PAUL J. FORD & COMPANY

STRUCTURAL CALCULATIONS

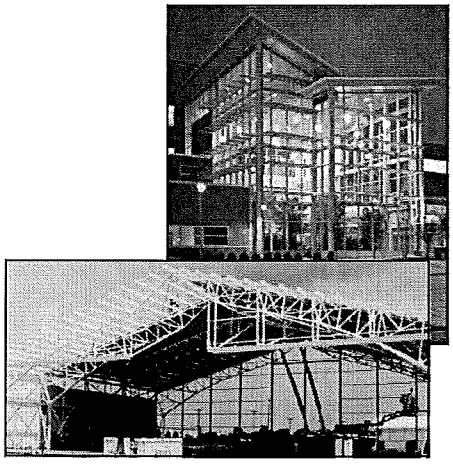
PJF Project Number: A62716-0016

AutoZone
Store No. 3879
1207 Forest Ave.
Portland, Maine 04103

PREPARED FOR:

AutoZone Store Development
123 South Front Street
Memphis, TN 38103

April 21, 2016



Columbus
250 E Broad St, Suite 600
Columbus, OH 43215
Phone 614.221.6679

Founded in 1965

50 Years 1965 - 2015

www.PaulJFord.com

Orlando
3670 Maguire Blvd, Suite 250
Orlando, FL 32803
Phone 407.898.9039

100% Employee Owned

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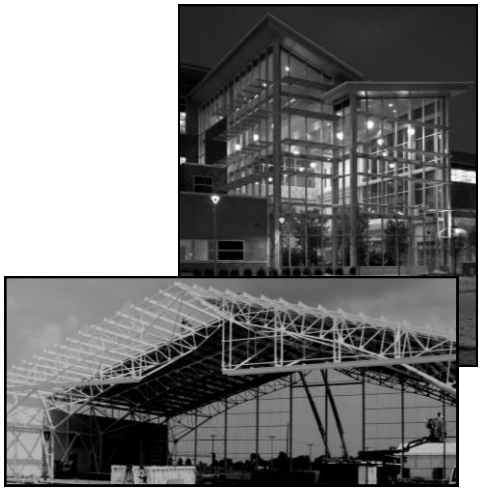

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Page L1
Prototype: Custom

Controlling Code: 2009 International Building Code

Determine Design Loads:

1) Roof Design Dead Load

Single Ply Membrane	1	(psf)
1/4" Board	1	(psf)
4" Rigid Insulation	5	(psf)
1 1/2" Mtl Deck	3	(psf)
Mech / Elec	5	(psf)
Miscellaneous	5	(psf)
Total	20	(psf) + RTU's + Joist Self Weight

RTU Weight = 1,050 lbs (max)

2) Roof Design Live Load

Design Roof Live Load (L_o) = 20 (psf)

Reduced Roof Live Load (L_r) = $L_o R_1 R_2$ = 16.6 (psf) ASCE7-05 Eq. 4-2

R_1 = 0.83 ASCE7-05 Sec. 4.9.1

Joist Length = 64 (ft)

Joist Trib Width = 5.75 (ft)

Trib Area (A_t) = 368 (ft^2)

R_2 = 1 ASCE7-05 Sec. 4.9.1

Rise Across Joist = 24 (in)

Rise-Span Ratio (F) = 0.375 (in/ft)

3) Design Snow Load

Flat Roof Snow Load (p_f) = 0.7 C_e C_t I_s p_g = 42 (psf) ASCE7-05 Eq.7-1

Exposure Factor (C_e) = 1.0 ASCE7-05 Table 7-2

Thermal Factor (C_t) = 1.0 ASCE7-05 Table 7-3

Importance Factor (I_s) = 1.0 ASCE7-05 Table 7-4

Ground Snow Load (p_g) = 60 (psf)

Minimum Snow Load (p_m) = (I_s p_g) or (20 I_s) = 20 (psf) ASCE7-05 Sec 7.3

(not to be used in conjunction with drifting)

*See computer output for drifting loads

4) Design Rain Load

Rain Load (R) = $5.2(d_s + d_h)$ = 10.4 (psf) ASCE7-05 Eq. 8-1

Depth of Water (d_s) = 2 (in) (Punch outs 2" above scuppers)

Additional Depth of Water (d_h) = 0 (in)

*Snow load controls design

5) Design Wind Load

Use Method 1 - Simplified Procedure

Basic Wind Speed (V) = 100 (mph)

Simplified Design Wind Pressure (p_s) = $\lambda K_{zt} I p_{s30}$ = 1 ps_{30} ASCE7-05 Eq. 6-1

Building Height and Exposure Factor (λ) = 1.00 ASCE7-05 Fig. 6-2

Topographic Factor (k_{zt}) = 1.0 ASCE7-05 Sec. 6.5.7.2

Importance Factor (I) = 1.0 ASCE7-05 Tab. 6-1

*See computer output for MWFRS + Components Cladding wind pressures

6) Design Seismic Load

Prototype Max Acceleration Parameters

S_S =	0.318	S_1 =	0.078
S_{DS} =	0.328	S_{D1} =	0.124

Limited to Seismic Design Category "C"

Assume Site Class D

Basic Structural System: Bearing Wall System

Seismic Resisting System: Intermediate Reinforced Masonry Shear Walls

Response Modification Coefficient (R) =	3.5	ASCE7-05 Table 12.2-1
Overstrength Factor (Ω_0) =	2.5	ASCE7-05 Table 12.2-1
Deflection Amplification Factor (C_d) =	2.25	ASCE7-05 Table 12.2-1

Importance Factor (I_e) = 1.00 ASCE7-05 Table 11.5-1

Approx Fundamental Period (T_a) = $C_t h_n^x$ =	0.169	ASCE7-05 Eq.12.8-7
Building Period Coeff. (C_t) =	0.02	ASCE7-05 Table 12.8-2
Structural Height (h_n) =	17.25	
Building Period Coeff. (^{x}) =	0.75	ASCE7-05 Table 12.8-2
Building period Coeff Upper Limit (C_u) =	1.5	ASCE7-05 Table 12.8-1
Building Fundamental Period (T) = $T_a C_u$ =	0.254	ASCE7-05 Sec. 12.8.2

Seismic Response Coeff. (C_s) = S_{DS} / (R / I_e) =	0.094	ASCE7-05 Eq.12.8-2
Seismic Response Coeff. ($C_{s\,max}$) = S_{D1} / [T (R / I_e)] =	0.139	ASCE7-05 Eq.12.8-3
Seismic Response Coeff. ($C_{s\,min}$) = 0.044 S_{DS} I_e =	0.014	ASCE7-05 Eq.12.8-5

Seismic Base Shear (V) = C_s W = 0.094W ASCE7-05 Eq. 12.8-1

ASCE Snow Loads

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : ME3879 Snow Loads

Flat Roof Snow Loads

Description : Flat Roof Snow Load

per ASCE 7-05, Chapter 7

Ground Snow Load, per Fig 7-1	60.00 psf	Roof Slope, Sec .7.3.4	1.78
Terrain Category	C (see ASCE 7-05 Section 6.5.6)	W : Horiz. Distance from eave to ridge	64.00 ft
Exposure of Roof	Partially Exposed	Roof Configuration	Monoslope
Ce : Exposure Factor, Table 7-2	1.00		
Ct : Thermal Factor	1.0 : All not otherwise defined	pf, Minimum required	**20.00** psf
Occupancy, per Table 1-1	II	pf, Calculated Snow Load per Equation 7-1	**42.00** psf
Importance Factor, Table 7-4	1.00	pf, Design Snow Load Max(pf min, pf calc)	**42.00** psf

Snow Drifts on Roof Projections

Description : 19 ft Parapet High Side

per ASCE 7-05, Chapt

Balanced Snow Load	42.00 psf
Ground Snow Load	60.00 psf
lu-upwind	64.00 ft
Height of Projection	1.50 ft
Snow Density	21.80 pcf
hb : Balanced	1.93 ft
hc : Ht. of Projection - hb	0.43 ft
hc / hb	0.22

hc / hb < 0.20 : Drift calculations not needed

Description : 19 ft Parapet Low Side

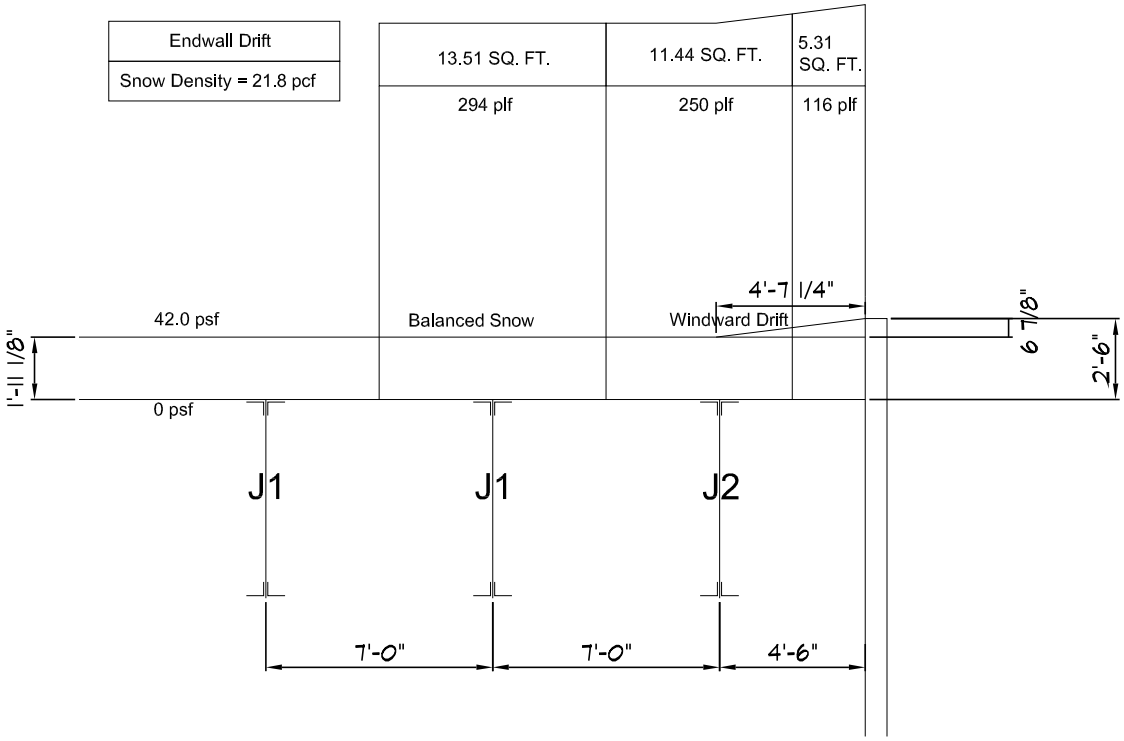
per ASCE 7-05, Chapt

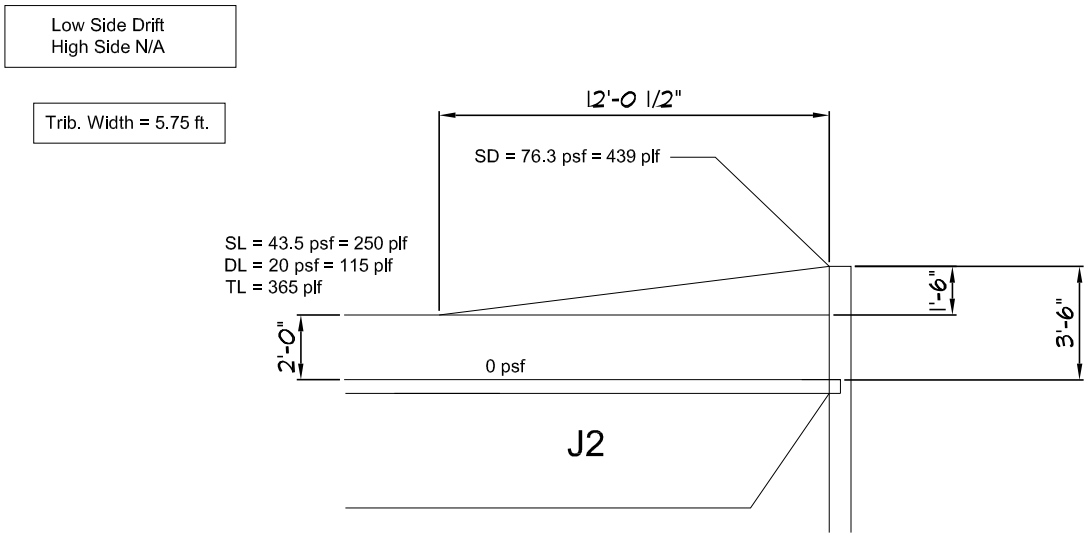
Balanced Snow Load	42.00 psf	hd : windward	2.61 ft
Ground Snow Load	60.00 psf	hd : Design	1.57 ft
lu-upwind	64.00 ft	pd : Max Drift Only	34.30 psf
Height of Projection	3.50 ft	pd + Balanced	76.30 psf
Snow Density	21.80 pcf	W : Drift Width	12.59 ft
hb : Balanced	1.93 ft		
hc : Ht. of Projection - hb	1.57 ft		
hc / hb	0.82		

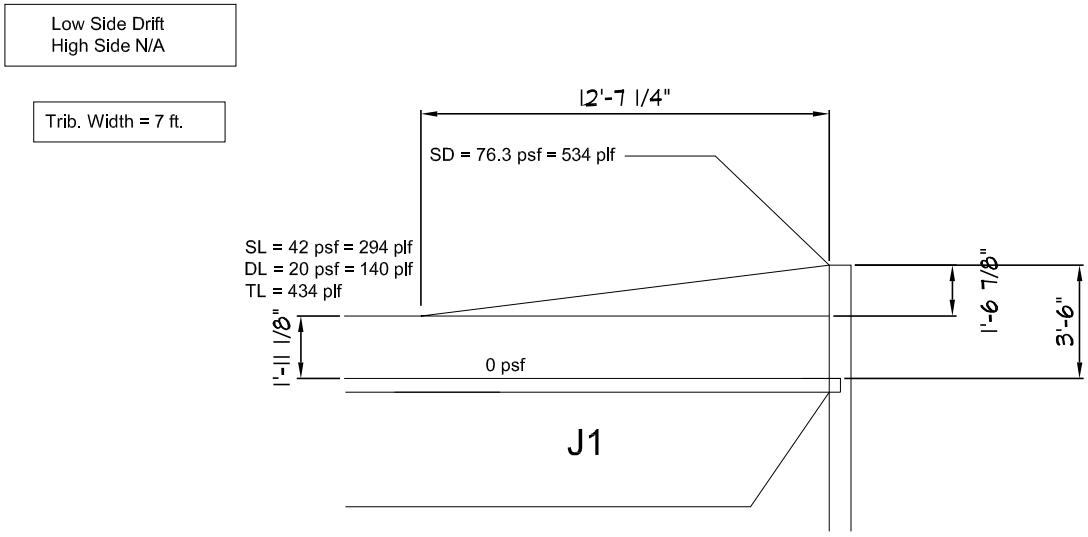
Description : 19 ft Parapet Endwall (Averaged)

per ASCE 7-05, Chapt

Balanced Snow Load	42.00 psf	hd : windward	3.42 ft
Ground Snow Load	60.00 psf	hd : Design	0.57 ft
lu-upwind	115.33 ft	pd : Max Drift Only	12.50 psf
Height of Projection	2.50 ft	pd + Balanced	54.50 psf
Snow Density	21.80 pcf	W : Drift Width	4.59 ft
hb : Balanced	1.93 ft		
hc : Ht. of Projection - hb	0.57 ft		
hc / hb	0.30		


Endwall Drift
Snow Density = 21.8 pcf
13.51 SQ. FT.
11.44 SQ. FT.
5.31 SQ. FT.
294 plf
250 plf
116 plf
4'-7 1/4"
42.0 psf
Balanced Snow
Windward Drift
6 7/8"
2'-6"
1'-11 1/8"
0 psf
J1
J1
J2
7'-0"
7'-0"
4'-6"


Low Side Drift
High Side N/A
Trib. Width = 5.75 ft.
12'-0 1/2"
SD = 76.3 psf = 439 plf
SL = 43.5 psf = 250 plf
DL = 20 psf = 115 plf
TL = 365 plf
1'-6"
3'-6"
2'-0"
0 psf
J2


Low Side Drift
High Side N/A
Trib. Width = 7 ft.
12'-7 1/4"
SD = 76.3 psf = 534 plf
SL = 42 psf = 294 plf
DL = 20 psf = 140 plf
TL = 434 plf
1'-6 7/8"
3'-6"
1'-11 1/8"
0 psf
J1

MecaWind Pro v2.2.7.0 per ASCE 7-05

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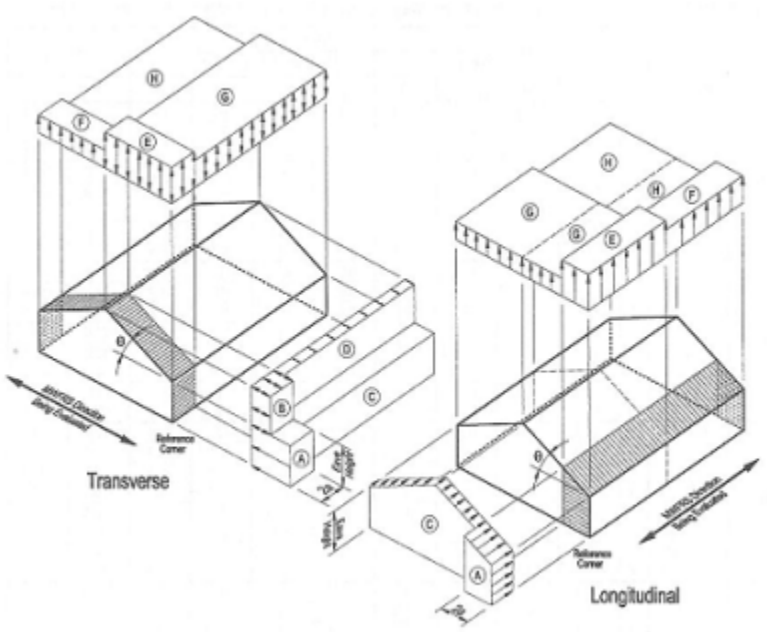
Date	: 4/19/2016	Project No.	:
Company Name	: Paul J Ford and Company	Designed By	:
Address	: 250 E Broad Street, Suite 600	Description	:
City	: Columbus	Customer Name	: AutoZone
State	: Ohio	Proj Location	:

File Location: G:\Architectural\A_Projects\Columbus Projects\627 - AutoZone\0 Prototypes (Do not move)\Calculations\Prototype 7N2-8\7N2-8.wnd

Input Parameters: Simplified Wind Load Design - MWFRS - Method 1 per ASCE 7-05

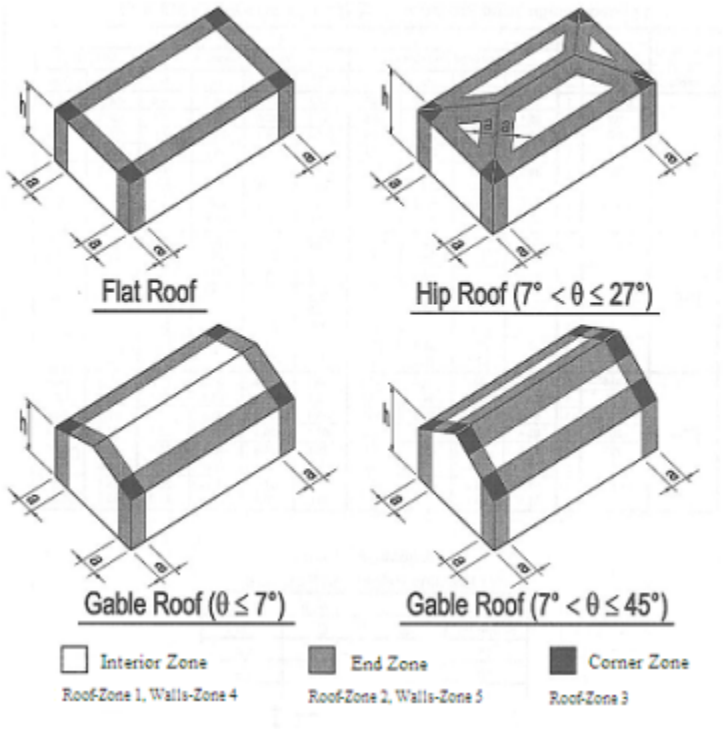
V:	Basic Wind Speed	= 100.00 mph
Cat:	Structural Category(I,II,III, and IV)	= II
Exp:	Exposure Category(B,C, or D)	= C
RHt:	Ridge Height	= 17.58 ft
EHt:	Eave Height	= 15.58 ft
Ht:	Mean Roof Height of Building	= 16.58 ft
Theta:	Roof Angle	= 3.58 Deg
L:	Length of Building(If Gabled, along Ridge)	= 115.33 ft
B:	Width of Building(Perpendicular to Ridge)	= 64.00 ft
Kzt:	Topographic Factor	= 1.00
Lambda:	Adjustment Factor for Building Height and Exposure	= 1.24
I:	Importance Factor	= 1.00
a:	10% of Least Horiz Dim. or .4h, whichever is smaller	= 6.40 ft
2a:	Length over which Zone A acts on Each Corner	= 12.80 ft



Wind Pressure on Main Wind Force Resisting System (MWFRS)

Load Case	A psf	B psf	C psf	D psf	E psf	F psf	G psf	H psf	EOH psf	GOH psf
1.00	19.64	-10.13	12.97	-6.05	-23.59	-13.34	-16.43	-10.38	-32.98	-25.82
2.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

Note (1) ps = Lambda * Kzt * I * ps30
Note (2) Directionality Factor(Kd) is not an input during a Simplified Analysis.



Wind Pressure on Components and Cladding

All pressures shown are based upon ASD Design, with a Load Factor of 1

Description	Width ft	Span ft	Area ft^2	Zone	Max P psf	Min P psf
Zone 1	1.00	1.00	10.0	1	9.02	-22.24
Zone 1	10.00	2.00	20.0	1	8.52	-21.62
Zone 1	10.00	5.00	50.0	1	7.78	-20.88
Zone 1	10.00	10.00	100.0	1	7.16	-20.38
Zone 2	1.00	1.00	10.0	2	9.02	-37.31
Zone 2	10.00	2.00	20.0	2	8.52	-33.35
Zone 2	10.00	5.00	50.0	2	7.78	-28.04
Zone 2	10.00	10.00	100.0	2	7.16	-24.09
Zone 3	1.00	1.00	10.0	3	9.02	-56.08
Zone 3	10.00	2.00	20.0	3	8.52	-46.45
Zone 3	10.00	5.00	50.0	3	7.78	-33.72
Zone 3	10.00	10.00	100.0	3	7.16	-24.09
Zone 4	1.00	1.00	10.0	4	22.24	-24.09
Zone 4	10.00	2.00	20.0	4	21.25	-23.10
Zone 4	10.00	5.00	50.0	4	19.89	-21.74
Zone 4	10.00	10.00	100.0	4	18.90	-20.75
Zone 5	1.00	1.00	10.0	5	22.24	-29.77
Zone 5	10.00	2.00	20.0	5	21.25	-27.79
Zone 5	10.00	5.00	50.0	5	19.89	-25.08
Zone 5	10.00	10.00	100.0	5	18.90	-23.10

Note (1) If Zone = "2H" or "3H" then MaxP will be zero per Figure 6-3.
Note (2) Max P & Min P = pnet30(from Fig.6-3) * Lambda * Importance Factor * Kzt.
Note (3) If Area<10 then Area=10 or Area>100 then Area=100 for Zones 1, 2, 3, 2H & 3H.
Note (4) If Area<10 then Area=10 or Area>500 then Area=500 for Zones 4 & 5.

Parapets Components & Cladding (Para 6.5.12.4.4)

Qp: Pressure at top of Parapet = 19.58 psf

Parapet Case A

Negative Roof Pressures Applied to Back of Parapet

Description	GCp	GCpi	Pressure psf
Solid (GCPi=0) - Roof Edge Zone 2	-1.30	.00	-25.46
Solid (GCPi=0) - Roof Corner Zone 3	-1.80	.00	-35.25

Positive Wall Pressures Applied to front of Parapet per Fig 6-11A

Description	GCp	GCpi	Pressure psf
Solid (GCPi=0) - Walls Zone 4 & 5	0.90	.00	17.62

Case A: Total Force on Parapet - Edge (Wall Zone 4 + Roof Zone 2) = 43.08 psf
Case A: Total Force on Parapet - Corner (Wall Zone 5 + Roof Zone 3) = 52.87 psf

Parapet Case B

Positive Wall Pressures Applied to Back of Parapet per Fig 6-11A

Description	GCp	GCpi	Pressure psf
Solid (GCPi=0) - Walls Zones 4 & 5	0.90	.00	17.62

Negative Wall Pressures Applied to Front of Parapet per Fig 6-11A

Description	GCp	GCpi	Pressure psf
Solid (GCPi=0) - Wall Zone 4	-0.99	.00	-19.39
Solid (GCPi=0) - Wall Zone 5	-1.26	.00	-24.67

Case B: Total Force on Parapet - Edge Zone 4 (Back + Front) = 37.01 psf
Case B: Total Force on Parapet - Corner Zone 5 (Back + Front) = 42.30 psf

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Roof Design

1) Design Loads:

Dead Load =	10	(psf)(minus mech/elec & misc)
Design Roof Live Load (L_o) =	20	(psf)
Reduced Roof Live Load (L_r) =	16.6	(psf)(Joists only)
Flat Roof Snow Load (p_f) =	42	(psf)
Max Drift + Flat Roof Snow Load ($p_d + p_f$) =	76.3	(psf)
Max Drift Width =	12.6	(ft)
Drift Snow Load at 3-ft from wall =	26.13	(psf)
Avg Drift + Flat Snow Load for first 3-ft =	68.13	(psf)
Wind Load (Down) =	9.02	(psf)(Zone 2 = 10 sq. ft.)
Wind Load (Up) =	56.08	(psf)(Zone 3 = 10 sq. ft)

2) Combining Nominal Loads Using Allowable Stress Design: ASCE7-05 Sec. 2.4

1) D =	10	(psf)
3.1) D + L_o =	30	(psf)
3.2) D + Lr =	26.6	(psf)(Joists only)
3.3) D + S =	78.13	(psf)
5) D + W =	19.02	(psf)
6a.1) D + 0.75W + 0.75L_o =	31.77	(psf)
6a.2) D + 0.75W + 0.75L_r =	29.22	(psf)(Joists only)
6a.3) D + 0.75W + 0.75S =	67.87	(psf)
7) 0.6D + W =	50.08	(psf)

3) Metal Deck Design

Joist Spacing =	7	(ft o.c.)
Applied Load =	78.13	(psf)
Use 1.5B20 Metal Deck		
Allowable Load =	82	(psf)
Ratio =	0.953	

4) Roof Joists / Beams

See following pages for roof joist loading / analysis

General Beam Analysis

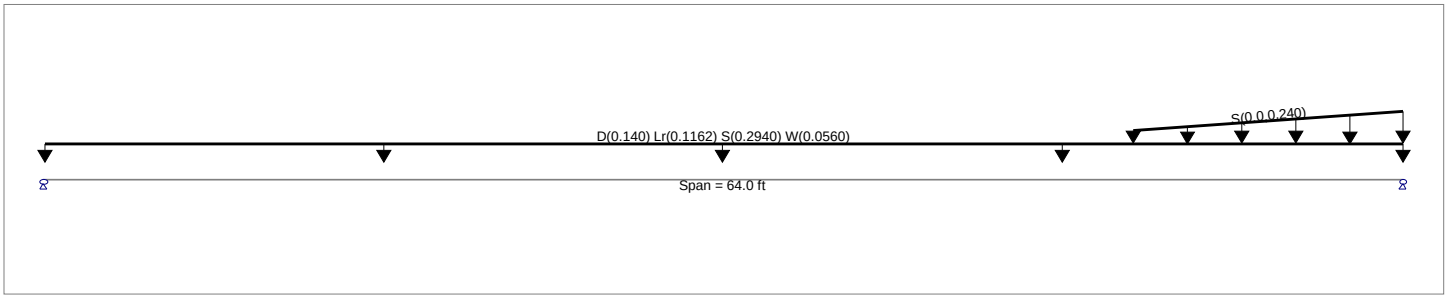
Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : 32LHSP (J1) Parapet El. 19'-0"

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1 Span Length = 64.0 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

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

Loads on all spans...

Uniform Load on ALL spans : D = 0.020, Lr = 0.01660, S = 0.0420, W = 0.0080 k/ft, Tributary Width = 7.0 ft

Varying Uniform Load : S(S,E) = 0.0->0.240 k/ft, Extent = 51.40 -->> 64.0 ft

DESIGN SUMMARY

Maximum Bending =	71.680 k-ft	Maximum Shear =	4.480 k
Load Combination	D Only	Load Combination	D Only
Location of maximum on span	32.000 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.000 in	0
Max Upward Transient Deflection	0.000 in	0
Max Downward Total Deflection	0.000 in	0
Max Upward Total Deflection	0.000 in	0

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	9.507	10.821
Overall MINimum	1.792	1.792
D Only	4.480	4.480
Lr Only	3.718	3.718
S Only	9.507	10.821
W Only	1.792	1.792

General Beam Analysis

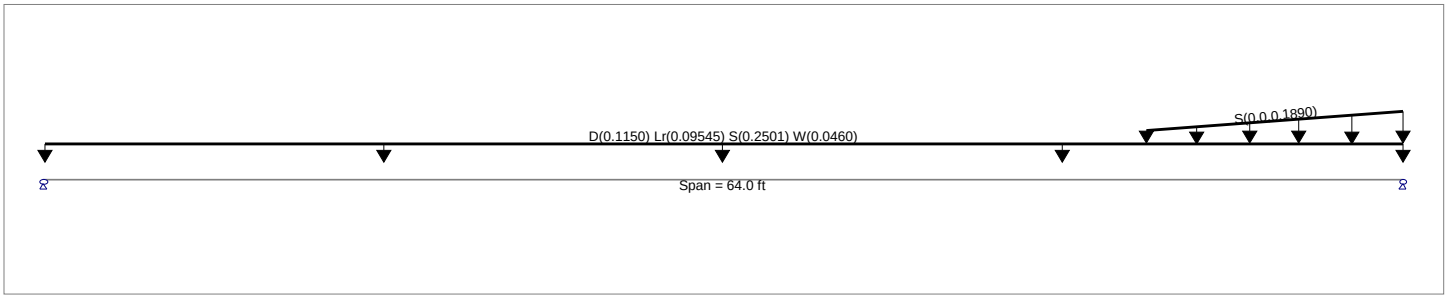
Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : 32LHSP (J2) Parapet El. 19'-0"

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1 Span Length = 64.0 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

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

Loads on all spans...

Uniform Load on ALL spans : D = 0.020, Lr = 0.01660, S = 0.04350, W = 0.0080 k/ft, Tributary Width = 5.750 ft

Varying Uniform Load : S(S,E) = 0.0->0.1890 k/ft, Extent = 51.960 -->> 64.0 ft

DESIGN SUMMARY

Maximum Bending =	58.880 k-ft	Maximum Shear =	3.680 k
Load Combination	D Only	Load Combination	D Only
Location of maximum on span	32.000 ft	Location of maximum on span	64.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.000 in	0
Max Upward Transient Deflection	0.000 in	0
Max Downward Total Deflection	0.000 in	0
Max Upward Total Deflection	0.000 in	0

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	8.075	9.070
Overall MINimum	1.472	1.472
D Only	3.680	3.680
Lr Only	3.054	3.054
S Only	8.075	9.070
W Only	1.472	1.472

Steel Beam

Lic. # : KW-06002508 — **Licensee : PAUL J. FORD & COMPANY**

Description : Canopy Girder @ Bldg (G2)

CODE REFERENCES

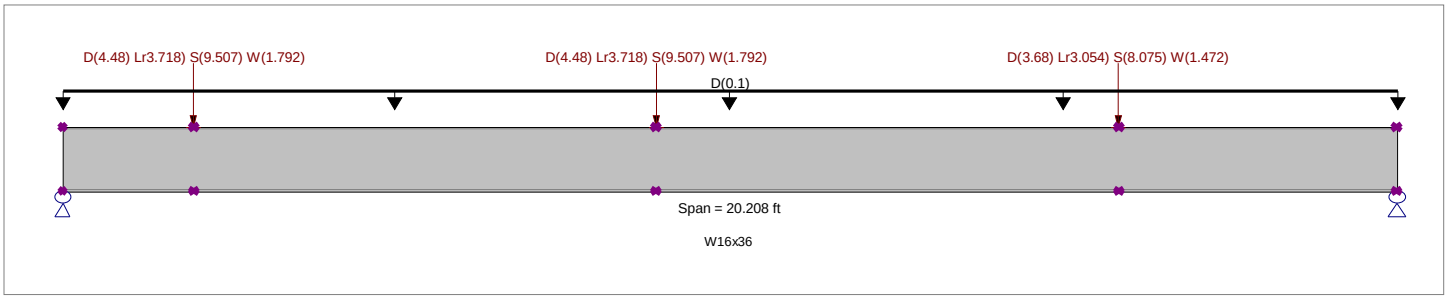
Calculations per AISC 360-05, IBC 2009, CBC 2010, ASCE 7-05
Load Combination Set : IBC 2009

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	50.0 ksi
Beam Bracing :	Beam bracing is defined as a set spacing over all spans	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		

Unbraced Lengths

First Brace starts at 2.0 ft from Left-Most support
Regular spacing of lateral supports on length of beam = 7.0 ft



Applied Loads

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

Beam self weight calculated and added to loading
Load(s) for Span Number 1
Point Load : D = 4.480, Lr = 3.718, S = 9.507, W = 1.792 k @ 2.0 ft, (J1)
Point Load : D = 4.480, Lr = 3.718, S = 9.507, W = 1.792 k @ 9.0 ft, (J1)
Point Load : D = 3.680, Lr = 3.054, S = 8.075, W = 1.472 k @ 16.0 ft, (J2)
Uniform Load : D = 0.10 k/ft, Tributary Width = 1.0 ft, (Soffit)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.715 : 1	Maximum Shear Stress Ratio =	0.258 : 1
Section used for this span	W16x36	Section used for this span	W16x36
Ma : Applied	114.188 k-ft	Va : Applied	24.182 k
Mn / Omega : Allowable	159.681 k-ft	Vn/Omega : Allowable	93.810 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	9.007 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.387 in	Ratio =	625 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.221 in	Ratio =	1100 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
D Only													
Dsgn. L = 1.96 ft	1	0.105	0.092	16.74		16.74	266.67	159.68	1.68	1.00	8.66	140.72	93.81
Dsgn. L = 6.99 ft	1	0.256	0.089	40.94	16.74	40.94	266.67	159.68	1.29	1.00	8.39	140.72	93.81
Dsgn. L = 7.04 ft	1	0.257	0.032	41.08	27.12	41.08	266.67	159.68	1.14	1.00	2.96	140.72	93.81
Dsgn. L = 4.21 ft	1	0.170	0.072	27.12		27.12	266.67	159.68	1.63	1.00	6.73	140.72	93.81
+D+L+H													
Dsgn. L = 1.96 ft	1	0.105	0.092	16.74		16.74	266.67	159.68	1.68	1.00	8.66	140.72	93.81
Dsgn. L = 6.99 ft	1	0.256	0.089	40.94	16.74	40.94	266.67	159.68	1.29	1.00	8.39	140.72	93.81
Dsgn. L = 7.04 ft	1	0.257	0.032	41.08	27.12	41.08	266.67	159.68	1.14	1.00	2.96	140.72	93.81
Dsgn. L = 4.21 ft	1	0.170	0.072	27.12		27.12	266.67	159.68	1.63	1.00	6.73	140.72	93.81
+D+Lr+H													
Dsgn. L = 1.96 ft	1	0.179	0.157	28.61		28.61	266.67	159.68	1.68	1.00	14.71	140.72	93.81
Dsgn. L = 6.99 ft	1	0.434	0.154	69.23	28.61	69.23	266.67	159.68	1.29	1.00	14.44	140.72	93.81
Dsgn. L = 7.04 ft	1	0.435	0.056	69.47	45.82	69.47	266.67	159.68	1.15	1.00	5.29	140.72	93.81
Dsgn. L = 4.21 ft	1	0.287	0.119	45.82		45.82	266.67	159.68	1.64	1.00	11.17	140.72	93.81
+D+S+H													
Dsgn. L = 1.96 ft	1	0.296	0.258	47.21		47.21	266.67	159.68	1.68	1.00	24.18	140.72	93.81
Dsgn. L = 6.99 ft	1	0.712	0.255	113.77	47.21	113.77	266.67	159.68	1.30	1.00	23.92	140.72	93.81

Description : Canopy Girder @ Bldg (G2)

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
Dsgn. L = 7.04 ft	1	0.715	0.096	114.19	75.82	114.19	266.67	159.68	1.15	1.00	8.98	140.72	93.81
Dsgn. L = 4.21 ft	1	0.475	0.195	75.82		75.82	266.67	159.68	1.64	1.00	18.30	140.72	93.81
+D+0.750Lr+0.750L+H													
Dsgn. L = 1.96 ft	1	0.161	0.141	25.65		25.65	266.67	159.68	1.68	1.00	13.20	140.72	93.81
Dsgn. L = 6.99 ft	1	0.389	0.138	62.15	25.65	62.15	266.67	159.68	1.29	1.00	12.93	140.72	93.81
Dsgn. L = 7.04 ft	1	0.391	0.050	62.38	41.14	62.38	266.67	159.68	1.14	1.00	4.71	140.72	93.81
Dsgn. L = 4.21 ft	1	0.258	0.107	41.14		41.14	266.67	159.68	1.64	1.00	10.06	140.72	93.81
+D+0.750L+0.750S+H													
Dsgn. L = 1.96 ft	1	0.248	0.216	39.59		39.59	266.67	159.68	1.68	1.00	20.30	140.72	93.81
Dsgn. L = 6.99 ft	1	0.598	0.214	95.56	39.59	95.56	266.67	159.68	1.30	1.00	20.04	140.72	93.81
Dsgn. L = 7.04 ft	1	0.601	0.080	95.91	63.65	95.91	266.67	159.68	1.15	1.00	7.47	140.72	93.81
Dsgn. L = 4.21 ft	1	0.399	0.164	63.65		63.65	266.67	159.68	1.64	1.00	15.40	140.72	93.81
+D+W+H													
Dsgn. L = 1.96 ft	1	0.141	0.123	22.46		22.46	266.67	159.68	1.68	1.00	11.58	140.72	93.81
Dsgn. L = 6.99 ft	1	0.342	0.121	54.57	22.46	54.57	266.67	159.68	1.29	1.00	11.31	140.72	93.81
Dsgn. L = 7.04 ft	1	0.343	0.044	54.76	36.13	54.76	266.67	159.68	1.14	1.00	4.09	140.72	93.81
Dsgn. L = 4.21 ft	1	0.226	0.095	36.13		36.13	266.67	159.68	1.64	1.00	8.87	140.72	93.81
+D+0.70E+H													
Dsgn. L = 1.96 ft	1	0.105	0.092	16.74		16.74	266.67	159.68	1.68	1.00	8.66	140.72	93.81
Dsgn. L = 6.99 ft	1	0.256	0.089	40.94	16.74	40.94	266.67	159.68	1.29	1.00	8.39	140.72	93.81
Dsgn. L = 7.04 ft	1	0.257	0.032	41.08	27.12	41.08	266.67	159.68	1.14	1.00	2.96	140.72	93.81
Dsgn. L = 4.21 ft	1	0.170	0.072	27.12		27.12	266.67	159.68	1.63	1.00	6.73	140.72	93.81
+D+0.750Lr+0.750L+0.750W+H													
Dsgn. L = 1.96 ft	1	0.187	0.164	29.94		29.94	266.67	159.68	1.68	1.00	15.38	140.72	93.81
Dsgn. L = 6.99 ft	1	0.453	0.161	72.38	29.94	72.38	266.67	159.68	1.29	1.00	15.12	140.72	93.81
Dsgn. L = 7.04 ft	1	0.455	0.059	72.64	47.90	72.64	266.67	159.68	1.15	1.00	5.55	140.72	93.81
Dsgn. L = 4.21 ft	1	0.300	0.124	47.90		47.90	266.67	159.68	1.64	1.00	11.66	140.72	93.81
+D+0.750L+0.750S+0.750W+H													
Dsgn. L = 1.96 ft	1	0.275	0.240	43.88		43.88	266.67	159.68	1.68	1.00	22.49	140.72	93.81
Dsgn. L = 6.99 ft	1	0.662	0.237	105.79	43.88	105.79	266.67	159.68	1.30	1.00	22.22	140.72	93.81
Dsgn. L = 7.04 ft	1	0.665	0.089	106.18	70.41	106.18	266.67	159.68	1.15	1.00	8.32	140.72	93.81
Dsgn. L = 4.21 ft	1	0.441	0.181	70.41		70.41	266.67	159.68	1.64	1.00	17.01	140.72	93.81
+D+0.750Lr+0.750L+0.5250E+H													
Dsgn. L = 1.96 ft	1	0.161	0.141	25.65		25.65	266.67	159.68	1.68	1.00	13.20	140.72	93.81
Dsgn. L = 6.99 ft	1	0.389	0.138	62.15	25.65	62.15	266.67	159.68	1.29	1.00	12.93	140.72	93.81
Dsgn. L = 7.04 ft	1	0.391	0.050	62.38	41.14	62.38	266.67	159.68	1.14	1.00	4.71	140.72	93.81
Dsgn. L = 4.21 ft	1	0.258	0.107	41.14		41.14	266.67	159.68	1.64	1.00	10.06	140.72	93.81
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 1.96 ft	1	0.248	0.216	39.59		39.59	266.67	159.68	1.68	1.00	20.30	140.72	93.81
Dsgn. L = 6.99 ft	1	0.598	0.214	95.56	39.59	95.56	266.67	159.68	1.30	1.00	20.04	140.72	93.81
Dsgn. L = 7.04 ft	1	0.601	0.080	95.91	63.65	95.91	266.67	159.68	1.15	1.00	7.47	140.72	93.81
Dsgn. L = 4.21 ft	1	0.399	0.164	63.65		63.65	266.67	159.68	1.64	1.00	15.40	140.72	93.81
+0.60D+W+H													
Dsgn. L = 1.96 ft	1	0.099	0.086	15.77		15.77	266.67	159.68	1.68	1.00	8.11	140.72	93.81
Dsgn. L = 6.99 ft	1	0.239	0.085	38.20	15.77	38.20	266.67	159.68	1.29	1.00	7.95	140.72	93.81
Dsgn. L = 7.04 ft	1	0.240	0.031	38.33	25.28	38.33	266.67	159.68	1.14	1.00	2.90	140.72	93.81
Dsgn. L = 4.21 ft	1	0.158	0.066	25.28		25.28	266.67	159.68	1.64	1.00	6.18	140.72	93.81
+0.60D+0.70E+H													
Dsgn. L = 1.96 ft	1	0.063	0.055	10.04		10.04	266.67	159.68	1.68	1.00	5.20	140.72	93.81
Dsgn. L = 6.99 ft	1	0.154	0.054	24.56	10.04	24.56	266.67	159.68	1.29	1.00	5.04	140.72	93.81
Dsgn. L = 7.04 ft	1	0.154	0.019	24.65	16.27	24.65	266.67	159.68	1.14	1.00	1.78	140.72	93.81
Dsgn. L = 4.21 ft	1	0.102	0.043	16.27		16.27	266.67	159.68	1.63	1.00	4.04	140.72	93.81

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
S Only	1	0.3879	10.046		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	15.520	11.569
Overall MINimum	2.915	2.141
D Only	8.662	6.726
Lr Only	6.048	4.442
S Only	15.520	11.569
W Only	2.915	2.141

General Beam Analysis

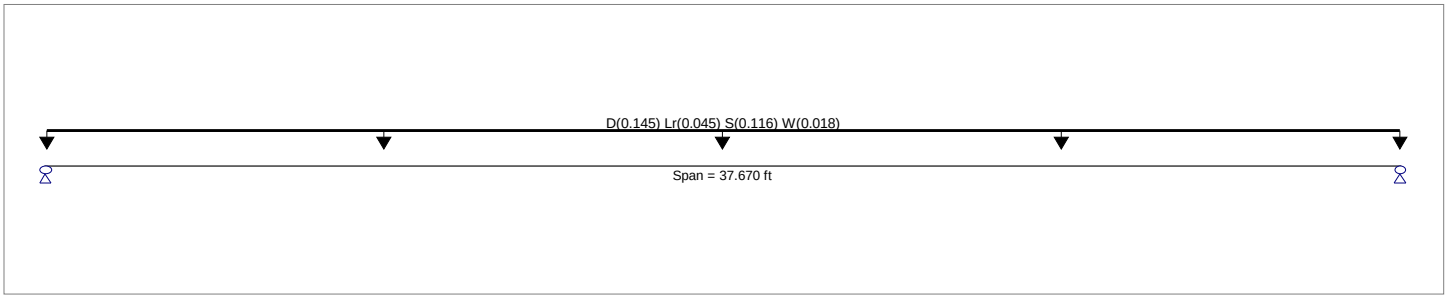
Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : Joist at Storefront (35LHSP)

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1 Span Length = 37.670 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

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

Uniform Load : D = 0.1450, Lr = 0.0450, S = 0.1160, W = 0.0180 k/ft, Tributary Width = 1.0 ft, (Soffit and Roof Tributary Width)

DESIGN SUMMARY

Maximum Bending =	25.720 k-ft	Maximum Shear =	2.731 k
Load Combination	D Only	Load Combination	D Only
Location of maximum on span	18.835 ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.000 in	0
Max Upward Transient Deflection	0.000 in	0
Max Downward Total Deflection	0.000 in	0
Max Upward Total Deflection	0.000 in	0

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	2.731	2.731
Overall MINimum	0.339	0.339
D Only	2.731	2.731
Lr Only	0.848	0.848
S Only	2.185	2.185
W Only	0.339	0.339

Steel Column

Description : Corner Column

Code References

Calculations per AISC 360-05, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

General Information

Steel Section Name :	**HSS5x5x1/4**
Analysis Method :	Allowable Strength
Steel Stress Grade	
Fy : Steel Yield	46.0 ksi
E : Elastic Bending Modulus	29,000.0 ksi

Overall Column Height 17.670 ft
Top & Bottom Fixity Top & Bottom Pinned
Brace condition for deflection (buckling) along columns :
X-X (width) axis :
Unbraced Length for X-X Axis buckling = 17.670 ft, K = 1.0
Y-Y (depth) axis :
Unbraced Length for Y-Y Axis buckling = 17.670 ft, K = 1.0

Applied Loads

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

Column self weight included : 275.362 lbs * Dead Load Factor
AXIAL LOADS . . .
35LHSP: Axial Load at 17.670 ft, D = 2.731, LR = 0.8480, S = 2.185, W = 0.3390 k
Girder: Axial Load at 17.670 ft, Xecc = 3.0 in, Xecc = 6.0 in, D = 6.677, LR = 4.442, S = 11.569, W = 2.141 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.6762** : 1

Load Combination	+D+S+H
Location of max.above base	17.551 ft
At maximum location values are . . .	
Pa : Axial	23.437 k
Pn / Omega : Allowable	52.588 k
Ma-x : Applied	0.0 k-ft
Mn-x / Omega : Allowable	17.468 k-ft
Ma-y : Applied	4.531 k-ft
Mn-y / Omega : Allowable	17.468 k-ft

PASS Maximum Shear Stress Ratio = **0.007793** : 1

Load Combination	+D+S+H
Location of max.above base	0.0 ft
At maximum location values are . . .	
Va : Applied	0.2581 k
Vn / Omega : Allowable	33.124 k

Maximum SERVICE Load Reactions . .

Top along X-X	0.1637 k
Bottom along X-X	0.1637 k
Top along Y-Y	0.0 k
Bottom along Y-Y	0.0 k

Maximum SERVICE Load Deflections . . .

Along Y-Y 0.0 in at 0.0 ft above base
for load combination :

Along X-X 0.2176 in at 10.317 ft above base
for load combination : S Only

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
D Only	0.187	PASS	17.55 ft	0.003	PASS	0.00 ft
+D+L+H	0.187	PASS	17.55 ft	0.003	PASS	0.00 ft
+D+Lr+H	0.425	PASS	17.55 ft	0.005	PASS	0.00 ft
+D+S+H	0.676	PASS	17.55 ft	0.008	PASS	0.00 ft
+D+0.750Lr+0.750L+H	0.386	PASS	17.55 ft	0.004	PASS	0.00 ft
+D+0.750L+0.750S+H	0.574	PASS	17.55 ft	0.007	PASS	0.00 ft
+D+W+H	0.343	PASS	17.55 ft	0.004	PASS	0.00 ft
+1.140D+0.70E+H	0.306	PASS	17.55 ft	0.003	PASS	0.00 ft
+D+0.750Lr+0.750L+0.750W+H	0.442	PASS	17.55 ft	0.005	PASS	0.00 ft
+D+0.750L+0.750S+0.750W+H	0.630	PASS	17.55 ft	0.007	PASS	0.00 ft
+1.105D+0.750Lr+0.750L+0.5250E+H	0.414	PASS	17.55 ft	0.005	PASS	0.00 ft
+1.105D+0.750L+0.750S+0.5250E+H	0.603	PASS	17.55 ft	0.007	PASS	0.00 ft
+0.60D+W+H	0.166	PASS	17.55 ft	0.003	PASS	0.00 ft
+0.460D+0.70E+H	0.086	PASS	17.55 ft	0.001	PASS	0.00 ft

Steel Column

Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : Corner Column

Maximum Reactions

Note: Only non-zero reactions are listed.

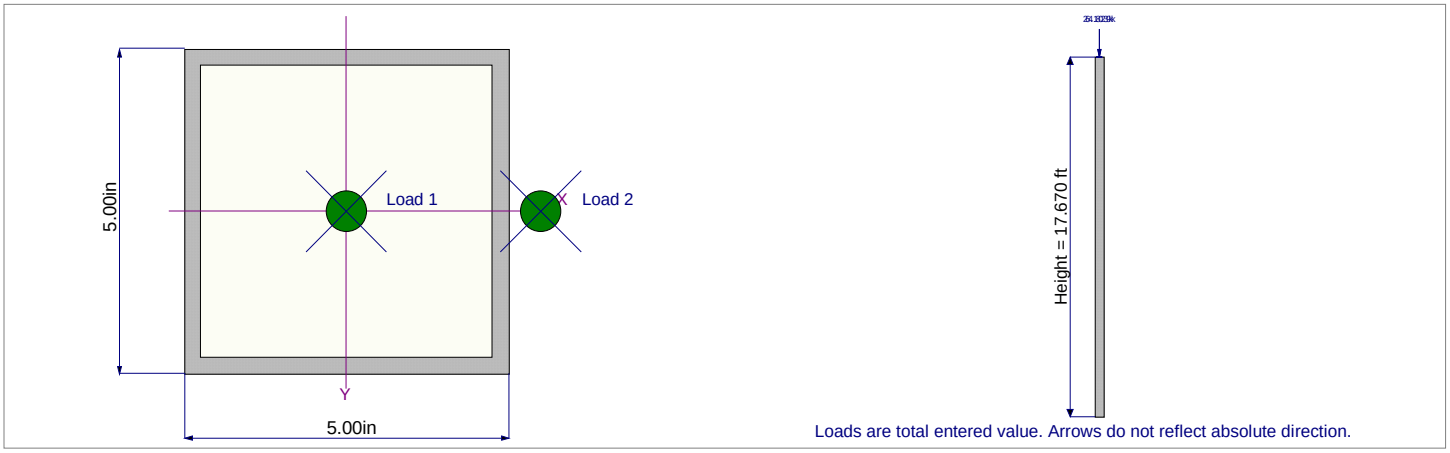
Load Combination	X-X Axis Reaction @ Base	X-X Axis Reaction @ Top	Y-Y Axis Reaction @ Base	Y-Y Axis Reaction @ Top	Axial Reaction @ Base
D Only	-0.094 k	-0.094 k		k	9.683 k
Lr Only	-0.063	-0.063 k		k	5.290 k
S Only	-0.164	-0.164 k		k	13.754 k
W Only	-0.030	-0.030 k		k	2.480 k

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
D Only	0.1256	in	10.317	ft	0.000	in	0.000	ft
Lr Only	0.0836	in	10.317	ft	0.000	in	0.000	ft
L Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
S Only	0.2176	in	10.317	ft	0.000	in	0.000	ft
W Only	0.0403	in	10.317	ft	0.000	in	0.000	ft
E Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
H Only	0.0000	in	0.000	ft	0.000	in	0.000	ft

Steel Section Properties : HSS5x5x1/4

Depth	=	5.000 in	I xx	=	16.00 in^4	J	=	25.800 in^4
			S xx	=	6.41 in^3			
Width	=	5.000 in	R xx	=	1.930 in			
Wall Thick	=	0.250 in	Zx	=	7.610 in^3			
Area	=	4.300 in^2	I yy	=	16.000 in^4	C	=	10.500 in^3
Weight	=	15.584 plf	S yy	=	6.410 in^3			
			R yy	=	1.930 in			
Ycg	=	0.000 in						



Masonry Slender Wall

Lic. # : KW-06002508 — **Licensee : PAUL J. FORD & COMPANY**

Description : Canopy Pilaster

Code References

Calculations per ACI 530-08, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

General Information

Calculations per ACI 530-08, IBC 2009, CBC 2010, ASCE 7-05

Construction Type : Grouted Hollow Concrete Masonry

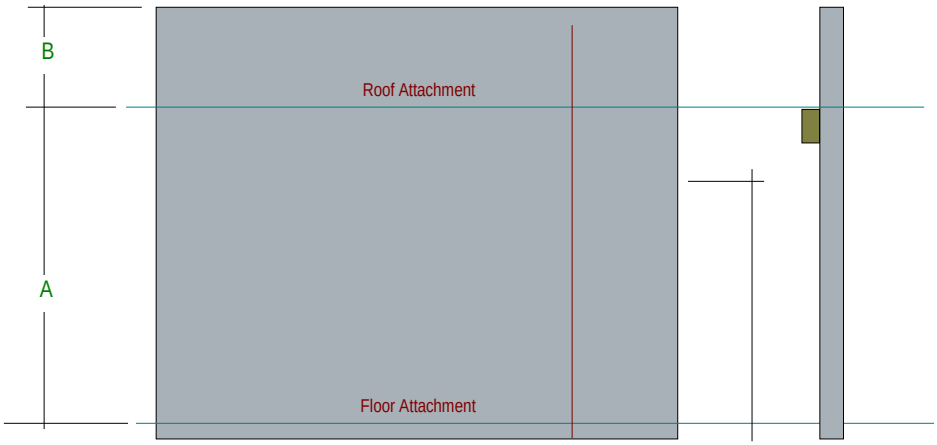
F'm	=	1.50 ksi	Nom. Wall Thickness	8 in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	7.625 in	Min Allow Out-of-plane Defl Ratio	=	0
Fr - Rupture	=	61.0 psi	Rebar "d" distance	2.0 in	Minimum Vertical Steel %	=	0.0020
Em = f'm *	=	900.0	Lower Level Rebar . . .				
Max % of ρ bal.	=	0.007151	Bar Size	# 5			
Grout Density	=	140 pcf	Bar Spacing	8.0 in			
Block Weight		Normal Weight					
Wall Weight	=	84.0 psf					

Wall is Solid Grouted

One-Story Wall Dimensions

A Clear Height = 19.667 ft
B Parapet height = ft

Wall Support Condition Top & Bottom Pinned



Vertical Loads

Vertical Concentrated Loads . . . *(Applied to full "Strip Width")*

			DL : Dead	Lr : Roof Live	Lf : Floor Live	S : Snow	W : Wind
Beam Load #1	Eccentricity	in					
	Dist. from Base	19.667 ft	8.612	6.048		15.520	2.915 k

Lateral Loads

Wind Loads :

Full area WIND load 20.0 psf

Seismic Loads :

Wall Weight Seismic Load Input Method : ASCE seismic factors entered

SDS Value per ASCE 12.11.1 S_{DS} * I = 0.490

Fp = Wall Wt. * 0.1960 = 16.464 psf

Masonry Slender Wall

Lic. # : KW-06002508 — Licensee : PAUL J. FORD & COMPANY

Description : Canopy Pilaster

DESIGN SUMMARY

Results reported for "Strip Width" of 30.0 in

	Governing Load Combination . . .	Actual Values . . .		Allowable Values . . .	
PASS	Moment Capacity Check +1.20D+0.50L+0.50S+1.60W	Maximum Bending Stress Ratio =	**0.1680**		
		Max Mu	4.674 k-ft	Phi * Mn	27.813 k-ft
PASS	Service Deflection Check W Only	Actual Defl. Ratio L/ Max. Deflection	1,206 0.1957 in	Allowable Defl. Ratio	150
PASS	Axial Load Check +1.20D+0.50L+0.50S+1.60W	Max Pu / Ag Location	176.060 psi 9.506 ft	Max. Allow. Defl. 0.2 * f'm	1.573 in 300.0 psi
PASS	Reinforcing Limit Check	Controlling As/bd	0.006889	As/bd@07151 rho bal	0.01132
PASS	Minimum Moment Check +1.40D	Mcracking	1.478 k-ft	Minimum Phi Mn	27.396 k-ft
		Maximum Reactions . . .	*for Load Combination....*		
		Top Horizontal	W Only		0.4919 k
		Base Horizontal	W Only		0.4914 k
		Vertical Reaction	S Only		15.520 k

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
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
+1.20D+1.60Lr+0.80W at 9.18 to 9.83	9.995	27.360	0.59	0.88	0.90	11.11	0.465	0.0069	0.0096
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
+1.20D+1.60S+0.80W at 9.18 to 9.83	16.057	27.360	0.59	0.95	0.90	11.13	0.465	0.0069	0.0111
+1.20D+0.50Lr+0.50L+1.60W at 9.18 to 9.83	8.266	27.360	0.59	1.81	0.90	10.93	0.465	0.0069	0.0092
+1.20D+0.50L+0.50S+1.60W at 9.18 to 9.83	10.161	27.360	0.59	1.87	0.90	11.13	0.465	0.0069	0.0096
+1.20D+0.50L+0.20S+E at 9.18 to 9.83	6.433	27.360	0.59	0.87	0.90	10.72	0.465	0.0069	0.0087
+0.90D+1.60W+1.60H at 9.18 to 9.83	5.759	27.360	0.59	1.73	0.90	10.64	0.465	0.0069	0.0086
+0.90D+E+1.60H at 9.18 to 9.83	3.893	27.360	0.59	0.84	0.90	10.41	0.465	0.0069	0.0081

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
	0.000	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
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
W Only at 9.18 to 9.83	1.166	0.59	0.98	443.30	163.50	170.953	0.196	1,206.0
E Only at 9.83 to 10.49	0.000	0.59	0.79	443.30	159.04	176.891	0.132	1,793.6
	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
D Only	0.0 k	0.00 k	12.742 k
Lr Only	0.0 k	0.00 k	6.048 k
L Only	0.0 k	0.00 k	0.000 k
S Only	0.0 k	0.00 k	15.520 k
W Only	0.5 k	0.49 k	2.915 k
E Only	0.4 k	0.40 k	0.000 k

Masonry Column

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : Masonry Pier Supporting 35LHSP

Code References

Calculations per ACI 530-08, IBC 2009, CBC 2010
Load Combinations Used : IBC 2009

General Information

Material Properties

F'm	=	1,500.0 psi
Fr - Rupture	=	75.0 psi
Em = f'm *	=	900.0
Column Density	=	135.0 pcf
Rebar Grade	=	Grade 60
Fy - Yield	=	60000 psi
Fs - Allowable	=	24,000.0 psi
E - Rebar	=	29,000.0 ksi

Column Data

Column width along X-X	=	15.625 in
Column depth along Y-Y	=	23.625 in
Longitudinal Bar Size	=	# 5.0
Bars per side at +Y & -Y	=	2
Bars per side at +X & -X	=	3
Cover from ties	=	3.50 in
Actual Edge to Bar Center	=	4.1875 in

Analysis Settings

Analysis Method	=	Strength Design
φ factor for Strength Design	=	0.90
End Fixity Condition	=	Top Pinned, Bottom Pinned
Overall Column Height	=	19.667 ft
Construction Type		Solid Grouted Hollow Concrete Masonry
Tie Bar Size	=	# 3
Tie Bar Spacing	=	8.0 in

Brace condition for deflection (buckling) along columns :

X-X (width) axis : Unbraced Length for X-X Axis buckling = 19.667 ft, K = 1.0
Y-Y (depth) axis : Unbraced Length for X-X Axis buckling = 19.667 ft, K = 1.0

Applied Loads

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

Column self weight included : 6,806.15 lbs * Dead Load Factor
AXIAL LOADS . . .
35LHSP: Axial Load at 19.667 ft, Yecc = 1.50 in, D = 2.731, LR = 0.8480, S = 2.185, W = 0.3390 k
BENDING LOADS . . .
Wind Pressure: Lat. Uniform Load creating Mx-x, W = 0.02670 k/ft

DESIGN SUMMARY

Bending Check Results

PASS Maximum Bending Stress Ratio = **0.039** : 1
Load Combination +1.20D+1.60S+0.80W
Location of max.above base 19.535 ft
At maximum location values are . . .
Pu 15.212 k
0.9 * Pn 373.346 k
Mu-x -0.847 k-ft
0.9 * Mn-x : 109.826 k-ft

PASS Reinforcing Area Check *(ACI 530-08, Sec 3.3.4.*
As : Actual Reinforcement 1.860
Min: 0.0025 * An 0.923
Max: 0.04 * An 14.766

Dimensional Checks
Min. Side Dim. >= 8" *(ACI 530-08, Sec 3.4.4.*
PASS Overall Height / Min Dim <= 30 *(ACI 530-08, Sec 3.4.4.*

Maximum SERVICE Load Reactions . .
Top along X-X 0.265 k
Bottom along X-X 0.260 k

Maximum SERVICE Load Deflections . . .
Along x-x 0.004 in at 9.900 ft above base
for load combination : W Only

Compressive Strength 373.440 k *(ACI 530-08, Sec 3.3.4.*
Pa = 0.80 [0.80 f'm (An - Ast) + FyAst) * [1-(h/(140*r))^2]

PASS Check Column Ties *(ACI 530-08, Sec 2.1.6.*
Min. Tie Dia. = 1/4", # 3 bar provided
Max Tie Spacing = 10.00 in, Provided = 8.00 in

Load Combination Results

Load Combination	Maximum Bending Stress Ratios: Stress Ratio	Status	Location	Maximum Axial Load: Actual	Allow	Maximum Moments: Actual	Allow
+1.40D	0.03433	PASS	19.535 ft	13.352 k	373.346 k	0.4747 k-ft	109.826 k-ft
+1.20D+0.50Lr+1.60L+1.60H	0.03052	PASS	19.535 ft	11.869 k	373.346 k	0.4595 k-ft	109.826 k-ft
+1.20D+1.60L+0.50S+1.60H	0.03225	PASS	19.535 ft	12.537 k	373.346 k	0.5425 k-ft	109.826 k-ft
+1.20D+1.60Lr+0.50L	0.03293	PASS	19.535 ft	12.801 k	373.346 k	0.5754 k-ft	109.826 k-ft
+1.20D+1.60Lr+0.80W	0.03365	PASS	8.316 ft	13.073 k	373.346 k	0.7489 k-ft	109.826 k-ft
+1.20D+0.50L+1.60S	0.03845	PASS	19.535 ft	14.941 k	373.346 k	0.8410 k-ft	109.826 k-ft
+1.20D+1.60S+0.80W	0.03915	PASS	19.535 ft	15.212 k	373.346 k	0.8471 k-ft	109.826 k-ft
+1.20D+0.50Lr+0.50L+1.60W	0.03223	PASS	9.240 ft	12.411 k	373.346 k	1.809 k-ft	109.826 k-ft
+1.20D+0.50L+0.50S+1.60W	0.03392	PASS	9.108 ft	13.079 k	373.346 k	1.770 k-ft	109.826 k-ft

Masonry Column

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : Masonry Pier Supporting 35LHSP

Load Combination Results

Load Combination	Maximum Bending Stress Ratios			Maximum Axial Load		Maximum Moments	
	Stress Ratio	Status	Location	Actual	Allow	Actual	Allow
+1.298D+0.50L+0.20S+E	0.03296	PASS	19.535 ft	12.816 k	373.346 k	0.4944 k-ft	109.826 k-ft
+0.90D+1.60W+1.60H	0.02394	PASS	9.372 ft	9.126 k	373.346 k	1.882 k-ft	109.826 k-ft
+0.8020D+E+1.60H	0.01967	PASS	19.535 ft	7.649 k	373.346 k	0.2719 k-ft	109.826 k-ft

Maximum Reactions

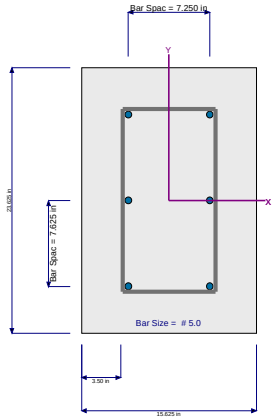
Note: Only non-zero reactions are listed.

Load Combination	Y-Y Axis Reaction		Axial Reaction
	@ Base	@ Top	@ Base
D Only	-0.017 k	0.017 k	9.537 k
Lr Only	-0.005 k	0.005 k	0.848 k
S Only	-0.014 k	0.014 k	2.185 k
W Only	0.260 k	0.265 k	0.339 k

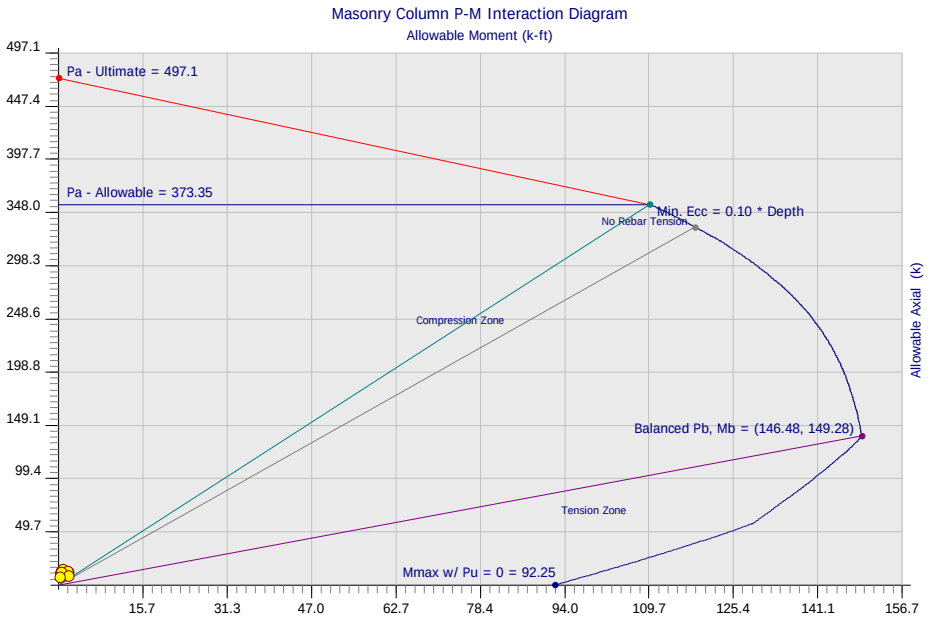
Maximum Deflections for Load Combinations

Load Combination	Max. Y-Y Deflection	Distance
D Only	0.0006 in	11.483 ft
Lr Only	0.0002 in	11.483 ft
L Only	0.0000 in	0.000 ft
S Only	0.0005 in	11.483 ft
W Only	0.0038 in	9.899 ft
E Only	0.0000 in	0.000 ft
H Only	0.0000 in	0.000 ft

Cross Section



Interaction Diagram



Masonry Slender Wall

Lic. # : KW-06002508 — **Licensee : PAUL J. FORD & COMPANY**

Description : Highside CMU - T/Parapet = 19'-0"

Code References

Calculations per ACI 530-08, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

General Information

Calculations per ACI 530-08, IBC 2009, CBC 2010, ASCE 7-05

Construction Type : Grouted Hollow Concrete Masonry

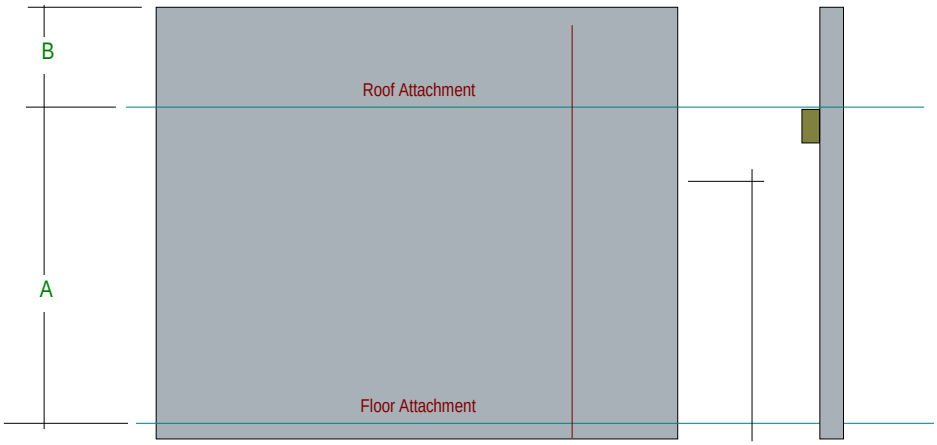
F'm	=	1.50 ksi	Nom. Wall Thickness	8 in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	7.625 in	Min Allow Out-of-plane Defl Ratio	=	0
Fr - Rupture	=	61.0 psi	Rebar "d" distance	3.750 in	Minimum Vertical Steel %	=	0.0020
Em = f'm *	=	900.0	Lower Level Rebar . . .				
Max % of ρ bal.	=	0.1113	Bar Size	# 6			
Grout Density	=	140 pcf	Bar Spacing	32.0 in			
Block Weight		Normal Weight					
Wall Weight	=	58.0 psf					

Wall is grouted at rebar cells only

One-Story Wall Dimensions

A	Clear Height	=	21.0 ft
B	Parapet height	=	2.167 ft

Wall Support Condition : Top & Bottom Pinned



Vertical Loads

Vertical Uniform Loads . . . (Applied per foot of Strip Width)		DL : Dead	Lr : Roof Live	Lf : Floor Live	S : Snow	W : Wind
						k/ft
Ledger Load	Eccentricity 6.750 in					
Concentric Load		0.640	0.5310		1.404	0.2560 k/ft

Lateral Loads

Wind Loads :

Full area WIND load : 23.10 psf

Seismic Loads :

Wall Weight Seismic Load Input Method : ASCE seismic factors entered

SDS Value per ASCE 12.11.1 — $S_{DS} * I$ = 0.490

Fp = Wall Wt. * 0.1960 = 11.368 psf

(Applied to full "STRIP Width")

	D	Lr	L	E	W	Endpoints from Base top	bottom
Distributed Lateral Load					0.02980 k/ft	23.167	21.0 k/ft

Masonry Slender Wall

Lic. # : KW-06002508 — **Licensee : PAUL J. FORD & COMPANY**

Description : Highside CMU - T/Parapet = 19'-0"

DESIGN SUMMARY

Results reported for "Strip Width" of 12.0 in

	Governing Load Combination . . .	Actual Values . . .		Allowable Values . . .	
PASS	Moment Capacity Check +1.20D+0.50L+0.50S+1.60W	Maximum Bending Stress Ratio =	**0.8410**		
		Max Mu	2.762 k-ft	Phi * Mn	3.285 k-ft
PASS	Service Deflection Check W Only	Actual Defl. Ratio L/	156	Allowable Defl. Ratio	150
		Max. Deflection	1.611 in		
PASS	Axial Load Check +1.20D+0.50L+0.50S+1.60W	Max Pu / Ag	70.570 psi	Max. Allow. Defl.	1.680 in
		Location	10.150 ft	0.05 * f'm	75.0 psi
PASS	Reinforcing Limit Check				
		Controlling As/bd	0.003548	As/bd @ 0.1113 rho bal	0.1115
PASS	Minimum Moment Check +1.40D	Mcracking	0.4565 k-ft	Minimum Phi Mn	2.930 k-ft

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

Top Horizontal	W Only	0.3631 k
Base Horizontal	W Only	0.2366 k
Vertical Reaction	D Only	1.984 k

Design Maximum Combinations - Moments

Results reported for "Strip Width" = 12 in.

Load Combination	Axial Load Pu k	0.05*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
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
+1.20D+1.60Lr+0.80W at 9.80 to 10.50	2.753	4.410	0.46	1.27	0.90	3.27	0.165	0.0035	0.1105
+1.20D+1.60Lr-0.80W at 9.80 to 10.50	2.343	4.410	0.46	1.21	0.90	3.18	0.165	0.0035	0.1107
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
+1.20D+1.60S+0.80W at 9.80 to 10.50	4.150	4.410	0.46	1.52	0.90	3.58	0.165	0.0035	0.1100
+1.20D+1.60S-0.80W at 9.80 to 10.50	3.740	4.410	0.46	1.44	0.90	3.49	0.165	0.0035	0.1102
+1.20D+0.50Lr+0.50L+1.60W at 9.80 to 10.5	2.373	4.410	0.46	2.60	0.90	3.19	0.165	0.0035	0.1107
+1.20D+0.50Lr+0.50L-1.60W at 9.80 to 10.5	1.554	4.410	0.46	2.33	0.90	3.00	0.165	0.0035	0.1110
+1.20D+0.50L+0.50S+1.60W at 9.80 to 10.50	2.810	4.410	0.46	2.76	0.90	3.28	0.165	0.0035	0.1105
+1.20D+0.50L+0.50S-1.60W at 9.80 to 10.50	1.991	4.410	0.46	2.47	0.90	3.10	0.165	0.0035	0.1108
+1.298D+0.50L+0.20S+E at 9.80 to 10.50	2.118	4.410	0.46	0.68	0.90	3.13	0.165	0.0035	0.1108
+1.298D+0.50L+0.20S-E at 9.80 to 10.50	2.118	4.410	0.46	0.68	0.90	3.13	0.165	0.0035	0.1108
+0.90D+1.60W+1.60H at 9.80 to 10.50	1.683	4.410	0.46	2.38	0.90	3.03	0.165	0.0035	0.1109
+0.90D-1.60W+1.60H at 9.80 to 10.50	0.864	4.410	0.46	2.14	0.90	2.84	0.165	0.0035	0.1112
+0.8020D+E+1.60H at 9.80 to 10.50	1.135	4.410	0.46	0.65	0.90	2.90	0.165	0.0035	0.1111
+0.8020D-E+1.60H at 9.80 to 10.50	1.135	4.410	0.46	0.65	0.90	2.90	0.165	0.0035	0.1111

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
	0.000	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
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
W Only at 9.80 to 10.50	0.256	0.46	1.24	342.40	32.87	33.244	1.611	156.4
E Only at 9.80 to 10.50	0.000	0.46	0.61	342.40	32.24	37.641	0.341	739.4
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Description : Highside CMU - T/Parapet = 19'-0"

Reactions - Vertical & Horizontal

Results reported for "Strip Width" = 12 in.

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
+0.60D+0.70E+H	0.1 k	0.10 k	1.190 k
D Only	0.0 k	0.00 k	1.984 k
Lr Only	0.0 k	0.00 k	0.531 k
S Only	0.0 k	0.00 k	1.404 k
W Only	0.2 k	0.36 k	0.256 k
E Only	0.1 k	0.15 k	0.000 k

Masonry Slender Wall

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : Lowside CMU - T/Parapet = 19'-0"

Code References

Calculations per ACI 530-08, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

General Information

Calculations per ACI 530-08, IBC 2009, CBC 2010, ASCE 7-05

Construction Type : Grouted Hollow Concrete Masonry

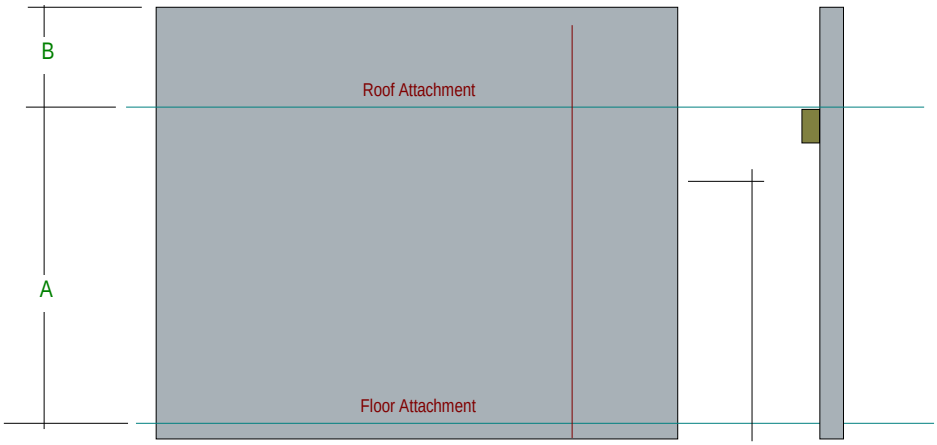
F'm	=	1.50 ksi	Nom. Wall Thickness	8 in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	7.625 in	Min Allow Out-of-plane Defl Ratio	=	0
Fr - Rupture	=	61.0 psi	Rebar "d" distance	3.750 in	Minimum Vertical Steel %	=	0.0020
Em = f'm *	=	900.0	Lower Level Rebar . . .				
Max % of ρ bal.	=	0.1113	Bar Size	# 6			
Grout Density	=	140 pcf	Bar Spacing	32.0 in			
Block Weight		Normal Weight					
Wall Weight	=	58.0 psf					

Wall is grouted at rebar cells only

One-Story Wall Dimensions

A	Clear Height	=	19.0 ft
B	Parapet height	=	4.167 ft

Wall Support Condition: Top & Bottom Pinned



Vertical Loads

Vertical Uniform Loads . . . (Applied per foot of Strip Width)		DL : Dead	Lr : Roof Live	Lf : Floor Live	S : Snow	W : Wind
						k/ft
Ledger Load	Eccentricity 6.750 in					
Concentric Load		0.640	0.5310		1.577	0.2560 k/ft

Lateral Loads

Wind Loads :

Full area WIND load: 23.10 psf

Seismic Loads :

Wall Weight Seismic Load Input Method : ASCE seismic factors entered

SDS Value per ASCE 12.11.1: $S_{DS} * I$ = 0.490

Fp = Wall Wt. * 0.1960 = 11.368 psf

(Applied to full "STRIP Width")

	D	Lr	L	E	W	Endpoints from Base top	bottom
Distributed Lateral Load					0.02980 k/ft	23.170	19.0 k/ft

Masonry Slender Wall

Lic. # : KW-06002508 — Licensee : PAUL J. FORD & COMPANY

Description : Lowside CMU - T/Parapet = 19'-0"

DESIGN SUMMARY

Results reported for "Strip Width" of 12.0 in

	Governing Load Combination . . .	Actual Values . . .		Allowable Values . . .	
PASS	Moment Capacity Check +1.20D+0.50L+0.50S+1.60W	Maximum Bending Stress Ratio =	**0.5095**		
		Max Mu	1.696 k-ft	Phi * Mn	3.328 k-ft
PASS	Service Deflection Check W Only	Actual Defl. Ratio L/	379	Allowable Defl. Ratio	150
		Max. Deflection	0.6018 in		
PASS	Axial Load Check +1.20D+0.50L+0.50S+1.60W	Max Pu / Ag	77.132 psi	Max. Allow. Defl.	1.520 in
		Location	8.550 ft	0.2 * f'm	300.0 psi
PASS	Reinforcing Limit Check	Controlling As/bd	0.003548	As/bd @ 0.1113 rho bal	0.1115
PASS	Minimum Moment Check +1.40D	Mcracking	0.4565 k-ft	Minimum Phi Mn	2.930 k-ft

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

Top Horizontal	W Only	0.4642 k
Base Horizontal	W Only	0.1953 k
Vertical Reaction	D Only	1.984 k

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
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
+1.20D+1.60Lr+0.80W at 8.23 to 8.87	2.862	17.640	0.46	0.75	0.90	3.30	0.165	0.0035	0.1105
+1.20D+1.60Lr-0.80W at 8.23 to 8.87	2.452	17.640	0.46	0.73	0.90	3.20	0.165	0.0035	0.1106
	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.0000	0.0000
+1.20D+1.60S+0.80W at 8.23 to 8.87	4.535	17.640	0.46	0.83	0.90	3.66	0.165	0.0035	0.1099
+1.20D+1.60S-0.80W at 8.23 to 8.87	4.126	17.640	0.46	0.81	0.90	3.57	0.165	0.0035	0.1101
+1.20D+0.50Lr+0.50L+1.60W at 8.23 to 8.87	2.482	17.640	0.46	1.62	0.90	3.21	0.165	0.0035	0.1106
+1.20D+0.50Lr+0.50L-1.60W at 8.23 to 8.87	1.663	17.640	0.46	1.51	0.90	3.03	0.165	0.0035	0.1109
+1.20D+0.50L+0.50S+1.60W at 8.23 to 8.87	3.005	17.640	0.46	1.70	0.90	3.33	0.165	0.0035	0.1105
+1.20D+0.50L+0.50S-1.60W at 8.23 to 8.87	2.186	17.640	0.46	1.58	0.90	3.14	0.165	0.0035	0.1107
+1.298D+0.50L+0.20S+E at 8.87 to 9.50	2.223	17.640	0.46	0.48	0.90	3.15	0.165	0.0035	0.1107
+1.298D+0.50L+0.20S-E at 8.87 to 9.50	2.223	17.640	0.46	0.48	0.90	3.15	0.165	0.0035	0.1107
+0.90D+1.60W+1.60H at 8.23 to 8.87	1.765	17.640	0.46	1.52	0.90	3.05	0.165	0.0035	0.1109
+0.90D-1.60W+1.60H at 8.23 to 8.87	0.946	17.640	0.46	1.42	0.90	2.86	0.165	0.0035	0.1112
+0.8020D+E+1.60H at 8.87 to 9.50	1.178	17.640	0.46	0.47	0.90	2.91	0.165	0.0035	0.1111
+0.8020D-E+1.60H at 8.87 to 9.50	1.178	17.640	0.46	0.47	0.90	2.91	0.165	0.0035	0.1111

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
	0.000	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
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
W Only at 8.87 to 9.50	0.256	0.46	0.83	342.40	32.87	34.418	0.602	378.8
E Only at 8.87 to 9.50	0.000	0.46	0.46	342.40	32.24	91.257	0.067	3,423.1
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Masonry Slender Wall

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : Lowside CMU - T/Parapet = 19'-0"

Reactions - Vertical & Horizontal

Results reported for "Strip Width" = 12 in.

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
+0.60D+0.70E+H	0.1 k	0.11 k	1.190 k
D Only	0.0 k	0.00 k	1.984 k
Lr Only	0.0 k	0.00 k	0.531 k
S Only	0.0 k	0.00 k	1.577 k
W Only	0.2 k	0.46 k	0.256 k
E Only	0.1 k	0.16 k	0.000 k

Masonry Slender Wall

Lic. # : KW-06002508 — **Licensee : PAUL J. FORD & COMPANY**

Description : Endwall CMU - T/Parapet = 19'-0"

Code References

Calculations per ACI 530-08, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

General Information

Calculations per ACI 530-08, IBC 2009, CBC 2010, ASCE 7-05

Construction Type : Grouted Hollow Concrete Masonry

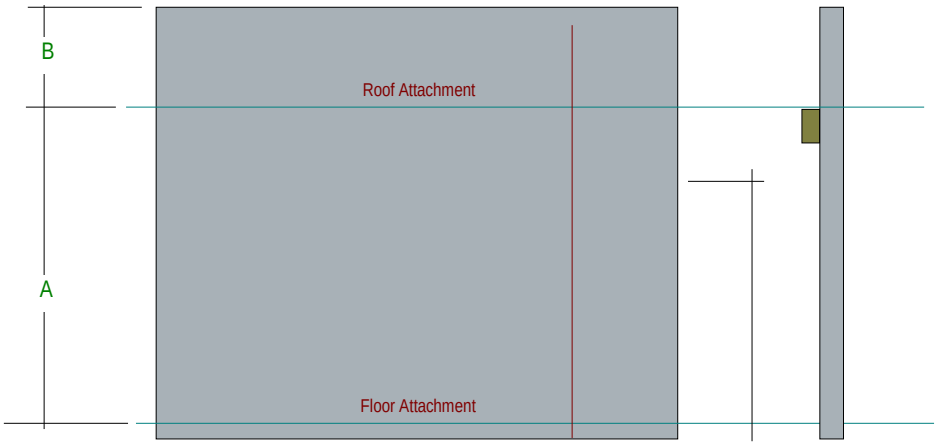
F'm	=	1.50 ksi	Nom. Wall Thickness	8 in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	7.625 in	Min Allow Out-of-plane Defl Ratio	=	0
Fr - Rupture	=	61.0 psi	Rebar "d" distance	3.750 in	Minimum Vertical Steel %	=	0.0020
Em = f'm *	=	900.0	Lower Level Rebar . . .				
Max % of ρ bal.	=	0.1115	Bar Size	# 6			
Grout Density	=	140 pcf	Bar Spacing	32.0 in			
Block Weight		Normal Weight					
Wall Weight	=	58.0 psf					

Wall is grouted at rebar cells only

One-Story Wall Dimensions

A	Clear Height	=	20.0 ft
B	Parapet height	=	3.167 ft

Wall Support Condition: Top & Bottom Pinned



Vertical Loads

Vertical Uniform Loads . . . (Applied per foot of Strip Width)		DL : Dead	Lr : Roof Live	Lf : Floor Live	S : Snow	W : Wind
Ledger Load	Eccentricity 6.750 in	0.0450	0.0370		0.1160	0.020 k/ft
Concentric Load						k/ft

Lateral Loads

Wind Loads :

Full area WIND load: 23.10 psf

Seismic Loads :

Wall Weight Seismic Load Input Method : ASCE seismic factors entered

SDS Value per ASCE 12.11.1: $S_{DS} * I$ = 0.490

Fp = Wall Wt. * 0.1960 = 11.368 psf

(Applied to full "STRIP Width")

	D	Lr	L	E	W	Endpoints from Base top	bottom
Distributed Lateral Load					0.02970 k/ft	23.170	20.0 k/ft

Masonry Slender Wall

Lic. # : KW-06002508 — **Licensee : PAUL J. FORD & COMPANY**

Description : Endwall CMU - T/Parapet = 19'-0"

DESIGN SUMMARY

Results reported for "Strip Width" of 12.0 in

	Governing Load Combination . . .	Actual Values . . .		Allowable Values . . .	
PASS	Moment Capacity Check +1.20D+0.50L+0.50S+1.60W	Maximum Bending Stress Ratio =	**0.6480**		
		Max Mu	1.877 k-ft	Phi * Mn	2.897 k-ft
PASS	Service Deflection Check W Only	Actual Defl. Ratio L/	224	Allowable Defl. Ratio	150
		Max. Deflection	1.074 in		
PASS	Axial Load Check +1.20D+0.50L+0.50S+1.60W	Max Pu / Ag	20.721 psi	Max. Allow. Defl.	1.60 in
		Location	9.667 ft	0.2 * f'm	300.0 psi
PASS	Reinforcing Limit Check				
		Controlling As/bd	0.003548	As/bd @ 0.1115 rho bal	0.1115
PASS	Minimum Moment Check +1.40D	Mcracking	0.4565 k-ft	Minimum Phi Mn	2.930 k-ft

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

Top Horizontal	W Only	0.4110 k
Base Horizontal	W Only	0.2183 k
Vertical Reaction	D Only	1.389 k

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
+1.40D at 19.33 to 20.00	0.374	17.640	0.46	0.04	0.90	2.73	0.165	0.0035	0.1114
+1.20D+0.50Lr+1.60L+1.60H at 19.33 to 20.	0.339	17.640	0.46	0.04	0.90	2.72	0.165	0.0035	0.1114
+1.20D+1.60L+0.50S+1.60H at 19.33 to 20.0	0.379	17.640	0.46	0.06	0.90	2.73	0.165	0.0035	0.1114
+1.20D+1.60Lr+0.50L at 19.33 to 20.00	0.380	17.640	0.46	0.06	0.90	2.73	0.165	0.0035	0.1114
+1.20D+1.60Lr+0.80W at 9.33 to 10.00	1.092	17.640	0.46	0.92	0.90	2.89	0.165	0.0035	0.1111
+1.20D+1.60Lr-0.80W at 8.67 to 9.33	1.106	17.640	0.46	0.85	0.90	2.90	0.165	0.0035	0.1111
+1.20D+0.50L+1.60S at 19.33 to 20.00	0.506	17.640	0.46	0.13	0.90	2.76	0.165	0.0035	0.1113
+1.20D+1.60S+0.80W at 9.33 to 10.00	1.218	17.640	0.46	0.97	0.90	2.92	0.165	0.0035	0.1111
+1.20D+1.60S-0.80W at 8.67 to 9.33	1.233	17.640	0.46	0.82	0.90	2.93	0.165	0.0035	0.1111
+1.20D+0.50Lr+0.50L+1.60W at 9.33 to 10.0	1.067	17.640	0.46	1.86	0.90	2.89	0.165	0.0035	0.1111
+1.20D+0.50Lr+0.50L-1.60W at 8.67 to 9.33	1.050	17.640	0.46	1.80	0.90	2.88	0.165	0.0035	0.1112
+1.20D+0.50L+0.50S+1.60W at 9.33 to 10.00	1.107	17.640	0.46	1.88	0.90	2.90	0.165	0.0035	0.1111
+1.20D+0.50L+0.50S-1.60W at 8.67 to 9.33	1.089	17.640	0.46	1.80	0.90	2.89	0.165	0.0035	0.1111
+1.298D+0.50L+0.20S+E at 9.33 to 10.00	1.123	17.640	0.46	0.58	0.90	2.90	0.165	0.0035	0.1111
+1.298D+0.50L+0.20S-E at 9.33 to 10.00	1.123	17.640	0.46	0.53	0.90	2.90	0.165	0.0035	0.1111
+0.90D+1.60W+1.60H at 9.33 to 10.00	0.795	17.640	0.46	1.80	0.90	2.82	0.165	0.0035	0.1112
+0.90D-1.60W+1.60H at 8.67 to 9.33	0.765	17.640	0.46	1.76	0.90	2.82	0.165	0.0035	0.1113
+0.8020D+E+1.60H at 9.33 to 10.00	0.680	17.640	0.46	0.56	0.90	2.80	0.165	0.0035	0.1113
+0.8020D-E+1.60H at 9.33 to 10.00	0.680	17.640	0.46	0.54	0.90	2.80	0.165	0.0035	0.1113

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
D Only at 11.33 to 12.00	0.731	0.46	0.01	342.40	34.02	342.400	0.002	98,091.8
Lr Only at 11.33 to 12.00	0.037	0.46	0.01	342.40	32.33	342.400	0.002	120330.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
S Only at 11.33 to 12.00	0.116	0.46	0.04	342.40	32.52	342.400	0.006	38,343.5
W Only at 9.33 to 10.00	0.020	0.46	1.03	342.40	32.29	32.989	1.074	223.5
E Only at 9.33 to 10.00	0.000	0.46	0.54	342.40	32.24	43.046	0.177	1,352.4
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Masonry Slender Wall

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : Endwall CMU - T/Parapet = 19'-0"

Reactions - Vertical & Horizontal

Results reported for "Strip Width" = 12 in.

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
D Only	0.0 k	0.00 k	1.389 k
Lr Only	0.0 k	0.00 k	0.037 k
S Only	0.0 k	0.00 k	0.116 k
W Only	0.2 k	0.41 k	0.020 k
E Only	0.1 k	0.15 k	0.000 k

Wall Footing

Lic. # : KW-06002508 — **Licensee : PAUL J. FORD & COMPANY**

Description : Highside Wall

Code References

Calculations per ACI 318-08, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

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)	=	pcf
Soil/Concrete Friction Coeff.	=	

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

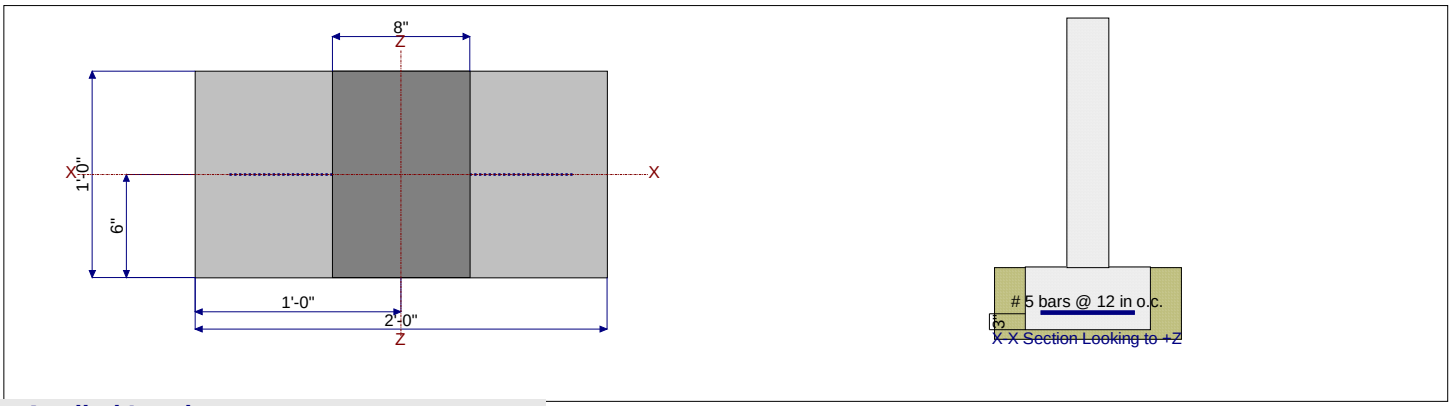
Adjusted Allowable Bearing Pressure = 2.0 ksf

Dimensions

Footing Width	=	2.0 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	=	12.00
Reinforcing Bar Size	=	# 5



Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	1.984	0.5310		1.404	0.2560			k
OB : Overburden	=								ksf
V-x	=								k
M-zz	=								k-ft
Vx applied	=	in above top of footing							

Wall Footing

Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : Highside Wall

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	0.9195	Soil Bearing	1.839 ksf	2.0 ksf	+D+S+H
PASS	0.04745	Z Flexure (+X)	0.5756 k-ft	12.131 k-ft	+1.20D+1.60S+0.80W
PASS	0.01670	Z Flexure (-X)	0.2026 k-ft	12.131 k-ft	+0.8020D+E+1.60H
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

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Actual Soil Bearing Stress -X	Actual Soil Bearing Stress +X	Actual / Allowable Ratio
, D Only	2.0 ksf	0.0 in	1.137 ksf	1.137 ksf	0.569
, +D+L+H	2.0 ksf	0.0 in	1.137 ksf	1.137 ksf	0.569
, +D+Lr+H	2.0 ksf	0.0 in	1.403 ksf	1.403 ksf	0.701
, +D+S+H	2.0 ksf	0.0 in	1.839 ksf	1.839 ksf	0.920
, +D+0.750Lr+0.750L+H	2.0 ksf	0.0 in	1.336 ksf	1.336 ksf	0.668
, +D+0.750L+0.750S+H	2.0 ksf	0.0 in	1.664 ksf	1.664 ksf	0.832
, +D+W+H	2.0 ksf	0.0 in	1.265 ksf	1.265 ksf	0.633
, +D+0.70E+H	2.0 ksf	0.0 in	1.137 ksf	1.137 ksf	0.569
, +D+0.750Lr+0.750L+0.750W+H	2.0 ksf	0.0 in	1.432 ksf	1.432 ksf	0.716
, +D+0.750L+0.750S+0.750W+H	2.0 ksf	0.0 in	1.760 ksf	1.760 ksf	0.880
, +D+0.750Lr+0.750L+0.5250E+H	2.0 ksf	0.0 in	1.336 ksf	1.336 ksf	0.668
, +D+0.750L+0.750S+0.5250E+H	2.0 ksf	0.0 in	1.664 ksf	1.664 ksf	0.832
, +0.60D+W+H	2.0 ksf	0.0 in	0.8102 ksf	0.8102 ksf	0.405
, +0.60D+0.70E+H	2.0 ksf	0.0 in	0.6822 ksf	0.6822 ksf	0.341

Overturning Stability

Units : k-ft

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Sliding SafetyRatio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
, +1.40D	0.3537	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.40D	0.3537	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50Lr+1.60L+1.60H	0.3327	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50Lr+1.60L+1.60H	0.3327	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60L+0.50S+1.60H	0.3812	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60L+0.50S+1.60H	0.3812	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60Lr+0.50L	0.3976	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60Lr+0.50L	0.3976	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60Lr+0.80W	0.4204	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60Lr+0.80W	0.4204	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50L+1.60S	0.5528	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50L+1.60S	0.5528	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60S+0.80W	0.5756	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60S+0.80W	0.5756	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50Lr+0.50L+1.60W	0.3782	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50Lr+0.50L+1.60W	0.3782	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50L+0.50S+1.60W	0.4267	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK

Description : Highside Wall

, +1.20D+0.50L+0.50S+1.60W	0.4267	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.298D+0.50L+0.20S+E	0.3592	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK

Wall Footing

Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : Highside Wall

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
, +1.298D+0.50L+0.20S+E	0.3592	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +0.90D+1.60W+1.60H	0.2729	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +0.90D+1.60W+1.60H	0.2729	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +0.8020D+E+1.60H	0.2026	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +0.8020D+E+1.60H	0.2026	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK

One Way Shear

Units : k

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+0.50Lr+1.60L+1.60H	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+1.60L+0.50S+1.60H	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+1.60Lr+0.50L	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+1.60Lr+0.80W	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+0.50L+1.60S	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+1.60S+0.80W	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+0.50Lr+0.50L+1.60W	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+0.50L+0.50S+1.60W	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.298D+0.50L+0.20S+E	0 psi	0 psi	0 psi	82.158 psi	0	OK
+0.90D+1.60W+1.60H	0 psi	0 psi	0 psi	82.158 psi	0	OK
+0.8020D+E+1.60H	0 psi	0 psi	0 psi	82.158 psi	0	OK

Wall Footing

Description : Lowside Wall

Code References

Calculations per ACI 318-08, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

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)	=	pcf
Soil/Concrete Friction Coeff.	=	

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

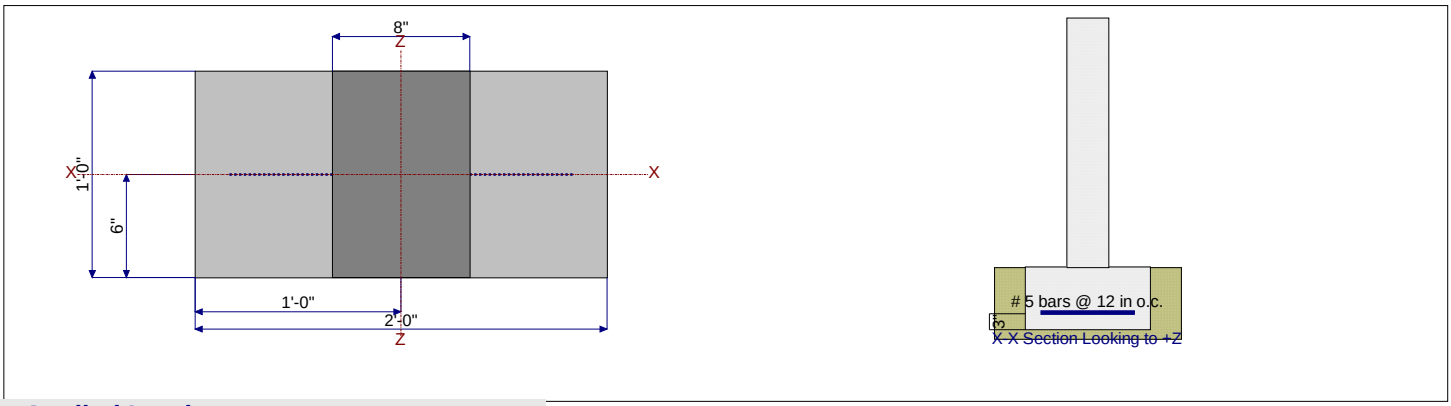
Adjusted Allowable Bearing Pressure = 2.0 ksf

Dimensions

Footing Width	=	2.0 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	=	12.00
Reinforcing Bar Size	=	# 5



Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	1.984	0.5310		1.577	0.2560			k
OB : Overburden	=								ksf
V-x	=								k
M-zz	=								k-ft

Vx applied = in above top of footing

Wall Footing

Lic. # : KW-06002508 — **Licensee : PAUL J. FORD & COMPANY**

Description : Lowside Wall

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	0.9628	Soil Bearing	1.926 ksf	2.0 ksf	+D+S+H
PASS	0.04998	Z Flexure (+X)	0.6063 k-ft	12.131 k-ft	+1.20D+1.60S+0.80W
PASS	0.01670	Z Flexure (-X)	0.2026 k-ft	12.131 k-ft	+0.8020D+E+1.60H
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

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc	Actual Soil Bearing Stress -X	Actual Soil Bearing Stress +X	Actual / Allowable Ratio
, D Only	2.0 ksf	0.0 in	1.137 ksf	1.137 ksf	0.569
, +D+L+H	2.0 ksf	0.0 in	1.137 ksf	1.137 ksf	0.569
, +D+Lr+H	2.0 ksf	0.0 in	1.403 ksf	1.403 ksf	0.701
, +D+S+H	2.0 ksf	0.0 in	1.926 ksf	1.926 ksf	0.963
, +D+0.750Lr+0.750L+H	2.0 ksf	0.0 in	1.336 ksf	1.336 ksf	0.668
, +D+0.750L+0.750S+H	2.0 ksf	0.0 in	1.728 ksf	1.728 ksf	0.864
, +D+W+H	2.0 ksf	0.0 in	1.265 ksf	1.265 ksf	0.633
, +D+0.70E+H	2.0 ksf	0.0 in	1.137 ksf	1.137 ksf	0.569
, +D+0.750Lr+0.750L+0.750W+H	2.0 ksf	0.0 in	1.432 ksf	1.432 ksf	0.716
, +D+0.750L+0.750S+0.750W+H	2.0 ksf	0.0 in	1.824 ksf	1.824 ksf	0.912
, +D+0.750Lr+0.750L+0.5250E+H	2.0 ksf	0.0 in	1.336 ksf	1.336 ksf	0.668
, +D+0.750L+0.750S+0.5250E+H	2.0 ksf	0.0 in	1.728 ksf	1.728 ksf	0.864
, +0.60D+W+H	2.0 ksf	0.0 in	0.8102 ksf	0.8102 ksf	0.405
, +0.60D+0.70E+H	2.0 ksf	0.0 in	0.6822 ksf	0.6822 ksf	0.341

Overturning Stability

Units : k-ft

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Sliding SafetyRatio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
, +1.40D	0.3537	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.40D	0.3537	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50Lr+1.60L+1.60H	0.3327	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50Lr+1.60L+1.60H	0.3327	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60L+0.50S+1.60H	0.3908	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60L+0.50S+1.60H	0.3908	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60Lr+0.50L	0.3976	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60Lr+0.50L	0.3976	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60Lr+0.80W	0.4204	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60Lr+0.80W	0.4204	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50L+1.60S	0.5836	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50L+1.60S	0.5836	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60S+0.80W	0.6063	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+1.60S+0.80W	0.6063	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50Lr+0.50L+1.60W	0.3782	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50Lr+0.50L+1.60W	0.3782	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.20D+0.50L+0.50S+1.60W	0.4363	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK

Description : Lowside Wall

, +1.20D+0.50L+0.50S+1.60W	0.4363	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +1.298D+0.50L+0.20S+E	0.363	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK

Wall Footing

Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : Lowside Wall

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Which Side ?	Tension @ Bot. or Top ?	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
, +1.298D+0.50L+0.20S+E	0.363	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +0.90D+1.60W+1.60H	0.2729	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +0.90D+1.60W+1.60H	0.2729	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +0.8020D+E+1.60H	0.2026	-X	Bottom	0.2592	Min Temp %	0.31	12.131	OK
, +0.8020D+E+1.60H	0.2026	+X	Bottom	0.2592	Min Temp %	0.31	12.131	OK

One Way Shear

Units : k

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+0.50Lr+1.60L+1.60H	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+1.60L+0.50S+1.60H	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+1.60Lr+0.50L	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+1.60Lr+0.80W	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+0.50L+1.60S	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+1.60S+0.80W	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+0.50Lr+0.50L+1.60W	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.20D+0.50L+0.50S+1.60W	0 psi	0 psi	0 psi	82.158 psi	0	OK
+1.298D+0.50L+0.20S+E	0 psi	0 psi	0 psi	82.158 psi	0	OK
+0.90D+1.60W+1.60H	0 psi	0 psi	0 psi	82.158 psi	0	OK
+0.8020D+E+1.60H	0 psi	0 psi	0 psi	82.158 psi	0	OK

General Footing

Description : Corner Column

Code References

Calculations per ACI 318-08, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

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
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

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

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	ksf
when max. length or width is greater than	=	ft

Dimensions

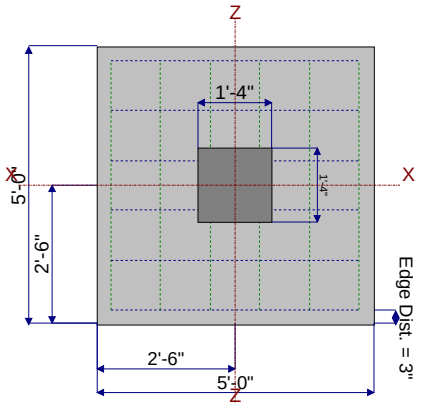
Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	16.0 in
pz : parallel to Z-Z Axis	=	16.0 in
Height	=	1.0 in

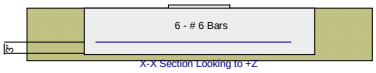
Rebar Centerline to Edge of Concrete...

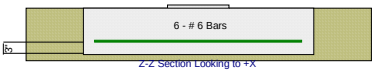
at Bottom of footing	=	3.0 in



Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6
Bars parallel to Z-Z Axis			
Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6





Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	9.683	5.290		13.754	2.480			k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

General Footing

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : Corner Column

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5410	Soil Bearing	1.082 ksf	2.0 ksf	+D+S+H about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.1188	Z Flexure (+X)	2.394 k-ft	20.154 k-ft	+1.20D+1.60S+0.80W
PASS	0.1188	Z Flexure (-X)	2.394 k-ft	20.154 k-ft	+1.20D+1.60S+0.80W
PASS	0.1188	X Flexure (+Z)	2.394 k-ft	20.154 k-ft	+1.20D+1.60S+0.80W
PASS	0.1188	X Flexure (-Z)	2.394 k-ft	20.154 k-ft	+1.20D+1.60S+0.80W
PASS	0.1739	1-way Shear (+X)	14.288 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.1739	1-way Shear (-X)	14.288 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.1739	1-way Shear (+Z)	14.288 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.1739	1-way Shear (-Z)	14.288 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.1956	2-way Punching	32.137 psi	164.317 psi	+1.20D+1.60S+0.80W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.5323	0.5323	n/a	n/a	0.266
X-X, +D+L+H	2.0	n/a	0.0	0.5323	0.5323	n/a	n/a	0.266
X-X, +D+Lr+H	2.0	n/a	0.0	0.7439	0.7439	n/a	n/a	0.372
X-X, +D+S+H	2.0	n/a	0.0	1.082	1.082	n/a	n/a	0.541
X-X, +D+0.750Lr+0.750L+H	2.0	n/a	0.0	0.6910	0.6910	n/a	n/a	0.346
X-X, +D+0.750L+0.750S+H	2.0	n/a	0.0	0.9449	0.9449	n/a	n/a	0.473
X-X, +D+W+H	2.0	n/a	0.0	0.6315	0.6315	n/a	n/a	0.316
X-X, +D+0.70E+H	2.0	n/a	0.0	0.5323	0.5323	n/a	n/a	0.266
X-X, +D+0.750Lr+0.750L+0.750W+H	2.0	n/a	0.0	0.7654	0.7654	n/a	n/a	0.383
X-X, +D+0.750L+0.750S+0.750W+H	2.0	n/a	0.0	1.019	1.019	n/a	n/a	0.510
X-X, +D+0.750Lr+0.750L+0.5250E+H	2.0	n/a	0.0	0.6910	0.6910	n/a	n/a	0.346
X-X, +D+0.750L+0.750S+0.5250E+H	2.0	n/a	0.0	0.9449	0.9449	n/a	n/a	0.473
X-X, +0.60D+W+H	2.0	n/a	0.0	0.4186	0.4186	n/a	n/a	0.209
X-X, +0.60D+0.70E+H	2.0	n/a	0.0	0.3194	0.3194	n/a	n/a	0.160
Z-Z, D Only	2.0	0.0	n/a	n/a	n/a	0.5323	0.5323	0.266
Z-Z, +D+L+H	2.0	0.0	n/a	n/a	n/a	0.5323	0.5323	0.266
Z-Z, +D+Lr+H	2.0	0.0	n/a	n/a	n/a	0.7439	0.7439	0.372
Z-Z, +D+S+H	2.0	0.0	n/a	n/a	n/a	1.082	1.082	0.541
Z-Z, +D+0.750Lr+0.750L+H	2.0	0.0	n/a	n/a	n/a	0.6910	0.6910	0.346
Z-Z, +D+0.750L+0.750S+H	2.0	0.0	n/a	n/a	n/a	0.9449	0.9449	0.473
Z-Z, +D+W+H	2.0	0.0	n/a	n/a	n/a	0.6315	0.6315	0.316
Z-Z, +D+0.70E+H	2.0	0.0	n/a	n/a	n/a	0.5323	0.5323	0.266
Z-Z, +D+0.750Lr+0.750L+0.750W+H	2.0	0.0	n/a	n/a	n/a	0.7654	0.7654	0.383
Z-Z, +D+0.750L+0.750S+0.750W+H	2.0	0.0	n/a	n/a	n/a	1.019	1.019	0.510
Z-Z, +D+0.750Lr+0.750L+0.5250E+H	2.0	0.0	n/a	n/a	n/a	0.6910	0.6910	0.346
Z-Z, +D+0.750L+0.750S+0.5250E+H	2.0	0.0	n/a	n/a	n/a	0.9449	0.9449	0.473
Z-Z, +0.60D+W+H	2.0	0.0	n/a	n/a	n/a	0.4186	0.4186	0.209
Z-Z, +0.60D+0.70E+H	2.0	0.0	n/a	n/a	n/a	0.3194	0.3194	0.160

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.9113	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.40D	0.9113	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK

Description : Corner Column

X-X, +1.20D+0.50Lr+1.60L+1.60H	0.9589	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK

General Footing

Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : Corner Column

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+0.50Lr+1.60L+1.60H	0.9589	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+1.60L+0.50S+1.60H	1.243	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+1.60L+0.50S+1.60H	1.243	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+1.60Lr+0.50L	1.350	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+1.60Lr+0.50L	1.350	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+1.60Lr+0.80W	1.483	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+1.60Lr+0.80W	1.483	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+0.50L+1.60S	2.260	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+0.50L+1.60S	2.260	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+1.60S+0.80W	2.394	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+1.60S+0.80W	2.394	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+0.50Lr+0.50L+1.60W	1.226	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+0.50Lr+0.50L+1.60W	1.226	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+0.50L+0.50S+1.60W	1.510	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.20D+0.50L+0.50S+1.60W	1.510	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.298D+0.50L+0.20S+E	1.030	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +1.298D+0.50L+0.20S+E	1.030	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +0.90D+1.60W+1.60H	0.8526	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +0.90D+1.60W+1.60H	0.8526	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +0.8020D+E+1.60H	0.5220	+Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
X-X, +0.8020D+E+1.60H	0.5220	-Z	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.40D	0.9113	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.40D	0.9113	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+0.50Lr+1.60L+1.60H	0.9589	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+0.50Lr+1.60L+1.60H	0.9589	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+1.60L+0.50S+1.60H	1.243	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+1.60L+0.50S+1.60H	1.243	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+1.60Lr+0.50L	1.350	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+1.60Lr+0.50L	1.350	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+1.60Lr+0.80W	1.483	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+1.60Lr+0.80W	1.483	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+0.50L+1.60S	2.260	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+0.50L+1.60S	2.260	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+1.60S+0.80W	2.394	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+1.60S+0.80W	2.394	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+0.50Lr+0.50L+1.60W	1.226	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+0.50Lr+0.50L+1.60W	1.226	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+0.50L+0.50S+1.60W	1.510	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.20D+0.50L+0.50S+1.60W	1.510	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.298D+0.50L+0.20S+E	1.030	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +1.298D+0.50L+0.20S+E	1.030	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +0.90D+1.60W+1.60H	0.8526	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +0.90D+1.60W+1.60H	0.8526	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +0.8020D+E+1.60H	0.5220	-X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK
Z-Z, +0.8020D+E+1.60H	0.5220	+X	Bottom	0.2592	Min Temp %	0.5280	20.154	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	5.439 psi	5.439 psi	5.439 psi	5.439 psi	5.439 psi	82.158 psi	0.0662	OK
+1.20D+0.50Lr+1.60L+1.60H	5.723 psi	5.723 psi	5.723 psi	5.723 psi	5.723 psi	82.158 psi	0.06966	OK
+1.20D+1.60L+0.50S+1.60H	7.421 psi	7.421 psi	7.421 psi	7.421 psi	7.421 psi	82.158 psi	0.09033	OK
+1.20D+1.60Lr+0.50L	8.058 psi	8.058 psi	8.058 psi	8.058 psi	8.058 psi	82.158 psi	0.09808	OK
+1.20D+1.60Lr+0.80W	8.854 psi	8.854 psi	8.854 psi	8.854 psi	8.854 psi	82.158 psi	0.1078	OK
+1.20D+0.50L+1.60S	13.492 psi	13.492 psi	13.492 psi	13.492 psi	13.492 psi	82.158 psi	0.1642	OK
+1.20D+1.60S+0.80W	14.288 psi	14.288 psi	14.288 psi	14.288 psi	14.288 psi	82.158 psi	0.1739	OK
+1.20D+0.50Lr+0.50L+1.60W	7.316 psi	7.316 psi	7.316 psi	7.316 psi	7.316 psi	82.158 psi	0.08904	OK
+1.20D+0.50L+0.50S+1.60W	9.014 psi	9.014 psi	9.014 psi	9.014 psi	9.014 psi	82.158 psi	0.1097	OK
+1.298D+0.50L+0.20S+E	6.147 psi	6.147 psi	6.147 psi	6.147 psi	6.147 psi	82.158 psi	0.07482	OK
+0.90D+1.60W+1.60H	5.089 psi	5.089 psi	5.089 psi	5.089 psi	5.089 psi	82.158 psi	0.06194	OK
+0.8020D+E+1.60H	3.116 psi	3.116 psi	3.116 psi	3.116 psi	3.116 psi	82.158 psi	0.03793	OK

General Footing

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : Corner Column

Punching Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	12.234 psi	164.317 psi	0.07445	OK
+1.20D+0.50Lr+1.60L+1.60H	12.873 psi	164.317 psi	0.07835	OK
+1.20D+1.60L+0.50S+1.60H	16.693 psi	164.317 psi	0.1016	OK
+1.20D+1.60Lr+0.50L	18.125 psi	164.317 psi	0.1103	OK
+1.20D+1.60Lr+0.80W	19.915 psi	164.317 psi	0.1212	OK
+1.20D+0.50L+1.60S	30.346 psi	164.317 psi	0.1847	OK
+1.20D+1.60S+0.80W	32.137 psi	164.317 psi	0.1956	OK
+1.20D+0.50Lr+0.50L+1.60W	16.454 psi	164.317 psi	0.1001	OK
+1.20D+0.50L+0.50S+1.60W	20.274 psi	164.317 psi	0.1234	OK
+1.298D+0.50L+0.20S+E	13.825 psi	164.317 psi	0.08414	OK
+0.90D+1.60W+1.60H	11.446 psi	164.317 psi	0.06966	OK
+0.8020D+E+1.60H	7.008 psi	164.317 psi	0.04265	OK

General Footing

Description : Canopy Pilaster

Code References

Calculations per ACI 318-08, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

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
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

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

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	ksf
when max. length or width is greater than	=	ft

Dimensions

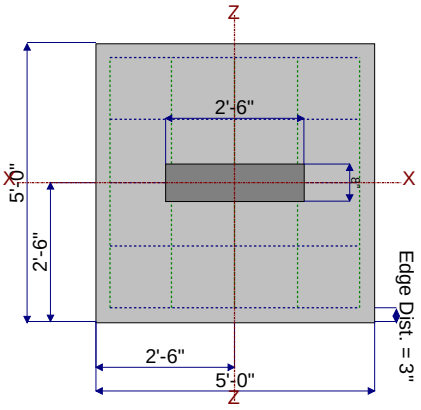
Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	30.0 in
pz : parallel to Z-Z Axis	=	8.0 in
Height	=	1.0 in

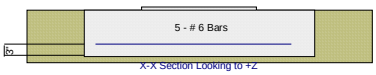
Rebar Centerline to Edge of Concrete...

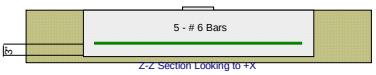
at Bottom of footing	=	3.0 in



Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		5.0
Reinforcing Bar Size	=	#	6
Bars parallel to Z-Z Axis			
Number of Bars	=		5.0
Reinforcing Bar Size	=	#	6





Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	12.742	6.048		15.520	2.915			k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

General Footing

Lic. # : KW-06002508 — Licensee : PAUL J. FORD & COMPANY

Description : Canopy Pilaster

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.6375	Soil Bearing	1.275 ksf	2.0 ksf	+D+S+H about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.07820	Z Flexure (+X)	1.327 k-ft	16.966 k-ft	+1.20D+1.60S+0.80W
PASS	0.07820	Z Flexure (-X)	1.327 k-ft	16.966 k-ft	+1.20D+1.60S+0.80W
PASS	0.2349	X Flexure (+Z)	3.986 k-ft	16.966 k-ft	+1.20D+1.60S+0.80W
PASS	0.2349	X Flexure (-Z)	3.986 k-ft	16.966 k-ft	+1.20D+1.60S+0.80W
PASS	0.09569	1-way Shear (+X)	7.862 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.09569	1-way Shear (-X)	7.862 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.2711	1-way Shear (+Z)	22.275 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.2711	1-way Shear (-Z)	22.275 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.2675	2-way Punching	33.694 psi	125.976 psi	+1.20D+1.60S+0.80W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.6547	0.6547	n/a	n/a	0.327
X-X, +D+L+H	2.0	n/a	0.0	0.6547	0.6547	n/a	n/a	0.327
X-X, +D+Lr+H	2.0	n/a	0.0	0.8966	0.8966	n/a	n/a	0.448
X-X, +D+S+H	2.0	n/a	0.0	1.275	1.275	n/a	n/a	0.638
X-X, +D+0.750Lr+0.750L+H	2.0	n/a	0.0	0.8361	0.8361	n/a	n/a	0.418
X-X, +D+0.750L+0.750S+H	2.0	n/a	0.0	1.120	1.120	n/a	n/a	0.560
X-X, +D+W+H	2.0	n/a	0.0	0.7713	0.7713	n/a	n/a	0.386
X-X, +D+0.70E+H	2.0	n/a	0.0	0.6547	0.6547	n/a	n/a	0.327
X-X, +D+0.750Lr+0.750L+0.750W+H	2.0	n/a	0.0	0.9236	0.9236	n/a	n/a	0.462
X-X, +D+0.750L+0.750S+0.750W+H	2.0	n/a	0.0	1.208	1.208	n/a	n/a	0.604
X-X, +D+0.750Lr+0.750L+0.5250E+H	2.0	n/a	0.0	0.8361	0.8361	n/a	n/a	0.418
X-X, +D+0.750L+0.750S+0.5250E+H	2.0	n/a	0.0	1.120	1.120	n/a	n/a	0.560
X-X, +0.60D+W+H	2.0	n/a	0.0	0.5094	0.5094	n/a	n/a	0.255
X-X, +0.60D+0.70E+H	2.0	n/a	0.0	0.3928	0.3928	n/a	n/a	0.196
Z-Z, D Only	2.0	0.0	n/a	n/a	n/a	0.6547	0.6547	0.327
Z-Z, +D+L+H	2.0	0.0	n/a	n/a	n/a	0.6547	0.6547	0.327
Z-Z, +D+Lr+H	2.0	0.0	n/a	n/a	n/a	0.8966	0.8966	0.448
Z-Z, +D+S+H	2.0	0.0	n/a	n/a	n/a	1.275	1.275	0.638
Z-Z, +D+0.750Lr+0.750L+H	2.0	0.0	n/a	n/a	n/a	0.8361	0.8361	0.418
Z-Z, +D+0.750L+0.750S+H	2.0	0.0	n/a	n/a	n/a	1.120	1.120	0.560
Z-Z, +D+W+H	2.0	0.0	n/a	n/a	n/a	0.7713	0.7713	0.386
Z-Z, +D+0.70E+H	2.0	0.0	n/a	n/a	n/a	0.6547	0.6547	0.327
Z-Z, +D+0.750Lr+0.750L+0.750W+H	2.0	0.0	n/a	n/a	n/a	0.9236	0.9236	0.462
Z-Z, +D+0.750L+0.750S+0.750W+H	2.0	0.0	n/a	n/a	n/a	1.208	1.208	0.604
Z-Z, +D+0.750Lr+0.750L+0.5250E+H	2.0	0.0	n/a	n/a	n/a	0.8361	0.8361	0.418
Z-Z, +D+0.750L+0.750S+0.5250E+H	2.0	0.0	n/a	n/a	n/a	1.120	1.120	0.560
Z-Z, +0.60D+W+H	2.0	0.0	n/a	n/a	n/a	0.5094	0.5094	0.255
Z-Z, +0.60D+0.70E+H	2.0	0.0	n/a	n/a	n/a	0.3928	0.3928	0.196

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.675	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.40D	1.675	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK

General Footing

Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : Canopy Pilaster

X-X, +1.20D+0.50Lr+1.60L+1.60H	1.720	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK

General Footing

Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : Canopy Pilaster

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+0.50Lr+1.60L+1.60H	1.720	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+1.60L+0.50S+1.60H	2.164	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+1.60L+0.50S+1.60H	2.164	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+1.60Lr+0.50L	2.344	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+1.60Lr+0.50L	2.344	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+1.60Lr+0.80W	2.563	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+1.60Lr+0.80W	2.563	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+0.50L+1.60S	3.767	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+0.50L+1.60S	3.767	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+1.60S+0.80W	3.986	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+1.60S+0.80W	3.986	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+0.50Lr+0.50L+1.60W	2.157	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+0.50Lr+0.50L+1.60W	2.157	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+0.50L+0.50S+1.60W	2.602	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.20D+0.50L+0.50S+1.60W	2.602	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.298D+0.50L+0.20S+E	1.844	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +1.298D+0.50L+0.20S+E	1.844	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +0.90D+1.60W+1.60H	1.515	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +0.90D+1.60W+1.60H	1.515	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +0.8020D+E+1.60H	0.9595	+Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
X-X, +0.8020D+E+1.60H	0.9595	-Z	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.40D	0.5575	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.40D	0.5575	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+0.50Lr+1.60L+1.60H	0.5723	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+0.50Lr+1.60L+1.60H	0.5723	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+1.60L+0.50S+1.60H	0.7203	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+1.60L+0.50S+1.60H	0.7203	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+1.60Lr+0.50L	0.7802	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+1.60Lr+0.50L	0.7802	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+1.60Lr+0.80W	0.8531	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+1.60Lr+0.80W	0.8531	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+0.50L+1.60S	1.254	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+0.50L+1.60S	1.254	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+1.60S+0.80W	1.327	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+1.60S+0.80W	1.327	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+0.50Lr+0.50L+1.60W	0.7181	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+0.50Lr+0.50L+1.60W	0.7181	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+0.50L+0.50S+1.60W	0.8661	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.20D+0.50L+0.50S+1.60W	0.8661	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.298D+0.50L+0.20S+E	0.6138	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +1.298D+0.50L+0.20S+E	0.6138	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +0.90D+1.60W+1.60H	0.5041	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +0.90D+1.60W+1.60H	0.5041	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +0.8020D+E+1.60H	0.3193	-X	Bottom	0.2592	Min Temp %	0.440	16.966	OK
Z-Z, +0.8020D+E+1.60H	0.3193	+X	Bottom	0.2592	Min Temp %	0.440	16.966	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	3.303 psi	3.303 psi	9.36 psi	9.36 psi	9.36 psi	82.158 psi	0.1139	OK
+1.20D+0.50Lr+1.60L+1.60H	3.392 psi	3.392 psi	9.609 psi	9.609 psi	9.609 psi	82.158 psi	0.117	OK
+1.20D+1.60L+0.50S+1.60H	4.269 psi	4.269 psi	12.094 psi	12.094 psi	12.094 psi	82.158 psi	0.1472	OK
+1.20D+1.60Lr+0.50L	4.624 psi	4.624 psi	13.1 psi	13.1 psi	13.1 psi	82.158 psi	0.1594	OK
+1.20D+1.60Lr+0.80W	5.055 psi	5.055 psi	14.324 psi	14.324 psi	14.324 psi	82.158 psi	0.1743	OK
+1.20D+0.50L+1.60S	7.43 psi	7.43 psi	21.052 psi	21.052 psi	21.052 psi	82.158 psi	0.2562	OK
+1.20D+1.60S+0.80W	7.862 psi	7.862 psi	22.275 psi	22.275 psi	22.275 psi	82.158 psi	0.2711	OK
+1.20D+0.50Lr+0.50L+1.60W	4.255 psi	4.255 psi	12.057 psi	12.057 psi	12.057 psi	82.158 psi	0.1467	OK
+1.20D+0.50L+0.50S+1.60W	5.132 psi	5.132 psi	14.542 psi	14.542 psi	14.542 psi	82.158 psi	0.177	OK
+1.298D+0.50L+0.20S+E	3.638 psi	3.638 psi	10.307 psi	10.307 psi	10.307 psi	82.158 psi	0.1254	OK
+0.90D+1.60W+1.60H	2.987 psi	2.987 psi	8.464 psi	8.464 psi	8.464 psi	82.158 psi	0.103	OK
+0.8020D+E+1.60H	1.892 psi	1.892 psi	5.362 psi	5.362 psi	5.362 psi	82.158 psi	0.06526	OK

General Footing

Description : Canopy Pilaster

Punching Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	14.158 psi	125.976 psi	0.1124	OK
+1.20D+0.50Lr+1.60L+1.60H	14.535 psi	125.976 psi	0.1154	OK
+1.20D+1.60L+0.50S+1.60H	18.294 psi	125.976 psi	0.1452	OK
+1.20D+1.60Lr+0.50L	19.815 psi	125.976 psi	0.1573	OK
+1.20D+1.60Lr+0.80W	21.666 psi	125.976 psi	0.172	OK
+1.20D+0.50L+1.60S	31.843 psi	125.976 psi	0.2528	OK
+1.20D+1.60S+0.80W	33.694 psi	125.976 psi	0.2675	OK
+1.20D+0.50Lr+0.50L+1.60W	18.237 psi	125.976 psi	0.1448	OK
+1.20D+0.50L+0.50S+1.60W	21.996 psi	125.976 psi	0.1746	OK
+1.298D+0.50L+0.20S+E	15.59 psi	125.976 psi	0.1238	OK
+0.90D+1.60W+1.60H	12.803 psi	125.976 psi	0.1016	OK
+0.8020D+E+1.60H	8.11 psi	125.976 psi	0.06438	OK

General Footing

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : 35LHSP Masonry Pier

Code References

Calculations per ACI 318-08, IBC 2009, CBC 2010, ASCE 7-05
Load Combinations Used : IBC 2009

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
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

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

Footing base depth below soil surface	=	ft
Allow press. increase per foot of depth	=	ksf
when footing base is below	=	ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=	ksf
when max. length or width is greater than	=	ft

Dimensions

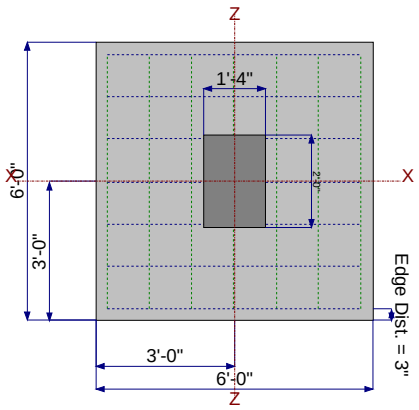
Width parallel to X-X Axis	=	6.0 ft
Length parallel to Z-Z Axis	=	6.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	16.0 in
pz : parallel to Z-Z Axis	=	24.0 in
Height	=	1.0 in

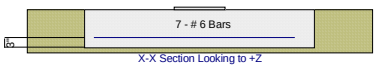
Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0 in



Reinforcing

Bars parallel to X-X Axis			
Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6
Bars parallel to Z-Z Axis			
Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6



Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	9.537	0.8480		2.185	0.3390			k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

General Footing

Lic. # : KW-06002508
Licensee : PAUL J. FORD & COMPANY

Description : 35LHSP Masonry Pier

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.2353	Soil Bearing	0.4706 ksf	2.0 ksf	+D+S+H about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.05859	Z Flexure (+X)	1.150 k-ft	19.627 k-ft	+1.20D+1.60S+0.80W
PASS	0.05859	Z Flexure (-X)	1.150 k-ft	19.627 k-ft	+1.20D+1.60S+0.80W
PASS	0.04306	X Flexure (+Z)	0.8451 k-ft	19.627 k-ft	+1.20D+1.60S+0.80W
PASS	0.04306	X Flexure (-Z)	0.8451 k-ft	19.627 k-ft	+1.20D+1.60S+0.80W
PASS	0.07619	1-way Shear (+X)	6.260 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.07619	1-way Shear (-X)	6.260 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.06191	1-way Shear (+Z)	5.086 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.06191	1-way Shear (-Z)	5.086 psi	82.158 psi	+1.20D+1.60S+0.80W
PASS	0.07488	2-way Punching	12.304 psi	164.317 psi	+1.20D+1.60S+0.80W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.4099	0.4099	n/a	n/a	0.205
X-X, +D+L+H	2.0	n/a	0.0	0.4099	0.4099	n/a	n/a	0.205
X-X, +D+Lr+H	2.0	n/a	0.0	0.4335	0.4335	n/a	n/a	0.217
X-X, +D+S+H	2.0	n/a	0.0	0.4706	0.4706	n/a	n/a	0.235
X-X, +D+0.750Lr+0.750L+H	2.0	n/a	0.0	0.4276	0.4276	n/a	n/a	0.214
X-X, +D+0.750L+0.750S+H	2.0	n/a	0.0	0.4554	0.4554	n/a	n/a	0.228
X-X, +D+W+H	2.0	n/a	0.0	0.4193	0.4193	n/a	n/a	0.210
X-X, +D+0.70E+H	2.0	n/a	0.0	0.4099	0.4099	n/a	n/a	0.205
X-X, +D+0.750Lr+0.750L+0.750W+H	2.0	n/a	0.0	0.4346	0.4346	n/a	n/a	0.217
X-X, +D+0.750L+0.750S+0.750W+H	2.0	n/a	0.0	0.4625	0.4625	n/a	n/a	0.231
X-X, +D+0.750Lr+0.750L+0.5250E+H	2.0	n/a	0.0	0.4276	0.4276	n/a	n/a	0.214
X-X, +D+0.750L+0.750S+0.5250E+H	2.0	n/a	0.0	0.4554	0.4554	n/a	n/a	0.228
X-X, +0.60D+W+H	2.0	n/a	0.0	0.2554	0.2554	n/a	n/a	0.128
X-X, +0.60D+0.70E+H	2.0	n/a	0.0	0.2460	0.2460	n/a	n/a	0.123
Z-Z, D Only	2.0	0.0	n/a	n/a	n/a	0.4099	0.4099	0.205
Z-Z, +D+L+H	2.0	0.0	n/a	n/a	n/a	0.4099	0.4099	0.205
Z-Z, +D+Lr+H	2.0	0.0	n/a	n/a	n/a	0.4335	0.4335	0.217
Z-Z, +D+S+H	2.0	0.0	n/a	n/a	n/a	0.4706	0.4706	0.235
Z-Z, +D+0.750Lr+0.750L+H	2.0	0.0	n/a	n/a	n/a	0.4276	0.4276	0.214
Z-Z, +D+0.750L+0.750S+H	2.0	0.0	n/a	n/a	n/a	0.4554	0.4554	0.228
Z-Z, +D+W+H	2.0	0.0	n/a	n/a	n/a	0.4193	0.4193	0.210
Z-Z, +D+0.70E+H	2.0	0.0	n/a	n/a	n/a	0.4099	0.4099	0.205
Z-Z, +D+0.750Lr+0.750L+0.750W+H	2.0	0.0	n/a	n/a	n/a	0.4346	0.4346	0.217
Z-Z, +D+0.750L+0.750S+0.750W+H	2.0	0.0	n/a	n/a	n/a	0.4625	0.4625	0.231
Z-Z, +D+0.750Lr+0.750L+0.5250E+H	2.0	0.0	n/a	n/a	n/a	0.4276	0.4276	0.214
Z-Z, +D+0.750L+0.750S+0.5250E+H	2.0	0.0	n/a	n/a	n/a	0.4554	0.4554	0.228
Z-Z, +0.60D+W+H	2.0	0.0	n/a	n/a	n/a	0.2554	0.2554	0.128
Z-Z, +0.60D+0.70E+H	2.0	0.0	n/a	n/a	n/a	0.2460	0.2460	0.123

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	0.7418	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.40D	0.7418	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK

Description : 35LHSP Masonry Pier

X-X, +1.20D+0.50Lr+1.60L+1.60H	0.6594	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK

General Footing

Lic. # : KW-06002508 **Licensee : PAUL J. FORD & COMPANY**

Description : 35LHSP Masonry Pier

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+0.50Lr+1.60L+1.60H	0.6594	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+1.60L+0.50S+1.60H	0.6965	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+1.60L+0.50S+1.60H	0.6965	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+1.60Lr+0.50L	0.7112	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+1.60Lr+0.50L	0.7112	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+1.60Lr+0.80W	0.7262	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+1.60Lr+0.80W	0.7262	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+0.50L+1.60S	0.830	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+0.50L+1.60S	0.830	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+1.60S+0.80W	0.8451	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+1.60S+0.80W	0.8451	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+0.50Lr+0.50L+1.60W	0.6895	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+0.50Lr+0.50L+1.60W	0.6895	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+0.50L+0.50S+1.60W	0.7266	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.20D+0.50L+0.50S+1.60W	0.7266	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.298D+0.50L+0.20S+E	0.7120	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +1.298D+0.50L+0.20S+E	0.7120	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +0.90D+1.60W+1.60H	0.5070	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +0.90D+1.60W+1.60H	0.5070	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +0.8020D+E+1.60H	0.4249	+Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
X-X, +0.8020D+E+1.60H	0.4249	-Z	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.40D	1.009	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.40D	1.009	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+0.50Lr+1.60L+1.60H	0.8973	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+0.50Lr+1.60L+1.60H	0.8973	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+1.60L+0.50S+1.60H	0.9478	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+1.60L+0.50S+1.60H	0.9478	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+1.60Lr+0.50L	0.9678	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+1.60Lr+0.50L	0.9678	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+1.60Lr+0.80W	0.9883	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+1.60Lr+0.80W	0.9883	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+0.50L+1.60S	1.130	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+0.50L+1.60S	1.130	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+1.60S+0.80W	1.150	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+1.60S+0.80W	1.150	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+0.50Lr+0.50L+1.60W	0.9383	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+0.50Lr+0.50L+1.60W	0.9383	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+0.50L+0.50S+1.60W	0.9888	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.20D+0.50L+0.50S+1.60W	0.9888	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.298D+0.50L+0.20S+E	0.9689	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +1.298D+0.50L+0.20S+E	0.9689	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +0.90D+1.60W+1.60H	0.6899	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +0.90D+1.60W+1.60H	0.6899	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +0.8020D+E+1.60H	0.5783	-X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK
Z-Z, +0.8020D+E+1.60H	0.5783	+X	Bottom	0.2592	Min Temp %	0.5133	19.627	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	5.495 psi	5.495 psi	4.464 psi	4.464 psi	5.495 psi	82.158 psi	0.06688	OK
+1.20D+0.50Lr+1.60L+1.60H	4.884 psi	4.884 psi	3.968 psi	3.968 psi	4.884 psi	82.158 psi	0.05945	OK
+1.20D+1.60L+0.50S+1.60H	5.159 psi	5.159 psi	4.192 psi	4.192 psi	5.159 psi	82.158 psi	0.0628	OK
+1.20D+1.60Lr+0.50L	5.268 psi	5.268 psi	4.28 psi	4.28 psi	5.268 psi	82.158 psi	0.06412	OK
+1.20D+1.60Lr+0.80W	5.38 psi	5.38 psi	4.371 psi	4.371 psi	5.38 psi	82.158 psi	0.06548	OK
+1.20D+0.50L+1.60S	6.148 psi	6.148 psi	4.996 psi	4.996 psi	6.148 psi	82.158 psi	0.07484	OK
+1.20D+1.60S+0.80W	6.26 psi	6.26 psi	5.086 psi	5.086 psi	6.26 psi	82.158 psi	0.07619	OK
+1.20D+0.50Lr+0.50L+1.60W	5.107 psi	5.107 psi	4.15 psi	4.15 psi	5.107 psi	82.158 psi	0.06216	OK
+1.20D+0.50L+0.50S+1.60W	5.382 psi	5.382 psi	4.373 psi	4.373 psi	5.382 psi	82.158 psi	0.06551	OK
+1.298D+0.50L+0.20S+E	5.274 psi	5.274 psi	4.285 psi	4.285 psi	5.274 psi	82.158 psi	0.06419	OK
+0.90D+1.60W+1.60H	3.755 psi	3.755 psi	3.051 psi	3.051 psi	3.755 psi	82.158 psi	0.04571	OK
+0.8020D+E+1.60H	3.148 psi	3.148 psi	2.557 psi	2.557 psi	3.148 psi	82.158 psi	0.03831	OK

Description : 35LHSP Masonry Pier

Punching Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	10.8 psi	164.317 psi	0.06573	OK
+1.20D+0.50Lr+1.60L+1.60H	9.6 psi	164.317 psi	0.05842	OK
+1.20D+1.60L+0.50S+1.60H	10.141 psi	164.317 psi	0.06171	OK
+1.20D+1.60Lr+0.50L	10.354 psi	164.317 psi	0.06301	OK
+1.20D+1.60Lr+0.80W	10.574 psi	164.317 psi	0.06435	OK
+1.20D+0.50L+1.60S	12.085 psi	164.317 psi	0.07355	OK
+1.20D+1.60S+0.80W	12.304 psi	164.317 psi	0.07488	OK
+1.20D+0.50Lr+0.50L+1.60W	10.039 psi	164.317 psi	0.06109	OK
+1.20D+0.50L+0.50S+1.60W	10.579 psi	164.317 psi	0.06438	OK
+1.298D+0.50L+0.20S+E	10.366 psi	164.317 psi	0.06309	OK
+0.90D+1.60W+1.60H	7.381 psi	164.317 psi	0.04492	OK
+0.8020D+E+1.60H	6.187 psi	164.317 psi	0.03765	OK

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Lateral Analysis

· Diaphragm is considered flexible
· Top of Parapet = 19 (ft)
· Top of Highside Wall = 16.833 (ft)
· Top of Lowside Wall = 14.833 (ft)

1) Wind Load:

2a = 12.8 (ft)

Vx = [12.8'x7.417'x19.64psf] + [(115.33'-12.8')x7.417'x12.97psf]
+ [115.33'x4.167'x52.87psf] = 37137 lbs

Vz = [12.8'x7.917'x19.64psf] + [(64'-12.8')x7.917'x12.97psf]
+ [64'x3.167'x52.87psf] = 17964 lbs

2) Seismic Load:

Roof Dead Load = 115.33'x64'x20psf = 147623 lbs

Roof Top Unit Weight = 2100 lbs

Wall Weight = (7.917+3.167)x(115.33'x2)x58psf = 148285 lbs

Total Building Dead Load = 147623+2100+148285 = 298008 lbs

V = 0.14W = 0.14x298008 = 41722 lbs

0.7E = 0.7V = 29206 lbs *therefore wind controls*

3) Diaphragm Shear

Roof Deck = 1.5B20 36/7 w/ 4 Sidelaps

Roof Deck Capacity = 325 plf

V = 37137/(2x64) = 291plf *therefore deck is adequate*

4) Diaphragm Chord Member Design

Chord member is L4x4x3/8 with lu=7'-0"

P = [(37137/(115.33))x(115.33^2)]/(8x64) = 8366 lbs

See attached computer output

5) Collector Element Design

Collector member is L4x4x3/8 with lu=7'-0"

Ω = 2.5

P = 2.5x8366 lbs = 20915 lbs

1/4'' x 6'' fillet weld each side = 44544 lbs

6) Check Shear Wall

See attached computer output

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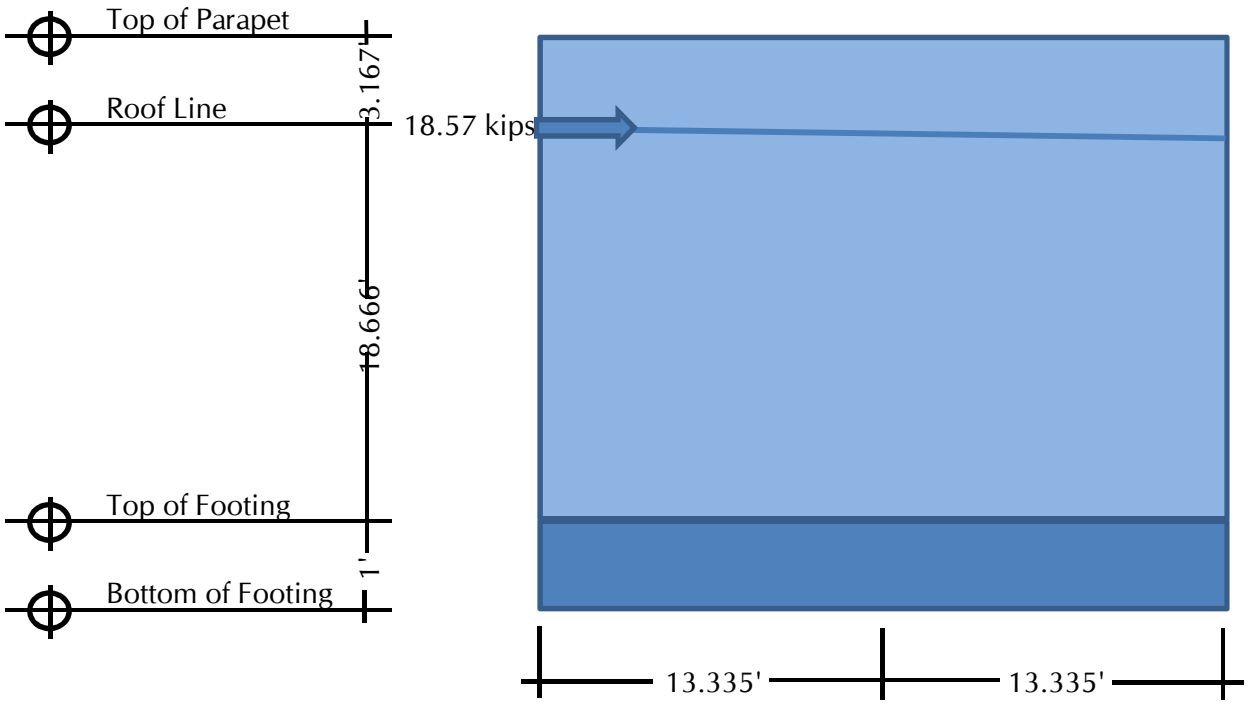
Lateral Analysis (cont.)



A) Applied Overturning Moment

Applied Shear = 18.57 kips

Applied Overturning Moment = 18.57 kips x (1' + 18.666') = 365.2 k-ft

B) Overturning Moment Resistance

Wall Weight = [(58 PSF x 18.666') + (84 PSF x 3.167')] x 26.67' / 1000 = 35.97 kips

Foundation Weight = 150 PCF x (1' x 3' x 26.67') / 1000 = 12 kips

OTM Resistance = 0.6 x 13.335' x (35.97 kips + 12 kips) = 383.81 k-ft

therefore resistance is adequate

C) Soil Bearing Pressure

Eccentricity = M / P = 365.2 / (35.97 + 12) = 7.61'

L / 6 = 26.67' / 6 = 4.45'

Max q = 2P / 3Be' = (2 x (35.97 + 12) / (3 x 3 x (13.335 - 4.45) = 1.86 KSF

therefore soil bearing pressure is adequate