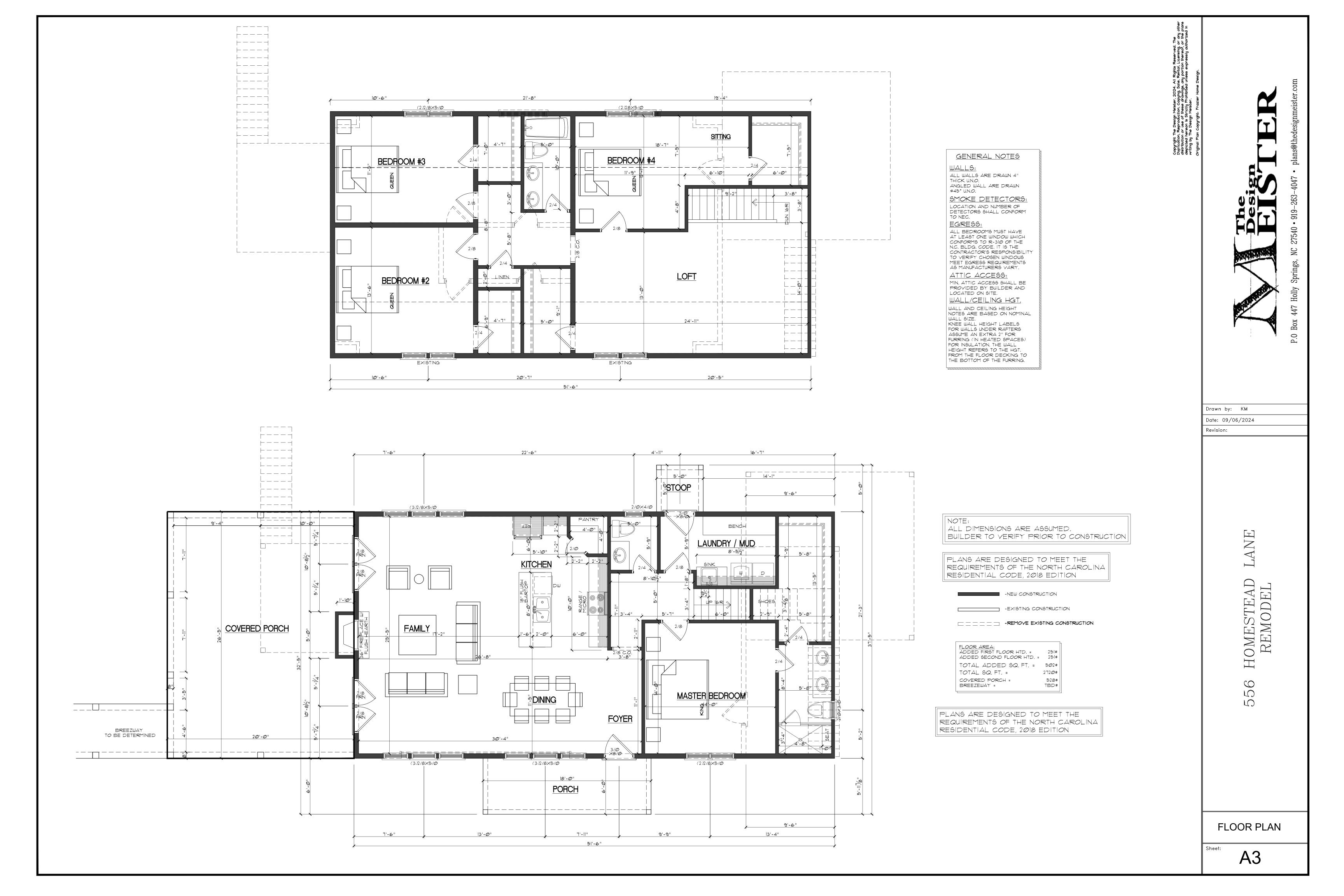
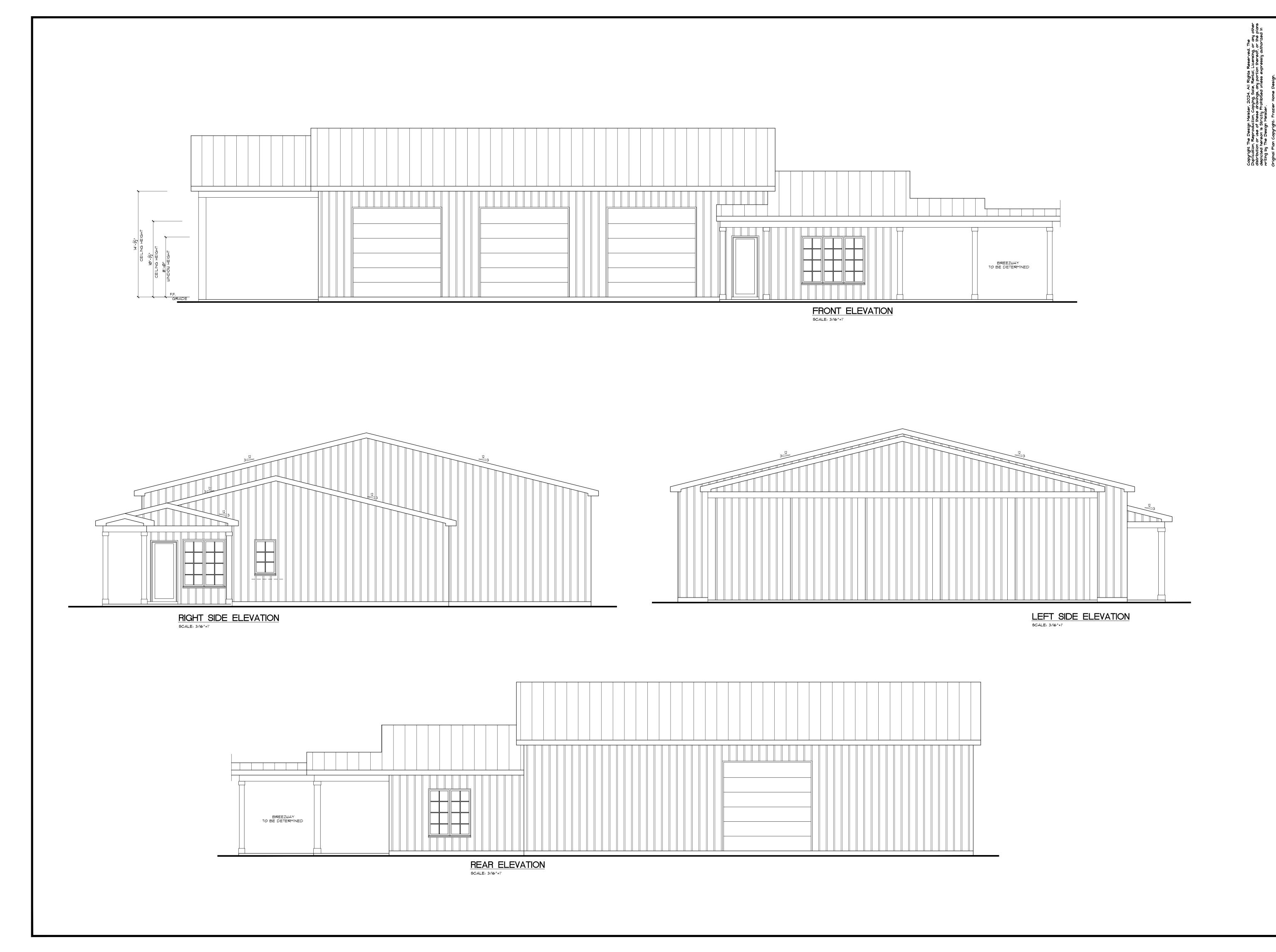


A2





The Design HERE

Drawn by: KM

Date: 09/06/2024

Date: 09/06/20 Revision:

> 556 HOMESTEAD LANE REMODEL

BARN PLAN

Sheet:

**BARN PLAN** 

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A2

#### 1) GENERAL STRUCTURAL NOTES:

- 1.1) THE DESIGN PROFESSIONAL WHOSE SEAL APPEARS ON THESE DRAWINGS IS THE STRUCTURAL ENGINEER OF RECORD (SER) FOR THIS PROJECT. THE SER BEARS RESPONSIBILITY FOR THE STRUCTURAL COMPONENTS INCLUDING RAFTERS, HIPS, VALLEYS, RIDGES, CEILING AND FLOOR JOISTS, LOAD-BEARING WALLS, BEAMS AND HEADERS, COLUMNS AND POSTS, CANTILEVERS, PIERS, GIRDERS, AND FOOTINGS.
- 1.2) THE SER DOES NOT CERTIFY THE DIMENSIONAL ACCURACY OF THE ARCHITECTURAL DRAWINGS, INCLUDING THE ROOF. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE ARCHITECTURAL AND STRUCTURAL DRAWINGS PRIOR TO CONSTRUCTION AND NOTIFY THE SER OF ANY DISCREPANCIES AND/OR INCOMPLETE INFORMATION.
- 1.3) THE SER IS NOT RESPONSIBLE FOR I—JOIST AND/OR FLOOR AND ROOF TRUSS DESIGN AND LAYOUT. FLOOR AND ROOF TRUSSES ARE TO BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW FINAL TRUSS DRAWINGS PRIOR TO CONSTRUCTION AND NOTIFY THE SER OF ANY DISCREPANCIES.
- 1.4) THE SER IS NOT RESPONSIBLE FOR VERIFICATION OF ASSUMED FIELD CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ASSUMED FIELD CONDITIONS ARE MET OR EXCEEDED PRIOR TO CONSTRUCTION AND NOTIFY THE SER OF ANY DISCREPANCIES.
- 1.5) THE STRUCTURE IS ONLY STABLE IN ITS COMPLETED FORM. THE CONTRACTOR SHOULD PROVIDE ALL REQUIRED TEMPORARY BRACING DURING CONSTRUCTION TO STABILIZE THE STRUCTURE.
- 1.6) THE SER DOES NOT BEAR RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, NOR SAFETY PRECAUTIONS IN CONNECTION WITH THE CONSTRUCTION OF THIS STRUCTURE. THE SER WILL NOT BE HELD RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- 1.7) ANY ERRORS DUE TO FAILURE TO FOLLOW THE ABOVE PROCEDURES SHALL NOT BE THE RESPONSIBILITY OF THE SER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ANY REVISIONS ISSUED BY THE SER ARE PROMPTLY DISTRIBUTED TO THE SUBCONTRACTORS.
- 1.8) THE SER DOES NOT PERFORM FENESTRATION OR VENTING CALCULATIONS OR ANY OTHER CALCULATIONS
  THAT ARE NOT DIRECTLY RELATED TO THE STRUCTURAL DESIGN. IT IS THE RESPONSIBILITY OF THE
  ARCHITECTURAL DESIGNER AND/OR CONTRACTOR TO PROVIDE ANY REQUIRED CALCULATIONS OUTSIDE OF THE
  SCOPE OF THE STRUCTURAL DESIGN.

#### 2) DESIGN SPECIFICATIONS:

#### 2.1) BUILDING CODES

- 2018 NORTH CAROLINA RESIDENTIAL CODE (NCRC)
- ASCE/SEI 7-10 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"

#### 2.2) DESIGN LIVE LOADS:

- ROOF	20 PSF
- UNINHABITABLE ATTICS WITHOUT STORAGE	10 PSF
- UNINHABITABLE ATTICS WITH LIMITED STORAGE	20 PSF
- HABITABLE ATTICS AND ATTICS SERVED WITH FIXED STAIRS	30 PSF
- SLEEPING AREAS	30 PSF
- LIVING AREAS	40 PSF
- DECKS AND BALCONIES	40 PSF
- STAIRS	40 PSF
- PASSENGER VEHICLE GARAGE	50 PSF
DEGICAL DEAD LOADS	

0.7\	- PASSENGER VEHICLE GARAGE	50 PSF
2.3)	DESIGN DEAD LOADS:	
	- ROOF TRUSSES	20 PSF (10 PSF TC, 10 PSF
	- SOLID SAWN RAFTERS AND JOISTS	10 PSF
	- I-JOISTS	12 PSF
	- FLOOR TRUSSES	15 PSF (10 PSF TC, 5 PSF

	1 001010	12 1 01
	- FLOOR TRUSSES	15 PSF (10 PSF TC, 5 PSF BC)
	- INTERIOR WALLS	8 PSF
	- EXTERIOR WALLS	10 PSF
	- BRICK, MASONRY, AND NATURAL STONE VENEER	40 PSF
	- CERAMIC TILE FLOORING	10 PSF
	<ul> <li>NATURAL STONE TILE FLOORING</li> </ul>	32 PSF
	- NORMAL WEIGHT CONCRETE	145 PCF
2.4)	DESIGN SNOW LOADS:	
	- GROUND SNOW LOAD	20 PSF
2.5)	DESIGN LATERAL LOADS AND CRITERIA:	
	- ULTIMATE WIND SPEED	120 MPH

	<ul><li>WIND EXPOSURE</li></ul>	В
	- DESIGN WIND PRESSURE	20 PSF
	- SEISMIC DESIGN CATEGORY	В
2.6)	DESIGN SOIL LOADS:	
	<ul> <li>SOIL BEARING CAPACITY</li> </ul>	2000 PSF (MINIMUM, ASSUMED)

2.7)	DESIGN DEFLECTION LIMITS:		,
		LIVE LOAD	TOTAL LOAD
	- ROOF TRUSSES	L/360	L/240
	- SOLID SAWN RAFTERS	L/240	L/180
	- SOLID SAWN CEILING JOISTS	L/240	L/180
	- I-JOISTS AND FLOOR TRUSSES	L/480	L/240
	- SOLID SAWN FLOOR JOISTS	L/360	L/240
	- BEAMS AND HEADERS	L/360	L/240
	- FRAMING SUPPORTING CERAMIC TILE		L/360
	- FRAMING SUPPORTING NATURAL STONE TILE		$L/720 \left(\frac{7}{32}^{"} MAX\right)$
	- LINTELS AND FRAMING SUPPORTING BRICK OR MASONR	Υ	$L/600 \left(\frac{9}{32}\text{ MAX}\right)$

45 PCF (MAXIMUM, ASSUMED)

## 3) FOOTING AND FOUNDATION NOTES:

- LATERAL SOIL PRESSURE

- 3.1) FOUNDATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 4 OF THE 2018 NCRC.
- 3.1) VERIFICATION OF THE ASSUMED SOIL BEARING CAPACITY IS THE RESPONSIBILITY OF THE CONTRACTOR.

  CONCRETE FOOTINGS SHALL NOT BE PLACED UNTIL THE SOIL BEARING CAPACITY HAS BEEN VERIFIED BY A

  QUALIFIED GEOTECHNICAL ENGINEER OR BUILDING INSPECTOR. CONSULT THE SER SHOULD THE SOIL BEARING

  CAPACITY NOT BE MET OR IF ANY OTHER ADVERSE SOIL CONDITION IS ENCOUNTERED.
- THE BOTTOM OF ALL FOOTINGS SHALL EXTEND A MINIMUM OF 12" BELOW GRADE OR BELOW THE FROST LINE FOR THE CONSTRUCTION LOCATION, WHICHEVER IS GREATER.
- 3.3) ANY COMPACTED FILL SHALL BE PLACED UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER.

  THE RESULTING SOIL SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY.
- 5.4) FOOTINGS SHALL BE FREE OF VEGETATION, TOPSOIL, AND FOREIGN MATERIAL. NO CONCRETE SHALL BE PLACED AGAINST ANY SUBGRADE CONTAINING WATER, ICE, FROST, OR LOOSE MATERIAL.

- 3.5) FOOTINGS SUPPORTING FOUNDATION WALLS SHALL HAVE A MINIMUM PROJECTION OF 2" AT ALL SIDES.

  MAXIMUM FOOTING PROJECTION AT FOUNDATION WALLS SHALL NOT EXCEED THE THICKNESS OF THE FOOTING.
- 3.6) WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH 1/2" DIA ANCHOR BOLTS WITH MINIMUM 7" EMBEDMENT INTO CONCRETE OR SOLID-GROUTED MASONRY SPACED A MAXIMUM OF 6'-0" O.C. UNLESS NOTED OTHERWISE. PROVIDE A MINIMUM OF TWO ANCHOR BOLTS PER PLATE SECTION AND ONE ANCHOR BOLT WITHIN 12" OF EACH CORNER UNLESS NOTED OTHERWISE. ANCHOR BOLTS SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THE SILL PLATE.
- 3.7) FOUNDATION WALLS MAY BE STEPPED AND FRAMED WITH CRIPPLE WALLS WHERE GRADE PERMITS (SEE NOTE 7.14 FOR WALL FRAMING REQUIREMENTS).
- 3.8) PROVIDE FOUNDATION WATERPROOFING AND AND DRAIN WITH POSITIVE SLOPE TO DAYLIGHT AS REQUIRED BY SITE CONDITIONS.
- 3.9) THE SITE SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL A MINIMUM OF 6" WITHIN THE FIRST TEN FEET.
- 3.10) CRAWL SPACES SHALL BE GRADED LEVEL AND CLEAR OF ALL DEBRIS. CRAWL SPACE GRADE SHALL BE LINED WITH MINIMUM 6 MIL APPROVED VAPOR BARRIER WITH ALL JOINTS LAPPED MINIMUM 12" AND SEALED. PROVIDE A MINIMUM ACCESS OPENING MEASURING 18" BY 24".

#### 4) CONCRETE NOTES:

- 4.1) INTERIOR SLABS ON GRADE, EXCEPT FOR GARAGE FLOORS, AND FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS. FOUNDATION WALLS, GARAGE SLABS ON GRADE, AND EXTERIOR SLABS ON GRADE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. ALL CONCRETE SHALL BE CAST IN PLACE.
- 4.2) CONCRETE SHALL BE PROPORTIONED, MIXED, AND PLACED IN ACCORDANCE WITH THE LATEST EDITIONS OF ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND AC1 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
- 4.3) ALL CONCRETE EXPOSED TO FREEZE/THAW CYCLES SHALL BE AIR ENTRAINED WITH TOTAL AIR VOLUME NOT LESS THAN 5% OR MORE THAN 7%.
- 4.4) CONCRETE SLABS ON GRADE SHALL BE MINIMUM 4" THICK AND REINFORCED WITH POLYPROPYLENE FIBERS OR 6x6 WELDED WIRE FABRIC (WWF). POLYPROPYLENE FIBERS SHALL BE APPLIED AT A MINIMUM RATE OF 1.5 LBS PER CUBIC YARD. WWF SHALL BE PLACED AT THE MID—DEPTH OF THE SLAB.
- 4.5) CONCRETE SLABS ON GRADE SHALL BE PLACED ON MINIMUM 4" THICK GRANULAR FILL COMPACTED TO MINIMUM 95% OF THE MAXIMUM DRY DENSITY. INTERIOR SLABS ARE TO BE PLACED ON A MINIMUM 6 MIL VAPOR BARRIER PLACED ON TOP OF THE GRANULAR FILL.
- 4.6)  $\frac{3}{4}$ " TO 1" DEEP CONTROL JOINTS (SAW-CUT OR TOOLED) ARE TO BE PLACED IN SLABS ON GRADE WITHIN 4 TO 12 HOURS OF CONCRETE FINISHING. CONTROL JOINTS ARE TO BE SPACED 8'-0" TO 12'-0" O.C.
- 4.7) ALL CAST-IN-PLACE CONCRETE WALLS SHALL CONFORM TO SECTIONS R404 AND/OR R608 OF THE 2018 NCRC, ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND/OR ACI 332 "CODE REQUIREMENTS FOR RESIDENTIAL CONCRETE".

#### 5) MASONRY NOTES:

- 5.1) CONCRETE MASONRY SHALL CONFORM TO ASTM C90. ALL BRICK SHALL CONFORM TO ASTM C62. ALL MASONRY SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.
- 5.2) ALL MORTAR SHALL BE TYPE "S". GROUT AND MORTAR SHALL CONFORM TO ASTM C270 AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.
- 5.3) ALL MASONRY WALLS SHALL CONFORM TO SECTION SECTIONS R404 AND/OR R606 OF THE 2018 NCRC, NCMA TR68-A "CONSTRUCTION USING CONCRETE MASONRY", AND/OR ACE 530/ASCE 5/TMS 402 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES".
- 5.4) THE UNSUPPORTED HEIGHT OF UNGROUTED HOLLOW MASONRY PIERS SHALL NOT EXCEED FOUR TIMES THEIR LEAST DIMENSION. THE UNSUPPORTED HEIGHT OF SOLID OR SOLID-GROUTED MASONRY PIERS SHALL NOT EXCEED TEN TIMES THEIR LEAST DIMENSION.

  5.5) EACH CRAWL SPACE PIER SHALL BEAR WITHIN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING AND EACH
- GIRDER SHALL BEAR WITHIN THE MIDDLE THIRD OF THE PIERS. PILASTERS SHALL BE BONDED TO THE PERIMETER FOUNDATION WALL.

  5.6) THE TOP COURSE OF MASONRY SHALL BE GROUTED SOLID. ALL CELLS CONTAINING REINFORCING STEEL OR
- EMBEDDED ITEMS SHALL BE GROUTED SOLID.

  5.7) HORIZONTAL WALL JOINT REINFORCEMENT SHALL BE STANDARD 9 GAUGE GALVANIZED LADDER OR TRUSS
  TYPE SPACED AT 16" O.C. MAXIMUM, UNLESS NOTED OTHERWISE ON THE DRAWINGS, AND SHALL CONFORM
  TO ASTM A951. LAP HORIZONTAL REINFORCEMENT MINIMUM 6" FOR CONTINUOUS WALL APPLICATIONS.

# 6) REINFORCING STEEL NOTES:

- 6.1) WELDED WIRE FABRIC SHALL CONFORM TO ASTM 185. CONCRETE REINFORCING STEEL SHALL CONFORM TO ASTM 615, GRADE 60. REINFORCING STEEL WITHIN FOOTINGS SHALL MAINTAIN MINIMUM 3" CONCRETE COVER AND REINFORCING STEEL WITHIN SLABS SHALL MAINTAIN MINIMUM 1  $\frac{1}{2}$ " CONCRETE COVER. CONCRETE COVER FOR #5 AND SMALLER REINFORCING BARS WITHIN CONCRETE WALLS SHALL BE MINIMUM 1  $\frac{1}{2}$ " AND CONCRETE COVER FOR #6 AND LARGER REINFORCING BARS WITHIN CONCRETE WALLS SHALL BE MINIMUM 2".
- 6.2) LAP REINFORCING STEEL, AS REQUIRED, A MINIMUM OF 48 TIMES THE BAR DIAMETER (18" FOR #3 BARS, 24" FOR #4 BARS, 30" FOR #5 BARS, 36" FOR #6 BARS, ETC.).

# 7) WOOD FRAMING NOTES:

- 7.1) SOLID SAWN FRAMING MEMBERS SHALL BE SPRUCE-PINE-FIR (SPF) #2 OR SOUTHERN YELLOW PINE (SYP) #2 WITH THE FOLLOWING MINIMUM DESIGN VALUES:
  - SPF #2: Fb=875 PSI, Fv=135 PSI, E=1,400,000 PSI - SYP #2: Fb=750 PSI, Fv=175 PSI, E=1,400,000 PSI
- 7.2) ENGINEERED LUMBER BEAMS SHALL HAVE THE FOLLOWING MINIMUM DESIGN VALUES:
  - LAMINATED STRAND LUMBER (LSL): Fb=2,325 PSI, Fv=310 PSI, E=1,550,000 PSI
- LAMINATED VENEER LUMBER (LVL): Fb=2,600 PSI, Fv=285 PSI, E=2,000,000 PSI PARALLEL STRAND LUMBER (PSL): Fb=2,900 PSI, Fv=290 PSI, E=2,000,000 PSI
- 7.3) ENGINEERED LUMBER COLUMNS SHALL HAVE THE FOLLOWING MINIMUM DESIGN VALUES:

   LAMINATED STRAND LUMBER (LSL): Fb=1,700 PSI, Fc=710 PSI, E=1,300,000 PSI
- LAMINATED VENEER LUMBER (LVL): Fb=2,600 PSI, Fc=750 PSI, E=2,000,000 PSI
- PARALLEL STRAND LUMBER (PSL): Fb=2,400 PSI, Fc=545 PSI, E=1,800,000 PSI

  7.4) WOOD IN CONTACT WITH THE GROUND, CONCRETE, OR MASONRY SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD C-15. ALL OTHER MOISTURE EXPOSED LUMBER SHALL BE TREATED IN ACCORDANCE WITH AWPA STANDARD C-2 OR SHALL BE A NATURALLY DURABLE DECAY RESISTANT WOOD AS
- DEFINED IN SECTION R202 OF THE 2018 NCRC.
  7.5) NAILS SHALL BE COMMON WIRE NAILS UNLESS NOTED OTHERWISE AND SHALL CONFORM TO ASTM F1667-05.

- 7.6) BOLTS SHALL CONFORM TO ASTM A307 UNLESS NOTED OTHERWISE. INSTALL STANDARD STEEL WASHERS FOR THE NUT AND BOLT HEAD WHEN BOLTING WOOD MEMBERS. HOLES FOR BOLTS SHALL BE  $\frac{1}{16}$ " LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
- 7.7) LAG SCREWS SHALL CONFORM TO ANSI/ASME B18.2.1. INSTALL STANDARD STEEL WASHERS FOR THE SCREW HEAD. PILOT HOLES SHALL BE USED FOR LAG SCREW INSTALLATION AND SHALL BE BORED ACCORDING TO NDS SPECIFICATIONS.
- 7.8) INDIVIDUAL STUDS BUILT UP TO FORM A COLUMN SHALL BE FASTENED WITH (2) ROWS OF 10d NAILS @ 6"

  O.C. STAGGERED. BLOCKING MATCHING OR EXCEEDING THE WIDTH OF THE STUD COLUMN SHALL BE INSTALLED AT ALL FLOOR LEVELS TO ENSURE PROPER LOAD TRANSFER THROUGH THE STRUCTURE.
- 7.9) MULTI-PLY SOLID SAWN BEAMS AND HEADERS SHALL BE FASTENED WITH (2) ROWS OF 10d NAILS @ 16"

  O.C. STAGGERED FOR 2x8 AND SMALLER OR (3) ROWS OF 10d NAILS @ 16" O.C. STAGGERED FOR 2x10 AND LARGER. APPLY NAILING FROM BOTH FACES FOR (3) OR MORE PLIES.
- 7.10) MULTI-PLY ENGINEERED LUMBER BEAMS AND HEADERS SHALL BE FASTENED PER THE MANUFACTURER SPECIFICATIONS UNLESS NOTED OTHERWISE.
- 7.11) BEAMS PERPENDICULAR TO THE SUPPORTING WALL SHALL BEAR THE FULL WIDTH OF THE WALL UNLESS NOTED OTHERWISE AND SHALL BE SUPPORTED BY A COLUMN OF BUILT UP STUDS THAT MATCHES OR EXCEEDS THE WIDTH OF THE BEAM (NOT LESS THAN TWO STUDS).
- 7.12) BEAMS PARALLEL TO THE SUPPORTING WALL SHALL BEAR THE WIDTH OF THE SPECIFIED STUD COLUMN ON THE END OF THE WALL (BEARING SHALL NOT BE LESS THAN 3" TO BEAR OVER TWO STUDS UNLESS NOTED OTHERWISE).
- 7.13) HEADERS SHALL BE SUPPORTED BY JACK STUDS AND KING STUDS BASED ON THE FOLLOWING CONDITIONS UNLESS NOTED OTHERWISE:

CLEAR SPAN:	# OF JACK STUDS:	# OF KING STUDS (EXTERIOR):	# OF KING STUDS (INTERIOR):
UP TO 3'-0"	(1)	(1)	(1)
>3'-0" TO 6'-0"	(2)	(2)	(1)
>6'-0" TO 9'-0"	(2)	(3)	(2)
>9'-0" TO 12'-0"	(3)	(4)	(2)
>12'-0" TO 15'-0"	(3)	(5)	(3)
>15'-0" TO 18'-0"	(4)	(6)	(3)

7.14) STUD SPACING FOR EXTERIOR AND INTERIOR BEARING WALLS SHALL BE BASED ON THE FOLLOWING CONDITIONS UNLESS NOTED OTHERWISE:

UPPORTING UP TO ONE STORY ABOVE:	
UP TO 10'-1 ½" IN HEIGHT	2x4 @ 16" O.C. OR 2x6 @ 24" O.C.
>10'-1 ½" UP TO 12'-1 ½"	2x4 @ 12" O.C. OR 2x6 @ 16" O.C.
UPPORTING UP TO TWO STORIES ABOVE:	
UP TO 10'-1 ½" IN HEIGHT	2x4 @ 12" O.C. OR 2x6 @ 16" O.C.

- > 10'-1  $\frac{1}{2}$ " UP TO 12'-1  $\frac{1}{2}$ " 2x6 @ 12" O.C.

  7.15) ALL EXTERIOR WALLS TO BE FULLY SHEATHED WITH  $\frac{7}{16}$ " APA RATED OSB EXPOSURE 1 ATTACHED WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNLESS NOTED OTHERWISE.
- 7.16) ROOF SHEATHING SHALL BE MINIMUM  $\frac{7}{16}$ " APA RATED OSB EXPOSURE 1 ATTACHED TO ROOF FRAMING WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNLESS NOTED OTHERWISE. SHEATHING SHALL HAVE A SPAN RATING THAT MATCHES OR EXCEEDS THE FRAMING SPACING.
- 7.17) FLOOR SHEATHING SHALL BE MINIMUM \(\frac{23}{52}\) APA RATED TONGUE AND GROOVE OSB EXPOSURE 1 ATTACHED TO FLOOR FRAMING WITH 8d NAILS \(\text{@ 6}\) O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNLESS NOTED OTHERWISE. SHEATHING SHALL HAVE A SPAN RATING THAT MATCHES OR EXCEEDS THE FRAMING
- 7.18) EXTERIOR WOOD DECKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPENDIX M OF THE 2018 NCRC UNLESS NOTED OTHERWISE.
- 7.19) EXTERIOR WOOD POSTS SHALL BE SECURED TO THE BAND AT THE BOTTOM AND BEAM AT THE TOP WITH (1) SIMPSON STRONG—TIE H6 HURRICANE TIE, (2) H2.5A HURRICANE TIES, OR (1) SECTION OF CS16 COIL STRAPPING WITH MINIMUM 9" END LENGTHS. FOR MASONRY OR CONCRETE FOUNDATIONS, SECURE POSTS AT THE BOTTOM WITH A SIMPSON STRONG—TIE ABU POST BASE FOR THE SPECIFIED POST SIZE.

# 8) STEEL FRAMING NOTES:

- 8.1) STEEL FRAMING SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:
- W SHAPES ASTM A992

   CHANNELS AND ANGLES ASTM A36

   PLATES AND BARS ASTM A36

   HOLLOW STRUCTURAL SECTIONS (HSS) ASTM A500, GRADE B
- PIPES ASTM A53, GRADE B, TYPE E OR S

  8.2) STEEL BEAMS SHALL BE ANCHORED AT THE BOTTOM FLANGE TO EACH SUPPORT AS FOLLOWS UNLESS
- NOTED OTHERWISE:

   WOOD FRAMING

  (2) ½" DIAMETER x 4" LONG LAG SCREWS

   CONCRETE

  (2) ½" DIAMETER x 4" LONG SST TITEN HD (OR EQUAL) SCREW ANCHORS
- MASONRY (GROUTED SOLID) (2) ½" DIAMETER x 4" LONG SST TITEN HD (OR EQUAL) SCREW ANCHORS
   STEEL COLUMN (2) ½" DIAMETER BOLTS OR 36" CONTINUOUS FILLET WELD

  8.3) ATTACH A 2x NAILER TO THE TOP FLANGE OF STEEL BEAMS w/ (2) ROWS OF ½" DIAMETER CARRIAGE BOLTS
- 8.3) ATTACH A 2x NAILER TO THE TOP FLANGE OF STEEL BEAMS W/ (2) ROWS OF ½ DIAMETER CARRIAGE BOL

  9 48" O.C. STAGGERED UNLESS NOTED OTHERWISE.
- 8.4) FLITCH BEAMS SHALL BE BOLTED WITH (2) ROWS OF  $\frac{1}{2}$  DIAMETER BOLTS @ 16" O.C. STAGGERED.

# 9) SUPPORT OF MASONRY OR NATURAL STONE VENEER:

9.1) VENEER ABOVE OPENINGS SHALL BE SUPPORTED BY STEEL ANGLES AS FOLLOWS UNLESS NOTED OTHERWISE:

CLEAR SPAN: SIZE OF STEEL ANGLE: UP TO 3'-0" L3x3x $\frac{1}{4}$  >3'-0" UP TO 6'-0" L5x3  $\frac{1}{2}$ x $\frac{5}{16}$  (LONG LEG VERTICAL) >6'-0" UP TO 8'-0" L6x4x $\frac{1}{16}$  (LONG LEG VERTICAL)

3"x3"x4" STEEL PLATE STOPS @ 24" O.C. TO STEEL ANGLE.

- 9.2) VENEER ABOVE OPENINGS WITH A CLEAR SPAN EXCEEDING 8'-0" SHALL BE SUPPORTED BY A  $6x4x\frac{5}{16}$  STEEL ANGLE FASTENED TO THE HEADER WITH (2) ROWS OF  $\frac{1}{2}$ " DIAMETER x 3" LONG LAG SCREWS @ 16" O.C. UNLESS NOTED OTHERWISE.
- 9.3) STEEL ANGLES SHALL BE EMBEDDED MINIMUM 4" INTO THE VENEER AT EACH SIDE OF THE OPENING.

  9.4) VENEER ABOVE ROOF LINES SHALL BE SUPPORTED BY AN L6x4x<sup>5</sup>/<sub>16</sub> STEEL ANGLE FASTENED TO (2) 2x10

  BLOCKING w/ (2) ROWS OF ½" DIAMETER x 3" LONG LAG SCREWS @ 16" O.C. BLOCKING TO BE FASTENED TO WALL STUDS AT EACH END WITH (4) 10d TOE NAILS PER PLY. FOR ROOF SLOPES EXCEEDING 7:12, WELD

# COMMON ABBREVIATIONS

AFF ALT ARCH BRG BTM CIP CLR CMU CONC CONN CONT DBL DIA DJ DSP EA	ABOVE FINISHED FLOOR ALTERNATE ARCHITECTURAL BEARING BOTTOM CAST—IN—PLACE CLEAR CONCRETE MASONRY UNIT CONCRETE CONNECTION CONTINUOUS DOUBLE DIAMETER DOUBLE JOIST DOUBLE STUD POCKET EACH	PSI PSL PT QJ REINF	MAXIMUM MANUFACTURER MINIMUM NOT TO SCALE ON CENTER POUNDS PER CUBIC FOOT POUNDS PER LINEAR FOOT POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH PARALLEL STRAND LUMBER PRESSURE TREATED QUADRUPLE JOIST REINFORCE STRUCTURAL ENGINEER OF RECORD SQUARE FEET SINGLE JOIST
FTG GA	FOOTING GAUGE	SST SYP	SIMPSON STRONG-TIE SOUTHERN YELLOW PINE
HDG HDR HGR HORIZ ICF INFO LBS LSL LVL	HOT-DIPPED GALVANIZED HEADER HANGER HORIZONTAL INSULATED CONCRETE FORMS INFORMATION POUNDS LAMINATED STRAND LUMBER LAMINATED VENEER LUMBER	W/ WWF	TRIPLE JOIST TRIPLE TRIPLE STUD POCKET TYPICAL UNLESS NOTED OTHERWISE VERTICAL WITH WELDED WIRE FABRIC
		W/	WITH

# LEGEND

<b>(</b> #)	STUD COLUMN AT POINT LOADS THAT REQUIRES SOLID BLOCKING TO GIRDER OR FOUNDATION (#) DENOTES NUMBER OF STUDS. (2) STUDS REQUIRED IF NOT SPECIFIED
	OFFSET POINT LOAD FROM ABOVE TO BE SUPPORTED BY GIRDER, BEAM, HEADER, JOIST, OR BLOCKING AS SPECIFIED

•	BLOCKING AS SPECIFIED
***************************************	BEARING WALL
====	OFFSET BEARING WALL ABOVE
	BEAM, GIRDER, OR HEADER AS SPECIFIED
	JOIST, RAFTER, OR TRUSS AS SPECIFIED
	MECHANICAL FASTENER (REFER TO SCHEDULE BELOW)
7/1/////	FULL HEIGHT MASONRY OR NATURAL STONE VENEER
	MASONRY OR NATURAL STONE VENEER WATERTABLE BELOW
0 0	PLUMBING OR APPLIANCES ABOVE (FOR REFERENCE ONLY, REFER TO ARCHITECTURAL PLANS)

PLUMBING OR APPLIANCES ABOVE (FOR REFERENCE ONLY, REFER 1	ГО
SOLID GROUTED MASONRY	

# === ROOF SUPPORT BELOW

# MECHANICAL FASTENERS ALLOWABLE I-JOIST SUBSTITUTIONS

BEAM SIZE:	FASTENER:	SPECIFIED SERIES:	EQUIVALENT SERIES:
(2)-2x6 OR (2)-2x8	LUS26-2	TJI 110	BCI 4500s 1.8
(2)-2x10 OR (2)-2x12 (1)-PLY LSL OR LVL (2)-PLY LSL OR LVL	LUS210-2 HUS1.81/10 HHUS410	TJI 210	BCI 5000s 1.8, BLI 40, LPI 20PLUS, NI-40x
(3)-PLY LSL OR LVL (4)-PLY LSL OR LVL	HHUS5.50/10 HHUS7.25/10	TJI 230	BCI 6000s 1.8, LPI 32PLUS
NOTES:		TJI 360	BCI 60s 2.0, BLI 60, LPI 36, NI-60
BASED ON THIS SI OTHERWISE.	ENERS TO BE INSTALLED CHEDULE UNLESS NOTED CHANICAL FASTENERS ARE	TJI 560	BCI 90s 2.0, BLI 80, LPI 56, NI-80
- ALL SPECIFIED ME	CHANICAL LASTENERS ARE		·

SIMPSON STRONG—TIE BRAND. OTHER BRAND
FASTENERS WITH EQUIVALENT OR BETTER
CAPACITY MAY BE SUBSTITUTED.

ALL MECHANICAL FASTENERS IN CONTACT
WITH PRESSURE TREATED LUMBER SHALL BE
HOT—DIPPED GALVANIZED OR EQUIVALENT
CORROSIVE RESISTANT COATING.

MAINTAIN SPECIFIED JOIST DEPTH, DIRECTION, AND SPACING.
 JOISTS NOT LISTED IN THIS SCHEDULE MAY BE SUBSTITUTED PROVIDED THEY MEET OR EXCEED THE PROPERTIES OF THOSE LISTED.

Digitally signed by Zachary H. Hayes, PE Date: 2024.12.31

RUCION SPRING, NC 27592

NC FIRM LICENSE NO.:
11 EDDIE HOWARD ROAD | WILLOV ZACH@HAYESSTRUCTURAL.COM

XISTING BARN REMODEL

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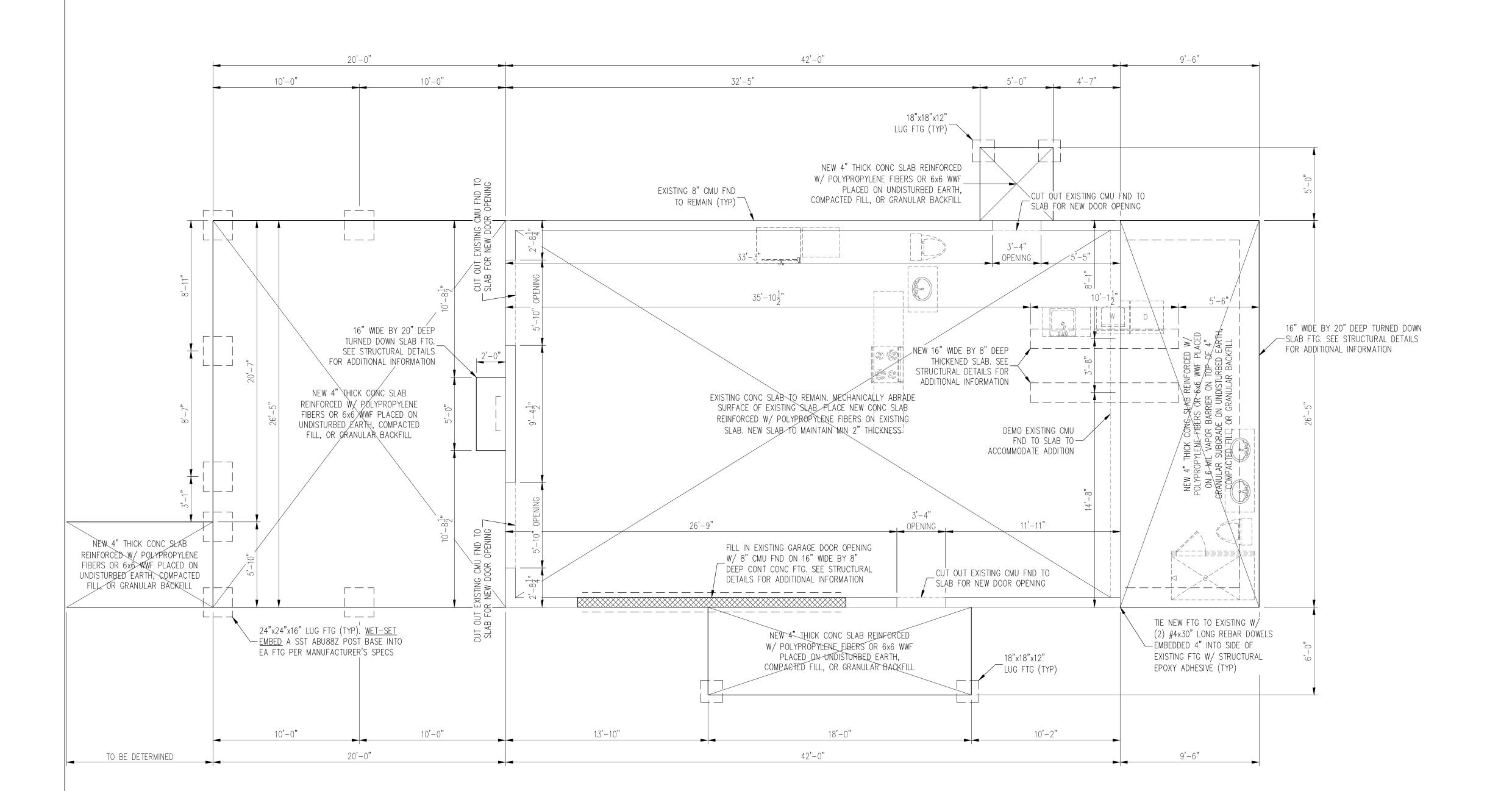
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PROJECT NO.: 24-TDM-034

DATE: DECEMBER 31, 2024

SCALE: NOT TO SCALE

SHEET: STANDARD STRUCTURAL NOTES



#### MONOLITHIC SLAB FOUNDATION NOTES:

THE BOTTOM OF NEW FOOTINGS SHALL EXTEND A MINIMUM OF 12" BELOW GRADE OR BELOW THE FROST LINE, WHICHEVER IS GREATER.

NEW FOOTINGS TO BE EXCAVATED TO FIRM SOIL WITH A MINIMUM REQUIRED BEARING CAPACITY OF 2,000 PSF. CONSULT THE SER SHOULD THE SOIL BEARING CAPACITY NOT BE MET OR IF ANY OTHER ADVERSE SOIL CONDITION IS ENCOUNTERED. . REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

# LEGEND



NEW PLUMBING ABOVE (FOR REFERENCE ONLY, REFER TO ARCH PLANS)



by Zachary H. Hayes, PE Date: 2024.12.31

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HAYES STRUCTURAL Consulting & Design, PLLC

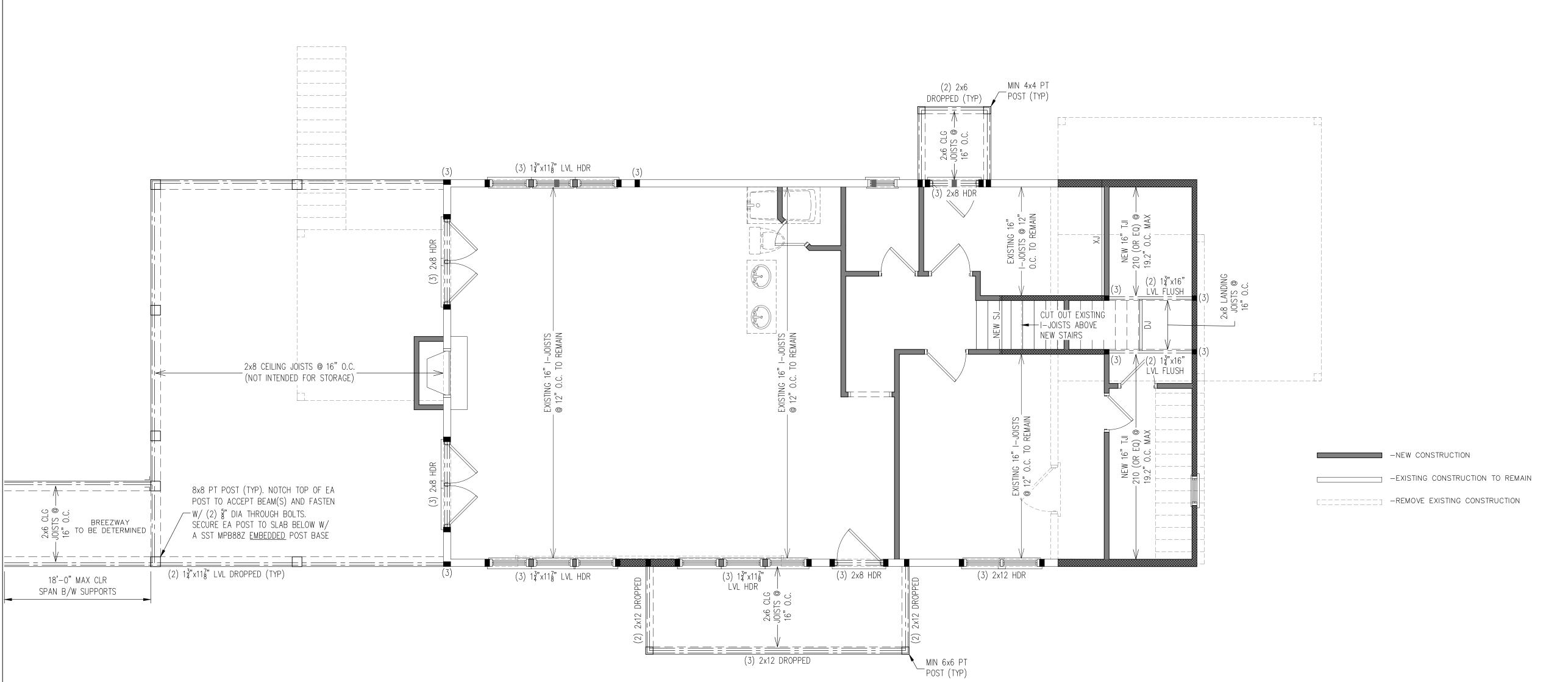
REMODE LANE 556 HOMESTEAD L ANGIER, NC 275 BARN **EXISTING** 

PROJECT NO.: 24-TDM-034

DATE: DECEMBER 31, 2024

11x17 PRINT SCALE: ½" = 1'-0" (UNO) 24x36 PRINT SCALE: ¼" = 1'-0" (UNO)

SHEET: FOUNDATION PLAN



## FIRST FLOOR FRAMING NOTES:

- 1. NEW SOLID SAWN FRAMING LUMBER TO BE SPF #2 OR SYP #2.
- 2. PROVIDE AN EXTRA JOIST UNDER NEW WALLS
  PARALLEL TO FLOOR JOISTS WHERE NOTED ON THE
  PLAN
- NEW LOAD BEARING HEADERS TO BE (3) 2x6 FOR 2x6 WALLS OR (2) 2x8 FOR 2x4 WALLS UNO.
  NEW HEADERS TO BE SUPPORTED BY JACK STUDS AND KING STUDS PER THE TABLE BELOW UNO.
  NEW EXTERIOR AND INTERIOR LOAD BEARING WALLS TO BE 2x4 @ 16" O.C. OR 2x6 @ 24" O.C. UNO.

6. NEW EXTERIOR WALLS TO BE SHEATHED WITH  $\frac{7}{16}$ 

APA RATED OSB EXPOSURE 1 ATTACHED WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD (UNO) TO SATISFY WALL BRACING REQUIREMENTS PER SECTION R602.10.3 "CONTINUOUS SHEATHING" OF THE 2018 NCRC. EXTERIOR POSTS TO BE SECURED TO BEAM AT TOP WITH (1) SST H6, (2) SST H2.5A, OR (1) SST CS16 STRAP WITH MIN 9" END LENGTHS UNO. SECURE POSTS TO CONCRETE SLAB AT BOTTOM WITH A SST

ABU POST BASE FOR THE SPECIFIED POST SIZE

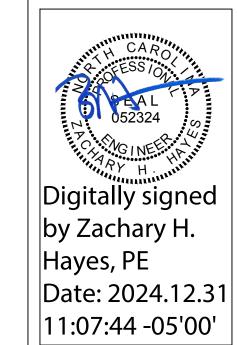
8. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

NEW HEADER SUPPORT							
CLEAR SPAN:	JACK STUDS:	KING STUDS (EXTERIOR):	KING STUDS (INTERIOR):				
UP TO 3'	(1)	(1)	(1)				
>3' TO 6'	(2)	(2)	(1)				
>6' TO 9'	(2)	(3)	(2)				
>9' TO 12'	(3)	(4)	(2)				
>12' TO 15'	(3)	(5)	(3)				
>15' TO 18'	(4)	(6)	(3)				

<u>LEGEND</u>						
<b>■</b> (#)	NEW STUD COLUMN AT POINT LOADS THAT REQUIRES SOLID BLOCKING TO GIRDER OR FOUNDATION. (#) DENOTES NUMBER OF STUDS. (2) STUDS REQUIRED IF NOT SPECIFIED.					
	NEW OFFSET POINT LOAD FROM ABOVE TO BE SUPPORTED BY GIRDER, BEAM, HEADER, JOIST, OR BLOCKING AS SPECIFIED					
	NEW BEARING WALL					
	BEAM, GIRDER, OR HEADER AS SPECIFIED					
	JOIST, RAFTER, OR TRUSS AS SPECIFIED					
L	MECHANICAL FASTENER (REFER TO SCHEDULE ON SHEET S-0)					
978	/					

NEW PLUMBING ABOVE (FOR REFERENCE

ONLY, REFER TO ARCH PLANS)



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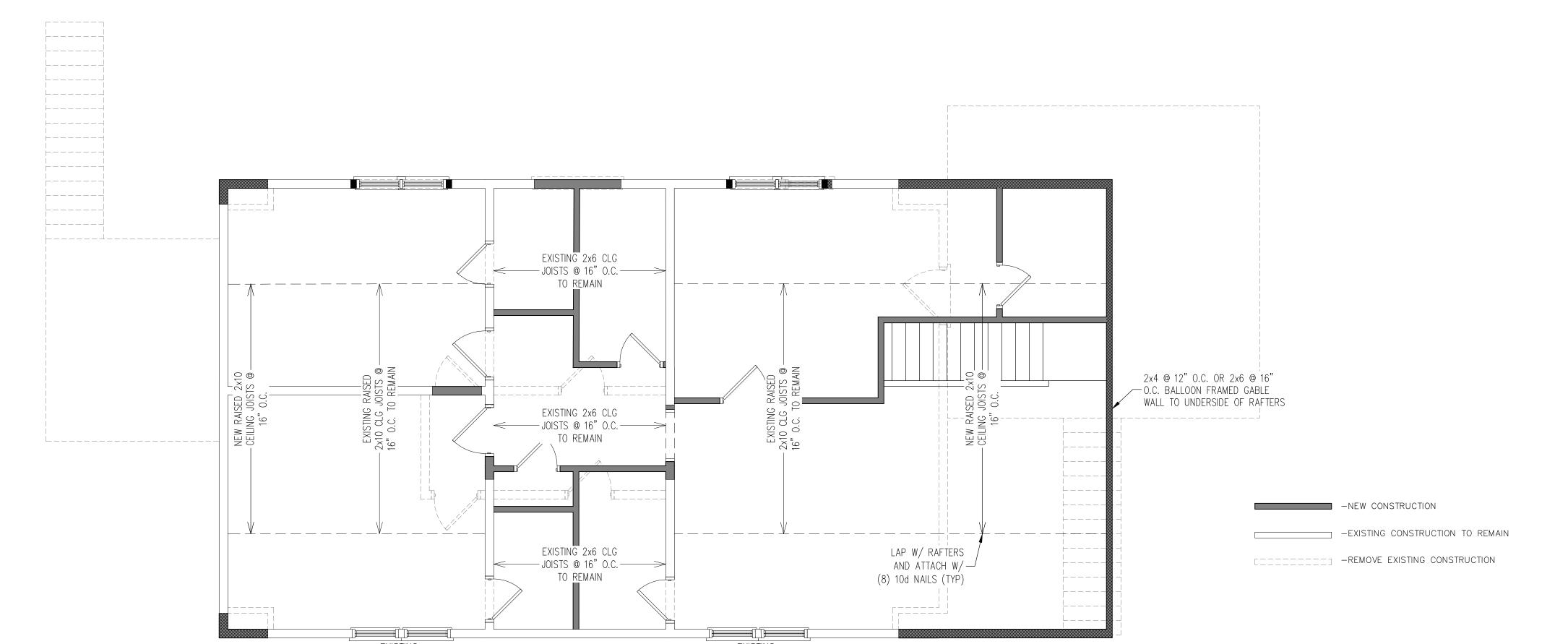
EXISTING BARN REMODEL
556 HOMESTEAD LANE
ANGIER, NC 27501

PROJECT NO.: 24-TDM-034

DATE: DECEMBER 31, 2024

11x17 PRINT SCALE:  $\frac{1}{8}$ " = 1'-0" (UNO) 24x36 PRINT SCALE:  $\frac{1}{4}$ " = 1'-0" (UNO)

SHEET: FIRST FLOOR FRAMING PLAN



# SECOND FLOOR FRAMING NOTES:

- 1. NEW SOLID SAWN FRAMING LUMBER TO BE SPF #2 OR SYP #2.
- . NEW LOAD BEARING HEADERS TO BE (3) 2x6 FOR 2x6 WALLS OR (2) 2x8 FOR 2x4 WALLS UNO. 3. NEW HEADERS TO BE SUPPORTED BY JACK STUDS
- AND KING STUDS PER THE TABLE BELOW UNO. 4. NEW EXTERIOR AND INTERIOR LOAD BEARING WALLS TO BE 2x4 @ 16" O.C. OR 2x6 @ 24" O.C. UNO.
- 5. NEW EXTERIOR WALLS TO BE SHEATHED WITH  $\frac{7}{16}$ " APA RATED OSB EXPOSURE 1 ATTACHED WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD (UNO) TO SATISFY WALL BRACING REQUIREMENTS PER SECTION R602.10.3
- "CONTINUOUS SHEATHING" OF THE 2018 NCRC. 6. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

<u>NEW HEADER SUPPORT</u>							
CLEAR SPAN:	JACK STUDS:	KING STUDS (EXTERIOR):	KING STUDS (INTERIOR):				
UP TO 3'	(1)	(1)	(1)				
>3' TO 6'	(2)	(2)	(1)				
>6' TO 9'	(2)	(3)	(2)				
>9' TO 12'	(3)	(4)	(2)				
>12' TO 15'	(3)	(5)	(3)				
>15' TO 18'	(4)	(6)	(3)				

# <u>LEGEND</u>

<b>(</b> #)	NEW STUD COLUMN AT POINT LOADS T REQUIRES SOLID BLOCKING TO GIRDER FOUNDATION. (#) DENOTES NUMBER OF STUDS. (2) STUDS REQUIRED IF NOT SPECIFIED.
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NEW BEARING WALL

Digitally signed by Zachary H. Hayes, PE Date: 2024.12.31 11:07:57 -05'00'

HAYES STRUCTURAL Consulting & Design, PLLC

EXISTING BARN REMODEL

556 HOMESTEAD LANE ANGIER, NC 27501

PROJECT NO.: 24-TDM-034

DATE: DECEMBER 31, 2024

11x17 PRINT SCALE: ½" = 1'-0" (UNO) 24x36 PRINT SCALE: ½" = 1'-0" (UNO)

EXISTING NEW 2x12 RIDGE 2x12 RIDGE MATCH EXISTING EXISTING 3:12 BREEZWAY TO BE DETERMINED 2x8 RIDGE 3:12 **9 ⊚** 3;:12

ROOF FRAMING NOTES:

1. NEW SOLID SAWN FRAMING LUMBER TO BE SPF #2 OR SYP #2. NEW ROOF SHEATHING TO BE  $\frac{7}{16}$ " MINIMUM APA RATED OSB EXPOSURE 1 ATTACHED TO ROOF FRAMING WITH 8d NAILS @ 6" O.C. ALONG PANEL

EDGES AND 12" O.C. IN PANEL FIELD UNO. SHEATHING SHALL HAVE A SPAN RATING THAT MATCHES OR EXCEEDS THE FRAMING SPACING.

REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

=== ROOF SUPPORT BELOW

<u>LEGEND</u>

BARN REMODEL

**EXISTING** 

Digitally signed by Zachary H.

Date: 2024.12.31

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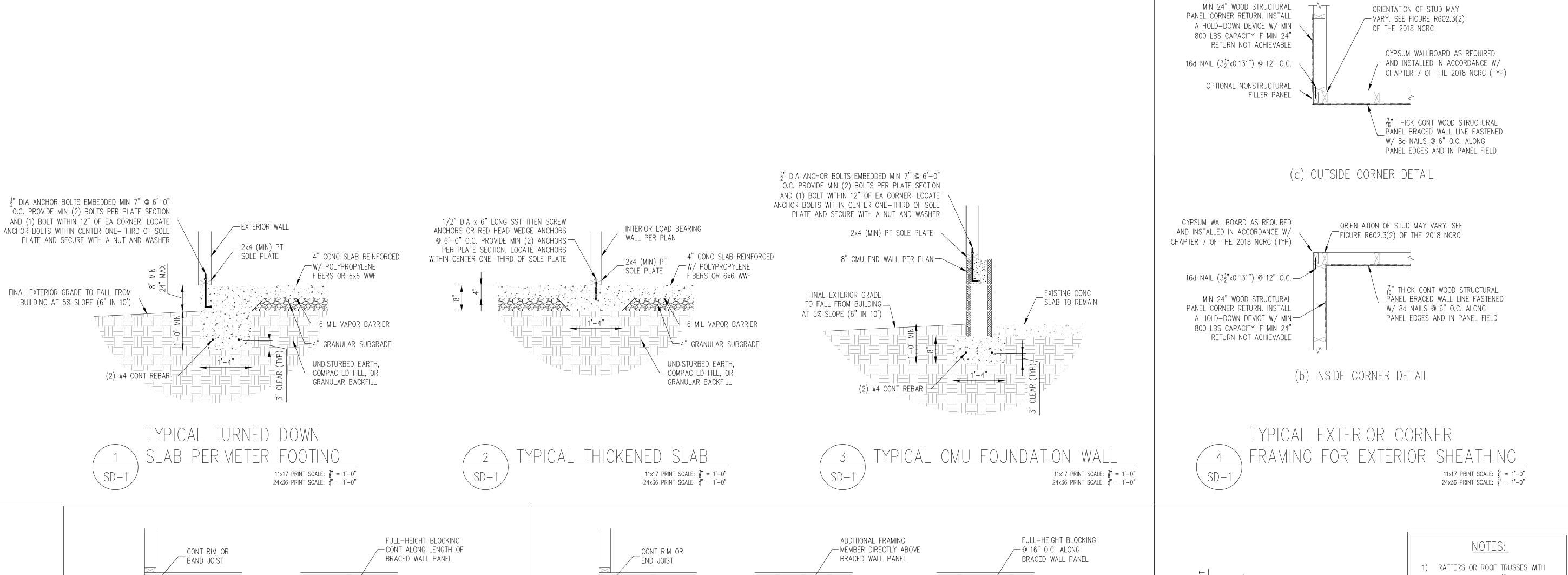
Hayes, PE

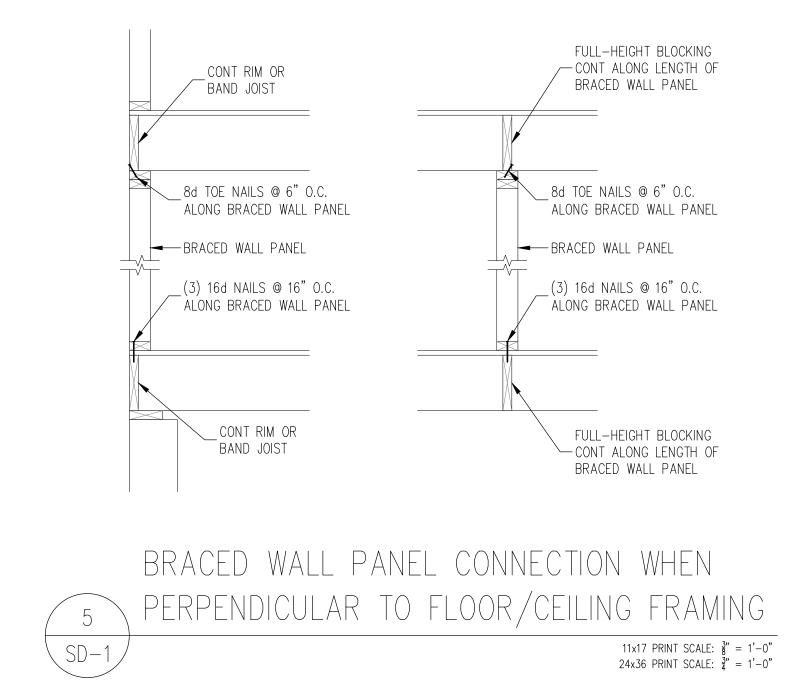
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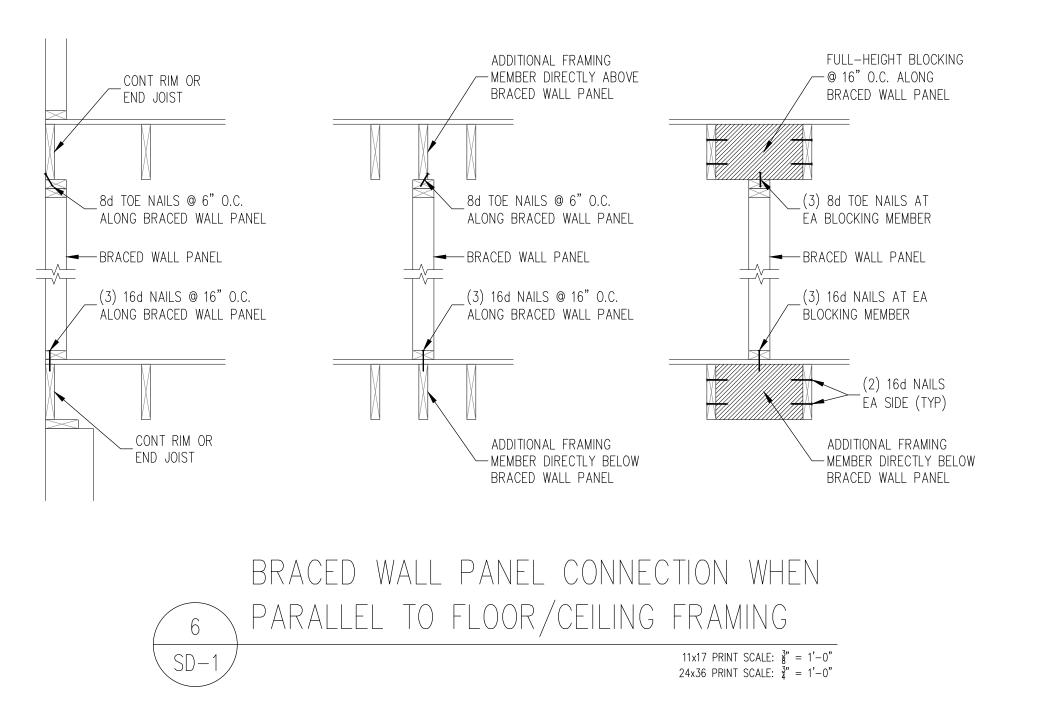
DATE: DECEMBER 31, 2024

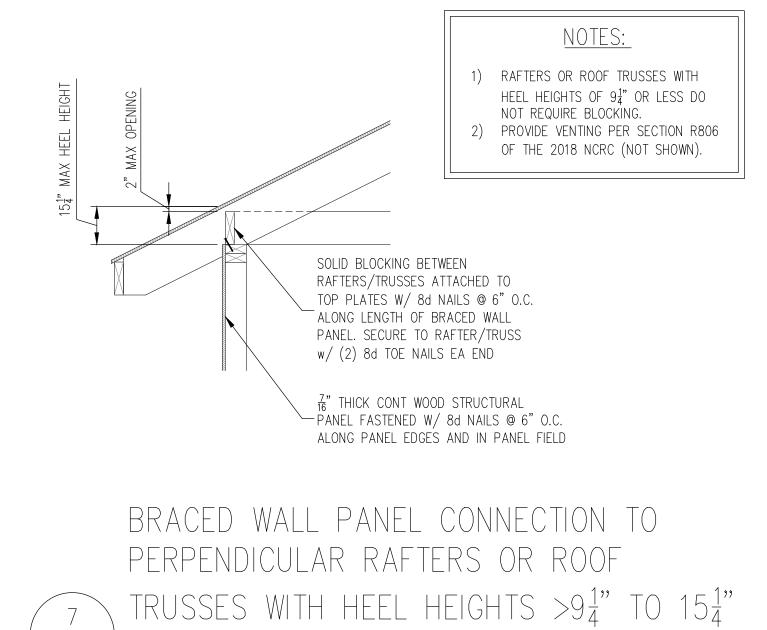
11x17 PRINT SCALE:  $\frac{1}{8}$ " = 1'-0" (UNO) 24x36 PRINT SCALE:  $\frac{1}{4}$ " = 1'-0" (UNO)

SHEET: ROOF FRAMING PLAN









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3 & Design, PLLC

HAYES Consulti

REMODE 556 HOMESTEAD LANE ANGIER, NC 27501 BARN **EXISTING** 

PROJECT NO.: 24-TDM-034

DATE: DECEMBER 31, 2024

11x17 PRINT SCALE:  $\frac{3}{8}$ " = 1'-0" 24x36 PRINT SCALE:  $\frac{3}{4}$ " = 1'-0"

SCALE: AS NOTED SHEET: STRUCTURAL DETAILS

SD-1

#### 1) GENERAL STRUCTURAL NOTES:

- 1.1) THE DESIGN PROFESSIONAL WHOSE SEAL APPEARS ON THESE DRAWINGS IS THE STRUCTURAL ENGINEER OF RECORD (SER) FOR THIS PROJECT. THE SER BEARS RESPONSIBILITY FOR THE STRUCTURAL COMPONENTS INCLUDING RAFTERS, HIPS, VALLEYS, RIDGES, CEILING AND FLOOR JOISTS, LOAD-BEARING WALLS, BEAMS AND HEADERS, COLUMNS AND POSTS, CANTILEVERS, PIERS, GIRDERS, AND FOOTINGS.
- 1.2) THE SER DOES NOT CERTIFY THE DIMENSIONAL ACCURACY OF THE ARCHITECTURAL DRAWINGS, INCLUDING THE ROOF. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE ARCHITECTURAL AND STRUCTURAL DRAWINGS PRIOR TO CONSTRUCTION AND NOTIFY THE SER OF ANY DISCREPANCIES AND/OR INCOMPLETE INFORMATION.
- 1.3) THE SER IS NOT RESPONSIBLE FOR I-JOIST AND/OR FLOOR AND ROOF TRUSS DESIGN AND LAYOUT. FLOOR AND ROOF TRUSSES ARE TO BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW FINAL TRUSS DRAWINGS PRIOR TO CONSTRUCTION AND NOTIFY THE SER OF ANY DISCREPANCIES.
- 1.4) THE SER IS NOT RESPONSIBLE FOR VERIFICATION OF ASSUMED FIELD CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ASSUMED FIELD CONDITIONS ARE MET OR EXCEEDED PRIOR TO CONSTRUCTION AND NOTIFY THE SER OF ANY DISCREPANCIES.
- 1.5) THE STRUCTURE IS ONLY STABLE IN ITS COMPLETED FORM. THE CONTRACTOR SHOULD PROVIDE ALL REQUIRED TEMPORARY BRACING DURING CONSTRUCTION TO STABILIZE THE STRUCTURE.
- 1.6) THE SER DOES NOT BEAR RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, NOR SAFETY PRECAUTIONS IN CONNECTION WITH THE CONSTRUCTION OF THIS STRUCTURE. THE SER WILL NOT BE HELD RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- 1.7) ANY ERRORS DUE TO FAILURE TO FOLLOW THE ABOVE PROCEDURES SHALL NOT BE THE RESPONSIBILITY OF THE SER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ANY REVISIONS ISSUED BY THE SER ARE PROMPTLY DISTRIBUTED TO THE SUBCONTRACTORS.
- 1.8) THE SER DOES NOT PERFORM FENESTRATION OR VENTING CALCULATIONS OR ANY OTHER CALCULATIONS THAT ARE NOT DIRECTLY RELATED TO THE STRUCTURAL DESIGN. IT IS THE RESPONSIBILITY OF THE ARCHITECTURAL DESIGNER AND/OR CONTRACTOR TO PROVIDE ANY REQUIRED CALCULATIONS OUTSIDE OF THE SCOPE OF THE STRUCTURAL DESIGN.

#### 2) DESIGN SPECIFICATIONS:

WIND EXPOSURE

- DESIGN WIND PRESSURE

- 2018 NORTH CAROLINA RESIDENTIAL CODE (NCRC)
- ASCE/SEI 7-10 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"

#### 2.2) DESIGN LIVE LOADS:

- ROOF	20 PSF
- UNINHABITABLE ATTICS WITHOUT STORAGE	10 PSF
- UNINHABITABLE ATTICS WITH LIMITED STORAGE	20 PSF
- HABITABLE ATTICS AND ATTICS SERVED WITH FIXED STAIRS	30 PSF
- SLEEPING AREAS	30 PSF
- LIVING AREAS	40 PSF
- DECKS AND BALCONIES	40 PSF
- STAIRS	40 PSF
– PASSENGER VEHICLE GARAGE	50 PSF
DECICION DE LO LOGO	

- STAIRS	40 PSF
- PASSENGER VEHICLE GARAGE	50 PSF
DESIGN DEAD LOADS:	
- ROOF TRUSSES	20 PSF (10 PSF TC, 10 PSF BC)
- SOLID SAWN RAFTERS AND JOISTS	10 PSF
	<ul><li>PASSENGER VEHICLE GARAGE</li><li>DESIGN DEAD LOADS:</li><li>ROOF TRUSSES</li></ul>

	- 20FID 24MIN KALIEK2 AIND 101212	10 424
	- I-JOISTS	12 PSF
	- FLOOR TRUSSES	15 PSF (10 PSF TC, 5 PSF BC)
	- INTERIOR WALLS	8 PSF
	- EXTERIOR WALLS	10 PSF
	- BRICK, MASONRY, AND NATURAL STONE VENEER	40 PSF
	- CERAMIC TILE FLOORING	10 PSF
	<ul> <li>NATURAL STONE TILE FLOORING</li> </ul>	32 PSF
	- NORMAL WEIGHT CONCRETE	145 PCF
2.4)	DESIGN SNOW LOADS:	
	- GROUND SNOW LOAD	20 PSF
2.5)	DESIGN LATERAL LOADS AND CRITERIA:	
	- ULTIMATE WIND SPEED	120 MPH

	- SEISMIC DESIGN CATEGORY	В
2.6)	DESIGN SOIL LOADS:	
	- SOIL BEARING CAPACITY	2000 PSF (MINIMUM, ASSUMED)
	- LATERAL SOIL PRESSURE	45 PCF (MAXIMUM, ASSUMED)

20 PSF

DESIGN DEFLECTION LIMITS:		
	LIVE LOAD	TOTAL LOAD
- ROOF TRUSSES	L/360	L/240
- SOLID SAWN RAFTERS	L/240	L/180
- SOLID SAWN CEILING JOISTS	L/240	L/180
- I-JOISTS AND FLOOR TRUSSES	L/480	L/240
- SOLID SAWN FLOOR JOISTS	L/360	L/240
- BEAMS AND HEADERS	L/360	L/240
- FRAMING SUPPORTING CERAMIC TILE		L/360
- FRAMING SUPPORTING NATURAL STONE TILE		$L/720 \left(\frac{7}{32}\text{"MAX}\right)$
- LINTELS AND FRAMING SUPPORTING BRICK OR MASONRY		$L/600 \left(\frac{9}{32}\text{"MAX}\right)$

## 3) FOOTING AND FOUNDATION NOTES:

- 3.1) FOUNDATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 4 OF THE 2018 NCRC.
- VERIFICATION OF THE ASSUMED SOIL BEARING CAPACITY IS THE RESPONSIBILITY OF THE CONTRACTOR. CONCRETE FOOTINGS SHALL NOT BE PLACED UNTIL THE SOIL BEARING CAPACITY HAS BEEN VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER OR BUILDING INSPECTOR. CONSULT THE SER SHOULD THE SOIL BEARING CAPACITY NOT BE MET OR IF ANY OTHER ADVERSE SOIL CONDITION IS ENCOUNTERED.
- 3.2) THE BOTTOM OF ALL FOOTINGS SHALL EXTEND A MINIMUM OF 12" BELOW GRADE OR BELOW THE FROST LINE FOR THE CONSTRUCTION LOCATION, WHICHEVER IS GREATER.
- 3.3) ANY COMPACTED FILL SHALL BE PLACED UNDER THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER. THE RESULTING SOIL SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY.
- 3.4) FOOTINGS SHALL BE FREE OF VEGETATION, TOPSOIL, AND FOREIGN MATERIAL. NO CONCRETE SHALL BE PLACED AGAINST ANY SUBGRADE CONTAINING WATER, ICE, FROST, OR LOOSE MATERIAL.

- 3.5) FOOTINGS SUPPORTING FOUNDATION WALLS SHALL HAVE A MINIMUM PROJECTION OF 2" AT ALL SIDES. MAXIMUM FOOTING PROJECTION AT FOUNDATION WALLS SHALL NOT EXCEED THE THICKNESS OF THE FOOTING.
- 3.6) WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH 1/2" DIA ANCHOR BOLTS WITH MINIMUM 7" EMBEDMENT INTO CONCRETE OR SOLID-GROUTED MASONRY SPACED A MAXIMUM OF 6'-0" O.C. UNLESS NOTED OTHERWISE. PROVIDE A MINIMUM OF TWO ANCHOR BOLTS PER PLATE SECTION AND ONE ANCHOR BOLT WITHIN 12" OF EACH CORNER UNLESS NOTED OTHERWISE. ANCHOR BOLTS SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF THE SILL PLATE.
- 3.7) FOUNDATION WALLS MAY BE STEPPED AND FRAMED WITH CRIPPLE WALLS WHERE GRADE PERMITS (SEE NOTE 7.14 FOR WALL FRAMING REQUIREMENTS).
- 3.8) PROVIDE FOUNDATION WATERPROOFING AND AND DRAIN WITH POSITIVE SLOPE TO DAYLIGHT AS REQUIRED BY SITE CONDITIONS.
- 3.9) THE SITE SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL A MINIMUM OF 6" WITHIN THE FIRST TEN FEET.
- 3.10) CRAWL SPACES SHALL BE GRADED LEVEL AND CLEAR OF ALL DEBRIS. CRAWL SPACE GRADE SHALL BE LINED WITH MINIMUM 6 MIL APPROVED VAPOR BARRIER WITH ALL JOINTS LAPPED MINIMUM 12" AND SEALED. PROVIDE A MINIMUM ACCESS OPENING MEASURING 18" BY 24".

#### 4) CONCRETE NOTES:

- 4.1) INTERIOR SLABS ON GRADE, EXCEPT FOR GARAGE FLOORS, AND FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS. FOUNDATION WALLS, GARAGE SLABS ON GRADE, AND EXTERIOR SLABS ON GRADE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. ALL CONCRETE SHALL BE CAST IN PLACE.
- 4.2) CONCRETE SHALL BE PROPORTIONED, MIXED, AND PLACED IN ACCORDANCE WITH THE LATEST EDITIONS OF ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND AC1 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
- 4.3) ALL CONCRETE EXPOSED TO FREEZE/THAW CYCLES SHALL BE AIR ENTRAINED WITH TOTAL AIR VOLUME NOT LESS THAN 5% OR MORE THAN 7%.
- 4.4) CONCRETE SLABS ON GRADE SHALL BE MINIMUM 4" THICK AND REINFORCED WITH POLYPROPYLENE FIBERS OR 6x6 WELDED WIRE FABRIC (WWF). POLYPROPYLENE FIBERS SHALL BE APPLIED AT A MINIMUM RATE OF 1.5 LBS PER CUBIC YARD. WWF SHALL BE PLACED AT THE MID-DEPTH OF THE SLAB.
- 4.5) CONCRETE SLABS ON GRADE SHALL BE PLACED ON MINIMUM 4" THICK GRANULAR FILL COMPACTED TO MINIMUM 95% OF THE MAXIMUM DRY DENSITY. INTERIOR SLABS ARE TO BE PLACED ON A MINIMUM 6 MIL VAPOR BARRIER PLACED ON TOP OF THE GRANULAR FILL.
- 4.6)  $\frac{3}{4}$  TO 1" DEEP CONTROL JOINTS (SAW-CUT OR TOOLED) ARE TO BE PLACED IN SLABS ON GRADE WITHIN 4 TO 12 HOURS OF CONCRETE FINISHING. CONTROL JOINTS ARE TO BE SPACED 8'-0" TO 12'-0" O.C.
- 4.7) ALL CAST-IN-PLACE CONCRETE WALLS SHALL CONFORM TO SECTIONS R404 AND/OR R608 OF THE 2018 NCRC, ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND/OR ACI 332 "CODE REQUIREMENTS FOR RESIDENTIAL CONCRETE".

#### 5) MASONRY NOTES:

- 5.1) CONCRETE MASONRY SHALL CONFORM TO ASTM C90. ALL BRICK SHALL CONFORM TO ASTM C62. ALL MASONRY SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.
- 5.2) ALL MORTAR SHALL BE TYPE "S". GROUT AND MORTAR SHALL CONFORM TO ASTM C270 AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.
- 5.3) ALL MASONRY WALLS SHALL CONFORM TO SECTION SECTIONS R404 AND/OR R606 OF THE 2018 NCRC, NCMA TR68-A "CONSTRUCTION USING CONCRETE MASONRY", AND/OR ACE 530/ASCE 5/TMS 402 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES".
- 5.4) THE UNSUPPORTED HEIGHT OF UNGROUTED HOLLOW MASONRY PIERS SHALL NOT EXCEED FOUR TIMES THEIR LEAST DIMENSION. THE UNSUPPORTED HEIGHT OF SOLID OR SOLID-GROUTED MASONRY PIERS SHALL NOT EXCEED TEN TIMES THEIR LEAST DIMENSION.
- GIRDER SHALL BEAR WITHIN THE MIDDLE THIRD OF THE PIERS. PILASTERS SHALL BE BONDED TO THE PERIMETER FOUNDATION WALL. 5.6) THE TOP COURSE OF MASONRY SHALL BE GROUTED SOLID. ALL CELLS CONTAINING REINFORCING STEEL OR

5.5) EACH CRAWL SPACE PIER SHALL BEAR WITHIN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING AND EACH

EMBEDDED ITEMS SHALL BE GROUTED SOLID. 5.7) HORIZONTAL WALL JOINT REINFORCEMENT SHALL BE STANDARD 9 GAUGE GALVANIZED LADDER OR TRUSS TYPE SPACED AT 16" O.C. MAXIMUM, UNLESS NOTED OTHERWISE ON THE DRAWINGS, AND SHALL CONFORM TO ASTM A951. LAP HORIZONTAL REINFORCEMENT MINIMUM 6" FOR CONTINUOUS WALL APPLICATIONS.

# 6) REINFORCING STEEL NOTES:

- 6.1) WELDED WIRE FABRIC SHALL CONFORM TO ASTM 185. CONCRETE REINFORCING STEEL SHALL CONFORM TO ASTM 615, GRADE 60. REINFORCING STEEL WITHIN FOOTINGS SHALL MAINTAIN MINIMUM 3" CONCRETE COVER AND REINFORCING STEEL WITHIN SLABS SHALL MAINTAIN MINIMUM 1  $\frac{1}{2}$ " CONCRETE COVER. CONCRETE COVER FOR #5 AND SMALLER REINFORCING BARS WITHIN CONCRETE WALLS SHALL BE MINIMUM 1 3" AND CONCRETE
- COVER FOR #6 AND LARGER REINFORCING BARS WITHIN CONCRETE WALLS SHALL BE MINIMUM 2". 6.2) LAP REINFORCING STEEL, AS REQUIRED, A MINIMUM OF 48 TIMES THE BAR DIAMETER (18" FOR #3 BARS, 24" FOR #4 BARS, 30" FOR #5 BARS, 36" FOR #6 BARS, ETC.).

# 7) WOOD FRAMING NOTES:

- 7.1) SOLID SAWN FRAMING MEMBERS SHALL BE SPRUCE-PINE-FIR (SPF) #2 OR SOUTHERN YELLOW PINE (SYP) #2 WITH THE FOLLOWING MINIMUM DESIGN VALUES:
  - SPF #2: Fb=875 PSI, Fv=135 PSI, E=1,400,000 PSI - SYP #2: Fb=750 PSI, Fv=175 PSI, E=1,400,000 PSI
- 7.2) ENGINEERED LUMBER BEAMS SHALL HAVE THE FOLLOWING MINIMUM DESIGN VALUES:
  - LAMINATED STRAND LUMBER (LSL): Fb=2,325 PSI, Fv=310 PSI, E=1,550,000 PSI
  - LAMINATED VENEER LUMBER (LVL): Fb=2,600 PSI, Fv=285 PSI, E=2,000,000 PSI - PARALLEL STRAND LUMBER (PSL): Fb=2,900 PSI, Fv=290 PSI, E=2,000,000 PSI
- 7.3) ENGINEERED LUMBER COLUMNS SHALL HAVE THE FOLLOWING MINIMUM DESIGN VALUES: - LAMINATED STRAND LUMBER (LSL): Fb=1,700 PSI, Fc=710 PSI, E=1,300,000 PSI
  - LAMINATED VENEER LUMBER (LVL): Fb=2,600 PSI, Fc=750 PSI, E=2,000,000 PSI

- PARALLEL STRAND LUMBER (PSL): Fb=2,400 PSI, Fc=545 PSI, E=1,800,000 PSI

- 7.4) WOOD IN CONTACT WITH THE GROUND, CONCRETE, OR MASONRY SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD C-15. ALL OTHER MOISTURE EXPOSED LUMBER SHALL BE TREATED IN ACCORDANCE WITH AWPA STANDARD C-2 OR SHALL BE A NATURALLY DURABLE DECAY RESISTANT WOOD AS DEFINED IN SECTION R202 OF THE 2018 NCRC.
- 7.5) NAILS SHALL BE COMMON WIRE NAILS UNLESS NOTED OTHERWISE AND SHALL CONFORM TO ASTM F1667-05.

- 7.6) BOLTS SHALL CONFORM TO ASTM A307 UNLESS NOTED OTHERWISE. INSTALL STANDARD STEEL WASHERS FOR THE NUT AND BOLT HEAD WHEN BOLTING WOOD MEMBERS. HOLES FOR BOLTS SHALL BE  $\frac{1}{16}$ " LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.
- 7.7) LAG SCREWS SHALL CONFORM TO ANSI/ASME B18.2.1. INSTALL STANDARD STEEL WASHERS FOR THE SCREW HEAD. PILOT HOLES SHALL BE USED FOR LAG SCREW INSTALLATION AND SHALL BE BORED ACCORDING TO NDS SPECIFICATIONS.
- 7.8) INDIVIDUAL STUDS BUILT UP TO FORM A COLUMN SHALL BE FASTENED WITH (2) ROWS OF 10d NAILS @ 6" O.C. STAGGERED. BLOCKING MATCHING OR EXCEEDING THE WIDTH OF THE STUD COLUMN SHALL BE INSTALLED AT ALL FLOOR LEVELS TO ENSURE PROPER LOAD TRANSFER THROUGH THE STRUCTURE.
- 7.9) MULTI-PLY SOLID SAWN BEAMS AND HEADERS SHALL BE FASTENED WITH (2) ROWS OF 10d NAILS @ 16" O.C. STAGGERED FOR 2x8 AND SMALLER OR (3) ROWS OF 10d NAILS @ 16" O.C. STAGGERED FOR 2x10 AND LARGER. APPLY NAILING FROM BOTH FACES FOR (3) OR MORE PLIES.
- 7.10) MULTI-PLY ENGINEERED LUMBER BEAMS AND HEADERS SHALL BE FASTENED PER THE MANUFACTURER SPECIFICATIONS UNLESS NOTED OTHERWISE.
- 7.11) BEAMS PERPENDICULAR TO THE SUPPORTING WALL SHALL BEAR THE FULL WIDTH OF THE WALL UNLESS NOTED OTHERWISE AND SHALL BE SUPPORTED BY A COLUMN OF BUILT UP STUDS THAT MATCHES OR EXCEEDS THE WIDTH OF THE BEAM (NOT LESS THAN TWO STUDS).
- 7.12) BEAMS PARALLEL TO THE SUPPORTING WALL SHALL BEAR THE WIDTH OF THE SPECIFIED STUD COLUMN ON THE END OF THE WALL (BEARING SHALL NOT BE LESS THAN 3" TO BEAR OVER TWO STUDS UNLESS NOTED
- 7.13) HEADERS SHALL BE SUPPORTED BY JACK STUDS AND KING STUDS BASED ON THE FOLLOWING CONDITIONS UNLESS NOTED OTHERWISE:

CLEAR SPAN:	# OF JACK STUDS:	# OF KING STUDS (EXTERIOR):	# OF KING STUDS (INTERIOR):
UP TO 3'-0"	(1)	(1)	(1)
>3'-0" TO 6'-0"	(2)	(2)	(1)
>6'-0" TO 9'-0"	(2)	(3)	(2)
>9'-0" TO 12'-0"	(3)	(4)	(2)
>12'-0" TO 15'-0"	(3)	(5)	(3)
>15'-0" TO 18'-0"	(4)	(6)	(3)

7.14) STUD SPACING FOR EXTERIOR AND INTERIOR BEARING WALLS SHALL BE BASED ON THE FOLLOWING CONDITIONS UNLESS NOTED OTHERWISE: CLIDDODTING LID TO ONE STORY AROVE

_	SUPPORTING UP TO UNE STORY ABOVE:									
	UP TO 10'-1 $\frac{1}{2}$ " IN HEIGHT	2x4	@	16"	0.C.	OR	2x6	@	24"	0.0
	$>10'-1$ $\frac{1}{2}$ " UP TO 12'-1 $\frac{1}{2}$ "	2x4	@	12"	0.C.	OR	2x6	@	16"	0.0
_	SUPPORTING UP TO TWO STORIES ABOVE:									
	UP TO 10'-1 $\frac{1}{2}$ " IN HEIGHT	2x4	@	12"	0.0.	OR	2x6	@	16"	0.0

- $> 10'-1 \frac{1}{2}$ " UP TO  $12'-1 \frac{1}{2}$ " 2x6 @ 12" O.C. 7.15) ALL EXTERIOR WALLS TO BE FULLY SHEATHED WITH  $\frac{1}{16}$ " APA RATED OSB EXPOSURE 1 ATTACHED WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNLESS NOTED OTHERWISE.
- 7.16) ROOF SHEATHING SHALL BE MINIMUM  $\frac{7}{16}$ " APA RATED OSB EXPOSURE 1 ATTACHED TO ROOF FRAMING WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNLESS NOTED OTHERWISE. SHEATHING SHALL HAVE A SPAN RATING THAT MATCHES OR EXCEEDS THE FRAMING SPACING.
- 7.17) FLOOR SHEATHING SHALL BE MINIMUM  $\frac{23}{37}$  APA RATED TONGUE AND GROOVE OSB EXPOSURE 1 ATTACHED TO FLOOR FRAMING WITH 8d NAILS @ 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN PANEL FIELD UNLESS NOTED OTHERWISE. SHEATHING SHALL HAVE A SPAN RATING THAT MATCHES OR EXCEEDS THE FRAMING
- 7.18) EXTERIOR WOOD DECKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPENDIX M OF THE 2018 NCRC UNLESS NOTED OTHERWISE.
- 7.19) EXTERIOR WOOD POSTS SHALL BE SECURED TO THE BAND AT THE BOTTOM AND BEAM AT THE TOP WITH (1) SIMPSON STRONG-TIE H6 HURRICANE TIE, (2) H2.5A HURRICANE TIES, OR (1) SECTION OF CS16 COIL STRAPPING WITH MINIMUM 9" END LENGTHS. FOR MASONRY OR CONCRETE FOUNDATIONS. SECURE POSTS AT THE BOTTOM WITH A SIMPSON STRONG-TIE ABU POST BASE FOR THE SPECIFIED POST SIZE.

# 8) STEEL FRAMING NOTES:

- 8.1) STEEL FRAMING SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:
- ASTM A992 - W SHAPES ASTM A36 CHANNELS AND ANGLES - PLATES AND BARS ASTM A36 - HOLLOW STRUCTURAL SECTIONS (HSS) ASTM A500, GRADE B
- ASTM A53, GRADE B, TYPE E OR S 8.2) STEEL BEAMS SHALL BE ANCHORED AT THE BOTTOM FLANGE TO EACH SUPPORT AS FOLLOWS UNLESS NOTED OTHERWISE:
  - WOOD FRAMING (2) ½" DIAMETER x 4" LONG LAG SCREWS (2)  $\frac{1}{2}$ " DIAMETER x 4" LONG SST TITEN HD (OR EQUAL) SCREW ANCHORS CONCRETE - MASONRY (GROUTED SOLID) (2)  $\frac{1}{2}$ " DIAMETER x 4" LONG SST TITEN HD (OR EQUAL) SCREW ANCHORS (2)  $\frac{1}{2}$ " DIAMETER BOLTS OR  $\frac{3}{16}$ " CONTINUOUS FILLET WELD STEEL COLUMN
- 8.3) ATTACH A 2x NAILER TO THE TOP FLANGE OF STEEL BEAMS w/(2) ROWS OF  $\frac{1}{2}$ " DIAMETER CARRIAGE BOLTS @ 48" O.C. STAGGERED UNLESS NOTED OTHERWISE.
- 8.4) FLITCH BEAMS SHALL BE BOLTED WITH (2) ROWS OF  $\frac{1}{2}$ " DIAMETER BOLTS @ 16" O.C. STAGGERED.

# 9) SUPPORT OF MASONRY OR NATURAL STONE VENEER:

9.1) VENEER ABOVE OPENINGS SHALL BE SUPPORTED BY STEEL ANGLES AS FOLLOWS UNLESS NOTED OTHERWISE:

CLEAR SPAN:	SIZE OF STEEL ANGLE:
UP TO 3'-0"	L3x3x <sup>1</sup> / <sub>4</sub>
>3'-0" UP TO 6'-0"	L5x3 $\frac{1}{2}$ x $\frac{5}{16}$ (LONG LEG VERTIC
>6'-0" UP TO 8'-0"	L6x4x <sup>5</sup> / <sub>16</sub> (LONG LEG VERTICA

3"x3"x4" STEEL PLATE STOPS @ 24" O.C. TO STEEL ANGLE.

- 9.2) VENEER ABOVE OPENINGS WITH A CLEAR SPAN EXCEEDING 8'-0" SHALL BE SUPPORTED BY A  $6x4x\frac{5}{16}$  STEEL ANGLE FASTENED TO THE HEADER WITH (2) ROWS OF  $\frac{1}{2}$ " DIAMETER x 3" LONG LAG SCREWS @ 16" O.C. UNLESS NOTED OTHERWISE.
- 9.3) STEEL ANGLES SHALL BE EMBEDDED MINIMUM 4" INTO THE VENEER AT EACH SIDE OF THE OPENING. 9.4) VENEER ABOVE ROOF LINES SHALL BE SUPPORTED BY AN  $1.6 \times 4 \times \frac{5}{16}$  STEEL ANGLE FASTENED TO (2) 2×10 BLOCKING w/ (2) ROWS OF  $\frac{1}{2}$ " DIAMETER x 3" LONG LAG SCREWS @ 16" O.C. BLOCKING TO BE FASTENED TO WALL STUDS AT EACH END WITH (4) 10d TOE NAILS PER PLY. FOR ROOF SLOPES EXCEEDING 7:12, WELD

## COMMON ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
ALT	ALTERNATE	MFR	MANUFACTURER
ARCH	ARCHITECTURAL	MIN	MINIMUM
BRG	BEARING	NTS	NOT TO SCALE
BTM	BOTTOM	O.C.	ON CENTER
CIP	CAST-IN-PLACE	PCF	POUNDS PER CUBIC FOOT
CLR	CLEAR	PLF	POUNDS PER LINEAR FOOT
CMU	CONCRETE MASONRY UNIT	PSF	POOUNDS PER SQUARE FOOT
CONC	CONCRETE	PSI	POUNDS PER SQUARE INCH
CONN	CONNECTION	PSL	PARALLEL STRAND LUMBER
CONT	CONTINUOUS	PT	PRESSURE TREATED
DBL	DOUBLE	QJ	QUADRUPLE JOIST
DIA	DIAMETER	REINF	REINFORCE
DJ	DOUBLE JOIST	SER	STRUCTURAL ENGINEER OF RECORD
DSP	DOUBLE STUD POCKET	SF	SQUARE FEET
EA	EACH	SJ	SINGLE JOIST
EQ	EQUAL	SP	SPACE (SPACING)
FLR	FLOOR	SPEC(S)	SPECIFICATION(S)
FND	FOUNDATION	SPF	SPRUCE-PINE-FIR
FTG	FOOTING	SST	SIMPSON STRONG-TIE
GA	GAUGE	SYP	SOUTHERN YELLOW PINE
HDG	HOT-DIPPED GALVANIZED	TJ	TRIPLE JOIST
HDR	HEADER	TRPL	TRIPLE
HGR	HANGER	TSP	TRIPLE STUD POCKET
HORIZ	HORIZONTAL	TYP	TYPICAL
ICF	INSULATED CONCRETE FORMS	UNO	UNLESS NOTED OTHERWISE
INFO	INFORMATION	VERT	VERTICAL
LBS	POUNDS	W/	WITH
LSL	LAMINATED STRAND LUMBER		WELDED WIRE FABRIC
LVL	LAMINATED VENEER LUMBER	XJ	EXTRA JOIST
		/\0	EATIM OOIST

# LEGEND

<b>■</b> (#)	STUD COLUMN AT POINT LOADS THAT REQUIRES SOLID BLOCKING TO GIRDER OR FOUNDATION (#) DENOTES NUMBER OF STUDS. (2) STUDS REQUIRED IF NOT SPECIFIED
	OFFSET POINT LOAD FROM ABOVE TO BE SUPPORTED BY GIRDER, BEAM, HEADER, JOIST, OR BLOCKING AS SPECIFIED
***************************************	BEARING WALL
====	OFFSET BEARING WALL ABOVE

====	OFFSET BEARING WALL ABOVE		
	BEAM, GIRDER, OR HEADER AS SPECIFIED		
	JOIST, RAFTER, OR TRUSS AS SPECIFIED		
L F	MECHANICAL FASTENER (REFER TO SCHEDULE BELOW)		
	FULL HEIGHT MASONRY OR NATURAL STONE VENEER		
	MASONRY OR NATURAL STONE VENEER WATERTABLE BELOW		
	DITIMBING OF ADDITANCES ABOVE (FOR REFERENCE ONLY REFER TO ARCHITECTURAL DLANG)		

PLUMBING OR APPLIANCES ABOVE (FOR REFERENCE ONLY, REFER TO ARCHITECTURAL PLANS) \_\_\_\_

SOLID GROUTED MASONRY

# \_\_\_\_\_ FULL HEIGHT BRICK VENEER BELOW ROOF

ROOF SUPPORT BELOW

<u>MECHANICA</u>	AL FASTENERS	ALLOWABLE I-	-JOIST	SUBSTITUTIONS
BEAM SIZE:	FASTENER:	SPECIFIED SERIES:	EQUIVAL	ENT SERIES:

	•	77.00 12.112.11		
` '	R (2)-2x8	LUS26-2	TJI 110	BCI 4500s 1.8
(1)-PLY LS	OR (2)-2x12 SL OR LVL SL OR LVL	LUS210-2 HUS1.81/10 HHUS410	TJI 210	BCI 5000s 1.8, BLI 40, LPI 20PLUS, NI-40x
. ,	SL OR LVL SL OR LVL	HHUS5.50/10 HHUS7.25/10	TJI 230	BCI 6000s 1.8, LPI 32PLUS
NOTES:			- TJI 360	BCI 60s 2.0, BLI 60, LPI 36 NI-60
- MECHANICAL FASTENERS TO BE INSTALLED BASED ON THIS SCHEDULE UNLESS NOTED OTHERWISE.		TJI 560	BCI 90s 2.0, BLI 80, LPI 56 NI-80	
_	ALL SPECIFIED ME	CHANICAL FASTENERS ARE		

ALL SPECIFIED MECHANICAL PASIENERS ARE SIMPSON STRONG-TIE BRAND. OTHER BRAND | NOTES: FASTENERS WITH EQUIVALENT OR BETTER CAPACITY MAY BE SUBSTITUTED. ALL MECHANICAL FASTENERS IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT-DIPPED GALVANIZED OR EQUIVALENT

CORROSIVE RESISTANT COATING.

MAINTAIN SPECIFIED JOIST DEPTH, DIRECTION, AND SPACING. JOISTS NOT LISTED IN THIS SCHEDULE MAY BE SUBSTITUTED PROVIDED THEY MEET OR

EXCEED THE PROPERTIES OF THOSE LISTED.

Digitally signed by Zachary H. Hayes, PE Date: 2024.12.30 15:50:28 -05'00'

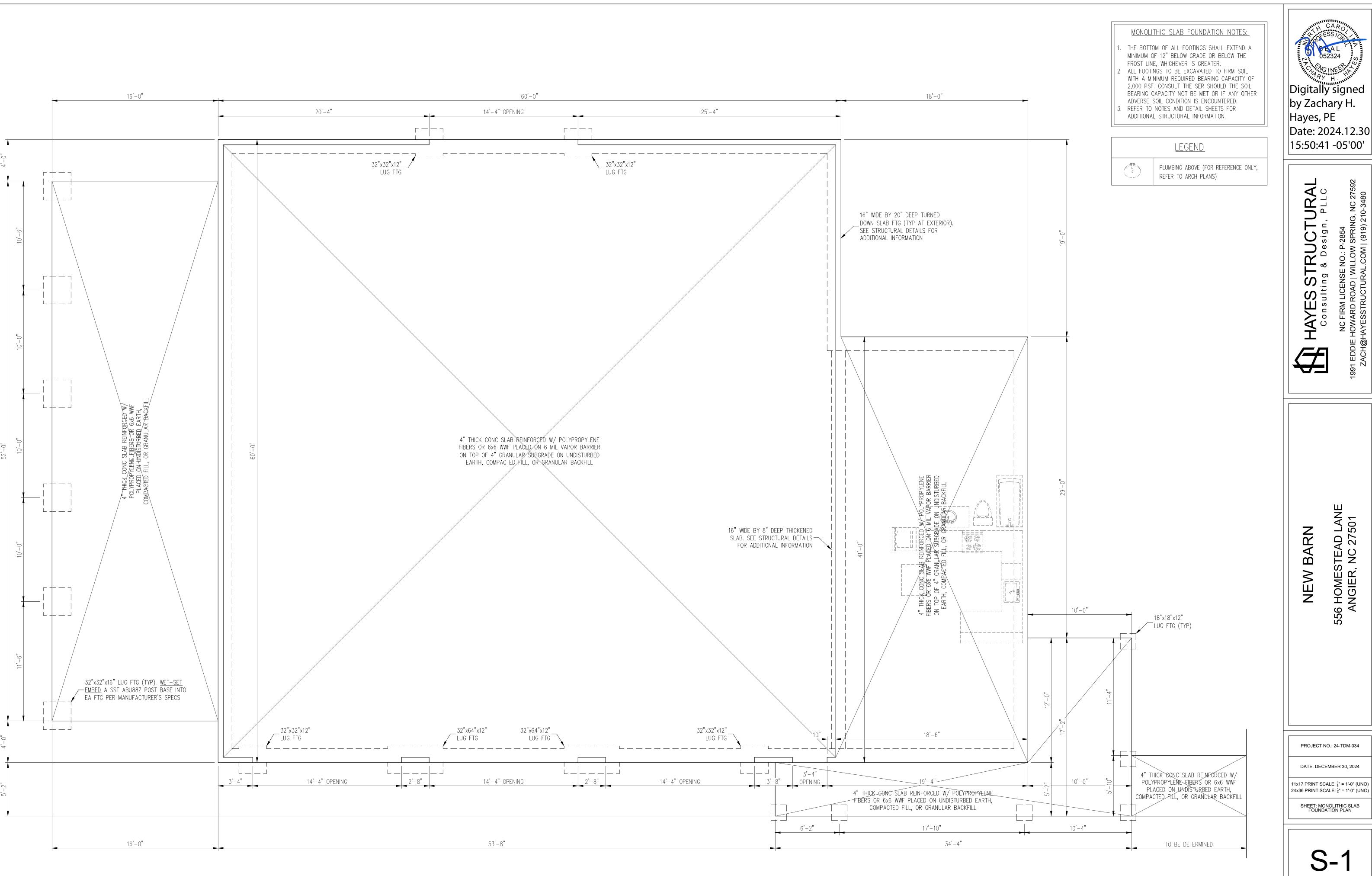
TE/  $\mathbf{\Omega}$ 

PROJECT NO.: 24-TDM-034

DATE: DECEMBER 30, 2024

SHEET: STANDARD STRUCTURAL NOTES

SCALE: NOT TO SCALE



Digitally signed by Zachary H. Hayes, PE Date: 2024.12.30

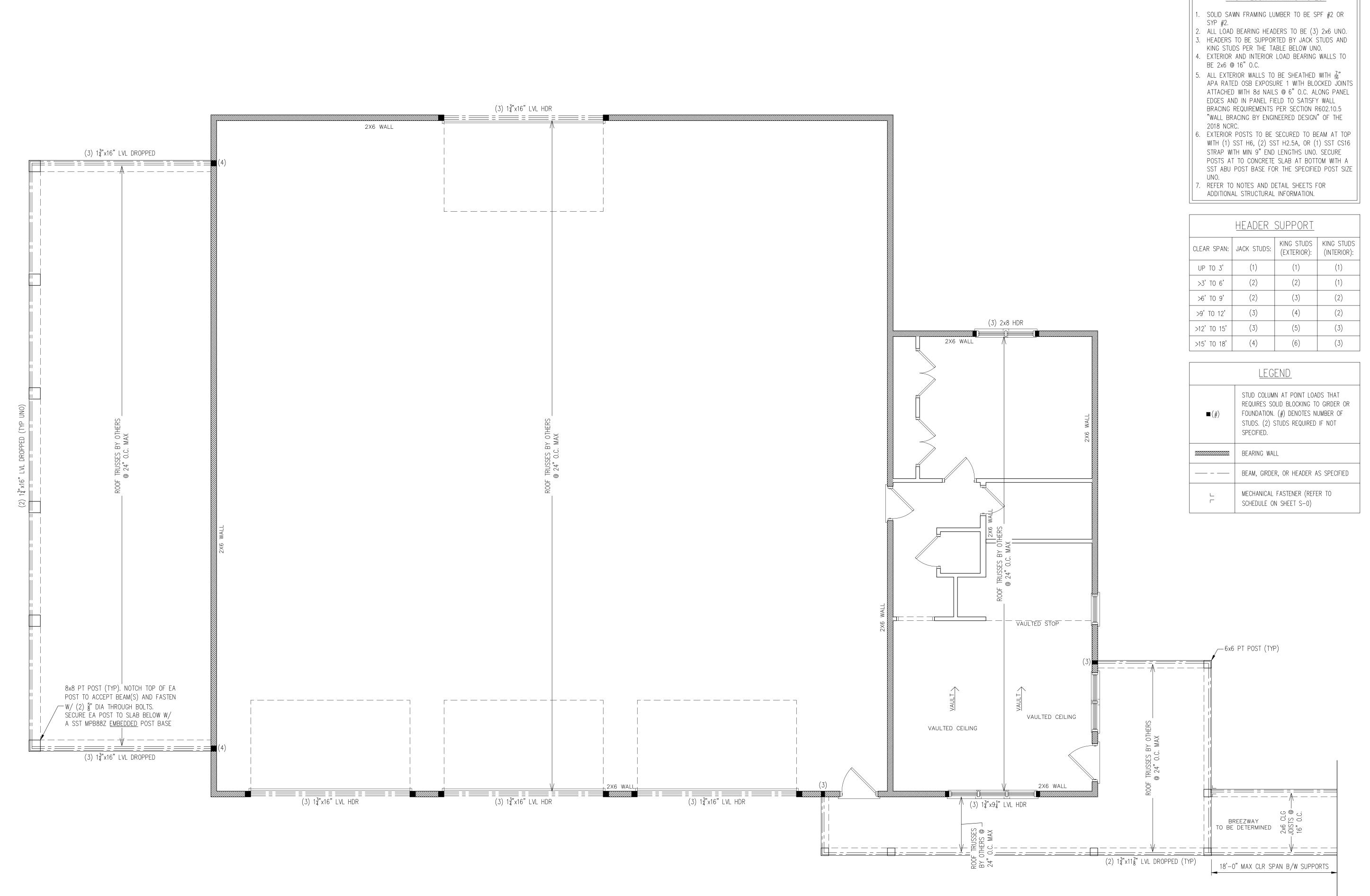
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556 HOMESTEAD LANE ANGIER, NC 27501

PROJECT NO.: 24-TDM-034

DATE: DECEMBER 30, 2024

SHEET: MONOLITHIC SLAB FOUNDATION PLAN





7

Digitally signed

Date: 2024.12.30

15:50:54 -05'00'

by Zachary H.

Hayes, PE

STRUCTURAL

19 & Design, PLLC

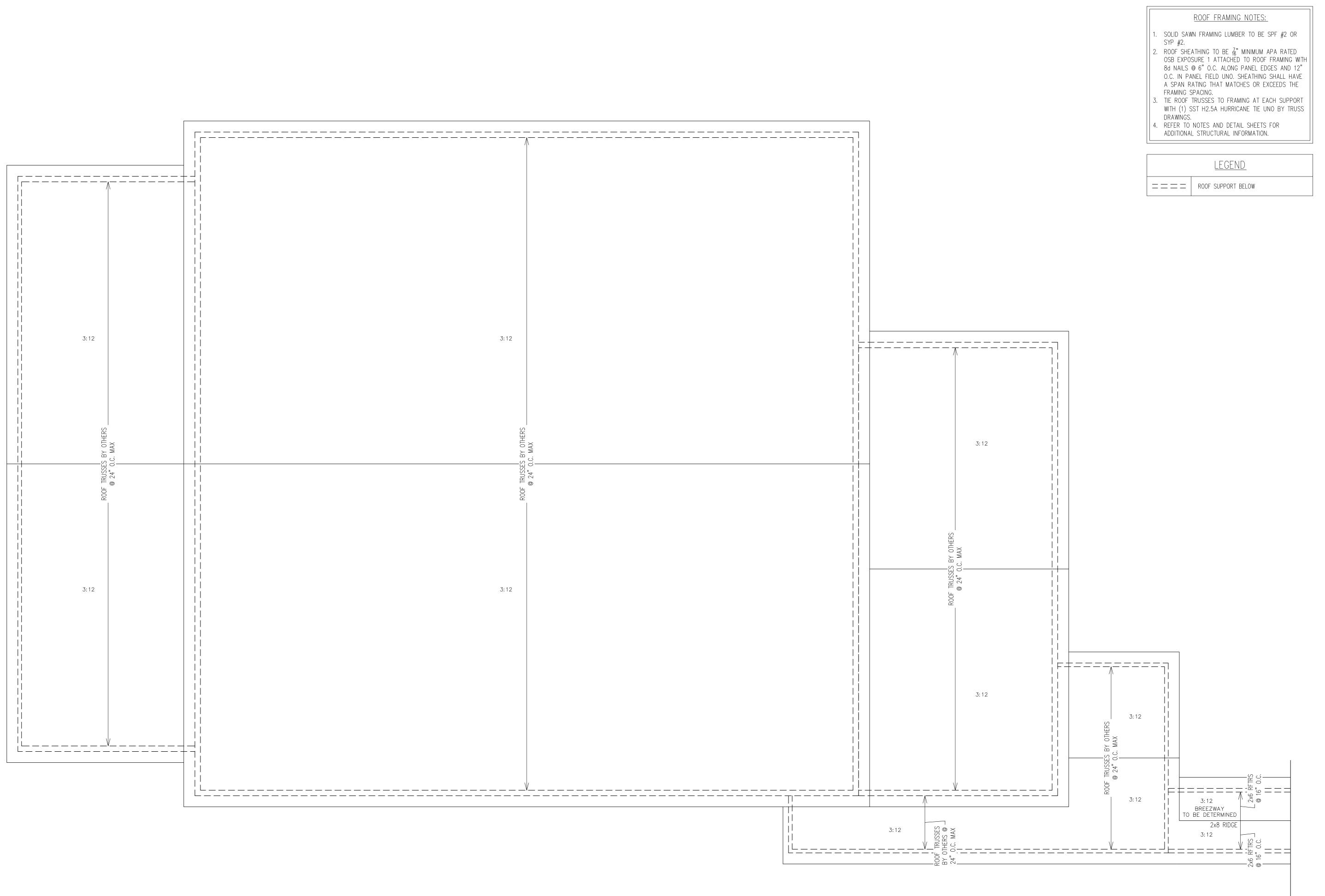
HAYES (Consulti

NEW BARN
556 HOMESTEAD LANE
ANGIER, NC 27501

PROJECT NO.: 24-TDM-034

DATE: DECEMBER 30, 2024

11x17 PRINT SCALE:  $\frac{1}{8}$ " = 1'-0" (UNO) 24x36 PRINT SCALE:  $\frac{1}{4}$ " = 1'-0" (UNO) SHEET: FIRST FLOOR FRAMING PLAN



Digitally signed by Zachary H. Hayes, PE Date: 2024.12.30

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1991 EDDIE HOWARD ROAD | WILLOW SPRIN
ZACH@HAYESSTRUCTURAL.COM | (919)

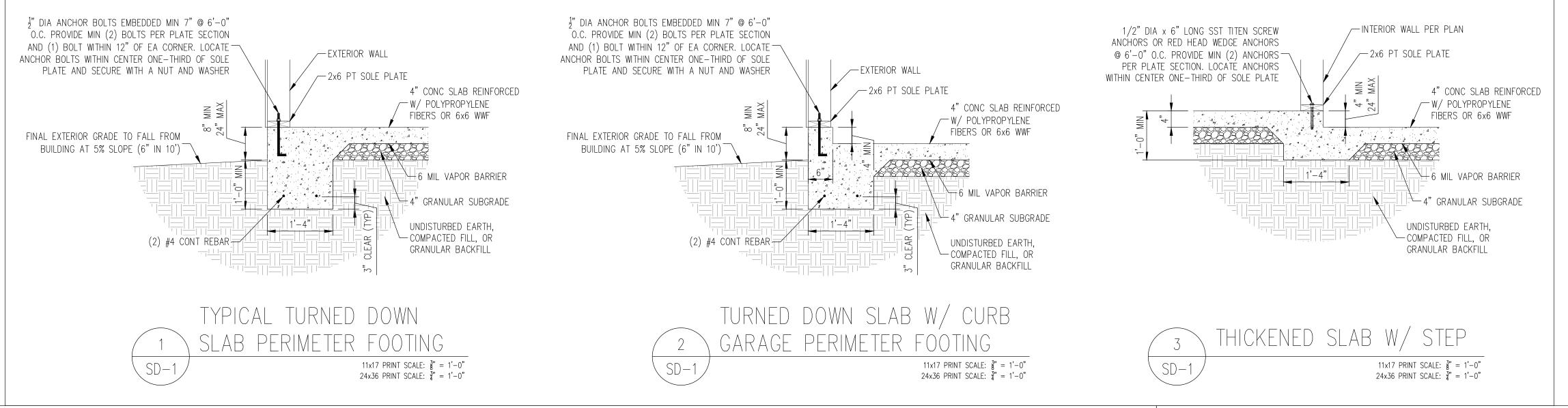
NEW BARN
6 HOMESTEAD LANE

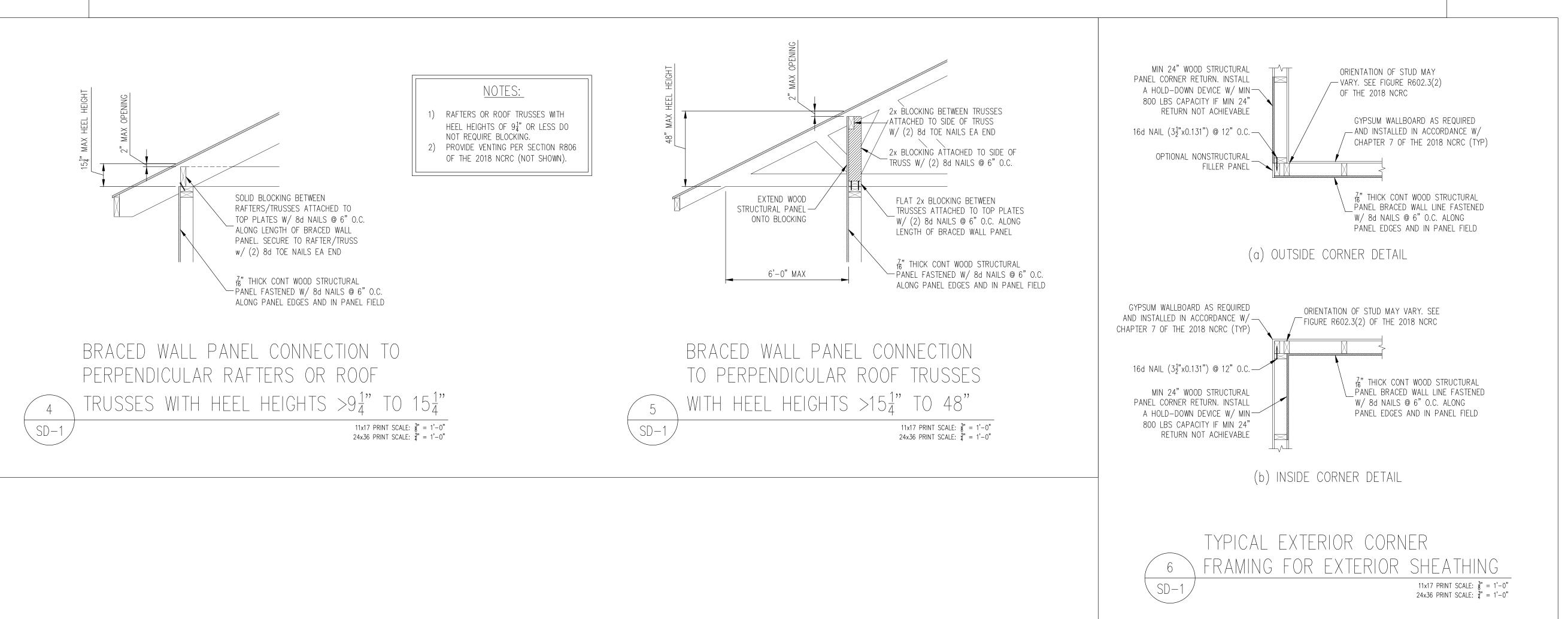
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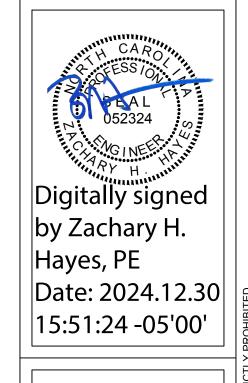
DATE: DECEMBER 30, 2024

11x17 PRINT SCALE:  $\frac{1}{8}$ " = 1'-0" (UNO) 24x36 PRINT SCALE:  $\frac{1}{4}$ " = 1'-0" (UNO)

SHEET: ROOF FRAMING PLAN







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NEW BARN
556 HOMESTEAD LANE
ANGIER, NC 27501

PROJECT NO.: 24-TDM-034

DATE: DECEMBER 30, 2024

SHEET: STRUCTURAL DETAILS

SCALE: AS NOTED

SD-1