

GENERAL FOUNDATION NOTES:

1. THIS PLAN DESIGNED IN ACCORDANCE WITH NC RESIDENTIAL CODE, 2018 EDITION.
2. EXTERIOR WALL FOOTING WHERE NOTED TO BE 16" X 10" 3000 PSI STRUCTURAL CONCRETE UNLESS OTHERWISE NOTED. CONCRETE TO BE PREPARED AND PLACED IN ACCORDANCE WITH ACI 318. FOR FOUNDATION WALL HEIGHT, THICKNESS AND BACKFILL REQUIREMENTS, REFER TO STATE AND LOCAL BUILDING CODES. NOTE: ASSUMED SOIL BEARING CAPACITY=2000 PSF. CONTRACTOR MUST VERIFY CONDITIONS AND CONTACT SOIL ENGINEER IF MARGINAL OR UNSTABLE SOILS ARE ENCOUNTERED.
3. FOOTINGS TO BEAR ON UNDISTURBED EARTH A MIN. OF 12" BELOW ADJACENT FINISH GRADE OR AS OTHERWISE DIRECTED BY LOCAL INSPECTOR.
4. FOUNDATION DRAINAGE SHALL BE IN ACCORDANCE WITH SECTION R405 OF THE CODE "FOUNDATION DRAINAGE".
5. THE FOUNDATION SHALL BE TREATED IN ACCORDANCE W/SECTION R406 OF THE CODE "FOUNDATION WATERPROOFING AND DAMPPROOFING".
6. THIS FOUNDATION DESIGN IS VALID FOR 100 MPH WIND ZONES ONLY.
7. FOUNDATION WALLS SHALL BE 8" BLOCK UNLESS NOTED OTHERWISE.
8. (2) #4 BARS IN FOOTINGS RUN CONTINUOUSLY.

INDICATES POINT LOAD ABOVE

CRAWL SPACE VENTILATION

PROVIDE AT LEAST 10 SQ. FT. NET FREE VENTILATION AREA FOR EACH 150 SQ. FT. OF CRAWL SPACE

CRAWL SPACE AREA:
1407 / 150 = 9.38 SQ. FT. REQ'D.

REDUCE REQUIRED AREA TO 10 SQ. FT. NET FREE VENTILATION AREA FOR EACH 1500 SQ. FT. OF CRAWL SPACE WITH APPROVED VAPOR BARRIER

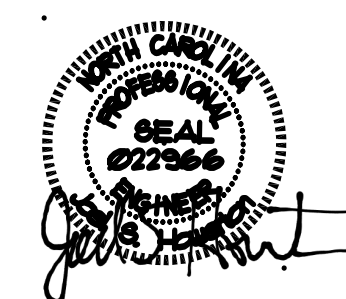
PROVIDE (1) VENT WITHIN 3'-0" OF EACH CORNER

REFER TO MANUFACTURER SPECIFICATIONS FOR ACTUAL VENTS USED TO DETERMINE NUMBER OF VENTS REQUIRED

STRUCTURAL EVALUATION BY:

HOWERTON SERVICES, PLLC
3513 CATHEDRAL BELL ROAD RALEIGH, NC 27614
LICENSE P-1716

- * ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS ON THIS DOCUMENT. SEAL DOES NOT INCLUDE CONSTRUCTION REVIEW, MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES OR SAFETY PRECAUTIONS.
- * ANY DEVIATIONS OR DISCREPANCIES ON PLANS ARE TO BE BROUGHT TO IMMEDIATE ATTENTION OF THE ENGINEER. FAILURE TO DO SO WILL VOID ENGINEER'S LIABILITY.
- * DO NOT SCALE THESE DRAWINGS - ENGINEERING APPROVAL EXPIRES 09/01/2021



S1 FOUNDATION
01 1/4"=1'-0"

Plan No. 1407-10

STRUCTURAL EVALUATION BY:
HOWERTON SERVICES, PLLC
3513 CATHEDRAL BELL
RD., RALEIGH N.C. 27614

BUILDING DESIGN BY:
VUNCANNON DESIGNS

HENGES RESIDENCE

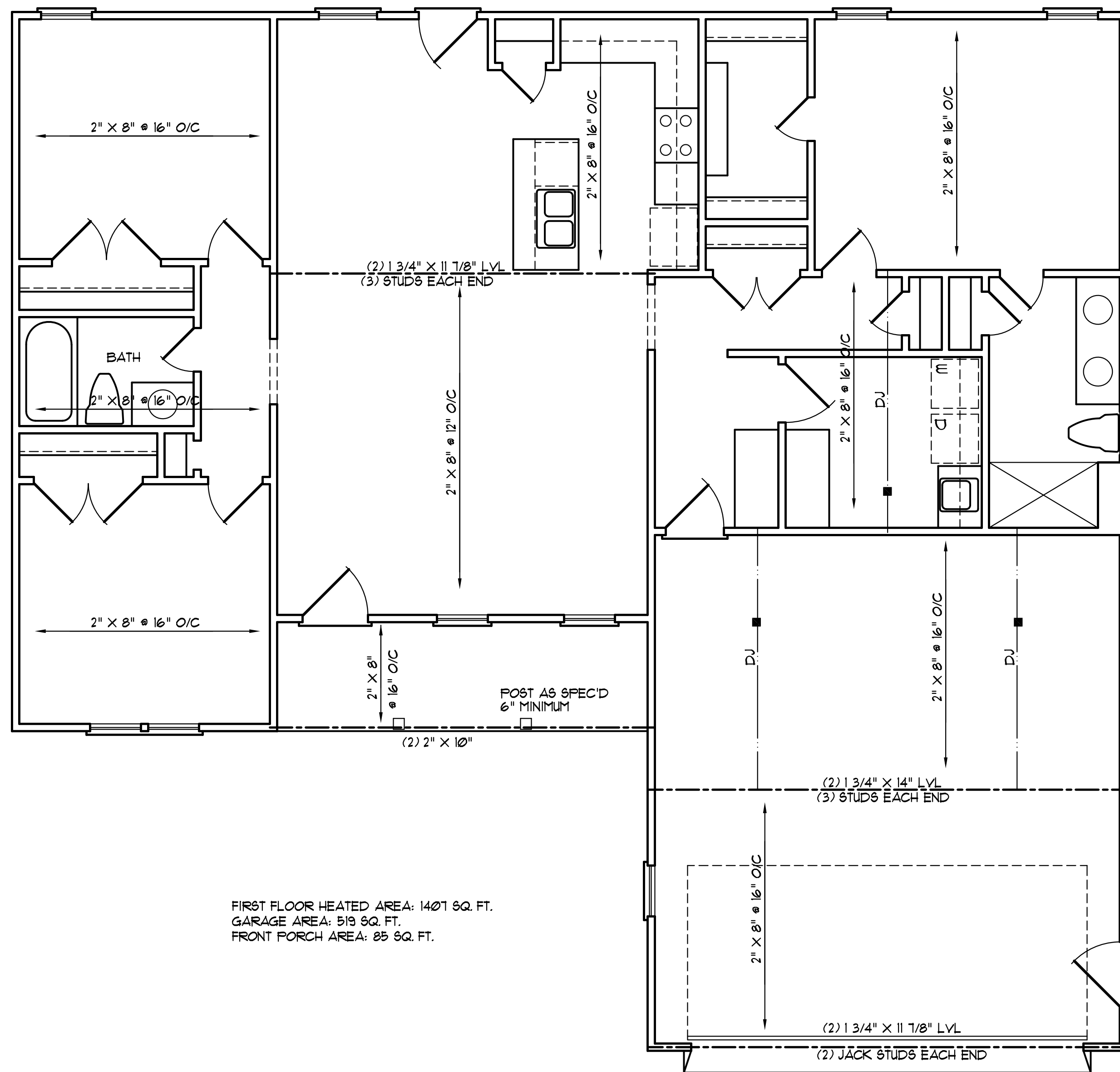
DESCRIPTION:
FOUNDATION
PLAN

REVISION:

DATE:
08/07/2020

OWNER:

S1



FIRST FLOOR HEATED AREA: 1401 SQ. FT.
 GARAGE AREA: 519 SQ. FT.
 FRONT PORCH AREA: 85 SQ. FT.

GENERAL FRAMING NOTES:

- THIS PLAN DESIGNED IN ACCORDANCE WITH NC RESIDENTIAL CODE, 2018 EDITION.
- GLAZING AREAS SHOWN ON THESE DESIGN DRAWINGS DO NOT EXCEED 15% OF THE GROSS AREA OF THE EXTERIOR WALLS. THIS STRUCTURE MEETS THE REQUIREMENTS OF N1101.2.1, RESIDENTIAL BUILDING, TYPE A-1.
- WALL CLADDING IS DESIGNED FOR A 24.1 #/SF OR GREATER POSITIVE/NEGATIVE PRESSURE.
- ALL WALLS, FLOORS AND CEILINGS SHALL BE INSULATED IN ACCORDANCE WITH PART IV, ENERGY CONSERVATION, CHAPTER 11, ENERGY EFFICIENCY OF THE CODE FOR ZONE 7 (TABLE N1101.2).
- DESIGN CRITERIA

	DEAD	LIVE
PRIMARY FLOOR	10 PSF	40 PSF
SECONDARY FLOOR	10 PSF	40 PSF
SLEEPING AREAS	10 PSF	30 PSF
ATTIC	10 PSF	20 PSF
ROOF	10 PSF	20 PSF
WIND	100 MPH	
- DEFLECTION LIMITS FLOOR - L/360
(LIVE LOAD ONLY) ROOF - L/240
- ALL HEADERS IN LOAD BEARING WALLS SHALL BE DOUBLE 2X10.
- ALL WALLS ARE 2X4 @ 16" O.C. UNLESS OTHERWISE NOTED.
- FLOOR INSULATION = R-19, EXTERIOR = R-15 AND CEILING = R-38.
- PROVIDE DOUBLE FLOOR JOISTS OR TRUSS UNDER WALLS ABOVE.

R602.7.5 SUPPORTS FOR HEADERS:

HEADERS SHALL BE SUPPORTED ON EACH END WITH ONE OR MORE JACK STUDS OR WITH APPROVED FRAMING ANCHORS IN ACCORDANCE WITH TABLE R602.7(1) OR R602.7(2). THE FULL-HEIGHT STUD ADJACENT TO EACH END OF THE HEADER SHALL BE END NAILED TO EACH END OF THE HEADER WITH FOUR-16D NAILS (3.5 INCHES X 0.135 INCHES). THE MINIMUM NUMBER OF FULL-HEIGHT STUDS AT EACH END OF A HEADER SHALL BE IN ACCORDANCE WITH TABLE R602.7.5.

TABLE R602.7.5

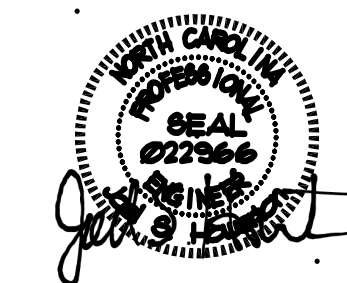
MINIMUM NUMBER OF FULL-HEIGHT STUDS AT EACH END OF HEADERS IN EXTERIOR WALLS

HEADER SPAN	MAXIMUM STUD SPACING (INCHES) PER TABLE R602.3(5)	
LESS THAN/EQUAL TO 3'	16	24
4'	2	1
8'	3	2
12'	5	3
16'	6	4

STRUCTURAL EVALUATION BY:

HOWERTON SERVICES, PLLC
 3513 CATHEDRAL BELL ROAD RALEIGH, NC 27614
 LICENSE P-1716

- * ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS ON THIS DOCUMENT. SEAL DOES NOT INCLUDE CONSTRUCTION REVIEW, MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES OR SAFETY PRECAUTIONS.
- * ANY DEVIATIONS OR DISCREPANCIES ON PLANS ARE TO BE BROUGHT TO IMMEDIATE ATTENTION OF THE ENGINEER. FAILURE TO DO SO WILL VOID ENGINEER'S LIABILITY.
- * DO NOT SCALE THESE DRAWINGS - ENGINEERING APPROVAL EXPIRES 09/01/2021



08 08 2020

S2 FIRST FLOOR FRAMING
01 1/4"=1'-0"

Plan No. 1407-10

STRUCTURAL EVALUATION BY:
 HOWERTON SERVICES, PLLC
 3513 CATHEDRAL BELL
 RD., RALEIGH N.C. 27614

BUILDING DESIGN BY:
 VUNCANNON DESIGNS

HENGES RESIDENCE

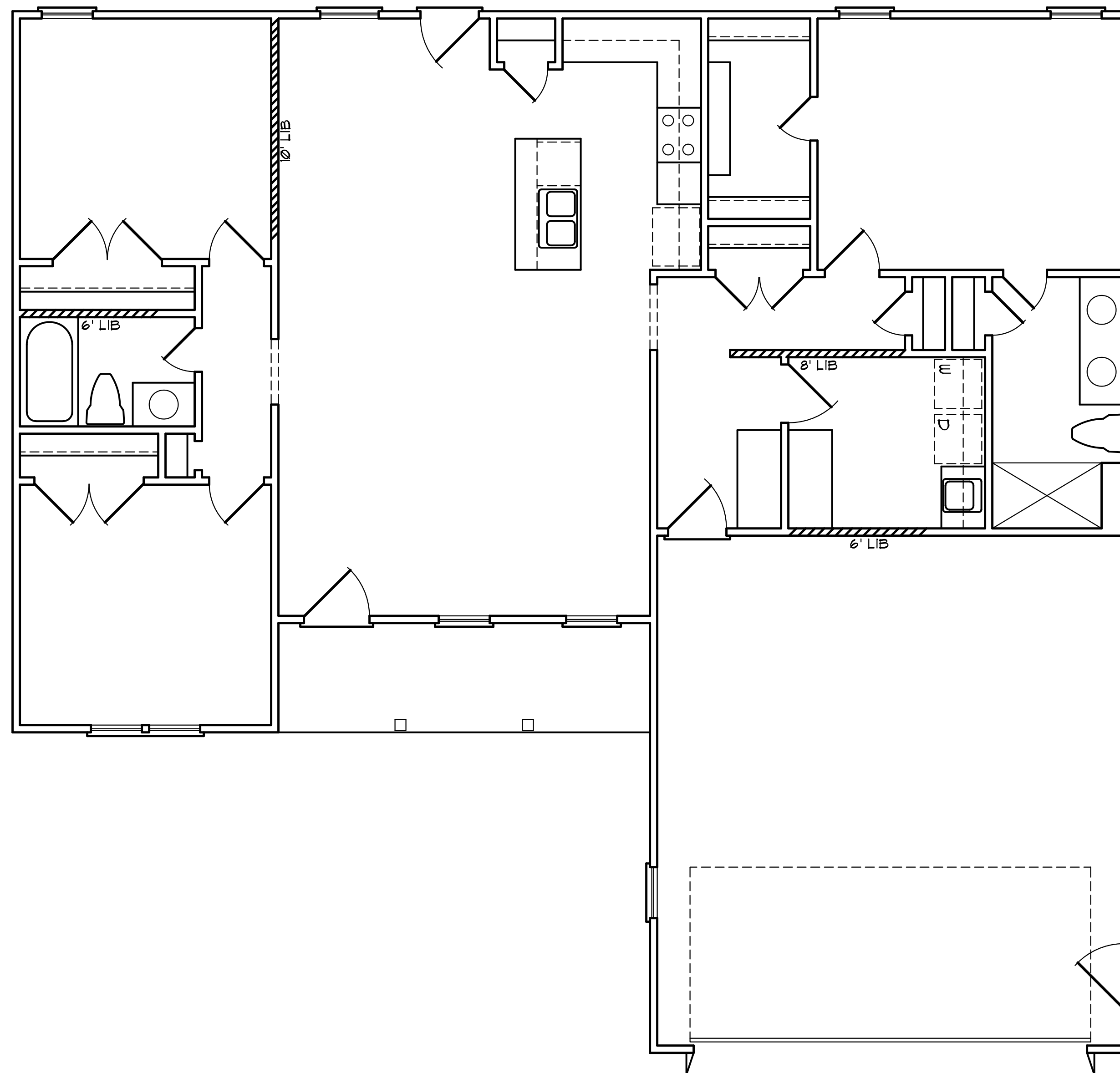
DESCRIPTION:
 MAIN LEVEL
 FLOOR FRAMING

REVISION:

DATE:
 08/07/2020

OWNER:

S2



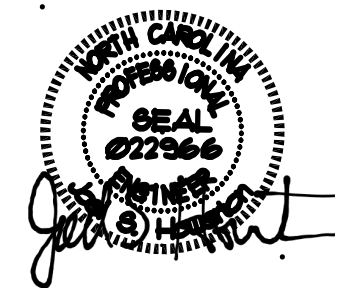
BRACED WALL NOTES:

1. BRACED WALLS ARE REQUIRED PER SECTION R602.10.1 2018 NCBC RESIDENTIAL CODE.
2. THE EXTERIOR WALL STRUCTURE SHALL BE CONTINUOUSLY SHEATHED, FULL HEIGHT WITH MIN. THICKNESS 7/16" OSB. THESE WALLS SHALL BE CONSTRUCTED IN CONFORMANCE TO TYPE CS-WSP DETAILS.
3. BASIS OF DESIGN FOR INTERIOR BRACE WALLS IS LIB (LET IN BRACING) METHOD AS DETAILED PER CODE TABLE R602.10.2.
4. SPECIAL BRACING DETAILS ARE ILLUSTRATED IN THE CODE AND ALLOWED WHERE WALLS DO NOT MEET THE MINIMUM REQUIREMENTS FOR SUPPORT. REFER TO GARAGE OPENING, PORTAL FRAMING DETAILS.

STRUCTURAL EVALUATION BY:

HOWERTON SERVICES, PLLC
 3513 CATHEDRAL BELL ROAD RALEIGH, NC 27614
 LICENSE P-1716

- * ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS ON THIS DOCUMENT. SEAL DOES NOT INCLUDE CONSTRUCTION REVIEW, MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES OR SAFETY PRECAUTIONS.
- * ANY DEVIATIONS OR DISCREPANCIES ON PLANS ARE TO BE BROUGHT TO IMMEDIATE ATTENTION OF THE ENGINEER. FAILURE TO DO SO WILL VOID ENGINEER'S LIABILITY.
- * DO NOT SCALE THESE DRAWINGS - ENGINEERING APPROVAL EXPIRES 09/01/2021



08 08 2020

S4 BRACE WALL PLAN
01 1/4"=1'-0"

Plan No. 1407-10

STRUCTURAL EVALUATION BY:
 HOWERTON SERVICES, PLLC
 3513 CATHEDRAL BELL
 RD., RALEIGH N.C. 27614

BUILDING DESIGN BY:
 VUNCANNON DESIGNS

HENGES RESIDENCE

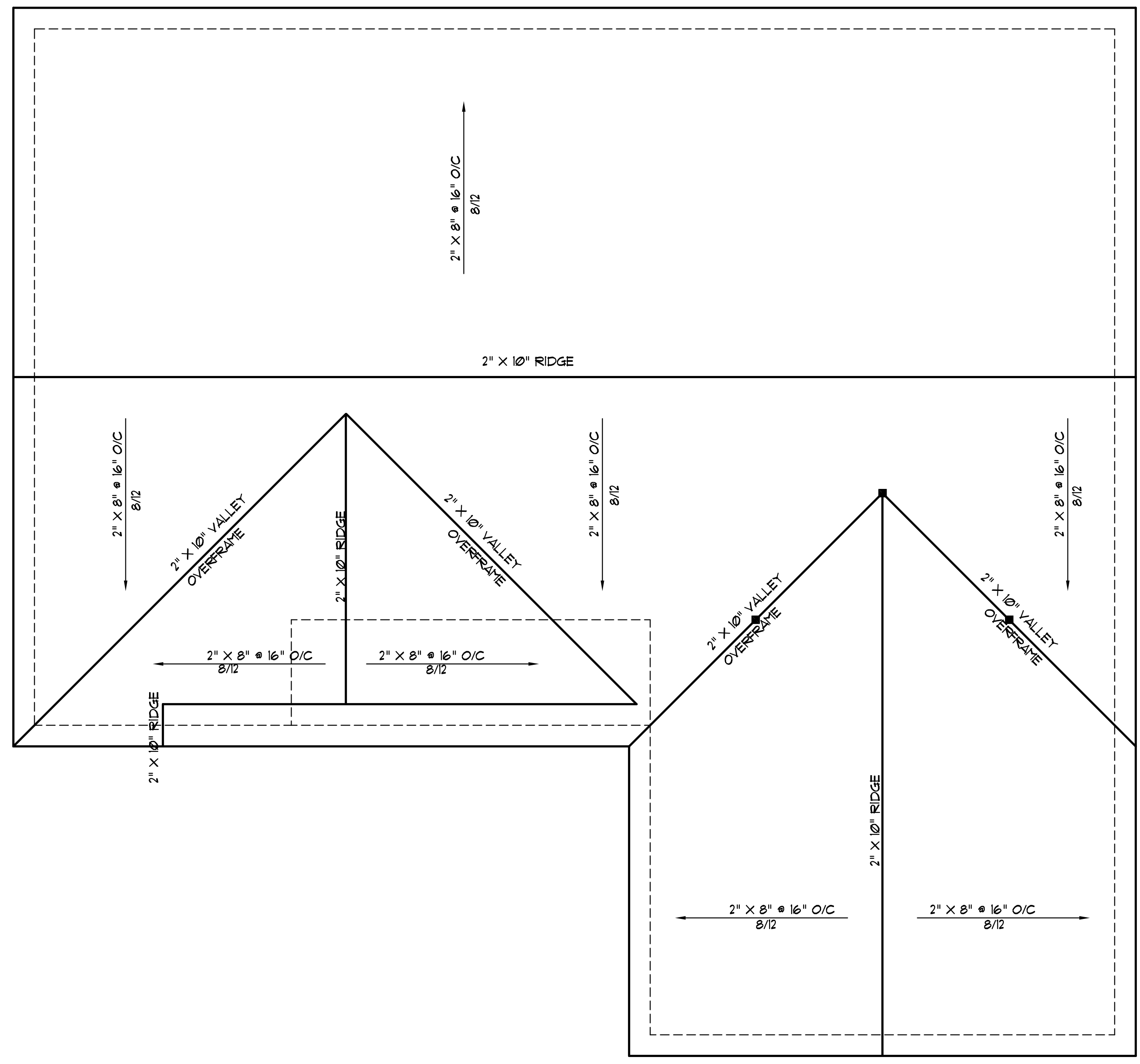
DESCRIPTION:
 BRACING PLAN

REVISION:

DATE:
 08/07/2020

OWNER:

S3



GENERAL ROOF NOTES:

1. THIS PLAN DESIGNED IN ACCORDANCE WITH NC RESIDENTIAL CODE, 2018 EDITION.
2. ROOF CLADDING DESIGN VALUES (POSITIVE/NEGATIVE) SHALL BE AS FOLLOWS:
 45.5 #/SF FOR ROOF PITCHES FROM 0 /12 TO 2.25 /12
 34.5 #/SF FOR ROOF PITCHES FROM 2.25 /12 TO 7 /12
 21 #/SF FOR ROOF PITCHES FROM 7 /12 TO 12 /12
3. ALL ROOFING ELEMENTS SHALL MEET THE REQUIREMENTS OF CHAPTER 8 OF THE CODE.
4. ALL LUMBER SHALL BE #2 SPF OR BETTER. RAFTERS MAY BE FINGER JOINTED PER NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION, AND MUST HAVE THE STRUCTURAL CERTIFICATION STAMPED ON THE MEMBER.
5. RAFTER SIZES, SPANS AND SPACING SHALL NOT EXCEED THE FOLLOWING:

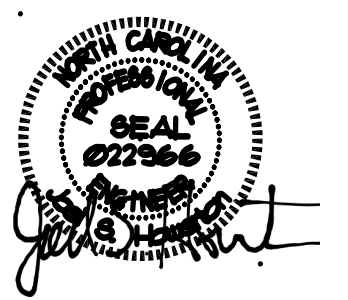
SIZE	2X6	2X8	2X10
SPACING 12" O.C.	14'-9"	19'-6"	24'-10"
SPACING 16" O.C.	13'-5"	17'-9"	22'-3"
6. ALL RAFTERS TO BE 2X8 @ 16" O.C. #2 SPF UNLESS NOTED OTHERWISE.
7. 2-2X10 HIPS MAY BE SPLICED WITH A MIN. 6'-0" OVERLAP.
8. PROVIDE DOUBLE RAFTER EACH SIDE OF DORMERS WITH DOUBLE HEADER.
9. ATTACH VAULTED RAFTERS WITH HURRICANE CLIP SIMPSON "H-5" OR EQUIVALENT. PROVIDE DOUBLE OPPOSING RAFTERS WHERE NOTED.
10. 2X8 RAFTERS @ CATHEDRAL OR VAULTED CEILINGS TO BE FURRED DOWN 2" OR USE 2X10 RAFTERS FOR INSULATION PER CODE.
11. PROVIDE 2X4 COLLAR TIES EVERY SECOND RAFTER (TYPICAL)
12. PROVIDE 2X4 RAFTER TIES @ 32" O.C. (TYPICAL)
13. FRAME RAFTERS ON 2X4 PLATE ON TOP OF CEILING JOISTS UNLESS NOTED OTHERWISE.
14. SHINGLES ASSUMED TO BE 240 LB. FIBERGLASS, OR EQUAL. MINIMUM ROOF PITCH TO BE AS INDICATED ON ARCHITECTURAL PLAN SHEETS.
15. PROVIDE DOUBLE LAYER OF ROOF FELT WHERE ROOF PITCH IS LESS THAN 4 /12.
16. THESE DESIGN DRAWINGS WERE PRODUCED BY HOWERTON CONSULTING ENGINEERING, INC ASSUMES NO LIABILITY FOR THE CORRECTNESS OF ARCHITECTURAL FEATURES, DIMENSIONS OR FIXTURES.
17. ALL HIP RIDGES AND VALLEYS SHALL BE DOUBLE 2X10 UNLESS NOTED OTHERWISE.
18. CONTRACTOR IS RESPONSIBLE FOR REVIEWING DRAWINGS FOR CONSTRUCTABILITY PRIOR TO BEGINNING CONSTRUCTION.
19. VALLEY RAFTERS WITH SPANS LONGER THAN 15' SHALL BE LVLs SUPPORTED AS NOTED. PROVIDE TEMPORARY STIFF KNEE SUPPORT UNTIL ALL SHEATHING AND RAFTER TIES/COLLARS ARE INSTALLED.
20. DO NOT SCALE THESE DRAWINGS. IF DISCREPANCIES ARE NOTED, CONTACT THE ENGINEER.
21. DESIGN BASES PROVIDED BY S&S CONTRACTING INC., FUQUAY VARINA, NC AND THEY ARE RESPONSIBLE FOR ALL ARCHITECTURAL FEATURES, DIMENSIONS, COMPLIANCE WITH ALL ACCESS/EGRESS REQUIREMENTS, FIRE CODE AND LIFE SAFETY DESIGN ISSUES.

ATTIC SPACE VENTILATION
 MAIN ROOF
 ATTIC AREA = 2011 SQ. FT.
 REQUIRED AREA = 1/500 = 6.10 SQ. FT.
 NOTE:
 ALL EAVES TO HAVE 2" CONTINUOUS SOFFIT VENT
 ALLOW 1" AIR SPACE ABOVE INSULATION FOR AIR FLOW

STRUCTURAL EVALUATION BY:
 HOWERTON SERVICES, PLLC
 3513 CATHEDRAL BELL ROAD RALEIGH, NC 27614
 LICENSE P-1716

- * ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS ON THIS DOCUMENT. SEAL DOES NOT INCLUDE CONSTRUCTION REVIEW, MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES OR SAFETY PRECAUTIONS.
- * ANY DEVIATIONS OR DISCREPANCIES ON PLANS ARE TO BE BROUGHT TO IMMEDIATE ATTENTION OF THE ENGINEER. FAILURE TO DO SO WILL VOID ENGINEER'S LIABILITY.
- * DO NOT SCALE THESE DRAWINGS - ENGINEERING APPROVAL EXPIRES 09/01/2021

■ INDICATES (3) 2x4 STIFF KNEE ON BEAM BELOW



S5
01
ROOF PLAN
 1/4"=1'-0"

Plan No. 1407-10

HENGES RESIDENCE

DESCRIPTION:
 ROOF PLAN

REVISION:

DATE:
 08/07/2020

OWNER:

S4

STRUCTURAL EVALUATION BY:
 HOWERTON SERVICES, PLLC
 3513 CATHEDRAL BELL
 RD., RALEIGH N.C. 27614

BUILDING DESIGN BY:
 VUNCANNON DESIGNS