



Wind Load Analysis and Certification

Cook Residence by Red Door Homes

2020 Florida Building Code section 1609 according to ASCE 7-16

Ultimate Design Wind Speed (Vult) = 130 MPH (3 second gust)

Nominal Design Wind Speed (Vasd)) = 101 MPH

Risk Category = II

Exposure Category = B, Enclosed Building

Applicable Internal Pressure Coefficient = .18

Design Wind Pressure for use of External Components (Components and Cladding)= +32.1psf, -43.3psf

Overhead Garage Door: +15.2psf, -16.9psf

Roof Decking

7/16" or 5/8" OSB or 1/2", 5/8" or 3/4" CDX Decking; 48"x96" Sheets, Perpendicular to Roof Framing Members

8d common (.131" dia) or 8d ring-shank (.113" dia.) nails at **4" O.C. on Ends, 8" O.C. in Interior**

Trusses or Rafters at 2' O.C. (horizontal distance), No Intermediate Blocking Required

Rafters: 2x6 SYP #2 up to 10' horizontal span, 2x8 SYP #2 up to 14' horizontal span

Shear Wall Segments

7/16" OSB or 1/2" CDX plywood, 48" Wide Sheets - Sheathing Continuous from Top Plate down to Pressure Treated Sole Plate Bearing on Foundation.

8d common (.131" dia) nails at **3" O.C. on Edges and Ends, 8" O.C. in Interior**

Transverse Shearwall = 50', Longitudinal Shearwall = 38'

2x4 SPF (No. 1&2) Studs at 16" O.C., up to 12'

or: 2x6 SPF (No. 1&2) Studs at 16" O.C., up to 17'

See attached detail for stud and jack requirements for wall openings

Nail Together Double Top Plate 6" O.C. w/12-d Common Nails (SYP top plates)

Other Wall Segments - Same as Shear Walls

Gabled End Wall Framing

Balloon Frame (see details) or see attached alternate details. This includes porch walls parallel to trusses.

Special Notes: All headers and beams to be double 2x12 SP#2. **This structural and windload analysis is based on the attached truss layout. Any deviation from the attached layout invalidates this structural and windload analysis.**

Footings and Foundations (Based on Truss Engineering)

20" deep x 14" wide monolithic with 2-#5's, Continuous, 3000 psi Concrete

Garage Mono: depth of garage mono footer shall be a min of 18" below the garage slab and any curb shall be a min of 6" wide and a maximum of 6" deep or 8" wide and 8" deep. Any curb deeper than this requires special engineering design.

or: 20" Wide x 10" Deep 3000 psi Concrete Strip Footing with 2-#5's, Continuous

8"x8"x16" Concrete Masonry Stemwall, Minimum 2 Courses, Maximum 4 Courses, Fully Grouted, except sections over 3 courses need only cells with rebar to be grouted. 1-#5 Vertical Dowel at Corners **and 6'-0" O.C.** (10" hook top and bottom) (min 25" lap all #5 rebar) Max distance between top of garage floor and top of stemwall = 18" **(1) #5 continuous top course. All 4" slabs requires 6x6 WWM**

Interior footers: 16" wide by 10" deep (including 4" slab) with 2-#5's, Continuous,

Note: It is the contractors responsibility to install all necessary interior footers per truss manufacturers requirements based on the attached truss layouts.

Porch Footers: 16" deep x 14" wide monolithic with 2-#5's, Continuous or see above or: 8" wide by 8" deep bell footing with 1-#5, Continuous with minimum of 30"x30" x 15" pad under each post (w/ 3- #5 each way)

Note: footer design based on continuous bearing. Footers for any concentrated loads greater than 10,000 lbs must be reviewed with windload engineer. Movement – The information presented in this document is not calculated or intended for the use or purpose of mitigating or addressing unsuitable soils or subsurface conditions in any way or manner, whatsoever.

Hurricane-Resistance Hardware (Based on Truss Engineering)

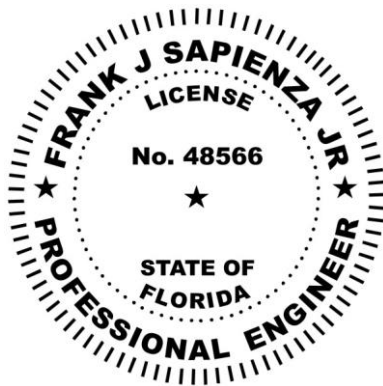
Truss Clips/Headers/Girders/Posts/Beams /Top and Bottom of Wall Unit - See Table

Anchor Bolts- 1/2"Dia. x 10" J Bolts (with min 8" embedment) at 48"O.C. (First bolt at 9" from Corner, then 48" O.C.) and at each end of Each Opening (2" round or square washers).

I hereby certify that the accompanying Wind Load Analysis for the **Cook Residence**, demonstrates compliance with the 2020 FBC section 1609 according to ASCE 7-16, to the best of my knowledge.

Frank J. Sapienza Jr.
License Professional Engineer
Florida License Number 48566

This item has been digitally signed and sealed by FRANK J SAPIENZA JR PE using Digital Signature.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.



Frank J
Sapienza
Jr

Digitally signed
by Frank J
Sapienza Jr
Date: 2022.12.05
21:38:45 -05'00'

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Number of Jack and Stud Requirements per Opening Width
 2x4 or 2x6 SPF #1&2 Construction – max Wall Height=12'
 (based on 16" O.C. Stud Spacing)

Header		
Jacks		
Opening Width	#of Jacks	#of Studs
up to 4'	1	1
up to 6'	2	1
up to 9'	2	2
up to 12'	3	2
up to 14'	3	3
up to 18'	4	3
over 18' must be engineered		
Opening Width		
Studs		

Note – Based on uniform loads. Heavy concentrated loads require engineering review

Acceptable Framing Method for Balloon Framed Gable End-Wall with trusses

Balloon Frame with 2x4 SPF No.1&2 @ 16" O.C. with the Following Conditions:

Up to 12' - Block at 8'

Over 12' but Under 14' - 2x4 SYP #2 at 16" O.C. and Block at 4',8'&12'

Over 14' but Under 17' - Double 2x4 SYP #2 at 16" O.C. and block at 4',8',12'&16'

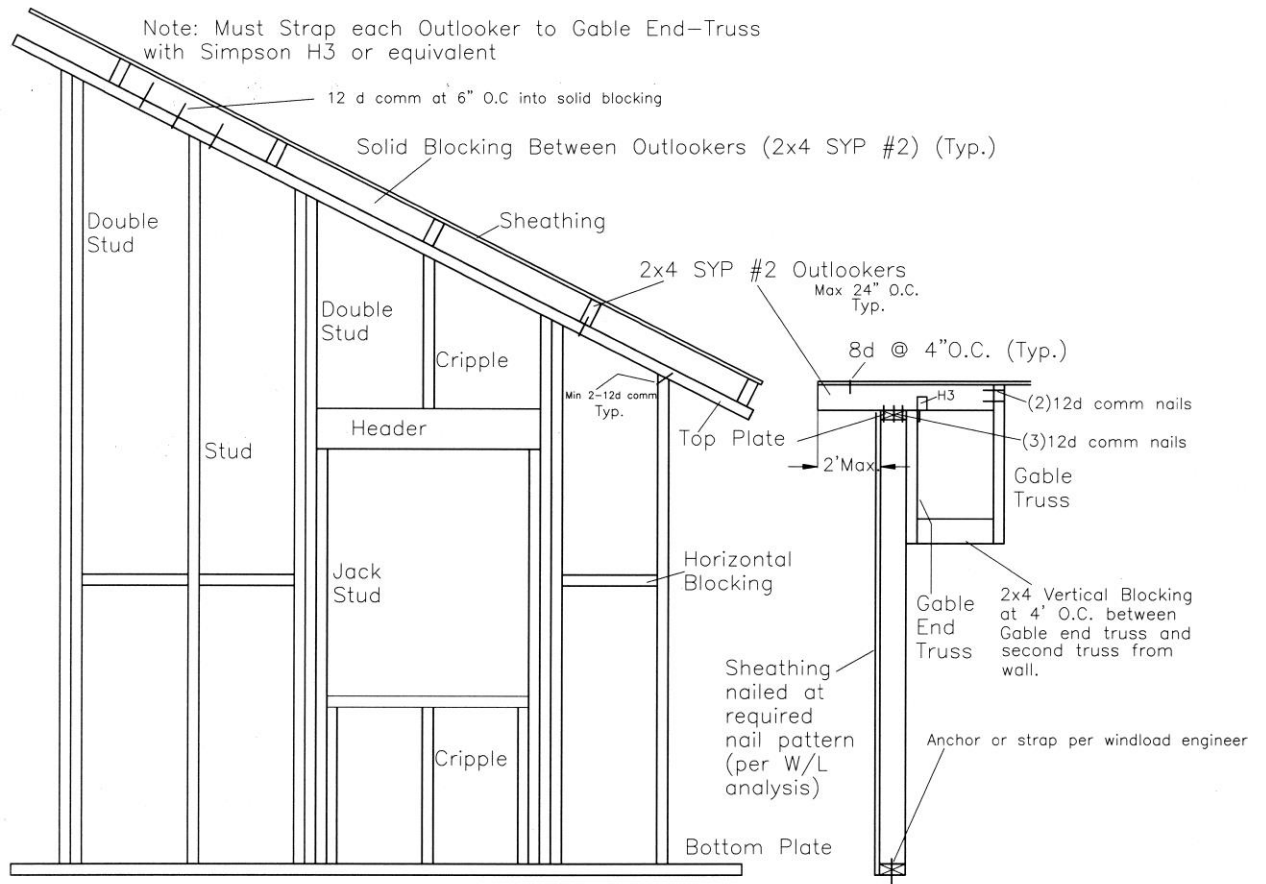
Over 17' but Under 20' - Triple 2x4 SYP #2 at 16" O.C. and block at 4',8',12'&16'

Over 20' but Under 23' - Quadruple 2x4 SYP #2 at 16" O.C. and block at 4',8',12',16'&20'

Over 23' - Must be Engineered

In all cases a minimum of a double full length stud is required at each side of openings such as doors and windows

Blocking must be parallel to top and bottom plates with a minimum of 2-12d comm nails



F. Sapienza, P.E.

Acceptable Framing Method for Balloon Framed Gable End-Wall

Balloon Frame with 2x6 SYP No.2 @ 16" O.C. with the Following Conditions:

Up to 18' – Block at 8' and 16'

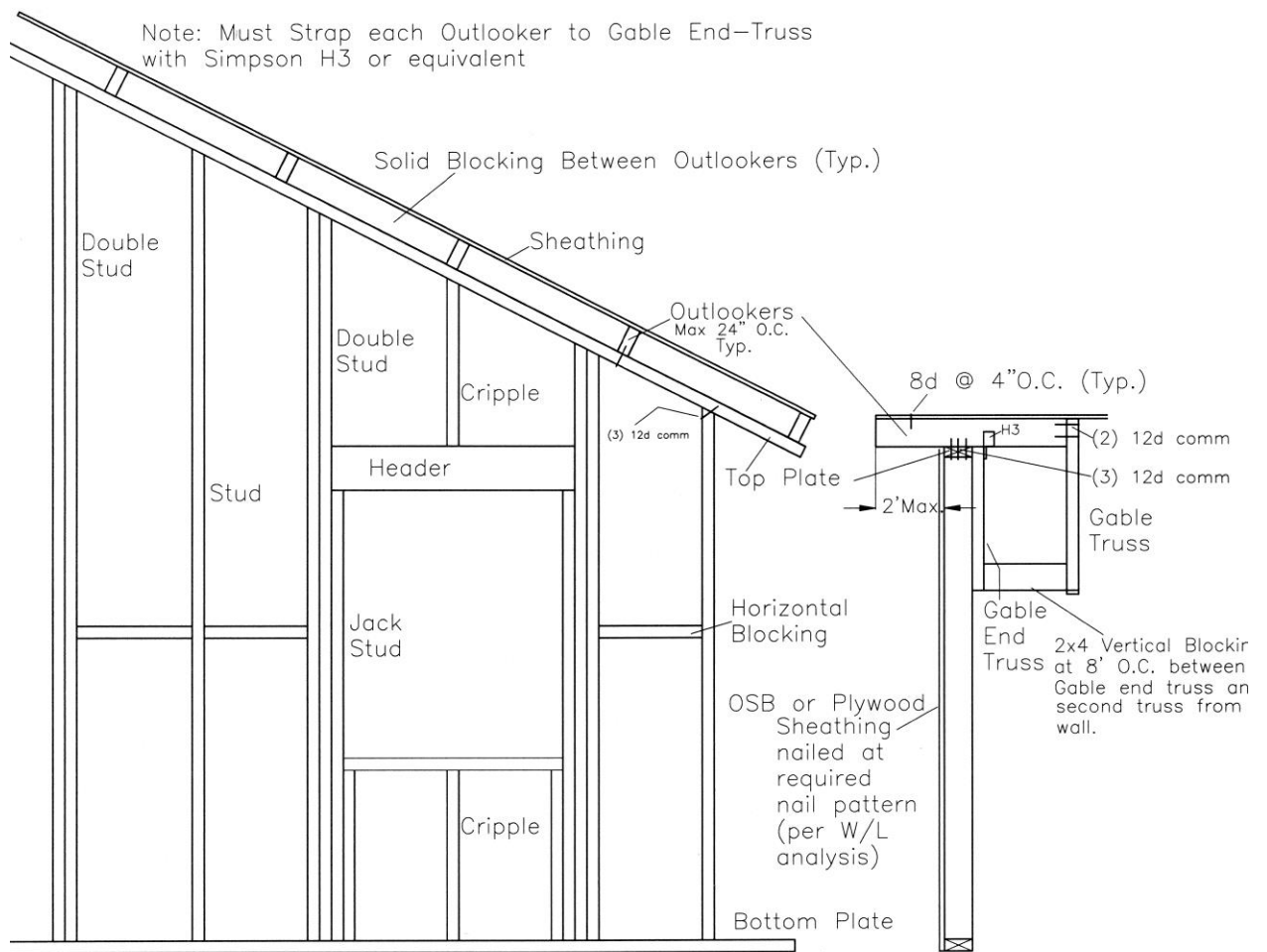
Over 18' but Under 21' – Double stud and block at 8' & 16'

Over 21' but Under 24' – Triple SYP #2 and block at 4', 8', 12' & 16'

Over 24' – Must be Engineered

In all cases a minimum of a double full length stud is required at each side of openings such as doors and windows

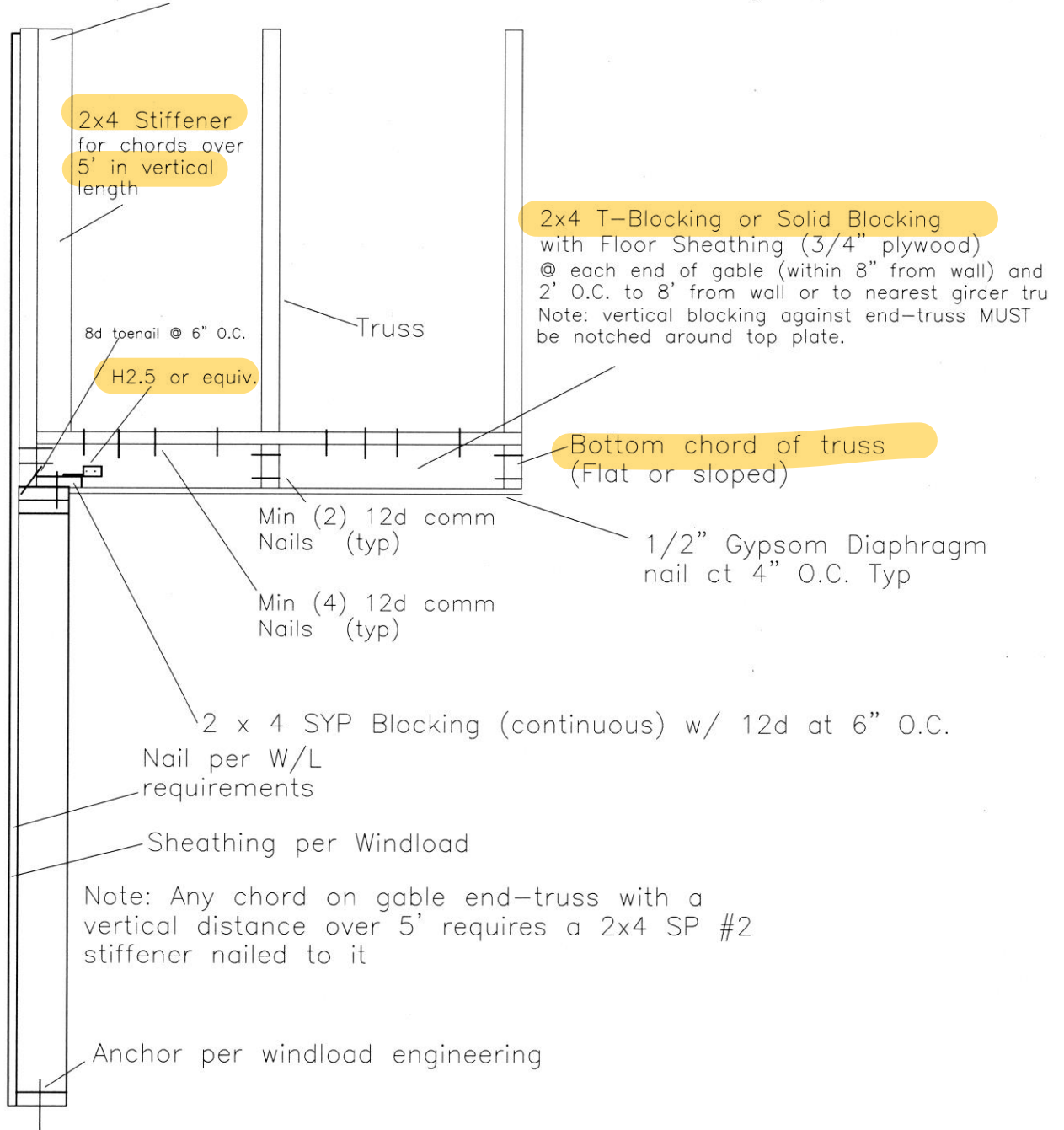
Blocking must be parallel to top and bottom plates with a minimum of 3-12d comm nails



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Gable Endwall Framing with Gable End-Truss

See Balloon Framed Detail for Outlooker framing requirements



Porch Interior Wall Detail

