

GENERAL STRUCTURAL NOTES

THESE DRAWINGS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE THE PROPERTY OF LYSAGHT & ASSOCIATES, P.A., FOR USE SOLELY IN CONNECTION WITH THIS PROJECT AND SHALL NOT BE REPRODUCED FOR OTHER PURPOSES.

THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS THE PROJECT ARCHITECT-OF-RECORD (SER) WHO BEARS LEGAL RESPONSIBILITY FOR THE PERFORMANCE OF THE STRUCTURAL FRAMING RELATING TO PUBLIC HEALTH, SAFETY, AND WELFARE. NO OTHER PARTY, WHETHER OR NOT A PROFESSIONAL ENGINEER, MAY COMPLETE, CORRECT, REVISE, DELETE, OR ADD TO THESE CONSTRUCTION DOCUMENTS OR PERFORM INSPECTIONS OF THE WORK WITHOUT THE WRITTEN PERMISSION OF THE SER.

USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH JOB SPECIFICATIONS, AND OTHER DRAWINGS.

SECTIONS AND DETAILS SHOWN SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

ALL NON-STRUCTURAL ELEMENTS INDICATED ON THE STRUCTURAL DRAWINGS HAVE BEEN SHOWN IN GENERAL RELATIONSHIP TO THE STRUCTURAL ELEMENTS. THEY SHALL NOT BE ASSUMED TO BE ACCURATE AND REFERENCE MUST BE MADE TO THE APPROPRIATE CONSULTANT(S) PLANS AND SPECIFICATIONS.

CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD AND TAKE ALL NECESSARY FIELD MEASUREMENTS.

THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN ITS COMPLETED FORM. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING TO STABILIZE THE BUILDING DURING CONSTRUCTION.

SCOPE OF STRUCTURAL ENGINEERING SERVICES

LYSAGHT & ASSOCIATES, P.A. HAS PERFORMED THE STRUCTURAL DESIGN AND PREPARED THE STRUCTURAL WORKING DRAWINGS FOR THIS PROJECT. "CONSTRUCTION REVIEW" SERVICES ARE NOT A PART OF THIS CONTRACT. THE CONSTRUCTION MUST BE PERFORMED IN STRICT ACCORDANCE WITH THE STRUCTURAL DRAWINGS. ANY DEVIATION FROM THE DRAWINGS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER. ERRORS AND/OR OMISSIONS FOUND ON THE STRUCTURAL DRAWINGS MUST BE BROUGHT TO THE STRUCTURAL ENGINEER'S ATTENTION IMMEDIATELY.

PORTIONS OF THE STRUCTURAL DESIGN (AS NOTED ON THE DRAWINGS AND IN THESE NOTES) ARE THE RESPONSIBILITY OF THE MATERIAL SUPPLIERS. SHOP DRAWINGS FOR EACH OF THE STRUCTURAL COMPONENTS MUST BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION AND ERECTION.

THE STRUCTURAL ENGINEER IS RESPONSIBLE FOR THE DESIGN OF THE PRIMARY STRUCTURAL SYSTEM, EXCEPT FOR THE COMPONENTS NOTED ABOVE. RESPONSIBILITY FOR ANY SECONDARY STRUCTURAL AND NON-STRUCTURAL SYSTEMS NOT SHOWN ON THE STRUCTURAL PLANS RESTS WITH SOMEONE OTHER THAN THE STRUCTURAL ENGINEER.

FLAT ROOFS MUST HAVE CONTROLLED DRAINAGE PROVISIONS AND SHALL BE EQUIPPED WITH A SECONDARY DRAINAGE SYSTEM AT A HIGHER ELEVATION WHICH PREVENTS PONDING ON THE ROOF ABOVE THAT ELEVATION. THE SECONDARY DRAINAGE MUST BE SET SO THAT A 4" MAXIMUM DEPTH OF WATER WILL POND ON THE ROOF DURING THE DESIGN RAINSTORM. THE DESIGN OF THE ROOF DRAINAGE, SECONDARY DRAINAGE AND/OR OVERFLOW SCUPPERS IS BEYOND THE SCOPE OF THE STRUCTURAL ENGINEER'S SERVICES.

THE STRUCTURAL ENGINEER HAS NOT DESIGNED THE STRUCTURE FOR SPECIFIC VIBRATION LIMITS. VIBRATION LIMITATIONS ARE BASED ON STANDARD ENGINEERING PRACTICES AND PAST EXPERIENCE WITH SIMILAR CONSTRUCTION.

THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK; NOR WILL HE BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

FIELD MEASUREMENTS AND THE VERIFICATION OF FIELD DIMENSIONS ARE NOT PART OF THE STRUCTURAL ENGINEER'S RESPONSIBILITY. THE CONTRACTOR MUST CHECK ALL (ASSUMED) EXISTING CONDITIONS SHOWN ON THESE DRAWINGS FOR ACCURACY AND NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES.

ABBREVIATIONS

A.B. ANCHOR BOLT  
A.F.F. ABOVE FINISH SH  
C.J. CONTROL OR CONSTRUCTION JOINT IN SLAB  
D.J. DOUBLE JOIST  
E.J. EXPANSION JOINT  
E.O.S. EDGE OF SLAB  
E.W. EACH WAY  
MCJ MASONRY CONTROL JOINT  
N.T.S. NOT TO SCALE  
O.C. ON CENTER  
P.A.F. POWDER ACTUATED FASTENER  
P.T. PRESSURE TREATED  
S-P-F SPRUCE-PINE-FIR LUMBER  
SYP SOUTHERN YELLOW PINE LUMBER  
T.B.E. TRUSS BEARING ELEVATION  
T.O.F. TOP OF FOOTING  
T.O.M. TOP OF MASONRY  
T.O.S. TOP OF STEEL  
U.N.O. UNLESS NOTED OTHERWISE  
W.W.F. WELDED WIRE FABRIC

CODE

NORTH CAROLINA STATE BUILDING CODE – 2012 EDITION

BUILDING OCCUPANCY CATEGORY II

DESIGN LOADS

ROOF DEAD LOAD 20 PSF  
ROOF LIVE LOAD (PITCHED ROOF AREAS) 20 PSF  
ROOF LIVE LOAD (FLAT ROOF HVAC AREA) 35 PSF  
FLOOR DEAD LOAD 60 PSF  
FLOOR LIVE LOAD (Uniform) 100 PSF  
FLOOR LIVE LOAD (Concentrated) 2000 LBS

SNOW LOAD DATA :  
GROUND SNOW LOAD R 15 PSF  
SNOW EXPOSURE FACTOR, Ce 1.0  
SNOW LOAD IMPORTANCE FACTOR, Is 1.0  
THERMAL FACTOR, Ct 1.1  
FLAT ROOF SNOW LOAD (WITH RAIN ON SNOW) 16.8 PSF  
ROOF SLOPE FACTOR 1.0  
PITCHED ROOF SNOW LOAD 11.6 PSF

WIND LOAD DATA :  
DESIGN WIND SPEED (ASCE 7-05) 95 MPH  
BUILDING OCCUPANCY CATEGORY II  
WIND EXPOSURE B w/ Open Patches  
INTERNAL PRESSURE COEFFICIENTS +0.18, -0.18  
WIND IMPORTANCE FACTOR 1.0  
WIND BASE SHEAR (x-x DIRECTION) 57.7 KIPS  
WIND BASE SHEAR (y-y DIRECTION) 171.3 KIPS  
WIND PRESSURE FOR COMPONENTS / CLADDING PER ASCE 7-05

SEISMIC LOAD DATA :  
MAPPED SPECTRAL RESPONSE ACCELERER Sa 0.199  
MAPPED SPECTRAL RESPONSE ACCELERER S1 0.075  
SPECTRAL RESPONSE COEFFICIENT SDS 0.202  
SPECTRAL RESPONSE COEFFICIENT SD1 0.120  
SITE CLASS D  
SEISMIC DESIGN CATEGORY B  
BASIC STRUCTURAL SYSTEM Structural Steel System  
SEISMIC RESISTING SYSTEM SSS Not Detailed for Seismic Resistance  
RESPONSE MODIFICATION COEFFICIENT R 3.00  
SYSTEM OVERSTRENGTH FACTOR Omega 3.00  
DEFLECTION AMPLIFICATION FACTOR Cd 3.00  
SEISMIC RESPONSE COEFFICIENT Cs 0.045  
ANALYSIS PROCEDURE Equivalent Lateral Force  
SEISMIC BASE SHEAR 116.0 KIPS

LATERAL DESIGN CONTROL x-x SEISMIC y-y WIND

FOUNDATIONS

ALL FOOTINGS SHALL REST ON SOIL CAPABLE OF SAFELY SUPPORTING 3000 PSF. CONTACT THE SOILS INSTITUTE OF PROFESSIONAL ENGINEER IF UNSATISFACTORY SUBSURFACE CONDITIONS ARE ENCOUNTERED.

FOOTINGS SHALL BE CARRIED TO A LOWER ELEVATION THAN THOSE INDICATED ON THESE DRAWINGS IF NECESSARY TO REACH FIRM UNDISTURBED SOIL.

THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 16" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE.

SLAB ON GRADE SHALL BE FOUNDED ON STABLE NATURAL SOIL OR CONTROLLED COMPACTED FILL. THE MINIMUM BEARING CAPACITY SHALL BE 3000 PSF.

ALL FILL SHALL BE PLACED IN 8" MAXIMUM LOOSE LIFTS AND SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D-698 (STANDARD PROCTOR METHOD). THIS REQUIREMENT SHALL BE INCREASED TO 98 PERCENT OF ASTM D-698 IN THE FINAL FOOT BENEATH FOOTINGS, FLOOR SLABS, AND PAVEMENTS.

WALLS ACTING AS RETAINING WALLS SHALL NOT BE BACKFILLED WITHOUT BRACING UNTIL ALL SUPPORTING SOIL AND SLABS ARE IN PLACE.

DO NOT OPERATE HEAVY EQUIPMENT ANY CLOSER TO A RETAINING WALL THAN THE DISTANCE EQUAL TO THE HEIGHT OF THE FILL.

REFER TO D. MILLER & ASSOCIATES, PA SUBSURFACE EXPLORATION REPORT 17DDM-0426C DATED MAY 08, 2017, FOR ADDITIONAL SUBSURFACE INFORMATION AND RECOMMENDATIONS.

CONCRETE

CONCRETE SHALL BE PROPORTIONED, MIXED AND PLACED IN ACCORDANCE WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". ANY ADMIXTURES MUST BE APPROVED BY THE STRUCTURAL ENGINEER.

ADMIXTURES CONTAINING CHLORIDE SALTS ARE NOT PERMITTED.

MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 3000 PSI. USE NORMAL WEIGHT CONCRETE FOR FOOTINGS AND SLABS ON GRADE.

CONCRETE AT SECOND FLOOR SLAB DENOTED AS LIGHTWEIGHT CONCRETE SHALL HAVE AN EQUILIBRIUM UNIT WEIGHT OF 110 PCF (±3PCF). THE MAXIMUM FRESH DENSITY SHALL BE 116 PCF. ALL OTHER CONCRETE NOT SPECIFICALLY NOTED AS LIGHTWEIGHT CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A UNIT WEIGHT OF 145 PCF (±5 PCF).

CONCRETE EXPOSED TO EXTERIOR CONDITIONS SHALL BE AIR-ENTRAINED WITH A TOTAL AIR CONTENT OF 6 PERCENT (+/- 1.5%).

DO NOT CAST CONCRETE IN WATER OR ON FROZEN GROUND. FOR SLABS ON GRADE, LIGHTLY DAMPEN THE GRADE BEFORE PLACING CONCRETE TO PREVENT THE SUBGRADE FROM ABSORBING WATER FROM THE CONCRETE MIX. APPLY WATER AT NEARLY THE SAME RATE IT SOAKS INTO THE SUBGRADE SURFACE.

CRACK CONTROL JOINTS SHALL BE PLACED IN SLABS ON GRADE IN SQUARE PATTERNS AT A MAXIMUM SPACING OF 20' UNLESS NOTED OTHERWISE. PLACE CONTROL JOINTS TO AVOID REENTRANT CORNERS. MAKE SAWCUTS TO FORM WEAKENED PLANE CONTROL JOINTS AS SOON AFTER CONCRETE PLACEMENT AS POSSIBLE.

START CURING FOR SLABS ON GRADE AS SOON AS THE FINISHERS ARE DONE. APPLY THE CURING COMPOUND IN TWO COATS AT RIGHT ANGLES TO EACH OTHER AND NOT MORE THAN 300 SQUARE FEET PER GALLON, ABOUT 15 MINUTES APART. DURING HOT WEATHER, USE A FOG SPRAY TO KEEP THE SURFACE DAMP BEFORE APPLYING A CURING COMPOUND.

REINFORCING STEEL

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.

REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. CLEAR CONCRETE COVER OVER BARS SHALL BE 3" FOR FOOTINGS.

ALL SLABS ON GRADE SHALL BE REINFORCED WITH 6 x 6 - W1.4 x W1.4 W.W.F. SUPPORT THE MESH AS REQUIRED TO INSURE THAT IT WILL BE LOCATED IN THE UPPER THIRD OF THE SLAB THICKNESS. PROVIDE W.W.F. IN FLAT SHEETS, NOT ROLLS.

ELEVATED SLABS ON METAL DECK SHALL BE REINFORCED WITH 6 x 6 - W1.4 x W1.4 W.W.F. PROVIDE W.W.F. IN FLAT SHEETS, NOT ROLLS.

PROVIDE CORNER BARS AT ALL FOOTING STEPS AND CORNERS. BARS SHALL BE A MINIMUM OF 2'-8" LONG AND SHALL HAVE THE SAME SIZE AND SPACING AS HORIZONTAL REINFORCING.

LAP ALL SPLICES IN CAST-IN-PLACE CONCRETE AS SPECIFICALLY CALLED FOR, BUT AT LEAST 48 BAR DIAMETERS. LAP ALL SPLICES IN MASONRY 48 BAR DIAMETERS MINIMUM, UNLESS NOTED OTHERWISE.

SUBMIT SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.

BRICK MASONRY

BRICK VENEER SHALL BE OF A QUALITY AT LEAST EQUAL TO THAT REQUIRED BY ASTM SPECIFICATIONS (C216). THE COMPRESSIVE STRENGTH OF BRICK UNITS SHALL BE 4500 PSI MINIMUM.

MORTAR SHALL BE OF A QUALITY AT LEAST EQUAL TO THAT REQUIRED BY ASTM "STANDARD SPECIFICATIONS FOR MORTAR FOR UNIT MASONRY" (C270). USE TYPE "M" OR "S" MORTAR BELOW GRADE. TYPE "N" MORTAR IS PERMITTED ABOVE GRADE.

JOINT REINFORCEMENT FOR COMPOSITE AND CAVITY WALLS SHALL BE CORROSION RESISTANT (HOT DIP GALVANIZED AFTER FABRICATION) EQUIVALENT TO DUR-O-WALL LADDER TYPE JOINT REINFORCEMENT SHALL BE SPACED AT 16" O.C. VERTICALLY UNLESS NOTED OTHERWISE ON THE PLANS.

MASONRY ANCHORS FOR BRICK VENEER SHALL BE CORROSION RESISTANT (HOT DIP GALVANIZED AFTER FABRICATION) AND SHALL HAVE A MAXIMUM SPACING OF 16" HORIZONTALLY AND VERTICALLY.

REFER TO THE ARCHITECTURAL PLANS FOR LOCATIONS OF BRICK EXPANSION JOINTS, OR IF NOT SHOWN, COORDINATE WITH ARCHITECT. IN GENERAL, CONTROL JOINTS SHALL BE LOCATED WITH A MAXIMUM SPACING OF 30'-0".

CONCRETE MASONRY

CONCRETE MASONRY UNITS SHALL BE ERECTED AS LOAD BEARING CONCRETE MASONRY. COMPLY WITH THE REQUIREMENTS OF ACI 530.1 / ASCE 6 / TMS 602 SPECIFICATION FOR MASONRY STRUCTURES.

CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM SPECIFICATIONS FOR HOLLOW LOAD-BEARING CONCRETE MASONRY UNITS (ASTM C90, ASA A79.1). MORTAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM STANDARD SPECIFICATIONS FOR MORTAR FOR UNIT MASONRY (ASTM C270), TYPE "M" OR "S". THE MINIMUM NET COMPRESSIVE STRENGTH OF MASONRY UNITS SHALL BE 2000 PSI (1"m = 1500 PSI FOR MASONRY SYSTEM).

ALL GROUT USED TO FILL REINFORCED MASONRY CAVITIES AND SHOWN AT OTHER LOCATIONS ON THE PLANS SHALL CONFORM TO ASTM C476 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI.

PROVIDE HORIZONTAL JOINT REINFORCEMENT AT 16" O.C. IN ALL CMU WALLS UNLESS NOTED OTHERWISE ON THE DRAWINGS. USE LADDER TYPE DUR-O-WALL REINFORCEMENT, HOT DIP GALVANIZED AFTER FABRICATION. LONGITUDINAL WIRES SHALL BE A MINIMUM OF (2) NO. 9 GAGE. LOCATE JOINT REINFORCEMENT IN FIRST AND SECOND BED JOINTS, 8" APART IMMEDIATELY ABOVE LINTELS AND BELOW SILLS AT OPENINGS. REINFORCEMENT SHALL NOT EXTEND THROUGH VERTICAL MASONRY CONTROL JOINTS.

MASONRY WALLS ARE TO BE Laterally Braced During Construction In accordance with "STANDARD PRACTICE FOR BRACING MASONRY WALLS UNDER CONSTRUCTION" BY THE COUNCIL FOR MASONRY WALL BRACING AND THE MASON CONTRACTORS ASSOCIATION OF AMERICA. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL PERMANENT SUPPORTING ELEMENTS OF THE STRUCTURE ARE IN PLACE.

REFER TO THE ARCHITECTURAL PLANS FOR LOCATIONS OF MASONRY CONTROL JOINTS, OR IF NOT SHOWN, COORDINATE WITH ARCHITECT. IN GENERAL, CONTROL JOINTS SHOULD BE LOCATED WITH A MAXIMUM SPACING OF 30'-0".

STRUCTURAL STEEL

FABRICATE AND ERECT ALL STRUCTURAL STEEL IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (ANSI/AISC 360-05)".

STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF RUST-INHIBITIVE PAINT. STEEL COLUMNS BELOW GRADE THAT ARE IN CONTACT WITH CONCRETE SHALL BE FIELD PAINTED WITH A WATERPROOF MASTIC COMPOUND TO PREVENT CORROSION.

THE STEEL USED SHALL HAVE THE FOLLOWING MINIMUM YIELD STRESS:

WIDE FLANGE SHAPES ("W" SHAPES) 50 KSI (A992)  
CHANNELS, ANGLES, PLATES, MISC. SHAPES 36 KSI (A36)  
STRUCTURAL PIPE SHAPES 35 KSI (A53, B)  
HSS TUBE SHAPES 48 KSI (A500, B)

USE 3/4" DIAMETER A-325N BOLTS FOR ALL STEEL TO STEEL CONNECTIONS U.N.O. BOLTS SHALL BE TIGHTENED TO THE SNUG TIGHT CONDITION UNLESS NOTED OTHERWISE. THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN ALL PLIES IN A JOINT ARE IN FIRM CONTACT.

USE F1554 (GRADE 36) BOLTS FOR ALL ANCHOR BOLTS U.N.O. HEADED WELD STUDS SHALL BE MADE OF MATERIAL CONFORMING TO ASTM A108. USE E-70 ELECTRODES FOR ALL SHOP AND FIELD WELDING.

ALL EXPANSION ANCHORS SHALL BE INSTALLED WITH STANDARD EMBEDMENT DEPTH (4-3/4" FOR 3/4" DIA. ANCHORS, 3-1/2" FOR 1/2" DIA. ANCHORS). EXPANSION ANCHORS MUST BE LOCATED 1-3/8" MINIMUM FROM VERTICAL MORTAR JOINTS.

THE STEEL SUPPLIER SHALL DESIGN ALL STEEL STAIRS AND LADDERS IN ACCORDANCE WITH THE N.C. STATE BUILDING CODE. STAIR SHOP DRAWINGS SHALL BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA.

FOR MISCELLANEOUS STEEL NOT SHOWN ON THESE DRAWINGS, SEE ARCHITECTURAL AND OTHER ENGINEERING DRAWINGS.

CONNECTIONS BETWEEN STRUCTURAL STEEL MEMBERS SHALL BE AS SHOWN ON STRUCTURAL DRAWING DETAILS. ALTERNATE CONNECTION DETAILS MUST BE APPROVED IN WRITING, BY THE STRUCTURAL ENGINEER OF RECORD, PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS.

SUBMIT ERECTION AND SHOP DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.

SHEAR STUDS

SHEAR STUDS SHALL BE 3/4" DIAMETER, PROJECT A MINIMUM OF 1-1/2" ABOVE THE METAL DECK, AND SHALL BE FIELD APPLIED TO FILLER BEAMS THROUGH THE DECK. WELD STUDS DIRECTLY TO GIRDER BEAMS. SPACE STUDS UNIFORMLY ON EACH SIDE OF THE BEAM MIDSPAN UNLESS OTHERWISE NOTED. THE RECOMMENDED PROCEDURE FOR WELDING STUDS THROUGH THE DECK IS AS FOLLOWS:

1. DECK SHALL BE FREE OF FOREIGN MATERIALS, MUD, AND WATER. TOP OF STEEL BEAMS SHALL BE UNPAINTED.
2. SET UP WELDING GUN PRIOR TO EACH WORKDAY AND AFTER ANY LENGTHY WORK STOPPAGE. THE WELD OPERATOR SHALL STAY WITH THE GUN, INSPECT AND BEND STUDS 45 DEGREES. REPEAT THIS PROCEDURE UNTIL PROPER WELD RESULTS ARE ACHIEVED.
3. PROCEED WITH STUD WELDING AFTER SATISFYING ABOVE PROCEDURES.
4. VISUALLY INSPECT EACH STUD FOR PROPER WELD. REDO ALL WELDS (OR WELD NEW STUDS) AT ALL STUDS WITH IMPROPER WELDS.
5. STUDS SHALL BE FIELD TESTED BY AN INDEPENDENT TESTING AGENCY, EMPLOYED BY THE OWNER IN ACCORDANCE WITH THE SPECIFICATIONS. FERRULES SHALL BE REMOVED PRIOR TO TESTING. SUBMIT TEST RESULTS TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO POURING CONCRETE.

METAL DECK

DESIGN, FABRICATION AND ERECTION OF METAL DECK SHALL CONFORM TO THE STEEL DECK INSTITUTE "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS".

FLOOR DECK SHALL BE 2VL122 COMPOSITE DECK (2" NOMINAL DEPTH, 22 GAGE), AS MANUFACTURED BY VULCRAFT, OR APPROVED EQUAL. THE DECK SHALL BE WELDED AT 12" O.C. TO STEEL SUPPORTS. WELDING WASHERS ARE NOT REQUIRED. SIDELAPS SHALL BE FASTENED WITH SCREWS OR BUTTON PUNCHING AT A SPACING NOT TO EXCEED 36".

SUSPENDED CEILINGS, LIGHT FIXTURES, DUCTS, AND OTHER UTILITIES OR FINISHES SHALL NOT BE SUPPORTED BY THE METAL DECK.

ALL FLOOR DECK SHALL BE GALVANIZED IN CONFORMANCE WITH ASTM A653-94, G60 MINIMUM.

SUBMIT ERECTION DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.

LIGHT GAGE STRUCTURAL STEEL FRAMING

LIGHT GAGE STRUCTURAL STEEL INCLUDES ALL AXIALLY OR WIND LOADED LIGHT GAGE STEEL STUDS, TRACK, JOISTS, TRUSSES, BRIDGING AND RELATED ACCESSORIES AS INDICATED ON THE DRAWINGS.

DESIGN, FABRICATION AND ERECTION OF LIGHT GAGE STRUCTURAL STEEL FRAMING SHALL BE IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".

THE STEEL USED SHALL HAVE THE FOLLOWING MINIMUM YIELD STRESS:

LIGHT GAGE STEEL STUDS 33 KSI  
TRACKS FOR STEEL STUDS 33 KSI  
LIGHT GAGE STEEL JOISTS & HEADERS 33 KSI

THE MEMBER DESIGNATIONS SHOWN ON THESE DRAWINGS ARE SSMA STANDARD MATERIAL DESIGNATIONS.

THE CONTRACTOR SHALL SUBMIT THE PROPOSED MATERIAL SUPPLIER'S PHYSICAL STRUCTURAL PROPERTIES AND LOAD TABLES FOR REVIEW.

ALL LIGHT GAGE STRUCTURAL STEEL FRAMING SHALL BE GALVANIZED, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SPLICES IN STEEL STUDS, JOISTS, AND HEADERS SHALL NOT BE PERMITTED EXCEPT WHERE SPECIFICALLY SHOWN ON THE DRAWINGS.

FASTENING OF COMPONENTS SHALL BE WITH SELF TAPPING SCREWS OR WELDS. WELDING SHALL BE IN ACCORDANCE WITH SECTION 6.0 OF THE AMERICAN WELDING SOCIETY'S "STRUCTURAL WELDING CODE - SHEET METAL" (AWS D1.3-8). ALL WELDS SHALL BE TOUCHED UP WITH A ZINC RICH PAINT.

SOLID WOOD FRAMING, HEADERS AND PLYWOOD

ALL SOLID WOOD FRAMING SHALL COMPLY WITH THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION."

ALL SOLID FRAMING SHALL BE SPRUCE-PINE-FIR #2 OR BETTER, UNLESS NOTED OTHERWISE ON THE PLANS.

PLYWOOD SHALL CONFORM TO THE AMERICAN PLYWOOD ASSOCIATION "PLYWOOD DESIGN SPECIFICATION." PLYWOOD SHALL BE CDX (UNO). PLYWOOD CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE APA "DESIGN/CONSTRUCTION GUIDE - RESIDENTIAL AND COMMERCIAL".

ALL MEMBERS SHALL BE FRAMED, ANCHORED, TIED AND BRACED IN ACCORDANCE WITH GOOD CONSTRUCTION PRACTICE AND THE NORTH CAROLINA STATE BUILDING CODE.

ALL WOOD IN CONTACT WITH MASONRY OR EXPOSED TO THE WEATHER SHALL BE PRESURE PRESERVED AND TREATED TO THE RETENTIONS REQUIRED BY SECTION 2303 OF THE BUILDING CODE.

NAIL SIZES SPECIFIED ON PLANS AND DETAILS ARE "STANDARD COMMON NAILS".

ALL WOOD FRAMING SHALL BE FASTENED IN ACCORDANCE WITH TABLE 2304.9.1 OF THE BUILDING CODE MINIMUM, UNLESS NOTED OTHERWISE.

WOOD TRUSSES

THE WOOD TRUSS FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF THE WOOD TRUSSES. SUBMIT CALCULATIONS WITH THE SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER LICENSED IN NORTH CAROLINA TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.

LUMBER DEFECTS SUCH AS WANE OR KNOTS OCCURRING IN THE CONNECTOR PLATE AREA MUST NOT AFFECT MORE THAN TEN PERCENT OF REQUIRED PLATE AREA OR NUMBER OF EFFECTIVE TEETH REQUIRED FOR EACH TRUSS MEMBER. CONNECTOR PLATES SHALL BE APPLIED TO BOTH FACES OF TRUSS AT EACH JOINT, AND SHOULD PROVIDE FIRM EVEN CONTACT BETWEEN THE PLATE AND THE WOOD. ALL WOOD MEMBERS SHALL BE ACCURATELY CUT AND FABRICATED SO THAT ALL MEMBERS HAVE GOOD BEARING AND ALL COMPLETED TRUSS UNITS ARE UNIFORM. SEE LATEST EDITION OF TRUSS PLATE INSTITUTE "QUALITY CONTROL MANUAL" FOR TOLERANCES AND OTHER SPECIAL REQUIREMENTS.

THE DESIGN, FABRICATION AND ERECTION OF THE WOOD TRUSSES SHALL COMPLY WITH THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION", AND THE "DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES".

ALL TRUSSES MUST BE SECURELY BRACED BOTH DURING ERECTION AND AFTER PERMANENT INSTALLATION IN ACCORDANCE WITH WTCA & TRUSS PLATE INSTITUTE DOCUMENT "GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING, & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES (BCSI)".

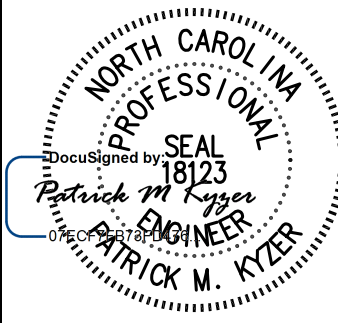
THE TRUSS FABRICATOR SHALL SHOW ALL RECOMMENDED BRACING, BOTH TEMPORARY AND PERMANENT, ON THE TRUSS SHOP DRAWINGS. ALSO, THE DRAWINGS MUST SHOW ALL RECOMMENDED DETAILS FOR CONNECTING THE TRUSSES TO EACH OTHER AND/OR THEIR SUPPORTS.

TRUSS MEMBERS AND COMPONENTS SHALL NOT BE CUT, DRILLED, NOTCHED, SPLICED, OR OTHERWISE ALTERED IN ANY WAY WITHOUT WRITTEN PERMISSION FROM THE DESIGN ENGINEER.

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Heritage Park West  
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7/3/2017

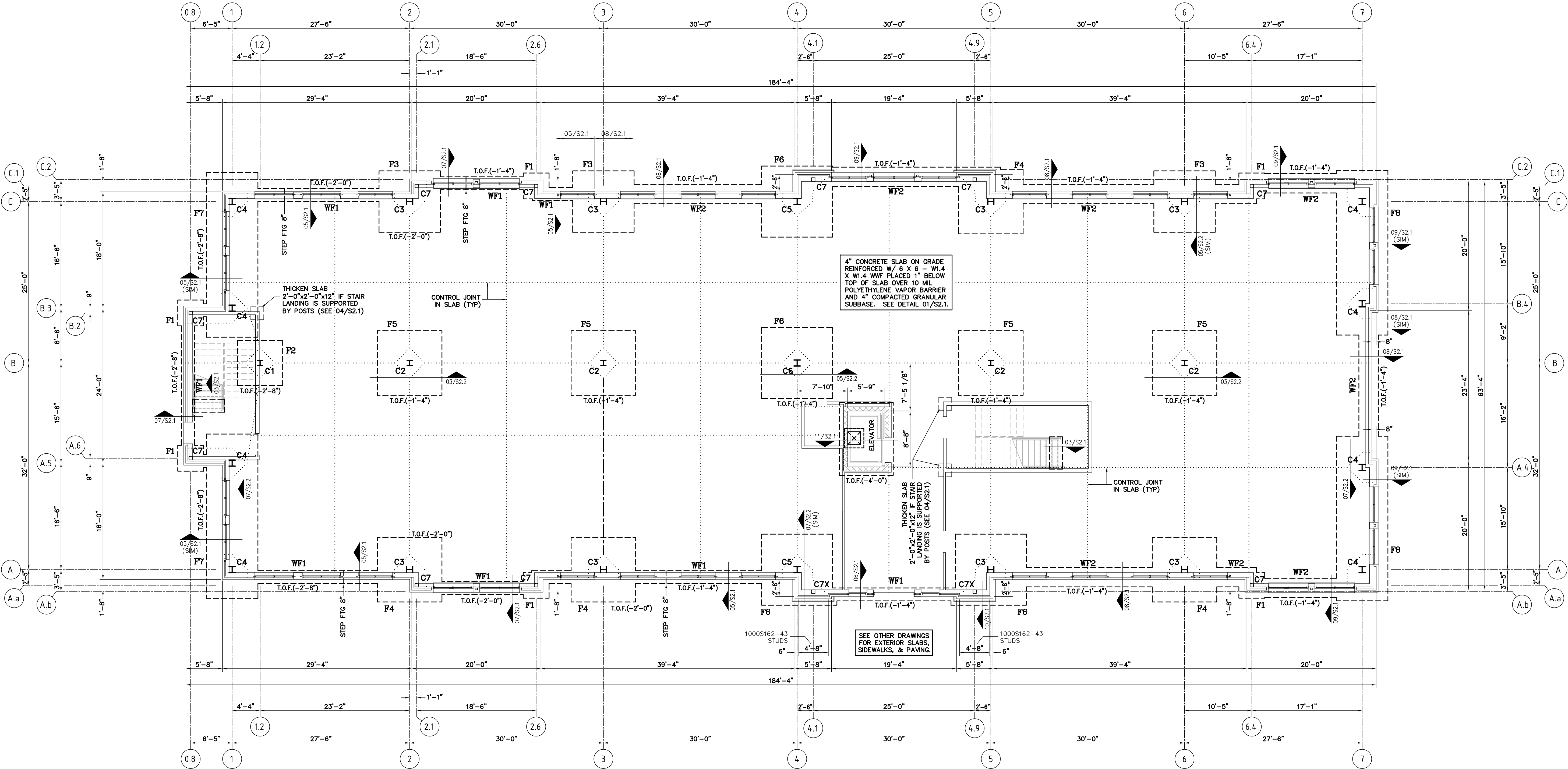
MAURER ARCHITECTURE  
115.5 EAST HARGETT STREET, SUITE 300  
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DATE	6/30/17
DR.	JES/PMK
CH.	PMK
PROJ. #	LA-11199
REVISIONS	DATE

STRUCTURAL  
NOTES

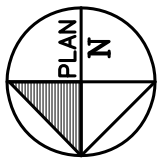
S0.1





FOUNDATION PLAN 01

SCALE : 1/8" = 1'-0"



FOUNDATION PLAN NOTES :

1. THE REFERENCE FINISH FLOOR ELEVATION = 0'-0" (ACTUAL FINISH FLOOR = 338.00'). SEE DETAIL 01/S2.1 FOR TYPICAL SLAB ON GRADE CONSTRUCTION.
2. SEE DETAIL 02/S2.1 FOR STEPPED FOOTING CONSTRUCTION. FOOTING STEPS ARE SHOWN IN APPROXIMATE LOCATIONS ON THE PLAN. THE GENERAL CONTRACTOR SHALL DETERMINE FINAL FOOTING STEP LOCATIONS BASED ON FINISH GRADES.
3. SEE THE ARCHITECTURAL PLANS FOR LOCATIONS OF BRICK CONTROL JOINTS. REFER TO THE STRUCTURAL NOTES FOR BRICK CONTROL JOINT SPACING LIMITATIONS.
4. T.O.F.(-1'-4") DENOTES A TOP OF FOOTING ELEVATION 1'-4" BELOW THE FINISH FLOOR.
5. SEE ARCHITECTURAL DRAWINGS FOR WALL DIMENSIONS NOT NOTED ON THIS PLAN. WALL DIMENSIONS SHOWN ON THIS PLAN ARE TO OUTSIDE FACE OF VENEER AT TYPICAL 1'-0" WALL THICKNESS (OUTSIDE FACE OF 12" CMU AT FOUNDATION WALL). SEE ARCHITECTURAL FOR BRICK COURSING REQ'MTS. DIMENSIONS TO OUTSIDE FACE OF WATER TABLE BRICK VENEER COURSING USED IN SELECTED AREAS NOT SHOWN ON STRUCTURAL PLANS. SEE ARCHITECTURAL PLANS AND DETAILS FOR THESE DIMENSIONS.
6. SEE SHEET S0.1 FOR ADDITIONAL STRUCTURAL NOTES.

COLUMN SCHEDULE

MARK	SIZE	BASE PLATE	ANCHOR BOLTS
C1	W 10 x 39	PL. 1-1/4" x 18" x 1'-6"	(4) 1"φ x 16", F1554 (Gr 36)
C2	W 10 x 49	PL. 1-1/2" x 18" x 1'-6"	(4) 1"φ x 16", F1554 (Gr 36)
C3	W 12 x 72	PL. 2 1/4" x 24" x 2'-0"	(4) 1 1/2"φ x 24", F1554 (Gr 36)
C4	W 12 x 79	PL. 2 1/4" x 24" x 2'-0"	(6) 1 1/2"φ x 30", F1554 (Gr 36)
C5	W 12 x 96	PL. 2 1/2" x 24" x 2'-0"	(6) 1 1/2"φ x 30", F1554 (Gr 36)
C6	W 12 x 106	PL. 2 1/2" x 24" x 2'-0"	(6) 1 1/2"φ x 30", F1554 (Gr 36)
C7	HSS6x6x1/4	PL. 3/4" x 12" x 1'-0"	(4) 3/4"φ x 15", F1554 (Gr 36)
C7X	HSS6x6x5/16	PL. 3/4" x 12" x 1'-0"	(4) 3/4"φ x 15", F1554 (Gr 36)

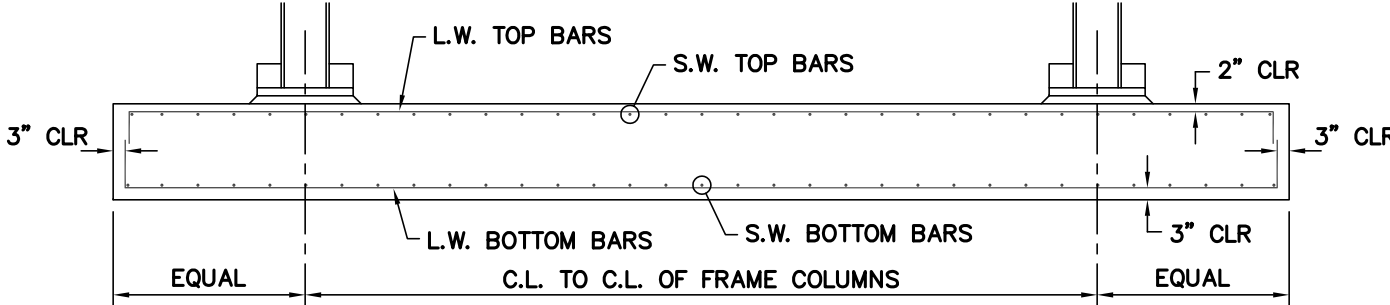
COLUMN SCHEDULE NOTES:

1. COLUMN ORIENTATION AT WIDE FLANGE MOMENT-FRAME COLUMNS VARIES. COLUMN ORIENTATION MUST MATCH ORIENTATION SHOWN ON STRUCTURAL PLANS.
2. COLUMN C4 & C5 BASE PLATES HAVE 1" x 4" x 1'-10" STEEL PLATE SHEAR LUG PLATE WELDED TO BOTTOM. SEE DETAILS 07/S2.2 & 08/S2.2.
3. COLUMN C4, C5, & C6 HAVE 6-BOLT ANCHOR BOLT ORIENTATION THAT MUST MATCH LAYOUT SHOWN AT DETAILS 06/S2.2 & 08/S2.2. USE CAUTION WHEN SETTING ANCHOR BOLTS AT THESE COLUMNS.

FOOTING SCHEDULE

MARK	SIZE	REINFORCING	DETAIL
WF1	2'-0" x 12" CONTINUOUS	(2) #5 CONT & #4 TIES 48" O.C.	SEE PLAN
WF2	3'-0" x 15" CONTINUOUS	(4) #5 CONT & #4 TIES 16" O.C. TYPICAL TOP & BOTTOM	SEE PLAN
F1	4'-0" x 4'-0" x 12"	(7) #4 BARS EACH WAY BOTTOM	01/S2.2
F2	7'-0" x 7'-0" x 15"	(9) #5 BARS EACH WAY BOTTOM	03/S2.2
F3	9'-6" x 9'-6" x 18"	(8) #4 BARS EACH WAY TOP (9) #6 BARS EACH WAY BOTTOM	05/S2.2
F4	10'-0" x 10'-0" x 18"	(8) #4 BARS EACH WAY TOP (10) #6 BARS EACH WAY BOTTOM	05/S2.2
F5	10'-0" x 10'-0" x 21"	(11) #6 BARS EACH WAY BOTTOM	03/S2.2
F6	11'-0" x 11'-0" x 21"	(8) #4 BARS EACH WAY TOP (12) #6 BARS EACH WAY BOTTOM	05/S2.2 or 07/S2.2
F7	8'-0" x 25'-6" x 24" (SEE SKETCH BELOW)	(8) #4 BARS L.W. TOP * #4 BARS AT 9" O.C. S.W. TOP (8) #6 BARS L.W. BOTTOM * #5 BARS AT 9" O.C. S.W. BOTTOM	07/S2.2
F8	8'-0" x 25'-6" x 24" (SEE SKETCH BELOW)	(8) #4 BARS L.W. TOP * #4 BARS AT 9" O.C. S.W. TOP (8) #6 BARS L.W. BOTTOM * #5 BARS AT 9" O.C. S.W. BOTTOM	07/S2.2

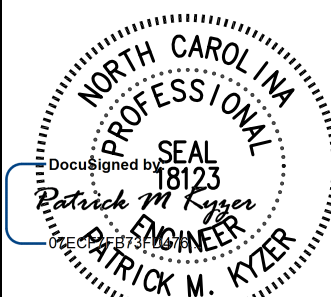
\* L.W. BARS TOP AND BOTTOM SHALL HAVE ACI 90° HOOKS BOTH ENDS.



New Shell Building  
Heritage Park West  
3125 Rogers Road  
Wake Forest, North Carolina



120 SAINT MARY'S ST.  
RALEIGH, NC 27605  
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FAX: (919) 833-7630  
N.C. FIRM LICENSE C-0621



7/3/2017

MAURER ARCHITECTURE

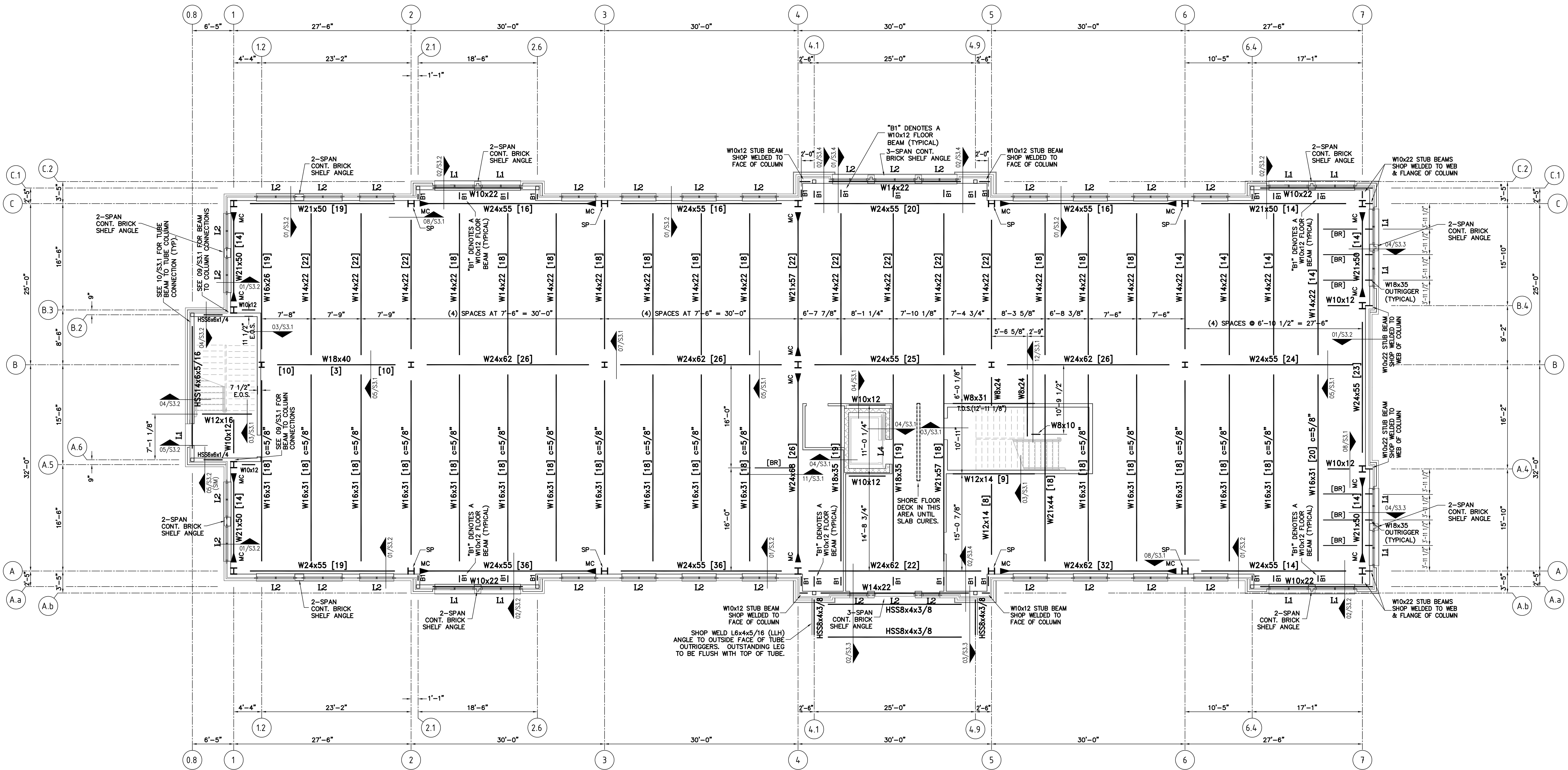
115.5 EAST HARGETT STREET, SUITE 300  
RALEIGH, NORTH CAROLINA 27601  
TEL. 919-829-4969 FAX. 919-829-0860

DATE	6/30/17
DR.	JES/PMK
CH.	PMK
PROJ. #	LA-11199
REVISIONS	DATE

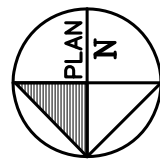
FOUNDATION  
PLAN

S1.1





SCALE : 1/8" = 1'-0"



1. THE REFERENCE FINISH FIRST FLOOR ELEVATION = 0'-0". ALL TOP OF STEEL (T.O.S.) ELEVATIONS ARE MEASURED FROM THIS REFERENCE ELEVATION.
2. SEE DETAIL 01/S3.1 FOR TYPICAL SECOND FLOOR SLAB CONSTRUCTION. THE FINISH SECOND FLOOR SLAB IS AT ELEVATION 14'-0". THE TYPICAL TOP OF STEEL ELEVATION FOR STEEL BEAMS IS 13'-7" UNLESS NOTED OTHERWISE. FILLER BEAMS SHALL BE EQUALLY SPACED BETWEEN COLUMN GRIDS UNLESS NOTED OTHERWISE.
3. SEE DETAIL 02/S3.1 FOR SLAB REINFORCING REQUIRED AT PENETRATIONS THROUGH THE FLOOR. REINFORCING IS REQUIRED AT ALL PENETRATIONS 10"x10" AND LARGER.
4. SEE DETAIL 03/S3.1 FOR POURSTOP MATERIAL TO BE PROVIDED AT ALL FLOOR PENETRATIONS & INTERIOR EDGES OF SLAB.
5. SEE THE FOUNDATION PLAN (S1.1) FOR COLUMN MARKS & THE COLUMN SCHEDULE.
6. SEE THE FOUNDATION PLAN AND ARCHITECTURAL DRAWINGS FOR WALL DIMENSIONS NOT NOTED ON THIS PLAN AND FOR LOCATIONS OF WALL OPENINGS.
7. [18] DENOTES (18) WELD STUDS SPACED EQUALLY ALONG THE TOP FLANGE OF THE BEAM.
8. BEAMS SHALL BE FABRICATED WITH CAMBER ( $C = x"$ ) AS NOTED ON THE PLAN. BEAMS WITHOUT NOTED CAMBER SHALL BE FABRICATED AND INSTALLED WITH NATURAL CAMBER UP.
9. **MC**  
DENOTES A BEAM TO COLUMN WIND MOMENT CONNECTION. SEE DETAIL 08/S3.1. SEE DETAILS 06/S3.1 & 07/S3.1 FOR TYPICAL BEAM TO TUBE COLUMN & WIDE FLANGE COLUMN SHEAR CONNECTIONS AT OTHER LOCATIONS.
10. SEE LIGHT GAGE METAL STUD WALL FRAMING NOTES THIS SHEET FOR EXTERIOR WALL CONSTRUCTION. SEE SHEET S1.3 FOR THE LINTEL SCHEDULE WITH FRAMING REQUIREMENTS AT EXTERIOR WALL OPENINGS.
11. THE STEEL STAIRS SHALL BE DESIGNED BY THE SUPPLIER FOR GRAVITY LOADS IN ACCORDANCE WITH THE NORTH CAROLINA BUILDING CODE. SUBMIT SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER TO THE PROJECT STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.
12. "SP" DENOTES 3/8" x 3 1/2" x 0'-5 1/2" COLUMN FLANGE STIFFENER PLATES SHOP WELDED TO COLUMN AT TOP & BOTTOM FLANGES OF MOMENT-CONNECTED BEAM. SEE DETAIL 08/S3.1.
13. SEE SHEET S0.1 FOR ADDITIONAL STRUCTURAL NOTES.

THE TYPICAL EXTERIOR STUD SPACING SHALL BE 16" O.C. UNLESS NOTED OTHERWISE.

ALL EXTERIOR WALLS SHALL BE CONSTRUCTED WITH 600S162-43 STUDS EXCEPT WHERE NOTED OTHERWISE. PROVIDE 362S162-43, 400S200-68, AND 1000S162-43 STUDS WHEN SPECIFICALLY NOTED. THE GROSS SECTION PROPERTIES FOR STUDS ARE AS FOLLOWS:

600S137-43	6", 18 GAGE STUD W/ 1-3/8" FLANGE & 3/8" RETURN A = 0.413 in <sup>2</sup> Sx = 0.681 in <sup>3</sup> Ix = 2.043 in <sup>4</sup>
362S162-43	3-5/8", 18 GAGE STUD W/ 1-5/8" FLANGE & 1/2" RETURN A = 0.340 in <sup>2</sup> Sx = 0.392 in <sup>3</sup> Ix = 0.710 in <sup>4</sup>
400S200-68	4", 14 GAGE STUD W/ 2" FLANGE & 5/8" RETURN A = 0.621 in <sup>2</sup> Sx = 0.794 in <sup>3</sup> Ix = 1.589 in <sup>4</sup>
1000S162-43	10", 18 GAGE STUD W/ 1-5/8" FLANGE & 1/2" RETURN A = 0.627 in <sup>2</sup> Sx = 1.605 in <sup>3</sup> Ix = 8.027 in <sup>4</sup>

PROVIDE COLD-ROLLED BRIDGING CHANNELS AT THE THIRD POINTS OF ALL FULL HEIGHT LIGHT GAGE STUD WALLS. BRIDGING CHANNELS SHALL BE ATTACHED AT EACH STUD BY WELDING OR WITH CLIP ANGLES & SCREWS.

STUD SIZE AND OPENING FRAMING FOR INTERIOR PARTITION WALLS SHALL BE BY THE SUPPLIER. INTERIOR PARTITION WALLS SHALL BE BRACED AT THE TOP WITH PROVISIONS FOR THE SUPPLIER. THE SUPPLIER SHALL BE RESPONSIBLE FOR BRACING IS THE RESPONSIBILITY OF THE LIGHT GAGE SUPPLIER. PROVIDE BRIDGING BETWEEN STUDS AT INTERIOR NON-LOAD BEARING WALLS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

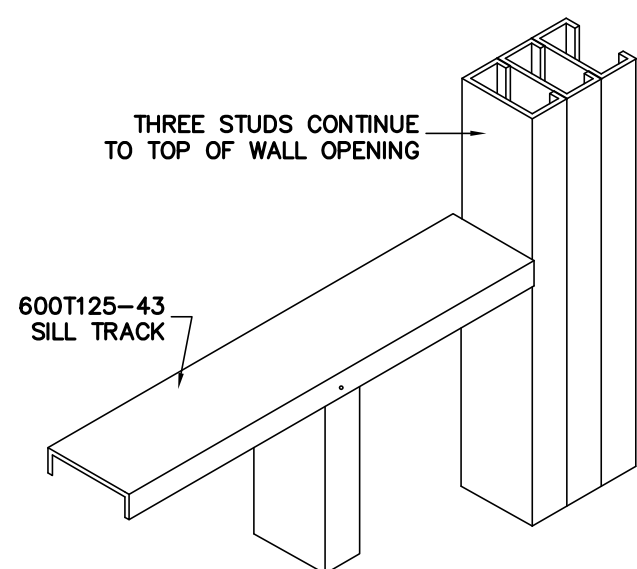
FASTEN LIGHT GAGE MATERIAL TO LIGHT GAGE MATERIAL WITH #10 TEK SCREWS.

FASTEN LIGHT GAGE MATERIAL TO CONCRETE WITH HLTI X-U 32 PB S15 POWDER ATTACHED FASTENERS (OR APPROVED EQUAL). SPACE FASTENERS FOR BASE TRACK TO MASONRY OR CONCRETE AT 12" O.C. MAXIMUM.

FASTEN LIGHT GAGE MATERIAL TO STRUCTURAL STEEL WITH HLTI X-U 27 PB S23 POWDER ATTACHED FASTENERS (OR APPROVED EQUAL).

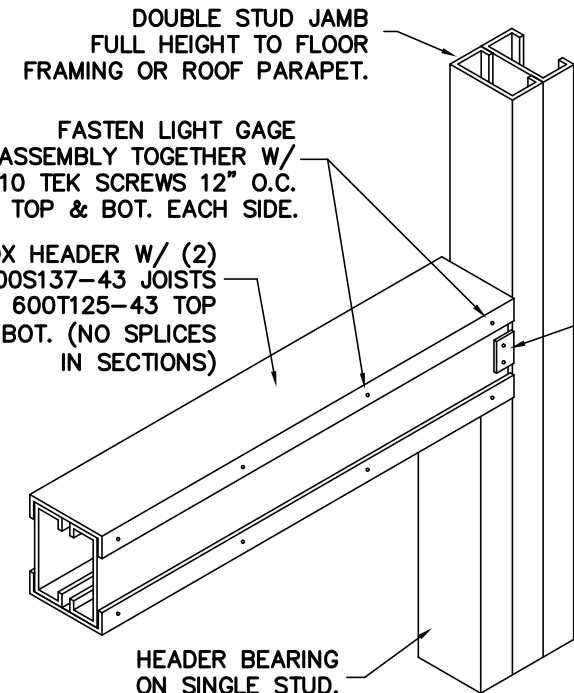
SEE DETAIL "A", AT RIGHT, FOR CONSTRUCTION OF SILLS AT EXTERIOR WALL OPENINGS.

SEE DETAIL "B", AT RIGHT, FOR CONSTRUCTION OF HEADERS AT OPENINGS IN EXTERIOR WALLS AT LINTEL MARKS L1, L2, AND L3.



DETAIL "A" NO SCALE

EXTERIOR WALL OPENING SILL CONSTRUCTION



DETAIL "B" NO SCALE

---

EXTERIOR WALL OPENING HEADER CONSTRUCTION

DATE	6/30/17
DR.	JES/PMK
CH.	PMK
PROJ. #	LA-11199
REVISIONS	DATE

## SECOND FLOOR FRAMING PLAN

## S1.2






## MAURER ARCHITECTURE

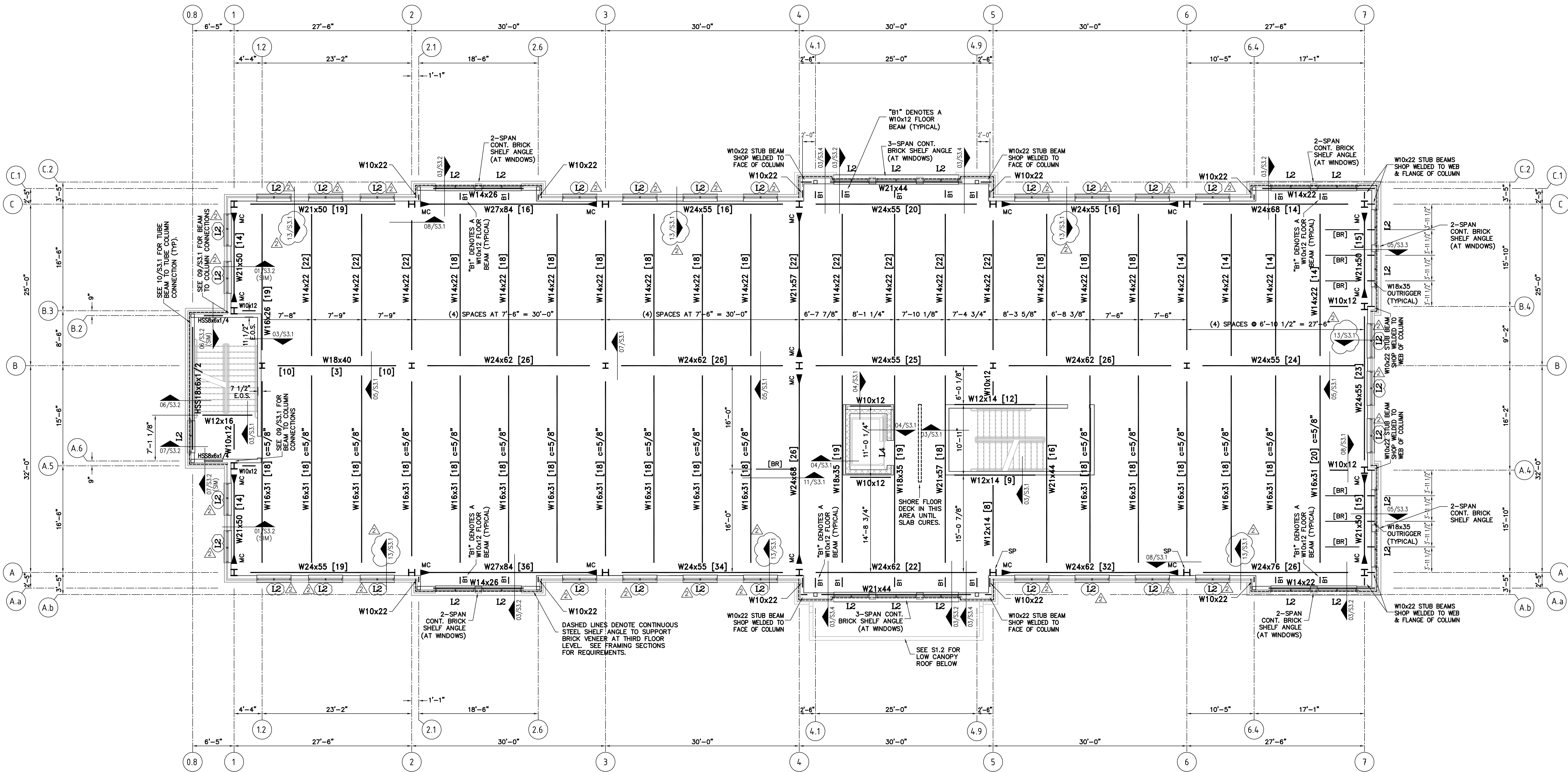
5 EAST HARGETT STREET, SUITE 300  
ALEIGH, NORTH CAROLINA 27601  
TEL. 919-829-4969 FAX. 919-829-0860

TEL. 919-829-4969 FAX. 919-829-0860

DATE	6/30/17
DR.	JES/PMK
CH.	PMK
PROJ. #	LA-11199
REVISIONS	DATE
 REVISED BRICK VENEER EXTENTS	4/23/18

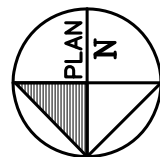
### THIRD FLOOR FRAMING PLAN

### S1.3



THIRD FLOOR FRAMING PLAN 01

SCALE : 1/8" = 1'-0"



FLOOR FRAMING PLAN NOTES :

1. THE REFERENCE FINISH FIRST FLOOR ELEVATION = 0'-0". ALL TOP OF STEEL (T.O.S.) ELEVATIONS ARE MEASURED FROM THIS REFERENCE ELEVATION.
2. SEE DETAIL 01/S3.1 FOR TYPICAL SECOND FLOOR SLAB CONSTRUCTION. THE FINISH SECOND FLOOR SLAB IS AT ELEVATION 28'-0". THE TOP OF TOP OF STEEL ELEVATION FOR STEEL BEAMS IS 27'-7" UNLESS NOTED OTHERWISE. FILLER BEAMS SHALL BE EQUALLY SPACED BETWEEN COLUMN GRIDS UNLESS NOTED OTHERWISE.
3. SEE DETAIL 02/S3.1 FOR SLAB REINFORCING REQUIRED AT PENETRATIONS THROUGH THE FLOOR. REINFORCING IS REQUIRED AT ALL PENETRATIONS 10"x10" AND LARGER.
4. SEE DETAIL 03/S3.1 FOR POURSTOP MATERIAL TO BE PROVIDED AT ALL FLOOR PENETRATIONS & INTERIOR EDGES OF SLAB.
5. SEE THE FOUNDATION PLAN (S1.1) FOR COLUMN MARKS & THE COLUMN SCHEDULE.
6. SEE THE FOUNDATION PLAN AND ARCHITECTURAL DRAWINGS FOR WALL DIMENSIONS NOT NOTED ON THIS PLAN AND FOR LOCATIONS OF WALL OPENINGS.
7. [18] DENOTES (18) WELD STUDS SPACED EQUALLY ALONG THE TOP FLANGE OF THE BEAM.
8. BEAMS SHALL BE FABRICATED WITH CAMBER ( $C = x"$ ) AS NOTED ON THE PLAN. BEAMS WITHOUT NOTED CAMBER SHALL BE FABRICATED AND INSTALLED WITH NATURAL CAMBER UP.
9. MC DENOTES A BEAM TO COLUMN WIND MOMENT CONNECTION. SEE DETAIL 06/S3.1 & 07/S3.1 FOR TYPICAL BEAM TO TUBE COLUMN & WIDE FLANGE COLUMN SHEAR CONNECTIONS AT OTHER LOCATIONS.
10. SEE LIGHT GAGE METAL STUD WALL FRAMING NOTES ON SHEET S1.2 FOR EXTERIOR WALL CONSTRUCTION. SEE THE LINTEL SCHEDULE THIS SHEET FOR FRAMING REQUIREMENTS AT EXTERIOR WALL OPENINGS.
11. THE STEEL STAIRS SHALL BE DESIGNED BY THE SUPPLIER FOR GRAVITY LOADS IN ACCORDANCE WITH THE NORTH CAROLINA BUILDING CODE. SUBMIT SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER TO THE PROJECT STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.
12. "SP" DENOTES  $3/8" \times 3 \frac{1}{2}" \times 0-5 \frac{1}{2}"$  COLUMN FLANGE STIFFENER PLATES SHOP WELDED TO COLUMN AT TOP & BOTTOM FLANGES OF MOMENT-CONNECTED BEAM. SEE DETAIL 06/S3.1.
13. SEE SHEET S0.1 FOR ADDITIONAL STRUCTURAL NOTES.

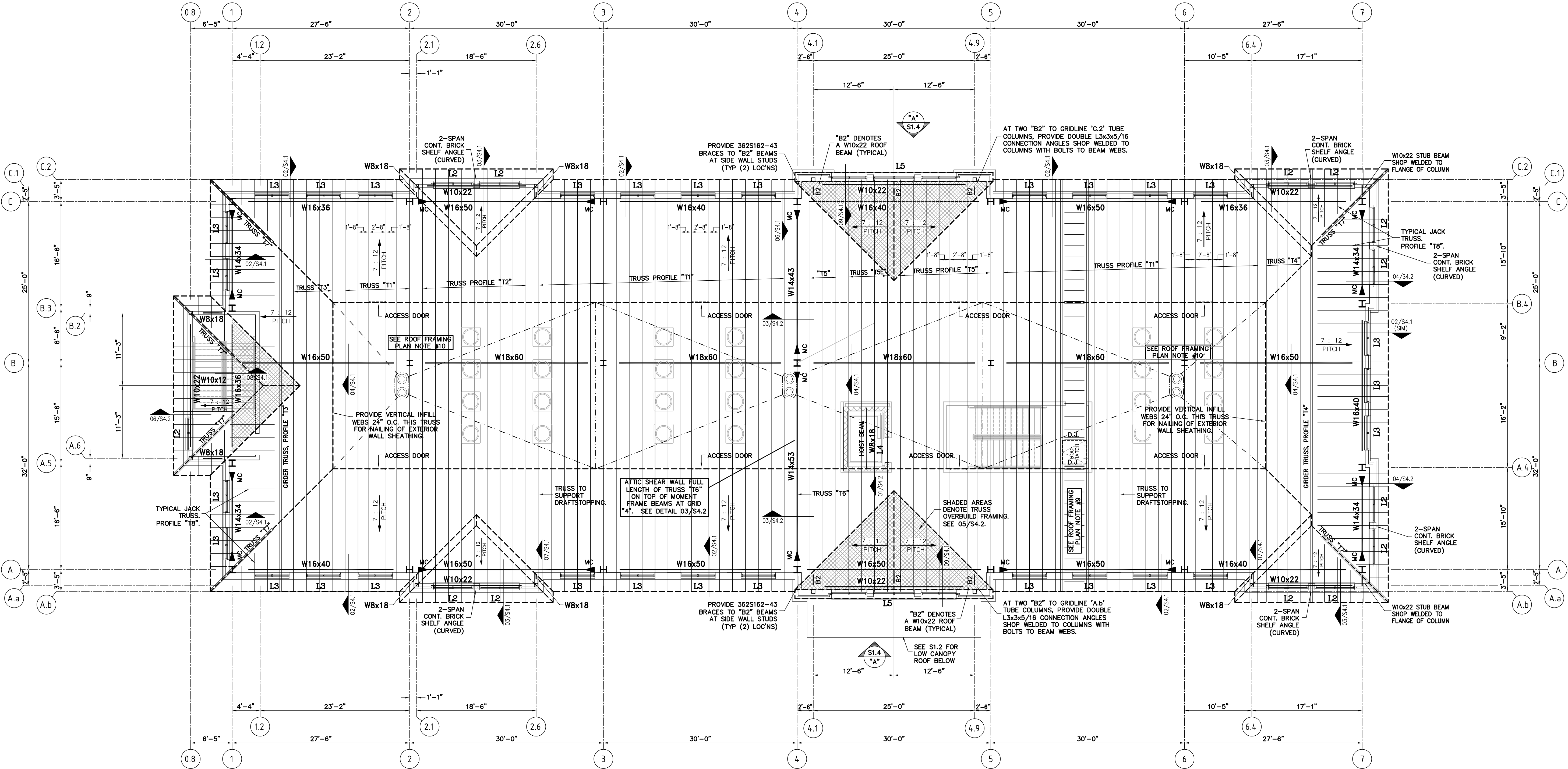
LINTEL SCHEDULE				
MARK	SIZE	MAX. SPAN	END BRNG	DETAIL
L1	BOX HEADER W/ (2) 600S137-43 JOISTS & 18ga TRACK TOP & BOTTOM. SEE "B"/S1.2. GALV. WT7x17 BRICK SHELF	6'-4"	"B"/S1.2  8" ● WT	
L2	BOX HEADER W/ (2) 600S137-43 JOISTS & 18ga TRACK TOP & BOTTOM. SEE "B"/S1.2. GALV. L5x5x5/16 BRICK SHELF ANGLE	6'-4"	"B"/S1.2  8" ● ANGLE	
L3	BOX HEADER W/ (2) 600S137-43 JOISTS & 18ga TRACK TOP & BOTTOM. SEE "B"/S1.2.	6'-4"	"B"/S1.2	
L4	8" DEEP MASONRY BOND BEAM W/ (2) #5 CONT.	5'-0"	8"	
L5	HSS20x4x5/16 TUBE STEEL HEADER W/ GALV. CURVED L6x4x5/16 (LLH) BRICK SHELF ANGLE. SEE DETAILS "A"/S1.4 & 04/S3.4.  PROVIDE (3) BOX HEADERS SIMILAR TO "L2" AT 6" STUD WALL BEHIND TUBE HEADER. LOCATE BOX HEADER AT HIGHEST POINT OF WINDOW OPENING & CRIPPLE FRAME TO FORM CURVED HEADS.	25'-0" ● TUBE HEADER  6'-4" ● BOX HEADERS	04/S3.4  "B"/S1.2	

**LINTEL SCHEDULE NOTES:**

1. AT LINTEL MARK L2, REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF CURVED WINDOW HEADS. AT THESE OPENINGS, LOCATE THE LIGHT GAGE HEADER AT THE APEX OF THE OPENING AND PROVIDE CRIPPLE STUD FRAMING TO FORM CURVE. FABRICATE BRICK SHIELD ANGLE CURVED TO SPECIFIED RADIUS W/ 8" FLAT ENDS FOR BEARING SUPPORT. (SEE DETAIL AT RIGHT.)
2. PROVIDE L1, L2, OR L3 LINTELS (TO MATCH WALL CONSTRUCTION) AT EXTERIOR WALL OPENINGS FOR HVAC VENTS.

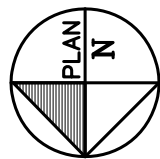






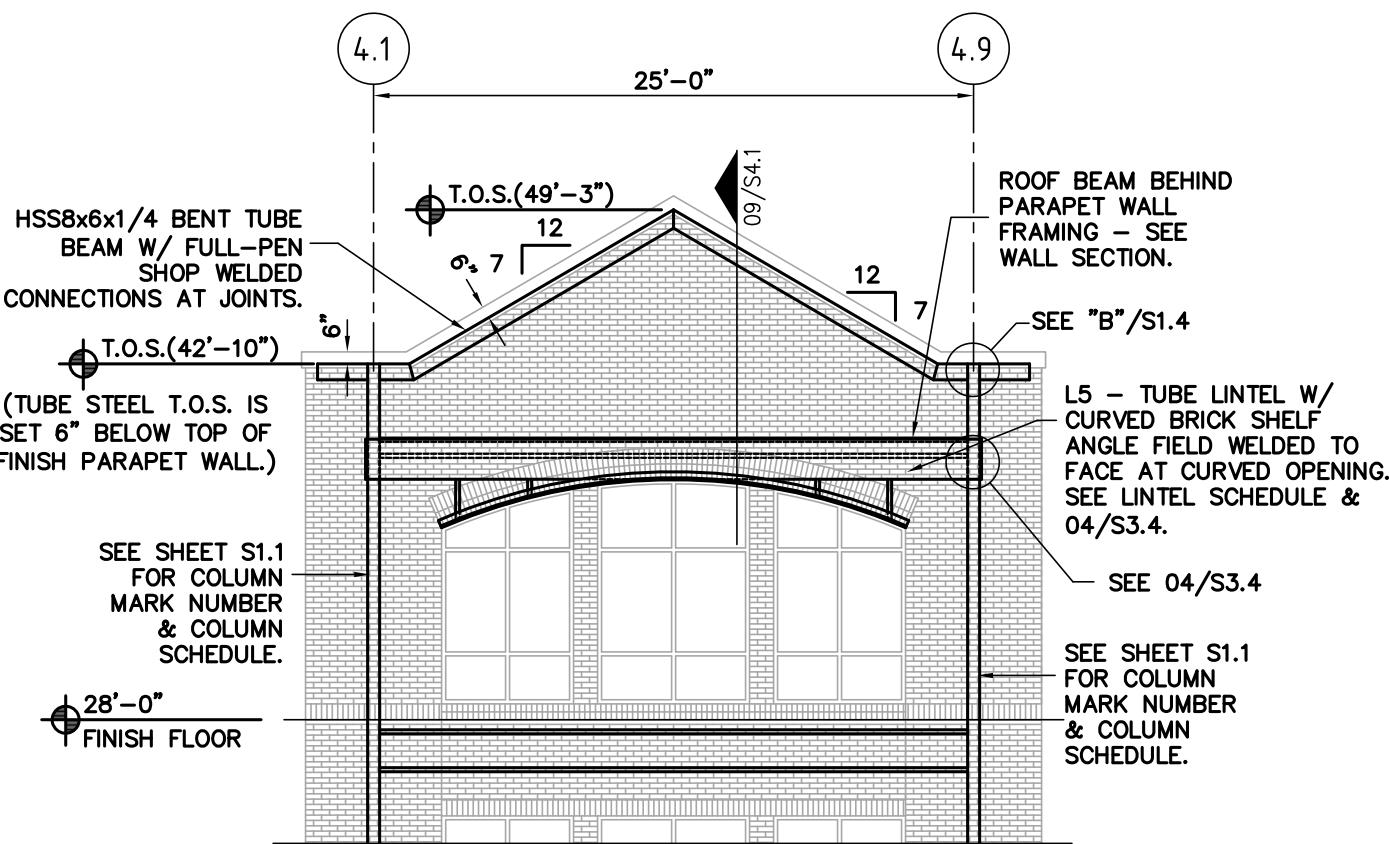
ROOF FRAMING PLAN 01

SCALE : 1/8" = 1'-0"



ROOF FRAMING PLAN NOTES :

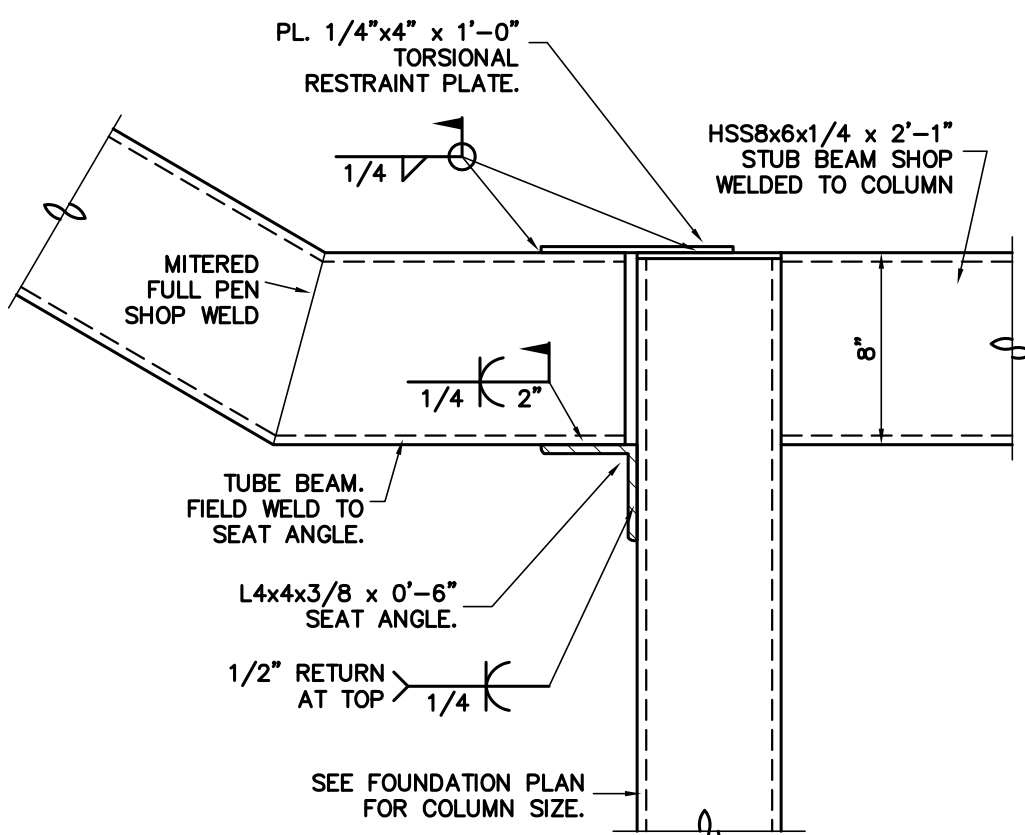
1. THE TYPICAL ROOF TRUSS BEARING ELEVATION SHALL BE AT REFERENCE ELEVATION 40'-0". LOCATE T.O.S.(39'-9") FOR ALL STEEL BEAMS UNLESS NOTED OTHERWISE.
2. THE ROOF SHEATHING SHALL BE 5/8" THICK, 40/20 MIN. APA RATED CDX PLYWOOD OR OSB. ATTACH SHEATHING TO FRAMING WITH 10d NAILS SPACED 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORT LOCATIONS. SEE DETAIL 01/S4.1.
3. SHADED AREAS ON THE FRAMING PLAN DENOTE OVERBUILT TRUSS VALLEY-SET FRAMING OR STICK FRAMING. IF STICK FRAMING, USE 2x6'S 16" O.C. ON TOP OF MAIN ROOF SHEATHING. SEE DETAIL 05/S4.2.
4. GYPSUM SHEATHING (1/2" MINIMUM THICKNESS) IS TO BE INSTALLED AT THE UNDERSIDE OF TRUSS BOTTOM CHORDS. SHOULD THE SHEATHING BE DELETED FROM THE CONSTRUCTION REQUIREMENTS, CONTACT THE STRUCTURAL ENGINEER FOR TRUSS BOTTOM CHORD BRACING THAT IS NECESSARY TO STABILIZE THE TRUSSES WHEN SUBJECTED TO NET WIND UPLIFT LOADS.
5. SEE THE FOUNDATION PLAN (S1.1) FOR COLUMN MARKS & THE COLUMN SCHEDULE.
6. SEE THE FOUNDATION PLAN AND ARCHITECTURAL DRAWINGS FOR WALL DIMENSIONS NOT NOTED ON THIS PLAN AND FOR LOCATIONS OF WALL OPENINGS.
7. SEE LIGHT GAGE METAL STUD WALL FRAMING NOTES ON SHEET S1.2 FOR EXTERIOR WALL NOT CONSTRUCTION. SEE THE LINTEL SCHEDULE ON SHEET S1.3 FOR FRAMING REQUIREMENTS AT EXTERIOR WALL OPENINGS.
8. MC DENOTES A BEAM TO COLUMN WIND MOMENT CONNECTION. SEE DETAIL 06/S4.1. SEE DETAIL 05/S4.1 FOR TYPICAL BEAM TO COLUMN SHEAR CONNECTIONS.
9. PROVIDE GIRDER TRUSSES TO CREATE 48" CLEAR OPENING FOR ROOF HATCH. PROVIDE 2x6 LADDER FRAMING BETWEEN TOP CHORDS OF TRUSSES SPACED 24" O.C. ATTACH LADDER FRAMING TO TRUSSES WITH SIMPSON LU24 JOIST HANGER EACH END.
10. TRUSS FRAMING IS FLAT IN THE CENTER ROOF AREA. PROVIDE TAPERED INSULATION THAT RESULTS IN A MINIMUM 1/4:12 SLOPE TO ROOF DRAINS.
11. SEE SHEET S1.5 FOR TRUSS DESIGN NOTES AND TRUSS PROFILES. TRUSSES SHALL BE SPACED AT 24" O.C., MAXIMUM (UNLESS NOTED OTHERWISE).
12. SEE SHEET S0.1 FOR ADDITIONAL STRUCTURAL NOTES.



DETAIL "A"

1/8" SCALE

ELEVATION AT L5 LINTEL & TUBE PARAPET BEAM



DETAIL "B"

1-1/2" SCALE

TUBE PARAPET BEAM TO STEEL COLUMN CONNECTION

New Shell Building  
Heritage Park West  
3125 Rogers Road  
Wake Forest, North Carolina



120 SAINT MARY'S ST.  
RALEIGH, NC 27605  
PH: (919) 833-0495  
FAX: (919) 833-7630  
N.C. FIRM LICENSE C-0621



MAURER ARCHITECTURE

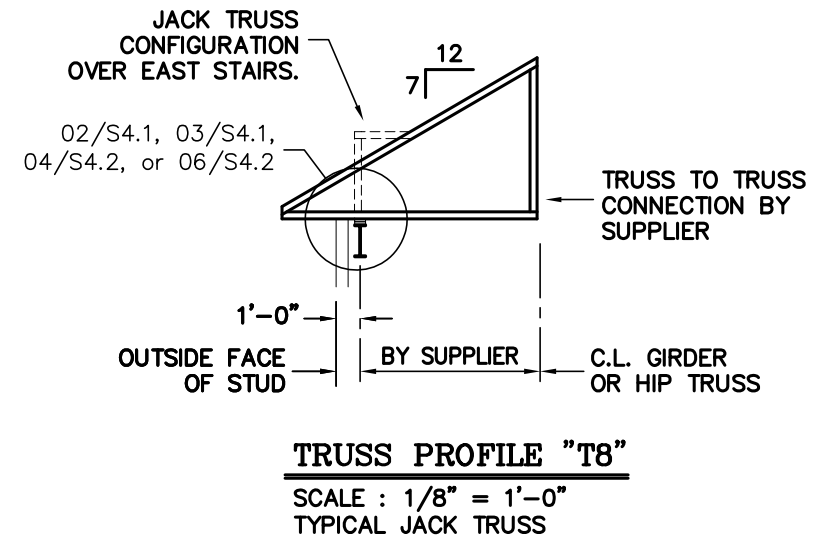
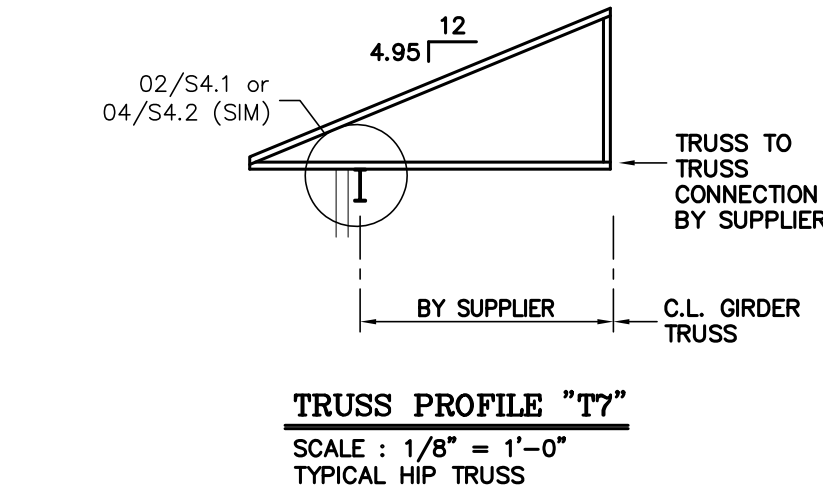
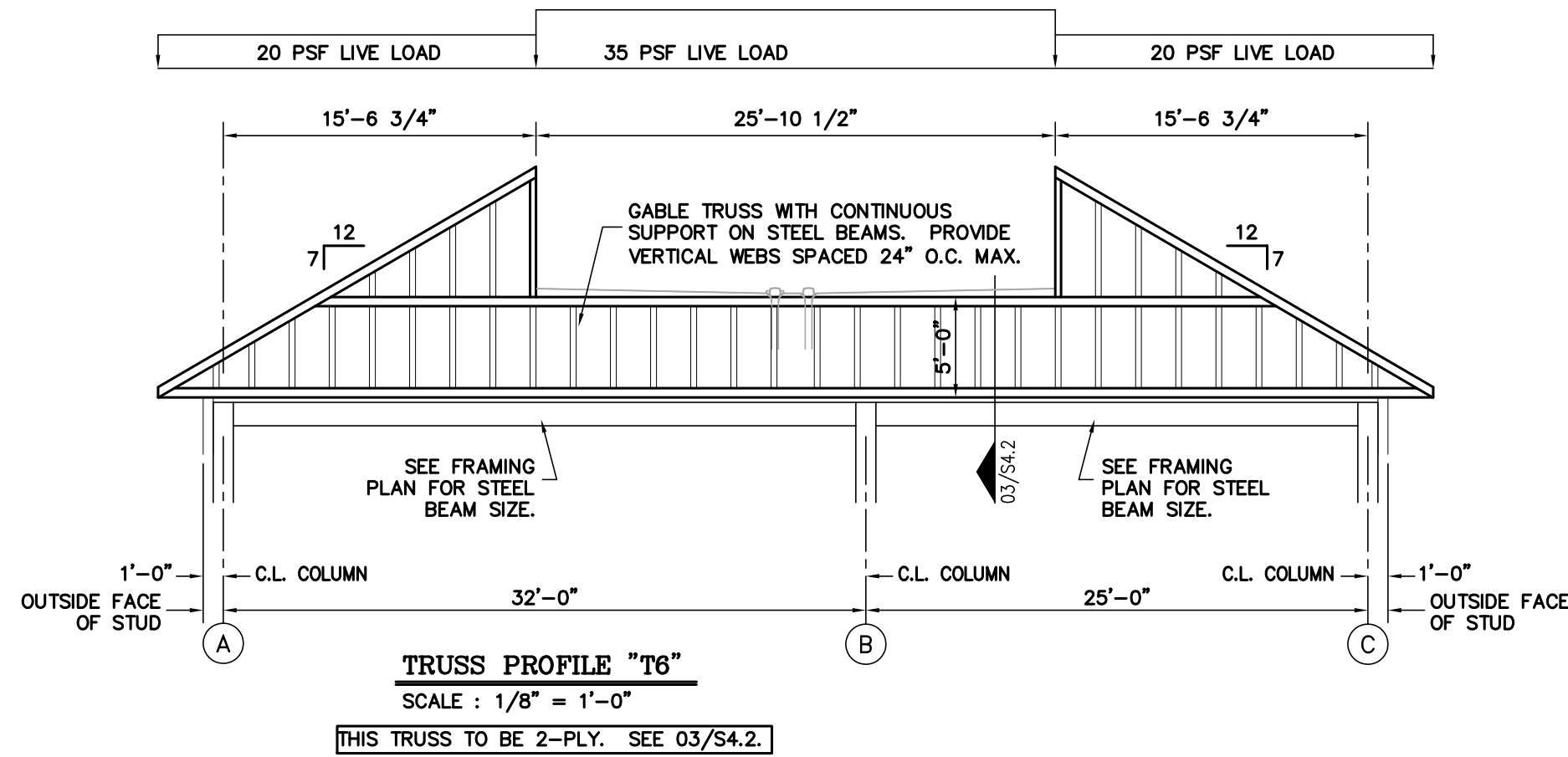
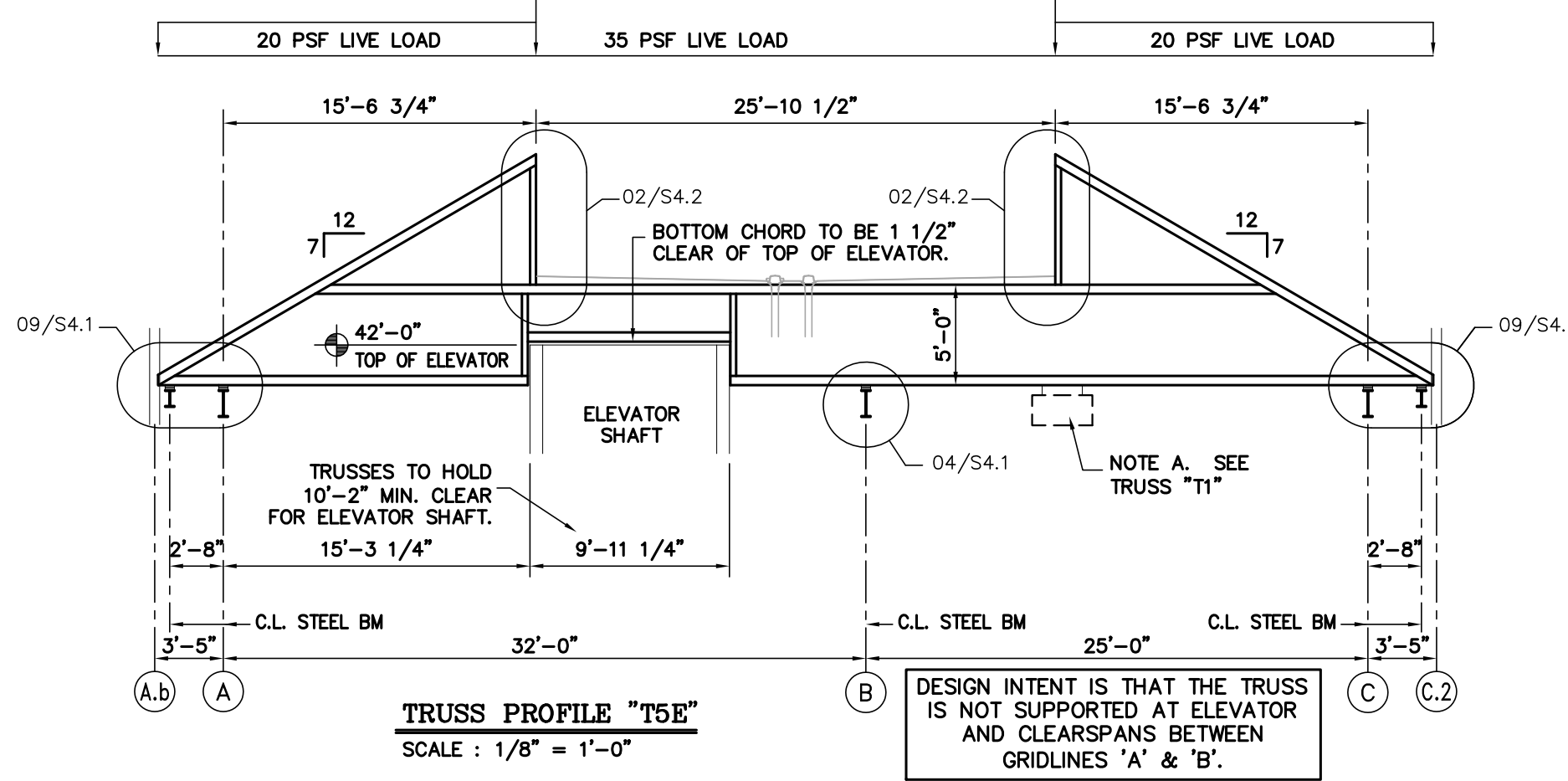
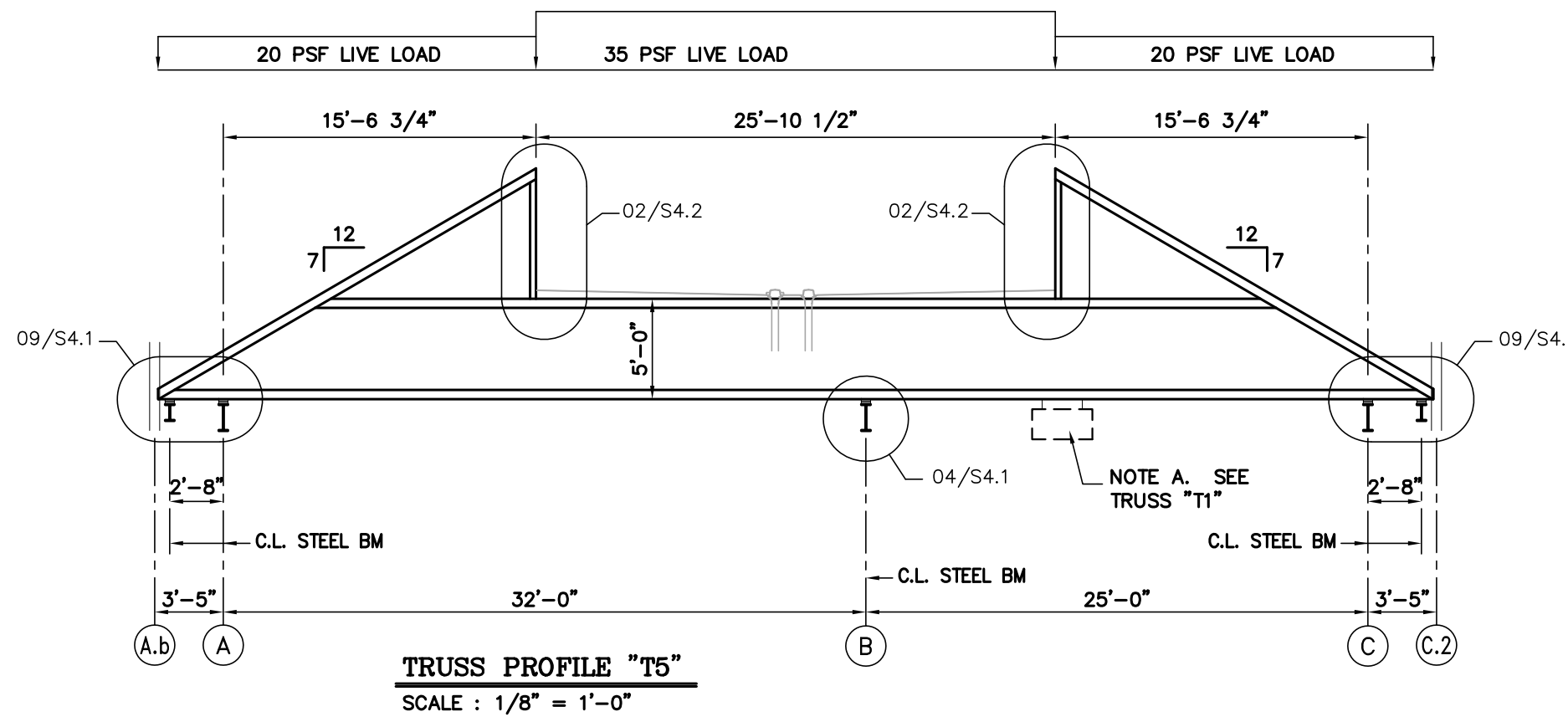
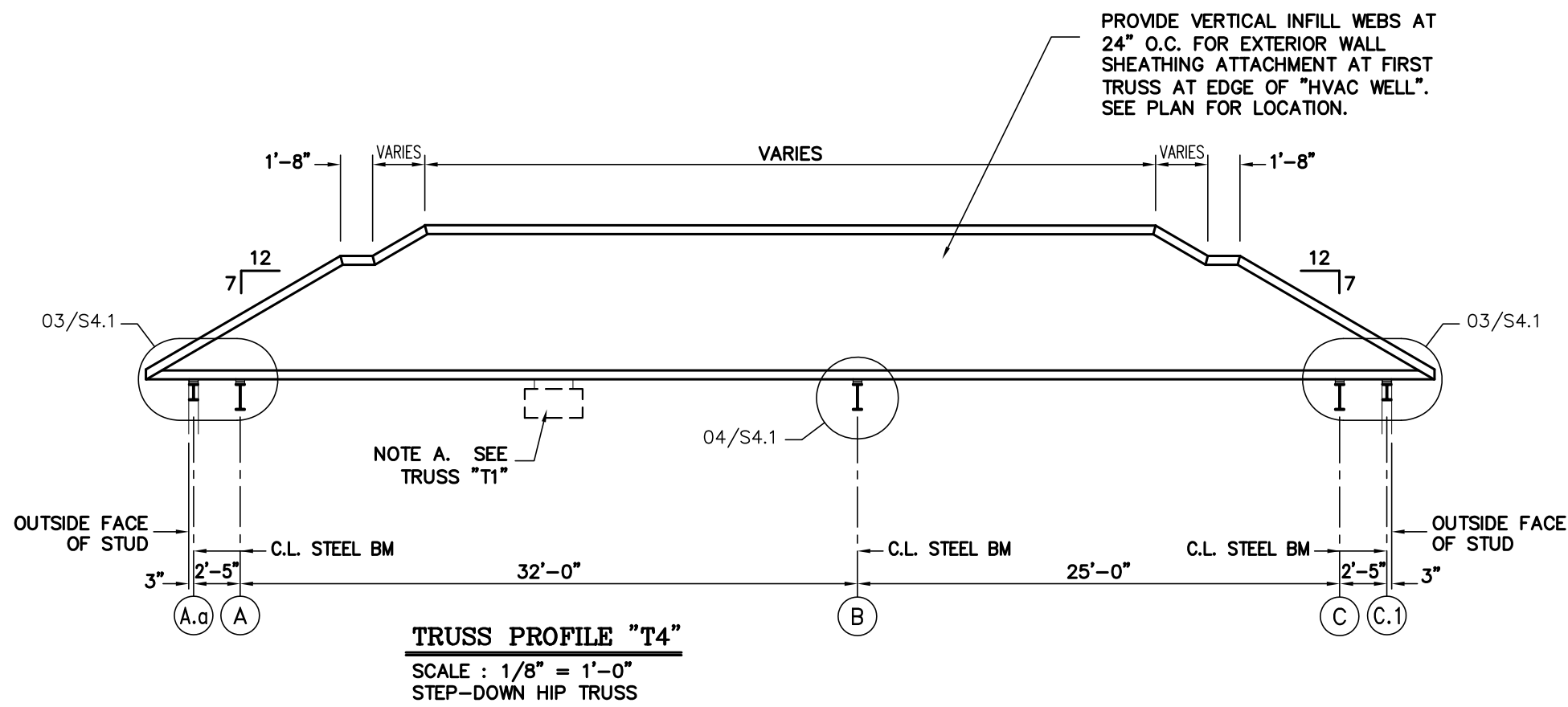
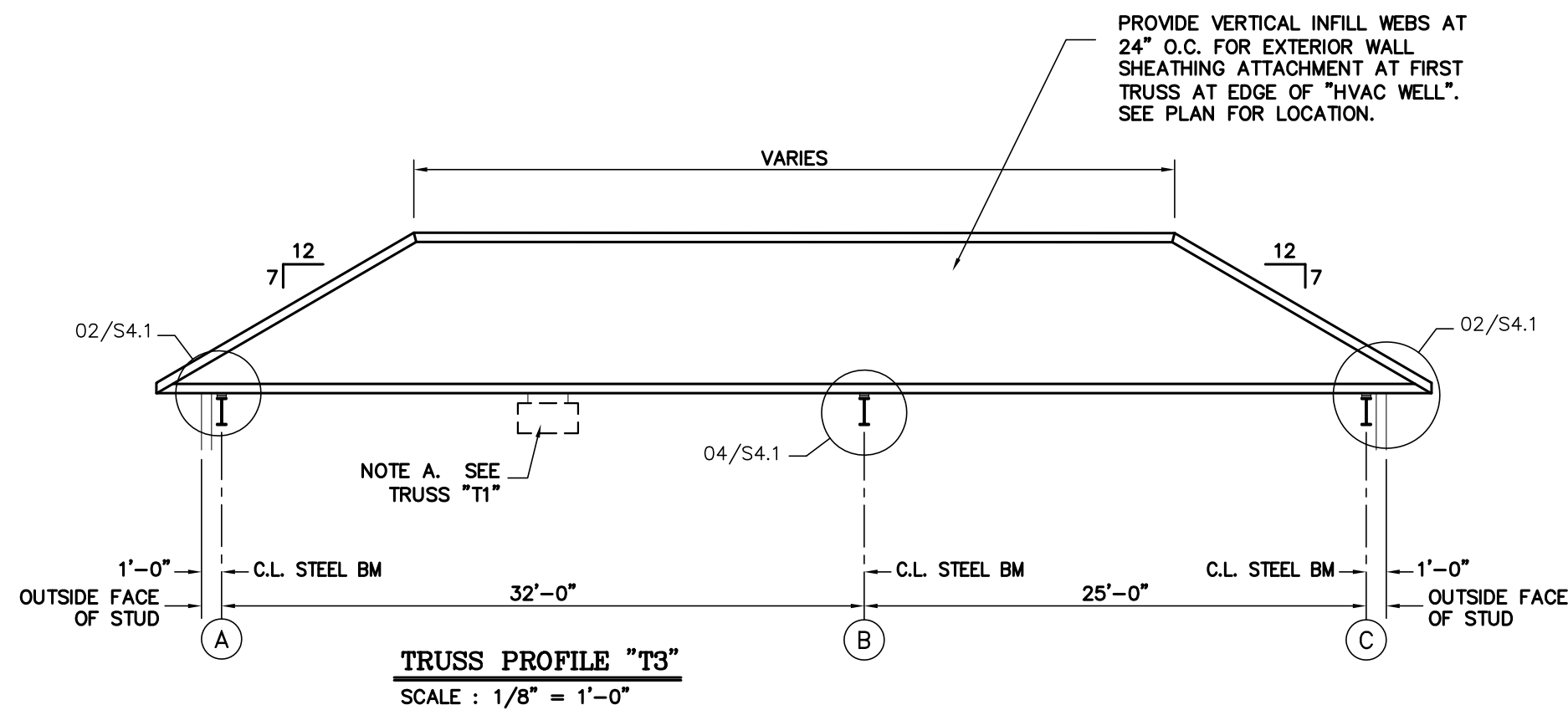
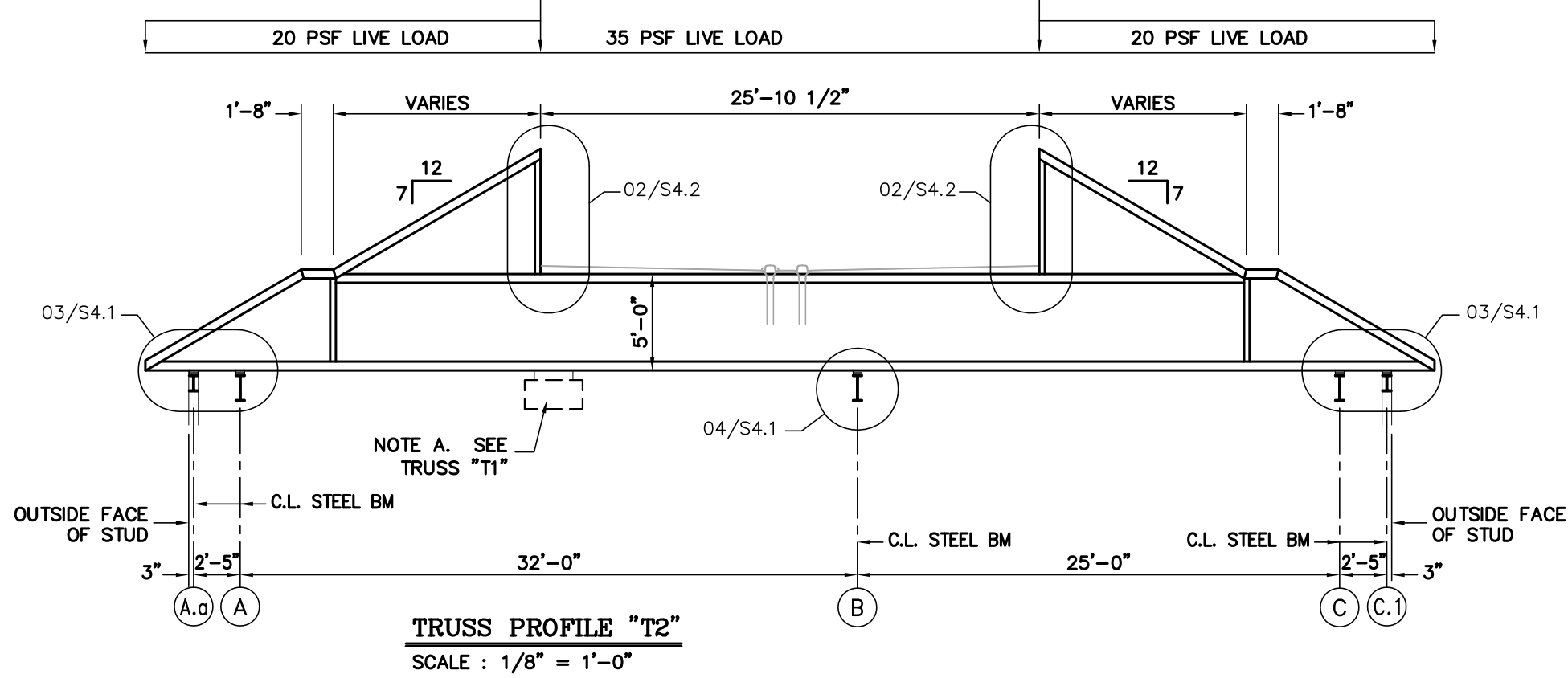
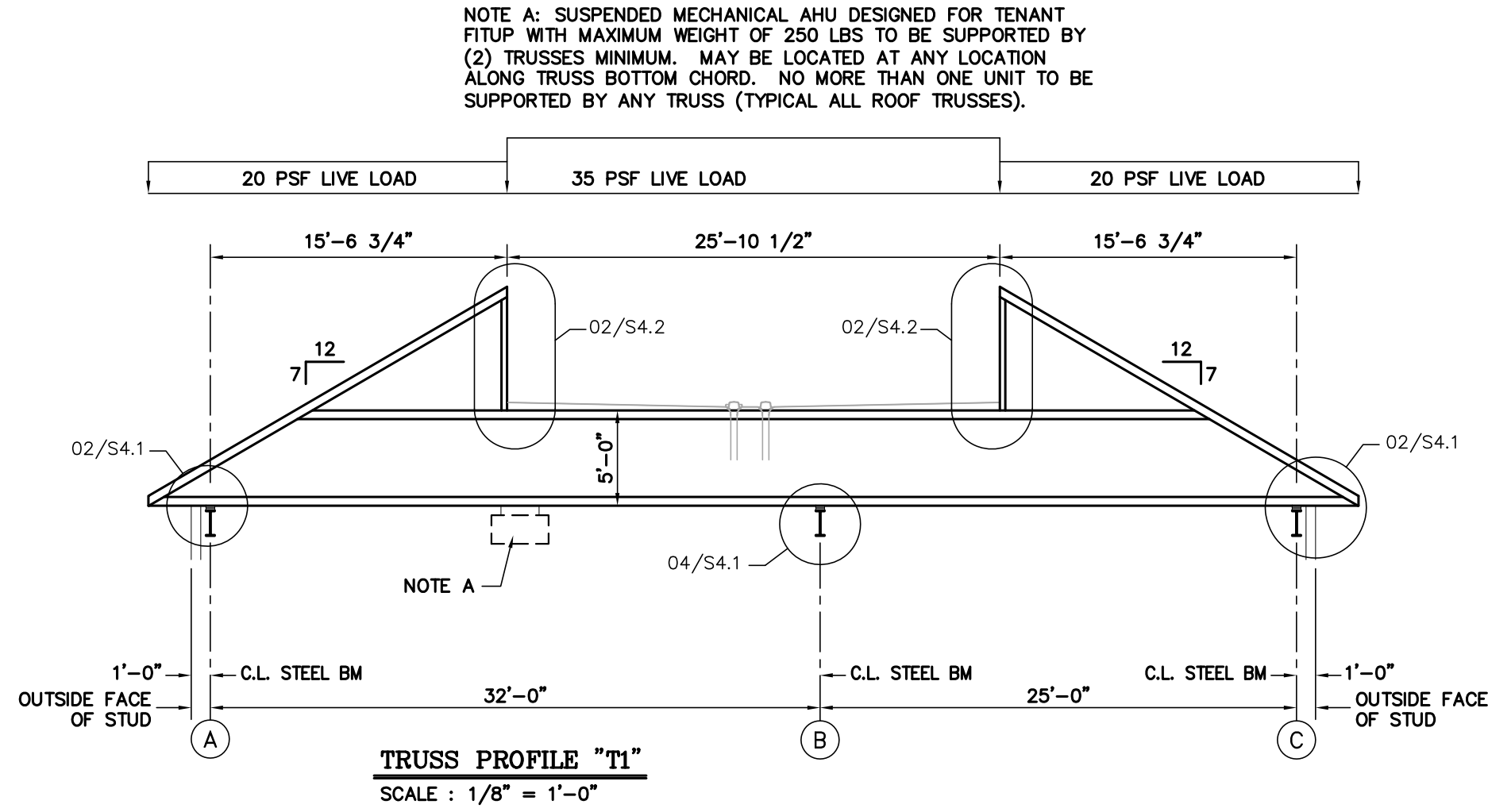
115.5 EAST HARGETT STREET, SUITE 300  
RALEIGH, NORTH CAROLINA 27601  
TEL. 919-829-4969 FAX. 919-829-0860

DATE	6/30/17
DR.	JES/PMK
CH.	PMK
PROJ. #	LA-11199
REVISIONS	DATE

ROOF FRAMING  
PLAN

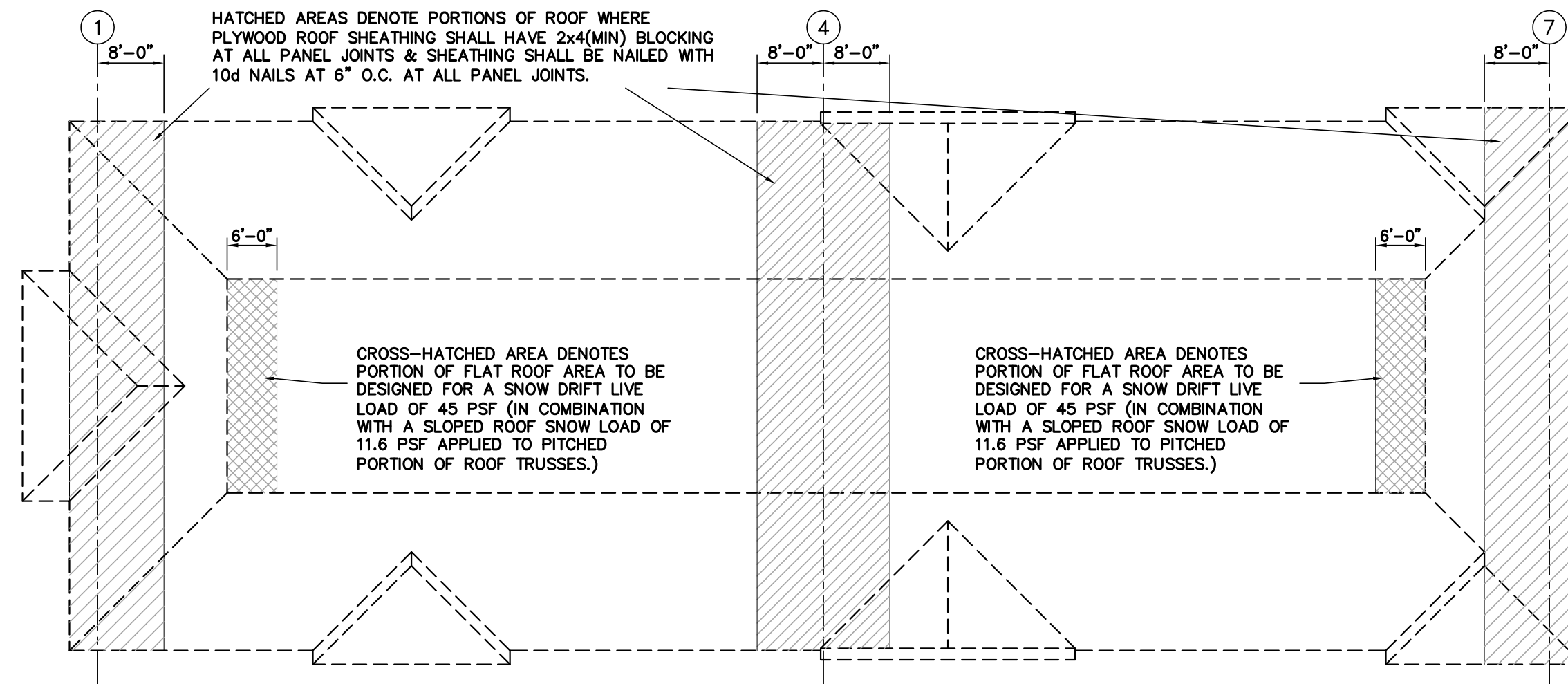
S1.4





**ROOF TRUSS DESIGN NOTES :**

1. THE GENERAL CONTRACTOR SHALL VERIFY DIMENSIONS FOR ALL TRUSS TYPES IN THE FIELD PRIOR TO FABRICATION. TRUSS PROFILE DIMENSIONS ARE TO FACE OF STUD.
2. TRUSSES SHALL BE SPACED AT 24" O.C. MAXIMUM UNLESS OTHERWISE NOTED ON THE FRAMING PLANS.
3. FINAL TRUSS WEB CONFIGURATIONS ARE TO BE DETERMINED BY THE FABRICATOR.
4. THE SUPPLIER SHALL PROVIDE CALCULATIONS FOR ALL TRUSS TYPES, SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA, FOR REVIEW BY THE PROJECT STRUCTURAL ENGINEER OF RECORD PRIOR TO FABRICATION.
5. THE SUPPLIER SHALL DESIGN ALL TRUSS TYPES FOR A TOTAL ROOF DEAD LOAD OF 20 PSF (10 PSF AT THE TOP CHORD & 10 PSF AT THE BOTTOM CHORD). THE DESIGN ROOF LIVE LOAD IS 20 PSF ON PITCHED TOP CHORD AREAS AND 35 PSF AT FLAT TOP CHORD AREAS. SEE PLAN BELOW FOR THE SNOW DRIFT LOADING DIAGRAM, TO BE USED IN ALL TRUSS LOAD COMBINATIONS WITH SNOW LOAD. DESIGN TRUSS BOTTOM CHORDS FOR A SUSPENDED CONCENTRATED MECH. UNIT LOAD OF 200 LBS, APPLIED AT ANY LOCATION ALONG THE TRUSS, IN COMBINATION WITH THE DESIGN DEAD & LIVE LOADS. IN ADDITION TO THE DESIGN DEAD AND LIVE LOADS NOTED ABOVE, THE ROOF TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH ASCE 7-05 FOR A DESIGN WIND SPEED OF 95 MPH WITH EXPOSURE "C". 10 PSF MAXIMUM SHALL BE USED FOR THE DEAD LOAD WITH ALL WIND LOAD CASES.
6. SPLICES IN TRUSSES SHALL BE LOCATED AS REQUIRED BY THE FABRICATOR AND NOTED ON THE ERECTION DRAWINGS.
7. THE ERECTION DRAWINGS SHALL NOTE ALL LOCATIONS OF TEMPORARY BRIDGING OR BRACING REQUIRED TO STABILIZE THE TRUSSES DURING ERECTION, PRIOR TO THE INSTALLATION OF ROOF SHEATHING.
8. THE CONTRACTOR SHALL CONSULT THE LATEST EDITION OF BCSI FOR ERECTION BRACING GUIDELINES. PROPER WOOD TRUSS HANDLING AND ERECTION BRACING ARE THE RESPONSIBILITY OF THE CONTRACTOR.
9. THE DESIGN INTENT IS FOR TRUSSES "T1" THROUGH "T6" TO BE FABRICATED AS SINGLE TRUSSES WITH BEARING SUPPORT AT GRID LINES "A", "B", AND "C". IF TRUSS SUPPLIER DESIRES TO SPLICE TRUSSES AT GRID LINE "B", A KEYED TRUSS CONNECTION WITH OVERLAPPING TRUSS VERTICAL WEBS SHALL BE UTILIZED AT SPLICE. CONTACT STRUCTURAL ENGINEER OF RECORD FOR REVISED DETAIL 04/S4.1 CONNECTION REQUIREMENTS IF TRUSSES ARE TO BE SPLICED AT GRID LINE "B".



New Shell Building  
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PATRICK M. KYER  
NORTH CAROLINA  
18/23  
DESIGNED BY  
PATRICK M. KYER

**MAURER ARCHITECTURE**  
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DATE	6/30/17
DR.	JES/PMK
CH.	PMK
PROJ. #	LA-11199
REVISIONS	DATE

ROOF TRUSS  
NOTES & PROFILES

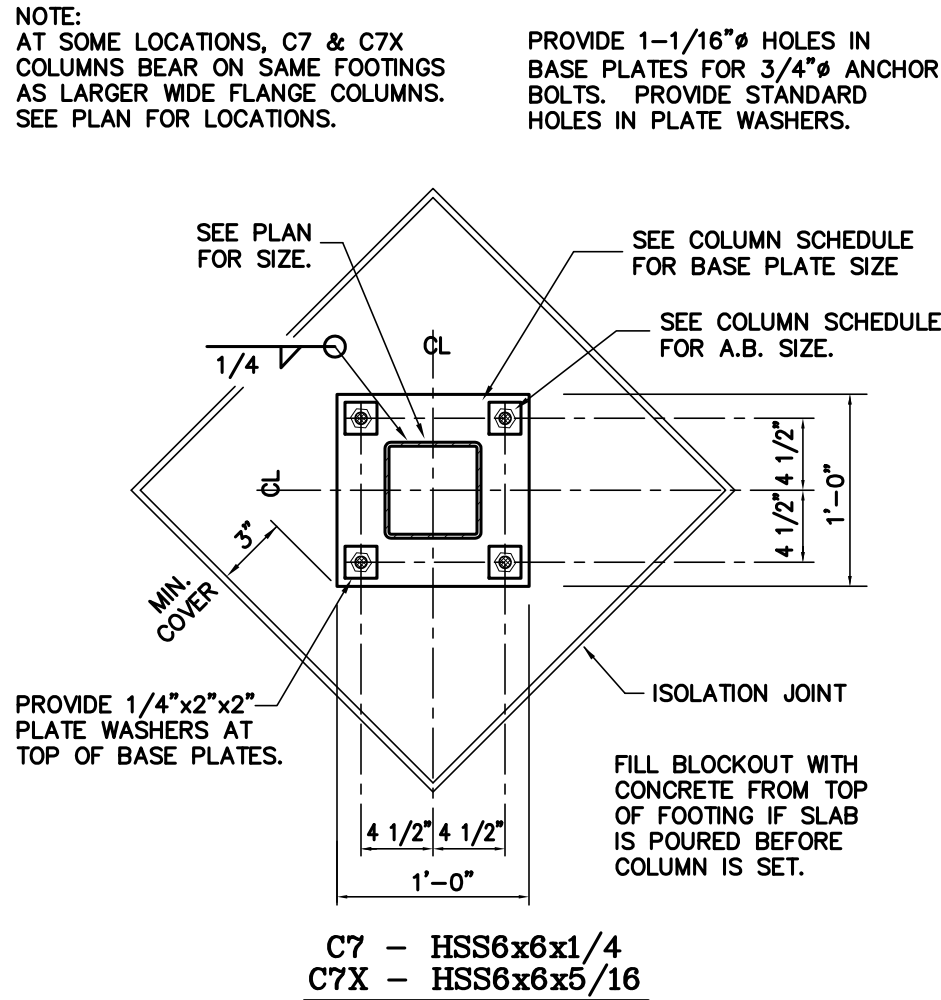
S1.5







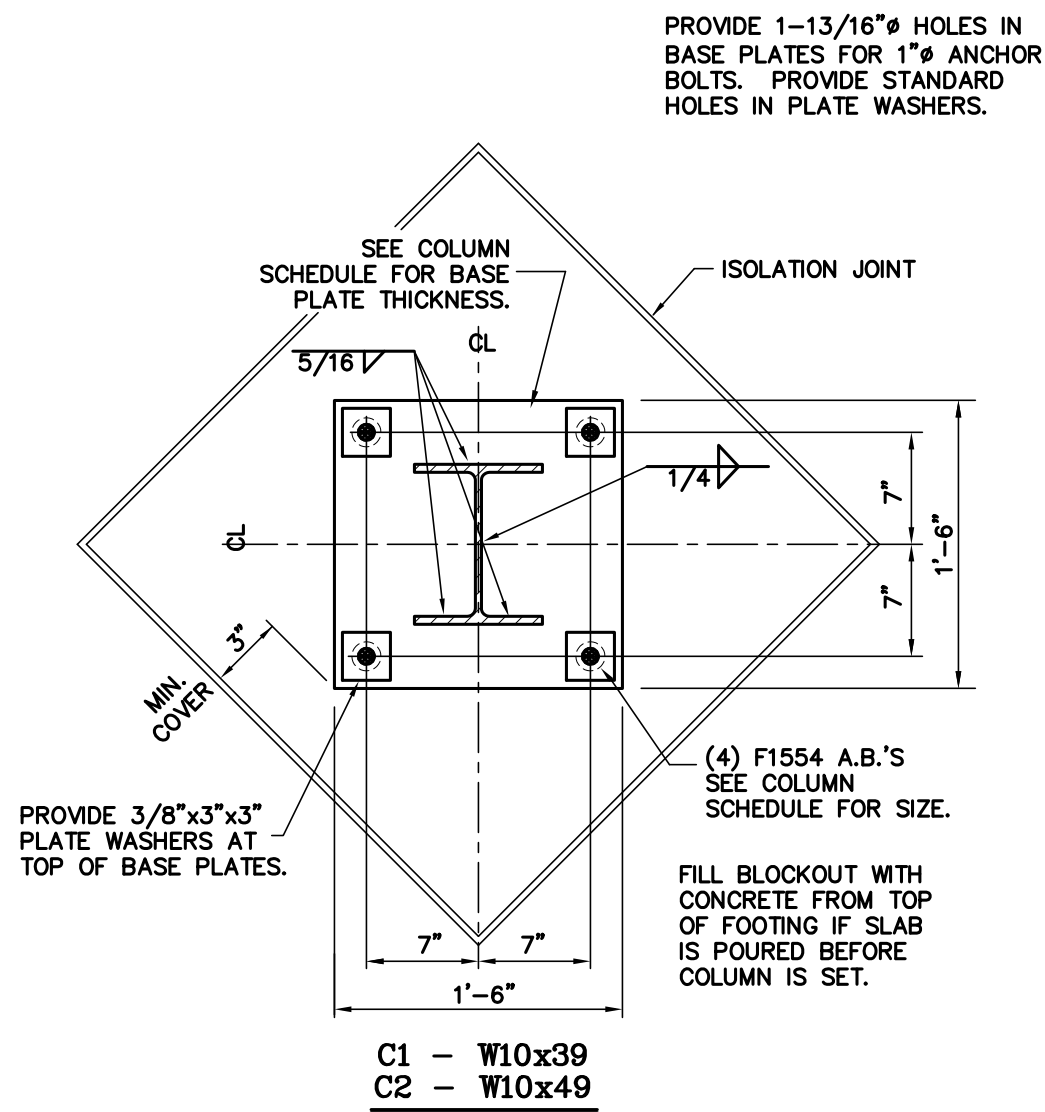
SEE 02/S2.2 FOR PLAN VIEW AT COLUMN BASE PLATES.



DETAIL 02 1" SCALE

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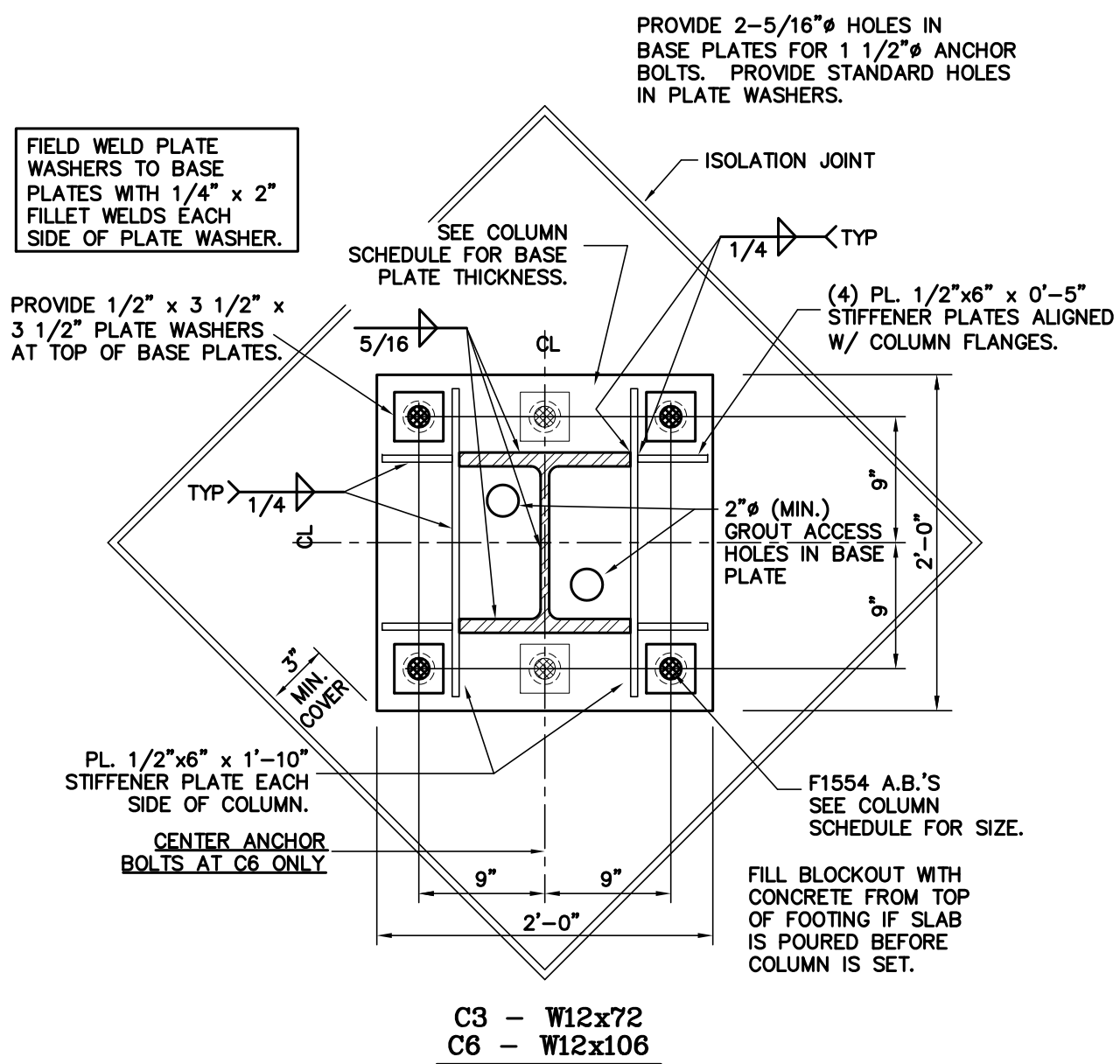
PLAN • COLUMN BASE PLATE – TUBE



DETAIL 04

1" SCALE

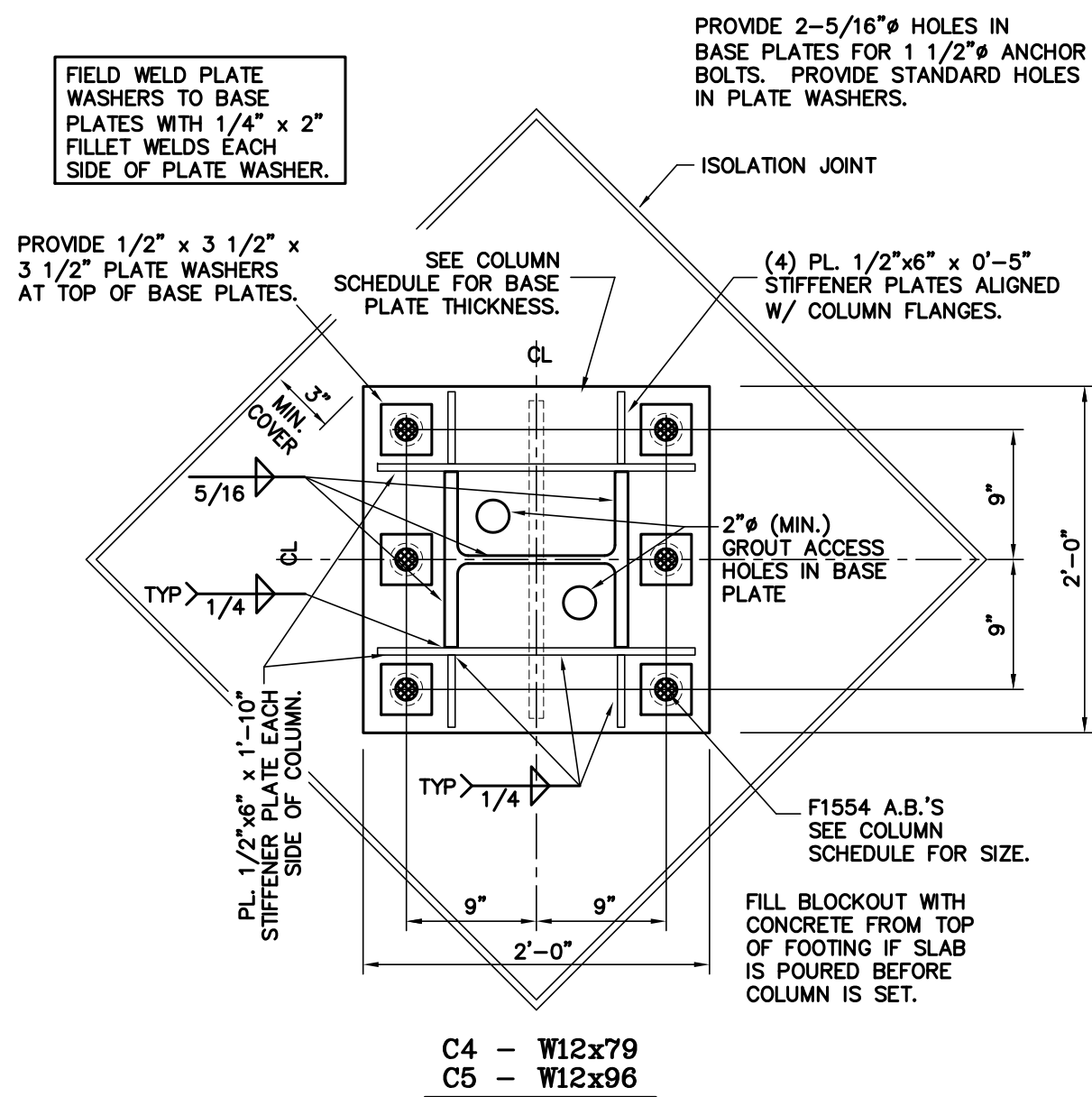
PLAN • COLUMN BASE PLATE – WIDE FLANGE



DETAIL 06 1" SCALE

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PLAN • COLUMN BASE PLATE – WIDE FLANGE

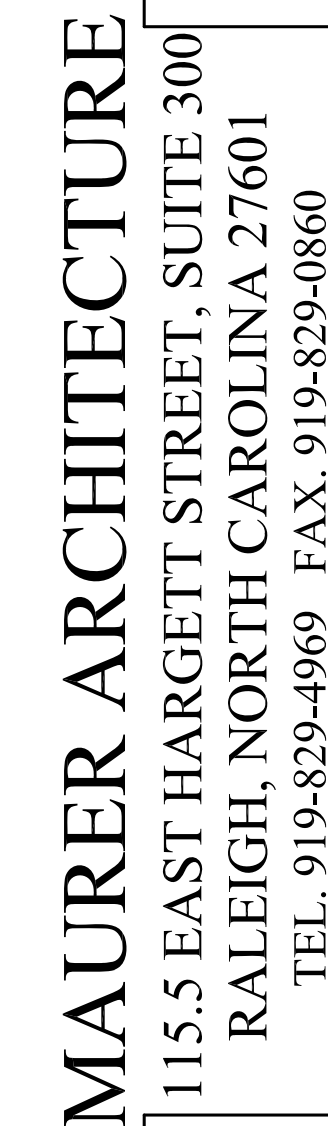


DETAIL 08 1" SCALE

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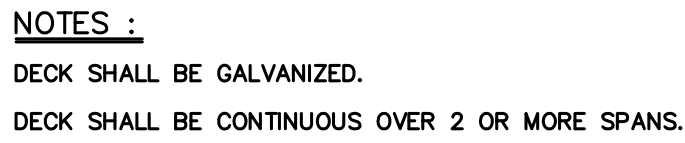
PLAN • COLUMN BASE PLATE – WIDE FLANGE

Wake Forest, North Carolina

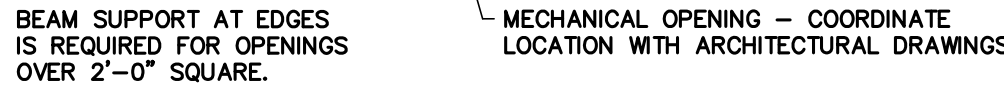



## S2.2





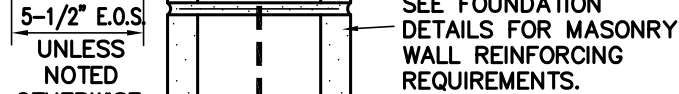
### TYPICAL COMPOSITE FLOOR SLAB CONSTRUCTION



TYPICAL SLAB REINFORCEMENT AT SLAB OPENINGS (WITHOUT BEAM SUPPORTS)

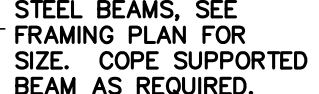


TYPICAL POUR STOP DETAIL AT STAIRWELL

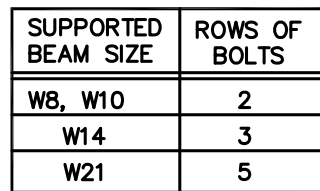


FLOOR FRAMING SECTION AT ELEVATOR WALLS

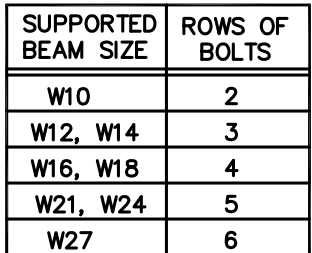
STEEL FABRICATOR NOTE: ALTERNATE CONNECTION TYPES  
MUST BE APPROVED IN WRITING BY THE STRUCTURAL  
ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS.



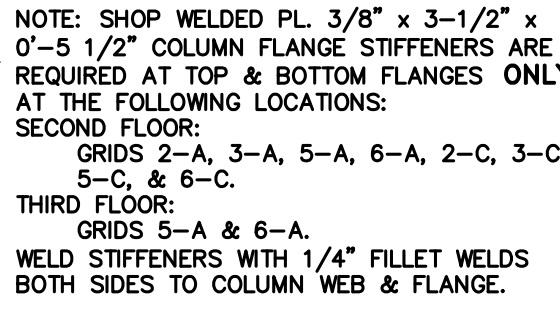
SECTION AT COMPOSITE GIRDER (TYPICAL BEAM TO BEAM CONNECTION)



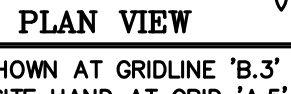
TYPICAL BEAM TO TUBE COLUMN SHEAR CONNECTION



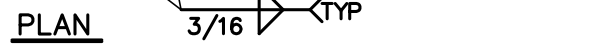
FLOOR BEAM TO COLUMN SHEAR CONNECTION



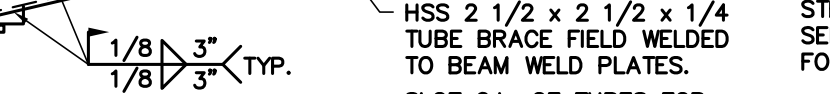
## TYPICAL STEEL BEAM TO COLUMN WIND MOMENT CONNECTIONS



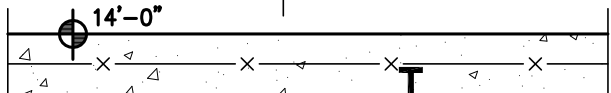
TUBE STEEL BEAM CONNECTION TO COLUMN AT STAIR "B" (STEEL ONLY SHOWN)



TUBE STEEL BEAM TO COLUMN CONNECTION



MOMENT FRAME FLOOR BEAM BOTTOM FLANGE BRACING DETAIL

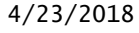
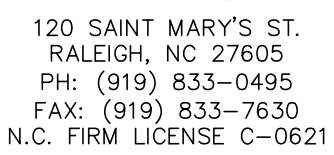


2ND FLOOR FRAMING SECTION AT STAIR "A"



FLOOR FRAMING SECTION AT EXTERIOR WALL

Wake Forest, North Carolina



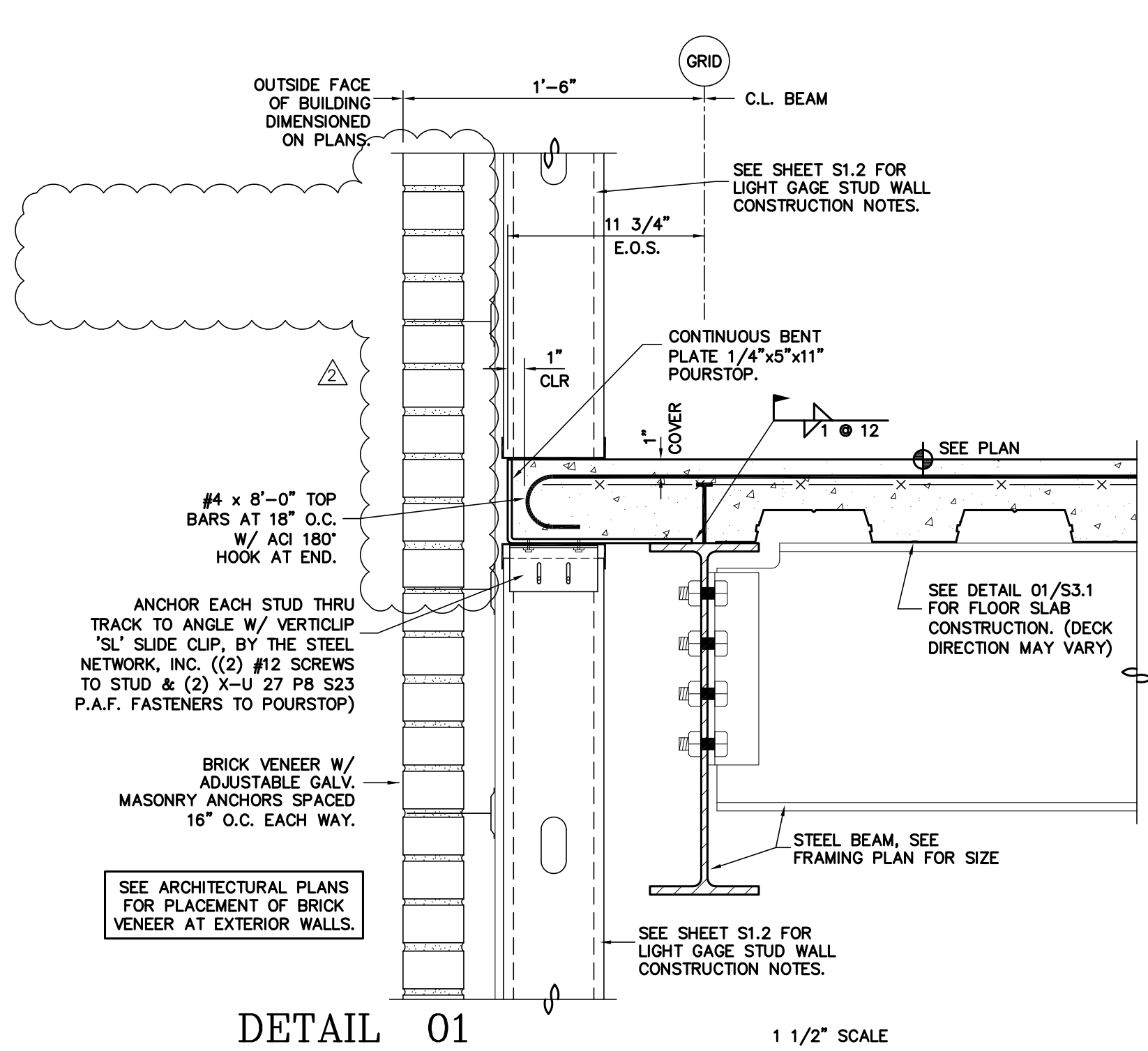
115.5 EAST HARGETT STREET, SUITE 300  
RALEIGH, NORTH CAROLINA 27601

TEL. 919-829-4969 FAX. 919-829-0860

2 REVISED BRICK  
VENEER EXTENTS 4/23/18

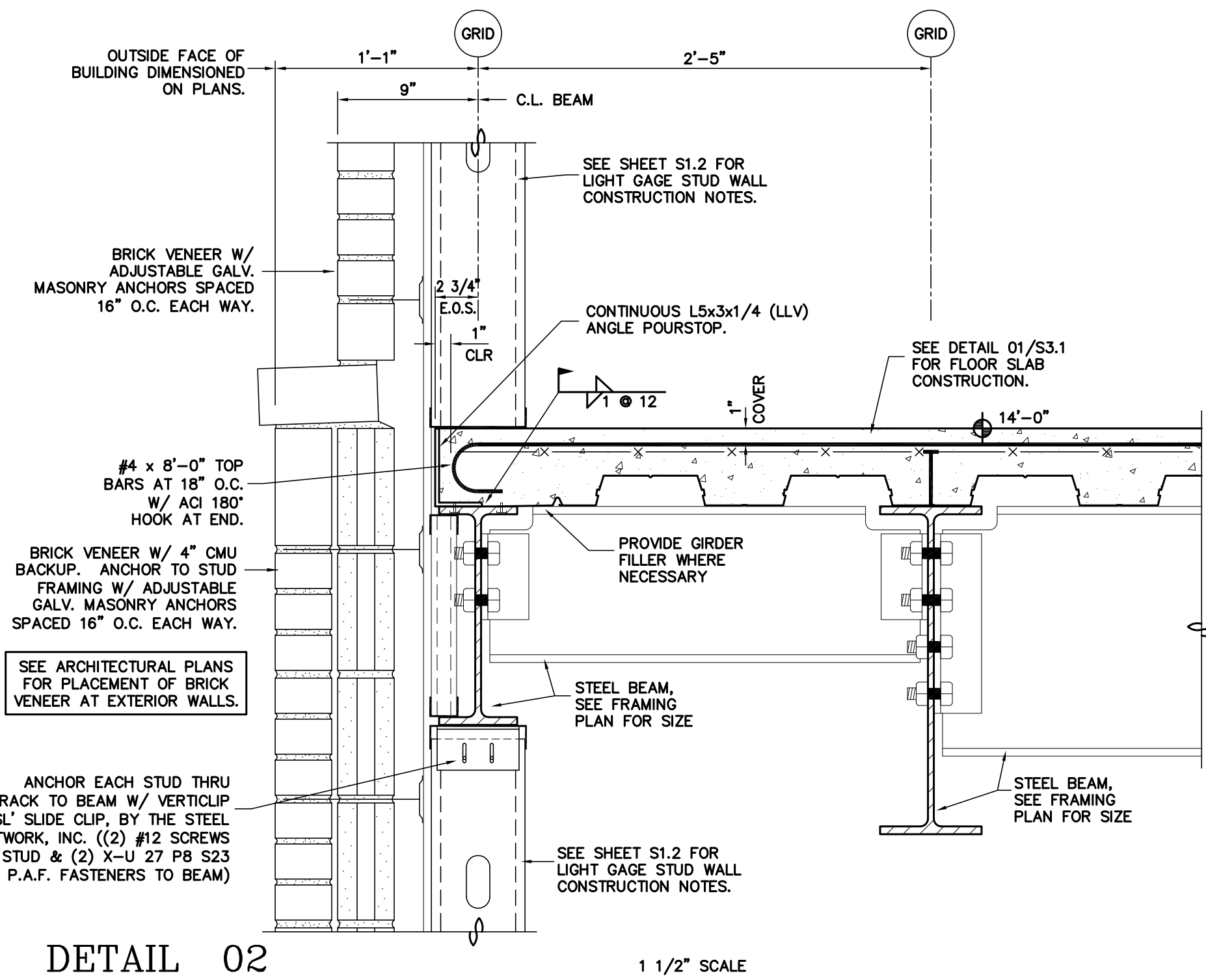
### S3.1





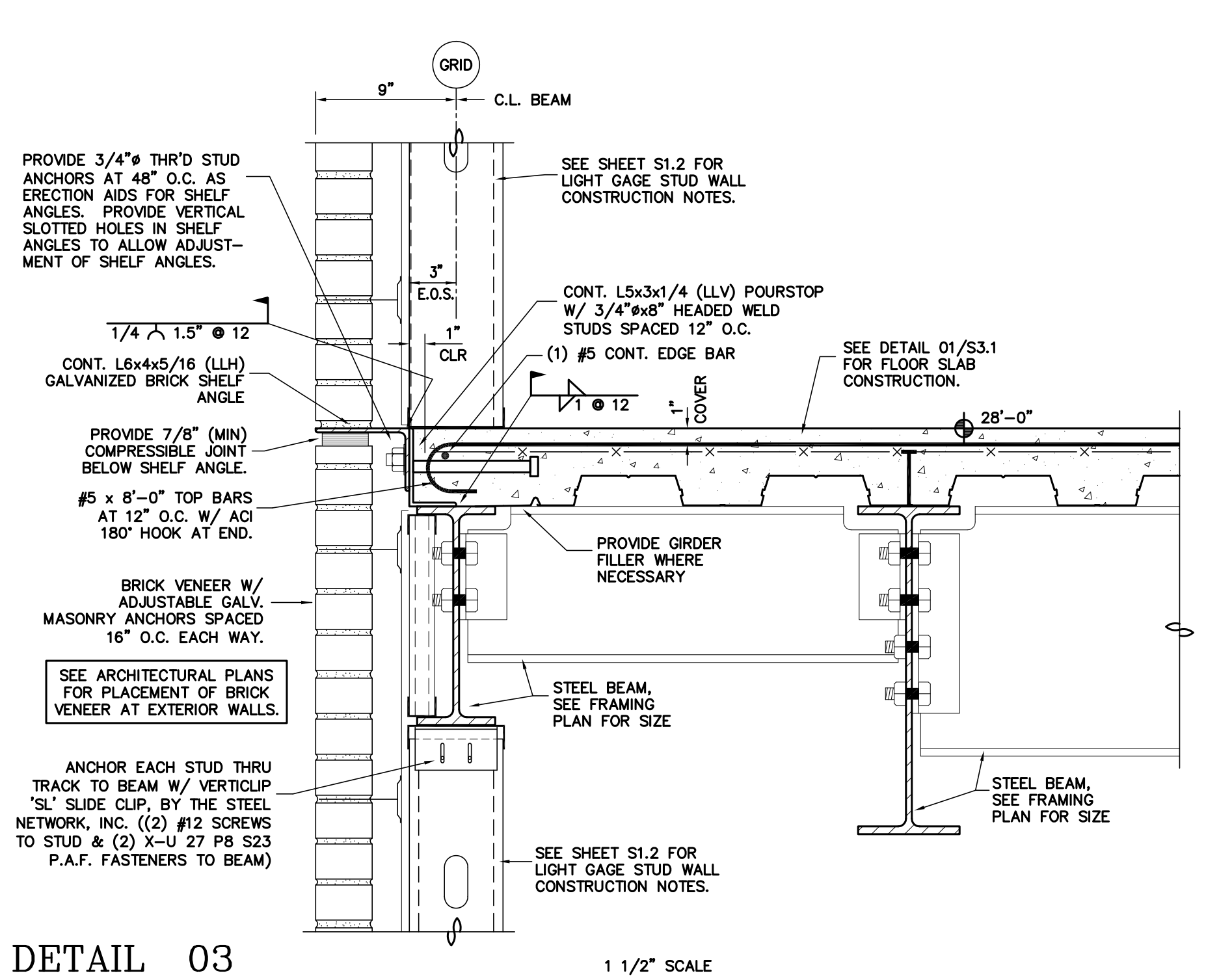
DETAIL 01

FLOOR FRAMING SECTION AT EXTERIOR WALL



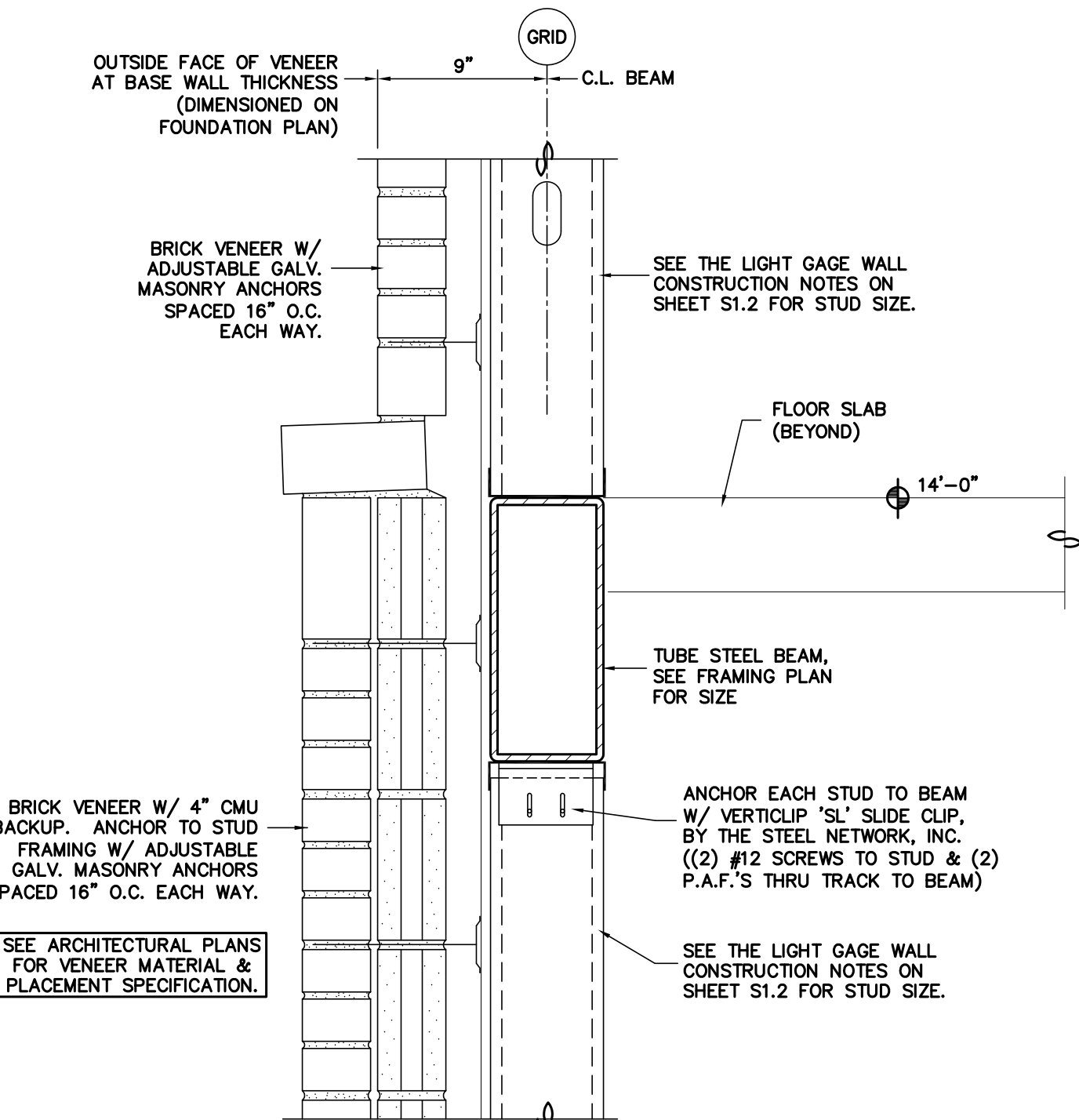
DETAIL 02

FLOOR FRAMING SECTION AT EXTERIOR WALL



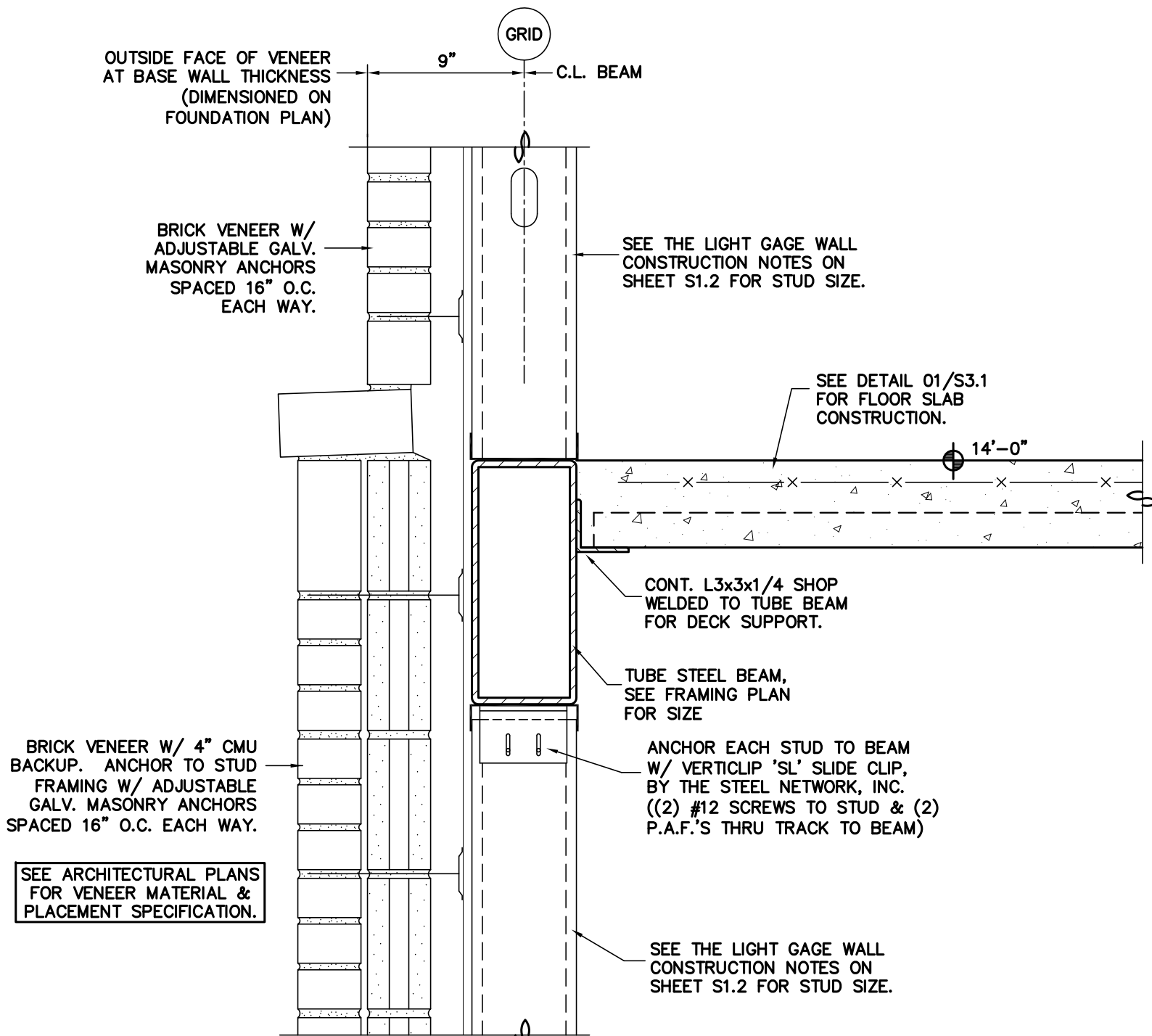
DETAIL 03

3RD FLOOR FRAMING SECTION AT EXTERIOR WALL W/ BRICK RELIEF ANGLE



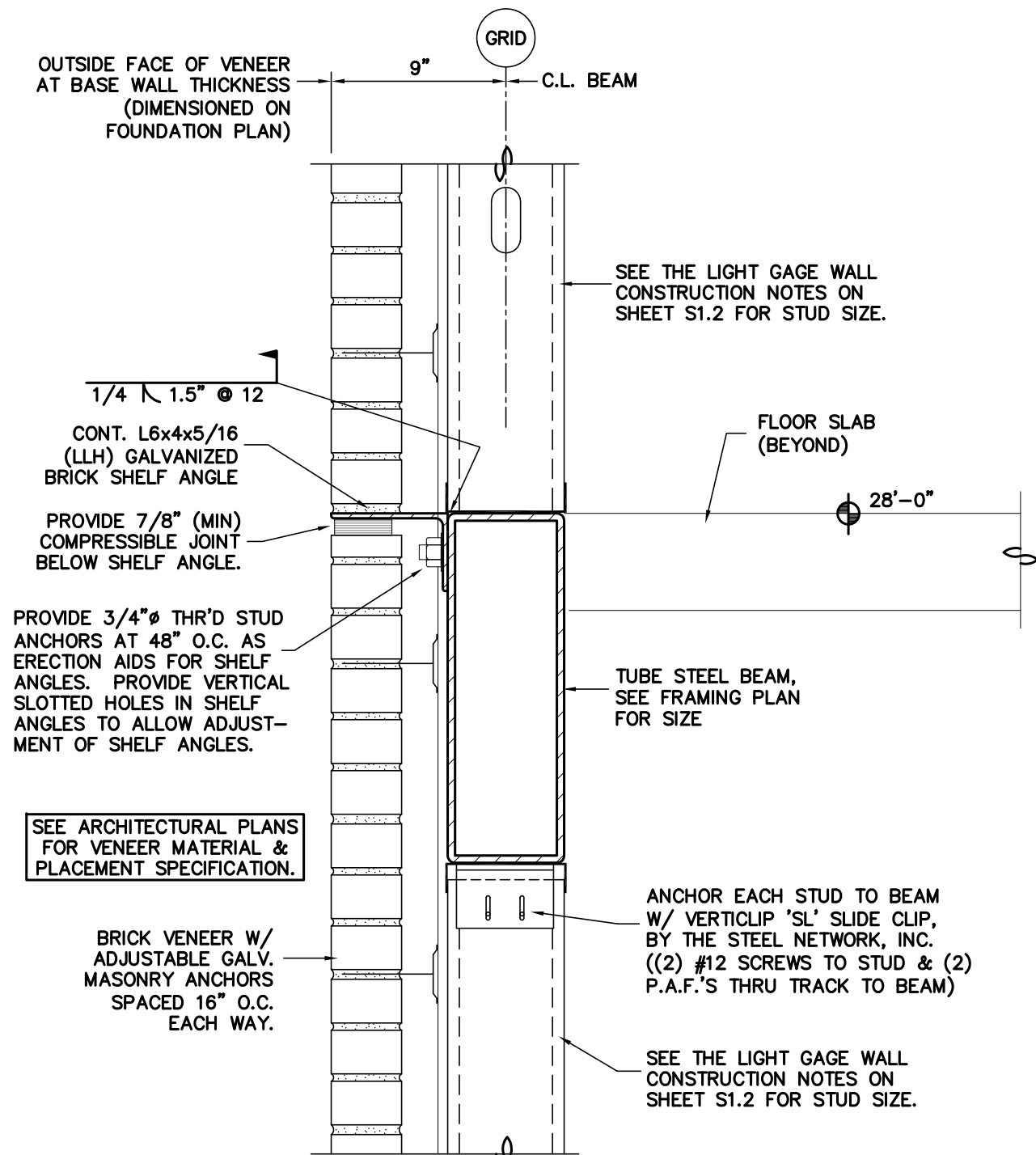
DETAIL 04

2ND FLOOR EXTERIOR WALL SECTION AT STAIR "B"



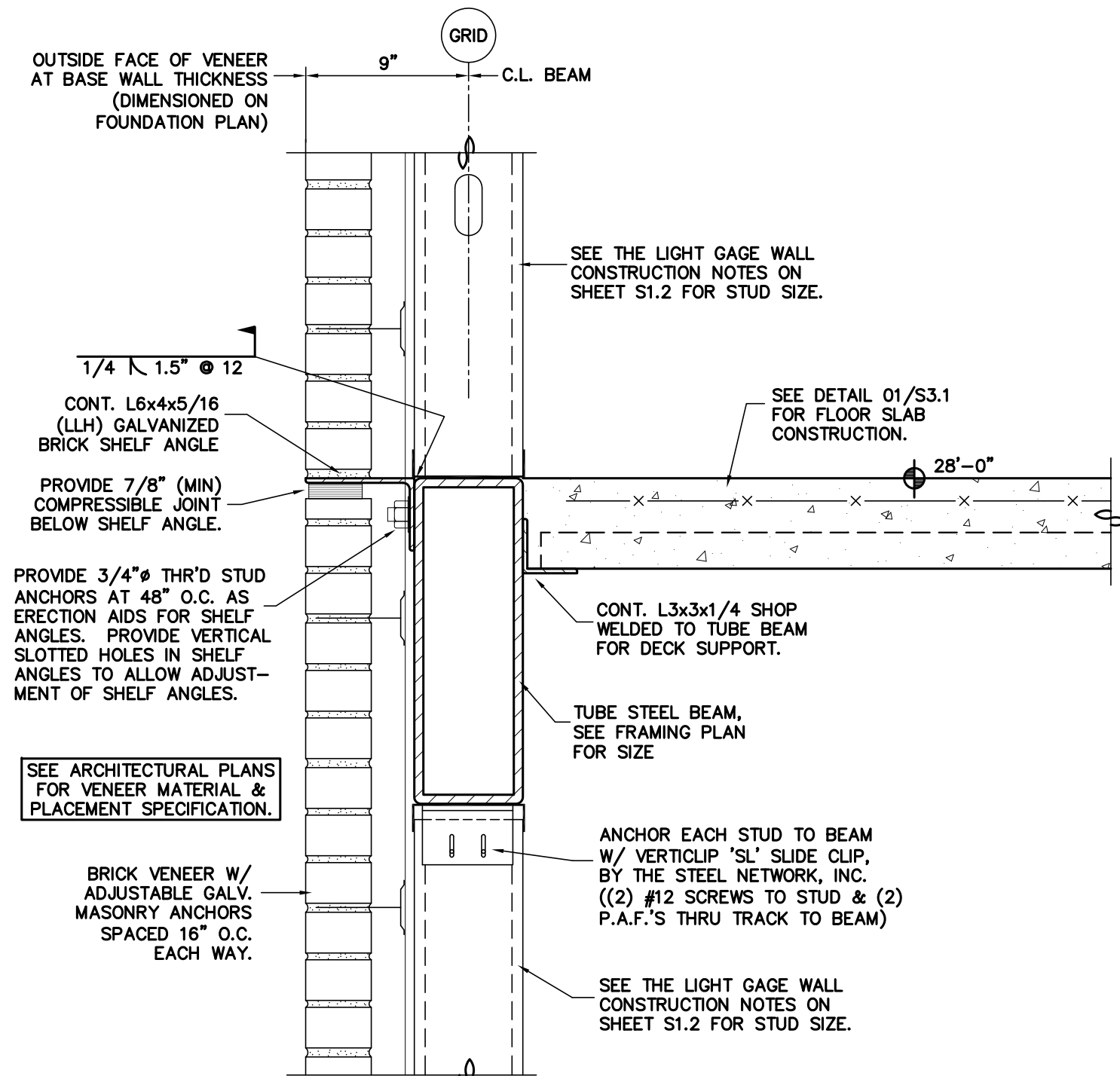
DETAIL 05

2ND FLOOR FRAMING SECTION ADJACENT TO STAIR "B"



DETAIL 06

3RD FLOOR EXTERIOR WALL SECTION AT STAIR "B"



DETAIL 07

3RD FLOOR FRAMING SECTION ADJACENT TO STAIR "B"

NOTE:  
COMPRESSIBLE FILLER SHOWN BELOW  
BRICK SHELF ANGLES SHALL HAVE A  
MINIMUM COMPRESSIBILITY OF 50%.

IF A COMPRESSIBLE FILLER WITH A  
MINIMUM COMPRESSIBILITY OF 75% IS  
UTILIZED, JOINT SIZE MAY BE REDUCED  
TO 3/4".

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△ REVISED BRICK VENEER EXTENTS	4/23/18

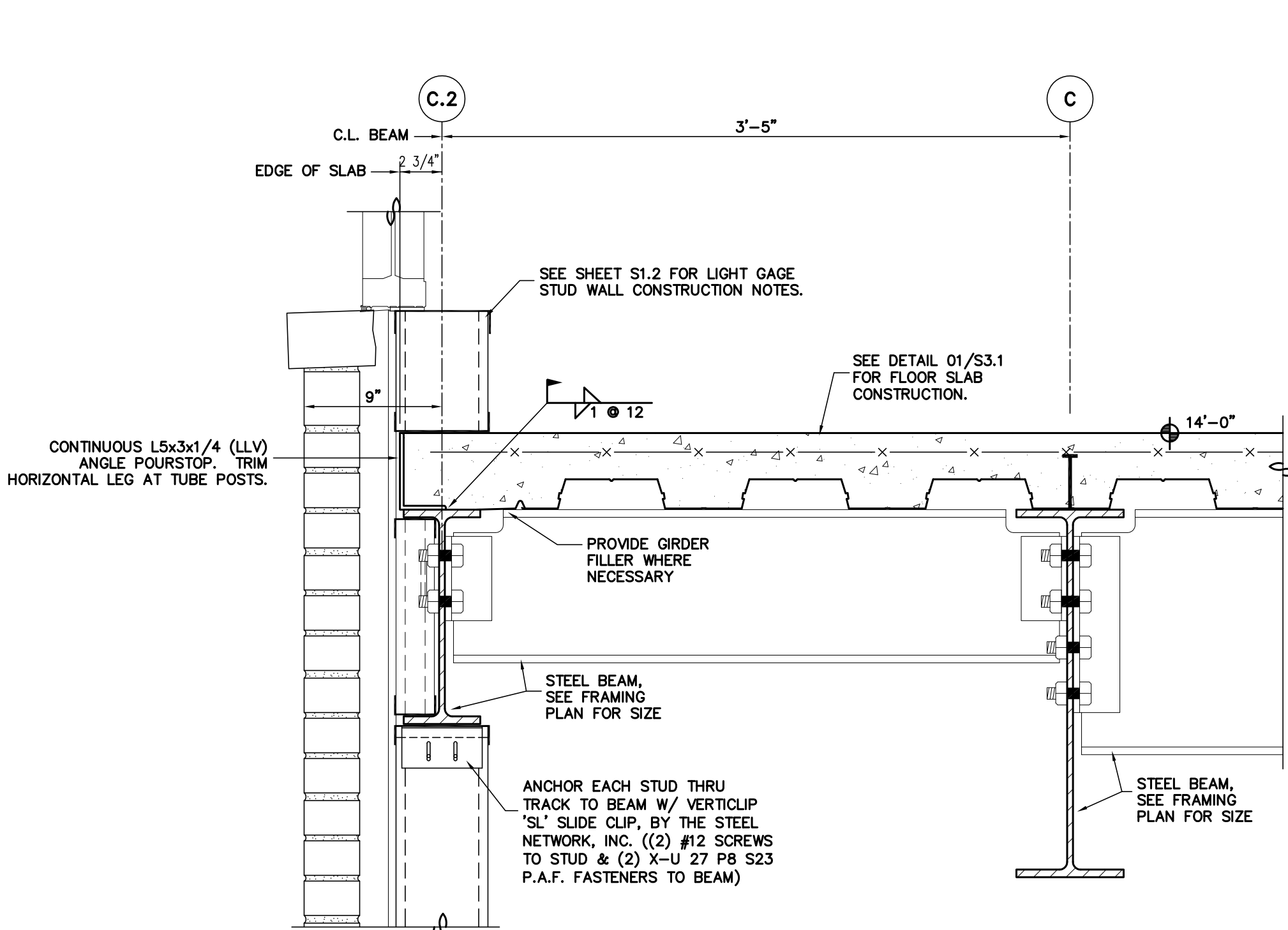
FLOOR FRAMING  
DETAILS

S3.2



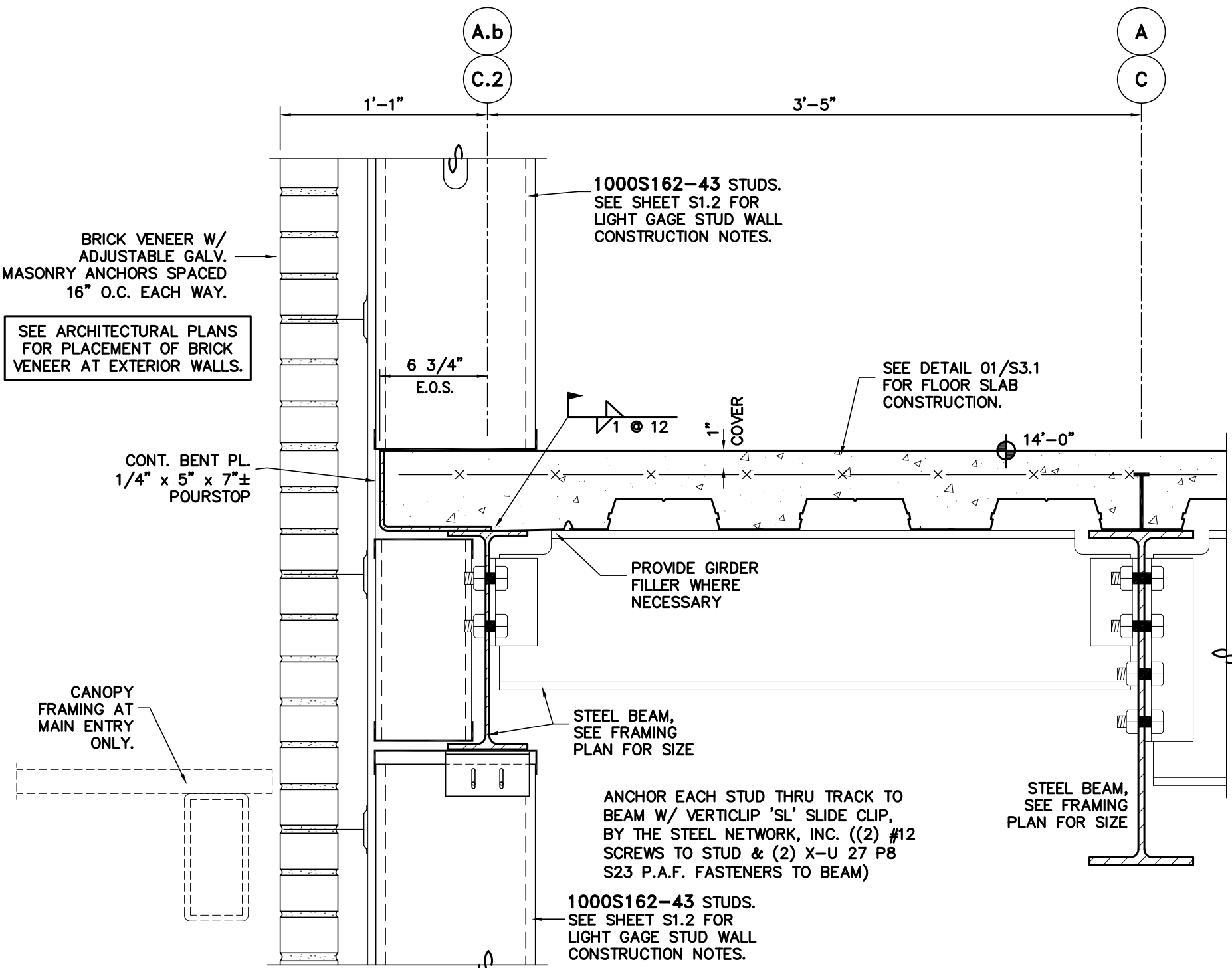






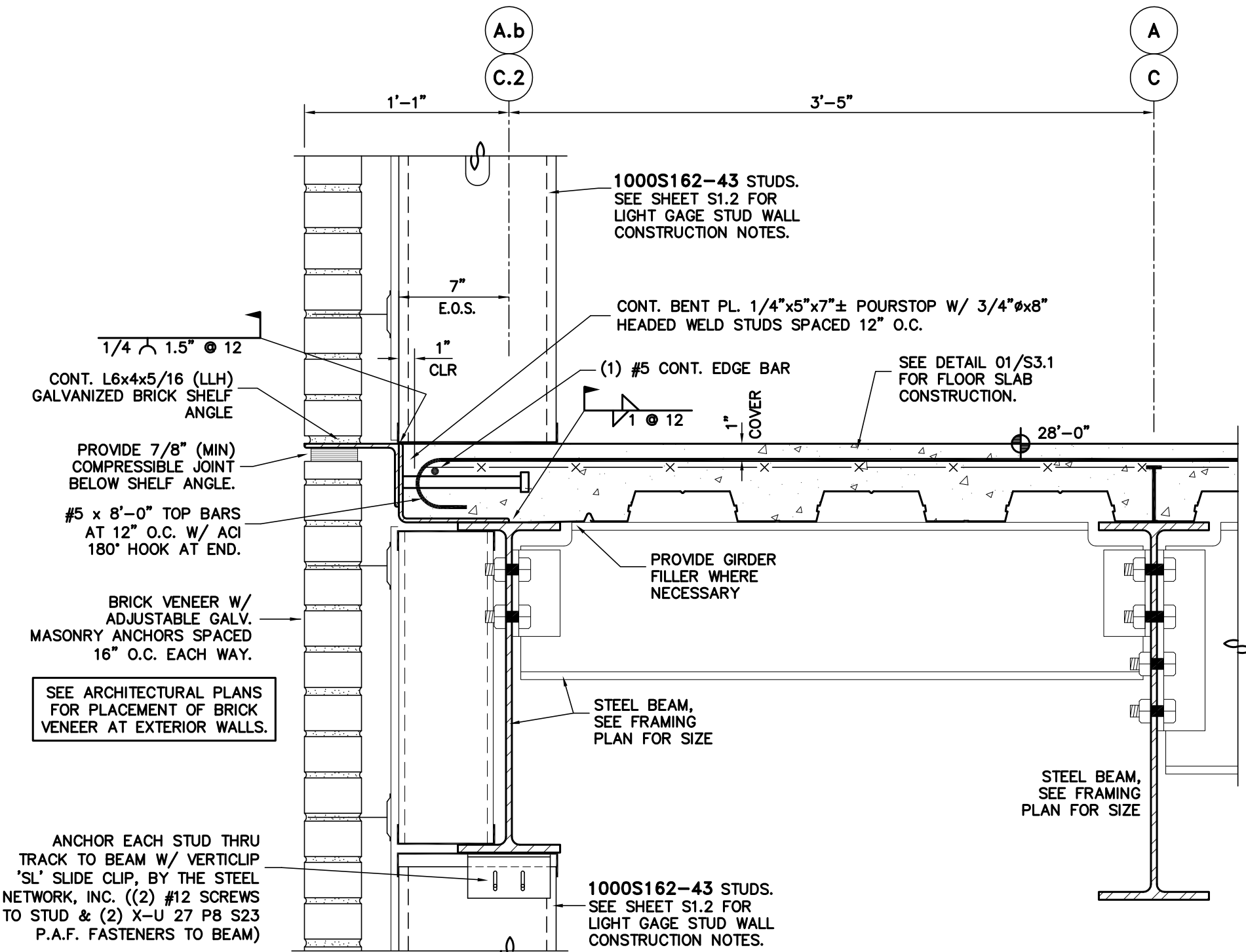
DETAIL 01  
1 1/2" SCALE

2ND FLOOR FRAMING SECTION AT EXTERIOR WALL



DETAIL 02  
1 1/2" SCALE

2ND FLOOR FRAMING SECTION AT EXTERIOR WALL

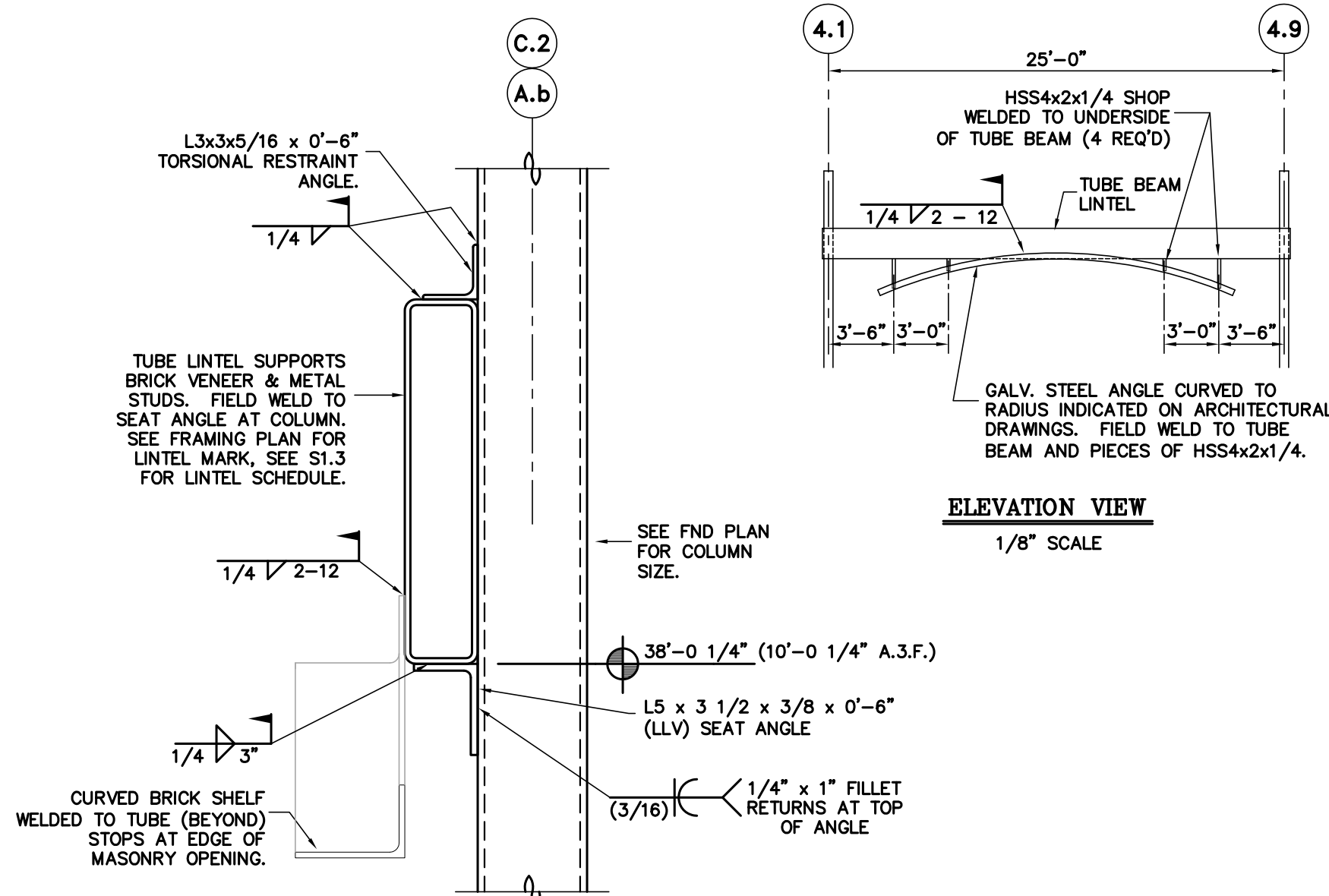


DETAIL 03  
1 1/2" SCALE

3RD FLOOR FRAMING SECTION AT EXTERIOR WALL W/ BRICK RELIEF ANGLE

NOTE:  
COMPRESSIBLE FILLER SHOWN BELOW  
BRICK SHELF ANGLES SHALL HAVE A  
MINIMUM COMPRESSIBILITY OF 50%.

IF A COMPRESSIBLE FILLER WITH A  
MINIMUM COMPRESSIBILITY OF 75% IS  
UTILIZED, JOINT SIZE MAY BE REDUCED  
TO 3/4".



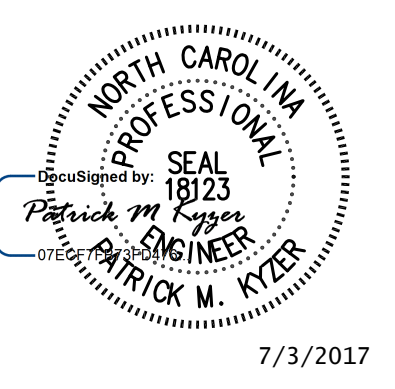
DETAIL 04  
1-1/2" SCALE

L5 TUBE BRICK LINTEL SUPPORT AT STEEL COLUMNS

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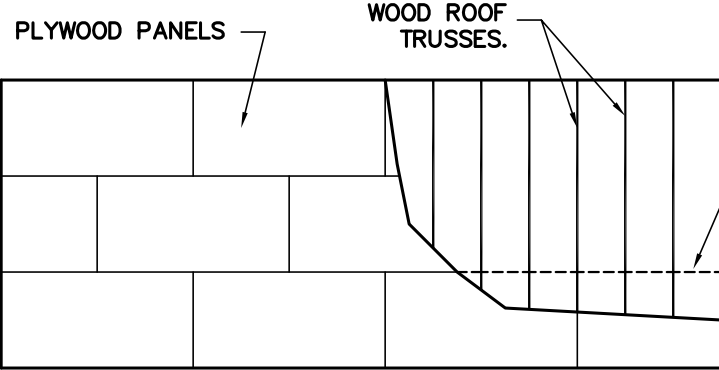

FRAMING  
DETAILS

S3.4



PLYWOOD SHEATHING INSTALLATION NOTES :

THE ROOF SHEATHING SHALL BE 5/8" THICK, 40/20 APA RATED CDX PLYWOOD. FASTEN SHEATHING TO ROOF TRUSSES AND OTHER SUPPORTS WITH 16d NAILS SPACED 6" O.C. AT PANEL EDGES AND AT 12" O.C. AT INTERMEDIATE SUPPORT LOCATIONS. ORIENT PLYWOOD SHEATHING PANELS AS SHOWN BELOW:

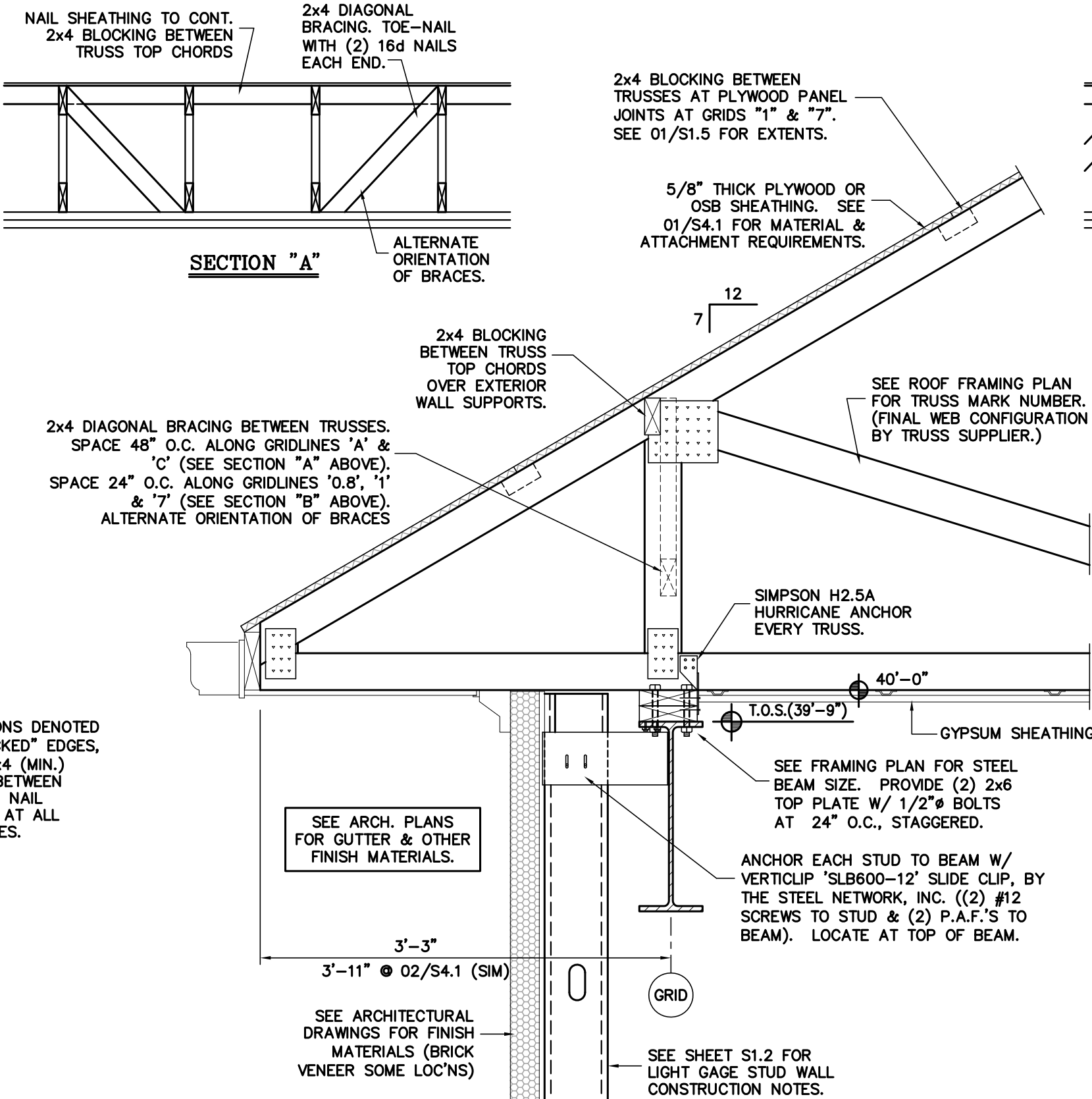


AT LOCATIONS DENOTED WITH "BLOCKED" EDGES, PROVIDE 2x4 (MIN.) BLOCKING BETWEEN TRUSSES & NAIL SHEATHING AT ALL PANEL EDGES.

DETAIL 01

ROOF DECK ATTACHMENT

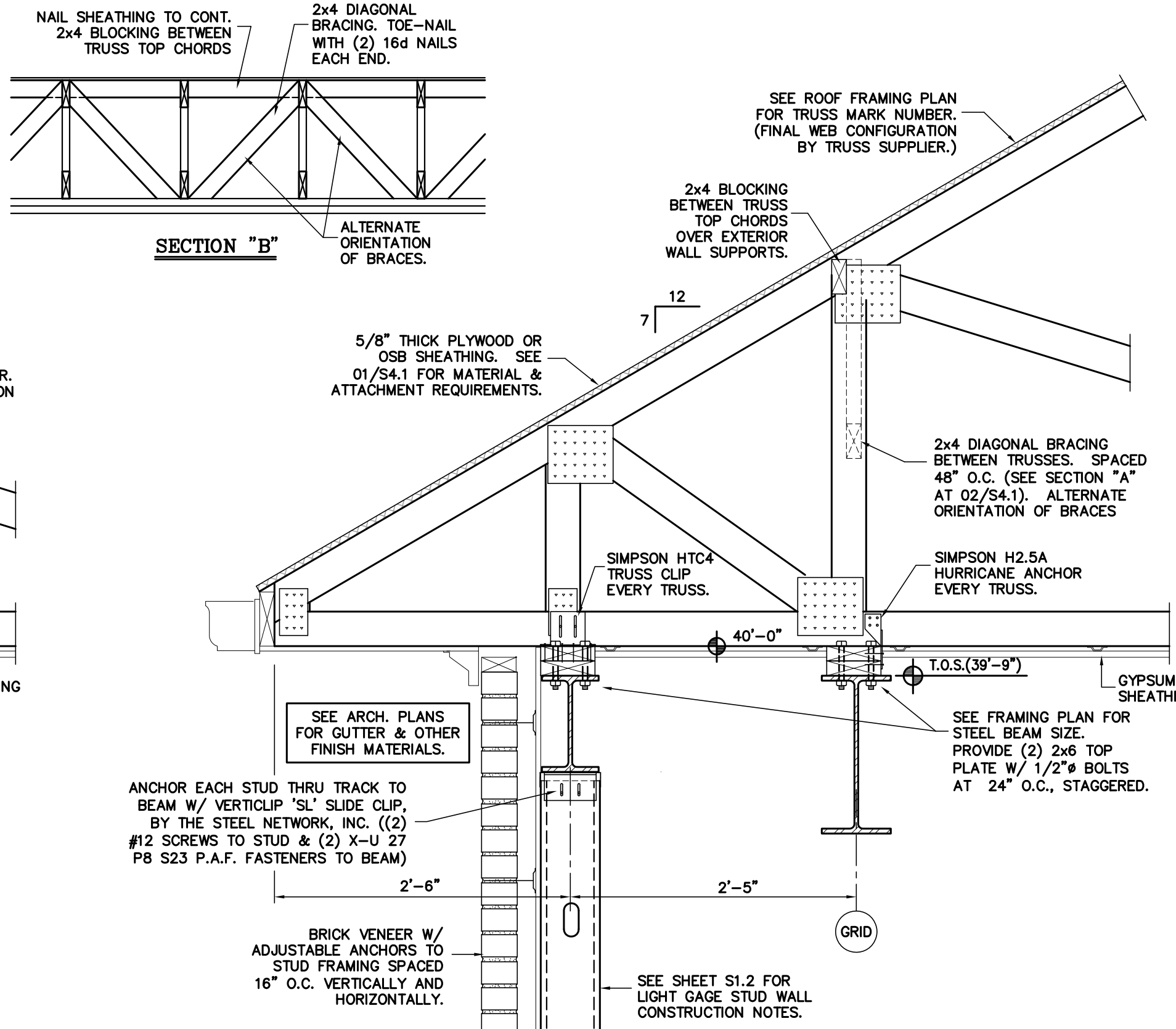
NO SCALE



DETAIL 02

ROOF TRUSS BEARING AT EXTERIOR WALLS

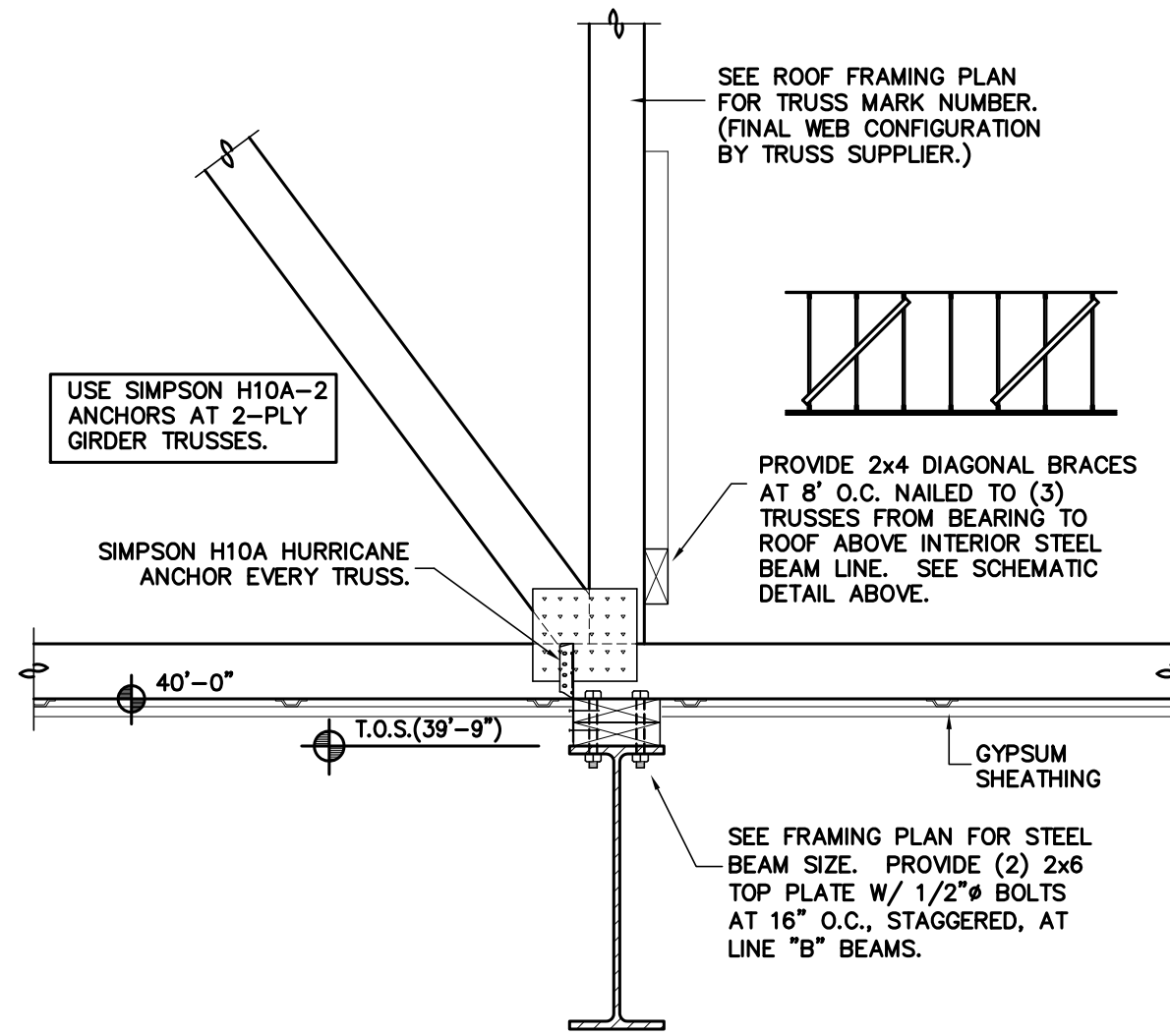
1" SCALE



DETAIL 03

ROOF TRUSS BEARING AT "BUMPED-OUT" EXTERIOR WALLS

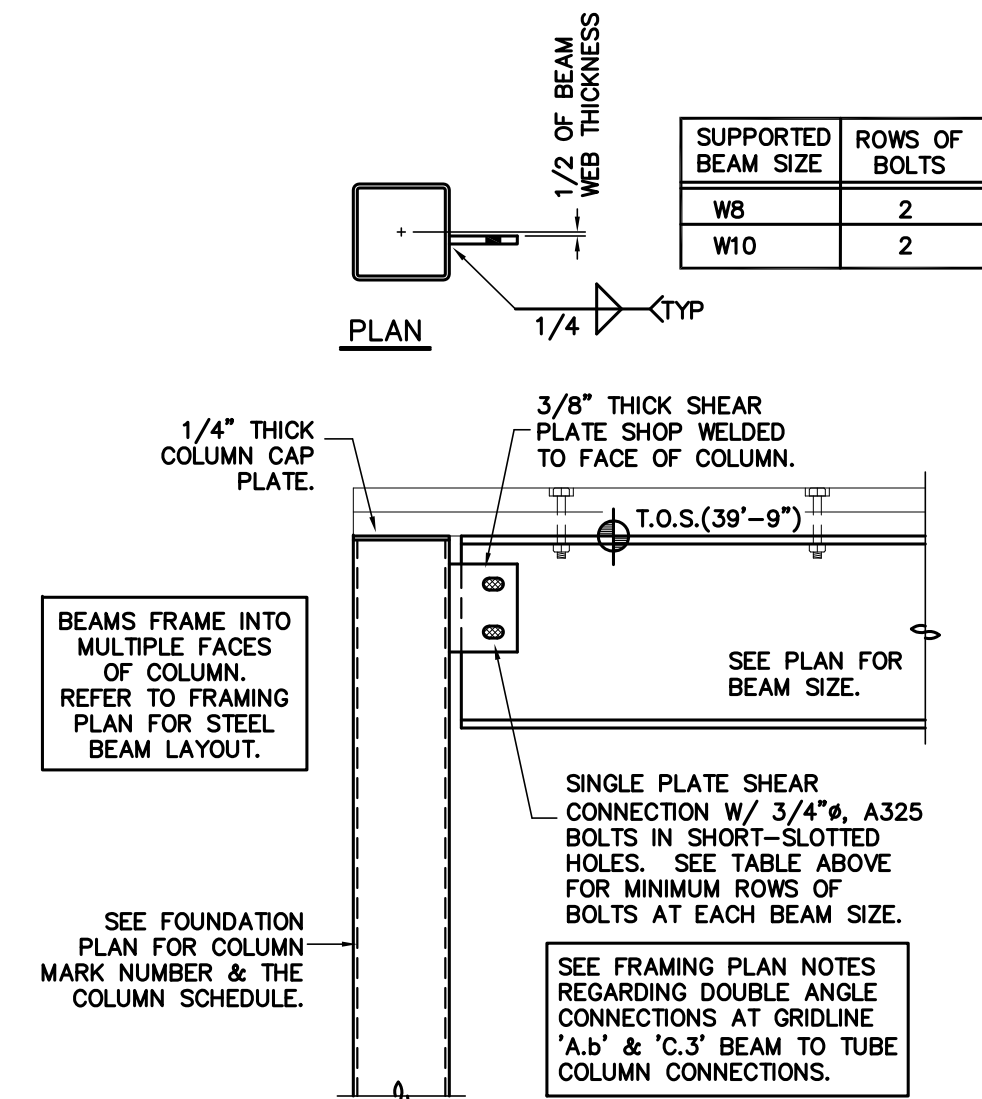
1" SCALE



DETAIL 04

ROOF TRUSS SUPPORT AT INTERIOR STEEL BEAMS

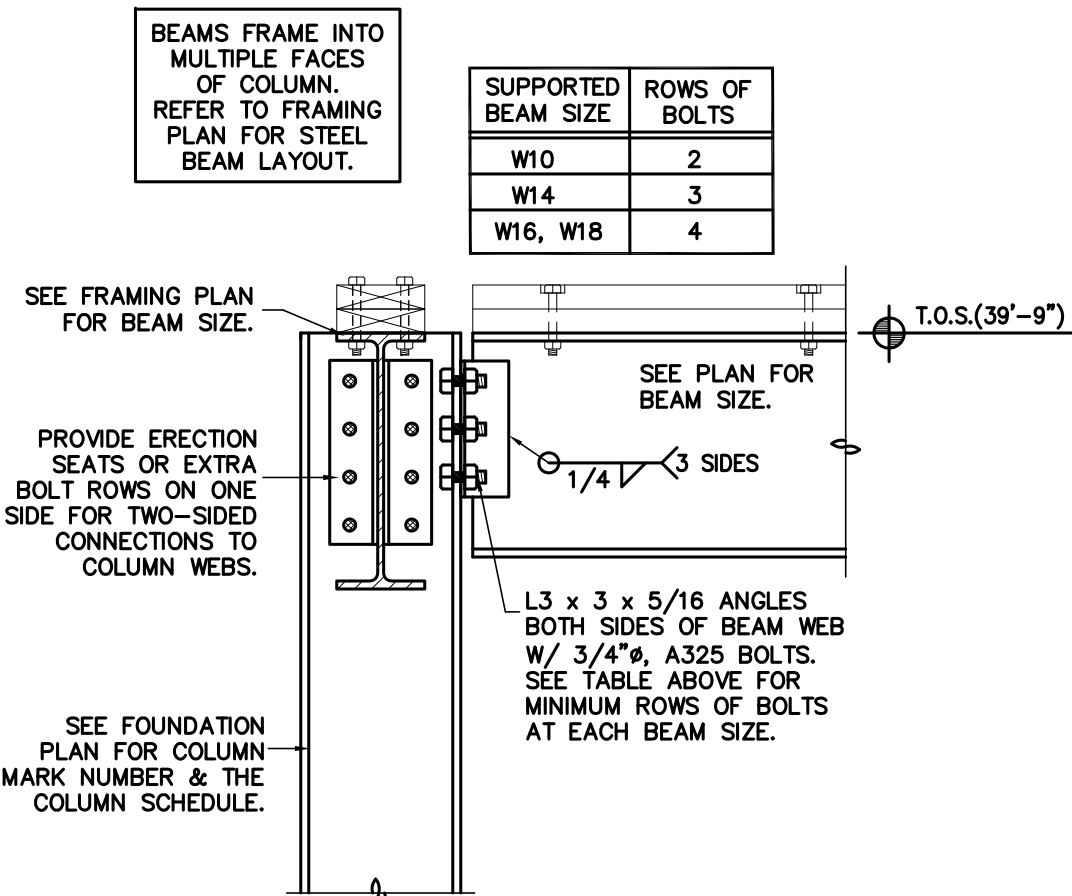
1" SCALE



DETAIL 05

TYPICAL STEEL BEAM TO COLUMN SHEAR CONNECTIONS

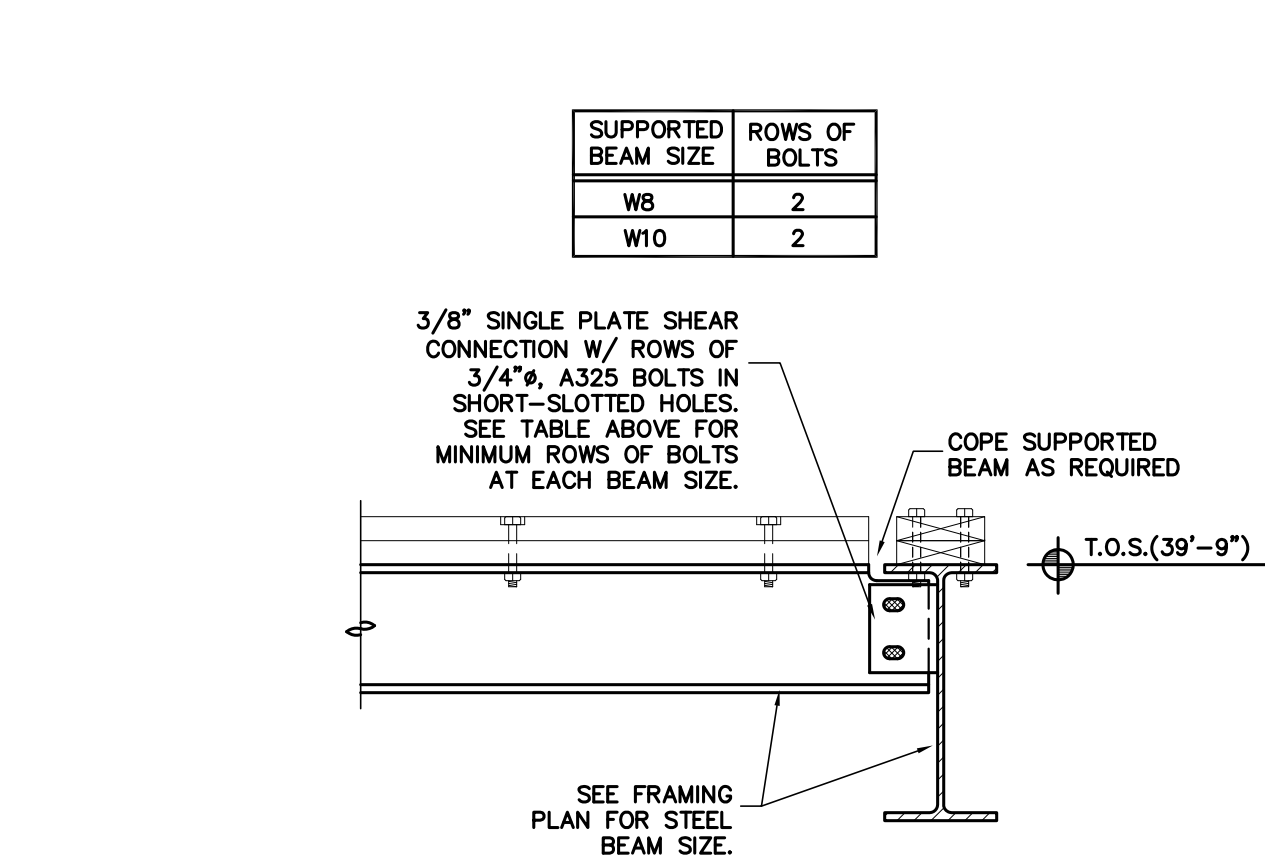
1" SCALE



DETAIL 06

STEEL BEAM TO COLUMN WIND MOMENT CONNECTION

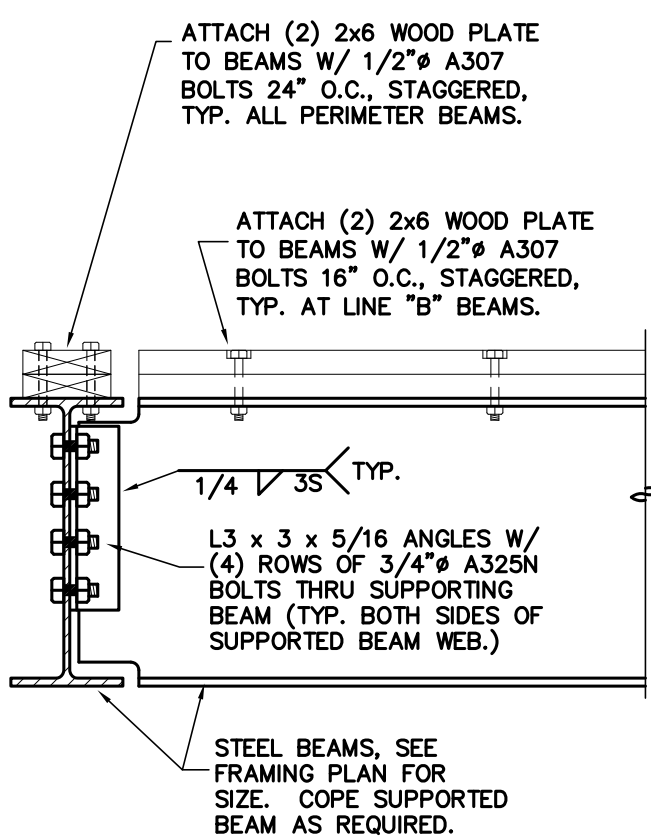
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DETAIL 07

TYPICAL ROOF STEEL BEAM TO BEAM CONNECTION

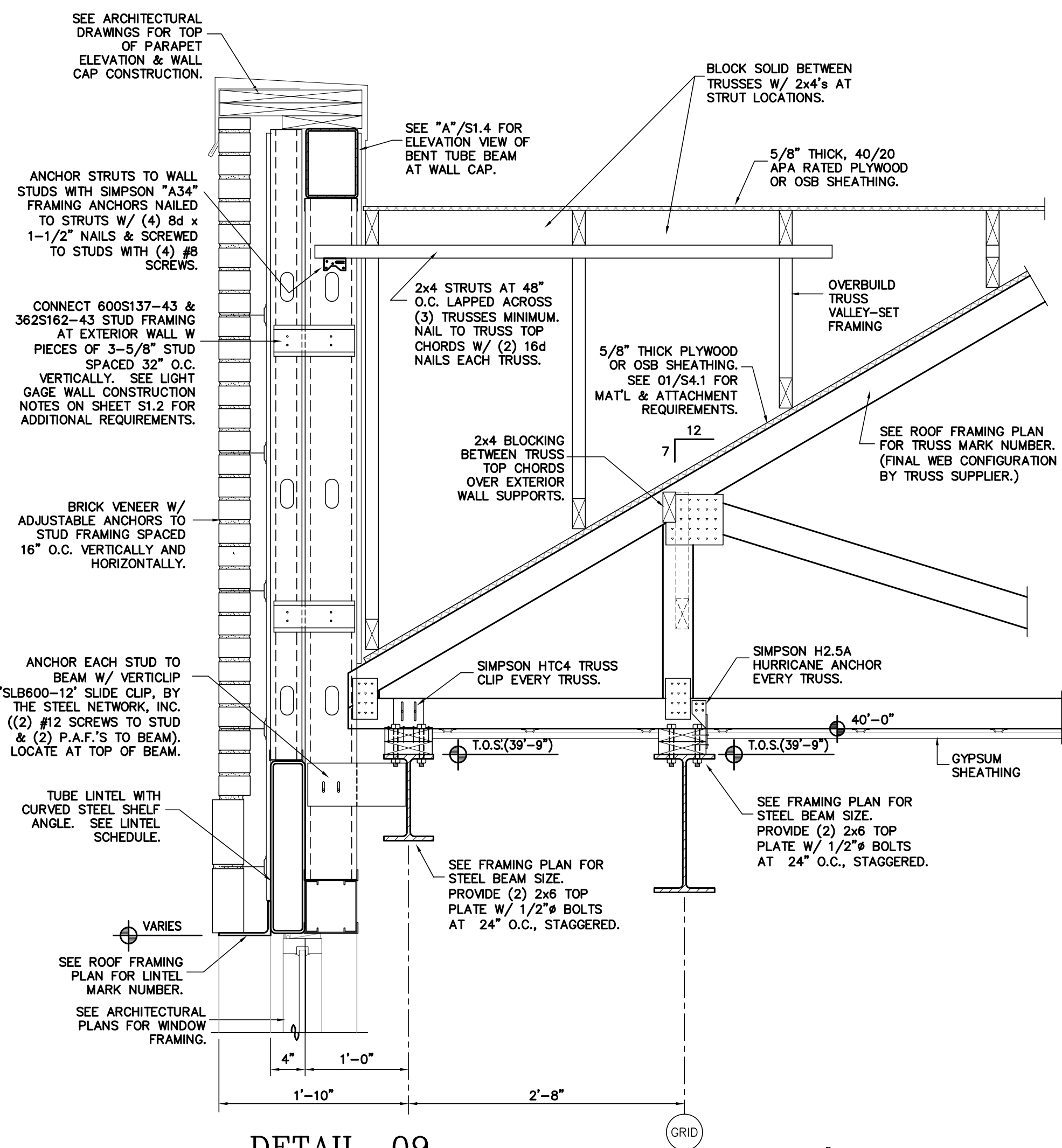
1" SCALE



DETAIL 08

STEEL BEAM TO BEAM CONNECTION AT GRID '1-B', '7-B'

1" SCALE



DETAIL 09

ROOF FRAMING SECTION AT PARAPET WALL

1" SCALE

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**PROFESSIONAL SEAL**  
18123  
Patrik M. Kizer  
PATRICK M. KIZER  
7/3/2017

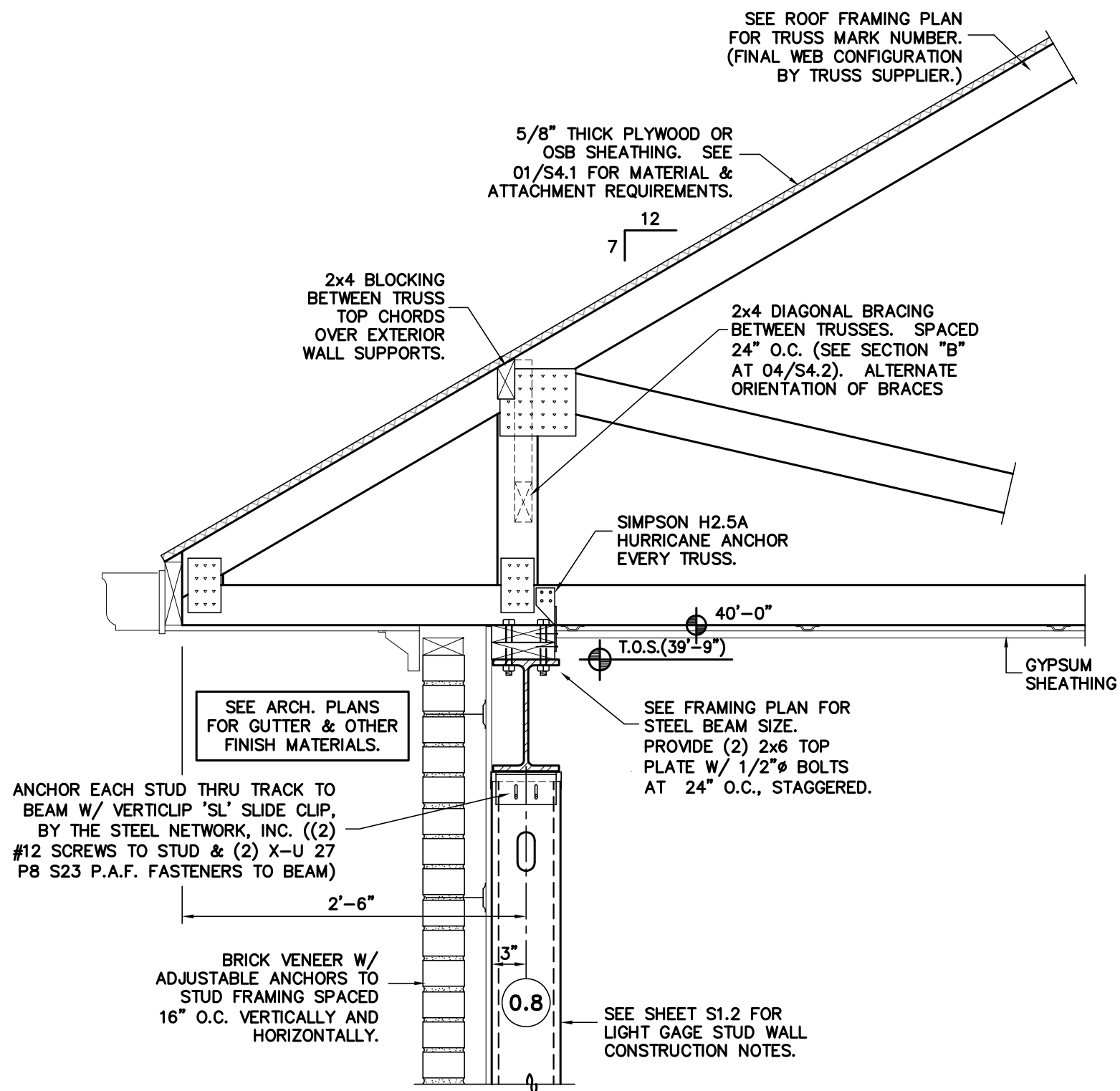
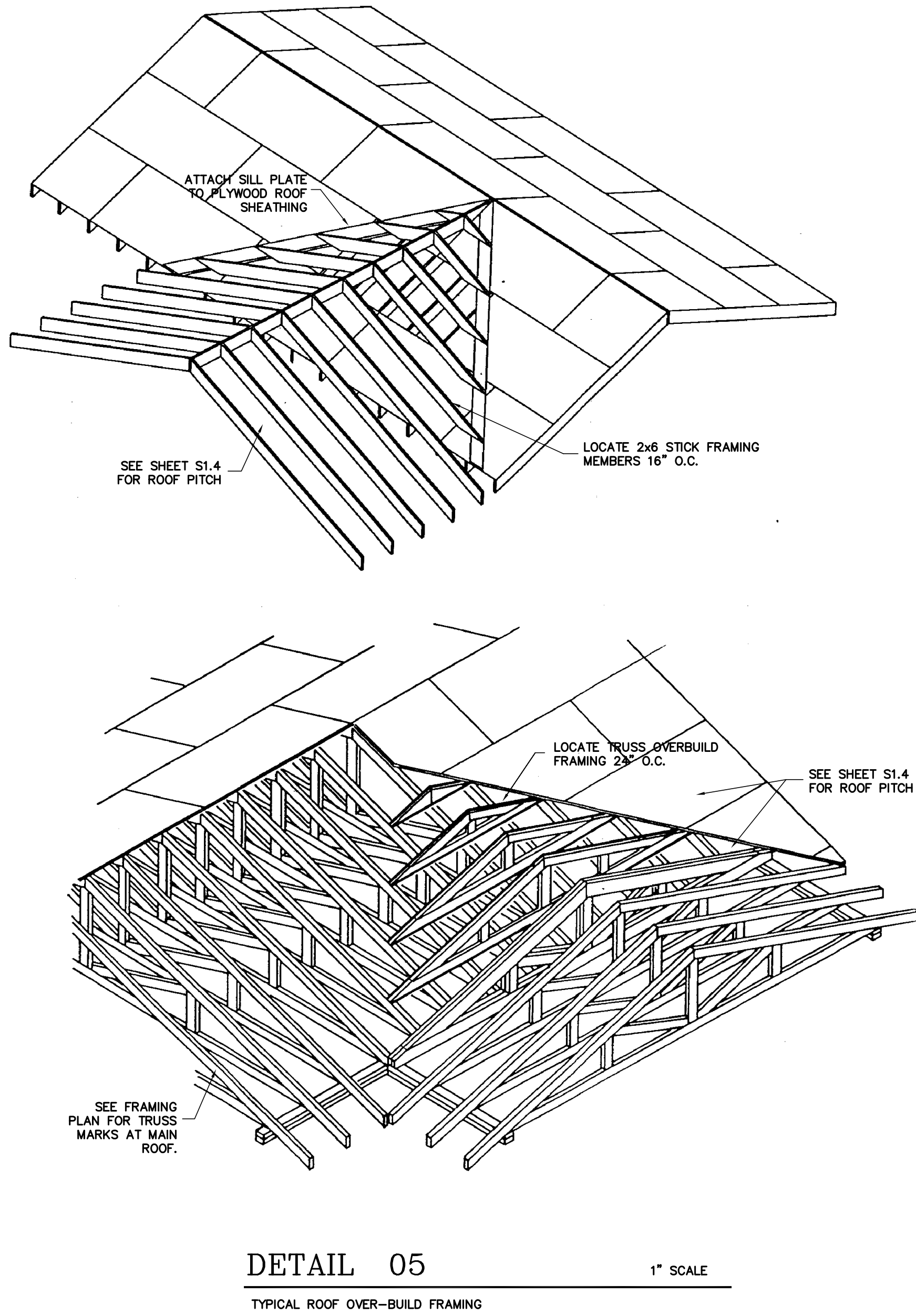
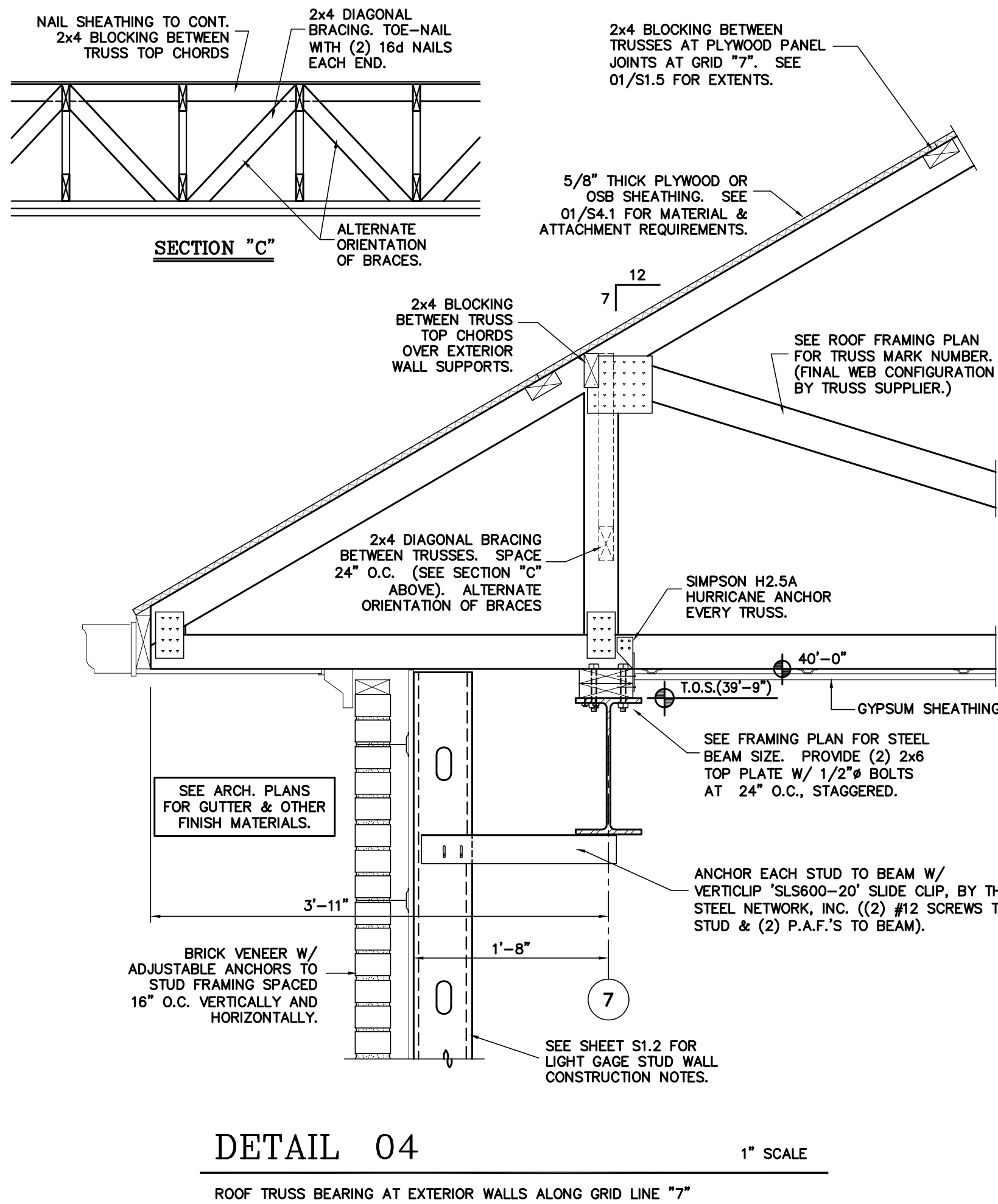
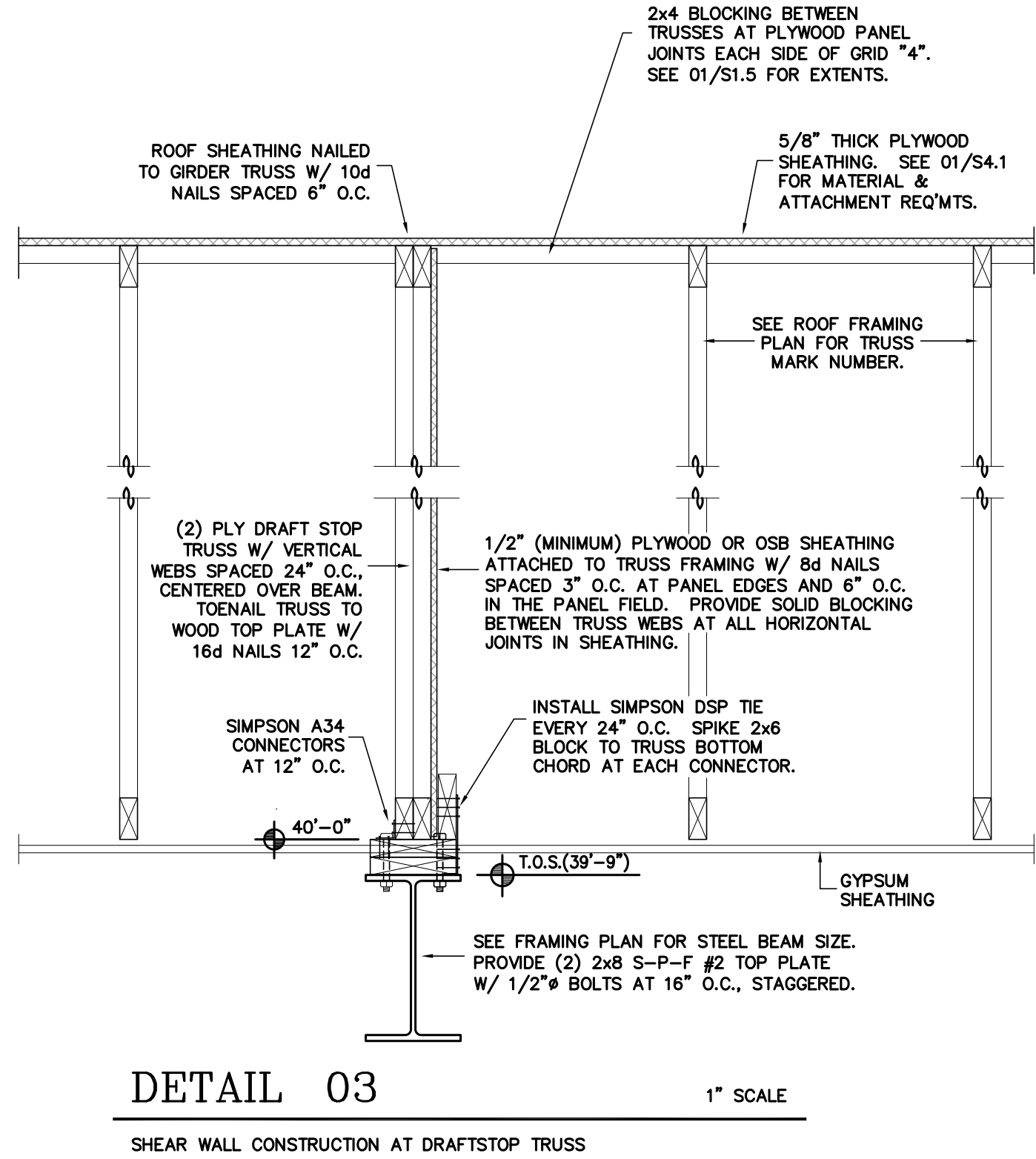
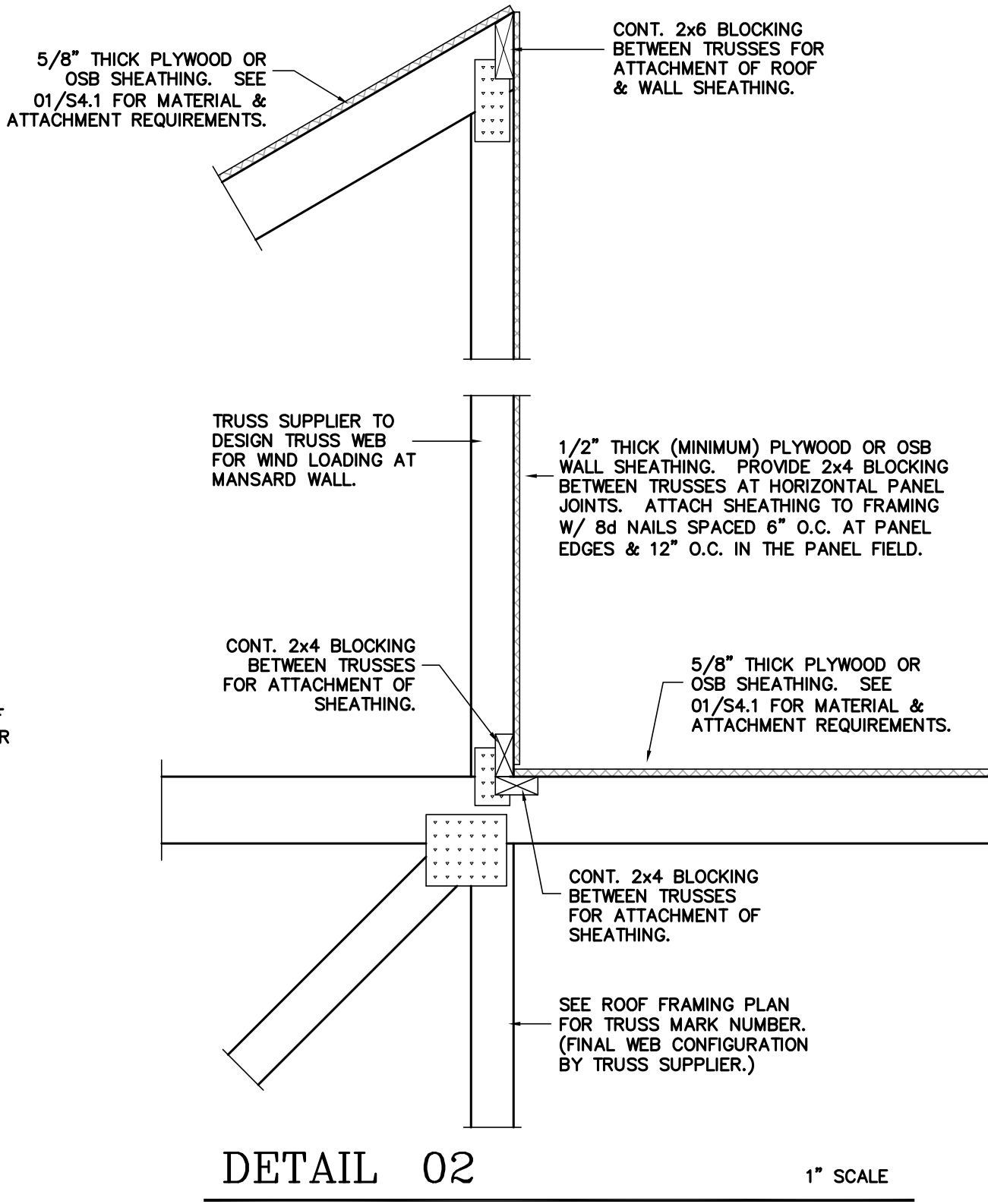
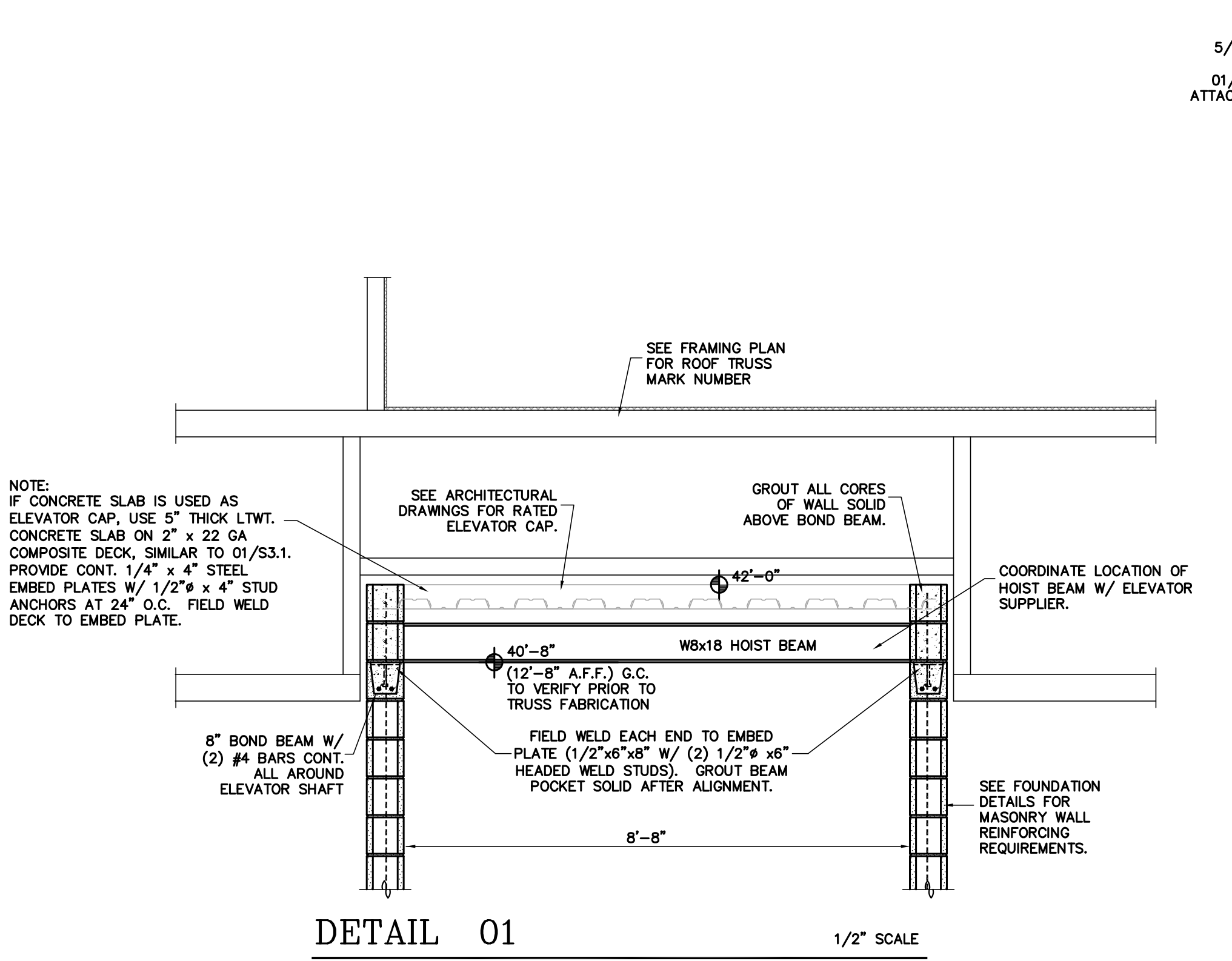
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ROOF FRAMING  
DETAILS

S4.1





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DATE: 7/3/2017

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ROOF FRAMING  
DETAILS

S4.2