

- DESIGN CRITERIA
- 2018 NORTH CAROLINA STATE BUILDING CODES
 - ASCE 7-10
- DESIGN LOADS
- LIVE LOAD (ROOF) = 20 PSF
 - LIVE LOAD (CEILING-NO STORAGE) = 10 PSF
 - LIVE LOAD (FLOOR) = 40 PSF
 - LIVE LOAD (DECK) = 40 PSF
 - GROUND SNOW LOAD = 15 PSF
 - ULTIMATE WIND VELOCITY = 116 MPH
 - EXPOSURE CATEGORY = B
 - ASSUMED GROUND BEARING CAPACITY 12" BELOW GRADE: 2,000 PSF (CONTRACTOR RESPONSIBLE FOR VERIFICATION)

GENERAL NOTES

- CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING EXISTING UNDERGROUND UTILITIES IN THE AREA OF CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE THEIR WORK ACTIVITIES WITH THE OWNER OR OWNER REPRESENTATIVE.
- CONTRACTOR SHALL MAKE A CAREFUL INSPECTION OF THE SITE TO FAMILIARIZE HIM/HERSELF WITH THE ACTUAL CONDITIONS OF THE SITE PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL CHECK AND VERIFY GIVEN DIMENSIONS, TAKE ADDITIONAL DIMENSIONS AS REQUIRED AND REPORT ANY INACCURACIES TO THE ENGINEER BEFORE BEGINNING CONSTRUCTION.
- ALL WORK SHALL CONFORM TO THE THE CURRENT EDITIONS OF THE NORTH CAROLINA STATE BUILDING CODE, THE AISC CODE, THE ACI BUILDING CODE (ACI 318), THE AMERICAN WELDING SOCIETY CODE, ALL APPLICABLE ASTM STANDARDS, AND LOCAL GUIDELINES. IN CASES OF CONFLICT, THE MOST STRINGENT REQUIREMENT SHALL GOVERN.
- CONTRACTOR SHALL COORDINATE AND VERIFY THE SIZE, LOCATION, TYPE, AND DIRECTION OF ALL PADS, DEPRESSIONS, BOLTS, SLEEVES, ANCHORS, INSERTS, OPENINGS, ETC. TO BE SET OR CAST IN CONCRETE OR MASONRY PRIOR TO PLACEMENT.
- CONTRACTOR SHALL COORDINATE ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO FOUNDATION LAYOUT AND FABRICATION OF ANY STRUCTURAL MEMBERS. DIMENSIONS SHOWN ARE BASED ON PRELIMINARY DRAWINGS PROVIDED BY THE ARCHITECT/CONTRACTOR AND/OR SITE INSPECTION. THESE DIMENSIONS SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL DESIGN AND INSTALL ALL TEMPORARY SHORING REQUIRED TO STABILIZE NEW AND EXISTING STRUCTURES AND FOUNDATIONS UNTIL CONSTRUCTION IS COMPLETE.
- OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE DRAWINGS, SPECIFICATIONS, NOTES, AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER, AND RESOLVED BEFORE PROCEEDING WITH WORK.
- THE DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THE STRUCTURE SHOWN IS STRUCTURALLY SOUND IN ITS COMPLETED FORM ONLY. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION.
- APPLY TERMITTE TREATMENT TO GROUND SURFACES WITHIN THE DEFINED SCOPE OF WORK AS REQUIRED BY CODE AND LOCAL BUILDING INSPECTOR.
- ONLY SEALED DRAWINGS WITH MOST RECENT REVISIONS ARE APPLICABLE FOR CONSTRUCTION.
- STRUCTURAL PLANS DO NOT INCORPORATE ADA, PLUMBING, MECHANICAL, ELECTRICAL, OR SITE FEATURES. ENGINEER'S SEAL APPLIES TO STRUCTURAL COMPONENTS ONLY.
- SECTIONS AND DETAILS SHOWN AT LOCATIONS INDICATED ON PLAN ARE TYPICAL FOR OTHER SIMILAR CONDITIONS OF BUILDING, EVEN IF NO SECTION CUT IS INDICATED AT A SIMILAR CONDITION. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL DETAILS WITH OTHER TRADES, DISCIPLINES, AND ALL SECTIONS AND DETAILS WITHIN STRUCTURAL DOCUMENTS. CONTRACTOR SHALL COORDINATE THESE STRUCTURAL DRAWINGS WITH DRAWINGS OF OTHER DISCIPLINES. SHOULD CONFLICTS OR DEVIATIONS BE NOTED, THEY SHOULD BE IMMEDIATELY BROUGHT TO THE ATTENTION OF SUBJECT DESIGNERS FOR REVIEW.

SOIL FOUNDATIONS

- ALL BOTTOM OF FOOTINGS SHALL BE CAST A MINIMUM OF 12" BELOW ORIGINAL GROUND LINE AND IN NO CASE ABOVE THE FROST LINE BASED ON 2018 NCBC AND LOCAL STANDARDS. NO FOOTINGS SHALL BE CAST ON LOOSE FILL MATERIAL.
- 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 FLOOR SLABS AND PAVEMENTS.
- USE OF A SMOOTH EDGE BUCKET IS RECOMMENDED TO EXCAVATE FOR FOOTINGS. TOOTHED BUCKETS MAY ALLOW BEARING SOILS TO PERFORM INEFFECTIVELY AND ALLOW WATER TO SATURATE THE FOUNDATION SUB-GRADE.
- ONCE FOOTINGS ARE ABLE TO HANDLE LATERAL LOADING, BACKFILL WITH ENGINEERED STONE OR NO. 57 STONE IN 8" UNIFORM LIFTS. EXTERIOR OF THE FOOTING MAY BE BACKFILLED WITH 8" UNIFORM LIFTS OF SUITABLE SOILS COMPACTED TO 95% OF THE DRY DENSITY BEYOND THE PLACEMENT OF THE FOOTING DRAIN.
- A 10 MIL VAPOR BARRIER IS TO BE PLACED OVER THE ENTIRETY OF THE SUB-BASE, PRIOR TO PLACEMENT OF THE FLOOR INSULATION AND ANY CONCRETE SLAB-ON-GRADE. WITHIN CRAWL SPACES A MINIMUM 6-MIL VAPOR BARRIER SHALL BE INSTALLED ON BARE SOILS.

REINFORCING

- 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.
- CLEAR CONCRETE COVER OVER BARS SHALL BE 3" FOR FOOTINGS AND OTHER CONCRETE CAST AGAINST GROUND. CONCRETE COVER IN OTHER LOCATIONS TO BE A MINIMUM 1.5" (TYP. U.N.O.)
- PROVIDE CORNER BARS AT ALL FOOTING STEPS AND CORNERS. THE REINFORCING BARS SHALL BE A MINIMUM OF 2'-6" LONG AND SHALL HAVE THE SAME SIZE AND SPACING AS THE HORIZONTAL REINFORCING.
- LAP ALL SPLICES IN CONCRETE AS SPECIFICALLY CALLED FOR, BUT AT LEAST 48 BAR DIAMETERS FOR TENSION OR COMPRESSION, UNLESS NOTED OTHERWISE.
- PROVIDE VERTICAL REINFORCEMENT IN FOUNDATION WALLS FOR UNBALANCED BACKFILL IN ACCORDANCE WITH APPLICABLE DESIGN DETAILS. WHERE NOT DETAILED IN PLAN, REINFORCEMENT SHALL BE INSTALLED PER TABLE R404.1.1(1) & (2) IN THE 2018 NCBC/RC.
- REINFORCING BARS SHALL BE DEFORMED AND PLAIN CARBON-STEEL CONFORMING TO ASTM A615, GRADE 60.
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064 AND BE SUPPLIED IN SHEETS, NOT ROLLS, U.N.O. MINIMUM 6X6 - W1.4 X W1.4 WELDED WIRE FABRIC. MINIMUM 1.5" FROM BOTTOM OF CONCRETE SLAB ON GRADES.

CONCRETE NOTES

- CONCRETE CONSTRUCTION SHALL COMPLY WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (LATEST EDITION), ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (LATEST EDITION), AND ACI 302 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION" (LATEST EDITION).
- MIX DESIGN SHALL BE IN ACCORDANCE WITH ACI 318 (CURRENT EDITION).
- MINIMUM CEMENT CONTENT = 500 LBS PER CUBIC YARD.
- CONCRETE SHALL BE NORMAL WEIGHT CONCRETE AND SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS (4,000 PSI FOR SLABS-ON-GRADE).
- MAXIMUM SLUMP = 4" PLUS OR MINUS 1" PRIOR TO THE ADDITION OF ADMIXTURES.
- THE MAX. AGGREGATE SIZE SHALL BE 3/4" UNLESS MIX DESIGN IS APPROVED BY ENGINEER PRIOR TO PLACEMENT.
- CONCRETE AGGREGATES SHALL COMPLY WITH ASTM C33 AND SHALL BE FREE OF CLAY, FOAM, LUMPS, OR OTHER DELETERIOUS SUBSTANCES.
- CONCRETE SHALL BE CONSOLIDATED USING CONCRETE VIBRATOR IN ACCORDANCE WITH ACI 309R-05.
- EXTERIOR SLABS SHALL HAVE 6% ± 1% AIR ENTRAINMENT. DO NOT USE AIR ENTRAINMENT ON INTERIOR SLABS (3% MAXIMUM AIR ENTRAINMENT). AIR ENTRAINMENT SHALL COMPLY WITH ASTM C260.
- THE CONTROL JOINT SPACING SHALL BE A MAXIMUM OF 12' OR AS SHOWN ON PLANS FOR A 4" THICK SLAB. PLACE CONTROL JOINTS TO AVOID RE-ENTRANT CORNERS. MAKE SAWCUTS TO FORM WEAKEN PLANE CONTROL JOINTS AS SOON AS POSSIBLE.

GENERAL FRAMING DESIGN NOTES

- FRAMING STANDARD: COMPLY WITH AF&PA'S "DETAILS FOR CONVENTIONAL WOOD FRAME CONSTRUCTION", UNLESS OTHERWISE INDICATED.
- ALL EXTERIOR WALLS SHALL BE FRAMED PER THE FOLLOWING CRITERIA:
 - 2x4 WALLS: 2x4 STUDS AT 16" O.C., U.N.O. (MAX. HT. = 10'-6")
 - 2x6 WALLS: 2x6 STUDS AT 16" O.C., U.N.O. (MAX. HT. = 10'-6")
- ALL INTERIOR WALLS SHALL BE FRAMED PER THE FOLLOWING SPECIFICATIONS:
 - LOAD BEARING 2x4 WALLS: 2x4 STUDS UP TO 16" O.C., U.N.O. (MAX. HT. = 10'-6")
 - LOAD BEARING 2x6 WALLS: 2x4 STUDS UP TO 16" O.C., U.N.O. (MAX. HT. = 10'-6")
 - NON-LOAD BEARING PARTITION WALLS: 2x4/2x6 STUDS (PER ARCH.) UP TO 24" O.C. (MAX. HT. = 10'-6")
- USE 5/8" DIAMETER ANCHOR BOLTS, 7" MINIMUM EMBEDMENT IN CONCRETE, AT A MAXIMUM OF 4'-6" O.C. AND A MAXIMUM OF 12" FROM CORNERS AND OPENINGS EXCEEDING 4' IN WIDTH.
- NAIL 2X BOTTOM PLATE TO RIM JOIST BELOW WITH 16D NAILS AT 4" O.C. SPACING.
- INSTALL METAL HANGERS, TIES, CLIPS, ETC. PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
- DO NOT SPLICE BUILT-UP BEAM MEMBERS BETWEEN SUPPORTS UNLESS OTHERWISE INDICATED.
- WHERE BUILT-UP BEAMS OR GIRDERS OF 2-INCH NOMINAL DIMENSIONAL LUMBER ON EDGE ARE REQUIRED, FASTEN TOGETHER WITH 3 ROWS OF 16D NAILS SPACED NOT LESS THAN 24" O.C. LOCATED ONE ROW 1.5" FROM TOP EDGE AND ONE ROW 1.5" FROM BOTTOM EDGE.

- WHERE MULTI-PLY LVL BEAMS ARE REQUIRED, FASTEN PLIES TOGETHER PER MANUF. SPECIFICATIONS.
- FOR BUILT-UP (GANG) COLUMNS, CONNECT EACH PLY W/ (2) ROWS OF 10D NAILS AT 12" O.C.
- INSTALL EQUIVALENT, SOLID BLOCKING BELOW ALL STUD GROUPS TO ENSURE CONTINUOUS LOAD PATH TO THE FOUNDATION.
- INSTALL FULL LENGTH (BEARING POINT TO BEARING POINT) FLOOR TRUSSES BELOW PARALLEL, PARTITION WALL SECTIONS U.N.O.
- FLOOR TO FLOOR STRAP TIES: LAP EXTERIOR SHEATHING PANELS AT LEAST 24" ABOVE BOTTOM PLATE OR BELOW TOP PLATE.
- SEE FRAMING PLANS FOR ALL BEARING HEADER SIZES.
- ALL ROOF FRAMING MUST BE TIED TO THE FRAMING BELOW WITH SIMPSON H2.5A TIES, TRUSS SCREWS, OR EQUIVALENT FASTENING MECHANISM.
- ALL LUMBER EXPOSED TO CONCRETE/MASONRY OR WEATHER MUST BE PRESSURE TREATED.
- ALL FASTENERS/METAL HARDWARE EXPOSED TO WEATHER OR PRESSURE TREATED LUMBER MUST BE GALVANIZED.
- ALL FASTENING SHALL CONFORM TO TABLE R602.3(1) IN THE 2018 NCBC/RC.
- PROVIDE KING STUDS AT NEW EXTERIOR OPENINGS PER 2018 NCBC/RC TABLE R602.3(5) SUBNOTE "f". ONE HALF OF THE STUDS INTERRUPTED BY A WALL OPENING SHALL BE PLACED IMMEDIATELY OUTSIDE THE JACK STUDS ON EACH SIDE OF THE OPENING AS KING STUDS ... KING STUDS SHALL EXTEND FULL HEIGHT FROM SOLE PLATE TO TOP PLATE OF WALL"

DIMENSIONAL LUMBER FRAMING

- MAXIMUM MOISTURE CONTENT: 19%.
- NO. 2 GRADE OR BETTER, U.N.O., (EXCEPT STUD WALLS) AND ANY OF THE FOLLOWING SPECIES:
 - HEM-FIR (NORTH), NLGA.
 - SOUTHERN PINE, SPIB.
 - DOUGLAS FIR-LARCH, WCLIB OR WWPA.
 - MIXED SOUTHERN PINE, SPIB.
 - SPRUCE-PINE-FIR, NLGA.
 - DOUGLAS FIR-SOUTH, WWPA.
 - HEM-FIR, WCLIB OR WWPA.
 - DOUGLAS FIR-LARCH (NORTH), NLGA.
- EXTERIOR, LOAD BEARING AND INTERIOR PARTITION WALLS: ANY SPECIES (STUD GRADE OR BETTER) WITH A MODULUS OF ELASTICITY OF AT LEAST 1,300,000 PSI AND EXTREME FIBER STRESS IN BENDING OF AT LEAST 650 PSI FOR 2" NOMINAL THICKNESS AND 12" NOMINAL WIDTH FOR A SINGLE MEMBER USE.
- JOISTS, RAFTERS, AND OTHER FRAMING NOT LISTED ABOVE: ANY SPECIES (NO. 2 OR BETTER, U.N.O.) WITH A MODULUS OF ELASTICITY OF AT LEAST 1,300,000 PSI AND AN EXTREME FIBER STRESS IN BENDING OF AT LEAST 850 PSI FOR 2" NOMINAL THICKNESS AND 12" NOMINAL WIDTH FOR SINGLE MEMBER USE.

ENGINEERED WOOD PRODUCTS

- LAMINATED VENER LUMBER: STRUCTURAL COMPOSITE LUMBER MADE FROM WOOD VENEERS WITH GRAIN PRIMARILY PARALLEL TO MEMBER LENGTHS, EVALUATED AND MONITORED ACCORDING TO ASTM D5456 AND MANUFACTURED WITH AN EXTERIOR-TYPE ADHESIVE COMPLYING WITH ASTM D2559 AND CONTAINING NO UREA FORMALDEHYDE. ALL LVL BEAMS EXPOSED TO WEATHER SHALL BE WRAPPED PER THE MANUFACTURER'S SPECIFICATIONS.
 - EXTREME FIBER STRESS IN BENDING, EDGEWISE: 3,100 PSI (BEAMS), 2,650 PSI (STUDS/COLUMNS)
 - MODULUS OF ELASTICITY, EDGEWISE: 2,000,000 PSI (BEAMS), 1,800,000 PSI (STUDS/COLUMNS)
- PARALLEL-STRAND LUMBER: STRUCTURAL COMPOSITE LUMBER MADE FROM WOOD STRAND ELEMENTS WITH GRAIN PRIMARILY PARALLEL TO MEMBER LENGTHS, EVALUATED AND MONITORED ACCORDING TO ASTM D5456 AND MANUFACTURED WITH AN EXTERIOR-TYPE ADHESIVE COMPLYING WITH ASTM D2559 AND CONTAINING NO UREA FORMALDEHYDE.
 - EXTREME FIBER STRESS IN BENDING: 3,100 PSI (BEAMS), 2,650 PSI (COLUMNS)
 - MODULUS OF ELASTICITY, EDGEWISE: 2,000,000 PSI (BEAMS), 1,800,000 PSI (COLUMNS)
- AVAILABLE MANUFACTURER'S: SUBJECTS TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 - BOISE CASCADE CORPORATION
 - GEORGIA-PACIFIC
 - LOUISIANA-PACIFIC CORPORATION
 - ROSEBURG FOREST PRODUCTS CO.
 - WELDWOOD OF CANADA LIMITED, SUBSIDIARY OF INTERNATIONAL PAPER COMPANY
 - WEYERHAEUSER COMPANY

SHEATHING DESIGN NOTES

- UNLESS NOTED OTHERWISE: SHEATH ROOF AND WALLS WITH EXPOSURE 1, 7/16"-THICK APA RATED OSB (SPAN RATING 32/16) WITH 8D NAILS AT 6" O.C. EDGES, 12" O.C. FIELD, BLOCKING REQUIRED AT PANEL EDGES.
- WHERE WALL TOP PLATE IS DISCONTINUOUS AT EXTERIOR PERIMETERS, APPLY MSTC40 STRAP TO COMPLETE THE TENSILE LOAD PATH. POSITION TOP PLATE SPLICES OVER WALL STUDS.
- INSTALL "H" CLIPS AT PANEL EDGES BETWEEN EACH RAFTER/TRUSS FOR ALL ROOF SHEATHING.
- NAIL ALL SHEATHING AT GABLE AND EAVE ROOF OVERHANGS WITH 8D NAILS AT 6" O.C. EDGES, 6" O.C. FIELD.
- NAIL ALL SHEATHING AT PERIMETER AND PEAK OF ROOF WITH 8D NAILS AT 6" O.C. EDGES, 6" O.C. FIELD.
- NAIL ALL SHEATHING WITHIN 4'-0" OF WALL CORNERS WITH 8D NAILS AT 6" O.C. EDGES, 6" O.C. FIELD.
- SUBFLOORING SHALL BE IN ACCORDANCE WITH TABLE R503.1 WITHIN RESIDENTIAL BUILDING CODE OR ENGINEER APPROVED ALTERNATIVE.
- MEMBERS AND BLOCKING AT ADJOINING PANEL EDGES SHALL BE MINIMUM 3" NOMINAL OR DOUBLE 2" NOMINAL WITH STAGGERED NAILING AT ALL PANEL EDGES.
- HORIZONTAL BLOCKING MAY BE 2X LAID FLAT AGAINST SHEATHING.
- AT EXISTING STRUCTURE WHERE SHEATHING IS IN PLANE, NEW SHEATHING SHALL BE KEYED IN A MINIMUM OF 2' WITHIN EVERY OTHER SHEATHING PANEL.

METAL-PLATE-CONNECTED WOOD TRUSSES

- THIS SECTION INCLUDES PRE-FABRICATED, PRE-ENGINEERED WOOD TRUSSES, GIRDER TRUSSES, AND TRUSS ACCESSORIES.
- PERFORMANCE REQUIREMENTS: ENGINEER, FABRICATE, AND ERECT METAL-PLATED WOOD TRUSSES TO WITHSTAND DESIGN LOADS WITHIN LIMITS AND UNDER CONDITIONS REQUIRED.
- DESIGN TRUSSES TO WITHSTAND DESIGN LOADS WITHOUT DEFLECTIONS GREATER THAN THE FOLLOWING:
 - FLOOR TRUSSES: VERTICAL DEFLECTION OF 1/480 OF SPAN DUE TO TOTAL LOAD AND 1/360 OF SPAN DUE TO LIVE LOAD.
 - FLOOR LIVE LOAD: 40 PSF
 - ROOF LIVE LOAD: 20 PSF
 - CEILING LIVE LOAD: 20 PSF
 - MINIMUM DEAD LOAD TOP CHORD: 8 PSF
 - MINIMUM DEAD LOAD BOTTOM CHORD: 7 PSF
- SUBMITTALS:
 - SHOP DRAWINGS DETAILING LOCATION, PITCH, SPAN, CAMBER, CONFIGURATION, AND SPACING FOR EACH TYPE OF TRUSS REQUIRED. SPECIFY SIZES, AND STRESS GRADES OF LUMBER TO BE USED; SPLICE DETAILS; TYPE, SIZE, MATERIAL, FINISH, DESIGN VALUES, AND ORIENTATION AND LOCATION OF METAL CONNECTOR PLATES; AND BEARING DETAILS.
 - TO THE EXTENT OF TRUSS DESIGN CONSIDERATIONS ARE INDICATED AS FABRICATOR'S RESPONSIBILITY, INCLUDE STRUCTURAL ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THE PREPARATION.
 - INCLUDE TRUSS SHOWN AND SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR DESIGN.
- QUALITY ASSURANCE:
 - ANSI/ TPI 1, "NATIONAL DESIGN STANDARD FOR METAL-PLATE-CONNECTED WOOD TRUSS CONSTRUCTION".
 - TPI HB, "COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING, AND BRACING OF METAL-PLATE-CONNECTED WOOD TRUSSES".
 - WOOD STRUCTURAL DESIGN STANDARD: COMPLY WITH APPLICABLE REQUIREMENTS OF ANSI/AF APA " NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" AND "ITS SUPPLEMENT".

STRUCTURAL MASONRY:

- LOAD BEARING MASONRY WALLS, PILASTERS, PIER, RETAINING WALLS, FOUNDATION WALLS AND ANY OTHER MASONRY SO DESIGNATED ON DRAWINGS IS CONSIDERED HERE TO BE STRUCTURAL MASONRY.
- REQUIRED COMPRESSIVE STRENGTH OF MASONRY UNITS:
 - CONCRETE UNITS - 1900 PSI ON NET AREA
- CONCRETE MASONRY UNITS (CMU) SHALL BE NORMAL WEIGHT (125 PCF) CONFORMING TO ASTM C90. REFER TO ARCHITECTURAL DRAWINGS FOR UNIT SIZE, FACE, COLOR, JOINTING, ETC. NOTE: AAC MASONRY TO CONFORM TO MANUFACTURER SPECIFICATIONS WHERE NOT DETAILED.
- MORTAR - TYPE S, ASTM C270
- GROUT FOR REINFORCED MASONRY - FINE GROUT, ASTM C476. MINIMUM 28 DAY COMPRESSIVE STRENGTH - 2000 PSI.
- MINIMUM 28-DAY COMPRESSIVE STRENGTH (F_m) OF CMU MASONRY WALLS SHALL BE 1500 PSI. MASONRY STRENGTH SHALL BE DETERMINED BY THE UNIT STRENGTH METHOD OR THE PRISM TEST METHOD AS DESCRIBED BY ACI 530.
- REINFORCING:
 - ASTM A615 - GRADE 60
 - ALL REINFORCING TO BE WELDED - ASTM A706

- REFER TO THE DRAWINGS FOR REINFORCING LAP TYPICAL DETAIL AND SCHEDULE REQUIREMENTS, WHERE LAP SPLICES ARE NOT SHOWN, LAP PER ACI 530.
- MAXIMUM HEIGHT TO WHICH MASONRY SHALL BE LAID BEFORE GROUTING IS 5-FEET ABOVE CONSTRUCTION SURFACE OR PREVIOUSLY GROUTED MASONRY. PROVIDE CLEANOUT LOAD PATH TO THE BOTTOM OF EACH GROUT LIFT.
- REINFORCE MASONRY WHERE SHOWN ON STRUCTURAL DRAWINGS. TIE REINFORCING IN POSITION AND PLACE GROUT AROUND REINFORCING. DO NOT PUSH REINFORCING DOWN INTO PREVIOUSLY PLACED GROUT FILL. SET BOLTS SIMILARLY.
- TIE MASONRY WYTHES WITH HORIZONTAL REINFORCING AS SPECIFIED.
- EMBEDDED ANCHORS INTO MASONRY (OR CONCRETE) ARE TO BE INSTALLED PER PLAN WITH SIMPSON "SET" EPOXY (OR EQUIV.). PROVIDE ADHESIVE SCREENS OR OTHER APPROVED ANCHORAGE FOR HOLLOW MASONRY. MECHANICAL WEDGE ANCHORS ARE NOT PERMITTED WITHIN MASONRY.
- PROVIDE VERTICAL BARS, SIZE MATCHING WALL REINFORCING, AT ALL CORNERS, ENDS OF WALLS, EACH SIDE OF CONTROL JOINTS, AND EACH SIDE OF WALL OPENINGS.
- PROVIDE MASONRY CONTROL JOINTS (PER ACI 530) SPACED UP TO 25'-0" O.C.
- ALL CORNERS AND INTERSECTIONS OF STRUCTURAL MASONRY SHALL BE CONSTRUCTED BY INTERLOCKING COURSES.
- ALL LINTELS TO BEAR 8" MINIMUM EACH SIDE OF OPENING, U.N.O.

EPOXY ADHESIVE ANCHORS

- ALL EPOXY SHALL BE SIMPSON BRAND "SET" EPOXY SYSTEM, OR APPROVED EQUAL, UNLESS NOTED OTHERWISE.
- EPOXY ADHESIVES TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS.
- ALL EPOXY ANCHOR BOLTS TO BE SIZED AS SHOWN IN NOTES/DETAILS AND SHALL CONFORM TO THE FOLLOWING:
 - ANCHOR BOLTS INTO FOUNDATION: ASTM F1554, GRADE 36
 - ALL OTHER APPLICATIONS: ASTM 307, U.N.O.
- ALL EPOXY ANCHOR BOLTS AND REBAR DOWELS SHOULD BE CLEAN AND OIL FREE.
- CONCRETE DUST SHALL BE REMOVED FROM ALL DRILLED HOLES BY USE OF A NYLON BRUSH AND OIL FREE COMPRESSED AIR. CORRECT PROCEDURE INVOLVES BLOWING THE DUST OUT OF THE HOLE, BRUSHING THE HOLE CLEAN, AND THEN BLOWING AGAIN.
- DRILLED HOLES SHALL BE KEPT DRY AND ANY STANDING WATER MUST BE BLOWN OUT WITH OIL FREE COMPRESSED AIR AND ALLOWED TO DRY PRIOR TO EPOXY INSTALLATION.
- EPOXY SHALL NOT BE INSTALLED IN CONCRETE WHICH IS LESS THAN 7 DAYS OLD.
- EPOXY ADHESIVES MUST BE ALLOWED THE FULL CURE TIME AS SPECIFIED BY THE MANUFACTURER PRIOR TO APPLICATION OF ANY LOAD AND ANCHOR BOLTS OR REBAR DOWELS MUST REMAIN UNDISTURBED DURING THIS SETTING PERIOD.
- EPOXY ADHESIVE ANCHORS ARE NOT TO BE USED EXCEPT WHERE SPECIFICALLY INDICATED ON PLANS.

STRUCTURAL STEEL:

- FABRICATE AND ERECT ALL STRUCTURAL STEEL IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL OF BUILDINGS," WHERE THE MATERIAL USED CONSISTS OF PLATES, SHAPES OR BARS.
- STRUCTURAL STEEL SHALL BE PAINTED IN ACCORDANCE WITH THE ARCHITECTURAL SPECIFICATIONS. STEEL COLUMNS BELOW GRADE THAT ARE NOT ENCASED IN CONCRETE SHALL BE FIELD PAINTED WITH A COAL/TAR EPOXY COMPOUND TO PREVENT CORROSION.
- THE STEEL USED SHALL HAVE THE FOLLOWING MINIMUM YIELD STRESS:

50 KSI STRUCTURAL STEEL WIDE FLANGE (A992)
36 KSI MISCELLANEOUS SHAPES, BARS, PLATES AND CHANNELS
- USE E-70 ELECTRODES FOR ALL SHOP AND FIELD WELDING.

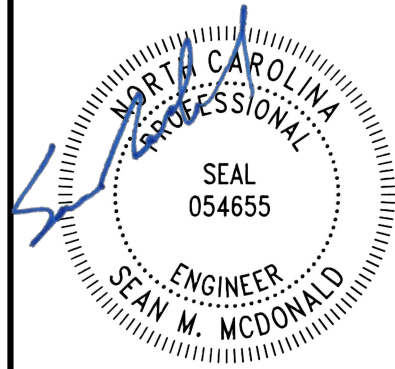
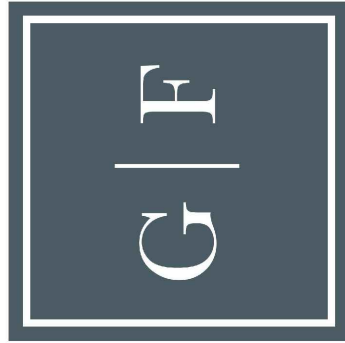
TYPICAL ABBREVIATIONS			
&	= AND	HT.	= HEIGHT
@	= AT	MAX.	= MAXIMUM
±	= PLUS OR MINUS	MECH.	= MECHANICAL
A/E	= ARCHITECT/ENGINEER	MFR.	= MANUFACTURER
A.F.F.	= ABOVE FINISHED FLOOR	MIN.	= MINIMUM
ARCH.	= ARCHITECTURAL	N.T.S.	= NOT TO SCALE
B.O.	= BY OTHERS	O.C.	= ON CENTER
C.F.S.	= COLD-FORMED STEEL	P.A.F.	= POWER ACTUATED FASTENER
C.J.	= CEILING JOIST	P.B.	= PERIMETER BAND
C.L.	= CENTER LINE	PL	= PLATE
C.R.C.	= COLD ROLLED CHANNEL	REQ.	= REQUIRED
C.M.U.	= CONCRETE MASONRY UNIT	R.O.	= ROUGH OPENING
CONC.	= CONCRETE	SIM.	= SIMILAR
CONT.	= CONTINUOUS	SSMA	= STEEL STUD MFR. ASSOCIATION
DEFL.	= DEFLECTION	STL.	= STEEL
Ø, DIA.	= DIAMETER	SW	= SHEAR WALL
DWG.	= DRAWING	STR.	= STRUCTURAL
ELEV.	= ELEVATION	TEMP.	= TEMPORARY
ENGR.	= ENGINEER	T.O.B.	= TOP OF BEAM
E.O.S.	= EDGE OF SLAB	T.O.C.	= TOP OF CONCRETE
EQ.	= EQUAL	T.O.S.	= TOP OF STEEL
EW	= EACH WAY	T.S.N.	= THE STEEL NETWORK
EX.	= EXISTING	TYP.	= TYPICAL
FDN.	= FOUNDATION	U.N.O.	= UNLESS NOTED OTHERWISE
FLR.	= FLOOR	VERT.	= VERTICAL
F.J.	= FLOOR JOISTS	VIF	= VERIFY IN FIELD
FTG.	= FOOTING	V.S.C.	= VERTICAL SLIP CLIP
GA.	= GAUGE	W/	= WITH

SHEET INDEX

S1.0	COVER SHEET & GENERAL NOTES
S2.0	FOUNDATION PLAN
S3.0	MAIN LEVEL FLOOR FRAMING PLAN & DETAILS
S4.0	UPPER LEVEL FLOOR FRAMING PLAN & DETAILS
S5.0	CEILING LEVEL FRAMING PLAN
S6.0	ROOF FRAMING PLAN & DETAILS
S7.0	DETAILS
S8.0	DETAILS

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STRUCTURAL PLAN DRAWINGS

BUTLER HOMES, LLC
11 DEVROAH LANE
FUQUAY VARINA, NC

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2	04/03/2025	REV. 2-FDN. PLAN CHANGE

SCALE: AS SHOWN

REVIEWED BY: TCH

DRAWN BY: SMM

DATE: APRIL 3, 2025

S1.0

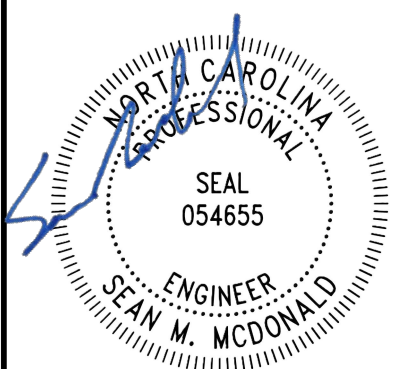
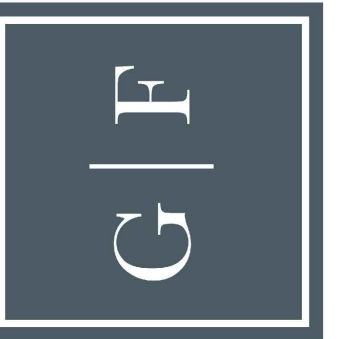


J LONG SPAN STAIRWAY FRAMING COMPRISED OF (3) 14" -DEEP 1-3/4" 1.55E LSL STRINGERS EQUALLY SPACED



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

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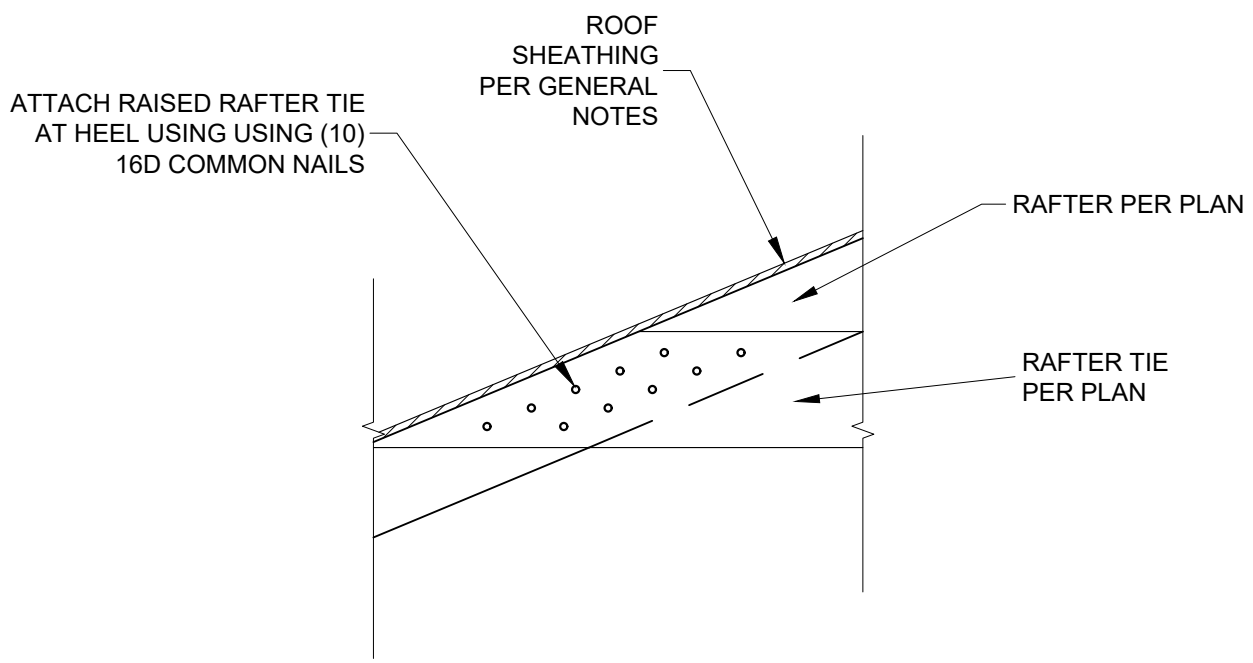


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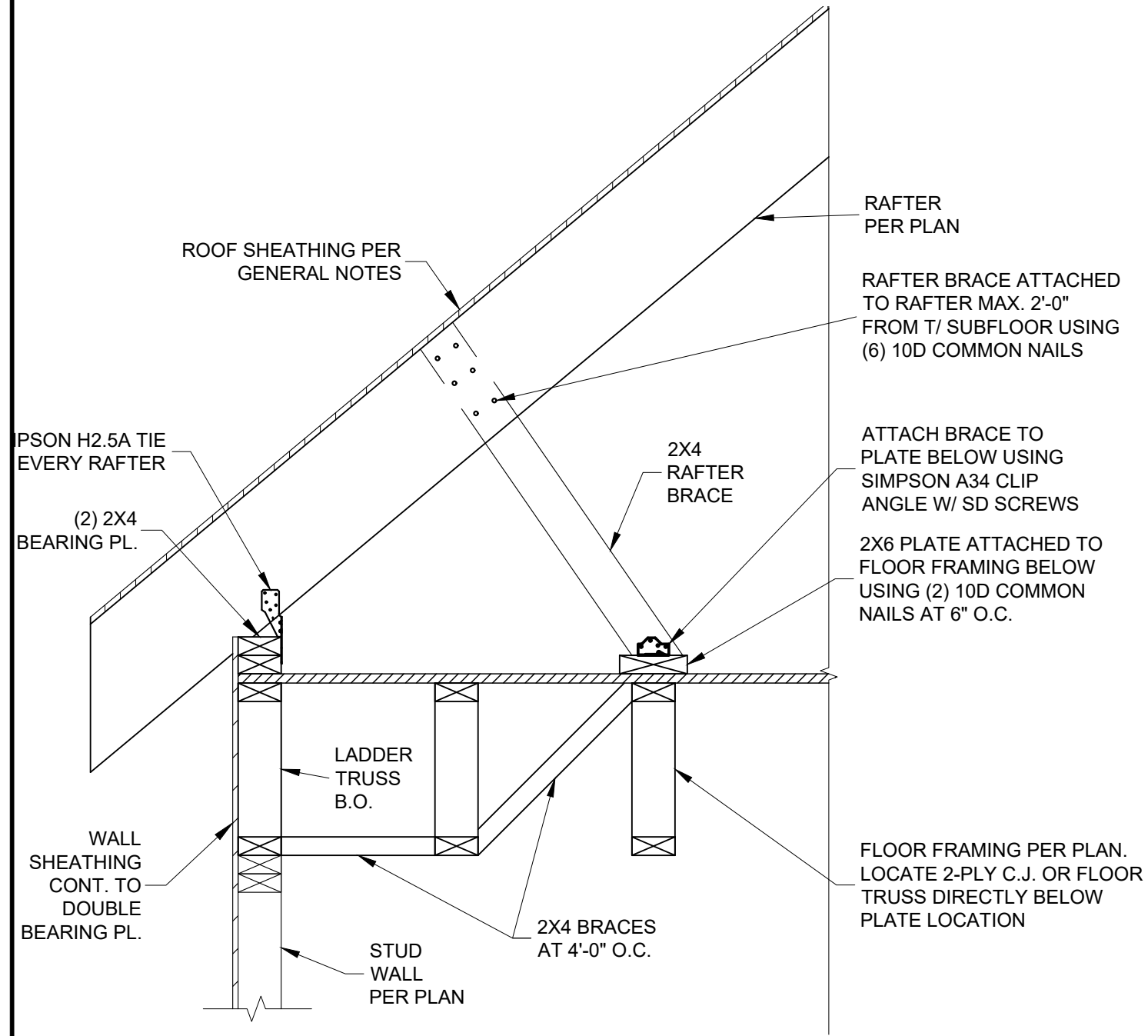
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DATE: APRIL 3, 2025

S3.0

S4.0

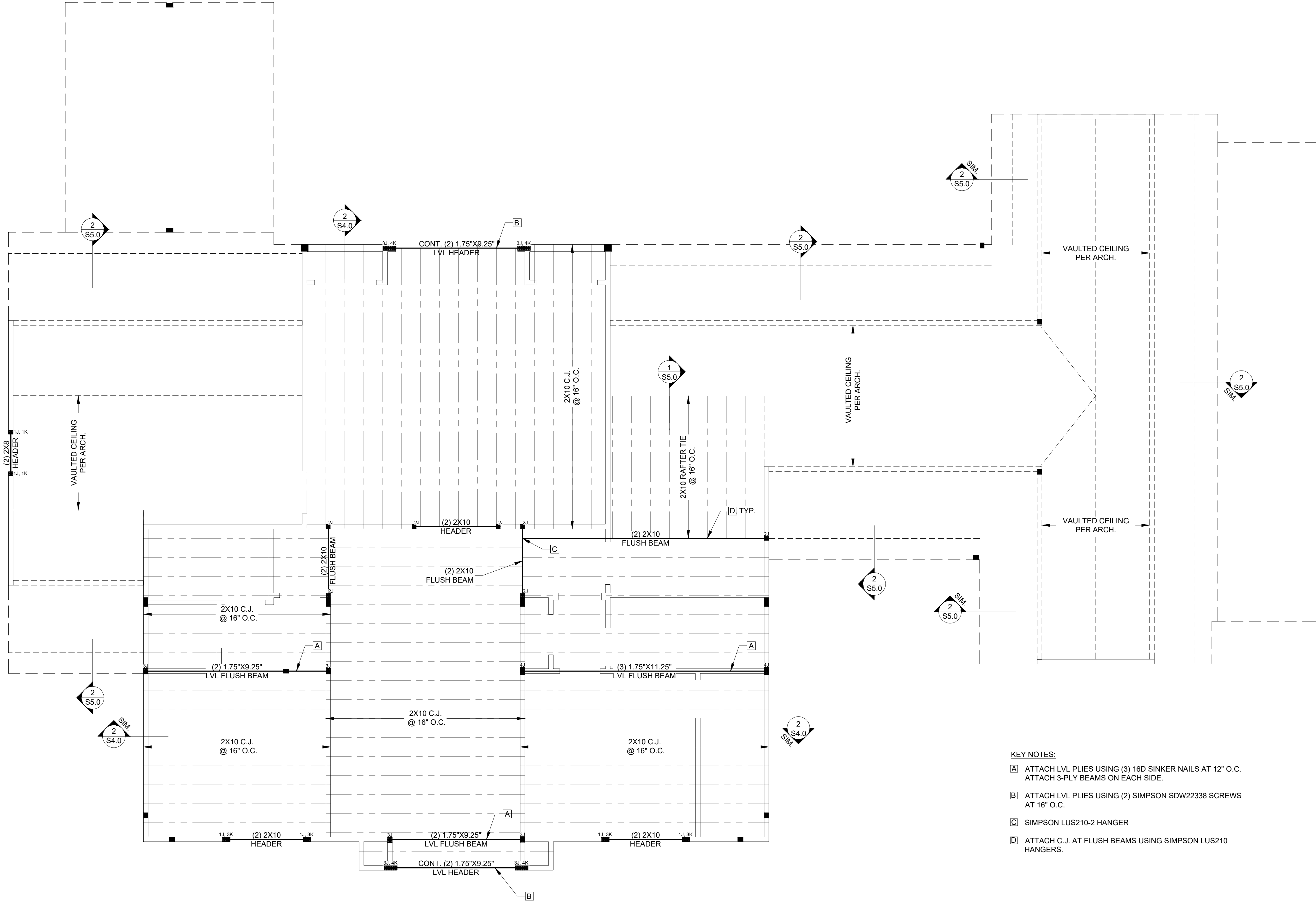


1 ELEVATED RAFTER TIE ATTACHMENT
SCALE: N.T.S.



2 RAFTER BRACE ATTACHMENT
SCALE: N.T.S.

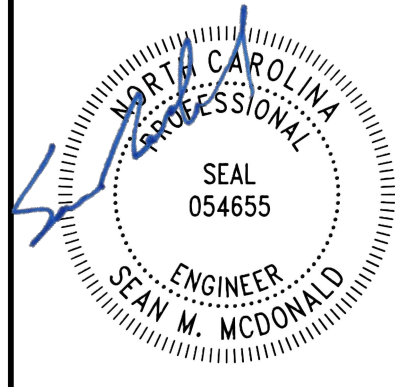
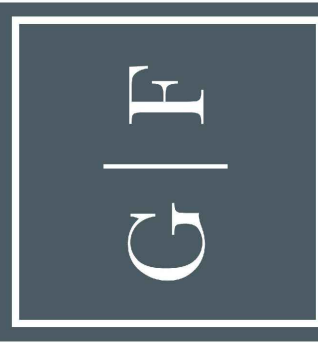
KING STUD/EXTERIOR HEADER SCHEDULE (U.N.O.)	
HEADER SPAN	NO. KING STUDS AT EACH END
SPAN <= 3'-0"	1
3'-0" < SPAN <= 5'-0"	2
5'-0" < SPAN <= 8'-0"	3
8'-0" < SPAN <= 11'-0"	4
11'-0" < SPAN <= 13'-0"	5
13'-0" < SPAN <= 16'-0"	3.5"x5.5" PSL COL.



- KEY NOTES:
- [A] ATTACH LVL PLIES USING (3) 16D SINKER NAILS AT 12" O.C. ATTACH 3-PLY BEAMS ON EACH SIDE.
 - [B] ATTACH LVL PLIES USING (2) SIMPSON SDW22338 SCREWS AT 16" O.C.
 - [C] SIMPSON LUS210-2 HANGER
 - [D] ATTACH C.J. AT FLUSH BEAMS USING SIMPSON LUS210 HANGERS.

SECOND LEVEL CEILING FRAMING PLAN
SCALE: 1/4" = 1'-0"

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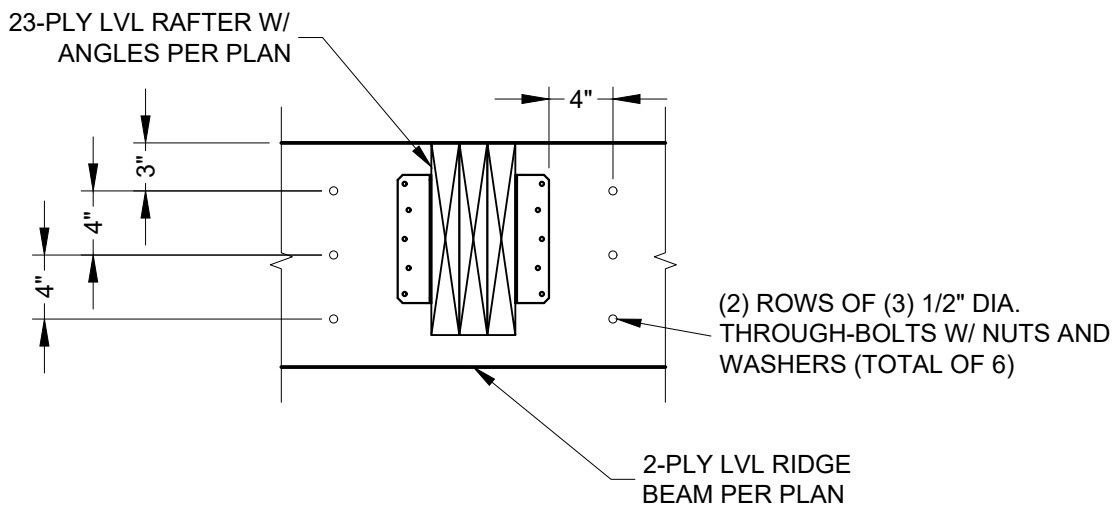


STRUCTURAL PLAN DRAWINGS
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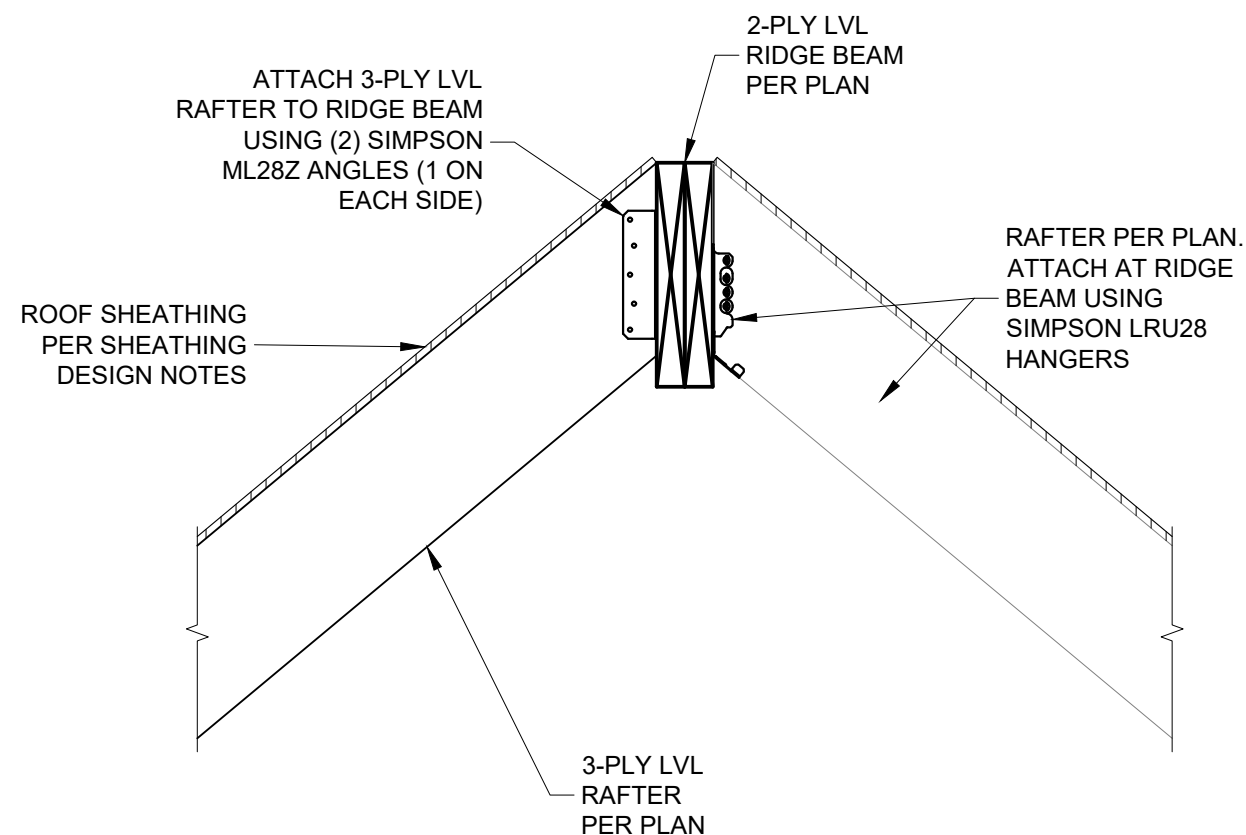
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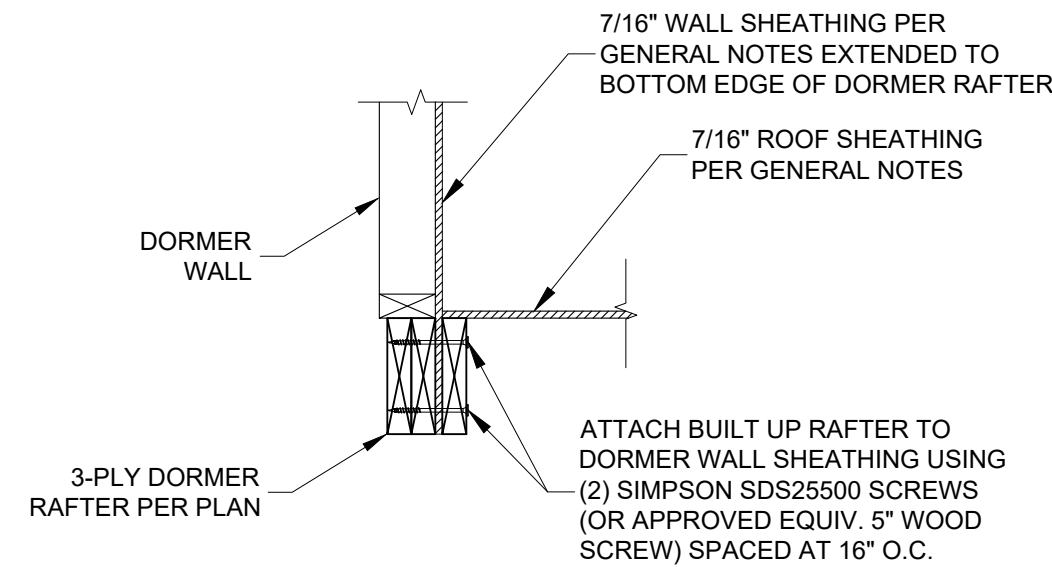
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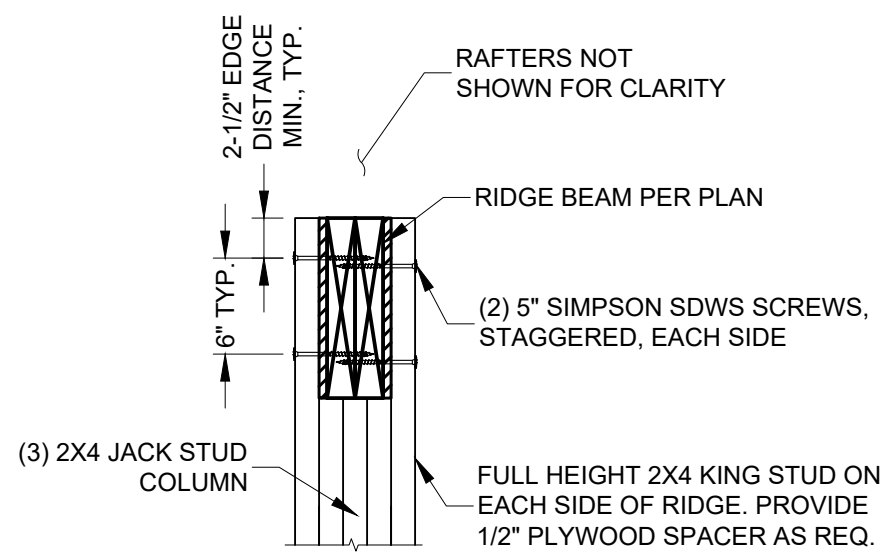
1 LVL RIDGE BEAM PLY ATTACHMENT AT POINT LOAD
SCALE: N.T.S.



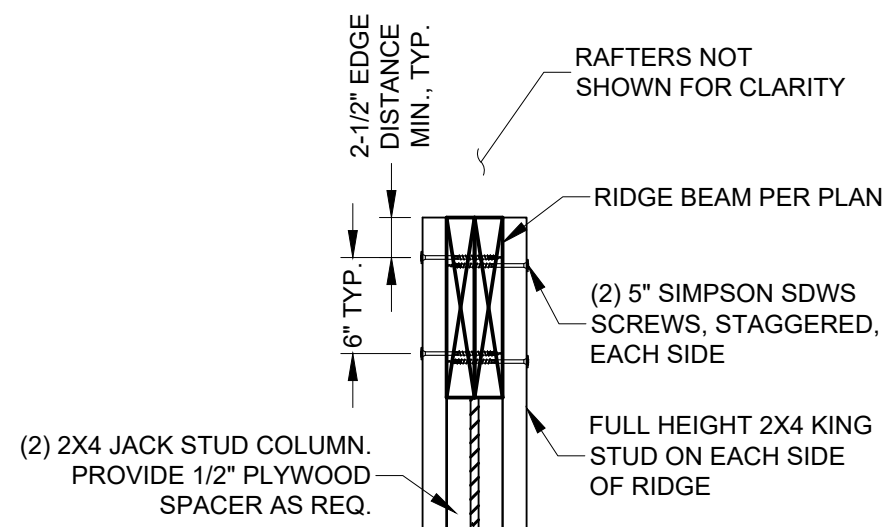
2 DORMER RAFTER BEARING AT RIDGE BEAM
SCALE: N.T.S.



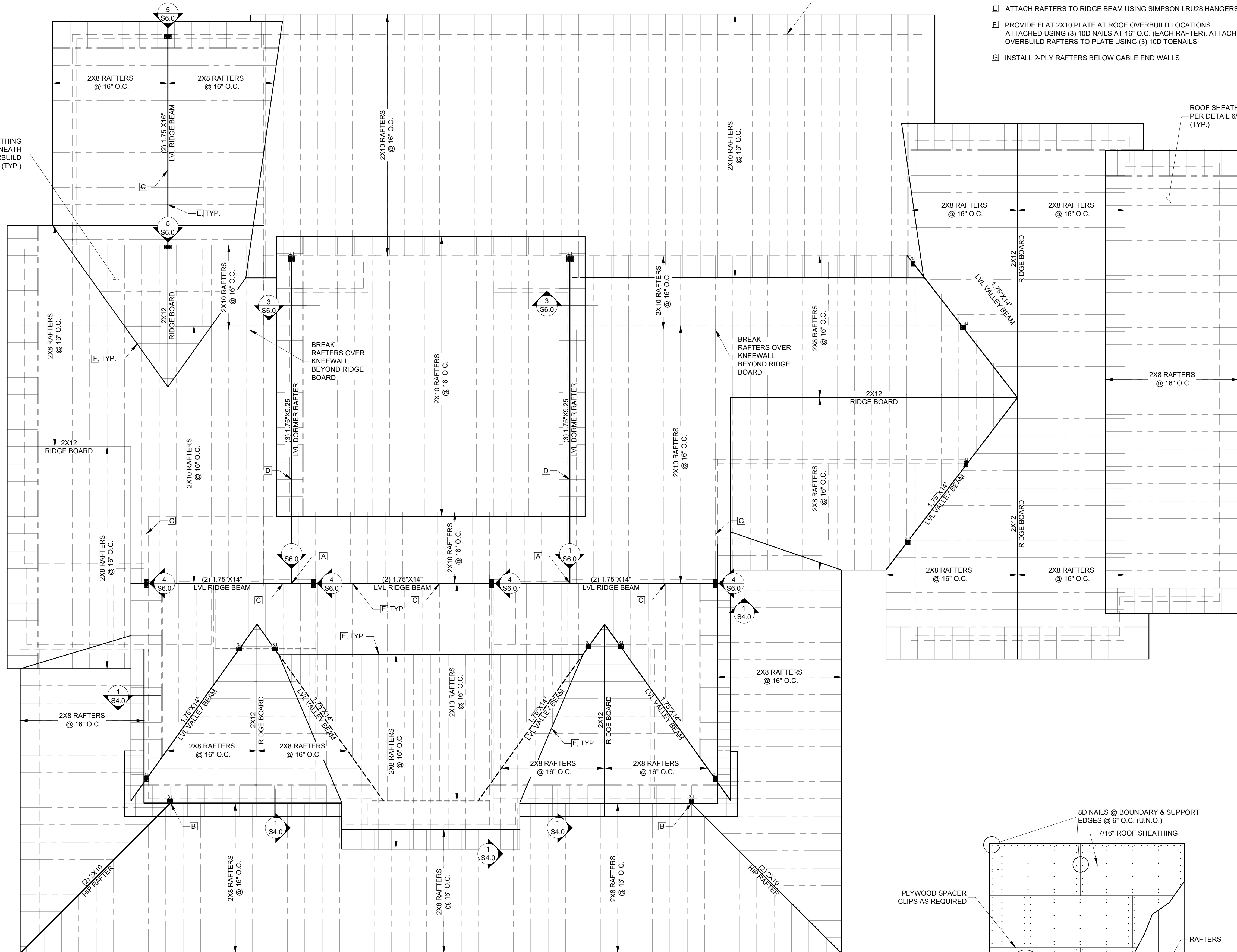
3 WALL ABOVE DORMER RAFTER ATTACHMENT
SCALE: N.T.S.



4 RIDGE BEAM BEARING
SCALE: N.T.S.

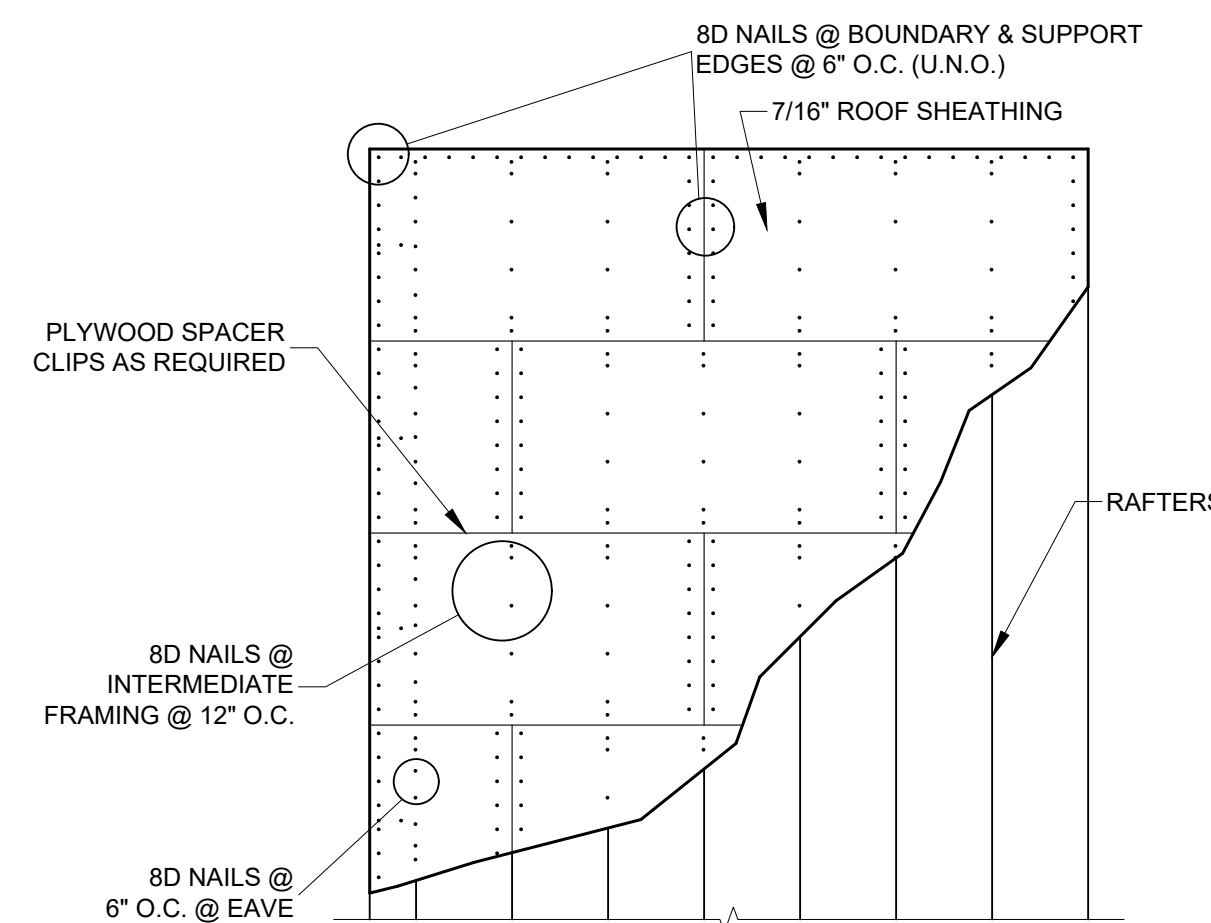


5 RIDGE BEAM BEARING
SCALE: N.T.S.



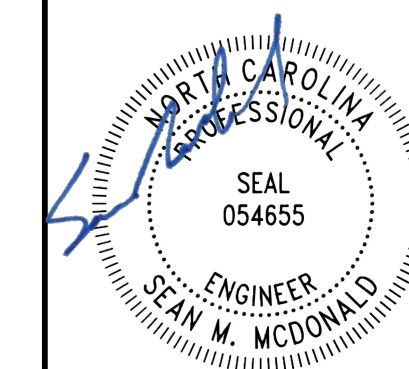
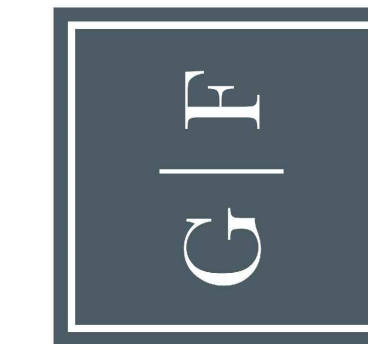
ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

- KEY NOTES:
- A (2) SIMPSON ML28 ANGLES (1 ON EACH SIDE OF DORMER RAFTER)
 - B SIMPSON LS90 SKEWABLE CLIP ANGLE
 - C ATTACH LVL PLIES USING (3) 16D SINKER NAILS AT 12" O.C.
 - D ATTACH LVL PLIES USING (2) 16D SINKER NAILS AT 12" O.C. ON EACH SIDE OF BEAM
 - E ATTACH RAFTERS TO RIDGE BEAM USING SIMPSON LRU28 HANGERS
 - F PROVIDE FLAT 2X10 PLATE AT ROOF OVERBUILD LOCATIONS ATTACHED USING (3) 10D NAILS AT 16" O.C. (EACH RAFTER). ATTACH OVERBUILD RAFTERS TO PLATE USING (3) 10D TOENAILS
 - G INSTALL 2-PLY RAFTERS BELOW GABLE END WALLS



6 TYP. ROOF SHEATHING
SCALE: N.T.S.

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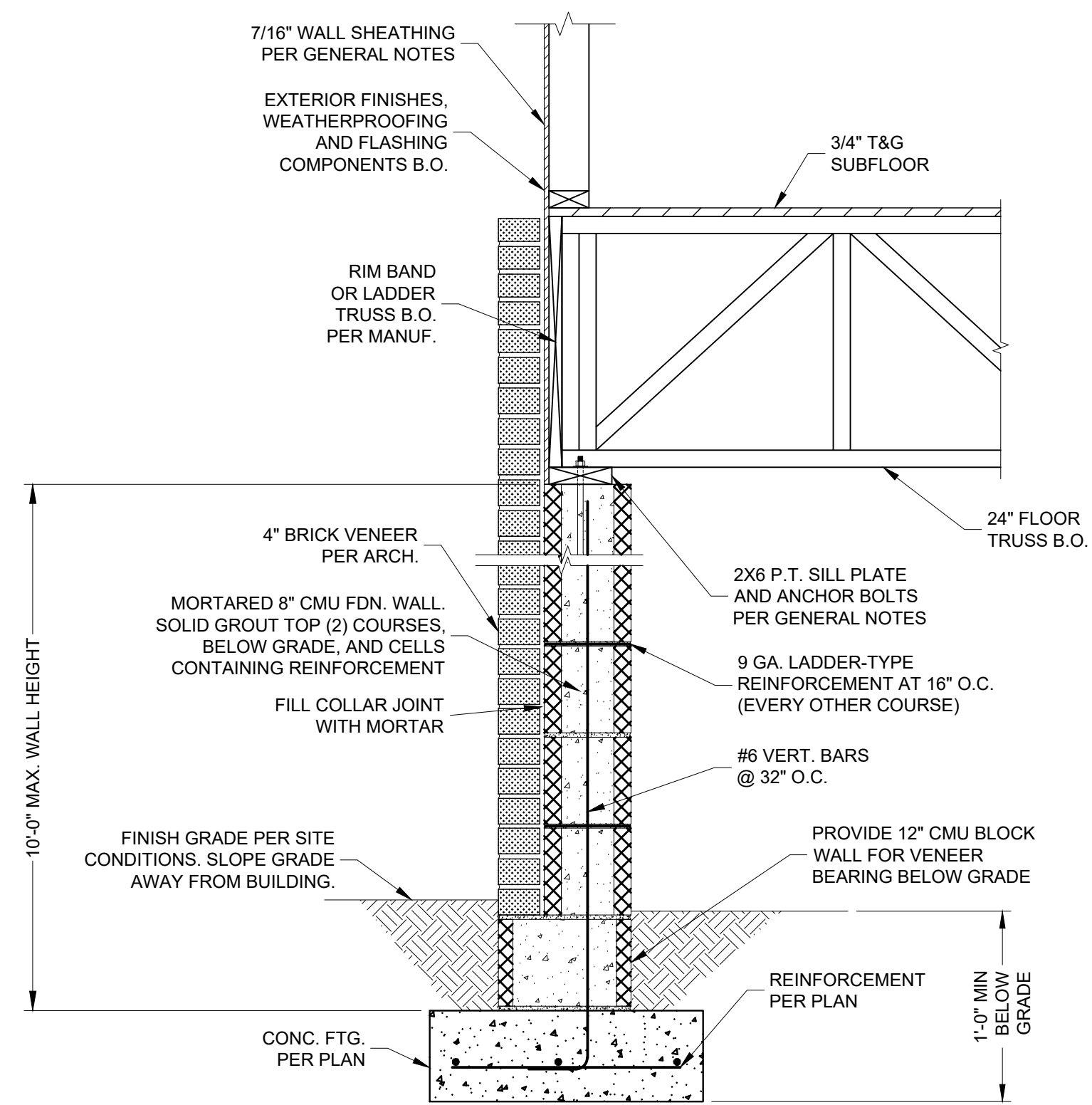
STRUCTURAL PLAN DRAWINGS
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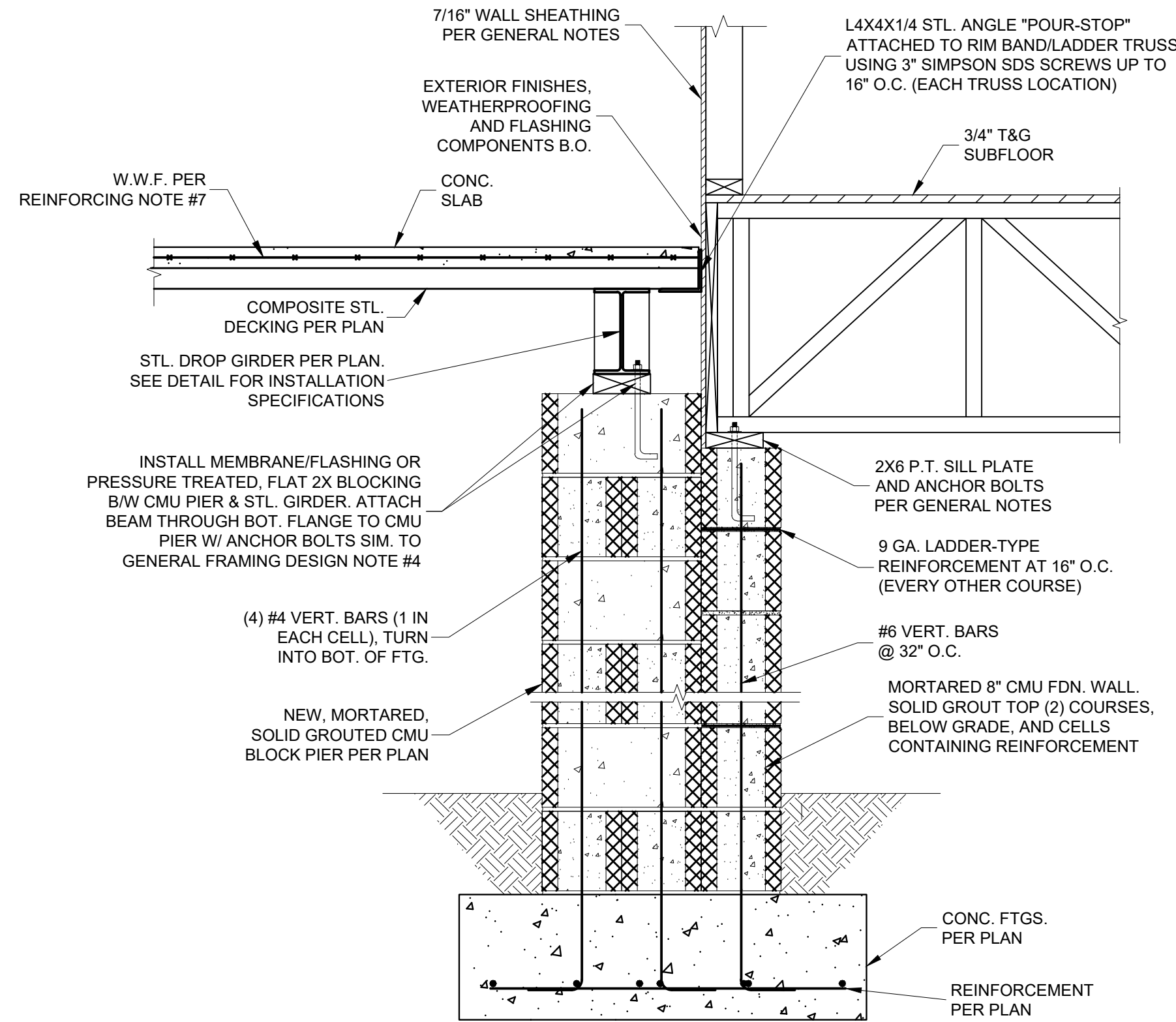
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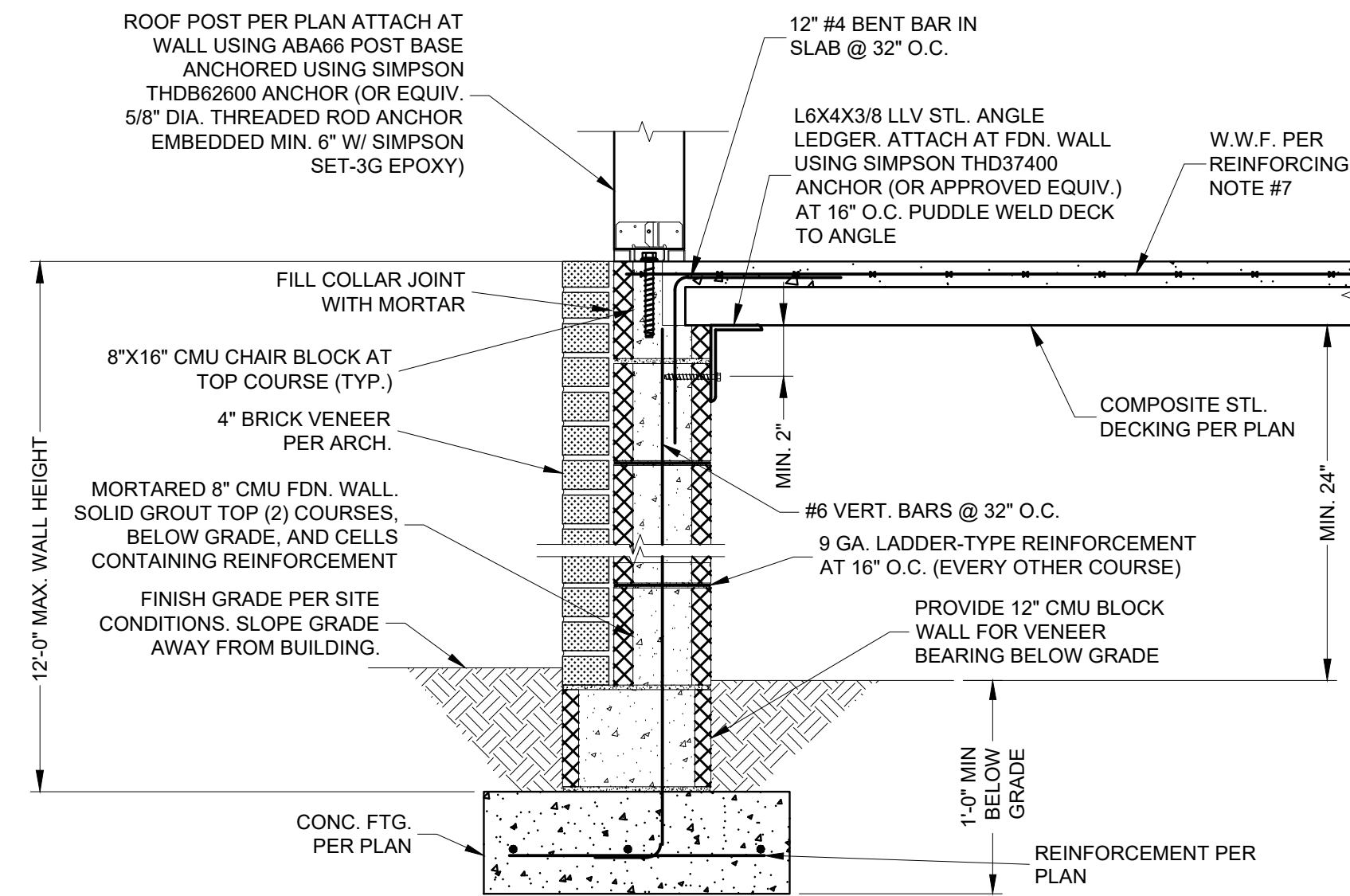
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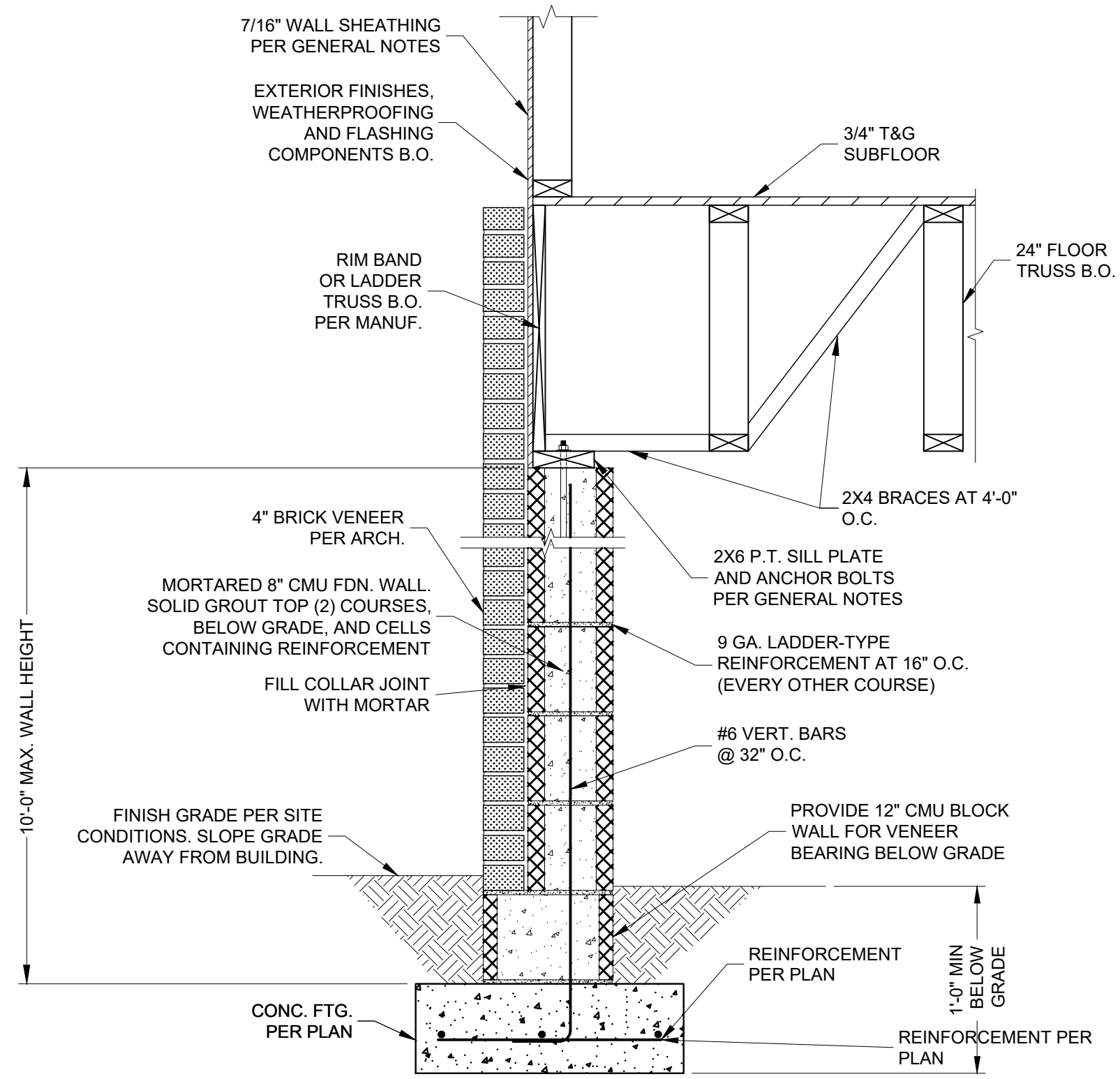
1 FOUNDATION SECTION (FRAMING PERPENDICULAR)
S7.0 SCALE: N.T.S.



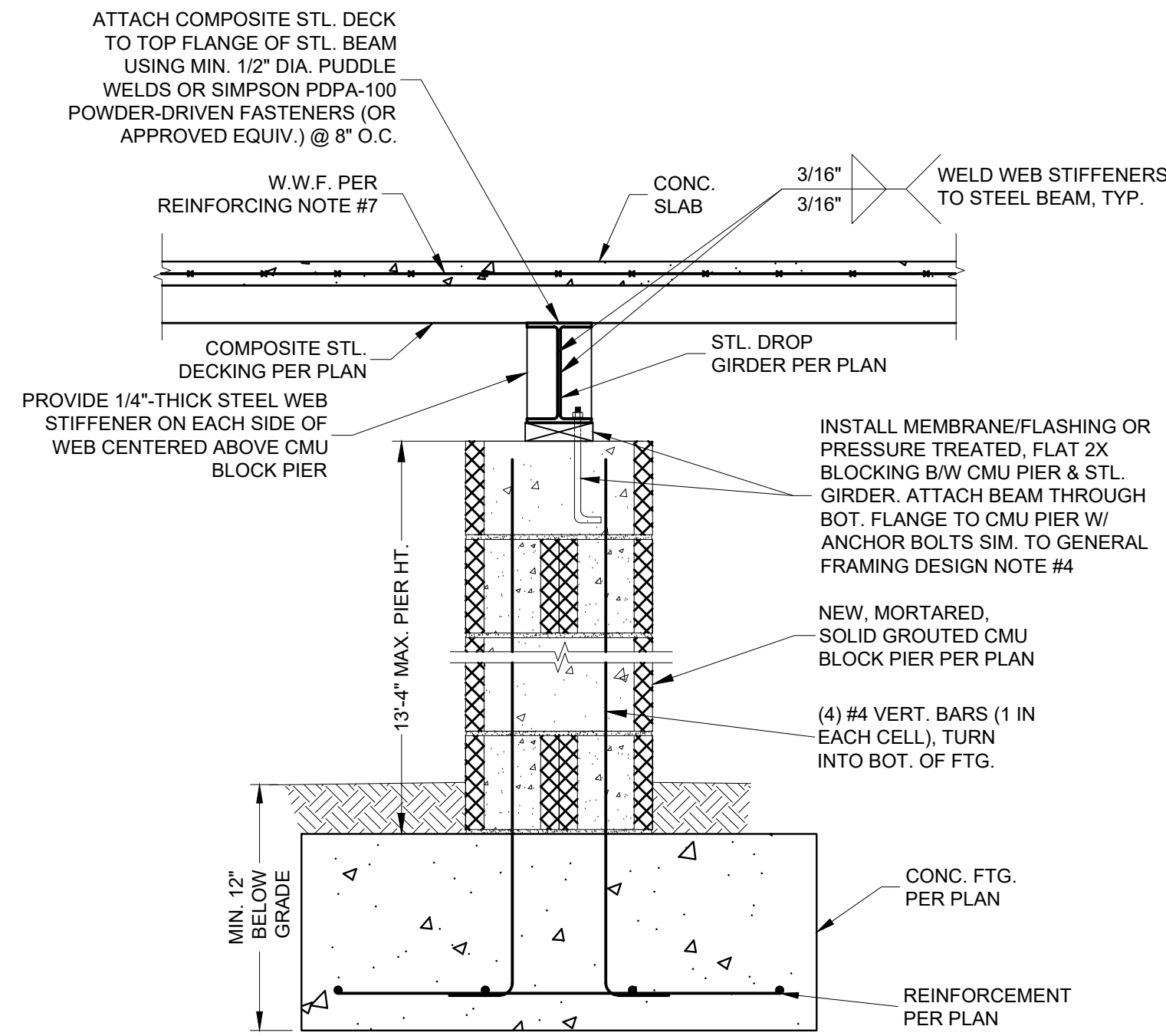
3 FOUNDATION SECTION (REAR PORCH INTERFACE)
S7.0 SCALE: N.T.S.



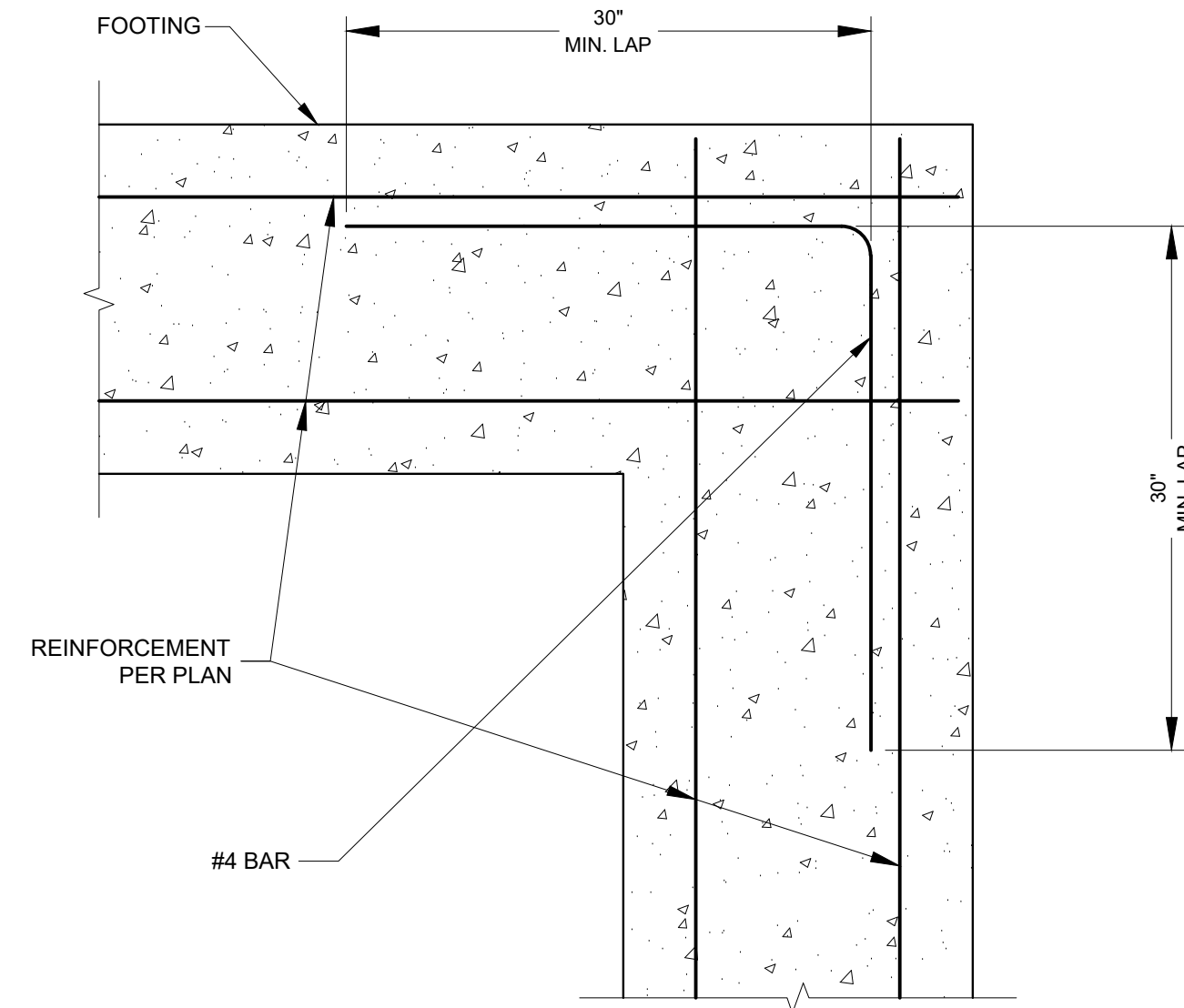
5 FOUNDATION SECTION (REAR PORCH SLAB BEARING)
S7.0 SCALE: N.T.S.



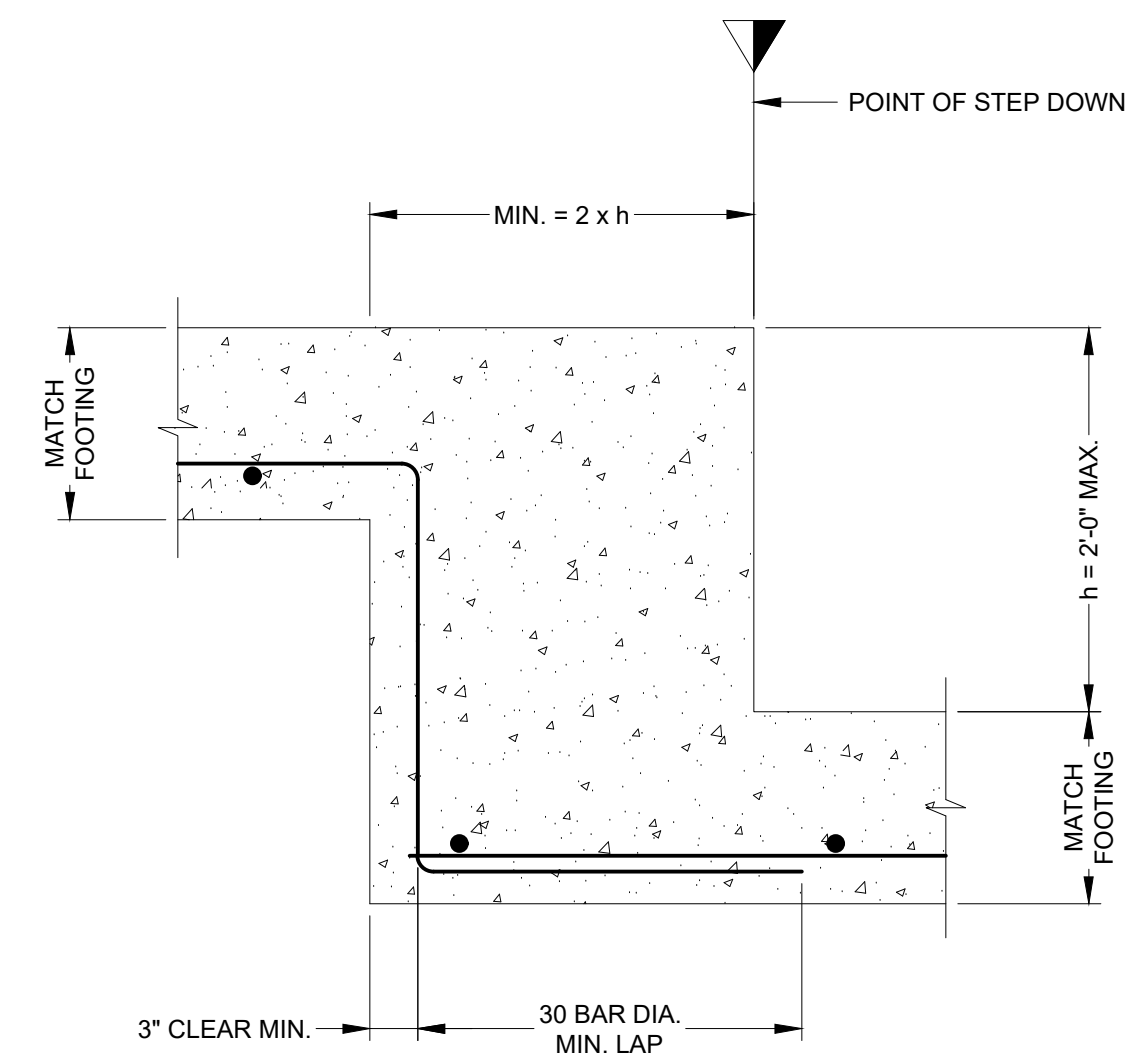
2 FOUNDATION SECTION (FRAMING PARALLEL)
S7.0 SCALE: N.T.S.



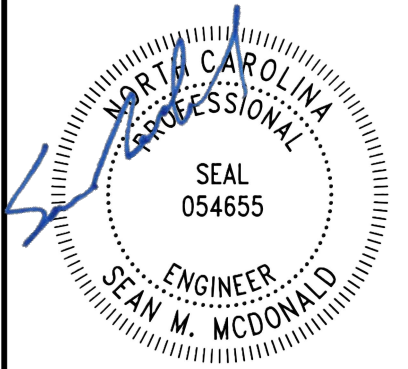
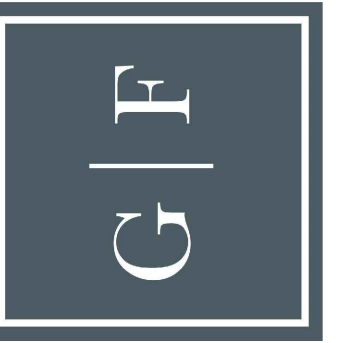
4 ELEVATED SLAB BEARING AT CENTRAL GIRDER
S7.0 SCALE: N.T.S.



6 TYP. CONTINUITY CORNER
S7.0 SCALE: N.T.S.

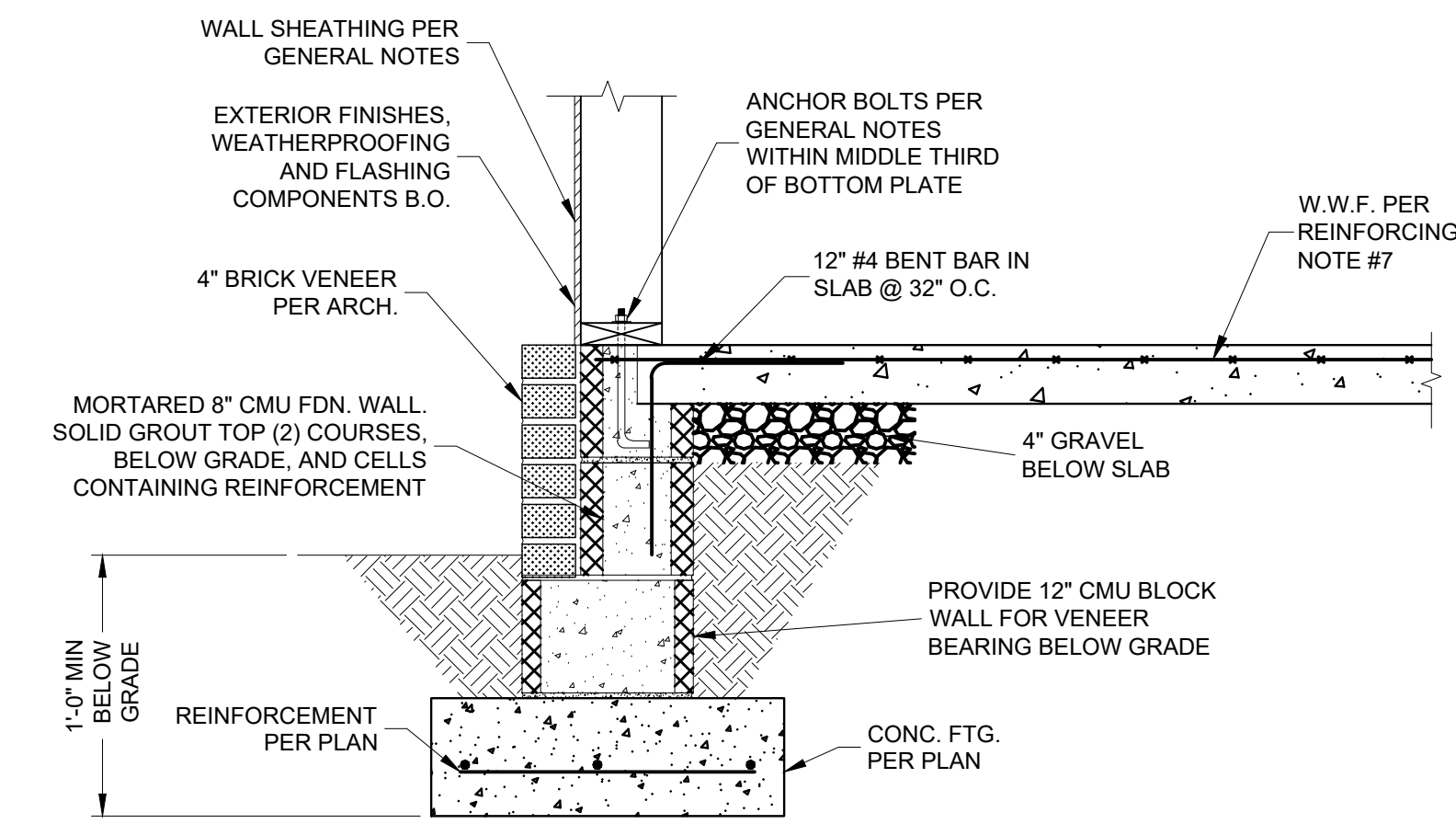


7 TYP. FTG. STEP (AS REQ.)
S7.0 SCALE: N.T.S.



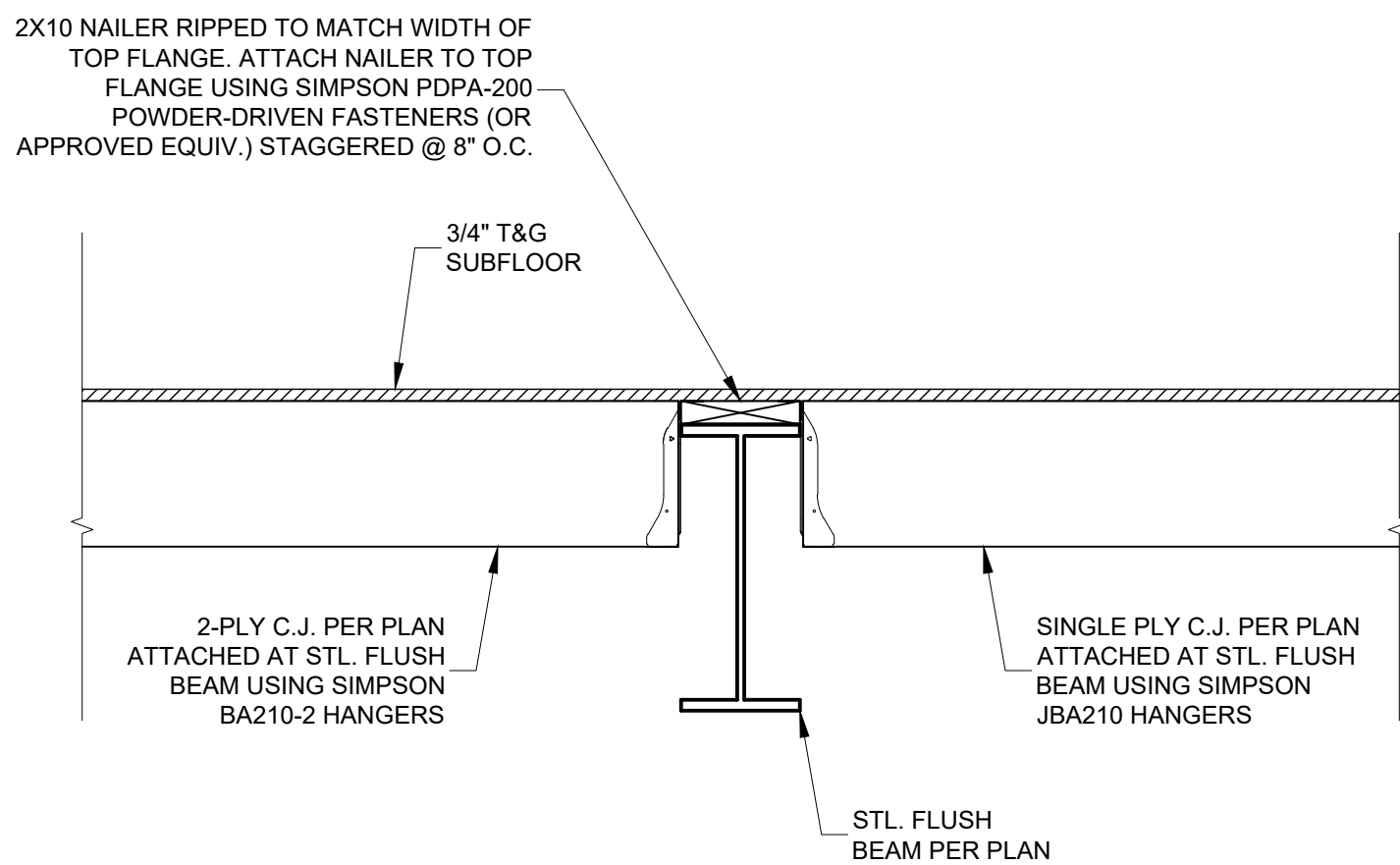
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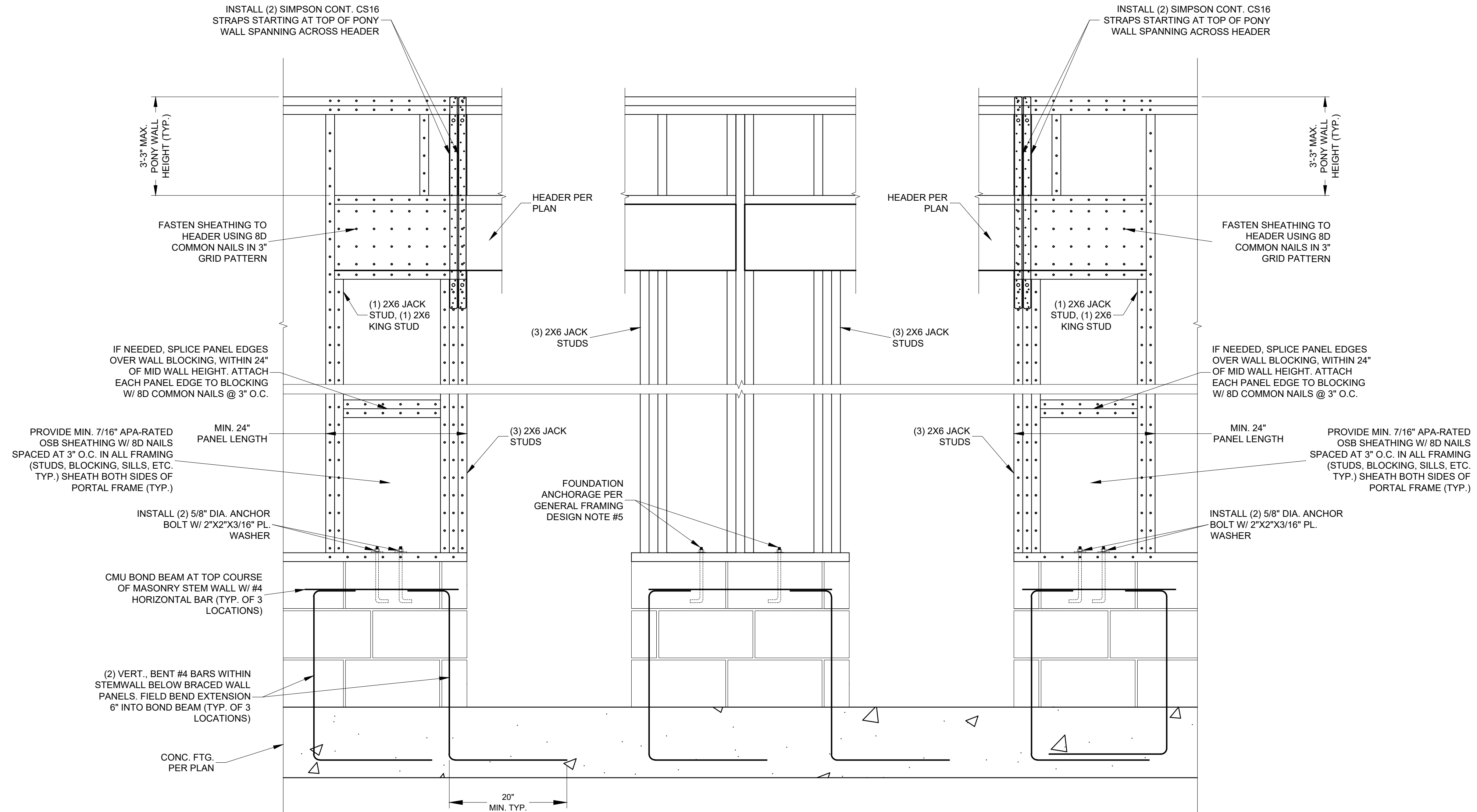
1 FOUNDATION SECTION (BASEMENT SLAB)

SCALE: N.T.S.



2 GARAGE STL. FLUSH BEAM

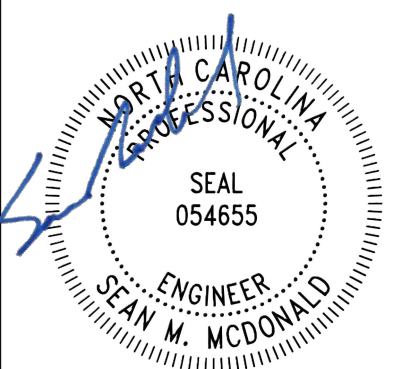
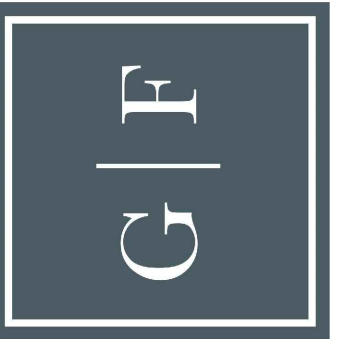
SCALE: N.T.S.



3 PORTAL FRAME OVER MASONRY BLOCK WALL

SCALE: N.T.S.

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