

FRONT ELEVATION

SHINGLES AS SPEC'D. 

LEFT ELEVATION

1/4" = 1'-0"

\*Engineers seal does not include construction means, methods, techniques, sequences, procedures or safety precaution.

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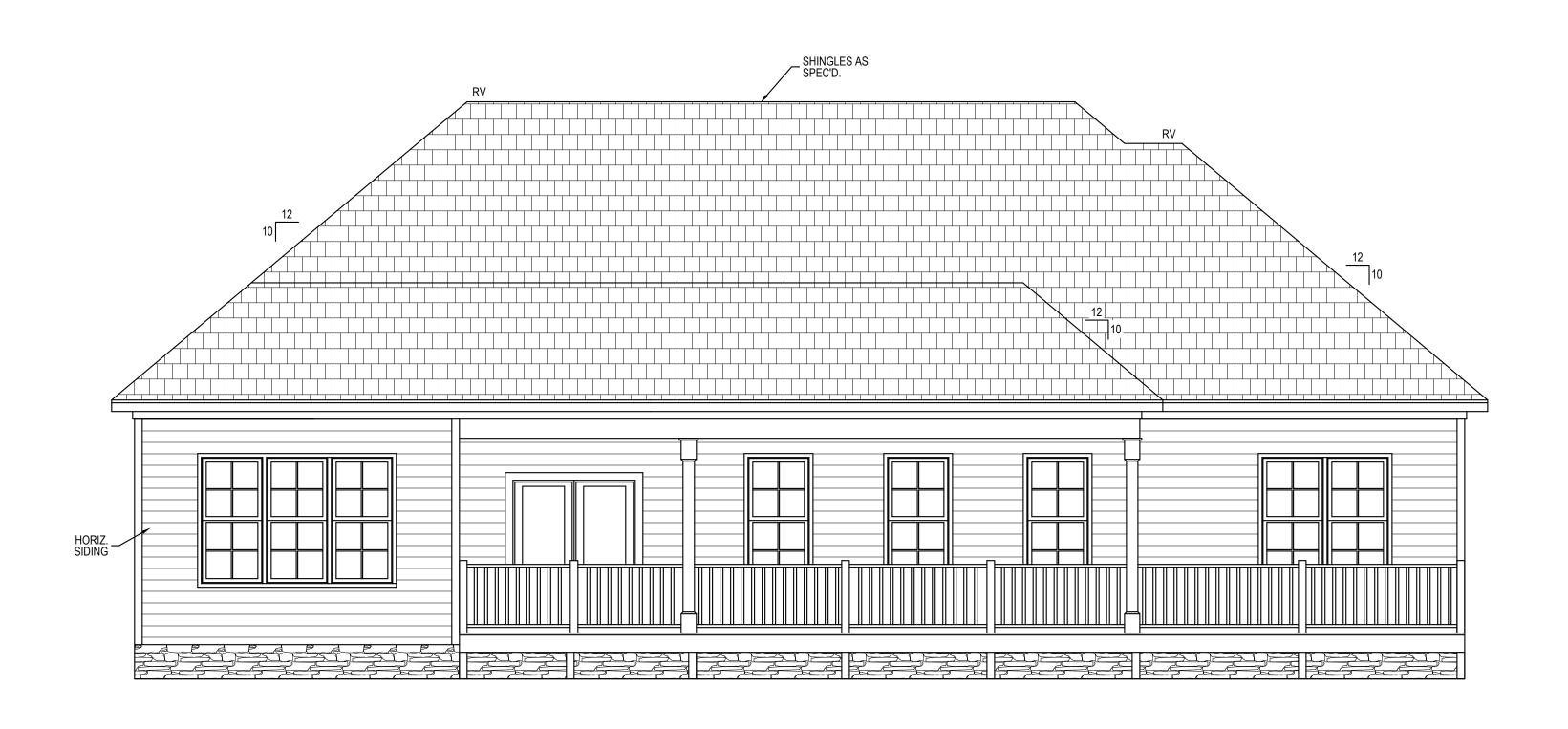
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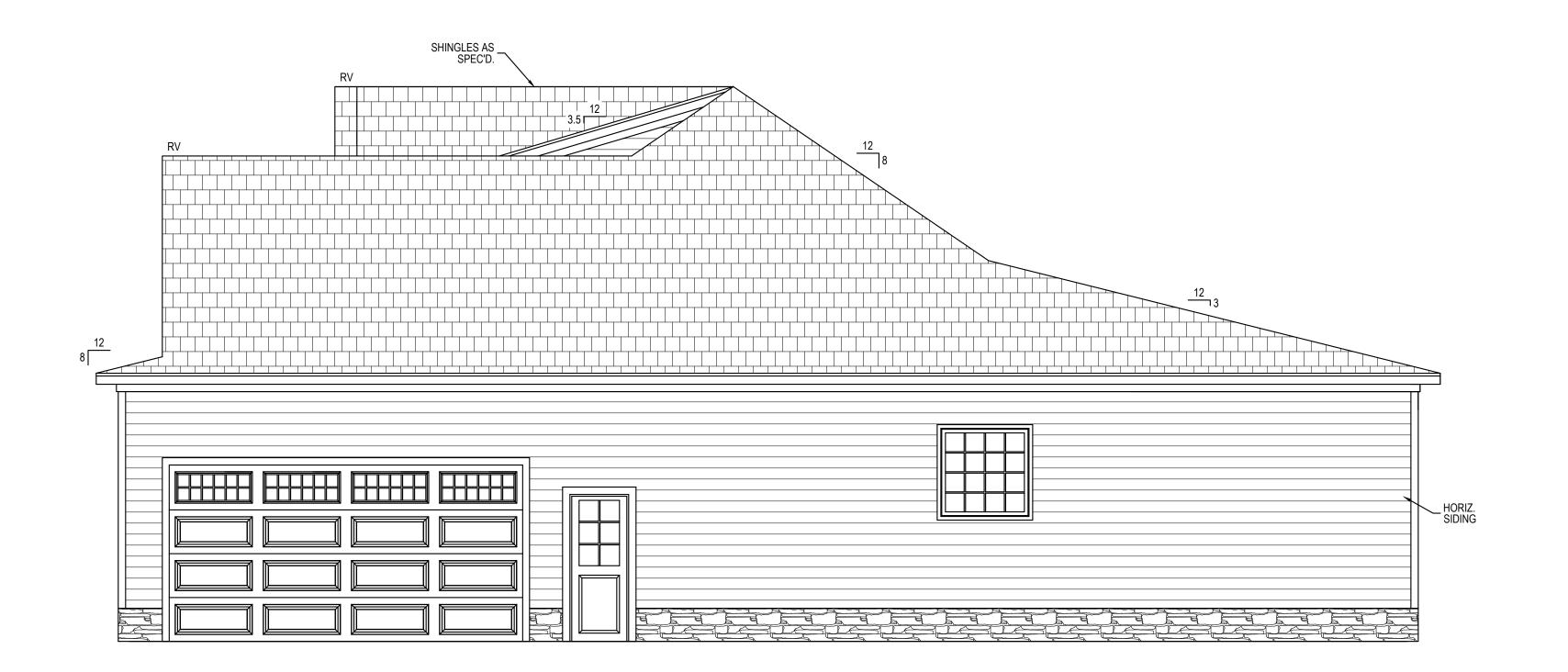
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## **REAR ELEVATION** 1/4" = 1'-0"



**RIGHT ELEVATION** 1/4" = 1'-0"

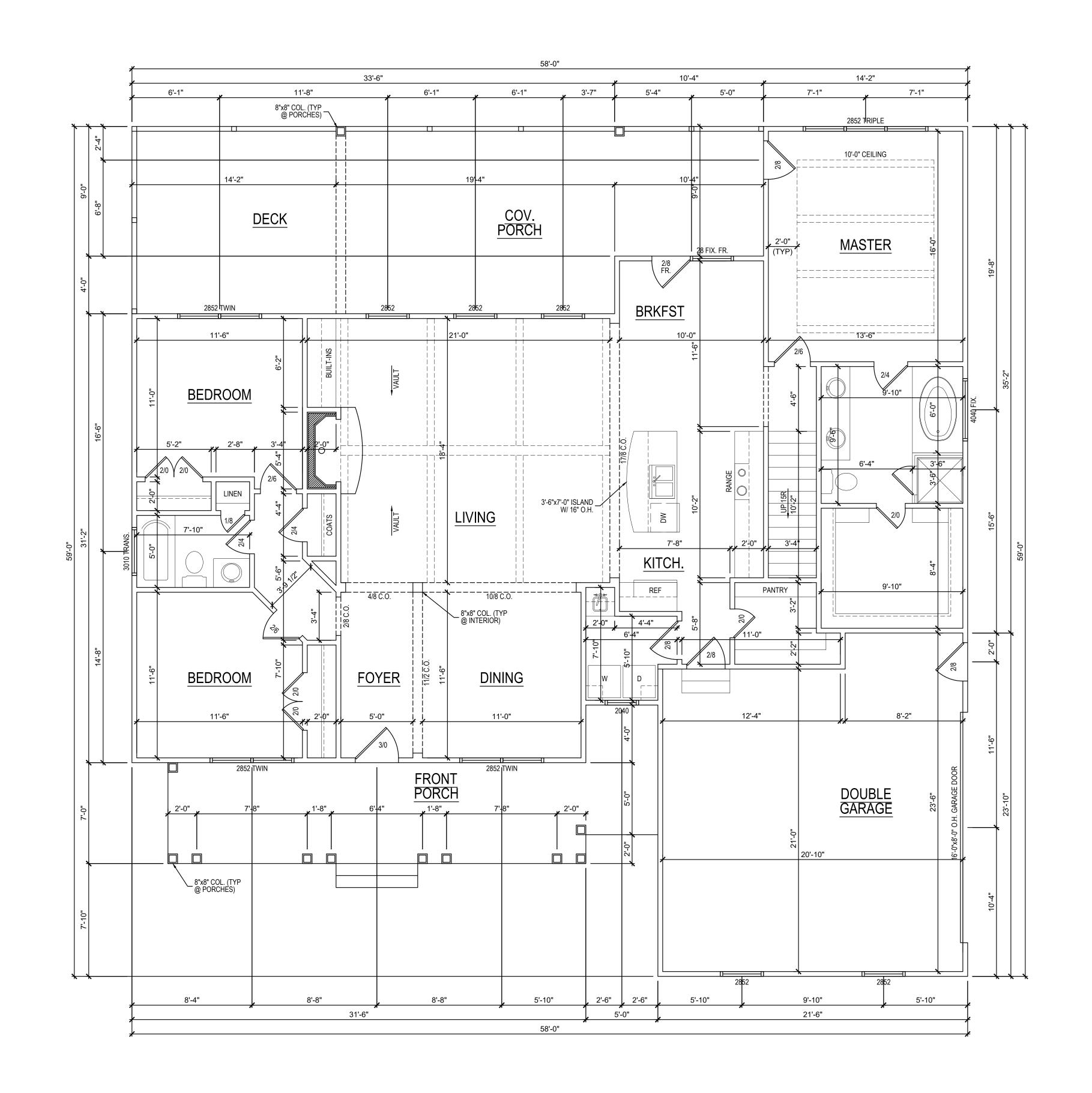
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HEATED SF
First Floor 1853
Second Floor 642

TOTAL HEATED 2495

UNHEATED SF
Front Porch 248
Rear Porch 344
Deck 184
Garage 479

TOTAL UNHEATED 1255

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FIRST FLOOR PLAN

Project #: 2001-010222

<u>Date:</u> 6/3/20

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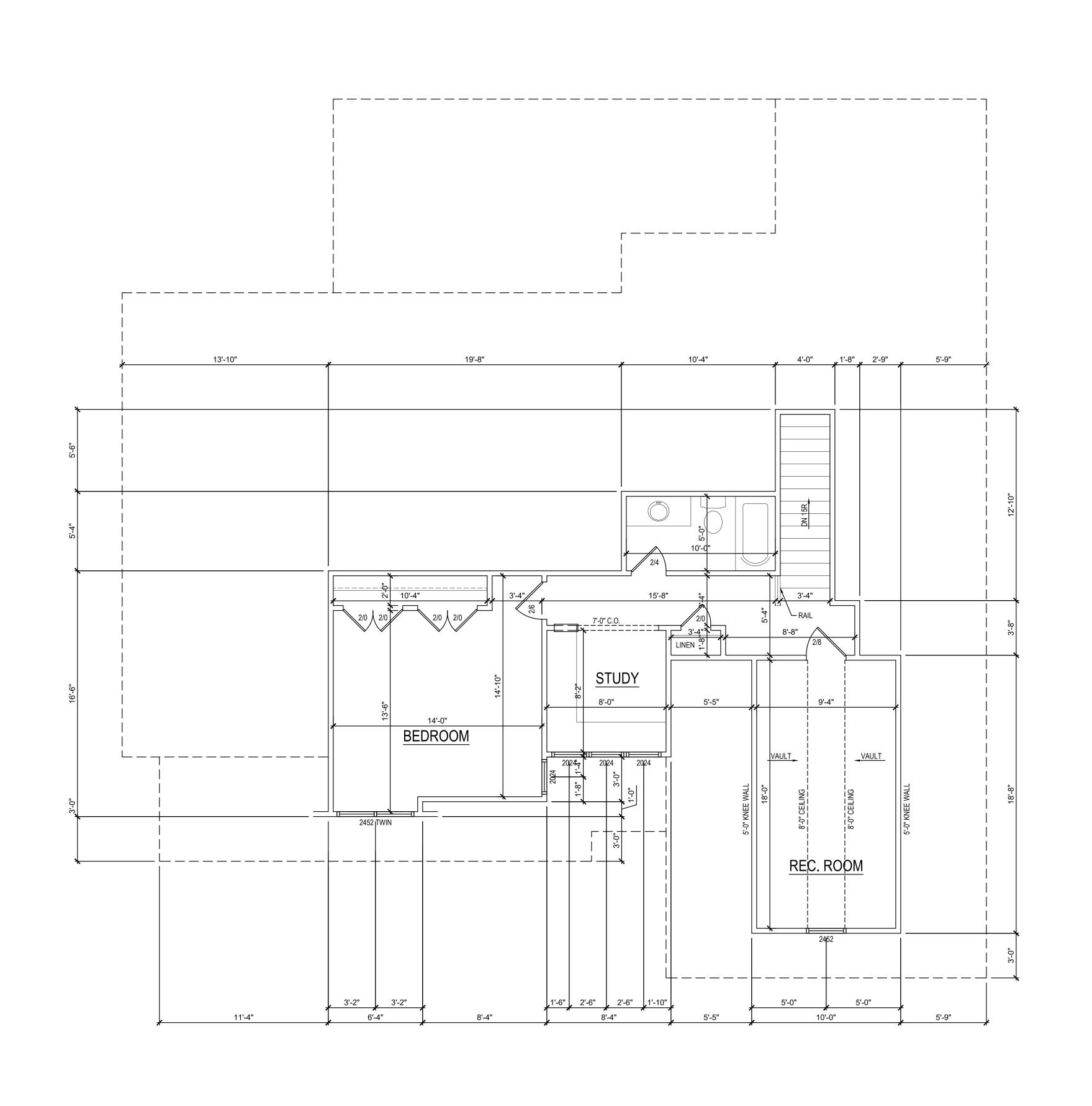
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FIRST FLOOR PLAN

1/4" = 1'-0" CEILING HGT. = 9'-0" (U.N.O.)



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SECOND FLOOR PLAN

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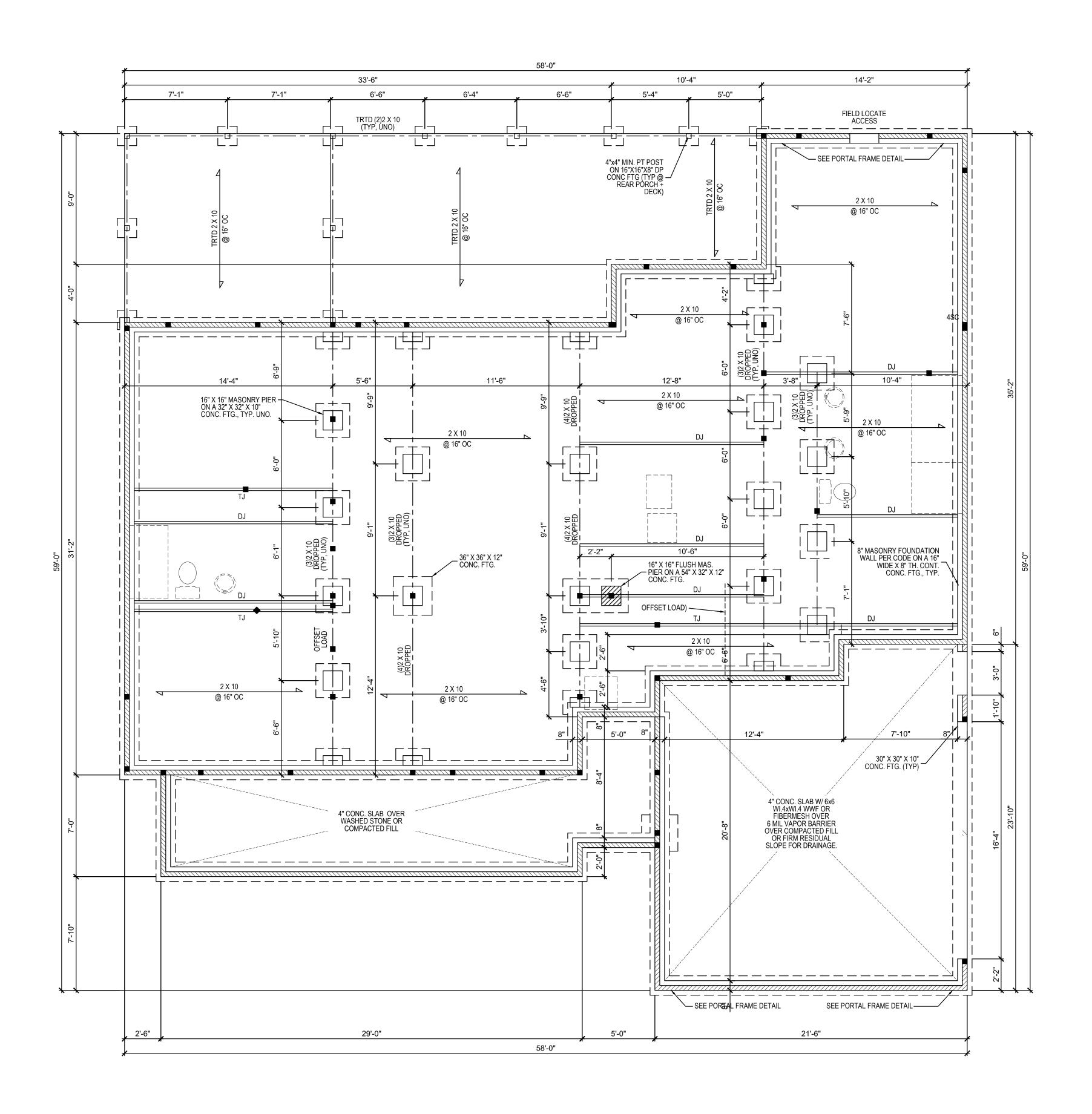
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**SECOND FLOOR PLAN** 1/4" = 1'-0" CEILING HGT. = 8'-0"



FOUNDATION PLAN

1/4" = 1'-0"

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ENGINEERING & DESIGN, P.A.

1919 778-1200 = p119 778-468

shipwash Drive = Garner = North Carolina = 27829

www.tyndallangineering.com

RIDGE PLAN

OUNDATION PLAN ST FLOOR FRAMING

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1\(\frac{1}{2}\)
3\(\frac{1}{4}\)

**Sheet Number** 

**S**1

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLE	CTION	
	(* /	(* = * )	LL	TL	
FLOOR (primary)	40	10	L/360	L/240	
FLOOR (secondary)	40	10	L/360	L/240	
ATTIC (w/ storage)	20	10	L/240	L/180	
ATTIC (no access)	10	5	L/240	L/180	
EXTERNAL BALCONY	40	10	L/360	L/240	
ROOF	20	10	L/240	L/180	
ROOF TRUSS	20	20	L/240	L/180	
WIND LOAD	BASED ON 120 MPH (EXPOSURE B)				
SEISMIC	BASED C	BASED ON SEISMIC ZONES A, B & C			

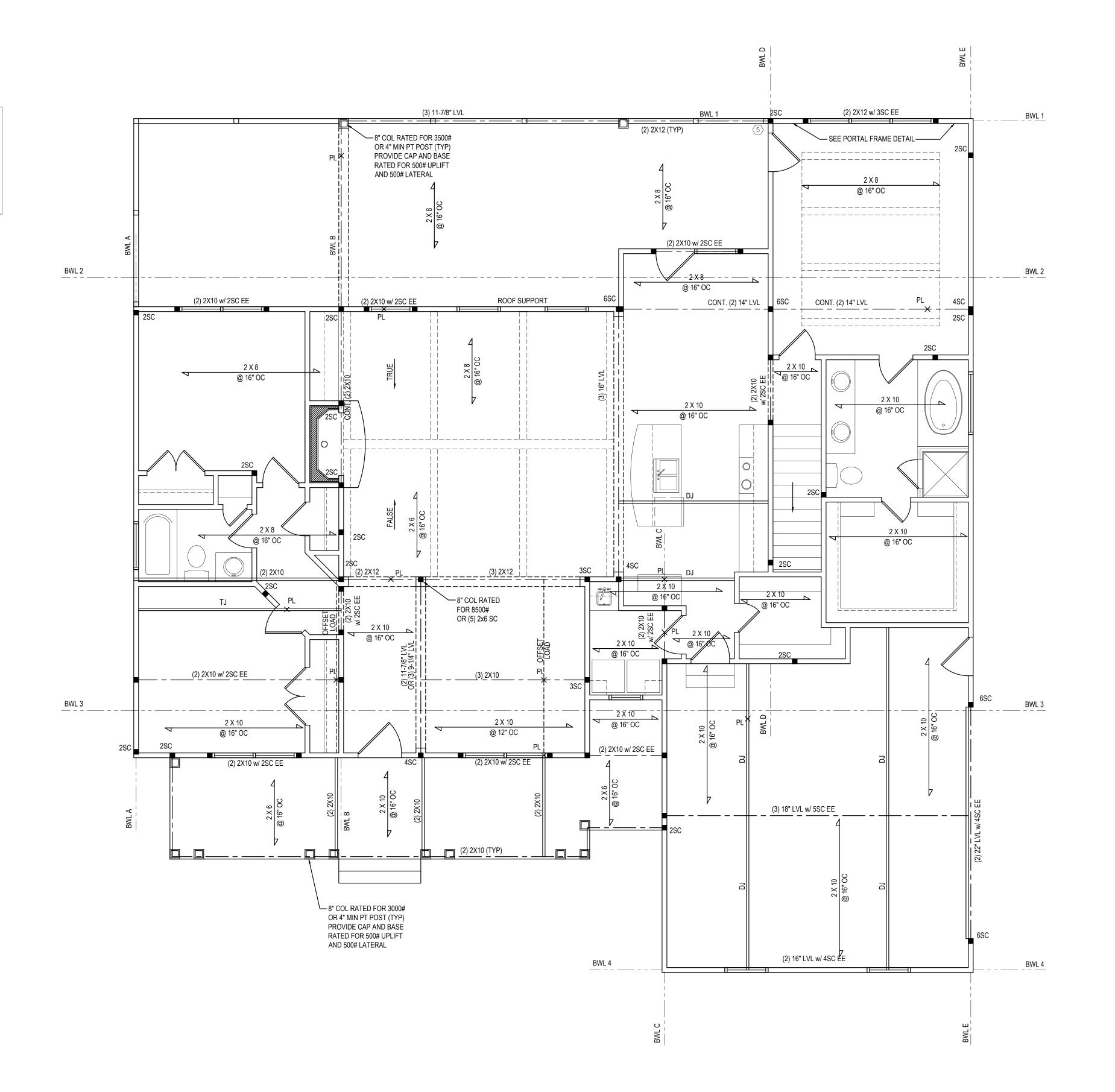
- ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF "NORTH CAROLINA STATE 2018 RESIDENTIAL BUILDING CODE", IN ADDITION TO ALL LOCAL
- CODES AND REGULATIONS. 2) IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION.
  TYNDALL ENGINEERING & DESIGN, PA IS NOT RESPONSIBLE FOR DIMENSIONS AND SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.
- 3) ALL LUMBER SHALL BE SYP #2 (UNO) ALL LVL LUMBER TO BE 1.75" WIDE NOMINAL EACH SINGLE MEMBER AND Fb = 2600 PSI, E = 1.9M PSI (I.E. iLEVEL MICROLAM)
- ALL LSL LUMBER IS TO BE 1.55E (Fb = 2325 PSI) 4) ALL LOAD BEARING EXTERIOR WINDOW HEADERS WITH MAXIMUM SPAN OF 5'-6" SHOULD BE A (2) 2x10 w/(1)2x4 KING STUD AND (1) 2x4 JACK STUD NAILED TOGETHER w/ (2) 10d @ 8" O.C. PROVIDED THAT THE TOP OF THE WINDOW HEIGHT IS 6'-8", MINIMUM BOTTOM OF THE WINDOW HEIGHT IS 1'-6", OTHERWISE REFER TO TABLE R502.5(1).
- 5) ALL INTERIOR LOAD BEARING HEADERS TO BE (2) 2x10 (U.N.O.) REFER TO TABLE R502.5(1) FOR JACK STUD REQUIRÉMENTS FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS (UNO)
- 6) REFER TO 2018 NC BUILDING CODE SECTION R602 FOR CONSTRUCTION OF ALL WALLS OVER 10'-0" IN HEIGHT. 7) ALL STRUCTURAL STEEL SHALL BE ASTM A992 GRADE 50 Fy = 50 KSI MIN. (UNO)
- 8) ALL EXTERIOR LUMBER TO BE #2 SYP PT 9) ALL CONCRETE, fc = 3000 PSI MIN. 10) PRESUMPTIVE BEARING CAPACITY = 2000 PSF
- 11) 1/2"♥ ANCHOR BOLTS SPACED AT MAXIMUM OF 6'-0" O.C. AND NOT MORE THAN 12" FROM THE CORNER. THERE SHALL BE A MINIMUM OF (2) BOLTS PER PLATE SECTION. ANCHOR BOLTS SHALL BE SPACED AT 3'-0" O.C. FOR BASEMENTS. ANCHOR BOLT SHALL EXTEND 7" INTO CONCRETE OR
- 12) PSL COLUMNS DESIGNED WITH MAX. HEIGHT OF 9'-0" (UNO) 13) PROVIDE A MINIMUM OF 500# UPLIFT & LATERAL CONNECTION AT TOP AND BOTTOM OF PORCH COLUMNS. (U.N.O.)
- 14) PROVIDE CONTINUOUS SHEATHING PER SECTION 602.10.4 OF THE 2018 IRC. 15) MAXIMUM MASONRY PIER HEIGHT SHALL NOT EXCEED FOUR TIMES ITS LEAST HORIZONTAL DIMENSION.
- 16) UPLIFT LOADS GREATER THAN 500# SHALL BE CONTINUOUSLY ANCHORED TO THE FOUNDATION.
- 17) METAL HANGERS SHALL BE SIMPSON OR APPROVED EQUAL.

## STRUCTURAL SHEATHING NOTES

- DESIGNED FOR SEISMIC ZONE A—C AND WIND SPEEDS OF 120 MPH OR LESS.
   WALLS SHALL BE BRACED IN ACCORDANCE WITH SECTION R602.10 OF THE 2018 NCRC. 3) BRACING REQUIREMENTS SHALL BE PER TABLE R602.10.3. REFER TO SECTION R602.10.4 FOR LOAD PATH DETAILS INCLUDING CONNECTIONS & SUPPORT OF BRACED WALL
- (1) REFERENCE FIGURE R602.10.4.3 OF THE 2018 NCRC.
- 4) INTERIOR BRACED WALL PANELS (BWP) INDICATED SHALL BE SHEATHED IN ACCORDANCE WITH THE GB METHOD OR WSP METHOD AS PRESCRIBED IN SECTION R602.10.1 (UNO)
- $\langle 2 \rangle$  1/2" GYPSUM BOARD (GB) MINIMUM LENGTH OF 8'-0" SECURE w/ 5d COOLER NAILS (OR EQUAL PER TABLE R702.3.5) SPACED @ 7" O.C. AT PANEL EDGES, INCLUDING TOP AND BOTTOM PLATES & 7" O.C. AT INTERMEDIATE SUPPORTS
- $\langle 3 \rangle$  3/8" WOOD STRUCTURAL PANEL (WSP) SECURE w/ 6d COMMON NAILS SPACED AT 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS
- 5) EXTERIOR BRACED WALL PANELS (BWP) SHALL BE CONSTRUCTED IN ACCORDANCE WITH CS-WSP METHOD AS PRESCRIBED IN SECTION R602.10.3 (UNO) 6) ALL SHEATHABLE SURFACES OF EXTERIOR WALLS
- (INCLUDING AREAS ABOVE AND BELOW OPENINGS AND GABLE END WALLS) SHALL BE CONTINUOUSLY SHEATHED WITH WOOD STRUCTURAL PANEL (WSP) SHEATHING WITH A MINIMUM THICKNESS OF 3/8". SHEATHING SHALL BE SECURED WITH MINIMUM 6d COMMON NAILS SPACED AT 6" O.C. AT PANEL EDGES AND SPACED AT 12" O.C. AT INTERMEDIATE SUPPORTS.
- 7) MINIMUM BRACED WALL PANEL LENGTHS WITH CS-WSP METHOD SHALL BE AS FOLLOWS: - 24" ADJACENT TO OPENINGS NOT MORE THAN 67% OF WALL HEIGHT - 30" ADJACENT TO OPENINGS GREATER THAN 67% AND LESS THAN 85% OF WALL HEIGHT. - 48" FOR OPENINGS GREATER THAN 85% OF WALL HEIGHT

## $\overline{\langle 4 \rangle}$ Sheath interior & exterior

- 8) FOR CS—WSP METHOD, A MINIMUM 24" BRACED WALL PANEL CORNER RETURN SHALL BE PROVIDED AT BOTH ENDS OF A BRACED WALL LINE IN ACCORDANCE WITH FIGURE R602.10.3(4). IN LIEU OF A CORNER RETURN,
  EITHER A MIN. 48" BRACED WALL PANEL SHALL BE
  PROVIDED AT THE CORNER OR A HOLD—DOWN DEVICE WITH
  A MINIMUM UPLIFT DESIGN VALUE OF 800# SHALL BE
  FASTENED TO THE EDGE OF THE BRACED WALL PANEL
  CLOSEST TO THE CORNER AND TO THE FOUNDATION OR FRAMING BELOW.
- (5) MINIMUM 800# HOLD-DOWN DEVICE



BRACING PANEL LENGTHS REQUIRED: BWL A = 4.5 FT BWL E = 6.6 FT BWL 1 = 4.0 FT BWL 2 = 24.3 FT BWL 3 = 28.3 FT BWL 4 = 5.6 FT BWL B = 30.3 FT GB BWL C = 21.7 FT GB/WSP BWL D = 26.2 FT GB BWL E = 52.0 FT CS-WSP BWL 1 = 8.0 FT CS-WSP BWL 2 = 25.0 FT GB/WSP BWL 3 = 30.6 FT GB/WSP

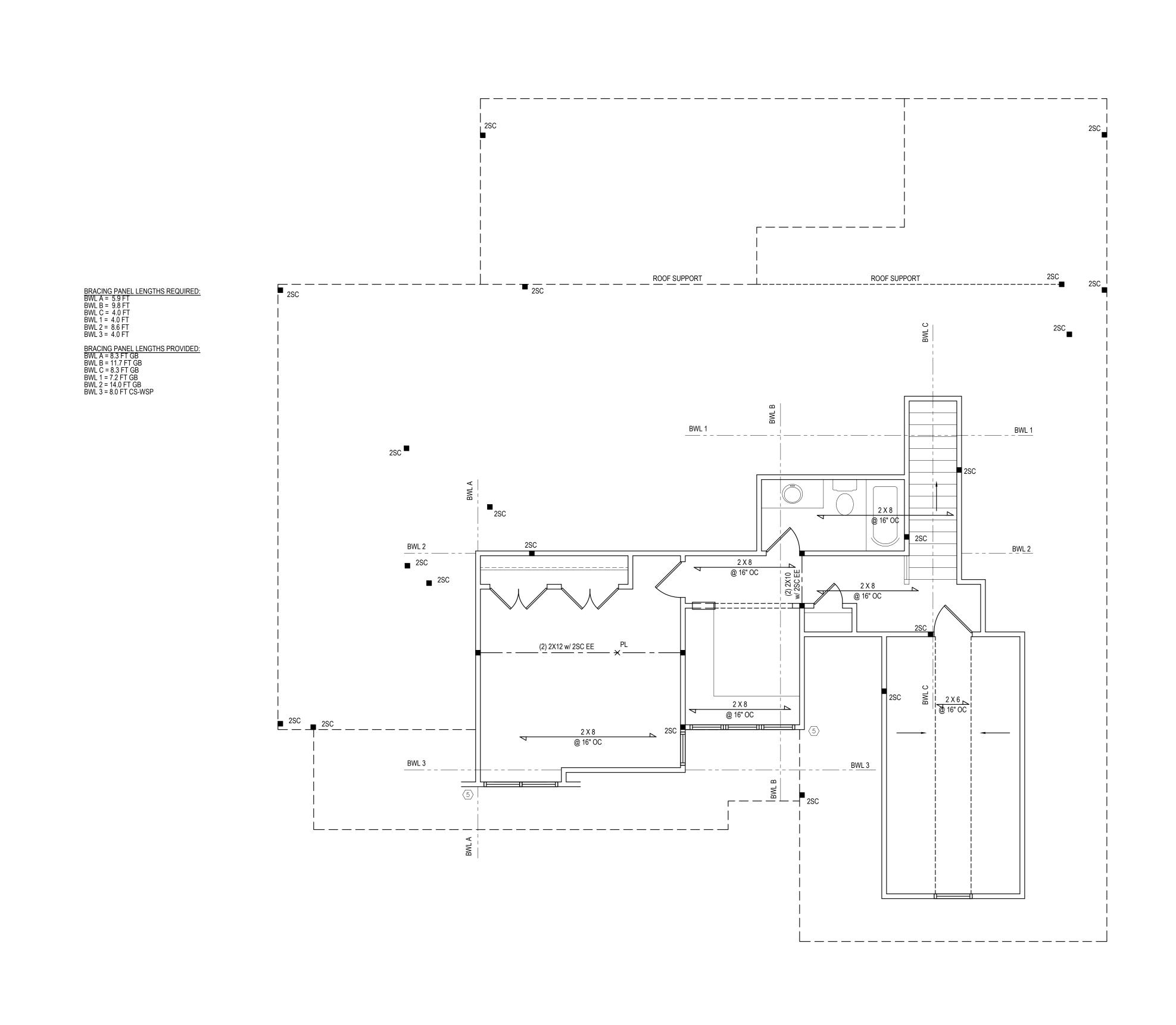
BWL 4 = 23.0 FT CS-WSP

FIRST FLOOR PLAN 1/4" = 1'-0" CEILING HGT. = 9'-0" (U.N.O.)

\*ALL LUMBER TO BE #2 SYP, UNO ALL WALLS TO BE 4" THICK

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2ND FLOOR HEADER 2ND FLR. CLG. FRAMING

- 1	
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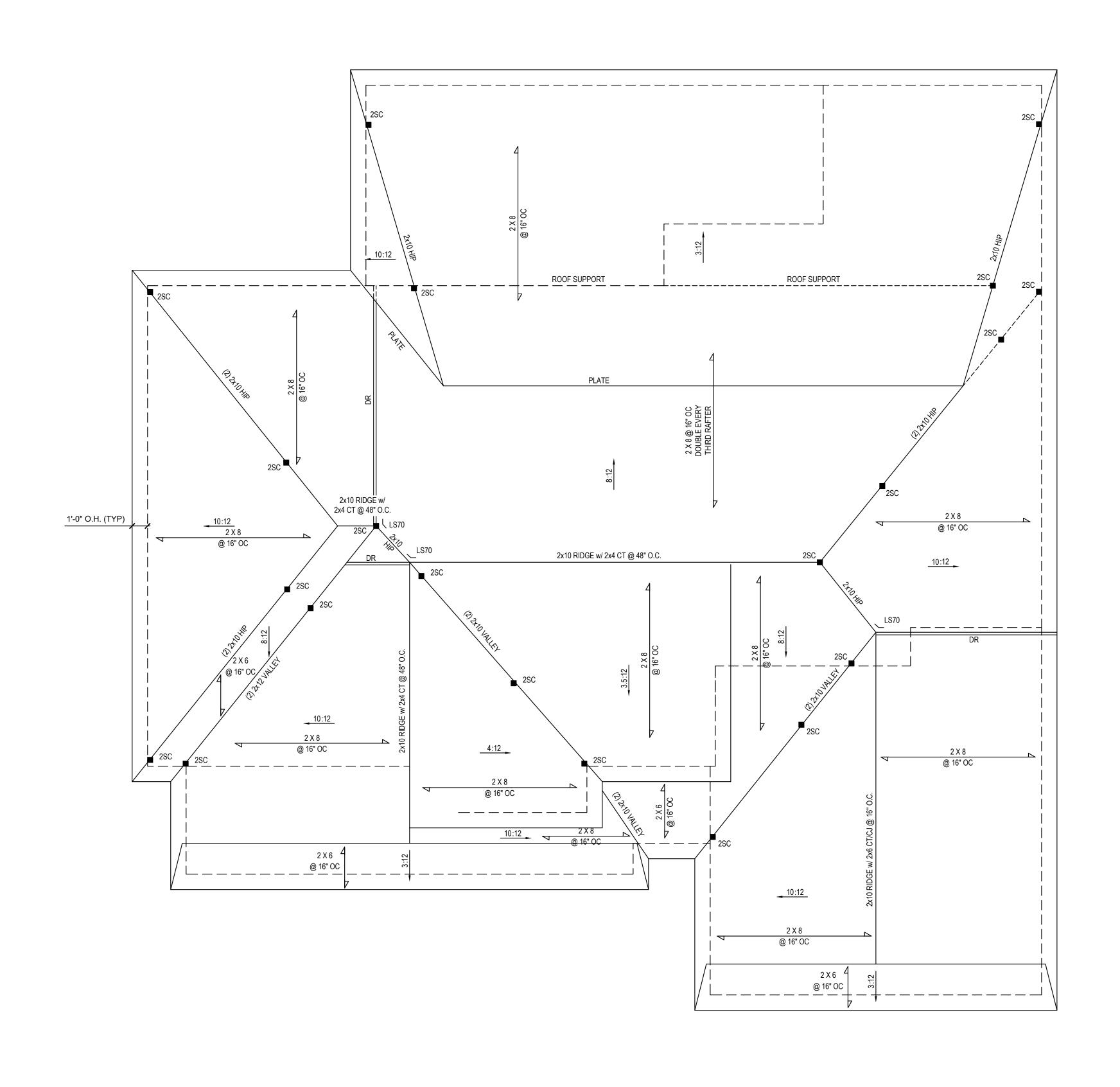
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**SECOND FLOOR PLAN** 1/4" = 1'-0" CEILING HGT. = 8'-0"



**ROOF PLAN**1/4" = 1'-0"

\*ALL LUMBER TO BE #2 SYP, UNO BUILDER MAY USE ROOF TRUSSES. TRUSS DESIGN, LAYOUT, AND ENGINEERING TO BE PROVIDED BY TRUSS MANUFACTURER \*Engineers seal does not include construction means, methods, techniques, sequences, procedures or safety precaution.

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ROOF PLAN

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Sheet Number

S4

DESIGN LOADS:

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLE	CTION
ALL FLOORS	40	10	L/360	L/240
ATTIC (w/ walk up stairs)	30	10	L/360	L/240
ATTIC (pull down access)	20	10	L/240	L/180
ATTIC (no access)	10	5	L/240	L/180
EXTERNAL BALCONY	40	10	L/360	L/240
ROOF	20	10	L/240	L/180
ROOF TRUSS	20	20	L/240	L/180
WIND LOAD	В	ASED ON 120 M	PH (EXPOSURE	В)
SEISMIC	SEISMIC ZONES A, B & C			

- 3) MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 2000 PSF
- 4) CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI AND A MAXIMUM SLUMP OF FIVE INCHES UNLESS NOTED OTHERWISE. (U.N.O.)
- 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 2018 NC 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, BASED ON 2x10) UNO. ALL FRAMING LUMBER EXPOSED TO THE ELEMENTS SHALL BE TREATED MATERIAL.
- ALL LVL LUMBER TO BE 1.75" WIDE NOMINAL EACH SINGLE MEMBER AND Fb = 2600 PSI, E = 1.9M PSI (U.N.O.) ALL LSL LUMBER TO BE 3.5" WIDE NOMINAL EACH SINGLE MEMBER AND Fb = 2325 PSI, E = 1.6M PSI (U.N.O.)
- ALL PSL LUMBER TO BE 3.5" WIDE NOMINAL EACH SINGLE MEMBER AND Fb = 2400 PSI, E = 1.8M PSI (U.N.O.)
- 7) ALL LOAD BEARING EXTERIOR HEADERS SHALL BE AT (2) 2x10. (U.N.O.) REFER TO TABLE R602.7(1) & (2) FOR JACK STUD REQUIREMENTS FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS UNLESS SPECIFICALLY NOTED ON PLANS.
- 8) ALL STRUCTURAL STEEL W-SHAPES (I-BEAMS) SHALL BE ASTM A992 GRADE 50. ALL STEEL ANGLES, PLATES, AND C-CHANNELS SHALL BE ASTM A36. ALL STEEL PIPE SHALL BE ASTM A53 GRADE B.
- 9) STEEL BEAMS SHALL BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3-1/2" AND FULL FLANGE WIDTH. PROVIDE SOLID BEARING FROM BEAM SUPPORT TO FOUNDATION. BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO (2) LAG SCREWS (1/2" x 4" LONG). LATERAL SUPPORT IS CONSIDERED ADEQUATE PROVIDED 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) PROVIDE ANCHOR BOLT PLACEMENT PER SECTION 403.1.6: 1/2"∮ ANCHOR BOLTS SPACED AT 6'-0" O.C. AND PLACED 12" FROM THE END OF EACH PLATE SECTION. ANCHOR BOLTS SHALL BE SPACED AT 3'-0" O.C. FOR BASEMENTS. ANCHOR BOLT SHALL EXTEND 7" INTO CONCRETE OR MASONRY. THE BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE. THERE SHALL BE A MINIMUM TWO ANCHOR BOLTS PER PLATE SECTION.
- 11) FOUNDATION DRAINAGE-DAMP PROOFING OR WATERPROOFING PER SECTION 405 AND 406 OF NC BUILDING CODE.
- 12) WALL AND ROOF CLADDING VALUES:
- WALL CLADDING SHALL BE DESIGNED FOR 28.0 POUNDS PER SQUARE FOOT (LBS/SQFT) OR GREATER POSITIVE AND NEGATIVE PRESSURE. ROOF VALUES BOTH POSITIVE AND NEGATIVE SHALL BE AS FOLLOWS: 39.0 LBS/SQFT FOR ROOF PITCHES 0/12 TO 1.5/12
- 36.0 LBS/SQFT FOR ROOF PITCHES 1.5/12 TO 6/12 18.0 LBS/SQFT FOR ROOF PITCHES 6/12 TO 12/12 \*\*MEAN ROOF HEIGHT 30'-0" OR LESS
- 13) FOR ROOF SLOPES FROM 2/12 THROUGH 4/12, BUILDER TO INSTALL 2 LAYERS OF 15# FELT PAPER.
- 14) REFER TO SECTION R602.3 FOR FRAMING OF ALL WALLS OVER 10'-0" IN HEIGHT.
- 15) PROVIDE CONTINUOUS SHEATHING PER SECTION 602.10.3 OF THE 2018 NCRC.
- 16) UPLIFT LOADS GREATER THAN 500# SHALL BE CONTINUOUSLY ANCHORED TO THE FOUNDATION.
- 17) REFER TO TABLE N1102.1 FOR PRESCRIPTIVE BUILDING ENVELOPE THERMAL COMPONENT CRITERIA.
- 18) PSL COLUMNS DESIGNED WITH MAXIMUM HEIGHT OF 9'-0" (U.N.O.)
- 19) PROVIDE A MINIMUM OF 500# UPLIFT & LATERAL CONNECTION AT TOP AND BOTTOM OF PORCH COLUMNS. (U.N.O.)
- 20) MAXIMUM MASONRY PEIR HEIGHT SHALL NOT EXCEED FOUR TIMES ITS LEAST HORIZONTAL DIMENSION.
- 21) IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION. TYNDALL ENGINEERING & DESIGN, PA IS NOT RESPONSIBLE FOR DIMENSION OR SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.

[										
CLIMATE ZONES		SKYLIGHT <sup>b</sup> U-FACTOR	GLAZED FENESTRATION SHGC <sup>b,<u>k</u></sup>	CEILING <sup>m</sup> R-VALUE	WOOD FRAMED WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT <sup>c,</sup> WALL R−VALUE	SLAB <sup>d</sup> R-VALUE AND DEPTH	CRAWL SPACE° WALL R-VALUE
3	0.35	0.55	0.30	38 or 30 cont	15 or 13 + 2.5 <sup>h</sup>	<u>5/13 or</u> <u>5/10 cont</u>	19	<u>5/13</u> <sup>f</sup>	0	5/13
4	0.35	0.55	0.30	38 or 30 cont <sup>j</sup>	15 or 13 + <u>2.5</u> <sup>h</sup>	<u>5/13 or</u> <u>5/10 cont</u>	19	<u>10/15</u>	10	<u>10/15</u>
5	<u>0.35</u>	0.55	NR	38 or 30 cont	19 <sup>n</sup> or 13 + 5 <sup>h</sup> or 15 + 3 <sup>h</sup>	13/17 <u>or</u> <u>13/12.5 cont</u>	<b>30</b> <sup>9</sup>	<u>10/15</u>	10	<u>10/19</u>

## \* TABLE N1102.1 CLIMATE ZONES 3-5

- R-VALUES ARE MINIMUMS. U-FACTORS AND SHGC ARE MAXIMUMS. WHEN INSULATION IS INSTALLED IN A CAVITY WHICH IS LESS THAN THE LABEL OR DESIGN THICKNESS OF THE INSULATION, THE INSTALLED R-VALUE OF THE INSULATION SHALL NOT BE LESS THAN THE R-VALUE SPECIFIED IN THE TABLE.
  - b. THE FENESTRATION U-FACTOR COLUMN EXCLUDED SKYLIGHTS. THE SOLAR HEAT GAIN COEFFICIENT (SHGC) COLUMN APPLIES TO ALL GLAZED FENESTRATION.
  - c. "10/15" MEANS R-10 CONTINUOUS INSULATED SHEATHING ON THE INTERIOR OR EXTERIOR OF THE HOME OR R-15 CAVITY INSULATION AT THE INTERIOR OF THE BASEMENT WALL OR CRAWL SPACE WALL.
  - $\hbox{d.} \quad \hbox{ {\it FOR MONOLITHIC SLABS, INSULATION SHALL BE APPLIED FROM THE INSPECTION GAP DOWNWARD TO THE BOTTOM } \\$ OF THE FOOTING OR A MAXIMUM OF 24" BELOW GRADE WHICHEVER IS LESS. FOR FLOATING SLABS, INSULATION SHALL EXTEND TO THE BOTTOM OF THE FOUNDATION WALL OR 24", WHICHEVER IS LESS. R-5 SHALL BE ADDED TO THE REQUIRED SLAB EDGE R-VALUES FOR HEATED SLABS.

  - f. BASEMENT WALL INSULATION IS NOT REQUIRED IN WARM-HUMID LOCATIONS AS DEFINED BY FIGURE N1101.7. AND TABLE N1101.7.
  - g. OR INSULATION SUFFICIENT TO FILL THE FRAMING CAVITY. R-19 MINIMUM. h. THE FIRST VALUE IS CAVITY INSULATION, THE SECOND VALUE IS CONTINUOUS INSULATION, SO "13+5" MEANS R-13 CAVITY INSULATION PLUS R-5 INSULATED SHEATHING. "15+3" MEANS R-15 CAVITY INSULATION. PLUS R-3 INSULATED SHEATHING. <u>IF STRUCTURAL SHEATHING COVERS 25% OR LESS OF THE EXTERIOR, INSULATING SHEATHING IS NOT REQUIRED</u> WHERE THE STRUCTURAL SHEATHING IS USED. IF STRUCTURAL SHEATHING COVERS MORE THAN 25 PERCENT
  - OF THE EXTERIOR, SHALL BE SUPPLEMENTED WITH INSULATED SHEATHING OF AT LEAST R-2. "13 + 2.5" MEANS R-13 CAVITY
  - i. FOR MASS WALLS, THE SECOND R-VALUE APPLIES WHEN MORE THAN HALF THE INSULATION IS ON THE INTERIOR MASS WALL. j. IN ADDITION TO THE EXEMPTION IN SECTION N1102.3.3, A MAXIMUM OF TWO GLAZED FENESTRATION PRODUCT ASSEMBLIES HAVING A U-FACTOR NO GREATER THAN 0.55 SHALL BE PERMITTED TO BE SUBSTITUTED FOR MINIMUM CODE COMPLIANT FENESTRATION PRODUCT ASSEMBLIES WITHOUT PENALTY.

    L. IN ADDITION TO THE EXEMPTION IN SECTION N1102.3.3, A MAXIMUM OF TWO GLAZED FENESTRATION PRODUCT ASSEMBLIES HAVING A SHGC NO GREATER THAN 0.70 SHALL BE
  - PERMITTED TO BE SUBSTITUTED FOR MINIMUM CODE COMPLIANT FENESTRATION PRODUCT ASSEMBLIES WITHOUT PENALTY.
  - R-30 SHALL BE DEEMED TO SATISFY THE CEILING INSULATION REQUIREMENT WHEREVER THE FULL HEIGHT OF UNCOMPRESSED R-30 INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES. OTHERWISE R-38 INSULATION IS REQUIRED WHERE ADEQUATE CLEARANCE EXISTS OR INSULATION MUST EXTEND TO EITHER THE INSULATION BAFFLE OR WITHIN 1 INCH OF THE ATTIC ROOF DECK.
  - m. TABLE VALUE REQUIRED EXCEPT FOR ROOF EDGE WHERE THE SPACE IS LIMITED BY THE PITCH OF THE ROOF; THERE THE INSULATION MUST FILL THE SPACE UP TO THE AIR BAFFLE.

    n. R -19 FIBERGLASS BATTS COMPRESSED AND INSTALLED IN A NOMINAL 2 × 6 FRAMING CAVITY IS DEEMED TO COMPLY. FIBERGLASS BATTS RATED R-19 OR HIGHER COMPRESSED

    AND INSTALLED IN A 2X4 WALL IS NOT DEEMED TO COMPLY. Q. BASEMENT WALL MEETING THE MINIMUM MASS WALL SPECIFIC HEAT CONTENT REQUIREMENT MAY USE THE MASS WALL R-VALUE AS THE MINIMUM REQUIREMENT.

## \_\_ SQ. FT. OF CRAWL SPACE / 150 = \_\_ SQ. FT. OF REQ'D VENTILATION WITHOUT CROSS VENTILATION \_\_ SQ. FT. OF VENTILATION REQ'D / 0.45 SQ.FT. PER VENT = \_\_ VENTS REQ'D1

### \_\_ SQ. FT. OF CRAWL SPACE / 1500 = \_\_ SQ. FT. OF REQ'D VENTILATION WITH CROSS VENTILATION \_\_ SQ. FT. OF VENTILATION REQ'D / 0.45 SQ.FT. PER VENT = \_\_ VENTS REQ'D2

- 1) VENT LOCATIONS MAY VARY FROM THOSE SHOWN ON PLAN. HOWEVER VENTS SHALL BE PLACED TO PROVIDE ADEQUATE VENTILATION AT ALL POINTS AND TO PREVENT DEAD AIR POCKETS.
- THE TOTAL AREA OF VENTILATION OPENINGS MAY BE REDUCED TO 1/1500 OF THE CRAWL SPACE ORDUND AREA WHERE THE REQUIRED OPENINGS ARE PLACED SO AS TO PROVIDE CROSS VENTILATION OF THE CRAWL SPACE. THE INSTALLATION OF OPERABLE LOUVERS SHALL NOT BE PROHIBITED.

  ONE FOUNDATION VENT SHALL BE WITHIN 3 FEET OF EACH CORNER OF THE BUILDING. TO PREVENT WALLS MAY BE CONSTRUCTED WITHOUT WALL VENT OPENINGS. VENT DAMS SHALL BE PROVIDED

WHEN THE BOTTOM OF THE FOUNDATION VENT OPENING IS LESS THAN 4 INCHES ABOVE THE FINISHED

WALL VENTED CRAWL SPACES REQUIRE FULL COVERAGE GROUND VAPOR RETARDERS.

# \* CRAWL SPACE VENTILATION CALCULATION

- $\_$  SQ. FT. OF ATTIC / 300 =  $\_$  SQ. FT. INLETS/OUTLETS REQUIRED
- 1) CALCULATION BASED ON VENTILATORS USED AT LEAST 3'-0" ABOVE THE COMICE VENTS WITH THE BALANCE OF VENTILATION PROVIDED
- 2) CATHEDRAL CEILINGS SHALL HAVE A 1" MINIMUM CLEARANCE BETWEEN THE BOTTOM OF THE ROOF DECK AND THE INSULATION.
- \* \ ATTIC VENTILATION CALCULATION

## **DEFINITIONS FOR COMMON ABBREVIATIONS**

= ALTERNATE = MAXIMUM CANT = CANTILEVER = MINIMUM = NOMINAL = CEILING JOIST O.C. = CONCRETE MASONRY UNIT = ON CENTER = COLUMN COL PLATE = CONCRETE PRESSURE TREATED CONTINUOUS REINFORCED REQD REQUIRED COLLAR TIE ROOF JOIST ROOF SUPPORT = DIAMETER STUD COLUMN = DOUBLE JOIST SCH SCHEDULE = DOUBLE RAFTER = EACH SPECIFIED = EACH END THK THICK = FLOOR JOIST TRIPLE JOIST FOUNDATION TRTD = TREATED = FOOTING TYPICAL UNLESS NOTED OTHERWISE = GALVANIZED

= WIDE FLANGE BEAM

= WELDED WIRE FABRIC

= EXTRA JOIST

## 1) MAXIMUM HEIGHT OF DECK SUPPORT POSTS AS FOLLOWS:

HORIZ

MANUF

= HORIZONTAL

MANUFACTURER

= HFIGHT

POST SIZE	MAX. POST HEIGHT**
4 × 4	8'-0"
6 x 6	20'-0"
***	OVER 20'-0"

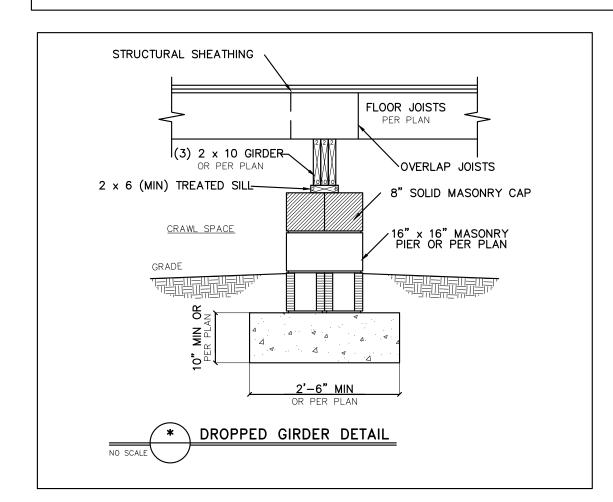
- \* THIS TABLE IS BASED ON NO. 2 TREATED SOUTHERN PINE POSTS. MAXIMUM TRIBUTARY AREA IS BASED ON 128 TOTAL SQUARE FEET WHICH MAY BE LOCATED AT DIFFERENT LEVELS.
- FROM TOP OF FOOTING TO BOTTOM OF GIRDER \*\*\* DECKS WITH POST HEIGHTS OVER 20'-0" SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT.
- 2) DECKS SHALL BE BRACED TO PROVIDE LATERAL STABILITY BY ONE OF THESE METHODS:
- A. THE DECK FLOOR HEIGHT IS LESS THAN 4'-0" AND THE DECK IS ATTACHED TO THE STRUCTURE IN ACCORDANCE WITH SECTION (4)
- ABOVE. LATERAL BRACING IS NOT REQUIRED. 4 x 4 WOOD KNEE BRACES MAY BE PROVIDED ON EACH COLUMN IN BOTH DIRECTIONS. THE KNEE BRACES SHALL ATTACH TO EACH POST AT A POINT NOT LESS THAN 1/3 OF THE POST LENGTH FROM THE TOP OF THE POST, AND THE BRACES SHALL BE ANGLED BETWEEN 45° AND 60° FROM THE HORIZONTAL. KNEE BRACES SHALL BE BOLTED TO THE POST AND GIRDER WITH ONE 5/8" # HOT DIPPED GALVANIZED

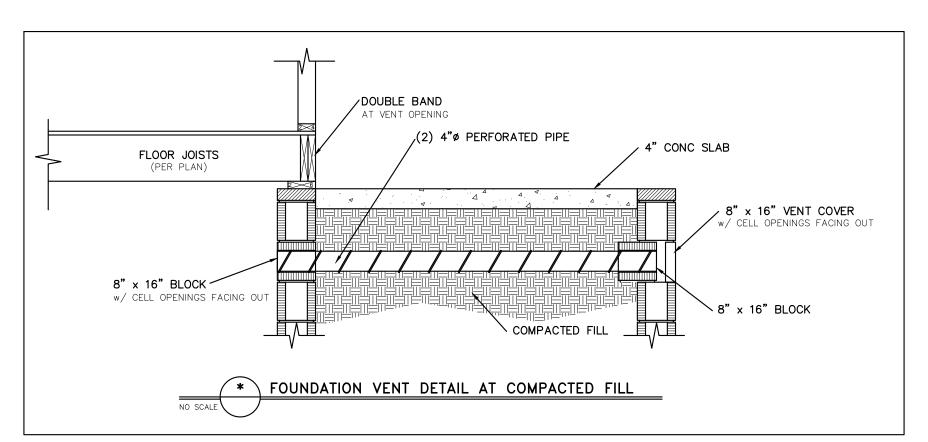
BOLT AT EACH END OF THE BRACE.

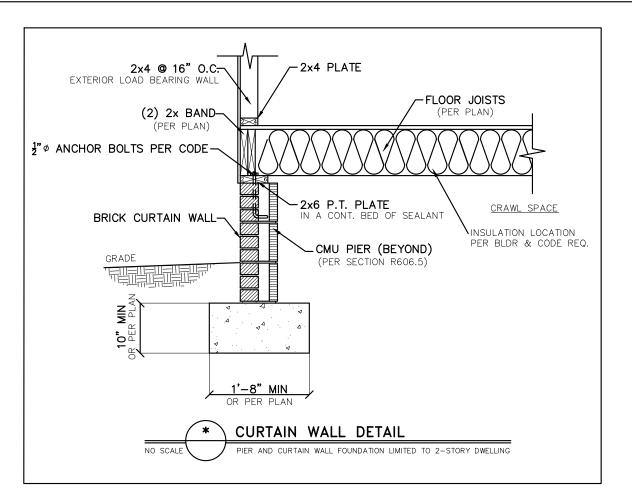
FOR FREESTANDING DECKS WITHOUT KNEE BRACES OR DIAGONAL BRACING, LATERAL STABILITY MAY BE PROVIDED BY EMBEDDING THE POSTS IN ACCORDANCE WITH THE FOLLOWING:

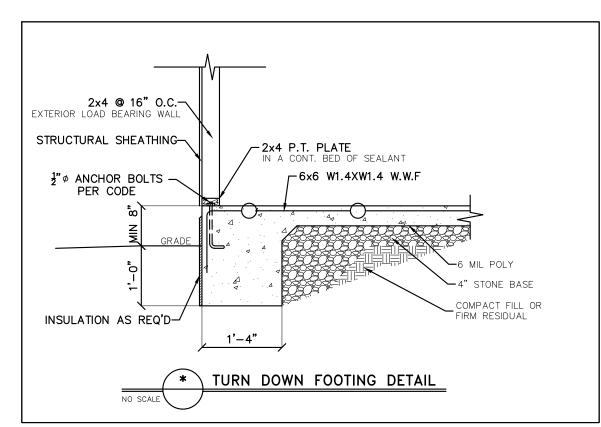
POST SIZE	MAX. TRIBUTARY AREA	MAX. POST HEIGHT	EMBEDMENT DEPTH	CONCRETE DIAMETER
4 × 4	48 SQ. FT.	4'-0"	2'-6"	1'-0"
6 x 6	120 SQ. FT.	6'-0"	3'-6"	1'-8"

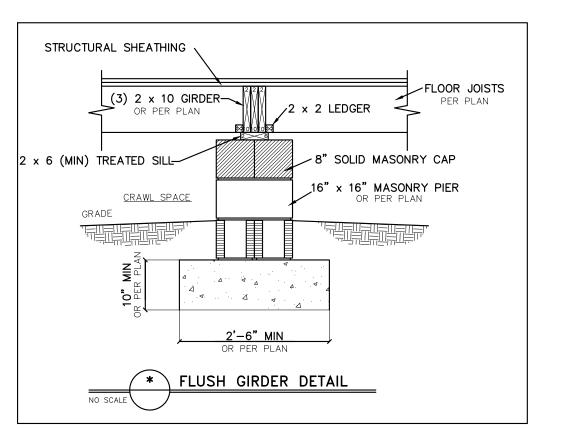
- D. 2 x 6 DIAGONAL VERTICAL CROSS BRACING MAY BE PROVIDED IN TWO (2) PERPENDICULAR DIRECTIONS FOR FREESTANDING DECKS OR PARALLEL TO THE STRUCTURE AT THE EXTERIOR COLUMN LINE FOR ATTACHED DECKS. THE 2 x 6s SHALL BE ATTACHED TO THE POSTS WITH ONE 5/8" \$\phi\$ HOT DIPPED GALVANIZED BOLT AT EACH END OF EACH BRACING MEMBER.
- E. FOR EMBEDMENT OF PILES IN COASTAL REGIONS, SEE CHAPTER 46.

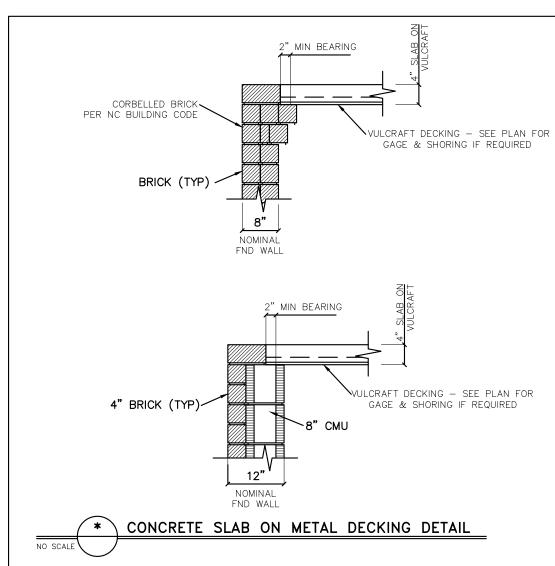


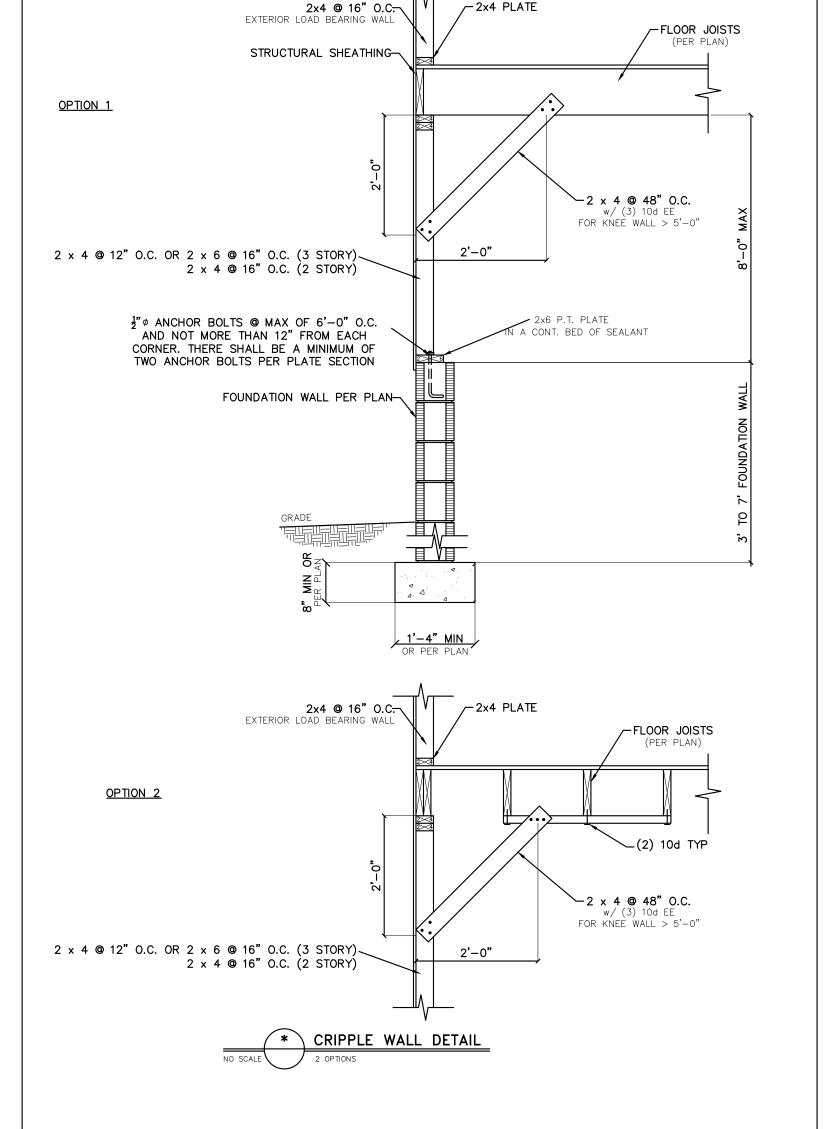


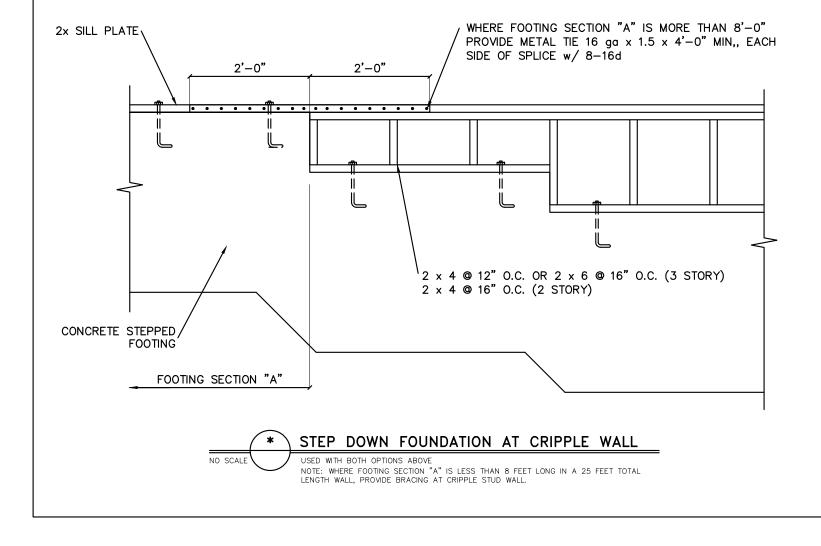


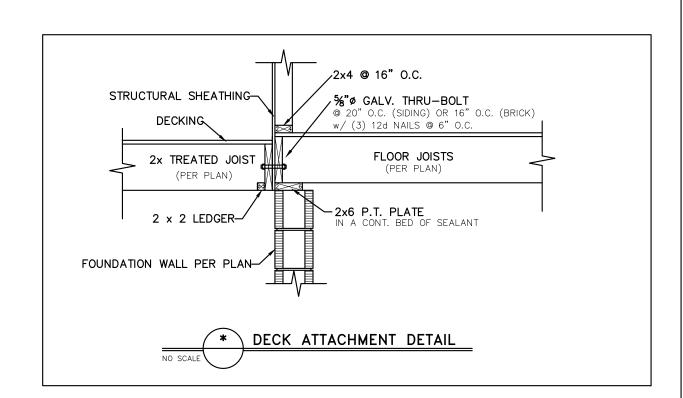












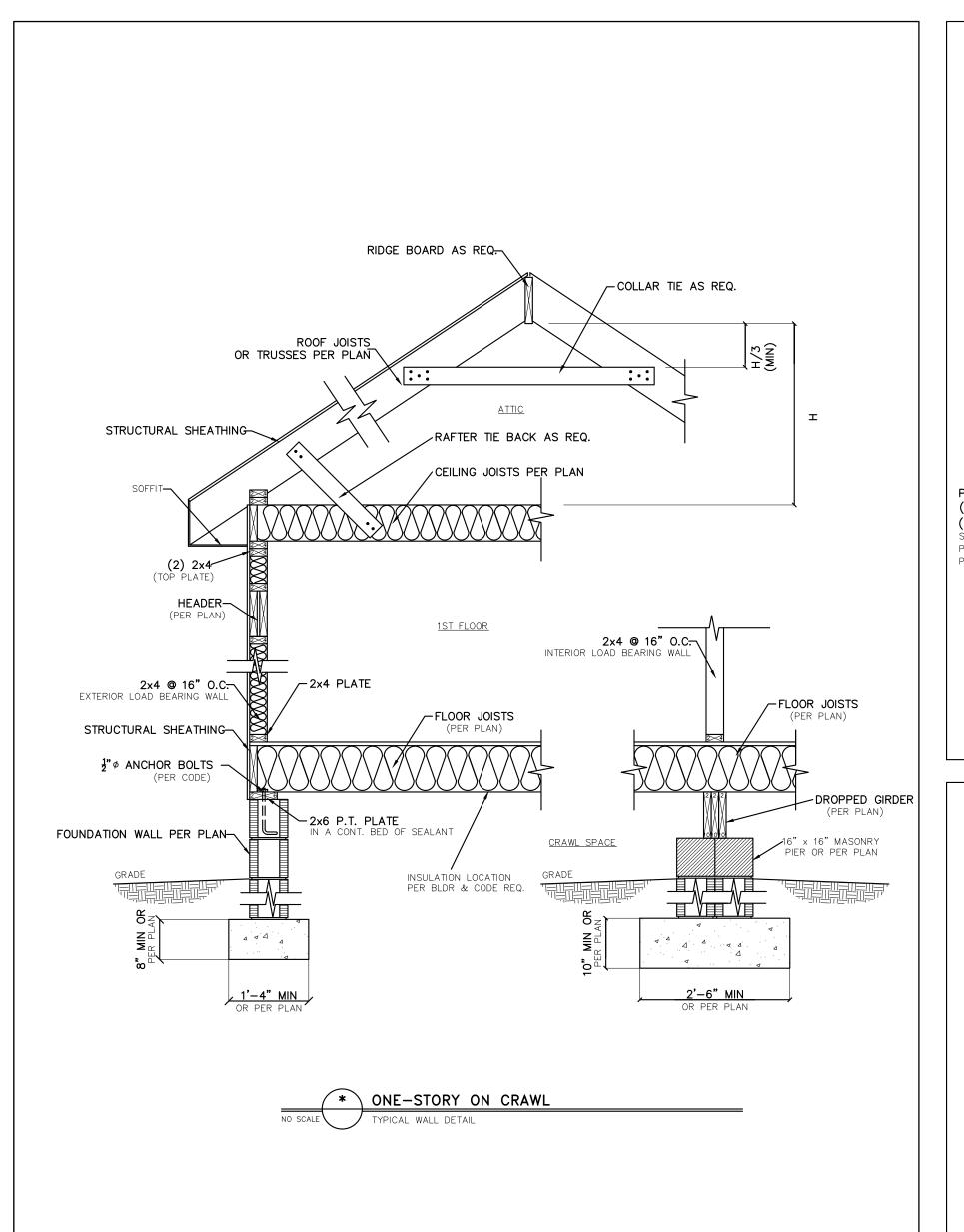
ocedures or safety precaution. Any deviations or discrepancies on plans ar to be brought to the immediate attention of Please review these documents carefully Tyndall Engineering & Design, P.A. will interpret that all dimensions, etc. presented in these documents were

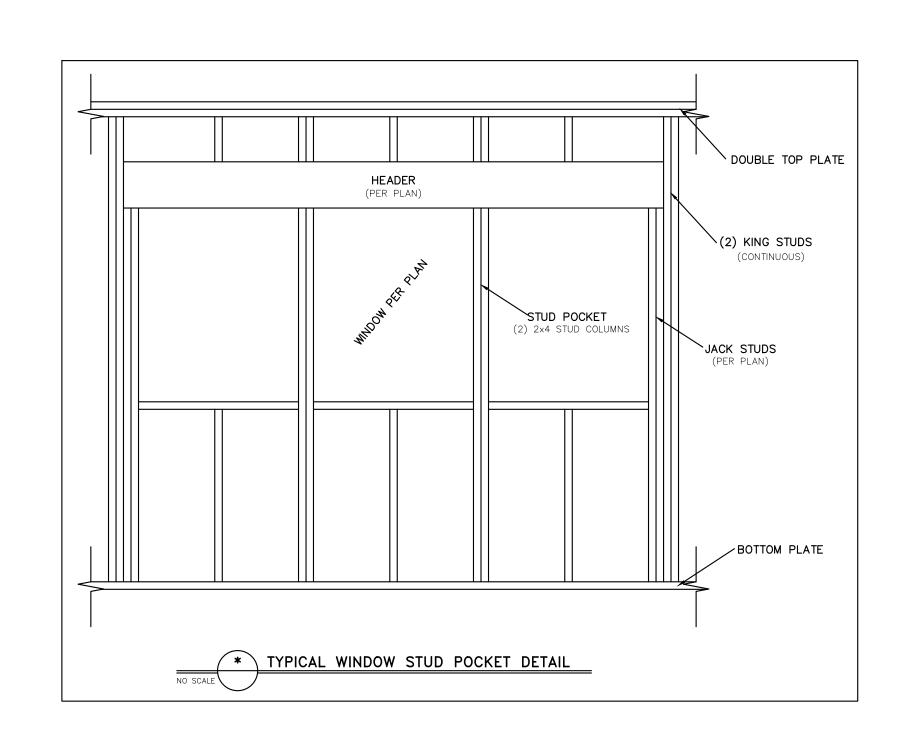
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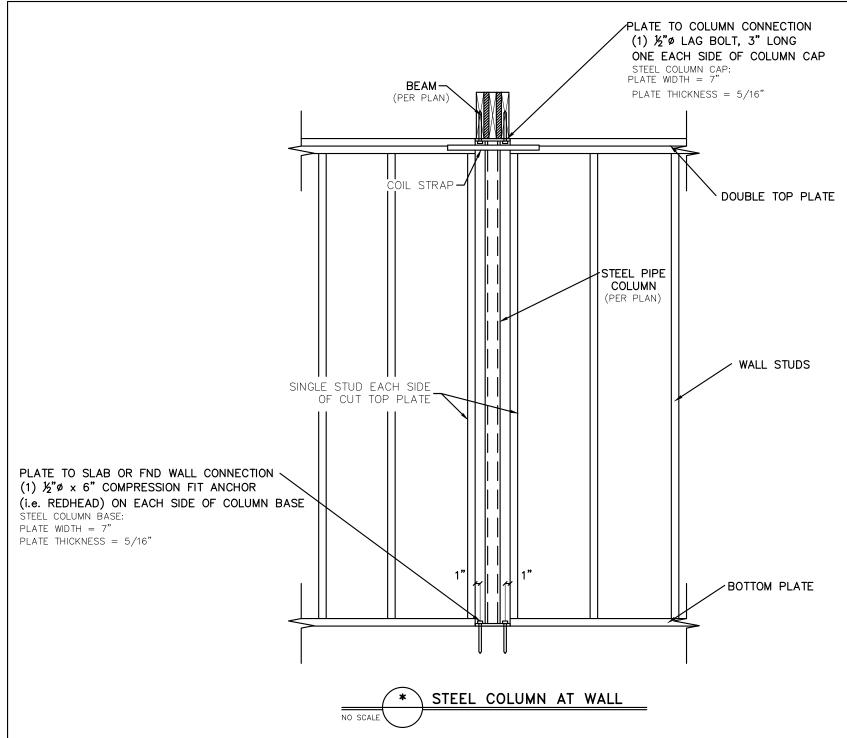
PAT SEE PLAN

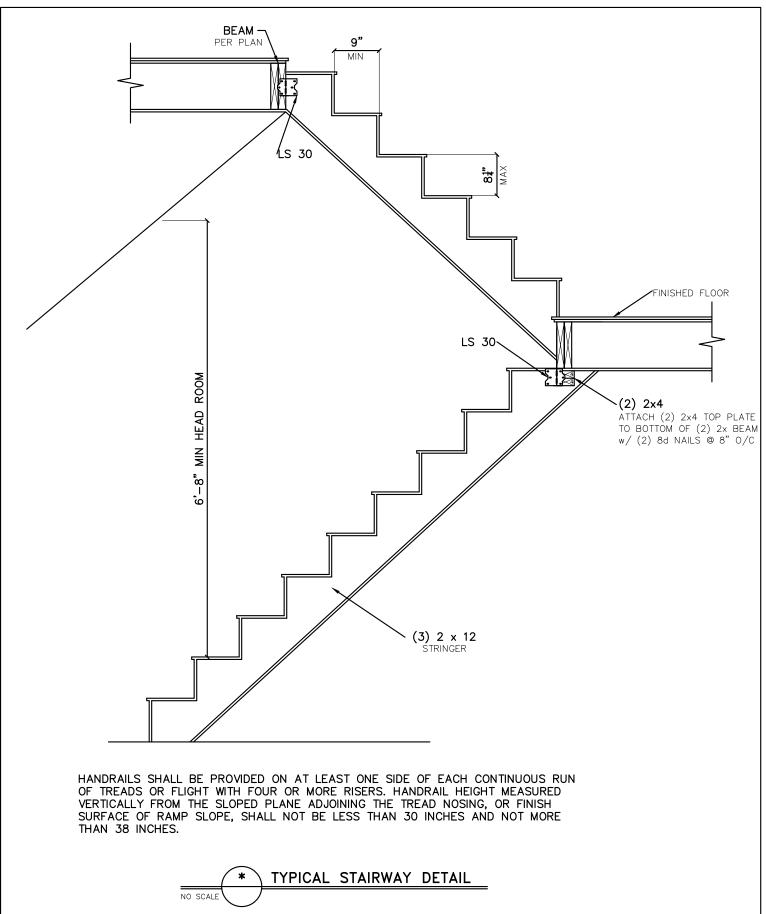
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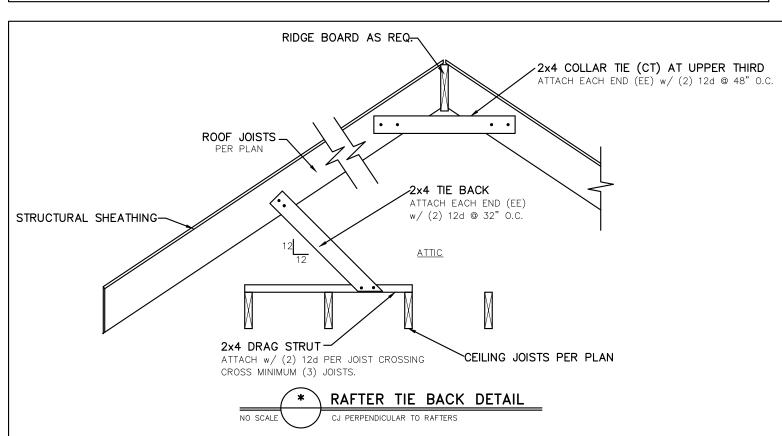
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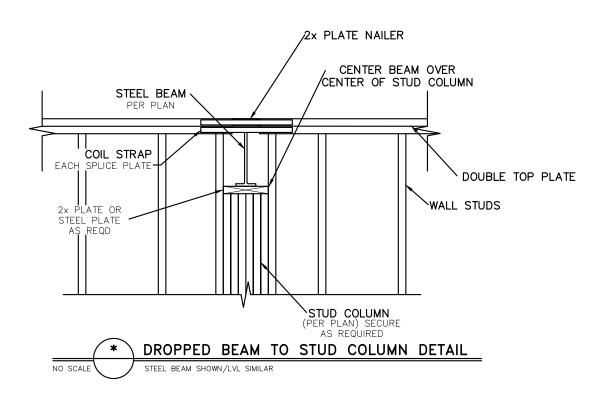


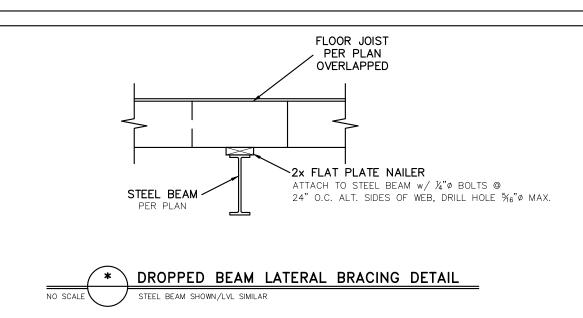


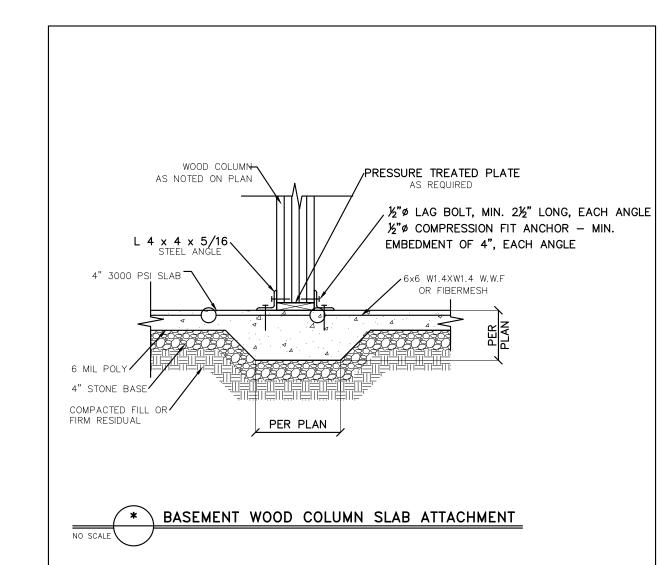


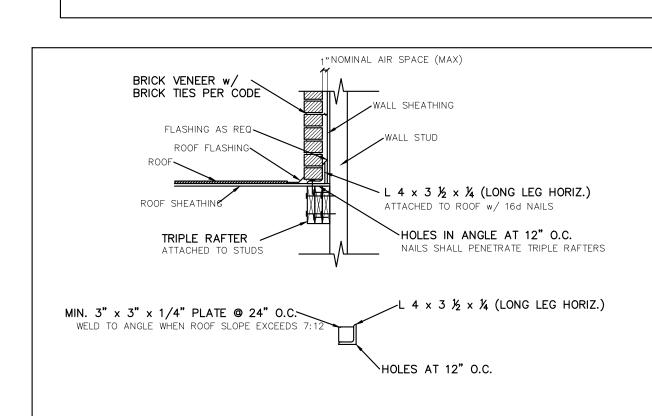












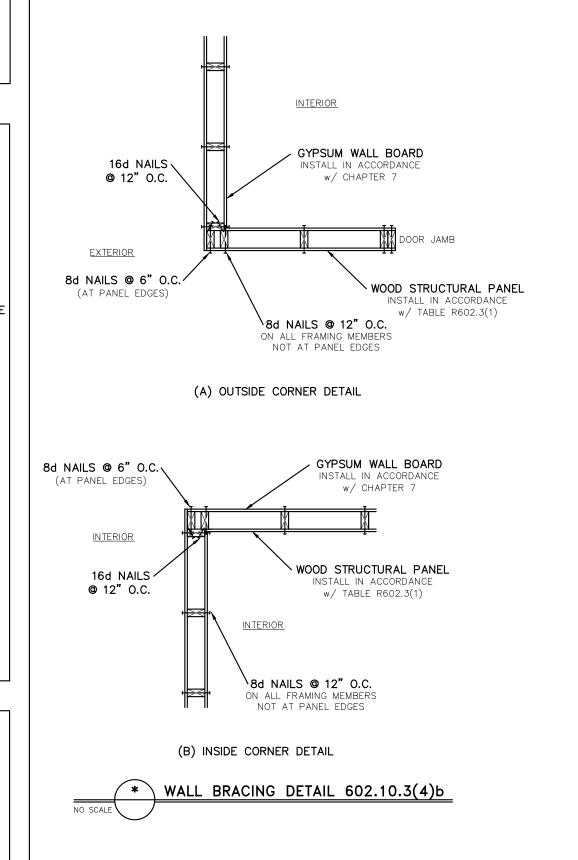
## ALLOWABLE SPANS FOR LINTELS SUPPORTING MASONRY VENEER

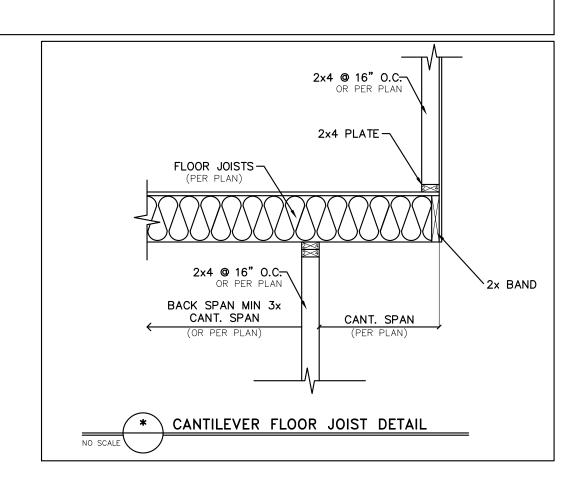
SIZE OF ANGLE <sup>(1,3)</sup>	NO STORY ABOVE (5)	1 STORY ABOVE (5)	2 STORIES ABOVE (5)	# OF ½" (OR EQUIV.) REINFORCING BARS IN REINFORCED LINTEL(2,4,5)
L 3 x 3 x 1/4	6'-0"	4'-6"	3'-0"	1
L 4 x 3 x 1/4	8'-0"	6'-0"	4'-6"	1
L 5 x 3 ½ x 5/16	10'-0"	8'-0"	6'-0"	2
L6 x 3 ½ x 5/16	14'-0"	9'-6"	7'-0"	2
2L 5 x 3 ½ x ¾6	20'-0"	12'-0"	9'-6"	4

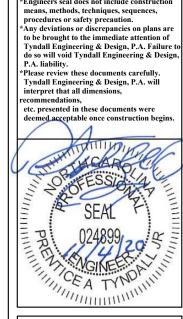
- 1. LONG LEG OF THE ANGLE SHALL BE PLACED IN A VERTICAL POSITION. 2. DEPTH OF REINFORCED LINTELS SHALL NOT BE LESS THAN 8" AND ALL CELLS OF HOLLOW MASONRY LINTELS SHALL BE GROUTED. REINFORCING BARS SHALL EXTEND NOT LESS THAN 8" INTO THE SUPPORT.
- 3. STEEL MEMBERS INDICATED ARE ADEQUATE TYPICAL EXAMPLES; OTHER STEEL MEMBERS MEETING STRUCTURAL DESIGN REQUIREMENTS SHALL BE PERMITTED TO BE USED.
  4. EITHER STEEL ANGLE OR REINFORCED LINTEL SHALL SPAN OPENING
- 5. SPANS OVER 4'-0" SHALL BE SHORED UP UNTIL CURED

  \* MASONRY VENEER SUPPORT FIG 703.8.3.1

SIMPSON STRONG-TIE	USP STRUCTURAL CONNECTORS
PRODUCT NUMBER	PRODUCT NUMBER
A35	MPA1
ABE	PAE
CBSQ	CBSQ
CCQ	KCCQ
CMSTC16	CMSTC16
CS	RS
H1	RT15
H2.5A	RT7A
H10	RT16
HDQ8-SDS3	UPHD8
HDU2-SDS2.5	PHD2
HDU5-SDS2.5	PHD5
HETA	НТА
HGAM10KTA	HGAM
HHDQ14-SDS2.5	UPHD14
HTS	HTW
HTT	HTT
HUS	HUS
LTA1	LPTA
LTHJA26	HJC26
LTP4	MP4F
LUS	JUS
MAS	FA3
MSTAM	MSTAM
PC	PCM
PHD-SDS3	PHD
SSP	RSPT6
STC	TR1
STHD	STAD



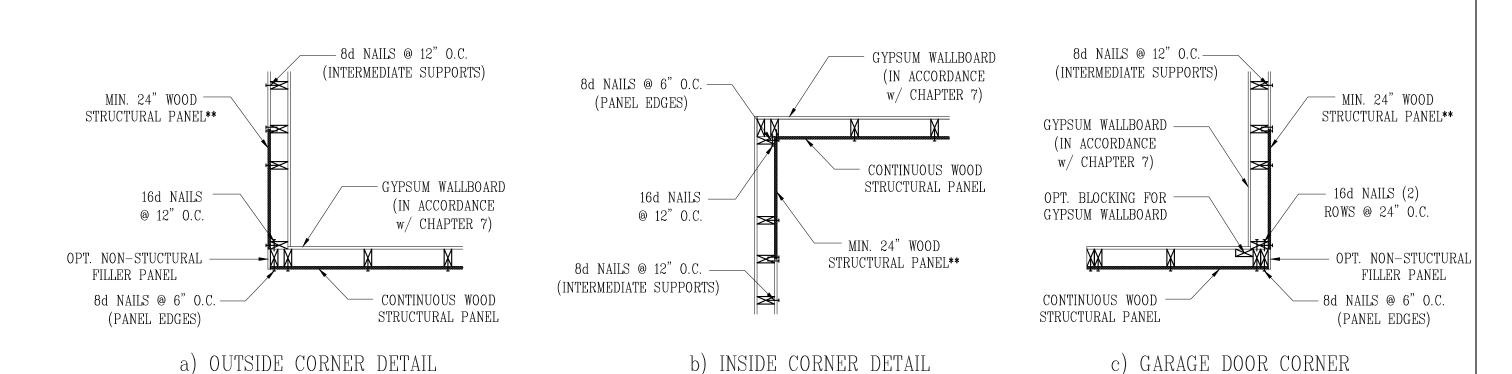




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SEE PLAN REVISIONS No. Date:

**Sheet Number** 



THE CORNER STUD AND TO THE FOUNDATION OR FRAMING BELOW.

B1: TYPICAL EXTERIOR CORNER FRAMING FOR CONTINUOUS SHEATHING
NO SCALE

\*\* IN LIEU OF THE 24" (MIN.) CORNER RETURN, A HOLD-DOWN DEVICE WITH A MINIMUM UPLIFT DESIGN VALUE OF 800# SHALL BE FASTENED TO

- STRUCTURAL SHEATHING NOTES
- 1) DESIGNED FOR SEISMIC ZONE A-C AND WIND SPEEDS OF 120 MPH OR LESS.
- 2) WALLS SHALL BE BRACED IN ACCORDANCE WITH SECTION R602.10 OF THE 2018 NCRC.

  3) BRACING REQUIREMENTS SHALL BE PER TABLE R602.10.3. REFER TO SECTION R602.10.4 FOR LOAD PATH DETAILS INCLUDING CONNECTIONS & SUPPORT OF BRACED WALL
  - 1 REFERENCE FIGURE R602.10.4.3 OF THE 2018 NCRC.
- 4) INTERIOR BRACED WALL PANELS (BWP) INDICATED SHALL BE SHEATHED IN ACCORDANCE WITH THE GB METHOD OR WSP METHOD AS PRESCRIBED IN SECTION R602.10.1 (UNO)
- (2) 1/2" GYPSUM BOARD (GB) MINIMUM LENGTH OF 8'-0" (ISOLATED PANELS) OR 4'-0" (CONTINUOUS SHEATHING). SECURE W/ 5d COOLER NAILS (OR EQUAL PER TABLE R702.3.5) SPACED @ 7" O.C. AT PANEL EDGES, INCLUDING TOP AND BOTTOM PLATES & 7" O.C. AT INTERMEDIATE SUPPORTS
- 3) 3/8" WOOD STRUCTURAL PANEL (WSP)
  SECURE W/ 6d COMMON NAILS SPACED AT
  6" O.C. AT PANEL EDGES AND 12" O.C.
  AT INTERMEDIATE SUPPORTS
- 5) EXTERIOR BRACED WALL PANELS (BWP) SHALL BE CONSTRUCTED IN ACCORDANCE WITH CS-WSP METHOD AS PRESCRIBED IN SECTION R602.10.3 (UNO)
- 6) ALL SHEATHABLE SURFACES OF EXTERIOR WALLS
  (INCLUDING AREAS ABOVE AND BELOW OPENINGS AND
  GABLE END WALLS) SHALL BE CONTINUOUSLY SHEATHED
  WITH WOOD STRUCTURAL PANEL (WSP) SHEATHING WITH A
  MINIMUM THICKNESS OF 3/8". SHEATHING SHALL BE
  SECURED WITH MINIMUM 6d COMMON NAILS SPACED AT 6"
  O.C. AT PANEL EDGES AND SPACED AT 12" O.C. AT
- INTERMEDIATE SUPPORTS.

  7) MINIMUM BRACED WALL PANEL LENGTHS WITH CS-WSP METHOD SHALL BE AS FOLLOWS:

   24" ADJACENT TO OPENINGS NOT MORE THAN 67% OF WALL HEIGHT

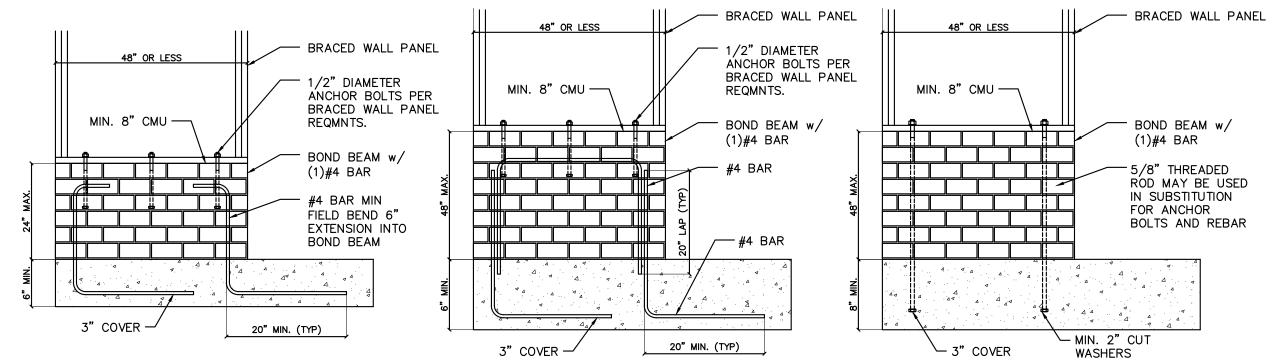
   30" ADJACENT TO OPENINGS GREATER THAN 67% AND LESS THAN 85% OF WALL HEIGHT.

   48" FOR OPENINGS GREATER THAN 85% OF
- 4 SHEATH INTERIOR & EXTERIOR
- 8) FOR CS-WSP METHOD, A MINIMUM 24" BRACED WALL PANEL CORNER RETURN SHALL BE PROVIDED AT BOTH ENDS OF A BRACED WALL LINE IN ACCORDANCE WITH FIGURE R602.10.3(4). IN LIEU OF A CORNER RETURN, EITHER A MIN. 48" BRACED WALL PANEL SHALL BE PROVIDED AT THE CORNER OR A HOLD-DOWN DEVICE WITH A MINIMUM UPLIFT DESIGN VALUE OF 800# SHALL BE FASTENED TO THE EDGE OF THE BRACED WALL PANEL CLOSEST TO THE CORNER AND TO THE FOUNDATION OR FRAMING BELOW.
- 5 MINIMUM 800# HOLD-DOWN DEVICE

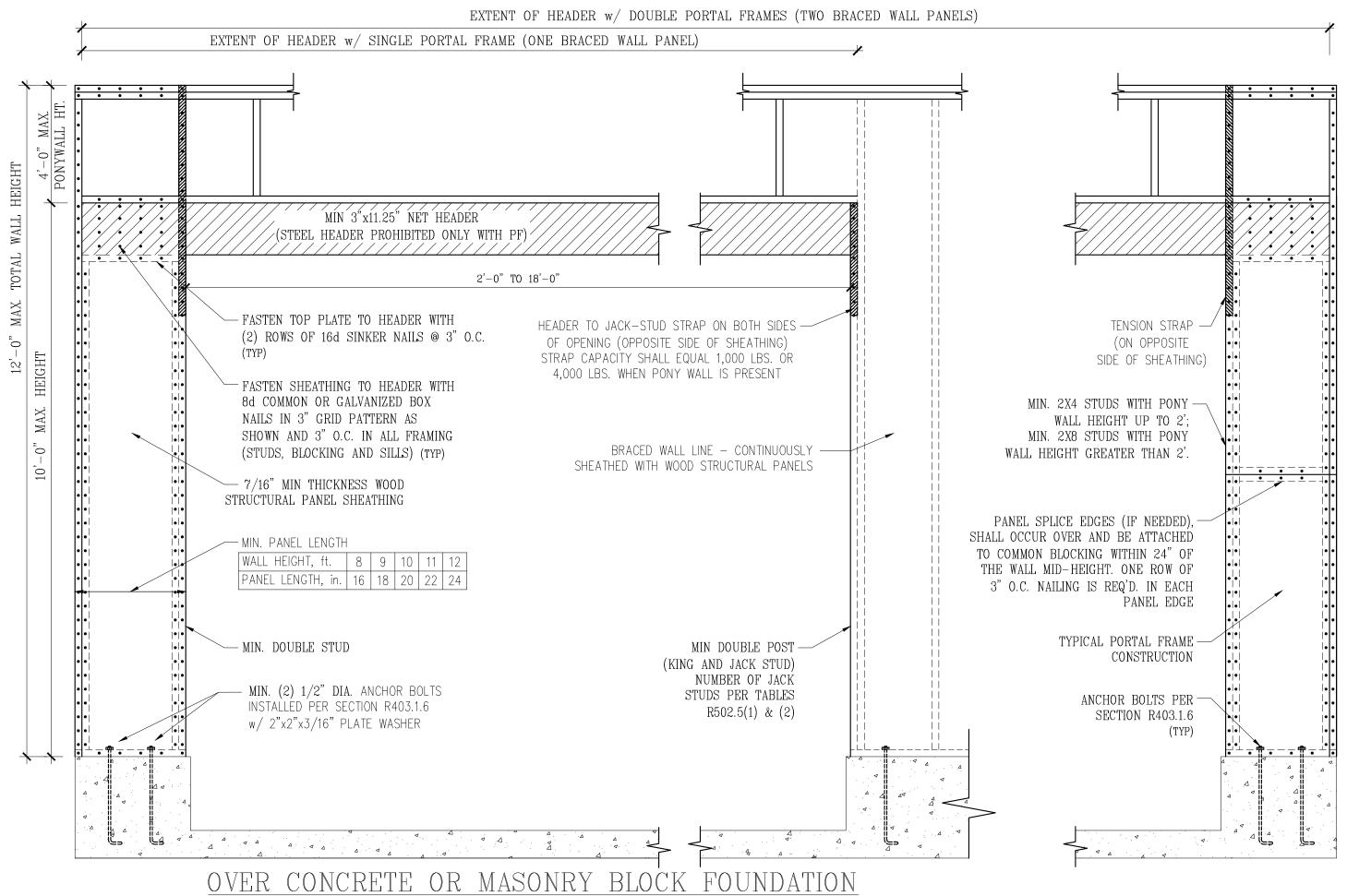
REQUIRED BRACED WALL PANEL CONNECTIONS						
			REQUIRED CONNECTION			
METHOD	MATERIAL	MIN. THICKNESS	@ PANEL EDGES	@ INTERMEDIATE SUPPORTS		
CS-WSP	WOOD STRUCTURAL PANEL	3/8"	6d COMMON NAILS @ 6° O.C.	6d COMMON NAILS @ 12"O.C.		
GB	GYPSUM BOARD	1/2"	5d COOLER NAIL** @ 7" O.C.	5d COOLER NAIL** @ 7" O.C.		
WSP	WOOD STRUCTURAL PANEL	3/8"	6d COMMON NAILS @ 6"O.C.	6d COMMON NAILS @ 12" O.C.		

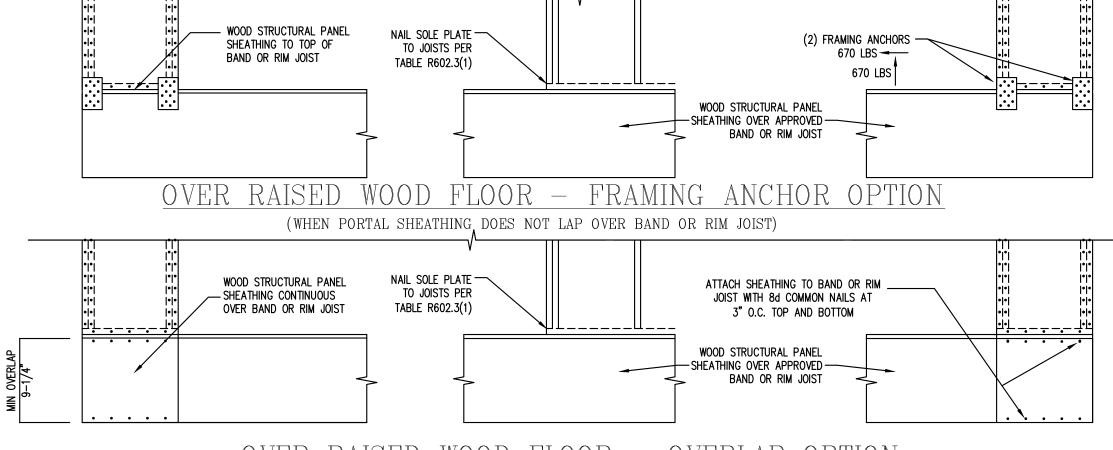
\*\*OR EQUIVALENT PER TABLE R702.3.5

B3: BRACE WALL PANEL CONNECTIONS
NO SCALE



B4: MASONRY STEM WALL SUPPORTING BRACED WALL PANELS
FIGURE R602.10.4.3 OF THE 2018 NCRC
NOTE: GROUT BOND BEAMS AND ALL CELLS WHICH CONTAIN REBAR, THREADED RODS AND ANCHOR BOLTS





OVER RAISED WOOD FLOOR — OVERLAP OPTION (WHEN PORTAL SHEATHING LAPS OVER BAND OR RIM JOIST)

B2: METHOD CS-PF: CONTINUOUSLY SHEATHED PORTAL FRAME FIGURE R602.10.1

means, methods, techniques, sequences, procedures or safety precaution.

\*Any deviations or discrepancies on plans are to be brought to the immediate attention of Tyndall Engineering & Design, P.A. Failure to do so will void Tyndall Engineering & Design, P.A. will interpret that all dimensions, recommendations, etc. presented in these documents were deemed acceptable once construction begins.

SEAL

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ACPEN PINCE PLAN

SHEATHING DETAILS

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2001-010222

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