

# NOTES

- 1. OWNER TO SELECT ALL DOOR & WINDOW STYLES.
- 2. VERIFY ALL STEPS REQUIRED @ SITE.
- 3. ALL GROUND LINES ARE APPROX.
- 4. VERIFY ALL EXTERIOR MATERIALS WITH OWNER PRIOR TO CONSTRUCTION.
- 5. REFER TO TYPICAL WALL FRAMING SECTION FOR FRAMING STYLE.

DATE: 1/27/20

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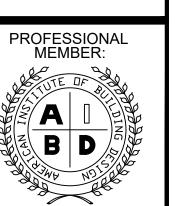
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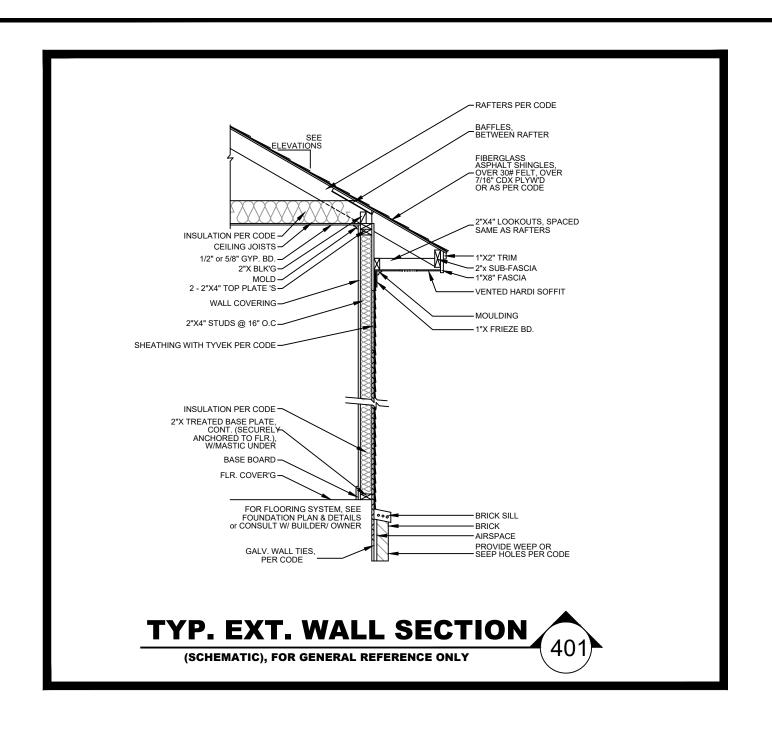
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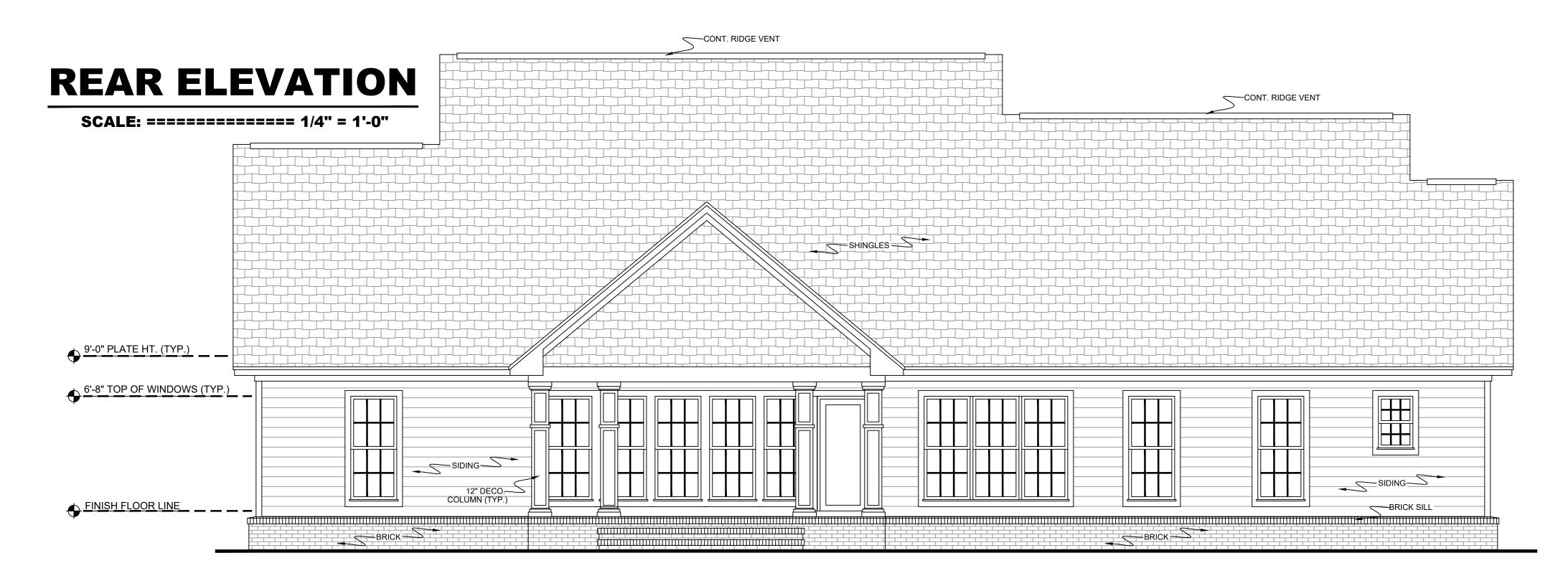
**ELEVATIONS** 

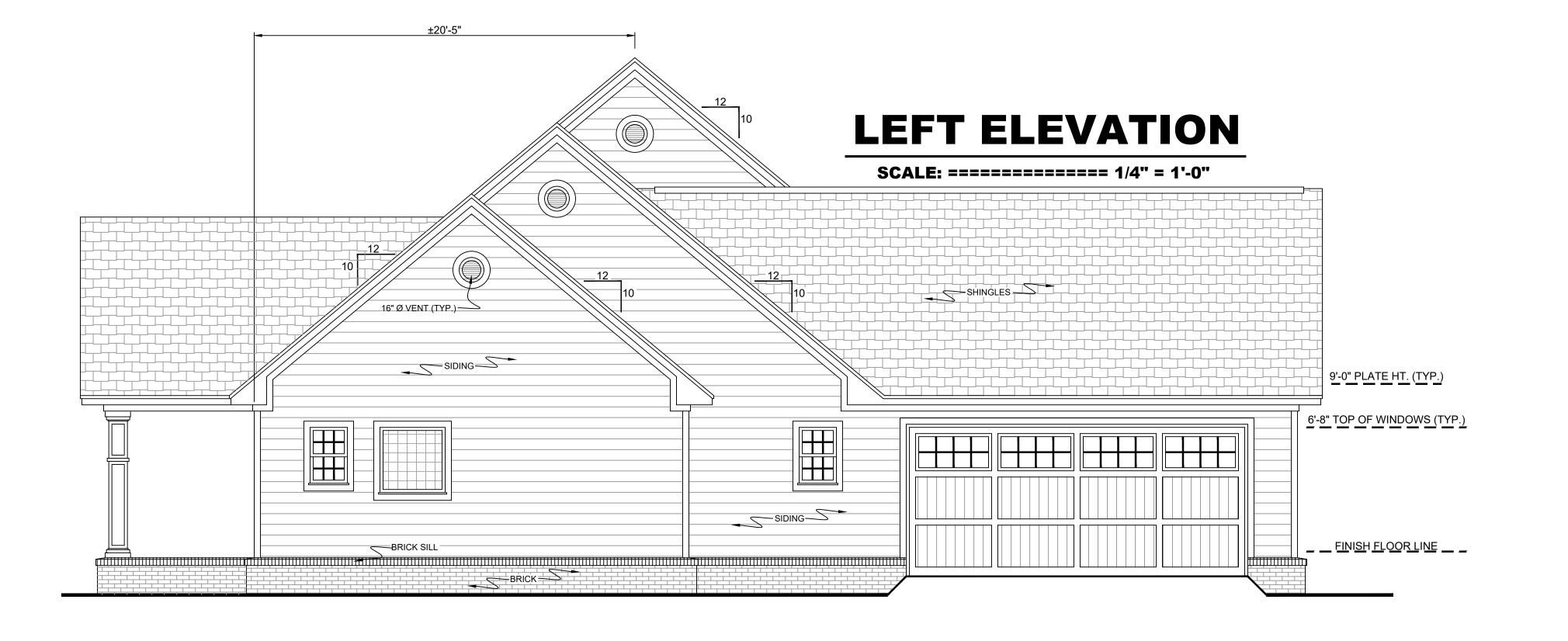
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1









## NOTES

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- 2. VERIFY ALL STEPS REQUIRED @ SITE.
- 3. ALL GROUND LINES ARE APPROX.
- 4. VERIFY ALL EXTERIOR MATERIALS WITH OWNER PRIOR TO CONSTRUCTION.
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DATE: 1/27/20

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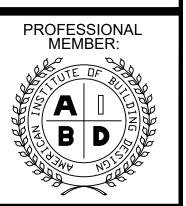
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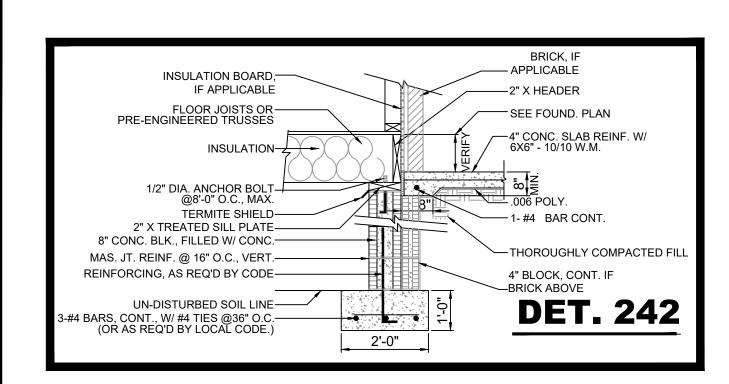
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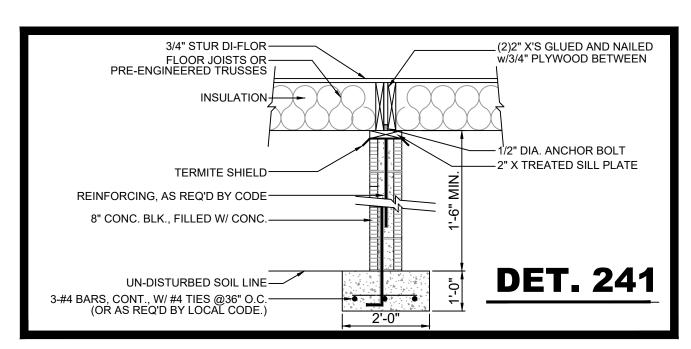
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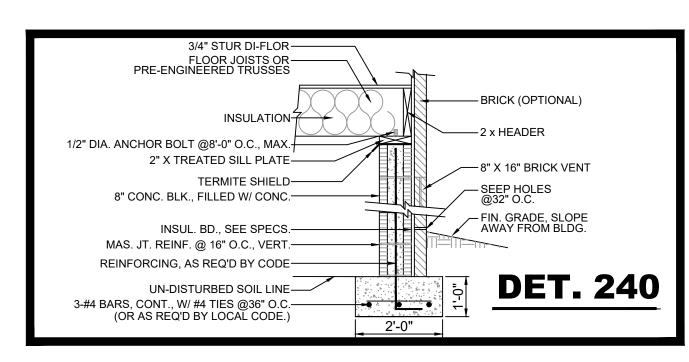
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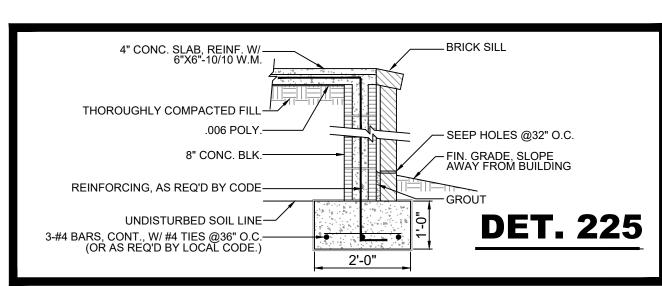
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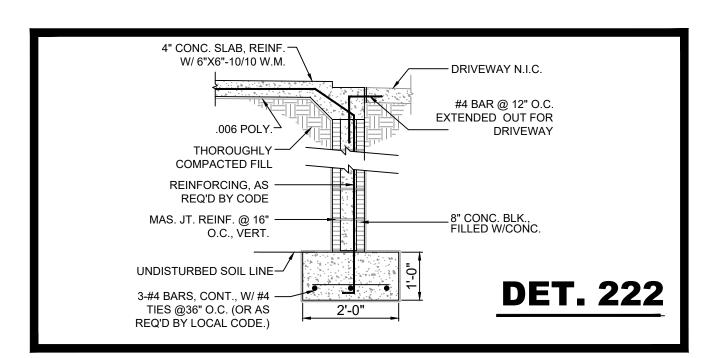


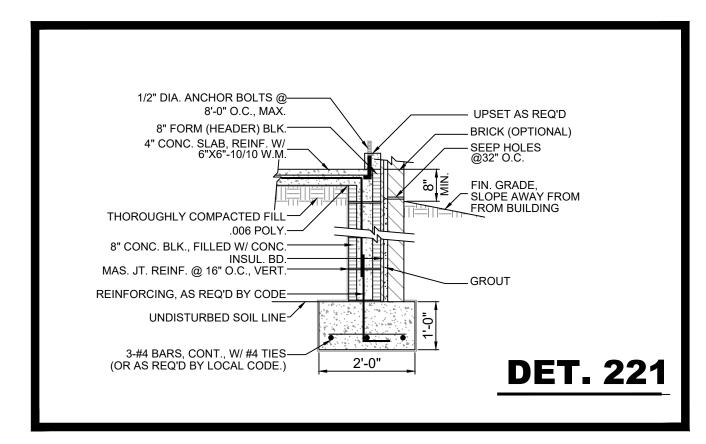


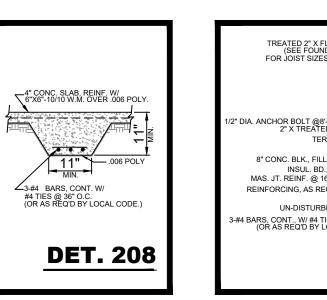


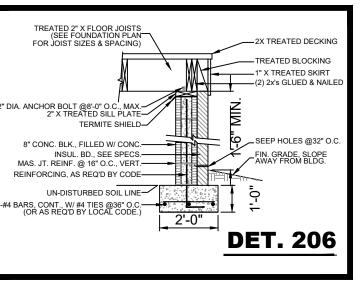


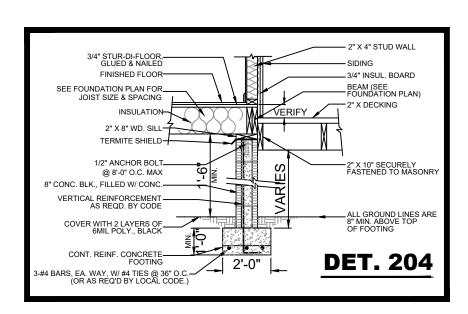


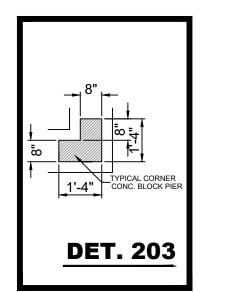


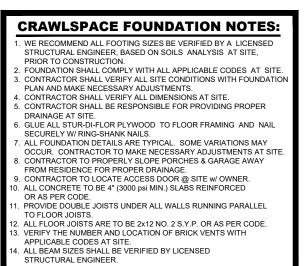




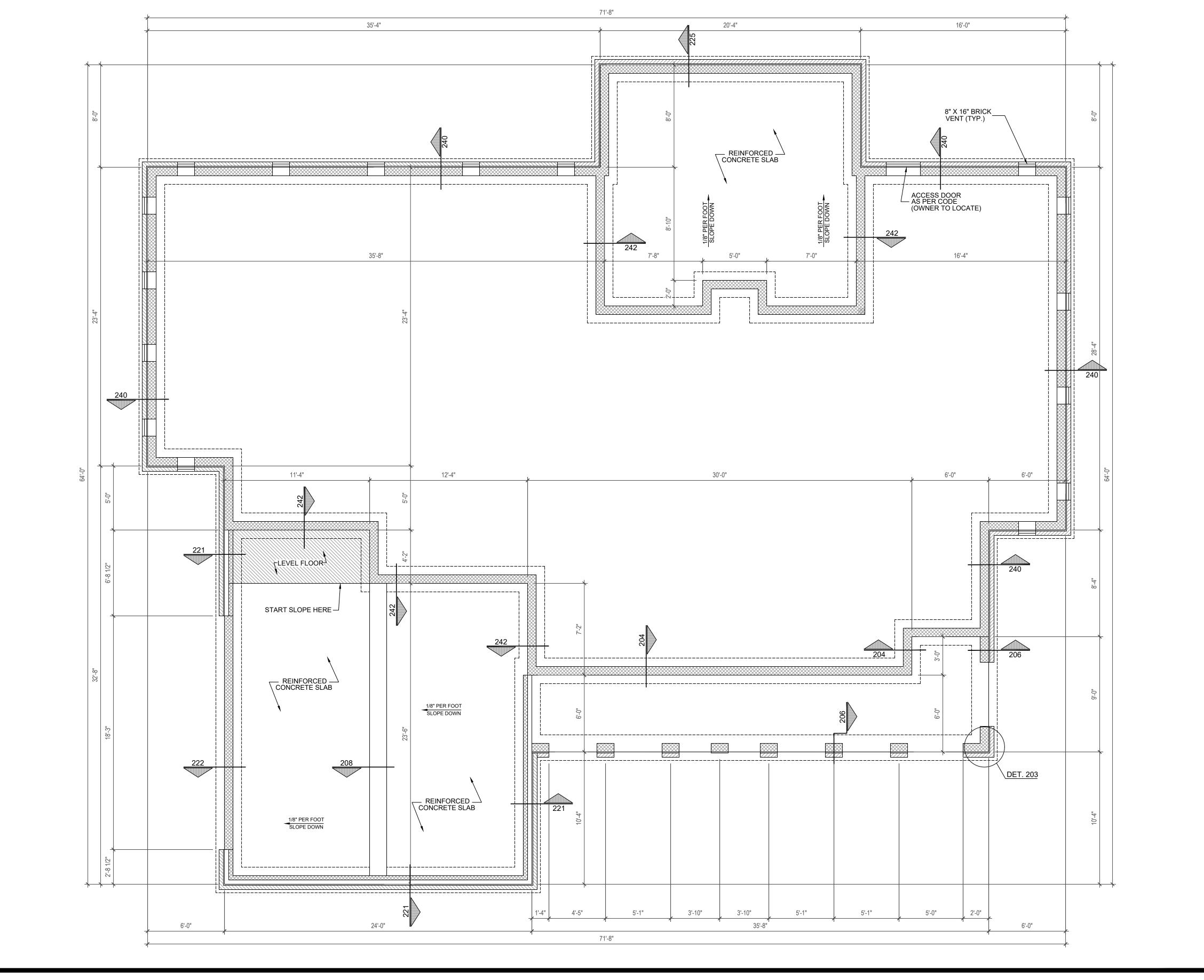




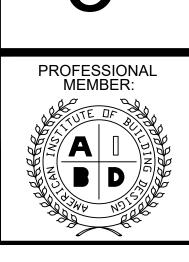




# **FOUNDATION**



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



DATE:

01/27/20

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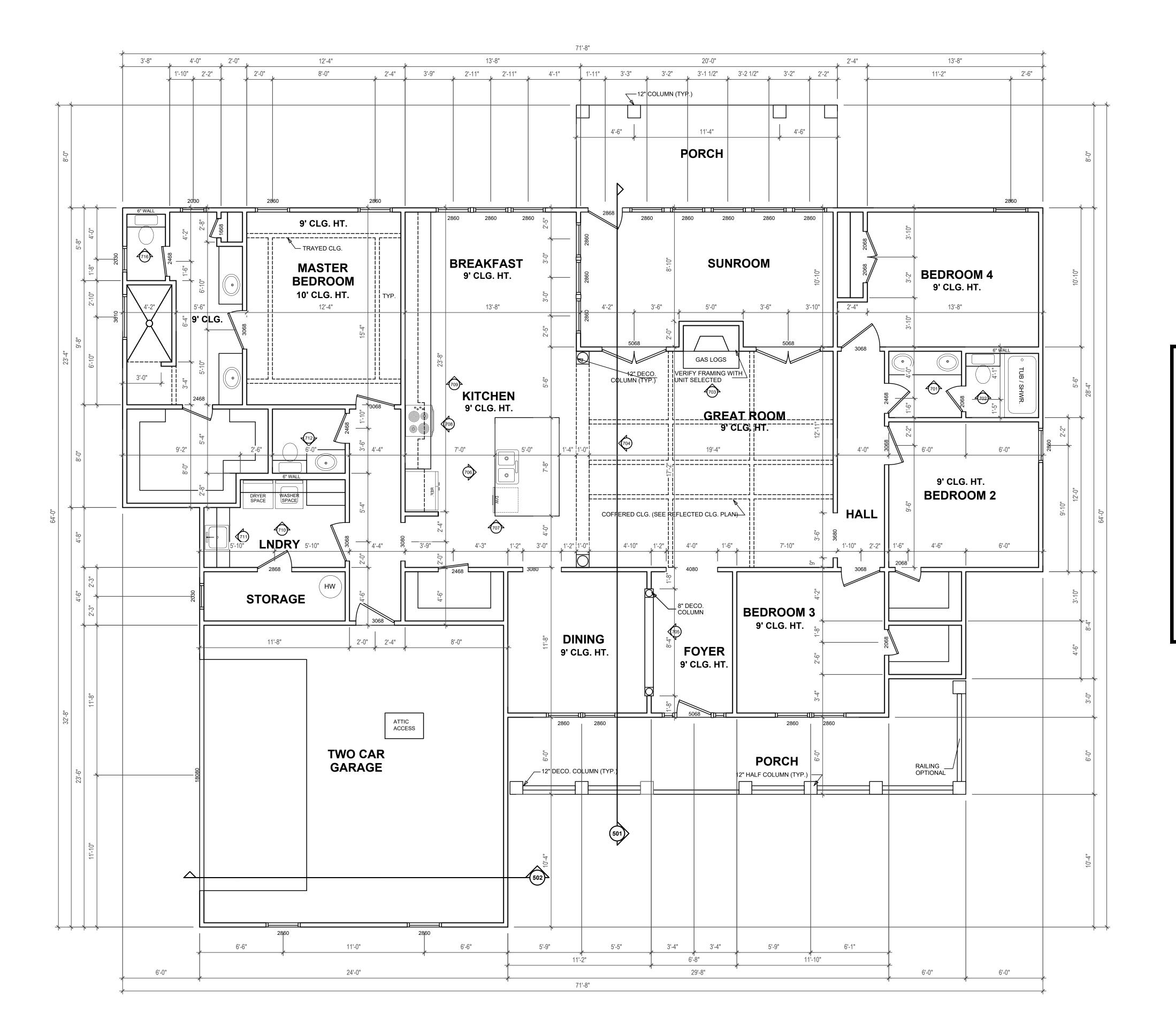
G.S.M.

PLAN NUMBER

CRAWLSPACE

FOUNDATION

SHEET NUMBER



## NOTES:

CONTRACTOR TO VERIFY ALL DIMENSIONS & EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION.

DOOR & WINDOW SIZES ARE GIVEN IN FEET & INCHES IN WIDTH & HEIGHT RESPECTIVELY.

DOOR EXAMPLE: 3068. 3'-0" WIDE BY 6'-8" TALL.

WINDOW EXAMPLE: 2840. 2'-8" WIDE BY 4'-0" TALL.

CONTRACTOR SHALL VERIFY ALL INTERIOR FINISHES, FLOOR COVERINGS, AND TRIM SIZES & CONFIGURATIONS WITH OWNER PRIOR TO CONSTRUCTION.

IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CLEARANCES OF THE ITEMS MENTIONED ABOVE PRIOR TO CONSTRUCTION.

REFER TO EXTERIOR ELEVATIONS FOR EXTERIOR WALL FINISHES.

REFER TO MANUFACTURERS SPECS FOR ROUGH

OPENING DIMENSIONS, FOR DOORS AND WINDOWS.

ALL BEAM SIZES TO BE VERIFIED BY STRUCTURAL

ENGINEER.

CONTRACTOR SHALL MAKE ALL NECESSARY MODIFICATIONS DURING CONSTRUCTION PROCES TO COMPLY WITH I.R.C. (INTERNATIONAL RESIDENTIAL CODE), LATEST EDITION, OR APPLICABLE CODES AT SITE.

**1** ||

DATE: 1/25/20

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CHECKED BY: G.S.M.

PLAN NUMBER
HPG-

FIRST FLOOR

SHEET NUMBER

4

PROFESSIONAL MEMBER:

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B D STATE OF THE PROFESSIONAL MEMBER:

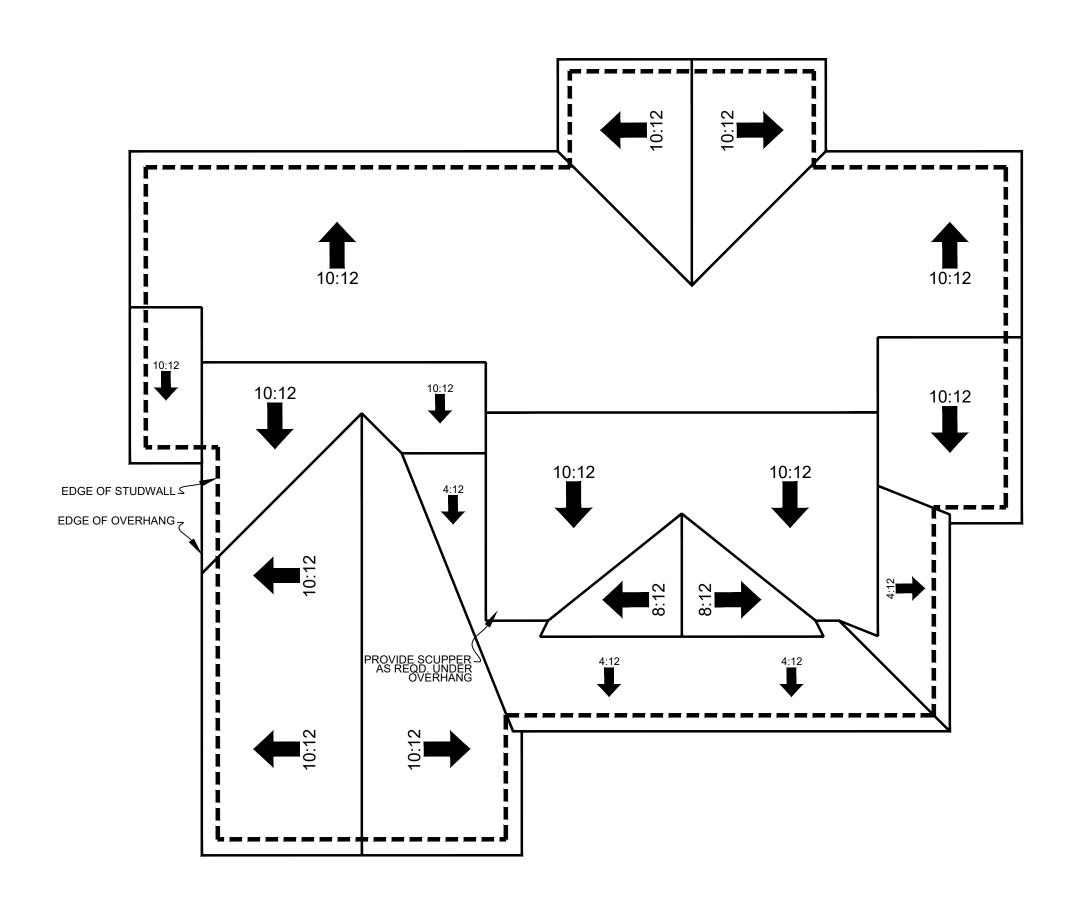
# FLOOR PLAN

AREAS: 2442 S.F. HEATED

1004 S.F. UNHEATED

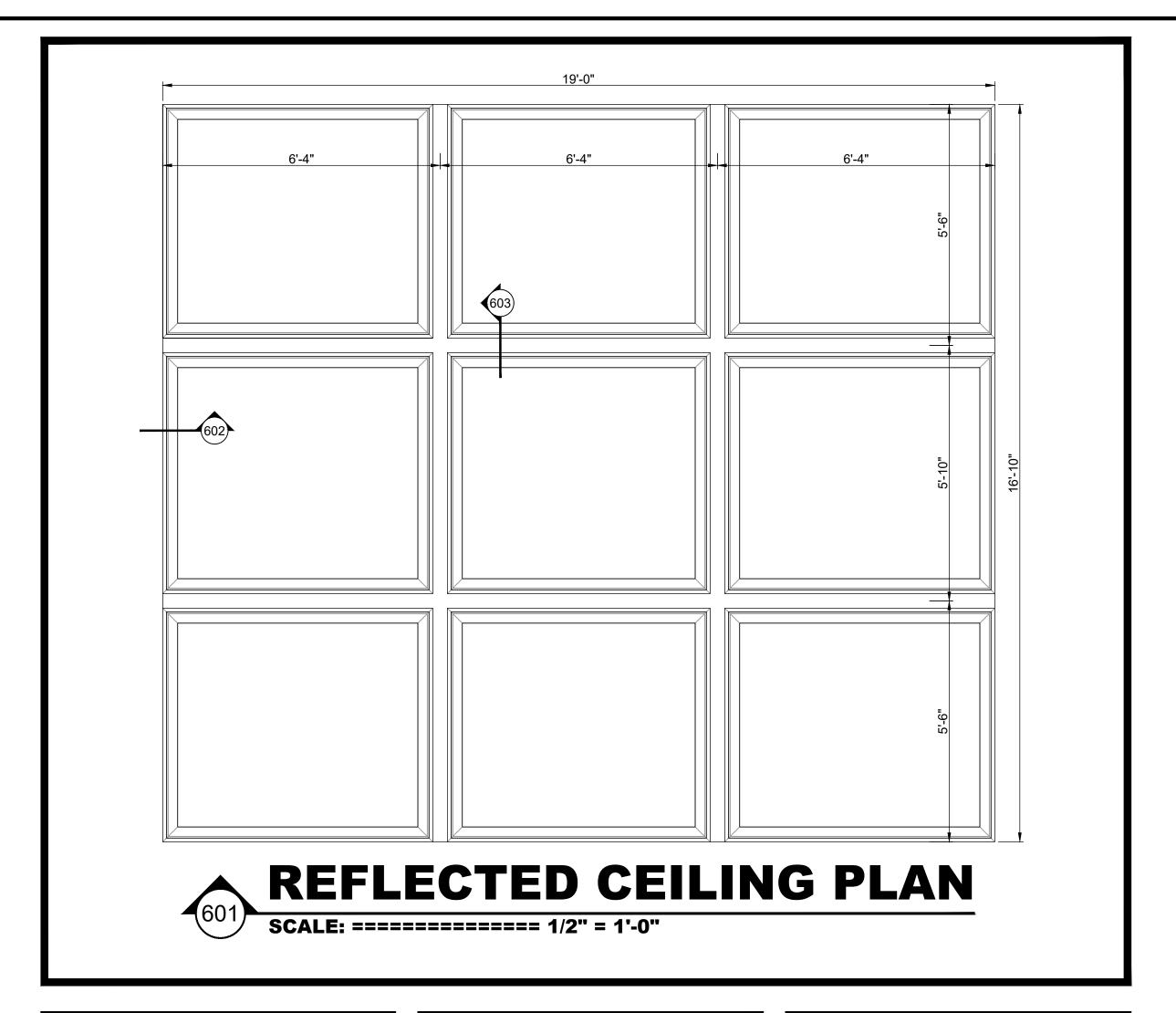
3446 S.F. TOTAL UNDER ROOF

\*\*MASONRY NOT INCLUDED\*\*



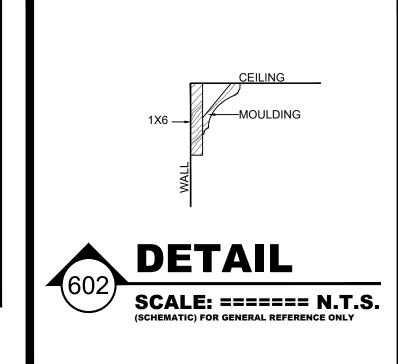
# **ROOF DRAINAGE LAYOUT**

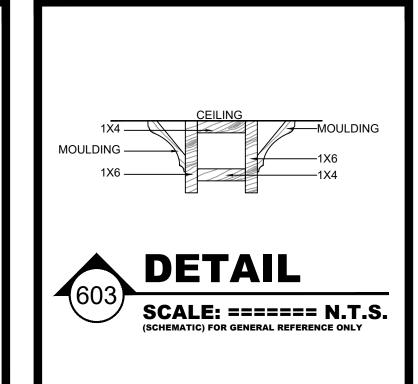
SCALE: ========= 1/8" = 1'-0"



# ROOF DRAINAGE NOTES

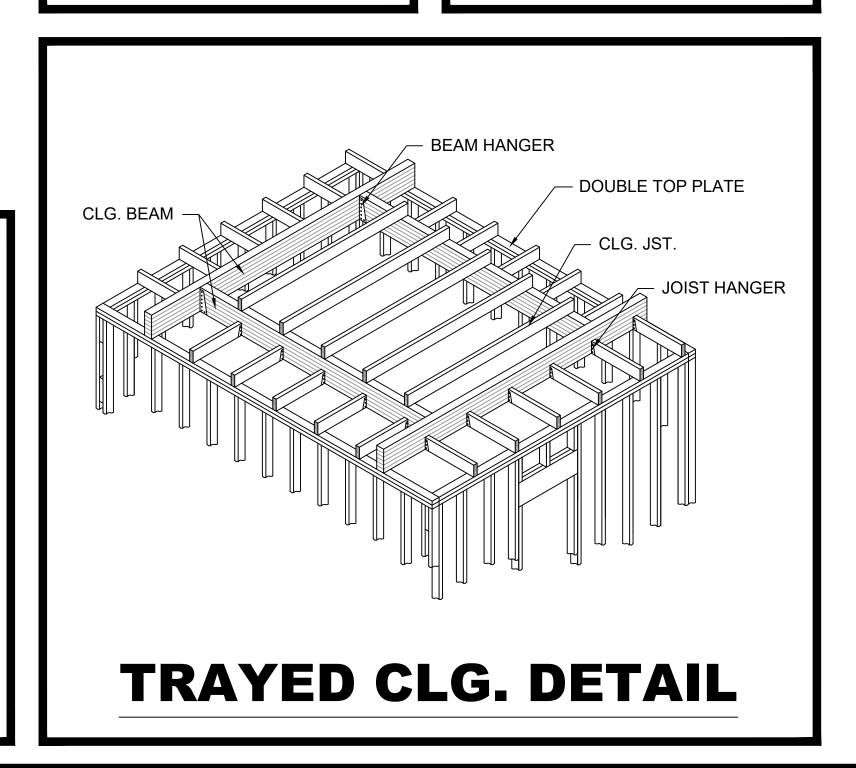
- 1. ALL ROOF PITCHES TO BE VERIFIED WITH EXTERIOR ELEVATIONS.
- 2. PROVIDE FLASHING NECESSARY FOR WATERPROOFING.
- 3. ALL OVERHANGS ARE TO BE 1'-4" FROM EXTERIOR FACE OF STUD WALL UNLESS OTHERWISE NOTED.





# ROOF FRAMING NOTES

- 1. ALL RAFTERS SHALL BE PER LOCAL CODE.
- 2. ALL RIDGE BEAMS, HIP RAFTERS, AND VALLEY RAFTERS ARE TO BE PER LOCAL CODE.
  3. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE BUILDING CODES AT SITE.
- 4. ALL ROOF/WALL INTERSECTIONS AND VALLEYS TO BE THOROUGHLY FLASHED W/ 22 GA. G.I. FLASHING, 24" MINIMUM WIDTH.



# DUSE PLAN GALLERY, IN

6659 HWY. 98 WEST, HATTIES EMAIL: HOUSEPLANGALLERY@COMCA

DATE: 1/27/20

DRAWN BY: GSM

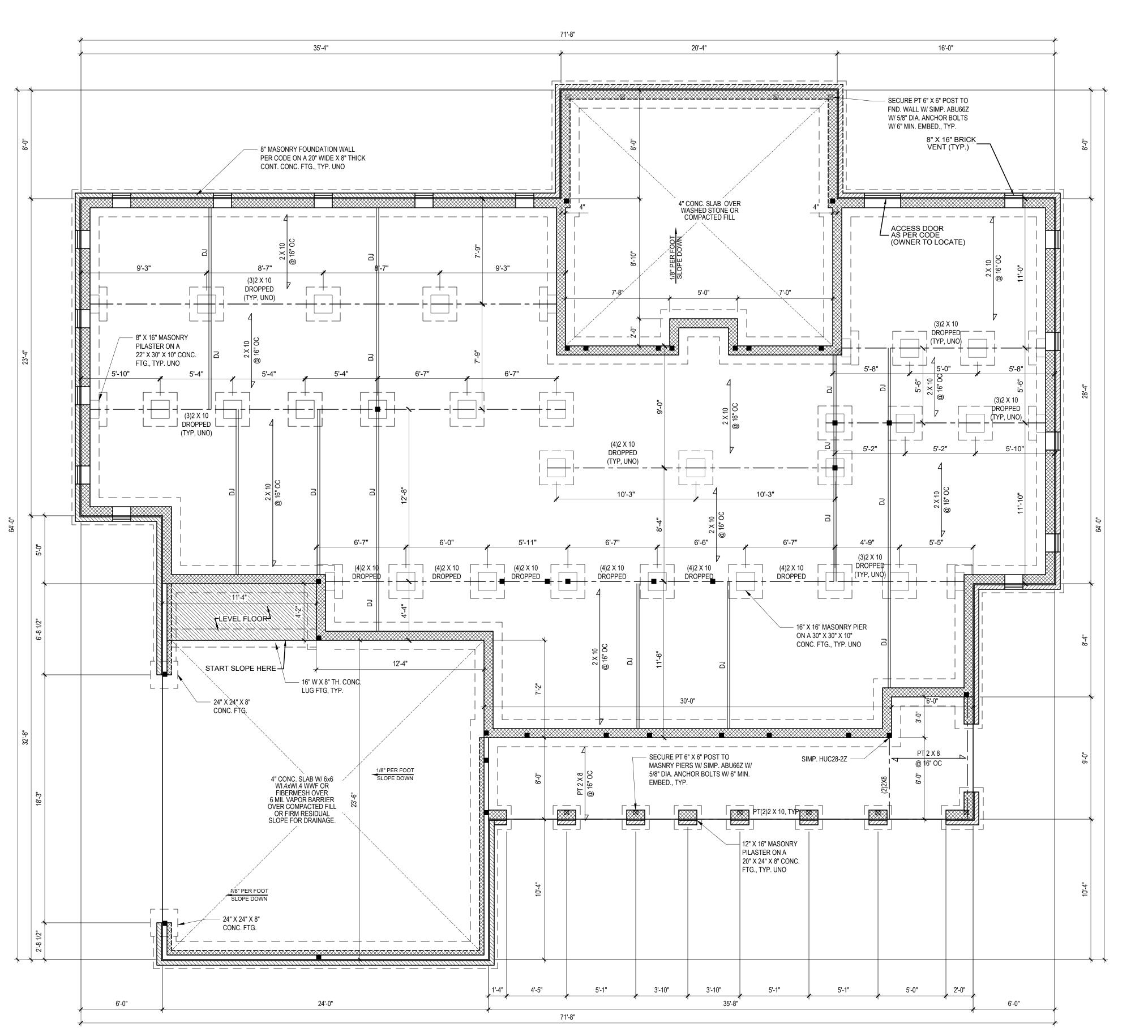
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PLAN NUMBER HPG-2204R

ROOF PLAN

SHEET NUMBER





### DESIGN LOADS

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
	(* 5* )	(* 5. )	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 ON SEISMIC ZONES A, B & C			

### STRUCTURAL NOTES:

- 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 ARE TO BE (2) 2x10 w/ (1) 2x4 JACK STUD (U.N.O.) AND KING STUDS PER TABLE R602.7.5, AND TOGETHER w/ (2) 10d NAILS @ 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 TABLES R602.7(1) AND R602.7(2).
- 5) ALL INTERIOR LOAD BEARING HEADERS TO BE (2) 2x10 (U.N.O.) REFER TO TABLES R602.7(1) AND R602.7(2) FOR JACK STUD REQUIREMENTS FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS
- 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"Ø 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
- 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.

NOTE: SECURE 4-PLY W/ 1/2"Ø THRU-BOLTS @ 24" O.C

FOUNDATION PLAN

1/4" = 1'-0"

\*Engineers seat does not include construction 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. liability. P.A. liability. Please review these documents carefully. Tyndall Engineering & Design, P.A. will interpret that all dimensions, recommendations, etc. presented in these documents were deemed acceptable once construction beg

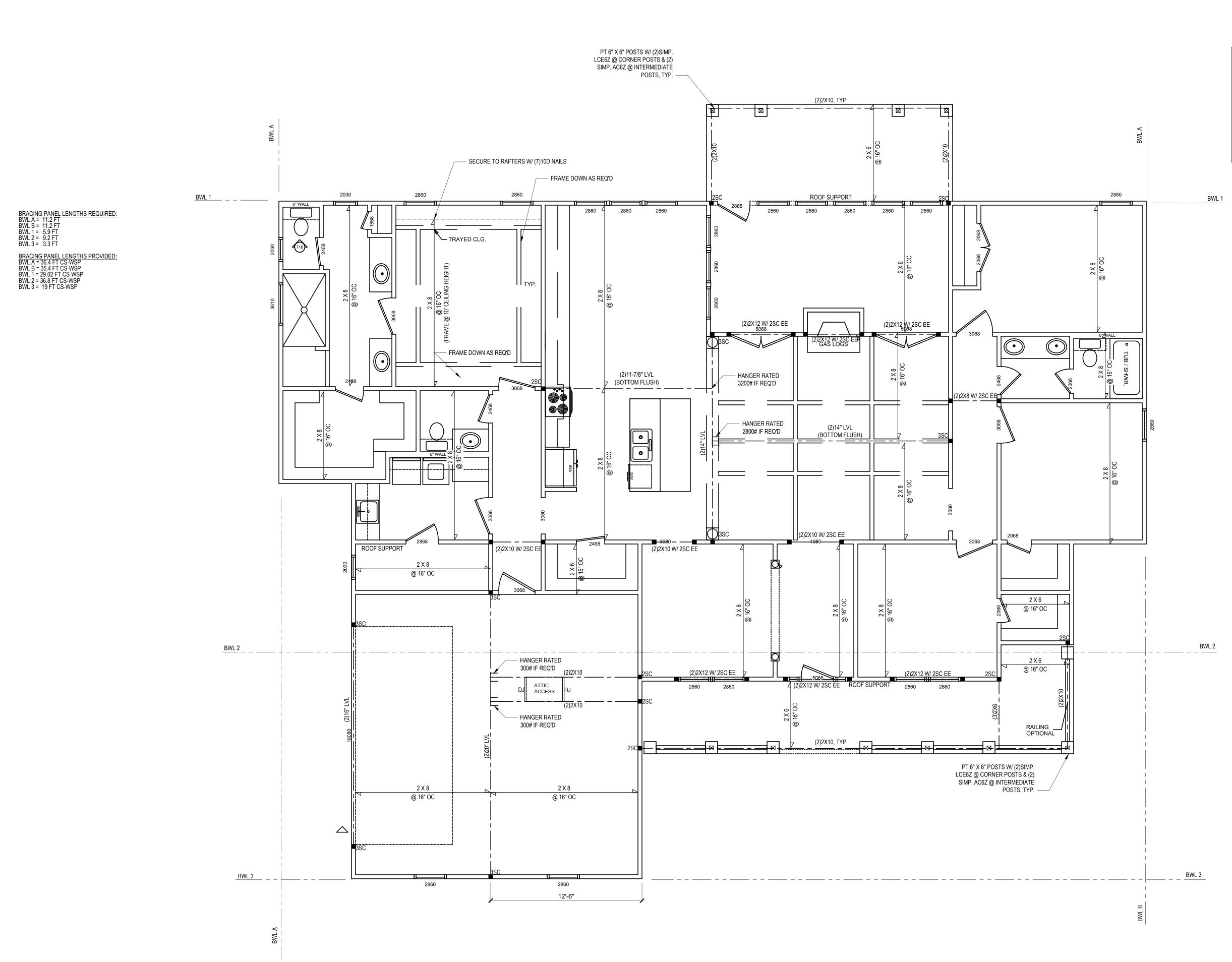


DRB2101-010170 08/13/2021 Drawn/Design By: IJE / SM DWG. Checked By: PAT

SEE PLAN

REVISIONS Date:

**Sheet Number** 



### **DESIGN LOADS**

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLE	ECTION
	(* 5. )	(* 5. /	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 ON SEISMIC ZONES A, B & C			

STRUCTURAL NOTES:

- 1) 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 ARE TO BE (2) 2x10 w/ (1) 2x4 JACK STUD (U.N.O.) AND KING STUDS PER TABLE R602.7.5, AND TOGETHER w/ (2) 10d NAILS @ 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 TABLES R602.7(1) AND R602.7(2).

  5) ALL INTERIOR LOAD BEARING HEADERS TO BE (2) 2x10 (U.N.O.) REFER TO TABLES R602.7(1) AND R602.7(2) FOR JACK STUD REQUIREMENTS FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS (LINO)
- 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"Ø 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 MASONRY
- PSL COLUMNS DESIGNED WITH MAX. HEIGHT OF 9'-0" (UNO)
   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
- 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

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

### 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.

FRAMING BELOW.

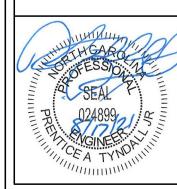
(5) MINIMUM 800# HOLD-DOWN DEVICE

FIRST FLOOR PLAN

1/4" = 1'-0"

\*Engineers seal does not include construction means, methods, techniques, sequences, procedures or safety precaution.
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\*Please review these documents carefully. Tyndall Engineering & Design, P.A. will interpret that all dimensions, recommendations, etc. presented in these documents were deemed acceptable once construction begins.



ENGINEERING & DESIGN, P.A.

1 919 778-1200 = 1 919 773-9688
Shipwash Orive = Garner = North Carolina = 27829
www.tyndallanginearing.com

ENGIN

SON RESIDENCE

1ST FLOOR HEADE 1ST FLOOR CEILIN

DRB2101-010170

Date:

08/13/2021

Drawn/Design By:

IJE / SM

DWG. Checked By:

PAT

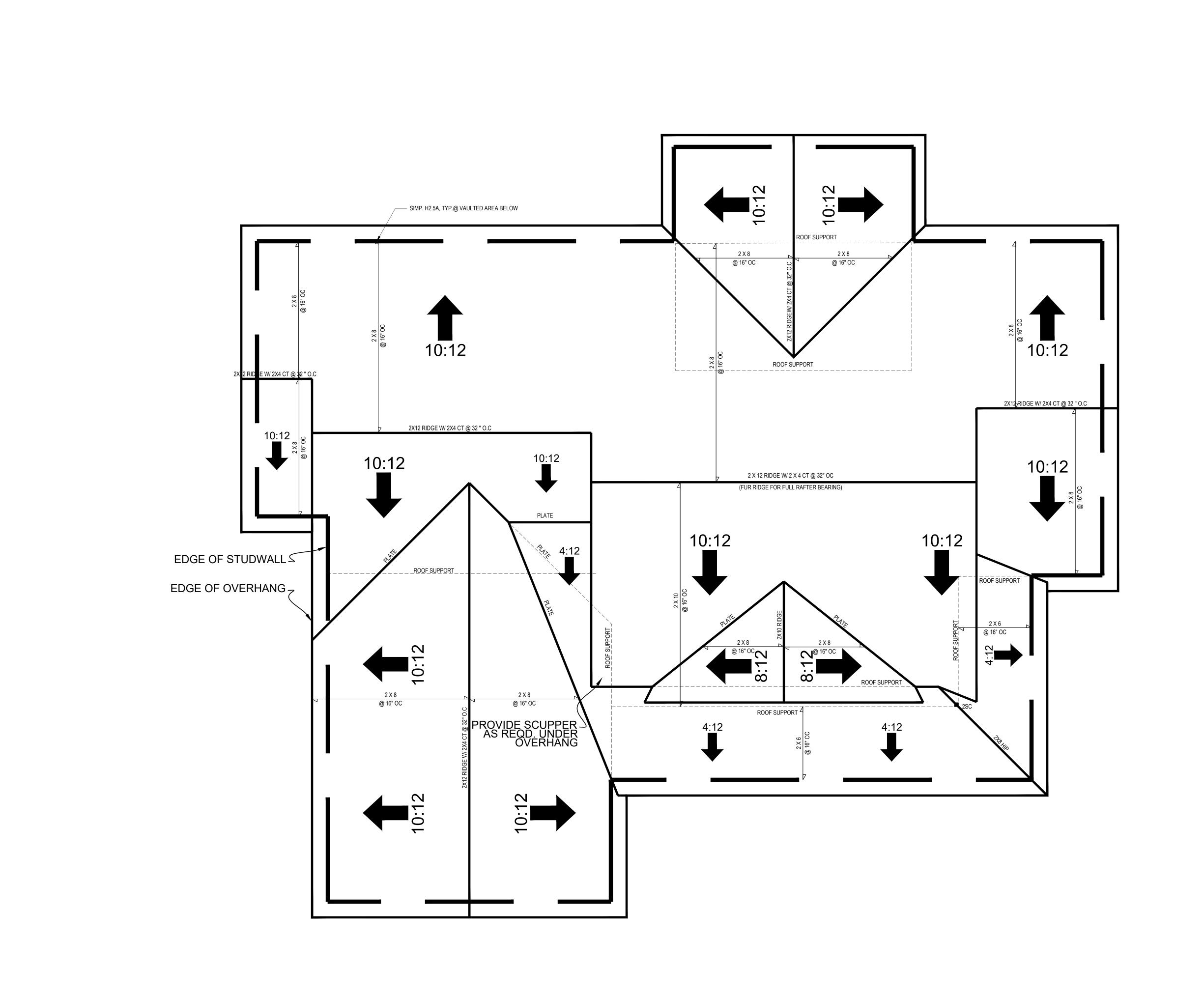
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REVISIONS

Date: Remarks

**Sheet Number** 

S2



\*Engineers seal does not include construction means, methods, techniques, sequences, procedures or safety precaution.
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\*Please review these documents carefully. Tyndall Engineering & Design, P.A. will interpret that all dimensions, recommendations, etc. presented in these documents were deemed acceptable once construction begins. DEBOR

ROOF

Project #: DRB2101-010170 08/13/2021 Drawn/Design By: IJE / SM DWG. Checked By:

PAT

SEE PLAN **REVISIONS** 

**Sheet Number** 

### STRUCTURAL NOTES

1) 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) DESIGN LOADS:

	LIVE LOAD (PSF)	DEAD LOAD DEFLECTI		ECTION
	(* /	(* 5. )	LL	TL
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		BASED ON 120 MF	PH (EXPOSURE B)	
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
- 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.
- 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 PSL 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"Ø 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"Ø 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	FENESTRATION U-FACTOR	SKYLIGHT <sup>b</sup> U-FACTOR	GLAZED FENESTRATION SHGC <sup>b,k</sup>	CEILING <sup>m</sup> R-VALUE	WOOD FRAMED WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT <sup>c,Q</sup> WALL R-VALUE	SLAB <sup>d</sup> R-VALUE AND DEPTH	CRAWL SPACE <sup>C</sup> WALL R-VALUE
3	0.35	0.55	0.30	38 or 30 cont	15 or 13 + 2.5	<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	15 or 13 + <u>2.5</u> h	5/13 or 5/10 cont	19	10/15	10	10/15
5	0.35	0.55	NR	38 or 30 cont	<sup>n</sup> 19, or 13 + 5 or 15 + 3	13/17 <u>or</u> 13/12.5 cont	<b>30</b> <sup>g</sup>	10/15	10	10/19

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

- a. 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.

  d. 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.
- e. DELETED
- $f. \ \ BASEMENT WALL INSULATION IS NOT REQUIRED IN WARM-HUMID LOCATIONS AS DEFINED BY \underline{FIGURE N1101.7} \ AND \ \underline{TABLE N1101.7}.$ 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. IF STRUCTURAL SHEATHING COVERS 25% OR LESS OF THE EXTERIOR  $\underline{\textbf{INSULATING SHEATHING IS NOT REQUIRED WHERE THE STRUCTURAL SHEATHING IS USED. IF STRUCTURAL SHEATHING COVERS MORE THAN 25 PERCENT AND ADDRESS MORE THAN 25 PERCENT ADDRESS MORE THAN 25 PERCENT$  $\underline{\text{OF THE EXTERIOR, SHALL BE SUPPLEMENTED WITH INSULATED SHEATHING OF AT LEAST R-2.}} \text{"} 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{"} 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{"} 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{"} 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{ } 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{ } 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{ } 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{ } 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{ } 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{ } 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{ } 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{ } 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY INSULATED SHEATHING OF AT LEAST R-2.} \text{ } 13 + 2.5 \text{"} \text{ MEANS R-13 CAVITY R-13 CAVI$
- 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  $\underline{\textbf{PERMITTED TO BE SUBSTITUTED FOR MINIMUM CODE COMPLIANT FENESTRATION PRODUCT ASSEMBLIES WITHOUT PENALTY}.$
- k. 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
- 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.

  1. 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.

9. BASEMENT WALL MEETING THE MINIMUM MASS WALL SPECIFIC HEAT CONTENT REQUIREMENT MAY USE THE MASS WALL R-VALUE AS THE MINIMUM REQUIREMENT.

# 2075 SQ. FT. OF CRAWL SPACE / 150 = 13.83 SQ. FT. OF REQ'D VENTILATION WITHOUT CROSS VENTILATION

- 2) THE TOTAL AREA OF VENTILATION OPENINGS MAY BE REDUCED TO 1/1500 OF THE CRAWL SPACE GROUND 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 RAINWATER ENTRY WHEN THE CRAWL SPACE IS BUILT ON A SLOPED SITE, THE UPHILL FOUNDATION WALLS MAY BE CONSTRUCTED WITHOUT WALL VENT OPENINGS. VENT DAMS SHALL BE PROVIDED



# 2777 SQ. FT. OF ATTIC / 300 = 9.27 SQ. FT. INLETS/OUTLETS REQUIRED

- HE COMICE VENTS WITH THE BALANCE OF VENTILATION PROVIDED
- CATHEDRAL CEILINGS SHALL HAVE A 1" MINIMUM CLEARANCE BETWEEN
  THE BOTTOM OF THE ROOF DECK AND THE INSULATION.

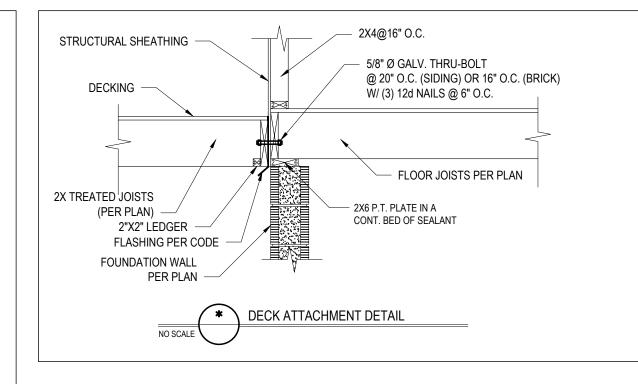


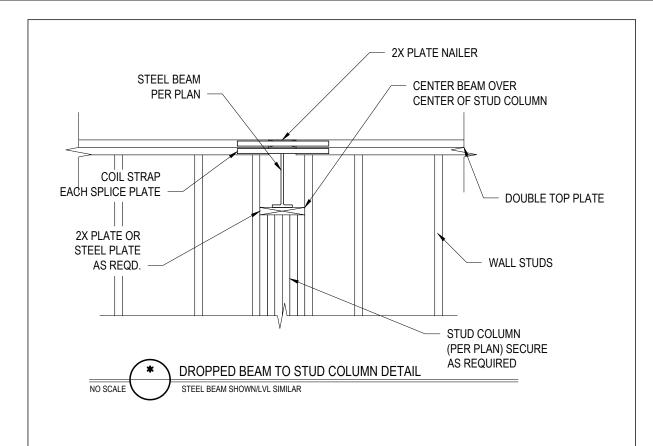
### **DEFINITIONS FOR COMMON ABBREVIATIONS**

WELDED WIRE FABRIC

EXTRA JOIST

ALTERNATE CANTILEVER MINIMUM CEILING JOIST ON CENTER CONCRETE MASONRY UNIT POINT LOAD COL COLUMN CONC CONCRETE PRESSURE TREATED CONTINUOUS REINF REINFORCED COLLAR TIE REQD REQUIRED DOUBLE ROOF SUPPORT DIAMETER DOUBLE JOIST STUD COLUMN DOUBLE RAFTER SCHEDULE FACH SPECIFIED THICK FLOOR JOIST TRIPLE JOIST FOUNDATION TREATED TYPICAL FOOTING UNLESS NOTED OTHERWISE GALV GALVANIZED WIDE FLANGE BEAM HORIZ HORIZONTAL





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

HEIGHT

MANUFACTURER

POST SIZE	MAX. POST HEIGHT**
4 x 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.

ATTACHED TO THE STRUCTURE IN ACCORDANCE WITH SECTION (4)

TO THE POST AND GIRDER WITH ONE 5/8"Ø HOT DIPPED GALVANIZED

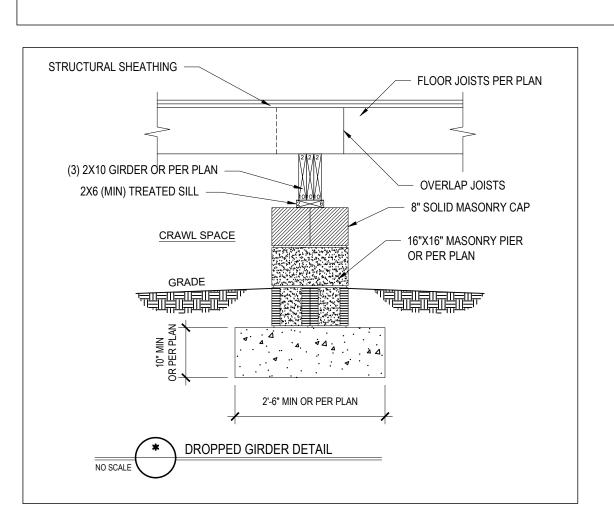
- 2) DECKS SHALL BE BRACED TO PROVIDE LATERAL STABILITY BY ONE OF THESE METHODS:
- A. THE DECK FLOOR HEIGHT IS LESS THAN 4'-0" AND THE DECK IS
- ABOVE. LATERAL BRACING IS NOT REQUIRED. B. 4 x 4 WOOD KNEE BRACES MAY BE PROVIDED ON EACH COLUMN IN BOTH DIRECTIONS. THE KNEE BRACES SHALL ATTACH TO EACH POST 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
- BOLT AT EACH END OF THE BRACE. C. FOR FREESTANDING DECKS WITHOUT KNEE BRACES OR DIAGONAL BRACING, LATERAL STABILITY MAY BE PROVIDED BY EMBEDDING THE

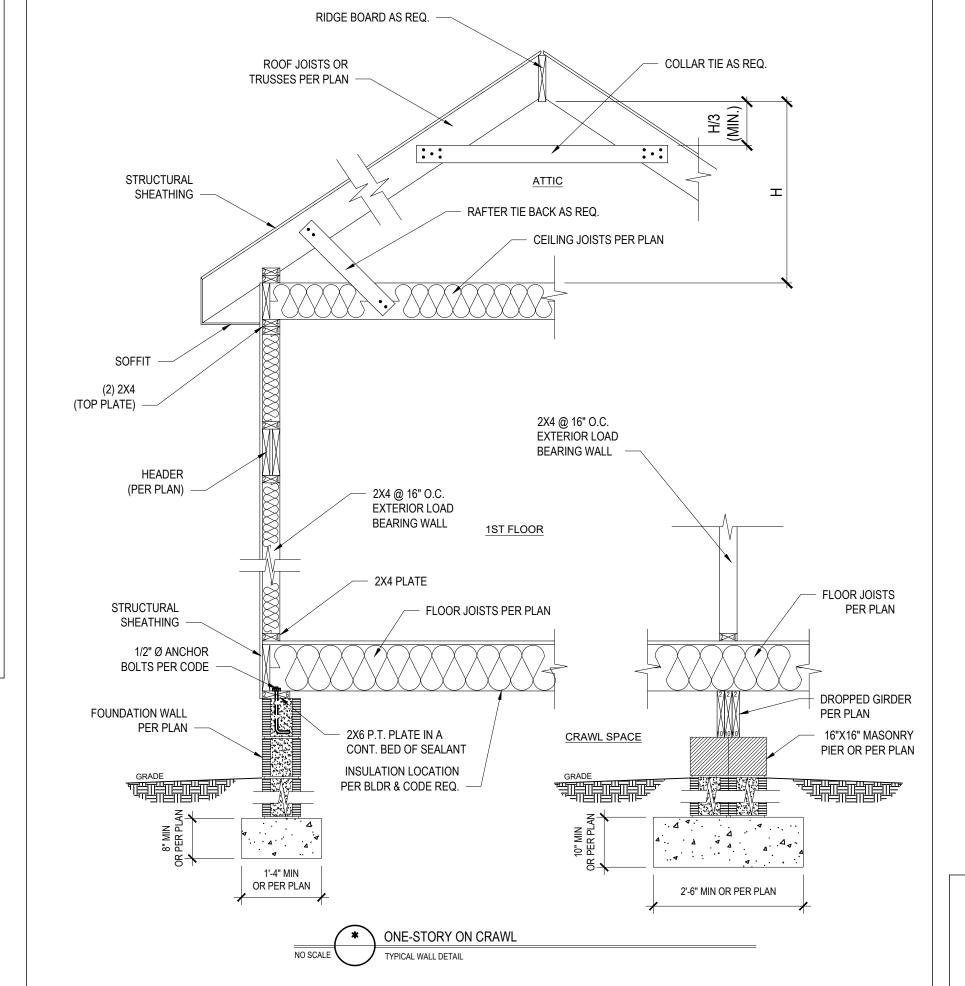
POSTS IN ACCORDANCE WITH THE FOLLOWING:

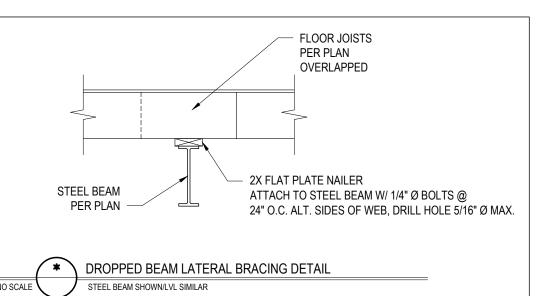
POST SIZE	MAX. TRIBUTARY AREA	MAX. POST HEIGHT	EMBEDMENT DEPTH	CONCRETE DIAMETER	
4 x 4	48 SQ. FT.	4'-0"	2'-6"	1'-0"	
6 x 6	120 SQ. FT.	6'-0"	3'-6"	1'-8"	

- 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"Ø HOT
- DIPPED GALVANIZED BOLT AT EACH END OF EACH BRACING MEMBER. E. FOR EMBEDMENT OF PILES IN COASTAL REGIONS, SEE CHAPTER 46.

- FLOOR JOISTS PER PLAN





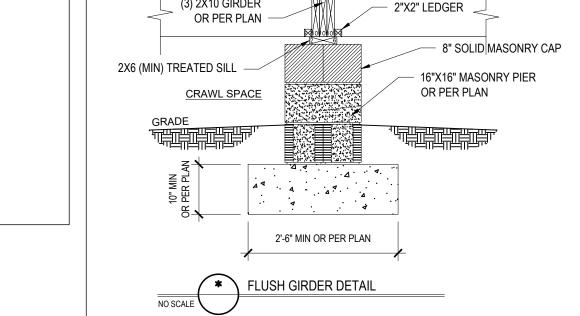




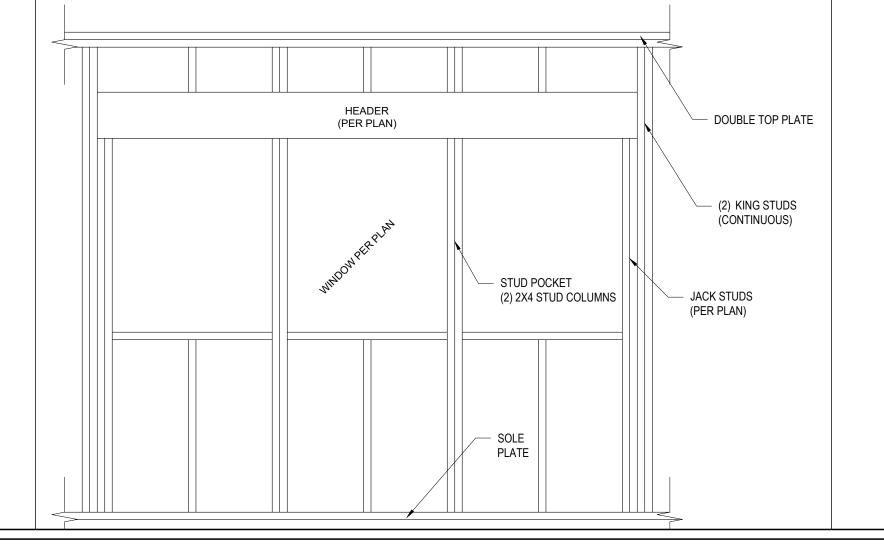
1.38 SQ. FT. OF VENTILATION REQ'D / 0.45 SQ.FT. PER VENT = 4 VENTS REQ'D2

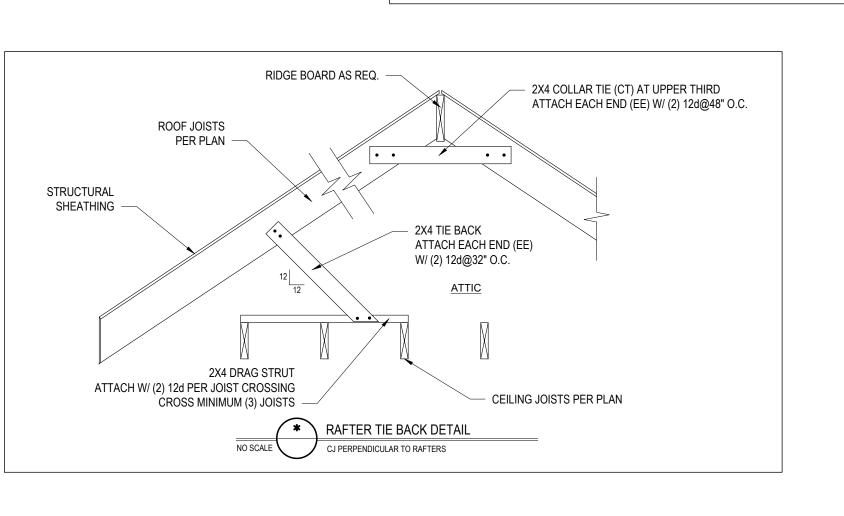
PROVIDE ADEQUATE VENTILATION AT ALL POINTS AND TO PREVENT DEAD AIR POCKETS.

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



STRUCTURAL SHEATHING





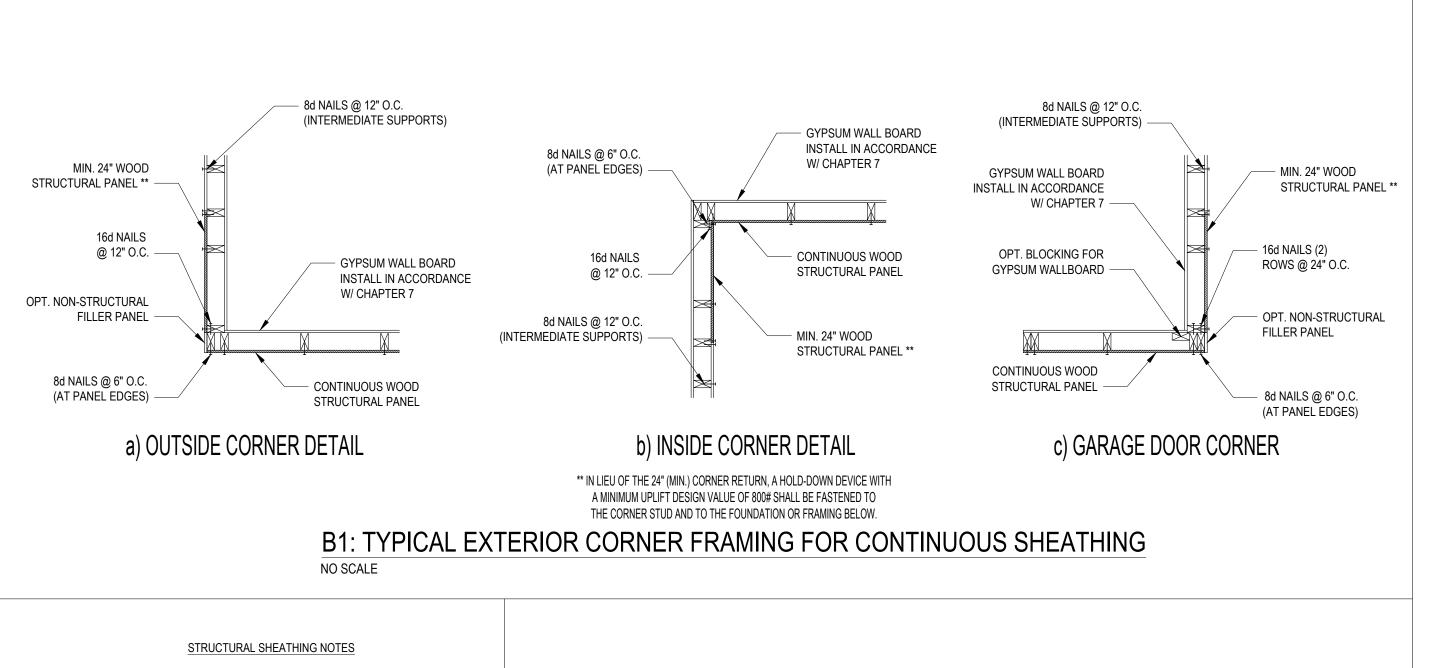
rocedures or safety precaution. Any deviations or discrepancies on plans ar to be brought to the immediate attention of Please review these documents carefully Tyndall Engineering & Design, P.A. will interpret that all dimensions, etc. presented in these documents were

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- 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
- 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 SHEATHARLE 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
- '. 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
- $\overline{\langle 4 \rangle}$  SHEATH INTERIOR AND EXTERIOR

INTERMEDIATE SUPPORTS.

- 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 MINIMUM 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
- 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

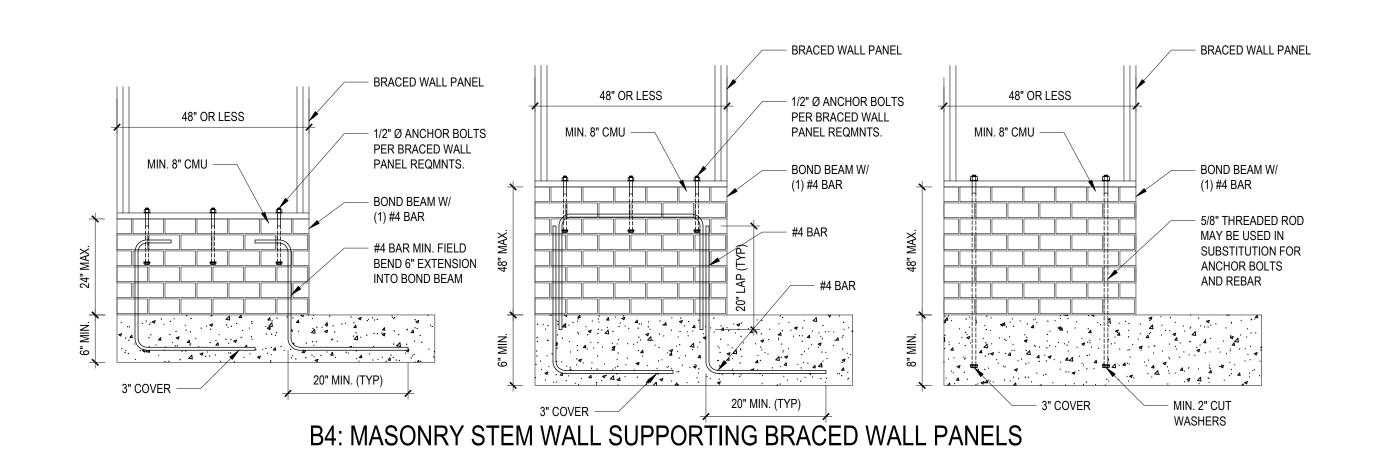
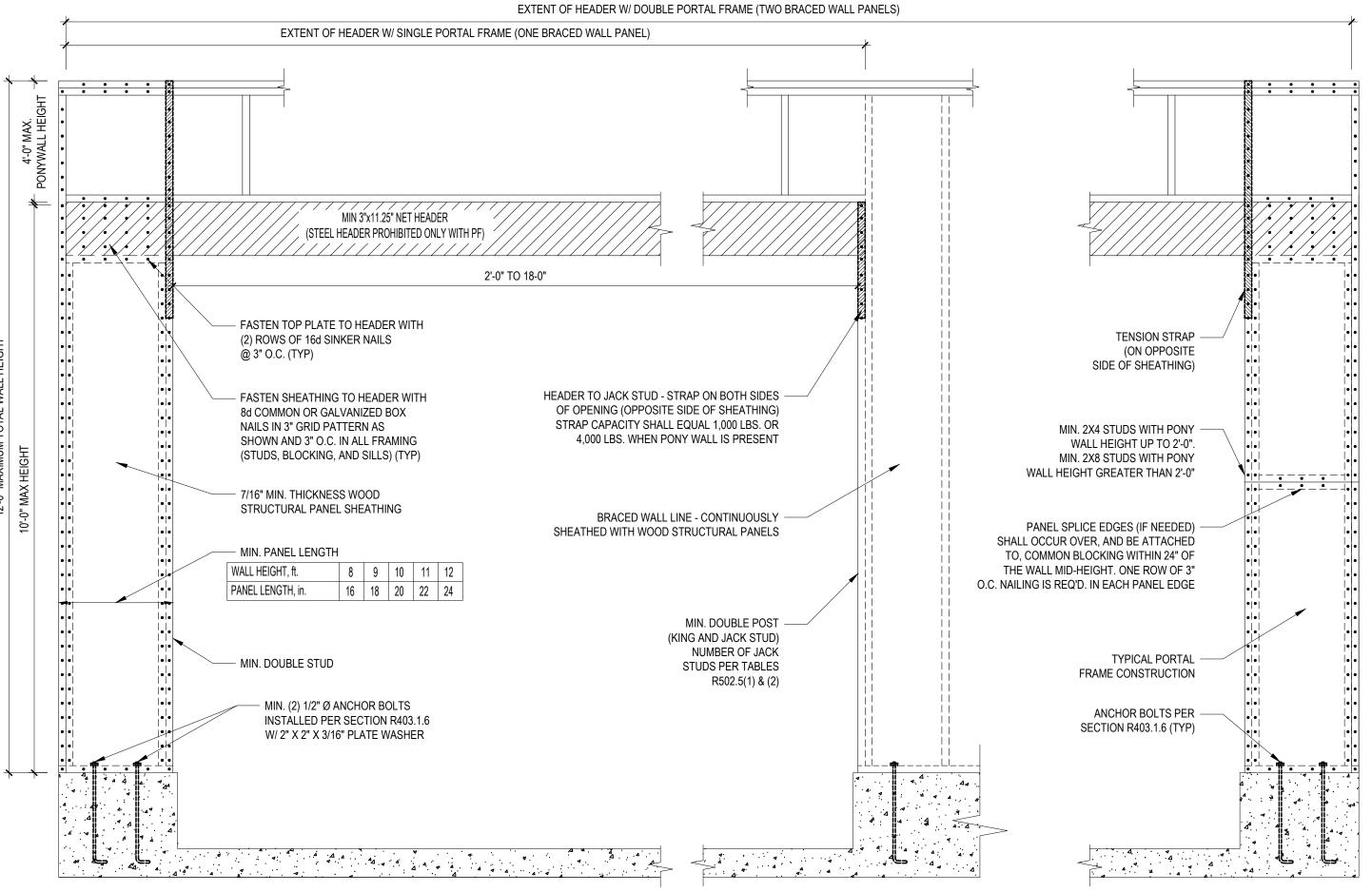
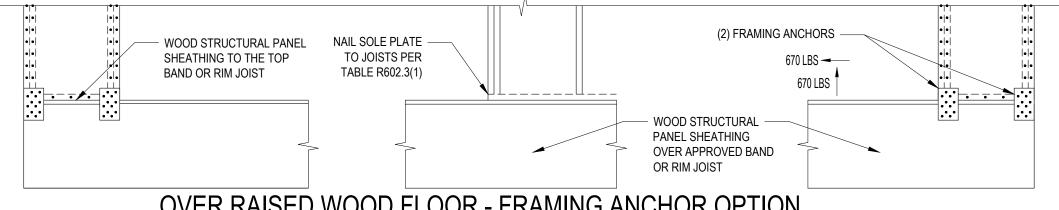


FIGURE R602.10.4.3 OF THE 2018 NCRC NOTE: GROUT BOND BEAMS AND ALL CELLS WHICH CONTAIN REBAR, THREADED RODS AND ANCHOR BOLTS



# OVER CONCRETE OR MASONRY BLOCK FOUNDATION



### OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

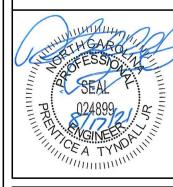
(WHEN PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST) ATTACH SHEATHING TO BAND NAIL SOLE PLATE WOOD STRUCTURAL PANEL OR RIM JOIST WITH 8d COMMON TO JOISTS PER SHEATHING TO THE TOP NAILS 3" O.C. TOP AND BOTTOM BAND OR RIM JOIST TABLE R602.3(1) WOOD STRUCTURAL PANEL SHEATHING OVER APPROVED BAND OR RIM JOIST

> 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, eleminas, 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 t do so will void Tyndall Engineering & Design D.A. Bability. 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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