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Windload Calculations Summary

Hudd Construction, Inc. – Litchfield Model for Strachan

447 Summerhill Glen - Lake City, Florida

CRITERIA: -

Code Reference:	6th Edition Florida Building Code (2017)
Location:	Lake City, 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, -15.0 psf
As per 6th Edition Florida Building Code (2017) Residential, Table R301.2(2)	Zone 2:	+10.0 psf, -21.0psf
	Zone 3:	+10.0psf, -33.0 psf
Wall Component & Cladding Design Wind Pressure:	Zone 4:	+15.5 psf, -17.0 psf
As per 6th Edition Florida Building Code (2017) Residential, Table R301.2(2)	Zone 5:	+15.5 psf, -19.0 psf

BUILDING DATA:

One Story 2 x 4 Frame Residence:	± 8'-1" Top of Plate
Roof Pitch:	6 / 12 (26.57°)
Gable Roof Overhang:	± 1'-6"

FOOTINGS & PORCH POSTS:

Perimeter Monolithic Footing at Walls & Porch: 12" Wide x 20" 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.

Front Porch Footings: 20" Deep x 12" Wide with 2 - #5 continuous. Total 1 - P.T. 6 x 6 posts with Simpson ABU66 Post Base Anchors and notch top of posts 3" wide x 9¼" deep beam seat with 2 – ½" thru Carriage Bolts.

Rear Porch Footings: 20" Deep x 12" Wide with 2 - #5 continuous. Total 2 - P.T. 6 x 6 posts with Simpson ABU66 Post Base Anchors and notch top of posts 3" wide x 9¼" deep beam seat with 2 – ½" thru Carriage Bolts.

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

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ANCHOR BOLTS:

Provide ½" A307 anchor bolts with 2" round or square plate washers at 48" O.C. maximum. Place Anchor Bolts at the end of all shearwall segments. Net uplift at corner holdown and shearwall ends is 2,967#, 1 anchor bolt is OK, 3268#. Bottom wood plate shall be P.T. 2 x 4 Southern Pine.
±8'-1 1/8" High 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 100'-0½" 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 22,100# per 100'-0½" = 220.9# 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 57'-2½" 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 19,136# per 57'-2½" = 334.5# per lineal foot. Provide 8d Ring Shank Nails at 3" O.C. along sheet edges and 6" O.C. in sheet field. **OK**

FRONT & REAR PORCH ROOF BEAMS:

Front Porch Roof Beam: Provide 2 – 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.

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.

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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 MSTA18 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 12 No. 2 Southern Pine wood Header with ½" layer of solid continuous plywood or OSB spacers (Infill so Total Header Width is 5 ½" wide) glued and nailed with 10d x 0.128" x 3" nails at 12" O.C. in 2 rows top and bottom at 12" O.C. Install 2 – 2 x 4 Header Stud each end of Header and 2 – 2 x 4 Full Height Studs each end. Install 1 – Simpson MSTA21 Strap Tie each end Header to Stud connections. Install 2 – Simpson SPH6 Stud Plate Tie (Center) each side of opening to Header Studs.

16' 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 3 – 2 x 4 Full Height Studs each end. Install 2 – Simpson MSTA24 Strap Ties 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 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 22,100# per 100'-0½" = 220.9# per lineal foot. Provide 8d Ring Shank Nails at 3" O.C. along sheet edges and 6" O.C. in sheet field. **OK**

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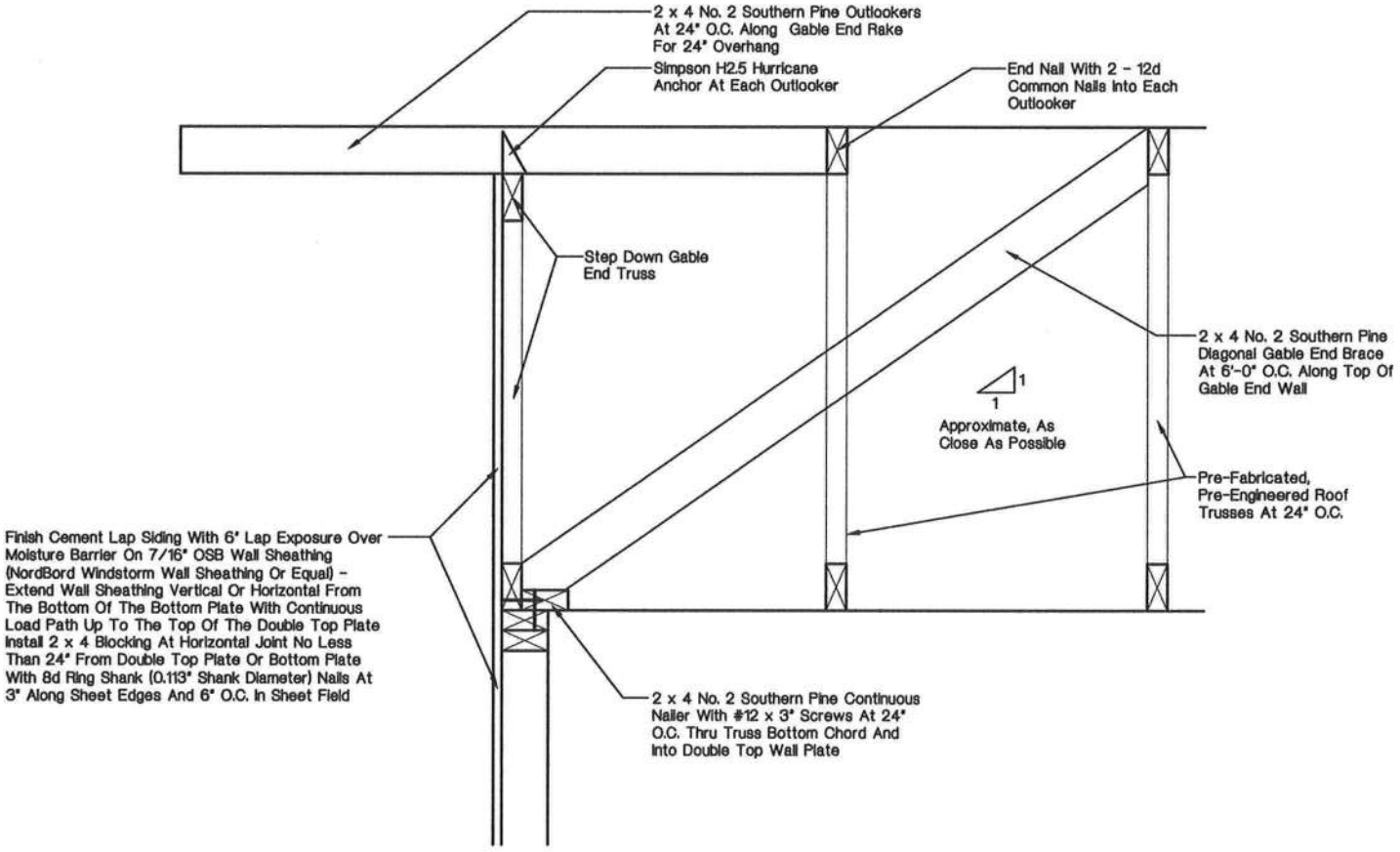

Gable End Bracing Detail

1½" = 1'-0"

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Strachan Residence

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DATE 3-9-2020 | DRAWN BY D. A. Y.

SHEET A-1 OF 1