

Spec. House

Lot #4 (Emerald Cove Subdivision)

Columbia County, Florida

Wind Load Analysis Requirements

(In Compliance with the 2017 Florida Building Code and Amendments)

Prepared By: Marty J. Humphries, P.E. # 51976
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Description of Residence:

Footprint: 55' wide overall by 56' 7 1/2" deep overall with inset front and back porches (see plans by Teena Ruffo - Spec. House for Lot #4 Emerald Cove)

Walls: 2x4 or 2x6 SPF stud wall with studs 16" O.C. with 7/16" OSB sheathing, house-wrap and hardiboard lap siding and trim.

Roof Structure: Pre-engineered roof trusses at 2' on center and 15/32" OSB or CDX plywood sheathing

Roof Type: Hip primarily with gables at front (analyzed for 2' eaves and porch covered areas)

Foundation: Stem-wall with footer for exterior walls and Monolithic footer for porches (see attached details)

Windload Data and Exposure:

- Basic Wind Speed = 120 mph
- Importance Factor = 1.0
- Exposure category = B
- Height and Exposure Adjustment Coefficient = 1.0
- Residential Occupancy = Group R3
- Mean roof height = 14'
- Roof Cross Slope = 6:12
- Eave Overhang= (Analyzed for 2' eaves and porch areas)
- Wall Height = 9'
- Shear Wall locations = exterior walls only (all walls 3' in length or greater)
- Component and Cladding Pressures = Roof(Zone 1=10,-14, Zone 2=10,-24, Zone 3=10,-36), Wall(Zone 4=15.5,-16, Zone 5=15.5,-20)(units are psf)



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Nailing Pattern Requirements:

- Wall sheathing: Shall be 7/16" Oriented Strand Board(OSB) nailed with 8d common nails 3" on center around edges(including around doors and windows) and 6" on center interior. Full-depth blocking shall be installed at horizontal joints in sheathing.
- Roof sheathing: Shall be 15/32" OSB sheathing or 15/32" CDX plywood nailed with 8d ring-shank nails 6" on center including overhang areas.
- Top wall plate: Nail with 2-12d common nails 16" O.C.(average)

Strapping and Anchor Requirements:

truss to exterior wall plates, interior load bearing wall between garage and living area, and porch beam locations: Install Simpson model H10A hurricane anchor each single ply common truss bearing location. For double trusses install Simpson H10A-2 hurricane anchor and one H3 clip. For hip trusses install Simpson HCP anchor and one H3 clip and for jack trusses 10 or less install Simpson H2.5A clip.

wall strap tie requirements: 2x4 or 2x6 exterior walls – at each door or window 3' or less in width install one Simpson model SP4 or SP6 at each side - top and bottom of the wall. For each door or window over 3' in width install two Simpson model SP4's or SP6's at each side - top and bottom of the wall. At each side of garage door opening install three Simpson SPH4's or SHP6's top and bottom of the wall. All other exterior wall locations install 1-SP4 or SP6 top and bottom of wall 48" on center. For interior load-bearing wall between garage and living area install one Simpson model SP4 or SP6 at 32" on center top and bottom of the wall and each side of door opening.

Front Porch Column: Front porch column shall be PT 6x6 SYP column connected to slab with Simpson ABU66 and to porch header with 2-MSTA12 straps.

Porch Ceilings :

Install 1x4 lathes 16" on center and nail with 2-8d nails at each truss and install solid metal or solid vinyl soffit material.

Foundation Requirements:

Stemwall: Minimum size of footer shall be 10" x 20" wide with 2-#5 rebar continuous and 1-#5 vertical rebar 48" on center. All cells shall be filled with concrete. 5/8" anchor bolts with 2" plate washers shall be installed 3' on center, each side of doors, and 9" from corners. (3000 psi concrete min.) (see footer detail) (see footer detail for stone knee-wall areas)

Monolithic (for porches): Minimum size of footer shall be 12" wide by 18" deep with 2 - #5 rebar continuous. (3000 psi concrete min.) (see attached footer details) (see detail of interior monolithic footer between garage and living area)

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Header Requirements:

Windows & Doors: **For 2x4 walls:**

Openings for windows/doors 3' or less in width - Header shall be 2-#2 SYP 2x10's with 15/32" OSB or CDX plywood between nailed with 3-12d nails 10" on-center.

Openings for windows/doors greater than 3' in width: Header shall be 2 #2 SYP 2x12's with 15/32" OSB or CDX plywood between nailed with 4-12d nails 10" on-center.

Garage door opening: Header shall be 2-1.75x14" LVL's (Fb-2250min, E1.5 min.) nailed together with 4-12d nails at 10" on center.

For 2x6 walls:

Openings for windows/doors: Header shall be 2-#2 SYP 2x10's with #2 SYP 2x6 top and bottom to form a box nailed with 12d nails 10" on center.

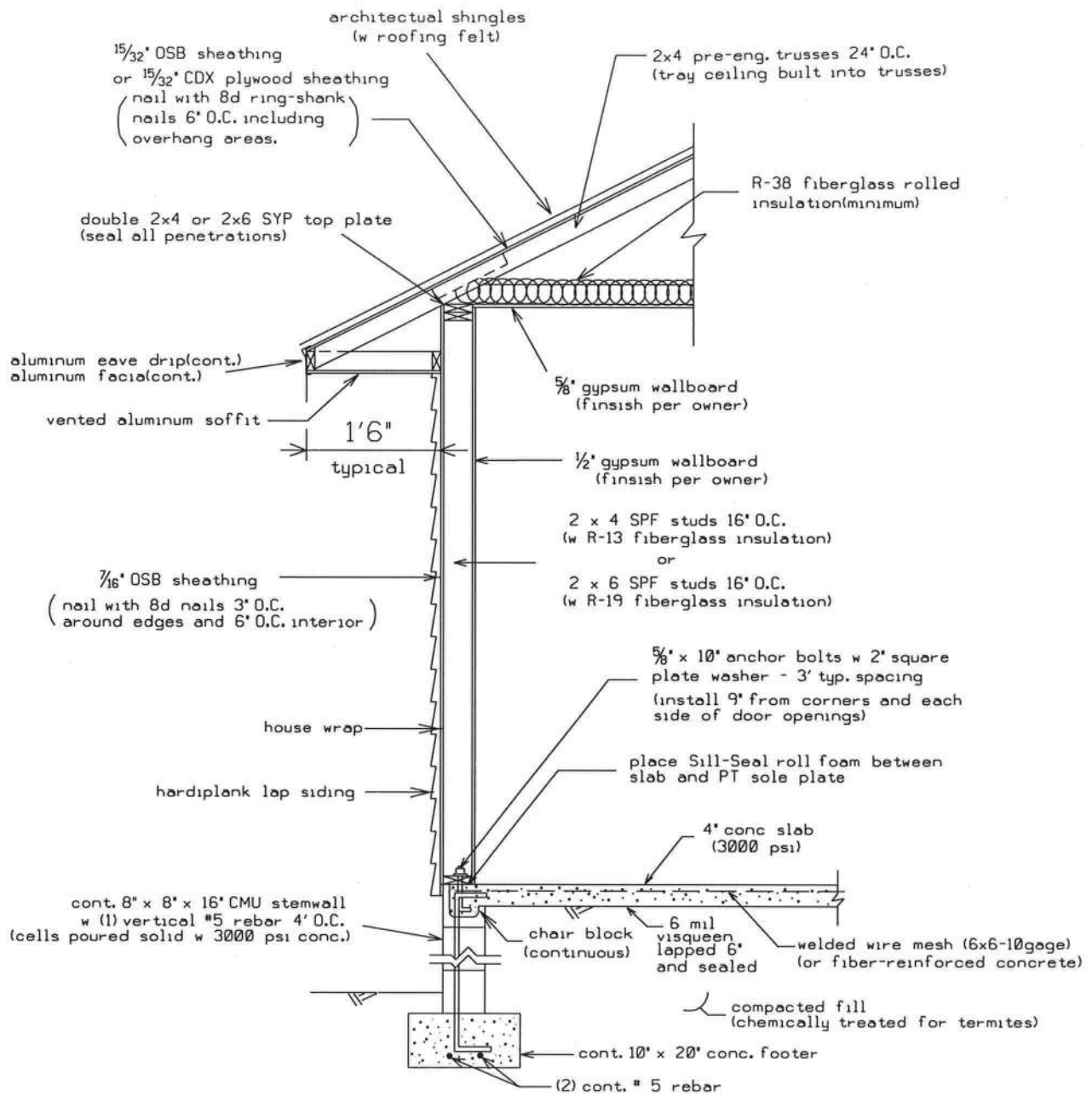
Garage door opening: Header shall be 2-1.75x14" LVL's (Fb-2250min, E1.5 min.) nailed together with 4-12d nails at 10" on center.

Front Porch: Header shall be 2- #2 SYP 2x10's with 15/32" OSB or CDX plywood between nailed with 3-12d nails 10" on-center. Connect header to home with Simpson HUC410 hanger and to PT 6x6 SYP column with two MSTA12 straps.

Rear Porch: Header shall be 3- #2 SYP 2x12's with 15/32" OSB or CDX plywood between nailed with 4-12d nails 10" on-center. Connect header to home with Simpson HUCQ612-SDS hanger.

Note: Equivalent capacity anchors may be substituted, installed in accordance with the manufacturer's requirements.

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WALL TYPICAL (N.T.S.)

Note: See Footer Detail for Stone/Brick areas.

SYP = SOUTHERN YELLOW PINE

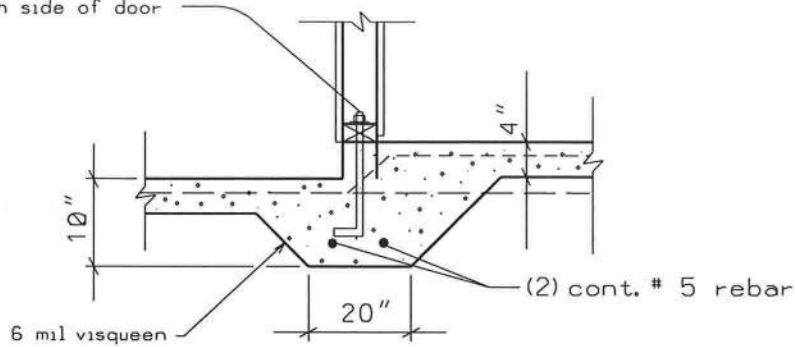
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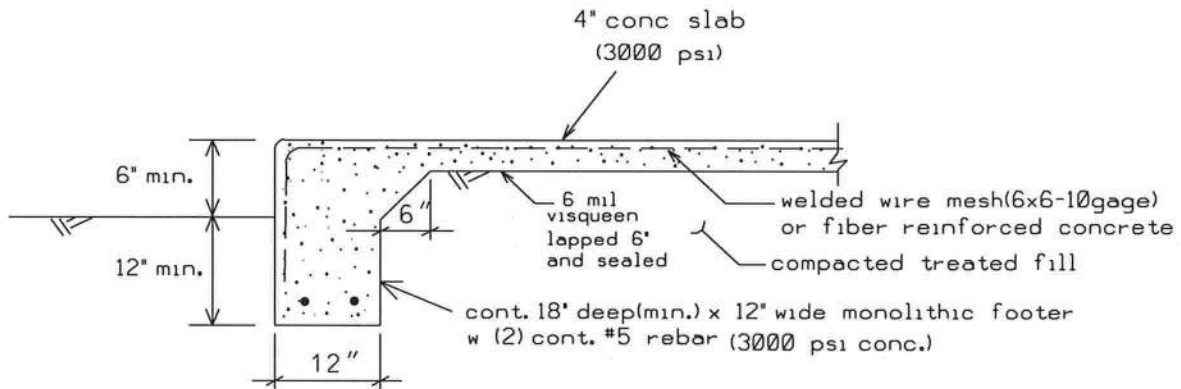
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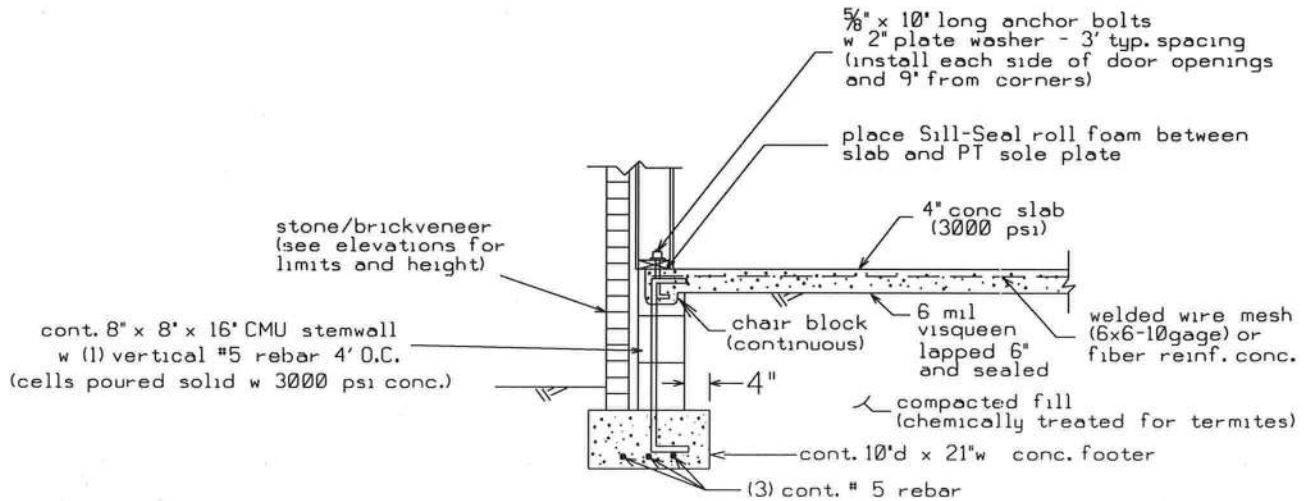
5/8"x10' anchor bolts
w 2' washers 3' O.C.
and each side of door
opening



INTERIOR MONOLITHIC FOUNDATION (N.T.S.)



MONOLITHIC PORCH FOUNDATION (N.T.S.)



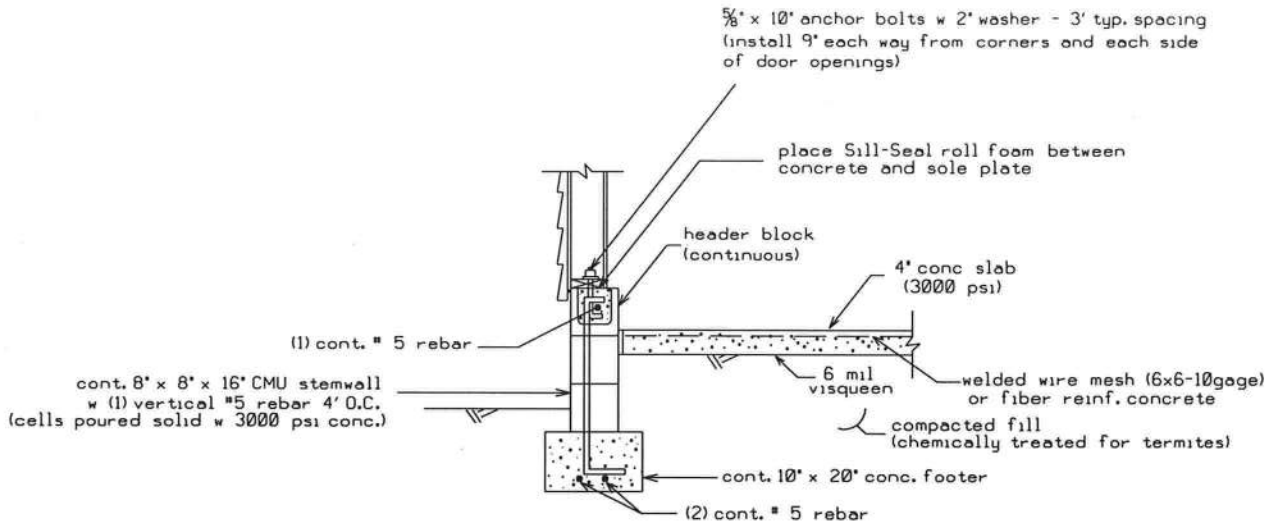
FOOTER DETAIL AT STONE/BRICK LOCATIONS (N.T.S.)

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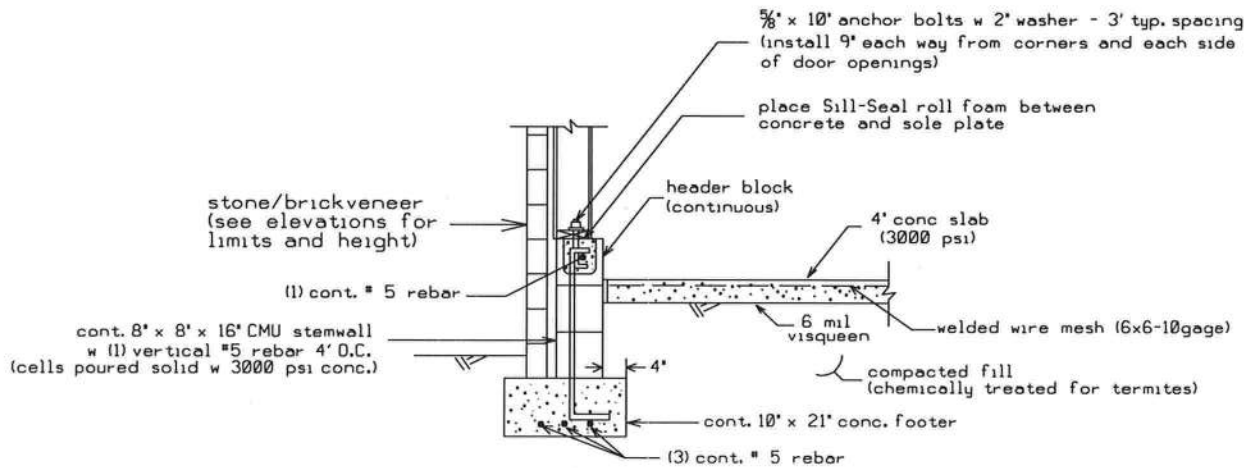
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GARAGE FOOTER DETAIL (FLOATING SLAB) (N.T.S.)



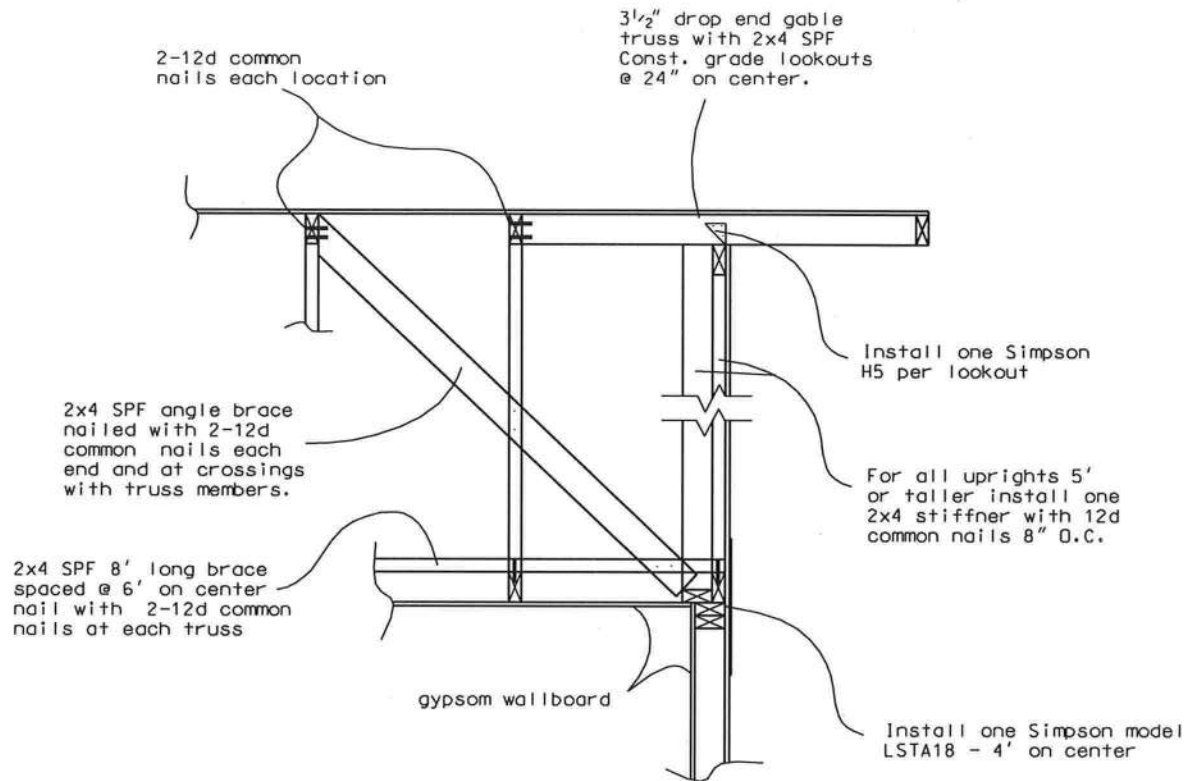
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**GABLE END BRACING
DETAIL (N.T.S.)**

NOTE: Gable end trusses shall be dropped 3 1/2" for construction of lookouts & overhang. Gable end trusses shall be constructed with vertical members 2' on center to receive sheathing.

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