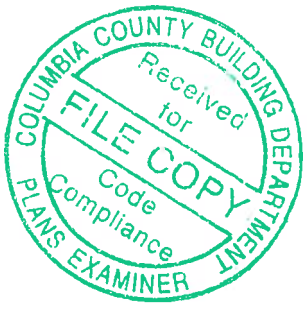
Schafer Engineering LLC

14705 Main St. Alachua FL 32615

Prepared for:

HARTZOG OPEN CARPORT
COLOMBIA COUNTY, FLORIDA



By:

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7104 N.W. 42ND LN GAINESVILLE, FL 32606 PH: 386-462-1340

June 27, 2019

SUMMARY: Wind Load Analysis for the Hartzog 36' x 36' Open Carport
Wind Speed: 135 M.P.H. \ 2017 Florida Building Code \ One Use Only

Foundation:

36" x 36" x 24" concrete wrap with (3) layers of 3 - #5 rebar drilled and installed into the column in opposing directions. The treated posts must have a minimum embedment of 21" in the depth of the concrete pads.

Columns:

8" x 8" x 11'- 0" max height @ 12' - 0" maximum spacing. Fasten headers into columns using (2) ½" x 10" galvanized through bolts with washers. PC68 or equal.

Trusses

Install pre-engineered, pre-fabricated trusses with the manufactures required bracing system designed by the manufacturer.

Simpson H-10 or equal for truss to header connection.

Headers:

Install (3) ply 2 x 12 syp #2 den. with a maximum span of 12'- 0".

6-28-19

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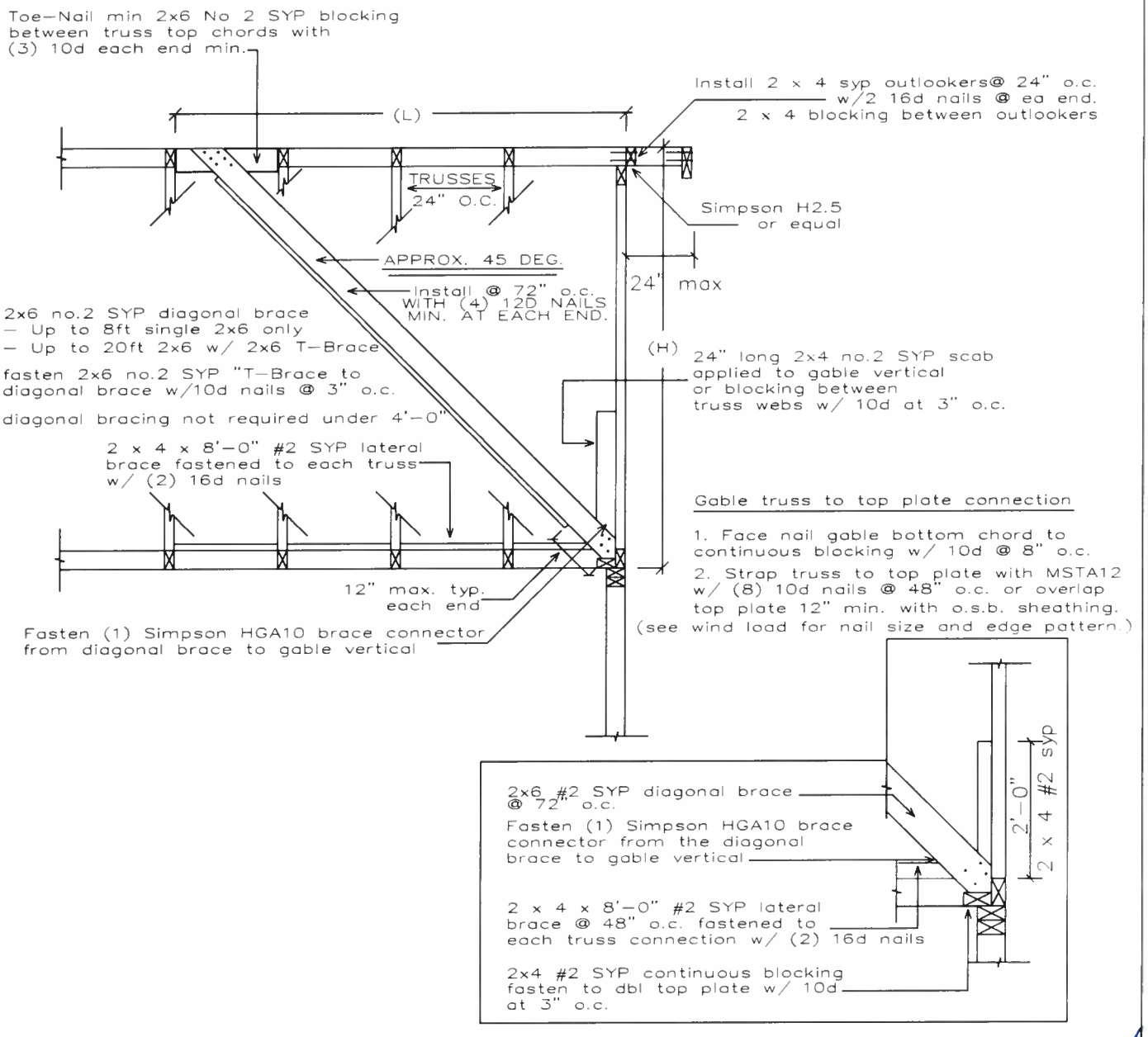

TYPICAL GABLE END BRACING

6-28-19

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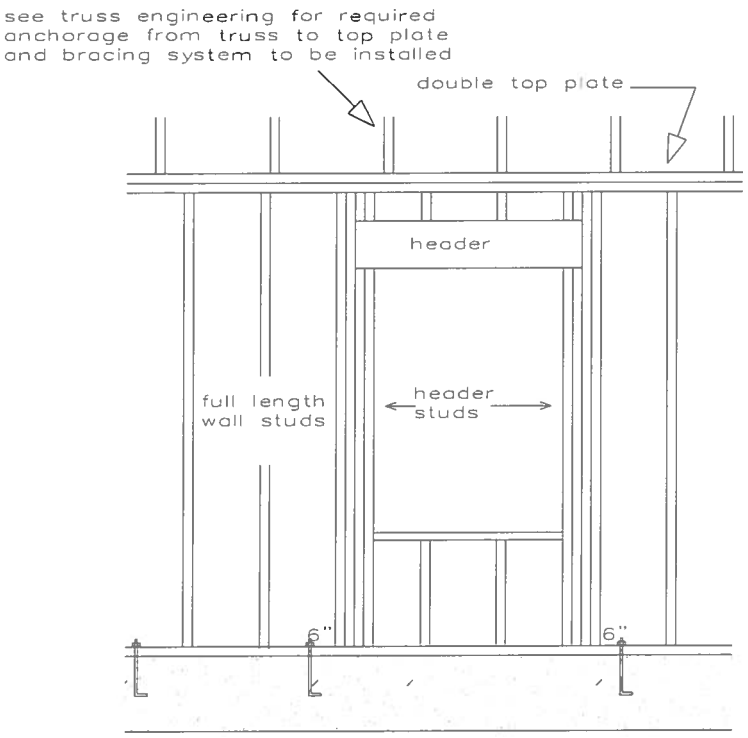

total each truss uplift on the header and divide by two for header and header stud anchorages

		Maximum Header Span (ft)					
		3'	6'	9'	12'	15'	18'
		Number of Header Studs Supporting End of Header					
		1	1	2	2	2	2
Unsupported Wall Height	Stud Spacing	Number of Full Length Studs at Each End of Header					
10'-0" or less	12"	2	2	3	3	3	3
	16"	2	2	3	3	3	3
	24"	1	2	2	2	2	2
Greater than 10'-0"	12"	2	2	3	4	5	5
	16"	2	2	3	3	4	4
	24"	1	2	2	2	3	3

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TIE-DOWN TABLES

HEADER STRAPPING				
Uplift Lbs	Top Connector	Rating Lbs	Bottom Connector	Rating Lbs
to 455	LSTA9	635	H3	320
to 910	LSTA12	795	2-H3	640
to 1265	LSTA18	1110	LTT19	1305
to 1750	2-LSTA12	1810	LTT20	1750
to 2530	2-LSTA18	2530	HD2A-2.5	2165
to 2865	3-LSTA18	3255	HD2A-3.5	2565
to 3700	3-LSTA24	3880	HD5A-3	3130

Total the uplift for each truss sitting on the header and divide by 2 to determine the uplift on the header. Use proper bolt anchors sufficient to support required uplift loads.

TRUSSES \ GIRDERS			
Uplift Lbs	Top Connector	Bottom Connector	Rating Lbs
to 535	H2.5A	NA	
to 1015	H10A	NA	
to 1215	TS22	LTT19	1305
to 1750	2-TS22	LTT20	1750
to 2570	2-TS22	HD2A	2565
to 3665	3-TS22	HD5A	3645
to 5420	2-MST37	HTT22	5250
to 9660	2-MST60	HD10A	8160

Two 12d common toenials are required per truss for each bearing point into top plate.
It is the contractors responsibility to provide a continuous load path from truss to foundation.

	TOP CONNECTOR	RATING LBS	BOTTOM CONNECTOR	RATING LBS
BEAM SEATS	LSTA18	1110	LTT19	1305
POSTS	2-LSTA18	2220	ABU44	2200

1. Simpson or equivlent hardware may be used. For nailing into spruce members, multiply table values by .86
2. See truss engineering for anchor uplift values.
3. This schedule is not meant to be a replacement to the specified values of any manufactures values.

User Input Data		
Structure Type	Building	
Basic Wind Speed (V)	135	mph
Structural Category	II	
Exposure	B	
Struc Nat Frequency (n1)	1	Hz
Slope of Roof (Theta)	22.6	Deg
Type of Roof	Gabled	
Eave Height (Eht)	11.00	ft
Ridge Height (RHt)	19.50	ft
Mean Roof Height (Ht)	15.25	ft
Width Perp. to Wind (B)	36.00	ft
Width Parallel to Wind (L)	36.00	ft
Damping Ratio (beta)	0.01	

Red values should be changed only through "Main Menu"

Calculated Parameters		
Type of Structure		
Height/Least Horizontal Dim	0.42	
Flexible Structure	No	

Calculated Parameters		
Importance Factor	1	
Non-Hurricane, Hurricane (v=85-100 mph) & Alaska		
Table C6-4 Values		
Alpha =	7.000	
zg =	1200.000	
At =	0.143	
Bt =	0.840	
Am =	0.250	
Bm =	0.450	
Cc =	0.300	
l =	320.00	ft
Epsilon =	0.333	
Zmin =	30.00	ft

Gust Factor Category I: Rigid Structures - Simplified Method			
Gust1	For rigid structures (Nat Freq > 1 Hz) use 0.85	0.85	
Gust Factor Category II: Rigid Structures - Complete Analysis			
Zm	Zmin	30.00	ft
Izm	Cc * (33/z)^0.167	0.3048	
Lzm	l*(zm/33)^Epsilon	309.99	ft
Q	(1/(1+0.63*((B+Ht)/Lzm)^0.63))^0.5	0.9118	
Gust2	0.925*((1+1.7*Izm*3.4*Q)/(1+1.7*3.4*Izm))	0.8730	
Gust Factor Category III: Flexible or Dynamically Sensitive Structures			
Vhref	V*(5280/3600)	198.00	ft/s
Vzm	bm*(zm/33)^Am*Vhref	87.00	ft/s
NF1	NatFreq*Lzm/Vzm	3.56	Hz
Rn	(7.47*NF1)/(1+10.302*NF1)^1.667	0.0627	
Nh	4.6*NatFreq*Ht/Vzm	0.81	
Nb	4.6*NatFreq*B/Vzm	1.90	
Nd	15.4*NatFreq*Depth/Vzm	6.37	
Rh	1/Nh-(1/(2*Nh^2)*(1-Exp(-2*Nh)))	0.6245	
Rb	1/Nb-(1/(2*Nb^2)*(1-Exp(-2*Nb)))	0.3904	
Rd	1/Nd-(1/(2*Nd^2)*(1-Exp(-2*Nd)))	0.1446	
RR	((1/Beta)*Rn*Rh*Rb*(0.53+0.47*Rd))^0.5	0.9563	
gg	+(2*LN(3600*n1))^0.5+0.577/(2*LN(3600*n1))^0.5	4.19	
Gust3	0.925*((1+1.7*Izm*(3.4^2*Q^2+GG^2*RR^2)^0.5)/(1+1.7*3.4*Izm))	1.21	

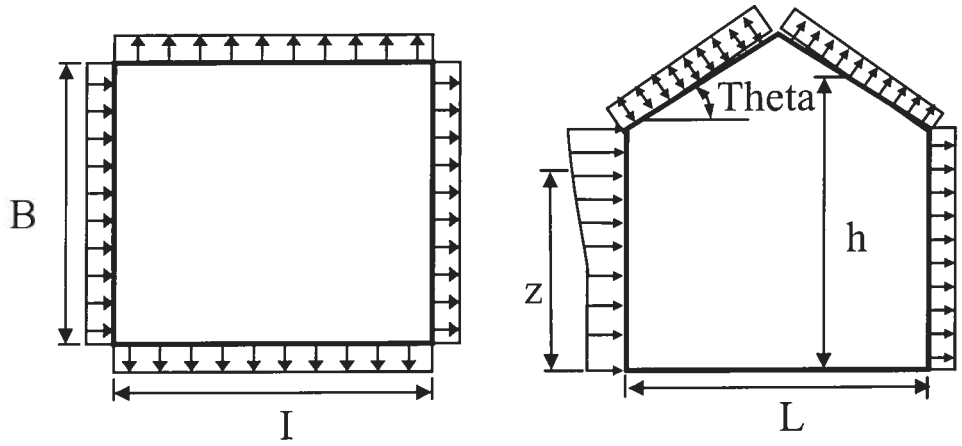
Gust Factor Summary			
Main Wind-force resisting system:		**Components and Cladding:**	
Gust Factor Category:	I	Gust Factor Category:	I
Gust Factor (G)	0.87	Gust Factor (G)	0.87

6.5.12.2.1 Design Wind Pressure - Buildings of All Heights (Non-flexible)

Elev.	Kz	Kzt	Kd	qz	Pressure (lb/ft^2) Windward Wall*	
ft			1.00	lb/ft^2	+GCpi	-GCpi
19.5	0.70	1.00	1.00	32.69	22.83	22.83
15.25	0.70	1.00	1.00	32.69	22.83	22.83
15	0.70	1.00	1.00	32.69	22.83	22.83

Figure 6-3 - External Pressure Coefficients, Cp

Loads on Main Wind-Force Resisting Systems



Variable	Formula	Value	Units
Kh	2.01*(Ht/zg)^(2/Alpha)	0.58	
Kht	Topographic factor (Fig 6-2)	1.00	
Qh	.00256*(V)^2*ImpFac*Kh*Kht*Kd	26.94	psf

Wall Pressure Coefficients, Cp	
Surface	Cp
Windward Wall (See Figure 6.5.12.2.1 for Pressures)	0.80

Roof Pressure Coefficients, Cp	
Roof Area (sq. ft.)	-
Reduction Factor	1.00

Description	Cp	Pressure (psf) +GCpi	-GCpi
Leeward Walls (Wind Dir Parallel to 36 ft wall)	-0.50	-11.76	-11.76
Leeward Walls (Wind Dir Parallel to 36 ft wall)	-0.50	-11.76	-11.76
Side Walls	-0.70	-16.46	-16.46
Roof - Normal to Ridge (Theta>=10)			
Windward - Max Negative	-0.32	-7.47	-7.47
Windward - Max Positive	0.15	3.51	3.51
Leeward Normal to Ridge	-0.60	-14.11	-14.11
Overhang Top	-0.32	-7.47	-7.47
Overhang Bottom	0.80	0.70	0.70
Roof - Parallel to Ridge (All Theta)			
Dist from Windward Edge: 0 ft to 7.625 ft	-0.90	-21.17	-21.17
Dist from Windward Edge: 7.625 ft to 15.25 ft	-0.90	-21.17	-21.17
Dist from Windward Edge: 15.25 ft to 30.5 ft	-0.50	-11.76	-11.76
Dist from Windward Edge: > 30.5 ft	-0.30	-7.06	-7.06

* Horizontal distance from windward edge

Figure 6-4 - External Pressure Coefficients, GCpf

Loads on Main Wind-Force Resisting Systems w/ Ht <= 60 ft

Kh =	2.01*(Ht/zg)^(2/Alpha)	=	0.58
Kht =	Topographic factor (Fig 6-2)	=	1.00
Qh =	0.00256*(V)^2*ImpFac*Kh*Kht*Kd	=	26.94

Case A						
Surface	**GCpf**	**+GCpi**	**-GCpi**	**qh (psf)**	**Min P (psf)**	**Max P (psf)**
1	0.54	0	0	32.69	17.58	17.58
2	-0.46	0	0	32.69	-14.91	-14.91
3	-0.47	0	0	32.69	-15.26	-15.26
4	-0.41	0	0	32.69	-13.55	-13.55
5	0.00	0	0	32.69	0.00	0.00
6	0.00	0	0	32.69	0.00	0.00
1E	0.77	0	0	32.69	25.21	25.21
2E	-0.72	0	0	32.69	-23.59	-23.59
3E	-0.65	0	0	32.69	-21.19	-21.19
4E	-0.60	0	0	32.69	-19.56	-19.56
5E	0.00	0	0	32.69	0.00	0.00
6E	0.00	0	0	32.69	0.00	0.00

* p = qh * (GCpf - GCpi)

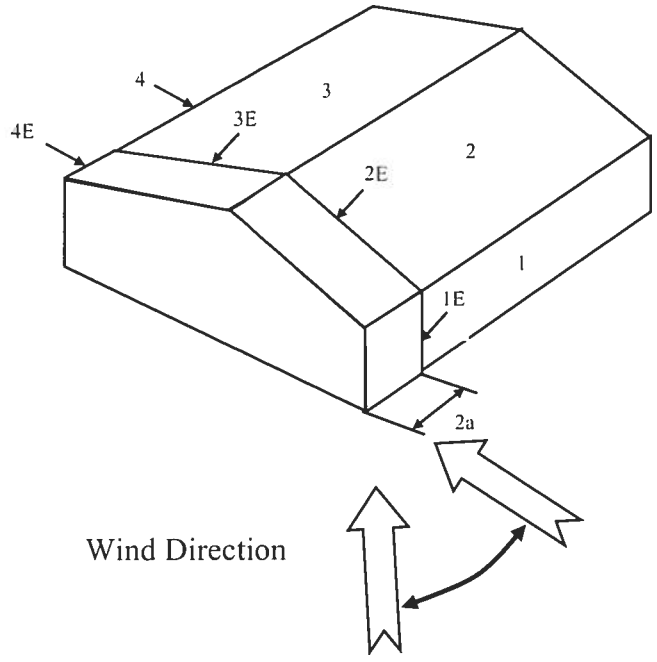


Figure 6-4 - External Pressure Coefficients, GCpf

Loads on Main Wind-Force Resisting Systems w/ Ht <= 60 ft

Kh =	2.01*(Ht/zg)^(2/Alpha)	=	0.58
Kht =	Topographic factor (Fig 6-2)	=	1.00
Qh =	0.00256*(V)^2*ImpFac*Kh*Kht*Kd	=	26.94

Case B						
Surface	GCpf	+GCpi	-GCpi	qh (psf)	Min P (psf)	Max P (psf)
1	-0.45	0	0	32.69	-14.71	-14.71
2	-0.69	0	0	32.69	-22.55	-22.55
3	-0.37	0	0	32.69	-12.09	-12.09
4	-0.45	0	0	32.69	-14.71	-14.71
5	0.40	0	0	32.69	13.07	13.07
6	-0.29	0	0	32.69	-9.48	-9.48
1E	-0.48	0	0	32.69	-15.69	-15.69
2E	-1.07	0	0	32.69	-34.97	-34.97
3E	-0.53	0	0	32.69	-17.32	-17.32
4E	-0.48	0	0	32.69	-15.69	-15.69
5E	0.61	0	0	32.69	19.94	19.94
6E	-0.43	0	0	32.69	-14.06	-14.06

* p = qh * (GCpf - GCpi)

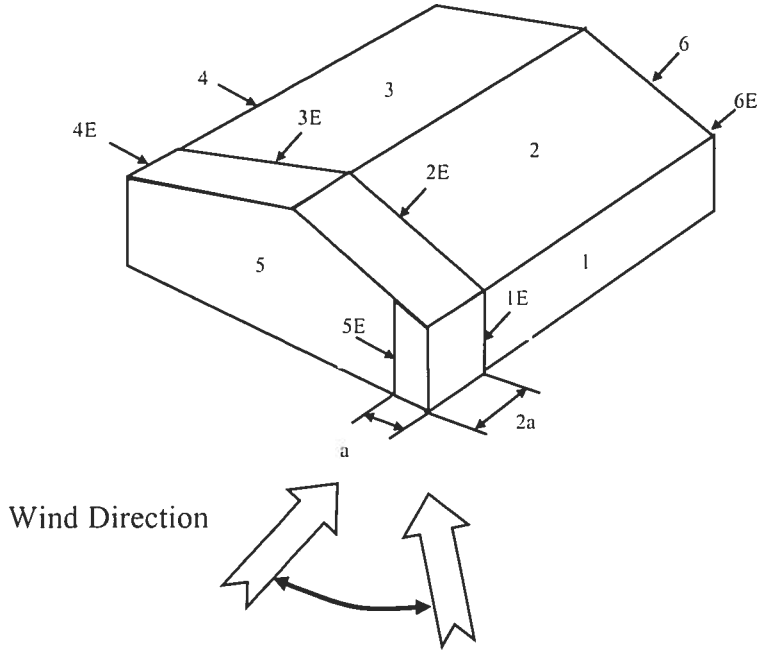
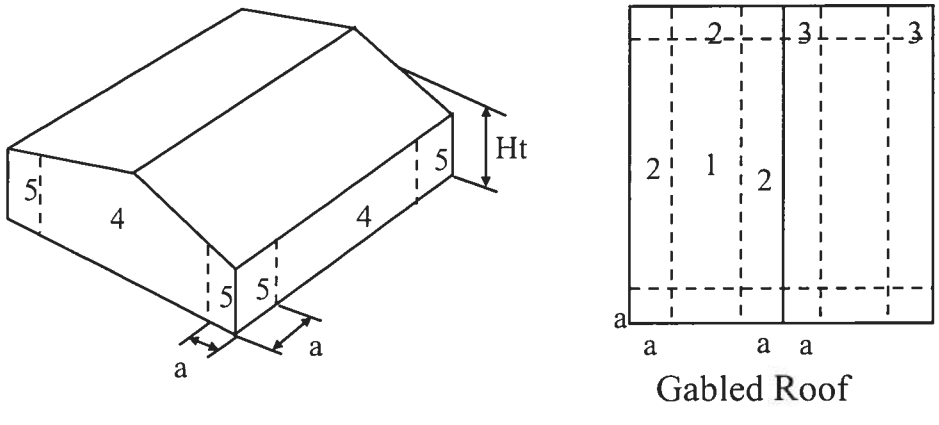


Figure 6-5 - External Pressure Coefficients, GCp

Loads on Components and Cladding for Buildings w/ Ht <= 60 ft



10 < Theta <= 45

a = 3.6 ==> 3.60 ft

Component	Width (ft)	Length (ft)	Area (ft^2)	Zone	GCp Max	GCp Min	Wind Press (lb/ft^2) Max	Wind Press (lb/ft^2) Min
	16	7	112.00	5	0.81	-1.03	21.95	-27.73
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
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	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					

Note: * Enter Zone 1 through 5, or 1H through 3H for overhangs.

Table 6-7 Internal Pressure Coefficients for Buildings, Gcpi

Condition	Gcpi Max +	Gcpi Max -
Open Buildings	0.00	0.00
Partially Enclosed Buildings	0.55	-0.55
Enclosed Buildings	0.18	-0.18
Open Buildings	**0.00**	**0.00**

COLUMBIA COUNTY BUILDING DEPARTMENT
RESIDENTIAL CHECK LIST

MINIMUM PLAN REQUIREMENTS: FLORIDA BUILDING CODE RESIDENTIAL 2014 EFFECTIVE 1 JULY 2015 AND THE NATIONAL ELECTRICAL CODE 2011 EFFECTIVE 1 JULY 2015

ALL REQUIREMENTS ARE SUBJECT TO CHANGE

ALL BUILDING PLANS MUST INDICATE COMPLIANCE WITH THE CURRENT 2014 FLORIDA BUILDING CODES RESIDENTIAL, EFFECTIVE 1 JULY 2015. NATIONAL ELECTRICAL CODE 2011 EFFECTIVE 1 JULY 2015. ALL PLANS OR DRAWINGS SHALL PROVIDE CALCULATIONS AND DETAILS THAT HAVE THE SEAL AND SIGNATURE OF A CERTIFIED ARCHITECT OR ENGINEER REGISTERED IN THE STATE OF FLORIDA, OR ALTERNATE METHODOLOGIES, APPROVED BY THE STATE OF FLORIDA BUILDING COMMISSION FOR ONE-AND-TWO FAMILY DWELLINGS.

FOR DESIGN PURPOSES THE FOLLOWING BASIC WIND SPEEDS ARE PER FLORIDA BUILDING CODE FIGURE 1609-A THROUGH 1609-C ULTIMATE DESIGN WIND SPEEDS FOR RISK CATEGORY AND BUILDINGS AND OTHER STRUCTURES
Revised 12/2016

	GENERAL REQUIREMENTS: APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL	Items to Include- Each Box shall be Marked as Applicable
		Select From the Dropbox
1	Two (2) complete sets of plans containing the following:	- YES
2	All drawings must be clear, concise, drawn to scale, details that are not used shall be marked void	- YES
3	Condition space (Sq. Ft.) 2800 Total (Sq. Ft.) under roof 3969	YES NO N/A

Designers name and signature shall be on all documents and a licensed architect or engineer, signature and official embossed seal shall be affixed to the plans and documents as per the FLORIDA BUILDING CODES RESIDENTIAL R101.2.1

Site Plan information including:

4	Dimensions of lot or parcel of land	- YES
5	Dimensions of all building set backs	- YES
6	Location of all other structures (include square footage of structures) on parcel, existing or proposed well and septic tank and all utility easements.	- YES
7	Provide a full legal description of property.	- YES

Wind-load Engineering Summary, calculations and any details are required.

	GENERAL REQUIREMENTS: APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL	Items to Include- Each Box shall be Marked as Applicable
8	**Plans or specifications must show compliance with FBCR Chapter 3**	YES NO N/A
		Select From the Dropbox
9	Basic wind speed (3-second gust), miles per hour	-
10	(Wind exposure – if more than one wind exposure is used, the wind exposure and applicable wind direction shall be indicated)	-
11	Wind importance factor and nature of occupancy	-
12	The applicable internal pressure coefficient, Components and Cladding	-
13	The design wind pressure in terms of psf (kN/m²), to be used for the design of exterior component, cladding materials not specifally designed by the registered design professional.	-

Elevations Drawing including:

14	All side views of the structure	- ✓
15	Roof pitch	- ✓
16	Overhang dimensions and detail with attic ventilation	- ✓
17	Location, size and height above roof of chimneys	- ✓
18	Location and size of skylights with Florida Product Approval	- ✓
18	Number of stories	- ✓
20A	Building height from the established grade to the roofs highest peak	- ✓

Floor Plan including:

20	Dimensioned area plan showing rooms, attached garage, breeze ways, covered porches, deck, balconies	-
21	Raised floor surfaces located more than 30 inches above the floor or grade	-
22	All exterior and interior shear walls indicated	-
23	Shear wall opening shown (Windows, Doors and Garage doors)	-
24	Show compliance with Section FBCR 310 Emergency escape and rescue opening shown in each bedroom (net clear opening shown) and Show compliance with Section FBC 1405.13.2 where the opening of an operable window is located more than 72 inches above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24 inches above the finished floor of the room in which the window is located. Glazing between the floor and 24 inches shall be fixed or have openings through which a 4-inch-diameter sphere cannot pass.	-
25	Safety glazing of glass where needed	-
26	Fireplaces types (gas appliance) (vented or non-vented) or wood burning with Hearth (see chapter 10 and chapter 24 of FBCR)	-
27	Show stairs with dimensions (width, tread and riser and total run) details of guardrails, Handrails	-
28	Identify accessibility of bathroom (see FBCR SECTION 320)	-

All materials placed within opening or onto/into exterior walls, soffits or roofs shall have Florida product approval number and mfg. installation information submitted with the plans (see Florida product approval form)

GENERAL REQUIREMENTS: APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL	Items to Include- Each Box shall be Marked as Applicable YES / NO / N/A Select From the Dropbox

FBCR 403: Foundation Plans

29	Location of all load-bearing walls footings indicated as standard, monolithic, dimensions, size and type of reinforcing.	-
30	All posts and/or column footing including size and reinforcing	-
31	Any special support required by soil analysis such as piling.	-
32	Assumed load-bearing valve of soil_____ Pound Per Square Foot	-
33	Location of horizontal and vertical steel, for foundation or walls (include # size and type) **For** structures with foundation which establish new electrical utility companies service connection a Concrete Encased Electrode will be required within the foundation to serve as an grounding electrode system. Per the National Electrical Code article 250.52.3	-

FBCR 506: CONCRETE SLAB ON GRADE

34	Show Vapor retarder (6mil. Polyethylene with joints lapped 6 inches and sealed)	-
35	Show control joints, synthetic fiber reinforcement or welded fire fabric reinforcement and Supports	-

FBCR 318: PROTECTION AGAINST TERMITES

36	Indicate on the foundation plan if soil treatment is used for subterranean termite prevention or Submit other approved termite protection methods. **Protection shall be provided by registered termiticides**	-

FBCR 606: Masonry Walls and Stem walls (load bearing & shear Walls)

37	Show all materials making up walls, wall height, and Block size, mortar type	-
38	Show all Lintel sizes, type, spans and tie-beam sizes and spacing of reinforcement	-

Metal frame shear wall and roof systems shall be designed, signed and sealed by Florida Prof. Engineer or Architect

Floor Framing System: First and/or second story

39	Floor truss package shall including layout and details, signed and sealed by Florida Registered Professional Engineer	-

40	Show conventional floor joist type, size, span, spacing and attachment to load bearing walls, stem walls and/or priers	-
41	Girder type, size and spacing to load bearing walls, stem wall and/or priers	-
42	Attachment of joist to girder	-
43	Wind load requirements where applicable	-
44	Show required under-floor crawl space	-
45	Show required amount of ventilation opening for under-floor spaces	-
46	Show required covering of ventilation opening	-
47	Show the required access opening to access to under-floor spaces	-
48	Show the sub-floor structural panel sheathing type, thickness and fastener schedule on the edges & intermediate of the areas structural panel sheathing	-
49	Show Draftstopping, Fire caulking and Fire blocking	-
50	Show fireproofing requirements for garages attached to living spaces, per FBCR section 302.6	-
51	Provide live and dead load rating of floor framing systems (psf).	-

FBCR CHAPTER 6 WOOD WALL FRAMING CONSTRUCTION

YES / NO / N/A

GENERAL REQUIREMENTS: APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL		Items to Include- Each Box shall be Marked as Applicable Select From the Dropbox
52	Stud type, grade, size, wall height and oc spacing for all load bearing or shear walls	-
53	Fastener schedule for structural members per table IRC 602.3 are to be shown	-
54	Show Wood structural panel's sheathing attachment to studs, joist, trusses, rafters and structural members, showing fastener schedule attachment on the edges & intermediate of the areas structural panel sheathing	-
55	Show all required connectors with a max uplift rating and required number of connectors and oc spacing for continuous connection of structural walls to foundation and roof trusses or rafter systems	-
56	Show sizes, type, span lengths and required number of support jack studs, king studs for shear wall opening and girder or header per IRC Table 502.5 (1)	-
57	Indicate where pressure treated wood will be placed	-
58	Show all wall structural panel sheathing, grade, thickness and show fastener schedule for structural panel sheathing edges & intermediate areas	-
59	A detail showing gable truss bracing, wall balloon framing details or/ and wall hinge bracing detail	-

FBCR :ROOF SYSTEMS:

60	Truss design drawing shall meet section FBCR 802.1.6.1 Wood trusses	-
61	Include a layout and truss details, signed and sealed by Florida Professional Engineer	-
62	Show types of connector's assemblies' and resistance uplift rating for all trusses and rafters	-
63	Show gable ends with rake beams showing reinforcement or gable truss and wall bracing details	-
64	Provide dead load rating of trusses	-

FBCR 802:Conventional Roof Framing Layout

65	Rafter and ridge beams sizes, span, species and spacing	-
66	Connectors to wall assemblies' include assemblies' resistance to uplift rating	-
67	Valley framing and support details	-
68	Provide dead load rating of rafter system	-

FBCR 803 ROOF SHEATHING

69	Include all materials which will make up the roof decking, identification of structural panel sheathing, grade, thickness	-
70	Show fastener Size and schedule for structural panel sheathing on the edges & intermediate areas	-

ROOF ASSEMBLIES FRC Chapter 9

71	Include all materials which will make up the roof assembles covering	-
72	Submit Florida Product Approval numbers for each component of the roof assembles covering	-

FBCR Chapter 11 Energy Efficiency Code for residential building

Residential construction shall comply with this code by using the following compliance methods in the FBCR chapter11 Residential buildings compliance methods. **Two of the required forms are to be submitted**, *N1100.1.1.1 As an alternative to the computerized Compliance Method A, the Alternate Residential Point System Method hand calculation, Alternate Form 600A, may be used. All requirements specific to this calculation are located in Sub appendix C to Appendix G. Buildings complying by this alternative shall meet all mandatory requirements of this chapter. Computerized versions of the Alternate Residential Point System Method shall not be acceptable for code compliance.*

YES / NO / N/A

	GENERAL REQUIREMENTS: APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL	Items to Include- Each Box shall be Marked as Applicable
		Select From the Dropbox
73	Show the insulation R value for the following areas of the structure	-
74	Attic space	-
75	Exterior wall cavity	-
76	Crawl space	-
	HVAC information	
77	Submit two copies of a Manual J sizing equipment or equivalent computation study	-
78	Exhaust fans shown in bathrooms **Mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous required**	-
79	Show clothes dryer route and total run of exhaust duct	-
	Plumbing Fixture layout shown	
80	All fixtures waste water lines shall be shown on the foundation plan	-
81	Show the location of water heater	-
	Private Potable Water	
82	Pump motor horse power	-
83	Reservoir pressure tank gallon capacity	-
84	Rating of cycle stop valve if used	-
	Electrical layout shown including	
85	Show Switches, receptacles outlets, lighting fixtures and Ceiling fans	-
86	Show all 120-volt, single phase, 15- and 20-ampere branch circuits outlets required to be protected by **Ground-Fault Circuit Interrupter (GFCI) Article 210.8 A**	-
87	Show the location of smoke detectors & Carbon monoxide detectors	-
88	Show service panel, sub-panel, location(s) and total ampere ratings	-
89	On the electrical plans identify the electrical service overcurrent protection device for the main electrical service. This device shall be installed on the exterior of structures to serve as a disconnecting means for the utility company electrical service. Conductors used from the exterior disconnecting means to a panel or sub panel shall have four-wire conductors, of which one conductor shall be used as an equipment ground. Indicate if the utility company service entrance cable will be of the overhead or underground type. **For structures** with foundation which establish new electrical utility companies service connection a Concrete Encased Electrode will be required within the foundation to serve as an Grounding electrode system. Per the National Electrical Code article 250.52.3	-
90	Appliances and HVAC equipment and disconnects	-
91	Show all 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas shall be protected by a listed **Combination arc-fault circuit interrupter,** Protection device.	-

GENERAL REQUIREMENTS: APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL	Items to Include- Each Box shall be Circled as Applicable

THE FOLLOWING ITEMS MUST BE SUBMITTED WITH BUILDING PLANS

		YES	NO	N/A
92	**Building Permit Application** A current Building Permit Application is to be completed, by following the Checklist all supporting documents must be submitted. There is a **$15.00** application fee. The completed application with attached documents and application fee can be mailed.		NO	
93	**Parcel Number** The parcel number (Tax ID number) from the Property Appraisers Office (386) 758-1083 is required. A copy of property deed is also required. www.columbiacountyfla.com		NO	
94	**Town of Fort White** (386) 497-2321 If the parcel in the application for building permit is within the Corporate city limits of Fort White, an approval land use development letter issued by the Town of Fort is required to be submitted with the application for a building permit.		NO	
***	**BELOW ITEMS ONLY NEEDED AFTER ZONING APPROVAL HAS GIVEN.**	****	***	***
95	**Environmental Health Permit or Sewer Tap Approval** A copy of a approved Columbia County Environmental Health (386) 758-1058		NO	
96	**City of Lake City** A City Water and/or Sewer letter. Call 386-752-2031		NO	
97	**Flood Information:** All projects within the Floodway of the Suwannee or Santa Fe Rivers shall require permitting through the Suwannee River Water Management District, before submitting a application to this office. Any project located within a flood zone where the base flood elevation (100 year flood) has been established shall meet the requirements of Section 8.5.2 of the Columbia County Land Development Regulations. Any project located within a flood zone where the base flood elevation has not been established (Zone A) shall meet the requirements of Section 8.5.3 of the Columbia County Land Development Regulations		NO	
98	**CERTIFIED FINISHED FLOOR ELEVATIONS** will be required on any project where the approved FIRM Flood Maps show the property is in a AE, Floodway, and AH flood zones. Additionally One Foot Rise letters are required for AE and AH zones. In the Floodway Flood zones a Zero Rise letter is required.			
99	A Flood development permit is also required for AE, Floodway & AH. Development permit cost is **$50.00**			
100	**Driveway Connection:** If the property does not have an existing access to a public road, then an application for a culvert permit (**$25.00**) must be made. County Public Works Dept. determines the size and length of every culvert before instillation and completes a final inspection before permanent power is granted. If the applicant feels that a culvert is not needed, they may apply for a culvert waiver (**$50.00**) Separate Check when issued. If the project is to be located on an F.D.O.T. maintained road, then an F.D.O.T. access permit is required.		NO	
101	**911 Address:** An application for a 911address must be applied for and **received** through the Columbia County Emergency Management Office of 911 Addressing Department (386) 758-1125.		NO	

TOILET FACILITIES SHALL BE PROVIDED FOR ALL CONSTRUCTION SITES. NO YES

Disclosure Statement for Owner Builders *If you as the applicant will be acting as an owner/builder under section 489.103(7) of the Florida Statutes, submit the required owner builder disclosure statement form.*

Notice Of Commencement

A notice of commencement form **recorded** in the Columbia County Clerk Office is required to be filed with the building department Before Any Inspections can be preformed.

Section R101.2.1 of the Florida Building Code Residential:

The provisions of Chapter 1, Florida Building Code shall govern the administration and enforcement of the Florida Building Code, Residential.

As required by Florida Statute 553.842 and Florida Administrative Code 9B-72, please provide the information and approval numbers on the building components listed below if they will be utilized on the construction project for which you are applying for a building permit. We recommend you contact your local product supplier should you not know the product approval number for any of the applicable listed products. Statewide approved products are listed online @ www.floridabuilding.org

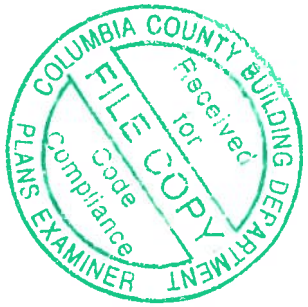
Category/Subcategory	Manufacturer	Product Description	Approval Number(s)
1. EXTERIOR DOORS			
A. SWINGING	Plastpro	Fiberglass door	FL-14347.9
B. SLIDING			
C. SECTIONAL/ROLL UP	Overhead Door	Sectional	FL14170
D. OTHER			
2. WINDOWS			
A. SINGLE/DOUBLE HUNG	MT	vinyl window	FL 17676
B. HORIZONTAL SLIDER			
C. CASEMENT			
D. FIXED			
E. MULLION			
F. SKYLIGHTS			
G. OTHER			
3. PANEL WALL			
A. SIDING	Cemplank	Primed Hardi siding board	FL 13192.1
B. SOFFITS	ACM	Aluminum Soffit	FL 2416.1
C. STOREFRONTS			
D. GLASS BLOCK			
E. OTHER			
4. ROOFING PRODUCTS			
A. ASPHALT SHINGLES	~~Tamko~~	~~Heritage 30 AR~~	~~FL 18355-R-4~~
B. NON-STRUCT METAL	Tri County Metal	26 ga Rib Metal	FL 4595.16 R4
C. ROOFING TILES			
D. SINGLE PLY ROOF			
E. OTHER	Trinity ERD	Rhino Roof underlayment	FL 15216
5. STRUCT COMPONENTS			
A. WOOD CONNECTORS			
B. WOOD ANCHORS			
C. TRUSS PLATES			
D. INSULATION FORMS			
E. LINTELS			
F. OTHERS			
6. NEW EXTERIOR			
ENVELOPE PRODUCTS			

The products listed below did not demonstrate product approval at plan review. I understand that at the time of inspection of these products, the following information must be available to the inspector on the jobsite; 1) copy of the product approval, 2) performance characteristics which the product was tested and certified to comply with, 3) copy of the applicable manufacturers installation requirements.
Further, I understand these products may have to be removed if approval cannot be demonstrated during inspection.

NOTES: _____

Schafer Engineering LLC

14705 Main St. Alachua FL 32615



Prepared for:

HARTZOG GARAGE
COLOMBIA COUNTY, FLORIDA

By:

Schafer Engineering, LLC **CA9312**

386-462-1340

NO COPIES ARE TO BE PERMITTED

SCHAFER ENGINEERING, LLC

7104 NW 42ND LANE \ GAINESVILLE FL. 32606
PHONE: 386-462-1340

Trusses: Pre-engineered, pre-fabricated with the manufacturer's required bracing system installed.

Roof Sheathing: Type: OSB Size: 7/16" Fastener type nails: 8d / .113 Ring Shank

Interior zone spacing: Interior: 6" Periphery: 4"

Edge and end zone spacing: Interior: 6" Periphery: 4"

Double Top Plate: Type: Spruce Grade: #2 Size: 2 x 4 Nail Spacing: 8" o.c.

Stud Type: Spruce Grade: #2 Size: 2 x 4

Interior stud spacing: 16" End stud spacing: 16"

Required Shear Wall Siding: Type: OSB Thickness: 7/16"

60 ft Trans: Fastener 8d/131 Spacing: Int: 8 Edge: 4"

32 ft Long: Fastener 8d/131 Spacing: Int: 8 Edge: 4"

Allowable Unit Shear on Shear Walls: 314 pounds per linear foot
Allowable Unit Shear Transferred from Diaphragm: Trans: 53 Long: 117

Wall Tension Transferred by: Siding Nails: 8d/131 @ 4" O.C. Edges

Foundation Anchor Bolts: Concrete Strength: 3000 psi Size: 1/2"

Washer: 2" Embedment: 7" Location of first anchor bolt from corner: 8"

Anchor Bolts @ 48" o.c. Model: A307 Loc. from corner: 8"

Type of Foundation: (1) - #5 rebar continuous required in bond beam.
Floor Slab: 4" Cmu size: 8" x 16" Height: 32" Rein.: #5 at 72" o.c.
Monolithic Footing: Depth: 20" Bottom Width: 12 Rein.: 2 #5 rebars

Stemwall Footing: Width: 20 Depth: 10 Rein.: 2 #5 rebar
Interior Footings 20" Wide X 12" Deep with 2-#5 rebar continuous

Porch Columns: 6 X 6 X 8' syp #2 pt @ 12'-0" o.c. max. spacing Column Fasteners: Simpson PC66 \ PBS66 or equal

Special Comments: Install 2 ply 2 x 12 syp #2 with 7/16" osb flitch beam over all doors, windows and covered porches.

Install ceiling diaphragm on covered lanai using same nail spacing, nail pattern and same grade material as roof sheathing.

Notes:

1. Balloon frame all gable ends unless accompanied by gable end detail
2. All walls to be nailed with same nailing pattern as the shear walls.
3. This wind load is not valid without a raised, embossed seal. (NO COPIES).
4. 1500 psf soil bearing pressure minimum.
5. Fiber mesh or WWM may be used in concrete slab. All steel must be grade 40 min. Install standard 10" ACI hook top and bottom.
6. Trusses must be installed and anchored in accordance to the truss engineering.
7. All headers spanning 12' and over must be pre-engineered.
8. This is a windload only. Not a structural analysis. Schafer Engineering strongly recommends always having a structural analysis.
9. The foundation is for minimum design use, and may be increased.
10. Wind load is for one use only \ FBC-2017 \ No copies permitted
11. Install anchor bolts a 48" o.c., & Simpson SP1 at bottom plate and Simpson SP2 at top plate or equal @ 32" O.C. for all interior bearing walls.
12. Truss company to use all exterior porch walls for bearing when possible.

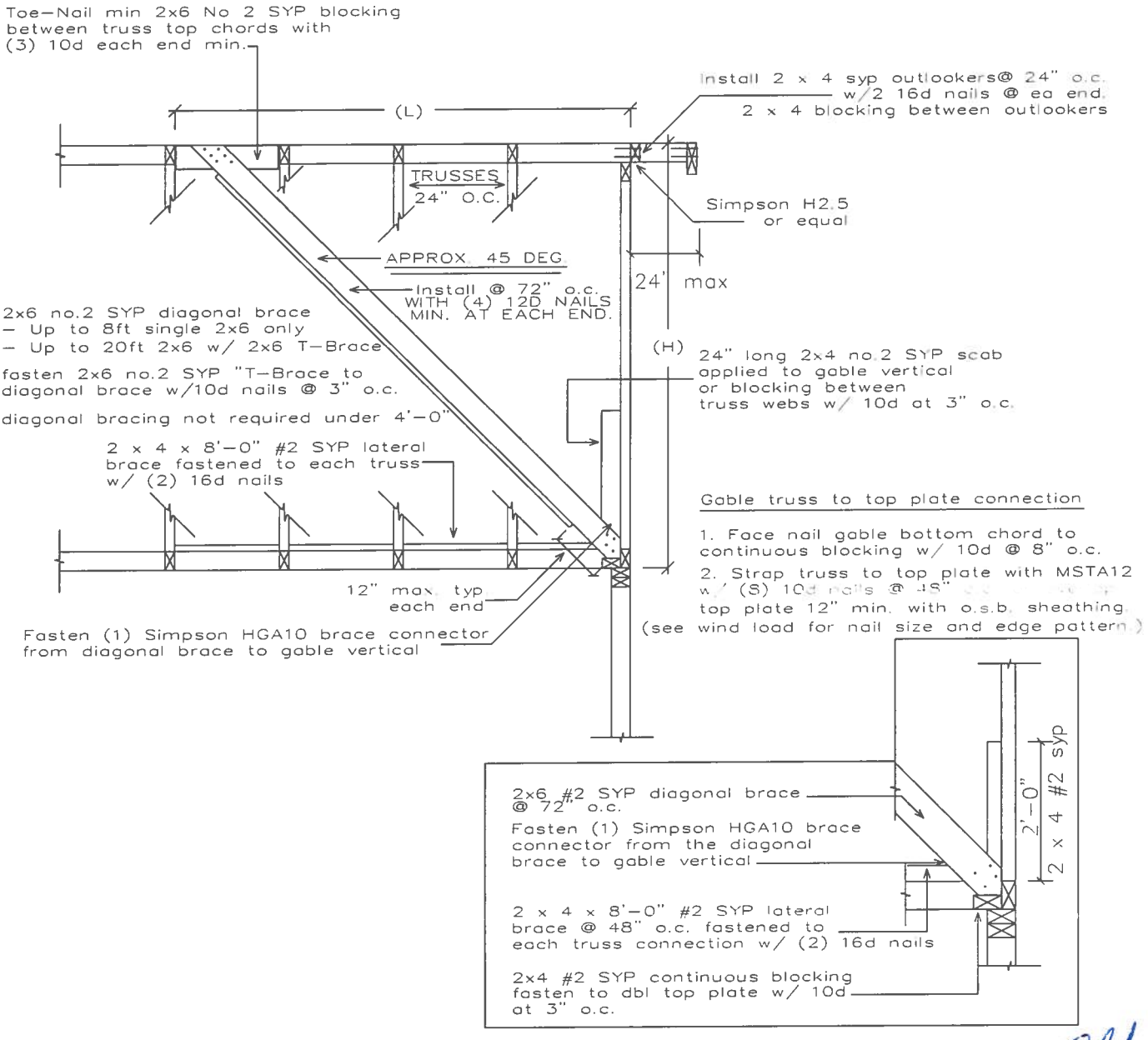
6-28-19

Bruce Schafer, P. E. #48984 co 9312
7104 NW 42ND LN
GAINESVILLE, FL. 32606

SCHAFER ENGINEERING, LLC

7104 NW 42ND LANE \ GAINESVILLE FL. 32606

PHONE: 386-462-1340



TYPICAL GABLE END BRACING

6-28-19

Bruce Schafer, P. E. #48984 CA #9312
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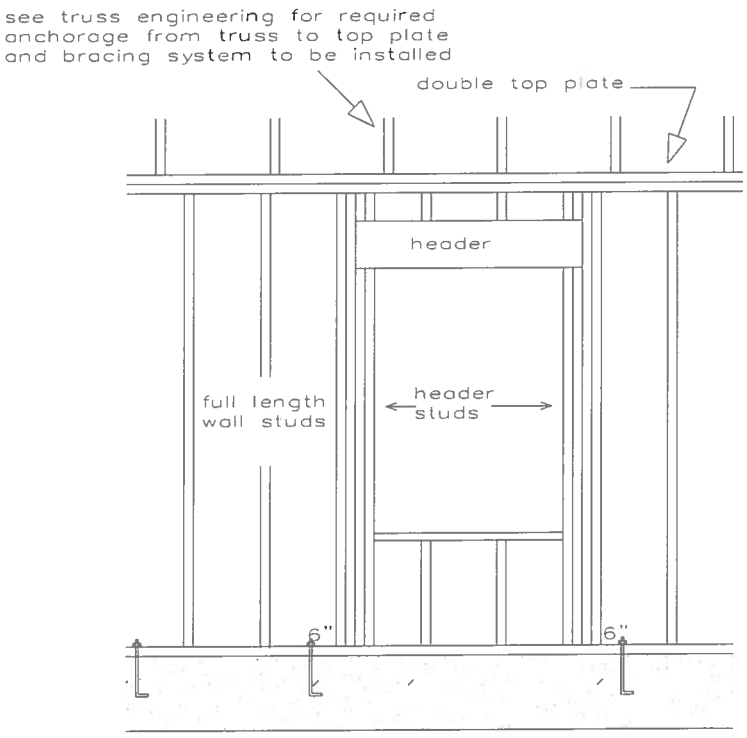


total each truss uplift on the header and divide by two for header and header stud anchorages

		Maximum Header Span (ft)					
		3'	6'	9'	12'	15'	18'
		Number of Header Studs Supporting End of Header					
		1	1	2	2	2	2
Unsupported Wall Height	Stud Spacing	Number of Full Length Studs at Each End of Header					
10'-0" or less	12"	2	2	3	3	3	3
	16"	2	2	3	3	3	3
	24"	1	2	2	2	2	2
Greater than 10'-0"	12"	2	2	3	4	5	5
	16"	2	2	3	3	4	4
	24"	1	2	2	2	3	3

SCHAFER ENGINEERING, LLC

7104 NW 42ND LANE \ GAINESVILLE FL. 32606

PHONE: 386-462-1340

TIE-DOWN TABLES

HEADER STRAPPING				
Uplift Lbs	Top Connector	Rating Lbs	Bottom Connector	Rating Lbs
to 455	LSTA9	635	H3	320
to 910	LSTA12	795	2-H3	640
to 1265	LSTA18	1110	LTT19	1305
to 1750	2-LSTA12	1810	LTT20	1750
to 2530	2-LSTA18	2530	HD2A-2.5	2165
to 2865	3-LSTA18	3255	HD2A-3.5	2565
to 3700	3-LSTA24	3880	HD5A-3	3130

Total the uplift for each truss sitting on the header and divide by 2 to determine the uplift on the header. Use proper bolt anchors sufficient to support required uplift loads.

TRUSSES \ GIRDERS			
Uplift Lbs	Top Connector	Bottom Connector	Rating Lbs
to 535	H2.5A	NA	
to 1015	H10A	NA	
to 1215	TS22	LTT19	1305
to 1750	2-TS22	LTT20	1750
to 2570	2-TS22	HD2A	2565
to 3665	3-TS22	HD5A	3645
to 5420	2-MST37	HTT22	5250
to 9660	2-MST60	HD10A	8160

Two 12d common toenials are required per truss for each bearing point into top plate.
It is the contractors responsibility to provide a continuous load path from truss to foundation.

	TOP CONNECTOR	RATING LBS	BOTTOM CONNECTOR	RATING LBS
BEAM SEATS	LSTA18	1110	LTT19	1305
POSTS	2-LSTA18	2220	ABU44	2200

1. Simpson or equivlent hardware may be used. For nailing into spruce members, multiply table values by .86
2. See truss engineering for anchor uplift values.
3. This schedule is not meant to be a replacement to the specified values of any manufactures values.

User Input Data		
Structure Type	Building	
Basic Wind Speed (V)	135	mph
Structural Category	II	
Exposure	B	
Struc Nat Frequency (n1)	1	Hz
Slope of Roof (Theta)	22.6	Deg
Type of Roof	Gabled	
Eave Height (Eht)	8.00	ft
Ridge Height (RHt)	16.50	ft
Mean Roof Height (Ht)	12.25	ft
Width Perp. to Wind (B)	36.00	ft
Width Parallel to Wind (L)	35.00	ft
Damping Ratio (beta)	0.01	

Red values should be changed only through "Main Menu"

Calculated Parameters		
Type of Structure		
Height/Least Horizontal Dim	0.35	
Flexible Structure	No	

Calculated Parameters		
Importance Factor	1	
Non-Hurricane, Hurricane (v=85-100 mph) & Alaska		
Table C6-4 Values		
Alpha =	7.000	
zg =	1200.000	
At =	0.143	
Bt =	0.840	
Am =	0.250	
Bm =	0.450	
Cc =	0.300	
l =	320.00	ft
Epsilon =	0.333	
Zmin =	30.00	ft

Gust Factor Category I: Rigid Structures - Simplified Method			
Gust1	For rigid structures (Nat Freq > 1 Hz) use 0.85	0.85	
Gust Factor Category II: Rigid Structures - Complete Analysis			
Zm	Zmin	30.00	ft
Izm	Cc * (33/z)^0.167	0.3048	
Lzm	l*(zm/33)^Epsilon	309.99	ft
Q	(1/(1+0.63*((B+Ht)/Lzm)^0.63))^0.5	0.9147	
Gust2	0.925*((1+1.7*Izm*3.4*Q)/(1+1.7*3.4*Izm))	0.8747	
Gust Factor Category III: Flexible or Dynamically Sensitive Structures			
Vhref	V*(5280/3600)	198.00	ft/s
Vzm	bm*(zm/33)^Am*Vhref	87.00	ft/s
NF1	NatFreq*Lzm/Vzm	3.56	Hz
Rn	(7.47*NF1)/(1+10.302*NF1)^1.667	0.0627	
Nh	4.6*NatFreq*Ht/Vzm	0.65	
Nb	4.6*NatFreq*B/Vzm	1.90	
Nd	15.4*NatFreq*Depth/Vzm	6.20	
Rh	1/Nh-(1/(2*Nh^2)*(1-Exp(-2*Nh)))	0.6784	
Rb	1/Nb-(1/(2*Nb^2)*(1-Exp(-2*Nb)))	0.3904	
Rd	1/Nd-(1/(2*Nd^2)*(1-Exp(-2*Nd)))	0.1484	
RR	((1/Beta)*Rn*Rh*Rb*(0.53+0.47*Rd))^0.5	0.9983	
gg	+(2*LN(3600*n1))^0.5+0.577/(2*LN(3600*n1))^0.5	4.19	
Gust3	0.925*((1+1.7*Izm*(3.4^2*Q^2+GG^2*RR^2)^0.5)/(1+1.7*3.4*Izm))	1.24	

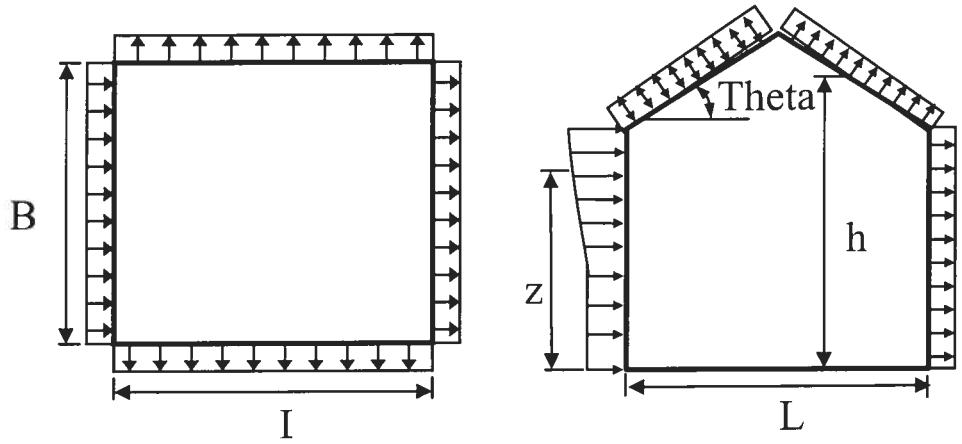
Gust Factor Summary			
Main Wind-force resisting system:		**Components and Cladding:**	
Gust Factor Category:	I	Gust Factor Category:	I
Gust Factor (G)	0.87	Gust Factor (G)	0.87

6.5.12.2.1 Design Wind Pressure - Buildings of All Heights (Non-flexible)

Elev.	Kz	Kzt	Kd	qz	Pressure (lb/ft^2)	
					Windward Wall*	
ft			1.00	lb/ft^2	+GCpi	-GCpi
16.5	0.70	1.00	1.00	32.69	18.05	27.70
15	0.70	1.00	1.00	32.69	18.05	27.70

Figure 6-3 - External Pressure Coefficients, Cp

Loads on Main Wind-Force Resisting Systems



Variable	Formula	Value	Units
Kh	2.01*(15/zg)^(2/Alpha)	0.57	
Kht	Topographic factor (Fig 6-2)	1.00	
Qh	.00256*(V)^2*ImpFac*Kh*Kht*Kd	26.81	psf

Wall Pressure Coefficients, Cp	
Surface	**Cp**
Windward Wall (See Figure 6.5.12.2.1 for Pressures)	0.80

Roof Pressure Coefficients, Cp	
Roof Area (sq. ft.)	-
Reduction Factor	1.00

Description	Cp	Pressure (psf)	
		+GCpi	-GCpi
Leeward Walls (Wind Dir Parallel to 36 ft wall)	-0.50	-16.55	-6.90
Leeward Walls (Wind Dir Parallel to 35 ft wall)	-0.49	-16.42	-6.77
Side Walls	-0.70	-21.24	-11.59
Roof - Normal to Ridge (Theta>=10)			
Windward - Max Negative	-0.29	-11.58	-1.93
Windward - Max Positive	0.19	-0.30	9.35
Leeward Normal to Ridge	-0.60	-18.90	-9.25
Overhang Top	-0.29	-6.75	-6.75
Overhang Bottom	0.80	0.70	0.70
Roof - Parallel to Ridge (All Theta)			
Dist from Windward Edge: 0 ft to 6.125 ft	-0.90	-25.93	-16.28
Dist from Windward Edge: 6.125 ft to 12.25 ft	-0.90	-25.93	-16.28
Dist from Windward Edge: 12.25 ft to 24.5 ft	-0.50	-16.55	-6.90
Dist from Windward Edge: > 24.5 ft	-0.30	-11.86	-2.21

* Horizontal distance from windward edge

Figure 6-4 - External Pressure Coefficients, GCpf

Loads on Main Wind-Force Resisting Systems w/ Ht <= 60 ft

Kh =	2.01*(15/zg)^(2/Alpha)	=	0.57
Kht =	Topographic factor (Fig 6-2)	=	1.00
Qh =	0.00256*(V)^2*ImpFac*Kh*Kht*Kd	=	26.81

Case A						
Surface	**GCpf**	**+GCpi**	**-GCpi**	**qh (psf)**	**Min P (psf)**	**Max P (psf)**
1	0.54	0.18	-0.18	32.69	11.70	23.46
2	-0.46	0.18	-0.18	32.69	-20.79	-9.02
3	-0.47	0.18	-0.18	32.69	-21.15	-9.38
4	-0.41	0.18	-0.18	32.69	-19.43	-7.66
5	0.00	0.18	-0.18	32.69	-5.88	5.88
6	0.00	0.18	-0.18	32.69	-5.88	5.88
1E	0.77	0.18	-0.18	32.69	19.33	31.10
2E	-0.72	0.18	-0.18	32.69	-29.47	-17.70
3E	-0.65	0.18	-0.18	32.69	-27.08	-15.31
4E	-0.60	0.18	-0.18	32.69	-25.44	-13.68
5E	0.00	0.18	-0.18	32.69	-5.88	5.88
6E	0.00	0.18	-0.18	32.69	-5.88	5.88

* p = qh * (GCpf - GCpi)

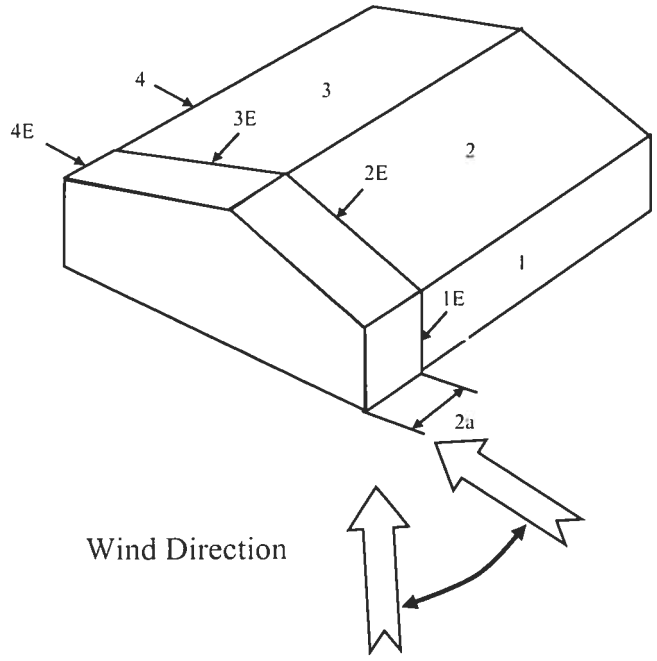


Figure 6-4 - External Pressure Coefficients, GCpf

Loads on Main Wind-Force Resisting Systems w/ Ht <= 60 ft

Kh =	2.01*(15/zg)^(2/Alpha)	=	0.57
Kht =	Topographic factor (Fig 6-2)	=	1.00
Qh =	0.00256*(V)^2*ImpFac*Kh*Kht*Kd	=	26.81

Case B						
Surface	GCpf	+GCpi	-GCpi	qh (psf)	Min P (psf)	Max P (psf)
1	-0.45	0.18	-0.18	32.69	-20.59	-8.83
2	-0.69	0.18	-0.18	32.69	-28.44	-16.67
3	-0.37	0.18	-0.18	32.69	-17.98	-6.21
4	-0.45	0.18	-0.18	32.69	-20.59	-8.83
5	0.40	0.18	-0.18	32.69	7.19	18.96
6	-0.29	0.18	-0.18	32.69	-15.36	-3.60
1E	-0.48	0.18	-0.18	32.69	-21.57	-9.81
2E	-1.07	0.18	-0.18	32.69	-40.86	-29.09
3E	-0.53	0.18	-0.18	32.69	-23.21	-11.44
4E	-0.48	0.18	-0.18	32.69	-21.57	-9.81
5E	0.61	0.18	-0.18	32.69	14.06	25.82
6E	-0.43	0.18	-0.18	32.69	-19.94	-8.17

* p = qh * (GCpf - GCpi)

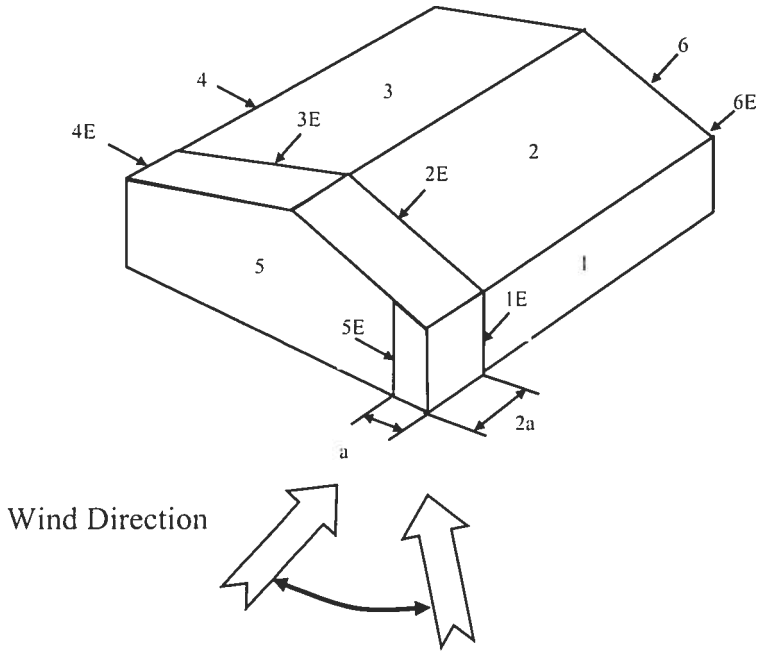
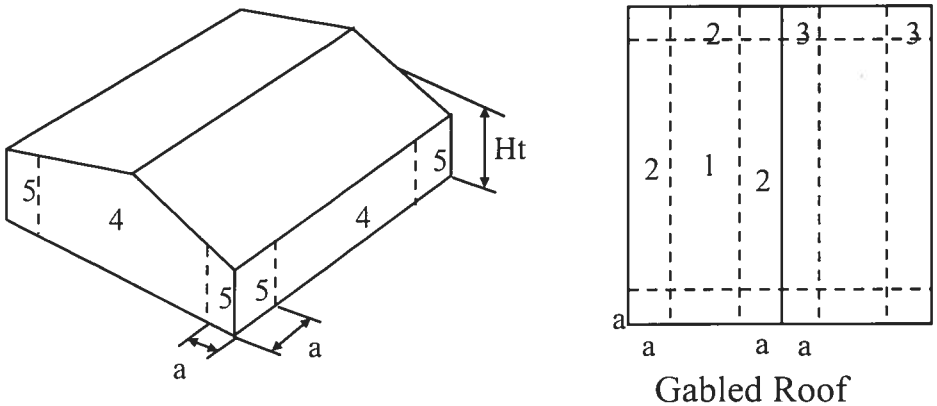


Figure 6-5 - External Pressure Coefficients, GCp

Loads on Components and Cladding for Buildings w/ Ht <= 60 ft



10 < Theta <= 45

a = 3.5 ==> 3.50 ft

Component	Width (ft)	Length (ft)	Area (ft^2)	Zone	GCp Max	GCp Min	Wind Press (lb/ft^2) Max	Wind Press (lb/ft^2) Min
	16	7	112.00	5	0.81	-1.03	26.67	-32.43
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					
	0	0	0.00					

Note: * Enter Zone 1 through 5, or 1H through 3H for overhangs.

Table 6-7 Internal Pressure Coefficients for Buildings, Gcpi

Condition	Gcpi Max +	Gcpi Max -
Open Buildings	0.00	0.00
Partially Enclosed Buildings	0.55	-0.55
Enclosed Buildings	0.18	-0.18
Enclosed Buildings	**0.18**	**-0.18**

As required by Florida Statute 553.842 and Florida Administrative Code 9B-72, please provide the information and approval numbers on the building components listed below if they will be utilized on the construction project for which you are applying for a building permit. We recommend you contact your local product supplier should you not know the product approval number for any of the applicable listed products. Statewide approved products are listed online @ www.floridabuilding.org

Category/Subcategory	Manufacturer	Product Description	Approval Number(s)
1. EXTERIOR DOORS			
A. SWINGING	Plastpro	Fiberglass door	FL-14347.9
B. SLIDING			
C. SECTIONAL/ROLL UP	Overhead Door	Sectional	FL14170
D. OTHER			
2. WINDOWS			
A. SINGLE/DOUBLE HUNG	MT	vinyl window	FL 17676
B. HORIZONTAL SLIDER			
C. CASEMENT			
D. FIXED			
E. MULLION			
F. SKYLIGHTS			
G. OTHER			
3. PANEL WALL			
A. SIDING	Cemplank	Primed Hardi siding board	FL 13192.1
B. SOFFITS	ACM	Aluminum Soffit	FL 2416.1
C. STOREFRONTS			
D. GLASS BLOCK			
E. OTHER			
4. ROOFING PRODUCTS			
A. ASPHALT SHINGLES	~~Tamko~~	~~Heritage 30 AR~~	~~FL 18355-R-4~~
B. NON-STRUCT METAL	Tri County Metal	26 ga Rib Metal	FL 4595.16 R4
C. ROOFING TILES			
D. SINGLE PLY ROOF			
E. OTHER	Trinity ERD	Rhino Roof underlayment	FL 15216
5. STRUCT COMPONENTS			
A. WOOD CONNECTORS			
B. WOOD ANCHORS			
C. TRUSS PLATES			
D. INSULATION FORMS			
E. LINTELS			
F. OTHERS			
6. NEW EXTERIOR			
ENVELOPE PRODUCTS			

COLUMBIA COUNTY BUILDING DEPARTMENT
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for
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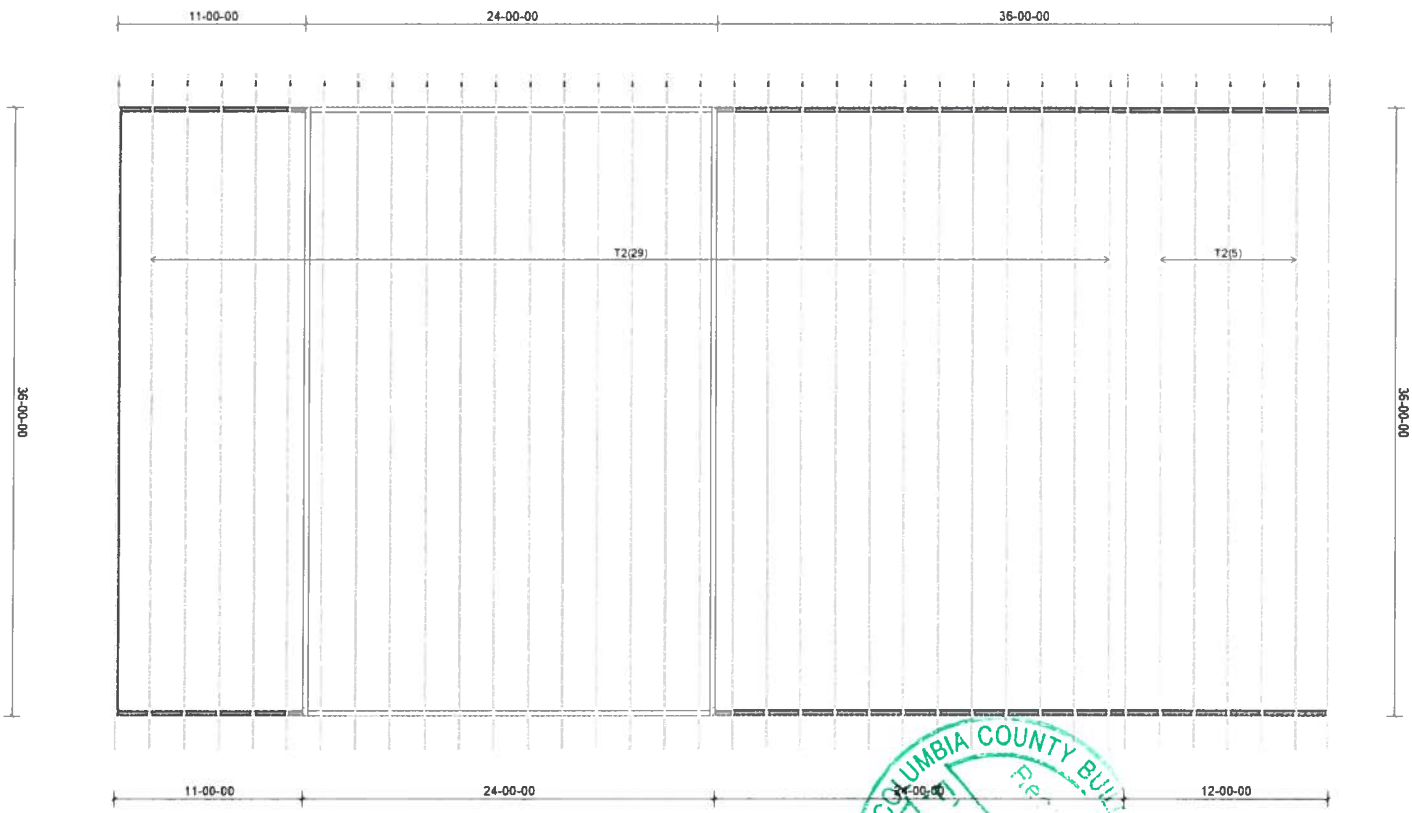
Code
Compliance
PLANS EXAMINER

The products listed below did not demonstrate product approval at plan review. I understand that at the time of inspection of these products, the following information must be available to the inspector on the jobsite; 1) copy of the product approval, 2) performance characteristics which the product was tested and certified to comply with, 3) copy of the applicable manufacturers installation requirements.
Further, I understand these products may have to be removed if approval cannot be demonstrated during inspection.

NOTES: _____



JOB NO. **S1074**	Customer: 84 LUMBER Description: HARTZOG GARAGE Designer: Jack Duley	Pitch: --- Overhang: ---	PRODUCT APPROVAL NUMBER FL 2197.4 MT20 PLATES MITEK INDUSTRIES, INC.	DULEY TRUSS INC. (352) 465-0964

Lumber design values are in accordance with ANSI/TPI 1 section 6.3
These truss designs rely on lumber values established by others.

RE: S1074 - HARTZOG GARAGE / SKIP HARVEY

MiTek USA, Inc.
6904 Parke East Blvd.
Tampa, FL 33610-4115

Site Information:
Customer Info: 84 LUMBER / HARTZOG GARAGE Project Name: - Model: -
Lot/Block: - Subdivision: -
Address: -, -
City: - State: FL

Name Address and License # of Structural Engineer of Record, If there is one, for the building.
Name: License #:
Address:
City: State:

General Truss Engineering Criteria & Design Loads (Individual Truss Design Drawings Show Special Loading Conditions):
Design Code: FRC2017/TPI2014 Design Program: MiTek 20/20 8.2
Wind Code: ASCE 7-10 Wind Speed: 140 mph
Roof Load: 37.0 psf Floor Load: N/A psf

This package includes 3 individual, Truss Design Drawings and 0 Additional Drawings.
With my seal affixed to this sheet, I hereby certify that I am the Truss Design Engineer and this index sheet conforms to 61G15-31.003, section 5 of the Florida Board of Professional Engineers Rules.

No.	Seal#	Truss Name	Date
1	T17808589	T1	8/8/19
2	T17808590	T2	8/8/19
3	T17808591	T3	8/8/19

The truss drawing(s) referenced above have been prepared by MiTek USA, Inc. under my direct supervision based on the parameters provided by Duley Truss.

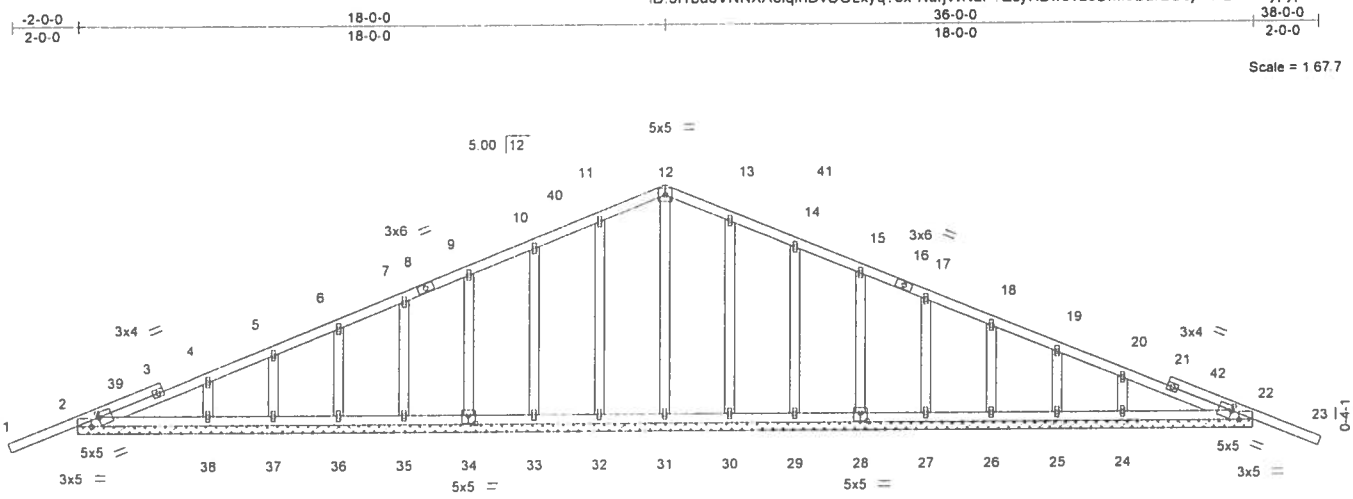
Truss Design Engineer's Name: Albani, Thomas
My license renewal date for the state of Florida is February 28, 2021.

Thomas A. Albani PE No.39380
MiTek USA, Inc. FL Cert 6634
6904 Parke East Blvd. Tampa FL 33610
Date:
August 8,2019

IMPORTANT NOTE: The seal on these truss component designs is a certification that the engineer named is licensed in the jurisdiction(s) identified and that the designs comply with ANSI/TPI 1. These designs are based upon parameters shown (e.g., loads, supports, dimensions, shapes and design codes), which were given to MiTek or TRENCO. Any project specific information included is for MiTek's or TRENCO's customers file reference purpose only, and was not taken into account in the preparation of these designs. MiTek or TRENCO has not independently verified the applicability of the design parameters or the designs for any particular building. Before use, the building designer should verify applicability of design parameters and properly incorporate these designs into the overall building design per ANSI/TPI 1, Chapter 2.

Job	Truss	Truss Type	Qty	Ply	HARTZOG GARAGE / SKIP HARVEY	T17808589
S1074	T1	Common Supported Gable	1	1	Job Reference (optional)	

Duley Truss, Dunnellon, FL - 34430, 8.240 s Jul 14 2019 MiTek Industries, Inc. Thu Aug 8 08:49:54 2019 Page 1
ID:3f1bu0VNNXA3iqfnDvUOLxyq?3x-NdrjWNaF?EcyKBwo?zcUMf9D2iGUojbRIQ7sLHypypx



36-0-0
36-0-0

Plate Offsets (X,Y)-- [2:0-0-4,0-1-12], [2:0-2-13,Edge], [22:0-2-13,Edge], [22:0-0-4,0-1-12], [28:0-2-8,0-3-0], [34:0-2-8,0-3-0]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	20.0	Plate Grip DOL	1.25	TC	0.42	Vert(LL)	-0.02	23	n/r	120	MT20	244/190
TCDL	7.0	Lumber DOL	1.25	BC	0.09	Vert(CT)	-0.02	23	n/r	120		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.14	Horz(CT)	0.01	22	n/a	n/a		
BCDL	10.0	Code FRC2017/TPI2014		Matrix-S							Weight: 210 lb	FT = 20%

LUMBER-
TOP CHORD 2x4 SP No.2D
BOT CHORD 2x4 SP No.2D
OTHERS 2x4 SP No.3

BRACING-
TOP CHORD Structural wood sheathing directly applied or 6-0-0 oc purlins.
BOT CHORD Rigid ceiling directly applied or 6-0-0 oc bracing.

REACTIONS. All bearings 36-0-0.
(lb) - Max Horz 2=208(LC 11)
Max Uplift All uplift 100 lb or less at joint(s) 32, 33, 34, 35, 36, 37, 38, 30, 29, 28, 27, 26, 25, 24 except 2=-208(LC 12), 22=-208(LC 12)
Max Grav All reactions 250 lb or less at joint(s) 31, 32, 33, 34, 35, 36, 37, 38, 30, 29, 28, 27, 26, 25, 24 except 2=273(LC 1), 22=273(LC 1)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 9-10=-78/276, 10-11=-100/338, 11-12=-120/395, 12-13=-120/400, 13-14=-100/344, 14-15=-78/282

NOTES-
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=140mph (3-second gust) Vasd=108mph; TCDL=4.2psf; BCDL=6.0psf; h=25ft; B=45ft; L=36ft; eave=2ft; Cat. II; Exp C; Encl., GCpi=0.18; MWFRS (directional) and C-C Corner(3) -2-0-11 to 1-6-8, Exterior(2) 1-6-8 to 18-0-0, Corner(3) 18-0-0 to 21-7-3, Exterior(2) 21-7-3 to 38-0-11 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
3) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
4) All plates are 1.5x4 MT20 unless otherwise indicated.
5) Gable requires continuous bottom chord bearing.
6) Gable studs spaced at 2-0-0 oc.
7) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
8) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
9) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) 32, 33, 34, 35, 36, 37, 38, 30, 29, 28, 27, 26, 25, 24 except (jt=lb) 2=208, 22=208.

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Date:
August 8,2019

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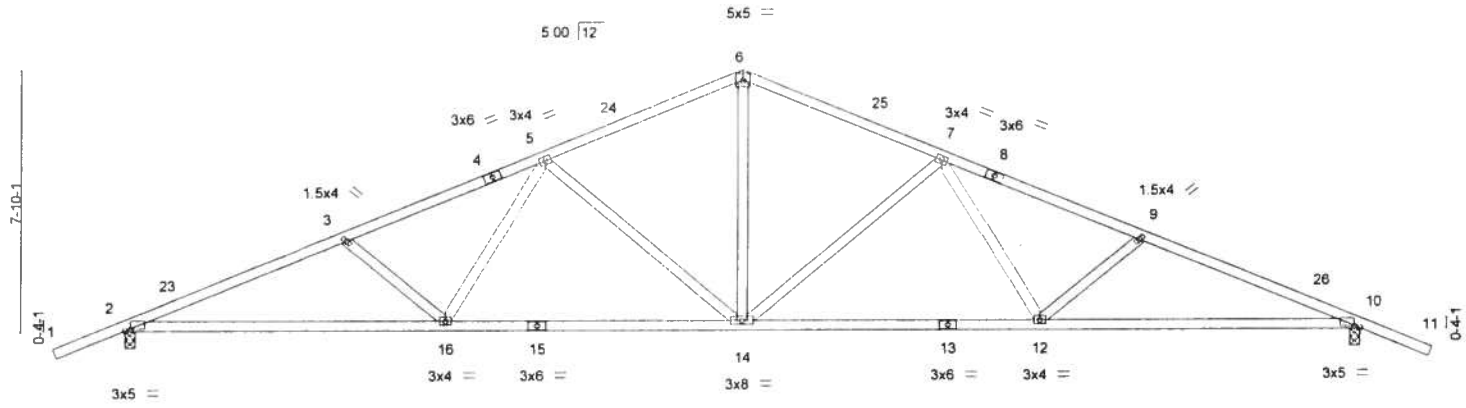
Tampa, FL 36610

Job	Truss	Truss Type	Qty	Ply	HARTZOG GARAGE / SKIP HARVEY	T17808590
S1074	T2	Common	34	1	Job Reference (optional)	

Duley Truss, Dunnellon, FL - 34430, 8.240 s Jul 14 2019 MiTek Industries, Inc. Thu Aug 8 08:49:55 2019 Page 1
ID:3f1bu0VNNXA3iqfnDvUOLxyq?3x-spP5jjbumYkpxLV_Zh7jvsiOT6POX0yaX4tQukypypw

-2-0-0	6-5-3	12-2-10	18-0-0	23-9-6	29-6-13	36-0-0	38-0-0
2-0-0	6-5-3	5-9-6	5-9-6	5-9-6	5-9-6	6-5-3	2-0-0

Scale: 3/16"=1'



9-3-14	18-0-0	26-8-2	36-0-0
9-3-14	8-8-2	8-8-2	9-3-14

Plate Offsets (X,Y)-- [2:0-1-14,0-0-8], [10:0-1-14,0-0-8]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	20.0	Plate Grip DOL	1.25	TC	0.44	Vert(LL)	0.20	14	>999	240	MT20	244/190
TCDL	7.0	Lumber DOL	1.25	BC	0.88	Vert(CT)	-0.36	14-16	>999	180		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.77	Horz(CT)	0.11	10	n/a	n/a		
BCDL	10.0	Code FRC2017/TPI2014		Matrix-MS							Weight: 179 lb	FT = 20%

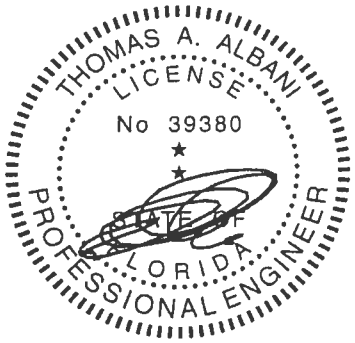
LUMBER-
TOP CHORD 2x4 SP No.2D
BOT CHORD 2x4 SP No.2D
WEBS 2x4 SP No.3

BRACING-
TOP CHORD Structural wood sheathing directly applied or 3-3-10 oc purlins.
BOT CHORD Rigid ceiling directly applied or 6-4-15 oc bracing.

REACTIONS. (lb/size) 2=1443/0-3-8, 10=1443/0-3-8
Max Horz 2=217(LC 11)
Max Uplift 2=-619(LC 12), 10=-619(LC 12)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-3=-2845/1144, 3-5=-2588/1046, 5-6=-1802/851, 6-7=-1802/851, 7-9=-2588/1046, 9-10=-2845/1144
BOT CHORD 2-16=-903/2591, 14-16=-670/2099, 12-14=-705/2099, 10-12=-945/2591
WEBS 6-14=-389/1048, 7-14=-672/391, 7-12=-80/523, 9-12=-346/267, 5-14=-672/391, 5-16=-80/523, 3-16=-346/267

NOTES-
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=140mph (3-second gust) Vasd=108mph; TCDL=4.2psf; BCDL=6.0psf; h=25ft; B=45ft; L=36ft; eave=5ft; Cat. II; Exp C; Encl., GCpi=0.18; MWFRS (directional) and C-C Exterior(2) -2-0-11 to 1-6-8, Interior(1) 1-6-8 to 18-0-0, Exterior(2) 18-0-0 to 21-7-3, Interior(1) 21-7-3 to 38-0-11 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
3) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
4) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
5) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 2=619, 10=619.



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Date:

August 8,2019

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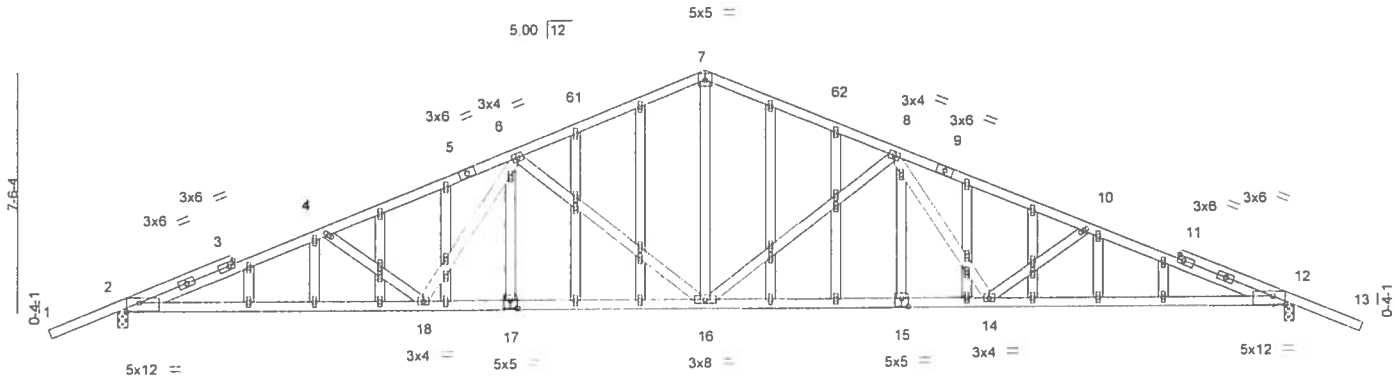
Tampa, FL 36610

Job	Truss	Truss Type	Qty	Ply	HARTZOG GARAGE / SKIP HARVEY	T17808591
S1074	T3	Common Structural Gable	2	1	Job Reference (optional)	

Duley Truss, Dunnellon, FL - 34430, 8.240 s Jul 14 2019 MiTek Industries, Inc. Thu Aug 8 08:49:57 2019 Page 1
ID:3f1bu0VNNXA3iqfnDvUOLxyq?3x-oCXs8Pc8I9_XBffNg6AB_Hnctv6e?wWt_OMWycypypu

2-0-0	6-5-3	12-2-10	18-0-0	23-9-6	29-6-13	36-0-0	38-0-0
2-0-0	6-5-3	5-9-6	5-9-6	5-9-6	5-9-6	6-5-3	2-0-0

Scale = 1:67.7



9-3-14	18-0-0	26-8-2	36-0-0
9-3-14	8-8-2	8-8-2	9-3-14

Plate Offsets (X,Y)-- [2:0-4-12,0-3-4], [12:0-4-12,0-3-4], [15:0-2-8,0-3-0], [17:0-2-8,0-3-0]

LOADING (psf)		SPACING-	2-0-0	CSI.		DEFL.	in	(loc)	l/defl	L/d	PLATES	GRIP
TCLL	20.0	Plate Grip DOL	1.25	TC	0.95	Vert(LL)	0.25	14-16	>999	240	MT20	244/190
TCDL	7.0	Lumber DOL	1.25	BC	0.83	Vert(CT)	-0.46	14-16	>940	180		
BCLL	0.0 *	Rep Stress Incr	YES	WB	0.77	Horz(CT)	0.12	12	n/a	n/a		
BCDL	10.0	Code FRC2017/TPI2014		Matrix-MS							Weight: 259 lb	FT = 20%

LUMBER-
TOP CHORD 2x4 SP No.2D *Except* 2-5,9-12: 2x4 SP No.1
BOT CHORD 2x4 SP No.2D
WEBS 2x4 SP No.3
OTHERS 2x4 SP No.3

BRACING-
TOP CHORD Structural wood sheathing directly applied.
BOT CHORD Rigid ceiling directly applied or 6-0-8 oc bracing.

REACTIONS. (lb/size) 2=1440/0-3-8, 12=1440/0-3-8
Max Horz 2=208(LC 11)
Max Uplift 2=-624(LC 12), 12=-624(LC 12)

FORCES. (lb) - Max. Comp./Max. Ten. - All forces 250 (lb) or less except when shown.
TOP CHORD 2-4=-3076/1235, 4-6=-2746/1095, 6-7=-1848/858, 7-8=-1848/858, 8-10=-2746/1095, 10-12=-3076/1235
BOT CHORD 2-18=-1016/2873, 16-18=-712/2187, 14-16=-750/2187, 12-14=-1059/2873
WEBS 7-16=-393/1079, 8-16=-704/410, 8-14=-106/586, 10-14=-504/321, 6-16=-704/410, 6-18=-106/586, 4-18=-504/321

NOTES-
1) Unbalanced roof live loads have been considered for this design.
2) Wind: ASCE 7-10; Vult=140mph (3-second gust) Vasd=108mph; TCDL=4.2psf; BCDL=6.0psf; h=25ft; B=45ft; L=36ft; eave=5ft; Cat. II; Exp C; Encl., GCpi=0.18; MWFRS (directional) and C-C Exterior(2) -2-0-11 to 1-4-14, Interior(1) 1-4-14 to 18-0-0, Exterior(2) 18-0-0 to 21-7-3, Interior(1) 21-7-3 to 38-0-11 zone; cantilever left and right exposed ; end vertical left and right exposed;C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
3) Truss designed for wind loads in the plane of the truss only. For studs exposed to wind (normal to the face), see Standard Industry Gable End Details as applicable, or consult qualified building designer as per ANSI/TPI 1.
4) All plates are 1.5x4 MT20 unless otherwise indicated.
5) Gable studs spaced at 2-0-0 oc.
6) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
7) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
8) Provide mechanical connection (by others) of truss to bearing plate capable of withstanding 100 lb uplift at joint(s) except (jt=lb) 2=624, 12=624.

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Date: August 8,2019

WARNING - Verify design parameters and READ NOTES ON THIS AND INCLUDED MITEK REFERENCE PAGE MII-7473 rev. 10/03/2015 BEFORE USE.
Design valid for use only with MiTek® connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see ***ANSI/TPI1 Quality Criteria, DSB-89 and BCSI Building Component Safety Information*** available from Truss Plate Institute, 218 N. Lee Street, Suite 312, Alexandria, VA 22314

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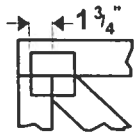
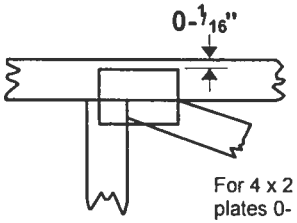
Tampa, FL 36610

Symbols

PLATE LOCATION AND ORIENTATION



Center plate on joint unless x, y offsets are indicated. Dimensions are in ft-in-sixteenths. Apply plates to both sides of truss and fully embed teeth.



For 4 x 2 orientation, locate plates 0- 1/16" from outside edge of truss.

This symbol indicates the required direction of slots in connector plates.

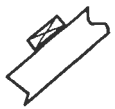
*** Plate location details available in MiTek 20/20 software or upon request.**

PLATE SIZE

4 x 4

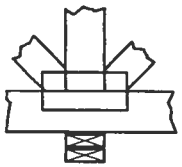
The first dimension is the plate width measured perpendicular to slots. Second dimension is the length parallel to slots.

LATERAL BRACING LOCATION



Indicated by symbol shown and/or by text in the bracing section of the output. Use T or I bracing if indicated.

BEARING

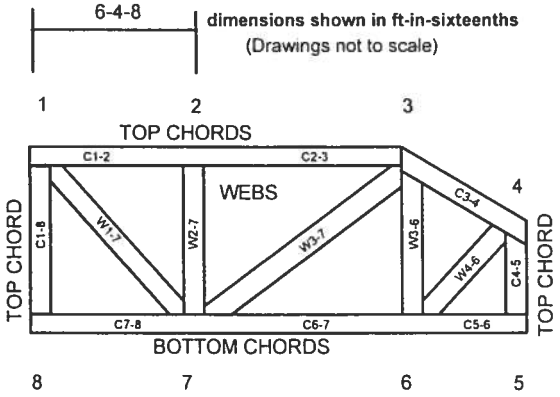


Indicates location where bearings (supports) occur. Icons vary but reaction section indicates joint number where bearings occur. Min size shown is for crushing only.

Industry Standards:

ANSI/TPI1: National Design Specification for Metal Plate Connected Wood Truss Construction.
DSB-89: Design Standard for Bracing.
BCSI: Building Component Safety Information, Guide to Good Practice for Handling, Installing & Bracing of Metal Plate Connected Wood Trusses.

Numbering System



JOINTS ARE GENERALLY NUMBERED/LETTERED CLOCKWISE AROUND THE TRUSS STARTING AT THE JOINT FARTHEST TO THE LEFT.

CHORDS AND WEBS ARE IDENTIFIED BY END JOINT NUMBERS/LETTERS.

PRODUCT CODE APPROVALS

ICC-ES Reports:

ESR-1311, ESR-1352, ESR1988
ER-3907, ESR-2362, ESR-1397, ESR-3282

Trusses are designed for wind loads in the plane of the truss unless otherwise shown.

Lumber design values are in accordance with ANSI/TPI 1 section 6.3 These truss designs rely on lumber values established by others.

MiTek

General Safety Notes

Failure to Follow Could Cause Property Damage or Personal Injury

1. Additional stability bracing for truss system, e.g. diagonal or X-bracing, is always required. See BCSI.
2. Truss bracing must be designed by an engineer. For wide truss spacing, individual lateral braces themselves may require bracing, or alternative Tor I bracing should be considered.
3. Never exceed the design loading shown and never stack materials on inadequately braced trusses.
4. Provide copies of this truss design to the building designer, erection supervisor, property owner and all other interested parties.
5. Cut members to bear tightly against each other.
6. Place plates on each face of truss at each joint and embed fully. Knots and wane at joint locations are regulated by ANSI/TPI 1.
7. Design assumes trusses will be suitably protected from the environment in accord with ANSI/TPI 1.
8. Unless otherwise noted, moisture content of lumber shall not exceed 19% at time of fabrication.
9. Unless expressly noted, this design is not applicable for use with fire retardant, preservative treated, or green lumber.
10. Camber is a non-structural consideration and is the responsibility of truss fabricator. General practice is to camber for dead load deflection.
11. Plate type, size, orientation and location dimensions indicated are minimum plating requirements.
12. Lumber used shall be of the species and size, and in all respects, equal to or better than that specified.
13. Top chords must be sheathed or purlins provided at spacing indicated on design.
14. Bottom chords require lateral bracing at 10 ft. spacing, or less, if no ceiling is installed, unless otherwise noted.
15. Connections not shown are the responsibility of others.
16. Do not cut or alter truss member or plate without prior approval of an engineer.
17. Install and load vertically unless indicated otherwise.
18. Use of green or treated lumber may pose unacceptable environmental, health or performance risks. Consult with project engineer before use.
19. Review all portions of this design (front, back, words and pictures) before use. Reviewing pictures alone is not sufficient.
20. Design assumes manufacture in accordance with ANSI/TPI 1 Quality Criteria.