

STRUCTURAL NOTES

GENERAL

1. THIS PROJECT SHALL MEET ALL REQUIREMENTS OF THE CITY OF CHARLOTTE, NORTH CAROLINA AND THE 2018 NORTH CAROLINA STATE BUILDING CODE (2015 IBC W/AMENDMENTS).
2. THE GENERAL CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL OPENINGS (COORDINATE WITH APPLICABLE TRADES). THE CONTRACTOR SHALL PROVIDE FOR ALL OPENINGS, WHETHER SHOWN ON THE STRUCTURAL DRAWINGS OR NOT. ANY DEVIATION FROM OPENINGS SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR APPROVAL PRIOR TO CONSTRUCTION.
3. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS WITH THE ARCHITECTURAL DRAWINGS BEFORE CONSTRUCTION AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR INCONSISTENCIES BEFORE PROCEEDING WITH THE WORK.
4. COMPLETE SHOP DRAWINGS AS REQUIRED FOR THE STRUCTURAL WORK SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCEMENT OF CONSTRUCTION IN ACCORDANCE WITH THE SPECIFICATIONS. SUCH REVIEW BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR CORRECT FABRICATION AND CONSTRUCTION OF THE WORK. ALLOW TEN (10) BUSINESS DAYS FOR REVIEW FROM THE TIME SUBMITTALS ARE RECEIVED IN OUR OFFICE.
5. ANY DEVIATION FROM, ADDITION TO, SUBSTITUTION FOR, OR MODIFICATION TO THE STRUCTURE OR ANY PART OF THE STRUCTURE DETAILED ON THESE DRAWINGS SHALL BE SUBMITTED IN WRITING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS THAT ARE SUBMITTED FOR REVIEW DO NOT CONSTITUTE "IN-WRITING" UNLESS IT IS CLEARLY NOTED THAT SPECIFIC CHANGES ARE BEING SUGGESTED.
6. THE STRUCTURAL DRAWINGS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.
7. THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHODS OF CONSTRUCTION UNLESS SO STATED OR NOTED. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE WORKMEN AND OTHER PERSONS DURING CONSTRUCTION.

SPECIAL INSPECTION

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION:  
(REFERENCE ADJACENT TABLES FOR ADDITIONAL INFORMATION.)

1. SOILS AND FOUNDATIONS  
2. CAST-IN-PLACE CONCRETE  
3. POST INSTALLED CONCRETE ANCHORS

DESIGN LOADS

1. ROOF LIVE LOAD 18 PSF (MIN. ROOF SLOPE 6:12)  
2. ROOF DEAD LOAD 20 PSF  
3. WIND LOAD BASED ON ASCE 7-10  
V<sub>ult</sub> = 115 MPH  
V<sub>des</sub> = 89 MPH  
RISK CATEGORY: II  
EXPOSURE CATEGORY B  
I<sub>w</sub> = 1.0  
INTERNAL PRESSURE COEFFICIENT GC<sub>pi</sub>: ±0.18  
COMPONENTS & CLADDING:  
MAIN ROOF (HIP ROOF > 7 TO 27 DEGREES)

- ULTIMATE
- +16.0 PSF (ZONE 1, EFF. AREA = 50 FT.<sup>2</sup>)  
-20.4 PSF  
+16.0 PSF (ZONE 2, EFF. AREA = 50 FT.<sup>2</sup>)  
-30.9 PSF  
+16.0 PSF (ZONE 3, EFF. AREA = 50 FT.<sup>2</sup>)  
-47.6 PSF  
+22.7 PSF (ZONE 4, EFF. AREA = 20 FT.<sup>2</sup>)  
-22.7 PSF (ZONE 5, EFF. AREA = 20 FT.<sup>2</sup>)  
-29.7 PSF

MAIN ROOF (HIP ROOF > 27 TO 45 DEGREES)

- ULTIMATE
- +20.4 PSF (ZONE 1, EFF. AREA = 50 FT.<sup>2</sup>)  
-21.0 PSF  
+20.4 PSF (ZONE 2, EFF. AREA = 50 FT.<sup>2</sup>)  
-25.0 PSF  
+20.4 PSF (ZONE 3, EFF. AREA = 50 FT.<sup>2</sup>)  
-25.0 PSF  
+22.7 PSF (ZONE 4, EFF. AREA = 20 FT.<sup>2</sup>)  
-24.7 PSF  
+27.7 PSF (ZONE 5, EFF. AREA = 20 FT.<sup>2</sup>)  
-29.7 PSF

TOWER ROOF (HIP ROOF > 27 TO 45 DEGREES)

- ULTIMATE
- +20.4 PSF (ZONE 1, EFF. AREA = 50 FT.<sup>2</sup>)  
-21.0 PSF  
+20.4 PSF (ZONE 2, EFF. AREA = 50 FT.<sup>2</sup>)  
-25.0 PSF  
+20.4 PSF (ZONE 3, EFF. AREA = 50 FT.<sup>2</sup>)  
-25.0 PSF  
+22.7 PSF (ZONE 4, EFF. AREA = 20 FT.<sup>2</sup>)  
-24.7 PSF  
+22.7 PSF (ZONE 5, EFF. AREA = 20 FT.<sup>2</sup>)  
-29.7 PSF

4. SEISMIC LOADS

I<sub>e</sub> = 1.0  
S<sub>s</sub> = 0.239g  
S<sub>1</sub> = 0.107g

SITE CLASS D

S<sub>DS</sub> = 0.255g  
S<sub>D1</sub> = 0.164g

DESIGN CATEGORY: C

BASIC SEISMIC-FORCE-RESISTING SYSTEM: LIGHT FRAME WALLS WITH SHEAR PANELS- WOOD STRUCTURAL PANELS.

DESIGN BASE SHEAR V = C<sub>s</sub>W  
C<sub>s</sub> = 0.04  
R = 6.5

ANALYSIS PROCEDURE: SIMPLIFIED ANALYSIS

5. SNOW LOADS

GROUND SNOW P<sub>g</sub> = 10 PSF  
FLAT ROOF SNOW P<sub>f</sub> = 10 PSF

C<sub>e</sub> = 1.0

I<sub>s</sub> = 1.0

C<sub>s</sub> = 1.0

REFER TO S1.0 FOR SNOW DRIFT LOADING REQUIREMENTS.

6. SEE ROOF PLAN FOR ADDITIONAL MECHANICAL LOADS.

FOUNDATION DESIGN AND SITEWORK FOR BUILDING

1. FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS CONTAINED IN A GEOTECHNICAL INVESTIGATION REPORT BY TRC, INC., DATED NOV. 18, 2021; REPORT NO. 460778.
2. FOUNDATION DESIGN IS BASED ON A NET ALLOWABLE BEARING PRESSURE OF 2,500 PSF FOUNDED AT LEAST THIRTY SIX (36) INCHES BELOW ADJACENT EXTERIOR GRADE INTO SUITABLE NEWLY PLACED SELECT FILL. CONTINUOUS STRIP FOOTINGS AND COLUMN FOOTING WIDTHS SHALL BE SIXTEEN (16) INCHES MINIMUM.
3. THE CONTRACTOR SHALL READ THE SOILS REPORT REFERENCED ABOVE AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL SITE AND SUBGRADE PREPARATION RECOMMENDATIONS CONTAINED THEREIN. INFORMATION CONTAINED IN THE "FOUNDATION DESIGN AND SITEWORK FOR BUILDING" SECTION OF THE STRUCTURAL NOTES REPRESENTS A GENERAL OVERVIEW OF SITE WORK TO BE PERFORMED, AND SHALL NOT BE USED AS A SUBSTITUTE FOR THE SOILS REPORT REFERENCED ABOVE.
4. REMOVE ALL VEGETATION AND DEBRIS, INCLUDING PAVEMENTS, SIDEWALKS, BUILDING FOUNDATIONS, AND ABANDONED UTILITIES.
5. SUBGRADES WITHIN THE PROPOSED BUILDING AREA SHOULD BE PROOFROLLED, IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER, WITH APPROPRIATE RUBBER-TIRE MOUNTED HEAVY CONSTRUCTION EQUIPMENT OR A LOADED DUMP TRUCK TO DETECT LOOSE YIELDING SOILS WHICH MUST BE REMOVED TO A STABLE SUBGRADE.
6. THE APPROVED SUBGRADE SHOULD BE SCARIFIED TO A DEPTH OF 12 INCHES. MOISTURE CONDITIONED TO ±2 PERCENT OF OPTIMUM MOISTURE CONTENT AND PROPERLY RECOMPACTED.
7. DURING WET WEATHER, SUBGRADE STABILITY PROBLEMS SHOULD BE EXPECTED. IN THE EVENT THE SUBGRADE IS EXPOSED TO SIGNIFICANT INCREASES IN MOISTURE AND SUBGRADE STABILITY PROBLEMS DEVELOP, OVEREXCAVATION ON THE ORDER OF 8 TO 10 INCHES SHOULD BE EXPECTED TO ACHIEVE A STABLE SUBGRADE.
8. PROVIDE POSITIVE DRAINAGE AWAY FROM EXCAVATIONS SO AS NOT TO ALLOW STANDING WATER FOR LONG PERIODS OF TIME.
9. ON-SITE SOIL SHALL BE COMPACTED BETWEEN 95 AND 100 PERCENT OF MAXIMUM DRY DENSITY AND BETWEEN -2 AND 3 PERCENT OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY STANDARD PROCTOR METHOD.
10. PROVIDE A 4 INCH THICK LAYER OF COMPACTED COARSE GRANULAR MATERIAL WITH A VAPOR BARRIER CONSISTING OF 15 MIL POLYETHYLENE SHEETING PLACED DIRECTLY ABOVE THE BASE COURSE AND A 2 INCH THICK LAYER OF DAMP, CLEAN SAND PLACED DIRECTLY ABOVE THE VAPOR BARRIER.
11. DO NOT PUNCTURE THE VAPOR BARRIER. LAP AND TAPE ENDS.
12. PERFORM ALL SITEWORK UNDER THE DIRECT SUPERVISION OF THE GEOTECHNICAL ENGINEER.
13. REFERENCE THE SOILS REPORT FOR ANY QUESTIONS CONCERNING SUBGRADE PREPARATION, SITE CONDITIONS OR FOUNDATION PLACEMENT.

CONCRETE

1. ALL CONCRETE SHALL BE NORMAL WEIGHT, WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS, (U.N.O.).
2. ALL LIGHTWEIGHT CONCRETE, WHERE SPECIFIED, SHALL BE 115 PCF AND CONFORM TO THE SAME DESIGN REQUIREMENTS AS NORMAL WEIGHT CONCRETE AND ASTM C 330.
3. MINIMUM CEMENT CONTENT SHALL BE 5 SACKS PER CUBIC YARD.
4. TYPE C OR FLY ASH MAY BE USED UP TO 20% OF TOTAL CEMENT CONTENT BY VOLUME. THIS IS ONLY FOR CONCRETE SPECIFIED IN THESE STRUCTURAL DRAWINGS. REFER TO SPECIFICATIONS BY OTHER DISCIPLINES.
5. MAXIMUM SLUMP SHALL BE 5 IN., U.N.O.
6. MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN CONCRETE INSTITUTE'S "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 301.
7. CONCRETE MIX SHALL NOT USE ANY ADMIXTURES WHICH CONTAIN CALCIUM CHLORIDE.
8. CONCRETE TEST REPORTS SHALL BE MADE AVAILABLE AT THE JOB SITE. CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGN PER SPECIFICATIONS PRIOR TO PLACEMENT CONCRETE.

REINFORCING STEEL

1. BARS SHALL BE ASTM A615, GRADE 60.
2. DETAIL, FABRICATE, AND PLACE IN CONFORMANCE WITH ACI 315 AND 318.
3. LAP ALL REINFORCING STEEL 40 BAR DIAMETERS (U.N.O.).
4. LAP CONTINUOUS BARS IN GRADE BEAMS 40 BAR DIAMETERS (U.N.O. ON DRAWINGS). TOP BARS TO BE SPLICED BETWEEN SUPPORTS AND BOTTOM BARS TO BE SPLICED AT SUPPORTS, AS APPLICABLE.
5. PROVIDE ACCESSORIES FOR SUPPORT OF ALL REINFORCING.
6. SUBMIT SHOP DRAWINGS SHOWING ALL REINFORCING FOR APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.
7. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

	MINIMUM COVER, IN.
A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3
B. CONCRETE EXPOSED TO EARTH OR WEATHER: #6 THROUGH #18 BAR #5 BAR, W31 OR D31 WIRE, AND SMALLER	2 1½
C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: SLABS, WALLS, JOISTS: #14 AND #18 BARS #11 BAR AND SMALLER BEAMS, COLUMNS: PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS	1½ 1½ ¾ 1½

POST-INSTALLED ANCHORS

1. EXCEPT WHERE INDICATED ON THE DRAWINGS, THE FOLLOWING HILTI OR SIMPSON PRODUCTS MAY BE USED. CONTACT HILTI AT (800) 879-8000 OR SIMPSON AT WWW.STRONGTIE.COM FOR PRODUCT RELATED QUESTIONS.
- A. ANCHORAGE TO CONCRETE
- a. ADHESIVE ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE:
- (1) HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HIT-Z ROD OR HAS -E THREADED ROD PER ICC-ES ESR-3187.
- (2) SIMPSON SET-3G SYSTEM WITH F1554 THREADED ROD PER ICC-ES ESR-4057
- b. MEDIUM DUTY MECHANICAL ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE:
- (1) HILTI KWIK HUS EZ AND KWIK HUS EZ-I SCREW ANCHORS PER ICC-ES ESR-3027
- (2) SIMPSON TITEN HD SCREW ANCHORS PER ICC-ES ESR-2713
- (3) SIMPSON TITEN HD STAINLESS STEEL SCREW ANCHOR PER IAMPO UES ER-493
- B. REBAR DOWELING INTO CONCRETE
- a. ADHESIVE ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE:
- (1) HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT SYSTEM WITH CONTINUOUSLY DEFORMED REBAR PER ICC ESR-3187.
- (2) SIMPSON SET-3G SYSTEM WITH CONTINUOUSLY DEFORMED REBAR PER ICC-ES ESR-4057.
2. ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED OR SUCH OTHER METHOD AS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR SEISMIC USES, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE.
3. INSTALL ANCHORS PER THE MANUFACTURER INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.
4. CONTRACTOR SHALL USE THE NECESSARY MEANS, AS REQUIRED BY OSHA, TO PROTECT FROM DUST DURING DRILLING OPERATIONS.
5. INSTALL ACCORDING TO MANUFACTURER'S SPECIFICATIONS. THREADED ROD AND REBAR DIAMETERS AND EMBEDMENT LENGTHS SHALL BE AS NOTED ON DRAWINGS.
6. OVERHEAD ADHESIVE ANCHORS MUST BE INSTALLED USING PRODUCTS WHICH HAVE SPECIFIC APPLICATIONS THAT ARE INTENDED FOR OVERHEAD USE.
7. THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.
8. ANCHOR CAPACITY IS DEPENDANT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.
9. EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE CONCRETE ANCHORS, BY FERROSCAN, GPR, X-RAY, CHIPPING OR OTHER MEANS.

STRUCTURAL WOOD

1. WOOD FRAMING SHALL COMPLY WITH THE SOUTHERN PINE INSPECTION BUREAU, OR SHALL CONFORM TO SPECIFICATIONS AS PUBLISHED BY THE WESTERN WOODS PRODUCTS ASSOCIATION.
2. WOOD FRAMING 2 INCHES X 4 INCHES AND LARGER SHALL BE NO. 2 SOUTHERN PINE, NO. 2 DOUGLAS FIR LARCH, OR EQUIVALENT (U.N.O.).
3. WOOD COLUMNS 6 INCHES X 6 INCHES AND LARGER SHALL BE NO. 1 SOUTHERN PINE, NO. 1 DOUGLAS FIR LARCH, OR EQUIVALENT.
4. ALL EXPOSED WOOD FRAMING, UNLESS NOTED OTHERWISE, SHALL BE "SELECT" GRADE LUMBER.
5. ALL PLATES IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED (USE CATEGORY 2 AS SPECIFIED BY AWP) FOR MOISTURE PROTECTION. ALL WOOD EXPOSED TO WEATHER SHALL BE PRESSURE TREATED (USE CATEGORY 3B AS SPECIFIED BY AWP) OR WESTERN RED CEDAR.
6. GLUED-LAMINATED MEMBERS SHALL BE INDUSTRIAL APPEARANCE, E1.8, WITH GRADES AND SPECIES AS FOLLOWS, U.N.O. MEMBER SIZES BASED ON CURRENT NDS WESTERN SPECIES.
- SIMPLY SUPPORTED SPAN MEMBERS
- SPECIES GRADE  
DOUGLAS FIR 24F-V4  
SOUTHERN PINE 24F-V3
- MULTI SPAN MEMBERS
- SPECIES GRADE  
DOUGLAS FIR 24F-V8  
SOUTHERN PINE 24F-V8
7. METAL-PLATE-CONNECTED WOOD TRUSSES
- A. TRUSS FABRICATION AND INSTALLATION SHALL COMPLY WITH THE FOLLOWING STANDARDS:
- a. ANSI/TPI 1-2014- NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION
- b. BCSI-B1: GUIDE FOR HANDLING, INSTALLING, RESTRAINING & BRACING OF TRUSSES
- c. BCSI-B2: TRUSS INSTALLATION & TEMPORARY RESTRAINT/ BRACING
- d. BCSI-B3: PERMANENT RESTRAINT/BRACING OF CHORDS & WEB MEMBERS
- B. TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING LOADS
- a. TOP CHORD: DEAD LOAD = 15 PSF  
LIVE LOAD = 18 PSF
- b. BOTTOM CHORD: DEAD LOAD = 5 PSF  
LIVE LOAD = 0 PSF  
NON-CONCURRENT LIVE LOAD = 10 PSF
- c. ADDITIONAL MECHANICAL LOADS SHALL BE APPLIED TO THEIR RESPECTIVE CHORD MEMBER AS NOTED ON THE FLOOR/ROOF PLAN.
- d. SNOW DRIFT LOADS AND UNBALANCED ROOF SNOW LOADS AS INDICATED (WHERE APPLICABLE)
- e. REQUIRED UPLIFT FOR COMPONENTS AND CLADDING LOADS AS INDICATED IN THE DESIGN LOADS SECTION OF THESE STRUCTURAL NOTES
- f. ALLOWABLE VERTICAL DEFLECTION LIMITS: DEAD + LIVE: L/180 (TYP. U.N.O.)  
DEAD + LIVE: L/600 (SUPPORTING MASONRY VENEER)  
LIVE (ONLY): L/240 (TYP. U.N.O.)
- g. TRUSS CAMBER: TO BE PROVIDED BY THE TRUSS DESIGNER AS REQUIRED TO MEET SERVICEABILITY LIMITS UNLESS SPECIFICALLY NOTED BY THE BUILDING DESIGNER
- C. ALL TRUSS-TO-TRUSS CONNECTORS SHALL BE SPECIFIED BY THE TRUSS DESIGNER.
- D. TRUSS-TO-STRUCTURAL ELEMENT CONNECTIONS SHALL BE SPECIFIED BY THE BUILDING DESIGNER, UNLESS SPECIFICALLY NOTED.
- D. PERMANENT MEMBER RESTRAINT/ BRACING OF TRUSS SYSTEM SHALL BE SPECIFIED BY THE TRUSS DESIGNER. TRUSS DESIGNER IS PERMITTED TO SUBSTITUTE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT WITH REINFORCEMENT DESIGNED TO PREVENT BUCKLING. IF SPECIFIC TRUSS MEMBER PERMANENT RESTRAINT DESIGN IS NOT PROVIDED, THE METHOD OF PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT AND DIAGONAL BRACING FOR THE TRUSS TOP CHORD, BOTTOM CHORD, AND WEB MEMBERS SHALL BE IN ACCORDANCE WITH BCSI-B3 OR BCSI-B7
- E. A "TRUSS SUBMITTAL PACKAGE" AS DEFINED BY ANSI/ TPI-1, SHALL BE SUBMITTED TO THE BUILDING DESIGNER FOR REVIEW FOR COMPATIBILITY WITH THE BUILDING DESIGN. THE TRUSS SUBMITTAL PACKAGE SHALL INCLUDE: INDIVIDUAL TRUSS DESIGN DRAWINGS, THE TRUSS PLACEMENT DIAGRAM (INCLUDING TRUSS BRIDGING LAYOUT), THE COVER/TRUSS INDEX SHEET, LATERAL RESTRAINT AND DIAGONAL BRACING DETAILS DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICE, APPLICABLE BCSI-DEFINED LATERAL RESTRAINT AND DIAGONAL BRACING DETAILS AND ANY OTHER STRUCTURAL DETAILS GERMANE TO THE TRUSSES. EACH INDIVIDUAL TRUSS DESIGN DRAWING, OR COVER/TRUSS IN SHEET IF USED, SHALL BEAR THE SEAL AND SIGNATURE OF THE TRUSS DESIGNER REGISTERED IN THE PROJECT STATE.
- F. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE "REQUIREMENTS OF THE CONTRACTOR" AS DEFINED BY ANSI/TPI 1.
8. ROOF DECK
- A. ALL ROOF DECK SHALL BE APA RATED STRUCTURAL I GRADE PLYWOOD OR OSB (ORIENTED STRAND BOARD). STRUCTURAL I GRADES MAY HAVE EITHER AN EXTERIOR OR EXPOSURE I DESIGNATION (U.N.O.).
- B. ROOF SHEATHING SHALL BE 2½ INCH THICK MINIMUM (48/24) U.N.O.
- C. STAGGER ENDS OF SHEETS.
- D. PROVIDE BLOCKING AT EDGES OF ALL ROOF SHEETS. PLYWOOD CLIPS MAY BE USED AT ROOF INSTEAD OF BLOCKING, UNLESS BLOCKING REQUIRED FOR NAILING.
- E. NAIL EDGES OF ROOF SHEETS AT 6 IN. O.C. MAXIMUM (U.N.O.).
- F. NAIL FACES OF ROOF SHEETS AT 12 IN. O.C. MAXIMUM.
- G. USE MINIMUM 10d COMMON NAILS (U.N.O.).
9. WALL SHEATHING
- A. ALL WALL SHEATHING SHALL BE APA RATED STRUCTURAL I GRADE PLYWOOD OR OSB (ORIENTED STRAND BOARD). STRUCTURAL I GRADES MAY HAVE EITHER AN EXTERIOR OR EXPOSURE I DESIGNATION (U.N.O.).
- B. WALL SHEATHING SHALL BE 1½ INCH THICK MINIMUM (32/16) U.N.O.
- C. STAGGER ENDS OF SHEETS.
- D. PROVIDE BLOCKING AT EDGES OF ALL SHEARWALL SHEETS.
- E. NAIL EDGES OF SHEARWALL SHEETS PER SCHEDULE ON PLAN (OTHER WALLS AT 6 IN. O.C. MAXIMUM).
- F. NAIL FACES OF WALL SHEETS AT 12 IN. O.C. MAXIMUM.
- G. USE MINIMUM 10d COMMON NAILS (U.N.O.).
- H. CONNECTORS SHALL BE AS MANUFACTURED BY THE SIMPSON CO. OR APPROVED EQUAL. CONNECTORS USED WITH PRESSURE TREATED LUMBER OR IN UNCONDITIONED SPACE, SHALL HAVE THE ZMAX (6185) COATING. ALL NAILS USED FOR CONNECTORS SHALL MATCH THOSE SPECIFIED BY THE SUPPLIER'S PRODUCT CATALOG.
- I. NAILING, UNLESS NOTED OTHERWISE, SHALL BE PER THE 2018 NORTH CAROLINA STATE BUILDING CODE.
12. ALL REFERENCES TO NAILS ON THE STRUCTURAL DRAWINGS ARE BASED ON COMMON WIRE NAILS (U.N.O.) WITH THE FOLLOWING DIMENSIONS, TYPICAL, U.N.O.  
8d COMMON: 0.131" DIA. X 2½" LONG  
10d COMMON: 0.148" DIA. X 3" LONG  
16d COMMON: 0.162" DIA. X 3½" LONG  
POWER AUTOMATED NAIL GUNS SHALL USE NAILS TO MATCH THE ABOVE NAILS AS SPECIFIED.

Statement of Special Inspections

This Statement of Special Inspections / Quality Assurance Plan includes the following building systems:

- ☒ Soils and Foundations  
☒ Cast-in-Place Concrete  
☐ Masonry

- ☐ Structural Steel  
☐ Wood Construction  
☒ Special Cases

General Notes

The inspectors and testing agencies shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official, prior to commencing work.

The qualifications of all personnel performing Special Inspections and testing activities are subject to the approval of the Building Official and E.O.R. The credentials of all inspectors and testing technicians shall be provided if requested.

The special inspectors shall keep records of inspections and shall furnish inspection reports to the owner, Engineer of Record (E.O.R.) and Architect of Record (A.O.R.). Field and testing result reports shall be submitted to all designated parties as they are completed. The reports shall indicate that the work performed was done in accordance to the construction drawings. Discrepancies shall be brought to the attention of the general contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the E.O.R. prior to completion of that phase of work. A final report that documents required special inspections and corrections of discrepancies shall be submitted by the General Contractor to the Owner, E.O.R. and A.O.R.

Soils and Foundations

Item	Scope	Monitoring: Periodic (P) Continuous (C)
1.Shallow Foundations	<i>Inspect soils below footings for adequate bearing capacity and consistency with geotechnical report.</i>	P
	<i>Inspect removal of unsuitable material and preparation of subgrade prior to placement of controlled fill.</i>	C
2.Controlled Structural Fill	<i>Perform sieve tests (ASTM D422 &amp; D1140) and modified Proctor tests (ASTM D1557) of each source of fill material.</i>  <i>Inspect placement, lift thickness and compaction of controlled fill.</i>  <i>Test density of each lift of fill by nuclear methods (ASTM D2922)</i>  <i>Verify extent and slope of fill placement.</i>	C

Note:

1. Special Inspection is not required during placement of controlled fill having a total depth of 12 inches or less.

Cast-in-Place Concrete

Item	Scope	Monitoring: Periodic (P) Continuous (C)
1.Mix Design	<i>Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design. Submit proposed mix design of each class of concrete to Structural Engineer of Record and to inspection and testing firm for review prior to commencement of work.</i>	P
2.Material Certification	<i>Review for conformance to contract documents. Submit to Structural Engineer of Record for review.</i>	P
3.Reinforcement Installation	<i>Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters. Submit certified copies of mill test report of reinforcement materials analysis.</i>	P
4.Anchor Rods	<i>Inspect size, positioning and embedment of anchor rods. Inspect concrete placement and consolidation around anchors.</i>	C
5.Concrete Placement	<i>Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.</i>	C
6.Sampling and Testing of Concrete	<i>Test concrete compressive strength (ASTM C31 &amp; C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064). Three concrete test cylinders will be taken for every 75 or less cubic yards of each class of concrete placed, or concrete placed on any given day. One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete represents.</i>	C
7.Curing and Protection	<i>Inspect curing, cold weather protection and hot weather protection procedures.</i>	P

Note: Special Inspection is not required for flatwork patios, driveways and sidewalks, on grade not shown on structural drawings.

Special Cases

Item	Scope	Monitoring: Periodic (P) Continuous (C)
Epoxy Anchors in Concrete or CMU	<i>Review anchors and product being used for conformance to contract documents. Observe installation for compliance to manufacturer's specifications. Perform pull test to 125% of allowable design load per manufacturer specifications. (Minimum of 10% of total anchors, to include a minimum of one of each type, size or embedment.)</i>	C



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Revisions:

File Name: 21255  
Project No: 21255  
Date: 11/23/21  
Drawn By:  
Checked By: T

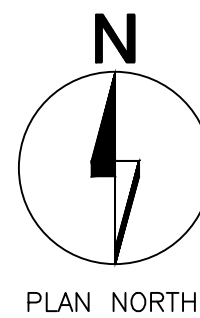
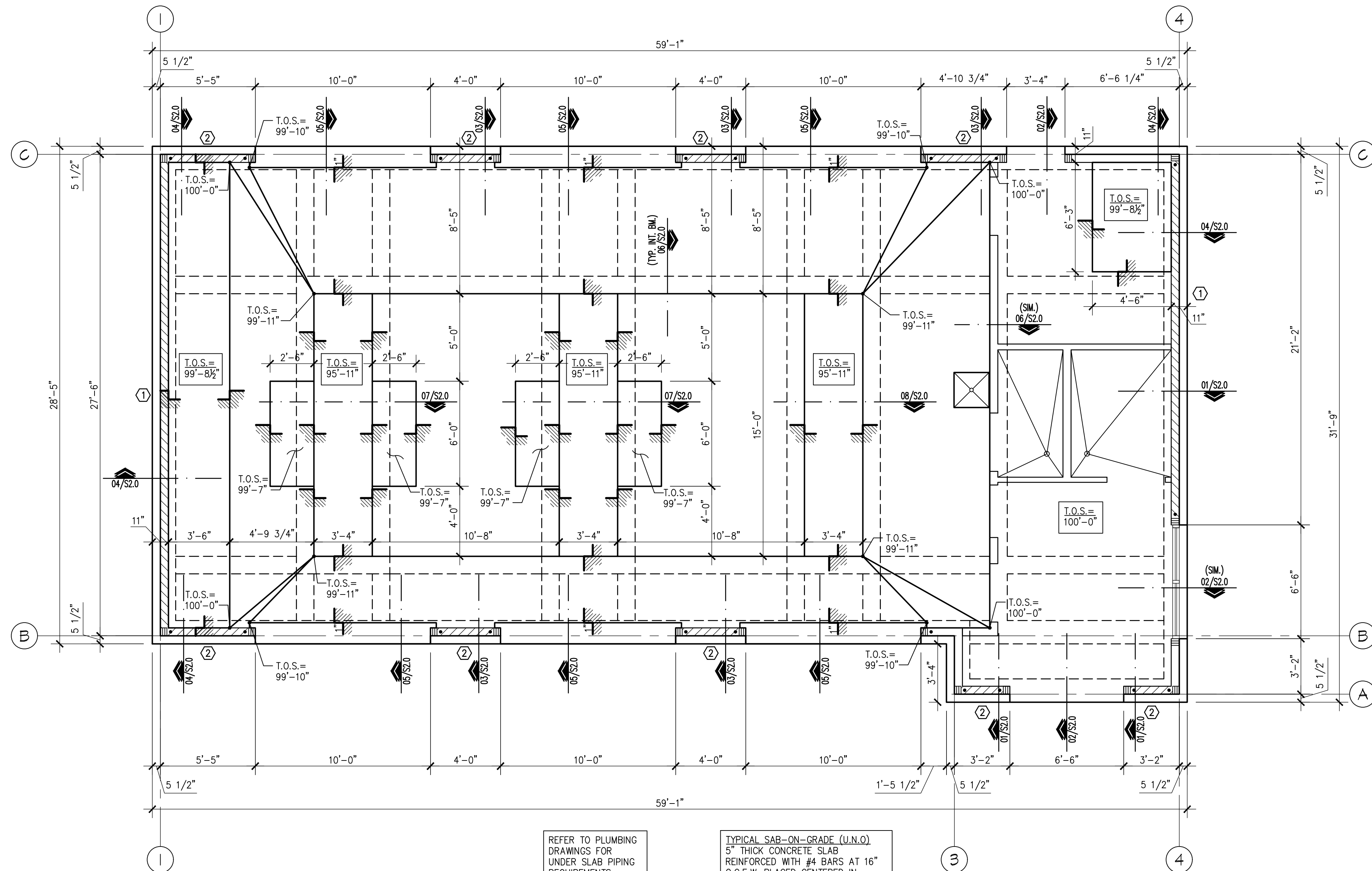
SHEET

S0.0

NOTES AND SPECIAL INSPECTIONS



X:\PROJECTS\21255\18 Strickland Brothers Charlotte NC\CADD\STRUCT\21255 Issue for Permit 12.16.2021\21255SET 0.dwg, S1.0, 12/16/2021 3:59:52 PM, c:\erharts, DWG to PDF.pc3, HPCL full bleed D (24.00 x 36.00 inches), 1:1



# **01 FOUNDATION PLAN**

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

## PLAN NOTES:

1. REF. SHEET S0.0 FOR STRUCTURAL NOTES AND SPECIAL INSPECTION REQUIREMENTS.
2. REF. 09/S2.0 FOR TYPICAL CORNER BAR DETAIL AS REQUIRED.
3. REF. 10/S2.0 FOR TYPICAL SLAB RECESS DETAIL AS REQUIRED.
4. REF. 01/S2.1 FOR TYPICAL GRADE BEAM PENETRATION DETAIL AS REQUIRED.
5. REF. 02/S2.1 FOR TYPICAL CURB DETAIL AS REQUIRED.
6. (\*) INDICATES SIMPSON HDU HOLDDOWN. REFER TO SHEARWALL SCHEDULE ON S1.1 FOR SIZE AND 03/S2.1 FOR TYPICAL HOLDOWN DETAIL.



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SHEET

**S1.0**

FOUNDATION  
PLAN

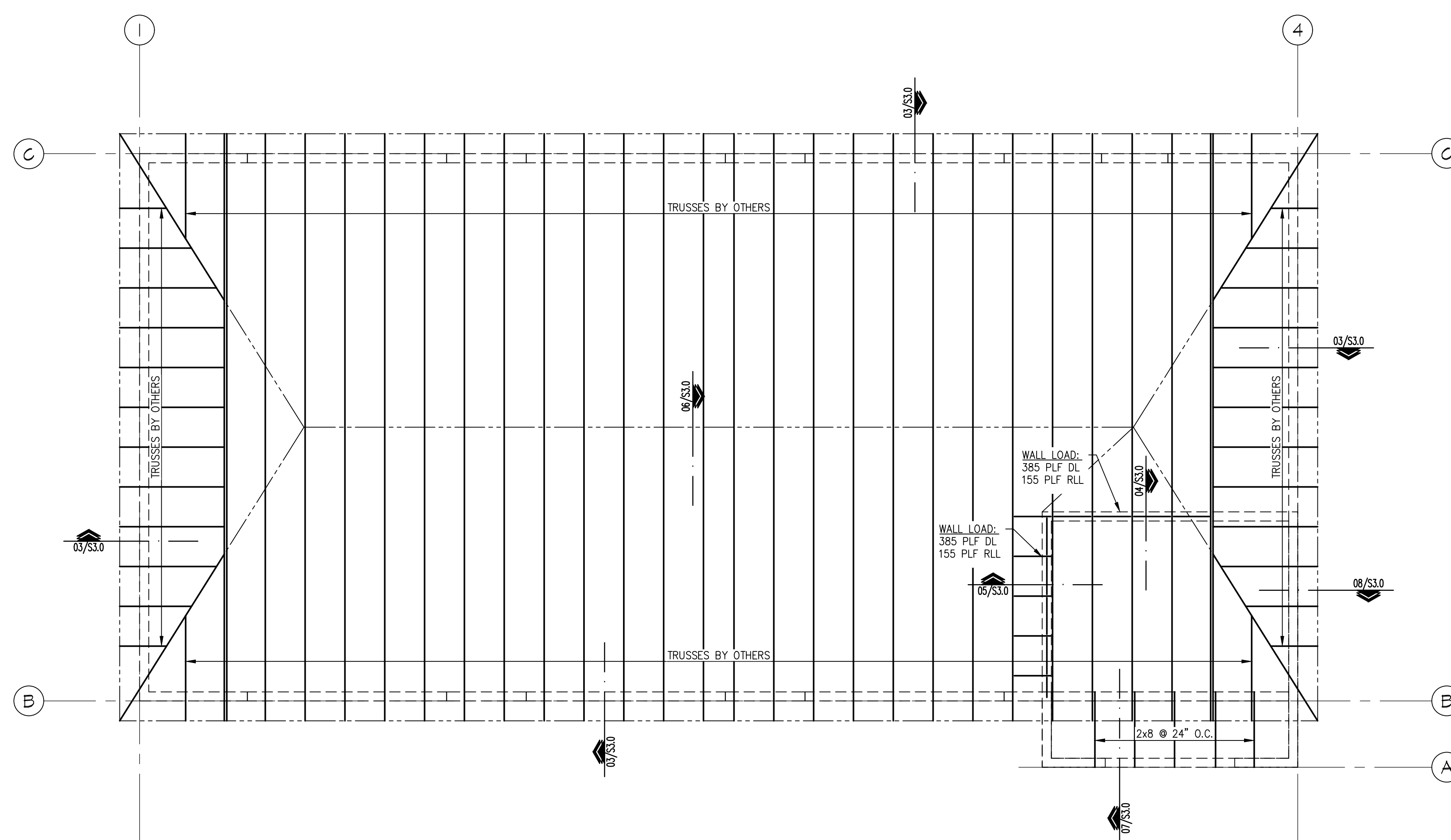


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Project No: 21255  
Date: 11/23/21  
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Checked By: T

## S1.2

## ROOF FRAMING PLANS

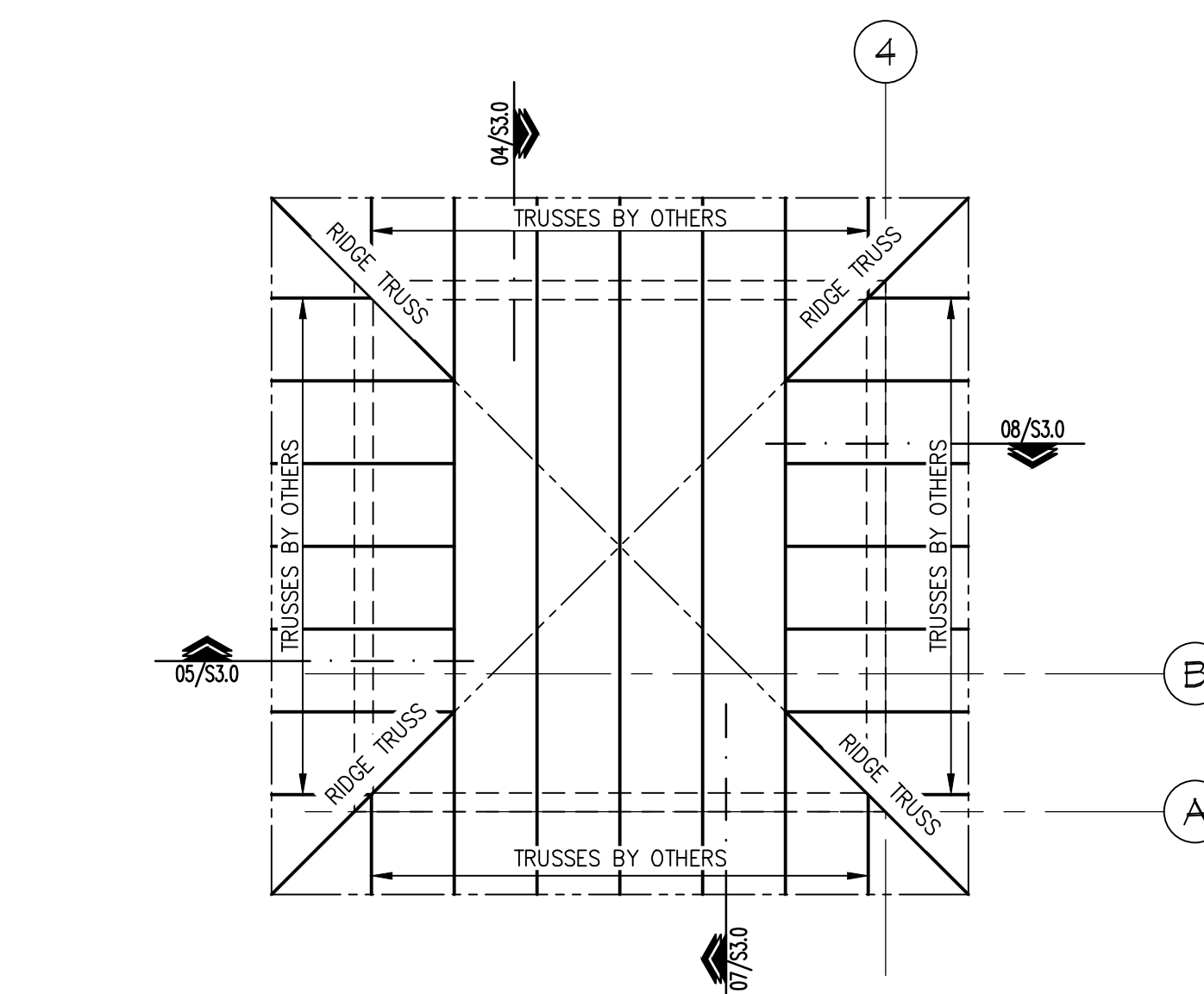


## 01 ROOF FRAMING PLAN

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

PLAN NOTES:

1. REF. SHEET S0.1 FOR STRUCTURAL NOTES AND SPECIAL INSPECTION REQUIREMENTS.
2. ROOF TRUSSES (U.N.O) ARE TO BE MANUFACTURED WOOD TRUSSES DESIGNED BY OTHERS. MAXIMUM SPACING SHALL BE 24" O.C. TRUSS LINES INDICATED ARE GRAPHICAL REPRESENTATION ONLY. ACTUAL LAYOUT SHALL BE SPECIFIED BY THE TRUSS MANUFACTURER. REFER TO S0.1 FOR GENERAL TRUSS DESIGN NOTES.
3. REFER TO 10/S3.0 FOR TYPICAL ROOF DIAPHRAGM NAILING AND DECK LAYOUT REQUIREMENTS.
4. REFER TO 03/S3.1 FOR TYPICAL (2) 2X BEARING PLATE SPLICE REQUIREMENTS.



**02 TOWER ROOF FRAMING PLAN**  
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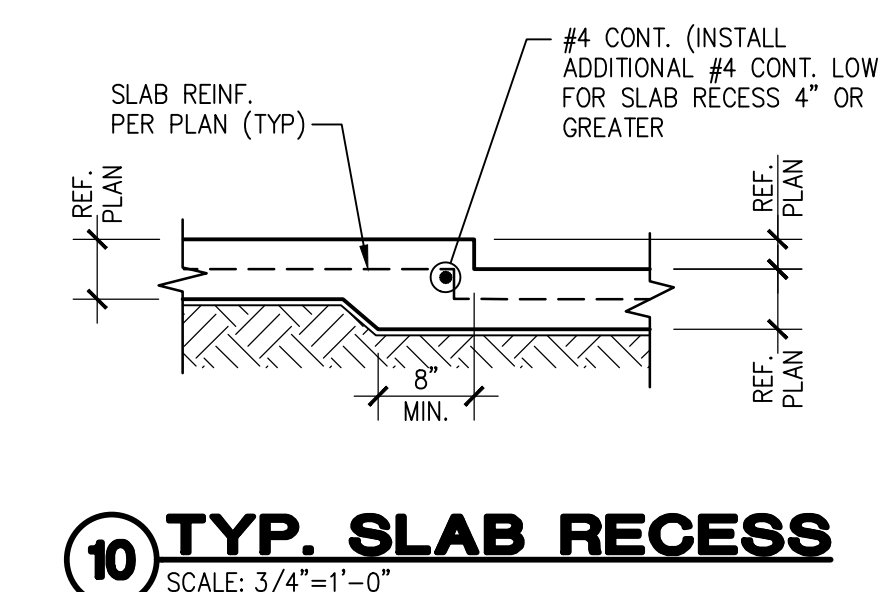
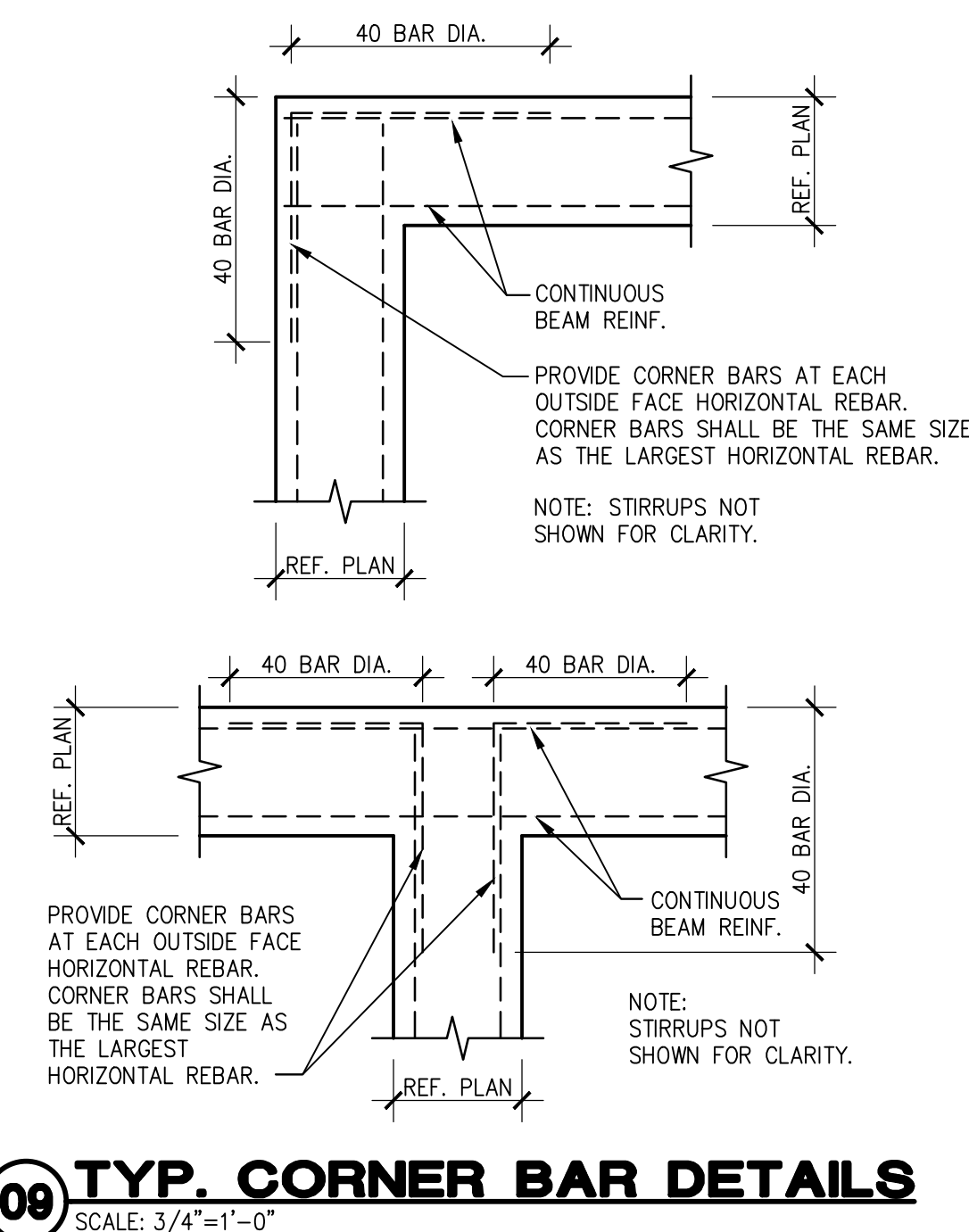
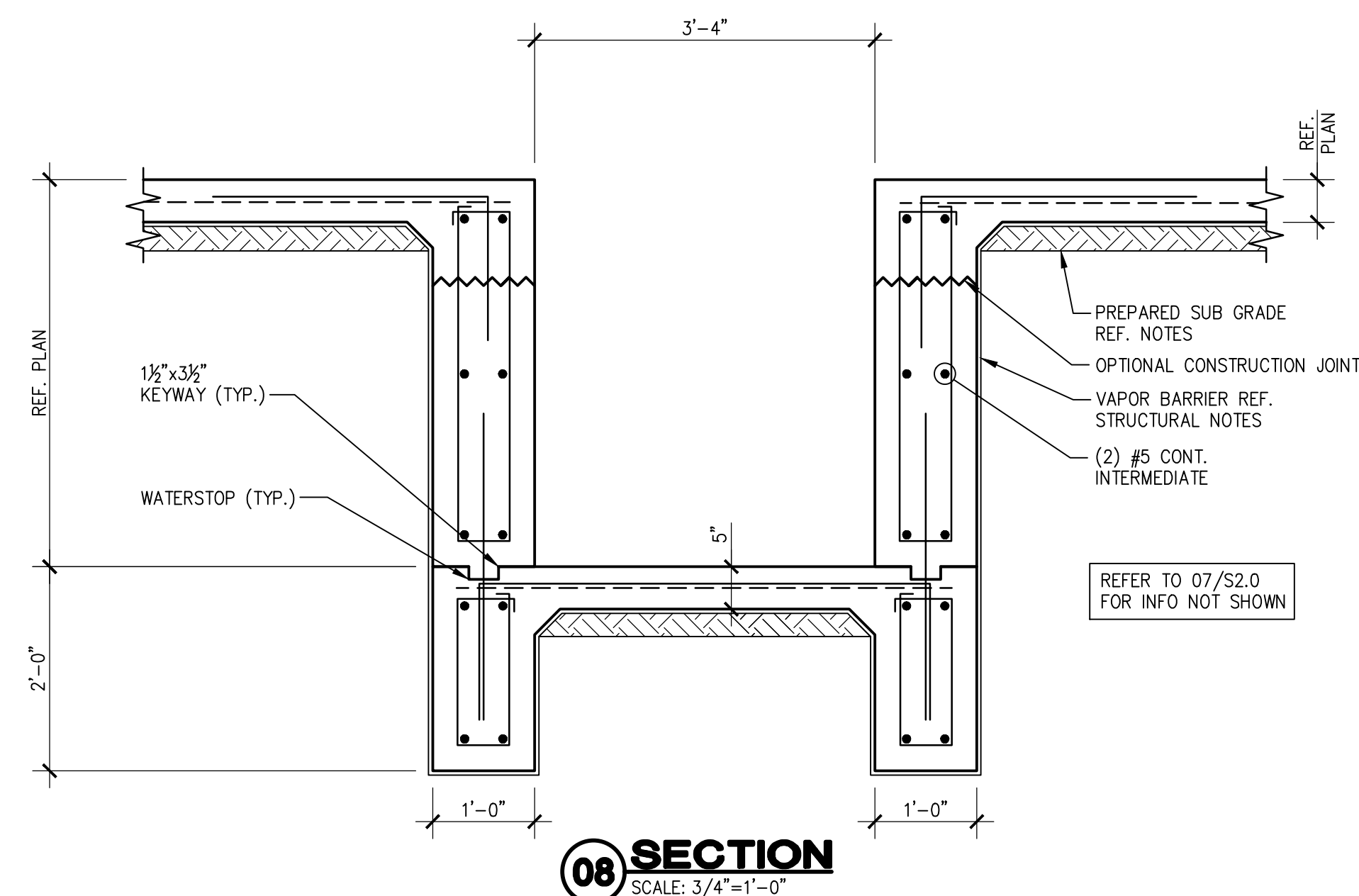
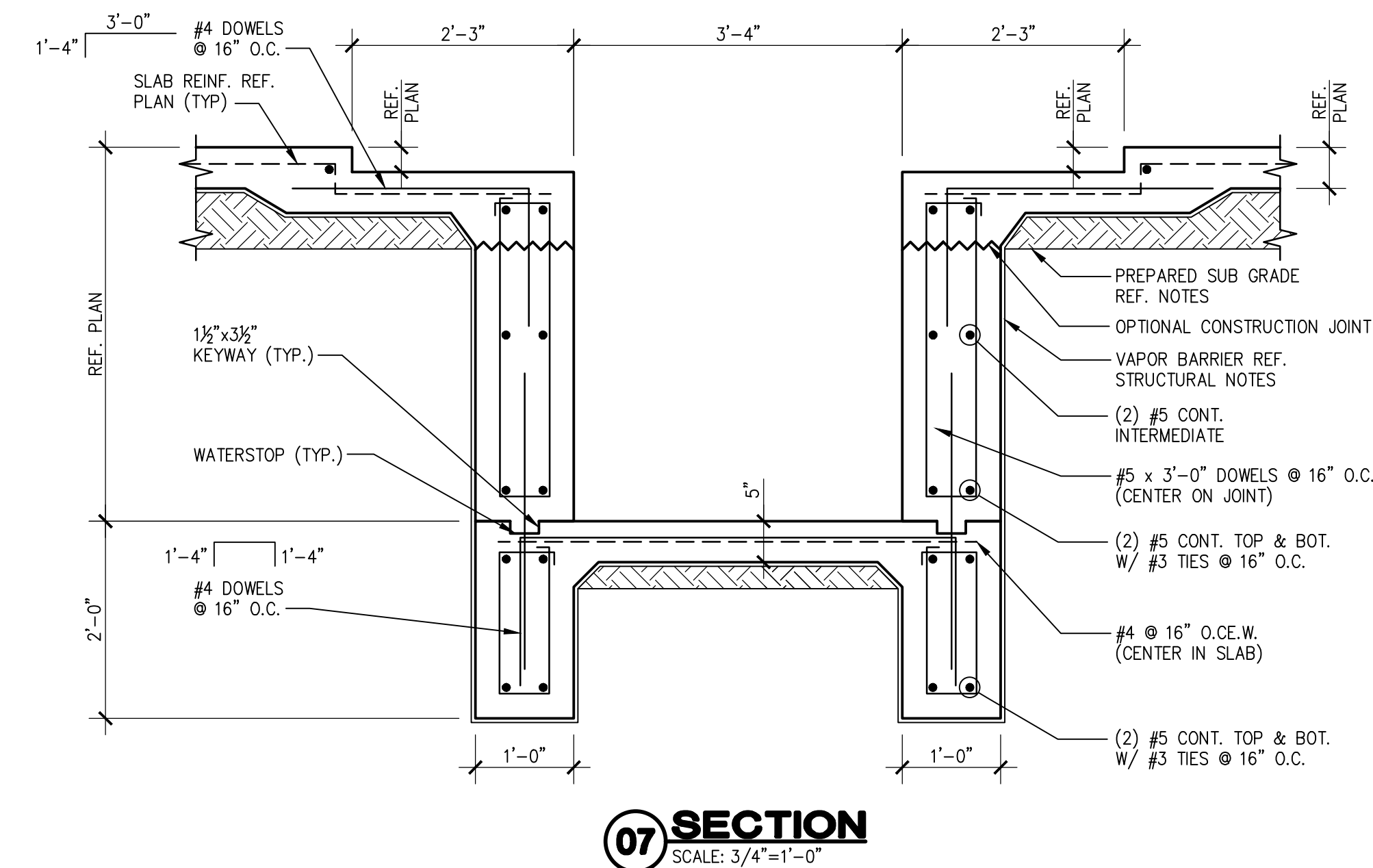
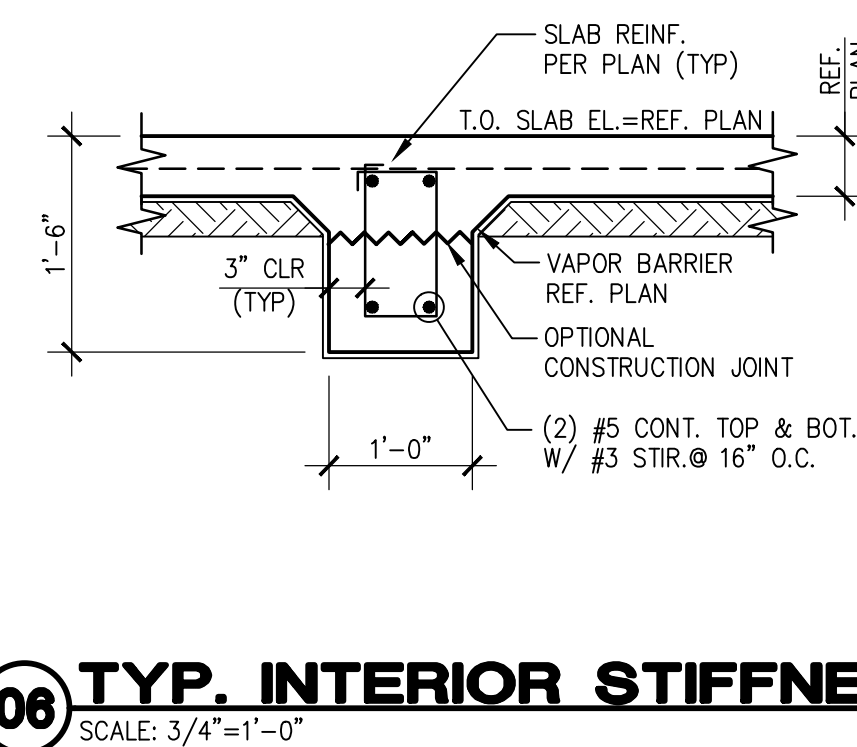
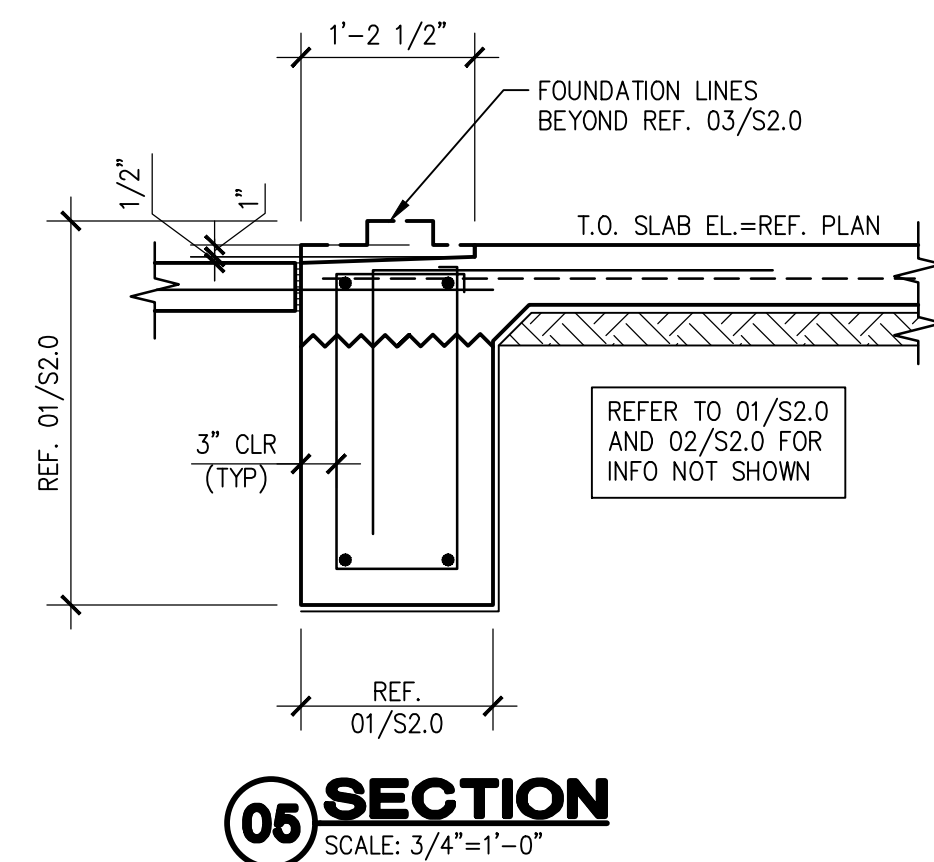
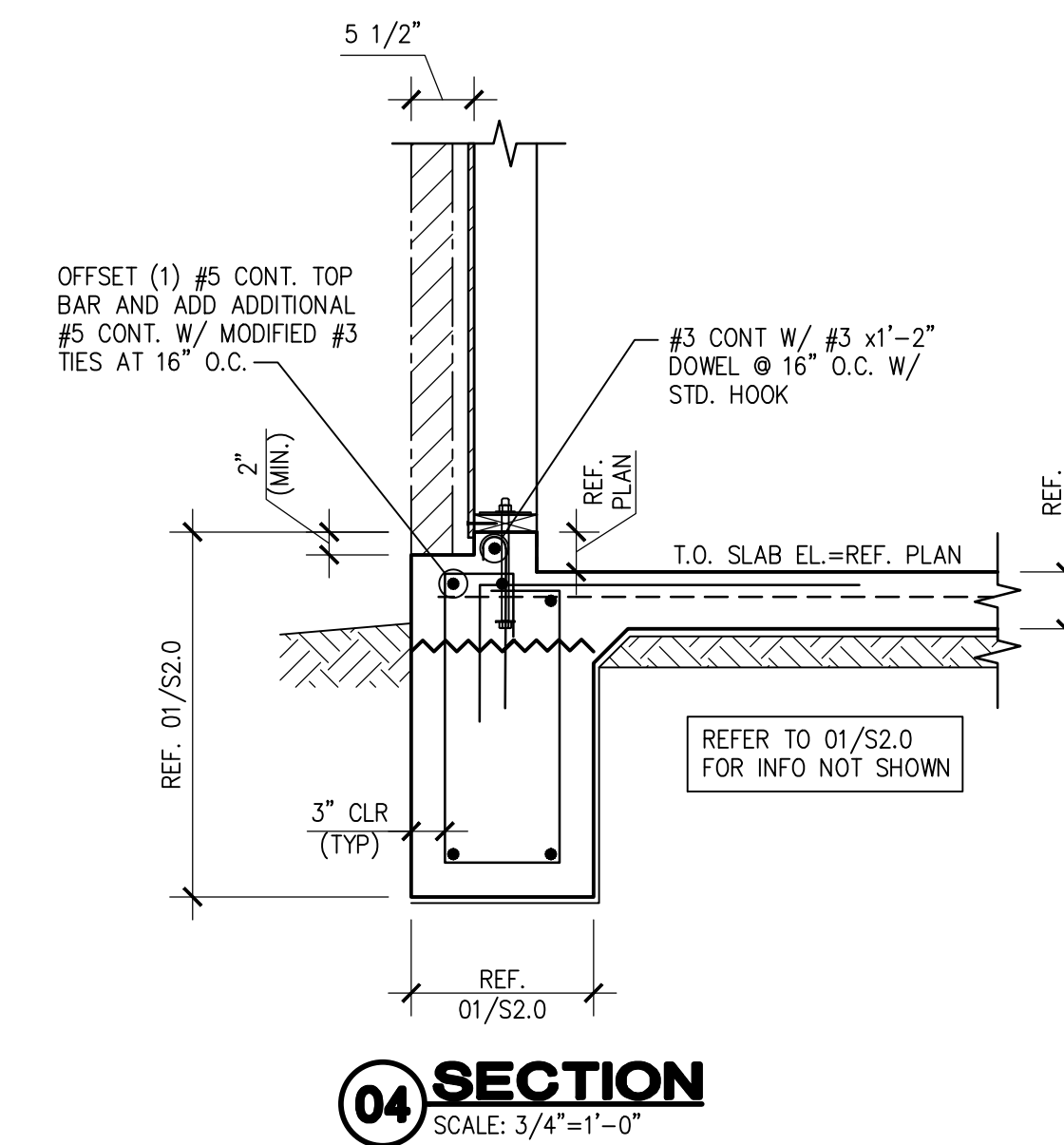
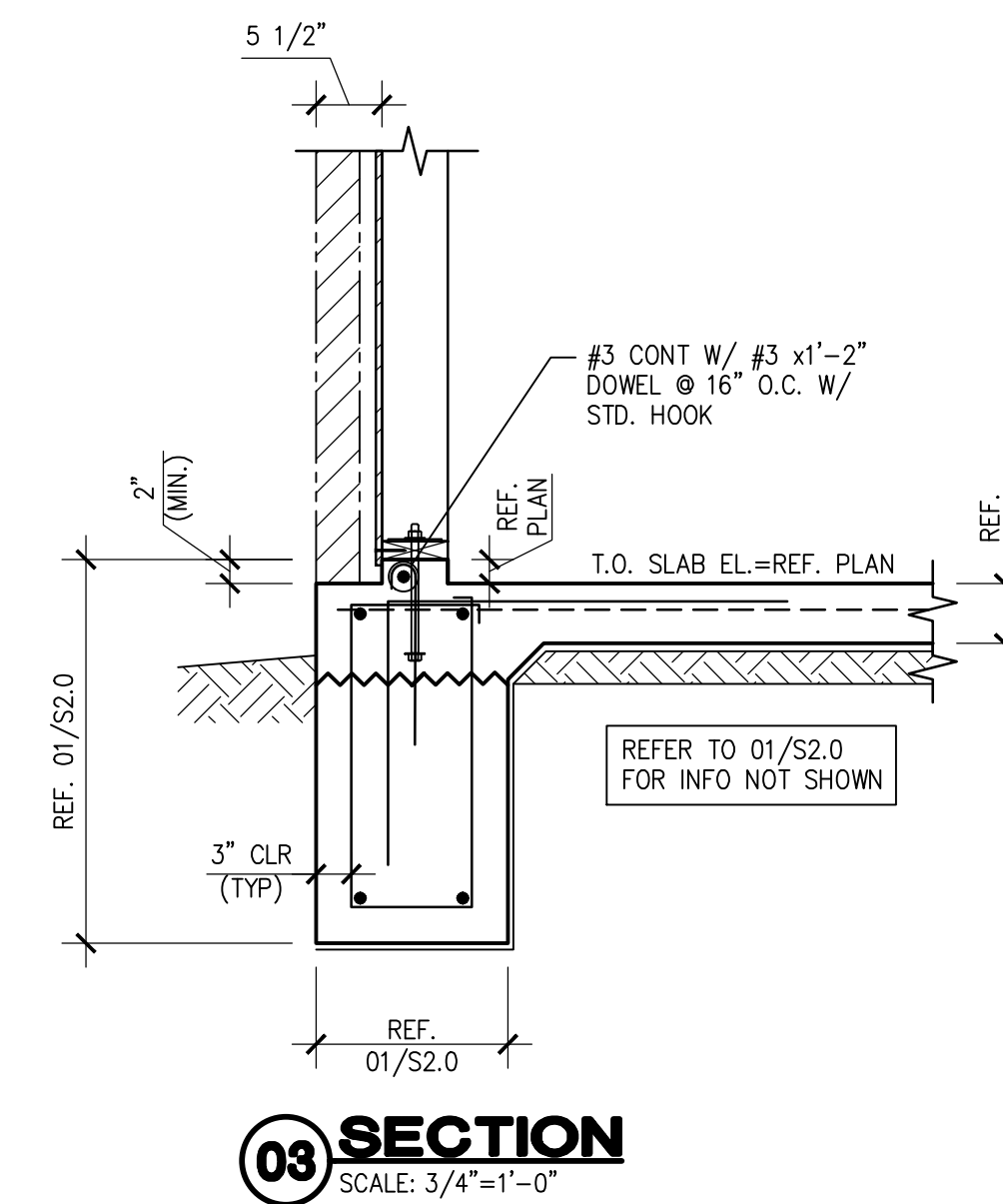
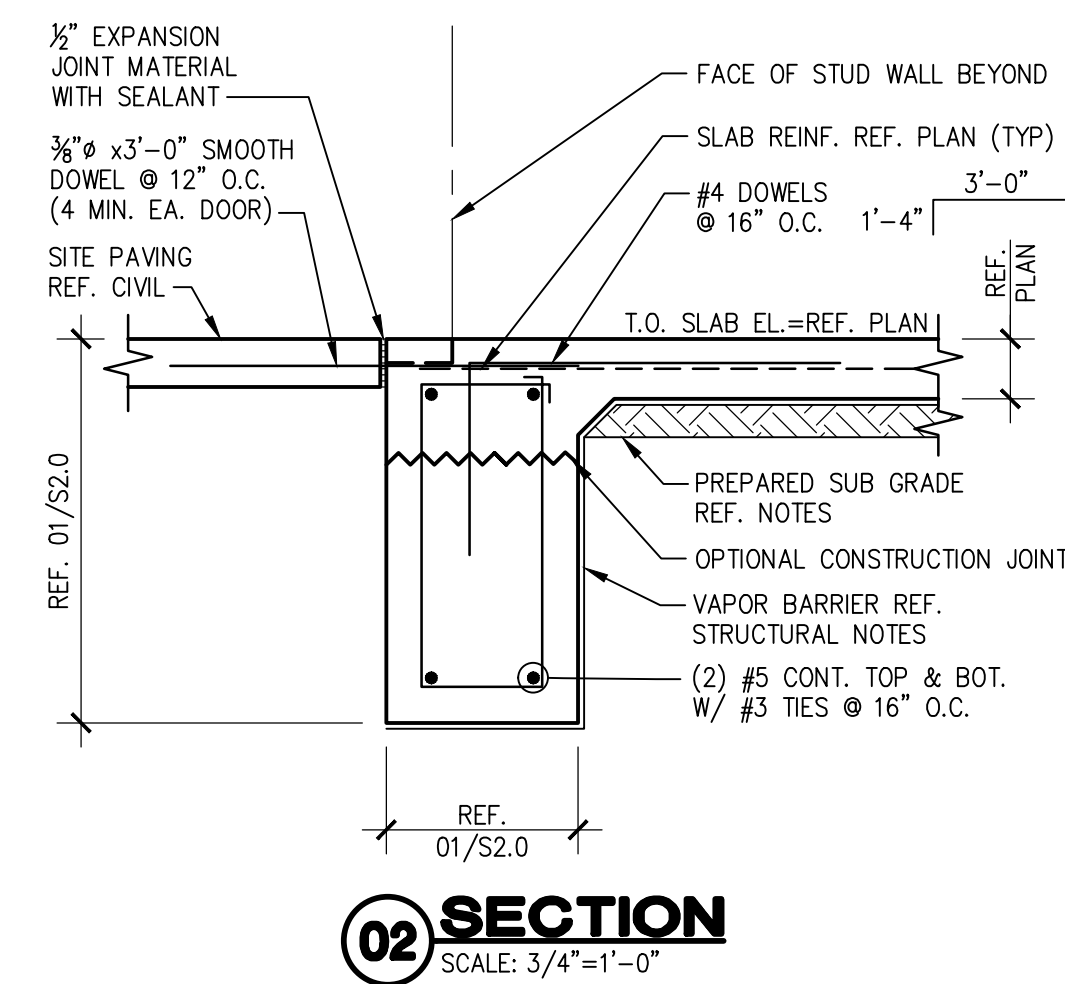
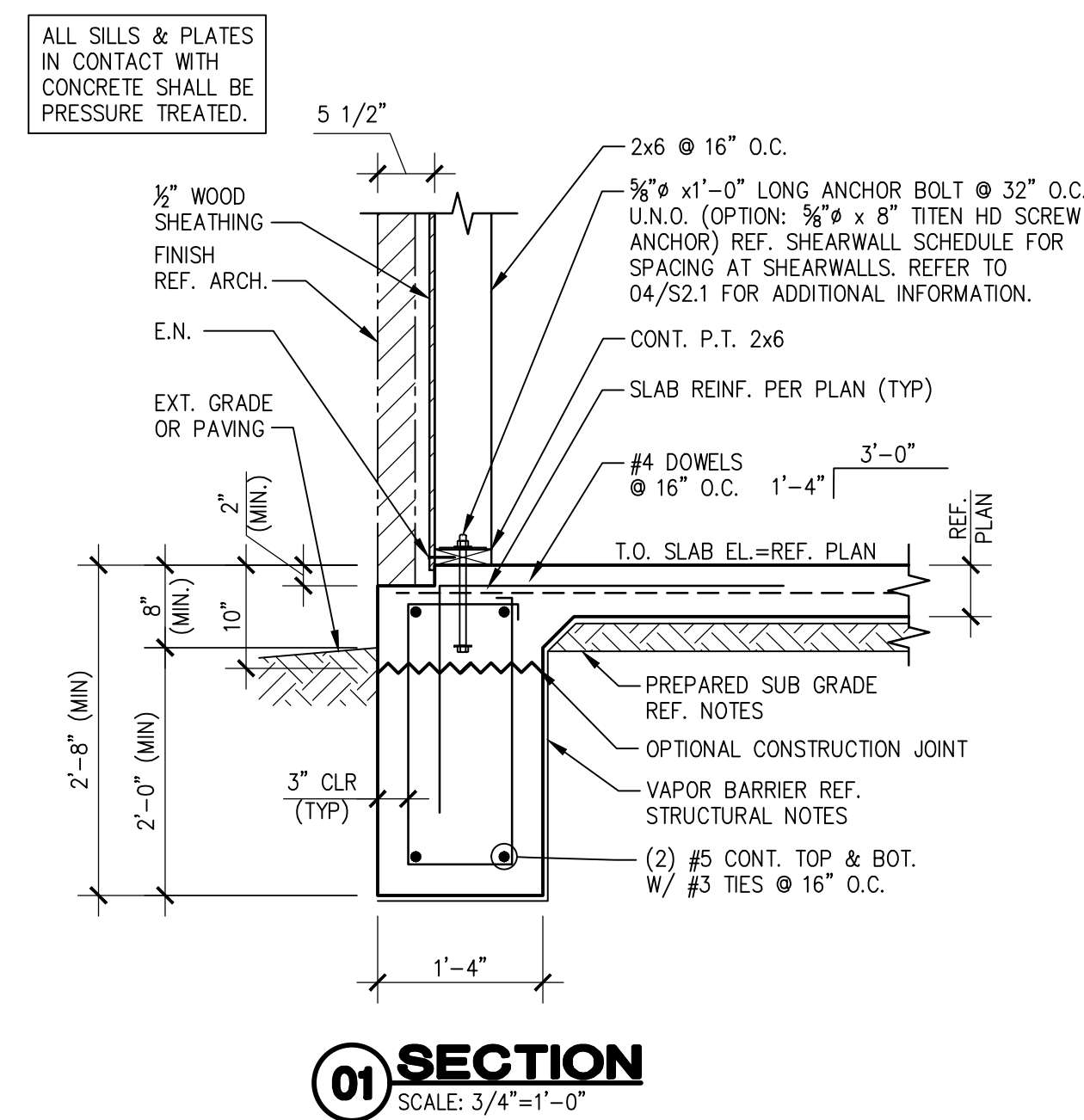
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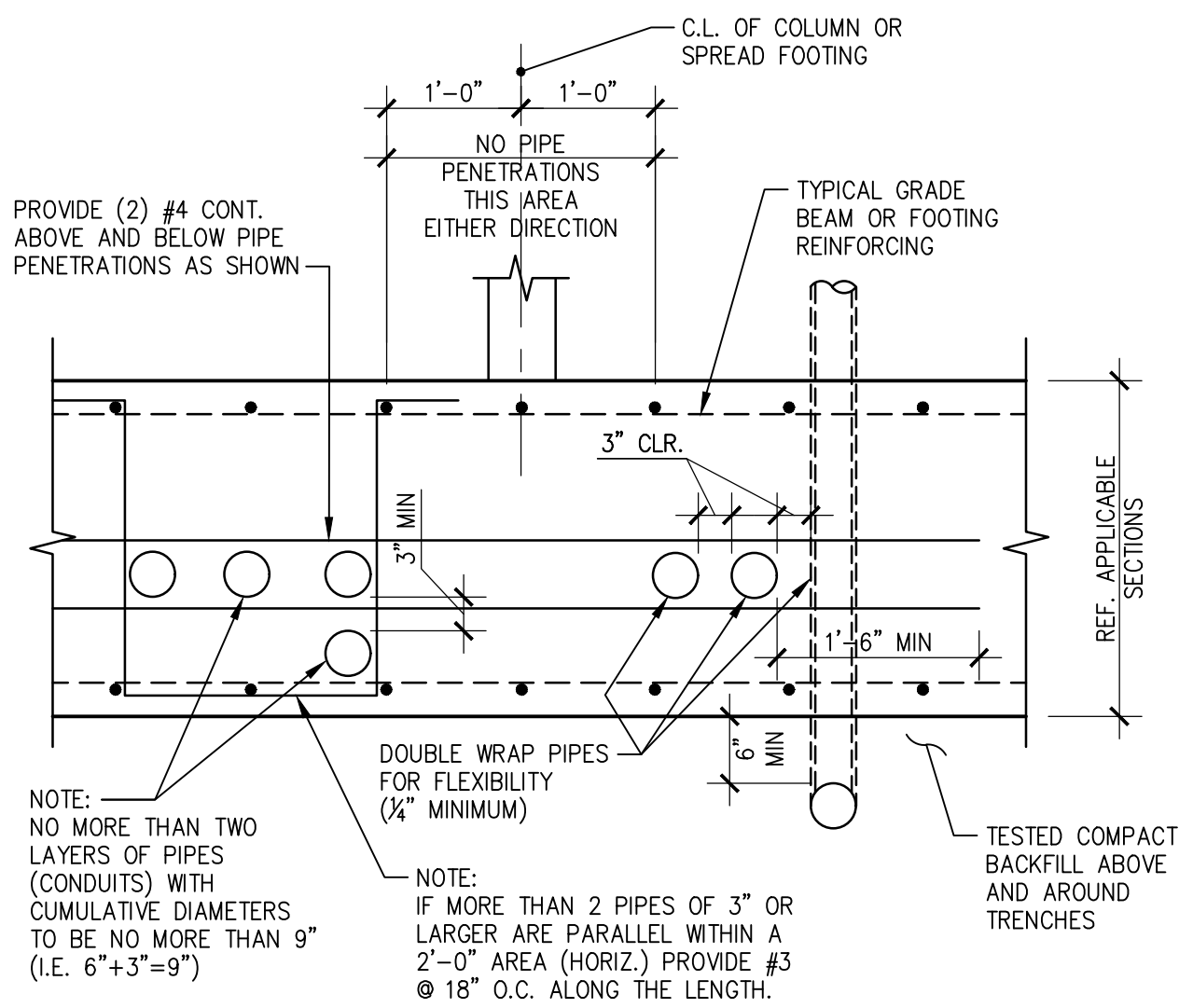




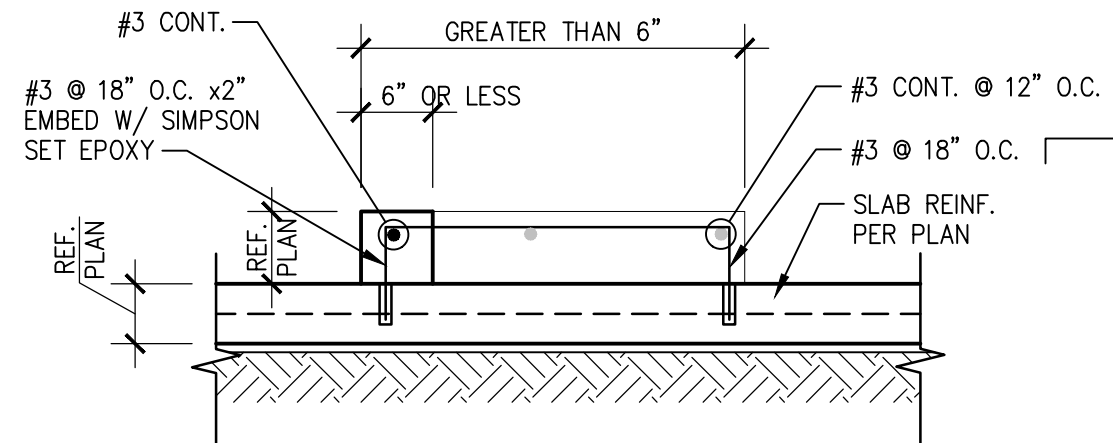
**RONALD A.  
ROBERTS, P.E.**

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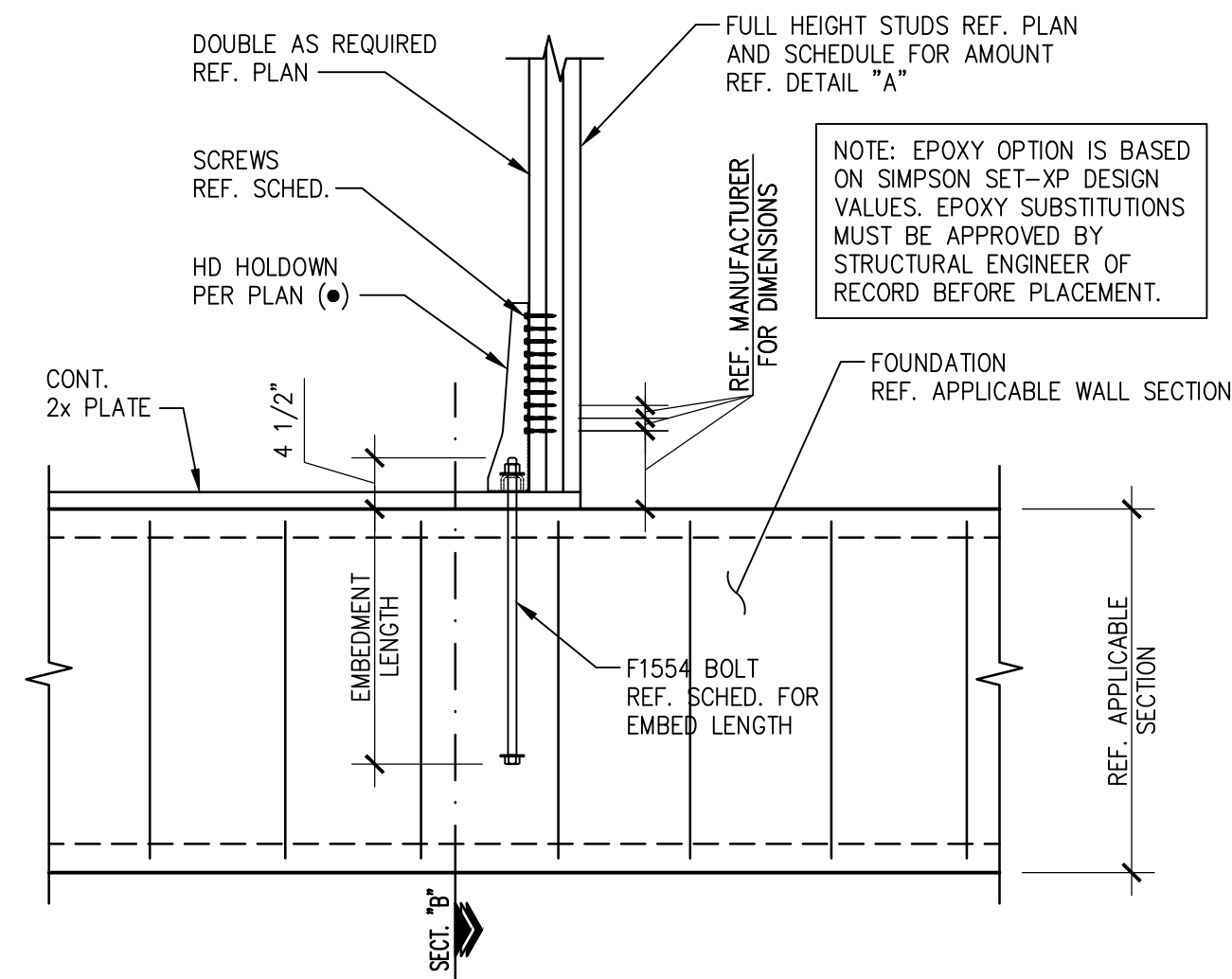
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**01 TYP. PENETRATION THRU FOOTINGS OR GRADE BEAMS**  
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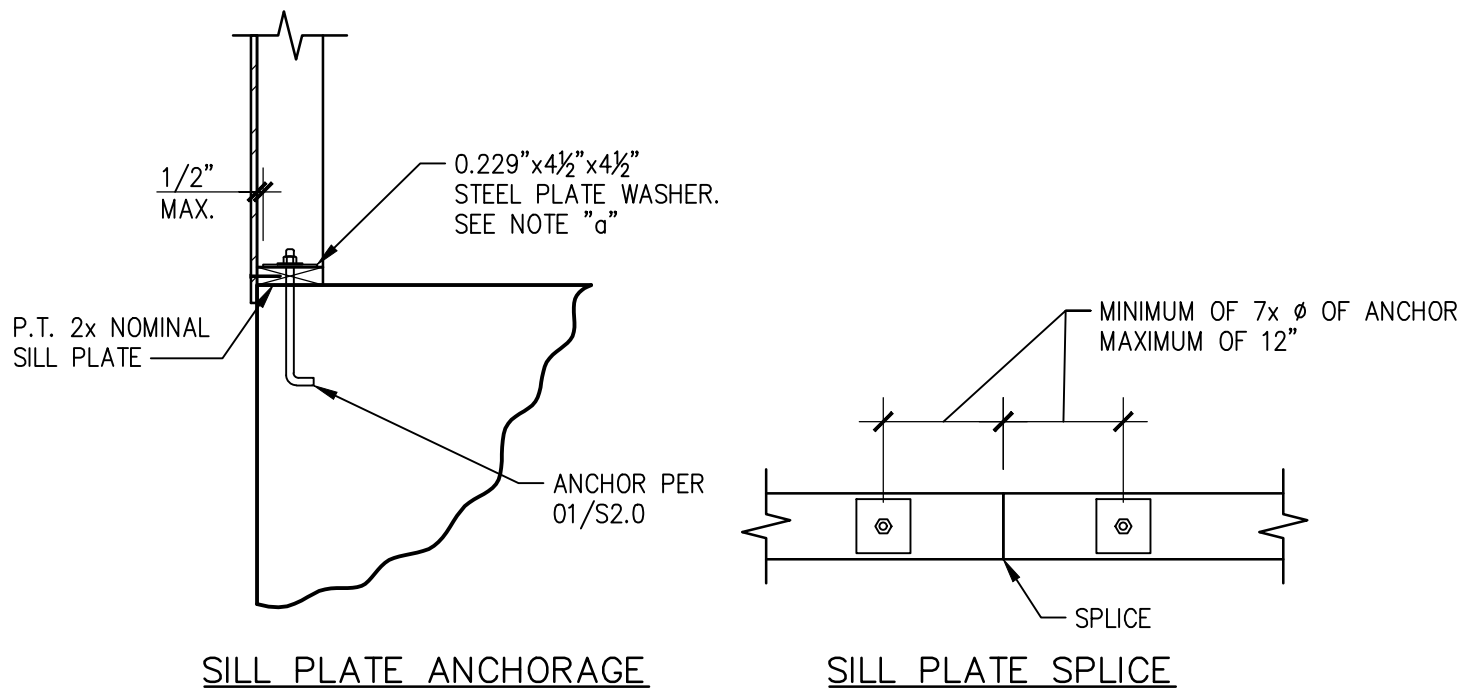
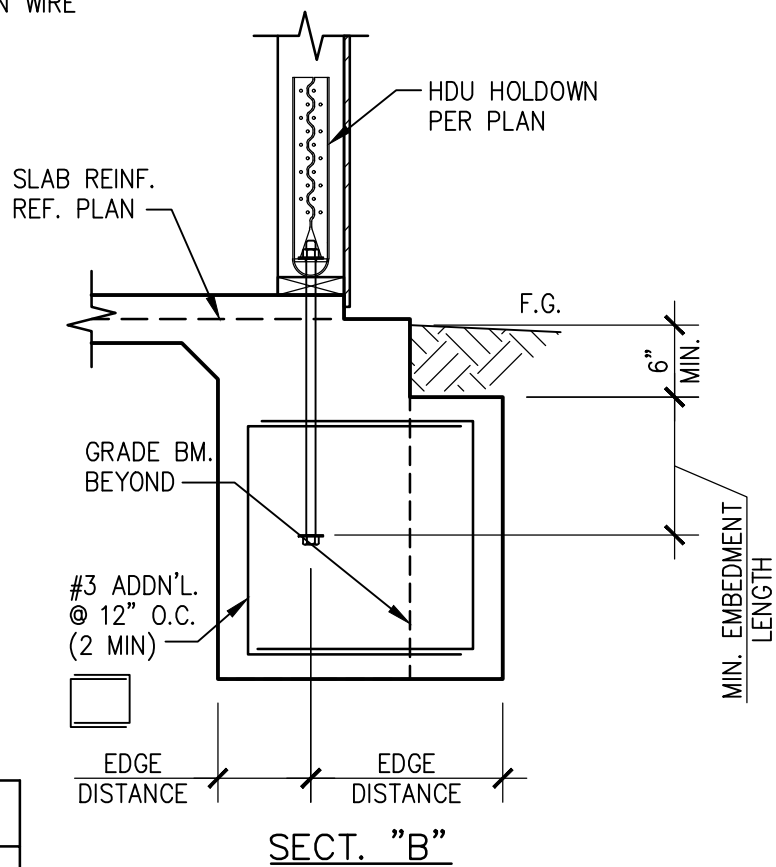
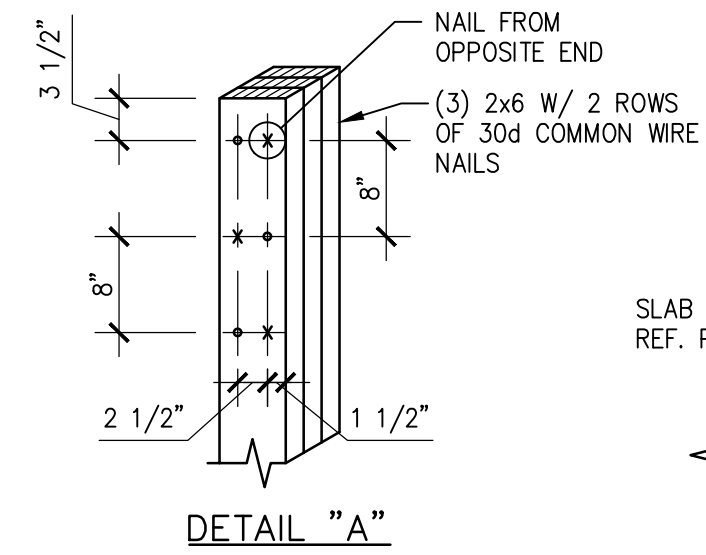


**02 TYP. CURB**  
SCALE: 3/4"=1'-0"



HOLDOWN	POST/2x	BOLT/SCREW #	ANCH. BOLT	EDGE DISTANCE	CAST IN PLACE REQUIREMENTS BOLT EMBED	EPOXY OPTION REQUIREMENTS BOLT EMBED
HDU5-SDS2.5	3	(14) SDS 1/4"x2 1/2"	3/8" Ø	14"	1'-0"	1'-0"
HDU8-SDS2.5	3	(20) SDS 1/4"x2 1/2"	7/8" Ø	14"	1'-0"	1'-0"
HDU11-SDS2.5	4x6	(30) SDS 1/4"x2 1/2"	1" Ø	16"	1'-2"	1'-4"
HDU14-SDS2.5	6x6	(36) SDS 1/4"x2 1/2"	1" Ø	16"	1'-2"	1'-4"

**03 TYP. HOLDOWN DETAIL**  
SCALE: 3/4"=1'-0"



NOTES:

- a. IF STANDARD CUT WASHER IS PLACED BETWEEN PLATE WASHER AND NUT, THE HOLE IN THE PLATE WASHER MAY BE DIAGONALLY SLOTTED UP TO 1 3/4" WITH WIDTH UP TO 3/16" LARGER THAN BOLT DIAMETER.

**04 TYP. SILL PLATE ANCHORAGE**  
SCALE: 3/4"=1'-0"

BAR SIZE	STRAIGHT BARS		HOOKED BARS
	"TOP" BAR	OTHER BAR	
3	1'-10"	1'-5"	0'-9"
4	2'-5"	1'-10"	0'-11"
5	3'-0"	2'-4"	1'-2"
6	3'-7"	2'-9"	1'-5"
7	5'-3"	4'-0"	1'-8"
8	6'-0"	4'-7"	1'-10"
9	6'-8"	5'-2"	2'-1"
10	7'-5"	5'-9"	2'-4"
11	8'-2"	6'-4"	2'-6"

GRADE 60 REINFORCEMENT. MINIMUM LENGTHS SHOWN ABOVE SHALL BE USED UNLESS OTHERWISE NOTED ON THE PLANS. "TOP" BARS ARE HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

BAR SIZE	SPACING 6" OR GREATER		SPACING LESS THAN 6"	
	"TOP" BAR	OTHER BAR	"TOP" BAR	OTHER BAR
3	2'-5"	1'-10"	2'-11"	2'-3"
4	3'-2"	2'-5"	3'-10"	2'-11"
5	3'-11"	3'-1"	4'-9"	3'-9"
6	4'-8"	3'-7"	5'-8"	4'-4"
7	6'-10"	5'-3"	8'-3"	6'-4"
8	7'-10"	6'-0"	9'-5"	7'-3"
9	8'-8"	6'-9"	10'-5"	8'-2"
10	9'-8"	7'-6"	11'-8"	9'-0"
11	10'-8"	8'-3"	12'-10"	9'-11"

GRADE 60 REINFORCEMENT. MINIMUM LENGTHS SHOWN ABOVE SHALL BE USED UNLESS OTHERWISE NOTED ON THE PLANS. "TOP" BARS ARE HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.



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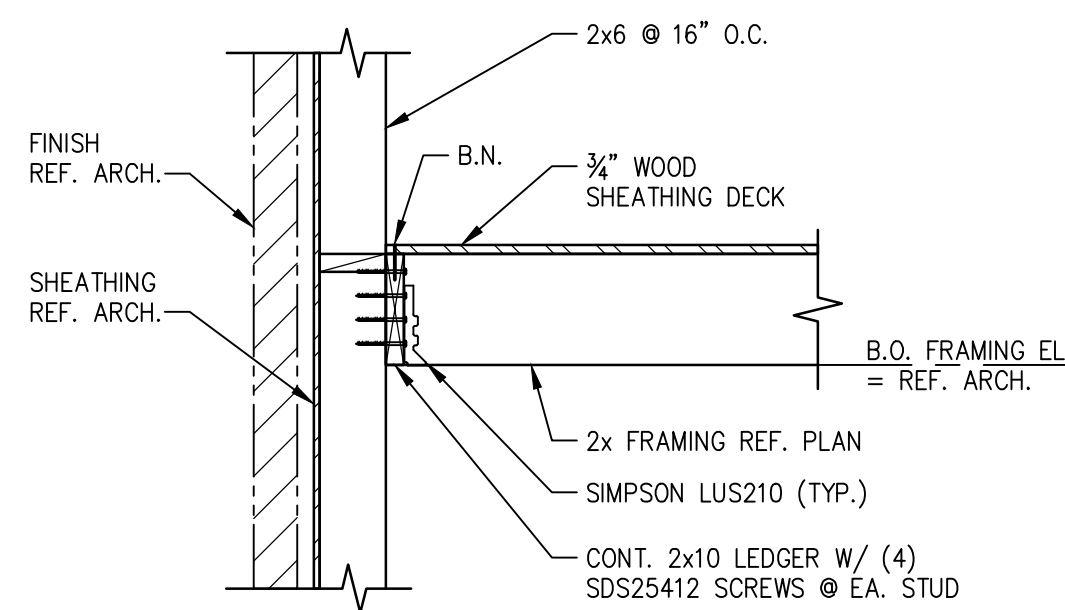
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CHARLOTTE, NORTH CAROLINA 28215

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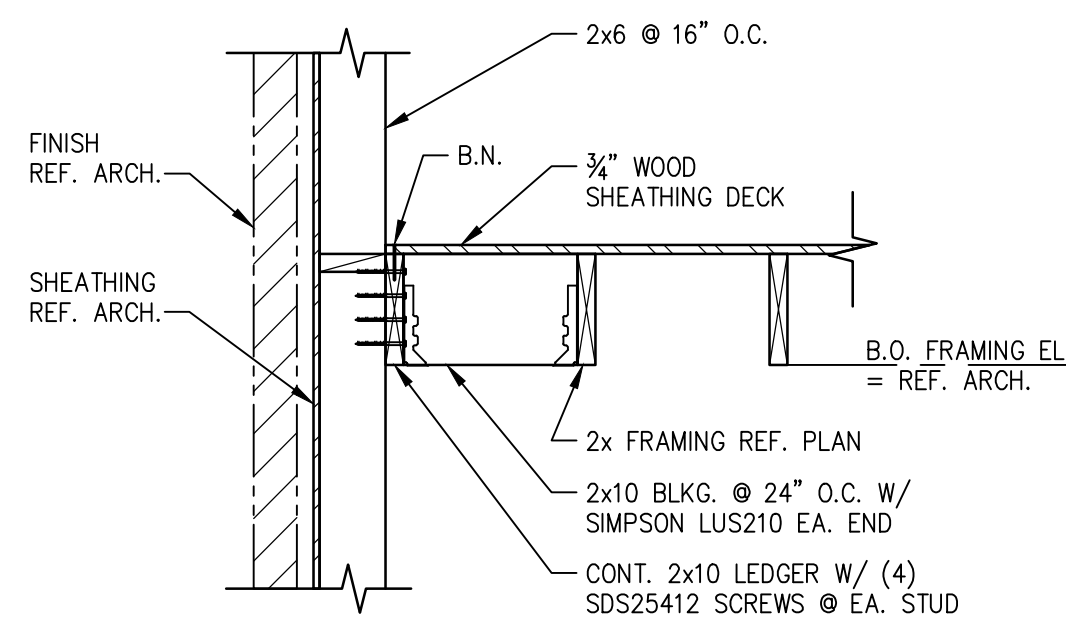
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Project No: 21255  
Date: 11/23/21  
Drawn By:  
Checked By: T1

SHEET  
**S2.1**  
FOUNDATION  
DETAILS

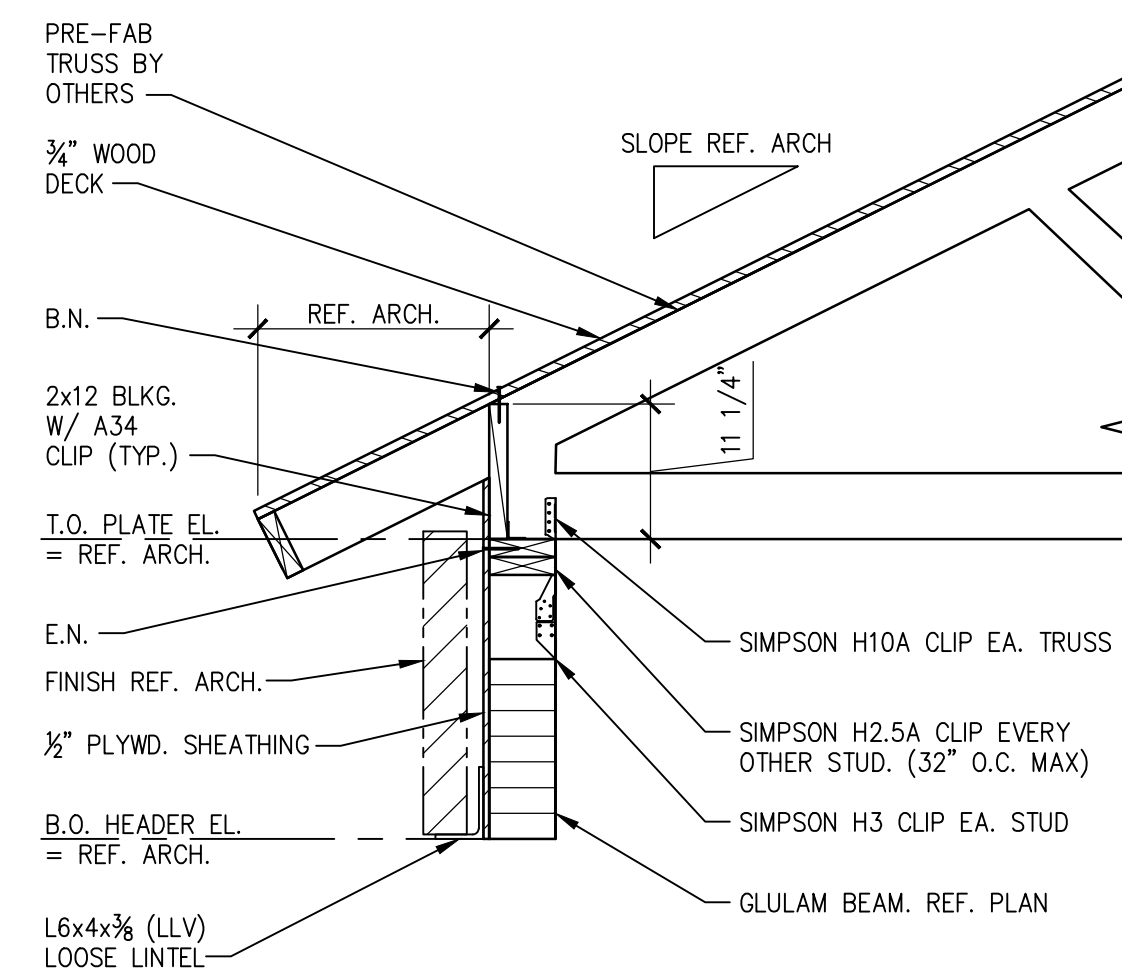




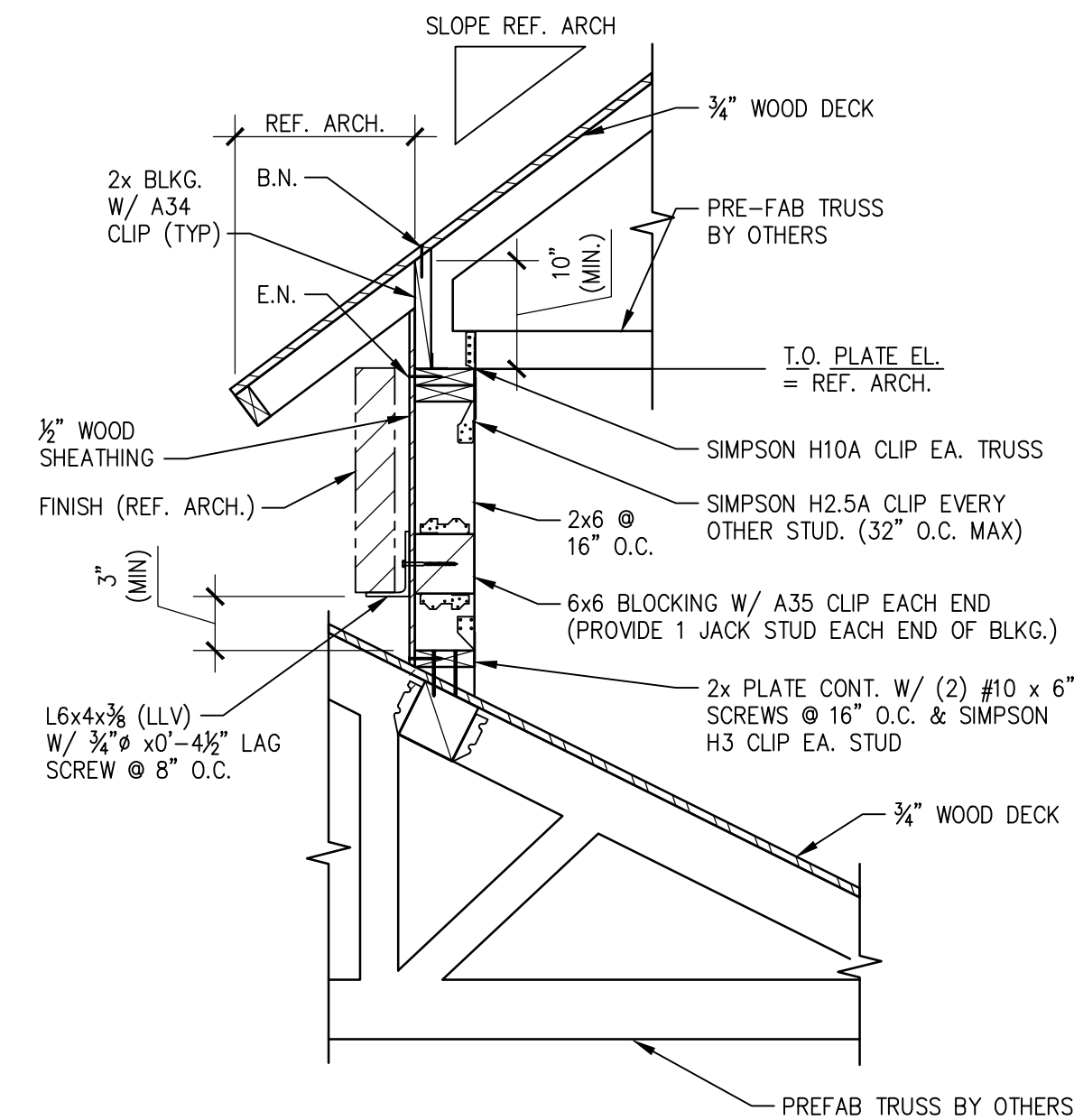
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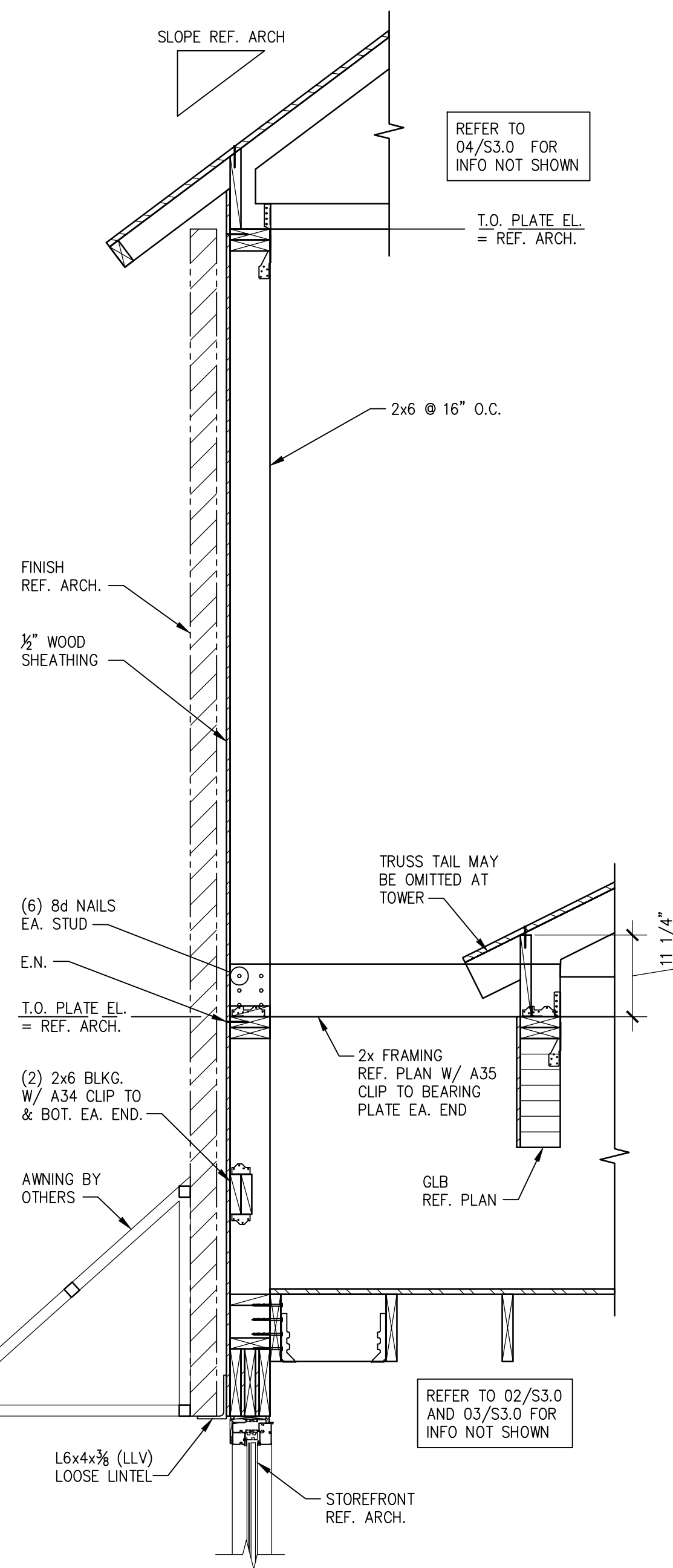
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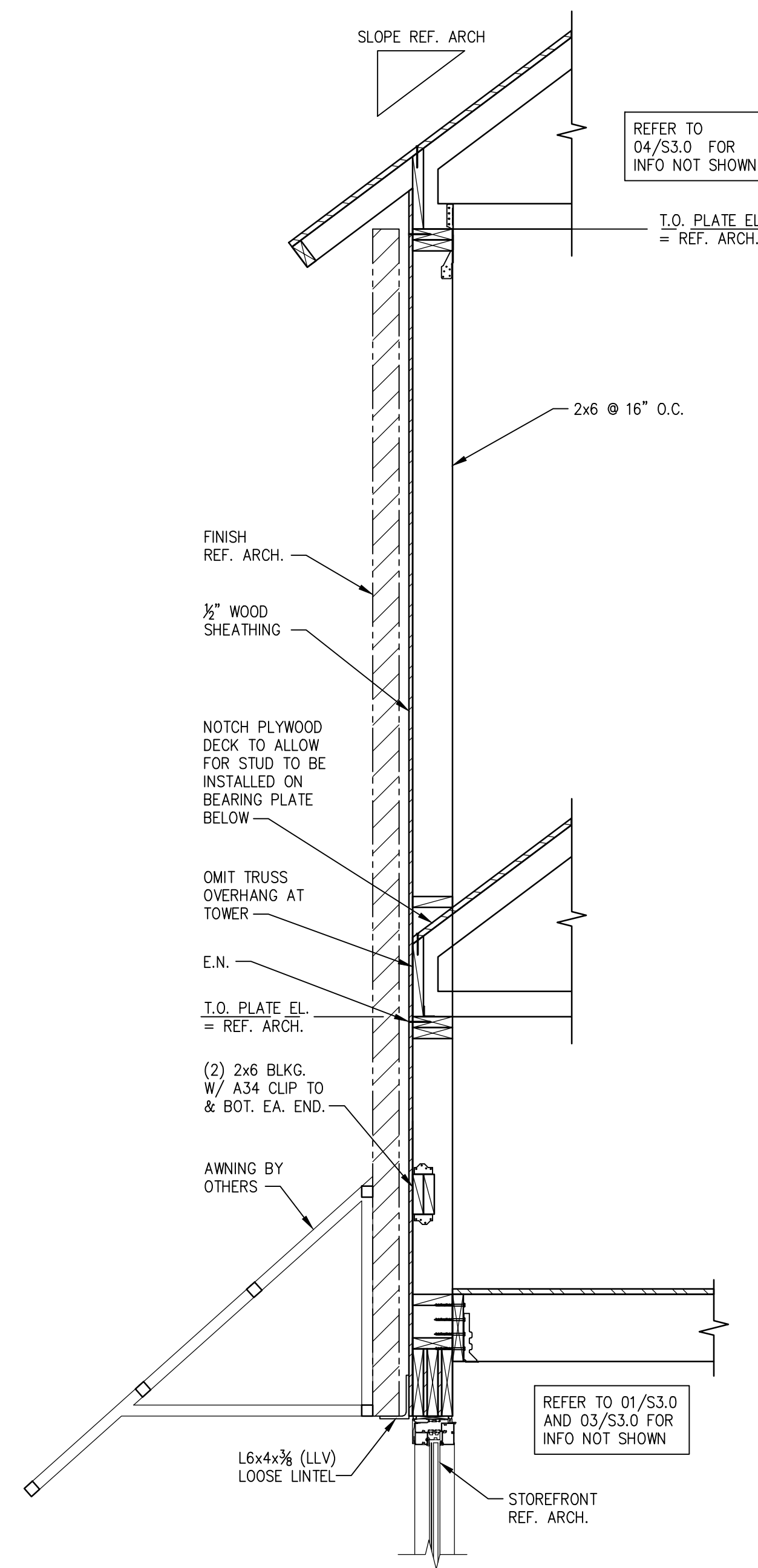
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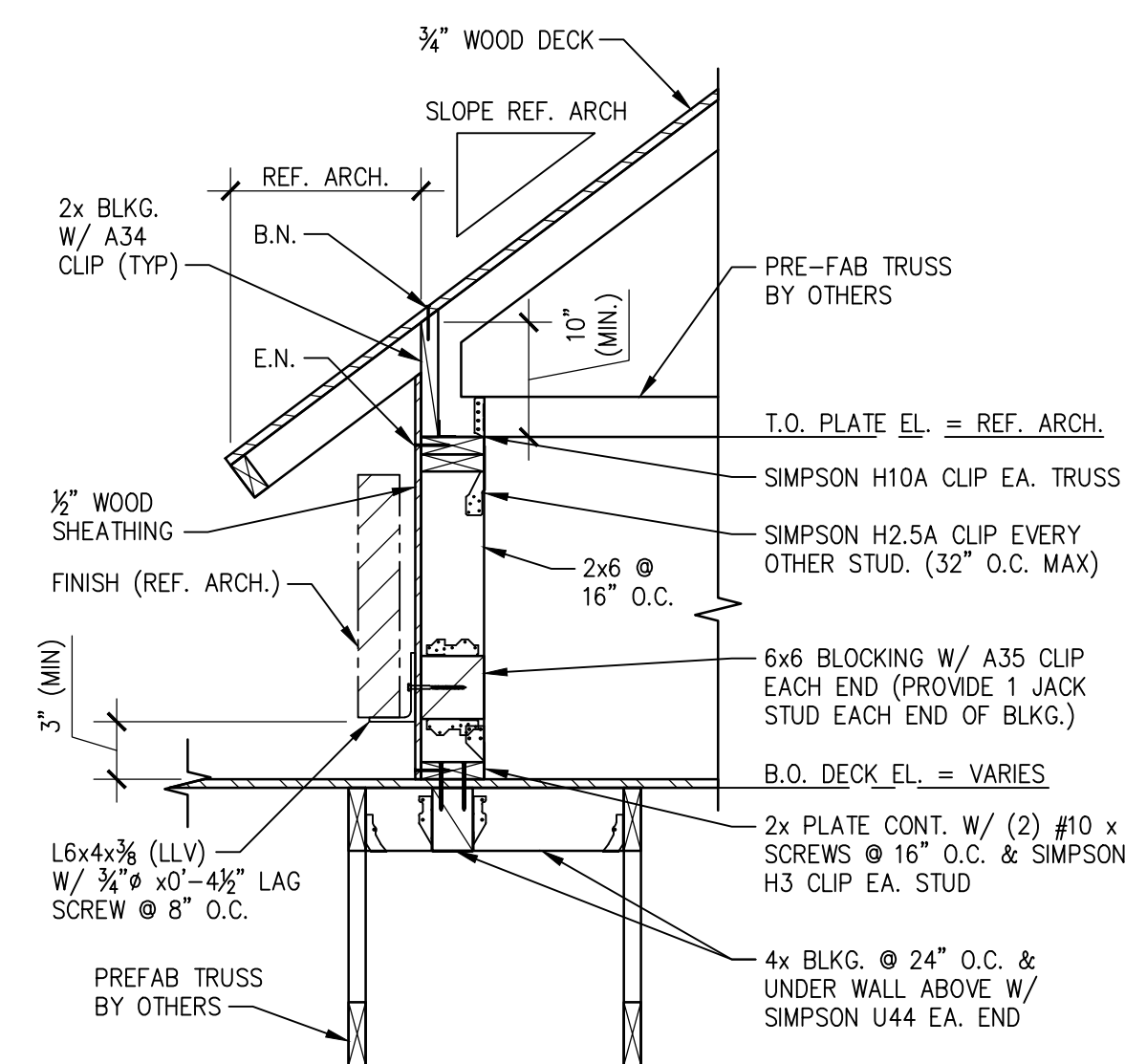
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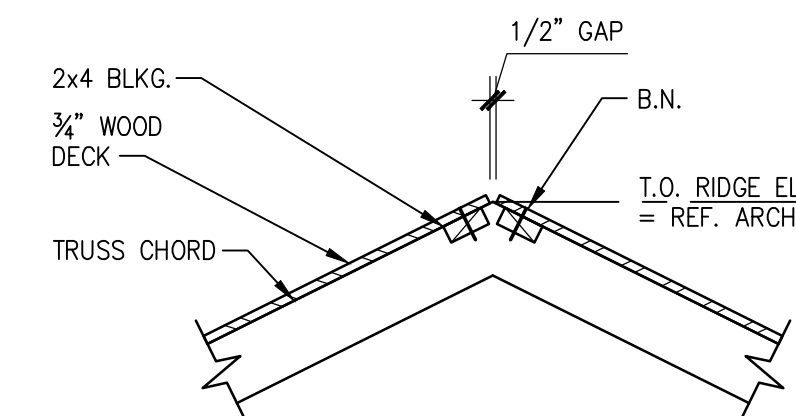
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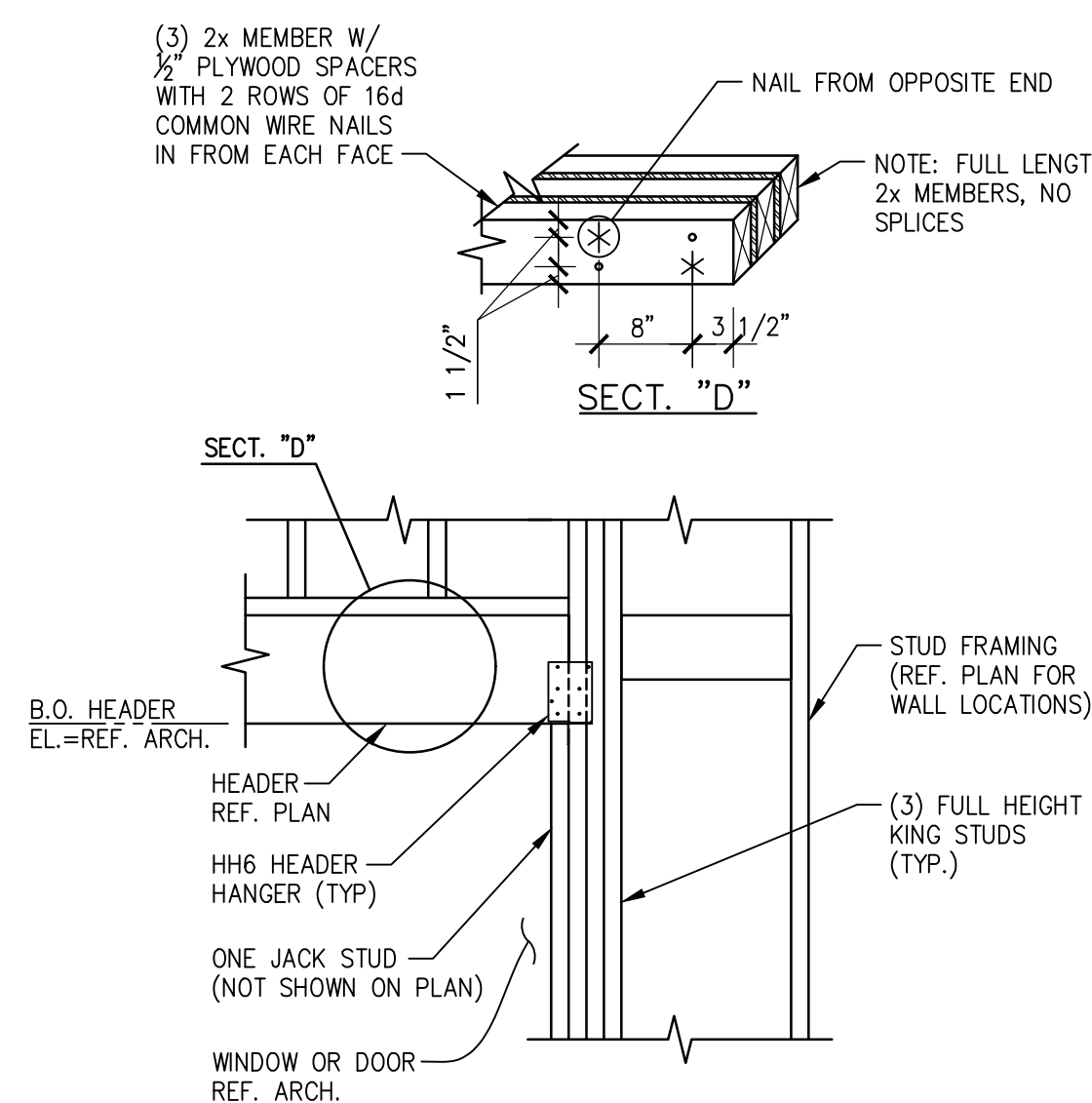
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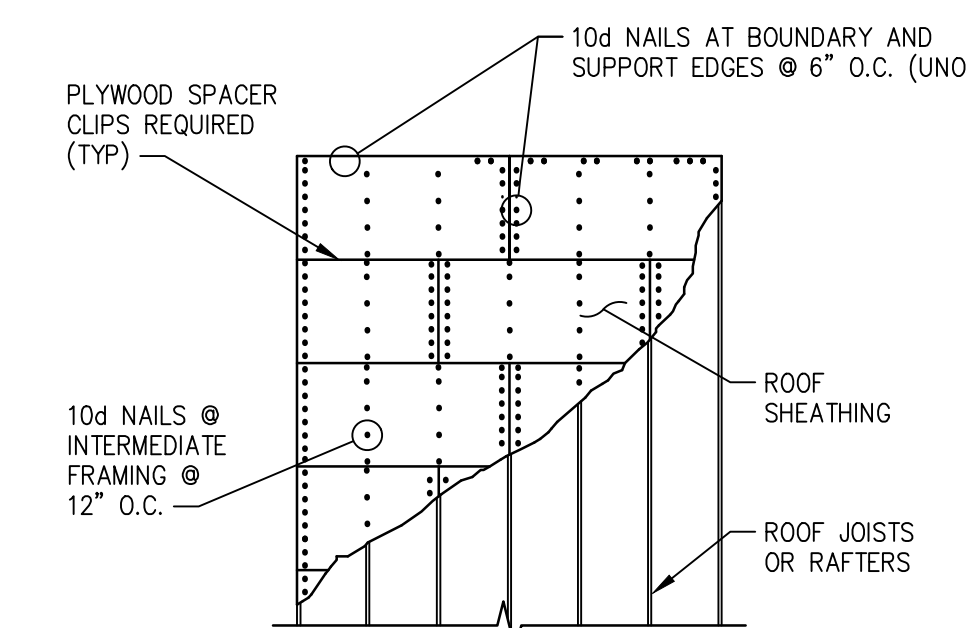
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**06 SECTION**  
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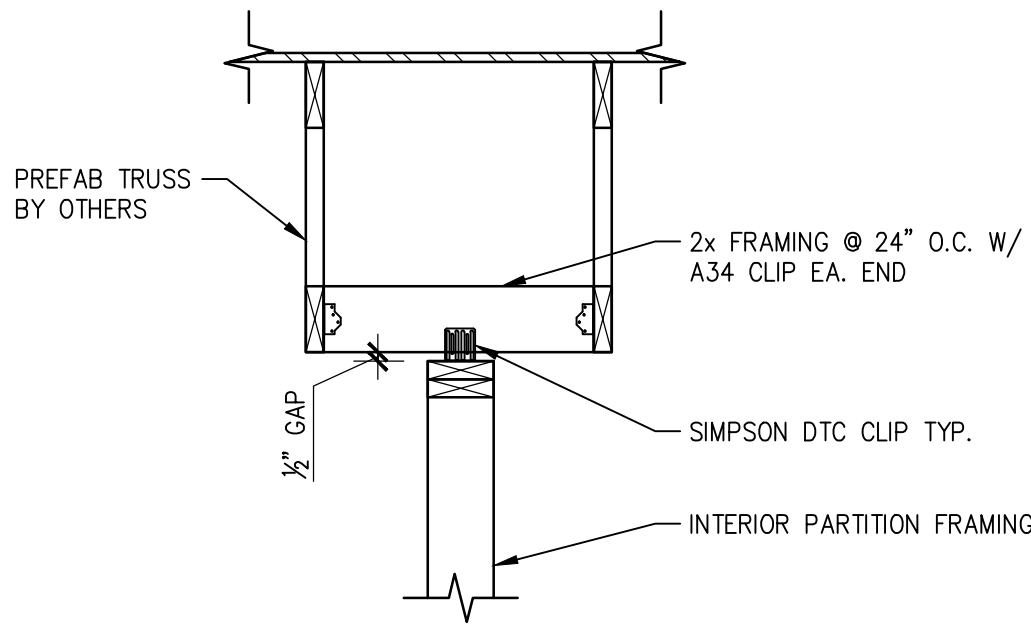
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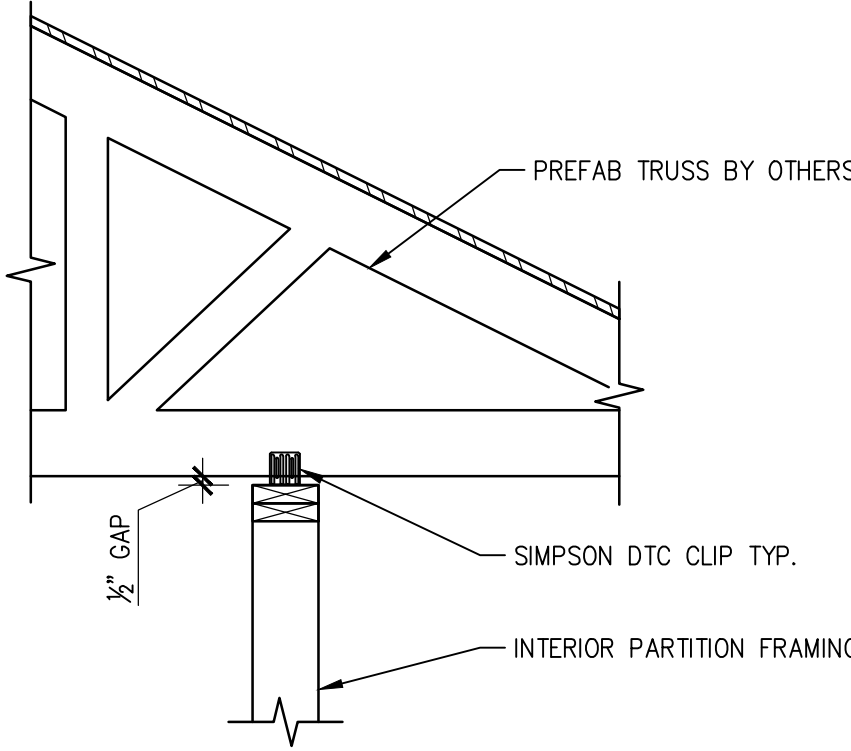
**10 ROOF DIAPHRAGM NAILING**  
SCALE: NONE



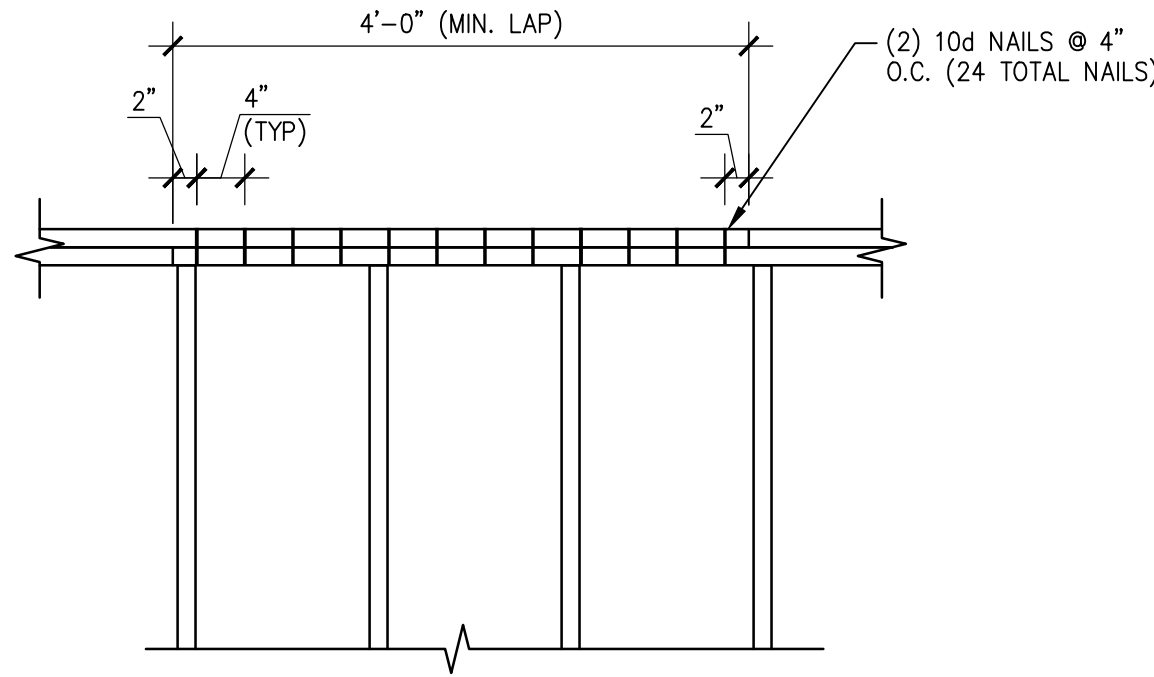
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**01 NON LOAD BEARING PARTITION**  
SCALE: 3/4"=1'-0"



**02 NON LOAD BEARING PARTITION**  
SCALE: 3/4"=1'-0"



**03 TYP. BEARING PLATE SPLICE**  
SCALE: 3/4"=1'-0"



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**S3.1**

FRAMING  
DETAILS