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Windload Calculations Summary

New Residence for Steven & Amy Rowley
By Jerry Lerner Enterprises
Parcel #10042-005 - High Springs, Florida

CRITERIA:

Code Reference:	6th Edition, (2017) Florida Building Code
Location:	High Springs, Florida
Ultimate Design Wind Speed:	130 MPH
Mean Roof Height:	Less than 30'-0"
Building Risk Category:	II
Building Exposure Factor:	Exposure B
Building Enclosure:	Building is Enclosed
Internal Pressure Coefficient:	± 0.18

Roof Component & Cladding Design Wind Pressure:	Zone 1:	+15.1 psf, -15.0 psf
As per 6th Edition, (2017) FBC Residential, Table R301.2(1)	Zone 2:	+15.1 psf, -18.0 psf
	Zone 3:	+15.1 psf, -18.0 psf
Wall Component & Cladding Design Wind Pressure:	Zone 4:	+15.5 psf, -17.0 psf
As per 6th Edition, (2017) FBC Residential, Table R301.2(1)	Zone 5:	+15.5 psf, -19.0 psf

BUILDING DATA:

One Story Profile 2 x 4 Frame Residence:	± 9'-0" Top of Plate
Roof Pitches:	± 6 / 12 (26.57°), ± 3 / 12 (14.04°)
Gable / Hip Roof Overhang:	± 1'-6"

FOOTINGS:

Perimeter Stem Wall Footings: 20" Wide x 12" Deep with 2 - #5 continuous.
Provide 4" thick concrete slab with heavy duty fibermesh reinforcement on 6 mil vapor barrier over 95% density clean compacted fill. Install 1 - #5 Continuous at top of stem wall at slab level.

Front & Rear Porch Stem Wall Footings & Posts: 20" Wide x 10" Deep with 2 - #5 continuous. P.T. 4 x 4 posts with Simpson ABU44 Post Base Anchors and 2 - Simpson MSTA24 Strap Ties Post Cap Anchor.
Install 1 - #5 Continuous at top of C.M.U. stem wall at slab level.

ANCHOR BOLTS:

Provide ½" A307 anchor bolts with 2" round or square plate washers at 40" O.C. maximum. Place Anchor Bolts at the end of all shearwall segments. Net uplift at corner holdown and shearwall ends is 2,797#, 1 anchor bolt is OK, 3268#.
Bottom wood plate shall be P.T. 2 x 4 Southern Pine.
9'-0" High Walls– use 2 x 4 Spruce-Pine-Fir Number 2 at 1'-4" O.C. at exterior walls exposed to wind.

SHEAR WALLS:

For Transverse Shear Walls, provide 72'-2" Lineal Feet with 7/16" OSB wall sheathing (NordBord Windstorm Wall Sheathing Or Equal) – extend wall sheathing Vertical Or Horizontal from the bottom of the bottom plate with continuous path up to the top of the double top plate (install 2 x 4 blocking nailers along horizontal joint, minimum 24" from hinge line) with 8d Ring Shank (0.113" Shank diameter) nails at 3" along sheet edges and 6" O.C. in sheet field. Maximum force applied at top of Transverse Shear Walls is 28,548# per 72'-2" = 395.6# per lineal foot. Provide 8d Ring Shank Nails at 3" O.C. along sheet edges and 6" O.C. in sheet field. OK

For Longitudinal Shear Walls, provide 66'-0" Lineal Feet with 7/16" OSB wall sheathing (NordBord Windstorm Wall Sheathing Or Equal) – extend wall sheathing Vertical Or Horizontal from the bottom of the bottom plate with continuous path up to the top of the double top plate (install 2 x 4 blocking nailers along horizontal joint, minimum 24" from hinge line) with 8d Ring Shank (0.113" Shank diameter) nails at 3" along sheet edges and 6" O.C. in sheet field. Maximum force applied at top of Longitudinal Shear Walls is 16,380# per 66'-0" = 248.2# per lineal foot. Provide 8d Ring Shank Nails at 3" O.C. along sheet edges and 6" O.C. in sheet field. OK

FRONT PORCH ROOF POSTS:

Install total of 2 - P.T. 4 x 4 posts with Simpson ABU44 Post Base Anchor and 2 - Simpson MSTA20 Strap Ties each Post Cap Anchors.

FRONT PORCH ROOF BEAMS:

Front Porch Roof Beam: Provide Double – 2 x 10 No. 2 Southern Pine wood beams with 1 – ½" layer of solid continuous plywood or OSB spacers glued and nailed with 10d x 0.128" x 3" nails at 12" O.C. in 2 rows. Install 2 - Simpson HTS20 Twist Strap Ties at Walls and 1 – Simpson HUC412 Concealed Face Mount Hanger Beam To Beam Connection.

REAR PORCH ROOF BEAM 12'-0" SPAN:

Rear Porch Roof Beam: Provide Double – 2 x 10 No. 2 Southern Pine wood beams with 1 – ½" layer of solid continuous plywood or OSB spacers wood beams glued and nailed with 10d x 0.128" x 3" nails at 12" O.C. in 2 rows. Install 2 - Simpson HTS20 Twist Strap Ties at Wall Connections.

ROOF FRAMING:

Provide Pre-Fabricated, Pre-Engineered Roof Trusses at 24" O.C.

Install Simpson H2.5A Hurricane Anchors at each truss bearing location where Uplift Loads are less than 600#.
Install Simpson H10A Hurricane Anchors at each truss bearing location where Uplift Loads Less than 1,100#.
For greater Uplift Loads notify the Architect.

16' GARAGE DOOR OPENING:

Provide minimum 2 Ply 1¾" x 14" 2.0E Microllam LVL glued and nailed with 10d x 0.128" x 3" nails at 12" O.C. in 2 rows top and bottom and center row at 12" O.C. Install 2 – 2 x 4 Header Studs each end of Header and 3 – 2 x 4 Full Height Studs each end. Install 3 – Simpson MSTA24 Strap Tie each end Header to Stud connections. Install 3 – Simpson SPH4 Stud Plate Tie (Center) each side of opening to Header Studs.

6' OPENINGS OR LESS:

Provide minimum 2 – 2 x 12 No. 2 Southern Pine wood Header with ½" layer of solid continuous plywood or OSB spacers glued and nailed with 10d x 0.128" x 3" nails at 12" O.C. in 2 rows top and bottom and center row at 12" O.C. Install 1 – 2 x 4 Header Studs each end of Header and 2 – 2 x 4 Full Height Studs each end. Install 1 – Simpson MSTA24 Strap Tie each end Header to Stud connections. Install 2 – Simpson SPH4 Stud Plate Tie (Center) each side of opening to Header Studs.

3' OPENINGS OR LESS:

Provide minimum 2 – 2 x 8 No. 2 Southern Pine wood Header with ½" layer of solid continuous plywood or OSB spacers glued and nailed with 10d x 0.128" x 3" nails at 12" O.C. in 2 rows top and bottom and center row at 12" O.C. Install 1 – 2 x 4 Header Studs each end of Header and 2 – 2 x 4 Full Height Studs each end. Install 1 – Simpson MSTA15 Strap Tie each end Header to Stud connections. Install 1 – Simpson SPH4 Stud Plate Tie (Center) each side of opening to Header Studs.

ROOF SHEATHING:

Use 7/16" thick OSB sheathing minimum with 8d Ring Shank Nails (0.113" Shank diameter) at 3" O.C. along sheet edges and 6" O.C. in sheet field. No intermediate blocking is required between trusses. Maximum force applied at top of Transverse Shear Walls is 28,548# per 72'-2" = 395.6# per lineal foot. Provide 8d Ring Shank Nails at 3" O.C. along sheet edges and 6" O.C. in sheet field. OK

Donald A. Yanskey, Architect
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