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Windload Calculations Summary

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A New Modern Barn for Mel & Kathy, by Lerner Luxury Properties 125 Hermitage Glen - High Springs, Florida

CRITERIA: -

Code Reference:	2023 Florida Building Code 8th Edition, Res.
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: +10.0 psf, -15.0psf
As per 2023 Florida Building Code 8 th Edition, Residential, Table R301.2(1)	Zone 2: +10.0 psf, -21.0 psf
	Zone 3: +10.0 psf, -33.0 psf
Wall Component & Cladding Design Wind Pressure:	Zone 4: +15.5 psf, -17.0psf
As per 2023 Florida Building Code 8 th Edition, Residential, Table R301.2(1)	Zone 5: +15.5 psf, -19.0 psf

BUILDING DATA:

Two Story 2 x 4 Frame Residence:	$\pm 9'-0"$ Top of Plate
Roof Pitch:	3 / 12 Main (26.565°) 8 / 12 Dormer (33.69°)
Gable Roof Overhang:	$\pm 1'-6"$

FOOTINGS:

Perimeter Stem Wall Footing at Perimeter Walls: 20" Wide x 10" 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 at Workshop and Truck Storage. Natural sand base at RV Storage.

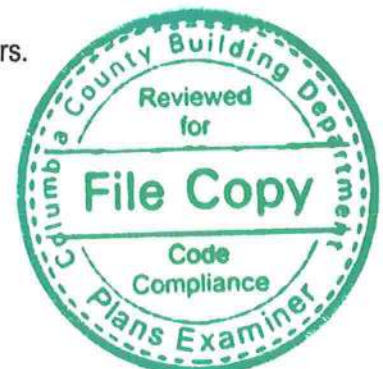
Monolithic Footing at Interior Transverse Shear Walls Between RV Storage and Covered Porch: 20" Wide x 12" Deep With 2 - #5 Continuous.
All concrete in footings & slabs shall be 3000 psi. All reinforcement shall be 60 ksi.

COLUMNS:

C.M.U. Columns At RV Storage: 8" x 8" x 8" C.M.U. with 1 - #5 continuous from footing up to top of column and concrete filled.
P.T. 6 x 6 Posts: P.T. 6 x 6 Wood Posts With Simpson ABU66 Post Base Anchors.

ANCHOR BOLTS:

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Provide ½" A307 anchor bolts with 2" round or square plate washers at 32" 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 4 Southern Pine.

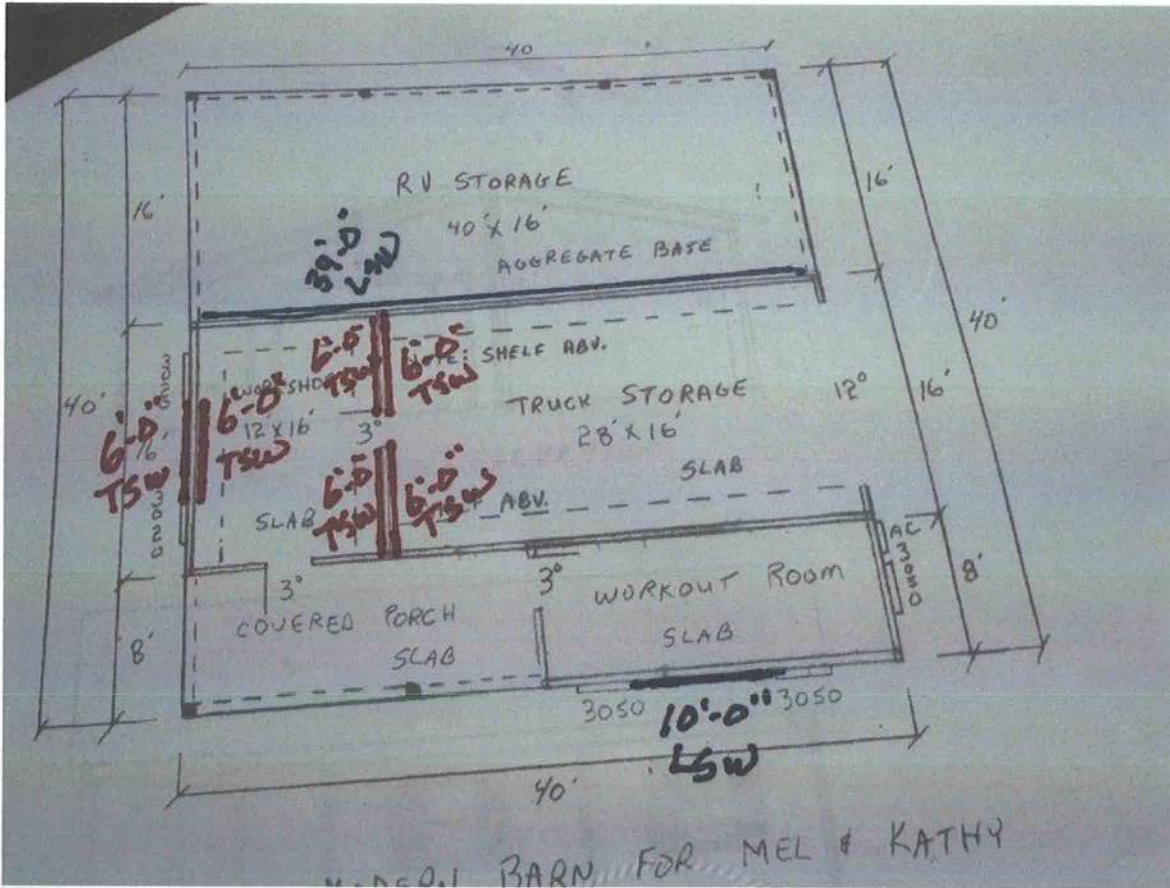
±9'-0" Walls- use 2 x 4 Spruce-Pine-Fir No. 2 at 1'-4" O.C. at exterior walls exposed to wind.

SHEAR WALLS:

For Transverse Shear Walls, provide 36'-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 19,760# per 36'-0" = 548.9# per lineal foot. Provide 8d Ring Shank Nails at 4" O.C. along sheet edges and 8" O.C. in sheet field. **OK**

For Longitudinal Shear Walls, provide 49'-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 17,056# per 49'-0" = 348.1# per lineal foot. Provide 8d Ring Shank Nails at 4" O.C. along sheet edges and

8" O.C. in sheet field. **OK**



ROOF FRAMING:

Provide 2 x 10 No. 2 Southern Pine Roof Rafters at 24" O.C.
Install Simpson H2.5A Hurricane Anchors at each Rafter bearing.

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ROOF BEAMS:

RV Storage Roof Beams: 3 Ply 2 x 12 No. 2 Southern Pine Beams with 2 – Simpson HHETA16 Embedded Truss Anchors.

Covered Porch Roof Beams: 2 Ply 2 x 12 No. 2 Southern Pine Beam with 2 – MSTA24 Strap Ties at each post.

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 MSTA15 Strap Tie each end Header to Stud connections. Install 1 – Simpson SPH4 Stud Plate Tie (Center) each side of opening to Header Studs.

12' GARAGE DOOR OPENING:

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 MSTA15 Strap Tie each end Header to Stud connections. Install 2 – Simpson SPH4 Stud Plate Tie (Center) each side of opening to Header Studs.

ROOF SHEATHING:

Use 7/16" thick Techshield 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 19,760# per 36'-0" = 548.9# 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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