

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

- WALLS:** A 3D perspective view of a wall section. The height is labeled 'h' and the width is labeled 'a'. The number of rafters is indicated by the number '5' in a circle at the corners and along the length.
- 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 length.
- 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 length.

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	20 PSF (REDUCIBLE)
	RESIDENTIAL FLOOR, UNLESS OTHERWISE INDICATED	40 PSF
	BALCONIES	40 PSF
	STAIRS	40 PSF
	LIGHT PARTITIONS (DEAD LOAD), U.N.O.	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	2500 PSI
	PEA GRAVEL CONCRETE FOR MASONRY CELLS ONLY (DO NOT USE FOR CONCRETE COLUMNS OR TIE BEAMS)	3000 PSI
REINFORCING:	WELDED WIRE FABRIC SHALL CONFORM TO	ASTM A185
	ALL REINFORCING BARS	ASTM A615-40 40,000 PSI
	ALL STIRRUPS AND TIES	ASTM A615-40 40,000 PSI
CONCRETE MASONRY UNITS:	ASTM C90-99b, STANDARD WEIGHT UNITS, fm=1500 PSI	
	MORTAR TYPE "S" 1800 PSI	
STRUCTURAL STEEL:	CONCRETE GROUT: 3000 PSI	
	CONTINUOUS MASONRY INSPECTION IS REQUIRED DURING CONSTRUCTION	
	ALL STRUCTURAL AND MISCELLANEOUS STEEL A36 36,000 PSI, U.N.O	
WOOD FRAMING:	SHOP AND FIELD WELDS: E70XX ELECTRODES	
	ALL BOLTS CAST IN CONCRETE: ASTM A36 OR ASTM A-307	
	BEAMS, RAFTERS, JOIST, PLATES, ETC. U.N.O.	
WOOD ROOF TRUSSES:	NO. 2 SOUTHERN YELLOW PINE (19% M.C.)	
	ROOF DECK: PLYWOOD C-C/D, EXTERIOR, OR OSB	
	FLOOR SHEATHING: T&G A-C GROUP 1 APA RATED (48/24)	
	WALL SHEATHING: PLYWOOD C-C-D, EXTERIOR OR OSB	
	VERSA LAM BEAM Fb = 2900 PSI (2.0E)	
	WOOD COLS. PARALLAM 2.0E U.N.O.	
	DESIGN LOADS:	
TOP CHORD LIVE AND DEAD LOAD:	30 PSF	
	BOTTOM CHORD DEAD LOAD:	10 PSF
	TOTAL:	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 CAPACITY AFTER COMPACTION: 1,500 PSF	
	SEE SOILS 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.	

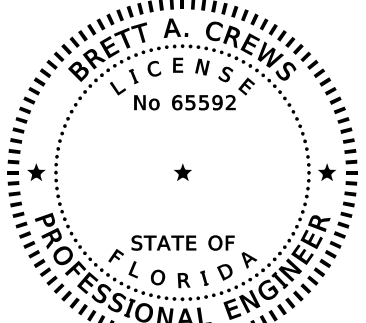


PROJECT LOCATION
COLUMBIA COUNTY
07-4S-16-02806-010

ABBREVIATIONS

A.B.	Anchor Bolt	Flr.	Floor	Plt. Ht.	Plate Height
Abv.	Above	Fdn.	Foundation	Plt. Sh.	Plant Shelf
A/C	Air-Conditioner	Flr. Sys.	Floor System	PSF	Pounds per square foot
Adj.	Adjustable	F.P.	Fireplace	P.T.	Pressure Treated
A.D.	Above Finished Floor	F.L.	Floor / Feet	Pnd.	Powder Room
A.H.U.	Air Handler Unit	Ft.	Footing	Rd.	Radius
ALT.	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 Interrupter	Rnd.	Round
Bm	Brim	G.T.	Girder Truss	R/SH	Rod and Sh
Bt.	Bottom	Hdr.	Header	S.D.	Smoke Detector
B.P.	Bypass door	Hgt.	Height	S.F.	Square Ft.
Brg.	Bearing	HB	Hose Bibb	Sh.	Shelves
Cir.	Circle	Int.	Interior	SHT	Sheet
Cig.	Ceiling	K/Wall	Kneewall	S.L.	Side Lights
Col.	Column	K.S.	Knee Space	S.P.F.	Source 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	Thick'n.	Thicken
Ded.	Dedicated Outlet	Mas.	Masonry	T.O.B.	Top of Block
Dbl.	Double	M.C.S.	Maximum	T.M.	Top of Masonry
Dia.	Diameter	M.C.	Medicine Cabinet	T.O.P.	Top of Partition
Disp.	Disposal	MDP	Master Distribution Panel	Trans.	Transom Window
Dist.	Distance	Mfrg.	Manufacturer	Typ.	Typical
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	Mir.	Mirror	Vert.	Vertical
E.W.	Each Way	Mono	Monolithic	VL	Versalim
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	Ped.	Pedestal	W.A.	Wedge Anchor
Fin. Fir.	Finished Floor	P.L.	Parallam	Wd	Wood
F.G.	Fixed Glass	P.L.F.	Pounds per linear foot	WP	Water Proof

<u>INDEX OF SHEETS</u>	
<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		CERTIFICATE OF AUTHORIZATION		Digitally signed by		DRAWN BY:	WARD RESIDENCE		PROJECT NO.:
DATE	BY	DESCRIPTION	TRADEMARK		CGC1514780		NO. 28022		Brett A. Crews		TM			R22.005
			Construction Group, Inc.		750 SW MAIN BLVD. LAKE CITY, FL. 32025 (386)755-5254		349 SW CREWS FARM TERRACE LAKE CITY, FL 32025 PHONE: 386.623.4303		Date: 2022.07.13 08:53:51-04'00'		APPROVED BY:	COVER SHEET		SHEET:
							Crews Engineering Services, LLC		Brett A. Crews, P.E. 65592		BC			A-1

1. One all-thread rod at each corner.
2. One all-thread rod at each end of shearwalls.
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.

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 a 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.

When using the rod coupler, care should be taken to ensure full and equal threading 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.

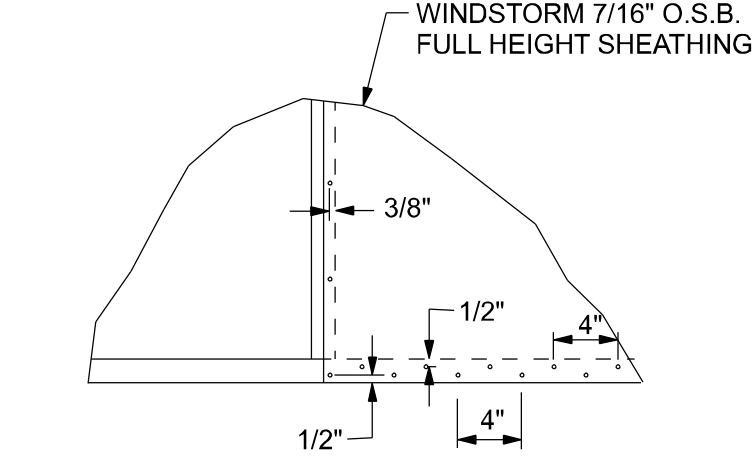
In the case of an all thread rod misplacement, the rod may be epoxied into the concrete.

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.

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

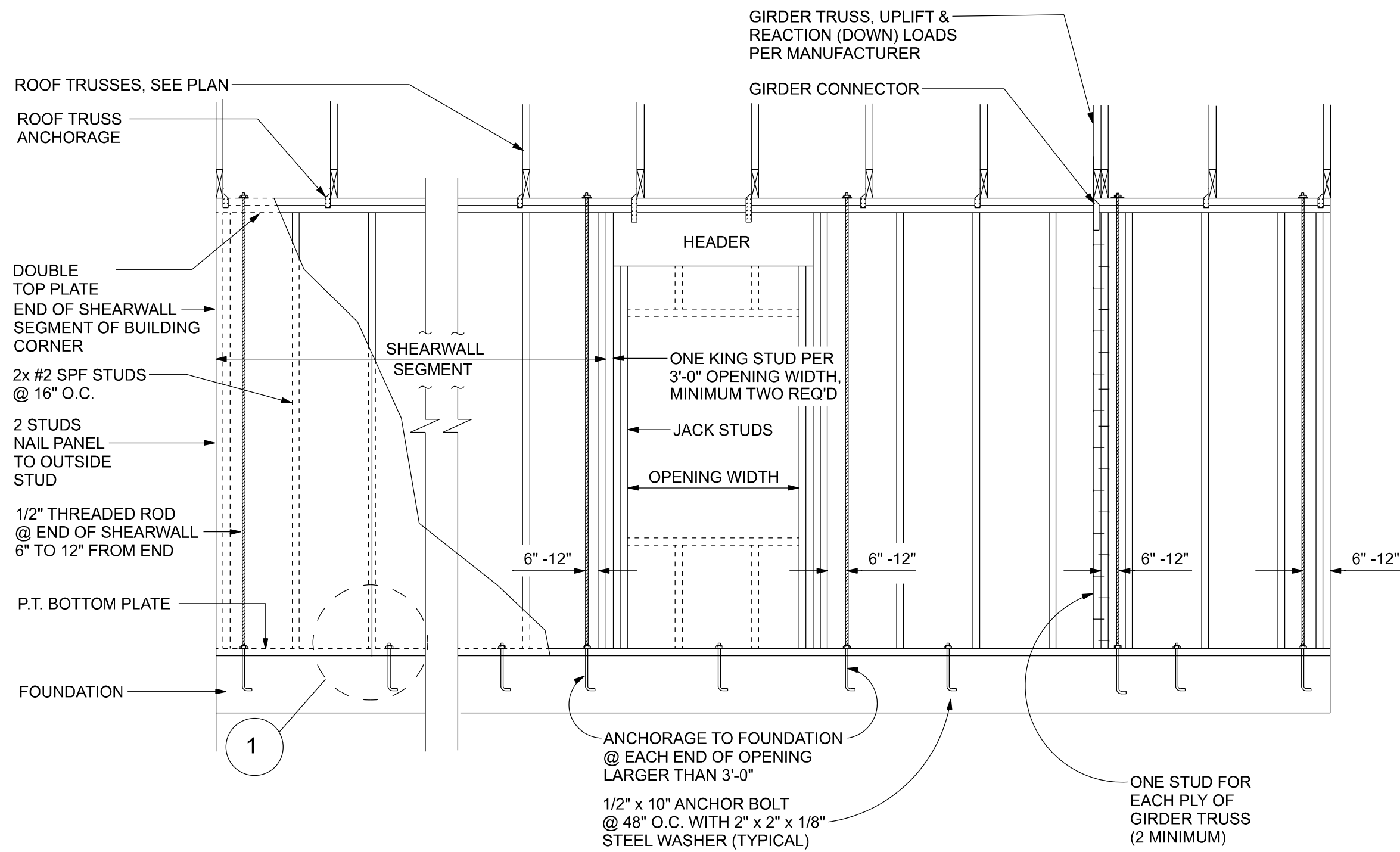
1. ALL SHEARWALLS SHALL BE TYPE 2 SHEARWALLS AS DEFINED BY STD 10-99 305.4.3.
2. THE WALL SHALL BE ENTIRELY SHEATHED WITH 7/16" O.S.B. INCLUDING AREAS ABOVE AND BELOW OPENING.
3. ALL SHEATHING SHALL BE ATTACHED TO FRAMING ALONG ALL FOUR EDGES WITH JOINTS FOR ADJACENT PANELS OCCURRING OVER COMMON FRAMING 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



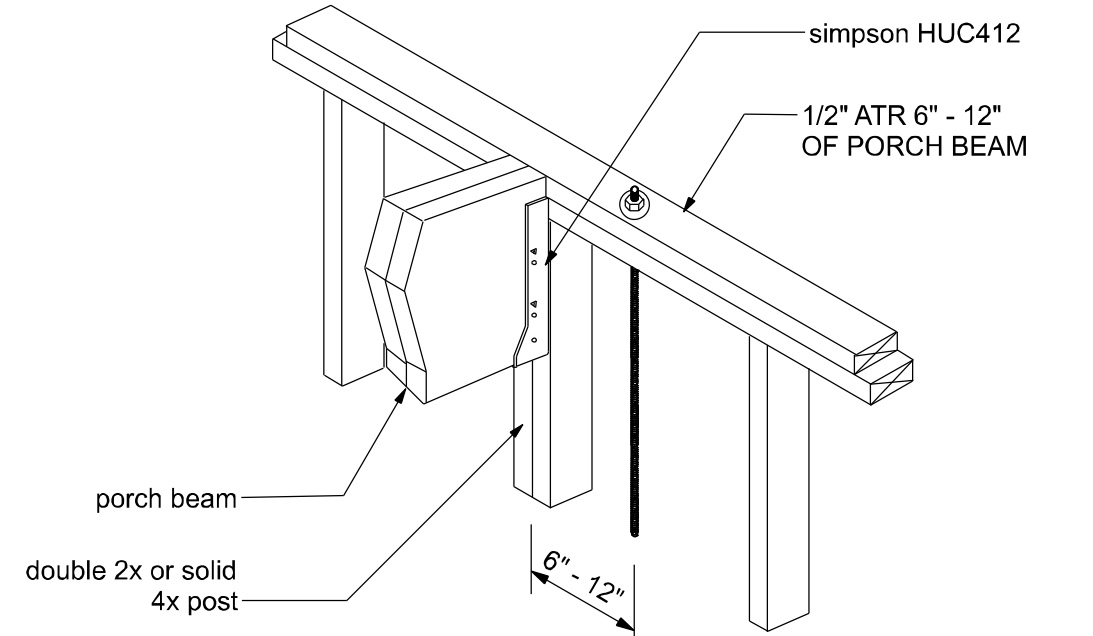
UPLIFT CAPACITY = 474 pl
(TABLE 305S1 SSTD10-99)

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



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

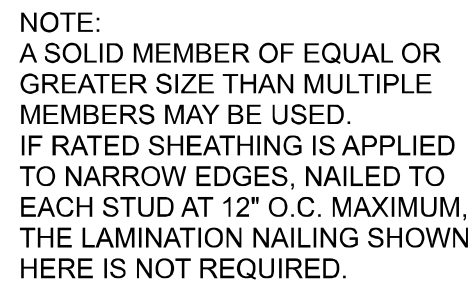
NOTE:
VERIFY GIRDER TRUSS LOCATION
ON TRUSS LAYOUT FOR REQ'D
ALL THREAD AT GIRDER LOCATION



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

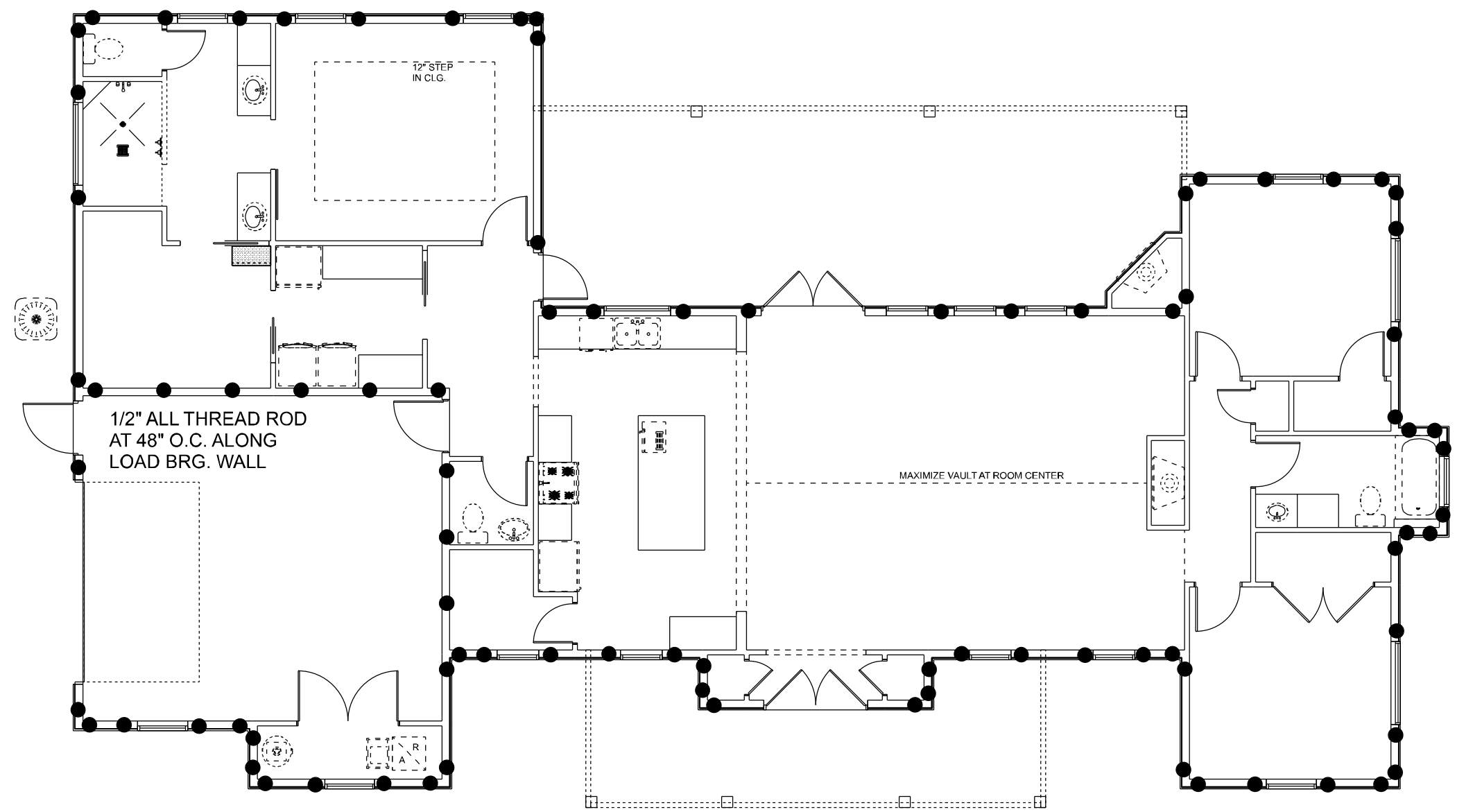
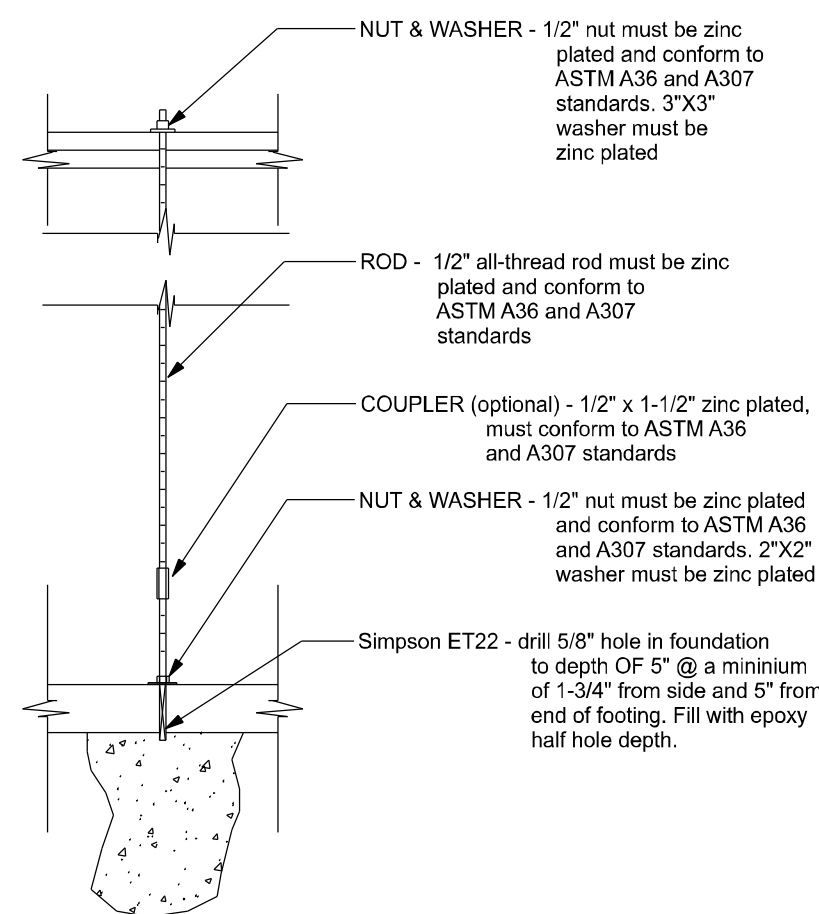
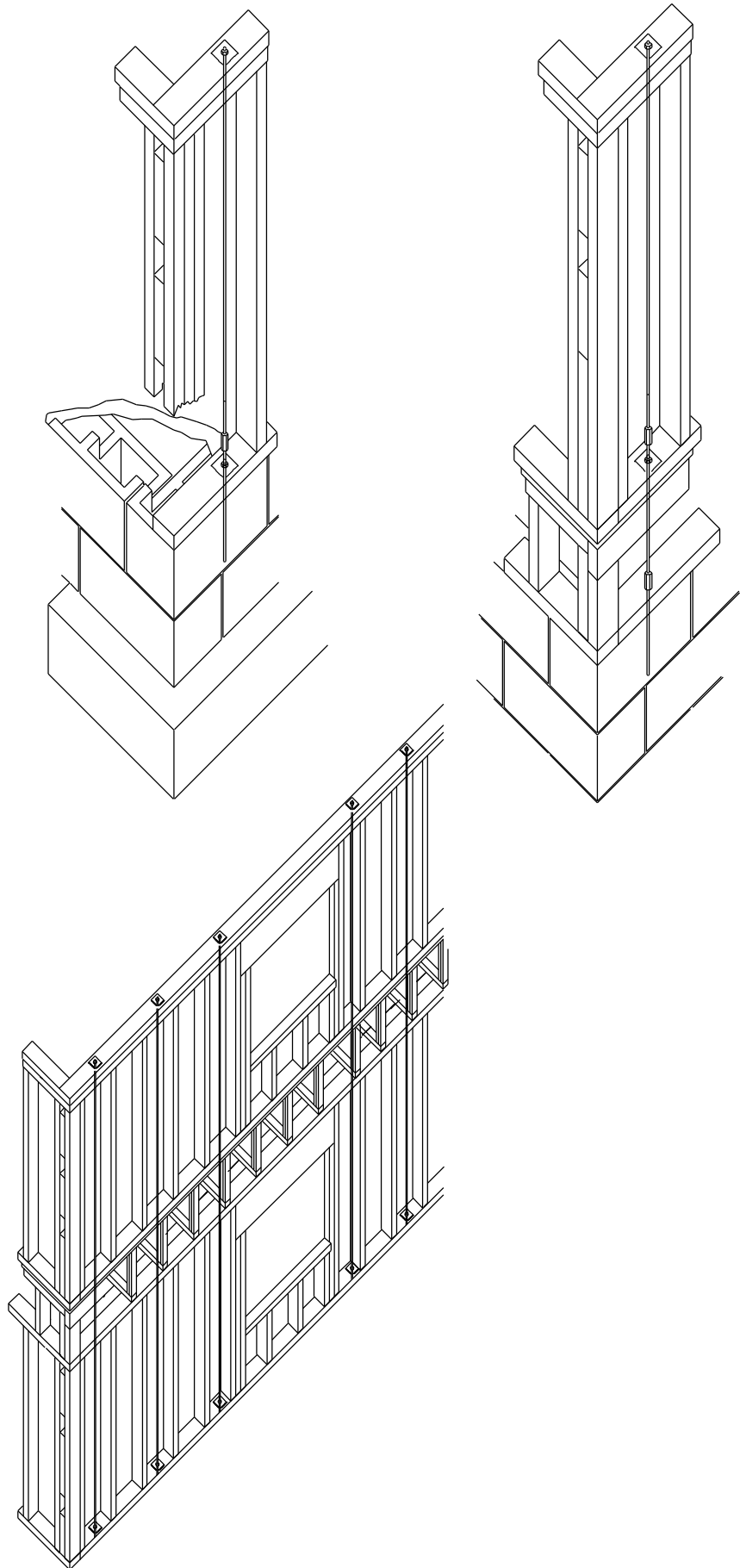
OPENING CONNECTION REQUIREMENTS				
CLEAR OPENING WIDTH	HEADER SIZE #2 GRADE OR BETTER	END BEARING	CONNECTOR AT EACH END OF OPENING	ANCHORAGE TO FOUNDATION @ EACH END OF OPENING
0' - 3'	(2) 2x8	1.5"	N/A	N/A
>3' - 6'	(2) 2x10	3"	1/2" ALL THREAD ROD	1/2" ALL THREAD ROD
>6' - 9'	(2) 2x12	3"	1/2" ALL THREAD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



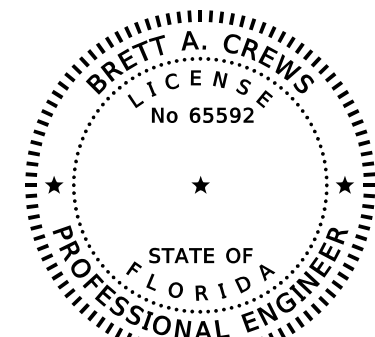
A diagram of a horizontal beam of length 10 ft. A triangular load starts at 0 lb/ft at the left end and increases linearly to 1 lb/ft at the right end. A point load of 1 lb is applied at the right end of the beam. The beam is supported by a pin support at the left end and a roller support at the right end. The distance between the supports is 10 ft. The triangular load is represented by a triangle with a peak of 1 lb/ft at the right end. The point load is represented by a downward arrow of 1 lb at the right end. The beam is labeled with 'x' at the left end and 'y' at the right end. The distance between the supports is labeled as 10 ft. The triangular load is labeled as 1 lb/ft at the right end. The point load is labeled as 1 lb at the right end.

END (TOP OR BOTTOM)

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



● ALL THREAD LOCATION



Brett A. Crews

Digitally signed by
Brett A. Crews
Date: 2022.07.13
08:56:36-04'00'

Brett A. Crews, P.E. 65592

APPROVED BY:

SHEARWALL DETAILS

A-9

REVISIONS			DESIGN BY:	CERTIFIED GENERAL CONTRACTOR	CERTIFICATE OF AUTHORIZATION	DRAWN BY:	PROJECT NO.:
DATE	BY	DESCRIPTION	TRADEMARK Construction Group, Inc.	CGC1514780	NO. 28022	TM	R22.005
			</				