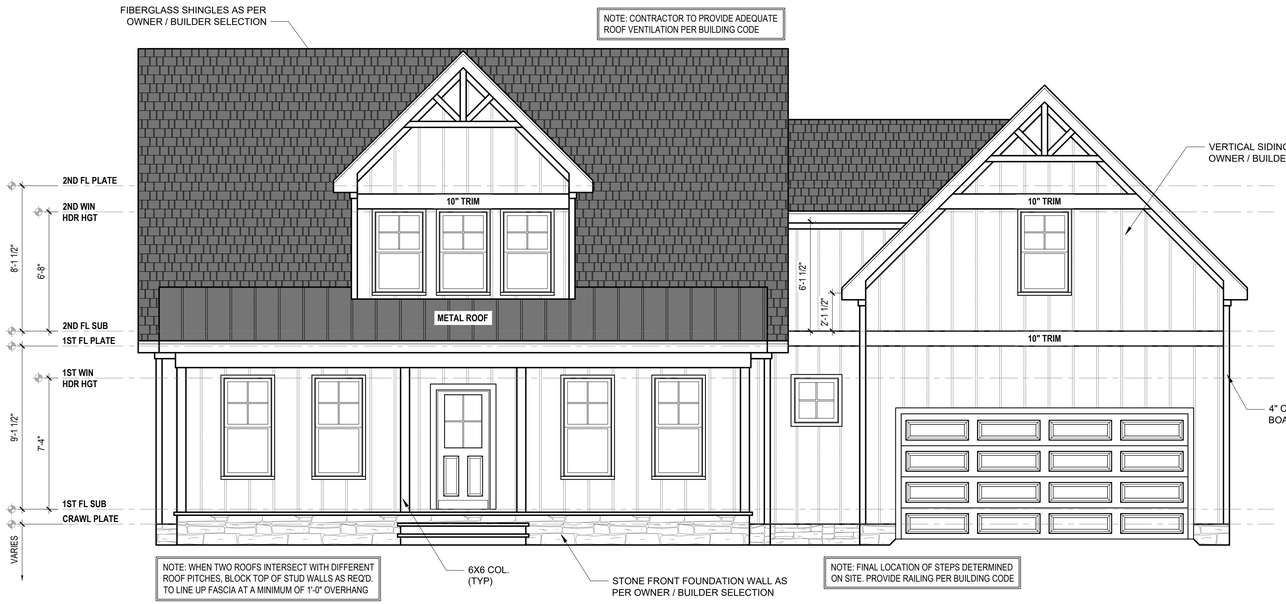
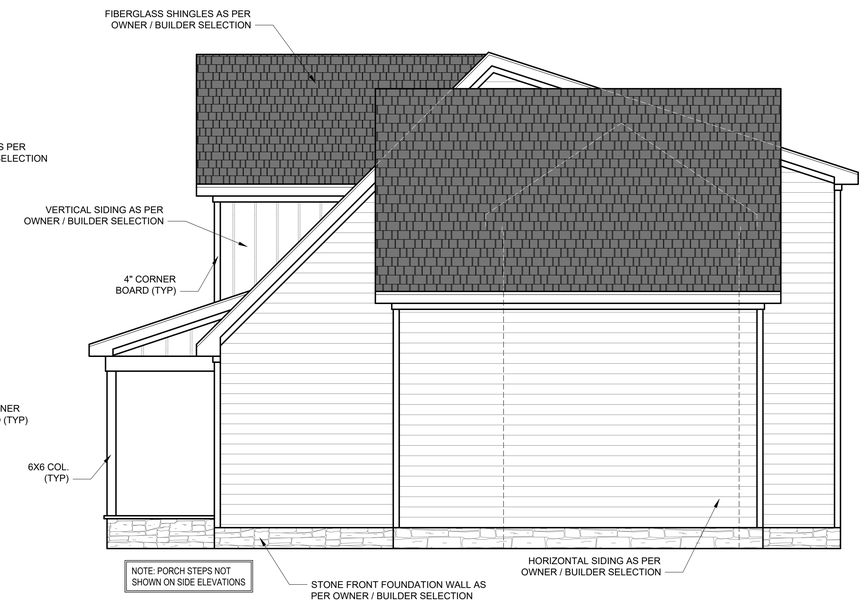
THE CARDINAL



FRONT ELEVATION

1/4" = 1'-0"



RIGHT ELEVATION

1/4" = 1'-0"

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4. Release of these plans requires further cooperation among the owner, his/her contractor, and DRB DESIGN.
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6. Communication is imperfect and every contingency cannot be anticipated.
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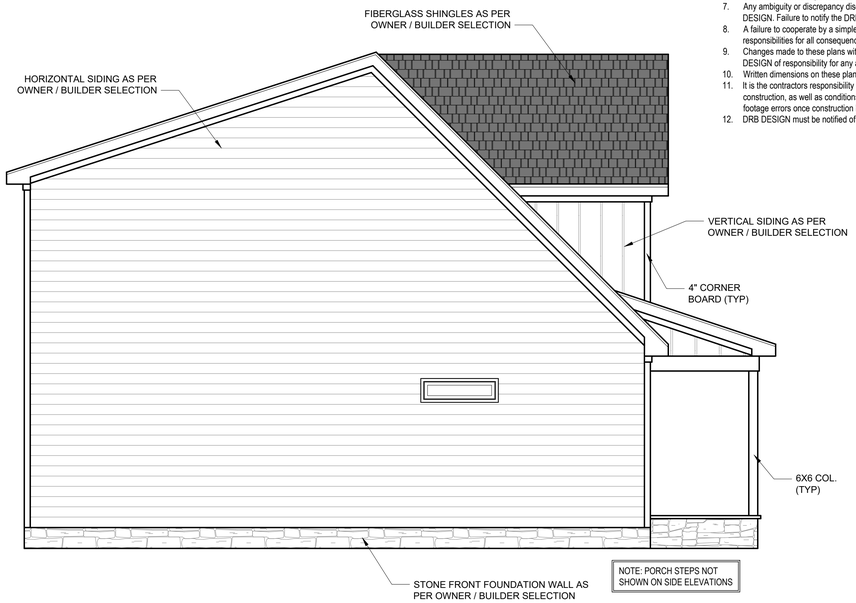

LEFT ELEVATION

1/4" = 1'-0"

REAR ELEVATION

1/4" = 1'-0"

PROJECT #
DRB2401-0315_A
DATE
11/20/2024
DRAWN/DESIGNED BY
MMB
CHECKED BY
DRB
SCALE
1/4" = 1'-0"

WEBSITE
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PROJECT NAME
THE CARDINAL

DRB DESIGN
drbdesign@drbhomedesign.com 919.631.5979
250 Shipwash Dr Suite 105 Garner, NC 27529

CLIENT NAME
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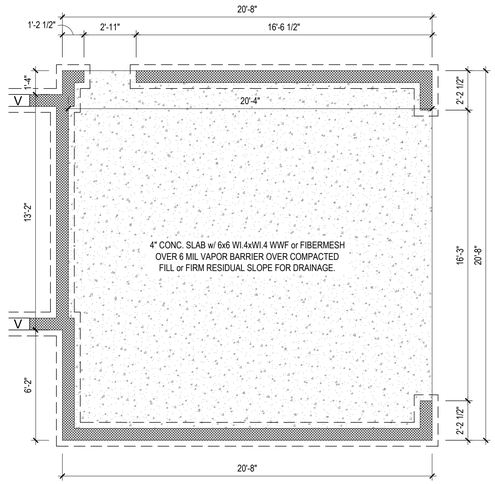
114 W. Main St.
Clayton, NC 27520
brittany@staywild.com
(919) 766-8782

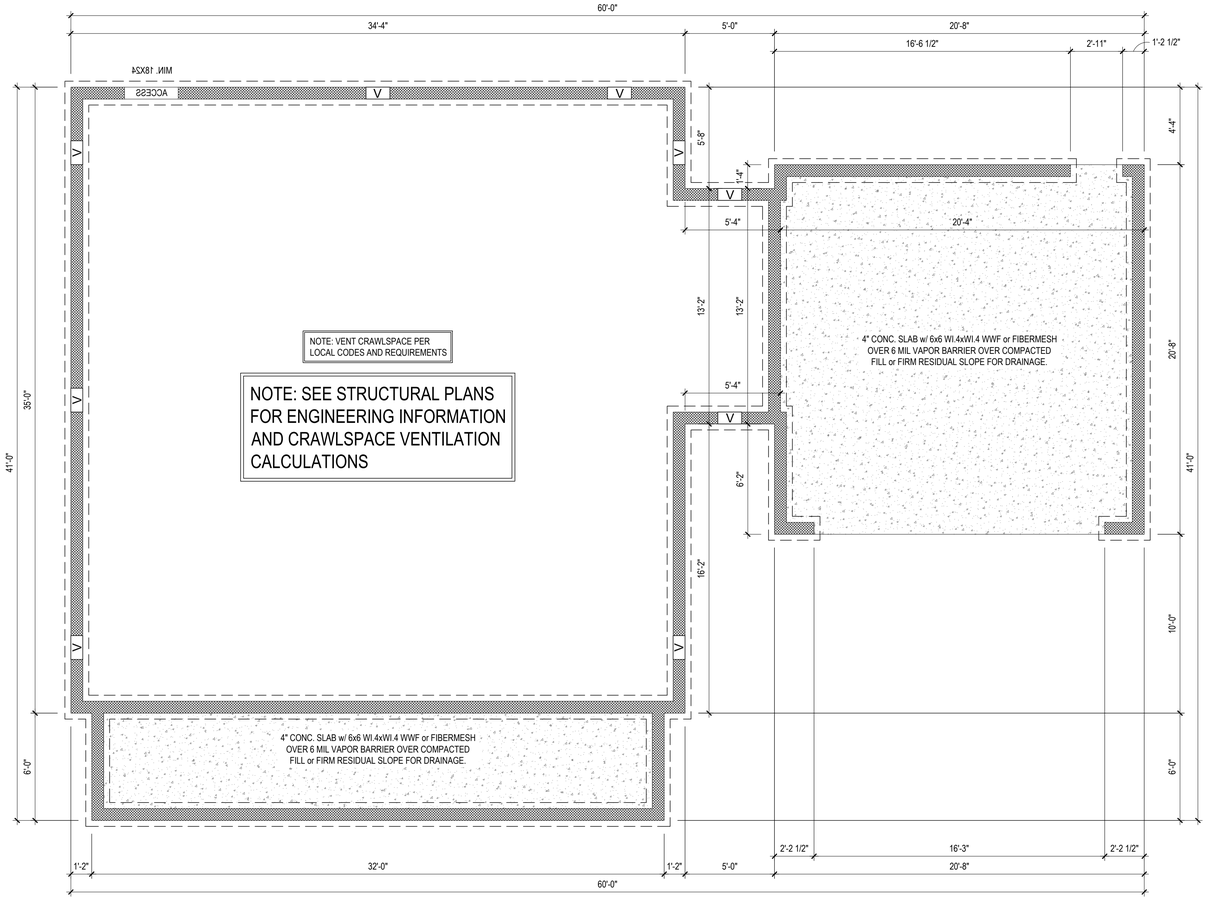
SHEET NAME
ELEVATIONS

SHEET #
1 of 7



FOUNDATION PLAN - SIDE LOAD GARAGE

1/4" = 1'-0" **CRAWL SPACE**



NOTE: SEE STRUCTURAL PLANS FOR ENGINEERING INFORMATION

FOUNDATION PLAN

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SHEET NAME
CRAWL SPACE
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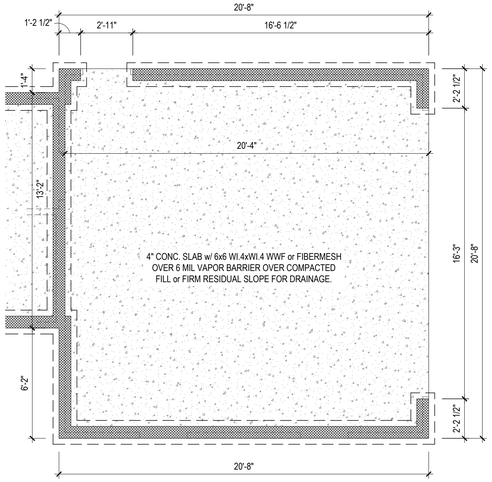
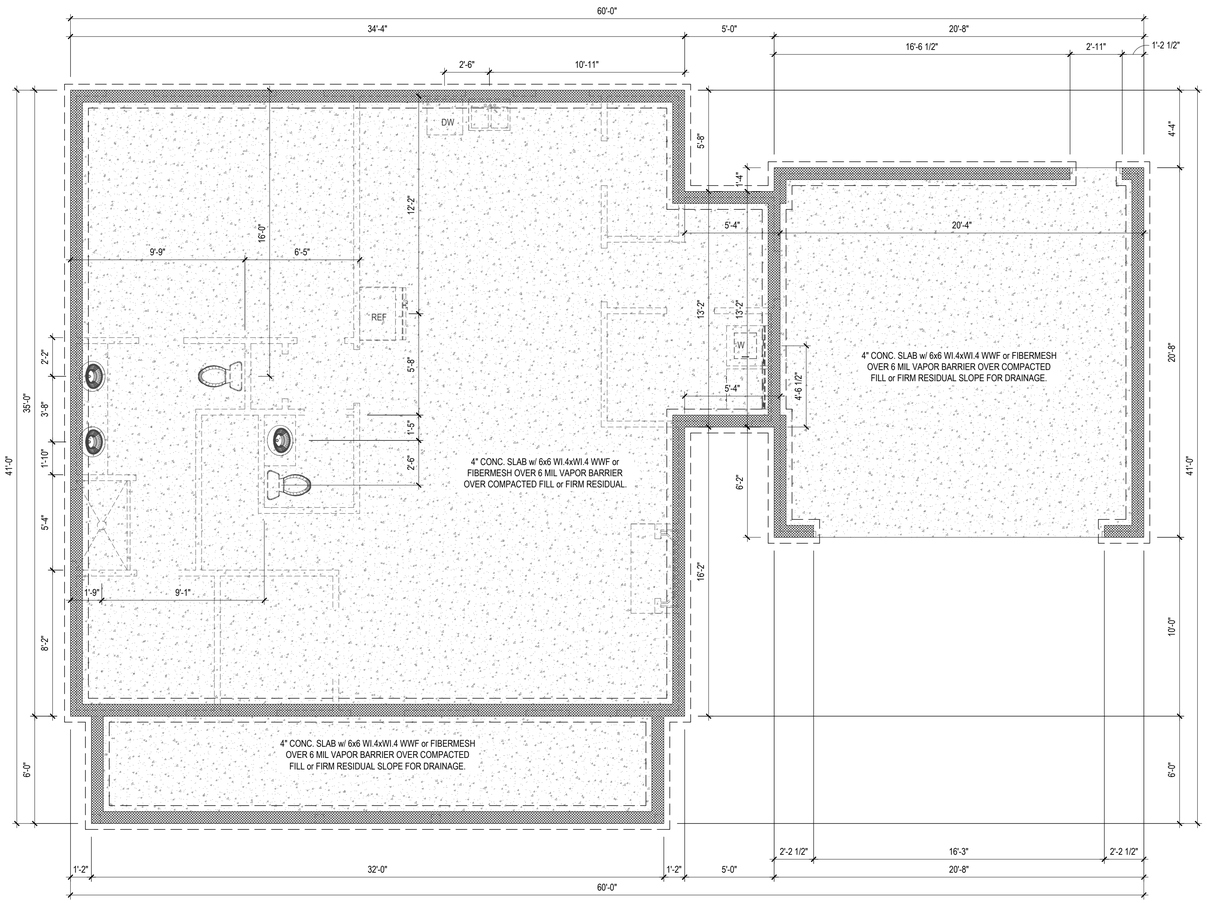
2 of 7



FOUNDATION PLAN - SIDE LOAD GARAGE

1/4" = 1'-0" **STEM WALL**



NOTE: SEE STRUCTURAL PLANS FOR ENGINEERING INFORMATION

FOUNDATION PLAN

1/4" = 1'-0" **STEM WALL**

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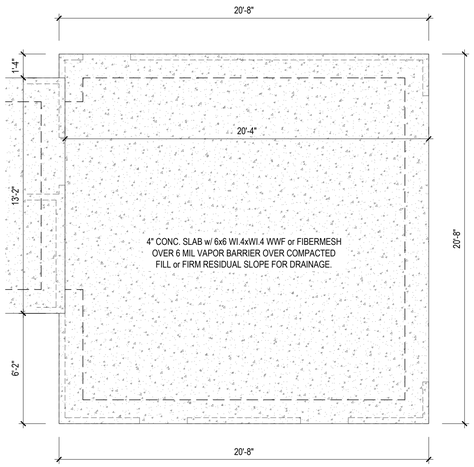
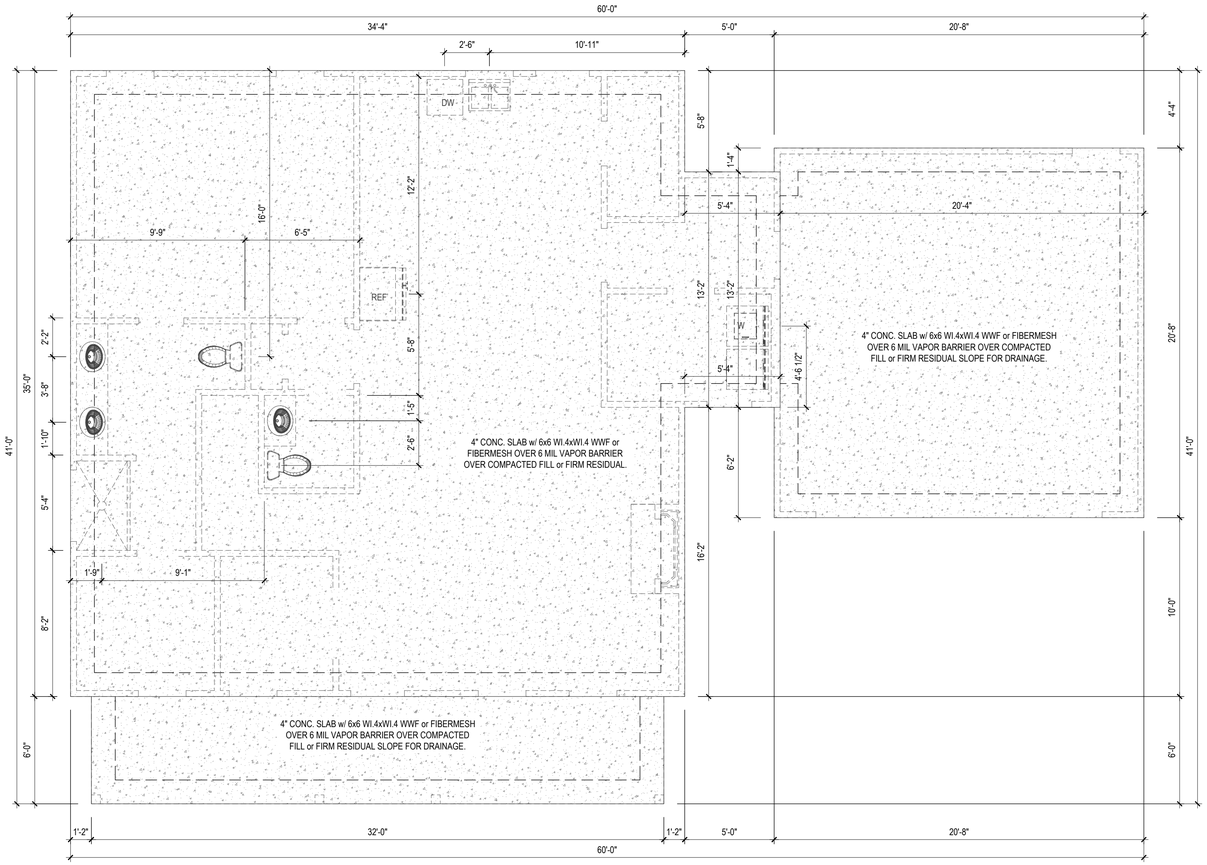
SHEET NAME
STEM WALL
SHEET #
3 of 7



FOUNDATION PLAN - SIDE LOAD GARAGE

1/4" = 1'-0" **MONOSLAB**



NOTE: SEE STRUCTURAL PLANS FOR ENGINEERING INFORMATION

FOUNDATION PLAN

1/4" = 1'-0" **MONOSLAB**

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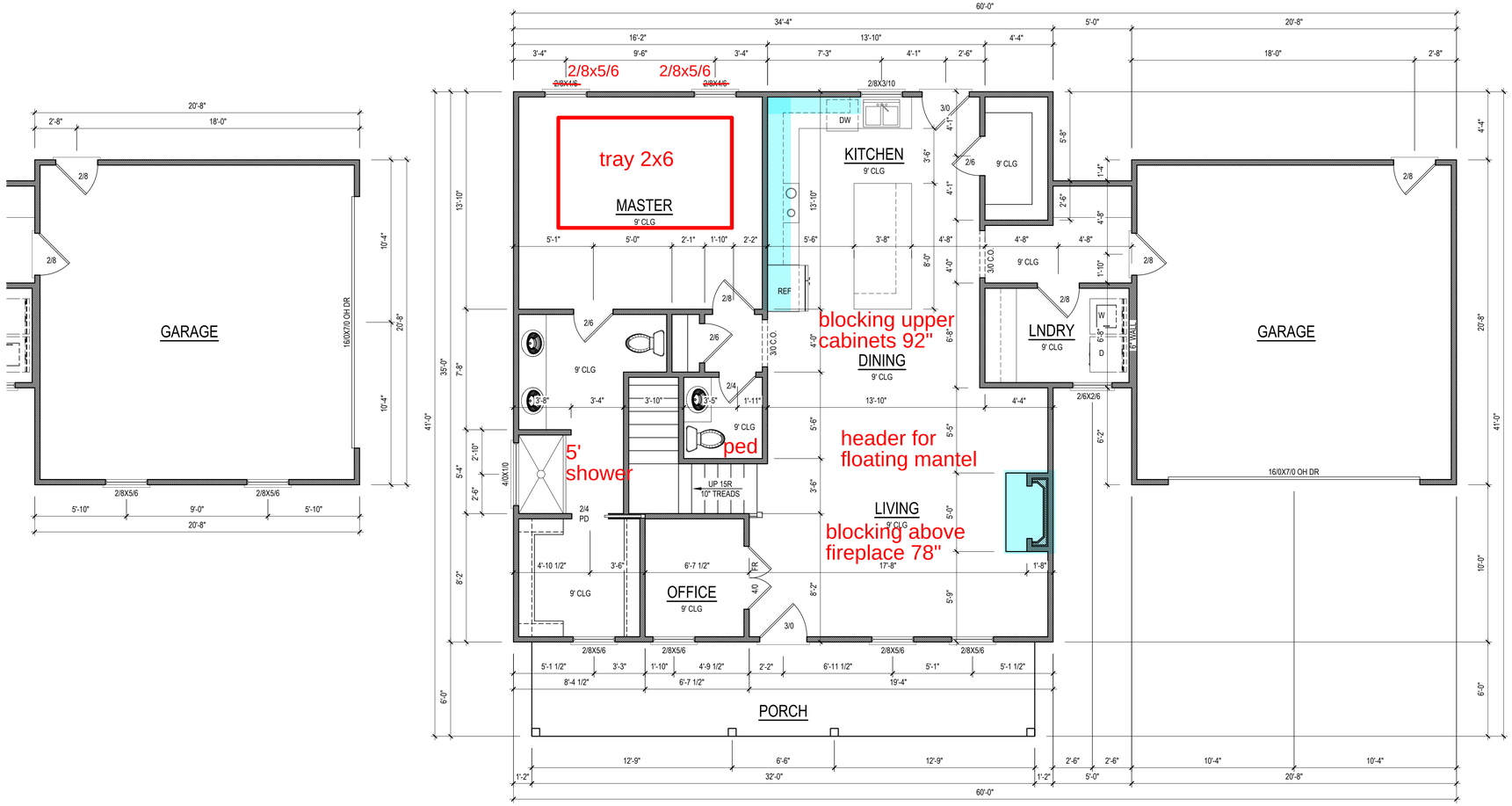
SHEET NAME
STEM WALL
SHEET #
4
of 7



HEATED SQUARE FOOTAGE	
First Floor	1272
Second Floor	897
TOTAL HEATED	2169
UNHTD SQUARE FOOTAGE	
Garage	423
Front Porch	192
Unfinished Bonus	385
TOTAL UNHEATED	1000
TOTAL SQ FT	3169

NOTE:
SEE ELEVATIONS FOR WINDOW HDR HGTS

NOTE:
ALL DOORS ARE 6'-8" TALL UNO

NOTE:
ALL EXTERIOR WALLS ARE NOMINAL 4" UNO

NOTE:
ALL INTERIOR WALLS ARE NOMINAL 4" UNO

NOTE:
ALL ANGLED WALLS ARE 45° UNO

NOTE:
ALL DIMENSIONS ARE FRAME TO FRAME

NOTE: ALL EGRESS OR RESCUE WINDOWS FROM SLEEPING ROOMS MUST HAVE A MINIMUM NET CLEAR OPENING OF 4 SQ FT FOR GRADE FLOOR WINDOWS AND 5.7 SQ FT FOR UPPER STORY WINDOWS. THE MINIMUM NET CLEAR OPENING HEIGHT SHALL BE 22". THE MINIMUM NET CLEAR OPENING WIDTH SHALL BE 20". MAXIMUM SILL HEIGHT - 44" A.F.F.

NOTE: VERIFY WINDOW SILL HEIGHT CLEARANCE ABOVE TUBS AND COUNTERTOPS TO ALLOW FOR TRIM AND/OR BACKSPLASH

NOTE: CONTRACTOR TO LOCATE WATER HEATER, A/C UNIT(S), AND ATTIC ACCESS ON SITE

FIRST FLOOR PLAN

1/4" = 1'-0" **CEILING HGT. = 9'-0"**

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SCALE
1/4" = 1'-0"

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SHEET NAME
1ST_FLOOR
SHEET #
5 of 7

NOTE:
ALL DOORS ARE 6'-8" TALL UNO

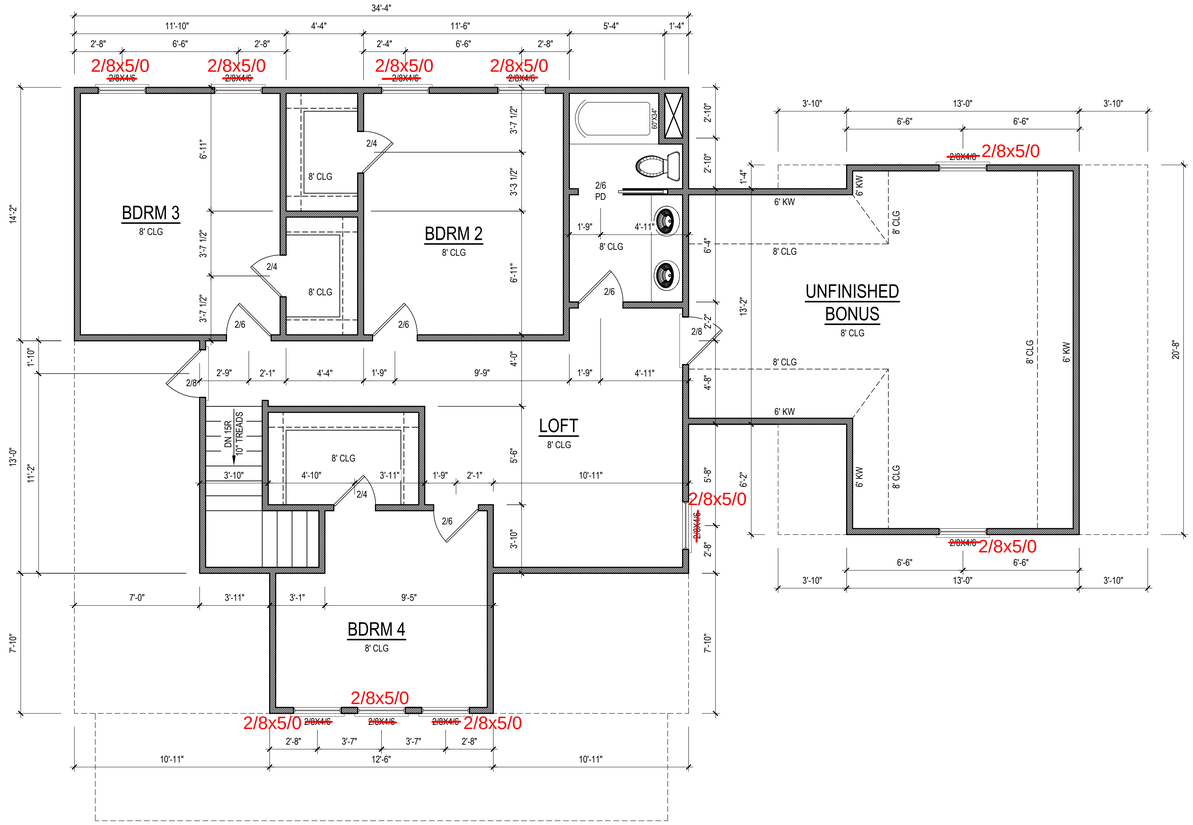
NOTE:
ALL EXTERIOR WALLS ARE NOMINAL 4" UNO

NOTE:
ALL INTERIOR WALLS ARE NOMINAL 4" UNO

NOTE:
ALL ANGLED WALLS ARE 45° UNO

NOTE:
ALL DIMENSIONS ARE FRAME TO FRAME

NOTE:
SEE ELEVATIONS FOR WINDOW HDR HGTS



NOTE: VERIFY WINDOW SILL HEIGHT CLEARANCE ABOVE TUBS AND COUNTERTOPS TO ALLOW FOR TRIM AND/OR BACKSPLASH

SECOND FLOOR PLAN

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

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1/4" = 1'-0"

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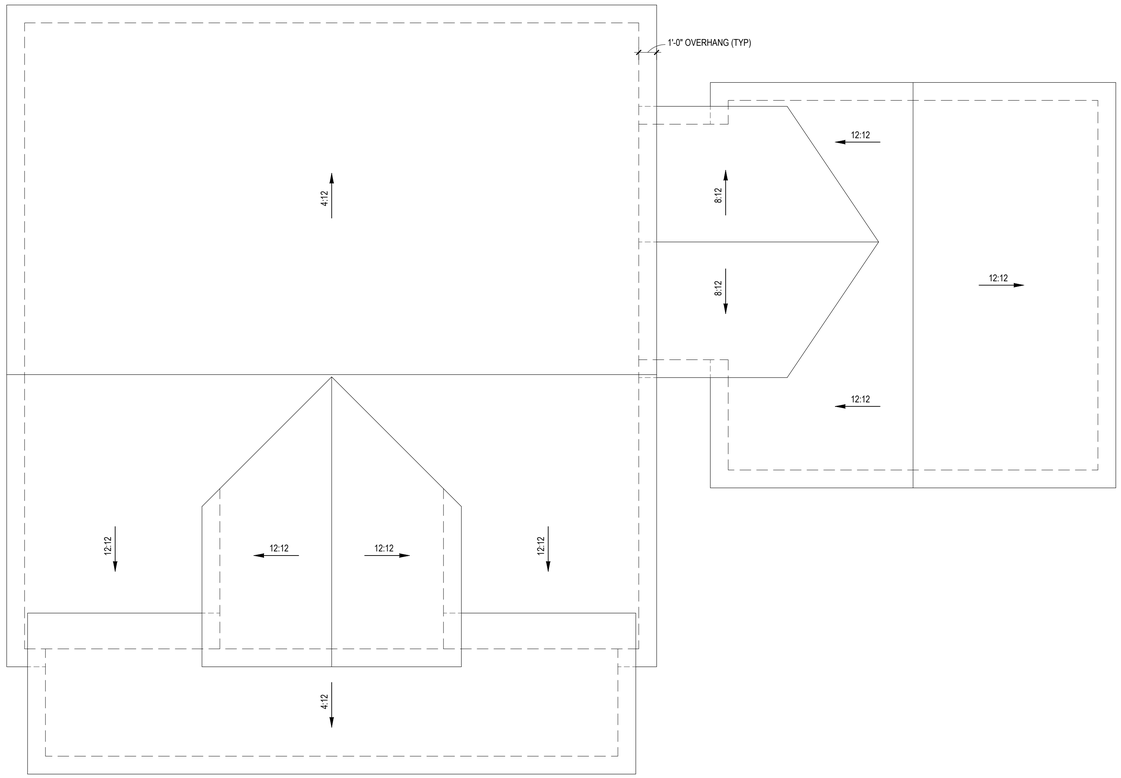
SHEET NAME
2ND_FLOOR
SHEET #
6 of 7



NOTE: ANY ROOF PITCH 4:12 OR LESS SHALL BE PROPERLY WATERPROOFED PER BLDG. CODE

NOTE: OVERHANG DIMENSIONS ARE FROM FRAMING

NOTE: SEE STRUCTURAL PLANS FOR ATTIC VENTILATION CALCULATIONS

ROOF PLAN

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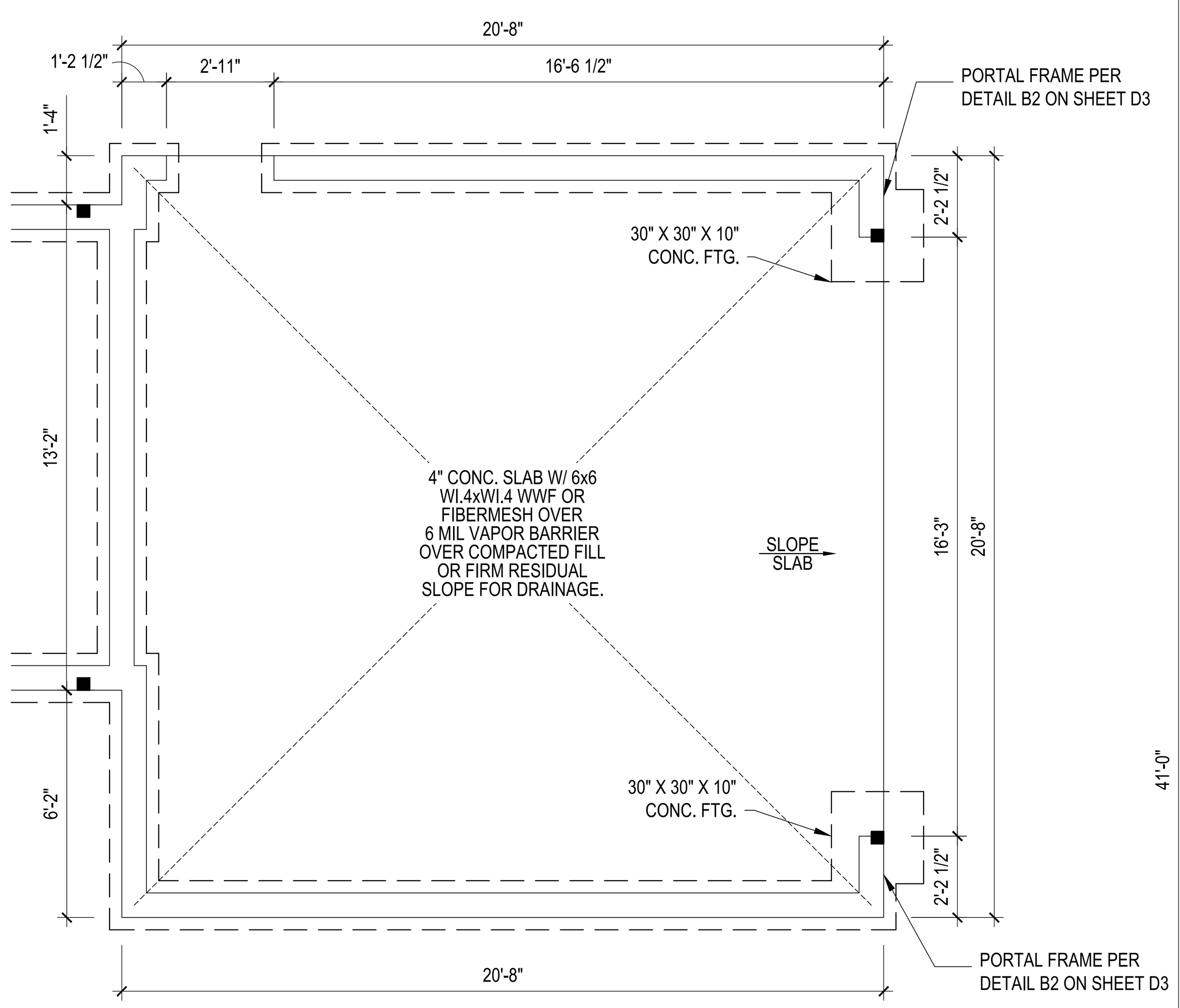
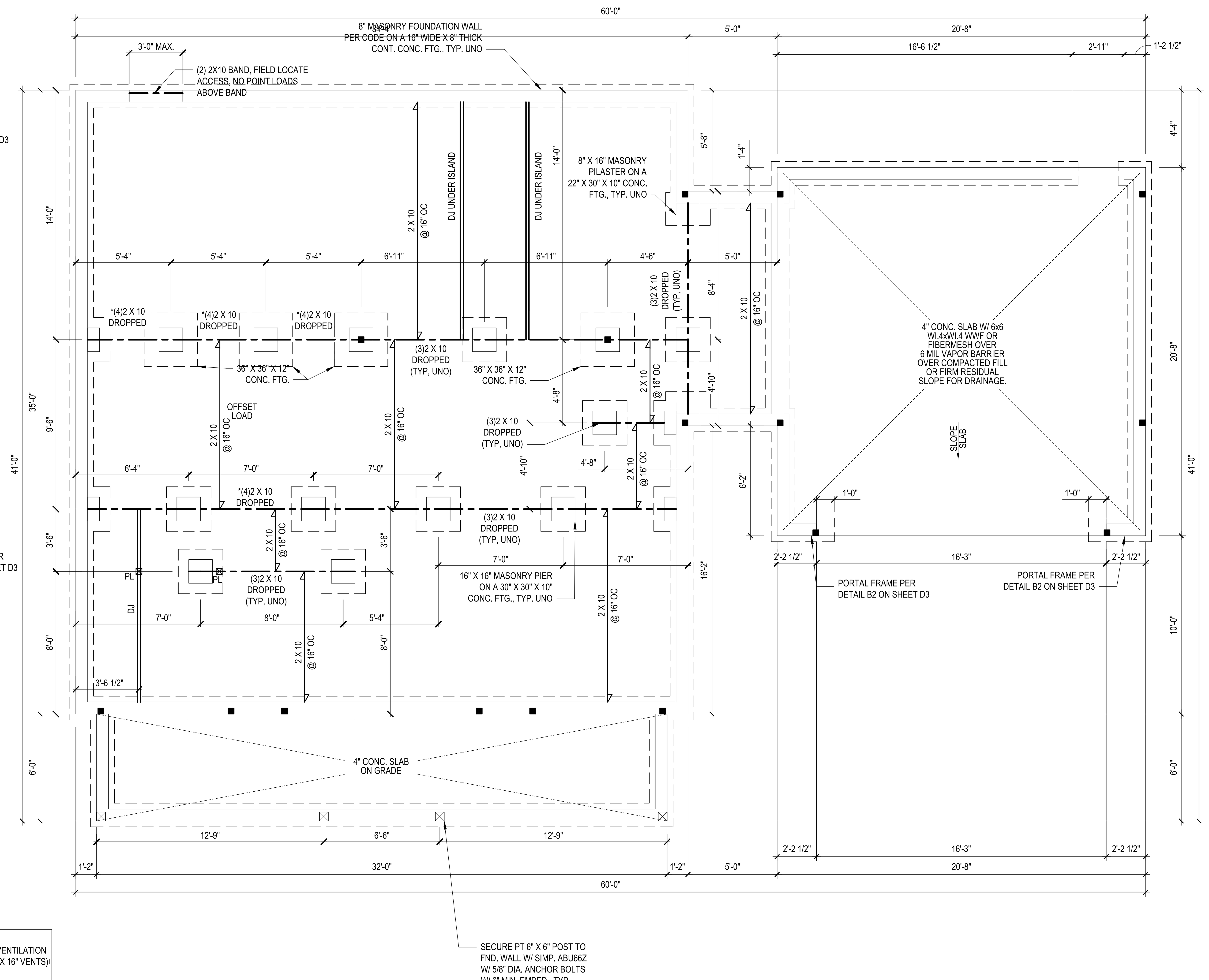


FOUNDATION PLAN - SIDE LOAD GARAGE

1/4" = 1'-0" CRAWL SPACE



FOUNDATION PLAN

1/4" = 1'-0" CRAWL SPACE

DESIGN LOADS

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION LL	DEFLECTION 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 (ACTUAL) EACH SINGLE MEMBER AND Fb = 2600 PSI, E = 1.9M PSI (OR GREATER)
(I.E. iLEVEL MICROLAM)
ALL LSL LUMBER IS TO BE 1.55E (Fb = 2325 PSI) (OR GREATER)
ALL PSL LUMBER IS TO BE 1.8E (Fb = 2,400 PSI) (OR GREATER)
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 (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"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.
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 602.10.3 OF THE 2018 NCRC.
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. (OR EQUIV. STRUCTURAL SCREWS)

NOTE: ADDITIONAL JOISTS

INSTALL A DOUBLE JOIST UNDER NON-LOAD BEARING WALLS, BUILT-INS, AND CABINETRY ABOVE THAT ARE PARALLEL TO THE FRAMING SYSTEM ON THIS PAGE, TYP UNO, BUILDER TO INSTALL AS REQUIRED, VIF DIMENSIONS

1268 SQ. FT. OF CRAWL SPACE / 150 = 8.5 SQ. FT. OF REQ'D VENTILATION WITHOUT CROSS VENTILATION
8.5 SQ. FT. OF VENTILATION REQ'D / 0.88 SQ.FT. PER VENT = 9.6 VENTS REQ'D (BASED ON 8" X 16" VENTS)1

-OR-

1268 SQ. FT. OF CRAWL SPACE / 1500 = 0.85 SQ. FT. OF REQ'D VENTILATION WITH CROSS VENTILATION
0.85 SQ. FT. OF VENTILATION REQ'D / 0.88 SQ.FT. PER VENT = 1 VENT REQ'D (BASED ON 8" X 16" VENTS)2

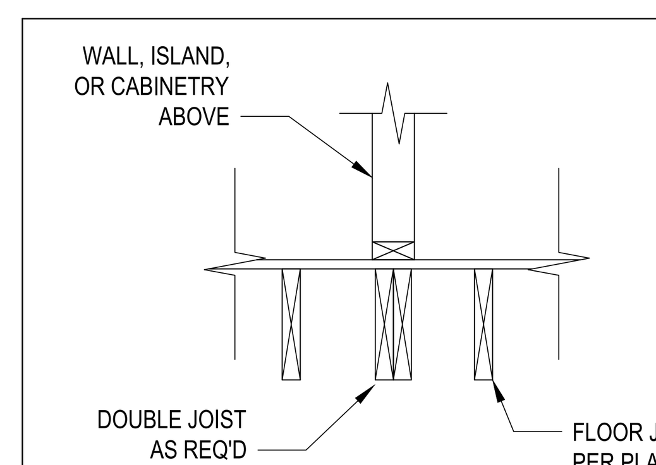
1) VENT LOCATIONS MAY VARY FROM THOSE SHOWN ON PLAN, HOWEVER VENTS SHALL BE PLACED TO PROVIDE ADEQUATE VENTILATION AT ALL POINTS AND TO PREVENT DEAD AIR POCKETS.

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

WALL VENTED CRAWL SPACES REQUIRE FULL COVERAGE GROUND VAPOR RETARDERS.

* CRAWL SPACE VENTILATION CALCULATION

NO SCALE



- DOUBLE JOIST DETAIL

NO SCALE

*Engineers seal 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.
*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.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 050516 SCOTT T. PYRCH 11/22/24

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250 Shipwash Drive ▪ Garner ▪ North Carolina ▪ 27529
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NORTH CAROLINA PROFESSIONAL CORPORATION SEAL C-2303 TYNDALL ENGINEERING AND DESIGN, P.A.

Client: RIVERWILD

Plan: THE CARDINAL

FOUNDATION PLAN 1ST FLOOR FRAMING

Project #: DRB2401-0315_A

Date: 11/22/2024

Engineered By: VA

DWG. Checked By: PAT

Scale: SEE PLAN

REVISIONS

No.	Date:	Remarks
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Sheet Number

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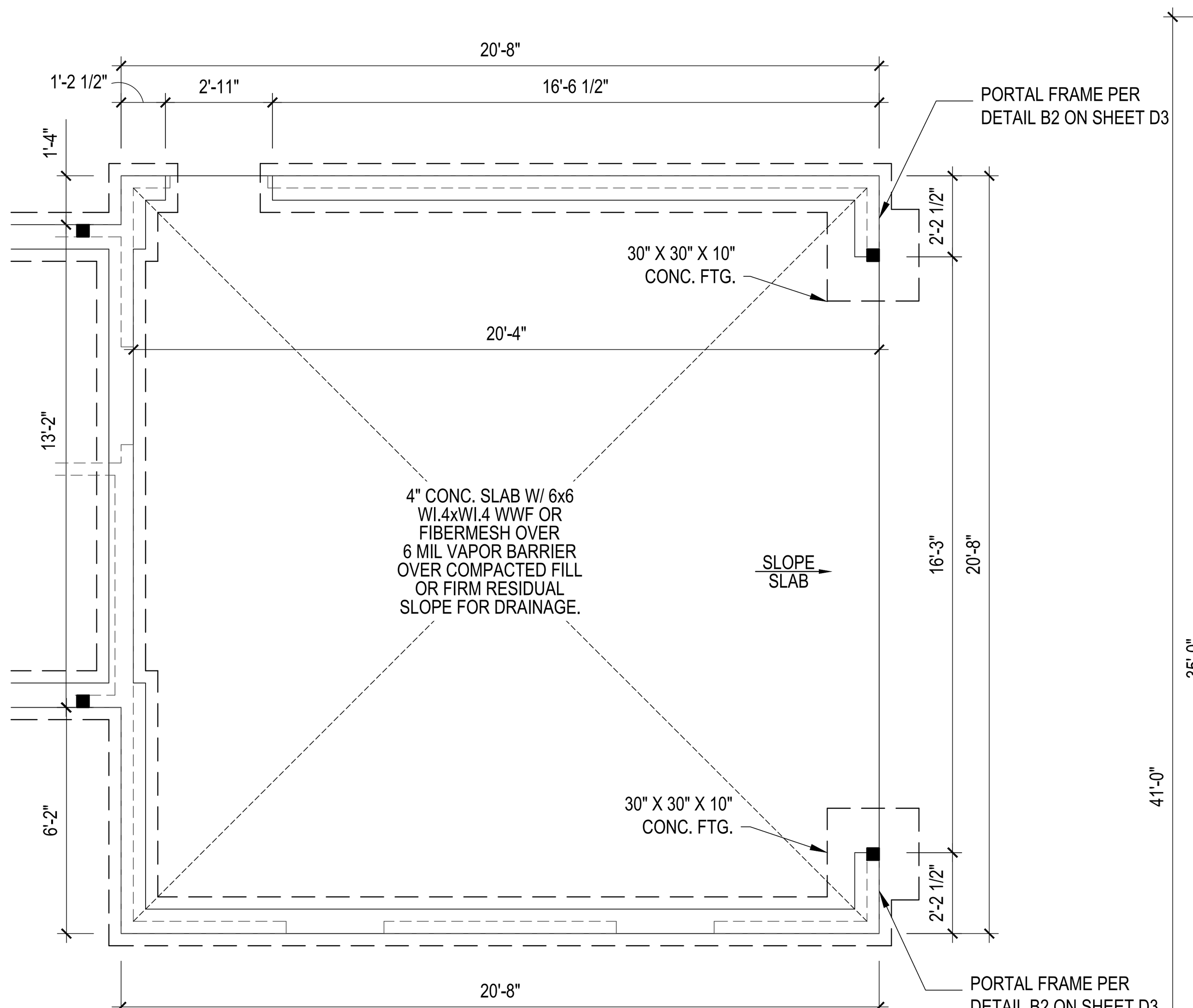
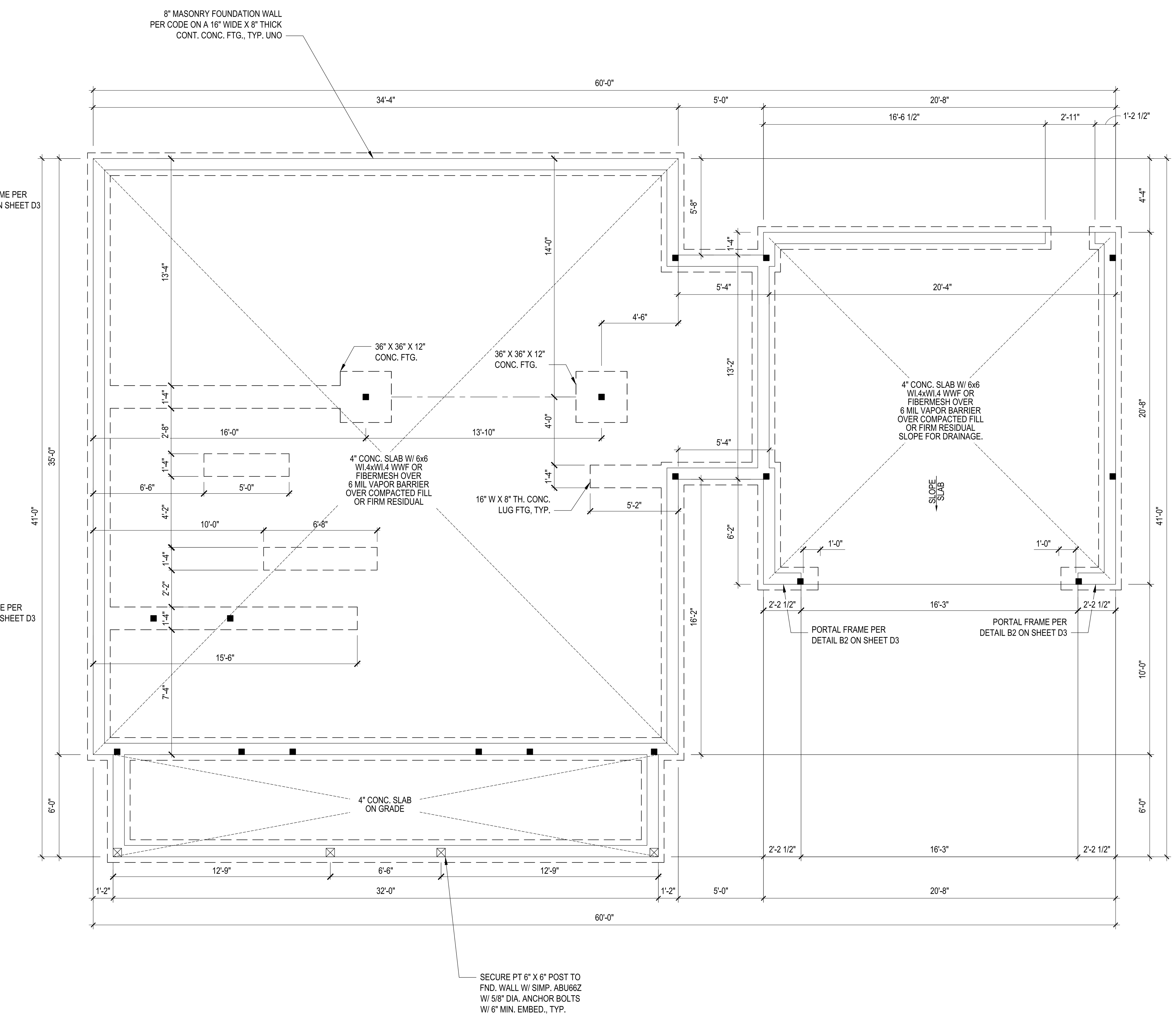
1 of 8

FILENAME: Z:\RALEIGH OFFICE\DRB\DRB_2024\DRB2401-0315_RIVERWILD-CARDINAL\CAD_FILES\DRB2401-0315_A_RIVERWILD-CARDINAL\DRB2401-0315_A_E.DWG SAVED BY: SPYRCH LAST PLOT DATE:11/22/2024 3:37 PM



FOUNDATION PLAN - SIDE LOAD GARAGE

1/4" = 1'-0" STEM WALL



FOUNDATION PLAN

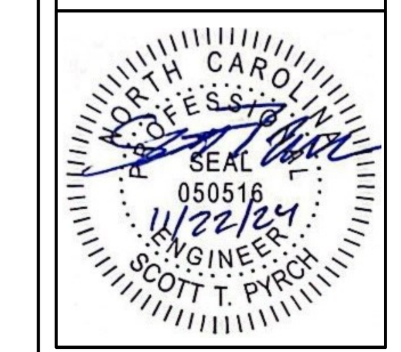
1/4" = 1'-0" STEM WALL

DESIGN LOADS

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			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 (ACTUAL) EACH SINGLE MEMBER AND Fb = 2600 PSI, E = 1.9M PSI (OR GREATER)
(I.E. iLEVEL MICROLAM)
ALL LSL LUMBER IS TO BE 1.55E (Fb = 2325 PSI) (OR GREATER)
ALL PSL LUMBER IS TO BE 1.8E (Fb = 2,400 PSI) (OR GREATER)
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 (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"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.
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 602.10.3 OF THE 2018 NCRC.
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.



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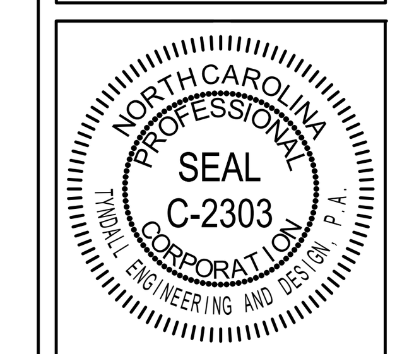

Client: RIVERWILD

Plan: THE CARDINAL

FOUNDATION PLAN

Project #: DRB2401-0315_A

Date: 11/22/2024

Engineered By: VA

DWG. Checked By: PAT

Scale: SEE PLAN

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No.	Date:	Remarks
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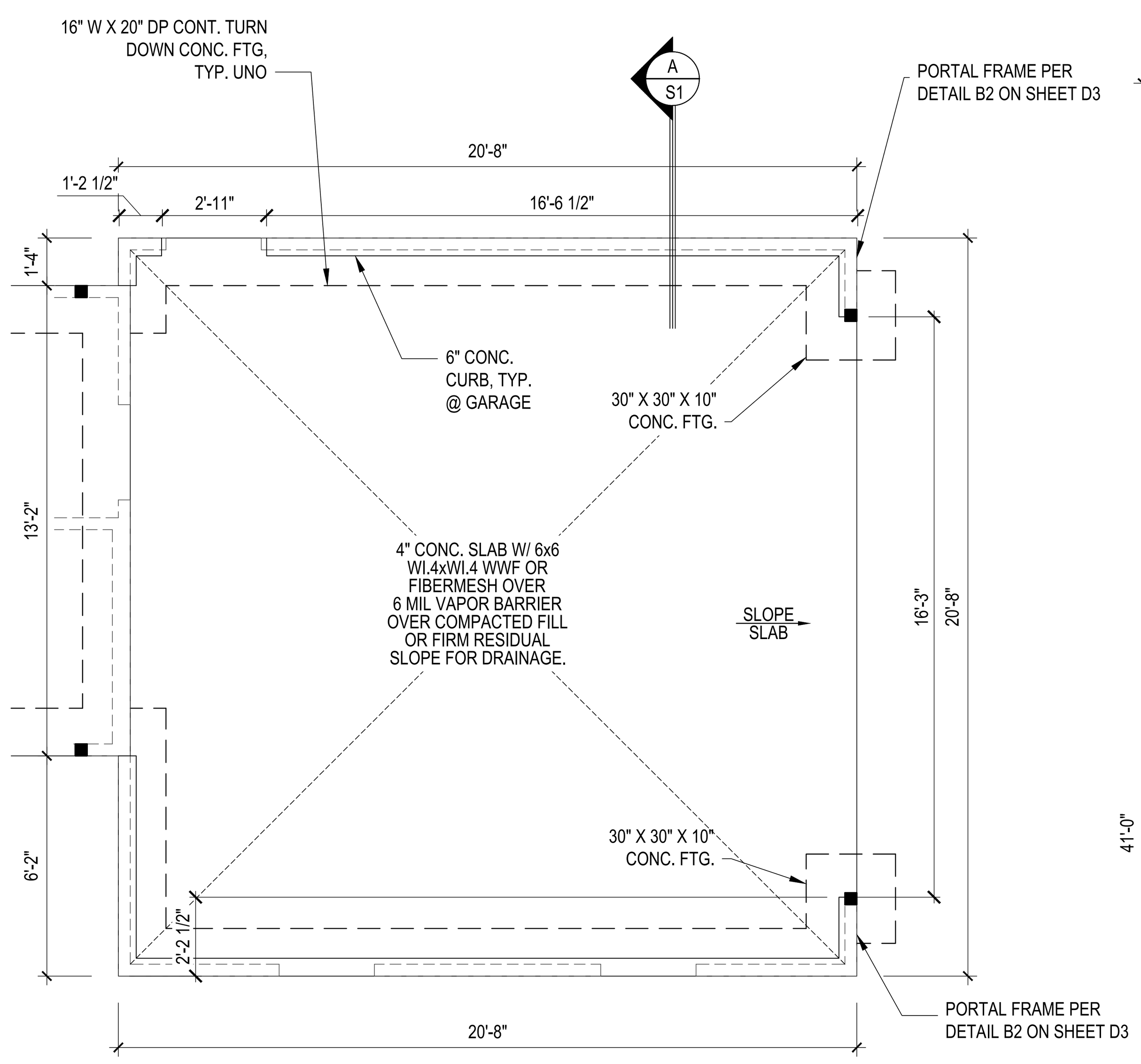
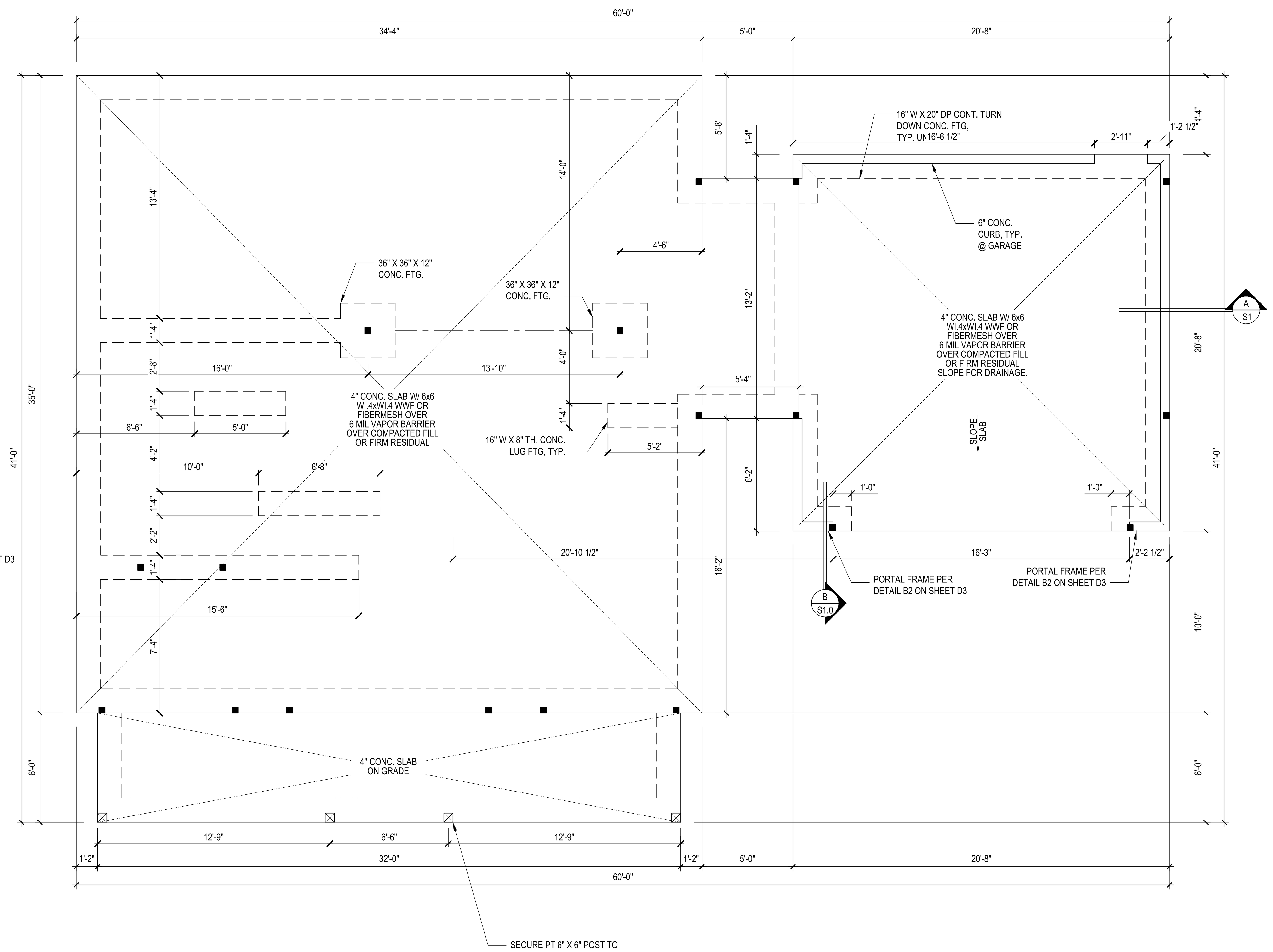


FOUNDATION PLAN - SIDE LOAD GARAGE

1/4" = 1'-0" MONOLITHIC SLAB



FOUNDATION PLAN

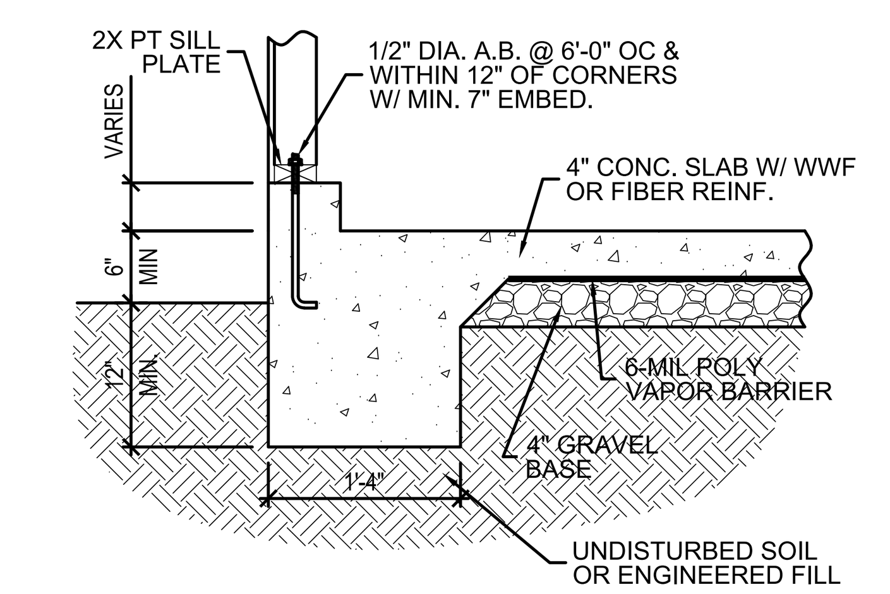
1/4" = 1'-0" MONOLITIC SLAB

DESIGN LOADS

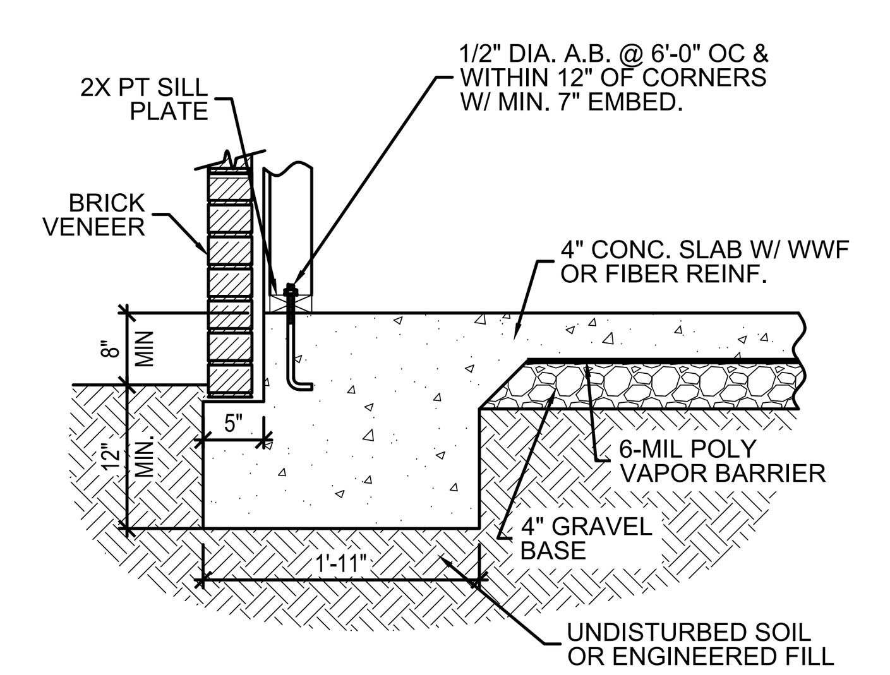
	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			LL	TL
FLOOR (primary)	40	10	L/360	L/240
FLOOR (secondary)	40	10	L/360	L/240
ATTIC (w/ storage)	20	10	L/240	L/180
ATTIC (no access)	10	5	L/240	L/180
EXTERNAL BALCONY	40	10	L/360	L/240
ROOF	20	10	L/240	L/180
ROOF TRUSS	20	20	L/240	L/180
WIND LOAD	BASED ON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

STRUCTURAL NOTES:

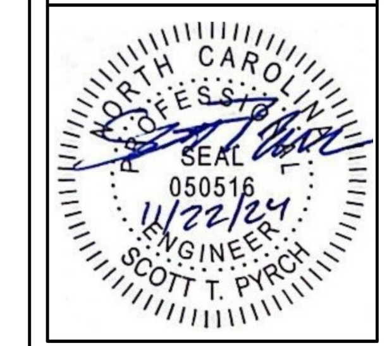
1) ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF "NORTH CAROLINA STATE 2018 RESIDENTIAL BUILDING CODE", IN ADDITION TO ALL LOCAL CODES AND REGULATIONS.
2) IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION. TYNDALL ENGINEERING & DESIGN, 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 (ACTUAL) EACH SINGLE MEMBER AND Fb = 2600 PSI, E = 1.9M PSI (OR GREATER)
(I.E. iLEVEL MICROLAM)
ALL LSL LUMBER IS TO BE 1.55E (Fb = 2325 PSI) (OR GREATER)
ALL PSL LUMBER IS TO BE 1.8E (Fb = 2,400 PSI) (OR GREATER)
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 (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"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.
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 602.10.3 OF THE 2018 NCRC.
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.



A MONOLITHIC SLAB FOUNDATION @ GARAGE
SCALE: 3/4" = 1'-0"



B MONOLITHIC SLAB FOUNDATION
SCALE: 3/4" = 1'-0"



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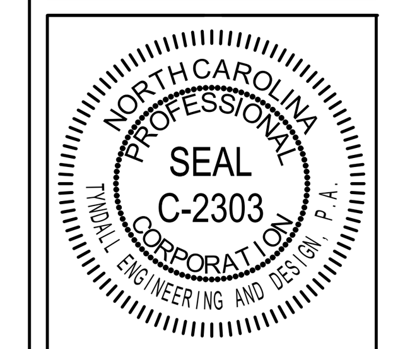

Client: RIVERWILD

Plan: THE CARDINAL

FOUNDATION PLAN

Project #:	DRB2401-0315_A
Date:	11/22/2024
Engineered By:	VA
DWG. Checked By:	PAT
Scale:	SEE PLAN

REVISIONS

No.	Date:	Remarks
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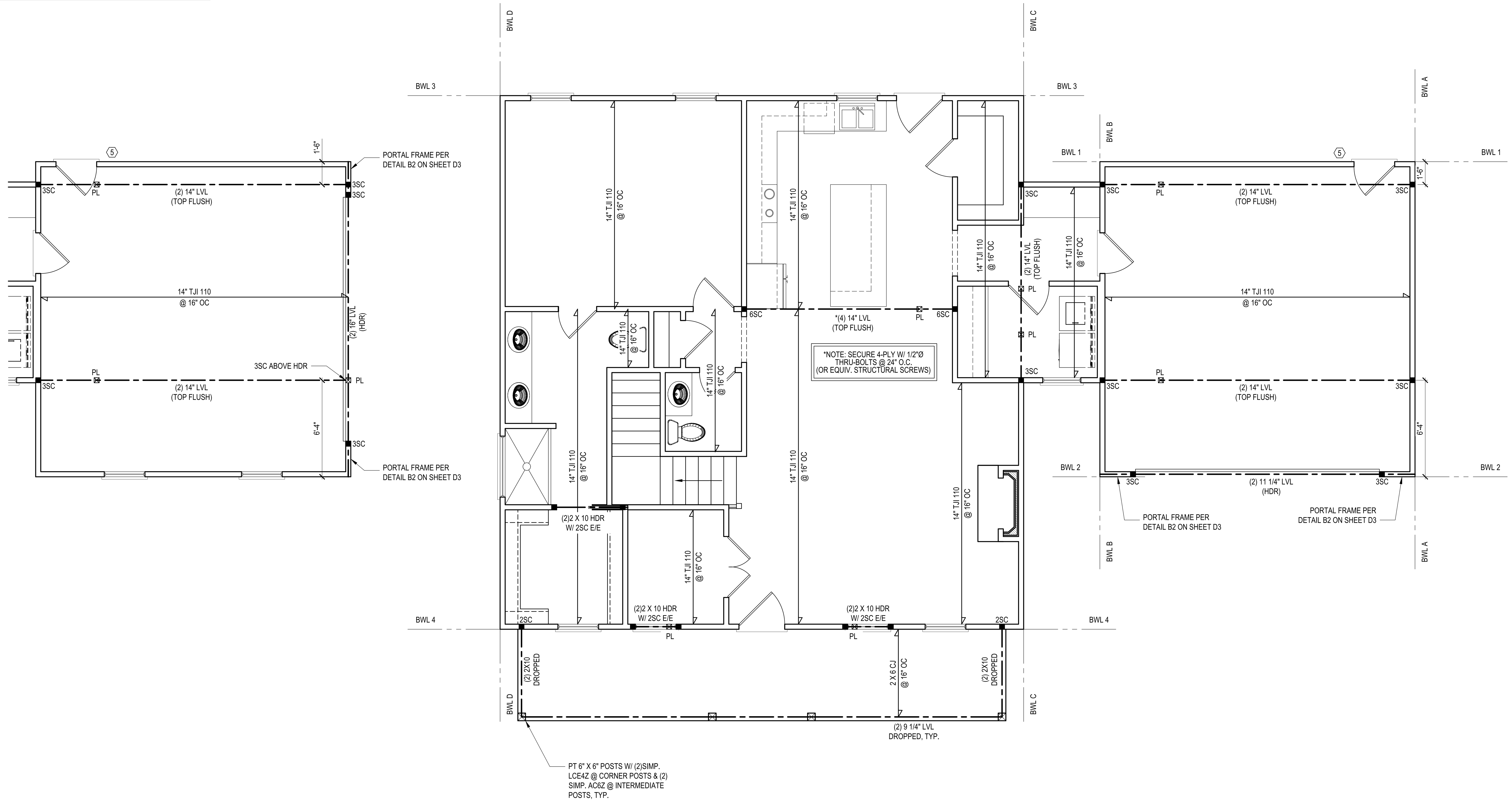
Sheet Number

S1.2

KING STUD SCHEDULE		
	MIN. # OF FULL HEIGHT STUDS (KING) E.E. OF OPENING PER WALL DEPTH	
HEADER SPAN (FT)	2 X 4 STUD WALL	2 X 6 STUD WALL
UP TO 3'-0"	1	1
3'-1" TO 6'-0"	2	1
6'-1" TO 9'-0"	3	2
9'-1" TO 12'-0"	4	2
12'-1" TO 15'-0"	5	3
15'-1" TO 18'-0"	6	3

NOTES*:

a. TABLE DENOTES REQUIRED MINIMUM NUMBER OF STUDS EE OF HEADER, TYP UNO ON PLANS
b. NUMBER OF KING STUDS LISTED ABOVE ARE BASED 10' NOMINAL WALL HEIGHT, STUD SPACING OF 16" O.C., AND ULTIMATE WIND SPEED OF 120 MPH (EXPOSURE B)
c. HEADER SPANS IN TABLE ARE BASED ON ROUGH OPENINGS. INTERPOLATION BETWEEN SPAN VALUES IS PERMITTED, ROUND UP NUMBER OF KING STUDS, EXTRAPOLATION IS PROHIBITED. CONTACT TYNDALL ENGINEERING AND DESIGN IF HEADER SPANS EXCEED TABLE VALUES



BRACING PANEL LENGTHS REQUIRED:
BWL A = 5.9 FT CS-WSP
BWL B = 5.9 FT CS-WSP
BWL 1 = 5.9 FT CS-WSP
BWL 2 = 5.9 FT CS-WSP

BRACING PANEL LENGTHS PROVIDED:
BWL A = 20.6 FT CS-WSP
BWL B = 6.1 FT CS-WSP
BWL 1 = 16.6 FT CS-WSP
BWL 2 = 6.9 CS-WSP/PF

FIRST FLOOR PLAN

1/4" = 1'-0" **CEILING HGT. = 9'-0"**

BRACING PANEL LENGTHS REQUIRED:
BWL C = 8.8 FT CS-WSP
BWL D = 8.8 FT CS-WSP
BWL 3 = 9.0 FT CS-WSP
BWL 4 = 5.7 FT CS-WSP

BRACING PANEL LENGTHS PROVIDED:
BWL C = 21.6 FT CS-WSP
BWL D = 30.3 FT CS-WSP
BWL 3 = 20.8 FT CS-WSP
BWL 4 = 14.7 FT CS-WSP

DESIGN LOADS

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			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 (ACTUAL) EACH SINGLE MEMBER AND Fb = 2600 PSI, E = 1.9M PSI (OR GREATER)
(I.E. iLEVEL MICROLAM)
ALL LSL LUMBER IS TO BE 1.55E (Fb = 2325 PSI) (OR GREATER)
ALL PSL LUMBER IS TO BE 1.8E (Fb = 2,400 PSI) (OR GREATER)
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 (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"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.
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 602.10.3 OF THE 2018 NCRC.
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 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 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.
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

(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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 050516 SCOTT T. PYRCH 11/22/24

TYNDALL ENGINEERING & DESIGN, P.A.

NORTH CAROLINA PROFESSIONAL CORPORATION SEAL C-2303 TYNDALL ENGINEERING AND DESIGN, P.A.

Client: RIVERWILD

Plan: THE CARDINAL

1ST FLOOR HEADER 2ND FLOOR FRAMING

Project #:	DRB2401-0315_A
Date:	11/22/2024
Engineered By:	VA
DWG. Checked By:	PAT
Scale:	SEE PLAN

REVISIONS		
No.	Date:	Remarks
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Sheet Number

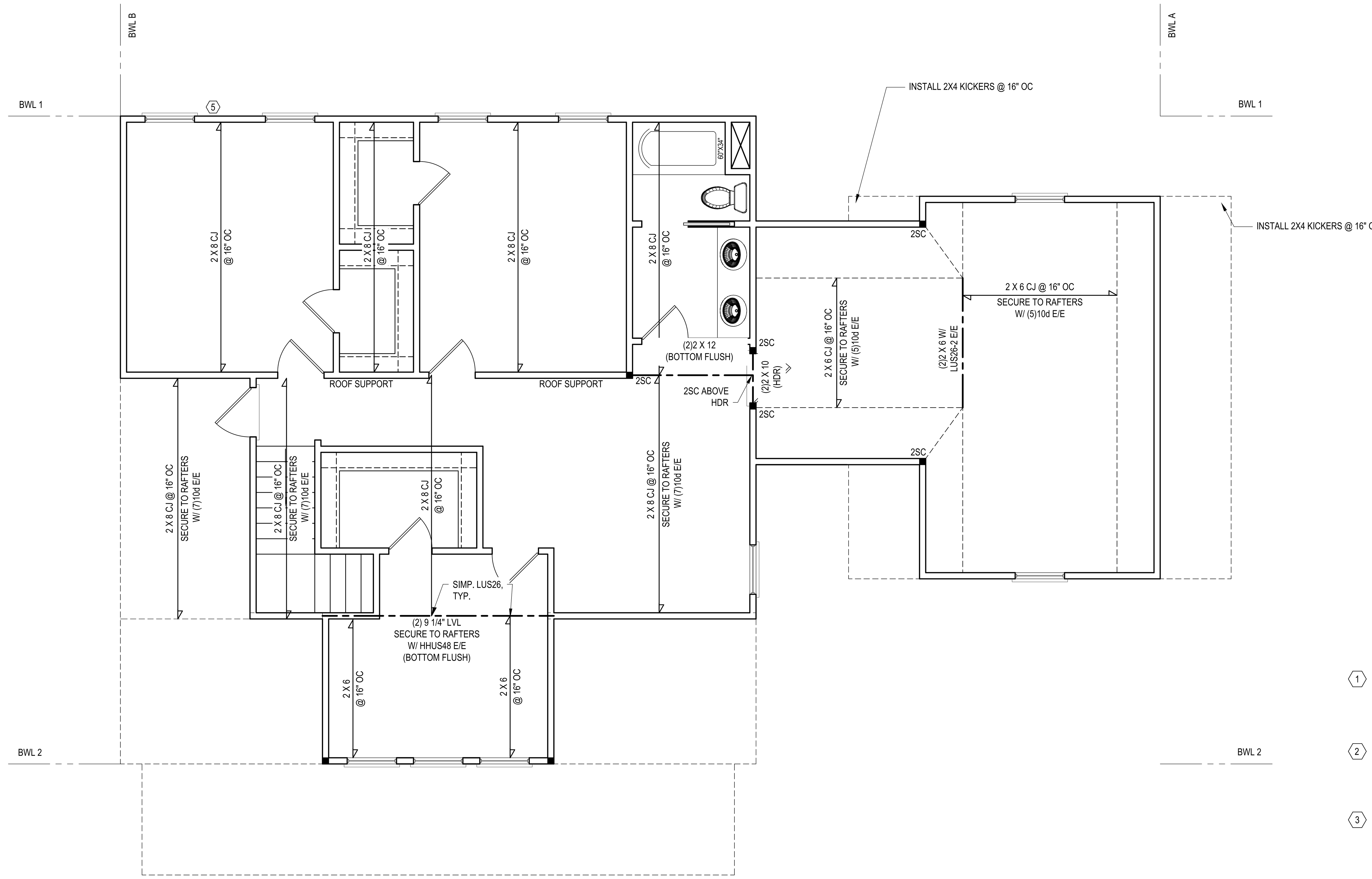
S2

KING STUD SCHEDULE		
	MIN. # OF FULL HEIGHT STUDS (KING) E.E. OF OPENING PER WALL DEPTH	
HEADER SPAN (FT)	2 X 4 STUD WALL	2 X 6 STUD WALL
UP TO 3'-0"	1	1
3'-1" TO 6'-0"	2	1
6'-1" TO 9'-0"	3	2
9'-1" TO 12'-0"	4	2
12'-1" TO 15'-0"	5	3
15'-1" TO 18'-0"	6	3

NOTES*:
a. TABLE DENOTES REQUIRED MINIMUM NUMBER OF STUDS EE OF HEADER, TYP UNO ON PLANS
b. NUMBER OF KING STUDS LISTED ABOVE ARE BASED 10' NOMINAL WALL HEIGHT, STUD SPACING OF 16" O.C., AND ULTIMATE WIND SPEED OF 120 MPH (EXPOSURE B)
c. HEADER SPANS IN TABLE ARE BASED ON ROUGH OPENINGS. INTERPOLATION BETWEEN SPAN VALUES IS PERMITTED, ROUND UP NUMBER OF KING STUDS, EXTRAPOLATION IS PROHIBITED. CONTACT TYNDALL ENGINEERING AND DESIGN IF HEADER SPANS EXCEED TABLE VALUES

BRACING PANEL LENGTHS REQUIRED:
BWL A = 8.8 FT CS-WSP
BWL B = 8.8 FT CS-WSP
BWL 1 = 5.7 FT CS-WSP
BWL 2 = 5.7 FT CS-WSP

BRACING PANEL LENGTHS PROVIDED:
BWL A = *14.1 FT CS-WSP
BWL B = 14.1 FT CS-WSP
BWL 1 = 16.83 FT CS-WSP
BWL 2 = *13.5 CS-WSP



SECOND FLOOR PLAN

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

DESIGN LOADS

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			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 (ACTUAL) EACH SINGLE MEMBER AND Fb = 2600 PSI, E = 1.9M PSI (OR GREATER)
(I.E. iLEVEL MICROLAM)
ALL LSL LUMBER IS TO BE 1.55E (Fb = 2325 PSI) (OR GREATER)
ALL PSL LUMBER IS TO BE 1.8E (Fb = 2,400 PSI) (OR GREATER)
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 (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"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.
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 602.10.3 OF THE 2018 NCRC.
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 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 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.
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

⟨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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 050516 11/22/24 SCOTT T. PYRCH

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NORTH CAROLINA PROFESSIONAL CORPORATION SEAL C-2303 TYNDALL ENGINEERING AND DESIGN, P.A.

Client: RIVERWILD

Plan: THE CARDINAL

2ND FLOOR HEADER
2ND FLR. CLG. FRAMING

Project #:	DRB2401-0315_A
Date:	11/22/2024
Engineered By:	VA
DWG. Checked By:	PAT
Scale:	SEE PLAN

REVISIONS

No.	Date:	Remarks
1		
2		
3		
4		

Sheet Number

S3

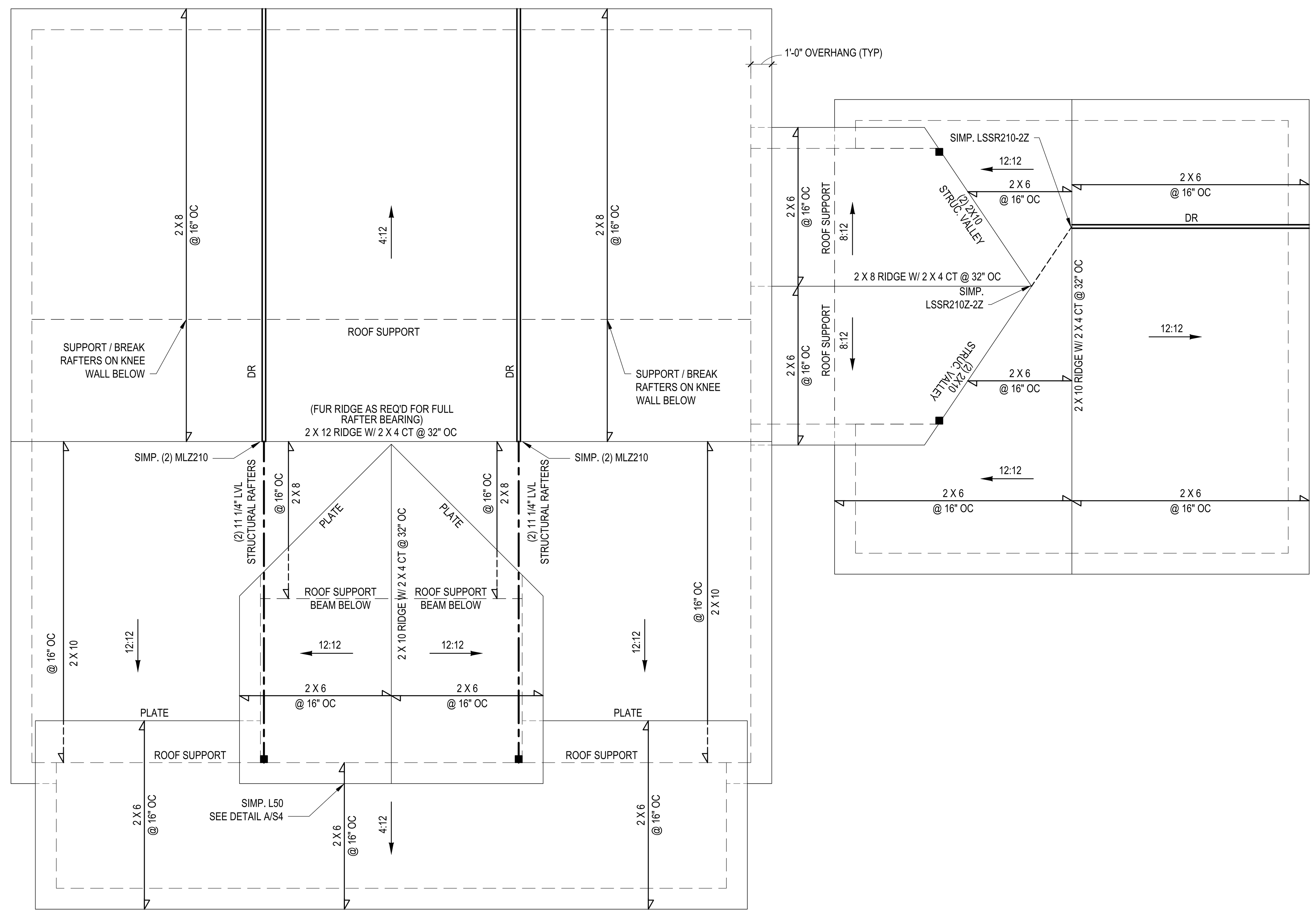
1695 SQ. FT. OF ATTIC / 300 = 5.65 SQ. FT. INLETS/OUTLETS REQUIRED

1) CALCULATION BASED ON VENTILATORS USED AT LEAST 3'-0" ABOVE THE COMICE VENTS WITH THE BALANCE OF VENTILATION PROVIDED BY EAVE VENTS.

2) CATHEDRAL CEILINGS SHALL HAVE A 1" MINIMUM CLEARANCE BETWEEN THE BOTTOM OF THE ROOF DECK AND THE INSULATION.

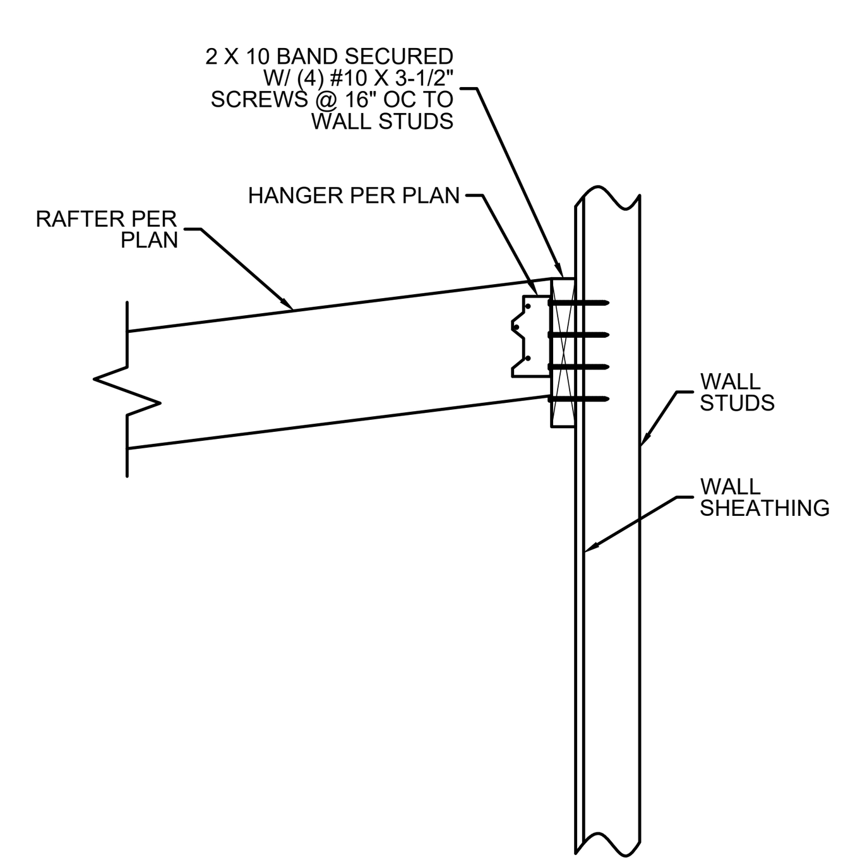
* ATTIC VENTILATION CALCULATION

NO SCALE



ROOF PLAN

1/4" = 1'-0"



A BAND CONNECTION

SCALE: 1" = 1'-0"

*Engineers seal 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.
*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.

NORTH CAROLINA PROFESSIONAL SEAL 050516 11/22/24 ENGINEER SCOTT T. PYRCH

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NORTH CAROLINA PROFESSIONAL SEAL C-2303 CORPORATION TYNDALL ENGINEERING AND DESIGN, P.A.

Client: RIVERWILD

Plan: THE CARDINAL

ROOF PLAN

Project #: DRB2401-0315_A

Date: 11/22/2024

Engineered By: VA

DWG. Checked By: PAT

Scale: SEE PLAN

REVISIONS

No.	Date:	Remarks
1		
2		
3		
4		

Sheet Number

S4

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 (PSF)	DEFLECTION	
			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 MPH (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 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"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.

DEFINITIONS FOR COMMON ABBREVIATIONS

ALT	=	ALTERNATE	MANUF	=	MANUFACTURER
CANT	=	CANTILEVER	MAX	=	MAXIMUM
CJ	=	CEILING JOIST	MIN	=	MINIMUM
CMU	=	CONCRETE MASONRY UNIT	NOM	=	NOMINAL
COL	=	COLUMN	O.C.	=	ON CENTER
CONC	=	CONCRETE	PL	=	POINT LOAD
CONT	=	CONTINUOUS	PT	=	PRESSURE TREATED
CT	=	COLLAR TIE	REINF	=	REINFORCED
DBL	=	DOUBLE	REQ'D	=	REQUIRED
DIA	=	DIAMETER	RJ	=	ROOF JOIST
DJ	=	DOUBLE JOIST	RS	=	ROOF SUPPORT
DR	=	DOUBLE RAFTER	SC	=	STUD COLUMN
DSP	=	DOUBLE STUD POCKET	SCH	=	SCHEDULE
EA	=	EACH	SPEC	=	SPECIFIED
EE	=	EACH END	TH	=	THICK
FJ	=	FLOOR JOIST	TJ	=	TRIPLE JOIST
FND	=	FOUNDATION	TRTD	=	TREATED
FTG	=	FOOTING	TSP	=	TRIPLE STUD POCKET
GALV	=	GALVANIZED	TYP	=	TYPICAL
HORIZ	=	HORIZONTAL	UNO	=	UNLESS NOTED OTHERWISE
HT	=	HEIGHT	W	=	WIDE FLANGE BEAM
JSC	=	JACK STUD	WWF	=	WELDED WIRE FABRIC
KS	=	KING STUD	XJ	=	EXTRA JOIST

1) MAXIMUM HEIGHT OF DECK SUPPORT POSTS AS FOLLOWS:

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

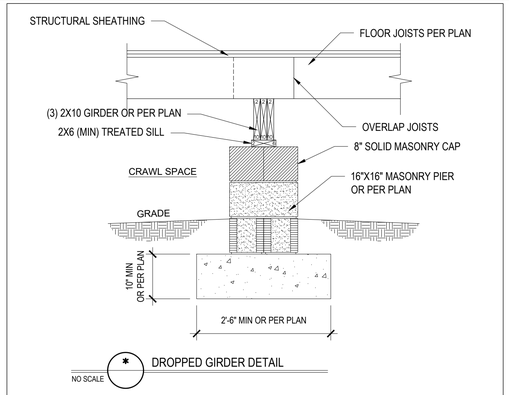
* THIS TABLE IS BASED ON NO. 2 TREATED SOUTHERN PINE POSTS. MAXIMUM TRIBUTARY AREA IS BASED ON 128 TOTAL SQUARE FEET WHICH MAY BE LOCATED AT DIFFERENT LEVELS.
** FROM TOP OF FOOTING TO BOTTOM OF GIRDER
*** DECKS WITH POST HEIGHTS OVER 20'-0" SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT.

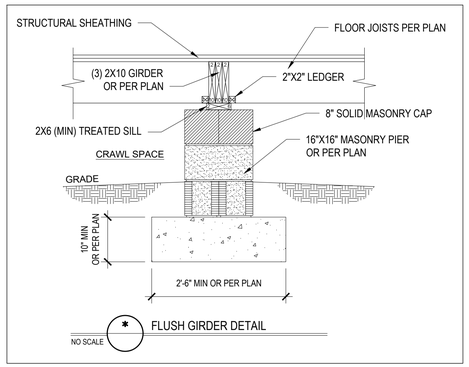
2) DECKS SHALL BE BRACED TO PROVIDE LATERAL STABILITY BY ONE OF THESE METHODS:

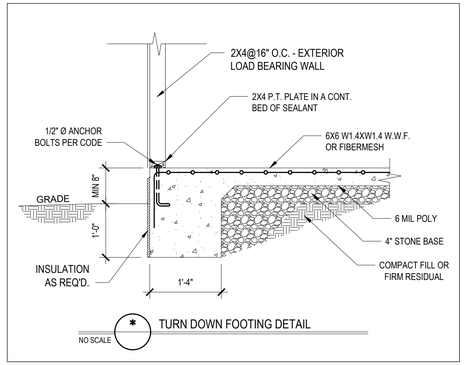
A. THE DECK FLOOR HEIGHT IS LESS THAN 4'-0" AND THE DECK IS ATTACHED TO THE STRUCTURE IN ACCORDANCE WITH SECTION (4) ABOVE. LATERAL BRACING IS NOT REQUIRED.
B. 4 x 4 WOOD KNEE BRACES MAY BE PROVIDED ON EACH COLUMN IN BOTH DIRECTIONS. THE KNEE BRACES SHALL ATTACH TO EACH POST AT A POINT NOT LESS THAN 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 TO THE POST AND GIRDER WITH ONE 5/8"Ø HOT DIPPED GALVANIZED 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.







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

NO SCALE — 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 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. IF STRUCTURAL SHEATHING COVERS 25% OR LESS OF THE EXTERIOR, INSULATING SHEATHING IS NOT REQUIRED 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 INSULATION PLUS R-2.5 SHEATHING.

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.

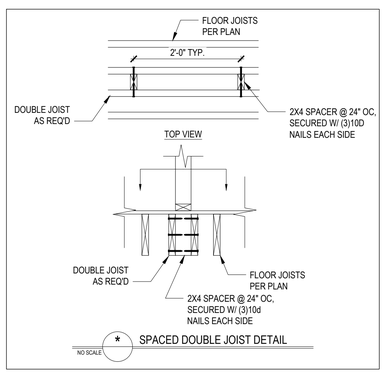
k. IN ADDITION TO THE EXEMPTION IN SECTION N1102.3.3, A MAXIMUM OF TWO GLAZED FENESTRATION PRODUCT ASSEMBLIES HAVING A SHGC NO GREATER THAN 0.70 SHALL BE PERMITTED TO BE SUBSTITUTED FOR MINIMUM CODE COMPLIANT FENESTRATION PRODUCT ASSEMBLIES WITHOUT PENALTY.

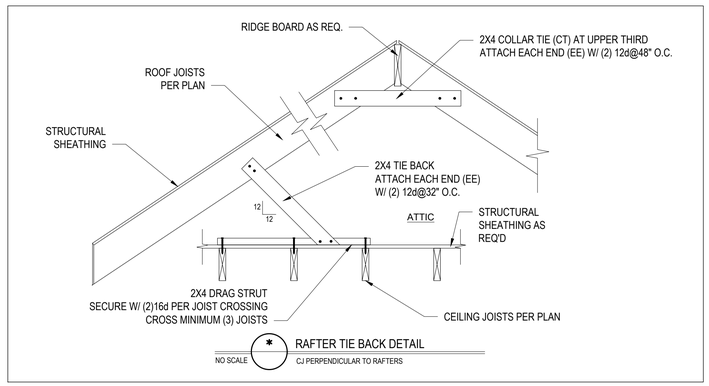
l. R-30 SHALL BE DEEMED TO SATISFY THE CEILING INSULATION REQUIREMENT WHEREVER THE FULL HEIGHT OF UNCOMPRESSED R-30 INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES. OTHERWISE R-38 INSULATION IS REQUIRED WHERE ADEQUATE CLEARANCE EXISTS OR INSULATION MUST EXTEND TO EITHER THE INSULATION BAFFLE OR, WITHIN 1 INCH OF THE ATTIC ROOF DECK.

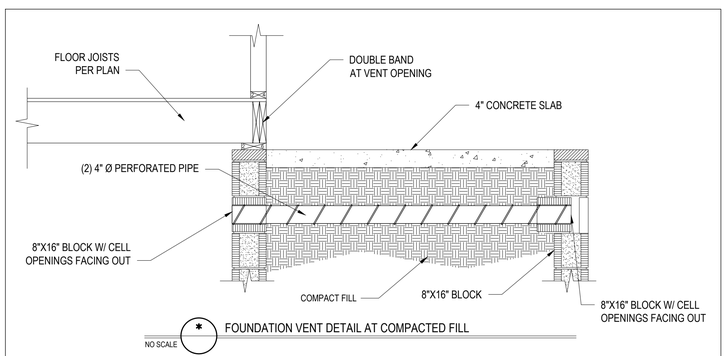
m. TABLE VALUE REQUIRED EXCEPT FOR ROOF EDGE WHERE THE SPACE IS LIMITED BY THE PITCH OF THE ROOF; THERE THE INSULATION MUST FILL THE SPACE UP TO THE AIR BAFFLE.

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.

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







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NORTH CAROLINA PROFESSIONAL SEAL C-2303 TYNDALL ENGINEERING AND DESIGN, P.A.

Client: RIVERWILD

Plan: THE CARDINAL

STANDARD DETAILS

Project #: DRB2401-0315_A
Date: 11/22/2024
Engineered By: VA
DWG. Checked By: PAT
Scale: SEE PLAN

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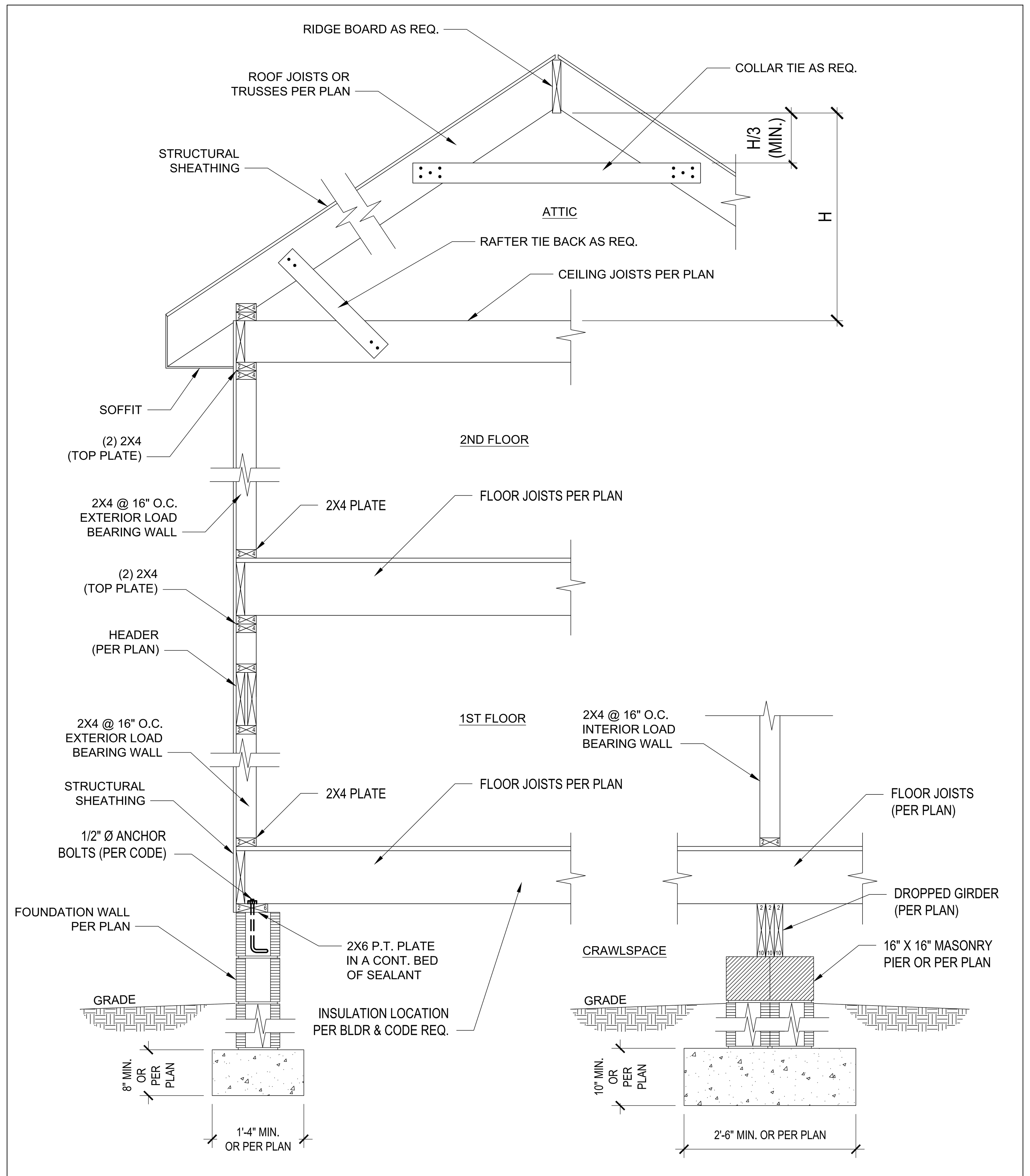
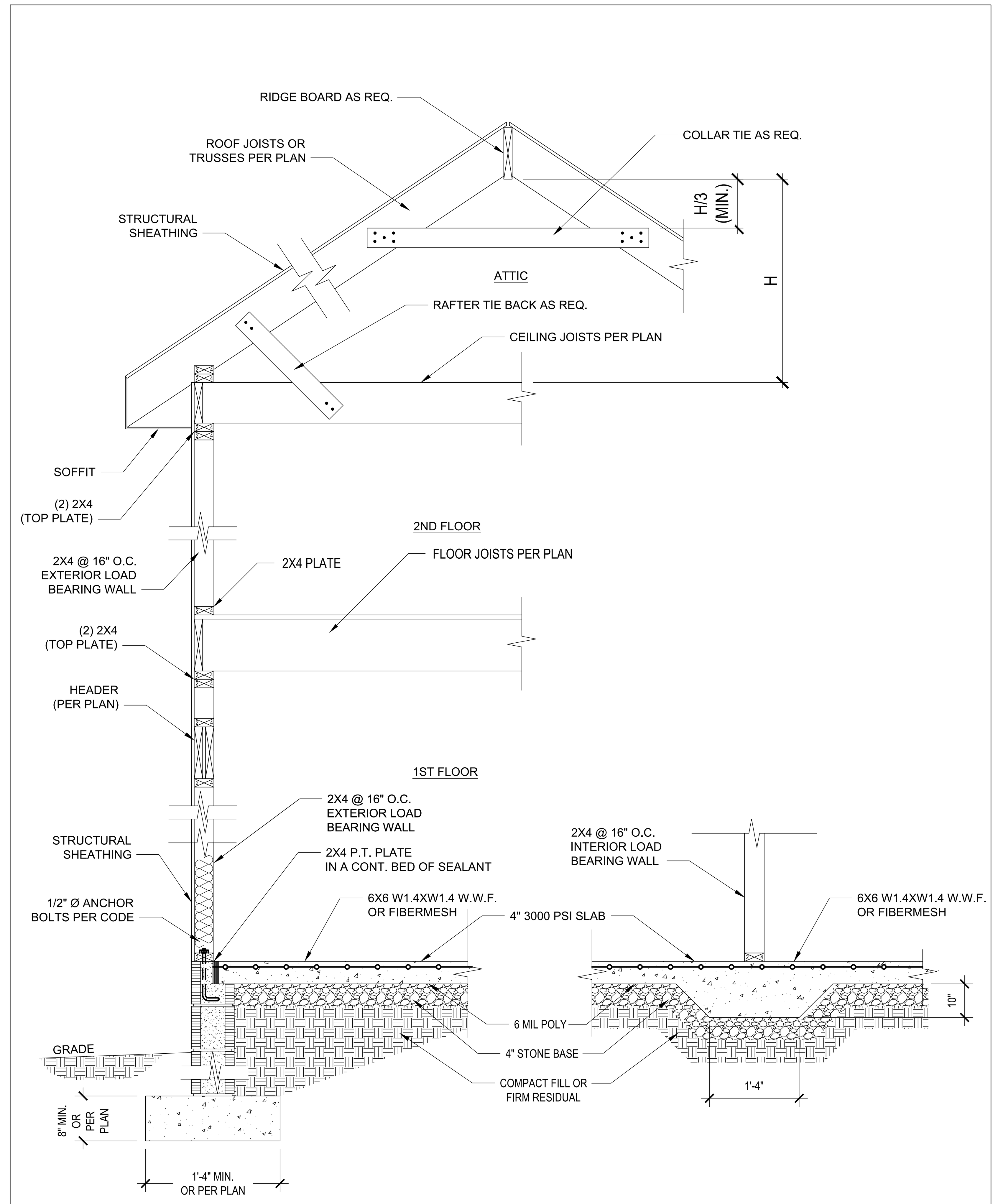


TWO-STORY ON CRAWL

NO SCALE TYPICAL WALL DETAIL



TWO-STORY ON STEM

NO SCALE TYPICAL WALL DETAIL

*Engineers seal does not include construction means, methods, techniques, sequences, procedures or safety precaution.
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NORTH CAROLINA PROFESSIONAL SEAL C-2303 CORPORATION TYNDALL ENGINEERING AND DESIGN, P.A.

Client: RIVERWILD

Plan: THE CARDINAL

STANDARD DETAILS

Project #: DRB2401-0315_A

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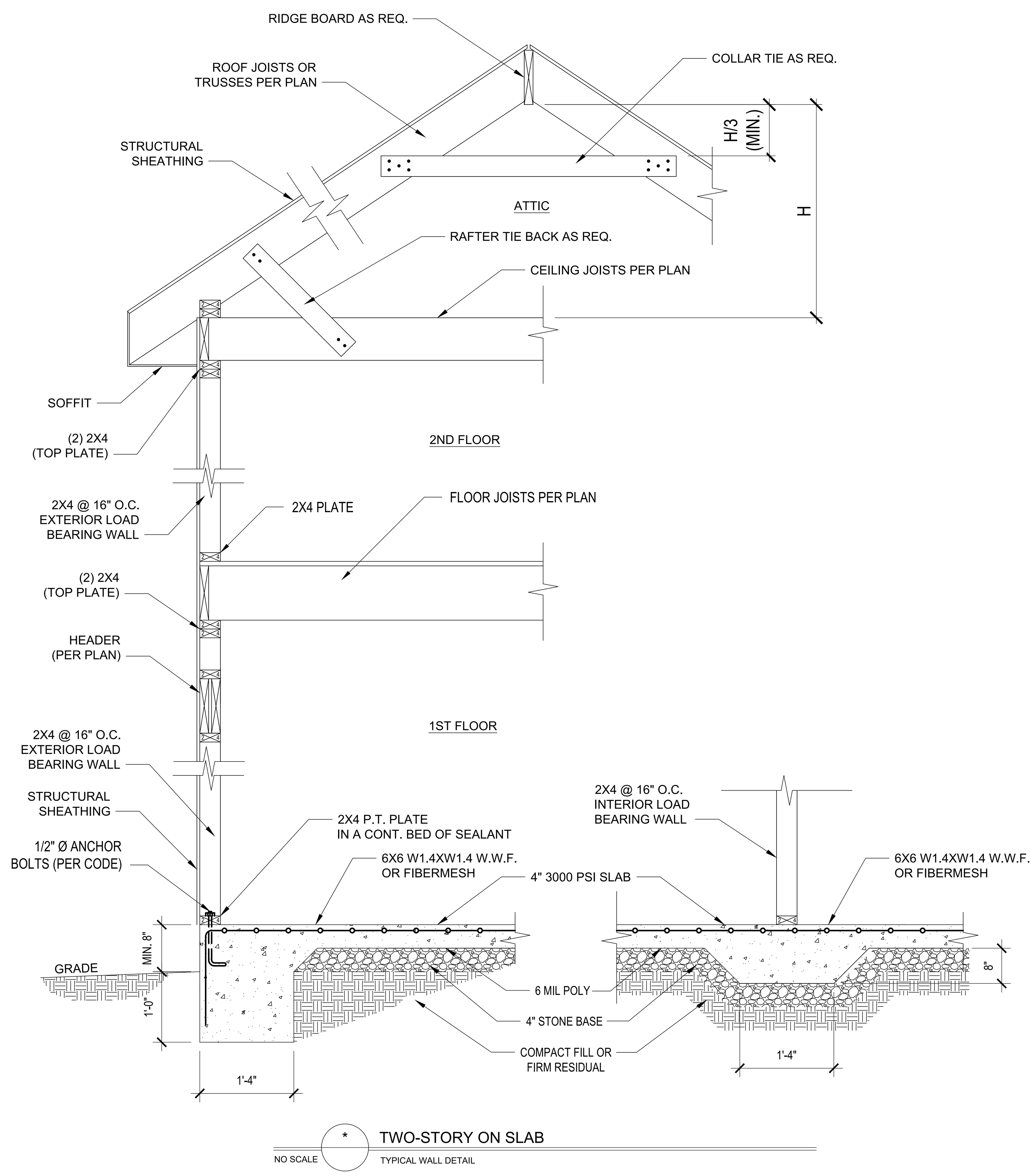

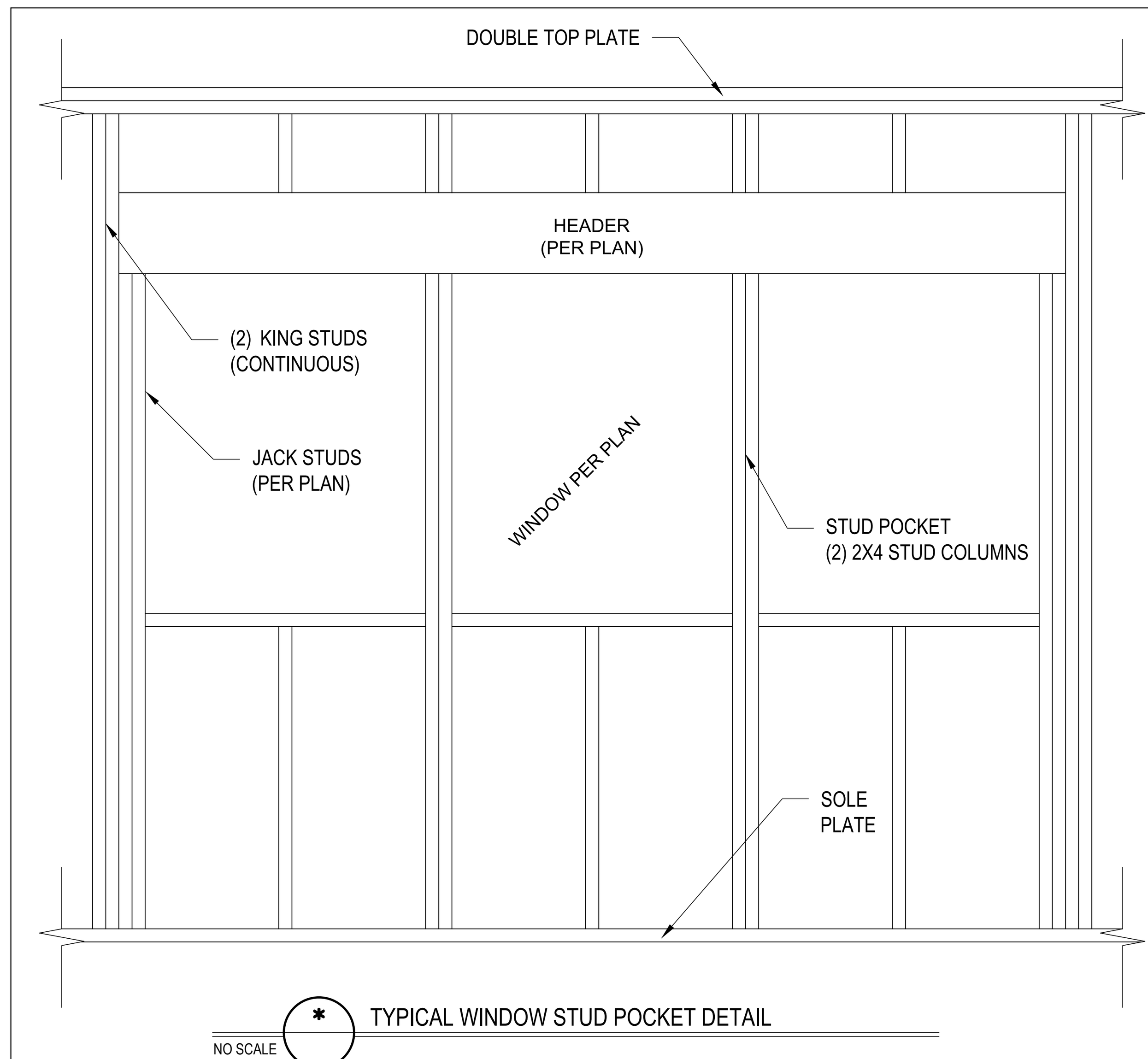

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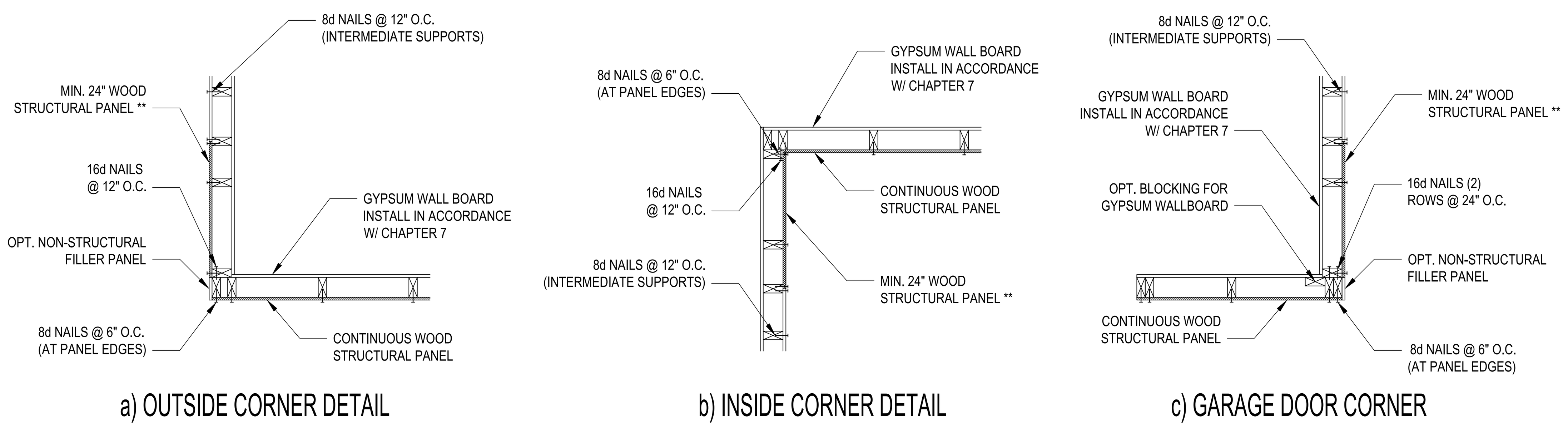


** IN LIEU OF THE 24" (MIN.) CORNER RETURN, A HOLD-DOWN DEVICE WITH A MINIMUM UPLIFT DESIGN VALUE OF 800# SHALL BE FASTENED TO THE CORNER STUD AND TO THE FOUNDATION OR FRAMING BELOW.

B1: TYPICAL EXTERIOR CORNER FRAMING FOR CONTINUOUS SHEATHING

NO SCALE

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 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)

⟨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 WALL HEIGHT

⟨4⟩ SHEATH INTERIOR AND 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 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 FRAMING BELOW

⟨5⟩ MINIMUM 800# HOLD-DOWN DEVICE

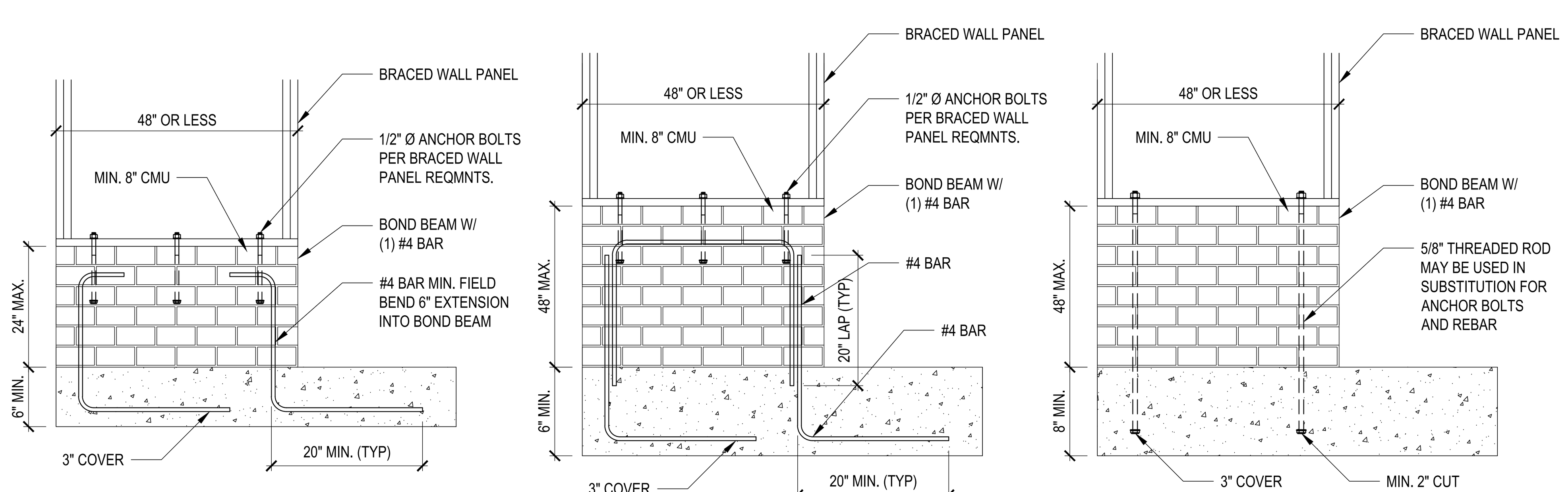
REQUIRED BRACED WALL PANEL CONNECTIONS

METHOD	MATERIAL	MIN. THICKNESS	REQUIRED CONNECTION @ PANEL EDGES	REQUIRED CONNECTION @ 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

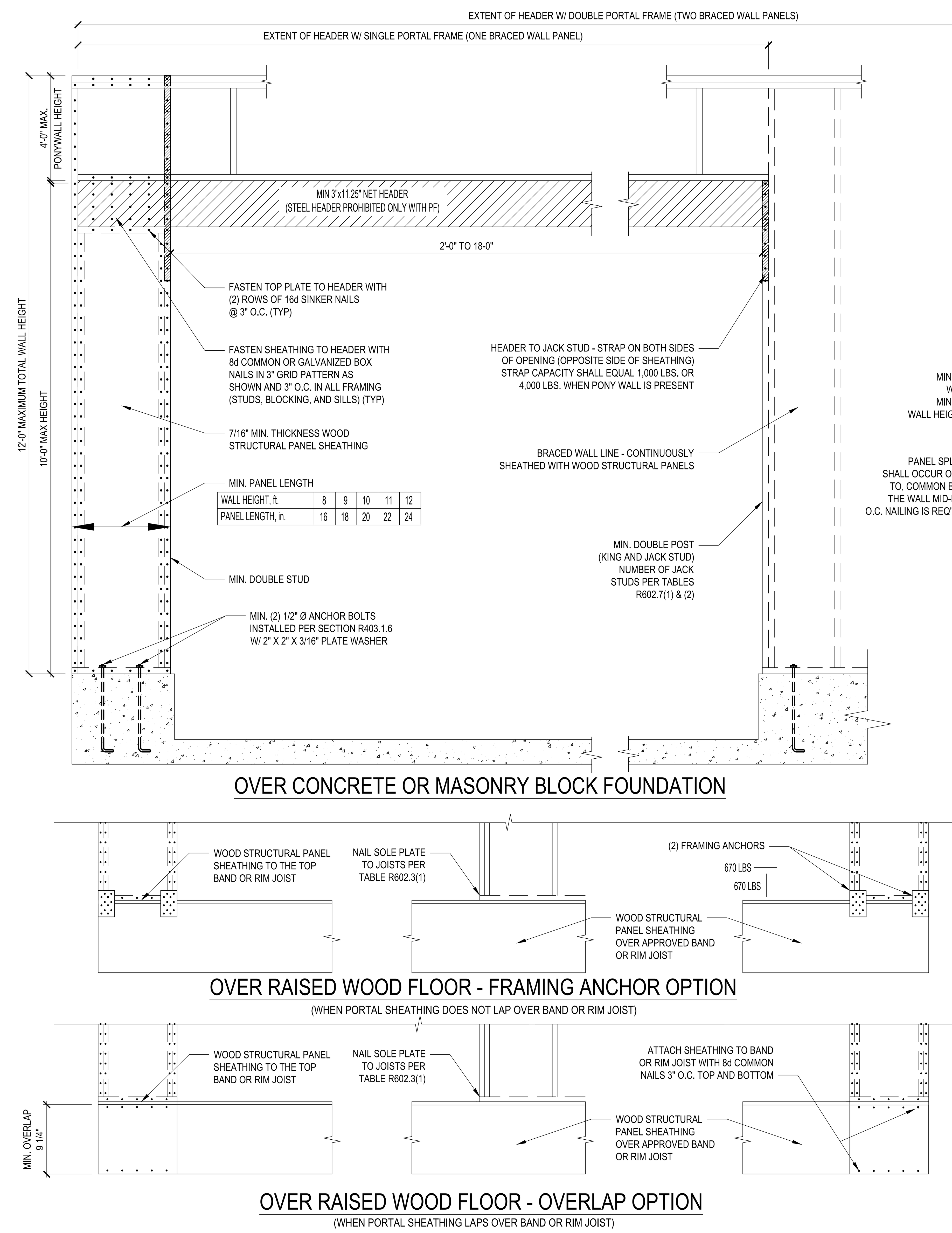
B3: BRACE WALL PANEL CONNECTIONS

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



B2: METHOD PF: PORTAL FRAME CONSTRUCTION

FIGURE R602.10.1

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