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Job No. 23-007

"98 Court Residence"

5125 SW 98th Court, Miami, FL 33165

Digitally signed
by Yosniel Padron
Date: 2023.03.21
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Yosniel Padron, PE, SE
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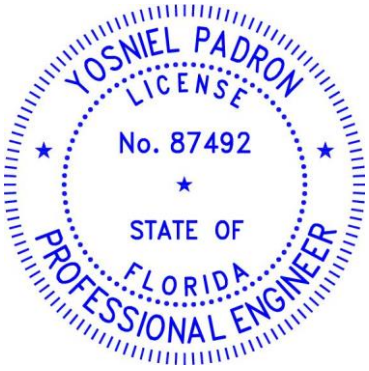

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by Yosniel
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MecaWind v2406

Software Developer: Meca Enterprises Inc., www.meca.biz, Copyright © 2020

Calculations Prepared by:	Calculations Prepared For:
ATRIUM Consulting Engineers	Client: 98 Court Residence
Date: Feb 16, 2023	Project #: 23-007
Designer: Yosniel Padron	

File Location:
E:\STRUCTURE\Working Progress\23-007_Residence Renovation_Rafael\CALC\
23-007_98 Court Residence_V00.wnd

Basic Wind Parameters

Wind Load Standard	= ASCE 7-16	Exposure Category	= C
Wind Design Speed	= 175.0 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
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	= Hipped	W :	Width Perp to Ridge	= 45.000 ft
L :	Length Along Ridge	= 54.000 ft	EHt :	Eave Height	= 9.500 ft
Hip :	Ridge Hipped Length	= 9.000 ft	RE :	Roof Entry Method	= Slope
Slope :	Slope of Roof	= 5.0 :12	O_Ht :	Override Mean Height (0 for default)	= 13.500 ft
Theta :	Roof Slope	= 22.62 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	= 2.000 ft

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

h	= Mean Roof Height above grade	= 13.500 ft
Kh	= Z < 15 ft [4.572 m]--> (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 per Table 26.6-1	= 0.85
Zg	= Elevation above Sea Level	= 0.000 ft
Ke	= Ground Elevation Factor: Ke = e^-(0.0000362*Zg) {Table 26.9-1}	= 1.000
GCPi	= Ref Table 26.13-1 for Enclosed Building	= +/-0.18
RA	= Roof Area	= 2836.17 sq ft
LF	= Load Factor based upon ASD Design	= 0.60
qh	= (0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF	= 33.94 psf
qin	= For Negative Internal Pressure of Enclosed Building use qh*LF	= 33.94 psf
qip	= For Positive Internal Pressure of Enclosed Building use qh*LF	= 33.94 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	= 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	= 54.000 ft
Q	= (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5	= 0.914
G2	= 0.925*((1+0.7*Izm*3.4*Q)/(1+0.7*3.4*Izm))	= 0.880
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	= 13.500 ft
RHt	= Ridge Height Of Roof	= 18.875 ft
B	= Horizontal Dimension Of Building Normal To Wind Direction	= 54.000 ft
L	= Horizontal Dimension Of building Parallel To Wind Direction	= 45.000 ft
L/B	= Ratio Of L/B used For Cp determination	= 0.833
h/L	= Ratio Of h/L used For Cp determination	= 0.300
Slope	= Slope of Roof	= 22.62 Deg
OH_Bot_-Y	= Overhang Bottom Surface (Windward Only)	= 0.8, 0.8
OH_Top_+Y	= Overhang Top +Y (Leeward)	= -0.6, -0.6
OH_Top_-Y	= Overhang Top Windward Edge	= 0.223, -0.268
OH_X	= Overhang Top +/-X Coeff (0 to h/2) (0.000 ft to 2.000 ft)	= -0.18, -0.9
OH_X	= Overhang Top +/-X Coeff (0 to h/2) (2.000 ft to 6.750 ft)	= -0.18, -0.9

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OH_X      = Overhang Top +/-X Coeff (h/2 to h) (6.750 ft to 13.500 ft)      = -0.18, -0.9
OH_X      = Overhang Top +/-X Coeff (h to 2h) (13.500 ft to 24.500 ft)      = -0.18, -0.5
OH_X      = Overhang Top +/-X Coeff (h to 2h) (24.500 ft to 27.000 ft)      = -0.18, -0.5
OH_X      = Overhang Top +/-X Coeff (>2h) (>27.000 ft)                      = -0.18, -0.3
OH_X      = Overhang Top +/-X Coeff (>2h) (>47.000 ft)                      = -0.18, -0.3
Roof_LW   = Roof (Leeward)                                                  = -0.6, -0.6
Roof_WW   = Roof (Windward)                                                 = 0.223, -0.268
Roof_X    = Roof +/-X Coeff (0 to h/2) (2.000 ft to 6.750 ft)               = -0.18, -0.9
Roof_X    = Roof +/-X Coeff (h/2 to h) (6.750 ft to 13.500 ft)              = -0.18, -0.9
Roof_X    = Roof +/-X Coeff (h to 2h) (13.500 ft to 27.000 ft)              = -0.18, -0.5
Roof_X    = Roof +/-X Coeff (>2h) (>27.000 ft)                              = -0.18, -0.3

Cp_WW     = Windward Wall Coefficient (All L/B Values)                      = 0.80
Cp_LW     = Leward 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
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Gust Factor Calculation: Normal 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                                  = 54.000 ft
Q         = (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5                    = 0.914
G2        = 0.925*((1+0.7*Izm*3.4*Q)/(1+0.7*3.4*Izm))                       = 0.880
Gust Factor Used in Analysis
G         = Lessor Of G1 Or G2                                              = 0.850
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Wall Wind Pressures based On Positive Internal Pressure (+GCPi) - Normal to Ridge
All wind pressures include a load factor of 0.6

Elev ft	Kz	Kzt	qz psf	GCPi	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf
9.50	0.849	1.000	33.94	0.18	16.97	-20.53	-26.30	37.51	9.60

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

Elev ft	Kz	Kzt	qz psf	GCPi	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf
9.50	0.849	1.000	33.94	-0.18	29.19	-8.32	-14.09	37.51	9.60

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Notes Wall Pressures:
Kz       = Velocity Press Exp Coeff        Kzt      = Topographical Factor
qz       = 0.00256*Kz*Kzt*Kd*V^2           GCPi     = Internal Press Coefficient
Side     = qh * G * Cp_SW - qip * +GCPi    Windward = qz * G * Cp_WW - qip * +GCPi
Leeward  = qh * G * Cp_LW - qip * +GCPi    Total    = Windward Press - Leeward Press
* 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
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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 ft	End Dist ft	Cp_min	Cp_max	GCPi	Pressure Pn_min* psf	Pressure Pp_min* psf	Pressure Pn_max psf	Pressure Pp_max psf
OH_Bot_-Y	N/A	N/A	0.800	0.800	0.000	23.08	23.08	23.08	23.08
OH_Bot_-Y	N/A	N/A	0.800	0.800	0.000	23.08	23.08	23.08	23.08
OH_Top_+Y	N/A	N/A	-0.600	-0.600	0.000	-17.31	-17.31	-17.31	-17.31
OH_Top_+Y	N/A	N/A	-0.600	-0.600	0.000	-17.31	-17.31	-17.31	-17.31
OH_Top_-Y	N/A	N/A	0.223	-0.268	0.000	6.43	6.43	-7.72	-7.72
OH_Top_-Y	N/A	N/A	0.223	-0.268	0.000	6.43	6.43	-7.72	-7.72
OH_X (+X)	0.000	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (-X)	0.000	2.000	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (+X)	2.000	6.750	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (-X)	2.000	6.750	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (+X)	6.750	13.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (-X)	6.750	13.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
OH_X (+X)	13.500	24.500	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
OH_X (-X)	13.500	24.500	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
OH_X (+X)	24.500	27.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
OH_X (-X)	24.500	27.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
OH_X (+X)	27.000	47.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_X (-X)	27.000	47.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_X (+X)	47.000	49.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_X (-X)	47.000	49.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
Roof_LW	N/A	N/A	-0.600	-0.600	0.180	-11.20	-23.42	-11.20	-23.42
Roof_WW	N/A	N/A	0.223	-0.268	0.180	12.54	0.32	-1.61	-13.83
Roof_X (+X)	2.000	6.750	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof_X (-X)	2.000	6.750	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07

Roof_X (+X)	6.750	13.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof_X (-X)	6.750	13.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof_X (+X)	13.500	27.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Roof_X (-X)	13.500	27.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Roof_X (+X)	27.000	47.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
Roof_X (-X)	27.000	47.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76

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 = qh*G*Cp_max - qip*(+GCPi) Pn_max = qh*G*Cp_max - qin*(-GCpi)
Pp_min* = qh*G*Cp_min - qip*(+GCPi) Pn_min* = qh*G*Cp_min - qin*(-GCPi)
OH = Overhang X = Dir along Ridge Y = Dir Perpendcular 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	= 13.500 ft
RHt	= Ridge Height Of Roof	= 18.875 ft
B	= Horizontal Dimension Of Building Normal To Wind Direction	= 45.000 ft
L	= Horizontal Dimension Of building Parallel To Wind Direction	= 54.000 ft
L/B	= Ratio Of L/B used For Cp determination	= 1.200
h/L	= Ratio Of h/L used For Cp determination	= 0.250
Slope	= Slope of Roof	= 22.62 Deg
Hip_End	= Hipped End Coeff (0 to h/2) (2.000 ft to 6.750 ft)	= -0.18, -0.9
Hip_End	= Hipped End Coeff (h/2 to h) (6.750 ft to 13.500 ft)	= -0.18, -0.9
Hip_End	= Hipped End Coeff (h to 2h) (13.500 ft to 24.500 ft)	= -0.18, -0.5
Hip_End	= Hipped End Coeff (>2h) (>33.500 ft)	= -0.18, -0.3
OH_Bot	= Overhang Bottom (Windward Face Only)	= 0.8, 0.8
OH_Top	= Overhang Top Coeff (0 to h/2) (0.000 ft to 2.000 ft)	= -0.18, -0.9
OH_Top	= Overhang Top Coeff (0 to h/2) (2.000 ft to 6.750 ft)	= -0.18, -0.9
OH_Top	= Overhang Top Coeff (h/2 to h) (6.750 ft to 13.500 ft)	= -0.18, -0.9
OH_Top	= Overhang Top Coeff (h to 2h) (13.500 ft to 27.000 ft)	= -0.18, -0.5
OH_Top	= Overhang Top Coeff (>2h) (>27.000 ft)	= -0.18, -0.3
OH_Top	= Overhang Top Coeff (>2h) (>29.000 ft)	= -0.18, -0.3
OH_Top	= Overhang Top Coeff (>2h) (>56.000 ft)	= -0.18, -0.3
Roof	= Roof Coeff (0 to h/2) (2.000 ft to 6.750 ft)	= -0.18, -0.9
Roof	= Roof Coeff (h/2 to h) (6.750 ft to 13.500 ft)	= -0.18, -0.9
Roof	= Roof Coeff (h to 2h) (13.500 ft to 27.000 ft)	= -0.18, -0.5
Roof	= Roof Coeff (>2h) (>27.000 ft)	= -0.18, -0.3
Cp_WW	= Windward Wall Coefficient (All L/B Values)	= 0.80
Cp_LW	= Leward Wall Coefficient using L/B	= -0.46
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

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	= 45.000 ft
Q	= (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5	= 0.921
G2	= 0.925*((1+0.7*Izm*3.4*Q)/(1+0.7*3.4*Izm))	= 0.883
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 ft	Kz	Kzt	qz psf	GCPi	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf
9.50	0.849	1.000	33.94	0.18	16.97	-19.38	-26.30	36.35	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 ft	Kz	Kzt	qz psf	GCPi	Windward Press psf	Leeward Press psf	Side Press psf	Total Press psf	Minimum Pressure* psf
9.50	0.849	1.000	33.94	-0.18	29.19	-7.16	-14.09	36.35	9.60

Notes Wall Pressures:
Kz = Velocity Press Exp Coeff Kzt = Topographical Factor
qz = 0.00256*Kz*Kzt*Kd*V^2 GCPi = Internal Press Coefficient
Side = qh * G * Cp_SW - qip * +GCPi Windward = qz * G * Cp_WW - qip * +GCPi
Leeward = qh * G * Cp_LW - qip * +GCPi Total = Windward Press - Leeward Press
* 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

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 ft	End Dist ft	Cp_min	Cp_max	GCPi	Pressure Pn_min* psf	Pressure Pp_min* psf	Pressure Pn_max psf	Pressure Pp_max psf
Hip_End (-X)	2.000	6.750	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Hip_End (-X)	6.750	13.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Hip_End (-X)	13.500	24.500	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Hip_End (+X)	33.500	56.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
OH_Bot	N/A	N/A	0.800	0.800	0.000	23.08	23.08	23.08	23.08
OH_Bot	N/A	N/A	0.800	0.800	0.000	23.08	23.08	23.08	23.08
OH_Top (-X)	0.000	2.000	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (-X)	0.000	2.000	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (-X)	0.000	2.000	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (-X)	0.000	2.000	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (+Y)	0.000	2.000	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (-Y)	0.000	2.000	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (+Y)	2.000	6.750	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (-Y)	2.000	6.750	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (+Y)	6.750	13.500	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (-Y)	6.750	13.500	-0.180	-0.900	0.000	-5.19	-5.19	-25.97	-25.97
OH_Top (+Y)	13.500	27.000	-0.180	-0.500	0.000	-5.19	-5.19	-14.43	-14.43
OH_Top (-Y)	13.500	27.000	-0.180	-0.500	0.000	-5.19	-5.19	-14.43	-14.43
OH_Top (+Y)	27.000	29.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
OH_Top (-Y)	27.000	29.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
OH_Top (+Y)	29.000	56.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
OH_Top (-Y)	29.000	56.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
OH_Top (+X)	56.000	58.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
OH_Top (+X)	56.000	58.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
OH_Top (+X)	56.000	58.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
OH_Top (+X)	56.000	58.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
OH_Top (+Y)	56.000	58.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
OH_Top (-Y)	56.000	58.000	-0.180	-0.300	0.000	-5.19	-5.19	-8.66	-8.66
Roof (+Y)	2.000	6.750	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof (-Y)	2.000	6.750	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof (+Y)	6.750	13.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof (-Y)	6.750	13.500	-0.180	-0.900	0.180	0.92	-11.30	-19.86	-32.07
Roof (+Y)	13.500	27.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Roof (-Y)	13.500	27.000	-0.180	-0.500	0.180	0.92	-11.30	-8.32	-20.53
Roof (+Y)	27.000	56.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76
Roof (-Y)	27.000	56.000	-0.180	-0.300	0.180	0.92	-11.30	-2.55	-14.76

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 = qh*G*Cp_max - qip*(+GCPi) Pn_max = qh*G*Cp_max - qin*(-GCpi)
Pp_min* = qh*G*Cp_min - qip*(+GCPi) Pn_min* = qh*G*Cp_min - qin*(-GCPi)
OH = Overhang X = Dir along Ridge Y = Dir Perpendcular 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) Zone Summary per Ch 30 Pt 1:

h/W	= Ratio of mean roof height to building width	= 0.300
h/L	= Ratio of mean roof height to building length	= 0.250
h	= Mean Roof Height above grade	= 13.500 ft
Kh	= Z < 15 ft [4.572 m]--> (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 per Table 26.6-1	= 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	= 33.94 psf
LHD	= Least Horizontal Dimension: Min(B, L)	= 45.000 ft
a1	= Min(0.1 * LHD, 0.4 * h)	= 4.500 ft
a	= Max(a1, 0.04 * LHD, 3 ft [0.9 m])	= 4.500 ft
h/B	= Ratio of mean roof height to least hor dim: h / B	= 0.300

Wind Pressure Summary for C&C Zones based Upon Areas Ch 30 Pt 1 (Table 1 of 2)
All wind pressures include a load factor of 0.6

Zone	Figure	A <= 7.00 sq ft psf	A = 10.00 sq ft psf	A = 20.00 sq ft psf	A = 50.00 sq ft psf
1	30.3-2G	29.87 -53.63	29.87 -53.63	25.78 -47.50	20.38 -39.39
1_OH	30.3-2G	9.60 -64.49	9.60 -64.13	9.60 -63.43	9.60 -62.50
2e	30.3-2G	29.87 -73.99	29.87 -73.99	25.78 -66.14	20.38 -55.76
2e_OH	30.3-2G	9.60 -84.85	9.60 -83.05	9.60 -79.54	9.60 -74.90
2r	30.3-2G	29.87 -73.99	29.87 -73.99	25.78 -66.14	20.38 -55.76
2r_OH	30.3-2G	9.60 -84.85	9.60 -83.05	9.60 -79.54	9.60 -74.90
3	30.3-2G	29.87 -73.99	29.87 -73.99	25.78 -66.14	20.38 -55.76
3_OH	30.3-2G	9.60 -105.22	9.60 -99.44	9.60 -88.21	9.60 -73.37
4	30.3-1	40.05 -43.45	40.05 -43.45	38.25 -41.64	35.86 -39.26
5	30.3-1	40.05 -53.63	40.05 -53.63	38.25 -50.02	35.86 -45.25

Wind Pressure Summary for C&C Zones based Upon Areas Ch 30 Pt 1 (Table 2 of 2)

All wind pressures include a load factor of 0.6

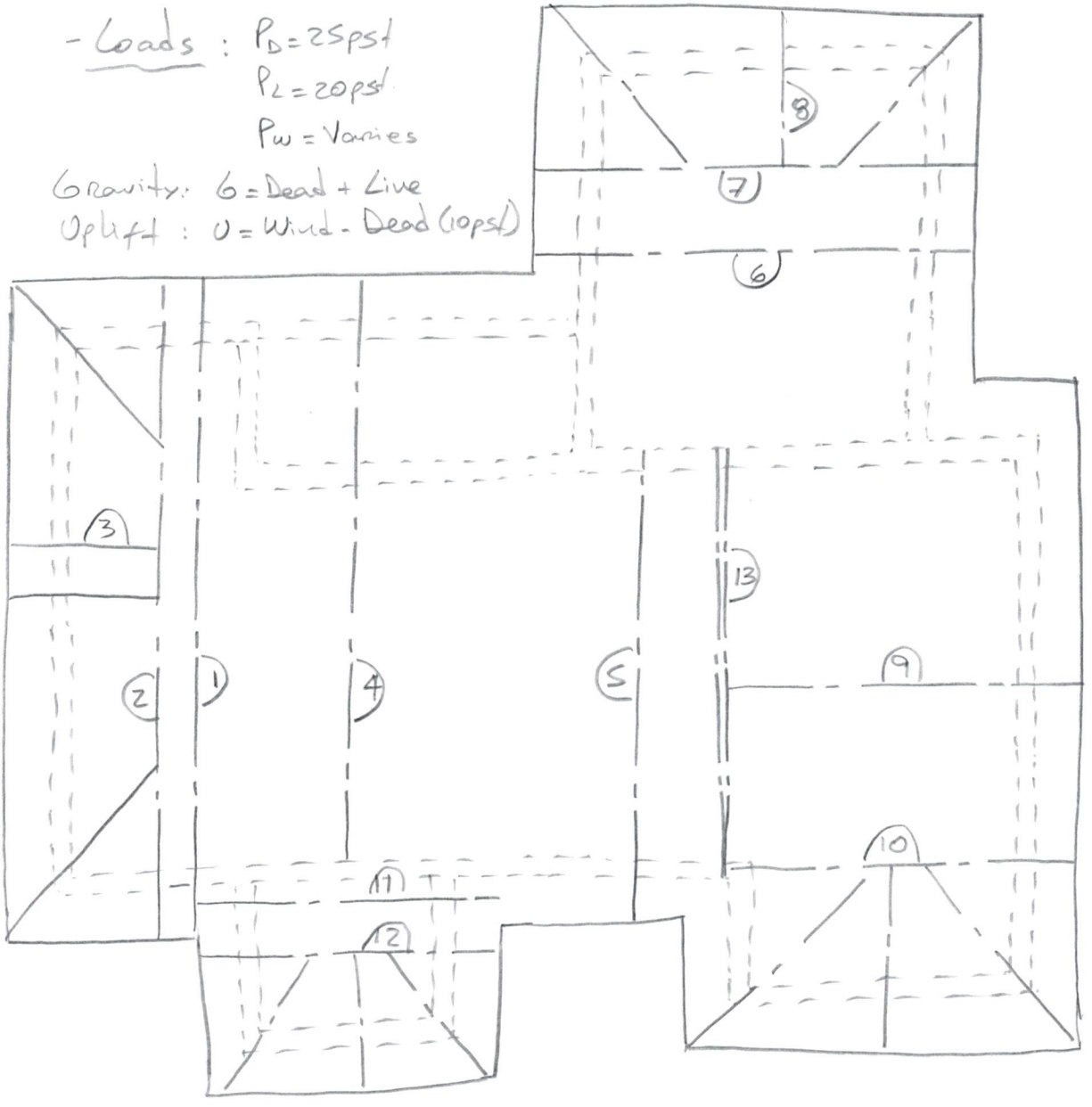
Zone	Figure	A = 100.00 sq ft psf	A = 200.00 sq ft psf	A > 500.00 sq ft psf
1	30.3-2G	16.29 -33.26	16.29 -33.26	16.29 -33.26
1_OH	30.3-2G	9.60 -61.80	9.60 -61.10	9.60 -61.10
2e	30.3-2G	16.29 -47.90	16.29 -40.05	16.29 -40.05
2e_OH	30.3-2G	9.60 -71.39	9.60 -67.88	9.60 -67.88
2r	30.3-2G	16.29 -47.90	16.29 -40.05	16.29 -40.05
2r_OH	30.3-2G	9.60 -71.39	9.60 -67.88	9.60 -67.88
3	30.3-2G	16.29 -47.90	16.29 -40.05	16.29 -40.05
3_OH	30.3-2G	9.60 -62.14	9.60 -50.91	9.60 -50.91
4	30.3-1	34.06 -37.45	32.25 -35.65	29.87 -33.26
5	30.3-1	34.06 -41.64	32.25 -38.03	29.87 -33.26

* A is effective wind area for C&C: Span Length * Effective Width
* Effective width need not be less than 1/3 of the span length
* Maximum and minimum values of pressure shown.
* + Pressures acting toward surface, - Pressures acting away from surface
* _OH represents an Overhang in the zone specified
* Overhang pressures calculated per Para 30.9
* Per Para 30.2.2 the Minimum Pressure for C&C is 9.60 psf [0.460 kPa] {Includes LF}
* Interpolation can be used for values of A that are between those values shown.

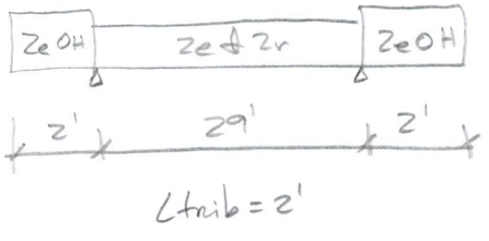
→ Wood Truss Reaction

- Loads : $P_D = 25psf$
  $P_L = 20psf$
  P_W = Varies

Gravity: G = Dead + Live
Uplift : U = Wind - Dead (10psf)



- Wood Truss 1



Effective wind area = $\frac{29.0^2}{3} = 280\ sf$

$A_{eff} \geq 100\ sf$

$P_{W_{ze-OH}} = 71.39\ psf$, $P_{W_{ze=2r}} = 47.90\ psf$

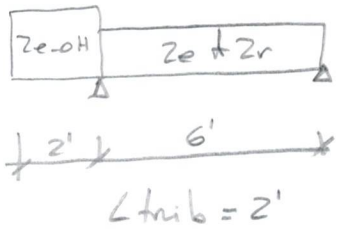
G = 1490# ; U = 1350#

- Wood Truss 2

Idem to truss 1 w/ Ltrib = 4' ; G = 2980#
U = 2700#

- Wood Truss 3

$A_{eff} \geq 15$ psf

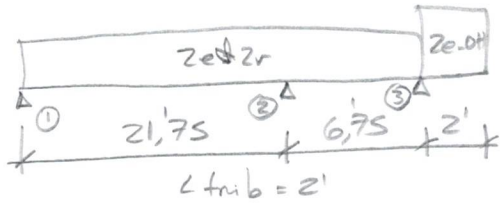


$P_{w\,ze-OH} = 80,0$ psf ; $P_{w\,ze=zr} = 70,0$ psf

$G = 480\#$; $U = 690\#$

- Wood Truss 4

$A_{eff} \geq 100$ sf



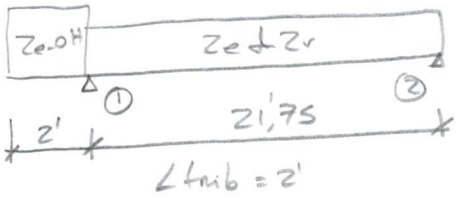
$P_{w\,ze-OH} = 71,39$ psf ; $P_{w\,ze=zr} = 47,9$ psf

$G_1 = 980\#$; $G_2 = 1280\#$; $G_3 = 480\#$

$U_1 = 830\#$ $U_2 = 1080\#$ $U_3 = 500\#$

- Wood Truss 5

$A_{eff} \geq 100$ sf



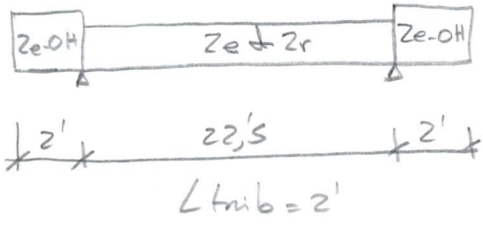
$P_{w\,ze-OH} = 71,39$ psf ; $P_{w\,ze=zr} = 47,9$ psf

$G_1 = 1220\#$; $G_2 = 980\#$

$U_1 = 1160\#$ $U_2 = 830\#$

- Wood Truss 6

$A_{eff} \geq 100$ sf



$P_{w\,ze-OH} = 71,39$ psf ; $P_{w\,ze=zr} = 47,9$ psf

$G = 1200\#$; $U = 1100\#$

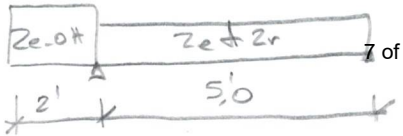
- Wood Truss 7

$G = 2100\#$

Idem to truss 6 w/ Ltrib = 3's ; $U = 1900\#$

- Wood Truss 8'

$A_{eff} \approx 15$ sf

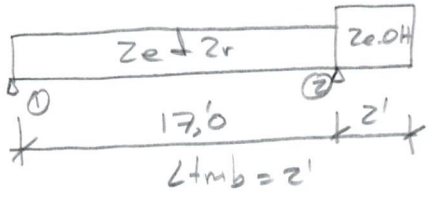


$P_{w\,ze-OH} = 80,0$ psf ; $P_{w\,ze=zr} = 70,0$ psf

$G = 440\#$; $U = 640\#$

- Wood Truss 9

$A_{eff} \approx 100 psf$



$P_{w_{2e.OH}} = 71,39 psf$; $P_{w_{2e=2r}} = 47,9 psf$

$G_1 = 750\#$; $G_2 = 960\#$

$U_1 = 640\#$ $U_2 = 900\#$

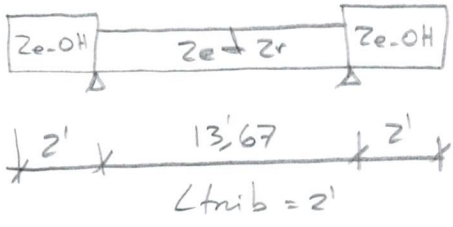
- Wood Truss 10

$G_1 = 1310\#$; $G_2 = 1920\#$

Idem to truss 9 w/ Ltrib = 3's ; $U_1 = 1120\#$ $U_2 = 1800\#$

- Wood Truss 11

$A_{eff} \geq 50 psf$



$P_{w_{2e.OH}} = 74,9 psf$, $P_{w_{2e=2r}} = 55,76 psf$

$G = 800\#$, $U = 890\#$

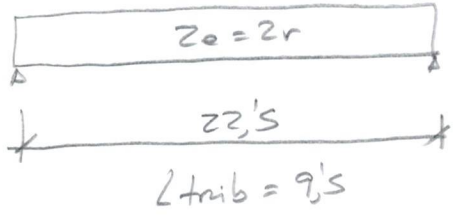
- Wood Truss 12

$G = 1400\#$

Idem to truss 11 w/ Ltrib = 3's $U = 1560\#$

- Wood Truss 13

$A_{eff} \geq 100 psf$

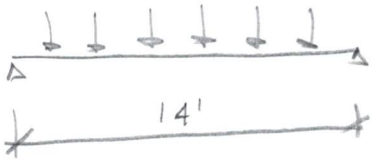


$P_{w_{2e=2r}} = 47,9 psf$

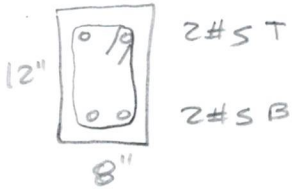
$G = 4810\#$; $U = 4050\#$

→ Structural Elements Design

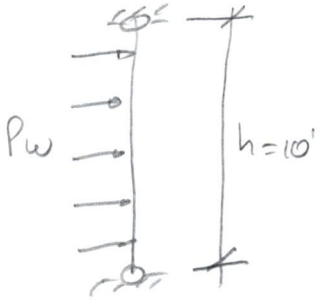
- Concrete Beam (RB-1)



$L_{trib} = 5,5'$; $P_D = 25\ psf$
$P_L = 20\ psf$.



- Masonry Wall (h = 10'0)



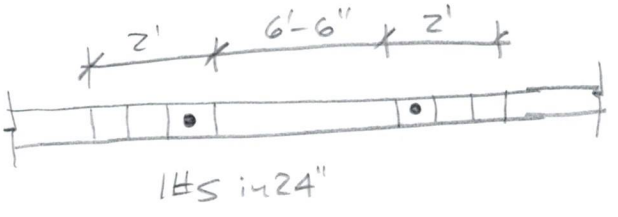
$P_w = 41,64\ psf$ (service)
$= 69,4\ psf$ (ultimate)

#5 @48"

- Masonry Jamb (h = 10'0 ; L = 6'-6")

$$P_{weq} = \frac{69,4 \times (2' + 6,5/2)}{2'}$$

$= 182\ psf$.



- Wall Footing (WF-16)

$q_D = 55\ psf \times 10' = 550\ \#/ft$ (wall)
$q_D = 25\ psf \times 33'/2 = 410\ \#/ft$ (Roof)
$q_L = 20\ psf \times 33'/2 = 330\ \#/ft$ (Roof)

$\Big\}\ q_D = 960\ \#/ft$

Concrete Beam

File = E:\STRUCT~1\WORKIN~1\23-007~1\CALC\23-007~1.EC6
ENERCALC, INC. 1983-2016, Build:6.16.8.31, Ver:6.16.8.31

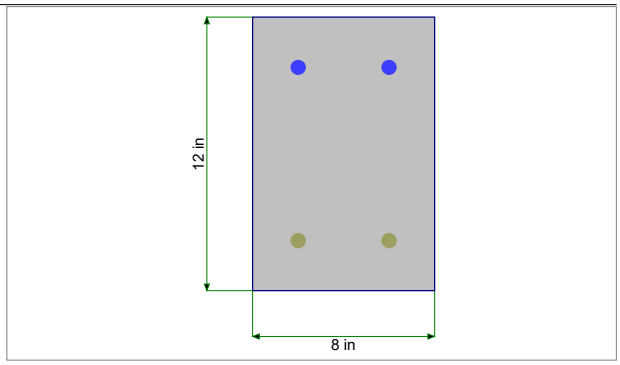
Description : RB-1 (8x12)

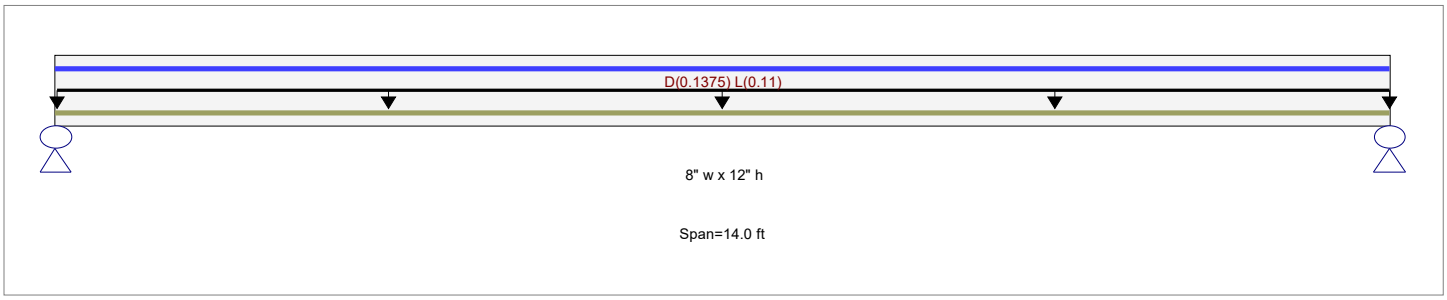
CODE REFERENCES

Calculations per ACI 318-14, IBC 2018, ASCE 7-16
Load Combination Set : IBC 2018

Material Properties

f'c	=	3.0 ksi	ϕ Phi Values	Flexure :	0.90
fr = f'c$^{1/2}$ * 7.50	=	410.792 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.02 ksi	Fy - Stirrups		40.0 ksi
fy - Main Rebar	=	60.0 ksi	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #		3
			Number of Resisting Legs Per Stirrup =		2





Cross Section & Reinforcing Details

Rectangular Section, Width = 8.0 in, Height = 12.0 in
Span #1 Reinforcing....
2-#5 at 2.20 in from Top, from 0.0 to 14.0 ft in this span
2-#5 at 2.20 in from Bottom, from 0.0 to 14.0 ft in this span

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Load for Span Number 1
Uniform Load : D = 0.0250, L = 0.020 ksf, Tributary Width = 5.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	**0.451** : 1	Maximum Deflection			
Section used for this span		**Typical Section**	Max Downward Transient Deflection	0.026 in	Ratio =	6356 >=360
Mu : Applied		11.196 k-ft	Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Mn * Phi : Allowable		24.813 k-ft	Max Downward Total Deflection	0.122 in	Ratio =	1374 >=180
Location of maximum on span		6.987 ft	Max Upward Total Deflection	0.000 in	Ratio =	999 <180
Span # where maximum occurs		Span # 1				

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Overall MAXimum	2.409	2.409
Overall MINimum	0.770	0.770
+D+H	1.639	1.639
+D+L+H	2.409	2.409
+D+Lr+H	1.639	1.639
+D+S+H	1.639	1.639
+D+0.750Lr+0.750L+H	2.217	2.217
+D+0.750L+0.750S+H	2.217	2.217
+D+0.60W+H	1.639	1.639
+D+0.70E+H	1.639	1.639
+D+0.750Lr+0.750L+0.450W+H	2.217	2.217
+D+0.750L+0.750S+0.450W+H	2.217	2.217
+D+0.750L+0.750S+0.5250E+H	2.217	2.217

Concrete Beam

File = E:\STRUCT~1\WORKIN~1\23-007~1\CALC\23-007~1.EC6
ENERCALC, INC. 1983-2016, Build:6.16.8.31, Ver:6.16.8.31

Description : RB-1 (8x12)

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
+0.60D+0.60W+0.60H	0.983	0.983
+0.60D+0.70E+0.60H	0.983	0.983
D Only	1.639	1.639
Lr Only		
L Only	0.770	0.770
S Only		
W Only		
E Only		
H Only		

Shear Stirrup Requirements

Entire Beam Span Length : Vu < PhiVc/2, Req'd Vs = Not Reqd 9.6.3.1, use stirrups spaced at 0.000 in

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L+H	1	0.1222	7.000		0.0000	0.000

Masonry Slender Wall

File = E:\STRUCT~1\WORKIN~1\23-007~1\CALC\23-007~1.EC6
ENERCALC, INC. 1983-2016, Build:6.16.8.31, Ver:6.16.8.31

Description : Masonry Wall (h=10.0')

Code References

Calculations per ACI 530-13, IBC 2018, CBC 2016, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Calculations per ACI 530-13, IBC 2018, CBC 2016, ASCE 7-16

Construction Type : Grouted Hollow Concrete Masonry

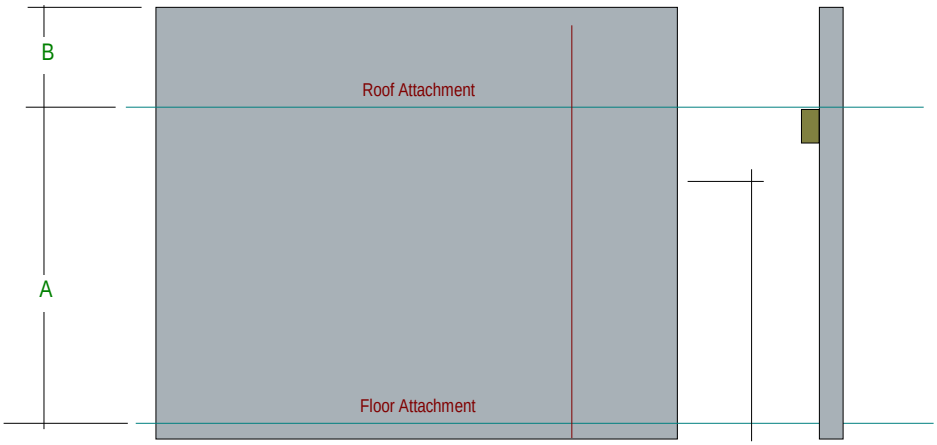
F'm	=	1.50 ksi	Nom. Wall Thickness	8 in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	in	Min Allow Out-of-plane Defl Ratio	=	0
Fr - Rupture	=	125.0 psi	Rebar "d" distance	3.8125 in	Minimum Vertical Steel %	=	0.0020
Em = f'm *	=	900.0	Lower Level Rebar . . .				
Max % of ρ bal.	=	0.1035	Bar Size	# 5			
Grout Density	=	140 pcf	Bar Spacing	48.0 in			
Block Weight		Normal Weight					
Wall Weight	=	55.0 psf					

Wall is grouted at rebar cells only

One-Story Wall Dimensions

A Clear Height = 10.0 ft
B Parapet height = ft

Wall Support Condition Top & Bottom Pinned



Lateral Loads

Wind Loads :
Full area WIND load 69.40 psf

Seismic Loads :
Wall Weight Seismic Load Input Method : Direct entry of Lateral Wall Weight
Seismic Wall Lateral Load psf

Fp 1.0 = 0.0 psf

DESIGN SUMMARY

Results reported for "Strip Width" of 12.0 in

	Governing Load Combination . . .	Actual Values . . .		Allowable Values . . .	
PASS	Moment Capacity Check	Maximum Bending Stress Ratio =	**0.6780**		
	W Only	Max Mu	0.8656 k-ft	Phi * Mn	1.277 k-ft
PASS	Service Deflection Check	Actual Defl. Ratio L/	5,738	Allowable Defl. Ratio	150
	+0.60W	Max. Deflection	0.02091 in		
PASS	Axial Load Check	Max Pu / Ag	0.0 psi	Max. Allow. Defl.	0.80 in
	W Only	Location	5.167 ft	0.2 * f'm	300.0 psi
PASS	Reinforcing Limit Check	Controlling As/bd	0.001694	As/bd @ 0.1035 rho bal	0.1035

Maximum Reactions . . . *for Load Combination....*

Top Horizontal	W Only	0.3470 k
Base Horizontal	W Only	0.3470 k
Vertical Reaction	W Only	0.0 k

Masonry Slender Wall

File = E:\STRUCT~1\WORKIN~1\23-007~1\CALC\23-007~1.EC6
ENERCALC, INC. 1983-2016, Build:6.16.8.31, Ver:6.16.8.31

Description : Masonry Wall (h=10.0')

Design Maximum Combinations - Moments

Results reported for "Strip Width" = 12 in.

Load Combination	Axial Load Pu k	Axial Load 0.2*f'm*b*t k	Moment Values Mcr k-ft	Moment Values Mu k-ft	Moment Values Phi	Moment Values Phi Mn k-ft	As in^2	As Ratio	0.6 * rho bal
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
+0.50W at 5.00 to 5.33	0.000	16.560	0.90	0.43	0.90	1.28	0.078	0.0017	0.1035
-0.50W at 5.00 to 5.33	0.000	16.560	0.90	0.43	0.90	1.28	0.078	0.0017	0.1035
W Only at 5.00 to 5.33	0.000	16.560	0.90	0.87	0.90	1.28	0.078	0.0017	0.1035
-W at 5.00 to 5.33	0.000	16.560	0.90	0.87	0.90	1.28	0.078	0.0017	0.1035
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000

Design Maximum Combinations - Deflections

Results reported for "Strip Width" = 12 in.

Load Combination	Axial Load Pu k	Moment Values Mcr k-ft	Moment Values Mactual k-ft	Stiffness I gross in^4	Stiffness I cracked in^4	Stiffness I effective in^4	Deflections Deflection in	Deflections Defl. Ratio
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+0.60W at 5.00 to 5.33	0.000	0.90	0.52	331.10	17.04	331.100	0.021	5,737.8
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+0.450W at 5.00 to 5.33	0.000	0.90	0.39	331.10	17.04	331.100	0.016	7,650.4
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Reactions - Vertical & Horizontal

Results reported for "Strip Width" = 12 in.

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
	0.0 k	0.00 k	0.000 k
+0.60W	0.2 k	0.21 k	0.000 k
E Only * 0.70	0.0 k	0.00 k	0.000 k
+0.450W	0.2 k	0.16 k	0.000 k
E Only * 0.5250	0.0 k	0.00 k	0.000 k
W Only	0.3 k	0.35 k	0.000 k
E Only	0.0 k	0.00 k	0.000 k

Masonry Slender Wall

File = E:\STRUCT~1\WORKIN~1\23-007~1\CALC\23-007~1.EC6
ENERCALC, INC. 1983-2016, Build:6.16.8.31, Ver:6.16.8.31

Description : Masonry Jamb (h=10.0', L=6'-6")

Code References

Calculations per ACI 530-13, IBC 2018, CBC 2016, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Calculations per ACI 530-13, IBC 2018, CBC 2016, ASCE 7-16

Construction Type : Grouted Hollow Concrete Masonry

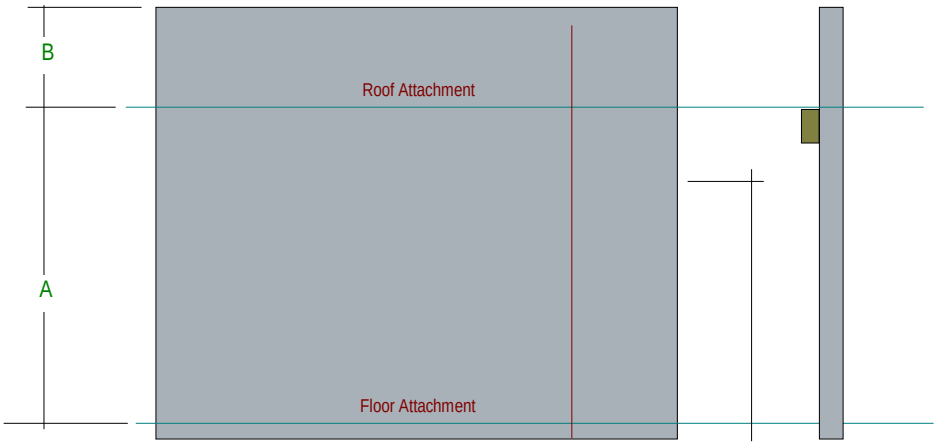
F'm	=	1.50 ksi	Nom. Wall Thickness	8 in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	in	Min Allow Out-of-plane Defl Ratio	=	0
Fr - Rupture	=	125.0 psi	Rebar "d" distance	3.8125 in	Minimum Vertical Steel %	=	0.0020
Em = f'm *	=	900.0	Lower Level Rebar . . .				
Max % of ρ bal.	=	0.1212	Bar Size	# 5			
Grout Density	=	140 pcf	Bar Spacing	24.0 in			
Block Weight		Normal Weight					
Wall Weight	=	61.0 psf					

Wall is grouted at rebar cells only

One-Story Wall Dimensions

A Clear Height = 10.0 ft
B Parapet height = 0.0 ft

Wall Support Condition Top & Bottom Pinned



Lateral Loads

Wind Loads :
Full area WIND load 182.0 psf

Seismic Loads :
Wall Weight Seismic Load Input Method : Direct entry of Lateral Wall Weight
Seismic Wall Lateral Load 0.0 psf

Fp 1.0 = 0.0 psf

DESIGN SUMMARY

Results reported for "Strip Width" of 12.0 in

	Governing Load Combination . . .	Actual Values . . .		Allowable Values . . .	
PASS	Moment Capacity Check	Maximum Bending Stress Ratio =	**0.9276**		
	W Only	Max Mu	2.270 k-ft	Phi * Mn	2.447 k-ft
PASS	Service Deflection Check	Actual Defl. Ratio L/	574	Allowable Defl. Ratio	150
	+0.60W	Max. Deflection	0.2090 in		
PASS	Axial Load Check	Max Pu / Ag	0.0 psi	Max. Allow. Defl.	0.80 in
	W Only	Location	5.167 ft	0.2 * f'm	300.0 psi
PASS	Reinforcing Limit Check				
		Controlling As/bd	0.003388	As/bd @ 0.1212 rho bal	0.1212

Maximum Reactions . . . *for Load Combination....*

Top Horizontal	W Only	0.910 k
Base Horizontal	W Only	0.910 k
Vertical Reaction	W Only	0.0 k

Masonry Slender Wall

File = E:\STRUCT~1\WORKIN~1\23-007~1\CALC\23-007~1.EC6
ENERCALC, INC. 1983-2016, Build:6.16.8.31, Ver:6.16.8.31

Description : Masonry Jamb (h=10.0', L=6'-6")

Design Maximum Combinations - Moments

Results reported for "Strip Width" = 12 in.

Load Combination	Axial Load Pu k	0.2*f'm*b*t k	Moment Values Mcr k-ft	Mu k-ft	Phi	Phi Mn k-ft	As in^2	As Ratio	0.6 * rho bal
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
+0.50W at 5.00 to 5.33	0.000	18.720	0.97	1.13	0.90	2.45	0.155	0.0034	0.1212
-0.50W at 5.00 to 5.33	0.000	18.720	0.97	1.13	0.90	2.45	0.155	0.0034	0.1212
W Only at 5.00 to 5.33	0.000	18.720	0.97	2.27	0.90	2.45	0.155	0.0034	0.1212
-W at 5.00 to 5.33	0.000	18.720	0.97	2.27	0.90	2.45	0.155	0.0034	0.1212
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000

Design Maximum Combinations - Deflections

Results reported for "Strip Width" = 12 in.

Load Combination	Axial Load Pu k	Moment Values Mcr k-ft	Mactual k-ft	Stiffness I gross in^4	I cracked in^4	I effective in^4	Deflections Deflection in	Defl. Ratio
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+0.60W at 5.00 to 5.33	0.000	0.97	1.36	353.60	29.64	33.629	0.209	574.1
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
+0.450W at 5.00 to 5.33	0.000	0.97	1.02	353.60	29.64	56.081	0.050	2,395.9
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Reactions - Vertical & Horizontal

Results reported for "Strip Width" = 12 in.

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
	0.0 k	0.00 k	0.000 k
+0.60W	0.5 k	0.55 k	0.000 k
E Only * 0.70	0.0 k	0.00 k	0.000 k
+0.450W	0.4 k	0.41 k	0.000 k
E Only * 0.5250	0.0 k	0.00 k	0.000 k
W Only	0.9 k	0.91 k	0.000 k
E Only	0.0 k	0.00 k	0.000 k

Wall Footing

File = E:\STRUCT~1\WORKIN~1\23-007~1\CALC\23-007~1.EC6
ENERCALC, INC. 1983-2016, Build:6.16.8.31, Ver:6.16.8.31

Description : WF-16

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2016, ASCE 7-16
Load Combinations Used : IBC 2018

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0 ksi
fy : Rebar Yield	=	60.0 ksi
Ec : Concrete Elastic Modulus	=	3,122.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
AutoCalc Footing Weight as DL	:	Yes

Soil Design Values

Allowable Soil Bearing	=	2.0 ksf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Increases based on footing Depth

Reference Depth below Surface	=	ft
Allow. Pressure Increase per foot of depth	=	ksf
when base footing is below	=	ft

Increases based on footing Width

Allow. Pressure Increase per foot of width	=	ksf
when footing is wider than	=	ft

Adjusted Allowable Bearing Pressure = 2.0 ksf

Dimensions

Footing Width	=	1.330 ft	Footing Thickness	=	12.0 in
Wall Thickness	=	8.0 in	Rebar Centerline to Edge of Concrete...		
Wall center offset from center of footing	=	0 in	at Bottom of footing	=	3.0 in

Reinforcing

Bars along X-X Axis		
Bar spacing	=	9.00
Reinforcing Bar Size	=	# 4

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	0.960		0.330					k
OB : Overburden	=								ksf
V-x	=								k
M-zz	=								k-ft
Vx applied	=			in above top of footing					

Wall Footing

File = E:\STRUCT~1\WORKIN~1\23-007~1\CALC\23-007~1.EC6
ENERCALC, INC. 1983-2016, Build:6.16.8.31, Ver:6.16.8.31

Description : WF-16

DESIGN SUMMARY

Design OK

	Factor of Safety	Item	Applied	Capacity	Governing Load Combination
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift

	Utilization Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5575	Soil Bearing	1.115 ksf	2.0 ksf	+D+L+H
PASS	0.007536	Z Flexure (+X)	0.07903 k-ft	10.486 k-ft	+1.20D+0.50Lr+1.60L+
PASS	0.004091	Z Flexure (-X)	0.04290 k-ft	10.486 k-ft	+0.90D+E+0.90H
PASS	n/a	1-way Shear (+X)	0.0 psi	82.158 psi	n/a
PASS	0.0	1-way Shear (-X)	0.0 psi	0.0 psi	n/a