GENERAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THAT ALL DIMENSIONS, ROOF PITCHES, AND SQUARE FOOTAGE ARE CORRECT PRIOR TO CONSTRUCTION. K&A HOME DESIGNS, INC. IS NOT RESPONSIBLE FOR ANY DIMENSIONING, ROOF PITCH, OR SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.
2. ALL WALLS SHOWN ON THE FLOOR PLANS ARE DRAWN AT 4" UNLESS NOTED OTHERWISE.
3. ALL ANGLED WALL SHOWN ON THE PLANS ARE 45 DEGREES UNLESS NOTED OTHERWISE.
4. STUD WALL DESIGN SHALL CONFORM TO ALL NORTH CAROLINA STATE BUILDING CODE REQUIREMENTS.
5. DO NOT SCALE PLANS. DRAWING SCALE MAY BE DISTORTED DUE TO COPIER IMPERFECTIONS.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH NORTH CAROLINA RESIDENTIAL STATE BUILDING CODE, 2018 EDITION.

SQUARE FOOTAGE

HEATED SQUARE FOOTAGE		UNHEATED SQUARE FOOTAGE	
FIRST FLOOR=	2592	GARAGE=	664
SECOND FLOOR=	N/A	FRONT PORCH=	272
THIRD FLOOR=	N/A	CVD. PORCH=	349
		STORAGE=	241
		MECHANICAL=	92
		CVD. PATIO=	349
		BASEMENT=	2203
		SECOND FLOOR=	1002
TOTAL HEATED=	2592	TOTAL UNHEATED=	5172

CRAWL SPACE VENTILATION CALCULATIONS

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

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

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

N/A SQ. FT. OF CRAWL SPACE/1500

N/A SQ. FT. OF REQUIRED VENTILATION

PROVIDED BY: N/A VENTS AT 0.45 SQ. FT. NET FREE

VENTILATION EACH= N/A SQ. FT. OF VENTILATION

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

ATTIC VENTILATION CALCULATIONS

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

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

3933 SQ. FT. OF ATTIC/300= 13.11

EACH OF INLET AND OUTLET REQUIRED.

****WALL AND ROOF CLADDING DESIGN VALUES***

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

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

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

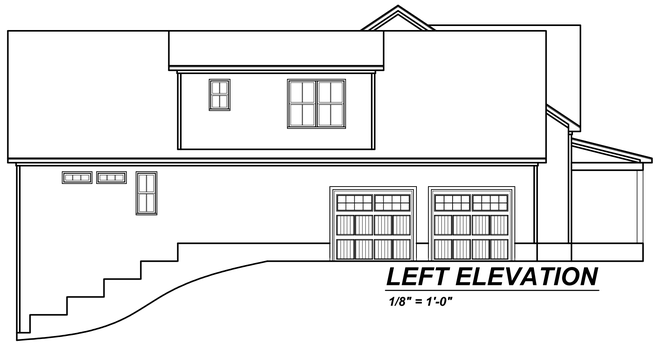
34.8 LBS. PER SQ. FT. FOR ROOF PITCHES OF 2.25/12 TO 7/12

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

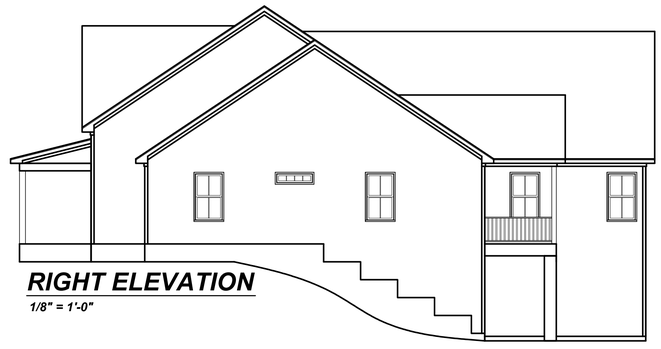
***** MEAN ROOF HEIGHT 30' OR LESS***

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

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



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



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

Project #: 24-445
Date: 3-27-25
Drawn/Design By: KBB
Scale: REFER TO ELEV.

REVISIONS

No.	Date:	Remarks
1		
2		
3		
4		

9101 Ten-Ten Rd.
Raleigh, NC 27603
Office: (919) 302-0693
Website: www.KandAHomeDesigns.com
Email: Kent@KandAHomeDesigns.com

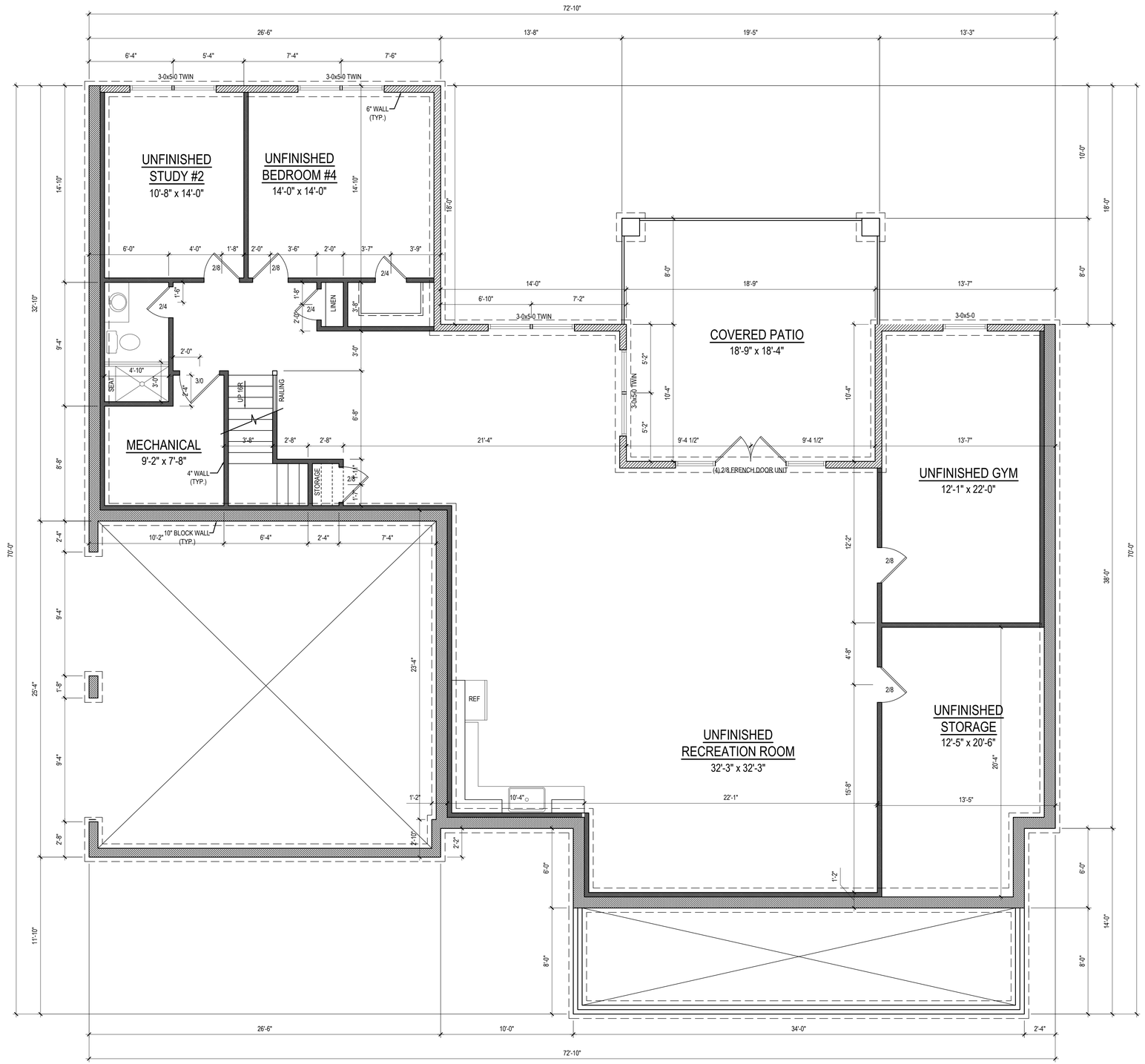
K&A HOME DESIGN Inc.

Project Name:
Mitchell Residence

Client Name:
Richard Mitchell
6925 Rex Rd.
Holly Springs, NC 27540

ELEVATIONS

Sheet Number
1
of 4



FOUNDATION PLAN

1/4" = 1'-0"

Project #:	24-445
Date:	3-27-25
Drawn/Design By:	KBB
Scale:	1/4" = 1'-0"

REVISIONS

No.	Date:	Remarks
1		
2		
3		
4		

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Raleigh, NC 27603
Office: (919) 302-0693

K&A HOME DESIGN Inc.

Website: www.KandAHomeDesigns.com
Email: Kent@KandAHomeDesigns.com

Project Name:
Mitchell Residence

Client Name:
Richard Mitchell
6925 Rex Rd.
Holly Springs, NC 27540

BASEMENT

Sheet Number
2
of 4

FIRST FLOOR PLAN

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

Project #:	24-445
Date:	3-27-25
Drawn/Design By:	KBB
Scale:	1/4" = 1'-0"

REVISIONS

No.	Date:	Remarks
1		
2		
3		
4		

9101 Ten-Ten Rd.
Raleigh, NC 27603
Office: (919) 302-0693

K&A HOME DESIGN Inc.

Website: www.KandAHomeDesigns.com
Email: Kent@KandAHomeDesigns.com

Subdivision Name: *Lot 54, Timber Rail*

Client Name: *Triangle Home Pros LLC*
6312 Lauraca Lane
Fuquay Varina, NC 27526

FIRST FLOOR

Sheet Number
3
of 4

SECOND FLOOR PLAN

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

Project #:	24-445
Date:	3-27-25
Drawn/Design By:	KBB
Scale:	1/4" = 1'-0"

REVISIONS

No.	Date:	Remarks
1		
2		
3		
4		

9101 Ten-Ten Rd.
Raleigh, NC 27603
Office: (919) 302-0693

K&A HOME DESIGN Inc.

Website: www.KandAHomeDesigns.com

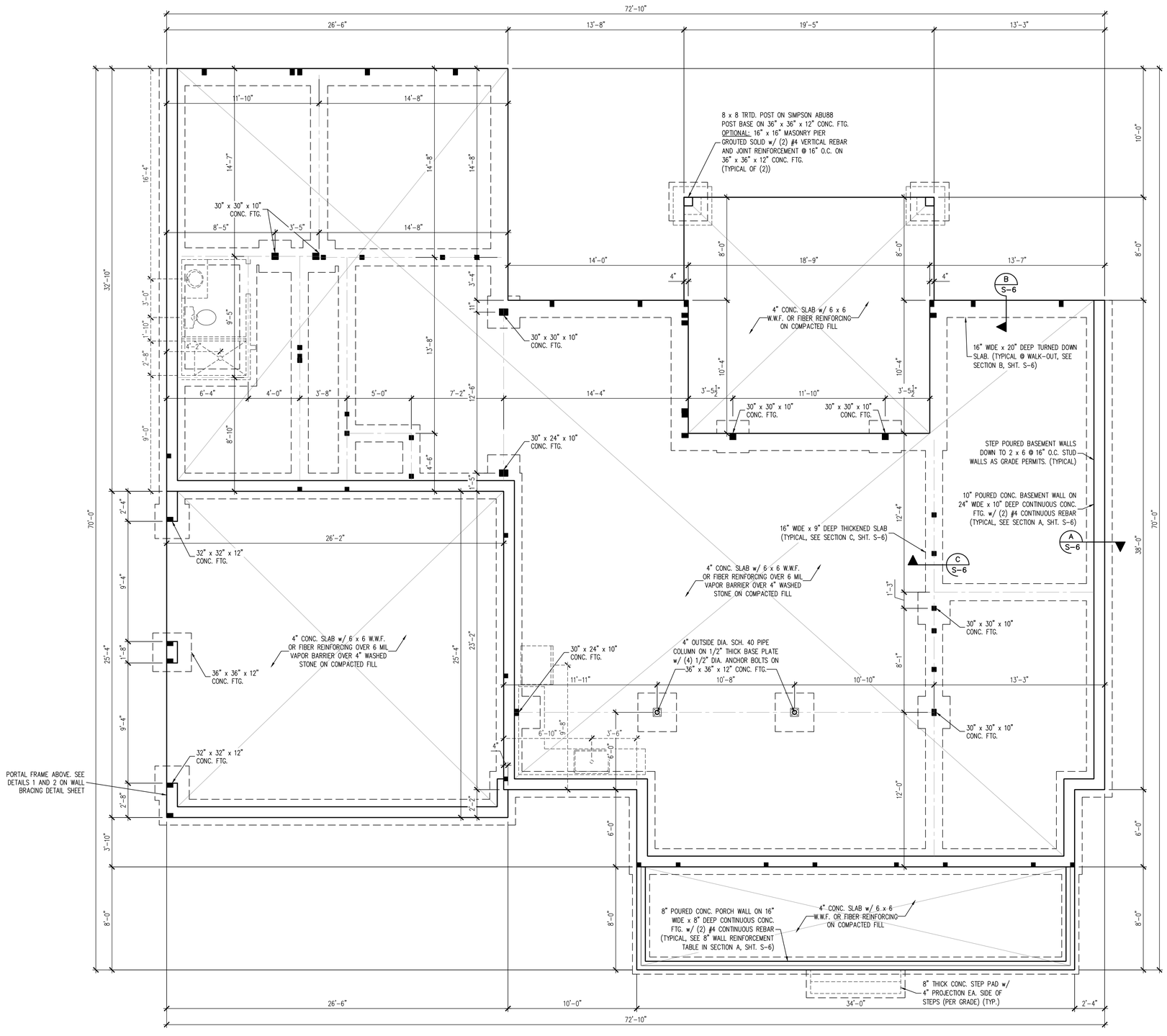
Email: Kent@KandAHomeDesigns.com

Project Name:
Lot 54, Timber Rail

Client Name:
Triangle Home Pros LLC
6312 Lauraca Lane
Fuquay Varina, NC 27526

SECOND FLOOR

Sheet Number
4
of 4



GENERAL STRUCTURAL NOTES

1. ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS. ENGINEER'S SEAL DOES NOT CERTIFY DIMENSIONAL ACCURACY OR ARCHITECTURAL LAYOUT INCLUDING ROOF SYSTEM. ENGINEER'S SEAL DOES NOT APPLY TO I-JOIST OR FLOOR/ROOF TRUSS LAYOUT DESIGN AND ACCURACY.

2. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NORTH CAROLINA RESIDENTIAL CODE (NCRC), 2018 EDITION AND ALL LOCAL CODES AND REGULATIONS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK.

3. DESIGN LOADS (R301)

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION (LL)
ROOMS OTHER THAN SLEEPING ROOMS	40	10	L/360
SLEEPING ROOMS	30	10	L/360
ATTIC WITH LIMITED STORAGE	20	10	L/240
ATTIC WITHOUT STORAGE	10	10	L/360
STAIRS	40	10	L/360
DECKS	40	10	L/360
HANDRAILS	200 LB OR 50 PLF	10	L/360
PASSENGER VEHICLE GARAGES	50	10	L/360
GROUND SNOW LOAD	20		
WIND LOAD	PER SECTION R301.2. (MEAN ROOF HEIGHT <35 FEET, EXPOSURE B)		

– I-JOIST FLR. SYSTEMS DESIGNED WITH 12 PSF DL AND L/480 DEFLECTION.
– FLOOR TRUSS FLR. SYSTEMS DESIGNED WITH 15 PSF DL AND L/480 DEFLECTION.

4. THE STRUCTURE IS DESIGNED FOR 120 MPH ULTIMATE DESIGN WIND SPEEDS.

5. WALL CLADDING DESIGNED FOR +15.5 PSF AND –20 PSF (+/– INDICATE POSITIVE / NEGATIVE PRESSURE (TYP).

6. ROOF CLADDING DESIGNED FOR +14.2 PSF AND –18 PSF FOR ROOF PITCHES 7/12 TO 12/12 AND +10 PSF AND –36 PSF FOR ROOF PITCHED 2.25/12 TO 7/12.

7. THE POSITIVE AND NEGATIVE DESIGN PRESSURE FOR DOORS AND WINDOWS FOR A MEAN ROOF HEIGHT OF 35 FEET OR LESS IS 25 PSF.

8. FOUNDATION DESIGN BASED ON A MINIMUM ALLOWABLE BEARING CAPACITY OF 2000 PSF. CONTACT ENGINEER IF ALLOWABLE BEARING CAPACITY CAN NOT BE ACHIEVED.

9. FOUNDATION ANCHORAGE TO COMPLY WITH SECTION R403.1.6 OF THE 2018 NCRC.

10. FOR ALL CONCRETE SLABS AND FOOTINGS, THE AREA WITHIN THE PERIMETER OF THE BUILDING ENVELOPE SHALL HAVE ALL VEGETATION, TOP SOIL AND FOREIGN MATERIAL REMOVED. FILL MATERIAL SHALL BE FREE OF VEGETATION AND FOREIGN MATERIAL. THE FILL SHALL BE COMPACTED TO 95% TO ASSURE UNIFORM SUPPORT OF THE SLAB, AND EXCEPT WHERE APPROVED, THE FILL DEPTHS SHALL NOT EXCEED 24" FOR CLEAN SAND OR GRAVEL. A 4" THICK BASED COURSE CONSISTING OF CLEAN GRADED SAND OR GRAVEL SHALL BE PLACED. A BASE COURSE IS NOT REQUIRED WHERE A CONCRETE SLAB IS INSTALLED ON WELL-DRAINED OR SAND-GRAVEL MIXTURE SOILS CLASSIFIED AS GROUP 1, ACCORDING TO THE UNITED SOIL CLASSIFICATION SYSTEM IN ACCORDANCE WITH TABLE R405.1 OF THE NCRC, 2018 EDITION.

11. CONCRETE SHALL CONFORM TO SECTION R402.2 OF THE NCRC, 2018 EDITION. CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 3000 PSI. CONCRETE REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. WELDED WIRE FABRIC SHALL BE ASTM A185. MAINTAIN A MINIMUM CONCRETE COVER AROUND REINFORCING STEEL OF 3" IN FOOTINGS AND 1 1/2" IN SLABS.

12. MASONRY UNITS TO CONFORM TO ACE 530/ASCE 5/TMS 402. MORTAR SHALL CONFORM TO ASTM C270.

13. THE UNSUPPORTED HEIGHT OF MASONRY PIERS SHALL NOT EXCEED FOUR TIMES THEIR LEAST DIMENSION FOR UNFILLED HOLLOW CONCRETE MASONRY UNITS AND TEN TIMES THEIR LEAST DIMENSION FOR SOLID OR SOLID FILLED PIERS. PIERS MAY BE FILLED SOLID WITH CONCRETE OR TYPE M OR S MORTAR. PIERS AND WALLS SHALL BE CAPPED WITH 8" OF SOLID MASONRY.

14. THE CENTER OF EACH PIER SHALL BEAR IN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING. EACH GIRDER SHALL BEAR IN THE MIDDLE THIRD OF EA. PIER.

15. ALL CONCRETE AND MASONRY FOUNDATION WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R404 OF THE 2018 NCRC, OR IN ACCORDANCE WITH ACI 318, ACI 332, NCMA TR68–A OR ACE 530/ASCE 5/TMS 402. MASONRY FOUNDATION WALLS SHALL BE REINFORCED PER TABLE R404.1.1(1), R404.1.1(2), R404.1.1(3), OR R404.1.1(4) OF THE 2018 NCRC. CONCRETE FOUNDATION WALLS SHALL BE REINFORCED PER TABLE R404.1.1(5) OF THE NCRC, 2018 EDITION. STEP FOUNDATION WALLS TO 2 x 6 FRAMED WALLS AT 16" O.C. WHERE GRADE PERMITS (UNO).

16. LAMINATED VENEER LUMBER (LVL) SHALL HAVE THE FOLLOWING MIN. PROPERTIES: Fb = 2600 PSI, Fv = 285 PSI, E = 1900000 PSI. INSTALL ALL CONNECTIONS PER MANUFACTURER'S SPECIFICATIONS.

17. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:
   A. W AND MT SHAPES: ASTM A992
   B. CHANNELS, ANGLES, PLATES, AND BARS: ASTM A36
   C. HOLLOW STRUCTURAL SECTIONS (HSS): ASTM A500 GR. B
   D. STEEL PIPE: ASTM A53, GR. B, SCH. 40

18. ALL LOAD BEARING HEADERS SHALL CONFORM TO TABLES R602.7(1) AND R602.7(2) OF THE 2018 NCRC UNLESS NOTED OTHERWISE ON THE PLANS. ALL HEADERS SHALL BE SUPPORTED WITH (1) JACK STUD AND (1) KING STUD EACH END (UNO). SECURE THE FIRST KING STUD EACH SIDE OF THE HEADER TO THE HEADER WITH (4) 16d END-NAILS. INSTALL KING STUDS PER SECTION R602.7.5 OF THE 2018 NCRC (UNO).

19. ALL I-JOIST AND TRUSS LAYOUTS SHALL BE IN COMPLIANCE WITH THE OVERALL DESIGN SPECIFIED ON THE PLANS. IF ALTERNATE I-JOISTS ARE USED, THE JOISTS MUST HAVE EQUIVALENT STRUCTURAL PROPERTIES TO THOSE SPECIFIED ON THE PLANS. ALL DEVIATIONS TO I-JOIST OR TRUSS LAYOUTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

LEGEND

■	STUD COLUMN ON FLOOR ABOVE THAT REQUIRE SOLID BLOCKING TO GIRDER OR FOUNDATION.
	THIS LINE TYPE INDICATES PLUMBING OR APPLIANCES THE SLAB LEVEL. (FOR REFERENCE ONLY, SEE ARCHITECTURAL DRAWINGS)
(UNO)	UNLESS NOTED OTHERWISE

PREPARED UNDER THE SUPERVISION OF:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038485 5/14/2025 ENGINEER JACOB ERNEST SMITH

J. SMITH STRUCTURAL ENGINEERING, PLLC
PO BOX 73, BEAUFORT, NC 28516
OFFICE LOCATION: 204 CAMPEN ROAD
(919) 864-1430 • jsmithstructural@gmail.com
N.C. CERTIFICATE NUMBER: P-2212

MITCHELL RESIDENCE
212 HOBBY CREEK LANE
HOLLY SPRINGS, NORTH CAROLINA
TRIANGLE HOME PROS

REVISIONS:

DRAWN BY: K & A HOME DESIGNS

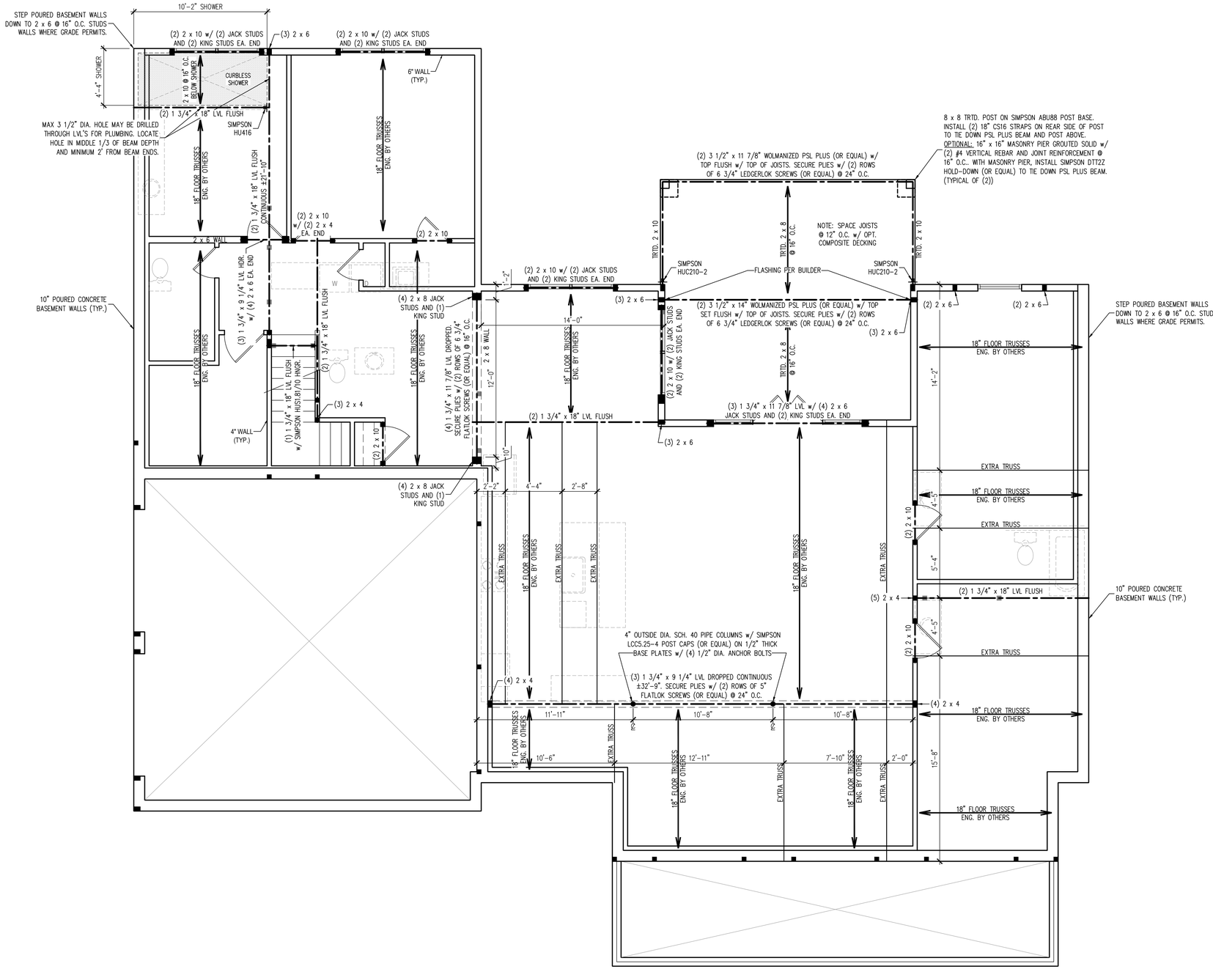
ENGINEERED BY: J. SMITH

SCALE: 1/4" = 1'-0" (UNO)

DATE: 5-14-2025

SHEET: 1 OF: 7

S-1
BASEMENT FOUNDATION PLAN



BRACED WALL DESIGN NOTES:

1. BRACED WALL DESIGN PER SECTION R602.10 OF THE NCRC 2018 EDITION.
2. PER SECTION R602.10.4.6 OF THE 2018 NCRC, THE AMOUNT OF BRACING ON THE WALK OUT BASEMENT WALLS EXCEEDS THE AMOUNT OF BRACING ON THE WALL ABOVE MULTIPLIED BY A FACTOR OF 1.15.
3. CS-WSP REFERS TO THE "CONTINUOUS SHEATHING – WOOD STRUCTURAL PANELS" WALL BRACING METHOD. 7/16" OSB SHEATHING SHALL BE INSTALLED ON ALL SHEATHABLE SURFACES OF ALL EXTERIOR WALLS ATTACHED w/ 6d COMMON NAILS OR 8d (2 1/2" LONG x 0.113" DIA.) NAILS SPACED 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD (UNO).
4. SEE NOTES AND DETAIL SHEETS FOR ADDITIONAL BRACED WALL INFORMATION.

BASEMENT CEILING FRAMING STRUCTURAL NOTES:

1. ALL FRAMING LUMBER TO BE SPF #2 (UNO). ALL TREATED LUMBER TO BE SYP #2 (UNO.)
2. ALL LOAD BEARING HEADERS TO BE (2) 2 x 10 FOR 2 x 4 WALLS OR (3) 2 x 10 FOR 2 x 6 WALLS (UNO).
3. WINDOW AND DOOR HEADERS TO BE SUPPORTED w/ (1) JACK STUD AND (1) KING STUD EA. END (UNO.)
4. INSTALL AN EXTRA TRUSS UNDER WALLS PARALLEL TO THE FLOOR TRUSSES WHERE NOTED ON THE PLANS.
5. STEP POURED BASEMENT WALLS DOWN TO 2 x 6 @ 16" O.C. STUD WALLS WHERE GRADE PERMITS.
6. ALL LOAD BEARING INTERIOR WALLS SHALL BE 2 x 4 @ 12" O.C. OR 2 x 6 @ 16" O.C. (UNO).
7. WHERE THE FLOOR TRUSSES ARE PARALLEL TO THE POURED CONCRETE BASEMENT WALLS, INSTALL FLAT 2 x 4 x 6' LONG BRACING AT 24" O.C. ON THE BOTTOM CHORD OF THE FLOOR TRUSSES.
8. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

LEGEND

■	STUD COLUMN AT POINT LOADS THAT REQUIRE SOLID BLOCKING TO GIRDER OR FOUNDATION. AT DROPPED HEADERS: (1) JACK STUD AND (1) KING STUD (UNO). AT FLUSH BEAMS AND (UNO): (2) STUDS (UNO)
■	OFFSET POINT LOAD FROM FLOOR ABOVE. MUST BE SUPPORTED BY BEAM, JOIST, OR BLOCKING AS NOTED ON THE PLANS.
	BEAM OR HEADER AS NOTED
	THIS LINE TYPE INDICATES PLUMBING OR APPLIANCES ON THE FLOOR ABOVE TO HELP ELIMINATE FRAMING CONFLICTS WITH UTILITIES. (FOR REFERENCE ONLY, SEE ARCHITECTURAL DRAWINGS)
(UNO)	UNLESS NOTED OTHERWISE

PREPARED UNDER THE SUPERVISION OF:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038485 5/14/2025 ENGINEER: JACOB ERNEST SMITH

J. SMITH STRUCTURAL ENGINEERING, PLLC
PO BOX 73, BEAUFORT, NC 28516
OFFICE LOCATION: 204 CAMPEN ROAD
(919) 864-1430 • jsmithstructural@gmail.com
N.C. CERTIFICATE NUMBER: P-2212

MITCHELL RESIDENCE
212 HOBBY CREEK LANE
HOLLY SPRINGS, NORTH CAROLINA
TRIANGLE HOME PROS

REVISIONS:

DRAWN BY: K & A HOME DESIGNS

ENGINEERED BY: J. SMITH

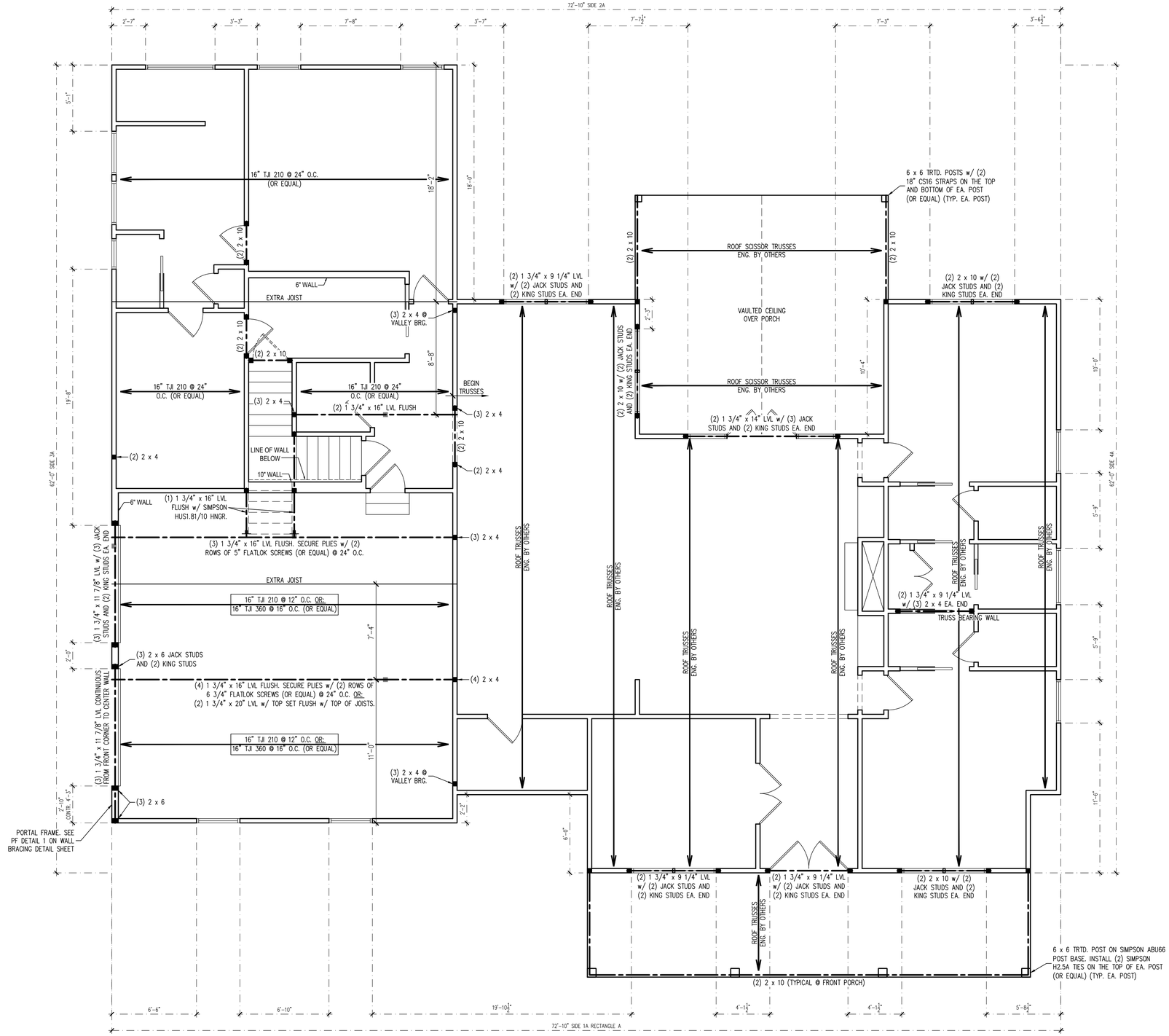
SCALE: 1/4" = 1'-0" (UNO)

DATE: 5-14-2025

SHEET: 2 OF: 7

S-2

BASEMENT CEILING FRAMING PLAN



BRACED WALL DESIGN NOTES:

1. BRACED WALL DESIGN PER SECTION R602.10 OF THE NCRC 2018 EDITION.
2. CS-WSP REFERS TO THE "CONTINUOUS SHEATHING – WOOD STRUCTURAL PANELS" WALL BRACING METHOD. 7/16" OSB SHEATHING SHALL BE INSTALLED ON ALL SHEATHABLE SURFACES OF ALL EXTERIOR WALLS ATTACHED w/ 6d COMMON NAILS OR 8d (2 1/2" LONG x 0.113" DIA.) NAILS SPACED 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD (UNO).
3. SEE NOTES AND DETAIL SHEETS FOR ADDITIONAL BRACED WALL INFORMATION.

BRACED WALL DESIGN SUMMARY:

SIDE 1A	SIDE 3A
METHOD: CS-WSP	METHOD: CS-WSP/PF
REQUIRED LENGTH: 15.6'	REQUIRED LENGTH: 18.1'
PROVIDED LENGTH: 47.16'	PROVIDED LENGTH: 57.16'
SIDE 2A	**SIDE 4A**
METHOD: CS-WSP	METHOD: CS-WSP
REQUIRED LENGTH: 15.6'	REQUIRED LENGTH: 18.1'
PROVIDED LENGTH: 35.5'	PROVIDED LENGTH: 45.58'

FIRST FLOOR CEILING FRAMING STRUCTURAL NOTES:

1. ALL FRAMING LUMBER TO BE SPF #2 (UNO). ALL TREATED LUMBER TO BE SYP #2 (UNO.)
2. ALL LOAD BEARING HEADERS TO BE (2) 2 x 10 (UNO).
3. WINDOW AND DOOR HEADERS TO BE SUPPORTED w/ (1) JACK STUD AND (1) KING STUD EA. END (UNO.)
4. INSTALL AN EXTRA TRUSS UNDER WALLS PARALLEL TO FLOOR TRUSSES WHERE NOTED ON THE PLANS.
5. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

LEGEND	
■	STUD COLUMN AT POINT LOADS THAT REQUIRE SOLID BLOCKING TO GIRDER OR FOUNDATION. AT DROPPED HEADERS: (1) JACK STUD AND (1) KING STUD (UNO). AT FLUSH BEAMS AND (UNO): (2) STUDS (UNO)
———	BEAM OR HEADER AS NOTED
X'-X"	BRACED WALL DIMENSIONS (FOR REFERENCE ONLY)
(UNO)	UNLESS NOTED OTHERWISE

PREPARED UNDER THE SUPERVISION OF:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038485 5/14/2025 ENGINEERING JACOB ERNEST SMITH

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MITCHELL RESIDENCE
212 HOBBY CREEK LANE
HOLLY SPRINGS, NORTH CAROLINA
TRIANGLE HOME PROS

REVISIONS:

DRAWN BY: K & A HOME DESIGNS

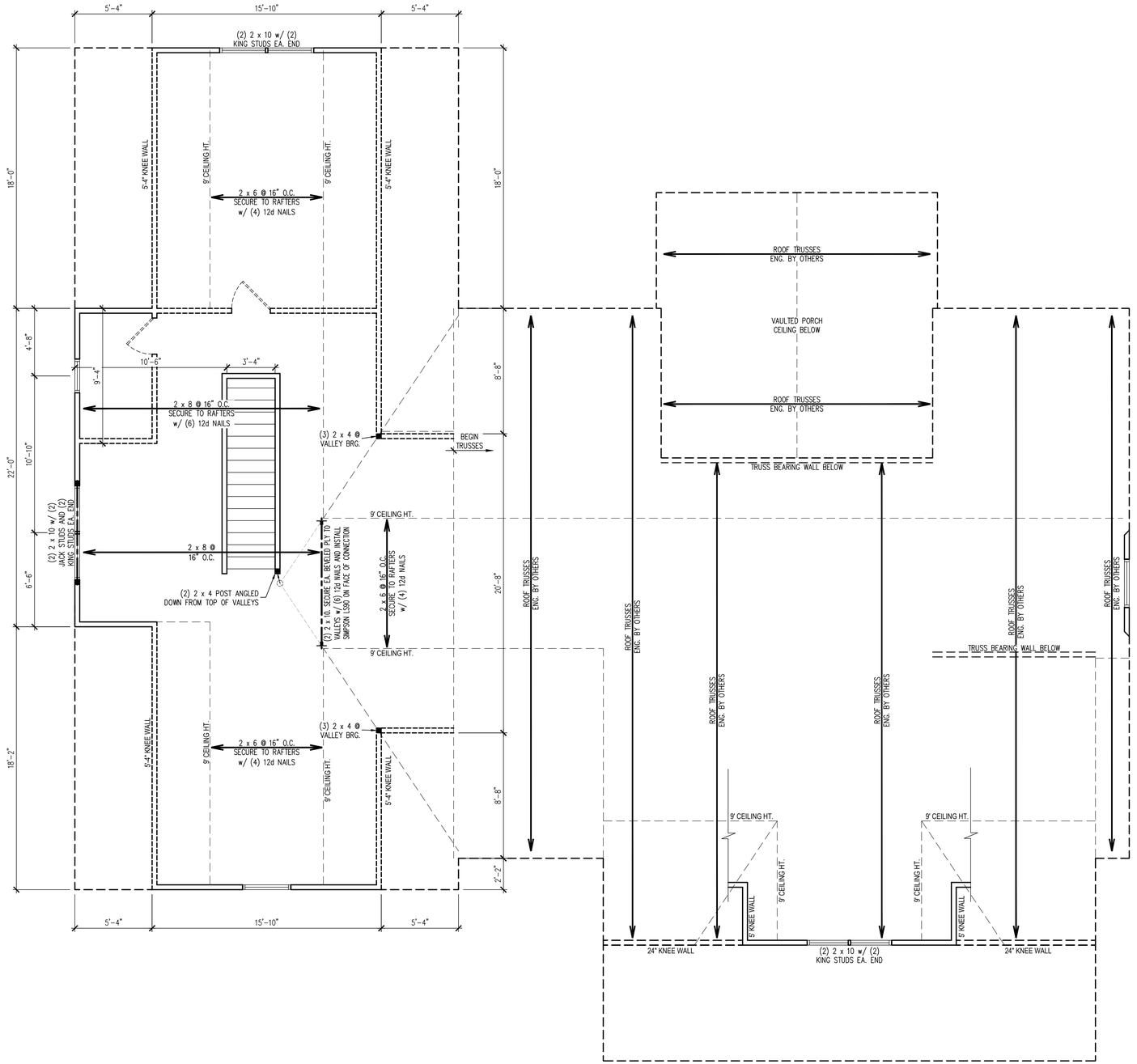
ENGINEERED BY: J. SMITH

SCALE: 1/4" = 1'-0" (UNO)

DATE: 5-14-2025

SHEET: 3 OF: 7

S-3
FIRST FLOOR CEILING FRAMING PLAN



BRACED WALL DESIGN NOTES:

1. BRACED WALL DESIGN PER SECTION R602.10 OF THE NCRC 2018 EDITION.
2. PER SECTION R602.10.3.2 OF THE 2018 NCRC, THE AMOUNT OF BRACING ON THE SECOND FLOOR EXCEEDS THE AMOUNT REQUIRED FOR THE FIRST FLOOR AND NO BRACED WALL ANALYSIS IS REQUIRED.
3. CS-WSP REFERS TO THE "CONTINUOUS SHEATHING – WOOD STRUCTURAL PANELS" WALL BRACING METHOD. 7/16" OSB SHEATHING SHALL BE INSTALLED ON ALL SHEATHABLE SURFACES OF ALL EXTERIOR WALLS ATTACHED w/ 6d COMMON NAILS OR 8d (2 1/2" LONG x 0.113" DIA.) NAILS SPACED 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD (UNO).
4. SEE NOTES AND DETAIL SHEETS FOR ADDITIONAL BRACED WALL INFORMATION.

SECOND FLOOR CEILING FRAMING STRUCTURAL NOTES:

1. ALL FRAMING LUMBER TO BE SPF #2 (UNO). ALL TREATED LUMBER TO BE SYP #2 (UNO.)
2. ALL LOAD BEARING HEADERS TO BE (2) 2 x 10 (UNO).
3. WINDOW AND DOOR HEADERS TO BE SUPPORTED w/ (1) JACK STUD AND (1) KING STUD EA. END (UNO.)
4. INSTALL 2 x 4 COLLAR TIES @ 48" O.C. MAX. IN ALL FIELD-FRAMED ATTIC SPACES.
5. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

LEGEND

■	STUD COLUMN AT POINT LOADS THAT REQUIRE SOLID BLOCKING TO GIRDER OR FOUNDATION. AT DROPPED HEADERS: (1) JACK STUD AND (1) KING STUD (UNO). AT FLUSH BEAMS AND (UNO): (2) STUDS (UNO)
———	BEAM OR HEADER AS NOTED
(UNO)	UNLESS NOTED OTHERWISE

PREPARED UNDER THE SUPERVISION OF:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038485 5/14/2025 ENGINEER JACOB ERNEST SMITH

J. SMITH STRUCTURAL ENGINEERING, PLLC
PO BOX 73, BEAUFORT, NC 28516
OFFICE LOCATION: 204 CAMPEN ROAD
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N.C. CERTIFICATE NUMBER: P-2212

MITCHELL RESIDENCE
212 HOBBY CREEK LANE
HOLLY SPRINGS, NORTH CAROLINA
TRIANGLE HOME PROS

REVISIONS:

DRAWN BY: K & A HOME DESIGNS

ENGINEERED BY: J. SMITH

SCALE: 1/4" = 1'-0" (UNO)

DATE: 5-14-2025

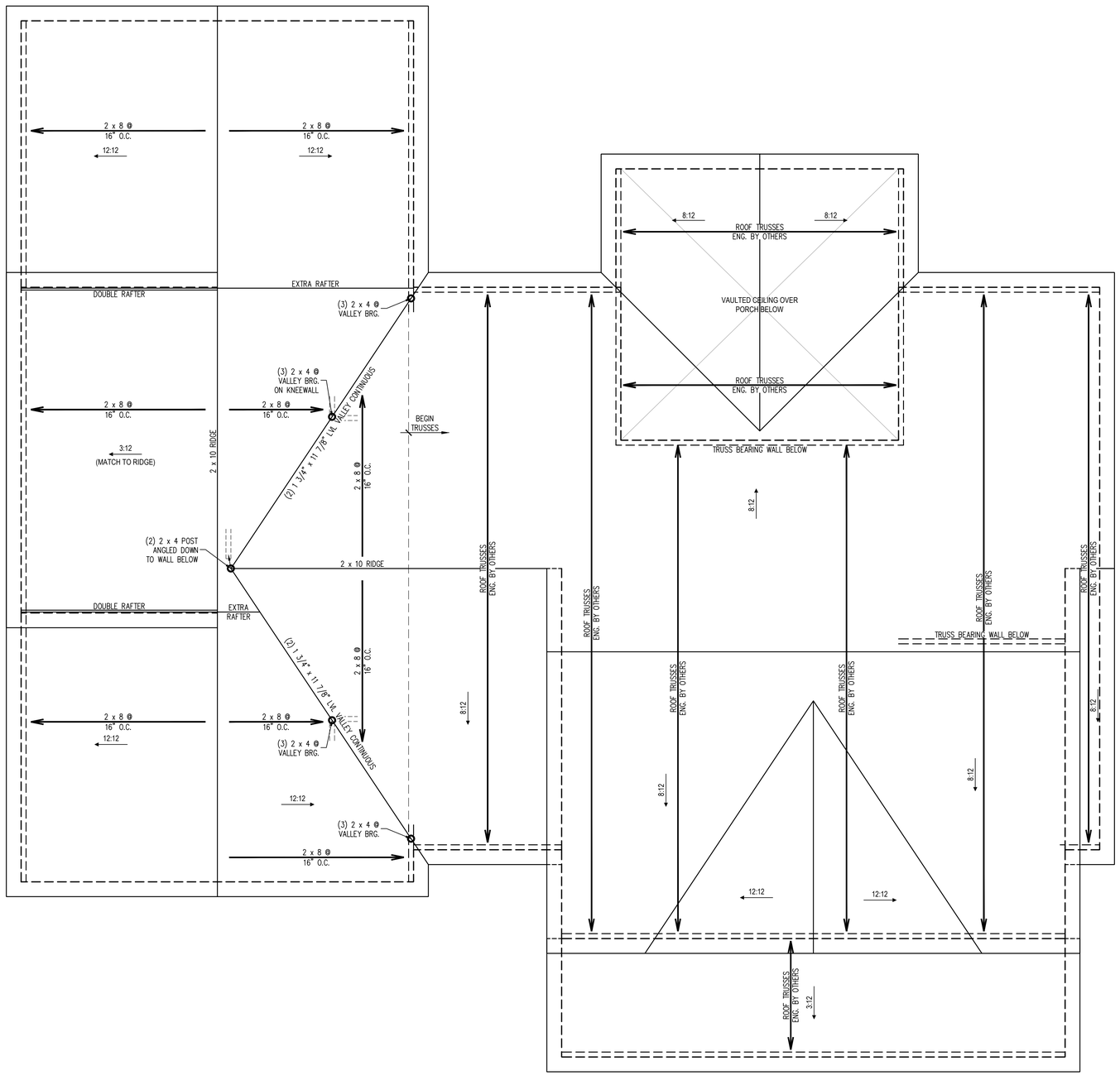
SHEET: 4 OF: 7

S-4

SECOND FLOOR CEILING FRAMING PLAN

ROOF FRAMING STRUCTURAL NOTES:

1. ALL FRAMING LUMBER TO BE #2 SPF (UNO).
2. SHEATH ROOF w/ 7/16" OSB SHEATHING SECURED w/ 8d NAILS @ 6" O.C. ALONG EDGES AND 12" O.C. IN THE FIELD.
3. STICK FRAME OVER-FRAMED ROOF SECTIONS w/ 2 x 8 RIDGES, 2 x 6 RAFTERS @ 16" O.C. AND FLAT 2 x 10 VALLEYS OR USE VALLEY TRUSSES.
4. FASTEN FLAT VALLEYS TO RAFTERS OR TRUSSES WITH SIMPSON H2.5A HURRICANE TIES @ 32" O.C. MAX. PASS HURRICANE TIES THROUGH NOTCH IN ROOF SHEATHING IF REQUIRED. SECURE RAFTERS TO FLAT VALLEYS WITH A MIN. OF (6) 12d TOE NAILS.
5. INSTALL (1) SIMPSON H2.5A HURRICANE TIE (OR EQUAL) @ EA. RAFTER BEARING.
6. INSTALL (1) SIMPSON H10A HURRICANE TIE (OR EQUAL) @ EACH TRUSS BEARING POINT (UNLESS NOTED OTHERWISE BY TRUSS SUPPLIER). INSTALL SIMPSON LGT HURRICANE TIES AT GIRDER TRUS BEARING POINTS (UNLESS NOTED OTHERWISE BY TRUSS SUPPLIER).
7. ALL TRUSS TO TRUSS CONNECTIONS PER TRUSS SUPPLIER.
8. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.



PREPARED UNDER THE SUPERVISION OF:

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MITCHELL RESIDENCE
212 HOBBY CREEK LANE
HOLLY SPRINGS, NORTH CAROLINA
TRIANGLE HOME PROS

REVISIONS:

DRAWN BY: K & A HOME DESIGNS

ENGINEERED BY: J. SMITH

SCALE: 1/4" = 1'-0" (UNO)

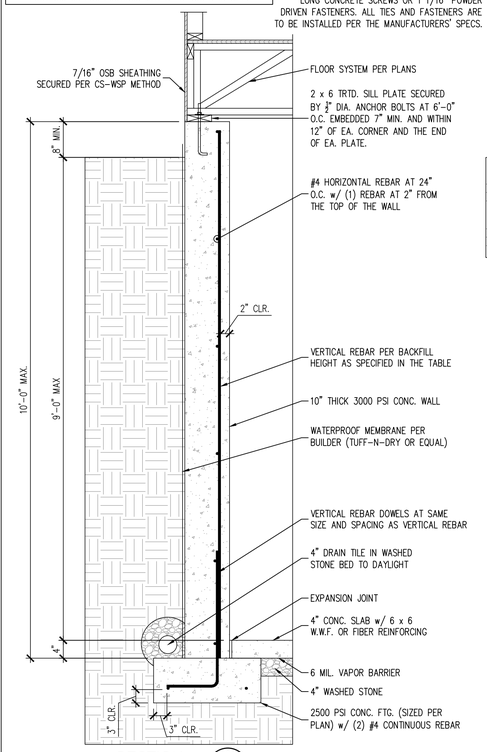
DATE: 5-14-2025

SHEET: 5 OF: 7

S-5
ROOF FRAMING PLAN

NOTE TO FOUNDATION CONTRACTOR:

ALTERNATE REINFORCED CONCRETE POURED WALL DESIGNS ENGINEERED BY OTHERS MAY BE CONSTRUCTED. NO CONTINUOUS FOOTINGS OR LUG FOOTINGS MAY BE REDUCED IN SIZE.

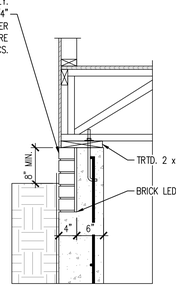


SECTION A / S-1

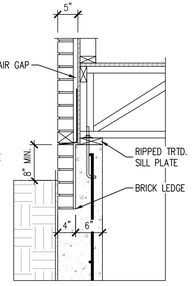
TYPICAL 10" POURED BASEMENT WALL DETAIL

SCALE: 3/4" = 1'-0"

WHERE FRAMED WALLS WILL BE SUPPORTED PARTIALLY BY THE BRICK WYTHE, INSTALL BRICK TIES @ 16" O.C. HORIZONTALLY AND VERTICALLY. SECURE TIES TO THE POURED WALL w/ 1 1/4" LONG CONCRETE SCREWS OR 1 1/16" POWDER DRIVEN FASTENERS. ALL TIES AND FASTENERS ARE TO BE INSTALLED PER THE MANUFACTURERS' SPECS.



WITH BRICK WYTHE



WITH BRICK OR SLAB SUPPORT LEDGE

10" BASEMENT WALL REINFORCEMENT TABLE

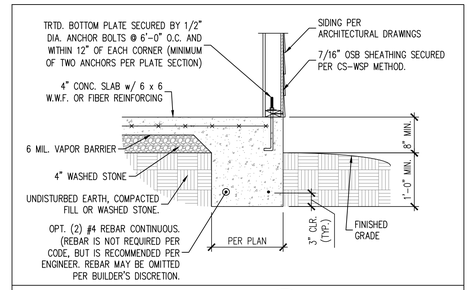
BACKFILL HEIGHT (FT)	VERTICAL REBAR
≤ 5	#4 @ 48" O.C.
6	#4 @ 32" O.C.
7	#4 @ 24" O.C. OR #5 @ 36" O.C. OR #6 @ 56" O.C.
8	#4 @ 20" O.C. OR #5 @ 32" O.C. OR #6 @ 48" O.C.
9	#4 @ 16" O.C. OR #5 @ 24" O.C. OR #6 @ 36" O.C.

8" BASEMENT WALL REINFORCEMENT TABLE (NOT PERMITTED w/ BRICK VENEER)

BACKFILL HEIGHT (FT)	VERTICAL REBAR
≤ 5	#4 @ 36" O.C.
6	#4 @ 24" O.C. OR #5 @ 36" O.C.
7	#4 @ 16" O.C. OR #5 @ 24" O.C. OR
8	#4 @ 12" O.C. OR #5 @ 18" O.C. OR #6 @ 24" O.C. OR
9	#4 @ 8" O.C. OR #5 @ 12" O.C. OR #6 @ 18" O.C. OR

POURED BASEMENT WALLS STRUCTURAL NOTES:

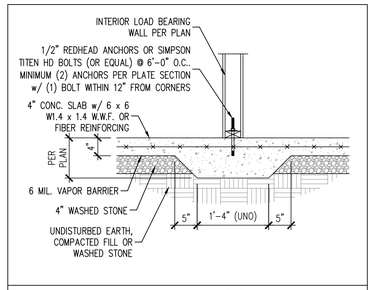
1. -ALL CONCRETE TO BE F'c=3,000 PSI (MIN. 28-DAY COMPRESSIVE STRENGTH)
   -ALL REBAR TO BE ASTM A615 WITH Fy = 60 KSI
   -REBAR LAP SPLICES TO BE: #4 = 27", #5 = 33", #6 = 40"
2. REBAR TO MAINTAIN A MINIMUM CONCRETE COVER OF 3" FROM SOIL AND 2" FROM FORM WORK. (UNO)
3. FOUNDATION DESIGN BASED ON AN ALLOWABLE SOIL BEARING CAPACITY OF 2,000 PSF.
4. INSTALL #4 L-BARS AT ALL WALL CORNERS AT THE SAME SPACING AS HORIZONTAL STEEL.
5. WALLS MAY NOT BE BACKFILLED BEFORE THE FLOOR FRAMING IS INSTALLED AND THE CONCRETE HAS CURED A MINIMUM OF 7 DAYS. BACKFILL IS TO BE PLACED IN 12" LIFTS AND COMPACTED TO 95%
6. WHERE THE FLOOR JOISTS ARE PARALLEL TO THE WALLS, INSTALL 2 x 4 BLOCKING AT 24" O.C. BETWEEN THE BOTTOM FLANGE OF THE I-JOISTS/FLOOR TRUSSES FOR A MIN. OF 6'-0" AWAY FROM THE WALL.



SECTION B / S-1

SCALE: 3/4" = 1'-0"

TYPICAL TURNED DOWN SLAB PERIMETER FOOTING



SECTION C / S-1

SCALE: 3/4" = 1'-0"

TYPICAL THICKENED SLAB

SECTION D / S-1

TYPICAL RETAINING WALL DETAIL

SCALE: 3/4" = 1'-0"

RETAINING WALL SCHEDULE

HEIGHT (FT.)	4'-0" OR LESS	6'-0" OR LESS	8'-0" OR LESS	10'-0" OR LESS
TOE	8"	1'-0"	1'-6"	1'-6"
WALL THICKNESS	10"	10"	10"	10"
HEEL	1'-6"	2'-2"	3'-8"	5'-8"
TOTAL FOOTING WIDTH	3'-0"	4'-0"	6'-0"	8'-0"
"V" VERTICAL WALL REBAR SPACING AT SOIL FACE	#4 @ 16" O.C.	#5 @ 16" O.C.	#5 @ 12" O.C.	#5 @ 6" O.C.
"H" HORIZONTAL REBAR SPACING AT TOP OF FOOTING	#4 @ 16" O.C.	#5 @ 16" O.C.	#5 @ 12" O.C.	#5 @ 6" O.C.

RETAINING WALL STRUCTURAL NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION, AND CURRENT ACI-318.
2. SEE ARCHITECTURAL AND SURVEY DRAWINGS FOR RETAINING WALL LOCATIONS, WALL AND GRADE HEIGHTS.
3. ALL CONCRETE TO BE PROPORTIONED AS FOLLOWS:
   - F'c = 3000 PSI (MIN. 28 DAY COMPRESSIVE STRENGTH)
   - MAX WATER-CEMENT RATIO: 0.44
   - MAX SLUMP 4" PLUS OR MINUS 1"
   - AIR ENTRAINMENT: ALL CONCRETE EXPOSED TO WEATHER SHALL HAVE AN ENTRAINED AIR CONTENT OF 5% PLUS OR MINUS 1%
4. ALL REBAR TO BE ASTM A615 WITH Fy = 60 KSI
   -REBAR LAP SPLICES TO BE: #4 = 27", #5 = 33", #6 = 40"
5. WALLS SHALL HAVE CONTROL JOINTS SPACED AT 30' O.C. MAX. CONSTRUCT CONTROL JOINTS WITH A 'V' CHAMFER STRIP EXTENDING 1/4 THE WALL THICKNESS EA. SIDE.
6. LOCATE CONSTRUCTION JOINTS AT CONTROL JOINTS. ANY CONSTRUCTION JOINTS SHALL BE KEYED AND DOWELED WITH DOWELS EQUIVALENT TO THE SIZE AND SPACING OF THE HORIZONTAL WALL REINFORCEMENT.
7. PROVIDE 3/4" CHAMFER AT ALL EXPOSED CORNERS OF CONCRETE.
8. WALLS SHALL BE PROPERLY BRACED AND NOT BACKFILLED UNTIL CONCRETE HAS REACHED IT'S 28 DAY COMPRESSIVE STRENGTH.
9. BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL AND COMPACTED TO 95% OF MAXIMUM DENSITY IN LIFTS NOT EXCEEDING 12".
10. TIE WALL/FOOTING TO EXISTING FOUNDATION w/ #4 x 30" LONG REBAR DOWELS EMBEDDED 4" INTO EXISTING FOUNDATION WITH EPOXY ADHESIVE. MATCH EACH CONTINUOUS WALL/FOOTING REBAR WITH A REBAR DOWEL.

DESIGN CRITERIA:

STRUCTURAL DESIGN BASED ON THE PROVISIONS OF THE CURRENT 'ASCE 7' AND THE NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION.

ALLOWABLE SOIL BEARING CAPACITY:	2000	PSF
LATERAL SOIL PRESSURE:	60	PSF/FT
SOIL FRICTION COEFFICIENT:	0.50	
HANDRAIL LATERAL LOAD @ 3'-6" ABOVE WALL:	50	PLF
SURCHARGE:	40**	PSF

**NO ADDITIONAL SURCHARGE LOADS INCLUDED IN THE DESIGN. NO PARKING OR ADDITIONAL STRUCTURAL LOADS PERMITTED WITHIN A DISTANCE EQUIVALENT TO THE HEIGHT OF THE WALL

SEISMIC DESIGN CATEGORY: B SEISMIC DESIGN CLASS: D

PREPARED UNDER THE SUPERVISION OF:

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REVISIONS:

DRAWN BY: K & A HOME DESIGNS

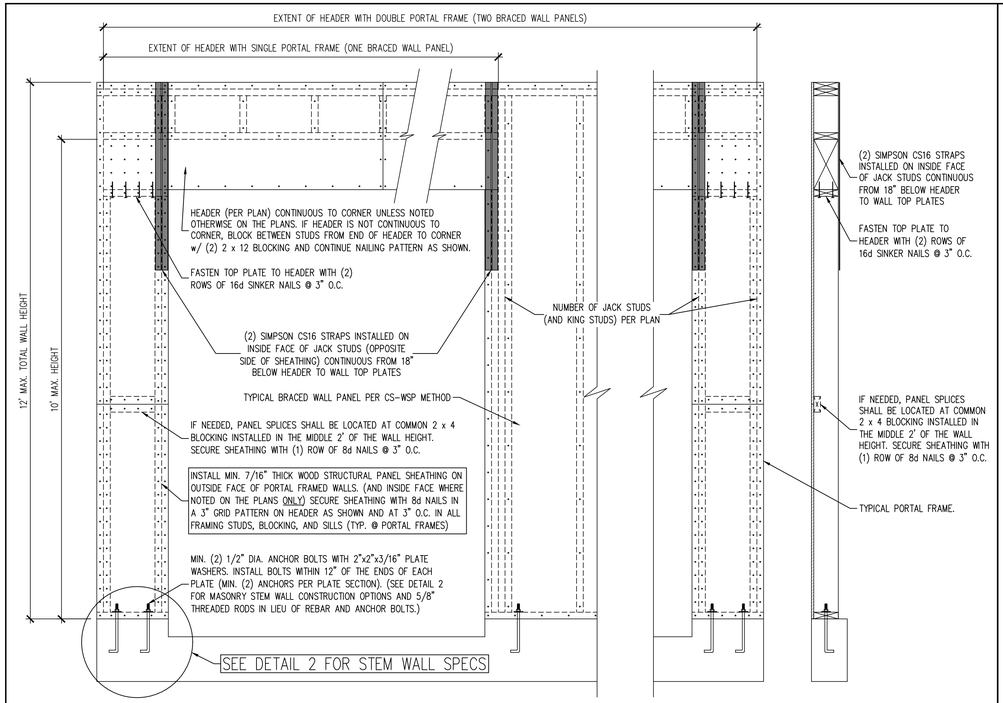
ENGINEERED BY: J. SMITH

SCALE: 1/4" = 1'-0" (UNO)

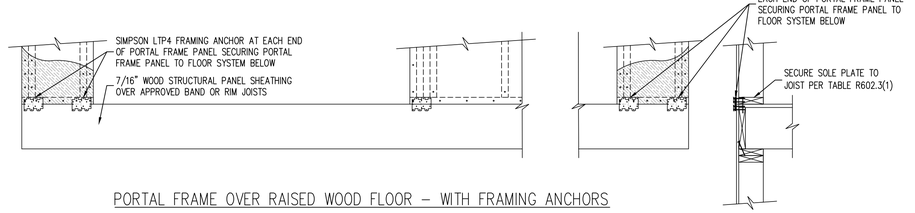
DATE: 5-14-2025

SHEET: 6 OF: 7

S-6
FOUNDATION DETAILS



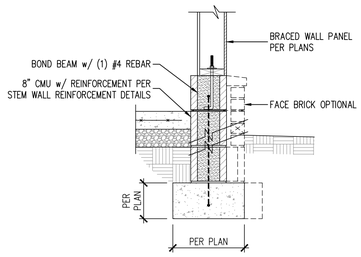
PORTAL FRAME OVER CONCRETE OR MASONRY FOUNDATION



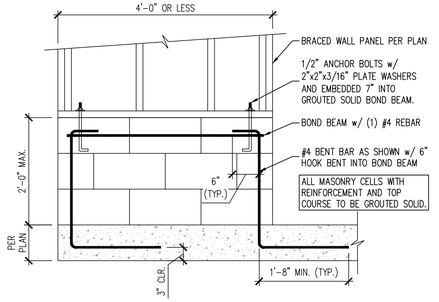
PORTAL FRAME OVER RAISED WOOD FLOOR – WITH FRAMING ANCHORS

1 PF PORTAL FRAME DETAIL

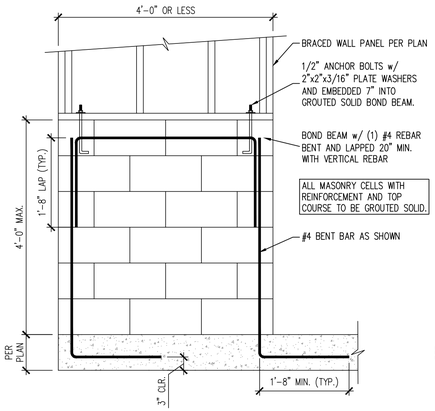
SCALE: 3/4" = 1'-0" (REFERENCE FIGURE R602.10.1)



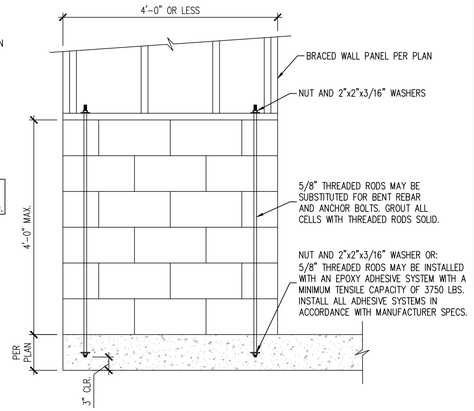
TYPICAL STEM WALL SECTION



SHORT STEM WALL REINFORCEMENT



TALL STEM WALL REINFORCEMENT



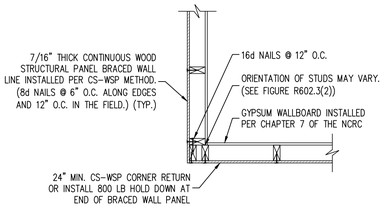
OPTIONAL STEM WALL REINFORCEMENT IN LIEU OF BENT REBAR AND ANCHOR BOLTS

2 MASONRY STEM WALL DETAILS FOR WALLS 48" LONG OR LESS

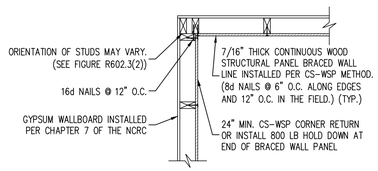
SCALE: 3/4" = 1'-0" (REFERENCE FIGURE R602.10.4.3)

GENERAL WALL BRACING NOTES:

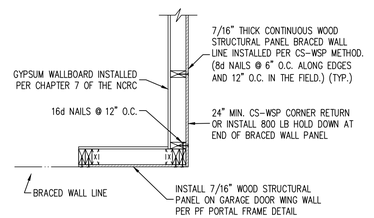
1. WALL BRACING DESIGNED IN ACCORDANCE WITH CHAPTER 6 OF THE 2018 NORTH CAROLINA RESIDENTIAL BUILDING CODE (NCRC). TABLES AND FIGURES REFERENCED ARE FROM THE 2018 NCRC. REFER TO THE 2018 NCRC FOR ADDITIONAL INFORMATION AS NEEDED.
2. SEE STRUCTURAL SHEETS FOR THE BRACED WALL DESIGN SUMMARY WHICH SPECIFIES THE TOTAL AMOUNT OF BRACING REQUIRED AND PROVIDED ALONG EACH BRACED WALL LINE ON EACH FLOOR (WHERE REQUIRED). THE LENGTH AND LOCATION OF BRACED WALLS, HOLD DOWN(S) TYPE AND LOCATIONS, AND ANY SPECIAL NOTES OR REQUIREMENTS DETERMINED BY ENGINEERED DESIGN ARE INCLUDED ON EACH STRUCTURAL FLOOR PLAN (WHERE REQUIRED).
3. ALL EXTERIOR WALLS ARE TO BE SHEATHED ON THE EXTERIOR FACE WITH 7/16" OSB WOOD STRUCTURAL PANELS IN ACCORDANCE WITH THE CS-WSP METHOD AS SPECIFIED IN SECTION R602.10.3 OF THE 2018 NCRC UNLESS NOTED OTHERWISE (UNO).
4. CS-WSP REFERS TO THE "CONTINUOUS SHEATHING – WOOD STRUCTURAL PANELS" WALL BRACING METHOD. 7/16" OSB SHEATHING SHALL BE INSTALLED ON ALL SHEATHABLE SURFACES OF ALL EXTERIOR WALLS ATTACHED w/ 6d COMMON NAILS OR 8d (2 1/2" LONG x 0.113" DIAMETER) NAILS SPACED 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD (UNO).
5. THE INTERIOR SIDE OF ALL EXTERIOR WALLS AND BOTH SIDES OF INTERIOR WALLS SHALL BE SHEATHED WITH 1/2" GYPSUM WALL BOARD. WHEN NOT USING BRACING METHOD "GB", GYPSUM WALL BOARD SHALL BE FASTENED PER TABLE R702.3.5. BRACING METHOD "GB" WALL BOARD SHALL BE FASTENED PER TABLE R602.10.1
6. "GB" REFERS TO THE "GYPSUM BOARD" WALL BRACING METHOD. WHERE NOTED ON THE PLANS, 1/2" (MIN.) GYPSUM WALL BOARD SHALL BE INSTALLED ON BOTH SIDES OF THE BRACED WALL FASTENED WITH 1 1/4" #6 SCREWS OR 1 5/8" 5d COOLER NAILS SPACED 7" O.C. ALONG PANEL EDGES AND 7" O.C. ALONG INTERMEDIATE SUPPORTS (UNO).
7. THE REQUIRED BRACED WALL LENGTHS FOR EACH SIDE OF THE CIRCUMSCRIBED RECTANGLE ARE INTERPOLATED PER TABLE R602.10.3. METHOD CS-WSP CONTRIBUTES ITS ACTUAL LENGTH, METHOD GB CONTRIBUTES .5 ITS ACTUAL LENGTH, AND METHOD PF CONTRIBUTES 1.5 TIMES ITS ACTUAL LENGTH.



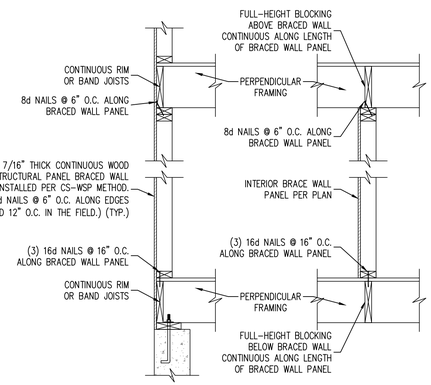
CS-WSP OUTSIDE CORNER DETAIL



CS-WSP INSIDE CORNER DETAIL

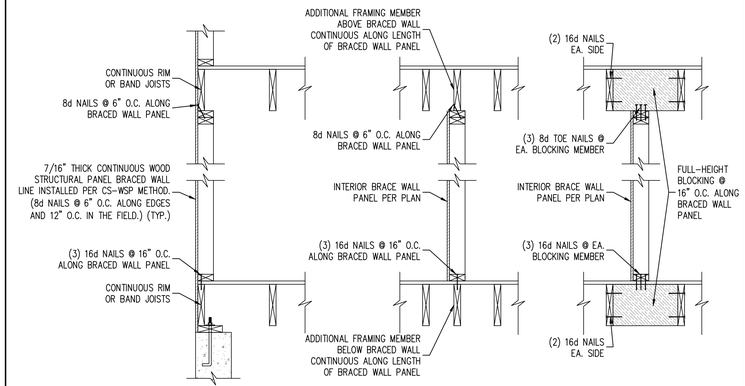


CS-WSP GARAGE DOOR CORNER DETAIL



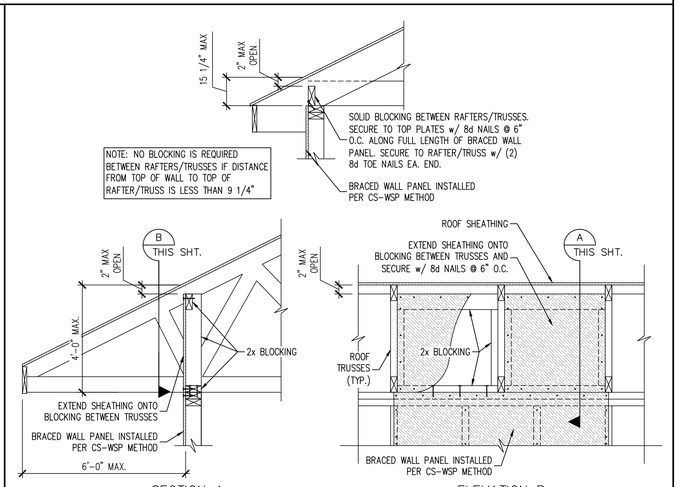
3 BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

SCALE: NTS (REFERENCE FIGURE R602.10.4.4(1))



4 BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING

SCALE: NTS (REFERENCE FIGURE R602.10.4.4(2))



SECTION A ELEVATION B

5 BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS OR TRUSSES

SCALE: NTS (REFERENCE FIGURES R602.10.4.5(1) AND (3))

6 TYPICAL EXTERIOR CORNER FRAMING DETAILS

SCALE: 3/4" = 1'-0" (REFERENCE FIGURES R602.10.3(4) AND (5))

PREPARED UNDER THE SUPERVISION OF:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038485 7/1/2025 ENGINEERING JACOB ERNEST SMITH

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SCALE: 1/4" = 1'-0" (UNO)

DATE: 5-14-2025

SHEET: 7 OF: 7

S-7

WALL BRACING DETAILS AND NOTES