

REVIEWER'S SEAL

Project #:
25-371
Date:
10-13-25
Drawn/Design By:
KBB
Scale:
REFER TO ELEV.



9101 Ten-Ten Rd.
Raleigh, NC 27603
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Lanier Falls
Hideaway
(Ranch)

C&M Constructions

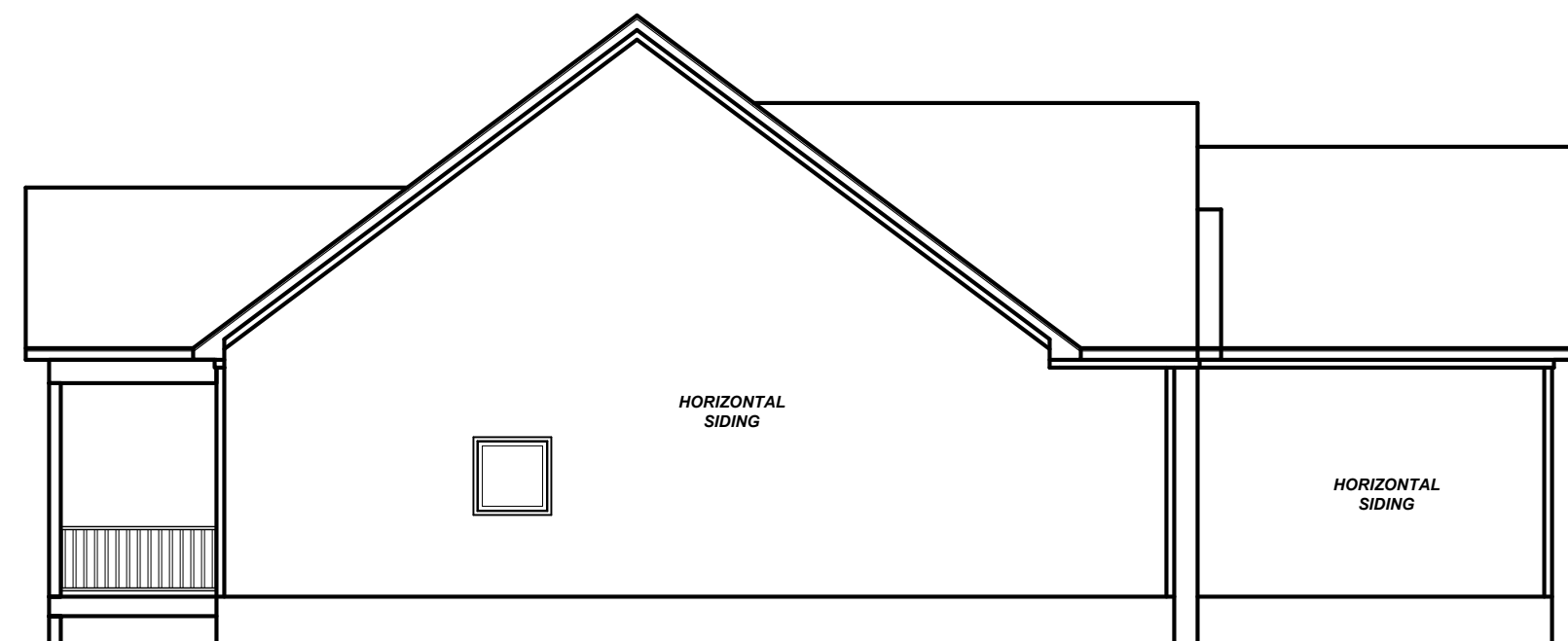
ELEVATIONS

Sheet Number

1
of 2



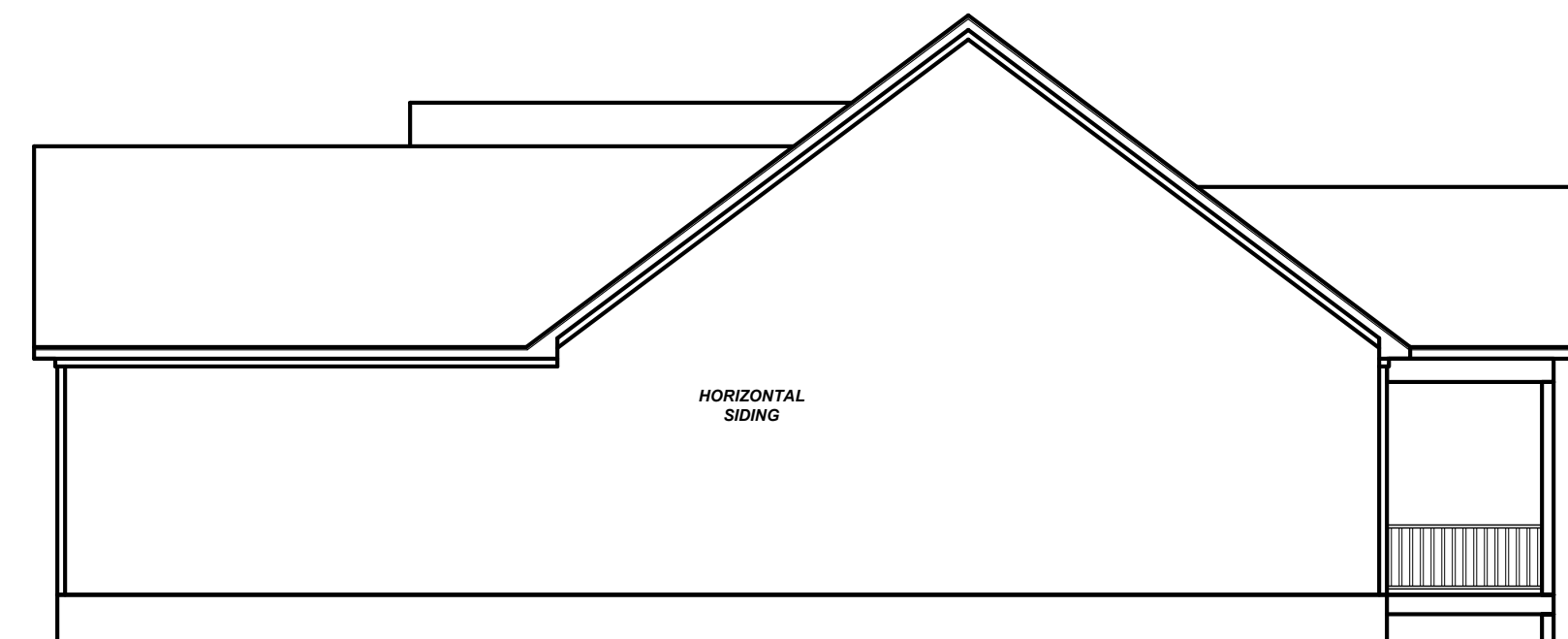
FRONT ELEVATION
1/4" = 1'-0"



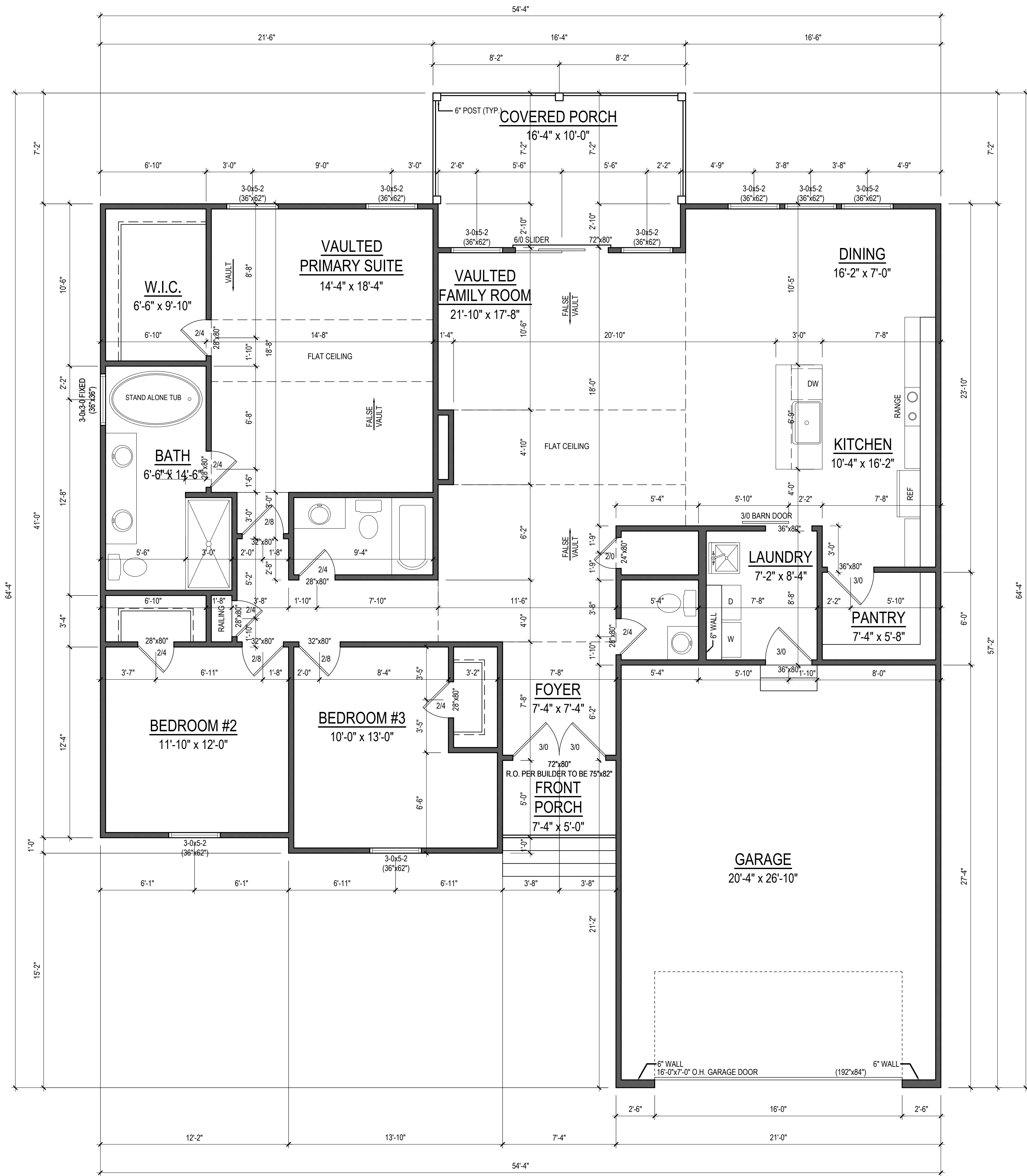
LEFT ELEVATION
1/8" = 1'-0"



REAR ELEVATION
1/8" = 1'-0"



RIGHT ELEVATION
1/8" = 1'-0"



FIRST FLOOR PLAN
1/4" = 1'-0" CEILING HT. = 9'-0"

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FLOOR PLAN

Sheet Number

2

of 2

Website: www.KandAHomeDesigns.com

Email: Kent@KandAHomeDesigns.com

GENERAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THAT ALL DIMENSIONS, ROOF PITCHES, AND SQUARE FOOTAGE ARE CORRECT PRIOR TO CONSTRUCTION. K&A HOME DESIGNS, INC. IS NOT RESPONSIBLE FOR ANY DIMENSIONING, ROOF PITCH, OR SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.
2. ALL WALLS SHOWN ON THE FLOOR PLANS ARE DRAWN AT 4" UNLESS NOTED OTHERWISE.
3. ALL ANGLED WALL SHOWN ON THE PLANS ARE 45 DEGREES UNLESS NOTED OTHERWISE.
4. STUD WALL DESIGN SHALL CONFORM TO ALL NORTH CAROLINA STATE BUILDING CODE REQUIREMENTS.
5. DO NOT SCALE PLANS. DRAWING SCALE MAY BE DISTORTED DUE TO COPIER IMPERFECTIONS.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA RESIDENTIAL STATE BUILDING CODE, 2024 EDITION.

SQUARE FOOTAGE

HEATED SQUARE FOOTAGE

FIRST FLOOR= 1928 GARAGE= 572

SECOND FLOOR= N/A FRONT PORCH= 37

THIRD FLOOR= N/A CVD. PORCH= 161

BASEMENT= N/A DECK= N/A

STORAGE= N/A

UNHEATED SQUARE FOOTAGE

TOTAL HEATED= 1928 TOTAL UNHEATED= 770

CRAWL SPACE VENTILATION CALCULATIONS

-VENT LOCATIONS MAY VARY FROM THOSE SHOWN ON THE PLAN BUT SHOULD BE PLACED TO PROVIDE ADEQUATE VENTILATION AT ALL POINTS TO PREVENT DEAD AIR POCKETS.

-100% VAPOR BARRIER MUST BE PROVIDED WITH 12" MIN. LAP JOINTS.

-THE TOTAL AREA OF VENTILATION OPENINGS MAY BE REDUCED TO 1/1500 AS LONG AS REQUIRED OPENINGS ARE PLACED SO AS TO PROVIDE CROSS-VENTILATION OF THE SPACE. THE INSTALLATION OF OPERABLE LOUVERS SHALL NOT BE PROHIBITED. (COMPLY WITH NC CODE MIN. WITH REGARD TO VENT PLACEMENT FROM CORNERS)

1928 SQ. FT. OF CRAWL SPACE/1500

1.29 SQ. FT. OF REQUIRED VENTILATION

PROVIDED BY: 3 VENTS AT 0.45 SQ. FT. NET FREE

VENTILATION EACH= 1.35 SQ. FT. OF VENTILATION

**FOUNDATION DRAINAGE- WATERPROOFING PER SECTIONS 405 & 406.

ATTIC VENTILATION CALCULATIONS

- CALCULATIONS SHOWN BELOW ARE BASED ON VENTILATORS USED AT LEAST 3 FT. ABOVE THE CORNICE VENTS WITH THE BALANCE OF VENTILATION PROVIDED BY EAVE VENTS.

- CATHEDRAL CEILINGS SHALL HAVE A MIN. 1" CLEARANCE BETWEEN THE BOTTOM OF THE ROOF DECK AND THE INSULATION.

2698 SQ. FT. OF ATTIC/300= 8.99

EACH OF INLET AND OUTLET REQUIRED.

*WALL AND ROOF CLADDING DESIGN VALUES

- WALL CLADDING IS DESIGNED FOR A 24.1 SQ. FT. OR GREATER POSITIVE AND NEGATIVE PRESSURE.

- ROOF VALUES BOTH POSITIVE AND NEGATIVE SHALL BE AS FOLLOWS:

45.5 LBS. PER SQ. FT. FOR ROOF PITCHES OF 0/12 TO 2.25/12

34.8 LBS. PER SQ. FT. FOR ROOF PITCHES OF 2.25/12 TO 7/12

21 LBS. PER SQ. FT. FOR ROOF PITCHES OF 7/12 TO 12/12

** MEAN ROOF HEIGHT 30' OR LESS

STRUCTURAL NOTES

- 1) ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF "NORTH CAROLINA STATE 2024 RESIDENTIAL BUILDING CODE", IN ADDITION TO ALL LOCAL CODES AND REGULATIONS.
- 2) DESIGN LOADS:

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION (DL & LL)
ALL FLOORS	40	10	L/360
ATTIC (pull down access)	20	10	L/240
ATTIC (no access)	10	5	L/240
EXTERNAL BALCONY	60	10	L/360
ROOF	20	10	L/180
ROOF TRUSS	20	20	L/240
WIND LOAD	[BASED ON 120 MPH (3-second gusts)]		

- 3) MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 2000 PSF
- 4) CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 3000 PSI AND A MAXIMUM SLUMP OF FIVE INCHES UNLESS NOTED OTHERWISE (UNO).
- 5) MAXIMUM DEPTH OF UNBALANCED FILL AGAINST FOUNDATION WALLS TO BE LESS THAN 4'-0" WITHOUT USING SUFFICIENT WALL BRACING. REFER TO SECTION R404 OF 2024NC RESIDENTIAL BUILDING CODE FOR BACKFILL LIMITATIONS BASED ON WALL HEIGHT, WALL THICKNESS, SOIL TYPE, AND UNBALANCED BACKFILL HEIGHT
- 6) ALL FRAMING LUMBER SHALL BE SYP #2 (Fb = 800 PSI) UNO.
ALL FRAMING LUMBER EXPOSED TO THE ELEMENTS SHALL BE TREATED MATERIAL.
- 7) ALL LOAD BEARING HEADERS SHALL BE (2)x10 (UNO). ALL WINDOW AND DOOR HEADERS SHALL BE SUPPORTED BY
(1) JACK STUD AND (1) KING STUD AT EACH END UNLESS NOTED. ALL OTHER BEAMS SHALL BE SUPPORTED BY 2 STUDS OR THE AMOUNT OF STUDS REQUIRED FOR FULL BEARING AT EACH END UNLESS NOTED. POINT LOADS (STIFF KNEES, ETC.) SHALL CONSIST OF 2 STUDS UNLESS NOTED. ALL SUPPORTS OF 2 STUDS OR MORE SHALL BE TRANSFERRED THROUGH EACH FLOOR TO THE FOUNDATION.
- 8) ALL EXTERIOR WALLS TO BE SHEATHED WITH MIN. 7/16" WOOD STRUCTURAL PANELS FASTENED WITH 8D NAILS 6" O.C. AT EDGES AND 12" O.C. AT INT. SUPPORTS. BLOCKING SHALL BE INSTALLED IF LESS THAN 50 PERCENT OF THE WALL LENGTH IS SHEATHED. WHERE BLOCKING IS REQ'D, ALL PANELS SHALL BE FASTENED AT 3" O.C AT EDGES AND 6" O.C. AT INT. SUPPORTS.
- 9) ALL STRUCTURAL STEEL SHALL ASTM A-36. STEEL BEAMS SHALL BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3-1/2" INCHES AND FULL FLANGE WIDTH. PROVIDE SOLID BEARING FROM BEAM SUPPORT TO FOUNDATION. BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO LAG SCREWS (1/2" DIAMETER AND 4" LONG). LATERAL SUPPORT IS CONSIDERED ADEQUATE PROVIDING THE JOISTS ARE TOE NAILED TO THE SOLE PLATES, AND THE SOLE PLATES ARE NAILED OR BOLTED TO THE BEAM FLANGES @ 48" O.C.
- 10) ANCHOR BOLT PLACEMENT PER SECTION R403.1.6. 1/2" DIAMETER ANCHOR BOLTS SPACED AT 6'-0" O/C AND PLACED 12" FROM THE END OF EACH PLATE SECTION
- 11) FOUNDATION DRAINAGE-DAMP PROOFING OR WATERPROOFING PER SECTION 405 AND 406 OF 2024 NC RESIDENTIAL BUILDING CODE
- 12) WALL AND ROOF CLADDING VALUES:
WALL CLADDING SHALL BE DESIGNED FOR A 24.1 SQ. FT. OR GREATER POSITIVE AND NEGATIVE PRESSURE
ROOF VALUES BOTH POSITIVE AND NEGATIVE SHALL BE AS FOLLOWS:
45.5 LBS/SQFT FOR ROOF PITCHES OF 0/12 TO 2.25/12
34.8 LBS/SQFT FOR ROOF PITCHES OF 2.25/12 TO 7/12
21.0 LBS/SQFT FOR ROOF PITCHES OF 7/12 TO 12/12
** MEAN ROOF HEIGHT 30' OR LESS
- 13) FOR ROOF SLOPES FROM 2:12 THROUGH 4:12, BUILDER TO INSTALL 2 LAYERS OF 15# FELT PAPER
- 14) IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND SQ. FTG. ARE CORRECT PRIOR TO CONSTRUCTION. DESIGNER IS NOT RESPONSIBLE FOR DIMENSIONING OR SQ. FTG. ERRORS ONCE CONSTRUCTION BEGINS

SUMMARY OF REQUIREMENTS FOR MASONRY FIREPLACES AND CHIMNEYS

ITEM	LETTER	REQUIREMENTS
HEARTH SLAB THICKNESS	A	4"
HEARTH EXTENSION (EACH SIDE OF OPENING)	B	8" FIREPLACE OPENING < 6 SQUARE FOOT 12" FIREPLACE OPENING < 6 SQUARE FOOT
HEARTH EXTENSION (FRONT OF OPENING)	C	16" FIREPLACE OPENING < 6 SQUARE FOOT 20" FIREPLACE OPENING < 6 SQUARE FOOT
HEARTH REINFORCING	D	REINFORCED TO CARRY ITS OWN WEIGHT AND ALL IMPOSED LOADS
THICKNESS OF WALL OF FIREBOX	E	10" SOLID BRICK OR 8" WHERE A FIREBRICK LINING IS USED JOINTS IN FIREBRICK 1/4" MAXIMUM
DISTANCE FROM TOP OF OPENING TO THROAT	F	8"
SMOKE CHAMBER WALL THICKNESS UNLINED WALLS	G	6" 8"
CHIMNEY VERTICAL REINFORCING	H	FOUR NO. 4 FULL-LENGTH BARS FOR CHIMNEY UP TO 40" WIDE ADD TWO NO. 4 BARS FOR EACH ADDITIONAL 40" or FRACTION OF WIDTH or EACH ADDITIONAL FLUE.
HORIZONTAL REINFORCING	J	1/4" TIES AT 18" AND TWO TIES AT EACH BEND IN VERTICAL STEEL
BOND BEAMS	K	NO SPECIFIED REQUIREMENTS
FIREPLACE LINTEL	L	NONCOMBUSTIBLE MATERIAL
CHIMNEY WALLS WITH FLUE LINING	M	SOLID MASONRY UNITS OR HOLLOW MASONRY UNITS GROUTED SOLID WITH NOT LESS THAN 4-INCH NOMINAL THICKNESS
DISTANCE BETWEEN ADJACENT FLUES	--	SEE SECTION R1003.13
EFFECTIVE FLUE AREA (BASED ON AREA OF FIREPLACE OPENING)	P	SEE SECTION R1003.15
CLEARANCES COMBUSTIBLE MATERIAL MANTEL AND TRIM ABOVE ROOF	R	SEE SECTION R1001.11 AND R1003.18 SEE SECTION R1001.11, EXCEPTION 4 3' AT ROOFLINE AND 2' AT 10'
ANCHORAGE STRAP NUMBER EMBEDMENT INTO CHIMNEY FASTEN TO BOLTS	S	3/16" x 1" TWO 12" HOOKED AROUND OUTER BAR WITH 6" EXTENSION 4 JOISTS THREE 1/2" DIAMETER
FOOTING THICKNESS WIDTH	T	12" MIN 12" EACH SIDE OF FIREPLACE WALL

NOTE: THIS TABLE PROVIDES A SUMMARY OF MAJOR REQUIREMENTS FOR THE CONSTRUCTION OF MASONARY CHIMNEYS AND FIREPLACES. LETTER REFERENCES ARE TO FIGURE R1001.1(NORTH CAROLINA STATE 2024 RESIDENTIAL BUILDING CODE) WHICH SHOWS EXAMPLES OF TYPICAL CONSTRUCTION. THIS TABLE DOES NOT COVER ALL REQUIREMENTS, NOR DOES IT COVER ALL ASPECTS OF THE INDICATED REQUIREMENTS. FOR THE ACTUAL MANDATORY REQUIREMENTS OF THE CODE, SEE THE INDICATED SECTION OF TEXT.

- 1) THE LETTERS REFER TO FIGURE R1001.1 OF THE NORTH CAROLINA STATE 2024 RESIDENTIAL BUILDING CODE
2) NOT REQUIRED IN SEISMIC DESIGN CATEGORY A, B, or C

R308.4.5 GLAZING & WET SURFACES:

GLAZING IN WALLS, ENCLOSURES OR FENCES CONTAINING OR FACING HOT TUBS, SPAS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS, SHOWERS AND INDOOR or OUTDOOR SWIMMING POOLS WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES, MEASURED VERTICALLY ABOVE ANY STANDING or WALKING SURFACE SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION. THIS SHALL APPLY TO SINGLE GLAZING AND EACH PANE IN MULTIPLE GLAZING.

EXCEPTION: GLAZING THAT IS MORE THAN 60 INCHES, MEASURED HORIZONTALLY AND IN A STRAIGHT LINE, FROM THE WATER'S EDGE OF A BATHTUB, HOT TUB, SPA, WHIRLPOOL or SWIMMING POOL or FROM THE EDGE OF A SHOWER, SAUNA or STEAM ROOM

R807.1 ATTIC ACCESS:

AN ATTIC ACCESS OPENING SHALL BE PROVIDED TO ATTIC AREAS THAT EXCEED 400 SQUARE FEET (37.16 M²) AND HAVE A VERTICAL HEIGHT OF 60 INCHES (1524 MM) OR GREATER. THE NET CLEAR OPENING SHALL NOT BE LESS THAN 20 INCHES (508 MM BY 762 MM) AND SHALL BE LOCATED IN A HALLWAY or OTHER READILY ACCESSIBLE LOCATION. A 30-INCH (762 MM) MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE PROVIDED AT SOME POINT ABOVE THE ACCESS OPENING. SEE SECTION M1305.1.3 FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS.

EXCEPTION:

- 1) CONCEALED AREAS NOT LOCATED OVER THE MAIN STRUCTURE INCLUDING PORCHES, AREAS BEHIND KNEE WALLS, DORMERS, BAY WINDOWS, ETC. ARE NOT REQUIRED TO HAVE ACCESS.
2) PULL DOWN STAIR TREADS, STRINGERS, HANDRAILS, AND HARDWARE MAY PROTRUDE INTO THE NET CLEAR OPENING.

DWELLING / GARAGE SEPARATION (SECTION R302.5, R302.6 and R302.7):

WALLS - A MINIMUM 1/2" GYPSUM BOARD MUST BE INSTALLED ON ALL WALLS SUPPORTING FLOOR/CEILING ASSEMBLIES USED FOR SEPARATION REQUIRED BY THIS SECTION.
OPENING PROTECTION - OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. OTHER OPENINGS BETWEEN THE GARAGE AND RESIDENCE SHALL BE EQUIPPED WITH SOLID WOOD DOORS NOT LESS THAN 1 3/4 INCHES (38MM) IN THICKNESS, SOLID or HONEYCOMB-CORE STEEL DOORS NOT LESS THAN 1 3/4 INCHES (38MM) THICK, or 20-MINUTE FIRE-RATED DOORS.

DUCT PENETRATION - DUCTS IN THE GARAGE AND DUCTS PENETRATING THE WALLS or CEILINGS SEPARATING THE DWELLING FROM THE GARAGE SHALL BE CONSTRUCTED OF A MINIMUM NO. 26 GAUGE (0.48MM) SHEET STEEL or OTHER APPROVED MATERIAL AND SHALL NOT HAVE OPENINGS INTO THE GARAGE.

CEILINGS - GARAGE TO BE SEPARATED FROM HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8-INCH TYPE X GYPSUM BOARD OR EQUIVALENT PER NCRC SECTION R302.6N
STAIRS - ENCLOSED ACCESSIBLE SPACE UNDER STAIRS SHALL HAVE WALLS, UNDER-STAIR SURFACE AND ANY SOFFITS PROTECTED ON THE ENCLOSED SIDE WITH 1/2 INCH (12.7MM) GYPSUM BOARD.

OTHER PENETRATIONS - PENETRATIONS THROUGH THE SEPARATION REQUIRED IN SECTION R302.8 SHALL BE PROTECTED AS REQUIRED BY SECTION R302.11, ITEM 4.

R609.1 EXTERIOR WINDOWS & DOORS:

THIS SECTION PRESCRIBES PERFORMANCE AND CONSTRUCTION REQUIREMENTS FOR EXTERIOR WINDOWS AND DOORS INSTALLED IN WALLS. WINDOWS AND DOORS SHALL BE INSTALLED AND FLASHED IN ACCORDANCE WITH THE FENESTRATION MANUFACTURER'S WRITTEN INSTRUCTIONS. WINDOW AND DOOR OPENINGS SHALL BE FLASHED IN ACCORDANCE WITH SECTION R703.4. WRITTEN INSTALLATION INSTRUCTIONS SHALL BE PROVIDED BY THE FENESTRATION MANUFACTURER FOR EACH WINDOW OR DOOR.

R905.2 references TABLE R905.1.1(2) which states that "For roof slopes from two units vertical in 12 units horizontal (2:12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a 19-inch strip of underlayment felt parallel to and starting at the eaves. Starting at the eave, apply 36-inch-wide sheets of underlayment, overlapping successive sheets 19 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal.

R301.5 is a table titled "MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (in pounds per square foot)". It states that the LIVE LOAD for Stairs is 40, with a note that states "Individual stair treads shall be designed for the uniformly distributed live load or a 300-pound concentrated load acting over an area of 4 square inches, whichever produces the greatest stress".

ALL DOORS LEADING TO DWELLING FROM THE GARAGE TO BE 20-MINUTE FIRE RATED DOOR PER NCRC R302.5.1

GARAGE TO BE SEPARATED FROM HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8-INCH TYPE X GYPSUM BOARD OR EQUIVALENT PER NCRC SECTION R302.6N

WINDOW FALL PROTECTION, PER NCRC SECTION R312.2

CARBON MONOXIDE ALARMS ARE REQUIRED TO BE INSTALLED OUTSIDE ALL SLEEPING AREAS PER NCRC SECTION R315

EMERGENCY ESCAPE AND RESCUE OPENINGS AS PER NCRC SECTION R310

PENETRATION SEALING: SEAL ALL PENETRATIONS IN FIRE-RATED WALLS, CEILINGS, OR FLOORS WITH UL-RATED FIRESTOP MATERIALS.

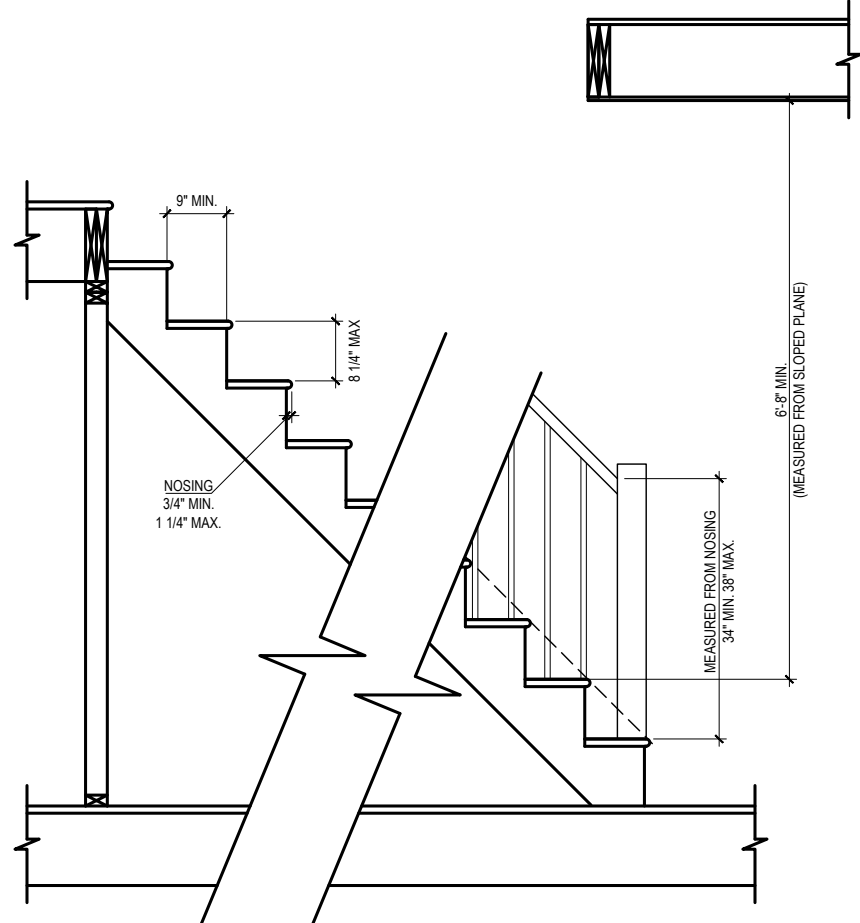
UL FIRESTOP SYSTEMS: UL-L1001: FOR SMALL PIPE PENETRATIONS IN WOOD-STUD WALLS.
C-AJ-1202: FOR PENETRATIONS THROUGH CEILINGS AND FLOOR ASSEMBLIES.

EXTERIOR WALL CAVITY INSULATION SHALL BE ENCLOSED ON ALL SIDES WITH RIGID OR AN AIR BARRIER MATERIAL BEHIND TUBS, SHOWERS, STAIRS, FIRE PLACES AND KNEE WALLS. PER NCRC SECTION N1102.2.12

CRAWLSPACE ACCESS NEEDS TO BE A MINIMUM OPENING MEASURING 18 INCHES BY 24 INCHES PER NCRC SECTION R408.8

TABLE N1102.1 INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT

CLIMATE	ZONE	MAXIMUM GLAZING U-FACTOR	MINIMUM INSULATION R-VALUE					
			CEILINGS	WALLS	FLOORS	BASEMENT WALLS	SLAB PERIMETER	CRAWL SPACE WALLS
3		.35	R-38 or R-30	R-15	R-19	R-5/13	R-0	R-5/13
4		.35	R-38 or R-30	R-15	R-19	R-10/15	R-10	R-10/15



STAIRWAYS & GAURDS REQUIREMENTS PER 311.7 & R312

EACH TREAD AND RISER MUST BE UNIFORM. THE GREATEST RISER HEIGHT SHALL NOT EXCEED THE SMALLEST BY MORE THAN 3/8". THE GREATEST TREAD DEPTH SHALL NOT EXCEED THE SMALLEST BY MORE THAN 3/8". THE TOP AND BOTTOM RISER OF INTERIOR STAIRS SHALL NOT EXCEED THE SMALLEST RISER BY MORE THAN 3/4".

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GENERAL NOTES

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- ALL WALLS SHOWN ON THE FLOOR PLANS ARE DRAWN AT 4" UNLESS NOTED OTHERWISE.
- ALL ANGLED WALL SHOWN ON THE PLANS ARE 45 DEGREES UNLESS NOTED OTHERWISE.
- STUD WALL DESIGN SHALL CONFORM TO ALL NORTH CAROLINA STATE BUILDING CODE REQUIREMENTS.
- DO NOT SCALE PLANS. DRAWING SCALE MAY BE DISTORTED DUE TO COPIER IMPERFECTIONS.
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SQUARE FOOTAGE

HEATED SQUARE FOOTAGE		UNHEATED SQUARE FOOTAGE	
FIRST FLOOR=	1928	GARAGE=	572
SECOND FLOOR=	N/A	FRONT PORCH=	37
THIRD FLOOR=	N/A	CVD. PORCH=	208
BASEMENT=	N/A	DECK=	148
		STORAGE=	N/A

TOTAL HEATED= 1928 TOTAL UNHEATED= 965

CRAWL SPACE VENTILATION CALCULATIONS

-VENT LOCATIONS MAY VARY FROM THOSE SHOWN ON THE PLAN BUT SHOULD BE PLACED TO PROVIDE ADEQUATE VENTILATION AT ALL POINTS TO PREVENT DEAD AIR POCKETS.

-100% VAPOR BARRIER MUST BE PROVIDED WITH 12" MIN. LAP JOINTS.

-THE TOTAL AREA OF VENTILATION OPENINGS MAY BE REDUCED TO 1/1500 AS LONG AS REQUIRED OPENINGS ARE PLACED SO AS TO PROVIDE CROSS-VENTILATION OF THE SPACE. THE INSTALLATION OF OPERABLE LOUVERS SHALL NOT BE PROHIBITED. (COMPLY WITH NC CODE MIN. WITH REGARD TO VENT PLACEMENT FROM CORNERS)

1928 SQ. FT. OF CRAWL SPACE/1500

1.29 SQ. FT. OF REQUIRED VENTILATION

PROVIDED BY: 3 VENTS AT 0.45 SQ. FT. NET FREE

VENTILATION EACH= 1.35 SQ. FT. OF VENTILATION

**FOUNDATION DRAINAGE- WATERPROOFING PER SECTIONS 405 & 406.

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- CATHEDRAL CEILINGS SHALL HAVE A MIN. 1" CLEARANCE BETWEEN THE BOTTOM OF THE ROOF DECK AND THE INSULATION.

2744 SQ. FT. OF ATTIC/300= 9.15

EACH OF INLET AND OUTLET REQUIRED.

WALL AND ROOF CLADDING DESIGN VALUES

- WALL CLADDING IS DESIGNED FOR A 24.1 SQ. FT. OR GREATER POSITIVE AND NEGATIVE PRESSURE.

- ROOF VALUES BOTH POSITVE AND NEGATIVE SHALL BE AS FOLLOWS:

45.5 LBS. PER SQ. FT. FOR ROOF PITCHES OF 0/12 TO 2.25/12

34.8 LBS. PER SQ. FT. FOR ROOF PITCHES OF 2.25/12 TO 7/12

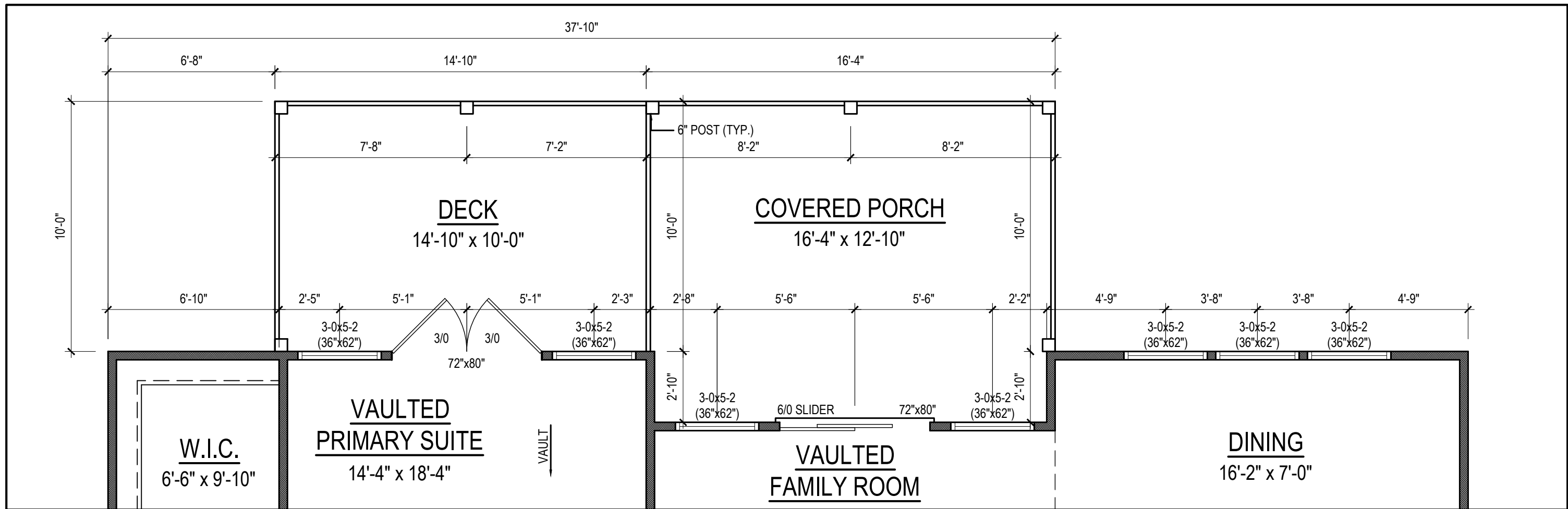
21 LBS. PER SQ. FT. FOR ROOF PITCHES OF 7/12 TO 12/12

** MEAN ROOF HEIGHT 30' OR LESS



REAR ELEVATION

1/4" = 1'-0"



DECK/COVERED PORCH OPTION

1/4" = 1'-0"

CEILING HT. = 9'-0"

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COVERED PORCH/
DECK OPTION

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ELEVATIONS

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1
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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, ORDERS, 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 (NRC)
- 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
- 2.3) DESIGN DEAD LOADS:
- ROOF TRUSSES 20 PSF (10 PSF TC, 10 PSF BC)
- SOLID SAWN RAFTERS AND JOISTS 10 PSF
- 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
- NATURAL STONE TILE FLOORING 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 UP TO 120 MPH
- WIND EXPOSURE B
- DESIGN WIND PRESSURE 20 PSF
- SEISMIC DESIGN CATEGORY B
- 2.6) DESIGN SOIL LOADS:
- SOIL BEARING CAPACITY 2000 PSF (MINIMUM, ASSUMED)
- LATERAL SOIL PRESSURE 45 PCF (MAXIMUM, 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 ($\frac{7}{8}$ " MAX)
- LINTELS AND FRAMING SUPPORTING BRICK OR MASONRY		L/600 ($\frac{3}{4}$ " MAX)

3) FOOTING AND FOUNDATION NOTES:

- 3.1) FOUNDATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 4 OF THE 2018 NRC.
- 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.
- 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. 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 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 ACI 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 NRC, 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 NRC, NCMA T668-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 AMPA STANDARO C-15. ALL OTHER MOISTURE EXPOSED LUMBER SHALL BE TREATED IN ACCORDANCE WITH AMPA STANDARD C-2 OR SHALL BE A NATURALLY DURABLE DECAY RESISTANT WOOD AS DEFINED IN SECTION R202 OF THE 2018 NRC.
- 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 $\frac{1}{8}$ " 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:
UP TO 3'-0" | # OF JACK STUDS:
(1) | # OF KING STUDS (EXTERIOR):
(1) | # OF KING STUDS (INTERIOR):
(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:
- SUPPORTING UP TO ONE STORY ABOVE:
UP TO 10'-1 $\frac{1}{2}$ " IN HEIGHT 2x4 @ 16" O.C. OR 2x6 @ 24" O.C.
>10'-1 $\frac{1}{2}$ " UP TO 12'-1 $\frac{1}{2}$ " 2x4 @ 12" O.C. OR 2x6 @ 16" O.C.
- SUPPORTING UP TO TWO STORIES ABOVE:
UP TO 10'-1 $\frac{1}{2}$ " 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 $\frac{5}{8}$ " 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 $\frac{3}{8}$ " 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 SPACING.
- 7.18) EXTERIOR WOOD DECKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPENDIX M OF THE 2018 NRC 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) $\frac{1}{2}$ " DIAMETER x 4" LONG LAG SCREWS
- CONCRETE (2) $\frac{1}{2}$ " DIAMETER x 4" LONG SST TITEN HD (OR EQUAL) SCREW ANCHORS
- MASONRY (GROUTED SOLID) (2) $\frac{1}{2}$ " DIAMETER x 4" LONG SST TITEN HD (OR EQUAL) SCREW ANCHORS
- STEEL COLUMN (2) $\frac{1}{2}$ " DIAMETER BOLTS OR $\frac{1}{8}$ " CONTINUOUS FILLET WELD
- 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:
UP TO 3'-0" | SIZE OF STEEL ANGLE:
L3x3x $\frac{1}{4}$ |
| >3'-0" UP TO 6'-0" | L5x3 $\frac{3}{8}$ " (LONG LEG VERTICAL) |
| >6'-0" UP TO 8'-0" | L6x4x $\frac{3}{8}$ " (LONG LEG VERTICAL) |
- 9.2) VENEER ABOVE OPENINGS WITH A CLEAR SPAN EXCEEDING 8'-0" SHALL BE SUPPORTED BY A 6x4x $\frac{3}{8}$ " 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 $\frac{3}{8}$ " STEEL ANGLE FASTENED TO (2) 2x10 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 3"x3"x $\frac{1}{4}$ " STEEL PLATE STOPS @ 24" O.C. TO STEEL ANGLE.

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
CP	CAST-IN-PLACE	PCF	POUNDS PER CUBIC FOOT
CLR	CLEAR	PLF	POUNDS PER LINEAR FOOT
CMU	CONCRETE MASONRY UNIT	PSF	POUNDS 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	QJ	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
HDC	HOT-DIPPED GALVANIZED	TJ	TRIPLE JOIST
HDR	HEADER	TRPL	TRIPLE
HGR	HANGER	TRSP	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	WWF	WELDED WIRE FABRIC
LVL	LAMINATED VENEER LUMBER	XJ	EXTRA JOIST

LEGEND

■ (#)	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
	BEAM, GIRDER, OR HEADER AS SPECIFIED
	JOIST, RAFTER, OR TRUSS AS SPECIFIED
	MECHANICAL FASTENER (REFER TO SCHEDULE BELOW)
	FULL HEIGHT MASONRY OR NATURAL STONE VENEER
	MASONRY OR NATURAL STONE VENEER WATERTABLE BELOW
	PLUMBING OR APPLIANCES ABOVE (FOR REFERENCE ONLY, REFER TO ARCHITECTURAL PLANS)
	SOLID GROUTED MASONRY
	ROOF SUPPORT BELOW
	FULL HEIGHT BRICK VENEER BELOW ROOF

MECHANICAL FASTENERS		ALLOWABLE I-JOIST SUBSTITUTIONS	
BEAM SIZE:	FASTENER:	SPECIFIED SERIES:	EQUIVALENT SERIES:
(2)-2x6 OR (2)-2x8	LUS26-2	TJ 110	BCI 4500s 1.8
(2)-2x10 OR (2)-2x12	LUS210-2	TJ 210	BCI 5000s 1.8, BLI 40, LPI 20PLUS, NI-40x
(1)-PLY LSL OR LVL	HUS1.81/10		
(2)-PLY LSL OR LVL	HHUS410		
(3)-PLY LSL OR LVL	HHUS5.50/10	TJ 230	BCI 6000s 1.8, LPI 32PLUS
(4)-PLY LSL OR LVL	HHUS7.25/10		
		TJ 360	BCI 60s 2.0, BLI 60, LPI 36, NI-60
		TJ 560	BCI 90s 2.0, BLI 80, LPI 56, NI-80
NOTES:			
-	MECHANICAL FASTENERS TO BE INSTALLED BASED ON THIS SCHEDULE UNLESS NOTED OTHERWISE.		
-	ALL SPECIFIED MECHANICAL FASTENERS ARE SIMPSON STRONG-TIE BRAND. OTHER BRAND FASTENERS WITH EQUIVALENT OR BETTER CAPACITY MAY BE SUBSTITUTED.	NOTES:	
-	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: 2025.10.30
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C&M CONSTRUCTION
LANIER FALLS HIDEAWAY
(RANCH)

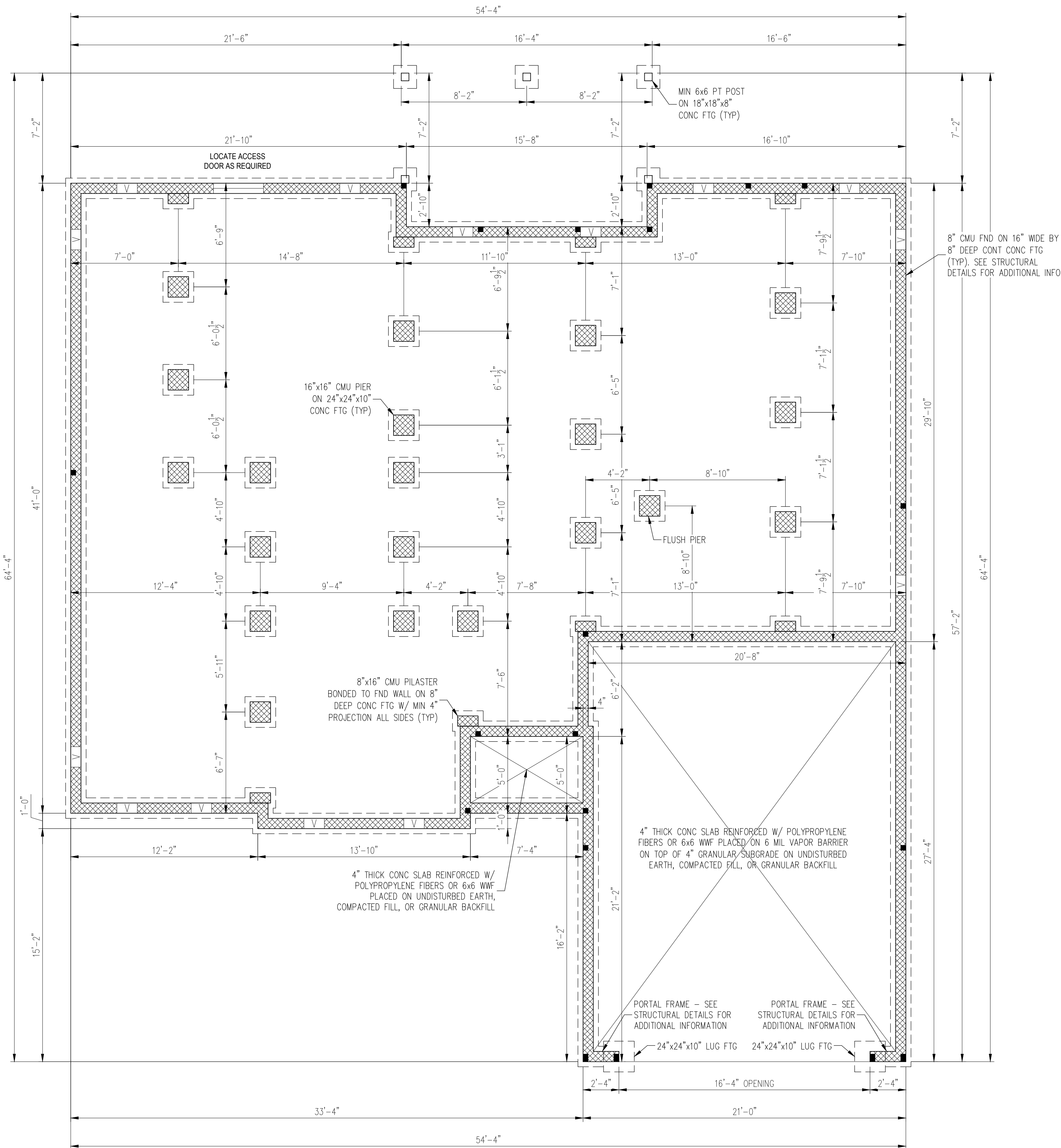
PROJECT NO.: 25-KAHD-025

DATE: OCTOBER 30, 2025
(REVISED)

SCALE: NOT TO SCALE

SHEET: STANDARD
STRUCTURAL NOTES

S-0



- CRAWL SPACE FOUNDATION NOTES:
1. THE BOTTOM OF ALL FOOTINGS SHALL EXTEND A MINIMUM OF 12" BELOW GRADE OR BELOW THE FROST LINE, WHICHEVER IS GREATER.
 2. ALL 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.
 3. 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.
 4. UNSUPPORTED PORCH AND GARAGE FOUNDATION WALLS SHALL NOT SUPPORT MORE THAN 48" OF UNBALANCED BACKFILL. CONSULT THE SER FOR REINFORCEMENT REQUIREMENTS SHOULD UNBALANCED BACKFILL AGAINST UNSUPPORTED FOUNDATION WALLS EXCEED 48".
 5. THE TOP COURSE OF MASONRY SHALL BE GROUTED SOLID. ALL CELLS CONTAINING REINFORCING STEEL OR EMBEDDED ITEMS SHALL BE GROUTED SOLID.
 6. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

LEGEND	
	POINT LOAD ABOVE THAT REQUIRES SOLID BLOCKING TO FOUNDATION



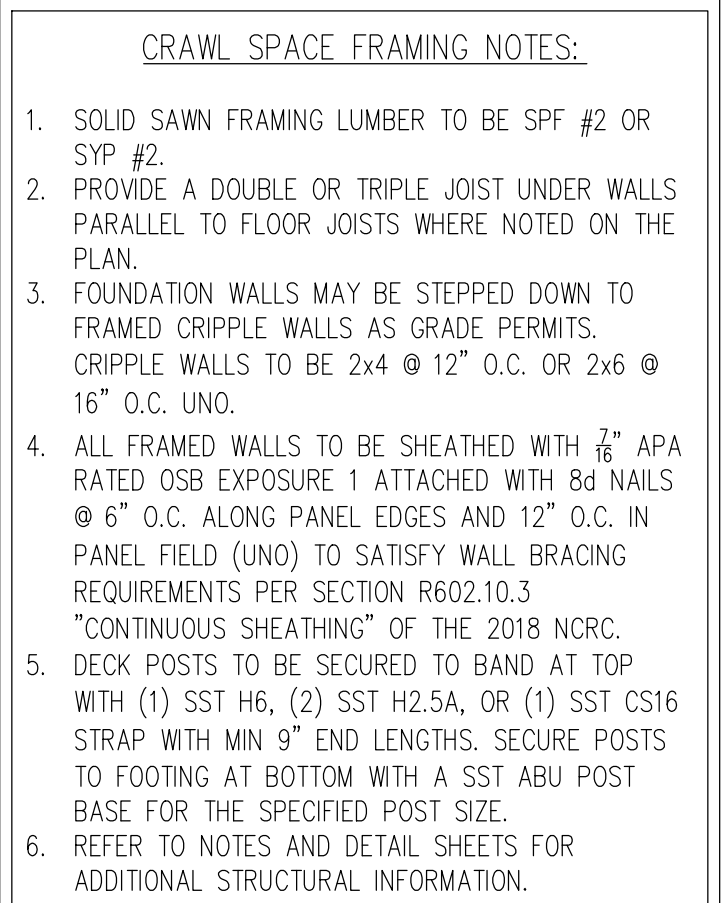
Digitally signed
by Zachary H.
Hayes, PE
Date: 2025.10.30
15:16:50 -04'00'


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C&M CONSTRUCTION
LANIER FALLS HIDEAWAY
(RANCH)

PROJECT NO.: 25-KAHD-025
DATE: OCTOBER 30, 2025
(REVISED)
11x17 PRINT SCALE: 3/8" = 1'-0" (UNO)
24x36 PRINT SCALE: 3/8" = 1'-0" (UNO)
SHEET: CRAWL SPACE
FOUNDATION PLAN

S-1



<h2 style="text-align: center;"><u>LEGEND</u></h2>	
■	POINT LOAD ABOVE THAT REQUIRES SOLID BLOCKING TO FOUNDATION
■	OFFSET POINT LOAD FROM ABOVE TO BE SUPPORTED BY GIRDER, BEAM, HEADER, JOIST, OR BLOCKING AS SPECIFIED
— — —	BEAM, GIRDER, OR HEADER AS SPECIFIED
=====	JOIST, RAFTER, OR TRUSS AS SPECIFIED
	PLUMBING ABOVE (FOR REFERENCE ONLY, REFER TO ARCH PLANS)

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15:17:06 -04'00'

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C&M CONSTRUCTION
LANIER FALLS HIDEAWAY
(RANCH)

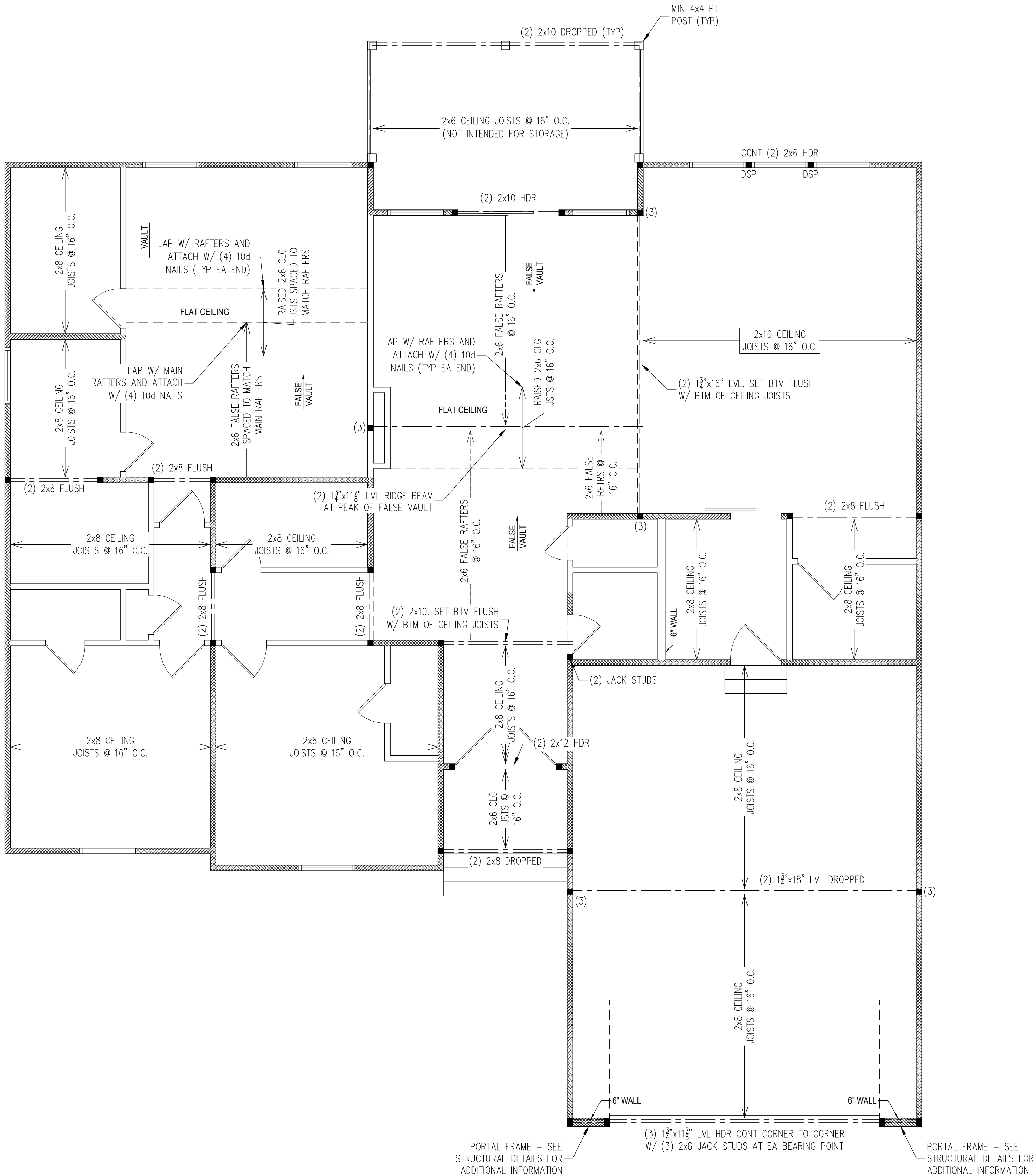
PROJECT NO.: 25-KAHD-02

DATE: OCTOBER 30, 2025
(REVISED)

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

SHEET: CRAWL SPACE
FRAMING PLAN

S-2



FIRST FLOOR FRAMING NOTES:

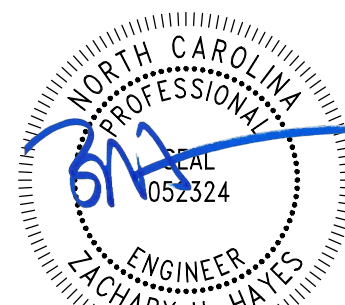
- SOLID SAWN FRAMING LUMBER TO BE SPF #2 OR SYP #2.
- ALL LOAD BEARING HEADERS TO BE (2) 2x6 UNO.
- HEADERS TO BE SUPPORTED BY JACK STUDS AND KING STUDS PER THE TABLE BELOW UNO.
- EXTERIOR AND INTERIOR LOAD BEARING WALLS TO BE 2x4 @ 16" O.C. OR 2x6 @ 24" O.C. UNO.
- ALL EXTERIOR WALLS TO BE SHEATHED WITH 7/8" 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 NRC.
- PORCH POSTS TO BE SECURED TO BAND AT BOTTOM AND BEAM AT TOP WITH (1) SST H6, (2) SST H2.5A, OR (1) SST CS16 STRAP WITH MIN. 9" END LENGTHS. FOR MASONRY FOUNDATIONS, SECURE POSTS AT BOTTOM WITH A SST ABU POST BASE FOR THE SPECIFIED POST SIZE.
- REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

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)

LEGEND

■ (#)	STUD COLUMN AT POINT LOADS THAT REQUIRES SOLID BLOCKING TO GIRDER OR FOUNDATION. (#) DENOTES NUMBER OF STUDS. (2) STUDS REQUIRED IF NOT SPECIFIED.
▨	BEARING WALL
---	BEAM, GIRDER, OR HEADER AS SPECIFIED



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C&M CONSTRUCTION
LANIER FALLS HIDEAWAY
(RANCH)

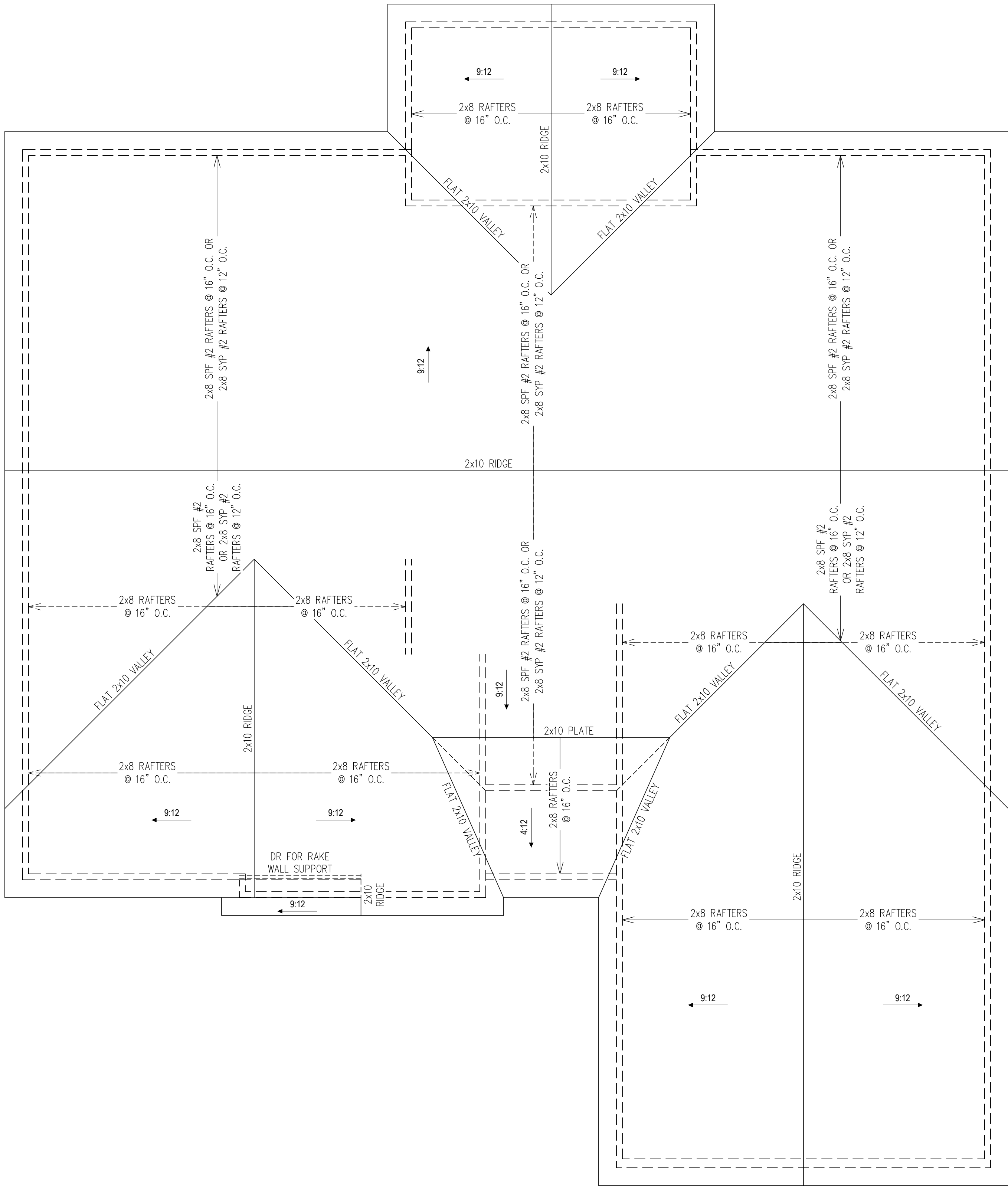
PROJECT NO.: 25-KAHD-025

DATE: OCTOBER 30, 2025
(REVISED)

11x17 PRINT SCALE: 3/4" = 1'-0" (UNO)
24x36 PRINT SCALE: 3/4" = 1'-0" (UNO)

SHEET: FIRST FLOOR
FRAMING PLAN

S-3

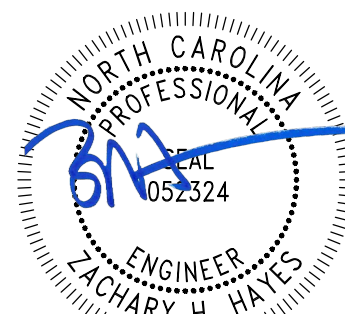


ROOF FRAMING NOTES:

- SOLID SAWN FRAMING LUMBER TO BE SPF #2 OR SYP #2.
- ROOF SHEATHING TO BE $\frac{7}{8}$ " 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.
- FASTEN PLATES AND FLAT VALLEYS TO EVERY OTHER CROSSING RAFTER BELOW (32" O.C. MAX) WITH (2) $\frac{1}{2}$ " LONG SST SDS SCREWS.
- REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

LEGEND

—————	RAFTER OR TRUSS AS SPECIFIED
- - - - -	ROOF SUPPORT BELOW



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C&M CONSTRUCTION
LANIER FALLS HIDEAWAY
(RANCH)

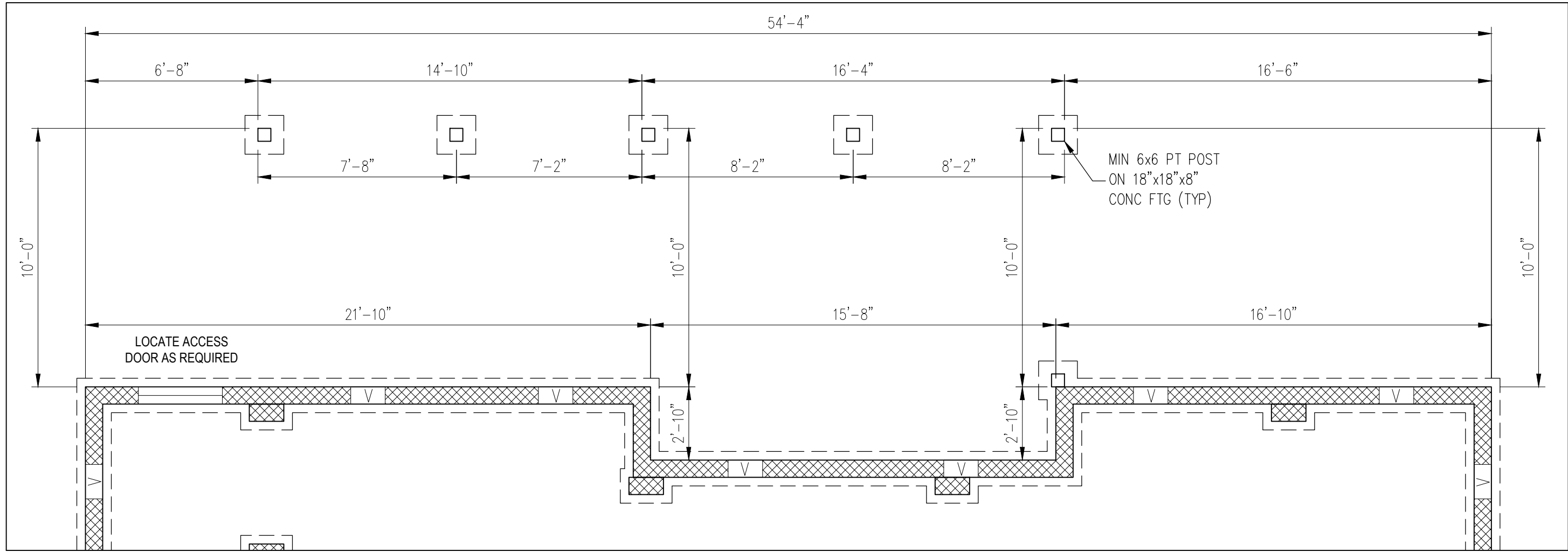
PROJECT NO.: 25-KAHD-025

DATE: OCTOBER 30, 2025
(REVISED)

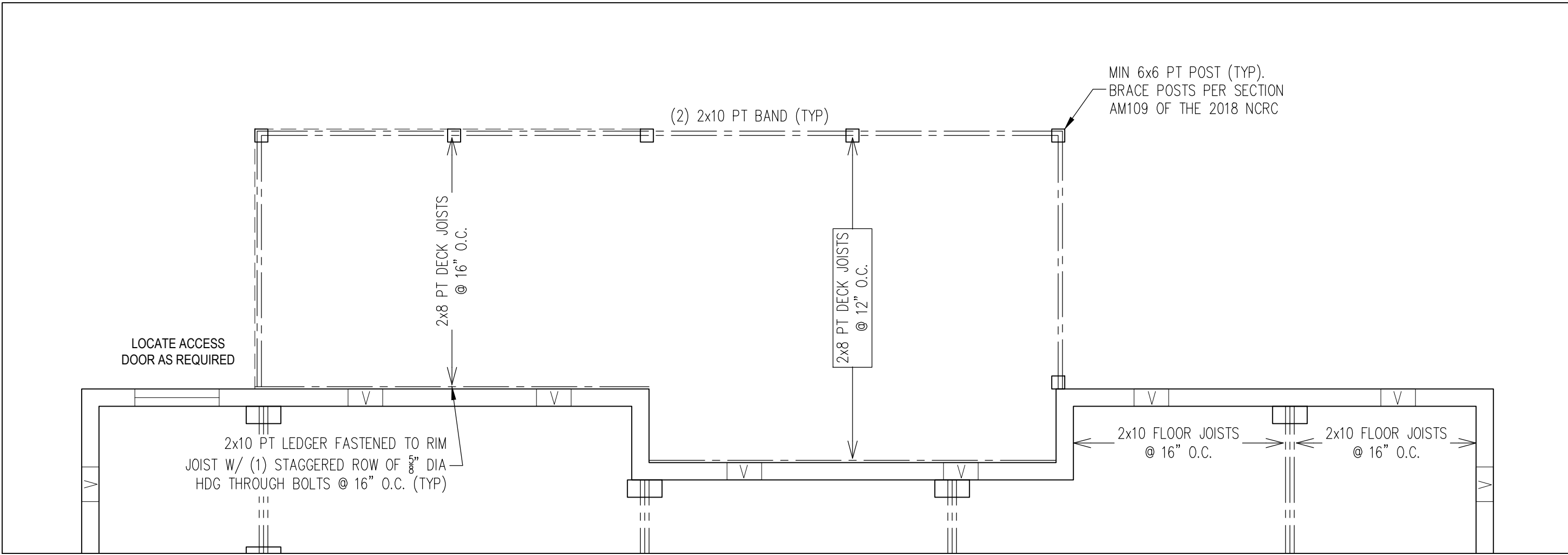
11x17 PRINT SCALE: $\frac{3}{4}$ " = 1'-0" (UNO)
24x36 PRINT SCALE: $\frac{1}{2}$ " = 1'-0" (UNO)

SHEET: ROOF FRAMING PLAN

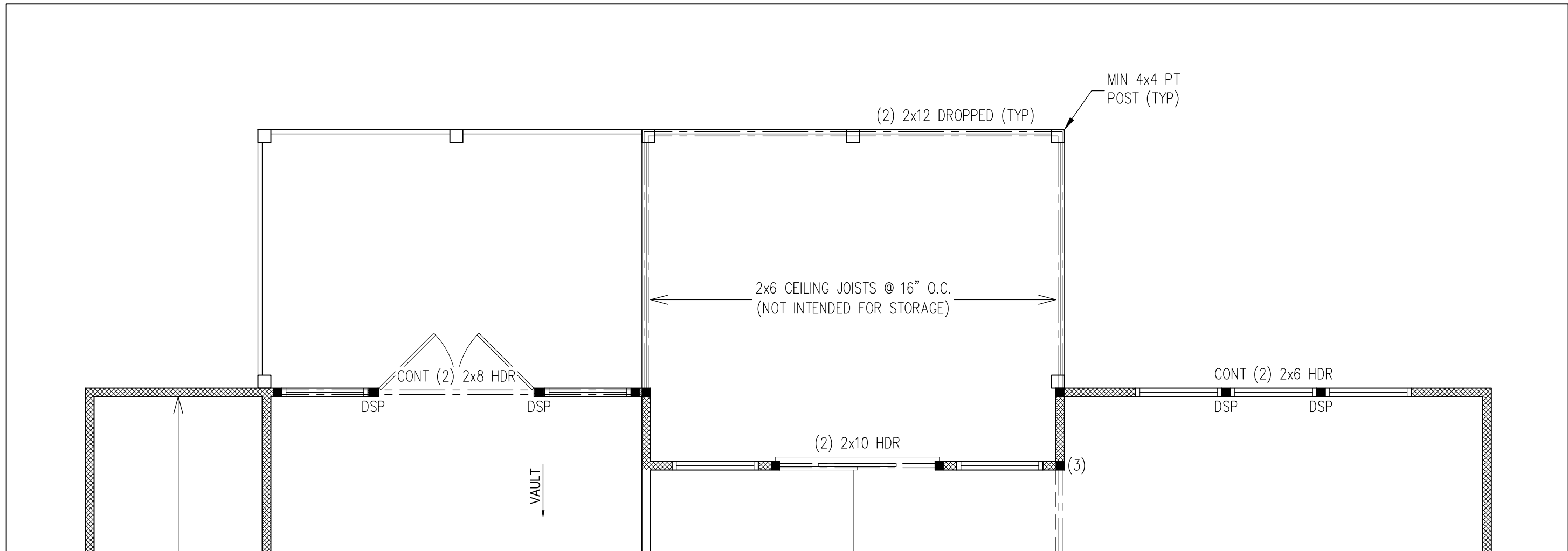
S-4



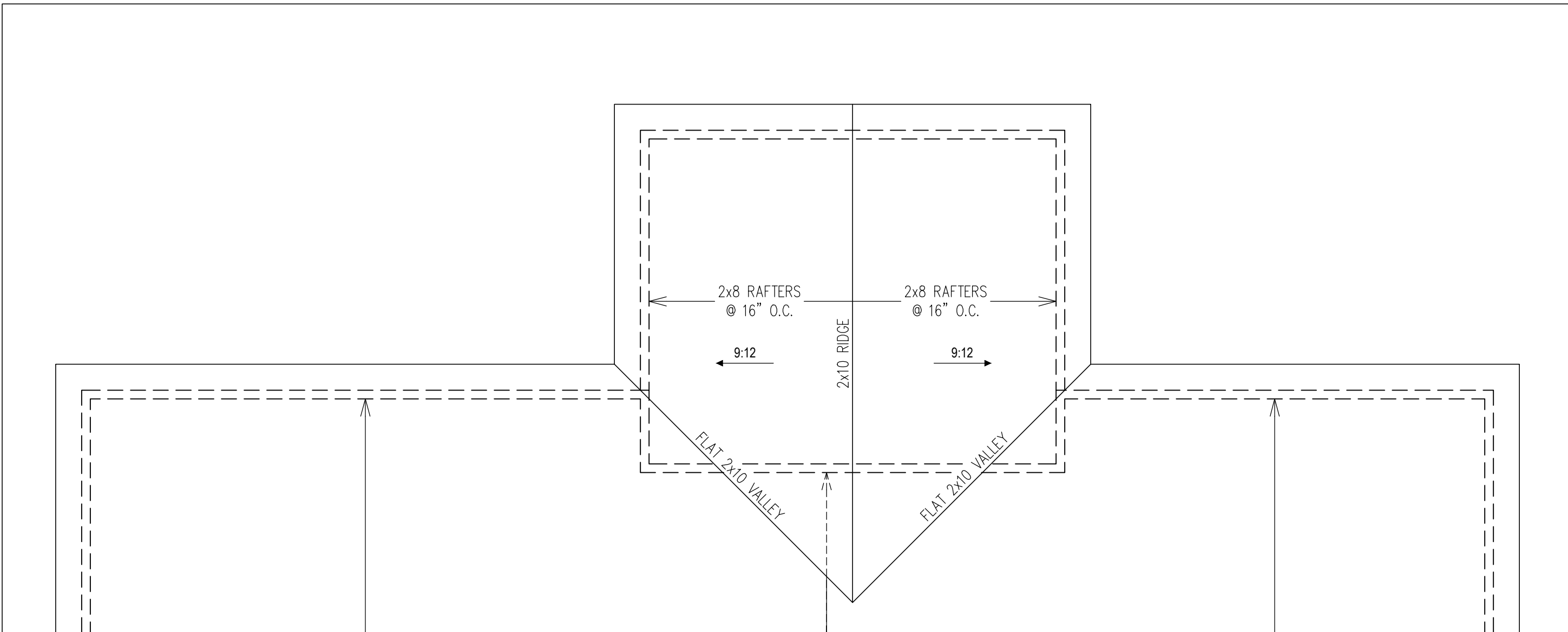
**OPTIONAL DECK/COVERED PORCH
FOUNDATION PLAN**



**OPTIONAL DECK/COVERED PORCH
FLOOR FRAMING PLAN**



**OPTIONAL DECK/COVERED PORCH
CEILING FRAMING PLAN**



**OPTIONAL DECK/COVERED PORCH
ROOF FRAMING PLAN**



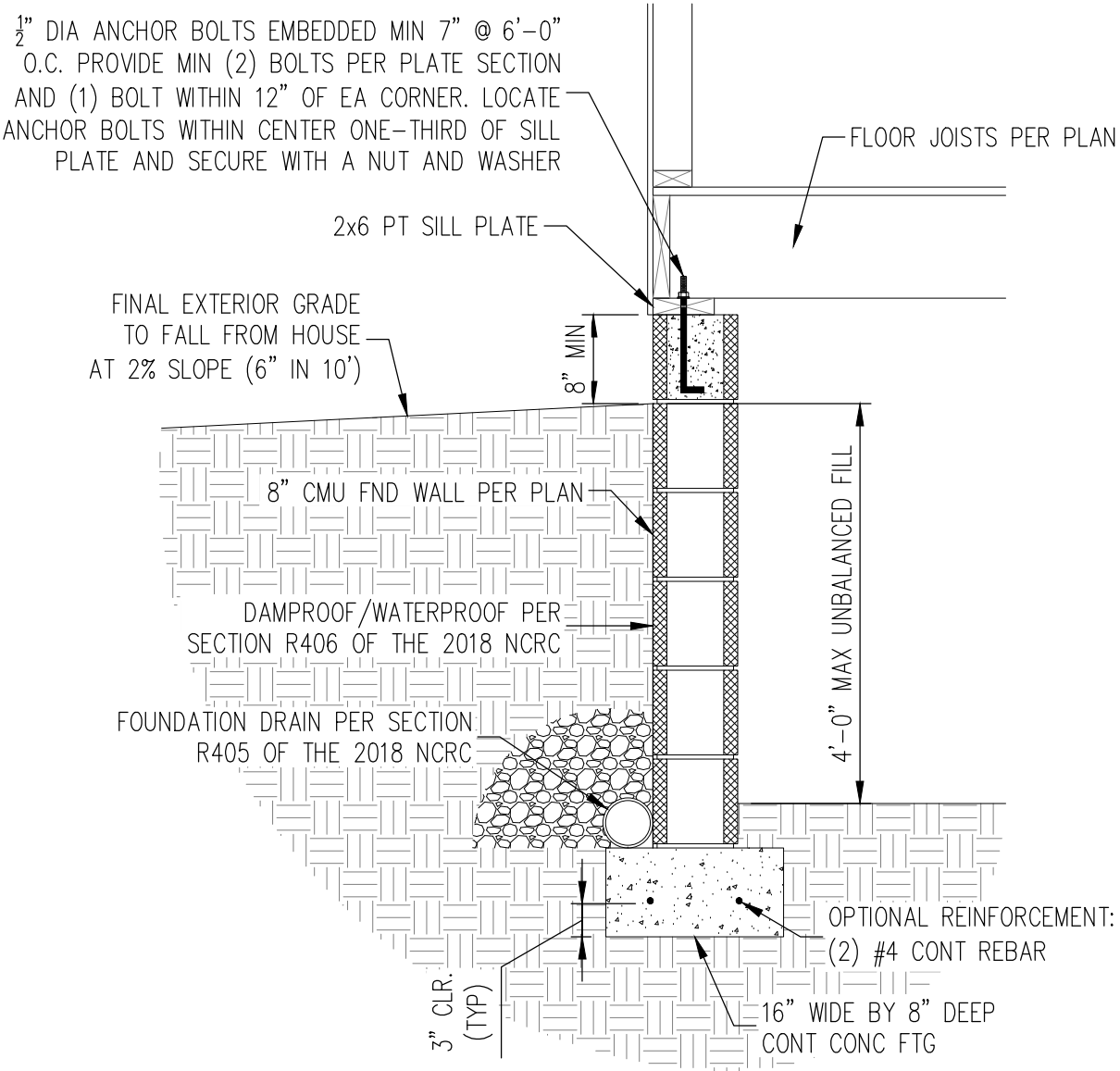
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C&M CONSTRUCTION
LANIER FALLS HIDEAWAY
(RANCH)

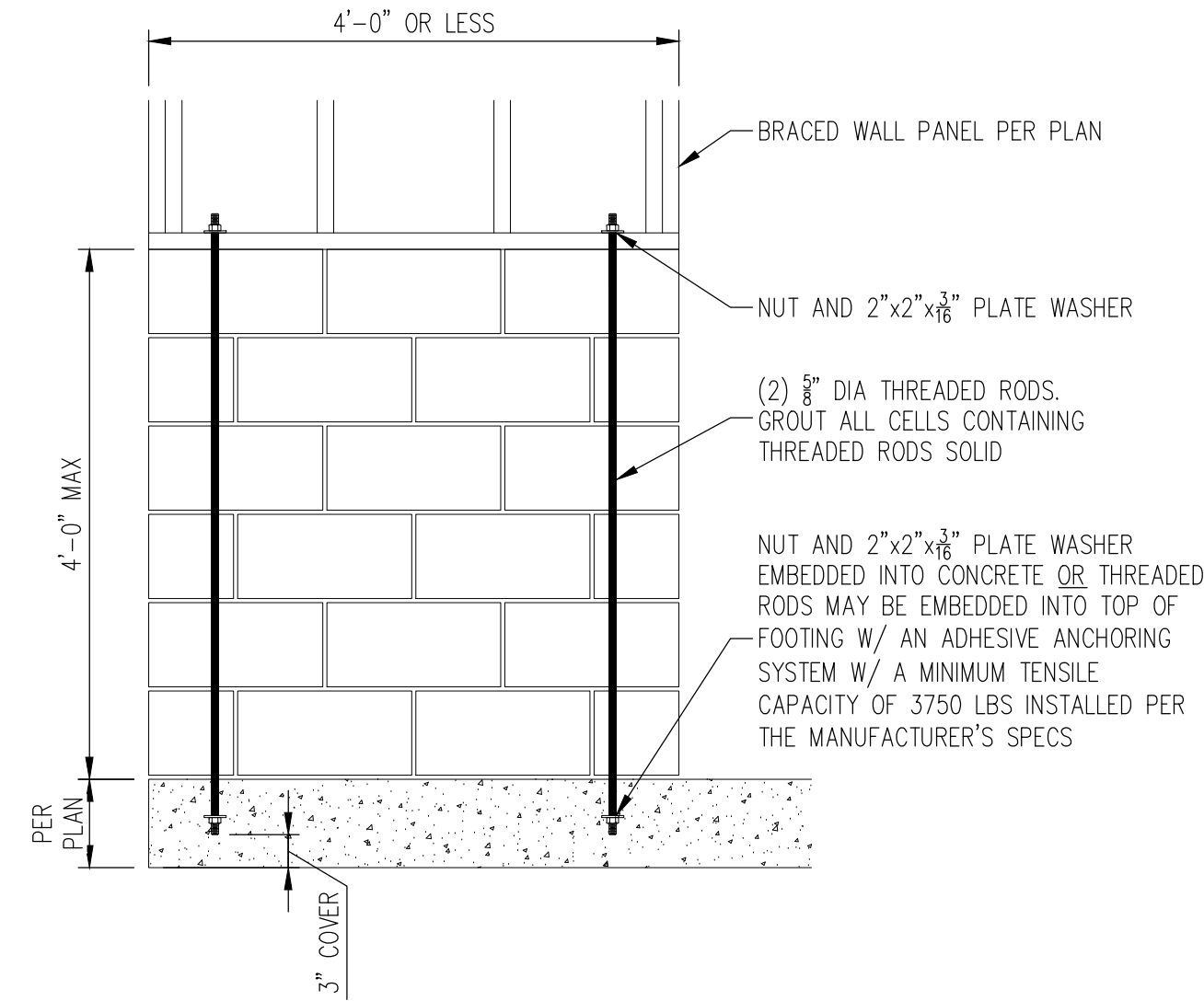
PROJECT NO.: 25-KAHD-025
DATE: OCTOBER 30, 2025
(REVISED)
11x17 PRINT SCALE: 3/4" = 1'-0" (UNO)
24x36 PRINT SCALE: 3/4" = 1'-0" (UNO)
SHEET: OPTIONAL DECK/PORCH
FOUNDATION AND FRAMING PLANS

S-5



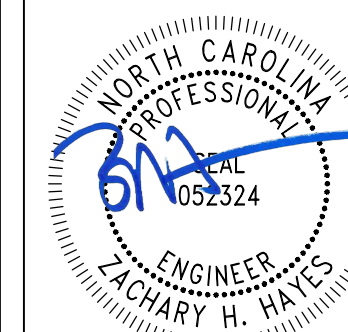
1 TYPICAL FOUNDATION WALL

11x17 PRINT SCALE: 3/4" = 1'-0"
24x36 PRINT SCALE: 1/2" = 1'-0"



2 MASONRY STEM WALL SUPPORTING BRACED WALL PANEL WITH LENGTH OF 4'-0" OR LESS

11x17 PRINT SCALE: 3/4" = 1'-0"
24x36 PRINT SCALE: 1/2" = 1'-0"



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16:13:49 -05'00'

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C&M CONSTRUCTION
LANIER FALLS HIDEAWAY
(RANCH)

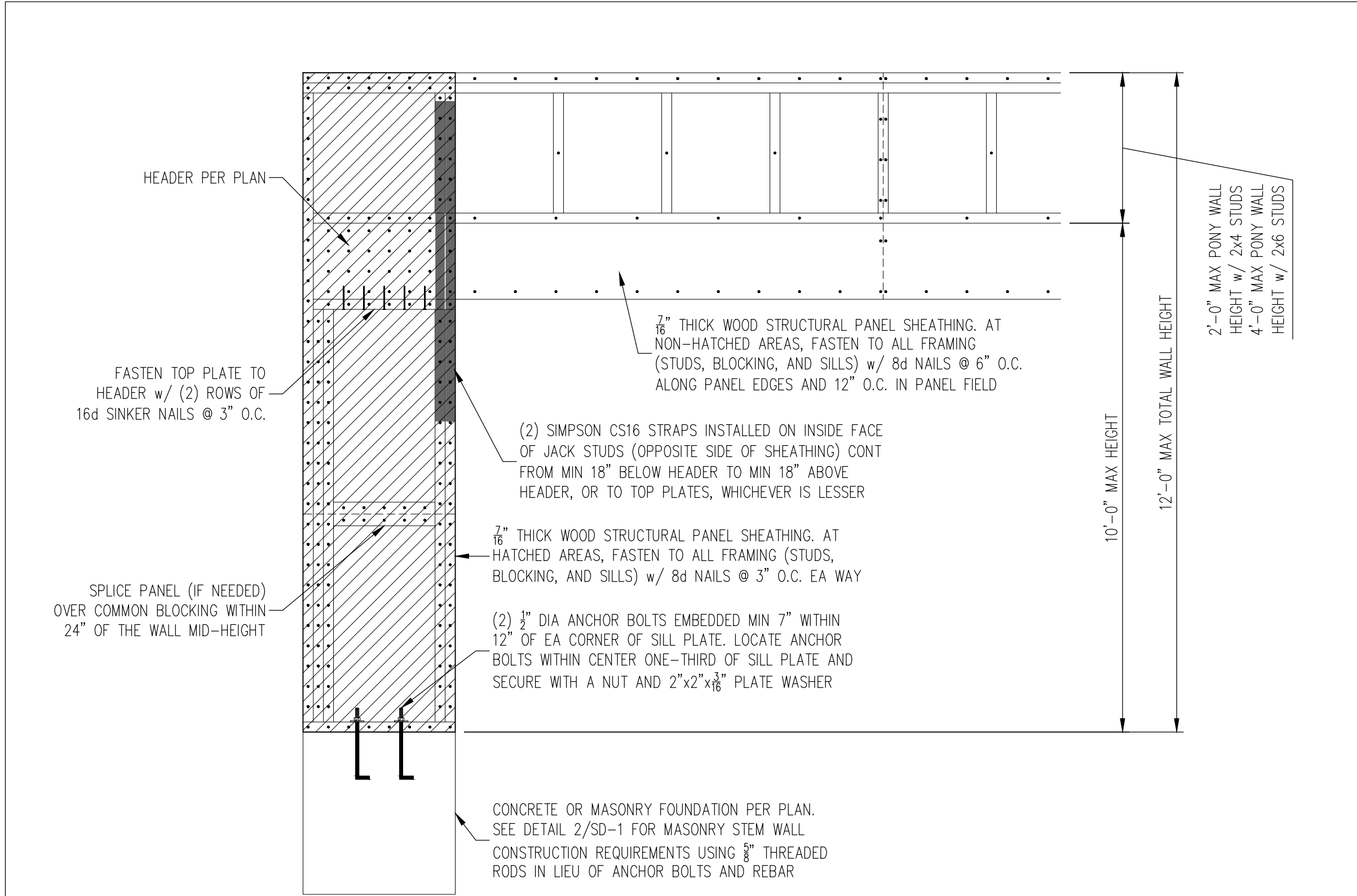
PROJECT NO.: 25-KAHD-025

DATE: NOVEMBER 4, 2025
(REVISED)

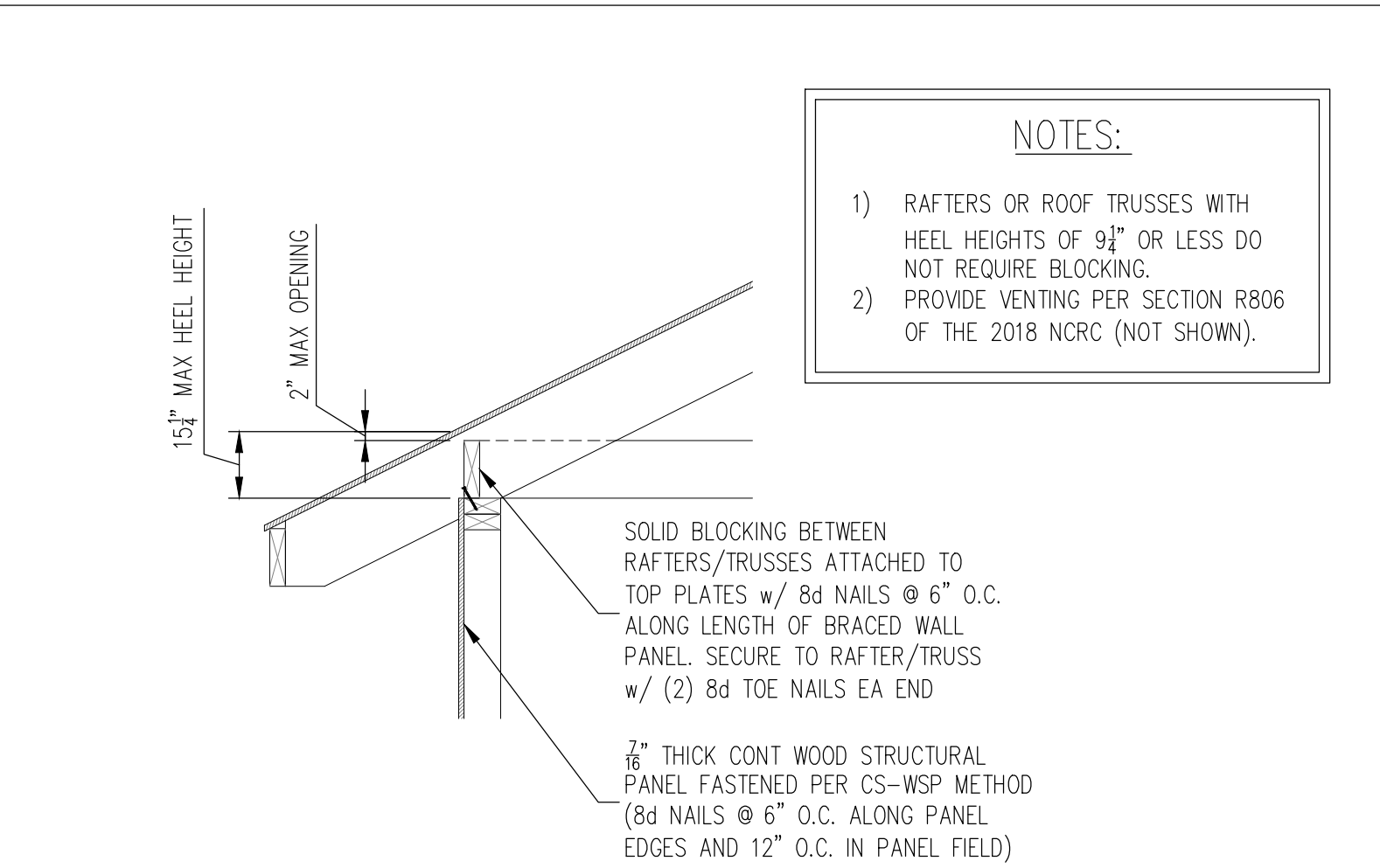
SCALE: AS NOTED

SHEET: STRUCTURAL DETAILS

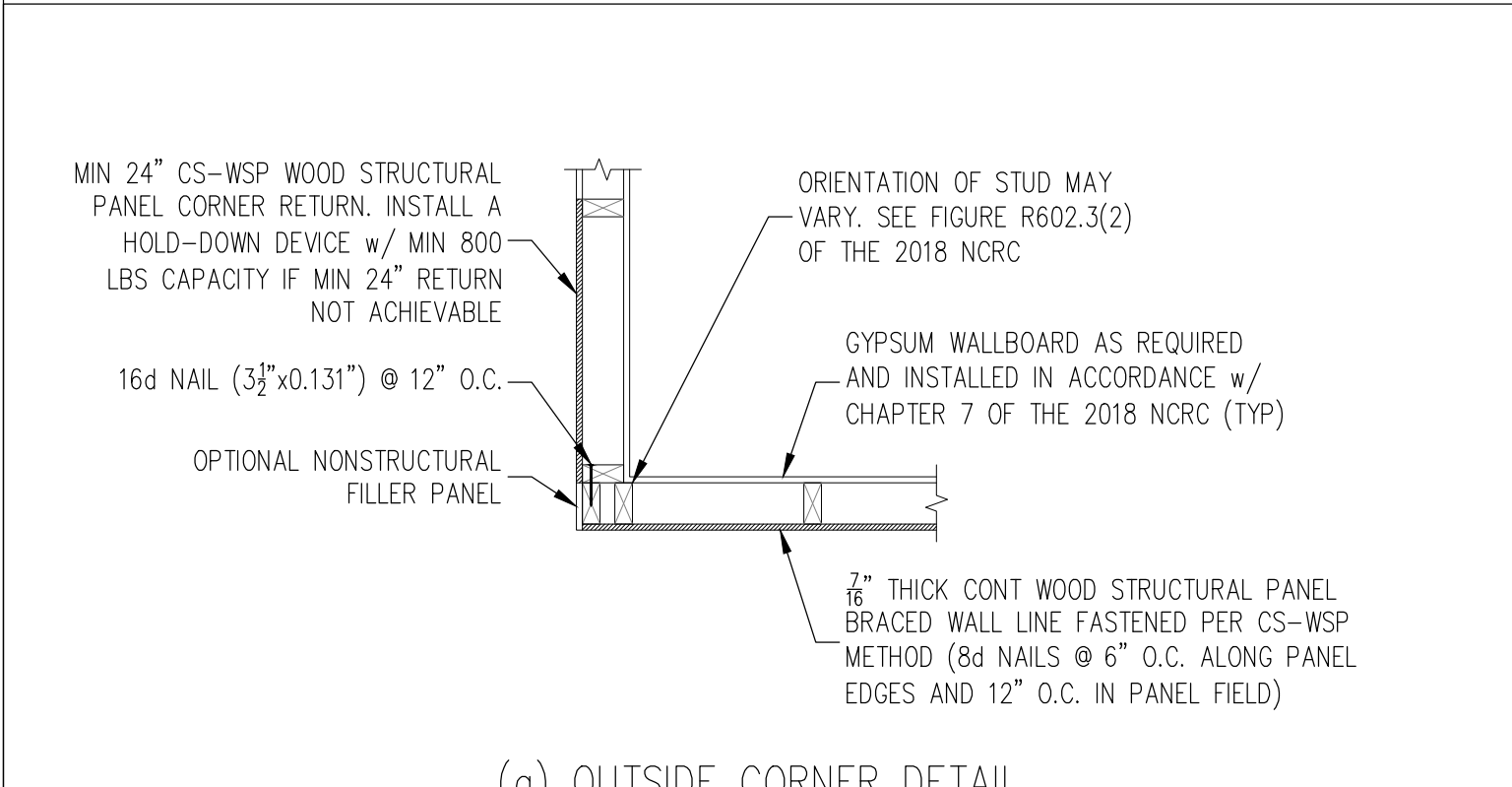
SD-1



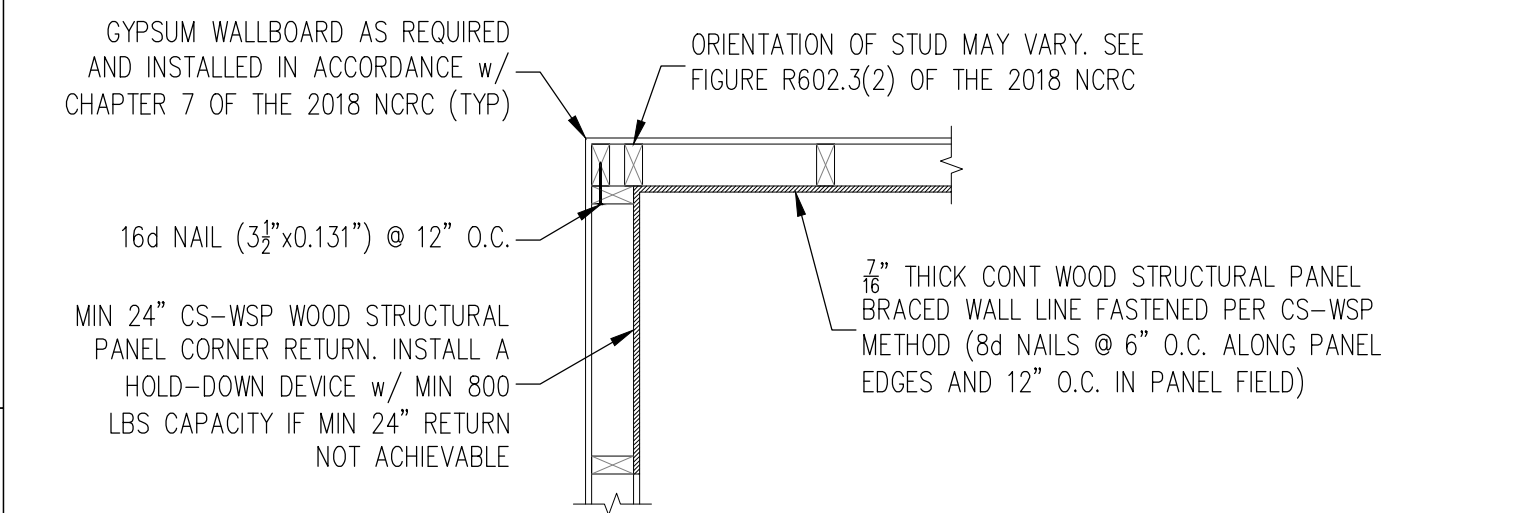
1 METHOD PF-PORTAL FRAME CONSTRUCTION DETAIL
SD-2
11x17 PRINT SCALE: 1/8" = 1'-0"
24x36 PRINT SCALE: 1/4" = 1'-0"



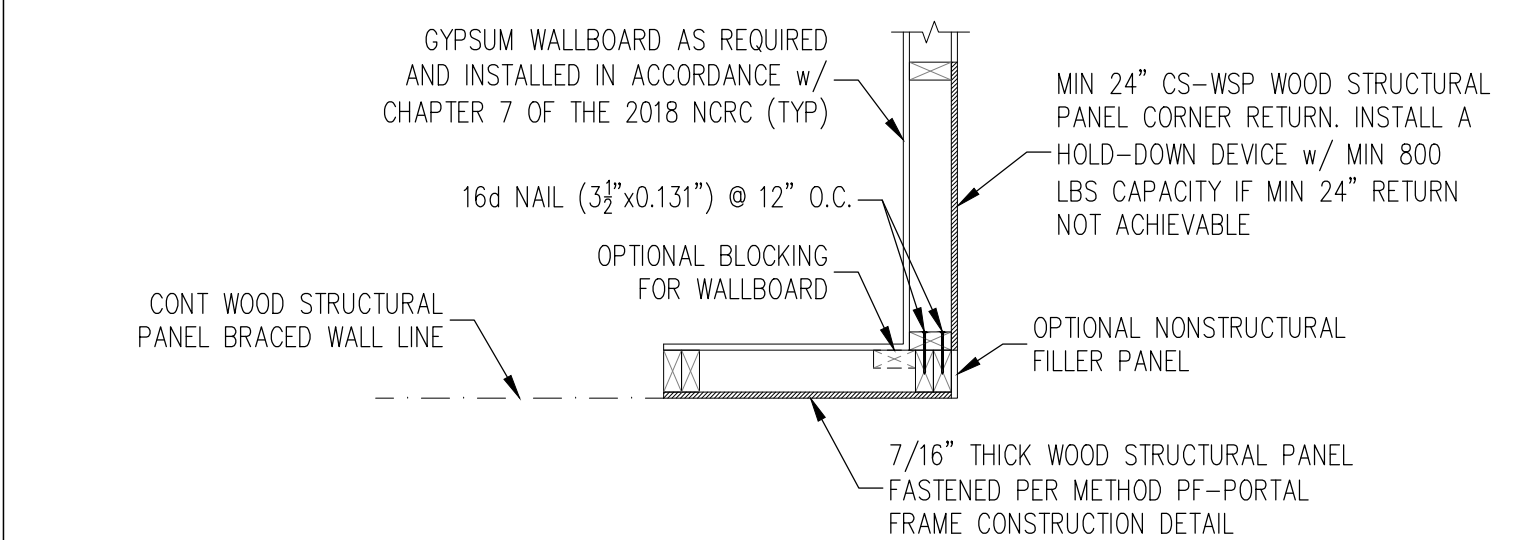
2 BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES WITH HEEL HEIGHTS > 9 1/4" TO 15 1/4"
SD-2
11x17 PRINT SCALE: 1/8" = 1'-0"
24x36 PRINT SCALE: 1/4" = 1'-0"



(a) OUTSIDE CORNER DETAIL

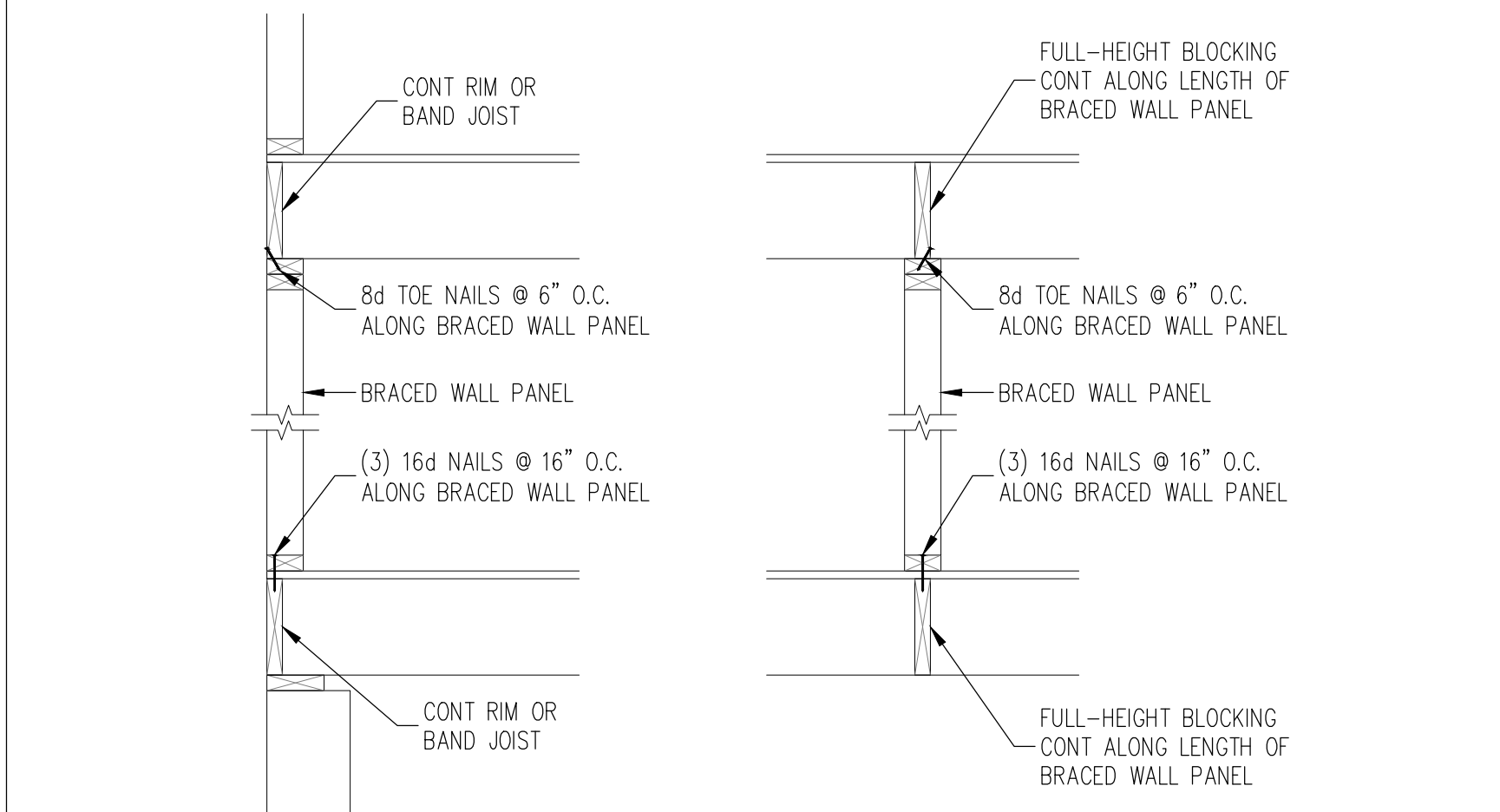


(b) INSIDE CORNER DETAIL

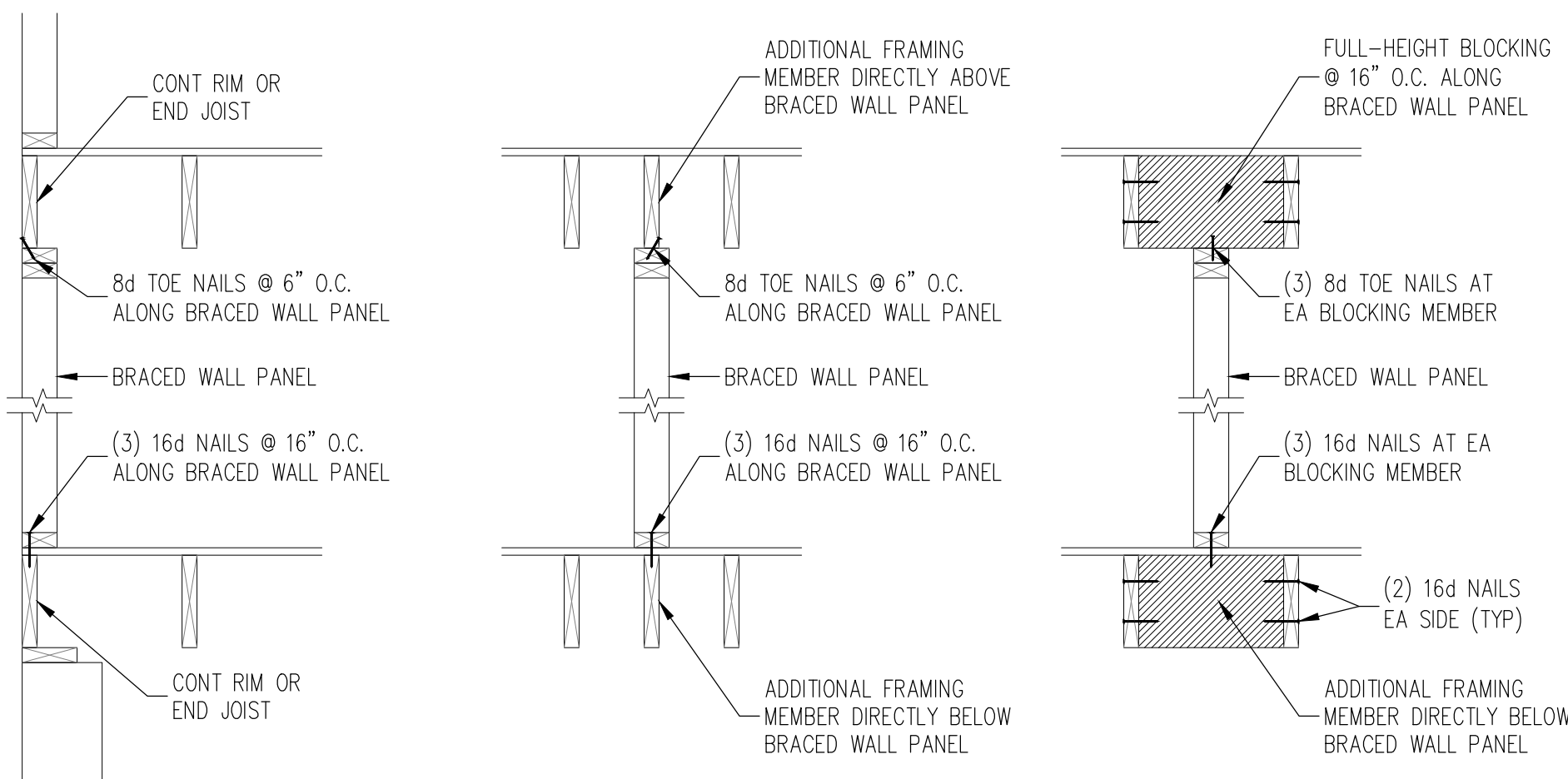


(c) GARAGE DOOR CORNER DETAIL

5 TYPICAL EXTERIOR CORNER FRAMING FOR EXTERIOR SHEATHING
SD-2
11x17 PRINT SCALE: 1/8" = 1'-0"
24x36 PRINT SCALE: 1/4" = 1'-0"



3 BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING
SD-2
11x17 PRINT SCALE: 1/8" = 1'-0"
24x36 PRINT SCALE: 1/4" = 1'-0"



4 BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING
SD-2
11x17 PRINT SCALE: 1/8" = 1'-0"
24x36 PRINT SCALE: 1/4" = 1'-0"



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C&M CONSTRUCTION
LANIER FALLS HIDEAWAY
(RANCH)

PROJECT NO.: 25-KAHD-025
DATE: OCTOBER 30, 2025
(REVISED)
SCALE: AS NOTED
SHEET: STRUCTURAL DETAILS

SD-2