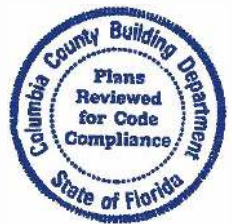




Prepared for:

TURNER RESIDENCE  
664 S.W. APPALACHEE TERR.  
FORT WHITE, FLORIDA 32038



By:

Schafer Engineering, LLC

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

Stud Type: Spruce Grade: #2 Size: 2 x 6 min.

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

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

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

39 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: 270 Long: 204

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 10' 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 or equal over all doors and windows.

Install (2) ply #2 syp 2 x 12 x 12' max. span span for porch headers.

**Notes:**

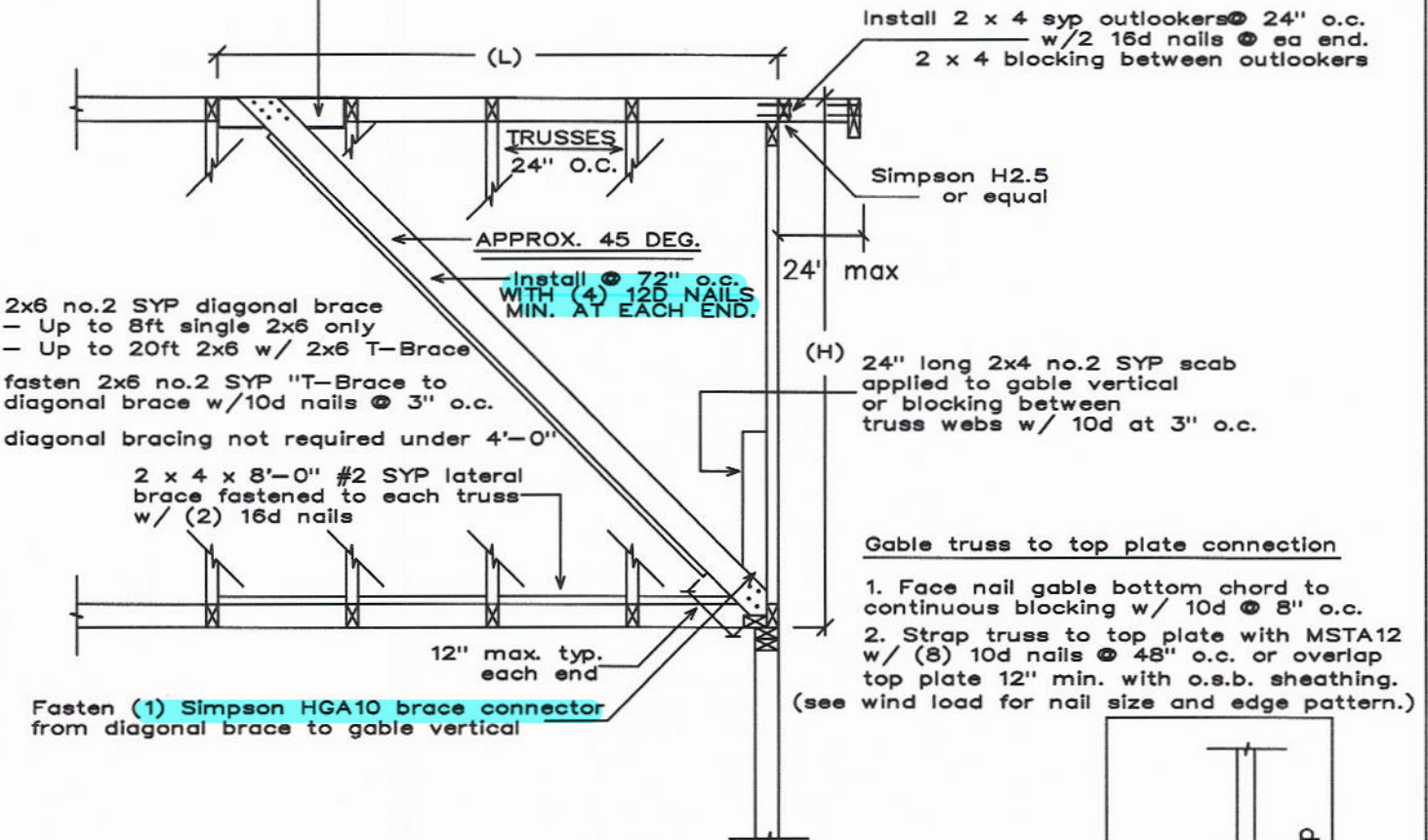
1. Balloon frame all gable ends unless accompanied by gable end detail
2. All walls to be nailed with same nailing pattern as the shear walls.
3. This wind load is not valid without a raised, embossed seal. (NO COPIES).
4. 1500 psf soil bearing pressure minimum.
5. Fiber mesh or WWM may be used in concrete 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)

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7104 NW 42ND LN  
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Toe-Nail min 2x6 No 2 SYP blocking  
between truss top chords with  
(3) 10d each end min.



2x6 #2 SYP diagonal brace @ 72" o.c.  
Fasten (1) Simpson HGA10 brace connector from the diagonal brace to gable vertical

2 x 4 x 8'-0" #2 SYP lateral brace @ 48" o.c. fastened to each truss connection w/ (2) 16d nails

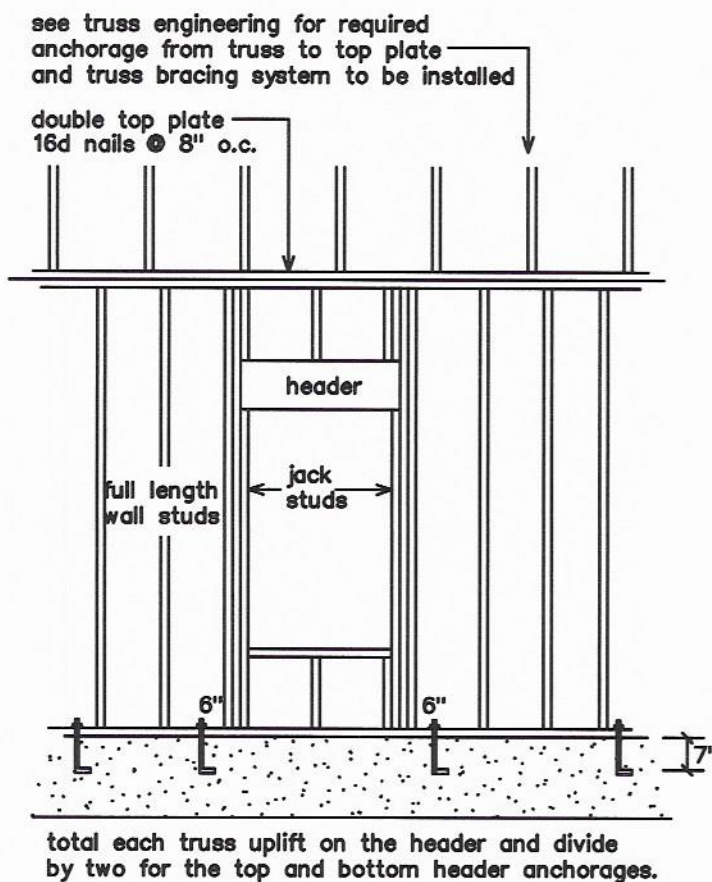
2x4 #2 SYP continuous blocking fasten to dbl top plate w/ 10d at 3" o.c.

## TYPICAL GABLE END BRACING

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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      | 3580       | 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 9550    | 2-MST60       | HD10A            | 9540       |

Two 12d common toenails 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 equivalent 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)      | 30.3     | Deg |
| Type of Roof               | Gabled   |     |
| Eave Height (Eht)          | 15.50    | ft  |
| Ridge Height (RHt)         | 16.83    | ft  |
| Mean Roof Height (Ht)      | 13.67    | ft  |
| Width Perp. to Wind (B)    | 44.00    | ft  |
| Width Parallel to Wind (L) | 51.17    | ft  |
| Damping Ratio (beta)       | 0.01     |     |

Red values should be changed only through "Main Menu"

| Calculated Parameters       |      |
|-----------------------------|------|
| Type of Structure           |      |
| Height/Least Horizontal Dim | 0.31 |
| 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                                                                      | $(1/(1+0.63*((B+Ht)/Lzm)^{0.63}))^{0.5}$                                                | 0.9060      |
| Gust2                                                                  | $0.925 * ((1+1.7 * lzm * 3.4 * Q)/(1+1.7 * 3.4 * lzm))$                                 | 0.8695      |
| 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                                                                     | $4.6 * NatFreq * Ht / Vzm$                                                              | 0.72        |
| Nb                                                                     | $4.6 * NatFreq * B / Vzm$                                                               | 2.33        |
| Nd                                                                     | $15.4 * NatFreq * Depth / Vzm$                                                          | 9.06        |
| Rh                                                                     | $1/Nh - (1/(2 * Nh^2) * (1 - Exp(-2 * Nh)))$                                            | 0.6520      |
| Rb                                                                     | $1/Nb - (1/(2 * Nb^2) * (1 - Exp(-2 * Nb)))$                                            | 0.3383      |
| Rd                                                                     | $1/Nd - (1/(2 * Nd^2) * (1 - Exp(-2 * Nd)))$                                            | 0.1043      |
| RR                                                                     | $((1/Beta) * Rn * Rh * Rb * (0.53 + 0.47 * Rd))^{0.5}$                                  | 0.8951      |
| gg                                                                     | $+(2 * LN(3600 * n1))^{0.5} + 0.577 / (2 * LN(3600 * n1))^{0.5}$                        | 4.19        |
| Gust3                                                                  | $0.925 * ((1 + 1.7 * lzm * (3.4^2 * Q^2 + GG^2 * RR^2)^{0.5}) / (1 + 1.7 * 3.4 * lzm))$ | 1.18        |

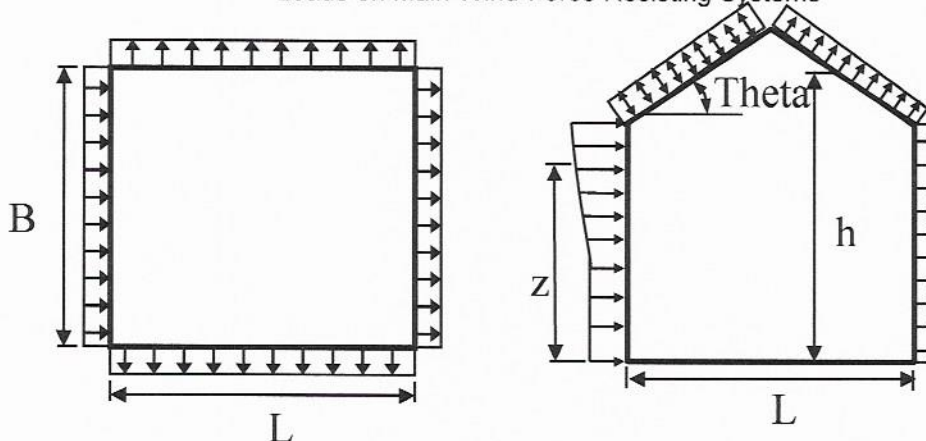
| Gust Factor Summary               |      |                          |      |
|-----------------------------------|------|--------------------------|------|
| Main Wind-force resisting system: |      | Components and Cladding: |      |
| Gust Factor Category:             | I    | Gust Factor Category:    | 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.<br>ft | Kz   | Kzt  | Kd   | qz<br>lb/ft <sup>2</sup> | Pressure (lb/ft <sup>2</sup> ) |       |
|-------------|------|------|------|--------------------------|--------------------------------|-------|
|             |      |      |      |                          | Windward Wall*                 |       |
|             |      |      |      |                          | +GCpi                          | -GCpi |
| 16.83       | 0.70 | 1.00 | 1.00 | 32.69                    | 17.91                          | 27.56 |
| 15.5        | 0.70 | 1.00 | 1.00 | 32.69                    | 17.91                          | 27.56 |
| 15          | 0.70 | 1.00 | 1.00 | 32.69                    | 17.91                          | 27.56 |

**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       | $0.00256 \cdot (V)^2 \cdot \text{ImpFac} \cdot K_h \cdot K_{ht} \cdot K_d$ | 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 44 ft wall)    | -0.47 | -15.72         | -6.07  |
| Leeward Walls (Wind Dir Parallel to 51.17 ft wall) | -0.50 | -16.48         | -6.83  |
| Side Walls                                         | -0.70 | -21.15         | -11.49 |
| Roof - Normal to Ridge (Theta ≥ 10)                |       |                |        |
| Windward - Max Negative                            | -0.19 | -9.23          | 0.42   |
| Windward - Max Positive                            | 0.30  | 2.15           | 11.80  |
| Leeward Normal to Ridge                            | -0.60 | -18.82         | -9.16  |
| Overhang Top                                       | -0.19 | -4.40          | -4.40  |
| Overhang Bottom                                    | 0.80  | 0.70           | 0.70   |
| Roof - Parallel to Ridge (All Theta)               |       |                |        |
| Dist from Windward Edge: 0 ft to 6.835 ft          | -0.90 | -25.81         | -16.16 |
| Dist from Windward Edge: 6.835 ft to 13.67 ft      | -0.90 | -25.81         | -16.16 |
| Dist from Windward Edge: 13.67 ft to 27.34 ft      | -0.50 | -16.48         | -6.83  |
| Dist from Windward Edge: > 27.34 ft                | -0.30 | -11.82         | -2.17  |

\* Horizontal distance from windward edge

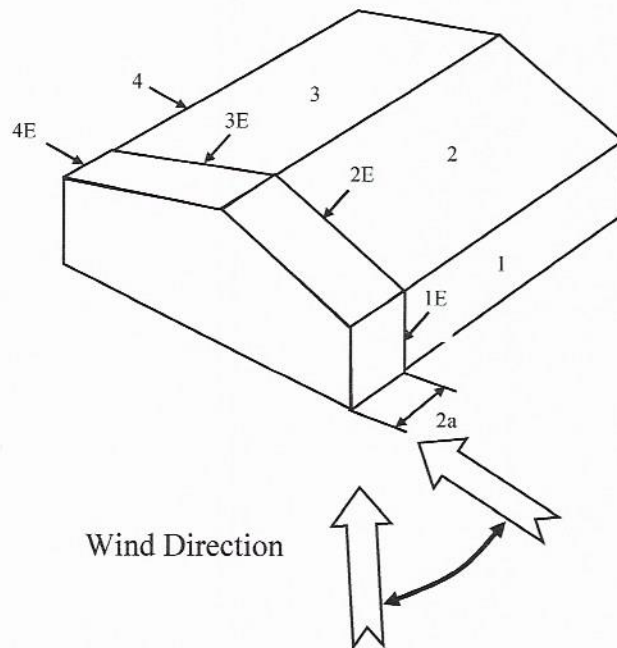
**Figure 6-4 - External Pressure Coefficients, GCpf**

## Loads on Main Wind-Force Resisting Systems w/ Ht &lt;= 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       | 0.56  | 0.18  | -0.18 | 32.69    | 12.42       | 24.19       |
| 2       | 0.21  | 0.18  | -0.18 | 32.69    | 0.98        | 12.75       |
| 3       | -0.43 | 0.18  | -0.18 | 32.69    | -19.94      | -8.17       |
| 4       | -0.37 | 0.18  | -0.18 | 32.69    | -17.98      | -6.21       |
| 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      | 0.69  | 0.18  | -0.18 | 32.69    | 16.67       | 28.44       |
| 2E      | 0.27  | 0.18  | -0.18 | 32.69    | 2.94        | 14.71       |
| 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      | 0.00  | 0.18  | -0.18 | 32.69    | -5.88       | 5.88        |
| 6E      | 0.00  | 0.18  | -0.18 | 32.69    | -5.88       | 5.88        |

$$* p = q_h * (GC_{pf} - GC_{pi})$$



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

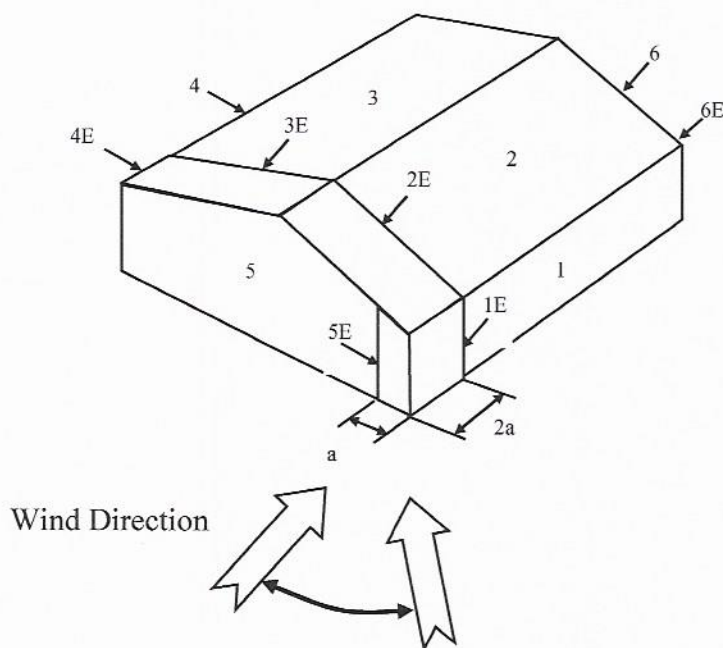
Loads on Main Wind-Force Resisting Systems w/ Ht <= 60 ft

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

Case B

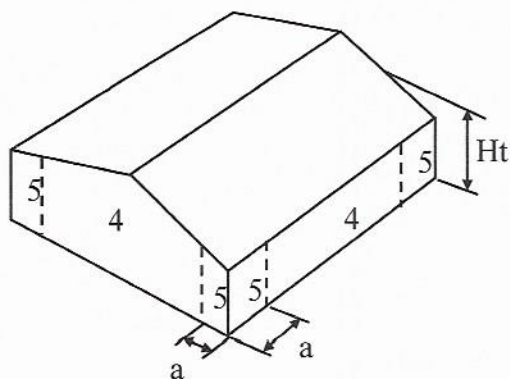
| Surface | GCpf  | +GCpi | -GCpi | qh<br>(psf) | Min P<br>(psf) | Max P<br>(psf) |
|---------|-------|-------|-------|-------------|----------------|----------------|
| 1       | -0.45 | 0.18  | -0.18 | 32.69       | -20.59         | -8.83          |
| 2       | -0.69 | 0.18  | -0.18 | 32.69       | -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/  $H_t \leq 60$  ft



Gabled Roof  
 $10 < \theta \leq 45$

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        |
| <b>Enclosed Buildings</b>    | <b>0.18</b> | <b>-0.18</b> |