

J.S. THOMPSON ENGINEERING, INC

September 25, 2023

David Allgood
Davidson Home Crafters
5501 Erinvale Court
Holly Springs, NC 27540

Dear Mr. Allgood:

The plan was reviewed for the 30'-0" x 40'-0" barn at 189 Spence Road in Lillington, North Carolina to address the necessary construction requirements. Analysis revealed the following:

- 1) The roof system is to be comprised of roof trusses engineered by others running the width of the barn. Trusses are to be secured with hurricane clips to resist uplift.
- 2) Walls framed to 12'-0" height on the foundation require 2 x 6 @ 16" o.c. SPF #2
- 3) The 9/0 x 8/0 garage door at the gable end requires (3) 2 x 12 SPF #2 or SYP #2 header with (2) jacks and (4) king studs at each end. Stud columns are to be fastened with Simpson CS16 strapping at 24" o.c. The opening is to be framed using CS-PF portal requirements. See attached wall braced design notes and detail sheets.
- 4) All other openings 3'-0" or less in width require (3) 2 x 10 headers with (1) jack and (2) king studs at each end.
- 5) All walls are to be sheathed with 7/16" OSB to provide CS-WSP wall bracing that will brace the structure for lateral loads. Braced wall design is per section R602.10.5 "Wall bracing by engineered design" of the 2018 North Carolina Residential Code. See attached wall braced design notes.
- 6) The foundation is to be an 8" CMU wall on a continuous 16" wide x 8" deep 3000 psi concrete footing. 24" x 24" x 10" concrete footings are to be centered at the sides of the garage door opening. A 4" concrete slab on #57/#67 washed stone backfill is to be placed on the interior side of the foundation wall.
- 7) See attached 120 Mph notes for construction requirements. The structure built as outlined in this letter with the attached notes and details will be suitable to resist lateral loads imposed in the 120 mph wind zone.

All construction is to be in accordance with the 2018 North Carolina Residential Code and is to be verified by an inspector. This configuration will provide the required support for all applied loads.

Please call me if you have any questions.

Sincerely,

J.S. Thompson Engineering, Inc.
N.C. License No. C-1733

Matthew G. Strother, P.E.



PAGE 1 OF 3

120 MPH ULTIMATE DESIGN WIND SPEED
NOTES FOR LESS THAN
30' MEAN ROOF HEIGHT:

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. INSTALL 1/2" ANCHOR BOLTS 6'-0" O.C. AND WITHIN 1'-0" FROM END OF EACH CORNER. ANCHOR BOLTS MUST EXTEND A MINIMUM OF 7" INTO MASONRY OR CONCRETE. LOCATE BOLT WITHIN MIDDLE THIRD OF PLATE WIDTH.
4. MEAN ROOF HEIGHT IS LESS THAN 30 FEET.
5. EXTERIOR WALLS DESIGNED FOR 120 MPH WINDS.
6. WALL CLADDING DESIGNED FOR +15.5 PSF AND -20 PSF (+/- INDICATE POSITIVE / NEGATIVE PRESSURE (TYP)).
7. 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.
8. INSTALL 7/16" OSB SHEATHING ON ALL EXTERIOR WALLS OF ALL STORIES IN ACCORDANCE WITH SECTION R602.10.3 OF THE NCRC, 2018 EDITION. SEE THE WALL BRACING NOTES AND DETAILS SHEET FOR MORE INFORMATION.
9. ENERGY EFFICIENCY COMPLIANCE AND INSULATION VALUES OF THE BUILDING TO BE IN ACCORDANCE WITH CHAPTER 11 OF THE NCRC, 2018 EDITION.
10. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

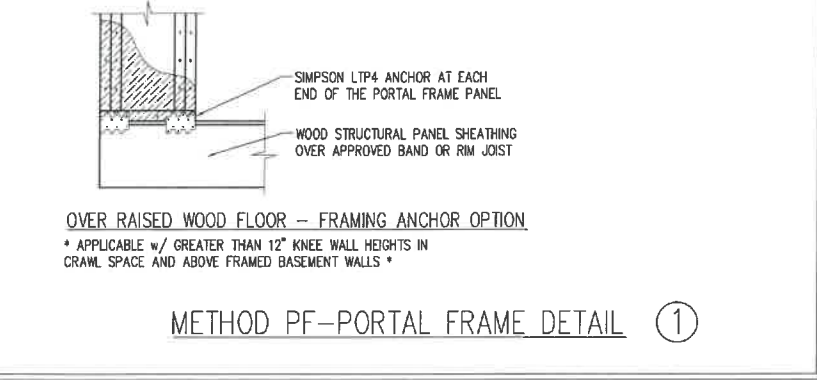
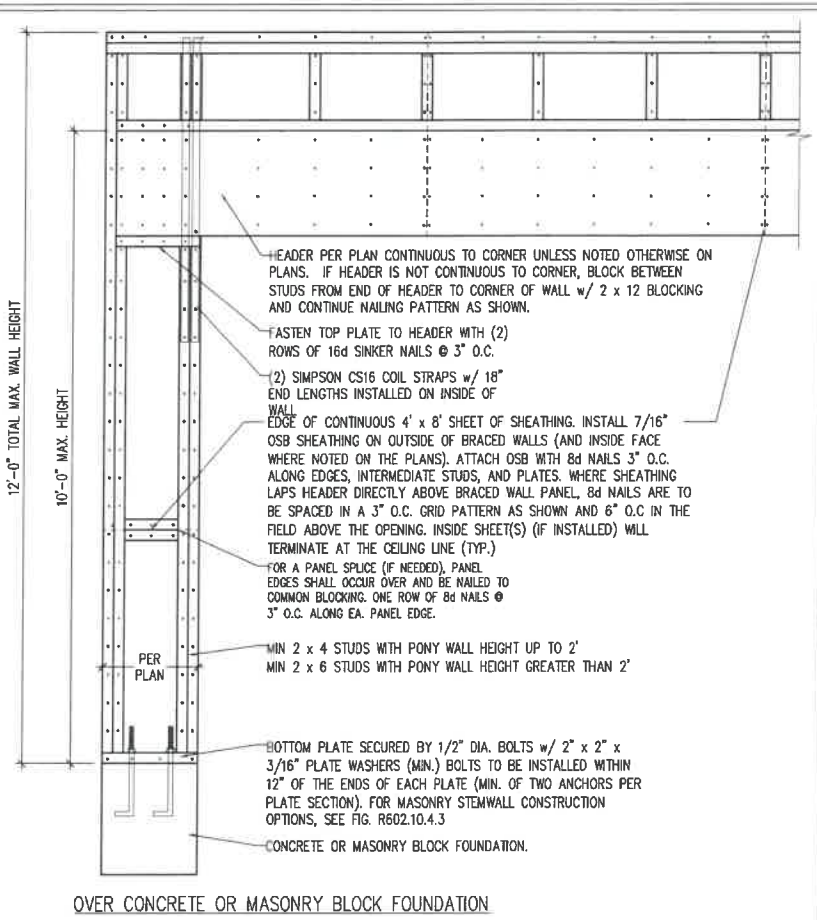
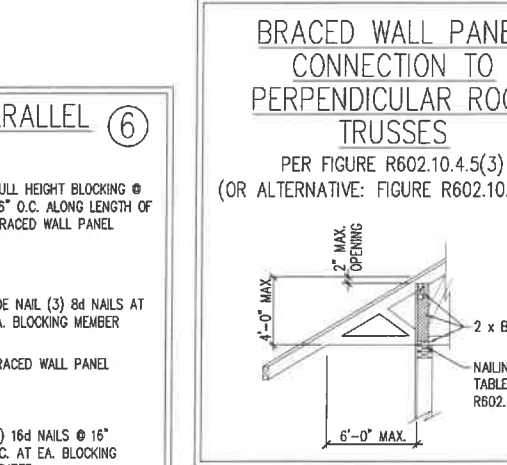
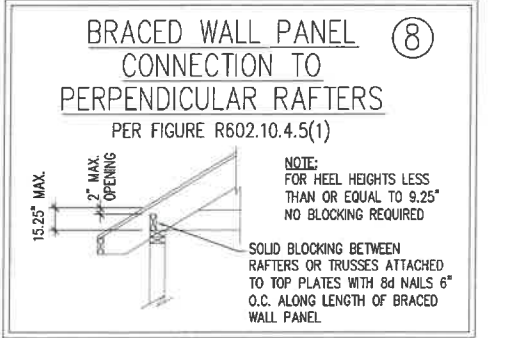
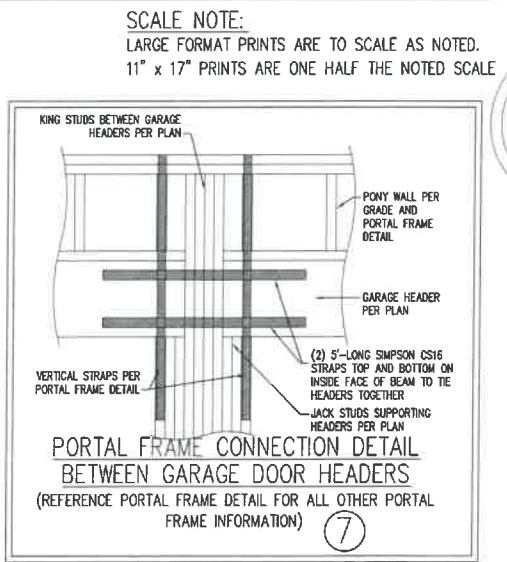
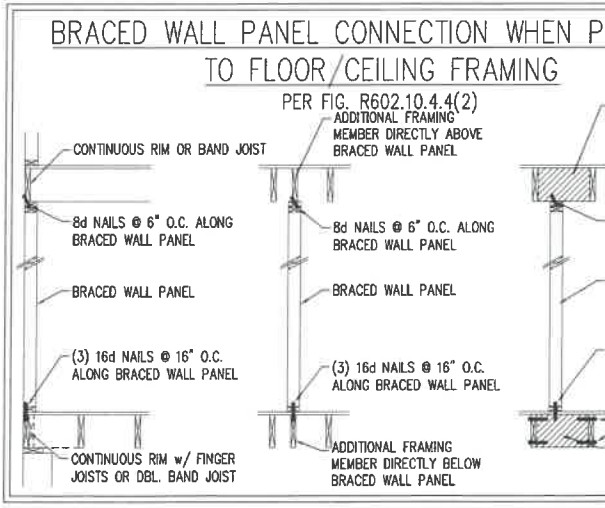
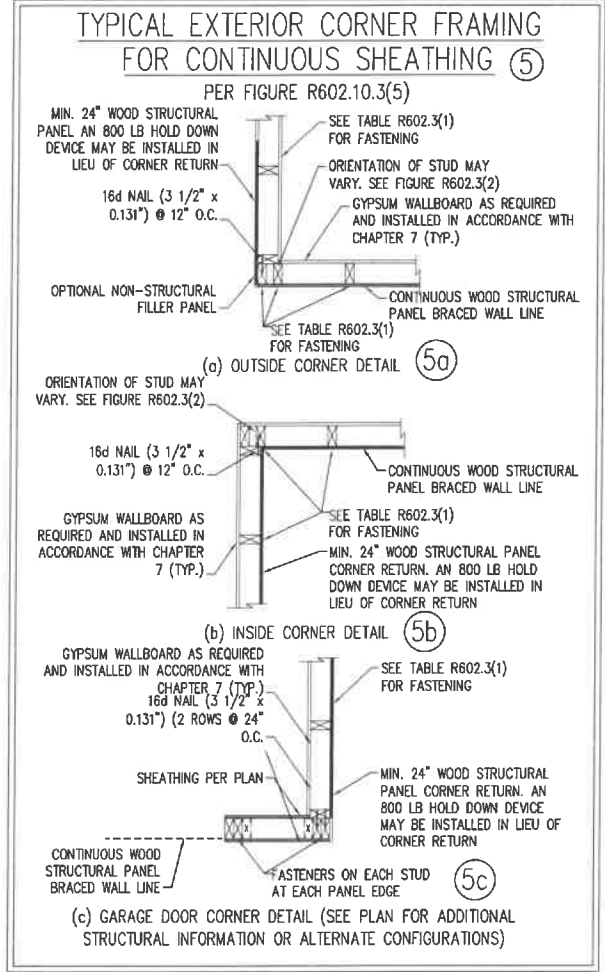
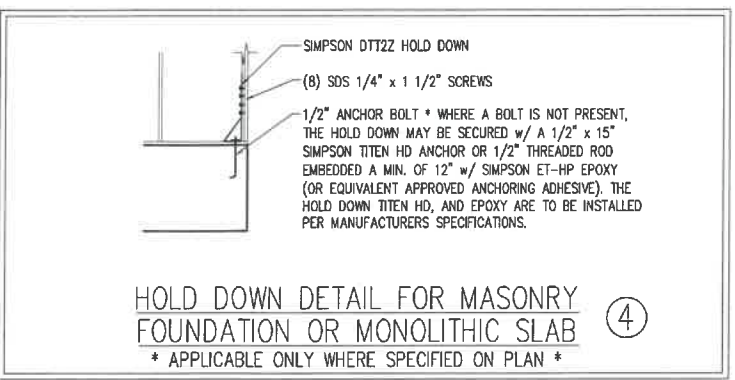
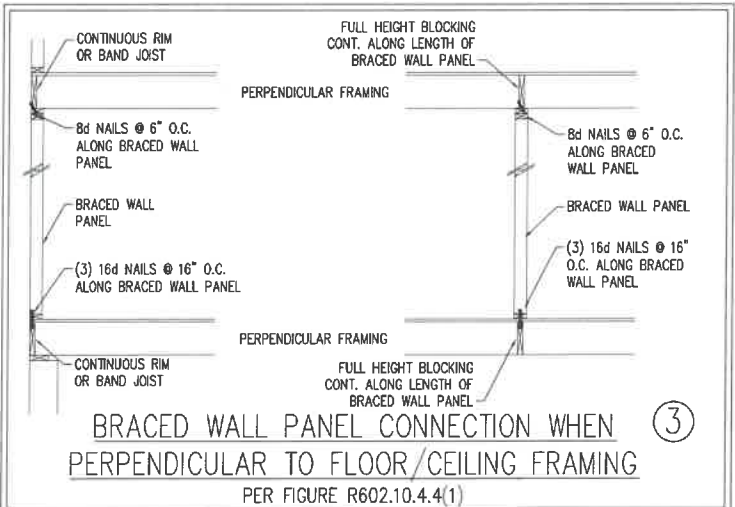
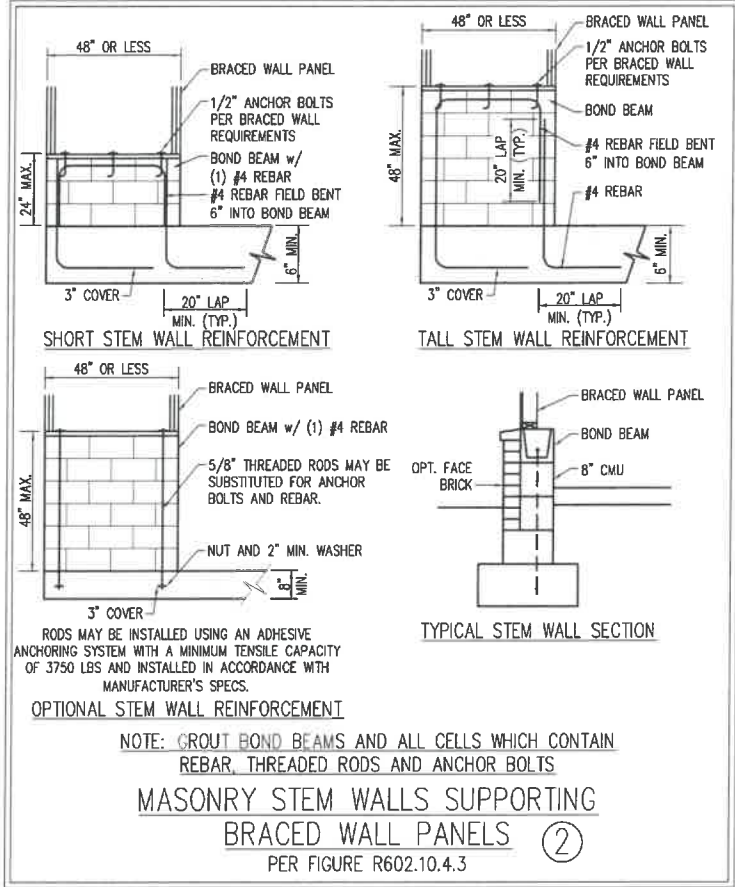


9/25/2023

PAGE 2 OF 3

GENERAL WALL BRACING NOTES:

1. WALL BRACING DESIGNED IN ACCORDANCE WITH CHAPTER 6 OF THE 2018 NC RESIDENTIAL BUILDING CODE (NRC). TABLES AND FIGURES REFERENCED ARE FROM THE 2018 NRC.
2. SEE THIS SHEET FOR GENERAL DETAILS. REFER TO THE 2018 NRC FOR ADDITIONAL INFORMATION AS NEEDED.
3. BRACED EXTERIOR WALLS SUPPORTING ROOF TRUSSES AND RAFTERS, INCLUDING STORIES BELOW THE TOP FLOOR, HAVE BEEN DESIGNED PER R602.3.5 (3). WALL SHEATHING AND FASTENERS HAVE BEEN DESIGNED TO RESIST COMBINED UPLIFT AND SHEAR FORCES IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE.
4. SEE STRUCTURAL SHEETS FOR BRACED WALL LOCATIONS, DIMENSIONS, HOLD DOWN TYPE AND LOCATIONS, BRACED WALL LINE KEY WITH WALL DESIGN SUMMARY OF REQUIRED/PROVIDED TOTALS FOR EACH WALL LINE AND ANY SPECIAL NOTES OR REQUIREMENTS.
5. ALL EXTERIOR WALLS ARE TO BE SHEATHED WITH CS-WSP IN ACCORDANCE WITH SECTION R602.10.3 UNLESS NOTED OTHERWISE.
6. ALL EXTERIOR AND INTERIOR WALLS TO HAVE 1/2" GYPSUM INSTALLED. WHEN NOT USING METHOD "GB", GYPSUM TO BE FASTENED PER TABLE R702.3.5. METHOD GB TO BE FASTENED PER TABLE R602.10.1
7. CS-WSP REFERS TO THE "CONTINUOUS SHEATHING - WOOD STRUCTURAL PANELS" WALL BRACING METHOD. 7/16" OSB SHEATHING IS TO BE INSTALLED ON 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 (U.N.O.).
8. GB REFERS TO THE "GYPSUM BOARD" WALL BRACING METHOD. 1/2" (MIN.) GYPSUM WALL BOARD IS TO BE INSTALLED ON BOTH SIDES OF THE BRACED WALL FASTENED WITH 1 1/4" SCREWS OR 1 5/8" NAILS SPACED 7" O.C. ALONG PANEL EDGES INCLUDING TOP AND BOTTOM PLATES AND INTERMEDIATE SUPPORTS (U.N.O.). VERIFY ALL FASTENER OPTIONS FOR 1/2" AND 5/8" GYPSUM PRIOR TO CONSTRUCTION. FOR INTERIOR FASTENER OPTIONS SEE TABLE R702.3.5. FOR EXTERIOR FASTENER OPTIONS SEE TABLE R602.3(1). EXTERIOR GB TO BE INSTALLED VERTICALLY.
9. REQUIRED BRACED WALL LENGTH 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.



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PAGE 3 OF 3



9/25/2023

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WALL BRACING NOTES AND DETAILS

DATE: AUGUST 28, 2022
 SCALE: 1/4" = 1'-0"
 DRAWN BY: BT
 ENGINEERED BY: BT

BRACED WALL NOTES AND DETAILS AND PF DETAILS