



Wind Load Analysis and Certification

Mahn Residence by Hartley Brothers Inc.

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 = 60', Longitudinal Shearwall = 64'

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: All headers and beams to be double 2x12 SP#2 except as shown on attached plans. All LVL plies to be 1-3/4" wide 2800Fb-1.9E or better. **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 **Mahn 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.
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Frank J
Sapienza Jr

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