



AUBURN PORTLAND MANCHESTER

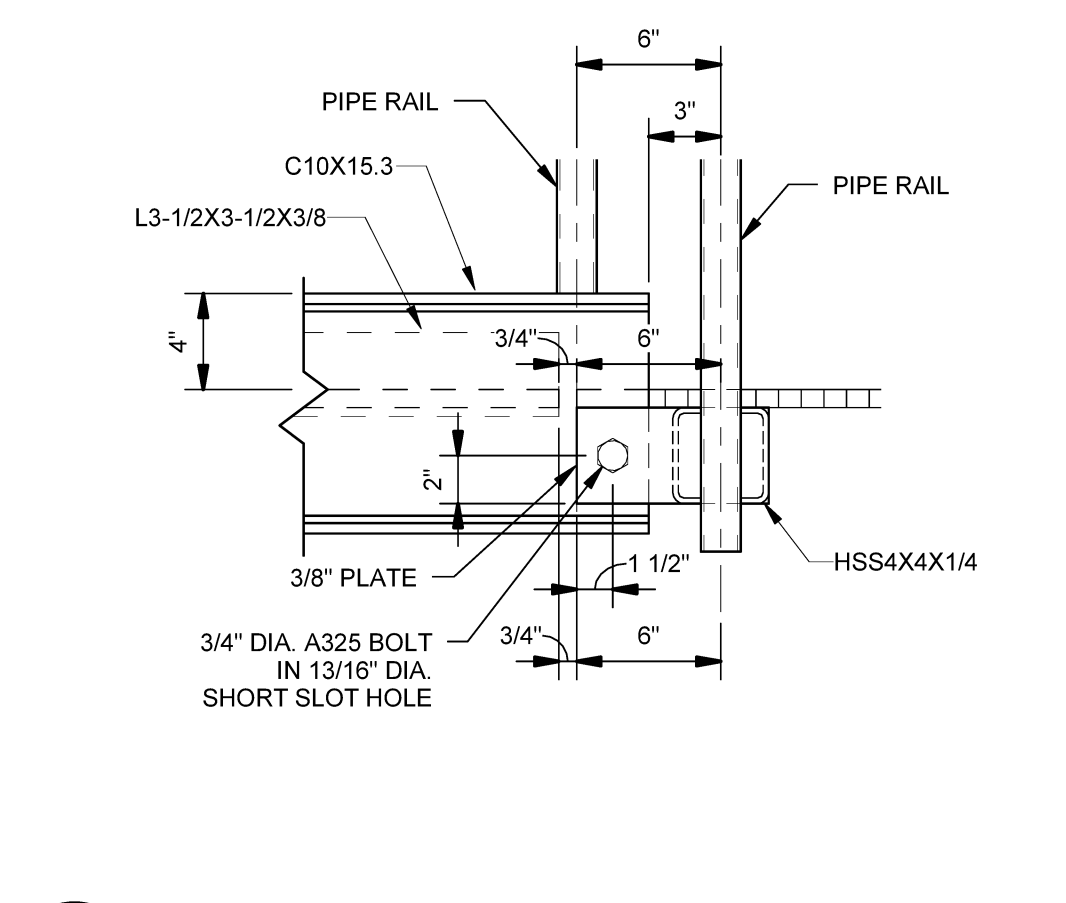
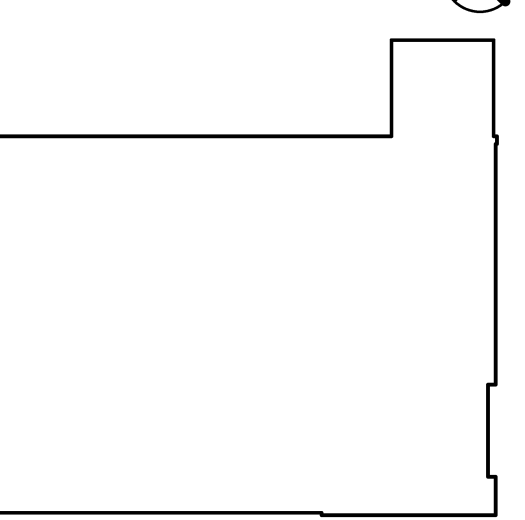
# UNIVERSITY OF SOUTHERN MAINE CENTRAL HEAT PLANT UPDATES

PORTLAND, ME

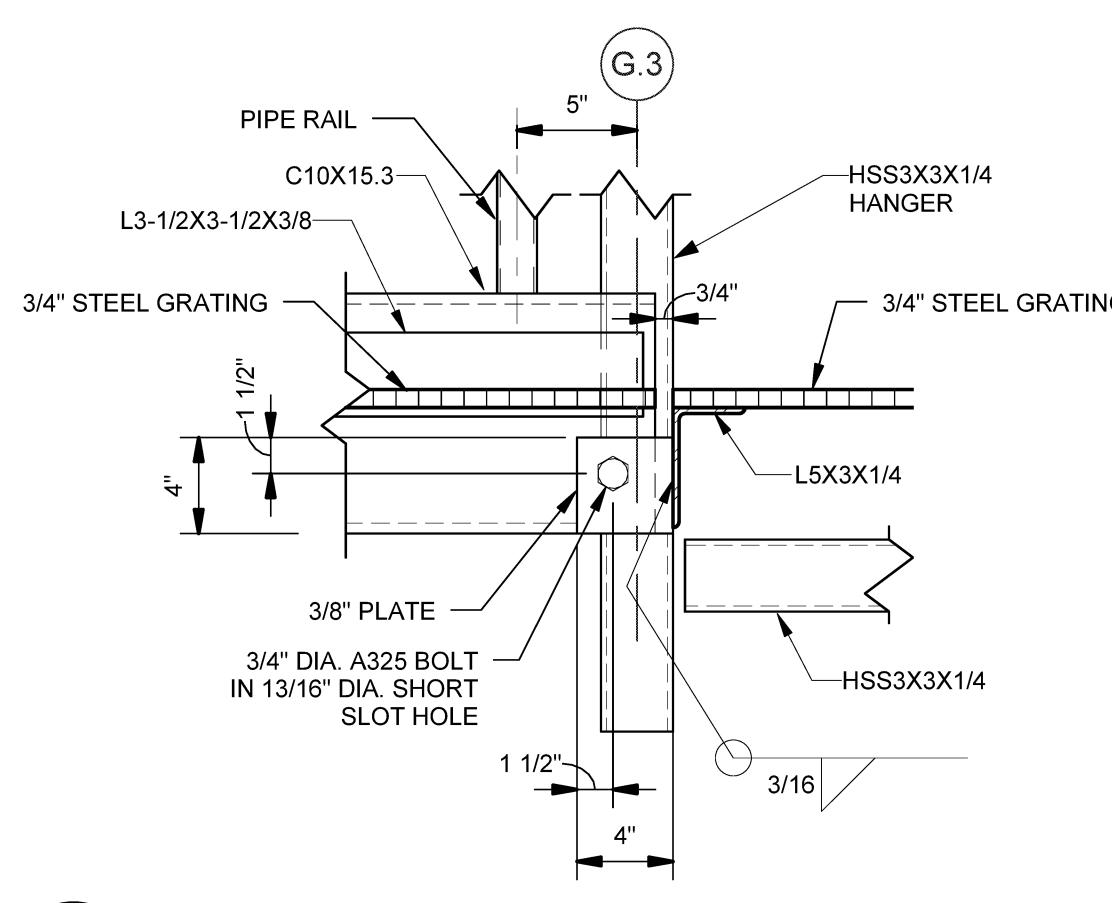
Harriman Project No. 14411

Key Plan

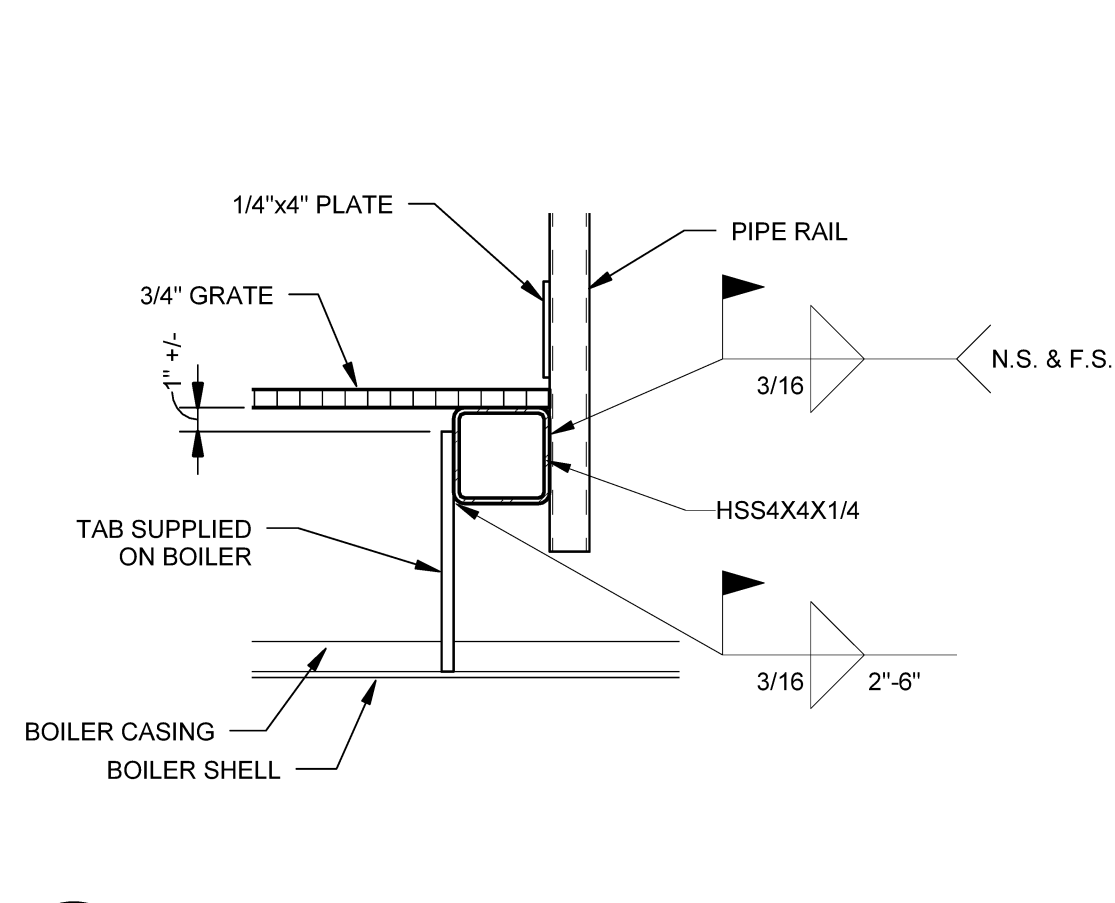
Proj North



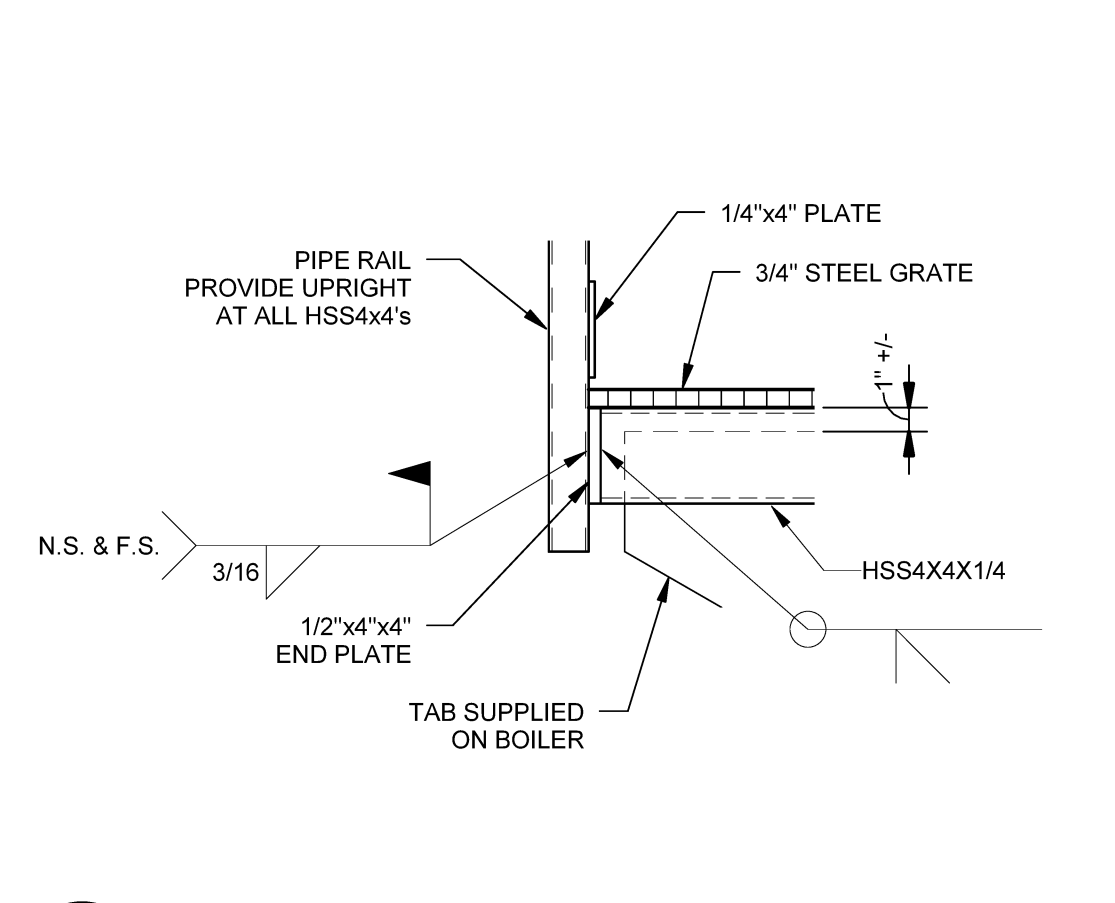
E1 SECTION SCALE: 1 1/2" = 1'-0"



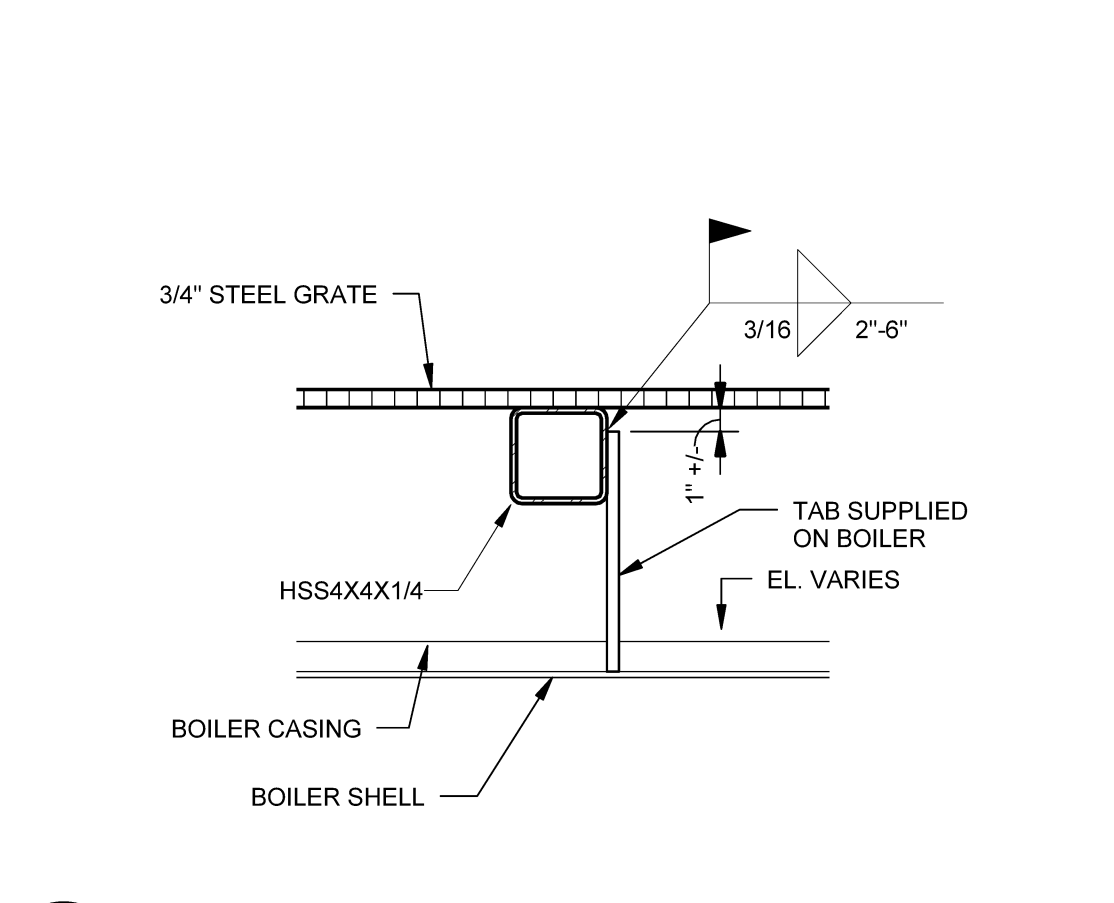
E2 SECTION SCALE: 1 1/2" = 1'-0"



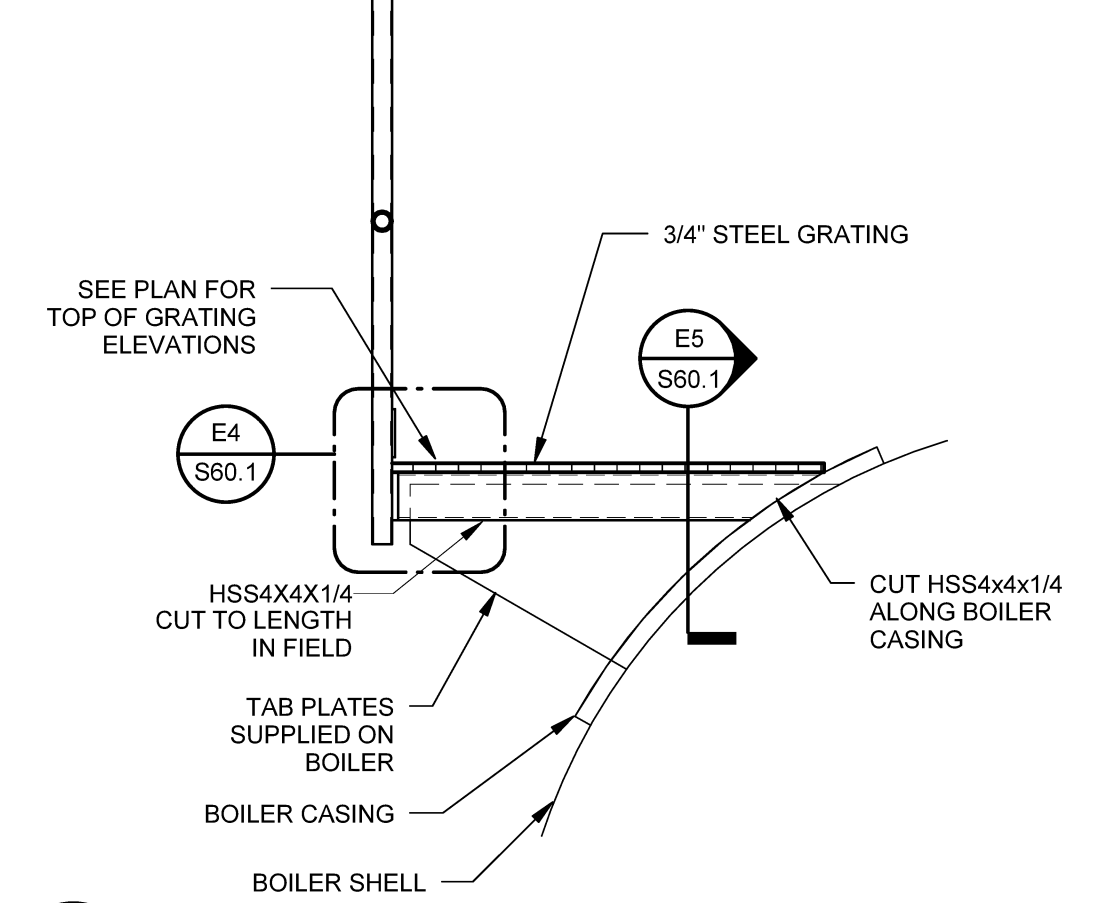
E3 SECTION SCALE: 1 1/2" = 1'-0"



E4 DETAIL SCALE: 1 1/2" = 1'-0"



E5 SECTION SCALE: 1 1/2" = 1'-0"



E6 SECTION SCALE: 3/4" = 1'-0"

### SOIL BEARING

- WALL AND COLUMN FOOTINGS DESIGNED FOR AN ASSUMED SOIL BEARING OF 3000 PSF.
  - IF ADEQUATE SOIL BEARING IS NOT ENCOUNTERED AT THE INDICATED BOTTOM OF FOOTING LOCATION, CONTRACTOR IS TO REPORT TO THE ARCHITECT BEFORE PROCEEDING WITH THAT PART OF THE WORK.
  - ALL EXCAVATIONS FOR THE FOUNDATION SHALL BE APPROVED BY THE ENGINEER BEFORE PLACING ANY CONCRETE FOOTINGS.
- ### CONCRETE
- STRENGTH OF CONCRETE AT 28 DAYS TO BE 3000 PSI. EXCEPT FOR SLABS, BEAMS AND COLUMNS TO BE 3000 PSI AND EXTERIOR SLABS TO BE 4500 PSI.
  - ALL EXTERIOR FOOTINGS TO BE MIN. X-Y BELOW FINISH GRADE.
  - TOP OF ALL FOOTINGS TO BE MIN. 8" BELOW BOTTOM OF FLOOR SLAB UNLESS NOTED OTHERWISE.
  - BOTTOM OF ALL FOOTINGS TO BE ON ADEQUATE SOLID BEARING.
  - ALL SLABS ON FILL TO BE 4" THICK UNLESS NOTED OTHERWISE.
  - SLABS AND BEAMS UNDER CONCRETE WALLS SHALL BE ADEQUATELY SHORED UNTIL WALLS ARE SET.
  - IF BASEMENT AND FIRST FLOOR SLABS ARE NOT Poured BEFORE BACKFILLING, FOUNDATION WALLS TO BE ADEQUATELY BRACED BEFORE BACKFILLING AND UNTIL ABOVE SLABS ARE SET AND SET. SEE SPECIFICATIONS FOR SPECIAL REQUIREMENTS FOR ARCHITECTURAL EXPOSED CONCRETE, ANCHORING OF MASONRY TO CONCRETE WALLS AND COLUMNS, AND CHAMFER OF EXTERNAL CORNERS OF CONCRETE BEAMS, GIRDERS, COLUMNS, ETC.
  - SEE ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS FOR SIZE AND LOCATION OF DOOR FRAMES, THRESHOLDS, ETC. AND CONCRETE PADS, PIERS, PIPE SLEEVES, ETC.
  - ALL WOOD NAILED ON CONCRETE OR MASONRY TO BE ANCHORED WITH 1/2" DIA. ANCHOR BOLTS SPACED AT 2'-0" O.C. AND EXTENDED 1'-0" INTO CONCRETE OR MASONRY.
  - CONCRETE FILL FOR BEAM LINTEL BLOCKS, BOND BEAMS, AND CONCRETE BLOCKS USED AS SOLID MASONRY UNITS, TO BE CONCRETE TESTING 3000 PSI AT 28 DAYS.

### CONCRETE REINFORCING

- ALL REINFORCING STEEL TO BE ASTM-A615 GRADE 60, DETAILED AND FABRICATED IN ACCORDANCE WITH THE "ACI MANUAL OF STANDARD PRACTICE" (ACI-315-LATEST).
- REINFORCEMENT TO HAVE MIN. CONCRETE COVER AS FOLLOWS:
  - CONCRETE DEPOSITED AGAINST GROUND, INCLUDING FOOTINGS - 3"
  - CONCRETE EXPOSED TO EARTH OR WEATHER, INCLUDING WALKS, PIERS, WALLS, COLUMNS, AND EXTERIOR SLABS - 2"
  - CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
    - SLABS, WALLS, AND JOISTS - 3/4"
    - BEAMS AND COLUMNS, TIES, STIRRUPS, REINFORCEMENT - 1 1/2"
- PROVIDE ADEQUATE KEYS AND DOWELS AT ALL WALL INTERSECTIONS AND CONSTRUCTION JOINTS.
- LAP ALL REINFORCEMENT 36 BAR DIAMETERS AT SPLICES, AND 12" MIN. AT CORNERS UNLESS SHOWN OTHERWISE.
- PROVIDE DOWELS IN WALLS AND COLUMN FOOTINGS EQUIVALENT IN SIZE AND NUMBER TO VERTICAL STEEL EXTENDING 24 BAR DIA. INTO FOOTING AND INTO WALL OR COLUMN UNLESS SHOWN OTHERWISE. LOWER END OF DOWELS SHALL HAVE 90 DEGREE BEND WITH 4" MIN. HORIZONTAL DIMENSION AND ALL DOWELS SHALL BE SET IN PLACE BEFORE CONCRETE IS PLACED.
- DISCONTINUOUS ENDS OF ALL TOP REINFORCING BARS TO BE HOOKED.
- ALL 4" THICK CONCRETE SLABS ON FILL TO BE REINFORCED WITH FIBER REINFORCING UNLESS SHOWN OTHERWISE.
- ALL CONCRETE SLABS, PADS, BEAMS AND PIERS SHALL HAVE REINFORCEMENT THAT WILL HAVE A MIN. RATIO OF REINFORCEMENT AREA TO GROSS CONCRETE AREA OF 0.0033 UNLESS SHOWN OTHERWISE.

### MASONRY

- ALL MASONRY WALLS AND PARTITIONS SHALL BE REINFORCED.
- COMPRESSIVE STRENGTH OF MASONRY, F<sub>m</sub>, SHALL BE MIN. 1500 PSI.
- COMPRESSIVE STRENGTH OF LOAD BEARING CONCRETE MASONRY UNITS SHALL BE IN ACCORDANCE WITH ASTM C90.
- MORTAR SHALL BE TYPE S, WITH A MIN. COMPRESSIVE STRENGTH OF 1800 PSI AT 28 DAYS.
- GROUT SHALL HAVE A COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
- COMPRESSIVE STRENGTH OF LOAD BEARING BRICK SHALL BE IN ACCORDANCE WITH ASTM C55.
- EXPANSION BOLTS IN HOLLOW MASONRY WALL SHALL BE LOCATED AT SOLID BLOCK OR BOND BEAM.
- SMU INDICATES SOLID MASONRY UNITS OR HOLLOW CONCRETE UNITS WITH ALL VOIDS COMPLETELY FILLED WITH 3000 PSI CONCRETE OR GROUT.
- WOOD NAILED ON MASONRY SHALL BE ANCHORED WITH 1/2" DIA. ANCHOR BOLTS AT 2'-8" O.C. AND EXTEND 6" INTO SOLID MASONRY U.N.O.
- WHERE BEAMS, JOISTS, OR COLUMNS BEAR ON MASONRY, THE MASONRY SHALL BE SOLID OR FILLED SOLID, A MIN. OF F<sub>2'-0"</sub> TO EACH SIDE OF THE CENTERLINE OF BEARING, FOUR COURSES HIGH, OR A CONTINUOUS CONCRETE FILLED BOND BEAM SHALL BE LOCATED UNDER THE BEARING.
- MASONRY LOCATED BELOW TOP OF SLAB ON FILL SHALL BE SOLID OR FILLED SOLID.

### MISCELLANEOUS

- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH THE WORK.
- CONTRACTOR SHALL REPORT ANY VARIATIONS FOUND AT THE SITE BEFORE PROCEEDING WITH THAT PART OF THE WORK.

### DESIGN INFORMATION

DESIGN CODE = 2009 IBC AND ASCE 7-05

### LIVE LOADS:

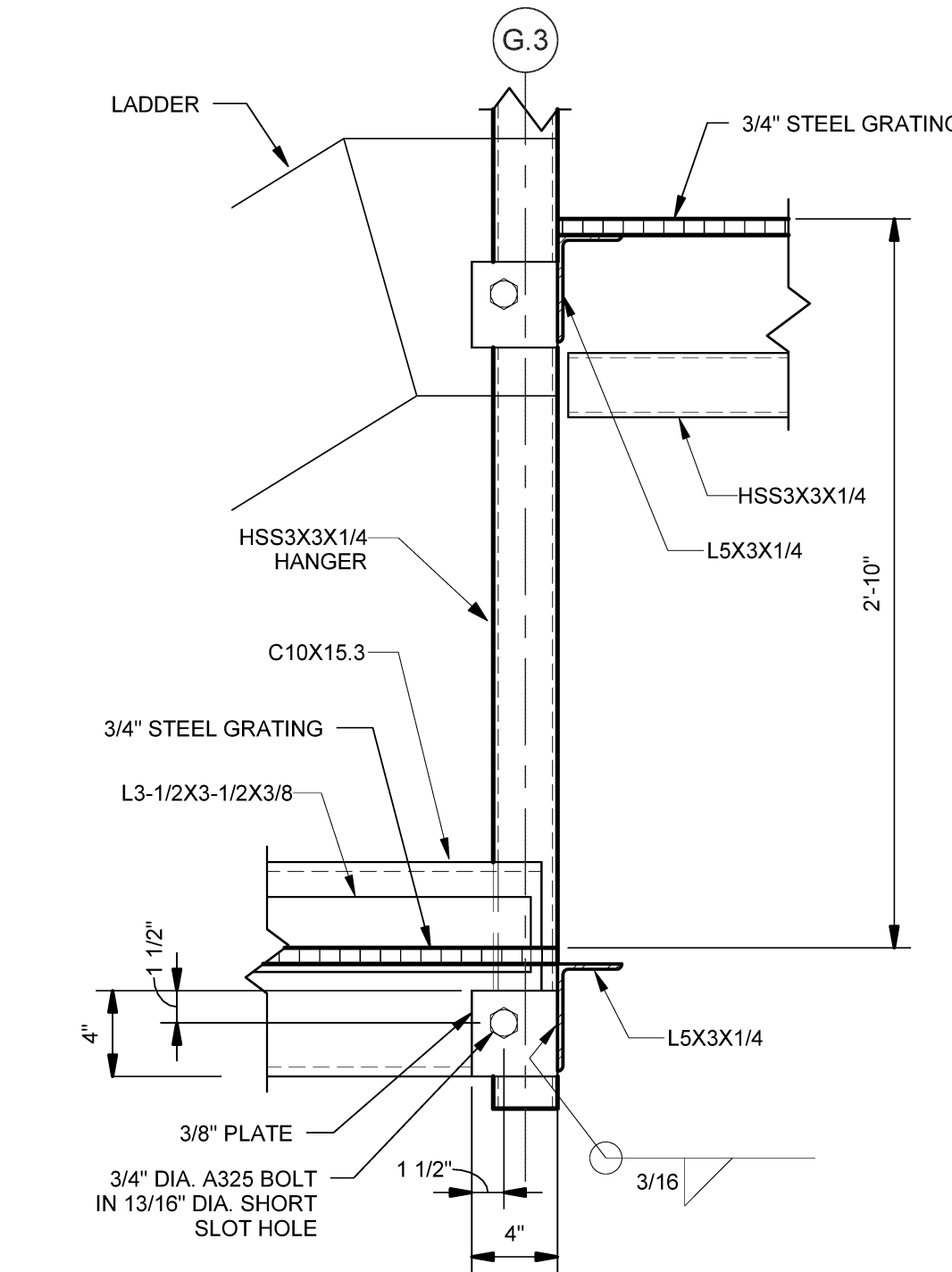
EQUIPMENT PLATFORM = 125 PSF  
 SNOW LOAD:  
 P<sub>s</sub> = 70 PSF  
 C<sub>e</sub> = 1.0  
 C<sub>t</sub> = 1.0  
 P<sub>f</sub> = 49 PSF

### WIND LOAD:

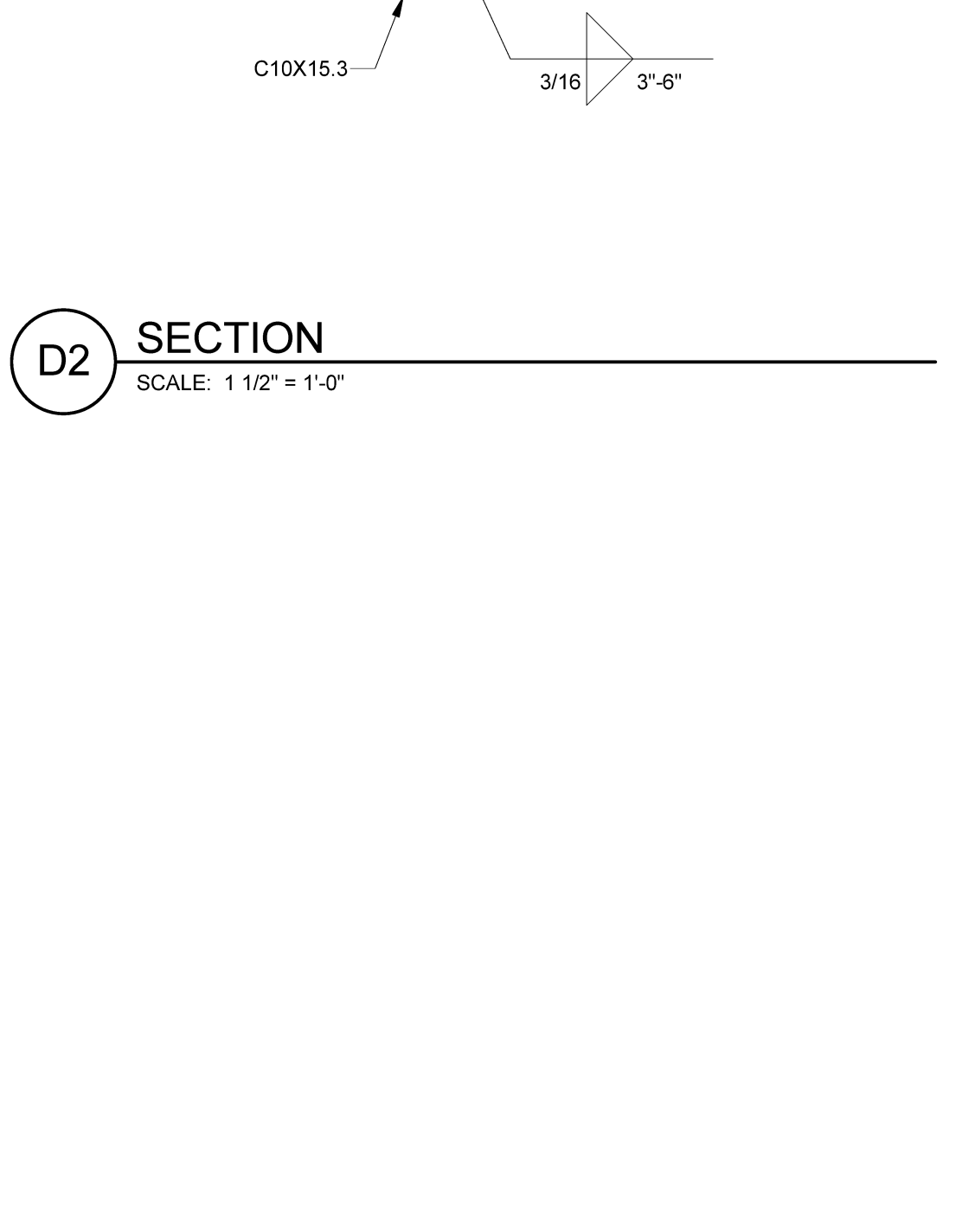
BASIC WIND SPEED (V) = 97 MPH (3 SEC GUST)  
 I<sub>w</sub> = 1.0 (CATEGORY III)  
 EXPOSURE CATEGORY = C  
 INT. PRESSURE COEFF. (GC<sub>pi</sub>) = +/- 0.18  
 COMPONENTS AND GLAZING:  
 COMPONENT TRIBUTARY AREA = 65 SQ. FT. (WALL STUDS)  
 WIND PRESSURE (FIELD WALLS) = -27 PSF  
 WIND PRESSURE (CORNER WALLS) = -31 PSF  
 \*PRESSURES SHALL BE ADJUSTED FOR COMPONENTS WITH TRIBUTARY AREAS DIFFERENT THAN ABOVE.

### SEISMIC LOAD:

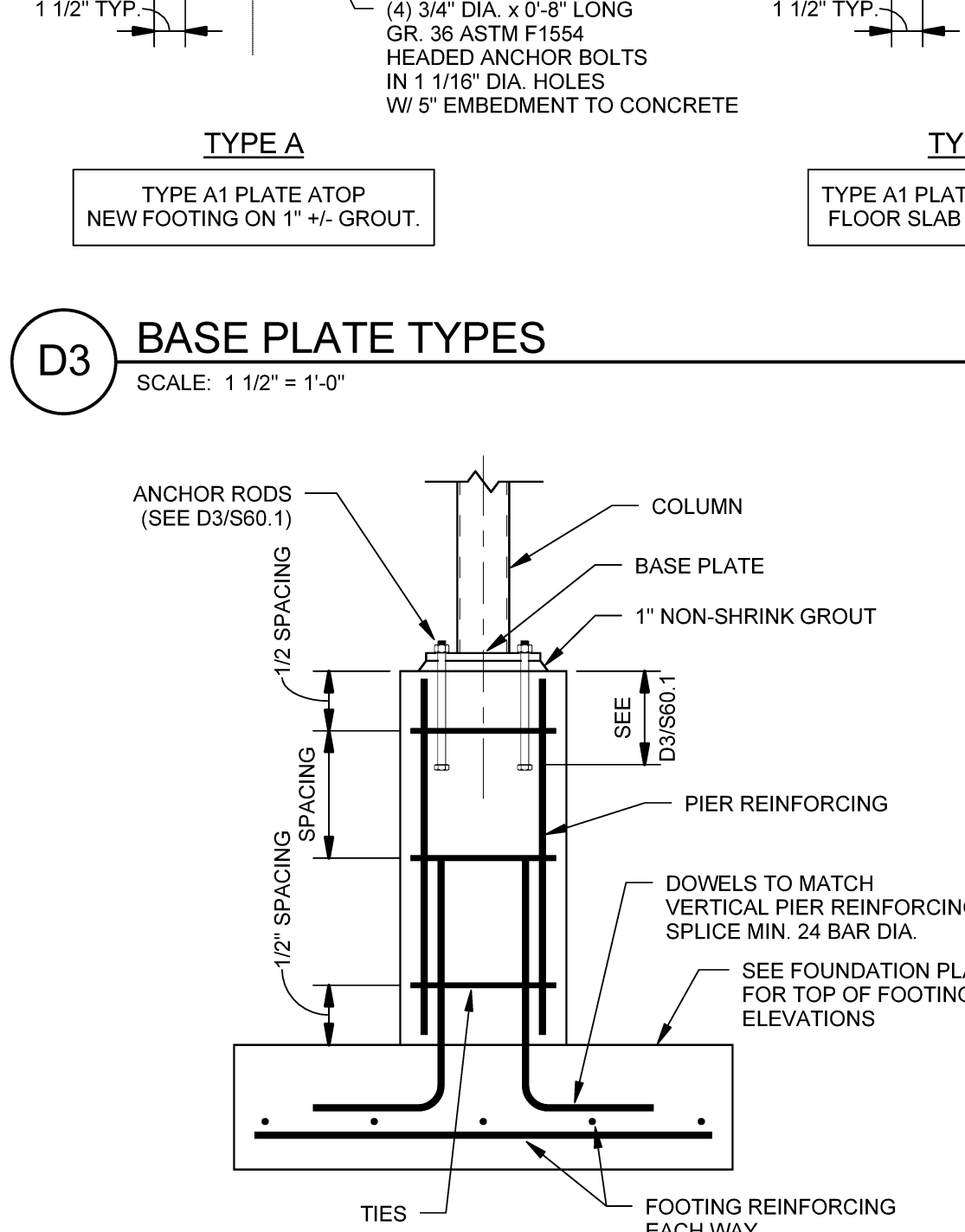
SEISMIC USE GROUP = II  
 I<sub>e</sub> = 1.25 (CATEGORY II)  
 SITE CLASS = C  
 S<sub>s</sub> = 0.386; S<sub>1</sub> = 0.103  
 S<sub>ds</sub> = 0.309; S<sub>d1</sub> = 0.117  
 SEISMIC DESIGN CATEGORY = B



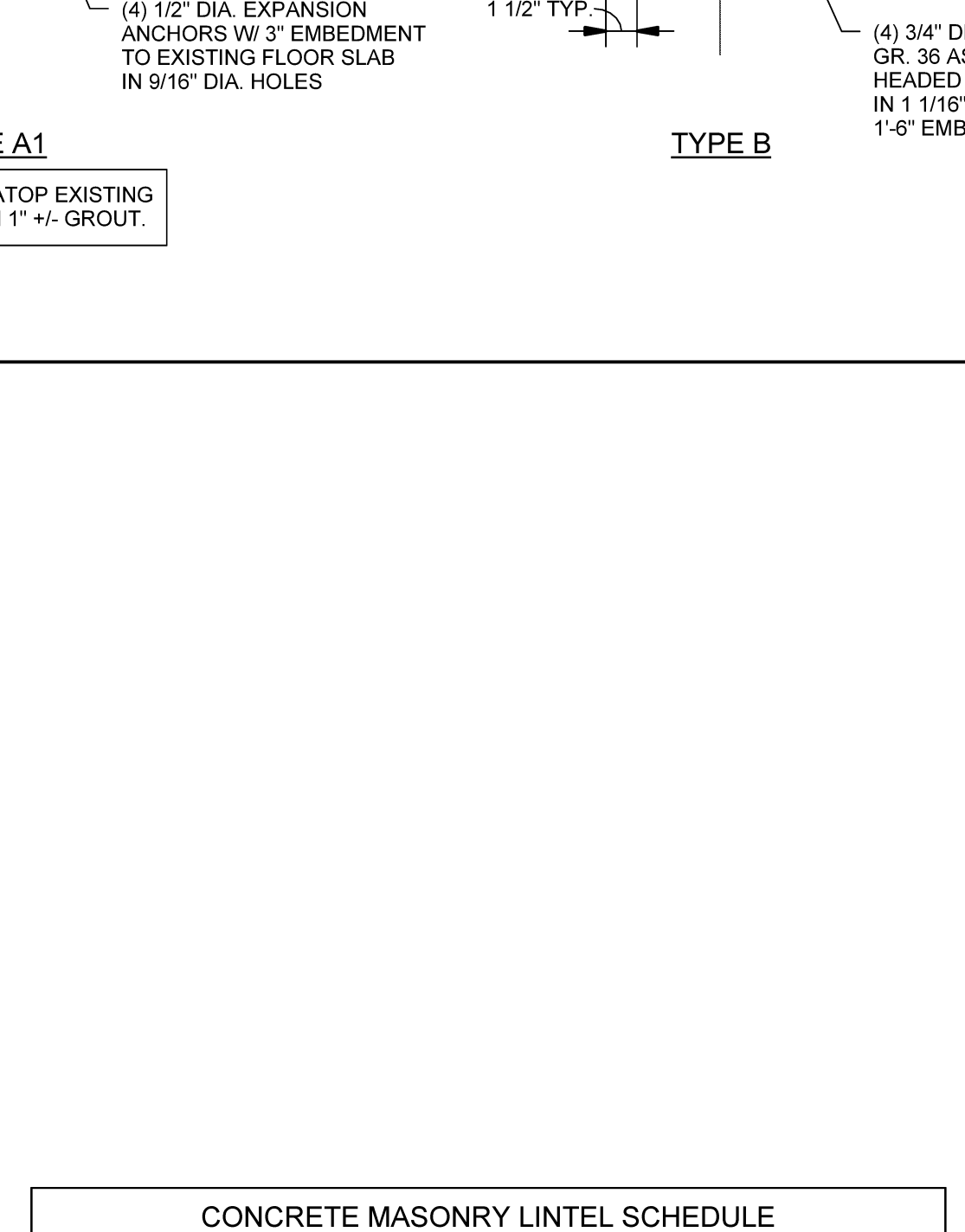
C1 SECTION SCALE: 1 1/2" = 1'-0"



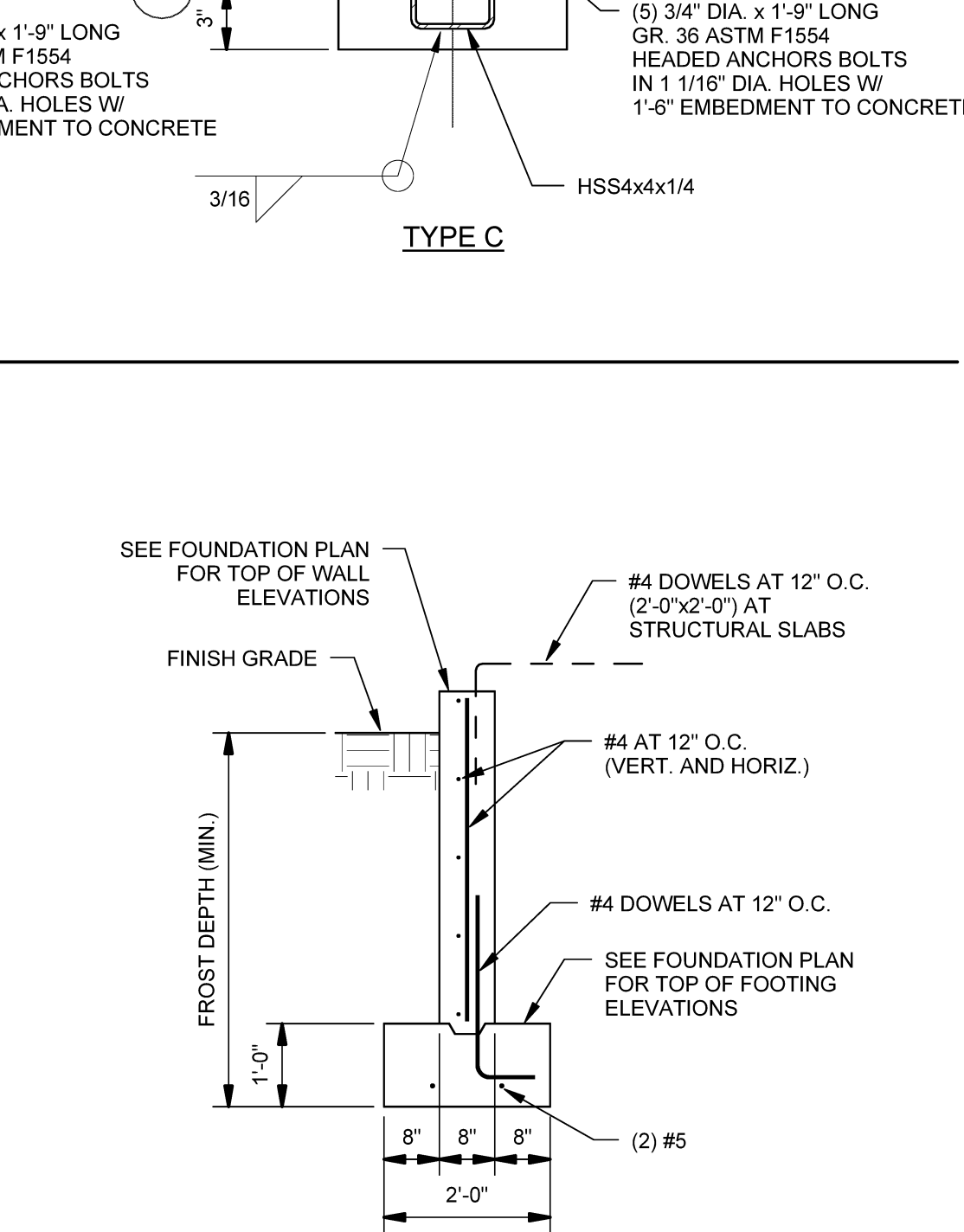
D2 SECTION SCALE: 1 1/2" = 1'-0"



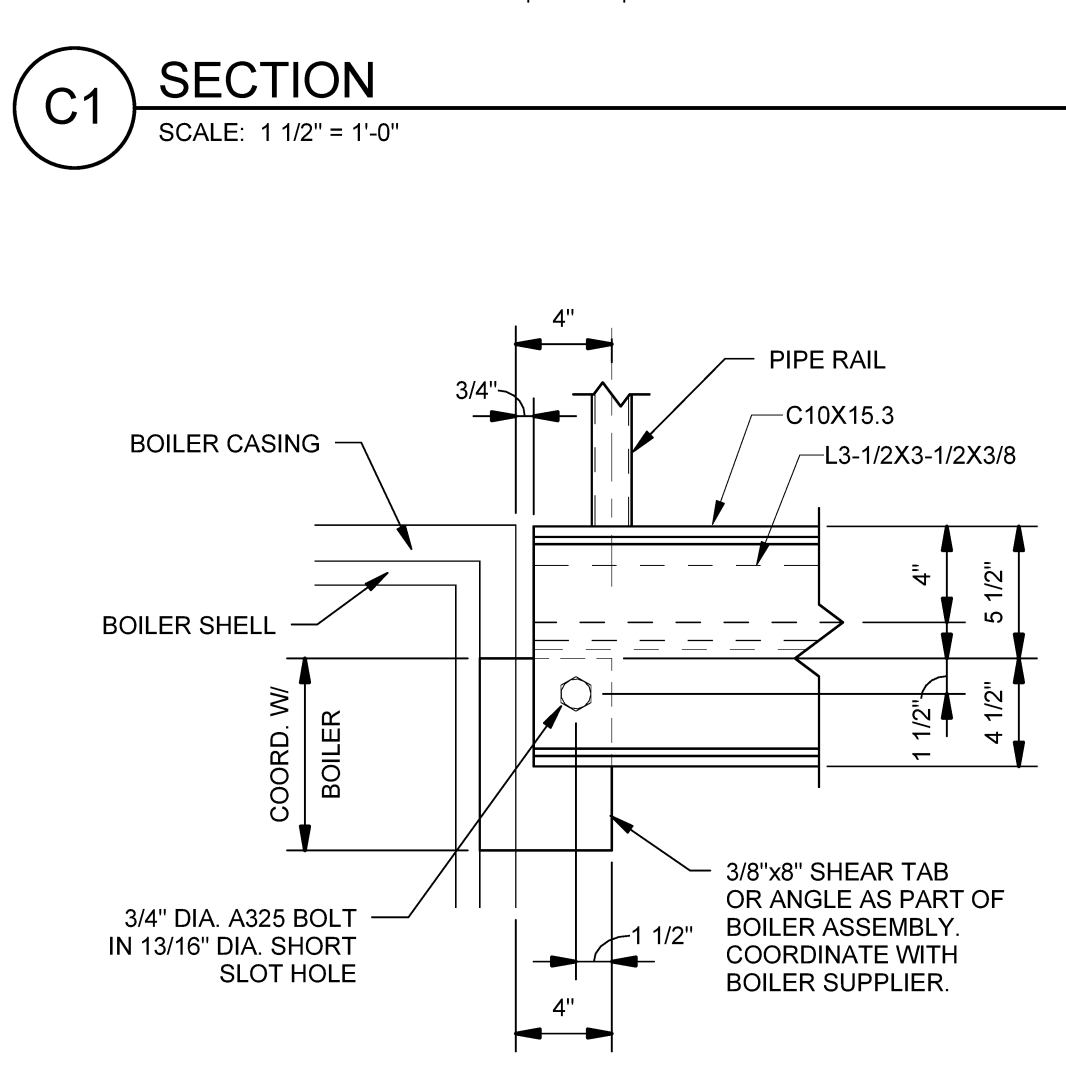
D3 BASE PLATE TYPES SCALE: 1 1/2" = 1'-0"



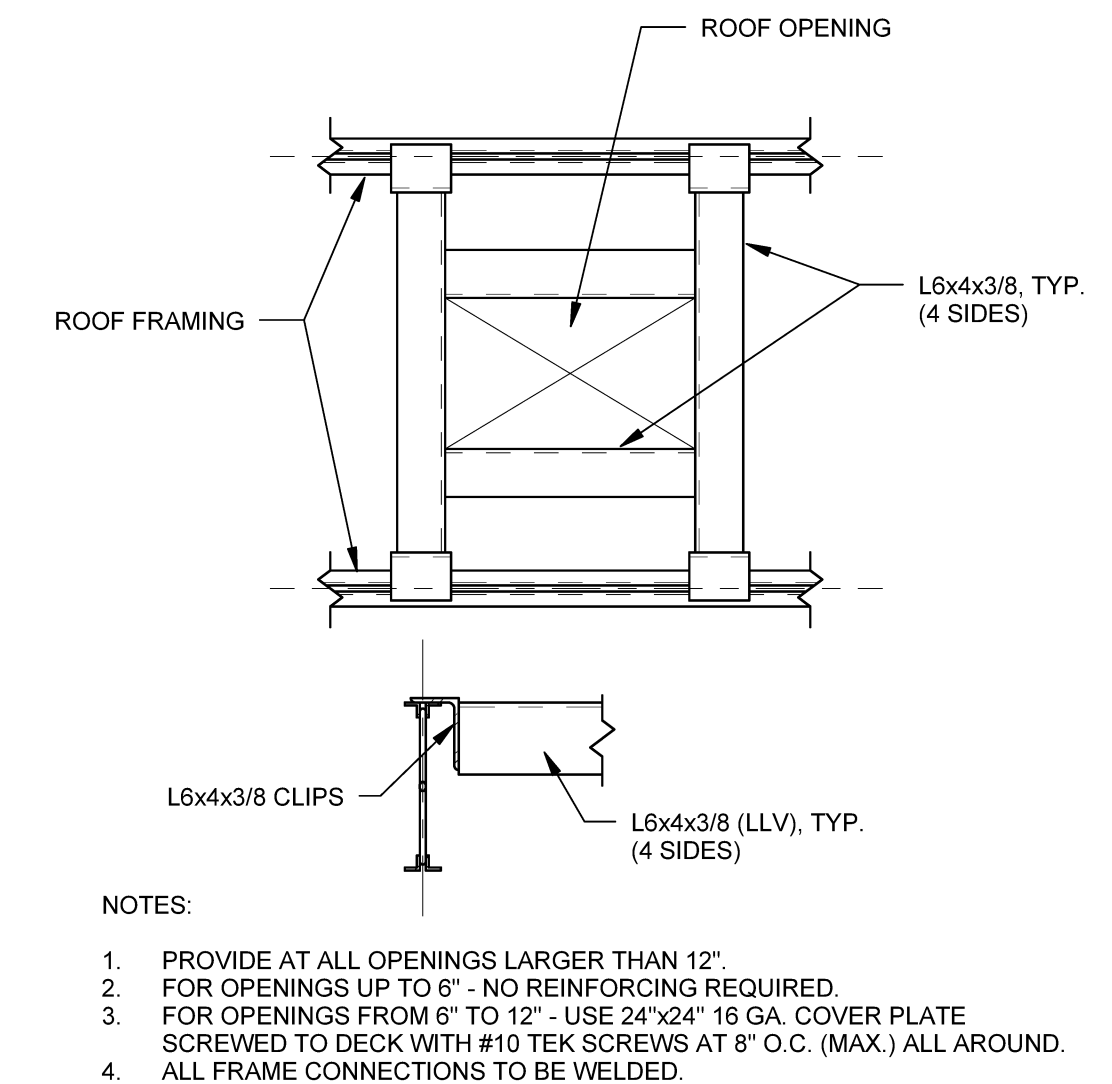
D4 CONCRETE MASONRY LINTEL SCHEDULE



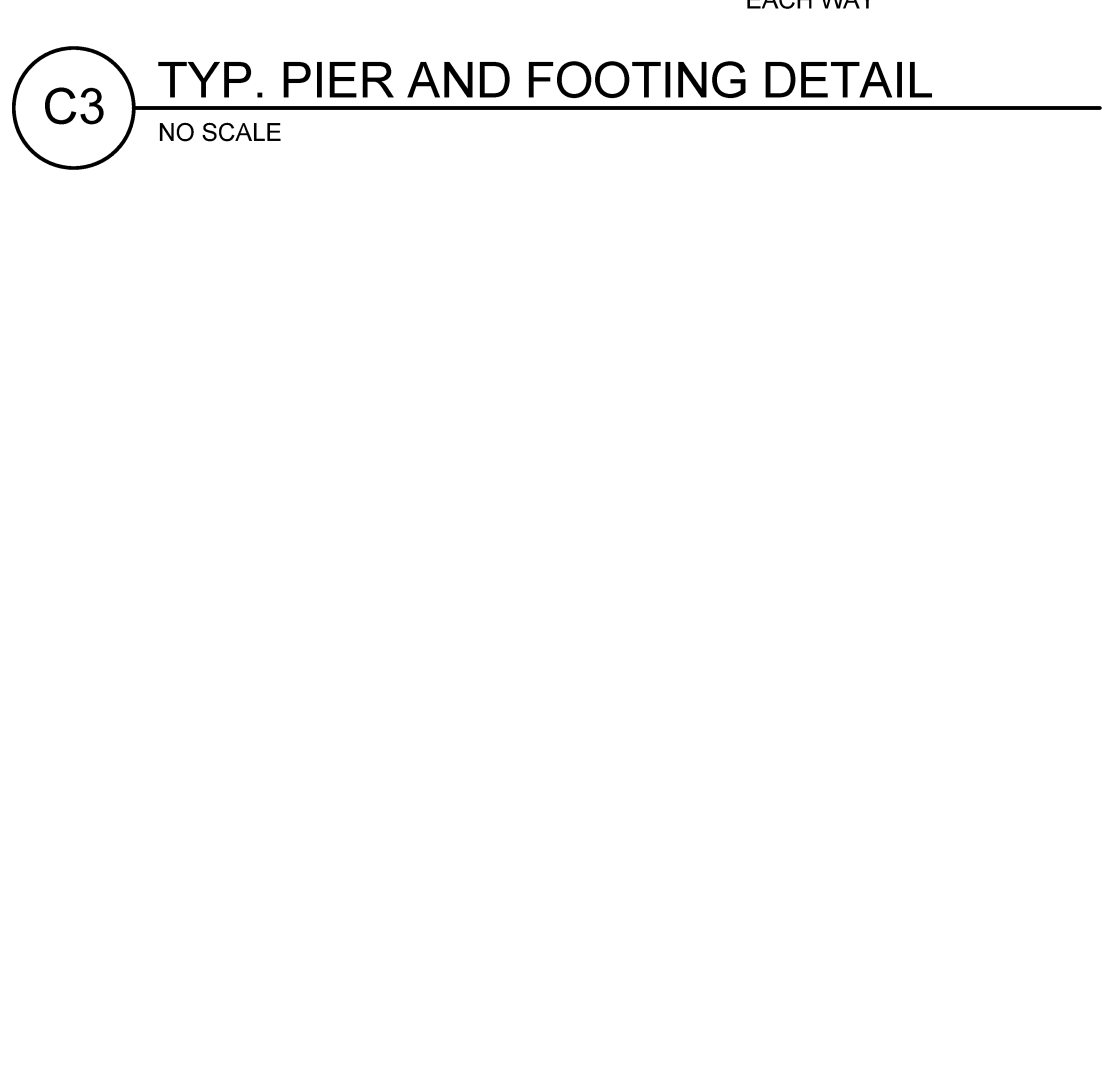
D5 TYP. 8" FOUNDATION WALL NO SCALE



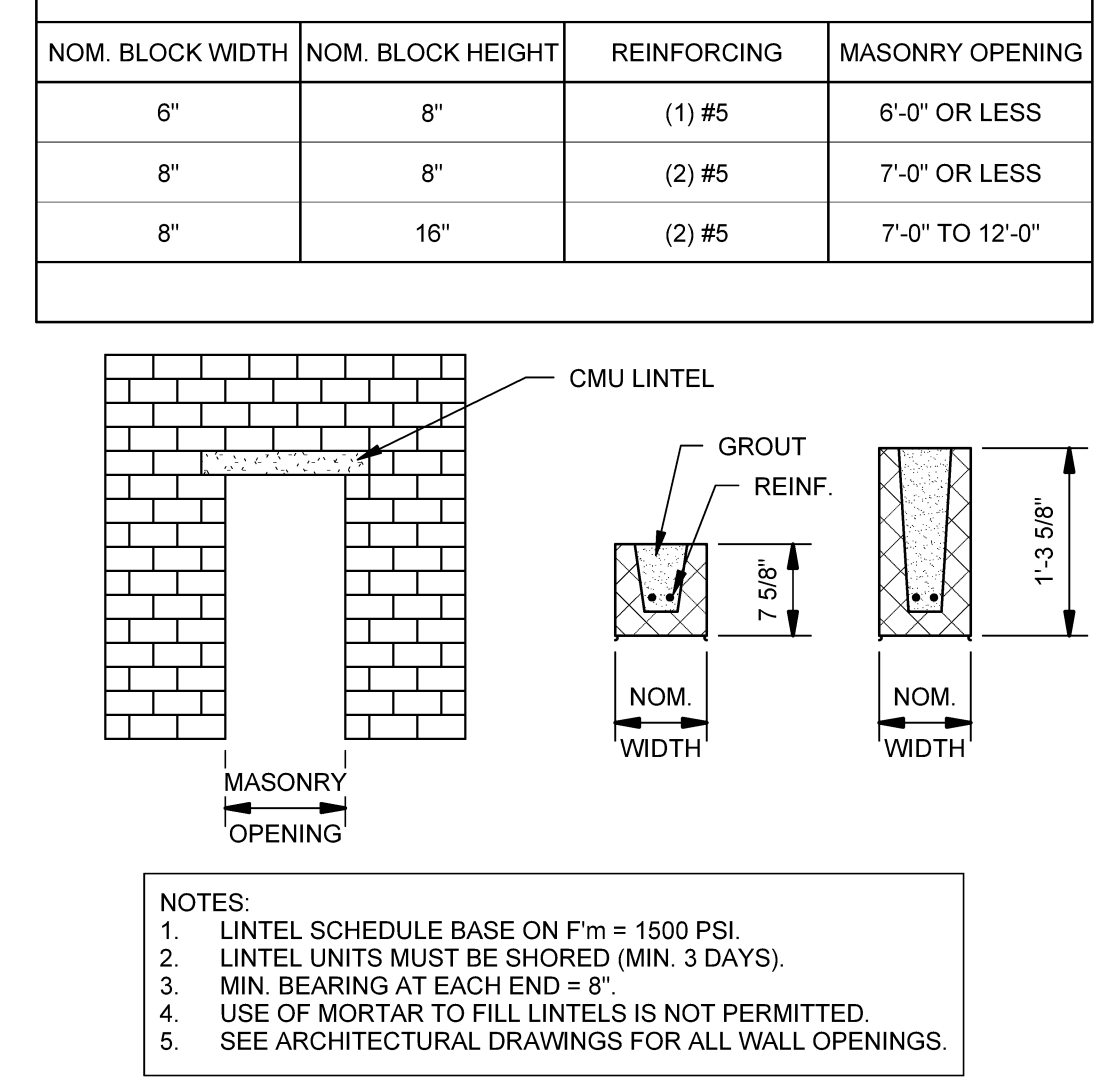
B1 SECTION SCALE: 1 1/2" = 1'-0"



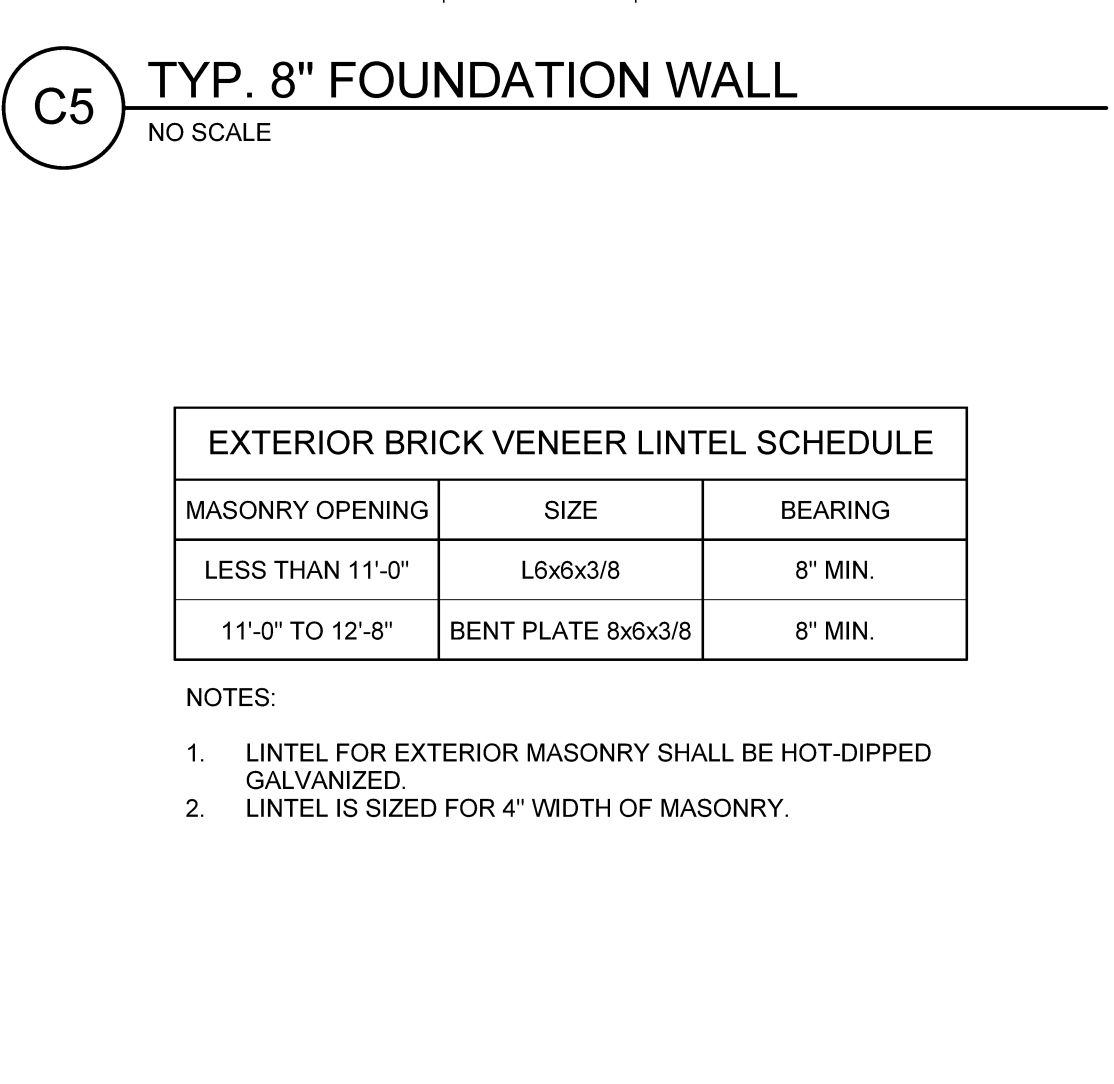
B2 TYP. FRAME AT ROOF OPENING NO SCALE



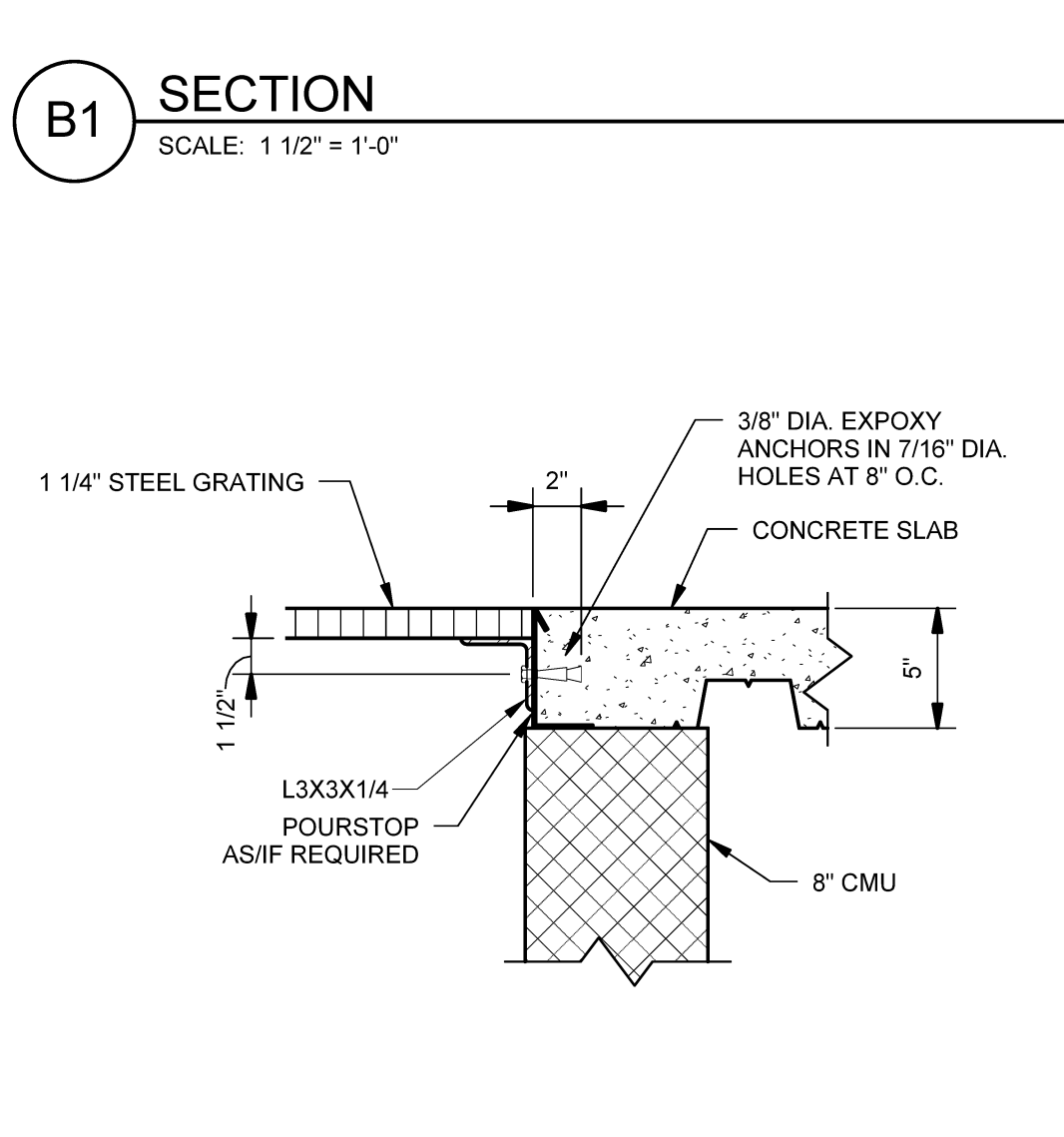
B3 TYP. PIER AND FOOTING DETAIL NO SCALE



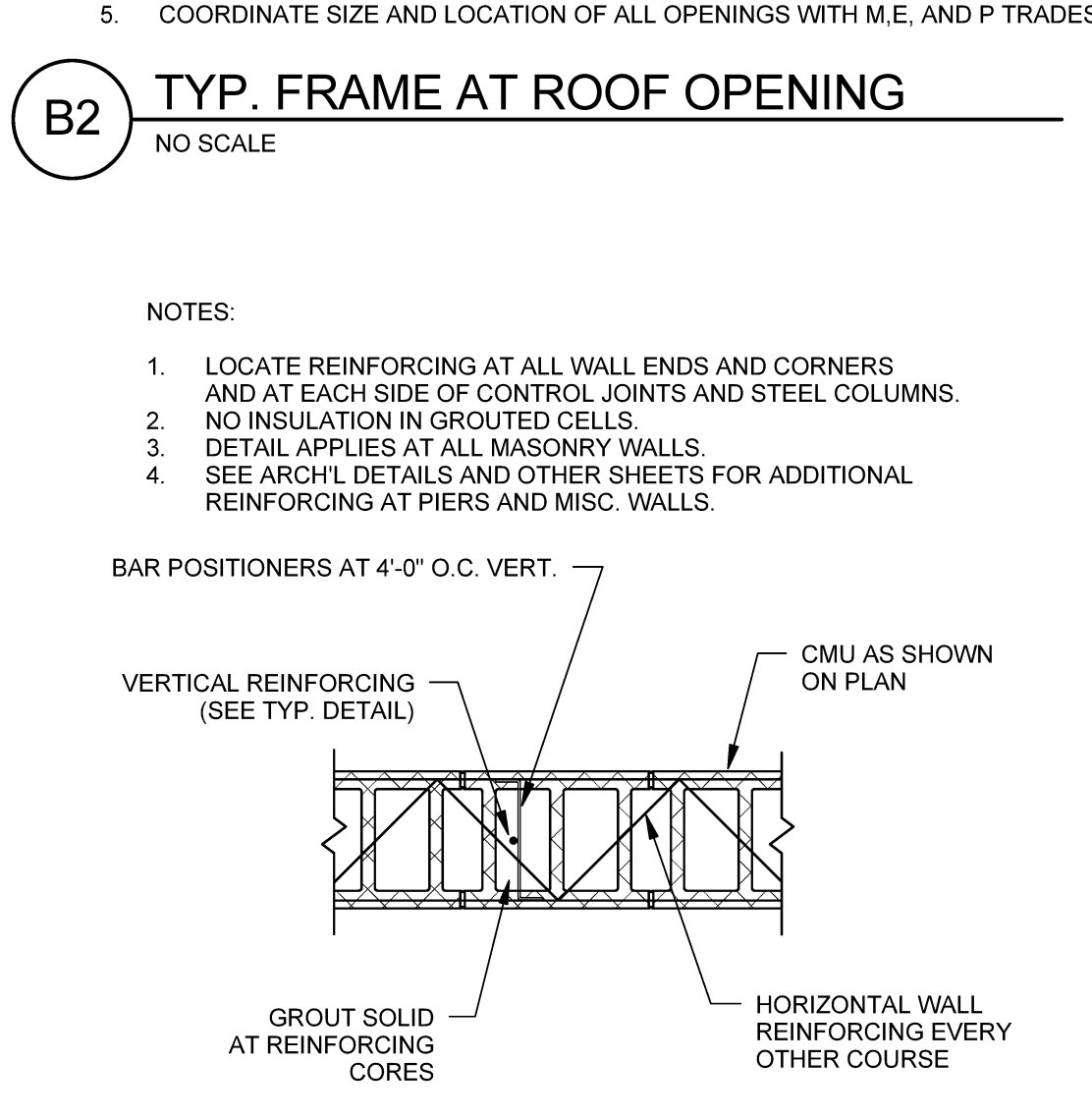
B4 CONCRETE MASONRY LINTEL SCHEDULE NO SCALE



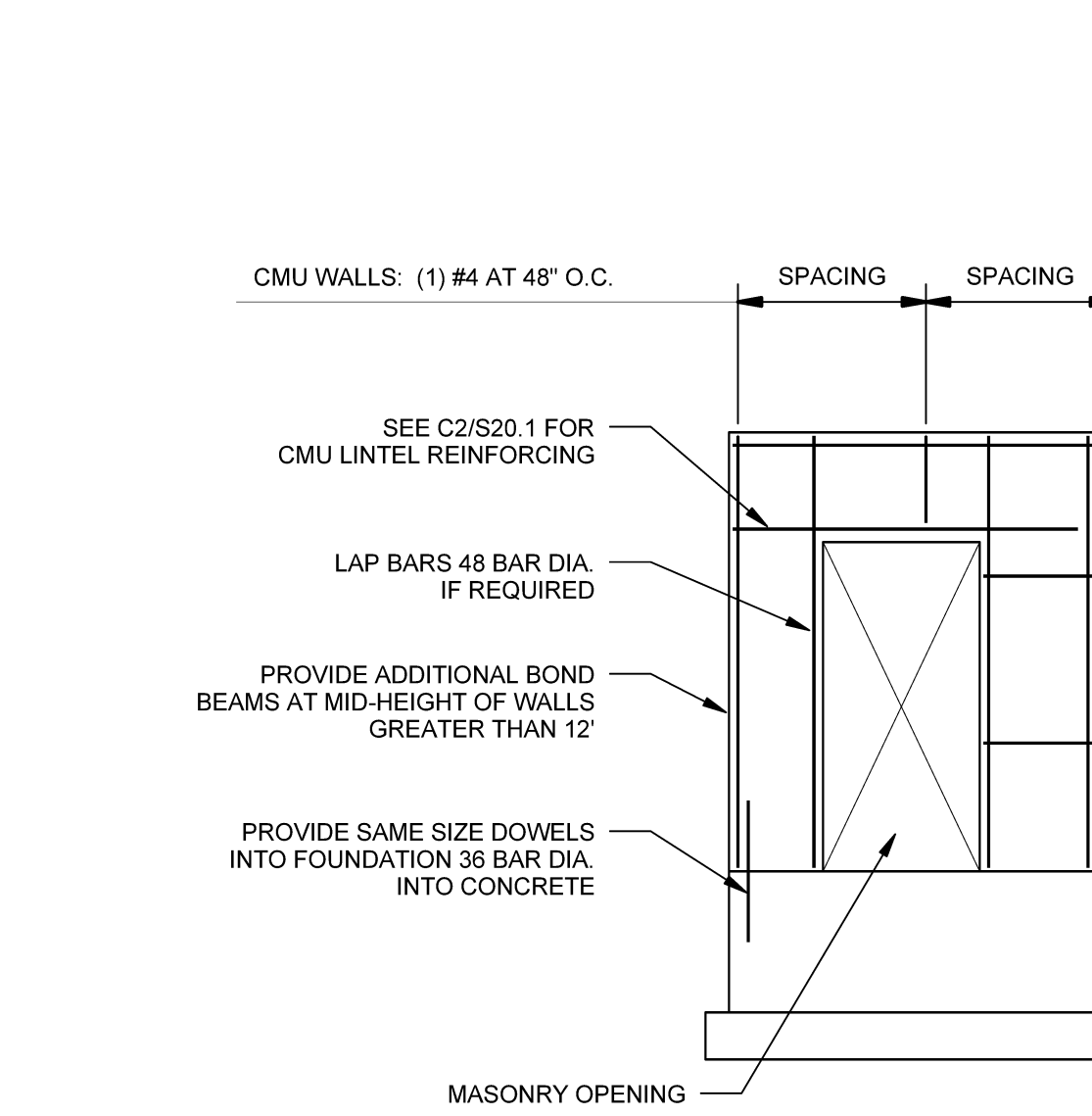
B5 TYP. STEEL LINTEL SCHEDULE NO SCALE



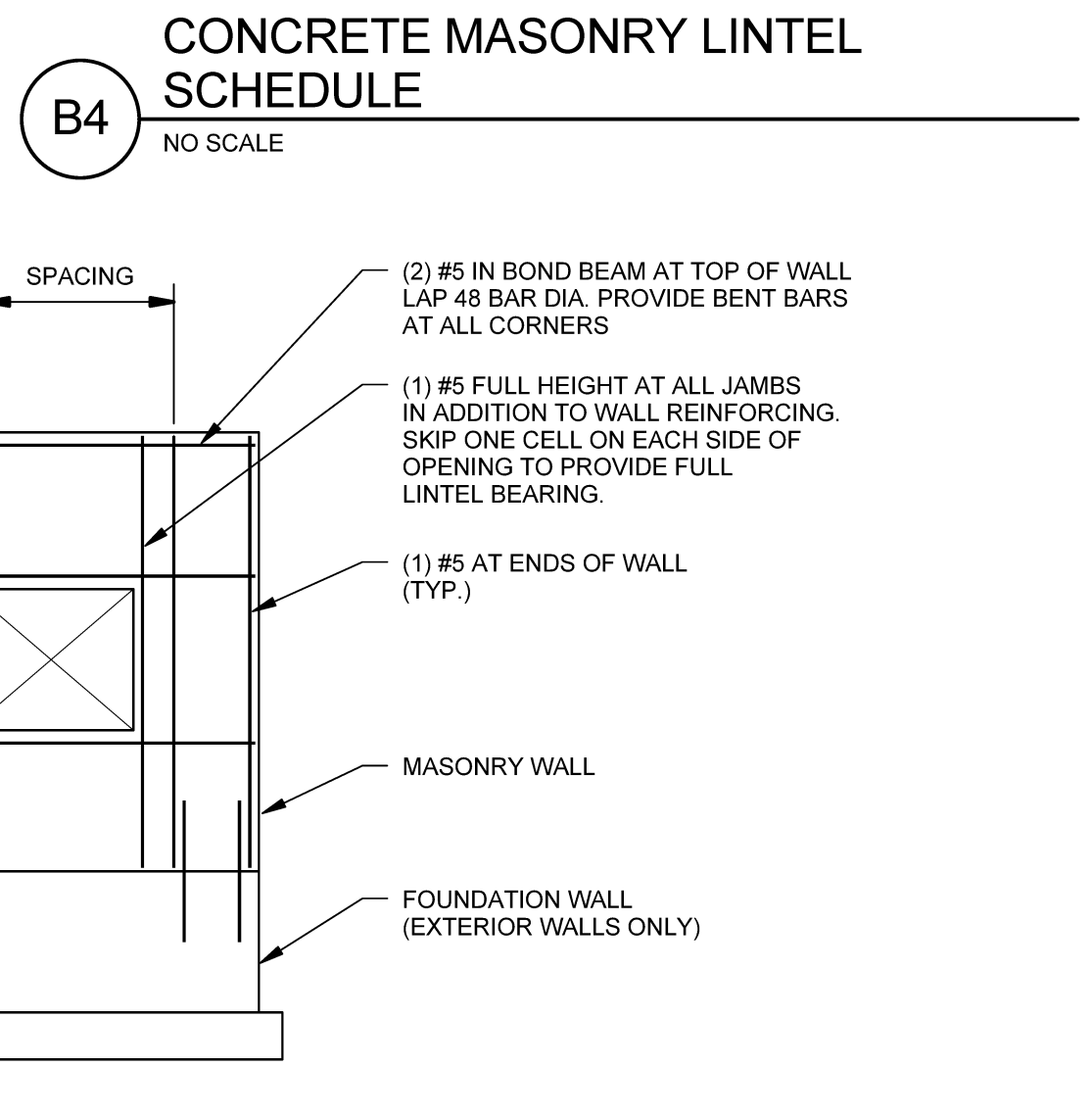
A1 SECTION SCALE: 1 1/2" = 1'-0"



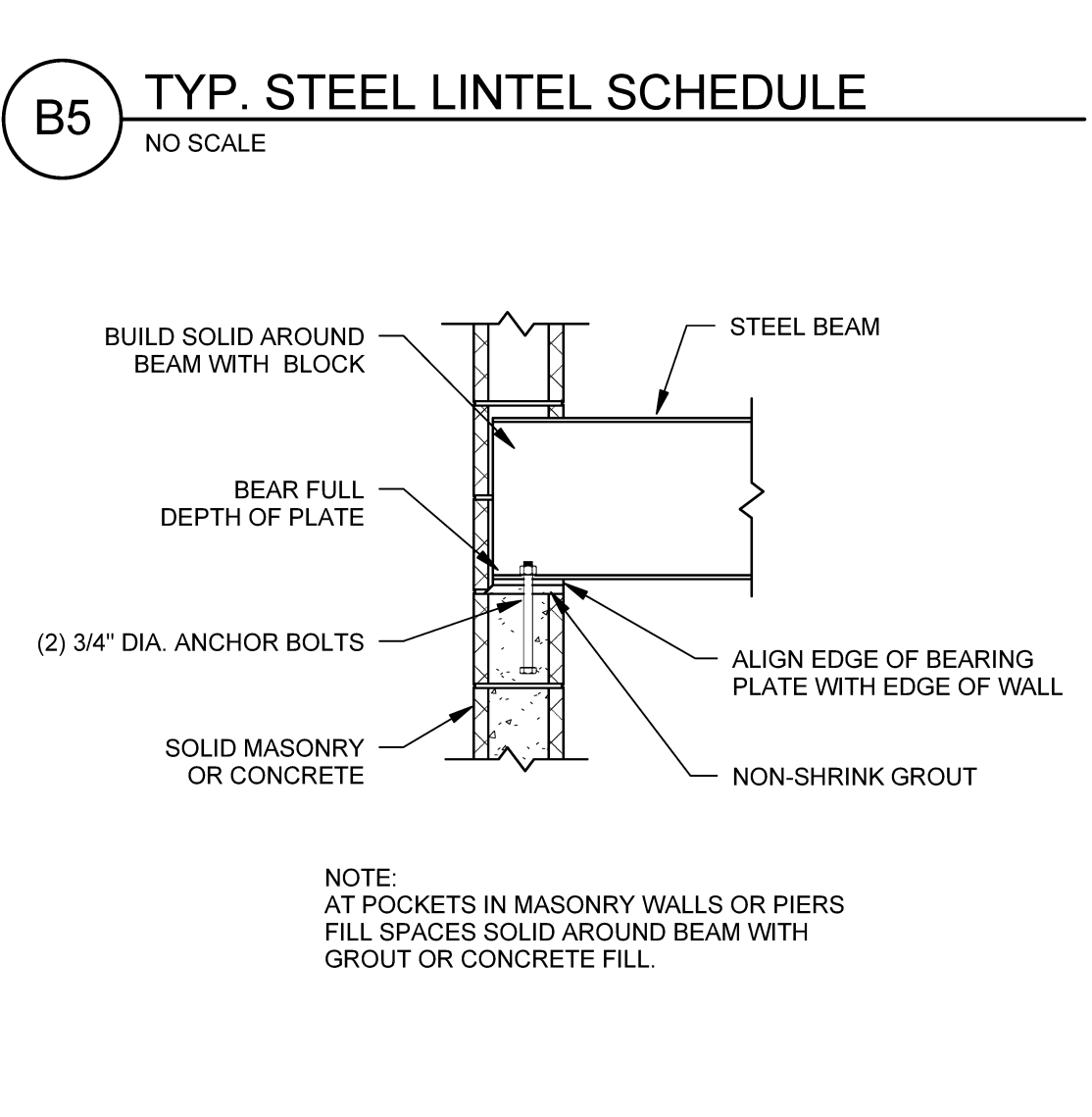
A2 TYP. MASONRY REINFORCING PLAN NO SCALE



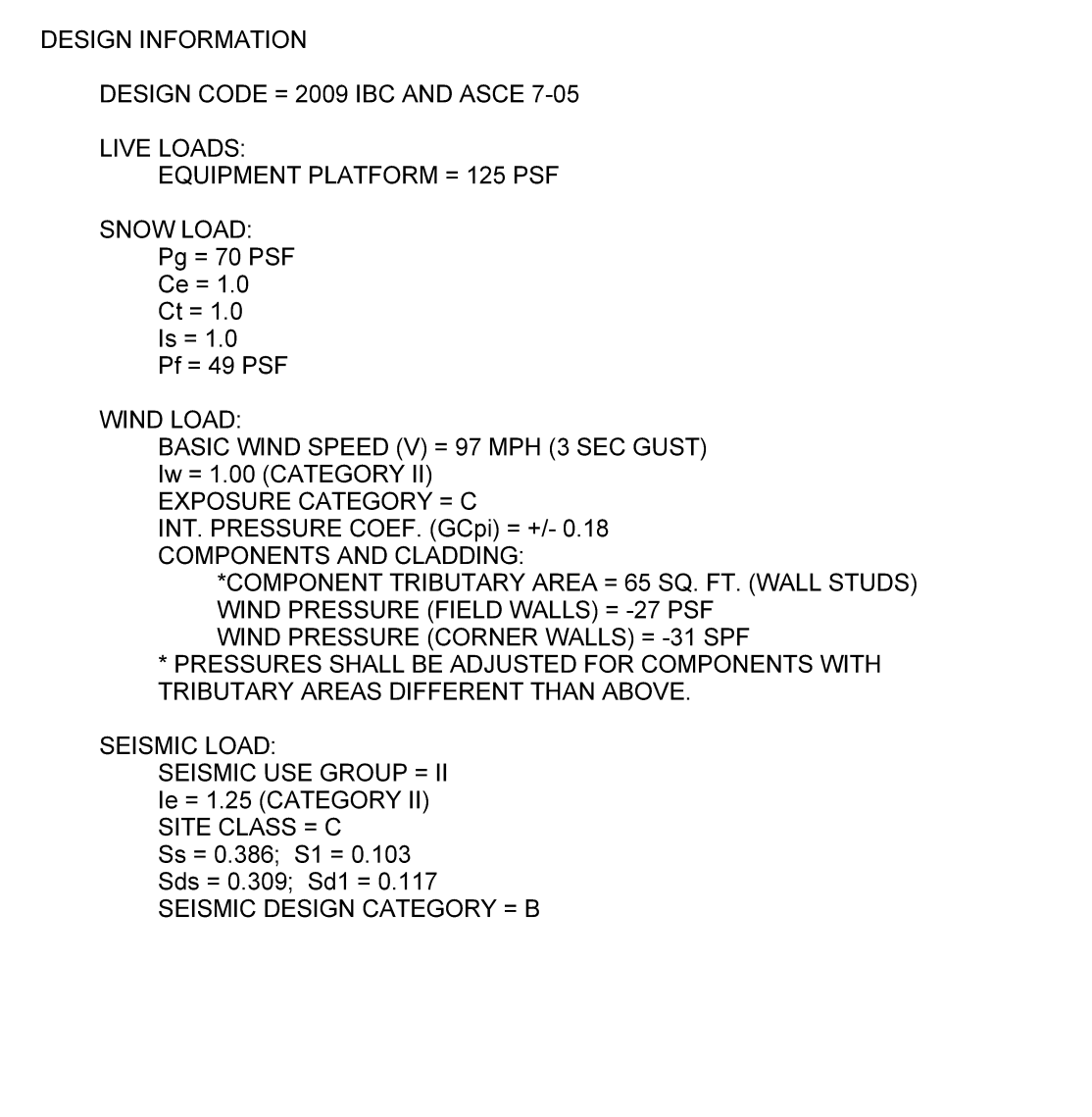
A3 TYP. MASONRY WALL REINFORCING NO SCALE



A4 TYP. BEAM BEARING DETAIL NO SCALE



A5 TYP. BEAM BEARING DETAIL NO SCALE



A6 GENERAL NOTES NO SCALE

### Issues and Revisions

Mark	Date	Description
-	10-10-14	FINAL REVIEW
-	10-23-14	100% REVIEW
-	10-31-14	ISSUED FOR BID

Mark	Date	Description
-	10-10-14	FINAL REVIEW
-	10-23-14	100% REVIEW
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-	10-23-14	100% REVIEW
-	10-31-14	ISSUED FOR BID

PA/PE	JPC
Drawn By	MRM

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 STRUCTURAL DETAILS

# S60.1