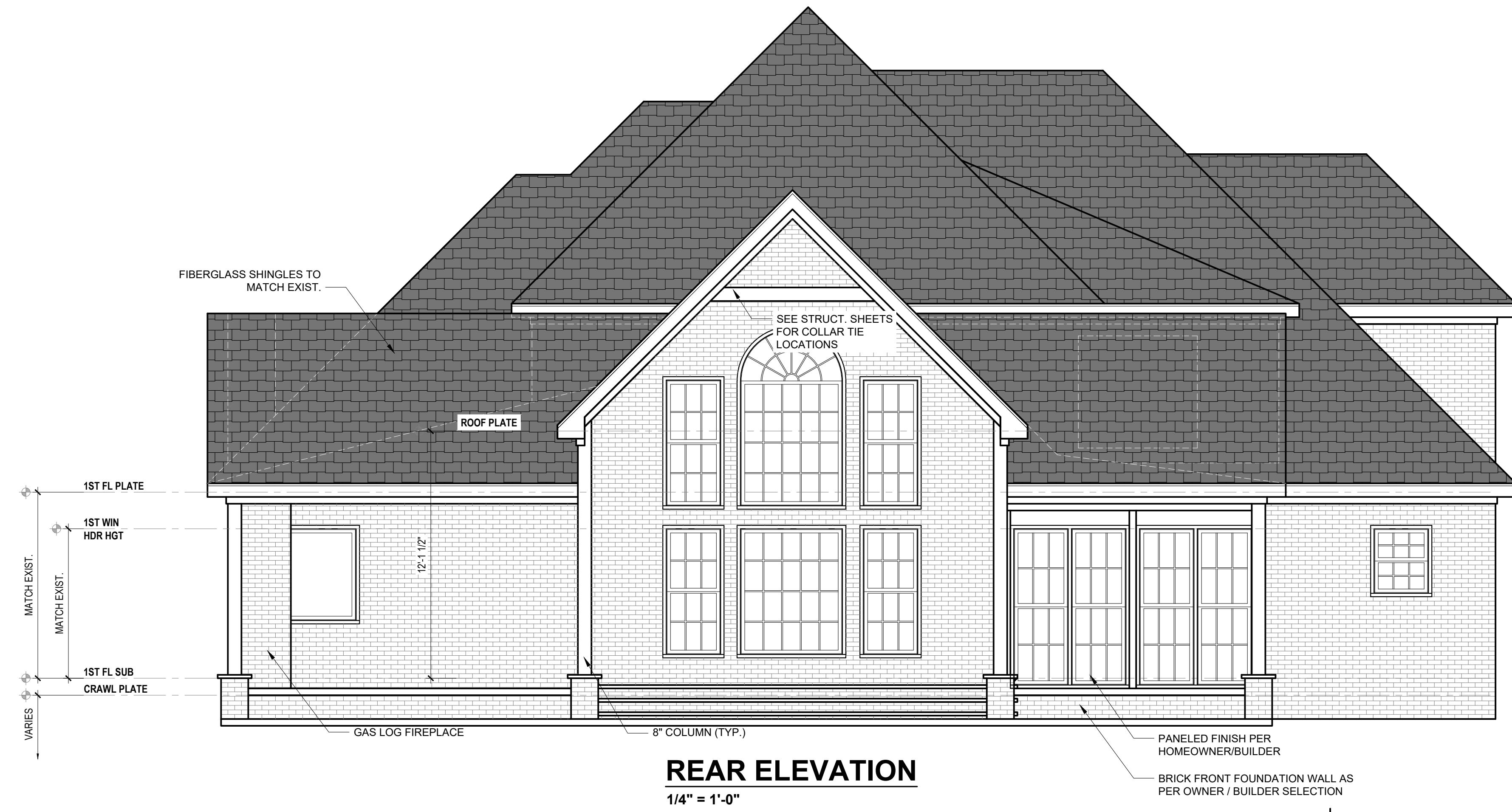
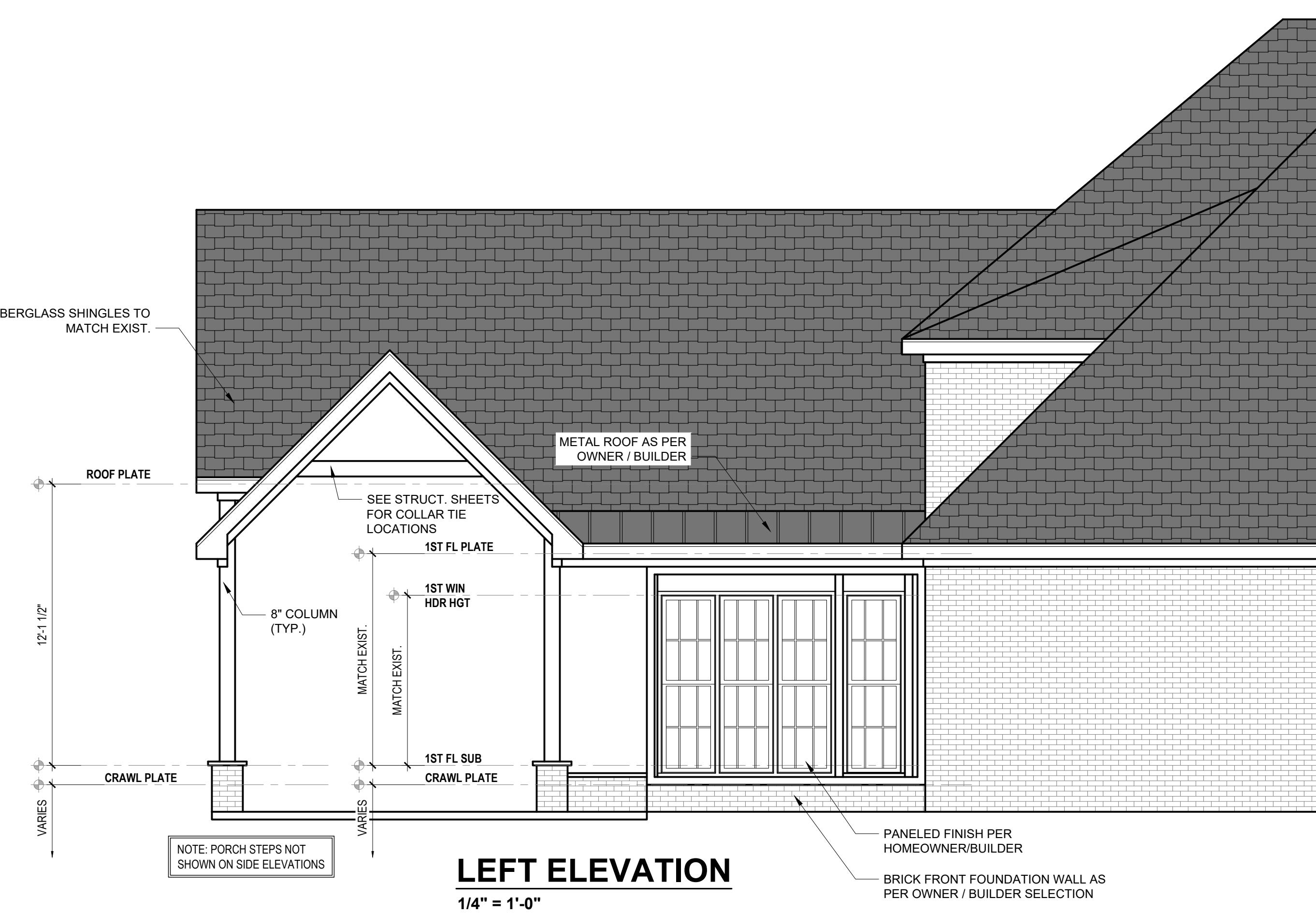


BRADHAM RESIDENCE



1. DRB DESIGN assumes no liability for any home constructed from this plan.
2. All construction shall conform to the latest requirements of "North Carolina State 2018 residential building code", in addition to all local codes and regulations.
3. Should these plans require structural calculations for permitting the contractor shall be required to obtain the services of a structural engineer after notifying DRB DESIGN that such services are required.
4. Release of these plans requires further cooperation among the owner, his/her contractor, and DRB DESIGN.
5. Design and construction are complex and, although the designer performed his services with due care and diligence, perfection is not a guarantee.
6. Communication is imperfect and every contingency cannot be anticipated.
7. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to DRB DESIGN. Failure to notify the DRB DESIGN compounds misunderstandings and increases construction costs.
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10. Written dimensions on these plans always have precedence over scaled dimensions.
11. It is the contractors responsibility to verify and be responsible for all dimensions and square footage prior to construction, as well as conditions on the job site. DRB DESIGN is not responsible for dimension and square footage errors once construction has begun.
12. DRB DESIGN must be notified of any variations from the dimensions and conditions shown on these drawings.



PROJECT # DRB2301-0189_A
DATE 12/06/2024
DRAWN/DESIGNED BY DRB
DK CHECKED BY DRB
SCALE 1/4" = 1'-0"

WEBSITE www.drbhomedesign.com

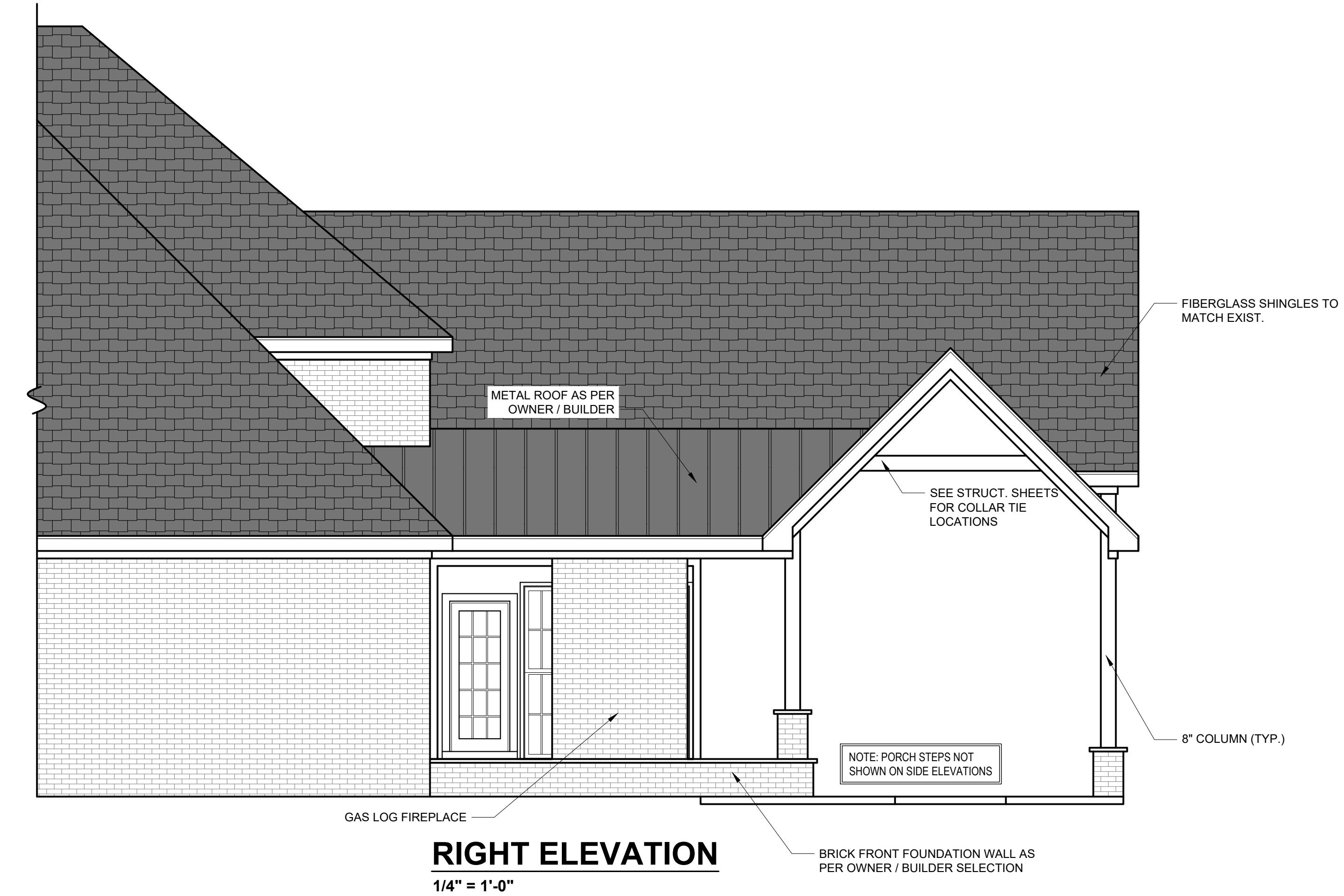
PROJECT NAME BRADHAM ADDITION

DRB DESIGN
drbdesign@drbhomedesign.com 919.631.5979
250 Shipwreck Dr Suite 105 Garner, NC 27539

CLIENT NAME Dena Bradham
278 Willowcroft Ct.,
Dunn, NC 28334
denabradham@gmail.com
910-984-4035

SHEET NAME ELEVATIONS
SHEET # 1
of 5

BRADHAM RESIDENCE



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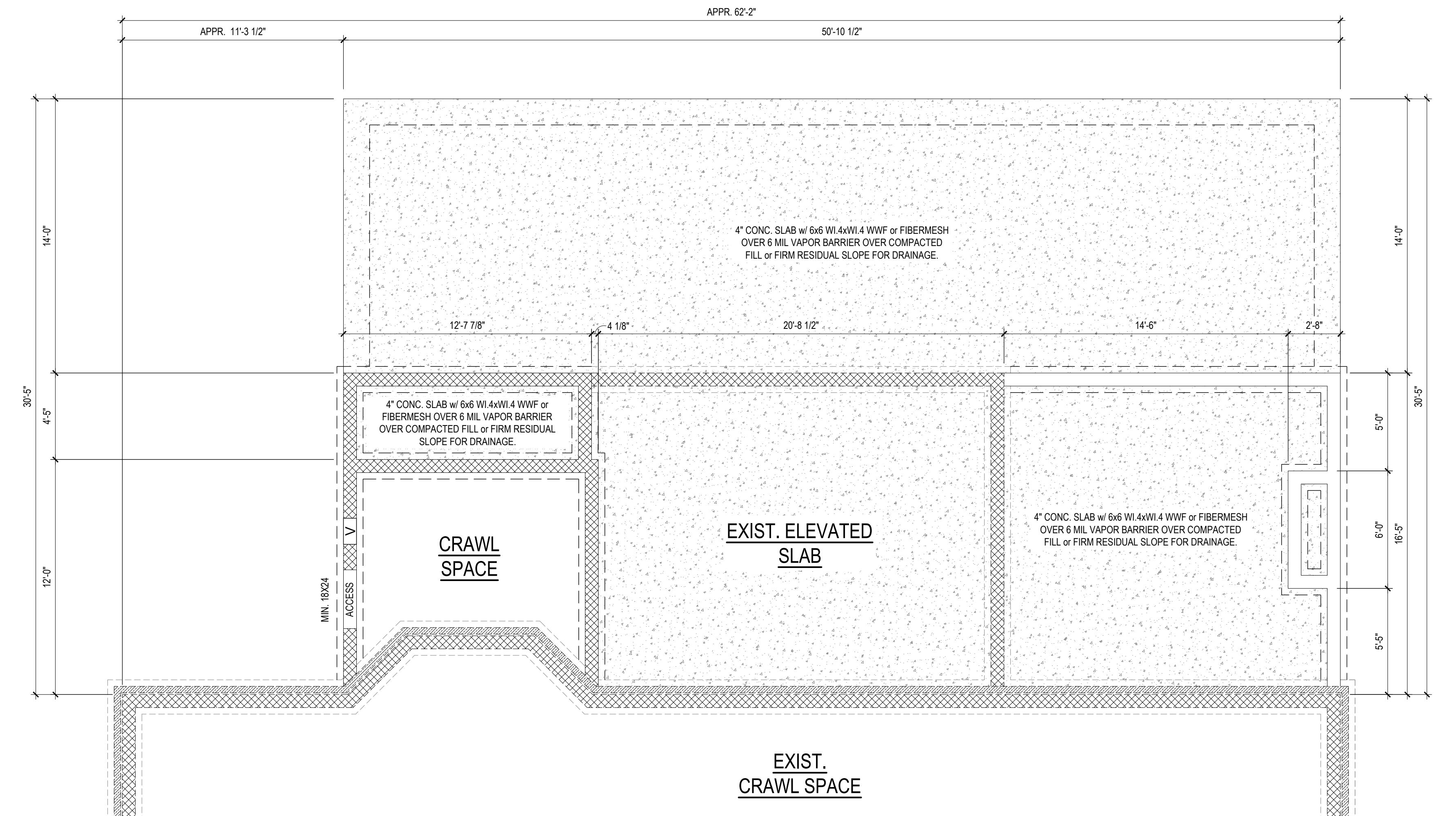
PROJECT # DRB2301-0189_A
DATE 12/06/2024
DRAWN/DESIGNED BY
DK
CHECKED BY
DRB
SCALE 1/4" = 1'-0"
WEBSITE www.
drbomedesign.com

PROJECT NAME
BRADHAM ADDITION

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

CLIENT NAME
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278 Willowcroft Ct.,
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SHEET NAME ELEVATIONS
SHEET # 2 of 5



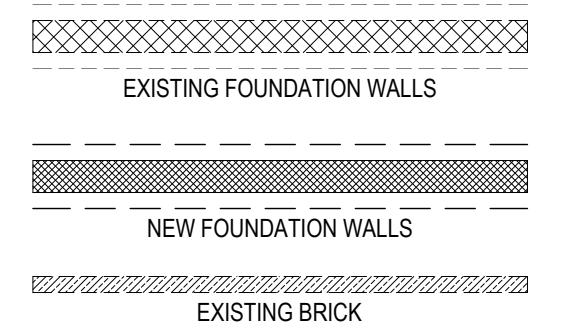
FOUNDATION PLAN

1/4" = 1'-0"

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2. All construction shall conform to the latest requirements of "North Carolina State 2018 residential building code", in addition to all local codes and regulations.
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12. DRB DESIGN must be notified of any variations from the dimensions and conditions shown on these drawings.

NOTE: SEE STRUCTURAL PLANS
FOR ENGINEERING INFORMATION
AND CRAWLSPACE VENTILATION
CALCULATIONS

NOTE: VENT CRAWLSPACE PER
LOCAL CODES AND REQUIREMENTS



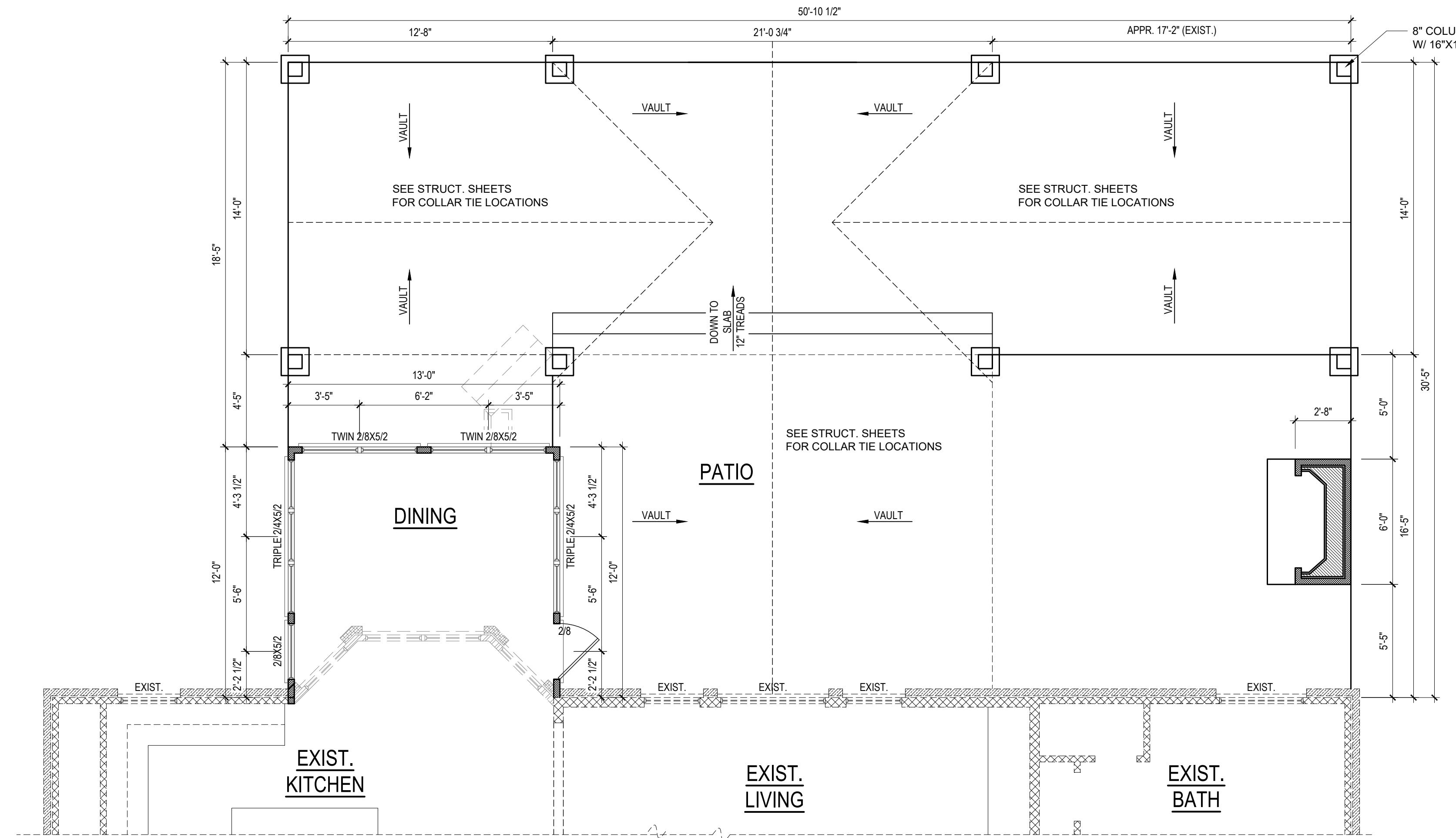
PROJECT # DRB2301-0189_A
DATE 12/06/2024
DRAWN/DESIGNED BY
DK
CHECKED BY
DRB
SCALE 1/4" = 1'-0"
WEBSITE www.drbhomedesign.com

PROJECT NAME BRADHAM ADDITION
WEBSITE www.drbhomedesign.com

DRB
DESIGN
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SHEET NAME FOUNDATION
SHEET # 3
of 5



NOTE: SEE ELEVATIONS FOR WINDOW HDR HGTs
NOTE: ALL DOORS ARE 8'-8" TALL UNO
NOTE: ALL EXTERIOR WALLS ARE NOMINAL 4" UNO
NOTE: ALL EXISTING BRICK TO BE REMOVED
NOTE: ALL INTERIOR WALLS ARE NOMINAL 4" UNO
NOTE: ALL ANGLED WALLS ARE 45° UNO
NOTE: ALL DIMENSIONS ARE FRAME TO FRAME

HEATED SQUARE FOOTAGE
Dining Room 156
TOTAL HEATED 156
UNHTD SQUARE FOOTAGE
Rear Patio 350
TOTAL UNHEATED 350
TOTAL SQ FT 506

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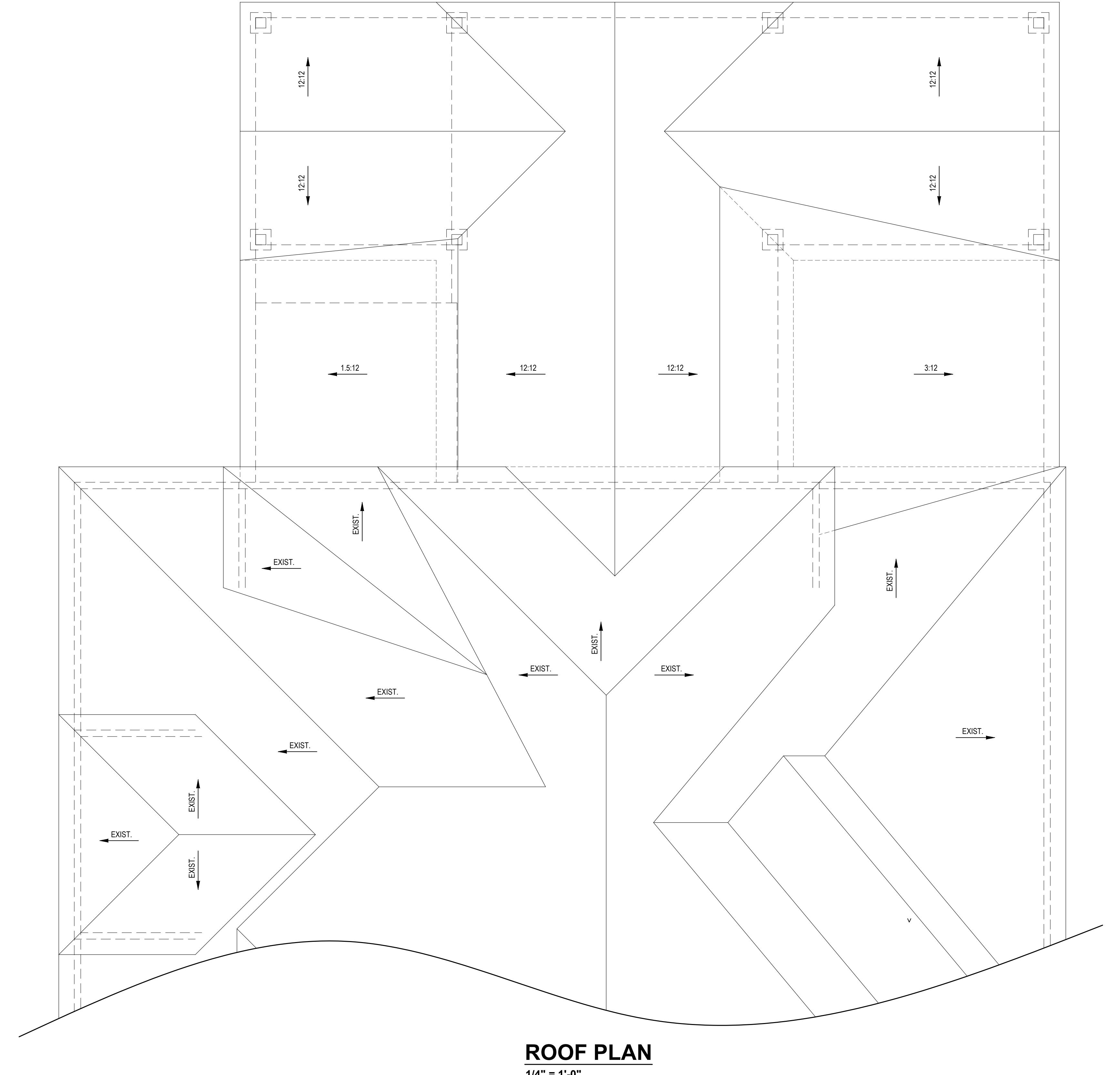
1ST_FLOOR
SHEET NAME: 1ST_FLOOR
SHEET #: 4
of 5

DRB DESIGN
drbdesign@drbhomedesign.com 919.631.5979
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PROJECT # DRB2301-0189_A
DATE 12/06/2024
DRAWN/DESIGNED BY
DK
CHECKED BY
DRB
SCALE 1/4" = 1'-0"
1/4" = 1'-0"

WEBSITE www.
drbhomedesign
.com

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- Release of these plans requires further cooperation among the owner, his/her contractor, and DRB DESIGN.
- Design and construction are complete and, although the designer performed his services with due care and diligence, perfection is not a guarantee.
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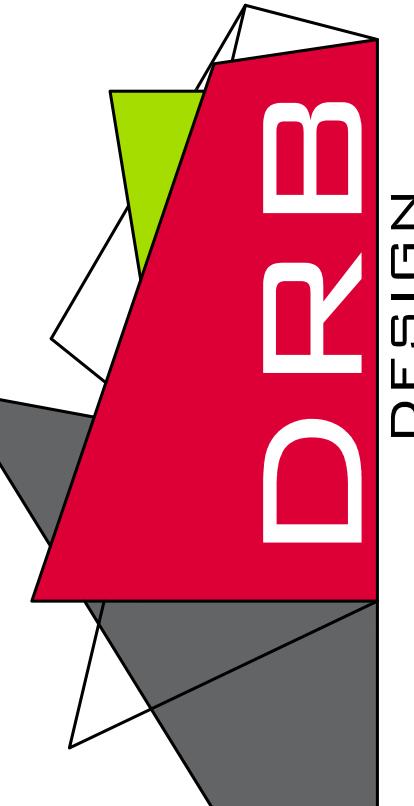


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PROJECT # DRB2301-0189_A
DATE 12/06/2024
DRAWN/DESIGNED BY
DK
CHECKED BY
DRB
SCALE 1/4" = 1'-0"
WEBSITE www.
drbhomedesign.com

CLIENT NAME
Dena Bradham
278 Willowcroft Ct.,
Dunn, NC 28334
denabradham@gmail.com
910-984-4035

SHEET NAME ROOF
SHEET # 5
of 5

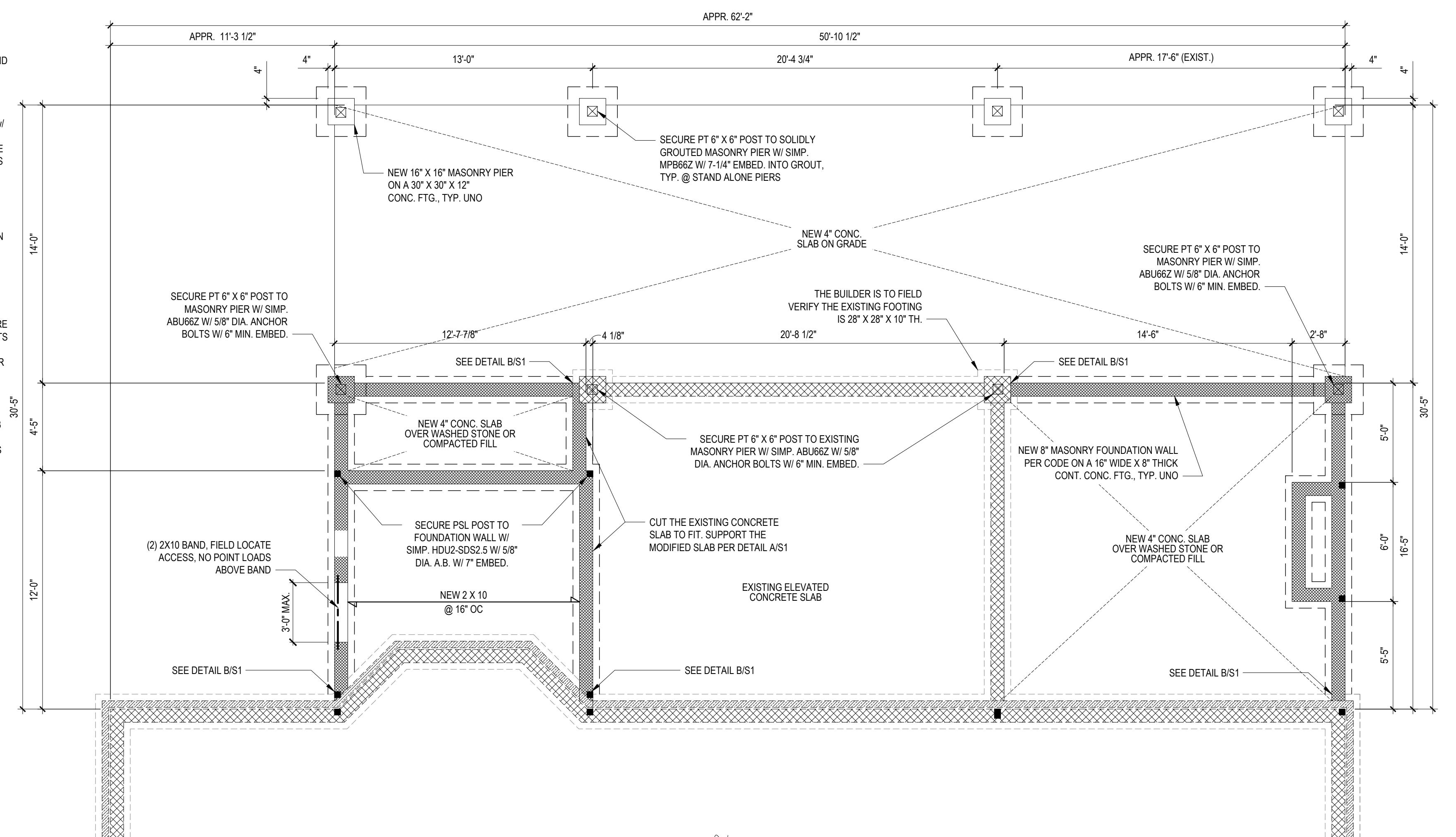


DESIGN
drbdesign@drbhomedesign.com
919.631.5979
250 Shipwash Dr Suite 105 Garner, NC 27529

	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:

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- 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 $F_b = 2600 \text{ PSI}$, $E = 1.9M \text{ PSI}$ (OR GREATER)
(I.E. iLEVEL MICROLAM)
ALL LSL LUMBER IS TO BE 1.55E ($F_b = 2325 \text{ PSI}$) (OR GREATER)
ALL PSL LUMBER IS TO BE 1.8E ($F_b = 2,400 \text{ PSI}$) (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
 $F_y = 50 \text{ KSI MIN.}$ (UNO)
- 8) ALL EXTERIOR LUMBER TO BE #2 SYP PT
- 9) ALL CONCRETE, $f_c = 3000 \text{ PSI MIN.}$
- 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.



FOUNDATION PLAN

1/4" = 1'-0"

99 SQ. FT. OF CRAWL SPACE / 150 = 0.66 SQ. FT. OF REQ'D VENTILATION WITHOUT CROSS VENTILATION
0.66 SQ. FT. OF VENTILATION REQ'D / 0.88 SQ.FT. PER VENT = 1 VENTS REQ'D (BASED ON 8" X 16" VENTS)

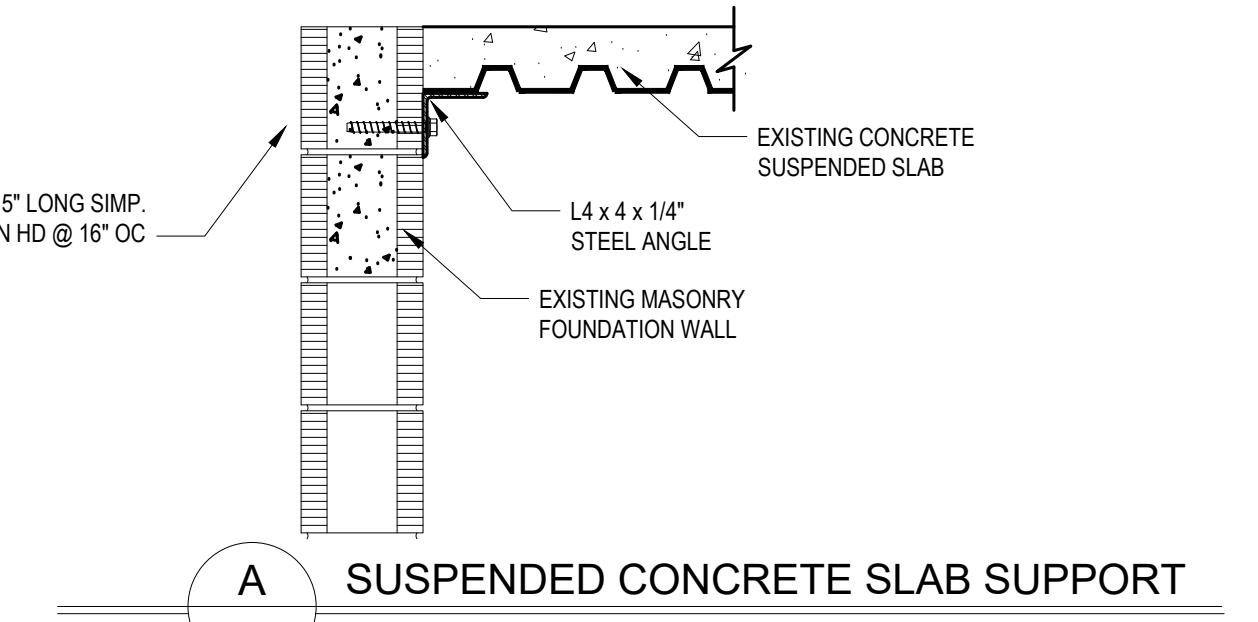
-OR-

99 SQ. FT. OF CRAWL SPACE / 1500 = 0.07 SQ. FT. OF REQ'D VENTILATION WITH CROSS VENTILATION
0.07 SQ. FT. OF VENTILATION REQ'D / 0.88 SQ.FT. PER VENT = 1 VENTS REQ'D (BASED ON 8" X 16" VENTS)

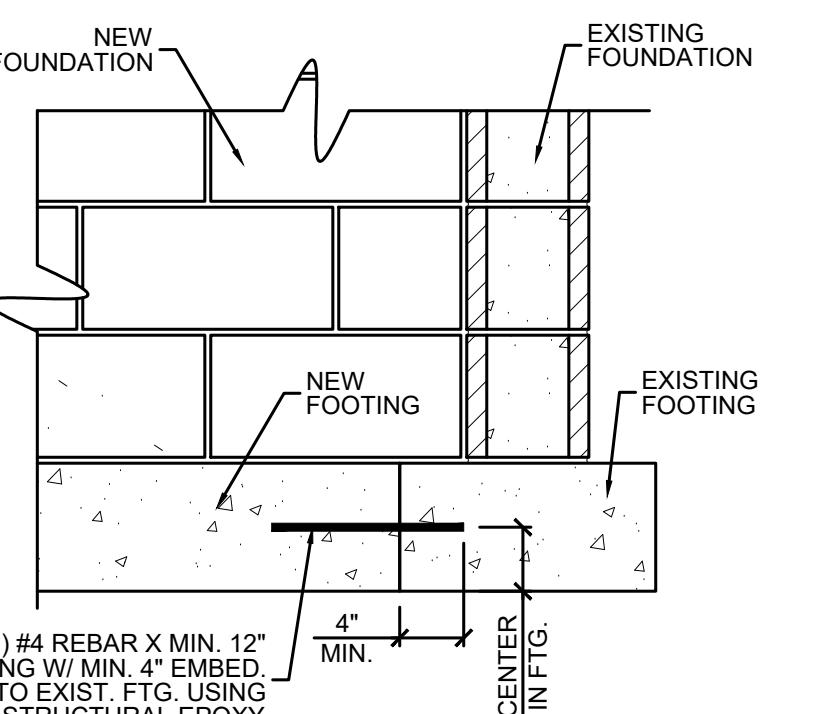
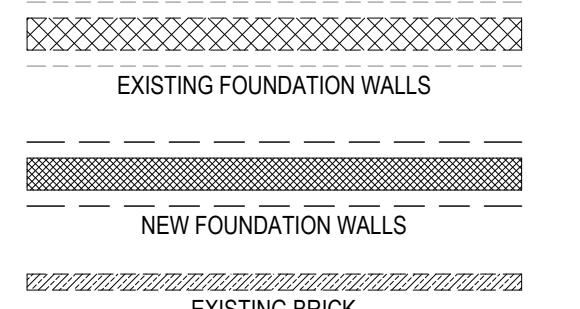
1) VENT LOCATIONS MAY VARY FROM THOSE SHOWN ON PLAN, HOWEVER VENTS SHALL BE PLACED TO PROVIDE ADEQUATE VENTILATION AT ALL POINTS AND TO PREVENT DEAD AIR POCKETS.

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.



A SUSPENDED CONCRETE SLAB SUPPORT



B NEW TO EXISTING

—

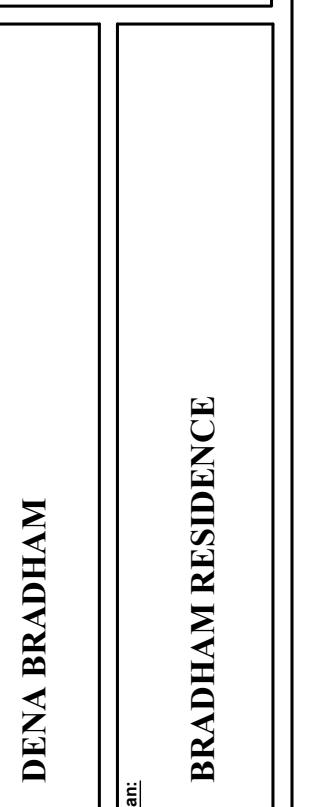
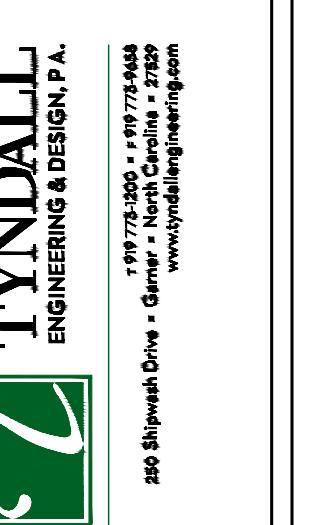
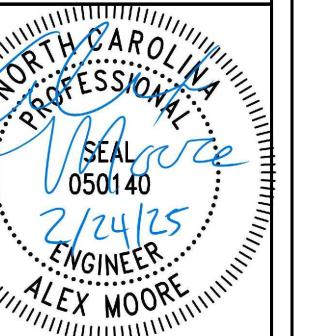
FOUNDATION PLAN 1ST FLOOR FRAMING

ject #:
RB2301-0189_A
e:
/24/25
ineered By:
MH
G. Checked By:
AT
le:
EE PLAN

<u>REVISIONS</u>	
<u>Date:</u>	<u>Remarks</u>

Sheet Number

S1



1ST FLOOR HEADER 2ND FLOOR FRAMING

Project #:	DRB2301-0189_A
Date:	02/24/25
Engineered By:	SMH
DWG. Checked By:	PAT
Scale:	SEE PLAN

REVISIONS

No. Date Remarks

△ △ △ △ △

Sheet Number

S2

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			

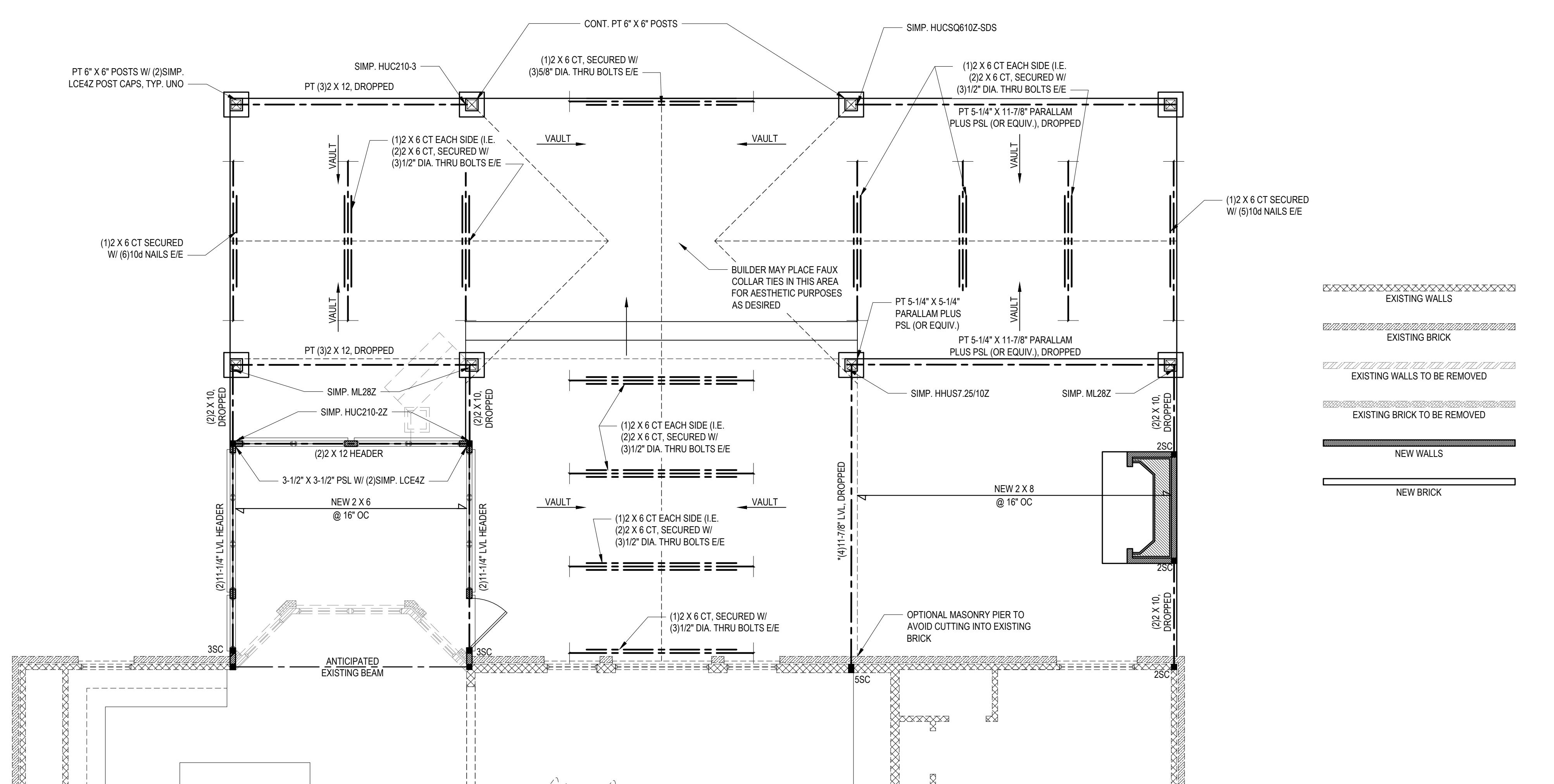
STRUCTURAL NOTES:

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- 2) IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION. TYNDALL ENGINEERING & DESIGN, P.A. IS NOT RESPONSIBLE FOR DIMENSIONS AND SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.
- 3) ALL LVL LUMBER SHALL BE #2 (UNO).
- 4) ALL LVL LUMBER TO BE 1-7/8" WIDE (ACTUAL) EACH SINGLE MEMBER AND $F_t = 2690$ PSI, $F_c = 149$ PSI (OR GREATER) (I.E. L-LEVEL MICROLAM).
- 5) ALL LVL LUMBER IS TO BE 1-5/8" (Fb = 2400 PSI) (OR GREATER).
- 6) ALL LOAD BEARING EXTERIOR WINDOW HEADERS ARE TO BE (2) 2x10 w/ (1) 2x 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'-0". MINIMUM BOTTOM OF THE WINDOW HEIGHT IS 1'-6". OTHERWISE REFER TO TABLES R602.7(1) AND R602.7(2).
- 7) 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.
- 8) REFER TO 2018 NC BUILDING CODE SECTION R602 FOR CONSTRUCTION OF ALL WALLS OVER 10'-0" IN HEIGHT.
- 9) ALL STRUCTURAL STEEL SHALL BE ASTM A992 GRADE 50
- 10) $F_y = 50$ KSI MIN. (UNO)
- 11) ALL EXTERIOR LUMBER TO BE #2 SYP PT
- 12) ALL CONCRETE, $f_c = 3000$ PSI MIN.
- 13) PRESUMPTIVE BEARING CAPACITY = 2000 PSI
- 14) 1/2" O.D. ANCHOR BOLTS SPACED AT MAXIMUM OF 6'-0" O.C. AND NOT MORE THAN 12' FROM A 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.
- 15) PSL COLUMNS DESIGNED WITH MAX. HEIGHT OF 9'-0" (UNO).
- 16) PROVIDE A MINIMUM OF 500# UPLIFT & LATERAL CONNECTION AT TOP AND BOTTOM OF PORCH COLUMNS. (UNO.)
- 17) PROVIDE CONTINUOUS SHEATHING PER SECTION 602.10.3 OF THE 2018 NRC.
- 18) MAXIMUM MASONRY PIER HEIGHT SHALL NOT EXCEED FOUR TIMES ITS LEAST HORIZONTAL DIMENSION.
- 19) UPLIFT LOADS GREATER THAN 500# SHALL BE CONTINUOUSLY ANCHORED TO THE FOUNDATION.
- 20) 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 NRC.
- 3) BRACING REQUIREMENTS SHALL BE PER TABLE R602.10.3. REFER TO SECTION R602.10.4 FOR LOAD PATH DETAILS INCLUDING CONNECTIONS A SUPPORT OF BRACED WALL PANELS.
- 4) REFERENCE FIGURE R602.10.4.3 OF THE 2018 NRC.
- 5) 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)
- 6) 1/2" GYPSUM BOARD (GB) MINIMUM LENGTH OF 8'-0" (ISOLATED PANELS) OR 4'-0" (CONTINUOUS SHEATHING). SECURE w/ 6d COOLER NAILS (OR EQUAL PER TABLE R702.3.5) SPACED @ 6" O.C. AT PANEL EDGES, INCLUDING TOP AND BOTTOM PLATES & 7" O.C. AT INTERMEDIATE SUPPORTS.
- 7) 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.
- 8) EXTERIOR BRACED WALL PANELS (BWP) SHALL BE CONSTRUCTED IN ACCORDANCE WITH CS-WSP METHOD AS PRESCRIBED IN SECTION R602.10.3 (UNO).
- 9) ALL SHEATHABLE SURFACES OF EXTERIOR WALLS (INCLUDING AREAS ABOVE AND BELOW OPENINGS AND CABLE 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. 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
- 10) SHEATH INTERIOR & EXTERIOR.
- 11) 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.
- 12) MINIMUM 800# HOLD-DOWN DEVICE

NOTE:
SEE ROOF PLAN FOR STRUCTURAL Rafter AND COLLAR TIE LOCATIONS



FIRST FLOOR PLAN

CEILING HGT. = MATCH EXIST.

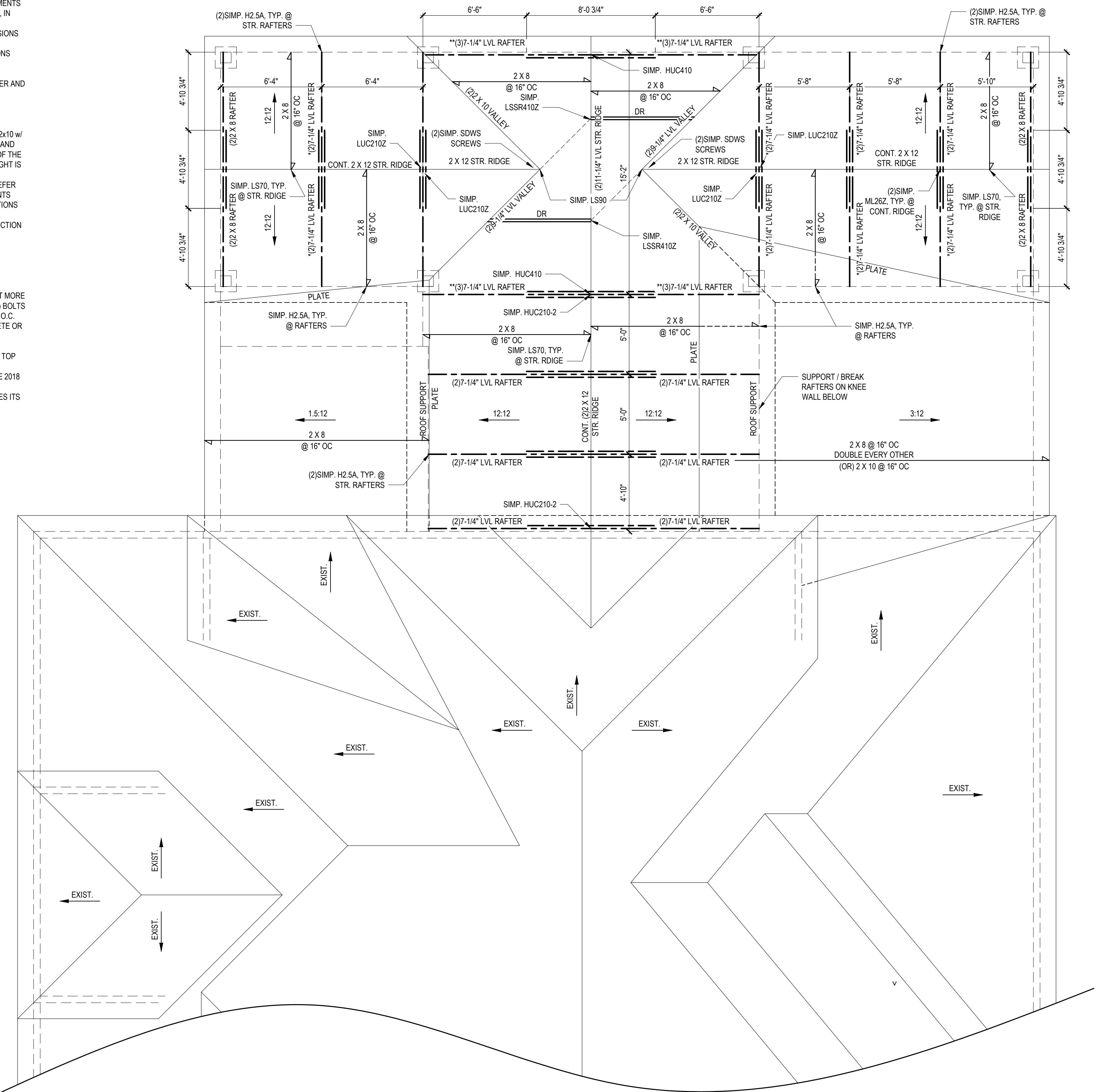
	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			LL	TL
FLOOR (primary)	40	10	L/360	L/240
FLOOR (secondary)	40	10	L/360	L/240
ATTIC (w/ storage)	20	10	L/240	L/180
ATTIC (no access)	10	5	L/240	L/180
EXTERNAL BALCONY	40	10	L/360	L/240
ROOF	20	10	L/240	L/180
ROOF TRUSS	20	20	L/240	L/180
WIND LOAD	BASED ON 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 $F_b = 2600$ PSI, $E = 1.9$ M PSI (OR GREATER)
(I.E. iLEVEL MICROLAM)
ALL LSL LUMBER IS TO BE 1.55E ($F_b = 2325$ PSI) (OR GREATER)
ALL PSL LUMBER IS TO BE 1.8E ($F_b = 2,400$ 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
 $F_y = 50$ KSI MIN. (UNO)
- 8) ALL EXTERIOR LUMBER TO BE #2 SYP PT
- 9) ALL CONCRETE, $f_c = 3000$ 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.

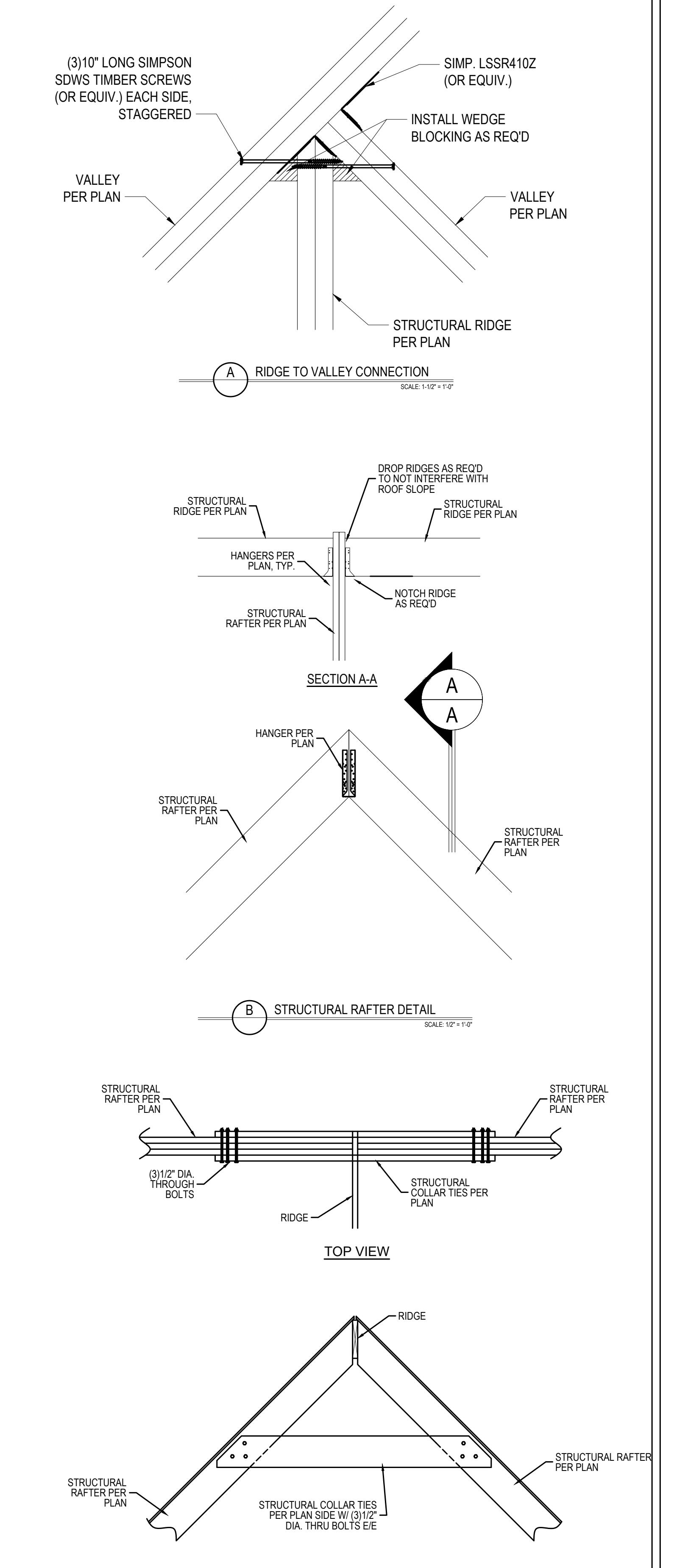
*OPTIONAL (3)2 X 10 IN LIEU OF
PLAN SPECIFIED (2)7-1/4" LVL
**OPTIONAL (2)9-1/4" LVL IN LIEU
OF PLAN SPECIFIED (3)7-1/4" LVL

NOTE: ENSURE ALL EDGE RAFTERS ARE PROPERLY WATERPROOFED TO PREVENT FUTURE DAMAGE



ROOF PLAN

1/4" = 1'-0"



C STRUCTURAL COLLAR TIE DETAIL

ROOF PLAN

DENA BRADHAM

Project #: DRB2301-0189_A
Date: 02/24/25
Engineered By: SMH
DWG. Checked By: PAT
Scale: SEE PLAN

Sheet Number

S3

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 (F_b = 800 PSI, BASED ON 2x10) UNO.

ALL FRAMING LUMBER EXPOSED TO THE ELEMENTS SHALL BE TREATED MATERIAL.

ALL LVL LUMBER TO BE 1-1/2" WIDE NOMINAL EACH SINGLE MEMBER AND F_b = 2600 PSI, E = 1.9M PSI (U.N.O.)ALL LSL LUMBER TO BE 3-5/8" WIDE NOMINAL EACH SINGLE MEMBER AND F_b = 2325 PSI, E = 1.6M PSI (U.N.O.)ALL PSL LUMBER TO BE 3-5/8" WIDE NOMINAL EACH SINGLE MEMBER AND F_b = 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 R602.1(1) & (2) FOR JACK STUD REQUIREMENTS FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS UNLESS SPECIFICALLY NOTED ON PLANS.

8) ALL STRUCTURAL STEEL W-SHAPES (I-BEAMS) SHALL BE ASTM A992 GRADE 50.

ALL STEEL ANGLES, PLATES, AND C-CHANNELS SHALL BE ASTM A36.

ALL STEEL PIPE SHALL BE ASTM A53 GRADE B.

9) STEEL BEAMS SHALL BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3-1/2" AND FULL FLANGE WIDTH. PROVIDE SOLID BEARING FROM BEAM SUPPORT TO FOUNDATION. BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO (2) LAG SCREWS (1/2" x 4" LONG). LATERAL SUPPORT IS CONSIDERED ADEQUATE PROVIDED THE JOISTS ARE TOE NAILED TO THE SOLE PLATES, AND THE SOLE PLATES ARE NAILED OR BOLTED TO THE BEAM FLANGES @ 48° O.C.

10) PROVIDE ANCHOR BOLT PLACEMENT PER SECTION 403.1.6: 1/2" 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 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 1/12

36.0 LBS/SQFT FOR ROOF PITCHES 1/12 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.)

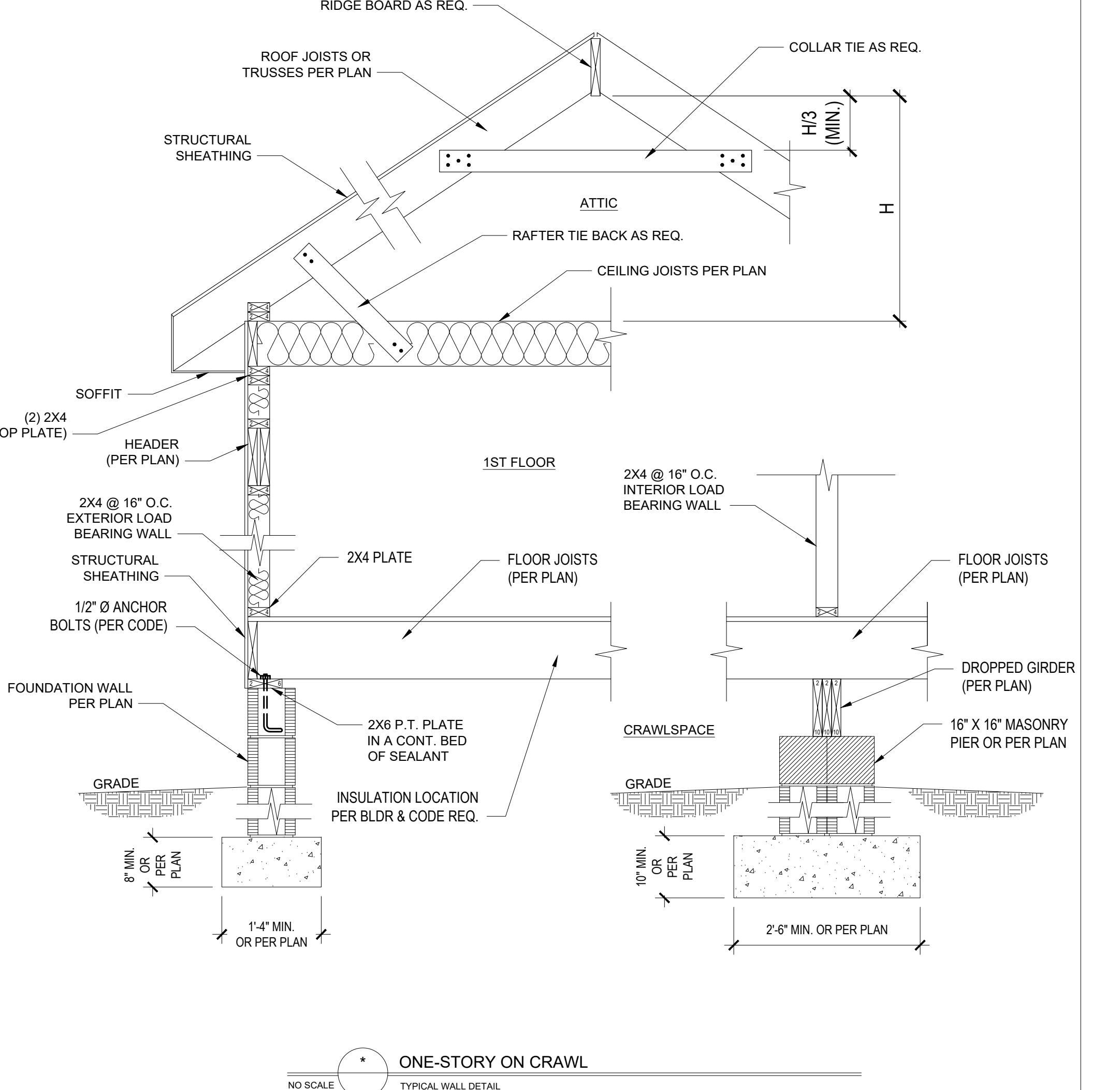
20) MAXIMUM MASONRY PEIR HEIGHT SHALL NOT EXCEED FOUR TIMES ITS LEAST HORIZONTAL DIMENSION.

21) IT IS THE CONTRACTOR'S 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
CIJ	=	CEILING JOIST	MIN	=	MINIMUM
CMU	=	CONCRETE MASONRY UNIT	NOM	=	NOMINAL
COL	=	COLUMN	ON	=	ON CENTER
CONC	=	CONCRETE	PL	=	POINT LOAD
CONT	=	CONTINUOUS	PT	=	PRESSURE TREATED
CT	=	COLLAR TIE	REINF	=	REINFORCED
DBL	=	DOUBLE	REQD	=	REQUIRED
DIA	=	DIA	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" x 10 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 6'S SHALL BE ATTACHED TO THE POSTS WITH ONE 5/8" x 10 DIPPED GALVANIZED BOLT AT EACH END OF EACH BRACING MEMBER.

E. FOR EMBEDMENT OF FILES IN COASTAL REGIONS, SEE CHAPTER 46.

CLIMATE ZONES	fenestration U-factor ^b	skylight U-factor ^b	glazed fenestration shgc ^{b,c}	ceiling r-value ^d	wood framed wall r-value ^e	mass wall r-value ^f	floor r-value ^g	basement wall r-value ^g	slab r-value and depth ^h	crawl space wall r-value ^c
3	0.35	0.55	0.30	38 or 30 cont ^j	15 or 13 + 2.5 ^h	5/13 or 5/10 cont	19	5/13 ⁱ	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	19 or 13 + 5 ^h	13/17 or 13/12.5 cont	30 ^g	10/15	10	10/19

* TABLE N1102.1 CLIMATE ZONES 3-5

a. R-VALUES ARE MINIMUM UFACTORS AND SHGC MAXIMUMS. WHEN INSULATION IS INSTALLED IN A CAVITY WHICH IS LESS THAN THE LABEL OR DESIGN THICKNESS

(SHGC) COLUMN APPLIES TO ALL GLAZED FENESTRATION.

*10/15 MEANS 10 CONTINUOUS INSULATED SHEATHING ON THE INTERIOR OR EXTERIOR 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 FLOOR OR A MAXIMUM OF 24" BELOW GRADE WHICHEVER IS LESS. FOR FLOATING SLABS, INSULATION SHALL BE APPLIED TO THE INSIDE SURFACE OF THE SLAB. IF THE INSULATION IS LESS THAN 24" DEEP, THE INSULATION SHALL BE ADDED TO THE REQUIRED SLAB EDGE R-VALUES FOR HEATED SLABS.

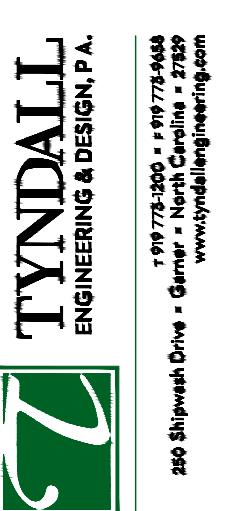
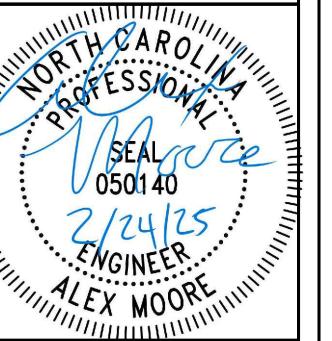
e. DELETED

f. BASEMENT WALL INSULATION IS NOT REQUIRED IN WARM-HUMID LOCATIONS AS DEFINED BY FIGURE N1101.7 AND TABLE N1101.

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 15"-5" MEANS R-15 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% OF THE EXTERIOR INSULATING SHEATHING, IT SHALL BE EMBEDDED WITH INSULATED SHEATHING AT LEAST R-2.13 + 2.5" MEANS R-13 CAVITY INSULATION PLUS R-2.5 SHEATHING.

Engineers seal does not include construction means, methods, techniques, sequences, procedures, or details. 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. from any responsibility or liability for the plans. Please review these documents carefully. Tyndall Engineering & Design, P.A. will interpret that all plans, specifications, recommendations, and procedures in these documents were deemed acceptable once construction begins.



Client: DENA BRADHAM
Plan: BRADHAM RESIDENCE

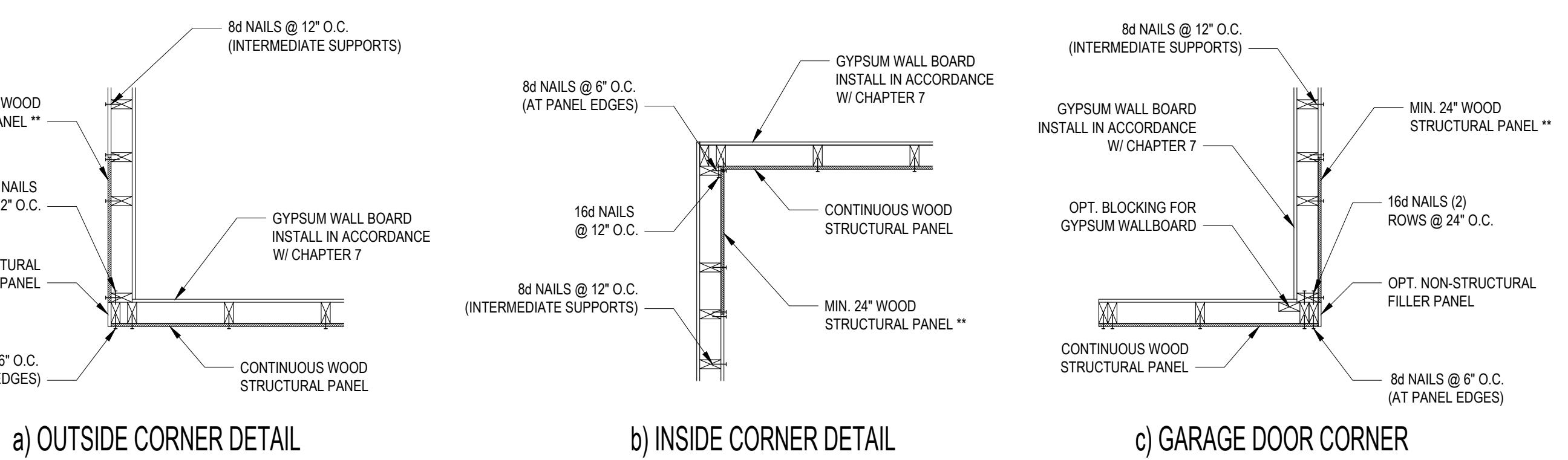
SHEATHING DETAILS

Project #:	DRB2301-0189_A	
Date:	02/24/25	
Engineered By:	SMH	
DWG. Checked By:	PAT	
Scale:	SEE PLAN	
REVISIONS		
No.	Date	Remarks
1		
2		
3		
4		
5		

Sheet Number

D2

5 of 5



B1: TYPICAL EXTERIOR CORNER FRAMING FOR CONTINUOUS SHEATHING

NO SCALE

STRUCTURAL SHEATHING NOTES

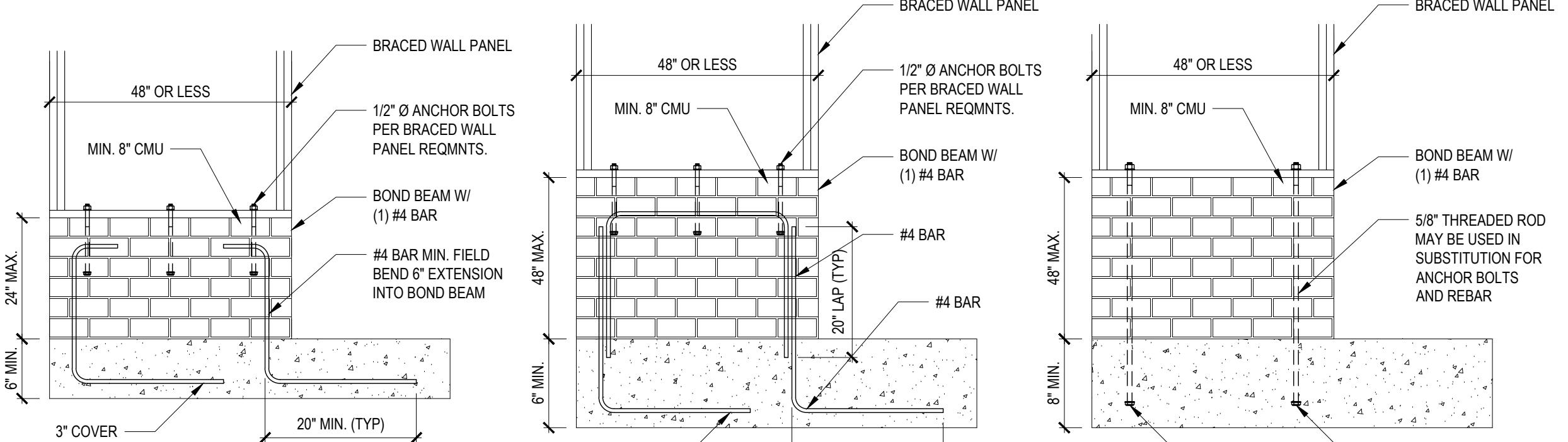
1. DESIGNED FOR SEISMIC ZONE A-C AND WIND SPEEDS OF 120 MPH OR LESS.
2. USE 3/8" SHEATHING IN ACCORDANCE WITH SECTION R602.10 OF THE 2018 NIRC.
3. BRACING REQUIREMENTS SHALL BE PER TABLE R602.10.3. REFER TO SECTION R602.10.4 FOR LOAD PATH DETAILS INCLUDING CONNECTIONS & SUPPORT OF BRACED WALL PANELS.
4. REFERENCE FIGURE R602.10.4.3 OF THE 2018 NIRC.
5. 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).
6. 1/2" GYPSUM BOARD (GB) MINIMUM LENGTH OF 8'-0" (ISOLATED PANELS) OR 4'-0" (CONTINUOUS SHEATHING).
7. 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.
8. EXTERIOR BRACED WALL PANELS (BWP) SHALL BE CONSTRUCTED IN ACCORDANCE WITH CS-WSP METHOD AS PRESCRIBED IN SECTION R602.10.3 (UNO).
9. ALL SHEATHABLE SURFACES OF EXTERIOR WALLS (INCLUDES ROOF, FLOOR, 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 A MINIMUM 6d COMMON NAILS SPACED AT 6" O.C. AT PANEL EDGES AND SPACED AT 12" O.C. AT INTERMEDIATE SUPPORTS.
10. MINIMUM BRACED WALL PANEL LENGTHS WITH CS-WSP METHOD SHALL BE AS FOLLOWS:
 - 24'-0" MAX. 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
11. SHEATH INTERIOR AND EXTERIOR.
12. 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 R602.10.4.3 OF THE 2018 NIRC. FOR GB, 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 PROVIDED AT THE EDGE OF THE BRACED WALL PANEL CLOSEST TO THE CORNER AND TO THE FOUNDATION OR FRAMING BELOW.
13. MINIMUM 800# HOLD-DOWN DEVICE.

REQUIRED BRACED WALL PANEL CONNECTIONS				
METHOD	MATERIAL	MIN. THICKNESS	REQUIRED CONNECTION	
			@ 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.

B3: BRACE WALL PANEL CONNECTIONS

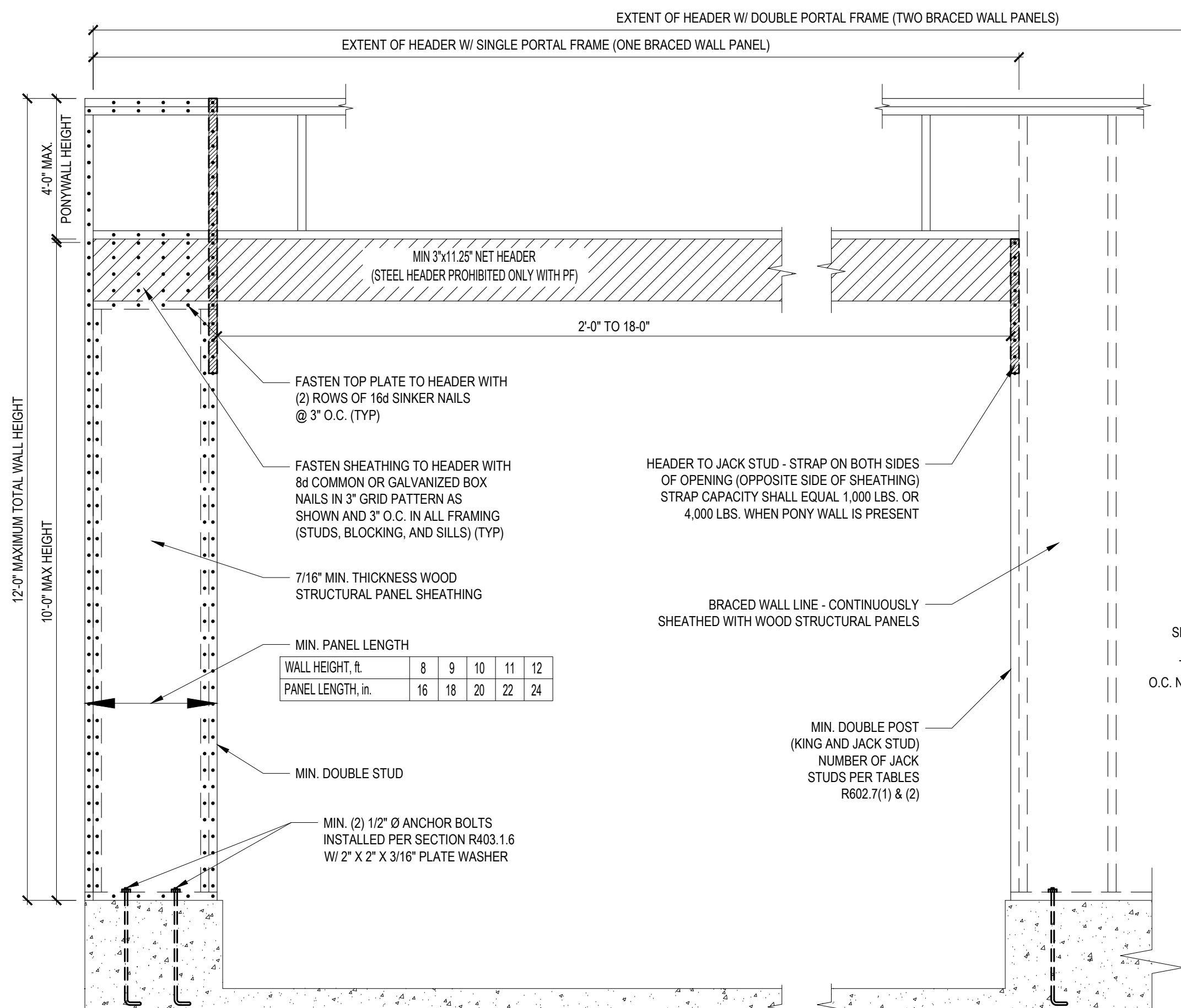
NO SCALE

**OR EQUIVALENT PER TABLE R702.3.5

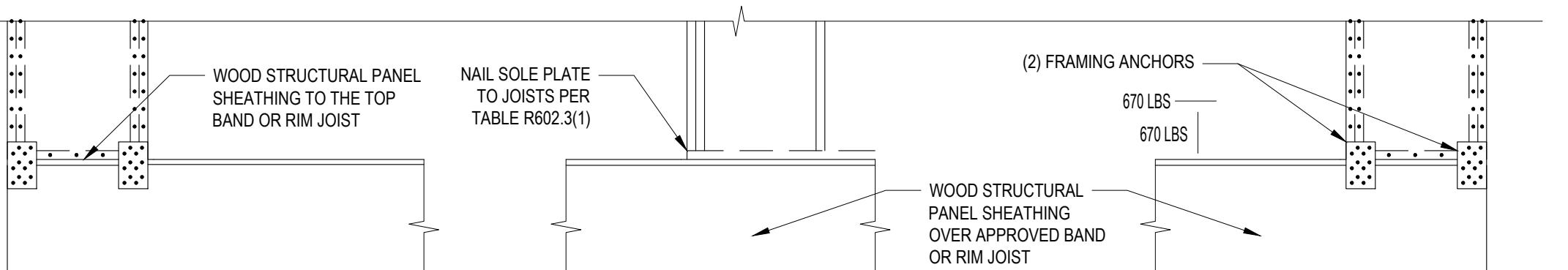


B4: MASONRY STEM WALL SUPPORTING BRACED WALL PANELS

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

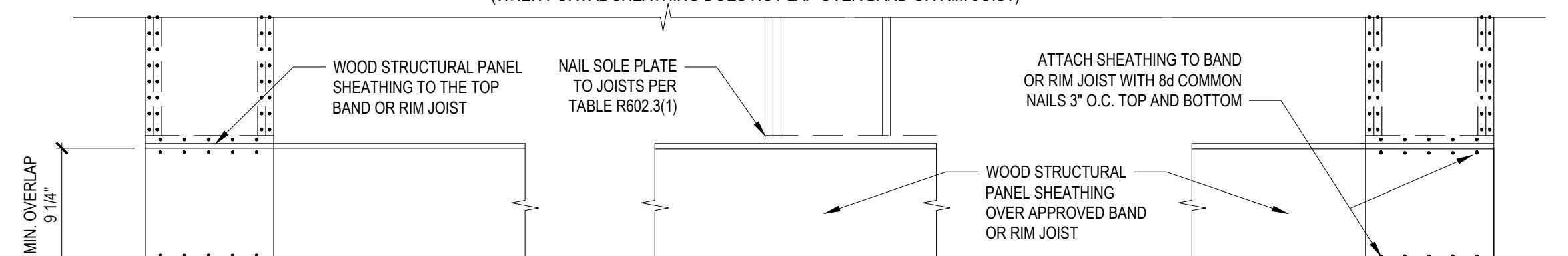


OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

(WHEN PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST)



OVER RAISED WOOD FLOOR - OVERLAP OPTION

(WHEN PORTAL SHEATHING LAPPS OVER BAND OR RIM JOIST)

B2: METHOD PF: PORTAL FRAME CONSTRUCTION

FIGURE R602.10.1