

MecaWind v2406

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Calculations Prepared by:

420 NE 19TH AVENUE

POMPANO BEACH, FL,

Date: May 02, 2023

File Location : C:\Users\Miguel\OneDrive\Documents\1.wnd

Basic Wind Parameters

| | | | |
|--------------------|-------------|-------------------|------------|
| Wind Load Standard | = ASCE 7-16 | Exposure Category | = C |
| Wind Design Speed | = 170.0 mph | Risk Category | = II |
| Structure Type | = Building | Building Type | = Enclosed |

General Wind Settings

| | | |
|-----------|---|--------------|
| Incl_LF | = Include ASD Load Factor of 0.6 in Pressures | = True |
| DynType | = Dynamic Type of Structure | = Rigid |
| Zg | = Altitude (Ground Elevation) above Sea Level | = 0.000 ft |
| Bdist | = Base Elevation of Structure | = 0.000 ft |
| SDB | = Simple Diaphragm Building | = False |
| O_Kd | = Override the Directionality Factor 'Kd' | = 0.850 |
| MWFRSType | = MWFRS Method Selected | = Ch 27 Pt 1 |

Topographic Factor per Fig 26.8-1

| | | |
|------|-----------------------|---------|
| Topo | = Topographic Feature | = None |
| Kzt | = Topographic Factor | = 1.000 |

Building Inputs

| | | | | | |
|----------|----------------------|-------------|-----|-----------------------|-------------|
| RoofType | = Building Roof Type | = Gabled | W | : Width Perp to Ridge | = 38.000 ft |
| L | : Length Along Ridge | = 43.000 ft | Eht | : Eave Height | = 8.000 ft |
| RE | : Roof Entry Method | = Ridge | Rht | : Ridge Height | = 18.000 ft |
| Theta | : Roof Slope | = 25.82 Deg | Par | : Is there a Parapet | = False |

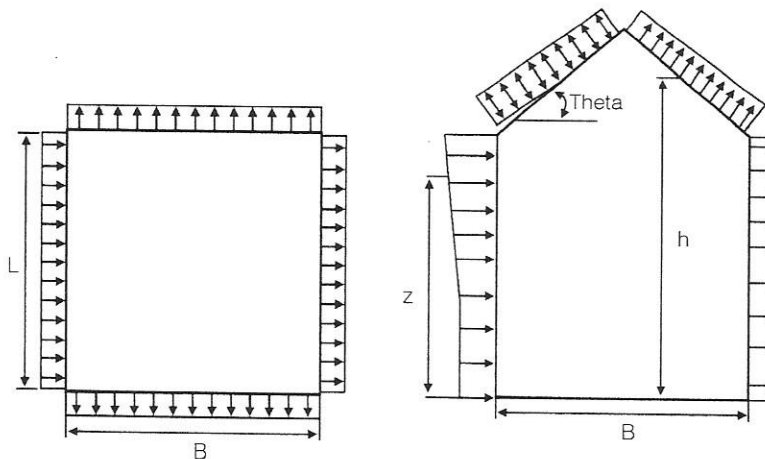
Exposure Constants per Table 26.11-1:

| | | | |
|----------------------------|---------|--------------------------|--------------|
| Alpha: Table 26.11-1 Const | = 9.500 | Zg: Table 26.11-1 Const | = 900.000 ft |
| At: Table 26.11-1 Const | = 0.105 | Bt: Table 26.11-1 Const | = 1.000 |
| Am: Table 26.11-1 Const | = 0.154 | Bm: Table 26.11-1 Const | = 0.650 |
| C: Table 26.11-1 Const | = 0.200 | Eps: Table 26.11-1 Const | = 0.200 |

Overhang Inputs:

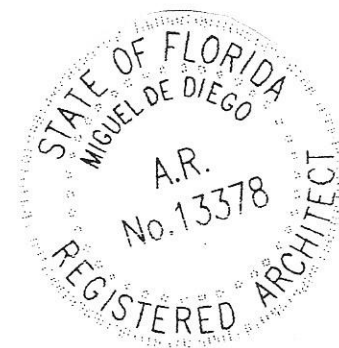
| | | |
|--------|---------------------------------------|------------|
| Std | = Overhangs on all sides are the same | = True |
| OHType | = Type of Roof Wall Intersections | = Overhang |
| OH | = Overhang of Roof Beyond Wall | = 1.670 ft |

Main Wind Force Resisting System (MWFRS) Calculations per Ch 27 Part 1:



h = Mean Roof Height above grade = 13.000 ft
Kh = Z < 15 ft [4.572 m] --> $(2.01 * (15/zg)^{(2/Alpha)})$ (Table 26.11-1) = 0.49

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| | | |
|------|--|-----------------|
| Kzt | = Topographic Factor is 1 since no Topographic feature specified | = 1.000 |
| Kd | = Wind Directionality Factor Manually Specified by Designer | = 0.85 |
| Zg | = Elevation above Sea Level | = 0.000 ft |
| Ke | = Ground Elevation Factor: $Ke = e^{-(0.0000362 \cdot Zg)}$ (Table 26.9-1) | = 1.000 |
| GCPi | = Ref Table 26.13-1 for Enclosed Building | = +/-0.18 |
| RA | = Roof Area | = 2161.85 sq ft |
| LF | = Load Factor based upon ASD Design | = 0.60 |
| qh | = $(0.00256 \cdot Kh \cdot Kzt \cdot Kd \cdot Ke \cdot V^2) \cdot LF$ | = 32.03 psf |
| qin | = For Negative Internal Pressure of Enclosed Building use $qh \cdot LF$ | = 32.03 psf |
| qip | = For Positive Internal Pressure of Enclosed Building use $qh \cdot LF$ | = 32.03 psf |

Gust Factor Calculation:

| | | |
|-------------|---|-------------|
| Gust Factor | Category I Rigid Structures - Simplified Method | |
| G1 | = For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 | = 0.85 |
| Gust Factor | Category II Rigid Structures - Complete Analysis | |
| Zm | = $\text{Max}(0.6 \cdot Ht, Zmin)$ | = 15.000 ft |
| Izm | = $Cc \cdot (33 / Zm) ^{0.167}$ | = 0.228 |
| Lzm | = $L \cdot (Zm / 33) ^{Eps}$ | = 427.057 |
| B | = Structure Width Normal to Wind | = 43.000 ft |
| Q | = $(1 / (1 + 0.63 \cdot ((B + Ht) / Lzm)^{0.63}))^{0.5}$ | = 0.922 |
| G2 | = $0.925 \cdot ((1 + 0.7 \cdot Izm \cdot 3.4 \cdot Q) / (1 + 0.7 \cdot 3.4 \cdot Izm))$ | = 0.884 |
| Gust Factor | Used in Analysis | |
| G | = Lessor Of G1 Or G2 | = 0.850 |

MWFRS Wind Normal to Ridge (Ref Fig 27.3-1)

| | | |
|-------------|--|-----------------|
| h | = Mean Roof Height Of Building | = 13.000 ft |
| RHt | = Ridge Height Of Roof | = 18.000 ft |
| B | = Horizontal Dimension Of Building Normal To Wind Direction | = 43.000 ft |
| L | = Horizontal Dimension Of building Parallel To Wind Direction | = 38.000 ft |
| L/B | = Ratio Of L/B used For Cp determination | = 0.884 |
| h/L | = Ratio Of h/L used For Cp determination | = 0.342 |
| Slope | = Slope of Roof | = 25.82 Deg |
| OH_Bot_-Y | = Overhang Coefficient Bottom Surface (Windward Only) | = 0.8, 0.8 |
| OH_Top_+X+Y | = Overhang Coefficient Overhang +X+Y (Leeward) | = -0.6, -0.6 |
| OH_Top_+X-Y | = Overhang Coefficient Overhang +X-Y (Windward) | = 0.263, -0.231 |
| OH_Top_+Y | = Overhang Coefficient Top +Y (Leeward) | = -0.6, -0.6 |
| OH_Top_-X+Y | = Overhang Coefficient Overhang -X+Y (Leeward) | = -0.6, -0.6 |
| OH_Top_-X-Y | = Overhang Coefficient Overhang -X-Y (Windward) | = 0.263, -0.231 |
| OH_Top_-Y | = Overhang Coefficient Top Windward Edge | = 0.263, -0.231 |
| Roof_LW | = Roof Coefficient (Leeward) | = -0.6, -0.6 |
| Roof_WW | = Roof Coefficient (Windward) | = 0.263, -0.231 |
| Cp_WW | = Windward Wall Coefficient (All L/B Values) | = 0.80 |
| Cp_LW | = Leeward Wall Coefficient using L/B | = -0.50 |
| Cp_SW | = Side Wall Coefficient (All L/B values) | = -0.70 |
| GCpn_WW | = Parapet Combined Net Pressure Coefficient (Windward Parapet) | = 1.50 |
| GCpn_LW | = Parapet Combined Net Pressure Coefficient (Leeward Parapet) | = -1.00 |

Gust Factor Calculation: Normal to Ridge

| | | |
|-------------|---|-------------|
| Gust Factor | Category I Rigid Structures - Simplified Method | |
| G1 | = For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 | = 0.85 |
| Gust Factor | Category II Rigid Structures - Complete Analysis | |
| Zm | = $\text{Max}(0.6 \cdot Ht, Zmin)$ | = 15.000 ft |
| Izm | = $Cc \cdot (33 / Zm) ^{0.167}$ | = 0.228 |
| Lzm | = $L \cdot (Zm / 33) ^{Eps}$ | = 427.057 |
| B | = Structure Width Normal to Wind | = 43.000 ft |
| Q | = $(1 / (1 + 0.63 \cdot ((B + Ht) / Lzm)^{0.63}))^{0.5}$ | = 0.922 |
| G2 | = $0.925 \cdot ((1 + 0.7 \cdot Izm \cdot 3.4 \cdot Q) / (1 + 0.7 \cdot 3.4 \cdot Izm))$ | = 0.884 |
| Gust Factor | Used in Analysis | |
| G | = Lessor Of G1 Or G2 | = 0.850 |

Wall Wind Pressures based On Positive Internal Pressure (+GCPi) - Normal to Ridge
All wind pressures include a load factor of 0.6

| Elev | Kz | Kzt | qz | GCPi | Windward Press | Leeward Press | Side Press | Total Press | Minimum Pressure* |
|------|-------|-------|-------|------|----------------|---------------|------------|-------------|-------------------|
| ft | | | psf | | psf | psf | psf | psf | psf |
| 8.00 | 0.849 | 1.000 | 32.03 | 0.18 | 16.01 | -19.38 | -24.82 | 35.39 | 9.60 |

Wall Wind Pressures based on Negative Internal Pressure (-GCPi) - Normal to Ridge
All wind pressures include a load factor of 0.6**DRC**

| Elev | Kz | Kzt | qz | GCPI | Windward | Leeward | Side | Total | Minimum |
|-------|-------|-------|-------|-------|----------|---------|--------|-------|-----------|
| ft | | | psf | | Press | Press | Press | Press | Pressure* |
| ----- | ----- | ----- | ----- | ----- | psf | psf | psf | psf | psf |
| 8.00 | 0.849 | 1.000 | 32.03 | -0.18 | 27.55 | -7.85 | -13.29 | 35.39 | 9.60 |

Notes Wall Pressures:

Kz = Velocity Press Exp Coeff
 qz = $0.00256 \cdot Kz \cdot Kzt \cdot Kd \cdot V^2$
 Side = $q_h \cdot G \cdot C_{p_SW} - q_{ip} \cdot +GCPI$
 Leeward = $q_h \cdot G \cdot C_{p_LW} - q_{ip} \cdot +GCPI$
 * Minimum Pressure: Para 27.1.5 no less than 9.60 psf (Incl LF) applied to Walls
 + Pressures Acting TOWARD Surface - Pressures Acting AWAY from Surface

Kzt = Topographical Factor
 GCPI = Internal Press Coefficient
 Windward = $q_z \cdot G \cdot C_{p_WW} - q_{ip} \cdot +GCPI$
 Total = Windward Press - Leeward Press

Roof Wind Pressures for Positive & Negative Internal Pressure (+/- GCPI) - Normal to Ridge

All wind pressures include a load factor of 0.6

| Roof Var | Start Dist | End Dist | Cp_min | Cp_max | GCPI | Pressure Pn_min* | Pressure Pp_min* | Pressure Pn_max | Pressure Pp_max |
|-------------|------------|----------|--------|--------|-------|------------------|------------------|-----------------|-----------------|
| | ft | ft | | | | psf | psf | psf | psf |
| ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- |
| OH_Bot_-Y | N/A | N/A | 0.800 | 0.800 | 0.000 | 21.78 | 21.78 | 21.78 | 21.78 |
| OH_Top_+X+Y | N/A | N/A | -0.600 | -0.600 | 0.000 | -16.34 | -16.34 | -16.34 | -16.34 |
| OH_Top_+X-Y | N/A | N/A | 0.263 | -0.231 | 0.000 | 7.16 | 7.16 | -6.28 | -6.28 |
| OH_Top_+Y | N/A | N/A | -0.600 | -0.600 | 0.000 | -16.34 | -16.34 | -16.34 | -16.34 |
| OH_Top_-X+Y | N/A | N/A | -0.600 | -0.600 | 0.000 | -16.34 | -16.34 | -16.34 | -16.34 |
| OH_Top_-X-Y | N/A | N/A | 0.263 | -0.231 | 0.000 | 7.16 | 7.16 | -6.28 | -6.28 |
| OH_Top_-Y | N/A | N/A | 0.263 | -0.231 | 0.000 | 7.16 | 7.16 | -6.28 | -6.28 |
| Roof_LW | N/A | N/A | -0.600 | -0.600 | 0.180 | -10.57 | -22.10 | -10.57 | -22.10 |
| Roof_WW | N/A | N/A | 0.263 | -0.231 | 0.180 | 12.93 | 1.40 | -0.52 | -12.05 |

Notes Roof Pressures:

Start Dist = Start Dist from Windward Edge End Dist = End Dist from Windward Edge
 Cp_Max = Largest Coefficient Magnitude Cp_Min = Smallest Coefficient Magnitude
 Pp_max = $q_h \cdot G \cdot C_{p_max} - q_{ip} \cdot (+GCPI)$ Pn_max = $q_h \cdot G \cdot C_{p_max} - q_{in} \cdot (-GCPI)$
 Pp_min* = $q_h \cdot G \cdot C_{p_min} - q_{ip} \cdot (+GCPI)$ Pn_min* = $q_h \cdot G \cdot C_{p_min} - q_{in} \cdot (-GCPI)$
 OH = Overhang X = Dir along Ridge Y = Dir Perpendicular to Ridge Z = Vertical
 * The smaller uplift pressures due to Cp_Min can become critical when wind is combined with roof live load or snow load; load combinations are given in ASCE 7
 + Pressures Acting TOWARD Surface - Pressures Acting AWAY from Surface

MWFRS Wind Parallel to Ridge (Ref Fig 27.3-1)

| | | |
|---------|--|---------------|
| h | = Mean Roof Height Of Building | = 13.000 ft |
| RHt | = Ridge Height Of Roof | = 18.000 ft |
| B | = Horizontal Dimension Of Building Normal To Wind Direction | = 38.000 ft |
| L | = Horizontal Dimension Of building Parallel To Wind Direction | = 43.000 ft |
| L/B | = Ratio Of L/B used For Cp determination | = 1.132 |
| h/L | = Ratio Of h/L used For Cp determination | = 0.302 |
| Slope | = Slope of Roof | = 25.82 Deg |
| OH_Bot | = Overhang Bottom (Windward Face Only) | = 0.8, 0.8 |
| OH_Top | = Overhang Top Coeff (0 to h/2) (0.000 ft to 1.670 ft) | = -0.18, -0.9 |
| OH_Top | = Overhang Top Coeff (0 to h/2) (1.670 ft to 6.500 ft) | = -0.18, -0.9 |
| OH_Top | = Overhang Top Coeff (h/2 to h) (6.500 ft to 13.000 ft) | = -0.18, -0.9 |
| OH_Top | = Overhang Top Coeff (h to 2h) (13.000 ft to 26.000 ft) | = -0.18, -0.5 |
| OH_Top | = Overhang Top Coeff (>2h) (>26.000 ft) | = -0.18, -0.3 |
| OH_Top | = Overhang Top Coeff (>2h) (>44.670 ft) | = -0.18, -0.3 |
| Roof | = Roof Coeff (0 to h/2) (1.670 ft to 6.500 ft) | = -0.18, -0.9 |
| Roof | = Roof Coeff (h/2 to h) (6.500 ft to 13.000 ft) | = -0.18, -0.9 |
| Roof | = Roof Coeff (h to 2h) (13.000 ft to 26.000 ft) | = -0.18, -0.5 |
| Roof | = Roof Coeff (>2h) (>26.000 ft) | = -0.18, -0.3 |
| Cp_WW | = Windward Wall Coefficient (All L/B Values) | = 0.80 |
| Cp_LW | = Leeward Wall Coefficient using L/B | = -0.47 |
| Cp_SW | = Side Wall Coefficient (All L/B values) | = -0.70 |
| GCpn_WW | = Parapet Combined Net Pressure Coefficient (Windward Parapet) | = 1.50 |
| GCpn_LW | = Parapet Combined Net Pressure Coefficient (Leeward Parapet) | = -1.00 |

Gust Factor Calculation: Parallel to Ridge

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Gust Factor Category I Rigid Structures - Simplified Method
 G1 = For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 = 0.85
 Gust Factor Category II Rigid Structures - Complete Analysis
 Zm = Max(0.6 * Ht, Zmin) = 15.000 ft
 Izm = Cc * (33 / Zm) ^ 0.167 = 0.228
 Lzm = L * (Zm / 33) ^ Eps = 427.057
 B = Structure Width Normal to Wind = 38.000 ft
 Q = (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5 = 0.926
 G2 = 0.925 * ((1 + 0.7 * Izm * 3.4 * Q) / (1 + 0.7 * 3.4 * Izm)) = 0.886
 Gust Factor Used in Analysis
 G = Lessor Of G1 Or G2 = 0.850

Wall Wind Pressures based On Positive Internal Pressure (+GCPi) - Parallel to Ridge
 All wind pressures include a load factor of 0.6

| Elev | Kz | Kzt | qz | GCPi | Windward Press | Leeward Press | Side Press | Total Press | Minimum Pressure* |
|-------|-------|-------|-------|------|----------------|---------------|------------|-------------|-------------------|
| ft | | | psf | | psf | psf | psf | psf | psf |
| 18.00 | 0.882 | 1.000 | 33.28 | 0.18 | 16.87 | -18.66 | -24.82 | 35.53 | 9.60 |
| 13.00 | 0.849 | 1.000 | 32.03 | 0.18 | 16.01 | -18.66 | -24.82 | 34.68 | 9.60 |
| 8.00 | 0.849 | 1.000 | 32.03 | 0.18 | 16.01 | -18.66 | -24.82 | 34.68 | 9.60 |

Wall Wind Pressures based on Negative Internal Pressure (-GCPi) - Parallel to Ridge
 All wind pressures include a load factor of 0.6

| Elev | Kz | Kzt | qz | GCPi | Windward Press | Leeward Press | Side Press | Total Press | Minimum Pressure* |
|-------|-------|-------|-------|-------|----------------|---------------|------------|-------------|-------------------|
| ft | | | psf | | psf | psf | psf | psf | psf |
| 18.00 | 0.882 | 1.000 | 33.28 | -0.18 | 28.40 | -7.13 | -13.29 | 35.53 | 9.60 |
| 13.00 | 0.849 | 1.000 | 32.03 | -0.18 | 27.55 | -7.13 | -13.29 | 34.68 | 9.60 |
| 8.00 | 0.849 | 1.000 | 32.03 | -0.18 | 27.55 | -7.13 | -13.29 | 34.68 | 9.60 |

Notes Wall Pressures:

Kz = Velocity Press Exp Coeff
 qz = 0.00256 * Kz * Kzt * Kd * V^2
 Side = qh * G * Cp_SW - qip * +GCPi
 Leeward = qh * G * Cp_LW - qip * +GCPi
 * Minimum Pressure: Para 27.1.5 no less than 9.60 psf (Incl LF) applied to Walls
 + Pressures Acting TOWARD Surface
 Kzt = Topographical Factor
 GCPi = Internal Press Coefficient
 Windward = qz * G * Cp_WW - qip * +GCPi
 Total = Windward Press - Leeward Press
 - Pressures Acting AWAY from Surface

Roof Wind Pressures for Positive & Negative Internal Pressure (+/- GCPi) - Parallel to Ridge
 All wind pressures include a load factor of 0.6

| Roof Var | Start Dist | End Dist | Cp_min | Cp_max | GCPi | Pressure Pn_min* | Pressure Pp_min* | Pressure Pn_max | Pressure Pp_max |
|---------------|------------|----------|--------|--------|-------|------------------|------------------|-----------------|-----------------|
| | ft | ft | | | | psf | psf | psf | psf |
| OH_Bot | N/A | N/A | 0.800 | 0.800 | 0.000 | 21.78 | 21.78 | 21.78 | 21.78 |
| OH_Bot | N/A | N/A | 0.800 | 0.800 | 0.000 | 21.78 | 21.78 | 21.78 | 21.78 |
| OH_Top (-X+Y) | 0.000 | 1.670 | -0.180 | -0.900 | 0.000 | -4.90 | -4.90 | -24.50 | -24.50 |
| OH_Top (-X-Y) | 0.000 | 1.670 | -0.180 | -0.900 | 0.000 | -4.90 | -4.90 | -24.50 | -24.50 |
| OH_Top (-Y) | 1.670 | 6.500 | -0.180 | -0.900 | 0.000 | -4.90 | -4.90 | -24.50 | -24.50 |
| OH_Top (+Y) | 1.670 | 6.500 | -0.180 | -0.900 | 0.000 | -4.90 | -4.90 | -24.50 | -24.50 |
| OH_Top (-Y) | 6.500 | 13.000 | -0.180 | -0.900 | 0.000 | -4.90 | -4.90 | -24.50 | -24.50 |
| OH_Top (+Y) | 6.500 | 13.000 | -0.180 | -0.900 | 0.000 | -4.90 | -4.90 | -24.50 | -24.50 |
| OH_Top (-Y) | 13.000 | 26.000 | -0.180 | -0.500 | 0.000 | -4.90 | -4.90 | -13.61 | -13.61 |
| OH_Top (+Y) | 13.000 | 26.000 | -0.180 | -0.500 | 0.000 | -4.90 | -4.90 | -13.61 | -13.61 |
| OH_Top (-Y) | 26.000 | 44.670 | -0.180 | -0.300 | 0.000 | -4.90 | -4.90 | -8.17 | -8.17 |
| OH_Top (+Y) | 26.000 | 44.670 | -0.180 | -0.300 | 0.000 | -4.90 | -4.90 | -8.17 | -8.17 |
| OH_Top (+X+Y) | 44.670 | 46.340 | -0.180 | -0.300 | 0.000 | -4.90 | -4.90 | -8.17 | -8.17 |
| OH_Top (+X-Y) | 44.670 | 46.340 | -0.180 | -0.300 | 0.000 | -4.90 | -4.90 | -8.17 | -8.17 |
| Roof (+Y) | 1.670 | 6.500 | -0.180 | -0.900 | 0.180 | 0.86 | -10.67 | -18.74 | -30.27 |
| Roof (-Y) | 1.670 | 6.500 | -0.180 | -0.900 | 0.180 | 0.86 | -10.67 | -18.74 | -30.27 |
| Roof (+Y) | 6.500 | 13.000 | -0.180 | -0.900 | 0.180 | 0.86 | -10.67 | -18.74 | -30.27 |
| Roof (-Y) | 6.500 | 13.000 | -0.180 | -0.900 | 0.180 | 0.86 | -10.67 | -18.74 | -30.27 |
| Roof (+Y) | 13.000 | 26.000 | -0.180 | -0.500 | 0.180 | 0.86 | -10.67 | -7.85 | -19.38 |
| Roof (-Y) | 13.000 | 26.000 | -0.180 | -0.500 | 0.180 | 0.86 | -10.67 | -7.85 | -19.38 |
| Roof (+Y) | 26.000 | 44.670 | -0.180 | -0.300 | 0.180 | 0.86 | -10.67 | -2.40 | -13.00 |

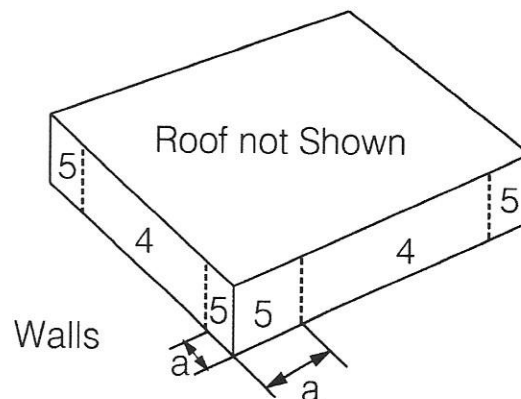
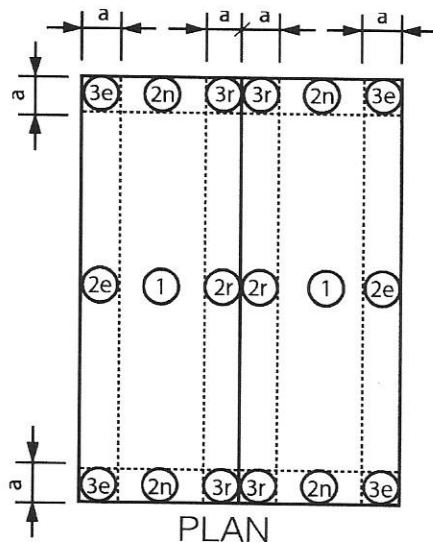
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Roof (-Y) 26.000 44.670 -0.180 -0.300 0.180 0.86 -10.67 -2.40 -13.93

Notes Roof Pressures:

Start Dist = Start Dist from Windward Edge End Dist = End Dist from Windward Edge
 Cp_Max = Largest Coefficient Magnitude Cp_Min = Smallest Coefficient Magnitude
 Pp_max = $q_h * G * Cp_{max} - q_{ip} * (+GC_{pi})$ Pn_max = $q_h * G * Cp_{max} - q_{in} * (-GC_{pi})$
 Pp_min* = $q_h * G * Cp_{min} - q_{ip} * (+GC_{pi})$ Pn_min* = $q_h * G * Cp_{min} - q_{in} * (-GC_{pi})$
 OH = Overhang X = Dir along Ridge Y = Dir Perpendicular to Ridge Z = Vertical
 * The smaller uplift pressures due to Cp_Min can become critical when wind is combined with roof live load or snow load; load combinations are given in ASCE 7
 + Pressures Acting TOWARD Surface - Pressures Acting AWAY from Surface

Components and Cladding (C&C) Calculations per Ch 30 Part 1:



h/W = Ratio of mean roof height to building width = 0.342
 h/L = Ratio of mean roof height to building length = 0.302
 h = Mean Roof Height above grade = 13.000 ft
 Kh = $Z < 15 \text{ ft} [4.572 \text{ m}] \rightarrow (2.01 * (15/zg)^{(2/\alpha)})$ {Table 26.10-1} = 0.849
 Kzt = Topographic Factor is 1 since no Topographic feature specified = 1.000
 Kd = Wind Directionality Factor Manually Specified by Designer = 0.85
 GCpi = Ref Table 26.13-1 for Enclosed Building = +/-0.18
 LF = Load Factor based upon ASD Design = 0.60
 qh = $(0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF$ = 32.03 psf
 LHD = Least Horizontal Dimension: Min(B, L) = 38.000 ft
 al = Min(0.1 * LHD, 0.4 * h) = 3.800 ft
 a = Max(al, 0.04 * LHD, 3 ft [0.9 m]) = 3.800 ft
 h/B = Ratio of mean roof height to least hor dim: h / B = 0.342

Wind Pressures for C&C Ch 30 Pt 1 All wind pressures include a load factor of 0.6

| Description | Zone | Width ft | Span ft | Area sq ft | 1/3 Rule | Ref Fig | GCp Max | GCp Min | p Max psf | p Min psf |
|-------------|------|-------------|------------|---------------|-------------|------------|------------|------------|-----------------|-----------------|
| 1 | 4 | 4.410 | 4.250 | 18.74 | No | 30.3-1 | 0.952 | -1.052 | 36.25 | -39.46 |
| 2 | 4 | 3.080 | 4.250 | 13.09 | No | 30.3-1 | 0.979 | -1.079 | 37.13 | -40.34 |
| A | 5 | 3.000 | 6.670 | 20.01 | No | 30.3-1 | 0.947 | -1.294 | 36.09 | -47.20 |
| ROOF ZONE 1 | 1 | 2.000 | 10.000 | 33.33 | Yes | 30.3-2C | 0.412 | -1.368 | 18.97 | -49.58 |
| ROOF ZONE 2 | 2e | 2.000 | 10.000 | 33.33 | Yes | 30.3-2C | 0.412 | -1.368 | 18.97 | -49.58 |
| ROOF ZONE 3 | 3e | 2.000 | 10.000 | 33.33 | Yes | 30.3-2C | 0.412 | -1.922 | 18.97 | -67.33 |

Area = Span Length x Effective Width

1/3 Rule = Effective width need not be less than 1/3 of the span length

GCp = External Pressure Coefficients taken from Figures 30.3-1 through 30.3-7

p = Wind Pressure: $q_h * (GC_p - GC_{pi})$ [Eqn 30.3-1]*

* Per Para 30.2.2 the Minimum Pressure for C&C is 9.60 psf [0.460 kPa] Include LF

DRC