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Windload Calculations Summary

A New Residence for Ryan Beville, by Lerner Luxury Properties
Parcel #R10039-104 (Hermitage Glen) - High Springs, Florida

CRITERIA:

Code Reference:

Location:

Ultimate Design Wind Speed:

Mean Roof Height:

Building Risk Category:

Building Exposure Factor:

Building Enclosure:

Internal Pressure Coefficient:

Roof Component & Cladding Design Wind Pressure:

As per 2023 Florida Building Code 8th Edition, Residential, Table R301.2(1)

Wall Component & Cladding Design Wind Pressure:

As per 2023 Florida Building Code 8th Edition, Residential, Table R301.2(1)

2023 Florida Building Code 8th Edition, Res.

High Springs, Florida

130 MPH

Less than 30'-0"

II

Exposure B

Building is Enclosed

± 0.18

Zone 1: +10.0 psf, -15.0psf

Zone 2: +10.0 psf, -21.0 psf

Zone 3: +10.0 psf, -33.0 psf

Zone 4: +15.5 psf, -17.0psf

Zone 5: +15.5 psf, -19.0 psf

BUILDING DATA:

One Story 2 x 4 Frame Residence:

± 9'-0" Top of Plate & ± 10'-0"

Roof Pitch:

8 / 12 Main (33.69°)

Gable / Hip Roof Overhang:

± 1'-6"

Assumed Soil Bearing Value

1,500 PSF

FOOTINGS:

Perimeter Stem Wall Footing at Walls at Two Story & Porches: 12" Deep x 24" Wide with 3 - #5 continuous and 1 - #5 tie at 48' O.C.. Provide 4" thick concrete slab with Heavy Duty Fibermesh reinforcement on 6 mil vapor barrier over 95% density clean compacted fill.

See Drawings for other footing detail types.

All concrete in footings & slabs shall be 3000 psi. All reinforcement shall be 60 ksi.

ANCHOR BOLTS:

Provide ½" A307 anchor bolts with 2" round or square plate washers at 24" O.C. maximum. Place Anchor Bolts at the end of all shearwall segments. Net uplift at corner holdown and shearwall ends is 2,987#, 1 anchor bolt is OK, 3268#. Bottom wood plate shall be P.T. 2 x 6 Southern Pine.

±9'-0" High First Level Walls– use 2 x 4 Spruce-Pine-Fir No. 2 at 1'-4" O.C. at exterior 10'-0" walls exposed to wind.

Donald A. Yanskey, Architect

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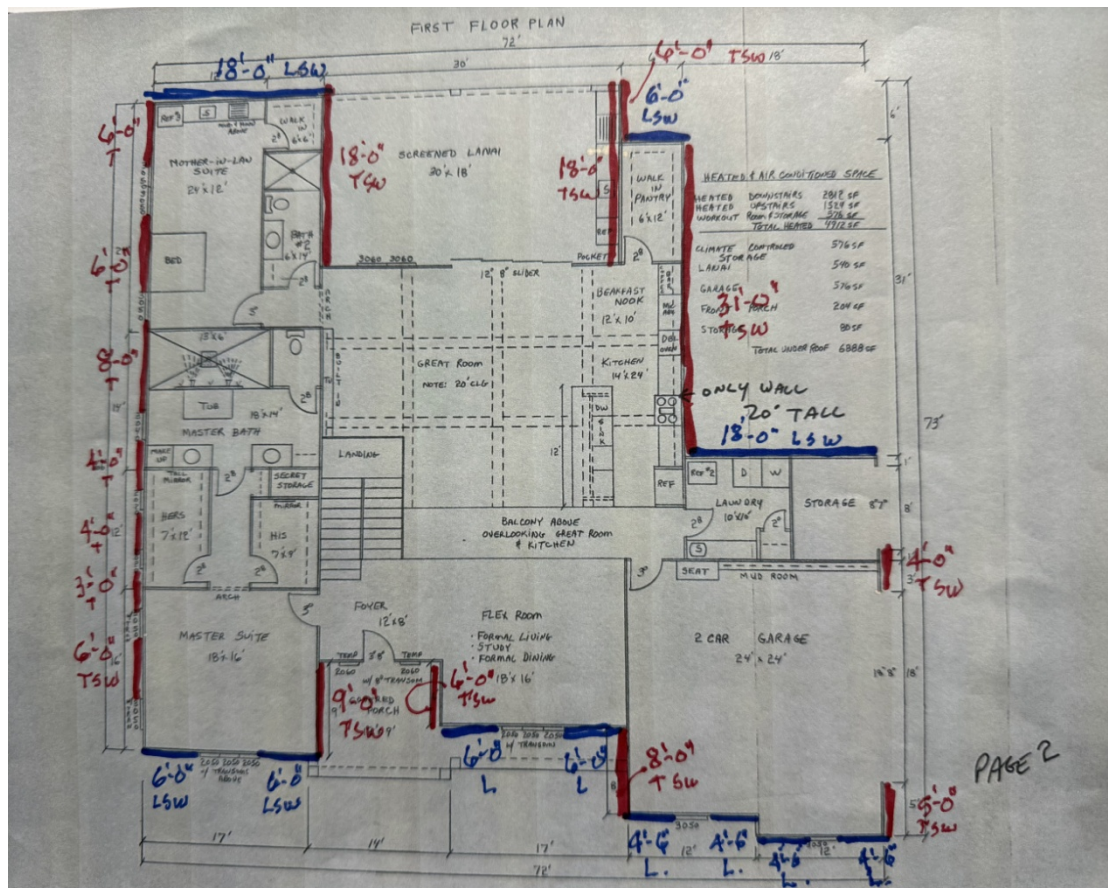
SHEAR WALLS:

For First Level Transverse Shear Walls, provide 142'-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 4" along sheet edges and 8" O.C. in sheet field. Maximum force applied at top of Transverse Shear Walls is 39,858 per 142'-0" = 280.7 # per lineal foot. Provide 8d Ring Shank Nails at 4" O.C. along sheet edges and 8" O.C. in sheet field. **OK**

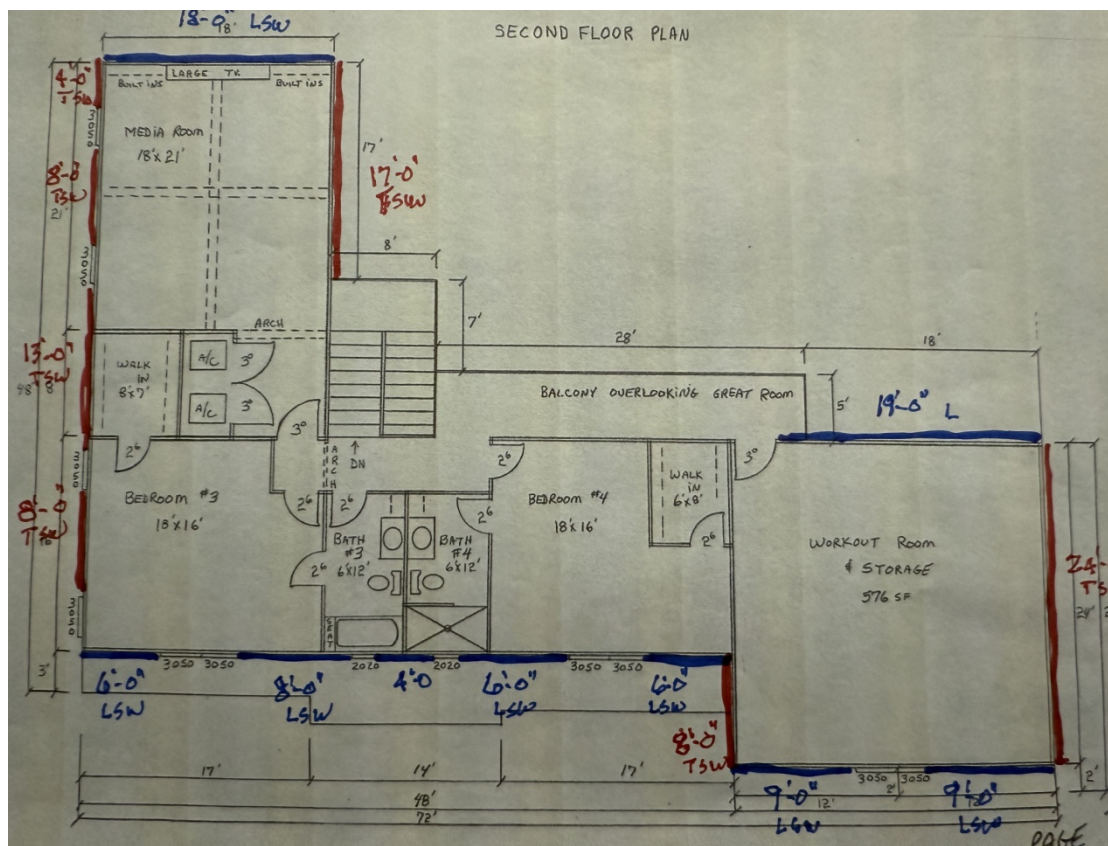
For Second Level Transverse Shear Walls, provide 82'-0" Lineal Feet with 7/16" OSB wall sheathing (NordBord Windstorm Wall Sheathing Or Equal – extend wall sheathing Vertical Or Horizontal from the bottom of the bottom plate with continuous path up to the top of the double top plate (install 2 x 4 blocking nailers along horizontal joint, minimum 24" from hinge line) with 8d Ring Shank (0.113" Shank diameter) nails at 4" along sheet edges and 8" O.C. in sheet field. Maximum force applied at top of Transverse Shear Walls is 22,828# per 82'-0" = 278.4 # per lineal foot. Provide 8d Ring Shank Nails at 4" O.C. along sheet edges and 8" O.C. in sheet field. **OK**

For First Level Longitudinal Shear Walls, provide 84'-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 4" along sheet edges and 8" O.C. in sheet field. Maximum force applied at top of Longitudinal Shear Walls is 27,900# per 84'-0" = 214.9# per lineal foot. Provide 8d Ring Shank Nails at 4" O.C. along sheet edges and 8" O.C. in sheet field. **OK**

For Second Level Longitudinal Shear Walls, provide 85'-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 4" along sheet edges and 8" O.C. in sheet field. Maximum force applied at top of Longitudinal Shear Walls is 18,262# per 85'-0" = 214.9# per lineal foot. Provide 8d Ring Shank Nails at 4" O.C. along sheet edges and 8" O.C. in sheet field. **OK**



First Level



Second Level

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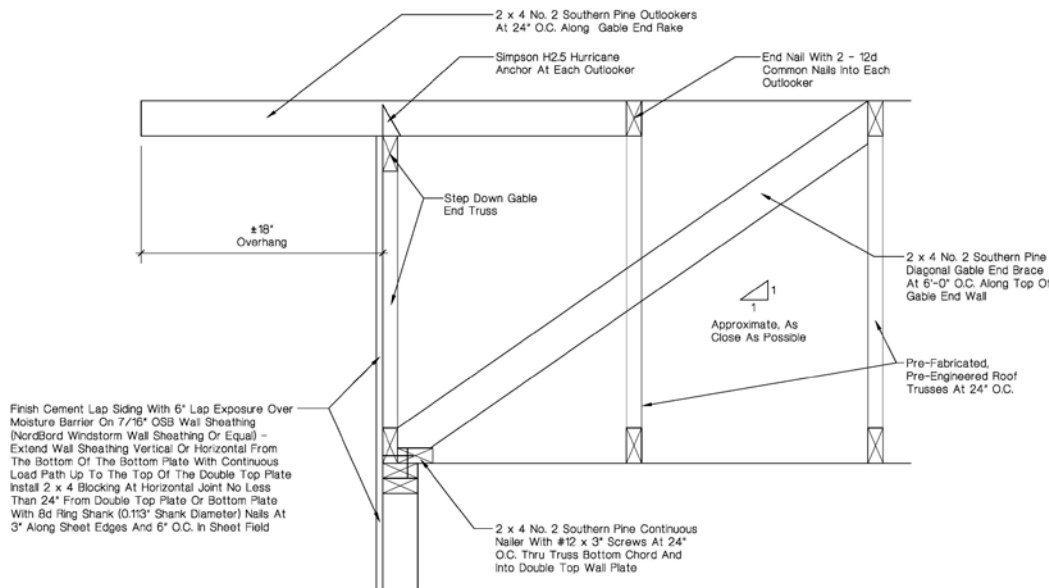
ROOF FRAMING:

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.



Gable End Bracing Detail

Not To Scale

3' OPENINGS OR LESS:

Provide minimum 2 – 2 x 6 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 1 – 2 x 4 Full Height Studs each end. Install 1 – Simpson MST15 Strap Tie each end Header to Stud connections. Install 1 – Simpson SPH4 Stud Plate Tie (Center) each side of opening to Header Studs.

6' OPENINGS OR LESS:

Provide minimum 2 – 2 x 10 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 2 – 2 x 4 Header Studs each end of Header and 2 – 2 x 4 Full Height Studs each end. Install 1 – Simpson MST15 Strap Tie each end Header to Stud connections. Install 2 – Simpson SPH4 Stud Plate Tie (Center) each side of opening to Header Studs.

9' 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 2 – 2 x 4 Header Studs each end of Header and 2 – 2 x 4 Full Height Studs each end. Install 1 – Simpson MST15 Strap Tie each end Header to Stud connections. Install 2 – Simpson SPH4 Stud Plate Tie (Center) each side of opening to Header Studs.

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18' OPENINGS OR LESS @ REAR PORCH:

Provide minimum 3 Ply 1¾" x 11¼" 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 Each Face Of Beam. Install 3 – 2 x 6 Header Studs each end of Header and 2 – 2 x 6 Full Height Studs each end. Install 2 – Simpson MSTA24 Strap Tie each end Header to Stud connections. Install 3 – Simpson SPH6 Stud Plate Tie (Center) each side of opening to Header Studs.

18' GARAGE DOOR OPENING:

Provide minimum 2 Ply 1¾" x 11¼" 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 Each Face Of Beam. Install 3 – 2 x 4 Header Studs each end of Header and 2 – 2 x 4 Full Height Studs each end. Install 2 – 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.

14' FRONT PORCH OUTER OPENING:

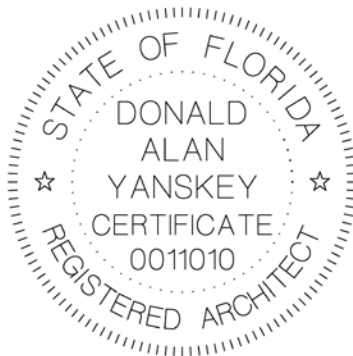
Provide minimum 2 Ply 2 x 12 No. 2 Southern Pine with ½" plywood spacer glued and nailed with 10d x 0.128" x 3" nails at 12" O.C. in 2 rows top and bottom. Install 3 – 2 x 4 Header Studs each end of Header and 2 – 2 x 4 Full Height Studs each end. Install 2 – Simpson MSTA24 Strap Tie each end Header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

15' REAR PORCH OUTER OPENING:

Provide minimum 2 Ply 1¾" x 11¼" 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 Each Face Of Beam. Install 3 – 2 x 4 Header Studs each end of Header and 2 – 2 x 4 Full Height Studs each end. Install 2 – 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.

ROOF SHEATHING:

Use 7/16" thick OSB sheathing minimum with 8d Ring Shank Nails (0.113" Shank diameter) at 4" O.C. along sheet edges and 8" O.C. in sheet field. No intermediate blocking is required between trusses. Maximum force applied at top of Transverse Shear Walls is 39,858 per 142'-0" = 280.7 # per lineal foot. Provide 8d Ring Shank Nails at 4" O.C. along sheet edges and 8" O.C. in sheet field. **OK**



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