

The diagrams illustrate the calculation of the number of rafters for different roof types:

- WALLS:** A 3D perspective view of a rectangular wall. The width is labeled 'a' and the height is labeled 'h'. The number of rafters is indicated by the number '5' in a circle at the corners and along the edges.
- GABLE ROOFS:** A plan view of a gable roof. The width is labeled 'a' and the height is labeled 'h'. The number of rafters is indicated by the number '5' in a circle at the corners and along the edges.
- HIP ROOFS:** A plan view of a hip roof. The width is labeled 'a' and the height is labeled 'h'. The number of rafters is indicated by the number '5' in a circle at the corners and along the edges.

Legend:

- a: 10% of least horizontal dim., or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft.
- h: mean roof height, in feet.

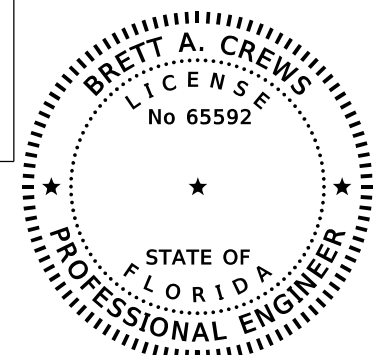
CODES:	FLORIDA BUILDING CODE 7TH EDITION (2020) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDINGS BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION, 2018 EDITION APA PLYWOOD DESIGN SPECIFICATION	
LIVE LOADS:	ROOF RESIDENTIAL FLOOR, UNLESS OTHERWISE INDICATED BALCONIES STAIRS LIGHT PARTITIONS (DEAD LOAD), U.N.O.	20 PSF (REDUCIBLE) 40 PSF 40 PSF 40 PSF 20 PSF
WIND LOADS: (F.B.C.)	WIND LOADS BASED ON FBC, SECTION 1609 WIND VELOCITY: 125 M.P.H., USE FACTOR: 1.0	
CONCRETE STRENGTH @ 28 DAYS	ALL CONCRETE UNLESS OTHERWISE INDICATED PEA GRAVEL CONCRETE FOR MASONRY CELLS ONLY (DO NOT USE FOR CONCRETE COLUMNS OR TIE BEAMS)	2500 PSI 3000 PSI
REINFORCING:	WELDED WIRE FABRIC SHALL CONFORM TO ALL REINFORCING BARS ALL STIRRUPS AND TIES	ASTM A185 ASTM A615-40 40,000 PSI ASTM A615-40 40,000 PSI
CONCRETE MASONRY UNITS:	ASTM C90-99b, STANDARD WEIGHT UNITS, fm=1500 PSI MORTAR TYPE "S" 1800 PSI CONCRETE GROUT 3000 PSI CONTINUOUS MASONRY INSPECTION IS REQUIRED DURING CONSTRUCTION	
STRUCTURAL STEEL:	ALL STRUCTURAL AND MISCELLANEOUS STEEL A36 36,000 PSI, U.N.O SHOP AND FIELD WELDS: E70XX ELECTRODES ALL BOLTS CAST IN CONCRETE: ASTM A36 OR ASTM A-307	
WOOD FRAMING:	BEAMS, RAFTERS, JOIST, PLATES, ETC. U.N.O. NO. 2 SOUTHERN YELLOW PINE (19% M.C.) ROOF DECK: PLYWOOD C-C/C-D, EXTERIOR, OR OSB FLOOR SHEATHING: TAG A-C GROUP 1 APA RATED (48/24) WALL SHEATHING: PLYWOOD C-C/C-D, EXTERIOR OR OSB VERSA LAM BEAM Fb = 2900 PSI (2.0E) WOOD COLS. PARALLAM 2.0E U.N.O.	
WOOD ROOF TRUSSES:	DESIGN LOADS: TOP CHORD LIVE AND DEAD LOAD: BOTTOM CHORD DEAD LOAD: TOTAL:	30 PSF 10 PSF 40 PSF
	SEE DRAWINGS FOR SPECIAL CONCENTRATED LOADS. DESIGN FOR NEW WIND UPLIFT AS PER SPECIFIED CODES, DEDUCTING A MAXIMUM OF 5 P.S.F. DEAD LOAD, BUT NOT EXCEEDING ACTUAL DEAD LOAD.	
SOIL BEARING VALUE:	ASSUMED ALLOWABLE SOIL BEARING PRESSURE AFTER COMPACTION: 1,500 PSF SEE SOIL REPORT AND SPECIFICATIONS FOR COMPACTION REQUIREMENTS IF SOIL CONDITIONS IN THE PROJECT DO NOT MEET OR EXCEED THE CAPACITY THE GENERAL CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO FOUNDATION POUR FOR VERIFICATION OF FOUNDATION DESIGN.	



WARD RESIDENCE

A.B.	Anchor Bolt	Flr.	Floor	Pit.Ht.	Plate Height
Abv.	Above	Fdn.	Foundation	Pit.Sh.	Plant Shelf
A/C	Air-Conditioner	Flr.Sys.	Floor System	PSF	Pounds per square foot
Adj.	Adjustable	F.Pt.	Fireplace	P.T.	Pressure Treated
A.F.T.	Above Finished Floor	Ft.	Foot / Feet	Pwd.	Powder Room
A.H.U.	Air Handler Unit	Flg.	Flooring	Radi.	Radiant
A.L.T.	Alternate	FX	Fixed	Ref.	Refrigerator
B.C.	Base Cabinet	Galv.	Galvanized	Req'd.	Required
B.F.	Bifold Door	G.C.	General Contractor	Rm.	Room
Bk.Sh	Book Shelf	G.F.I.	Ground Fault Interrupt	Rnd.	Round
Bm.	Beam	G.T.	Girder Truss	R/SH	Rod and Shelf
Bt.	Bottom	H.T.	Header	SD.	Smoke Detector
B.P.	Bypass door	Hgt.	Height	S.F.	Square Ft.
Brg.	Bearing	HB	Hose Bibb	Sh.	Shelves
Clr.	Circle	Int.	Interior	SHT	Sheet
Cir.	Ceiling	K/Wall	Kneewall	S.L.	Side Lights
Col.	Column	K.S.	Knee Space	S.P.F.	Spruce Pine Fir
Comp.	A/C Compressor	Laun.	Laundry	Sq.	Square
C.T.	Ceramic Tile	Lav.	Lavatory	S.Y.P.	Southern Yellow Pine
D	Dryer	L.F.	Linear Ft.	Temp.	Tempered
Dec.	Decorative	L.T.	Laundry Tub	Thickn.	Thicken
Dec.	Dedicated Outlet	Mas.	Masonry	T.O.B.	Top of Block
Del.	Double	Max	Maximum	T.O.M.	Top of Masonry
Dia.	Diameter	M.C.	Medicine Cabinet	T.O.P.	Top of Plate
Disp.	Disposal	MDP	Master Distribution Panel	Trans.	Transom Window
Dist.	Distance	Mfrg.	Manufacturer	Typ.	Type
D.S.	Drawer Stack	Micro.	Microwave	UCL	Under Cabinet Lighting
D.V.	Dryer Vent	Min	Minimum	U.N.O.	Unless Noted Otherwise
D.W.	Dishwasher	M.L.	Microalim	VB	Vanity Base
Ea	Each	Mirr	Mirror	Vert.	Vertical
E.W.	Each Way	Mono	Monolithic	V.L.	Vanity Sash
Elec.	Electrical	N.T.S.	Not to Scale	VTR	Vent through Roof
Elev.	Elevation	Opng	Opening	W	Washer
Ext.	Exterior	Opt.	Optional	W	With
Exp.	Expansion	Pc.	Piece	W/C	Water Closet
F.B.C.	Florida Bldg. Code	Pd.	Pedestal	W.P.	Wedge Anchor
Fin. Flr.	Finished Floor	P.L.	Parallam	Wood	Wood
F.G.	Fixed Glass	PLF	Pounds per linear foot	W.P.	Water Proof

<u>SHEET</u>	<u>DESCRIPTION</u>
A-1	COVER SHEET
A-2	FLOOR PLAN
A-3	ELEVATIONS FRONT AND REAR
A-4	ELEVATIONS SIDES
A-5	FOUNDATION PLAN
A-6	ROOF PLAN
A-7	ELECTRICAL PLAN
A-8	SECTIONS AND FRAMING DETAILS
A-9	SHEARWALL DETAILS



REVISIONS			DESIGN BY:		CERTIFIED GENERAL CONTRACTOR CGC1514780		CERTIFICATE OF AUTHORIZATION NO. 28022		Digitally signed by Brett A. Crews Date: 2022.07.13 08:53:51-04'00'		DRAWN BY: TM		PROJECT NO.: R22.005	
DATE	BY	DESCRIPTION			 Crews Engineering Services, LLC		349 SW CREWS FARM TERRACE LAKE CITY, FL 32025 PHONE: 386.623.4303		Brett A. Crews, P.E. 65592		APPROVED BY: BC		COVER SHEET	
													SHEET: A-1	

- RULES:
1. One all-thread rod at each corner.
 2. One all-thread rod at each end of sheanwalls.
 3. One all-thread rod at each end of opening headers greater than 3'-0"
 4. Check sub-sheathing to top plate connection for horizontal transfer capability.
 5. If necessary, add all-thread rods to girders individually to exclude the from average uplift plf.
 6. Check sole plate to slab connection, additional anchors may be required for lateral and shear load transfer.

ALLOWABLE VALUES	
Connection Type	Allowable Value
Foundation / S.Y.P. Top Plate	3840 lbs.
Foundation / Spruce-Pine-Fir Top Plate	3840 lbs.
Lintel or Bond Beam / S.Y.P. Top Plate	3840 lbs.
Lintel or Bond Beam / Spruce-Pine-Fir Top Plate	3840 lbs.

Placement at slab level:

Corners
When presetting the all-thread rod at a building corner, the rod should be placed 8 to 12 inches away from the corner so it does not set under the corner framing members. When an all-thread rod is specified at a building corner, it may be placed on either side of the corner.

Header ends
When presetting the all-thread rod at a header end, the rod should be placed 8 to 12 inches away from the header end so it does not fall under the stud pack framing members.

Top Connections
Top connections made at corners and header ends shall be made within 2 inches of the framing pack. A nut and 3X3 washer shall be applied to the top plates and tightened securely.

Intermediate Coupler Connections
When using the rod coupler, care should be taken to ensure full and equal thread engagement. This is easily achieved by threading the coupler all the way onto the rod, then standing the two rods end to end, then threading the coupler back over the rod joint so each rod is halfway into the coupler.

Retro-fits
In the case of an all thread rod misplacement, the rod may be epoxied into the concrete.

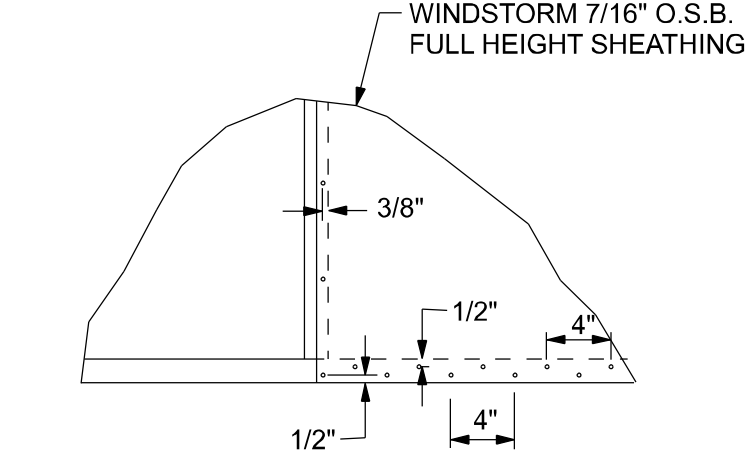
Sole plate to slab connection:
The slab level sole plate shall be connected to the slab with the connectors specified and at the spacing specified within the design documents. All-thread rods shall be placed as per the design specifications. All-thread rods with a nut and washer at the sole plate will qualify as a sole plate connection but may require other anchors intermediate of the all-thread rod locations to qualify the specified spacing requirements.

System Tightening:
On multiple story applications, the all-thread rod system shall be rechecked for proper tension just before the walls are veneered. This will allow the all-thread rod system to compensate for the buildings dead load compression.

SHEARWALL NOTES:

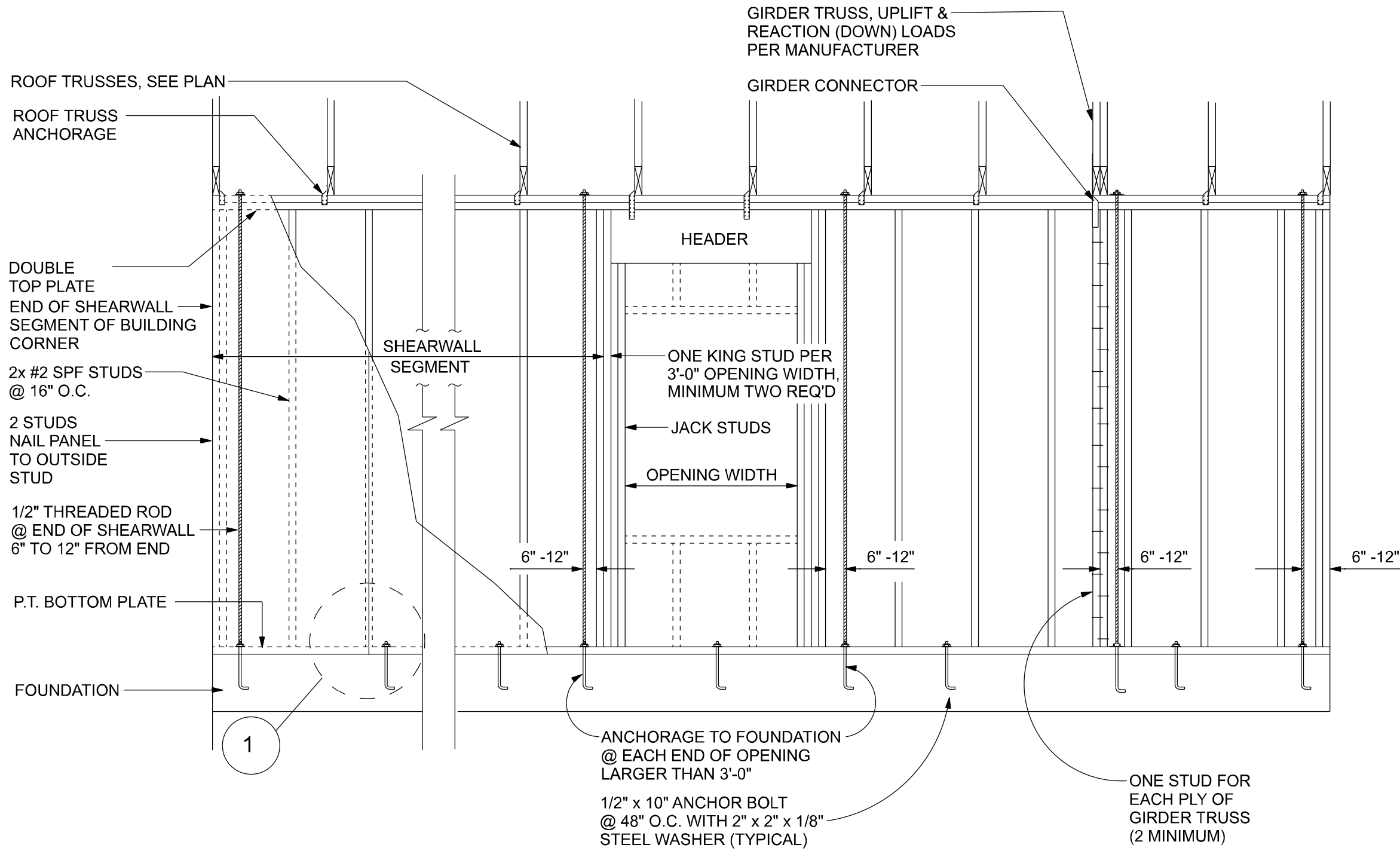
1. ALL SHEARWALLS SHALL BE TYPE 2 SHEARWALLS AS DEFINED BY STD 10-99 305.4.3.
2. THE WALL SHALL BE ENTIRELY SHEATHED WITH 7/16" O.S.B. INCLUDING AREAS ABOVE AND BELOW OPENINGS.
3. ALL SHEATHING SHALL BE ATTACHED TO FRAMING ALONG ALL FOUR EDGES WITH JOINTS FOR ADJACENT PANELS OCCURING OVER COMMON FRAMING MEMBERS OR ALONG BLOCKING.
4. NAIL SPACING SHALL BE 6" O.C. EDGES AND 12" O.C. IN THE FIELD.
5. TYPE 2 SHEARWALLS ARE DESIGNED FOR THE OPENING IT CONTAINS. MAXIMUM HEIGHT OF OPENING SHALL BE 5/6 TIMES THE WALL HEIGHT. THE MINIMUM DISTANCE BETWEEN OPENINGS SHALL BE THE WALL HEIGHT/3.5 ie. FOR 8'-0" WALLS - (2'-3").

OPENING WIDTH	SILL PLATES	16d TOE NAILS EACH END
UP TO 6'-0"	(1) 2x4 OR (1) 2x6	1
> 6' TO 9'-0"	(3) 2x4 OR (1) 2x6	2
> 9' TO 12'-0"	(5) 2x4 OR (2) 2x6	3



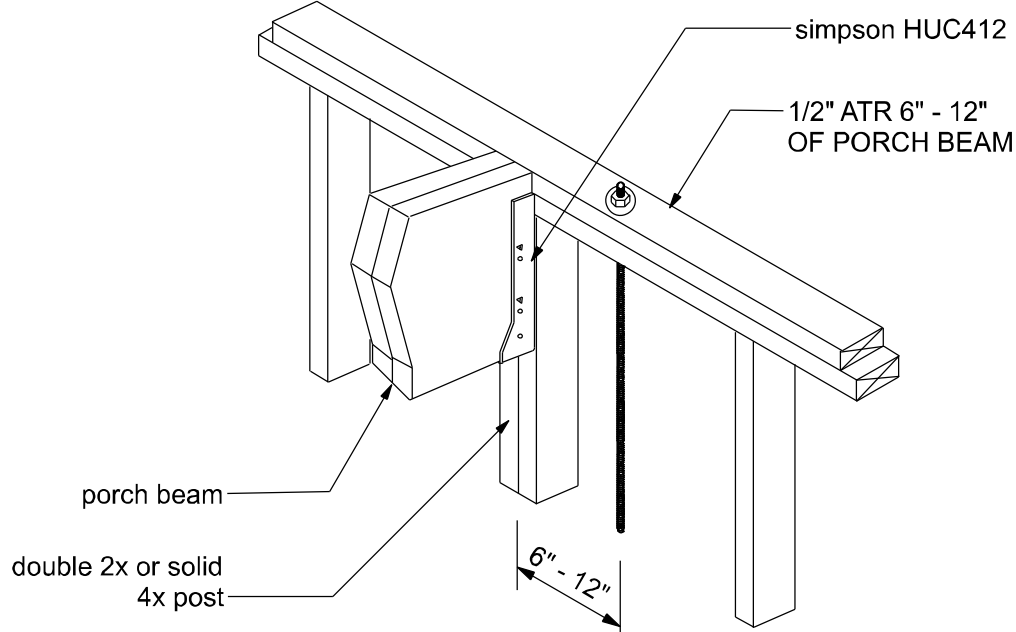
1 DOUBLE NAIL EDGE SPACING TOP AND BOTTOM PLATE
UPLIFT CAPACITY = 474 plf (TABLE 305S1 SSTD10-99)

NOTE:
ALL WALL SHEATHING SHALL BE WINDSTORM 1 1/8" FULL HEIGHT SHEATHING-SEE DETAIL 1 FOR NAILING



SHEARWALL DETAILS
SCALE: 1/2" = 1'-0"

NOTE:
VERIFY GIRDER TRUSS LOCATION ON TRUSS LAYOUT FOR REQ'D ALL THREAD AT GIRDER LOCATION



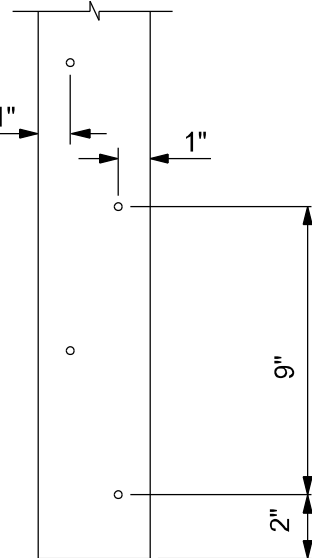
ALL THREAD @ PORCH BEAM
NTS

ALLOWABLE DEFLECTION OF STRUCTURAL MEMBERS

STRUCTURAL MEMBER	ALLOWABLE DEFLECTION
rafters having slopes greater than 2/12 with no finished ceiling attached to rafters	L/180
interior walls and partitions	H/180
floors and plastered ceilings	L/360
all other structural members	L/240
exterior walls with plaster or stucco finish	H/360
exterior walls - wind loads with brittle finishes	L/240
exterior walls - wind loads with flexible finishes	L/120

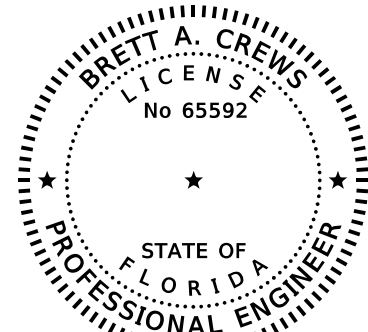
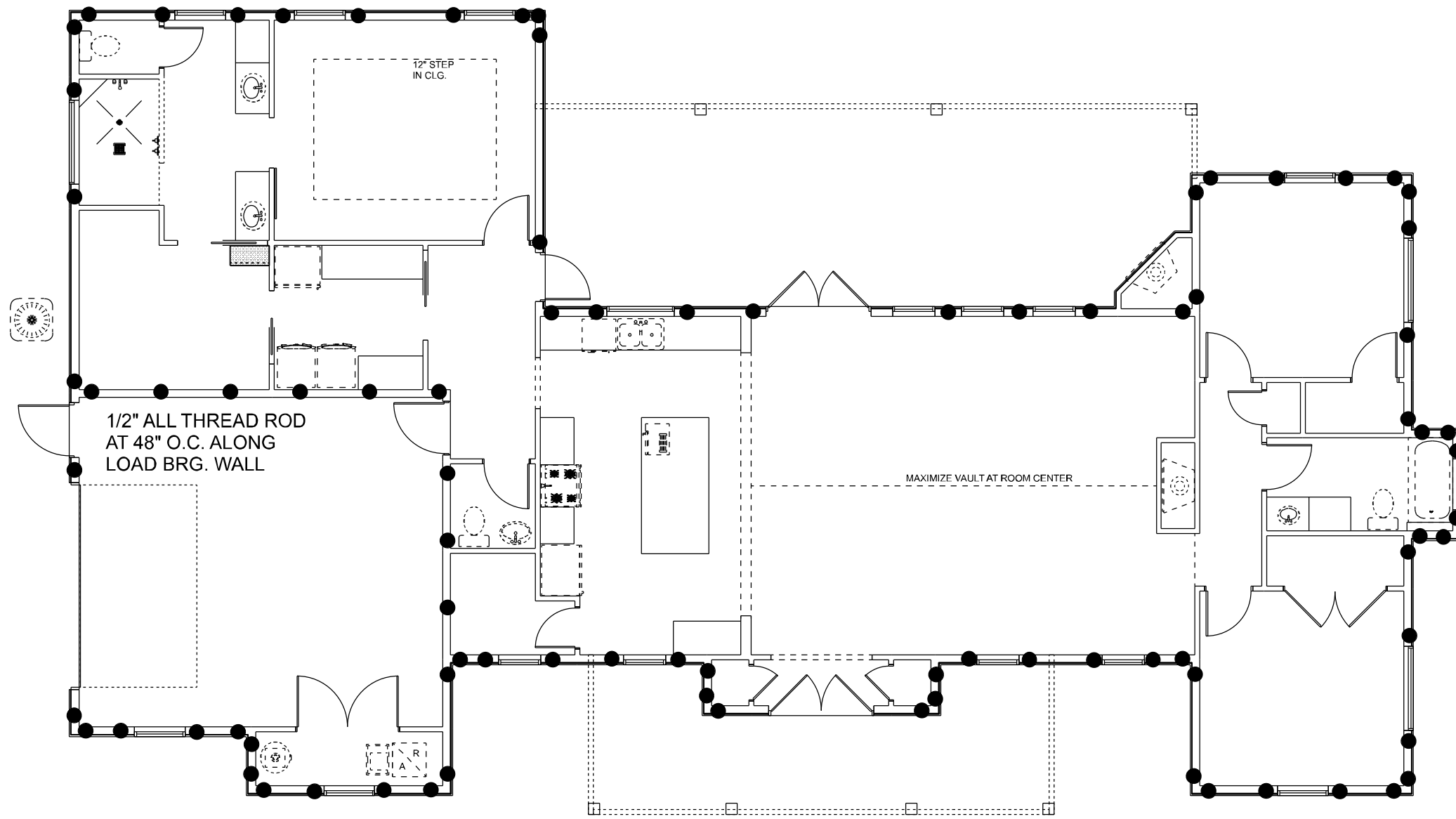
OPENING CONNECTION REQUIREMENTS				
CLEAR OPENING WIDTH	HEADER SIZE #2 GRADE OR BETTER	END BEARING	CONNECTOR AT EACH END OF OPENING	ANCHORAGE TO FOUNDATION @ EACH END OF OPENING
0' - 3'	(2) 2x8	1.5"	N/A	N/A
>3' - 6'	(2) 2x10	3"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD
>6' - 9'	(2) 2x12	3"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD
>9' - 12'	(2) 1 3/4" x 11 1/4" LVL - 2.0E	3"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD
>12' - 15'	(2) 1 3/4" x 11 1/4" LVL - 2.0E	3"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD
>15' - 18'	(2) 1 3/4" x 11 1/4" LVL - 2.0E	4.5"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD

NOTE:
A SOLID MEMBER OF EQUAL OR GREATER SIZE THAN MULTIPLE MEMBERS MAY BE USED.
IF RATED SHEATHING IS APPLIED TO NARROW EDGES, NAILED TO EACH STUD AT 12" O.C. MAXIMUM, THE LAMINATION NAILING SHOWN HERE IS NOT REQUIRED.



END (TOP OR BOTTOM)

GIRDER COLUMN DETAIL
SCALE: 1/2" = 1'-0"



ALL THREAD DETAIL
● ALL THREAD LOCATION

REVISIONS			DESIGN BY:	CERTIFIED GENERAL CONTRACTOR	CERTIFICATE OF AUTHORIZATION	Brett A. Crews	DRAWN BY:	TM	APPROVED BY:	BC	WARD RESIDENCE	PROJECT NO.: R22.005
DATE	BY	DESCRIPTION										
			TRADEMARK Construction Group, Inc.	CDC1514780 750 SW MAIN BLVD. LAKE CITY, FL. 32025 (386)755-5254	CES Crews Engineering Services, LLC	349 SW CREWS FARM TERRACE LAKE CITY, FL 32025 PHONE: 386.623.4303	Digitally signed by Brett A. Crews Date: 2022.07.13 08:56:36-04'00'				SHEARWALL DETAILS	SHEET: A-9