Wind Load Analysis and Certification

Mayer 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 ½", 5/8"or ¾" 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 to14' horizontal span

Shear Wall Segments

7/16" OSB or ½" 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 = 40', Longitudinal Shearwall = 36'
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.
T-Block (with 2x4's) bottom chord of porch gable trusses at 4' O.C to 6' from gable end-truss

Special Notes: Other than double sheathed sections as shown on plans, no special corner framing required. 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)

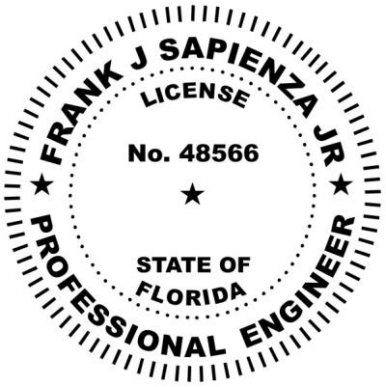
20" deep x 14" wide monolithic with 2-#5's, Continuous, 3000 psi Concrete
Garage Mono: depth of garage mono footer shall be a min of 18" below the garage slab and any curb shall be a min of 6" wide and a maximum of 6" deep or 8" wide and 8" deep. Any curb deeper than this requires special engineering 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 **Mayer 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: 2022.10.04 21:51:44 -04'00'

HOLD-DOWN TABLE

Wood Sections	Uplift Force Lbs	Top Connector Simpson **	Rating Lbs	Bottom Connector Simpson **	Rating Lbs
HEADERS					
	up to 455 lbs	LSTA9	775	H3	455
	up to 910 lbs	LSTA12	970	2-H3	910
	up to 1235 lbs	LSTA18	1235	LTT19	1350
	up to 1750 lbs	2-LSTA12	1940	LTT20	1750
	up to 2470 lbs	2-LSTA18	2470	HD2A-2.5	2565
	up to 2775 lbs	3-LSTA18	3705	HD2A-3.5	2775
	up to 3705 lbs	3-LSTA18	3705	HD5A-3	3705

To determine uplift force on header at each end, total the uplifts for each truss resting on the header and divide by 2
(assumes uniform load) Note: must use proper bolt anchors sufficient to support required load

Trusses/Girders - Uplift

up to 600 lbs - use H2.5A top, no special device required at bottom
over 600 lbs but under 990 lbs use H10 top, no special device required at bottom
up to 1215 lbs use TS22 or equivalent at top and LTT19 at bottom
up to 1750 lbs use 2-TS22 or equivalent at top and LTT20 at bottom
up to 2430 lbs use 2-TS22 or equivalent at top and HD2A bottom
up to 3645 lbs use 3-TS22 or equivalent at top and HD5A bottom
Must Use proper bolt anchors

Note: it is the contractors responsibility to provide a continuous load path from truss/rafter/ridge beam to foundation

Strap rafters to truss or at each end with min uplift resistance of 450 lbs each end
Strap ridge beam at each end with min uplift resistance of 1800 lbs

Note: Four (4) 12d comm toenails (2 on each side) required per truss/rafter per bearing point into plate to resist both lateral loads (wall to truss) and transverse loads (max plate height =12', not including gable)

Horizontal Resistance (from truss loads) - Note: these devices are in addition to required toe-nails

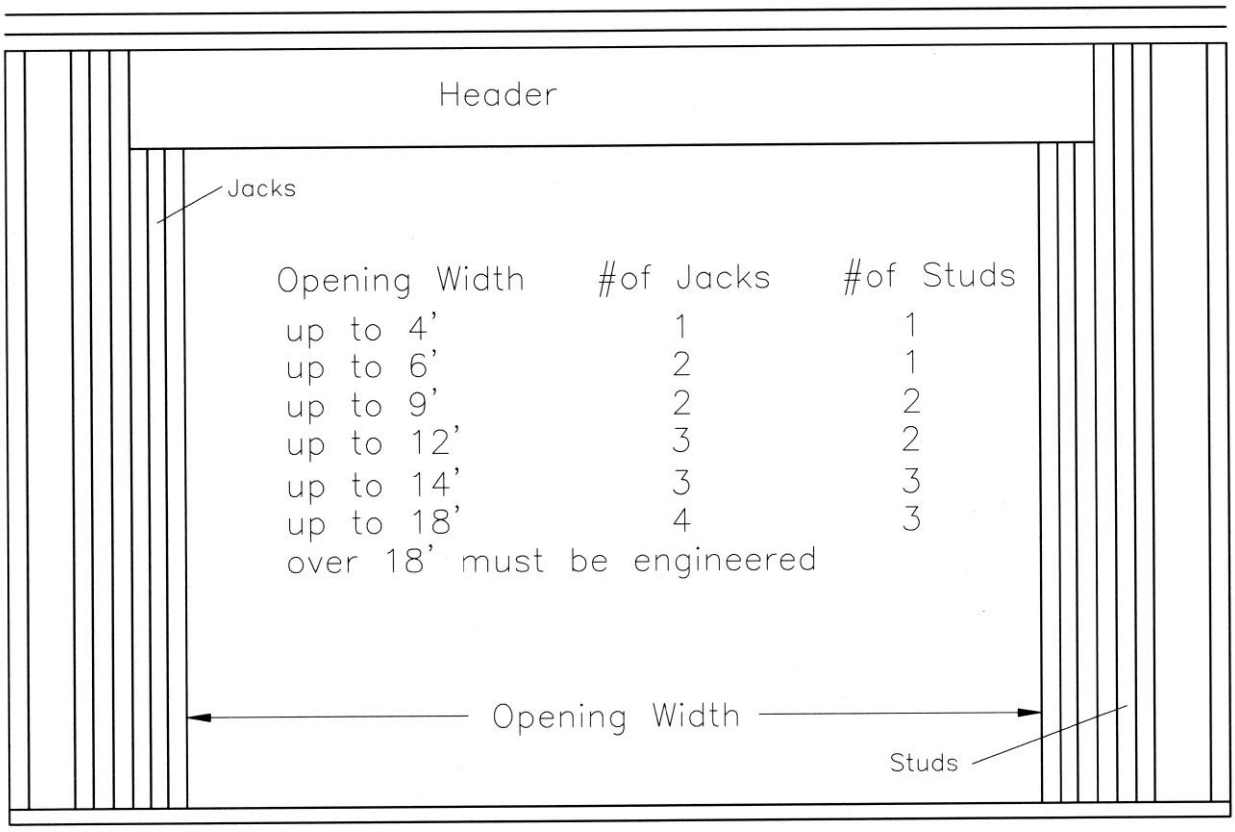
up to 110 lbs - use H2.5A
up to 525 lbs use H10
up to 1090 lbs use H10 plus A23
Note: hardware to be used must satisfy both uplift and horizontal resistance, combination of devices is acceptable

		top		bottom	
BEAM SEATS		LSTA18*	1235	LTT19*	1350
POSTS		2-LSTA18	2400	ABU44 or ABU66	2200
	*** or per truss engineering**			Must Use proper bolt anchors	

STUDS

Wall Sheathing Nailing Adequate Exterior Walls bottom (8d nails at 3" O.C.), must cover sill plate
Wall Sheathing Nailing Adequate Exterior Walls Top (8d nails at 3" O.C.), as long as sheathing covers top plate, otherwise use SP2 @32" O.C. in addition to sheathing nailing,
Use SP2 top and SP1 bottom each stud an ancor bolts @ 32" O.C. for all interior load bearing walls that have uplift. Interior anchor bolts to be 1/2" x 8" A307 or 1/2" x 6" wedge anchor with 2" washers
Please Note:All Beams must be sheathed or strapped to double top plate (if applicable)
An equivalent device of same or other manufactures can be substituted for any of the devices specified on this page as long as it meets the required load capacities
Note: For nailing into SPF members, multiply table values by .86

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)



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

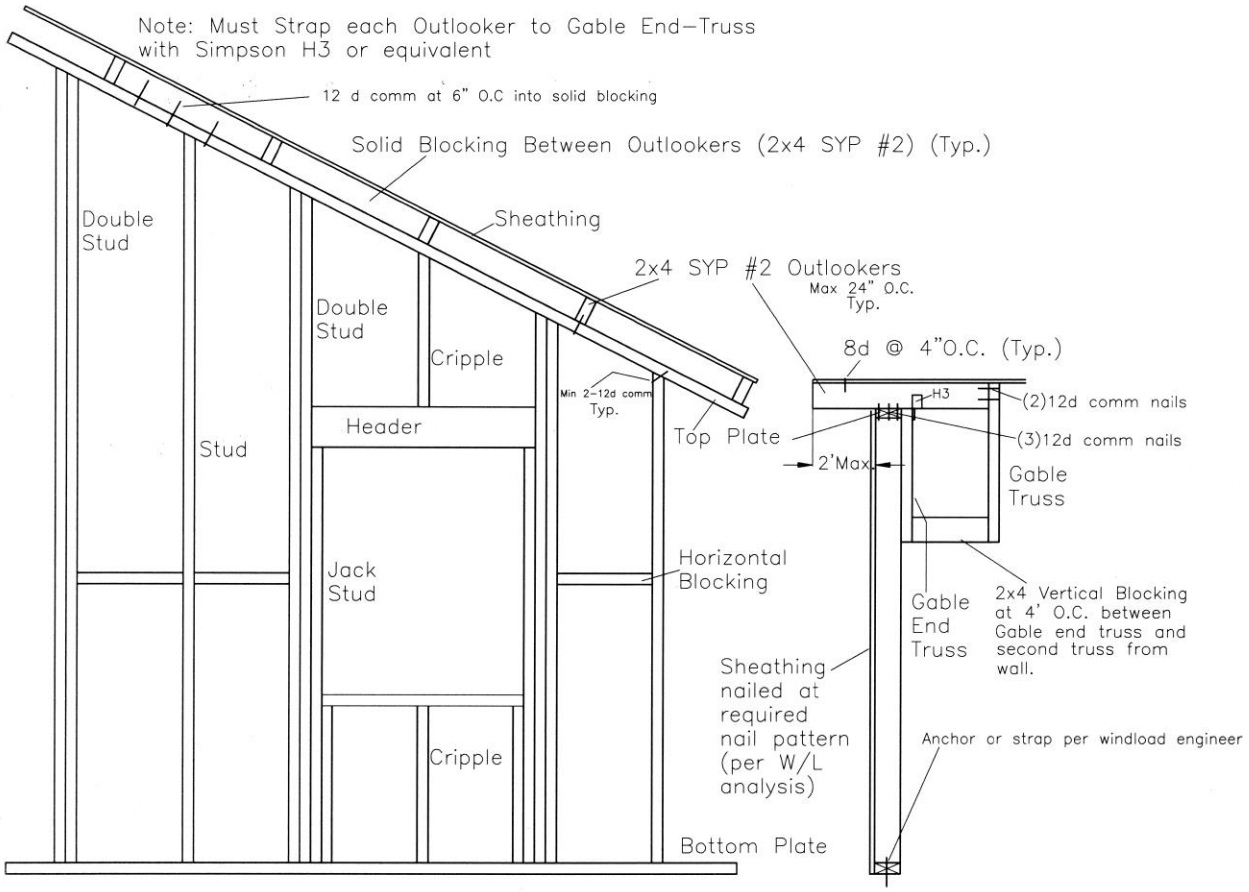
Note – Based on uniform loads. Heavy concentrated loads require engineering review

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



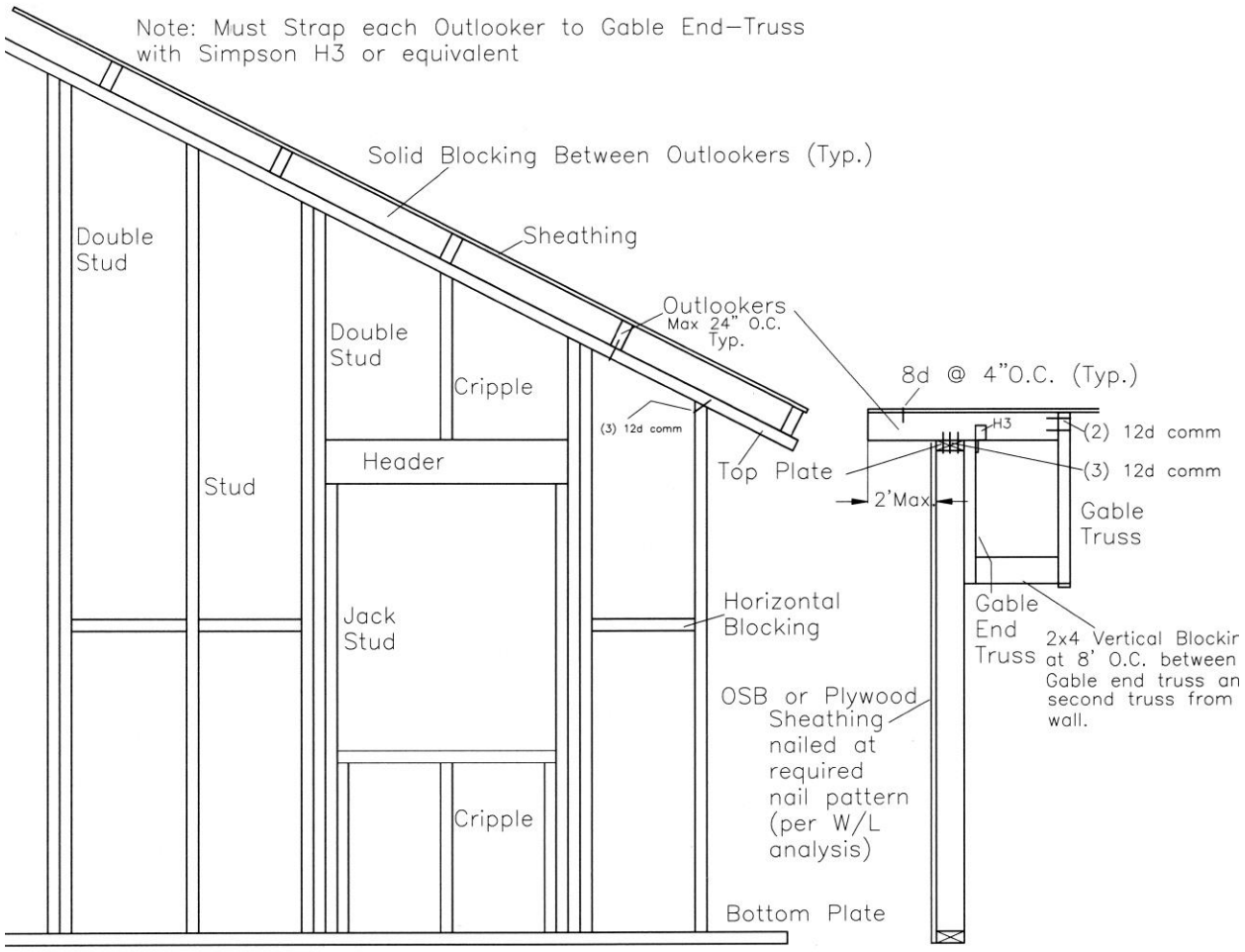
F. Sapienza, P.E.

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

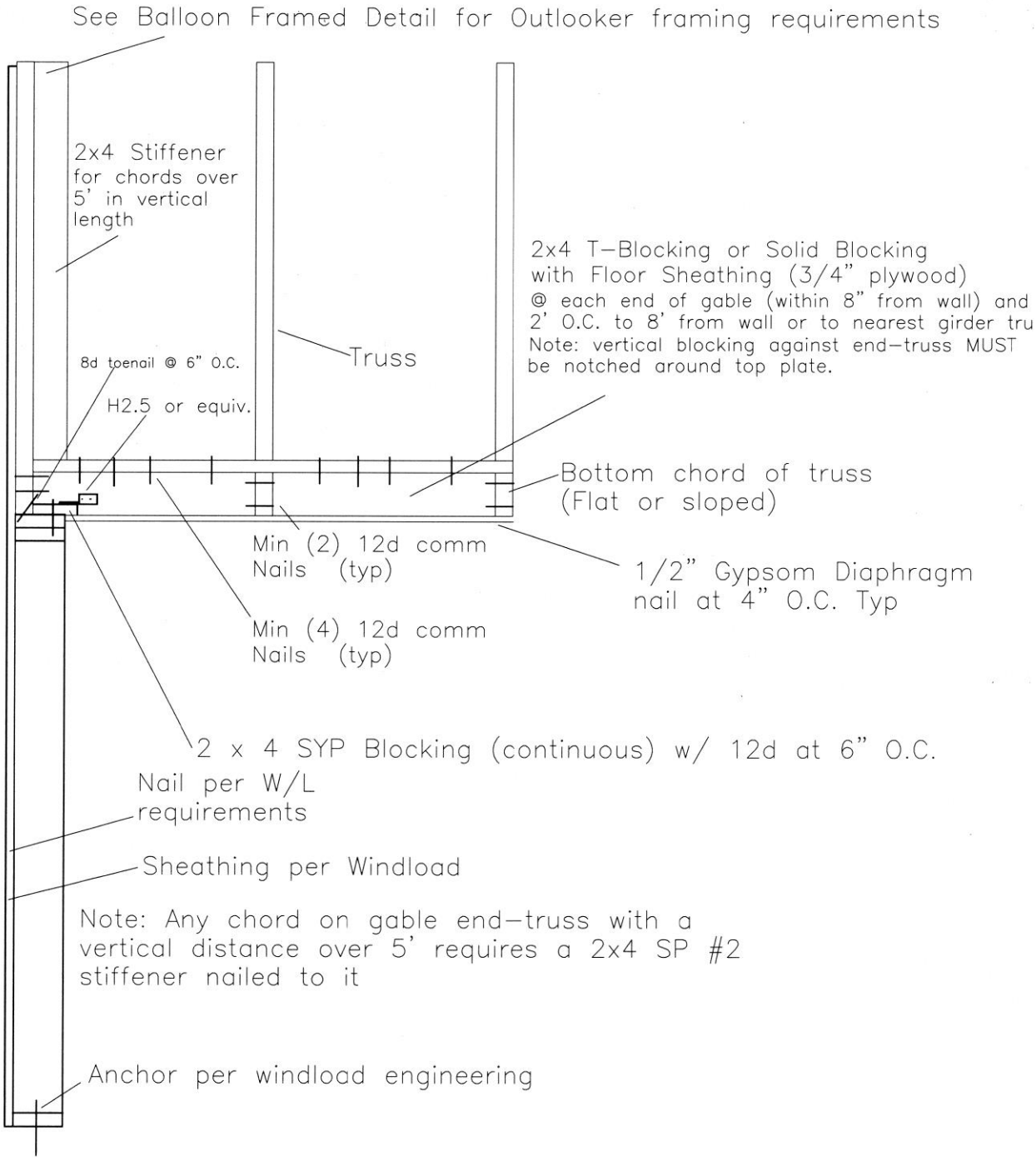
In all cases a minimum of a double full length stud is required at each side of openings such as doors and windows

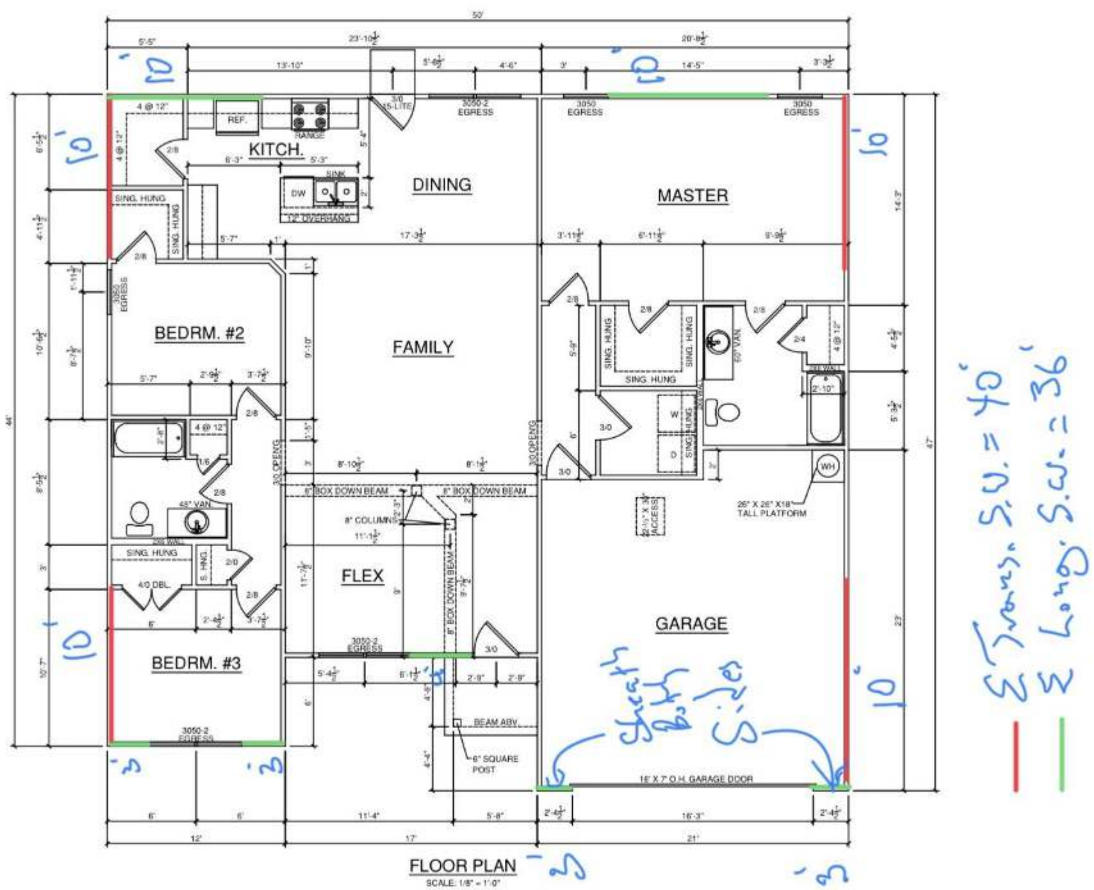
Blocking must be parallel to top and bottom plates with a minimum of 3–12d comm nails



F. Sapienza, P.E.

Gable Endwall Framing with Gable End–Truss





FLOOR PLAN
SCALE: 1/8" = 1'-0"

9'-0" CEILING FINISH THROUGHOUT

PRELIMINARY
JOB# 12-192
MAYER

GENERAL NOTES

1.) MAIN FLOOR PLATE HEIGHT TO BE 8'-0" UNLESS NOTED OTHERWISE.
2.) OPTIONAL BONUS PLATE HEIGHT TO BE 8'-0" UNLESS NOTED OTHERWISE.
3.) INTERIOR & EXTERIOR WALLS TO BE DRAWN @ 3 1/2" UNLESS NOTED OTHERWISE.
4.) ALL ANGLES TO BE DRAWN AT 45° OR 90° UNLESS NOTED OTHERWISE.
5.) WINDOW HEADER HEIGHT TO BE SET @ 6'-11" UNLESS NOTED OTHERWISE. HEADER SIZE AND MATERIAL TO BE DETERMINED & VERIFIED BY FRAMER, BUILDER, TRUSS SHOP OR BY A LICENSED ENGINEER.
6.) SIZE, LOCATION AND MATERIALS OF BEAMS TRUSSES, GIRDERS AND HEADERS TO BE DETERMINED & VERIFIED BY BUILDER, FRAMER TRUSS SHOP OR LICENSED ENGINEER.
7.) FOOTER SIZE, MATERIAL & LOCATIONS TO BE VERIFIED AND DETERMINED BY BUILDER, FOOTER CONTRACTOR OR LICENSED ENGINEER.
8.) ROOF VENTELLATION TO BE DETERMINED & VERIFIED BUILDER,ROOFING COTRACTOR OR LICENSED ENGINEER.
9.) ALL MECHANICAL SYSTEMS DESIGNS, LOCATIONS AND SIZING TO BE DETERMINED & VERIFIED BY BUILDER, APPROPRIATE TRADE CONTRACTOR AND OR LICENSED ENGINEER.
10.) BUILDER RESPONSIBLE FOR VERIFYING AND COMPLYING WITH ALL LOCAL, STATE & NATIONAL CODES.
11.) LOCAL, STATE AND NATIONAL CODES TAKE PRECIDENCE OVER DRAWINGS.
12.) BUILDER TO VERIFY ALL DIMENSIONS.

RED DOOR homes

SQUARE FOOTAGE CHART

MAIN FLOOR AREA TO FRAMING:	1704
TOTAL HEATED & COOLED TO FRAMING:	1704
GARAGE AREA TO FRAMING:	457
FRONT PORCH AREA:	33
TOTAL UNDER BEAM AREA	2194

SUBDIVISION NAME: XXXXXXXXXX

CITY: XXXXXXXXXX

PHASE: XXXXXXXXXX

BLOCK: XXXXXXXXXX

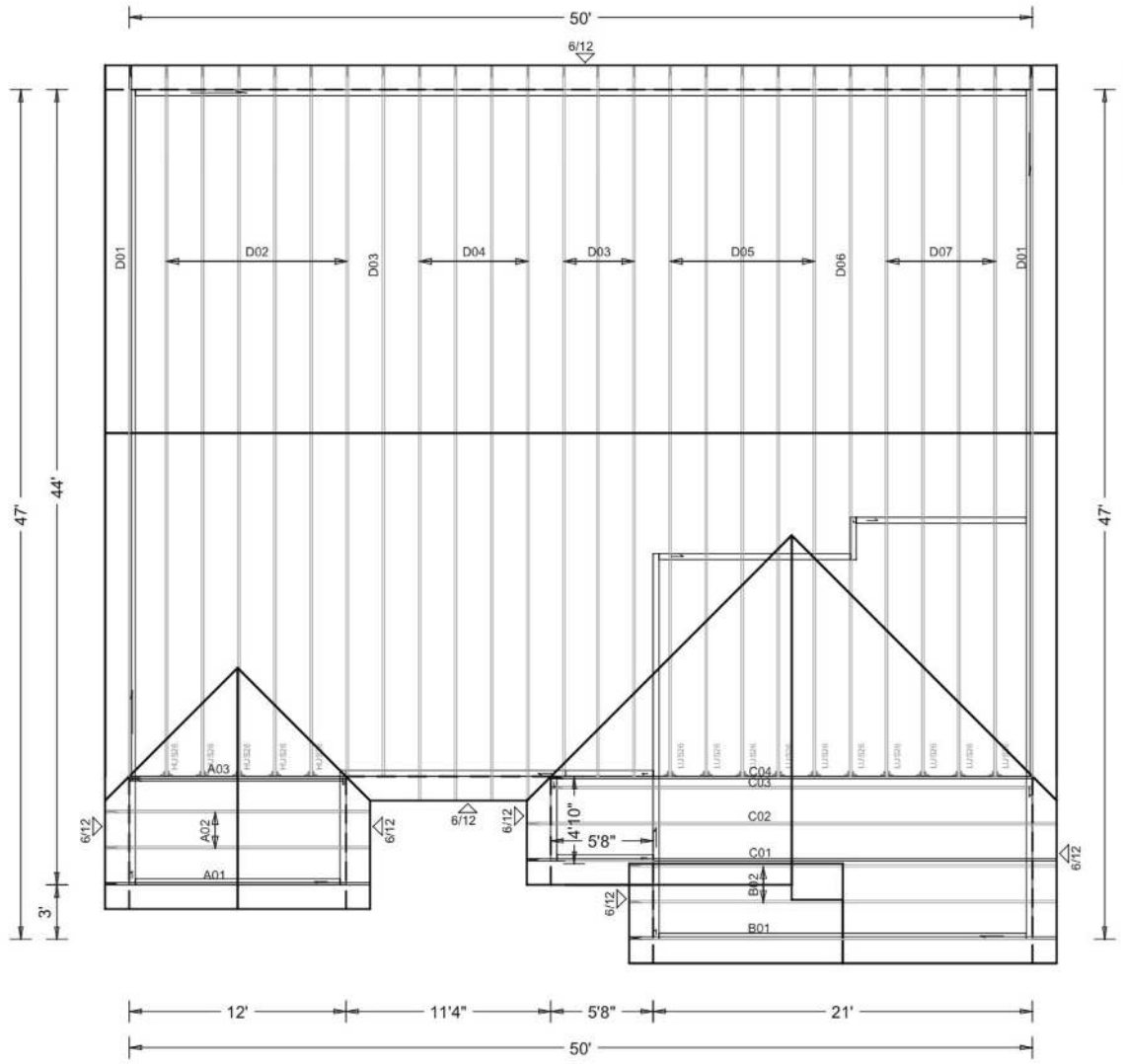
LOT: XXXXXXXXXX

DRAFTING DATES:

MASTER DATE: 8.23.22
PRELIMINARY: 8.22.22 GC
PERM:
FINAL:

Floor Plan

LITCHFIELD
"Classic"



W.B. Howland Truss Co.
610 11th St. SW
Live Oak, FL 32064
(386) 362-1235
(386) 362-7124 (Fax)
howlandtruss@gmail.com

ROOF PITCH: 6/12
OVERHANG: 16"
CEILING: 8'
EXT. WALLS: 4"
LOADING: 40PSF
WIND LOAD: 130MPH
EXPOSURE: B

DATE: 10/3/22

Truss to Truss Connectors:
(6) HUS26
(10) LUS26

JOB #: 22-8293

Job Name: Mayer - Litchfield Classi
Customer: Red Door Homes
Designer: Kelly Caudill
ADDRESS:
SALESMAN: Fill in later
: <Not Found>

JOB NO:
22-8293

PAGE NO:
1 OF 1