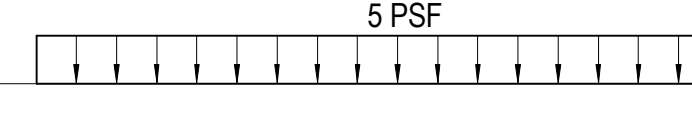
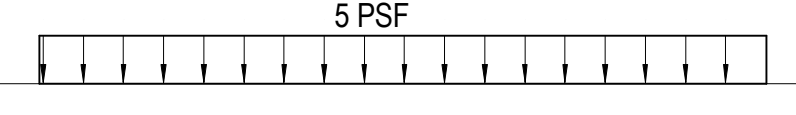
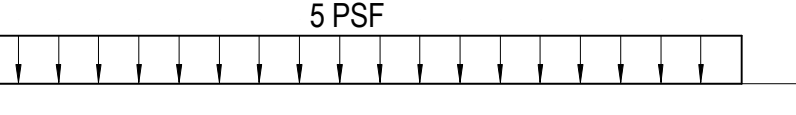
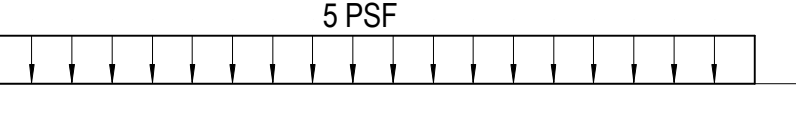
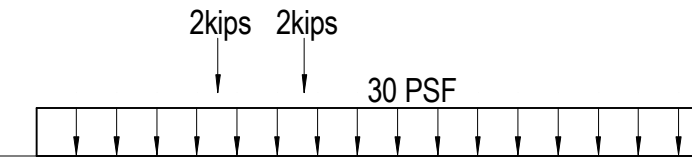
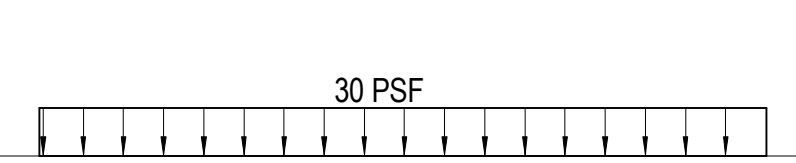
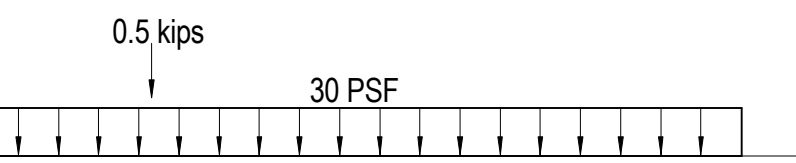
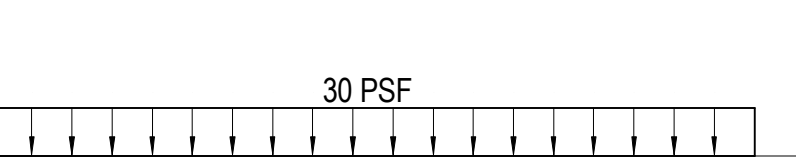
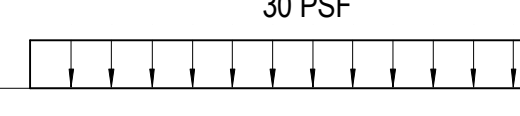
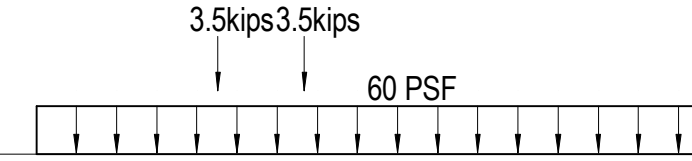
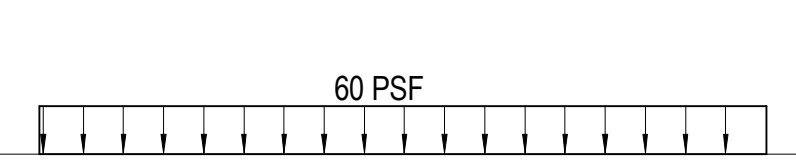
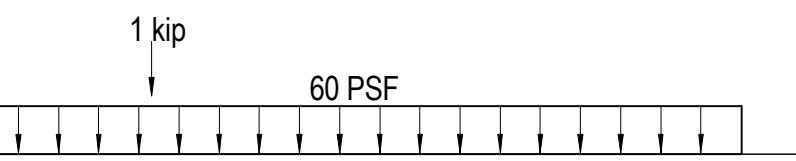
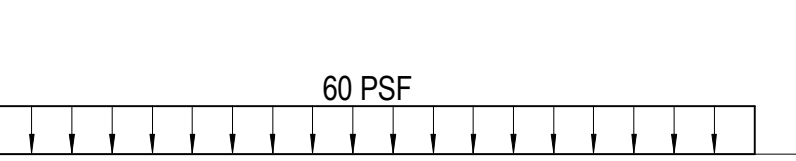


**2** 3/4" = 1'-0" BM SUPPORT AT EXISTING WALL



**3** NO SCALE TYP STR MAS BOND BEAM



TYPICAL COLD-FORMED ROOF TRUSS NOTES		COLD-FORMED TRUSS DESIGN LOADS							
<p>1. COLD-FORMED METAL TRUSSES ARE SHOWN ON THE STRUCTURAL DRAWINGS. DESIGN TRUSS MEMBERS AND CONNECTIONS FOR EACH OF THE LOAD COMBINATIONS SHOWN. TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE 2006 IBC.</p> <p>2. NO STRESS INCREASE IS PERMITTED FOR WIND LOADS.</p> <p>3. CONTRACTOR TO VERIFY LOADS AND LOAD CASES FOR ALL TRUSS LOCATIONS AND TYPES</p> <p>4. CONTINUOUS AND CANTILEVER TRUSSES SHALL BE DESIGNED FOR PARTIAL LOADING AS SPECIFIED IN CODE.</p> <p>5. WEB MEMBER CONFIGURATIONS ARE NOT SHOWN ON LOADING DIAGRAMS. ACTUAL WEB MEMBER CONFIGURATIONS SHALL BE ESTABLISHED BY THE CONTRACTOR.</p> <p>6. REFER TO PLANS AND ARCHITECTURAL DRAWINGS FOR TRUSS GEOMETRY.</p> <p>7. SOME TRUSSES HAVE OVERHANGING EAVE MEMBERS AND/OR CLIPPED ENDS. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS AS REQUIRED.</p> <p>8. ALL TRUSS TOP CHORDS SHALL BE 18 GA. MINIMUM.</p> <p>9. ALL WEB (DIAGONAL AND VERTICAL) MEMBERS SHALL BE DESIGNED AS UNBRACED FOR THEIR FULL LENGTH BETWEEN CHORD MEMBERS.</p> <p>10. REFER TO MECHANICAL DRAWINGS FOR DUCT LAYOUT. THE CONTRACTOR SHALL CONFIGURE TRUSS WEBS TO AVOID DUCT WORK AND NOTE ALL DUCT SIZES AND AREAS OF POTENTIAL CONFLICT ON SHOP AND ERECTION DRAWING SUBMITTALS.</p> <p>11. TEMPORARY AND PERMANENT TRUSS BRACING IS REQUIRED. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. TRUSS MANUFACTURER IS RESPONSIBLE FOR THE DESIGN OF ALL BRACING REQUIRED TO ACHIEVE A COMPLETE, BRACED SYSTEM.</p> <p>12. TRUSSES WHICH ARE HIGHER THAN 10'-0" MAY REQUIRE FABRICATING AND INSTALLING IN SECTIONS. FOR THESE TRUSSES, THE CONTRACTOR SHALL INDICATE THE LATERAL PERMANENT BRACING REQUIREMENTS FOR THE TRUSS AND FIELD CONNECTION ON THE SHOP DRAWINGS.</p> <p>13. MAXIMUM VERTICAL TRUSS DEFLECTION SHALL BE LIMITED TO THE SPAN/360 FOR SNOW LOAD. MAXIMUM VERTICAL TRUSS DEFLECTION SHALL BE LIMITED TO THE SPAN/240 FOR TOTAL LOAD.</p> <p>14. UNDER NO CIRCUMSTANCES SHALL ANY MEMBER OF A TRUSS BE REMOVED AND/OR MODIFIED WITHOUT PRIOR WRITTEN APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.</p> <p>15. NOTCHING OF TRUSS MEMBERS IS NOT ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.</p> <p>16. ALL CONNECTIONS (GRAVITY, UPLIFT, AND LATERAL) TO STRUCTURE SHALL BE DESIGNED BY COLD-FORMED TRUSS SUPPLIER.</p> <p>17. SCREWS FROM OTHER TRADES (SPRINKLERS, HUNG PIPING, HUNG MECHANICAL EQUIPMENT, ETC.) MAY BE USED IF INSTALLED INTO THE SIDE OF CHORD MEMBERS. SCREWS MAY NOT BE USED IN ANY WEB (DIAGONAL OR VERTICAL) MEMBERS. THE TRUSS MANUFACTURER SHALL PROVIDE A CRITERIA (INCLUDING MAXIMUM HOLE Ø, MINIMUM HOLE SPACING FOR ADJACENT HOLES, HOLE LOCATIONS, ETC.) FOR SCREWED CONNECTIONS. SCREWS CANNOT BE PLACED WITHOUT PRIOR WRITTEN APPROVAL FROM THE CONTRACTOR AND THE CONTRACTING OFFICER.</p>		<p>TRUSS GEOMETRY AND SUPPORTS. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL GEOMETRIC INFORMATION</p> 		<p>TRUSS T2</p> 	<p>TRUSS T3</p> 	<p>TRUSS T4</p> 			
		<p>TRUSS GEOMETRY AND SUPPORTS. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL GEOMETRIC INFORMATION</p>							
DEAD LOADS	TOP CHORD DEAD LOAD								
	ADDNL TOP CHORD DEAD LOAD	N/A		N/A		N/A		N/A	
	BOTTOM CHORD DEAD LOAD								
LIVE LOAD	NONCONCURRENT BOTTOM CHORD LIVE LOAD								
	TOP CHORD BALANCED SNOW LOAD								
SNOW LOADS	TOP CHORD UNBALANCED SNOW LOAD FOR HIP AND GABLE ROOFS			N/A		N/A		N/A	
	TOP CHORD SNOW DRIFT LOAD								
	TOP CHORD WIND	<p>DESIGN PER ASCE7-05 WITH 110 MPH EXPOSURE C WIND. SPECIFIC WIND LOADS FOR END ZONES, RIDGES, OVERHANGS, ETC. ARE PROVIDED ON S0.02</p>		<p>DESIGN PER ASCE7-05 WITH 110 MPH EXPOSURE C WIND. SPECIFIC WIND LOADS FOR END ZONES, RIDGES, OVERHANGS, ETC. ARE PROVIDED ON S0.02</p>		<p>DESIGN PER ASCE7-05 WITH 110 MPH EXPOSURE C WIND. SPECIFIC WIND LOADS FOR END ZONES, RIDGES, OVERHANGS, ETC. ARE PROVIDED ON S0.02</p>		<p>DESIGN PER ASCE7-05 WITH 110 MPH EXPOSURE C WIND. SPECIFIC WIND LOADS FOR END ZONES, RIDGES, OVERHANGS, ETC. ARE PROVIDED ON S0.02</p>	
WIND LOADS	P = AXIAL DRAG FORCE IN TRUSS DUE TO WIND	N/A		N/A		N/A		N/A	
	REMARKS								

**GENERAL TRUSS LOADING NOTES**

ALL LOADS SHOWN ARE UNFACTORED.  
TRUSS LOADING COMBINATIONS:  
1. DEAD LOAD PLUS SNOW LOAD (D + S)  
2. DEAD LOAD PLUS 0.75(SNOW LOAD PLUS WIND LOAD) (D + 0.75(S+W))  
3. 0.6\*DEAD LOAD PLUS WIND UPLIFT LOAD (0.6D + W)

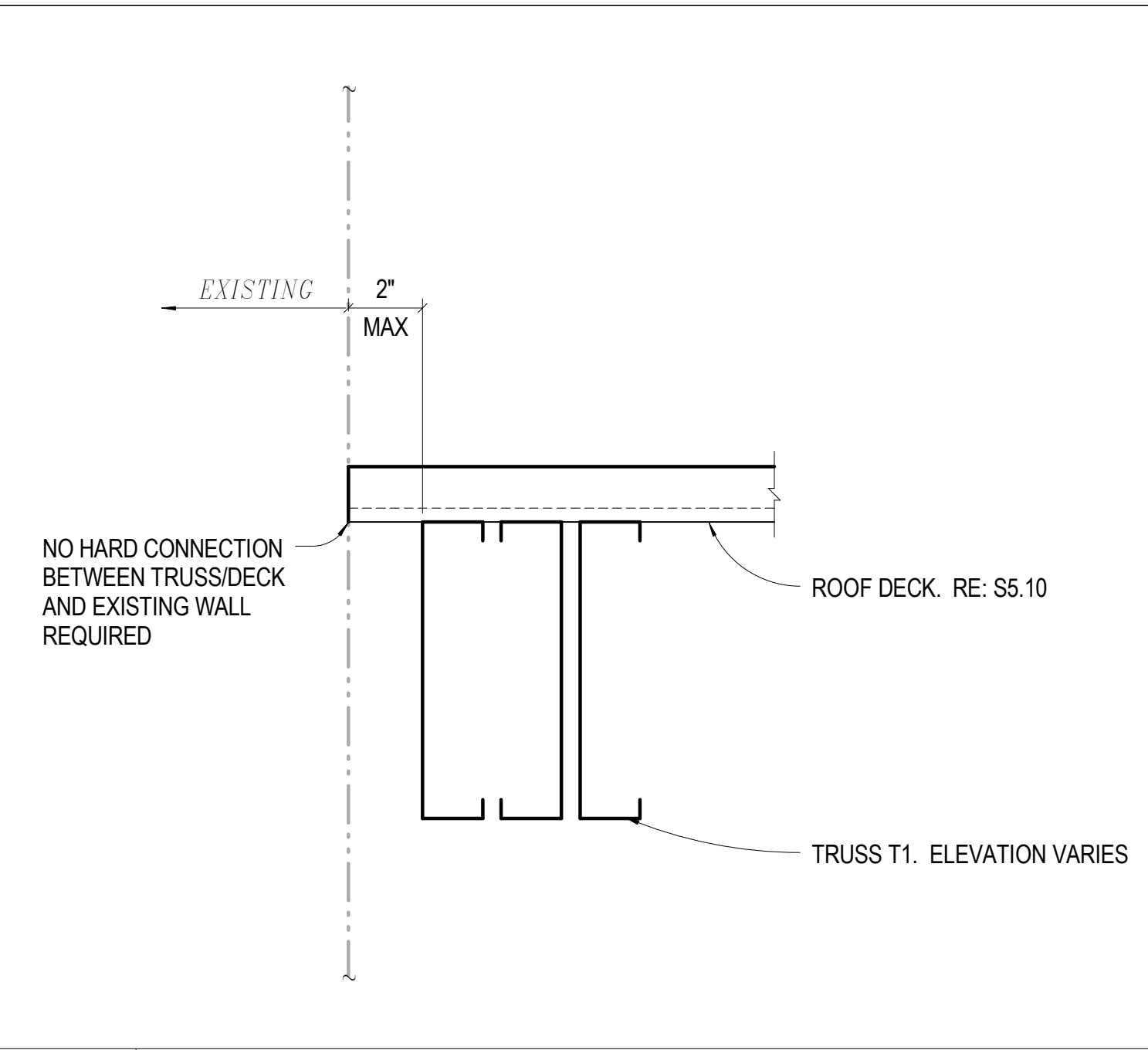
TRUSS GRAVITY LOADING NOTES:  
1. TOP CHORD SNOW LOAD CASES DO NOT OCCUR CONCURRENTLY. THE CONTRACTOR SHALL DESIGN THE TRUSSES FOR EACH TOP CHORD SNOW LOAD CONDITION.  
2. DEAD LOADS SHOWN DO NOT INCLUDE TRUSS SELFWEIGHT.  
3. RE: DETAILS AND PLANS FOR ADDITIONAL TRUSS LOADS.  
4. CONTRACTORS OPTION TO GENERATE UNBALANCED, DRIFT, AND SLIDING SNOW LOADS INDEPENDENTLY FROM THE LOADS SHOWN IN THE ATTACHED DIAGRAMS. CONTRACTOR GENERATED LOADS SHALL COMPLY WITH ALL REQUIREMENTS OF IBC 2006

MM JOB #: 19132.S.62  
DESIGNERS: EMILY GUGLIELMO  
PRINCIPAL: BEN NELSON  
DATE PRINTED: 8/26/2009 12:11:10 PM  
EOR: BEN NELSON  
PROJECT MANAGER: EMILY GUGLIELMO

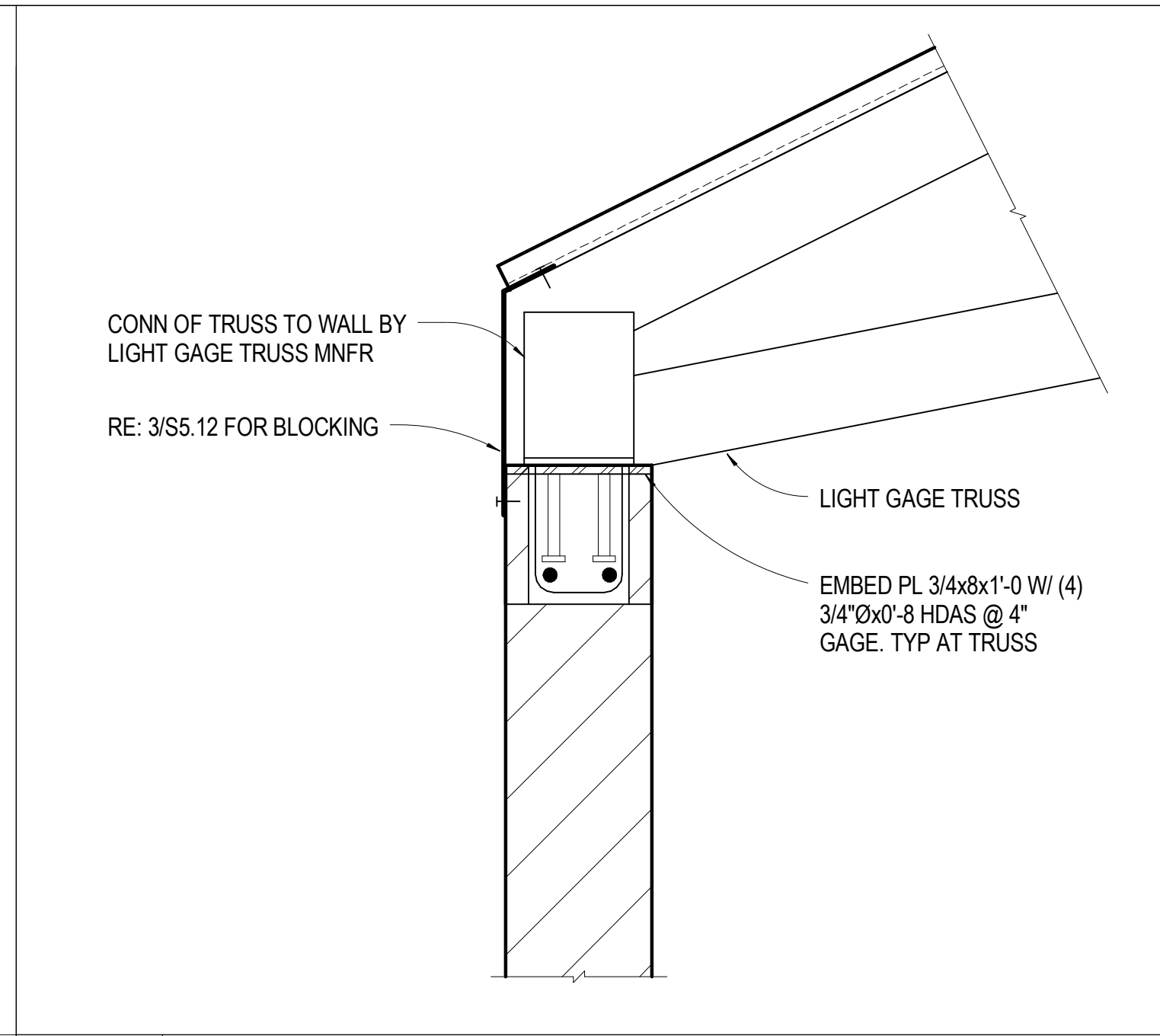
18 NO SCALE CF TRUSS LOADING

**University Theater ADA Elevator Addition**  
university of colorado | boulder colorado  
ucb project number: **PR002750**

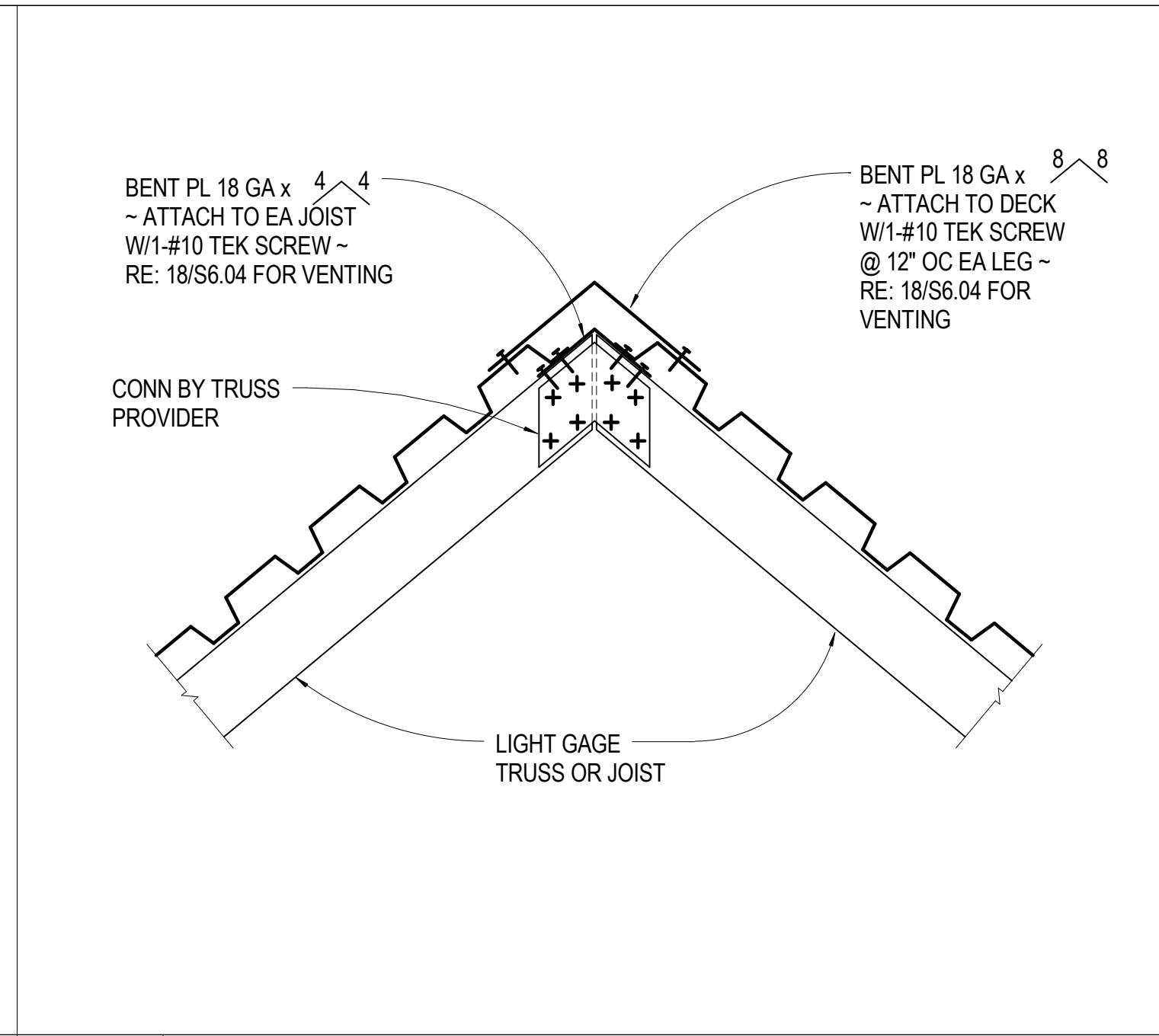
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FOR CONSTRUCTION	08.28.09
© MARTIN/MARTIN 2008	
PROJECT NO:	DATE:
19132.S.62	08.28.09
DESIGNER:	CHECKED:
EMG	BN
SHEET TITLE	
CF TRUSS LOADING	
SHEET NO.	
<b>S5.11</b>	



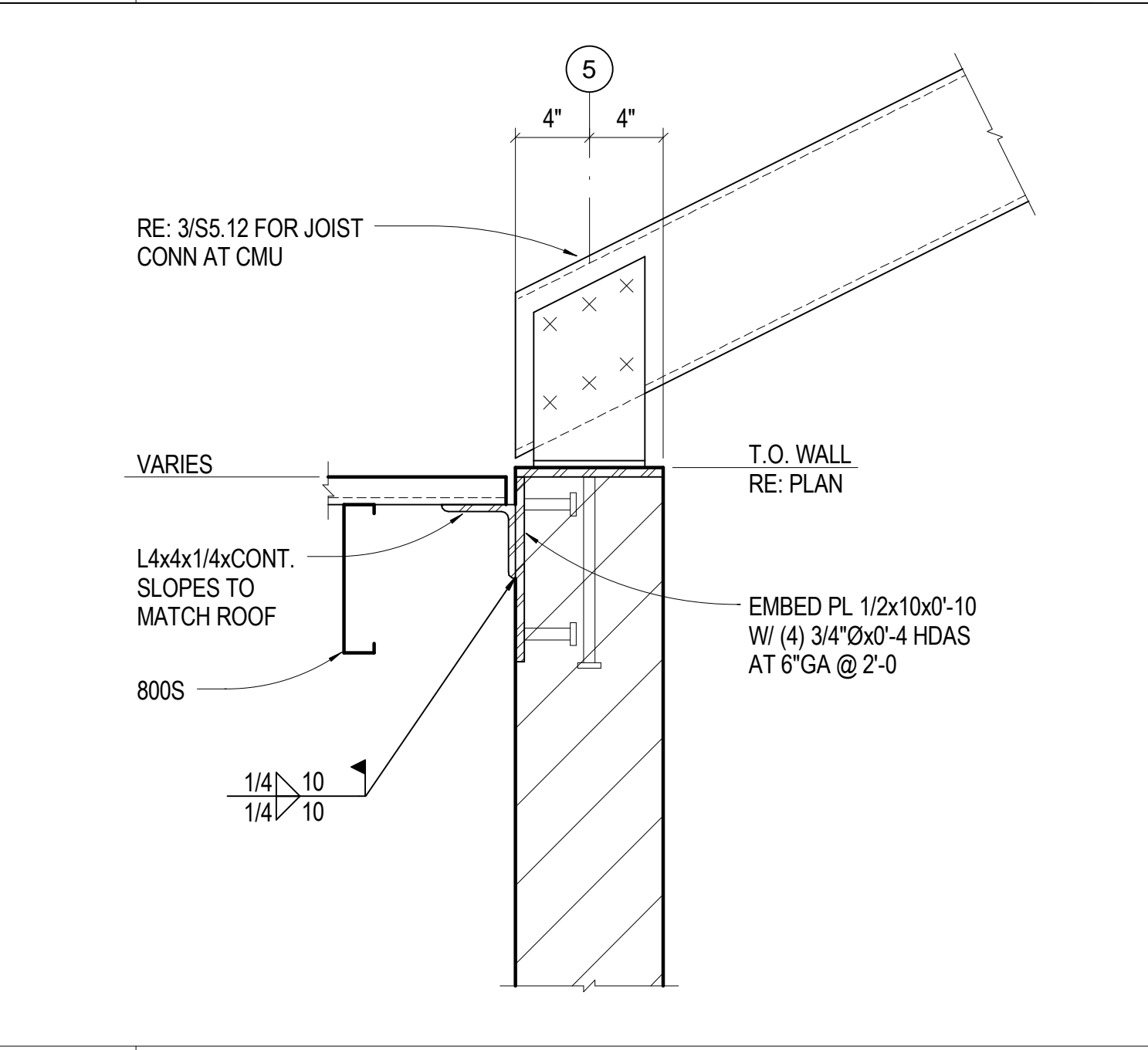
**7** 3" = 1'-0" SECTION AT ROOF INTERFACE WITH EXISTING



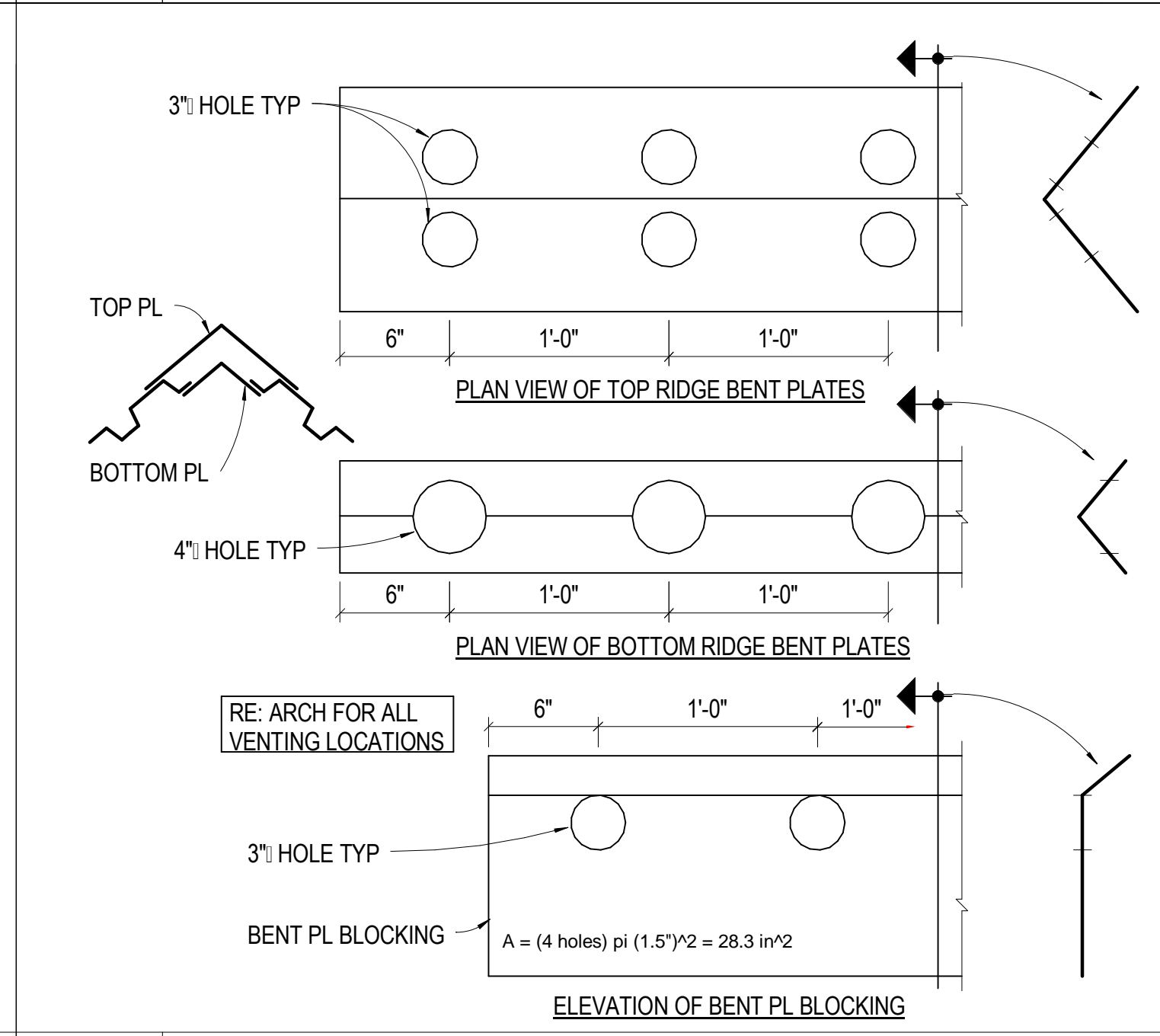
**4** 1 1/2" = 1'-0" ROOF EDGE AT TRUSS



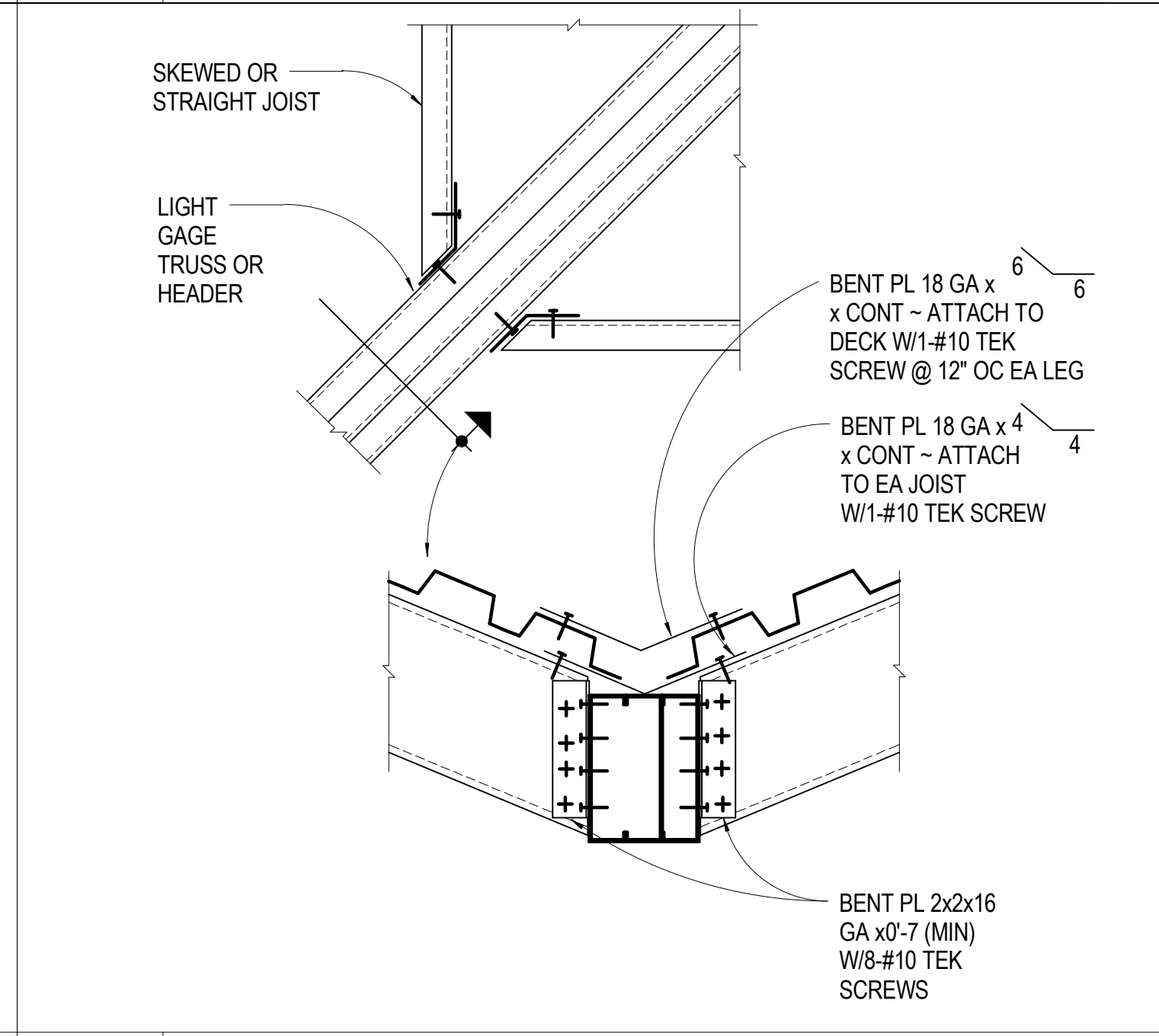
**1** 1 1/2" = 1'-0" TYP RIDGE PLATE



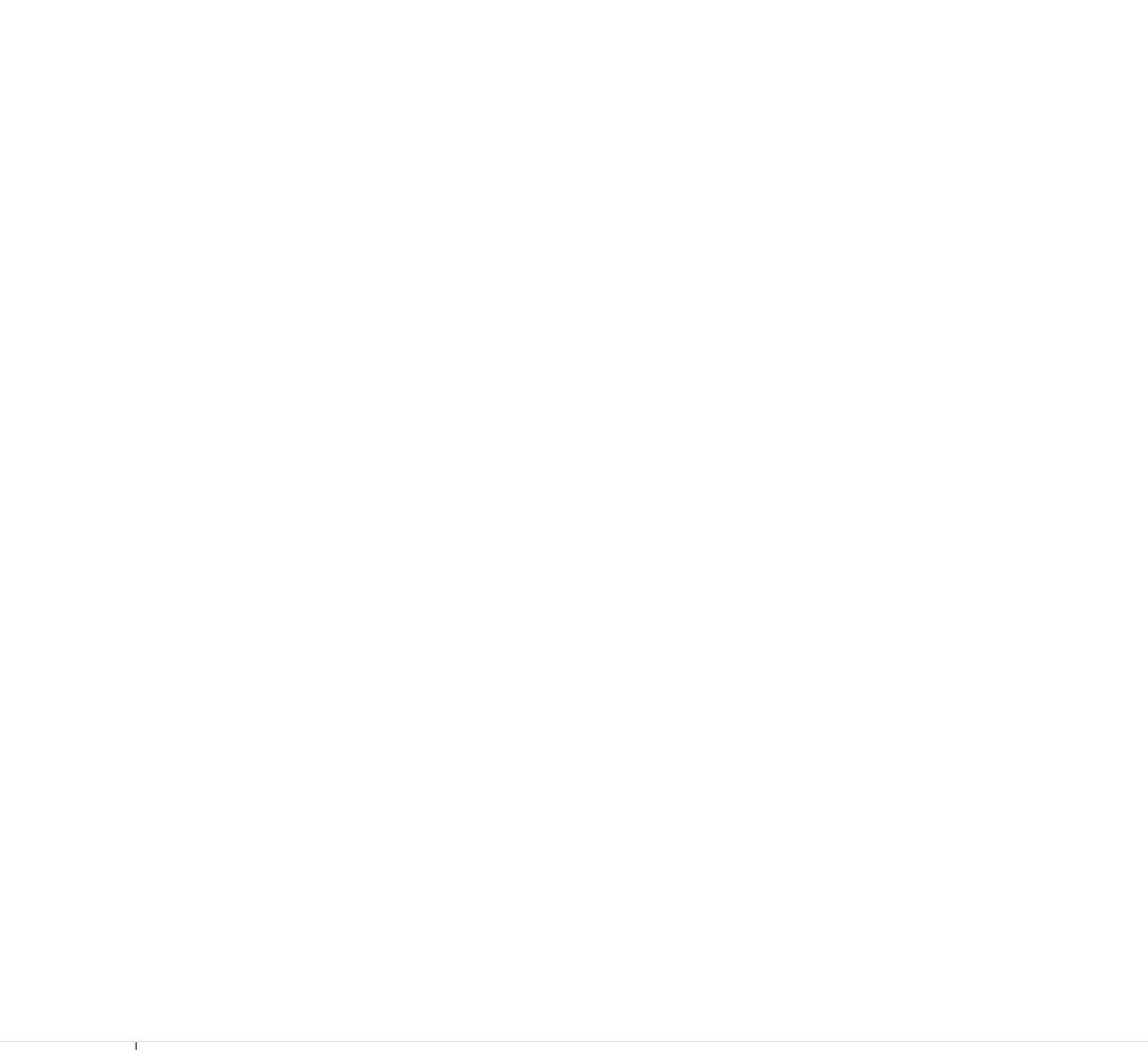
**8** 1 1/2" = 1'-0" ROOF EDGE AT ELEVATOR



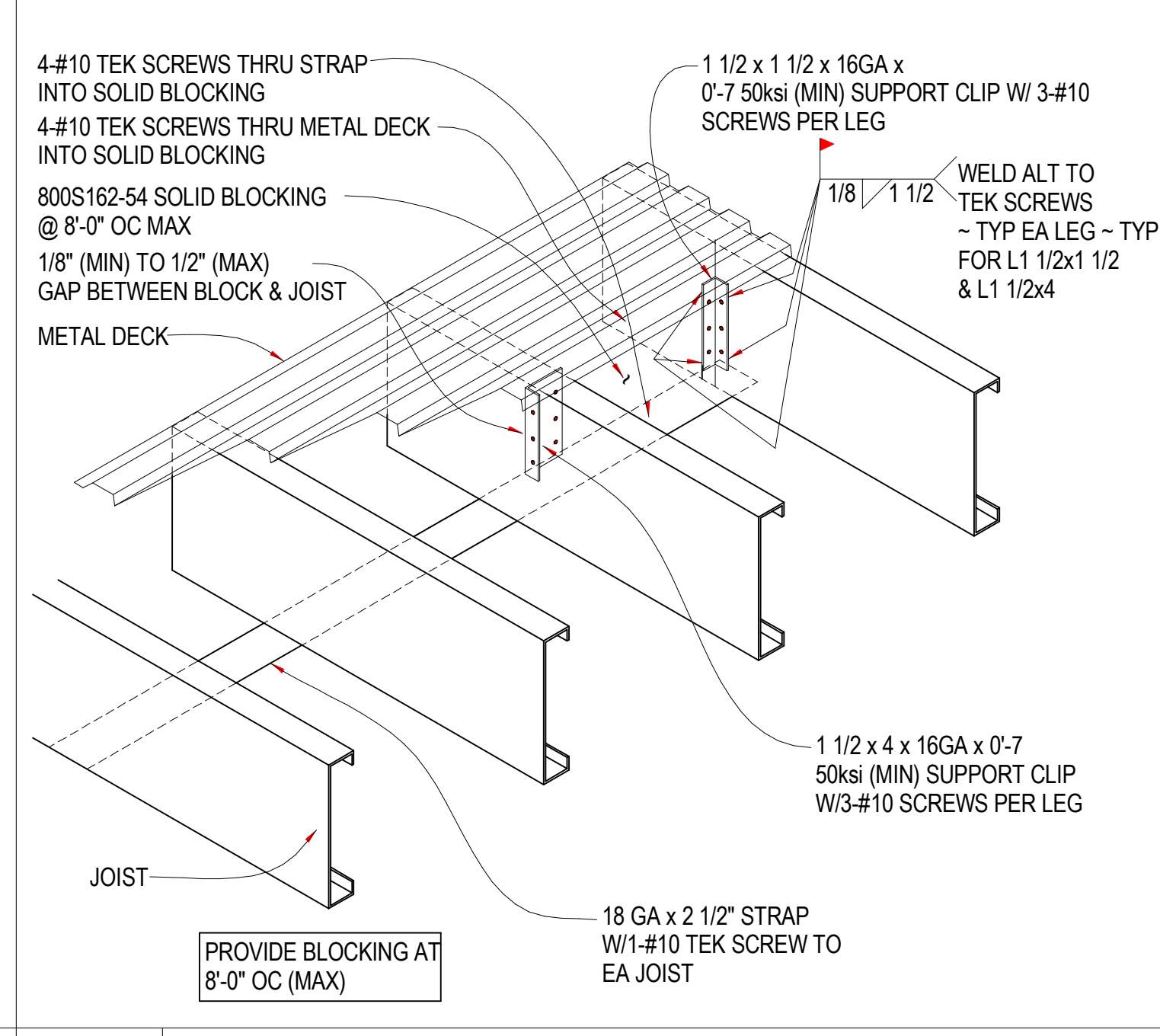
**5** NO SCALE TYPICAL VENTING AT ALL BLOCKING AND RIDGE BENT PLATES



**2** 1 1/2" = 1'-0" TYP VALLEY PLATE



**6** NO SCALE STRUCTURAL JOIST BLOCKING DETAIL



**3** 1 1/2" = 1'-0" ROOF EDGE AT JOIST

MM JOB #: 19132.S.62  
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