



Prepared for:

DWC CONTRACTING
ROLLING MEADOWS / LOT 18
COLUMBIA COUNTY, FLORIDA

By:

Schafer Engineering, LLC

386-462-1340

This item has been digitally
signed and sealed by Bruce M
Schafer PE.

Printed copies of this
document are not considered
signed and sealed and the
signature must be verified on
any electronic copies.

NO COPIES ARE TO BE PERMITTED

SCHAFFER 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 Size & Spacing: 10d min" @ 8 o.c.

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

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

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

61 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: 87 Long: 162

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: 48" 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 9' syp #2 pt @ Simpson PC66 \
9'-4" o.c. max. spacing Column Fasteners: PBS66 or equal

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

Install (2) ply 1.75" X 11.25" deep LVL for rear covered landi 14'- 8" header.

Install (2) ply 1.75" X 11.25" deep LVL header for 16' garage door.

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. This is a windload only. Not a structural analysis. Schafer Engineering strongly recommends always having a structural analysis.
8. The foundation is for minimum design use, and may be increased.
9. Wind load is for one use only \ FBC-2020 \ No copies permitted
10. 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.
11. Truss company to use all exterior porch walls for bearing when possible.
12. If soil conditions in this project do not meet or exceed the min. 1500 psf soil bearing capacity, the contractor is required to contact Schafer Engineering prior to the foundation pour for verification of the foundation design. The soil is to be compacted to at least 95% of max. dry density as determined by ASTM-1557 (modified proctor)

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

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)	20.00	ft
Mean Roof Height (Ht)	14.50	ft
Width Perp. to Wind (B)	62.50	ft
Width Parallel to Wind (L)	54.17	ft
Damping Ratio (beta)	0.01	

Red values should be changed only through "Main Menu"

Calculated Parameters	
Type of Structure	
Height/Least Horizontal Dim	0.27
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	$(1/(1+0.63*((B+Ht)/Lzm)^{0.63}))^{0.5}$	0.8902	
Gust2	$0.925 * ((1+1.7 * lzm * 3.4 * Q)/(1+1.7 * 3.4 * lzm))$	0.8602	
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	$4.6 * NatFreq * Ht / Vzm$	0.77	
Nb	$4.6 * NatFreq * B / Vzm$	3.30	
Nd	$15.4 * NatFreq * Depth / Vzm$	9.59	
Rh	$1 / Nh - (1 / (2 * Nh^2) * (1 - Exp(-2 * Nh)))$	0.6373	
Rb	$1 / Nb - (1 / (2 * Nb^2) * (1 - Exp(-2 * Nb)))$	0.2569	
Rd	$1 / Nd - (1 / (2 * Nd^2) * (1 - Exp(-2 * Nd)))$	0.0989	
RR	$((1/Beta) * Rn * Rh * Rb * (0.53 + 0.47 * Rd))^{0.5}$	0.7694	
gg	$+(2 * LN(3600 * n1))^{0.5} + 0.577 / (2 * LN(3600 * n1))^{0.5}$	4.19	
Gust3	$0.925 * ((1 + 1.7 * lzm * (3.4^2 * Q^2 + GG^2 * RR^2)^{0.5}) / (1 + 1.7 * 3.4 * lzm))$	1.10	

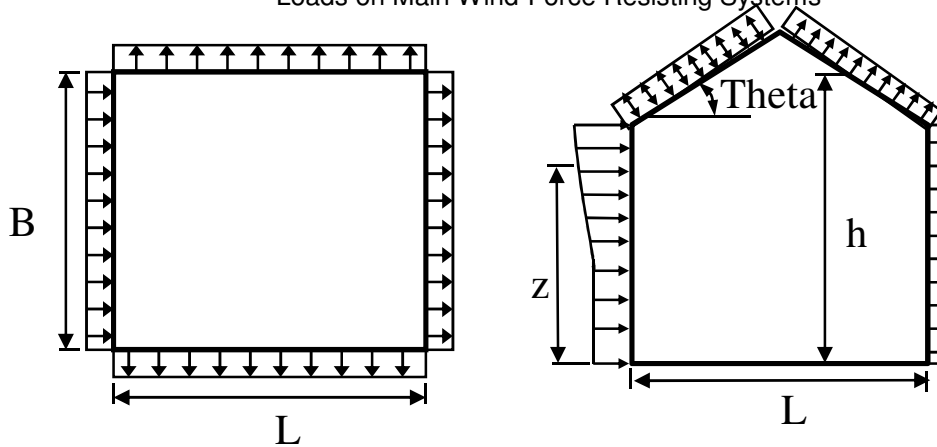
Gust Factor Summary			
Main Wind-force resisting system:		Components and Cladding:	
Gust Factor Category:	I	Gust Factor Category:	I
Gust Factor (G)	0.86	Gust Factor (G)	0.86

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

Elev. ft	Kz	Kzt	Kd	qz lb/ft ²	Pressure (lb/ft ²)	
					Windward Wall*	
			1.00		+GCpi	-GCpi
20	0.70	1.00	1.00	32.69	17.67	27.32
15	0.70	1.00	1.00	32.69	17.67	27.32

Figure 6-3 - External Pressure Coefficients, Cp

Loads on Main Wind-Force Resisting Systems



Variable	Formula	Value	Units
Kh	$2.01 \cdot (15/z_g)^{2/\alpha}$	0.57	
Kht	Topographic factor (Fig 6-2)	1.00	
Qh	$.00256 \cdot (V)^2 \cdot \text{ImpFac} \cdot K_h \cdot K_{ht} \cdot K_d$	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 62.5 ft wall)	-0.50	-16.36	-6.71
Leeward Walls (Wind Dir Parallel to 54.17 ft wall)	-0.47	-15.65	-6.00
Side Walls	-0.70	-20.97	-11.32
Roof - Normal to Ridge (Theta ≥ 10)			
Windward - Max Negative	-0.20	-9.55	0.10
Windward - Max Positive	0.29	1.93	11.58
Leeward Normal to Ridge	-0.60	-18.67	-9.01
Overhang Top	-0.20	-4.72	-4.72
Overhang Bottom	0.80	0.69	0.69
Roof - Parallel to Ridge (All Theta)			
Dist from Windward Edge: 0 ft to 7.25 ft	-0.90	-25.59	-15.93
Dist from Windward Edge: 7.25 ft to 14.5 ft	-0.90	-25.59	-15.93
Dist from Windward Edge: 14.5 ft to 29 ft	-0.50	-16.36	-6.71
Dist from Windward Edge: > 29 ft	-0.30	-11.75	-2.09

* Horizontal distance from windward edge

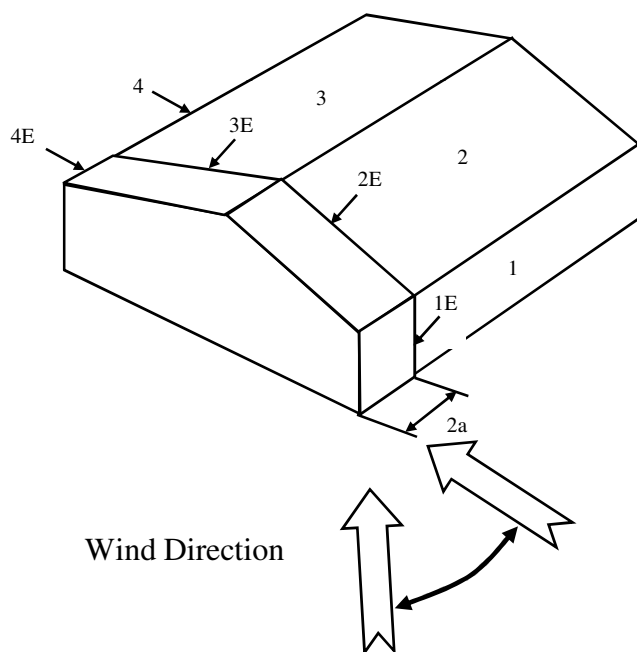
Figure 6-4 - External Pressure Coefficients, GCpi

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

$$\begin{aligned}
 K_h &= 2.01 \cdot (15/z_g)^{2/\alpha} = 0.57 \\
 K_{ht} &= \text{Topographic factor (Fig 6-2)} = 1.00 \\
 Q_h &= 0.00256 \cdot (V)^2 \cdot \text{ImpFac} \cdot K_h \cdot K_{ht} \cdot K_d = 26.81
 \end{aligned}$$

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

$$* p = q_h * (GCpf - GCpi)$$

**Figure 6-4 - External Pressure Coefficients, GCpf**

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

$$\begin{aligned}
 K_h &= 2.01 \cdot (15/z_g)^{2/\alpha} = 0.57 \\
 K_{ht} &= \text{Topographic factor (Fig 6-2)} = 1.00 \\
 Q_h &= 0.00256 \cdot (V)^2 \cdot \text{ImpFac} \cdot K_h \cdot K_{ht} \cdot K_d = 26.81
 \end{aligned}$$

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

$$* p = qh * (GCpf - GCpi)$$

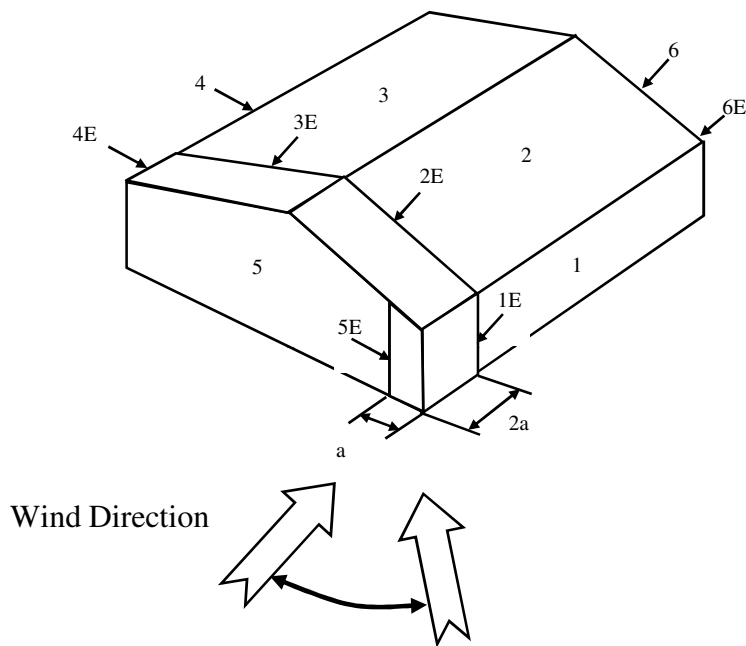
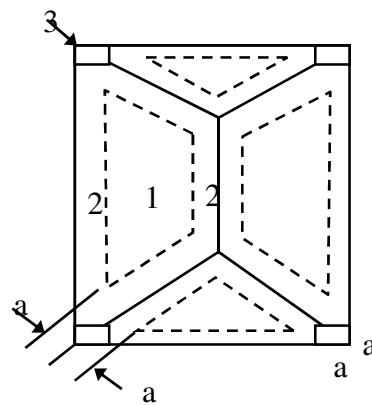
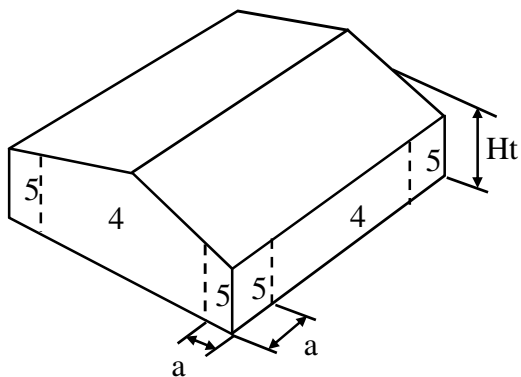


Figure 6-5 - External Pressure Coefficients, GCp

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



Hipped Roof
 $10 < \text{Theta} \leq 30$

5.42 ft

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

Table 6-7 Internal Pressure Coefficients for Buildings, G_{cpi}

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