

**CRAWL SPACE VENTILATION CALCULATION**

1768 SQ. FT. OF CRAWL SPACE DIVIDED BY 150 EQUALS 11.8 SQ. FT. OF NET FREE AREA REQUIRED. SEE SECTION R408.1 OF THE 2018 NCRC (2015 IRC).

FREE VENT AREA MAY BE REDUCED TO 1/1500 IF AN APPROVED VAPOR BARRIER IS INSTALLED OVER 100% OF THE CRAWL FLOOR AND VENTS ARE INSTALLED TO PERMIT CROSS-VENTILATION OF CRAWL SPACE.

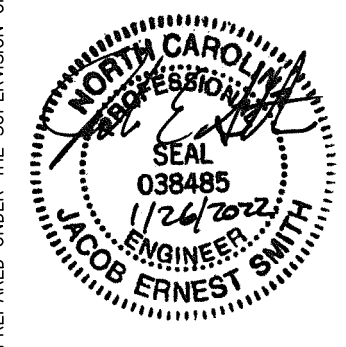
SEE SECTION R408.1.1 OF THE 2018 NCRC.

**CRAWL SPACE STRUCTURAL NOTES**

1. ALL FRAMING LUMBER TO BE #2 SPF (UNO).
2. ALL TREATED LUMBER TO BE #2 SYP (UNO).
3. INSTALL AN EXTRA OR DOUBLE JOIST UNDER WALLS PARALLEL TO THE FLOOR JOISTS WHERE NOTED ON THE PLANS.
4. SHADED PIERS TO BE FILLED SOLID.
5. INSTALL 1/2" ANCHOR BOLTS 6'-0" O.C. AND WITHIN 1'-0" FROM END OF EACH CORNER. (MIN (2) ANCHORS PER PLATE SECTION.) ANCHOR BOLTS MUST EXTEND A MINIMUM OF 7" INTO MASONRY OR CONCRETE. LOCATE BOLT WITHIN MIDDLE THIRD OF PLATE WIDTH.
6. INSTALL JOINT REINFORCEMENT @ 16" O.C. TO SECURE MULTIPLE WYTHE FOUNDATION WALLS TOGETHER.
7. REFER TO NOTES AND DETAIL PAGES FOR ADDITIONAL INFORMATION.

**CODE NOTES: 120 MPH ULTIMATE DESIGN WIND SPEED w/ MEAN ROOF HEIGHT LESS THAN 30'**

1. ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS. ENGINEER'S SEAL DOES NOT CERTIFY DIMENSIONAL ACCURACY OR ARCHITECTURAL LAYOUT INCLUDING ROOF SYSTEM.
2. STRUCTURAL DESIGN PER NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION.
3. MEAN ROOF HEIGHT IS LESS THAN 30 FEET.
4. EXTERIOR WALLS DESIGNED FOR 120 MPH WINDS.
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. ENERGY EFFICIENCY COMPLIANCE AND INSULATION VALUES OF THE BUILDING TO BE IN ACCORDANCE WITH CHAPTER 11 OF THE NCRC, 2018 EDITION.
8. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.



PREPARED UNDER THE SUPERVISION OF:

**J. SMITH STRUCTURAL ENGINEERING, PLLC**  
 1532 CONE AVE. • APEX, NC 27502  
 (919) 864-1430 • jsmithstructural@gmail.com  
 N.C. CERTIFICATE NUMBER: P-2212



**TERALYN II - GARAGE LEFT**  
**TRIANGLE HOME PROS, LLC.**

REVISIONS:

DRAWN BY: K&A HOME DESIGNS, INC.

ENGINEERED BY: J. SMITH

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

DATE: 1-26-2022

SHEET: 1 OF: 5

LEGEND	
■	STUD COLUMNS ON FLOOR ABOVE THAT REQUIRE SOLID BLOCKING TO GIRDER OR FOUNDATION.
---	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

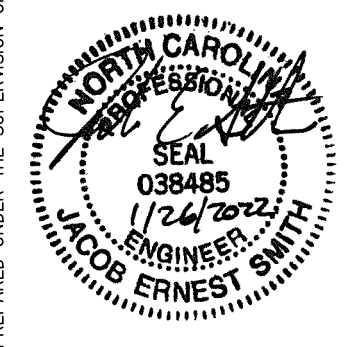
**S-1**  
**CRAWL SPACE**  
**FOUNDATION PLAN**

**BRACED WALL DESIGN SUMMARY:**

<b>SIDE 1A</b>	<b>SIDE 3A</b>
METHOD: CS-WSP/PF	METHOD: CS-WSP
TOTAL REQUIRED LENGTH: 13.14'	TOTAL REQUIRED LENGTH: 16'
TOTAL PROVIDED LENGTH: 26.83'	TOTAL PROVIDED LENGTH: 45'
<b>SIDE 2A</b>	<b>SIDE 4A</b>
METHOD: CS-WSP	METHOD: CS-WSP
TOTAL REQUIRED LENGTH: 13.14'	TOTAL REQUIRED LENGTH: 16'
TOTAL PROVIDED LENGTH: 23.58'	TOTAL PROVIDED LENGTH: 34.83'

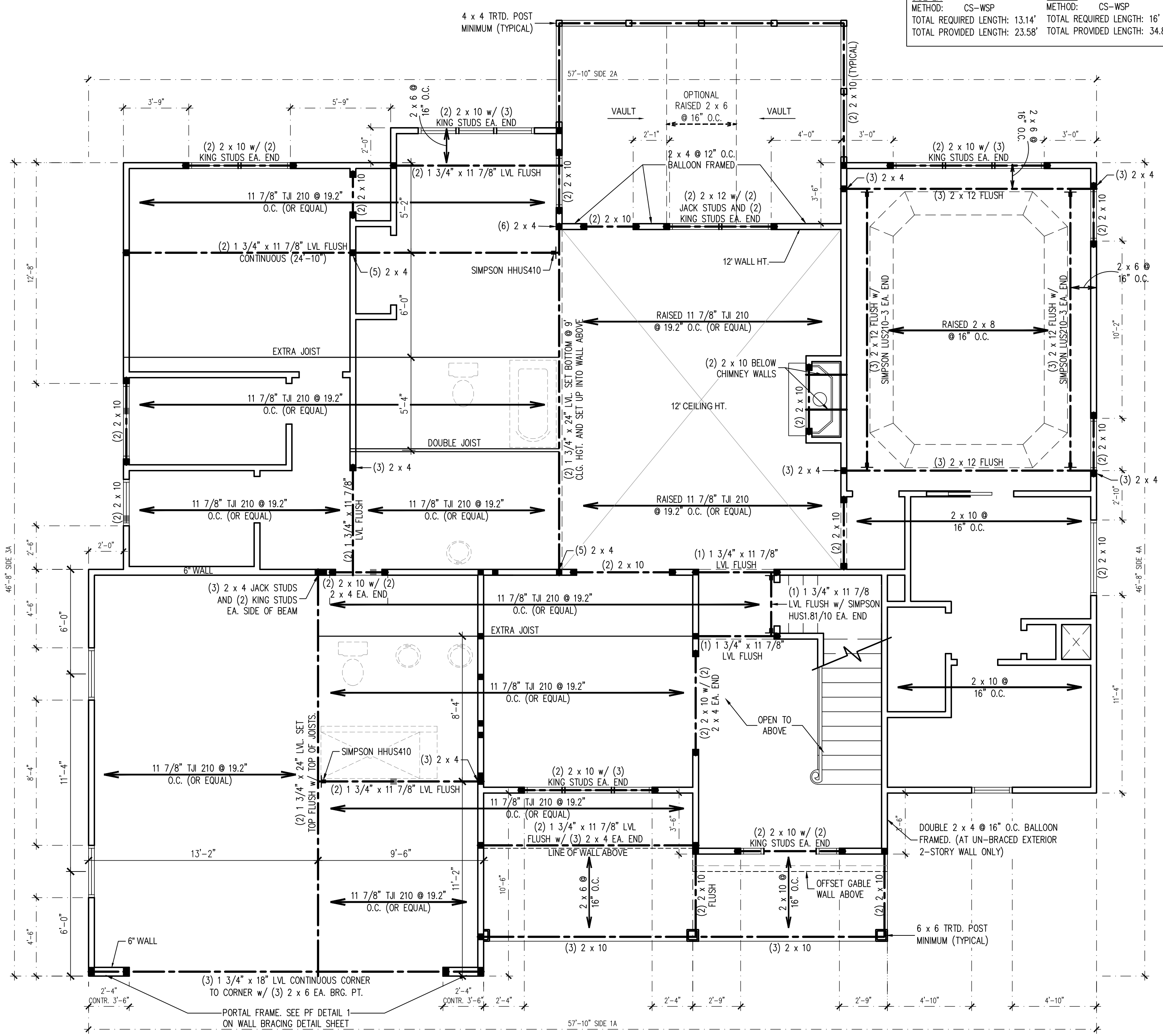
- BRACED WALL DESIGN NOTES:**
- BRACED WALL DESIGN PER SECTION R602.10 OF THE NRC 2018 EDITION.
  - CS-WSP REFERS TO THE "CONTINUOUS SHEATHING - WOOD STRUCTURAL PANELS" WALL BRACING METHOD. 7/16" OSB SHEATHING SHALL BE INSTALLED ON ALL SHEATHABLE SURFACES OF ALL EXTERIOR WALLS ATTACHED w/ 6d COMMON NAILS 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).
  - SEE NOTES AND DETAIL SHEETS FOR ADDITIONAL BRACED WALL INFORMATION.

- SECOND FLOOR FRAMING STRUCTURAL NOTES:**
- ALL FRAMING LUMBER TO BE SPF #2 (UNO). ALL TREATED LUMBER TO BE SYP #2 (UNO).
  - ALL LOAD BEARING HEADERS TO BE (2) 2 x 10 (UNO).
  - WINDOW AND DOOR HEADERS TO BE SUPPORTED w/ (1) JACK STUD AND (1) KING STUD EA. END (UNO).
  - INSTALL AN EXTRA OR DOUBLE JOIST UNDER WALLS PARALLEL TO THE JOISTS WHERE NOTED ON THE PLANS.
  - SECURE 4 x 4 OR 6 x 6 POSTS TO CONCRETE/MASONRY w/ SIMPSON ABU44 OR ABU66 POST BASES. SECURE 4 x 4 OR 6 x 6 POSTS TO HEADERS/BEAMS w/ 700 LB CAPACITY UPLIFT CONNECTORS (UNO).
  - REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.



**J. SMITH STRUCTURAL ENGINEERING, PLLC**  
 1532 CONE AVE. • APEX, NC 27502  
 (919) 864-1430 • jsmithstructural@gmail.com  
 N.C. CERTIFICATE NUMBER: P-2212

**TERALYN II - GARAGE LEFT**  
**TRIANGLE HOME PROS, LLC.**



**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
D	THIS LINE TYPE INDICATES PLUMBING OR APPLIANCES ON THE FLOOR ABOVE TO HELP ELIMINATE FRAMING CONFLICTS WITH UTILITIES. (FOR REFERENCE ONLY, SEE ARCHITECTURAL DRAWINGS)
*-X*-	BRACED WALL DIMENSIONS (FOR REFERENCE ONLY)
(UNO)	UNLESS NOTED OTHERWISE

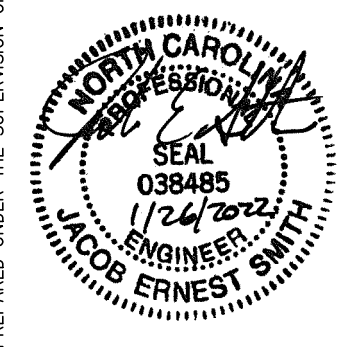
REVISIONS:

DRAWN BY: K&A HOME DESIGNS, INC.  
 ENGINEERED BY: J. SMITH  
 SCALE: 1/4" = 1'-0"  
 DATE: 1-26-2022  
 SHEET: 2 OF: 5

**S-2**  
**SECOND FLOOR**  
**FRAMING PLAN**

- BRACED WALL DESIGN NOTES:**
- BRACED WALL DESIGN PER SECTION R602.10 OF THE NCRS 2018 EDITION.
  - PER SECTION R602.10.3.2 OF THE 2018 NCRS, THE AMOUNT OF BRACING ON THE SECOND FLOOR EXCEEDS THE AMOUNT REQUIRED FOR THE FIRST FLOOR AND NO BRACED WALL ANALYSIS IS REQUIRED.
  - 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).
  - SEE NOTES AND DETAIL SHEETS FOR ADDITIONAL BRACED WALL INFORMATION.

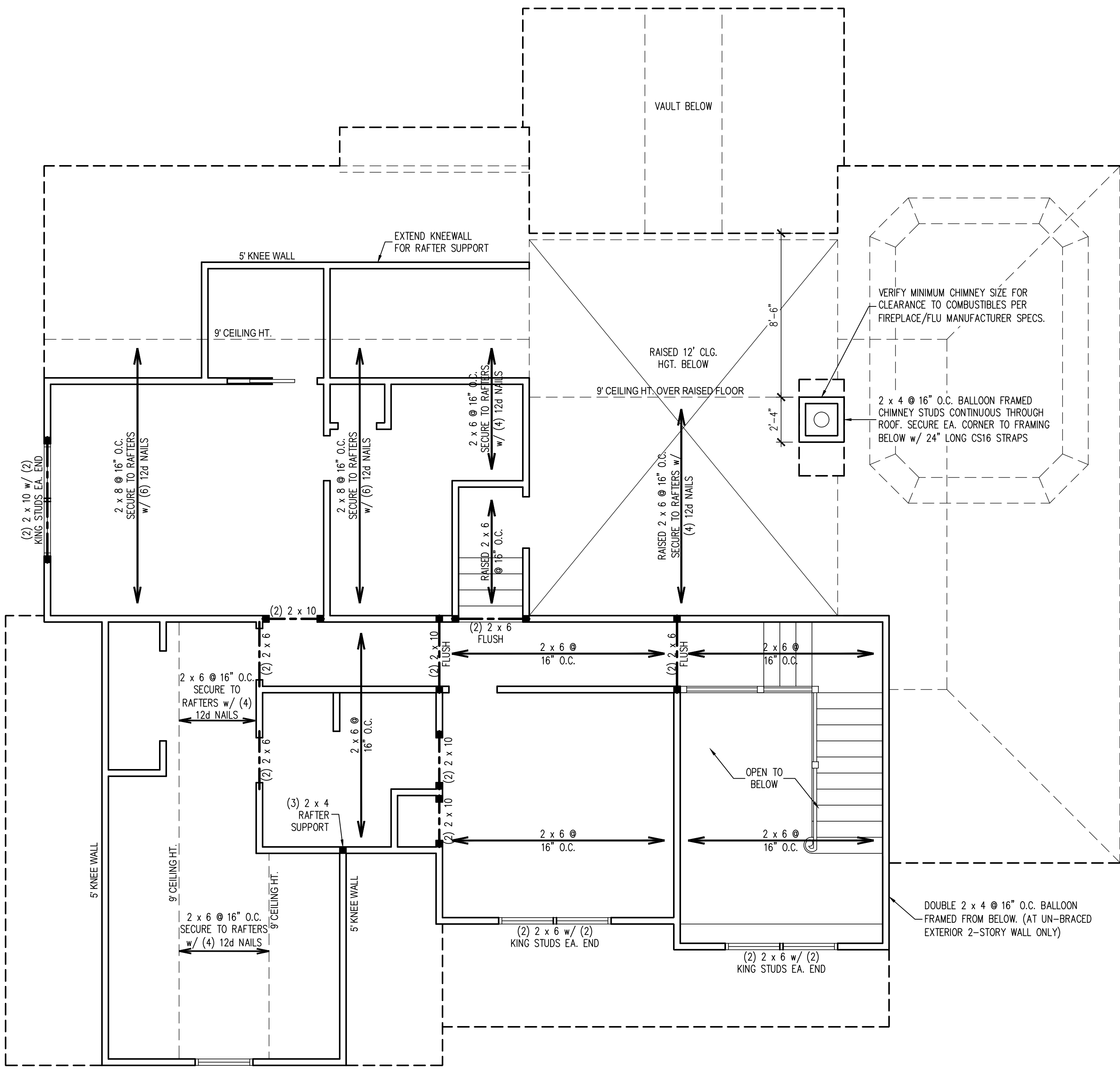
- CEILING FRAMING STRUCTURAL NOTES:**
- ALL FRAMING LUMBER TO BE SPF #2 (UNO). ALL TREATED LUMBER TO BE SYP #2 (UNO).
  - ALL LOAD BEARING HEADERS TO BE (2) 2 x 10 (UNO).
  - WINDOW AND DOOR HEADERS TO BE SUPPORTED w/ (1) JACK STUD AND (1) KING STUD EA. END (UNO).
  - REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.



**J. SMITH STRUCTURAL ENGINEERING, PLLC**  
 1532 CONE AVE. • APEX, NC 27502  
 (919) 864-1430 • jsmithstructural@gmail.com  
 N.C. CERTIFICATE NUMBER: P-2212



**TERALYN II - GARAGE LEFT  
 TRIANGLE HOME PROS, LLC.**



**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

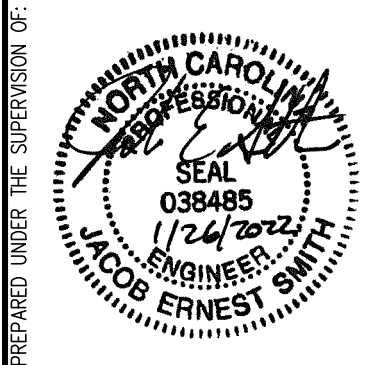
REVISIONS:


DRAWN BY: K&A HOME DESIGNS, INC.  
 ENGINEERED BY: J. SMITH  
 SCALE: 1/4" = 1'-0"  
 DATE: 1-26-2022  
 SHEET: 3 OF: 5

**S-3  
 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. CIRCLES DENOTE POSTS FOR ROOF SUPPORT AS NOTED.
4. 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.
5. HIP SPICES ARE TO BE SPACED 8'-0" O.C. MINIMUM. FASTEN MEMBERS WITH (3) ROWS OF 12d NAILS @ 16" O.C.
6. 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.
7. INSTALL (1) SIMPSON H2.5A HURRICANE TIE (OR EQUAL) @ EA. RAFTER BEARING.
8. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.



PREPARED UNDER THE SUPERVISION OF:  
**J. SMITH STRUCTURAL ENGINEERING, PLLC**  
 1532 CONE AVE. • APEX, NC 27502  
 (919) 864-1430 • jsmithstructural@gmail.com  
 N.C. CERTIFICATE NUMBER: P-2212



**TERALYN II - GARAGE LEFT  
 TRIANGLE HOME PROS, LLC.**

REVISIONS:

DRAWN BY: K&A HOME DESIGNS, INC.

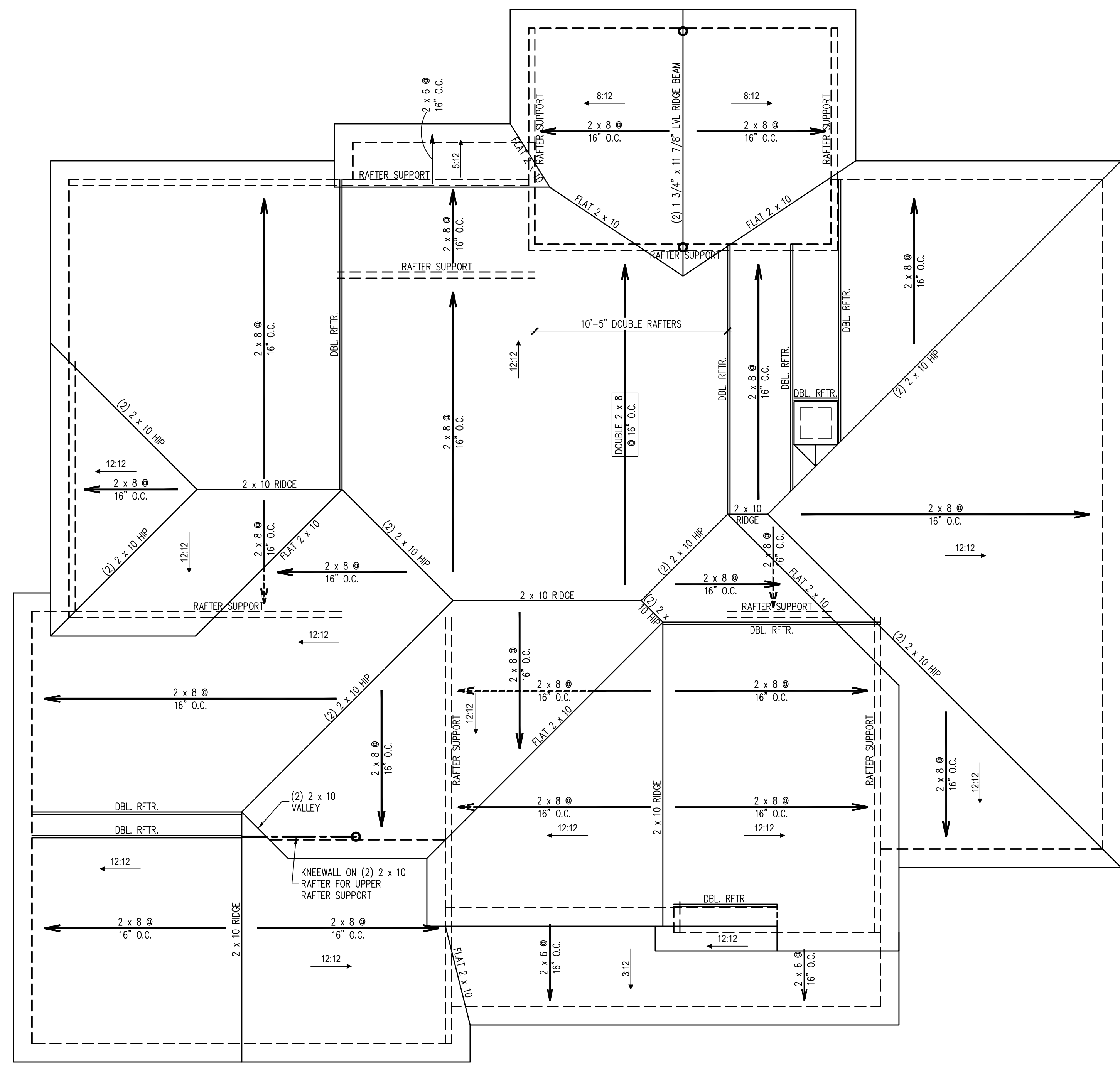
ENGINEERED BY: J. SMITH

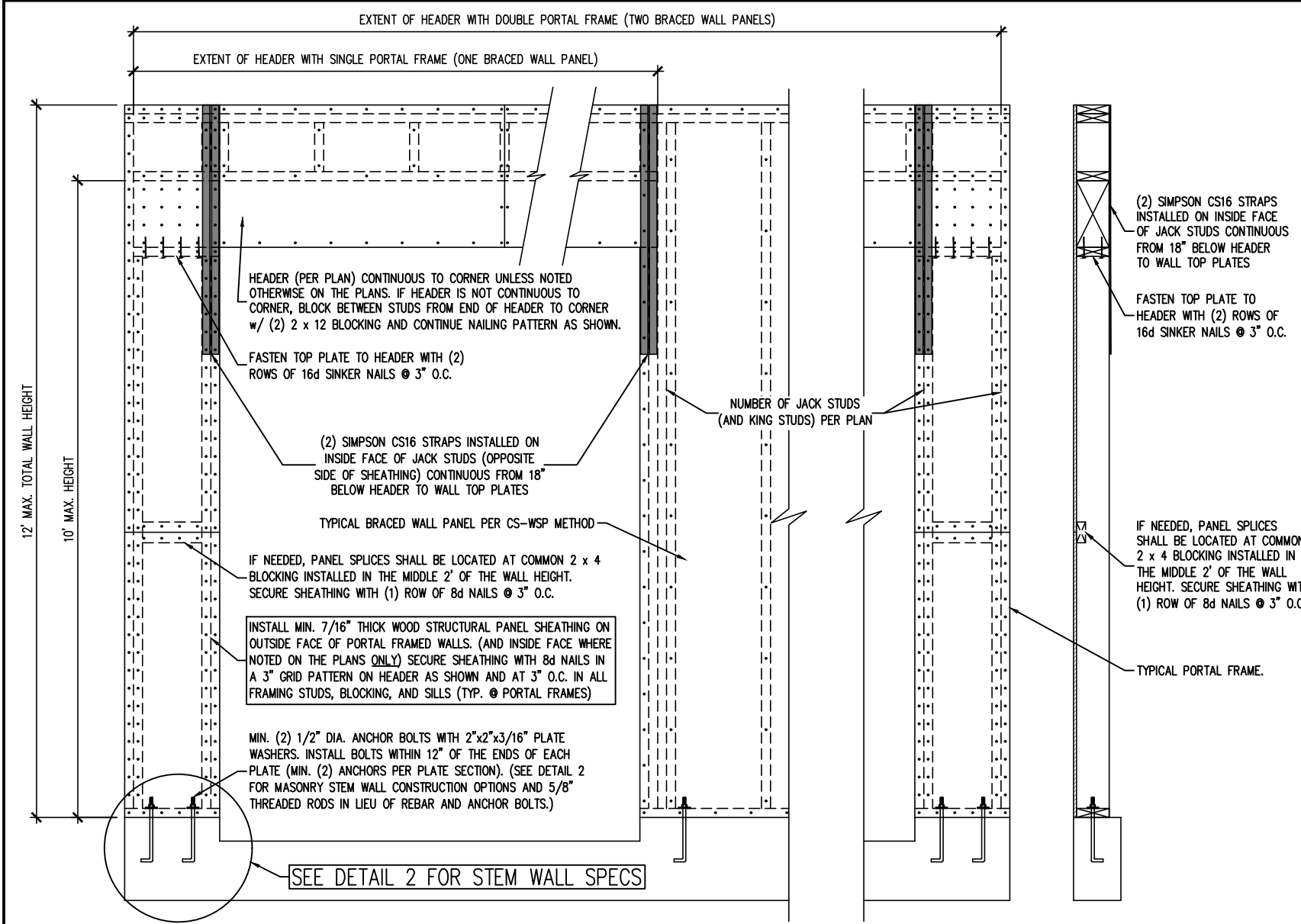
SCALE: 1/4" = 1'-0"

DATE: 1-26-2022

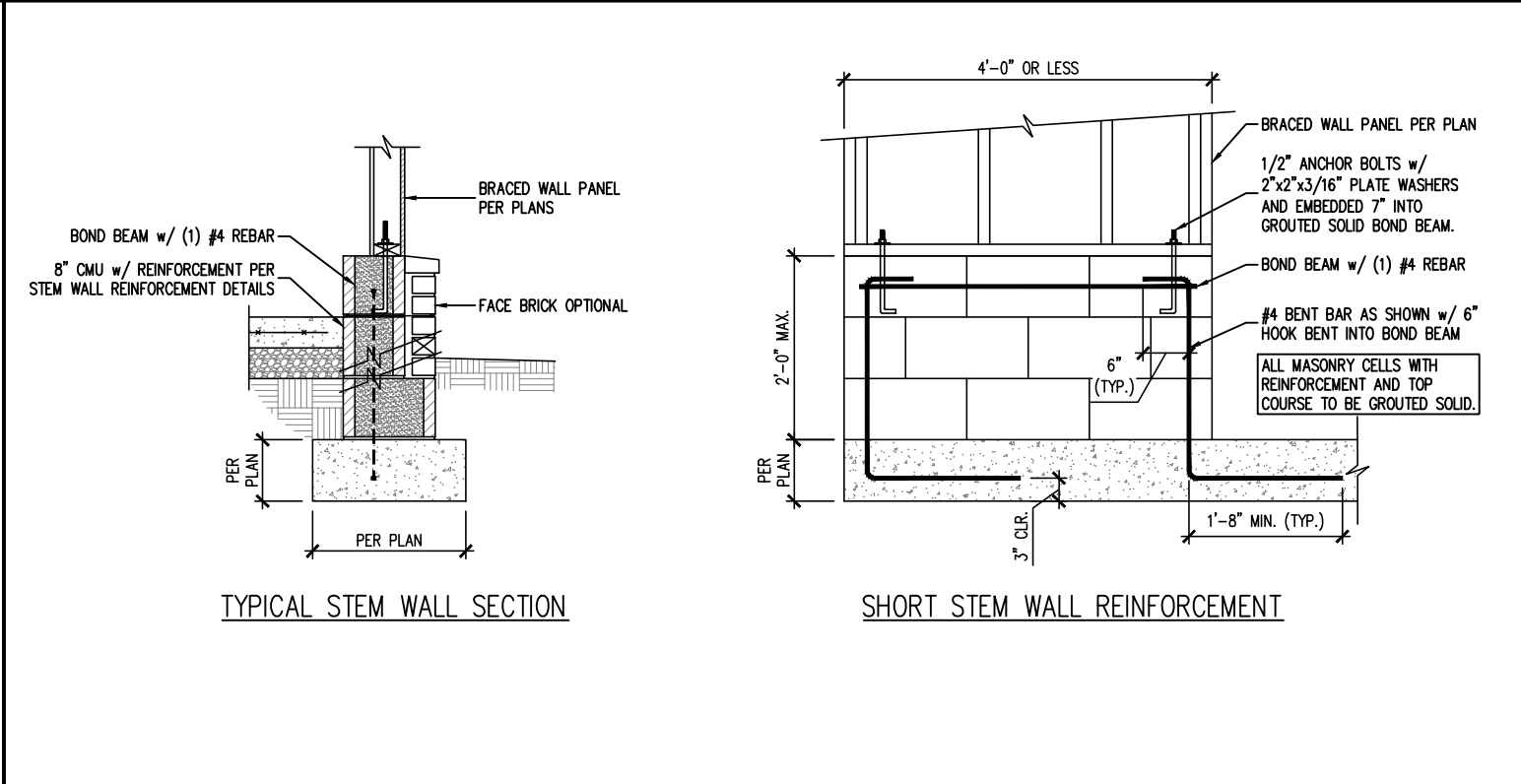
SHEET: **4** OF: **5**

**S-4  
 ROOF FRAMING  
 PLAN**

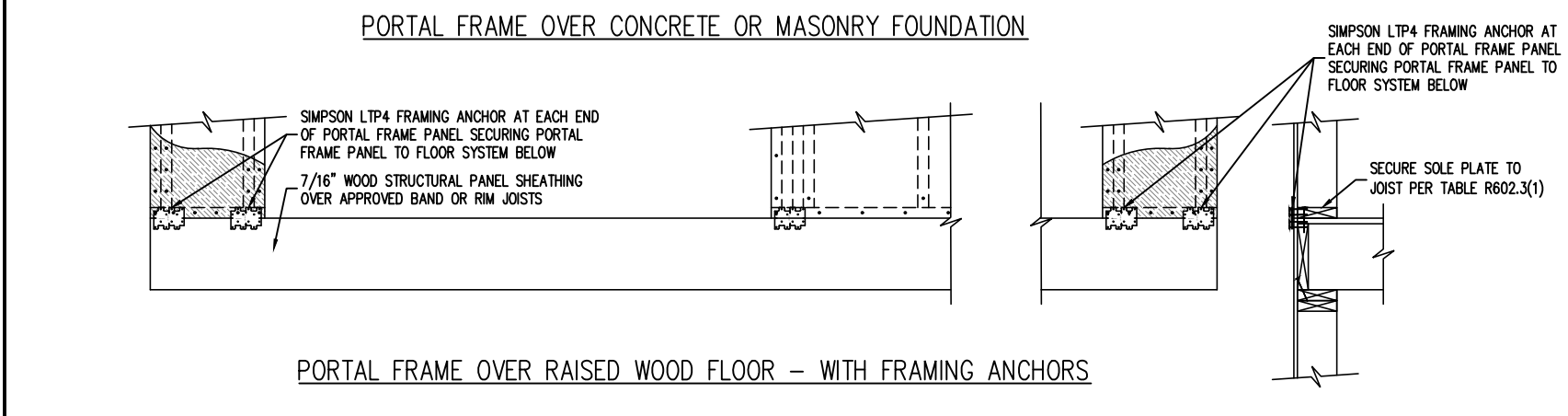




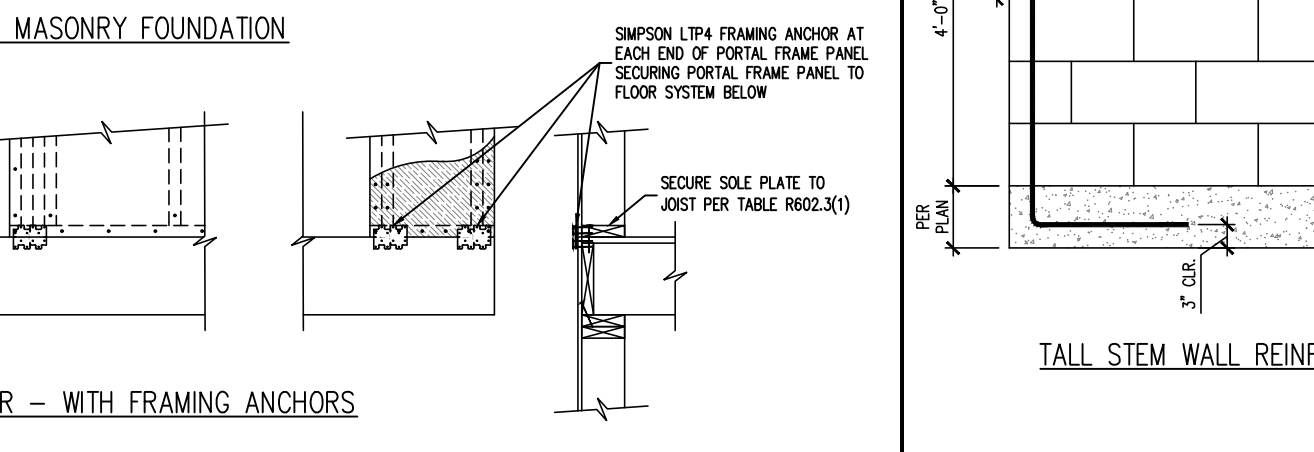
1 PF PORTAL FRAME DETAIL  
SCALE: 3/4" = 1'-0" (REFERENCE FIGURE R602.10.1)



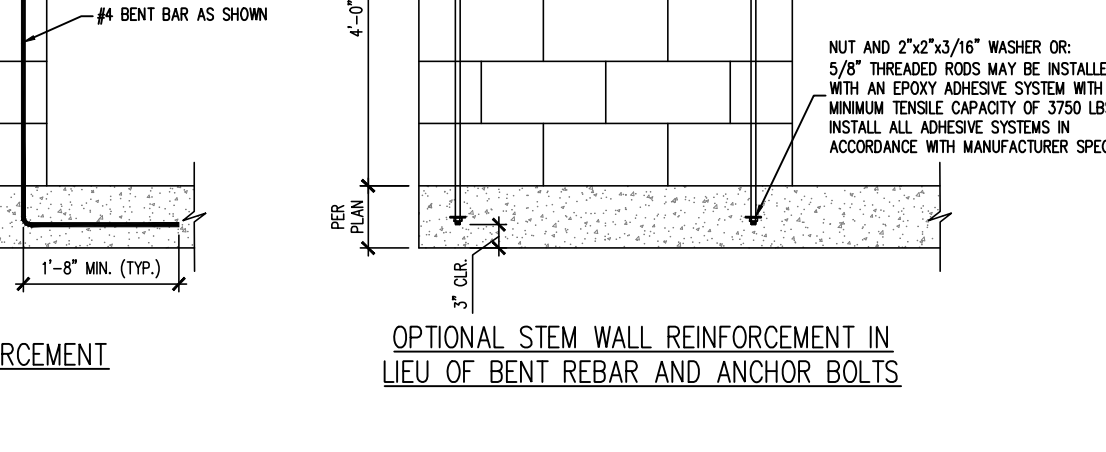
2 MASONRY STEM WALL DETAILS FOR WALLS 48" LONG OR LESS  
SCALE: 3/4" = 1'-0" (REFERENCE FIGURE R602.10.4.3)



3 BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING  
SCALE: NTS (REFERENCE FIGURE R602.10.4.1(1))



4 BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING  
SCALE: NTS (REFERENCE FIGURE R602.10.4.4(2))

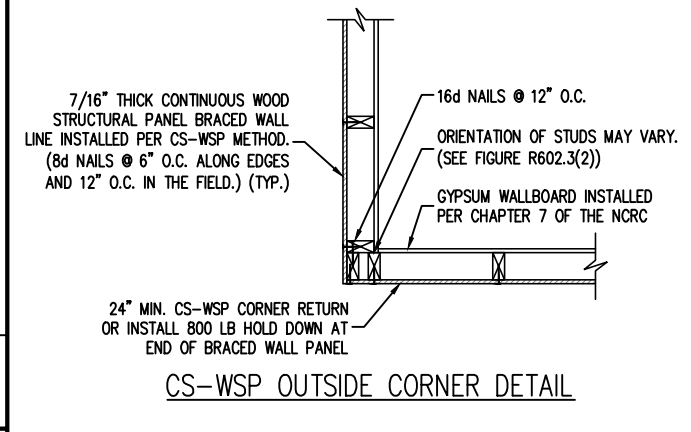


5 BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS OR TRUSSES  
SCALE: NTS (REFERENCE FIGURES R602.10.4.5(1) AND (3))

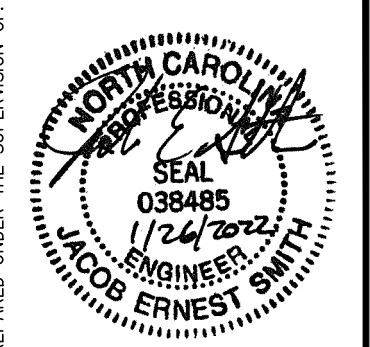
- GENERAL WALL BRACING NOTES:**
1. WALL BRACING DESIGNED IN ACCORDANCE WITH CHAPTER 6 OF THE 2018 NORTH CAROLINA RESIDENTIAL BUILDING CODE (NRC). TABLES AND FIGURES REFERENCED ARE FROM THE 2018 NRC. REFER TO THE 2018 NRC FOR ADDITIONAL INFORMATION AS NEEDED.
  2. SEE STRUCTURAL SHEETS FOR THE BRACED 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 DOWNS 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 NRC 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/ 8d 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 "08", GYPSUM WALL BOARD SHALL BE FASTENED PER TABLE R702.3.5. BRACING METHOD "08" WALL BOARD SHALL BE FASTENED PER TABLE R602.10.1.
  6. "08" 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" #8 SCREWS OR 1 5/8" #4 COOLER NAILS SPACED 7" O.C. ALONG PANEL EDGES AND 7" O.C. ALONG INTERMEDIATE SUPPORTS (UNO). 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 08 CONTRIBUTES 5 ITS ACTUAL LENGTH, AND METHOD PF CONTRIBUTES 1.5 TIMES ITS ACTUAL LENGTH.



6 TYPICAL EXTERIOR CORNER FRAMING DETAILS  
SCALE: 3/4" = 1'-0" (REFERENCE FIGURES R602.10.3(4) AND (5))



CS-WSP GARAGE DOOR CORNER DETAIL



PREPARED UNDER THE SUPERVISION OF:  
**J. SMITH STRUCTURAL ENGINEERING, PLLC**  
1532 CONE AVE. • APEX, NC 27502  
(919) 864-1430 • jsmithstructural@gmail.com  
N.C. CERTIFICATE NUMBER: P-2212

**TERALYN II - GARAGE LEFT TRIANGLE HOME PROS, LLC.**

REVISIONS:

NO.	DESCRIPTION

DRAWN BY: K&A HOME DESIGNS, INC.

ENGINEERED BY: J. SMITH

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

DATE: 1-26-2022

SHEET: 5 OF: 5

**S-5**  
**WALL BRACING**  
**DETAILS AND NOTES**