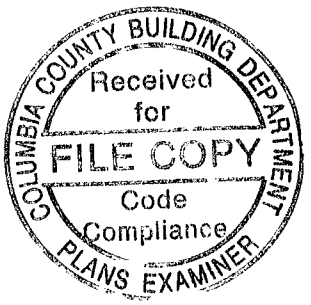
Schafer Engineering LLC

14952 Main St. Alachua FL 32615

Prepared for:

RONALD CLARK CONSTRUCTION
REED RESIDENCE
2437 SE / CR-18
COLUMBIA COUNTY, FLORIDA



By:

Schafer Engineering, LLC

386-462-1340 / 352-375-6329

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SCHAFER ENGINEERING, LLC

7104 NW 42ND LANE \ GAINESVILLE FL. 32606
PHONE: 386-462-1340 \ 352-375-6329

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 #1 #2 Size 2 x 4 Nail Spacing 8" o c

Stud Type Spruce Grade #1 #2 Size 2 x 4

Interior stud spacing 16" End stud spacing. 16"

Shear Wall Siding Type OSB Thickness 7/16"

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

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

Allowable Unit Shear on Shear Walls 314 pounds per linear foot

Unit Shear Transferred from Diaphragm Trans 92 Long 125

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 24" 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 10" Deep with 2-#5 rebar continuous

Porch Columns 6 X 6 X 9 syp #2 pt @ 12'-2" oc max Column Fasteners Simpson ABU66 \ PC 66 or equal

Special Comments

Notes

1 Balloon frame all gable ends unless accompanied by gable end detail
2 All trusses must bear on exterior walls and porch beams
3. All walls to be nailed with same nailing pattern as the shear walls
4 This wind load is not valid without a raised, embossed seal (NO COPIES)
5 1500 psf soil bearing pressure minimum
6 Fiber mesh or WWM may be used in concrete slab All steel must be grade 40 min
7 Trusses must be installed and anchored in accordance to the truss engineering
8 All headers spanning over 12' must be pre-engineered
9 The foundatioin is for minimum design use, and may be increased
10 Wind load is for one use only \ FBC-2010 \ No copies permitted

1-15-14

Bruce Schafer, P E #48984
7104 NW 42ND LN
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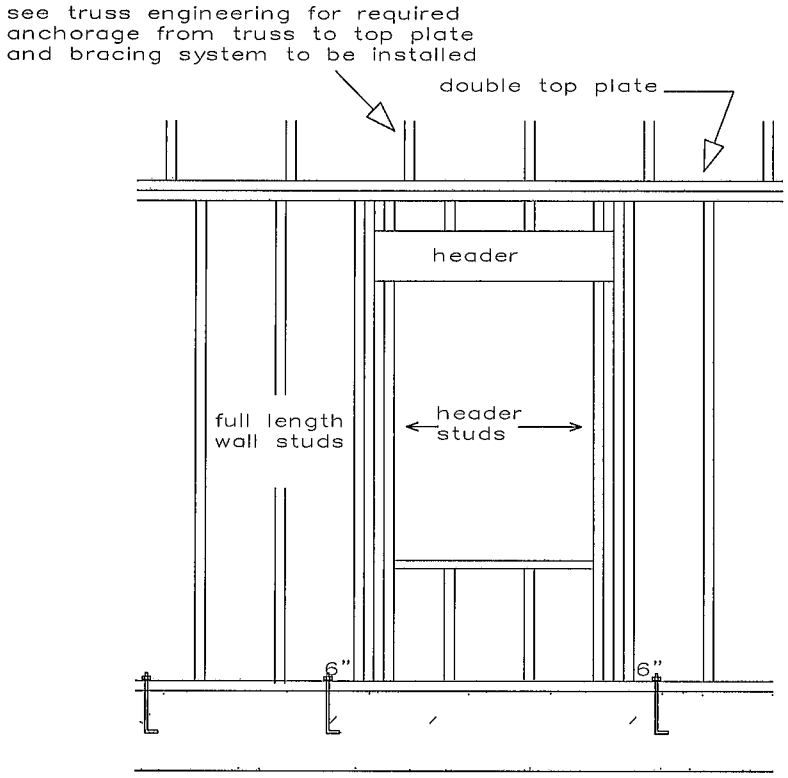

total each truss uplift on the header and divide by two for header and header stud anchorages

Unsupported Wall Height	Stud Spacing	Maximum Header Span (ft)					
		3'	6'	9'	12'	15'	18'
		Number of Header Studs Supporting End of Header					
		1	1	2	2	2	2
		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	LSTA19	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	2865
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	2775
to 3665	3-TS22	HD5A	4010
to 5420	2-MST37	HTT22	5250
to 9660	2-MST60	HD10A	9540

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	2300

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

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GAINESVILLE, FL 32606

Wind Load Design per ASCE 7-05

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)	26.6	Deg
Type of Roof	Hipped	
Eave Height (Eht)	9.00	ft
Ridge Height (RHt)	21.00	ft
Mean Roof Height (Ht)	15.00	ft
Width Perp. to Wind (B)	50.00	ft
Width Parallel to Wind (L)	56.00	ft
Damping Ratio (beta)	0.01	

Red values should be changed only through "Main Menu"

Calculated Parameters	
Type of Structure	
Height/Least Horizontal Dim	0.30
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
lzm	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	0.8997	
Gust2	0.925*((1+1.7*Izm*3.4*Q)/(1+1.7*3.4*Izm))	0.8658	
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	0.79	
Nb	4.6*NatFreq*B/Vzm	2.64	
Nd	15.4*NatFreq*Depth/Vzm	9.91	
Rh	1/Nh-(1/(2*Nh^2)*(1-Exp(-2*Nh)))	0.6287	
Rb	1/Nb-(1/(2*Nb^2)*(1-Exp(-2*Nb)))	0.3071	
Rd	1/Nd-(1/(2*Nd^2)*(1-Exp(-2*Nd)))	0.0958	
RR	((1/Beta)*Rn*Rh*Rb*(0.53+0.47*Rd))^0.5	0.8345	
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))	1.14	

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

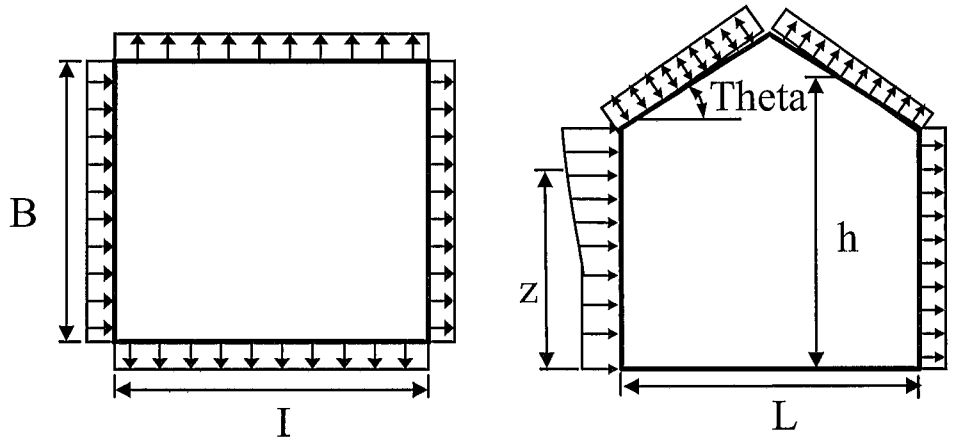
Wind Load Design per ASCE 7-05

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
21	0.70	1.00	1.00	32.69	17.81	27.47
20	0.70	1.00	1.00	32.69	17.81	27.47
15	0.70	1.00	1.00	32.69	17.81	27.47

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)	0.57	
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 50 ft wall)	-0.48	-15.88	-6.22
Leeward Walls (Wind Dir Parallel to 56 ft wall)	-0.50	-16.43	-6.78
Side Walls	-0.70	-21.08	-11.42
Roof - Normal to Ridge (Theta>=10)			
Windward - Max Negative	-0.20	-9.58	0.07
Windward - Max Positive	0.29	1.97	11.63
Leeward Normal to Ridge	-0.60	-18.76	-9.10
Overhang Top	-0.20	-4.76	-4.76
Overhang Bottom	0.80	0.69	0.69
Roof - Parallel to Ridge (All Theta)			
Dist from Windward Edge: 0 ft to 7.5 ft	-0.90	-25.72	-16.07
Dist from Windward Edge: 7.5 ft to 15 ft	-0.90	-25.72	-16.07
Dist from Windward Edge: 15 ft to 30 ft	-0.50	-16.43	-6.78
Dist from Windward Edge: > 30 ft	-0.30	-11.79	-2.14

* Horizontal distance from windward edge

Wind Load Design per ASCE 7-05

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)	=	0.57
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	0.55	0.18	-0.18	32.69	12.09	23.85
2	-0.10	0.18	-0.18	32.69	-9.02	2.75
3	-0.45	0.18	-0.18	32.69	-20.49	-8.73
4	-0.39	0.18	-0.18	32.69	-18.64	-6.88
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	0.73	0.18	-0.18	32.69	17.89	29.66
2E	-0.19	0.18	-0.18	32.69	-11.95	-0.18
3E	-0.58	0.18	-0.18	32.69	-24.99	-13.22
4E	-0.53	0.18	-0.18	32.69	-23.35	-11.58
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)

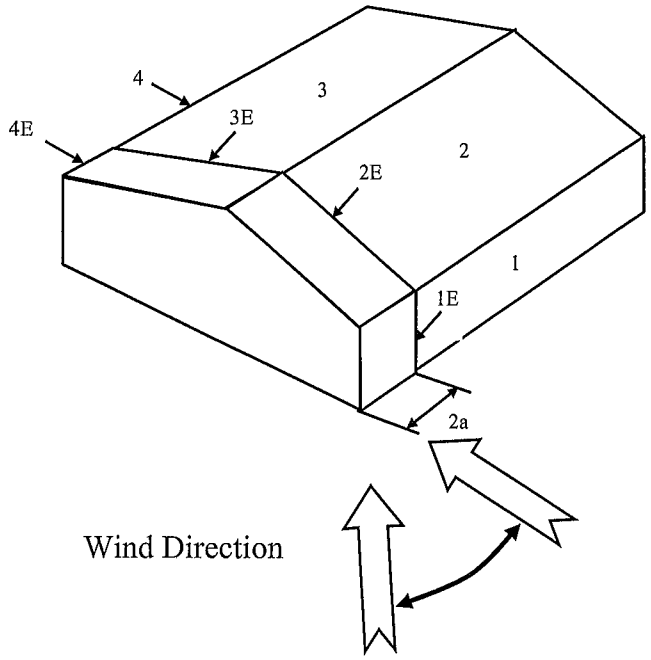


Figure 6-4 - External Pressure Coefficients, GCpf

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

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

Wind Load Design per ASCE 7-05

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)

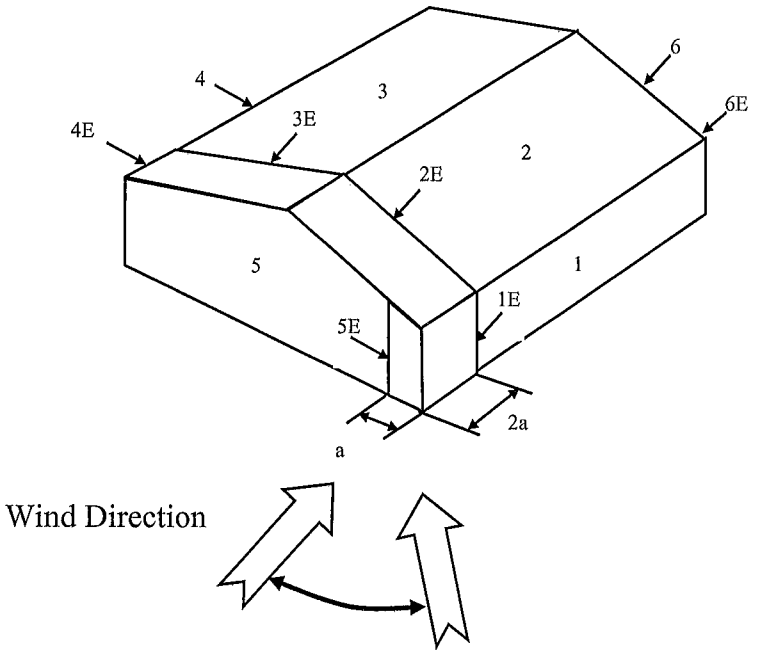
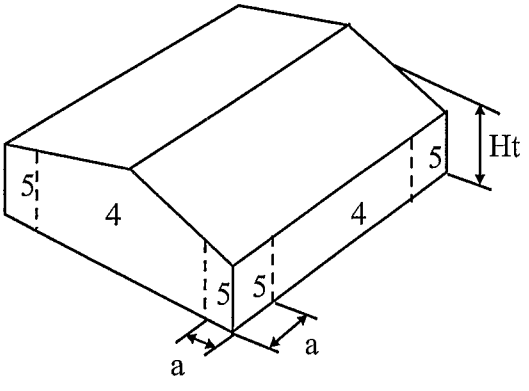
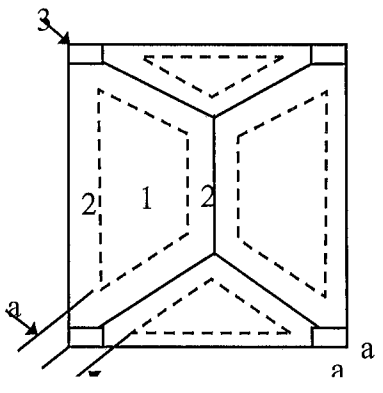


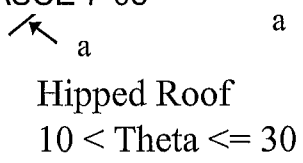
Figure 6-5 - External Pressure Coefficients, GCp

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





Wind Load Design per ASCE 7-05



a = 5 ==> 5.00 ft

Component	Width (ft)	Length (ft)	Area (ft^2)	Zone	GCp		Wind Press (lb/ft^2)	
					Max	Min	Max	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					
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	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 +	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**

SCHAFER ENGINEERING, LLC

14705 MAIIN STREET ALACHUA, FL 32615 PH: 386-462-1340 – 352-375-6329

February 11, 2014

Job: Ronald Clark Construction

Re: Reed Residence

Dear Mr Clark:

Install 2 ply 2 x 12 syp #2 headers with 7/16" osb flitch over all window and doors.

If you have any questions or if we can be any further assistance, please feel free to contact us at your convenience.

2-11-14

Bruce Schafer, P.E. #48984
7104 N. W. 42nd Lane
Gainesville, Florida 32606