

PRFN20241253

Revision 1


Guardiar

**STRUCTURAL CALCULATIONS
FOR
GUARDIAR PROJECT NO. FS8944
PUYALLUP, WA**

**(SECOMA FENCE
PUGET SOUND ENERGY
PUYALLUP TRAINING CENTER)**

**City of Puyallup
Building
REVIEWED
FOR
COMPLIANCE**

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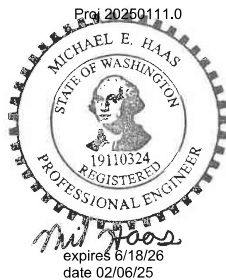
ISSUE/REVISION RECORD

DATE	DESCRIPTION
1/31/2025	Initial Calculations
2/6/2025	Final Calculations

GF PROJECT NO.

20250111.0

Prepared By: GreenbergFarrow



Calculations required to be provided by the Permittee on site for all Inspections

Client: Guardiar LLC
Project: SECOMA
Location: PUYALLUP, WA
Project No.: 20250111
Date: 1/31/2025



Code Summary

Applicable Code

2021 International Building Code w/ASCE 7-16

Risk Category II Guardiar Dwgs

DESIGN CRITERIA

A Dead Loads				
1	Framing Members w/ Fencing	10	psf	(self weight)
B Live Loads				
1	Framing - Horizontal	0	psf	
C Snow Loads				
	pg =	25	psf	
	pf =	21	psf	
	Ct =	1.2		
	Ce =	1.0		
	Is =	1.0		
D Wind Loads				
1	Wind Speed	98	mph	
2	Wind Importance factor	lw = 1.0		
3	Exposure Category	C		
E Seismic Design Data				
1	Seismic Importance factor	le = 1.0		
2	Soil Site Class	D (Default)		
3	Ss (max)	1.267		
4	SDs (max)	1.014		
5	S ₁ (Max)	0.437		
7	Seismic Design Category	D		
8	Seismic Force Resisting System	Cantilevered Column Systems (Steel Special)		
9	Response Modification Factor	R = 2.50		
10	Seismic Response Coefficient	Cs = 0.4056		
11	Effective Seismic Weight	W = 1.794	kips	(Framing x Post Spacing x
12	Seismic Base Shear (Post Base)	Cs*W = 0.728	kips	Height)
13	Analysis Procedure			Equivalent Force Procedure
F Geotechnical				
1	Allowable Soil Bearing Pressure	1500	psf	
2	Passive Soil pressure	200	psf/ft	(Assumed)

Wind Load - Criteria

Risk = II
 Wind Speed= 98 mph
 Exposure C
 Kh = 0.85
 Kzt = 1.00
 Kd = 0.85
 Ke = 1.00

$qz = 17.76 \text{ psf} \quad .0256 * Kh * Kzt * Kd * Ke * V^2$

G = 0.85

Wind Loads - Wall Zones

Load Case	Region	Description	Zone 1		Zone 2	
			qz = 17.76 psf G = 0.85		qz = 17.76 psf G = 0.85	
A+B+C			B = 647.71 ft. s = 8.25 ft. h = 8.25 ft. s/h = 1.00 B/s = 78.51		B = 92.19 ft. s = 8.25 ft. h = 8.25 ft. s/h = 1.00 B/s = 11.17	
C (only)			Lr = 166.69 ft. Lr/s = 20.20		Lr = 59.46 ft. Lr/s = 7.21	
			e = 0.71		e = 0.71	
A + B	All	Table (unfactored) LC - A&B openings (1-(1-e)^1.5) Cf-F [w-reduction factor(s)] P = qz*G*Cf-AB	Cf - AB = 1.30 Rf-1= 0.84 Cf-F = 1.09 P = 16.51 psf		Cf - AB = 1.30 Rf-1= 0.84 Cf-F = 1.09 P = 16.51 psf	
C	0 to s	Table (unfactored) LC - C Case C (1.8 - s/h)when s/h>0.8) 0 to s when B/s = > 5 openings (1-(1-e)^1.5) Cf-F [w-reduction factor(s)] P = qz*G*Cf-F	Cf - C = 4.30 Rf-1= 0.80 Rf-2= 0.60 Rf-3= 0.84 Cf-F = 1.74 P = 26.22 psf		Cf - C = 3.85 Rf-1= 0.80 Rf-2= 0.60 Rf-3= 0.84 Cf-F = 1.55 P = 23.47 psf	
C	s to 2s	Table (unfactored) LC - C Case C (1.8 - s/h) openings (1-(1-e)^1.5) Cf-F [w-reduction factor(s)] P = qz*G*Cf-F	Cf - C = 2.55 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 1.72 P = 25.91 psf		Cf - C = 2.50 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 1.68 P = 25.41 psf	
C	2s to 3s	Table (unfactored) LC - C Case C (1.8 - s/h) openings (1-(1-e)^1.5) Cf-F [w-reduction factor(s)] P = qz*G*Cf-F	Cf - C = 1.95 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 1.31 P = 19.82 psf		Cf - C = 1.91 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 1.29 P = 19.41 psf	
C	3s to 4s	Table (unfactored) LC - C Case C (1.8 - s/h) openings (1-(1-e)^1.5) Cf-F [w-reduction factor(s)] P = qz*G*Cf-F	Cf - C = 1.85 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 1.25 P = 18.80 psf		Cf - C = 1.16 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 0.78 P = 11.79 psf	
C	4s to 5s	Table (unfactored) LC - C Case C (1.8 - s/h) openings (1-(1-e)^1.5) Cf-F [w-reduction factor(s)] P = qz*G*Cf-F	Cf - C = 1.85 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 1.25 P = 18.80 psf		Cf - C = 1.11 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 0.75 P = 11.28 psf	
C	5s to 10s	Table (unfactored) LC - C Case C (1.8 - s/h) openings (1-(1-e)^1.5) Cf-F [w-reduction factor(s)] P = qz*G*Cf-F	Cf - C = 1.10 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 0.74 P = 11.18 psf		Cf - C = 0.93 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 0.63 P = 9.45 psf	
C	> 10s	Table (unfactored) LC - C Case C (1.8 - s/h) openings (1-(1-e)^1.5) Cf-F [w-reduction factor(s)] P = qz*G*Cf-F	Cf - C = 0.55 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 0.37 P = 5.59 psf		Cf - C = 0.79 Rf-1= 0.80 Rf-2= 0.84 Cf-F = 0.53 P = 8.03 psf	
			Zone 1 Design Summary Design Pressure	Load Case (Controls)	Zone 2 Design Summary Design Pressure	Load Case (Controls)
	0 to s		P = 26.22 psf	C	P = 23.47 psf	C
	s to 2s		P = 25.91 psf	C	P = 25.41 psf	C
	2s to 3s		P = 19.82 psf	C	P = 19.41 psf	C
	3s to 4s		P = 18.80 psf	C	P = 16.51 psf	A&B
	4s to 5s		P = 18.80 psf	C	P = 16.51 psf	A&B
	5s to 10s		P = 16.51 psf	A&B	P = 16.51 psf	A&B
	> 10s		P = 16.51 psf	A&B	P = 16.51 psf	A&B

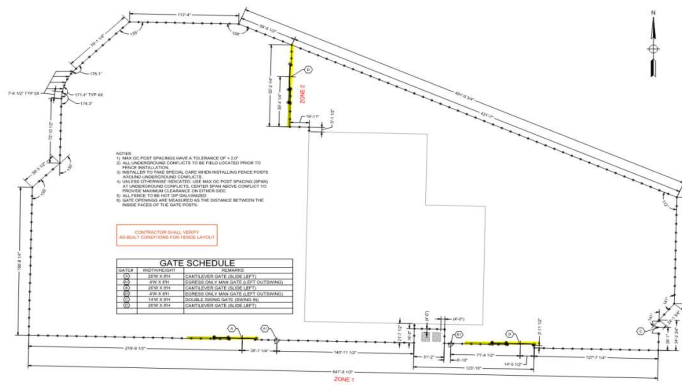
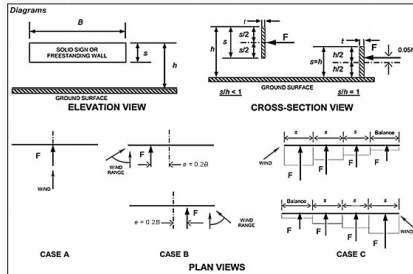


FIGURE 29.3-1 Design Wind Loads (All Heights): Force Coefficients, C_f , for Other Structures—Solid Freestanding Walls and Solid Freestanding Signs



Notation
 B = Horizontal dimension of sign, in ft (m)
 e = Eccentricity of force, in ft (m)
 F = Design wind force for other structures, in lb (N)
 h = Height of the sign, in ft (m)
 L_r = Horizontal dimension of return center, in ft (m)
 R_{min} = r (min B and s)
 R_{max} = r (max B and s)
 r = Vertical dimension of the sign, in ft (m)
 t = Thickness of the sign in ft (m)
 α = Ratio of solid area to gross area

Force Coefficients, C_f , for Case A and Case B

Aspect Ratio, B/h	Aspect Ratio, R/h											
	0.05	0.1	0.2	0.5	1	2	4	5	10	20	30	≥40
1	1.80	1.70	1.65	1.55	1.45	1.40	1.35	1.35	1.30	1.30	1.30	1.30
0.9	1.85	1.75	1.70	1.60	1.50	1.45	1.45	1.40	1.40	1.40	1.40	1.40
0.7	1.90	1.85	1.75	1.70	1.65	1.60	1.60	1.55	1.55	1.55	1.55	1.55
0.5	1.95	1.85	1.80	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
0.3	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.80	1.85	1.85	1.85
0.2	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.85	1.90	1.90	1.90
≤0.16	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95

FIGURE 29.3-1 Design Wind Loads (All Heights): Force Coefficients, C_f , for Other Structures—Solid Freestanding Walls and Solid Freestanding Signs

Force Coefficients, C_f , for Case C

Region (horizontal distance from windward edge)	Aspect Ratio, B/h										
	3	3	4	5	6	7	8	9	10	15	≥40
0 to L_r	2.55	2.60	2.90	3.10*	3.30*	3.40*	3.50*	3.65*	3.75*	4.00*	4.30*
L_r to $2L_r$	1.90	1.70	1.60	2.00	2.15	2.25	2.30	2.35	2.40	2.60	2.75
$2L_r$ to $3L_r$	1.15	1.30	1.65	1.55	1.65	1.65	1.70	1.75	1.85	2.00	1.95
$3L_r$ to $4L_r$										1.70	1.85
$4L_r$ to $5L_r$										1.55	1.65
$5L_r$ to $10L_r$										0.90	1.10
$> 10L_r$										0.55	0.55

*Values shall be multiplied by the following reduction factors when a return center is present:

L_r/h	Reduction Factor	Plan view of wall or sign with return corner
0.3	0.90	
1.0	0.75	
2.0	0.60	

Notes

- The term "signs" in these notes also applies to freestanding walls.
- Signs with openings comprising less than 50% of the gross area are classified as solid signs. Force coefficients for solid signs with openings shall be permitted to be multiplied by the reduction factor $(1 - (o/a)^2)$.
- To allow for both normal and oblique wind directions, the following cases shall be considered:
 For $\alpha < 1$:
 Case A: Resultant force acts normal to the face of the sign through the geometric center.
 Case B: Resultant force acts normal to the face of the sign at a distance from the geometric center toward the windward edge equal to 0.2 times the average width of the sign.
 For double-faced signs with all sides enclosed and $R_{min} \leq 0.4$, it is permitted to use force eccentricity, $e = (0.2 - 0.25R_{min})B$.
 For double-faced signs with all sides enclosed and $R_{min} > 0.4$, it is permitted to multiply tabulated C_f values in Cases A and B by the reduction factor $(1 - 0.15R_{min})$.
 For $B/h \geq 2$, Case C must also be considered.
 Case C: Resultant forces act normal to the face of the sign through the geometric centers of each region.
 For $\alpha > 1$:
 The same cases as above except that the vertical locations of the resultant forces occur at a distance above the geometric center equal to 0.05 times the average height of the sign.
 4. For Case C where $\alpha > 10.8$, force coefficients shall be multiplied by the reduction factor $(1.8 - \alpha/h)$. It is permitted to apply this reduction with those specified in Note 3.
 5. Linear interpolation is permitted for values of α/h , B/h , and L_r/h other than shown.

Steel Column

Project File: Cantilever Gate.ec6

LIC#: KW-06016134, Build:20.23.08.30

Greenberg Farrow Architecture, Inc.

(c) ENERCALC INC 1983-2023

DESCRIPTION: Gate Catch Post - 14' Spacing

Code References

Calculations per AISC 360-16, IBC 2021, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Steel Section Name :	Pipe8STD	Overall Column Height	8 ft
Analysis Method :	Allowable Strength	Top & Bottom Fixity	Top Free, Bottom Fixed
Steel Stress Grade	, A500, Grade B, Fy = 42 ksi, Carbon Steel	Brace condition :	
Fy : Steel Yield	35.0 ksi	Unbraced Length for buckling ABOUT X-X Axis = 8 ft, K = 1.0	
E : Elastic Bending Modulus	29,000.0 ksi	Unbraced Length for buckling ABOUT Y-Y Axis = 8 ft, K = 1.0	

Applied Loads

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

Column self weight included : 228.80 lbs * Dead Load Factor

AXIAL LOADS . . .

Axial Load at 8.0 ft, Yecc = 10.0 in, D = 1.794 k

BENDING LOADS . . .

Lat. Uniform Load creating My-y, W = 0.280 k/ft

Lat. Point Load at 8.0 ft creating My-y, E = 0.7280 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.1956** : 1
 Load Combination +D+0.60W
 Location of max.above base 0.0 ft
 At maximum location values are . . .
 Pa : Axial 2.023 k
 Pn / Omega : Allowable 155.872 k
 Ma-x : Applied -1.495 k-ft
 Mn-x / Omega : Allowable 36.327 k-ft
 Ma-y : Applied -5.376 k-ft
 Mn-y / Omega : Allowable 36.327 k-ft

Maximum Load Reactions . .
 Top along X-X 0.0 k
 Bottom along X-X 2.240 k
 Top along Y-Y 0.0 k
 Bottom along Y-Y 0.0 k

Maximum Load Deflections . . .
 Along Y-Y 0.04158 in at 8.0ft above base
 for load combination : D Only
 Along X-X 0.1249 in at 8.0ft above base
 for load combination : W Only

PASS Maximum Shear Stress Ratio = **0.02723** : 1
 Load Combination +D+0.60W
 Location of max.above base 0.0 ft
 At maximum location values are . . .
 Va : Applied 1.344 k
 Vn / Omega : Allowable 49.356 k

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios				Cb _x	Cb _y	K _x L _x /R _y	K _y L _y /R _x	Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio					Status	Location	
D Only	0.048	PASS	0.00 ft	1.00	1.99	32.54	0.00	0.000	PASS	0.00 ft	
+D+0.60W	0.196	PASS	0.00 ft	1.00	1.99	32.54	0.00	0.027	PASS	0.00 ft	
+D+0.450W	0.159	PASS	0.00 ft	1.00	1.99	32.54	0.00	0.020	PASS	0.00 ft	
+0.60D+0.60W	0.177	PASS	0.00 ft	1.00	1.99	32.54	0.00	0.027	PASS	0.00 ft	
+D+0.70E	0.160	PASS	0.00 ft	1.00	1.99	32.54	0.00	0.010	PASS	0.00 ft	
+D+0.5250E	0.132	PASS	0.00 ft	1.00	1.99	32.54	0.00	0.008	PASS	0.00 ft	
+0.60D+0.70E	0.141	PASS	0.00 ft	1.00	1.99	32.54	0.00	0.010	PASS	0.00 ft	

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial Reaction	X-X Axis Reaction		Y-Y Axis Reaction		M _x - End Moments		M _y - End Moments	
	@ Base	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top
D Only	2.023					-1.495			
+D+0.60W	2.023	-1.344				-1.495		-5.376	
+D+0.450W	2.023	-1.008				-1.495		-4.032	
+0.60D+0.60W	1.214	-1.344				-0.897		-5.376	
+D+0.70E	2.023	-0.510				-1.495		-4.077	
+D+0.5250E	2.023	-0.382				-1.495		-3.058	

Steel Column

Project File: Cantilever Gate.ec6

LIC# : KW-06016134, Build:20.23.08.30

Greenberg Farrow Architecture, Inc.

(c) ENERCALC INC 1983-2023

DESCRIPTION: Gate Catch Post - 14' Spacing

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial Reaction	X-X Axis Reaction		k	Y-Y Axis Reaction		Mx - End Moments		My - End Moments	
	@ Base	@ Base	@ Top		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top
+0.60D+0.70E	1.214	-0.510					-0.897		-4.077	
W Only		-2.240							-8.960	
E Only		-0.728							-5.824	

Extreme Reactions

Item	Extreme Value	Axial Reaction	X-X Axis Reaction		k	Y-Y Axis Reaction		Mx - End Moments		My - End Moments	
		@ Base	@ Base	@ Top		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top
Axial @ Base	Maximum	2.023						-1.495			
"	Minimum		-2.240							-8.960	
Reaction, X-X Axis Base	Maximum	2.023						-1.495			
"	Minimum		-2.240							-8.960	
Reaction, Y-Y Axis Base	Maximum	2.023						-1.495			
"	Minimum	2.023								-1.495	
Reaction, X-X Axis Top	Maximum	2.023						-1.495			
"	Minimum	2.023						-1.495			
Reaction, Y-Y Axis Top	Maximum	2.023						-1.495			
"	Minimum		-0.728							-5.824	
Moment, X-X Axis Base	Maximum									-8.960	
"	Minimum	2.023	-1.495					-1.495			
Moment, Y-Y Axis Base	Maximum	2.023									
"	Minimum		-2.240							-8.960	
Moment, X-X Axis Top	Maximum	2.023						-1.495			
"	Minimum	2.023						-1.495			
Moment, Y-Y Axis Top	Maximum	2.023						-1.495			
"	Minimum	2.023						-1.495			

Maximum Deflections for Load Combinations

Load Combination	Max. Deflection in X dir	Distance	Max. Deflection in Y dir	Distance
D Only	0.0000 in	0.000 ft	0.042 in	8.000 ft
+D+0.60W	0.0749 in	8.000 ft	0.042 in	8.000 ft
+D+0.450W	0.0562 in	8.000 ft	0.042 in	8.000 ft
+0.60D+0.60W	0.0749 in	8.000 ft	0.025 in	8.000 ft
+D+0.70E	0.0757 in	8.000 ft	0.042 in	8.000 ft
+D+0.5250E	0.0568 in	8.000 ft	0.042 in	8.000 ft
+0.60D+0.70E	0.0757 in	8.000 ft	0.025 in	8.000 ft
W Only	0.1249 in	8.000 ft	0.000 in	0.000 ft
E Only	0.1071 in	7.946 ft	0.000 in	0.000 ft

Steel Section Properties : Pipe8STD

Depth	=	8.625 in	I xx	=	68.10 in ⁴	J	=	136.000 in ⁴
			S xx	=	15.80 in ³			
Diameter	=	8.625 in	R xx	=	2.950 in			
Wall Thick	=	0.322 in	Zx	=	20.800 in ³			
Area	=	7.850 in ²	I yy	=	68.100 in ⁴			
Weight	=	28.600 plf	S yy	=	15.800 in ³			
			R yy	=	2.950 in			
Ycg	=	0.000 in						

Steel Column

Project File: Cantilever Gate.ec6

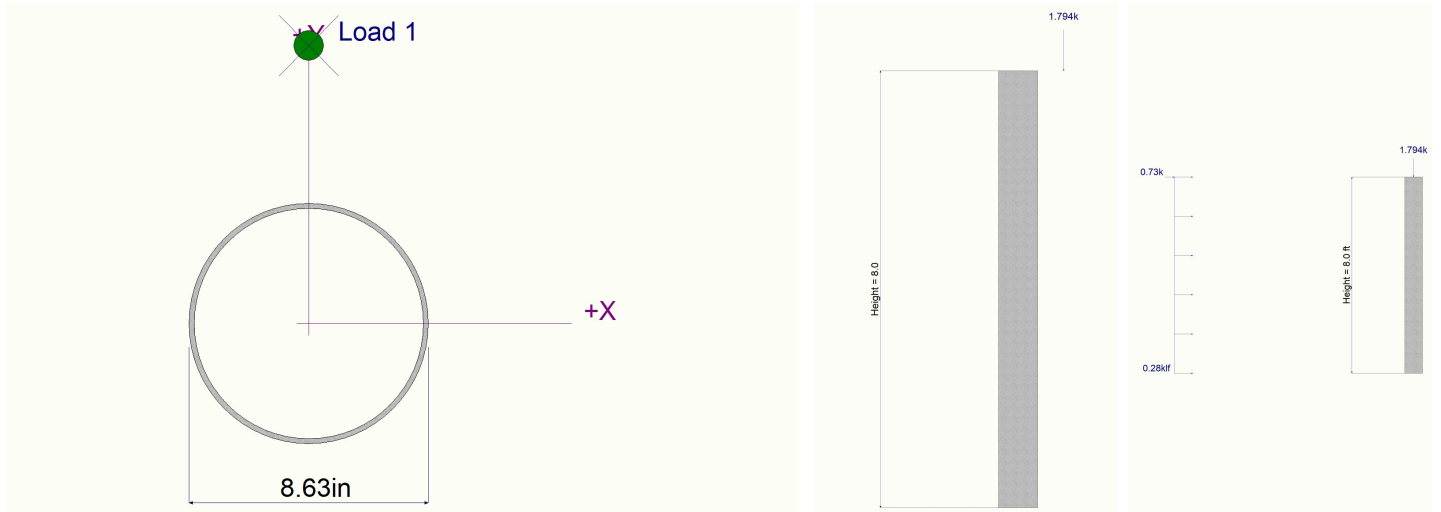
LIC# : KW-06016134, Build:20.23.08.30

Greenberg Farrow Architecture, Inc.

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DESCRIPTION: Gate Catch Post - 14' Spacing

Sketches



Pole Footing Embedded in Soil

Project File: Cantilever Gate.ec6

LIC#: KW-06016134, Build:20.23.08.30

Greenberg Farrow Architecture, Inc.

(c) ENERCALC INC 1983-2023

DESCRIPTION: Catch Post Gate Ftg - 14.5' Spacing

Code References

Calculations per IBC 2021 1807.3, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Pole Footing Shape Circular
Pole Footing Diameter 36.0 in
Calculate Min. Depth for Allowable Pressures
No Lateral Restraint at Ground Surface
Allow Passive 200.0 pcf
Max Passive 1,500.0 pcf

Controlling Values

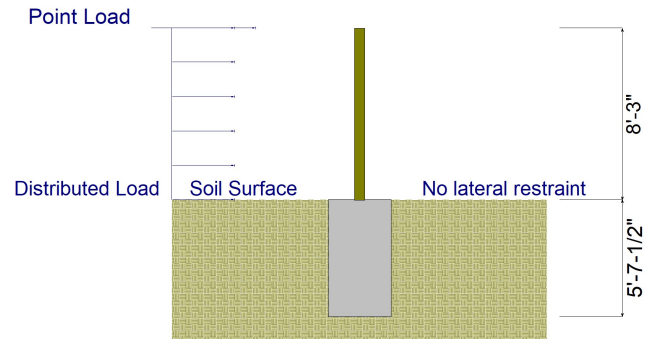
Governing Load Combination D+0.60W
Lateral Load 1.436 k
Moment 5.921 k-ft

NO Ground Surface Restraint

Pressures at 1/3 Depth
Actual **367,326 psf**
Allowable **368,511 psf**

Minimum Required Depth 5.625 ft

Footing Base Area 7.069 ft²
Maximum Soil Pressure 0.2538 ksf



Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (k)		Vertical Load (k)
D : Dead Load	k		k/ft	1.794 k
Lr : Roof Live	k		k/ft	k
L : Live	k		k/ft	k
S : Snow	k		k/ft	k
W : Wind	k	0.290	k/ft	k
E : Earthquake	0.7280 k		k/ft	k
H : Lateral Earth	k		k/ft	k
Load distance above ground surface	8.250 ft	TOP of Load above ground surface	8.250 ft	
		BOTTOM of Load above ground surface	ft	

Load Combination Results

Load Combination	Forces @ Ground Surface		Required Depth - (ft)	Pressure at 1/3 Depth		Soil Increase Factor
	Loads - (k)	Moments - (ft-k)		Actual - (psf)	Allow - (psf)	
D Only	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.60W	1.436	5.921	5.63	367.3	368.5	1.000
+D-0.60W	1.436	5.921	5.63	367.3	368.5	1.000
+D+0.450W	1.077	4.441	5.00	327.3	327.6	1.000
+D-0.450W	1.077	4.441	5.00	327.3	327.6	1.000
+0.60D+0.60W	1.436	5.921	5.63	367.3	368.5	1.000
+0.60D-0.60W	1.436	5.921	5.63	367.3	368.5	1.000
+D+0.70E	0.510	4.204	4.38	286.1	286.5	1.000
+D-0.70E	0.510	4.204	4.38	286.1	286.5	1.000

Pole Footing Embedded in Soil

Project File: Cantilever Gate.ec6

LIC# : KW-06016134, Build:20.23.08.30

Greenberg Farrow Architecture, Inc.

(c) ENERCALC INC 1983-2023

DESCRIPTION: Catch Post Gate Ftg - 14.5' Spacing

+D+0.5250E	0.382	3.153	3.88	256.2	257.9	1.000
+D-0.5250E	0.382	3.153	3.88	256.2	257.9	1.000
+0.60D+0.70E	0.510	4.204	4.38	286.1	286.5	1.000
+0.60D-0.70E	0.510	4.204	4.38	286.1	286.5	1.000

Pole Footing Embedded in Soil

Project File: Cantilever Gate.ec6

LIC#: KW-06016134, Build:20.23.08.30

Greenberg Farrow Architecture, Inc.

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DESCRIPTION: Cantilever Gate Ftg - 7.25' Spacing

Code References

Calculations per IBC 2021 1807.3, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

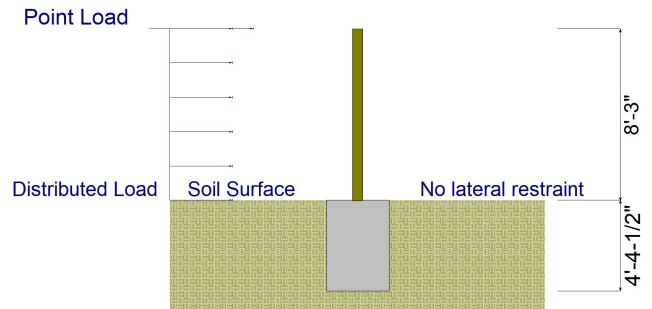
Pole Footing Shape Circular
Pole Footing Diameter 36.0 in
Calculate Min. Depth for Allowable Pressures
No Lateral Restraint at Ground Surface
Allow Passive 200.0 pcf
Max Passive 1,500.0 psf

Controlling Values

Governing Load Combination **D+0.70E**
Lateral Load 0.5096 k
Moment 4.204 k-ft
NO Ground Surface Restraint
Pressures at 1/3 Depth
Actual **286,062 psf**
Allowable **286,483 psf**

Minimum Required Depth	4.375 ft
-------------------------------	-----------------

Footing Base Area 7.069 ft²
Maximum Soil Pressure 0.2538 ksf



Applied Loads

Lateral Concentrated Load (k)	Lateral Distributed Loads (k)	Vertical Load (k)
D : Dead Load k		1.794 k
Lr : Roof Live k		k
L : Live k		k
S : Snow k		k
W : Wind k	0.1450	k
E : Earthquake 0.7280 k		k
H : Lateral Earth k		k
Load distance above ground surface 8.250 ft	TOP of Load above ground surface 8.250 ft	
	BOTTOM of Load above ground surface ft	

Load Combination Results

Load Combination	Forces @ Ground Surface		Required Depth - (ft)	Pressure at 1/3 Depth		Soil Increase Factor
	Loads - (k)	Moments - (ft-k)		Actual - (psf)	Allow - (psf)	
D Only	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.60W	0.718	2.961	4.25	278.2	278.5	1.000
+D-0.60W	0.718	2.961	4.25	278.2	278.5	1.000
+D+0.450W	0.538	2.221	3.75	247.9	248.9	1.000
+D-0.450W	0.538	2.221	3.75	247.9	248.9	1.000
+0.60D+0.60W	0.718	2.961	4.25	278.2	278.5	1.000
+0.60D-0.60W	0.718	2.961	4.25	278.2	278.5	1.000
+D+0.70E	0.510	4.204	4.38	286.1	286.5	1.000
+D-0.70E	0.510	4.204	4.38	286.1	286.5	1.000

Pole Footing Embedded in Soil

Project File: Cantilever Gate.ec6

LIC# : KW-06016134, Build:20.23.08.30

Greenberg Farrow Architecture, Inc.

(c) ENERCALC INC 1983-2023

DESCRIPTION: Cantilever Gate Ftg - 7.25' Spacing

+D+0.5250E	0.382	3.153	3.88	256.2	257.9	1.000
+D-0.5250E	0.382	3.153	3.88	256.2	257.9	1.000
+0.60D+0.70E	0.510	4.204	4.38	286.1	286.5	1.000
+0.60D-0.70E	0.510	4.204	4.38	286.1	286.5	1.000

Pole Footing Embedded in Soil

Project File: Cantilever Gate.ec6

LIC#: KW-06016134, Build:20.23.08.30

Greenberg Farrow Architecture, Inc.

(c) ENERCALC INC 1983-2023

DESCRIPTION: Cantilever Gate Ftg - 21.75' Spacing

Code References

Calculations per IBC 2021 1807.3, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Pole Footing Shape Circular
Pole Footing Diameter 36.0 in
Calculate Min. Depth for Allowable Pressures
No Lateral Restraint at Ground Surface
Allow Passive 200.0 pcf
Max Passive 1,500.0 psf

Controlling Values

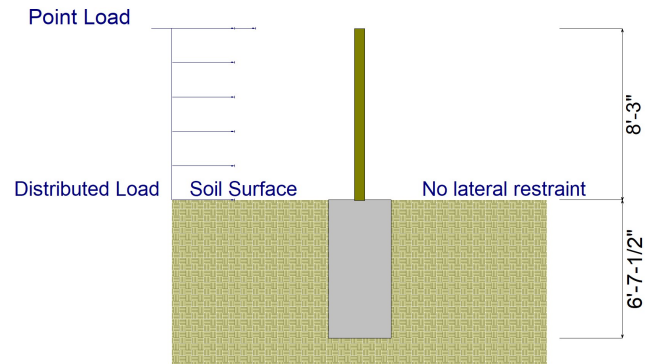
Governing Load Combination **D+0.60W**
Lateral Load 2.153 k
Moment 8.882 k-ft

NO Ground Surface Restraint

Pressures at 1/3 Depth
Actual **434,517 psf**
Allowable **435,179 psf**

Minimum Required Depth 6.625 ft

Footing Base Area 7.069 ft²
Maximum Soil Pressure 0.2538 ksf



Applied Loads

Lateral Concentrated Load (k)	Lateral Distributed Loads (k)	Vertical Load (k)
D : Dead Load k		1.794 k
Lr : Roof Live k		k
L : Live k		k
S : Snow k		k
W : Wind k	0.4350	k
E : Earthquake 0.7280 k		k
H : Lateral Earth k		k
Load distance above ground surface 8.250 ft	TOP of Load above ground surface 8.250 ft	
	BOTTOM of Load above ground surface ft	

Load Combination Results

Load Combination	Forces @ Ground Surface		Required Depth - (ft)	Pressure at 1/3 Depth		Soil Increase Factor
	Loads - (k)	Moments - (ft-k)		Actual - (psf)	Allow - (psf)	
D Only	0.000	0.000	0.13	0.0	0.0	1.000
+D+0.60W	2.153	8.882	6.63	434.5	435.2	1.000
+D-0.60W	2.153	8.882	6.63	434.5	435.2	1.000
+D+0.450W	1.615	6.662	5.88	386.2	386.2	1.000
+D-0.450W	1.615	6.662	5.88	386.2	386.2	1.000
+0.60D+0.60W	2.153	8.882	6.63	434.5	435.2	1.000
+0.60D-0.60W	2.153	8.882	6.63	434.5	435.2	1.000
+D+0.70E	0.510	4.204	4.38	286.1	286.5	1.000
+D-0.70E	0.510	4.204	4.38	286.1	286.5	1.000

Pole Footing Embedded in Soil

Project File: Cantilever Gate.ec6

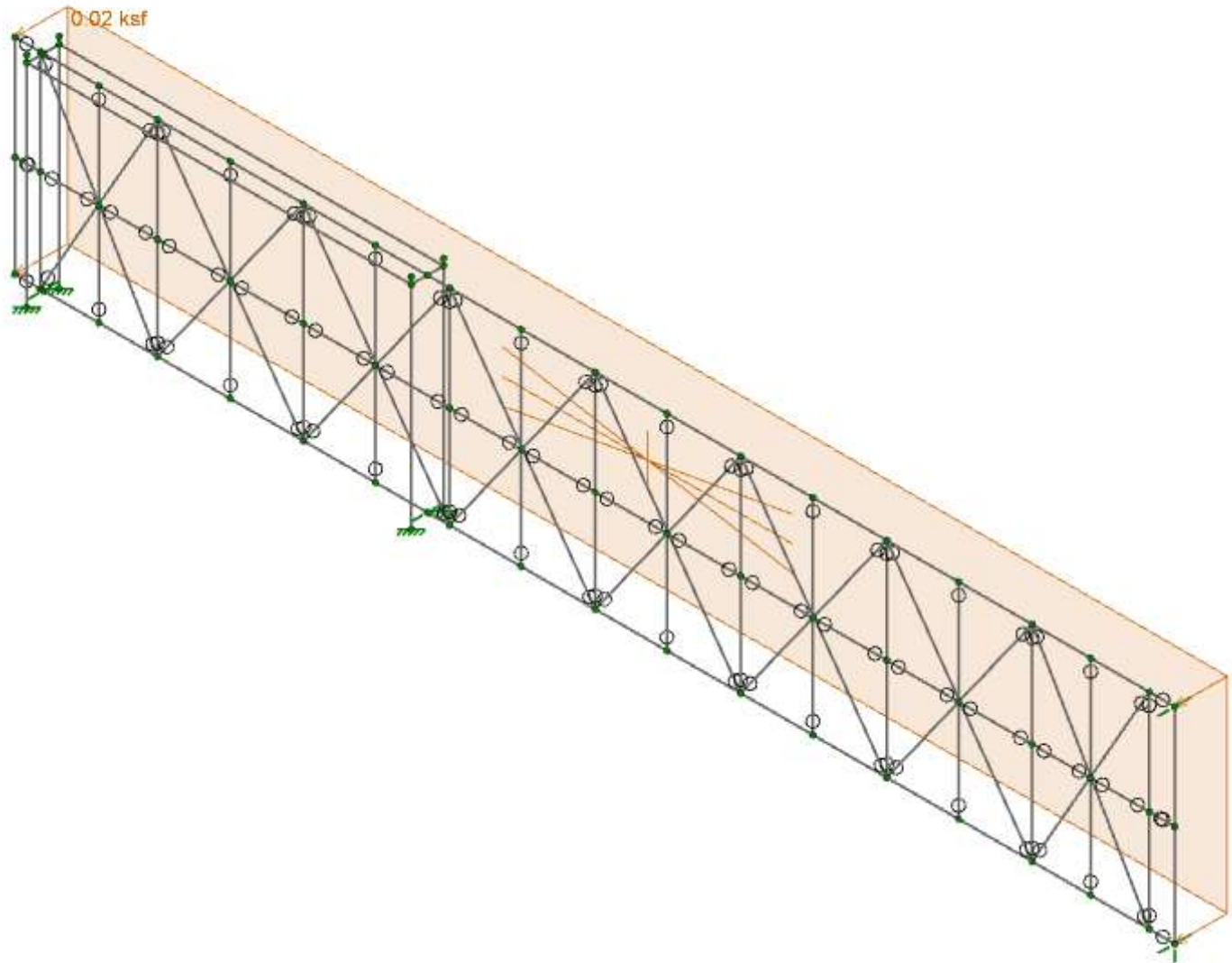
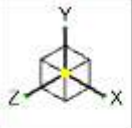
LIC# : KW-06016134, Build:20.23.08.30

Greenberg Farrow Architecture, Inc.

(c) ENERCALC INC 1983-2023

DESCRIPTION: Cantilever Gate Ftg - 21.75' Spacing

+D+0.5250E	0.382	3.153	3.88	256.2	257.9	1.000
+D-0.5250E	0.382	3.153	3.88	256.2	257.9	1.000
+0.60D+0.70E	0.510	4.204	4.38	286.1	286.5	1.000
+0.60D-0.70E	0.510	4.204	4.38	286.1	286.5	1.000

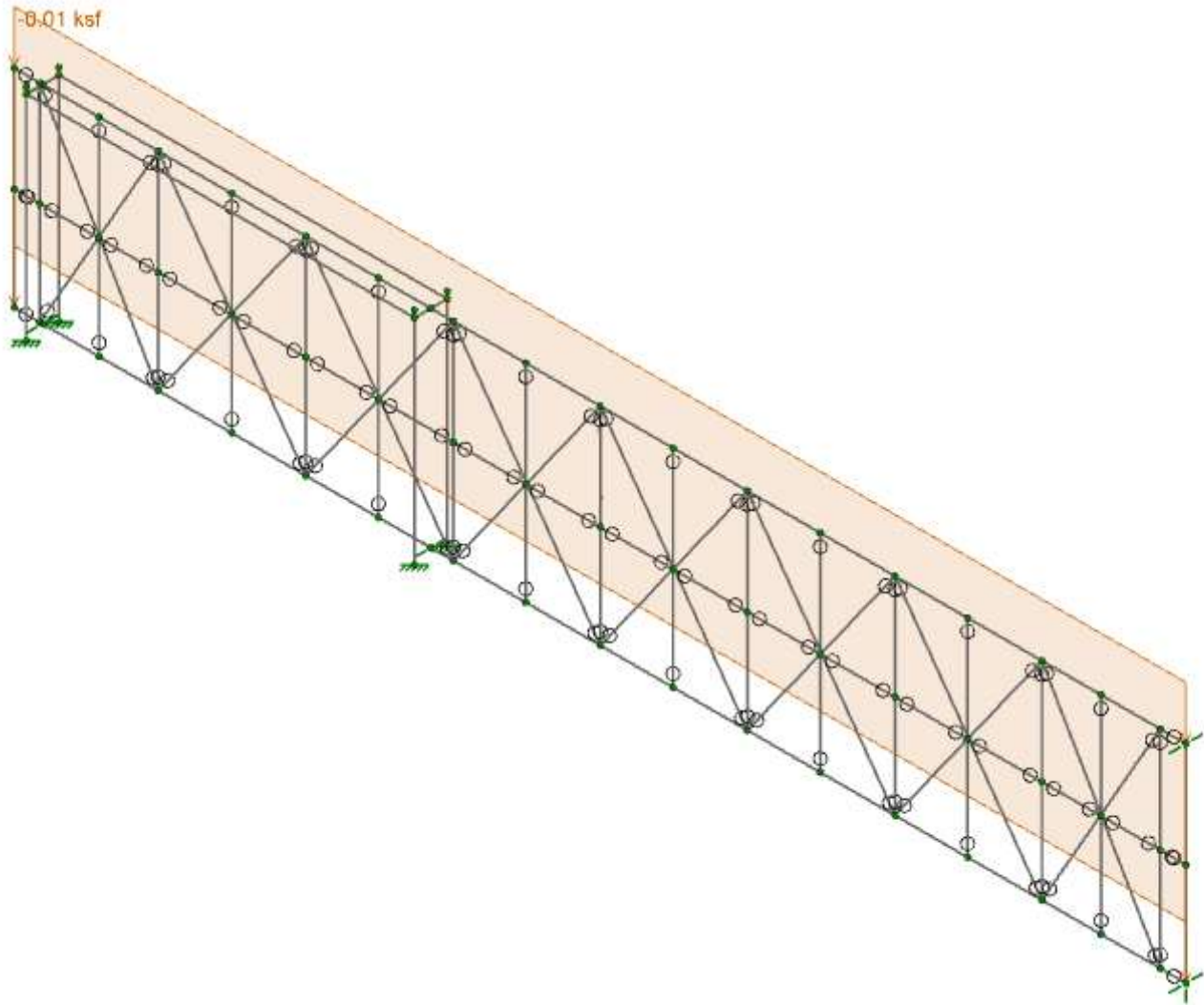


Loads: BLC 2, Wind Load



GF
AD

SK-3
Jan 30, 2025 at 02:39 PM
CANTILEVER.r3d

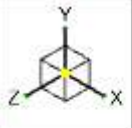


Loads: BLC 1, Dead Load

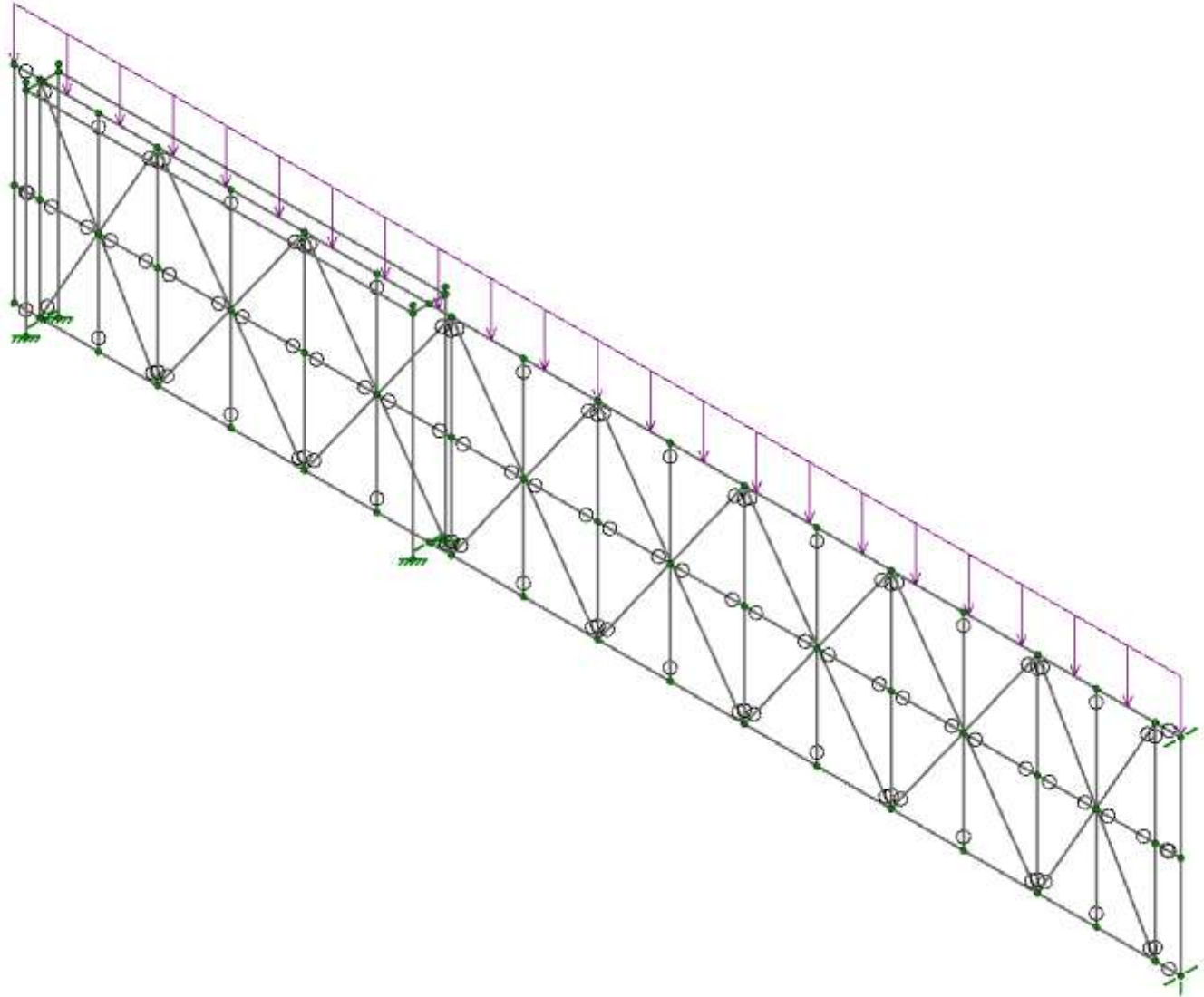


GF
AD

SK-4
Jan 30, 2025 at 02:41 PM
CANTILEVER.r3d



-0.007 k/ft



Loads: BLC 3, Snow Load



GF
AD

SK-2

Jan 30, 2025 at 02:36 PM

CANTILEVER.r3d

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	DL + 0.6W	Yes	Y	1	1	2	0.6		
2	Deflection		Y	1	1	2	0.42		
3	DL + S	Yes	Y	1	1	3	1		
4	DL + .75(.6W) + .75(S)	Yes	Y	1	1	2	0.45	3	0.75

Node Reactions

	LC	Node Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N0	0	0.549	-0.004	-0.01	0	0.004
2	1	N23	0	0.444	-0.004	-0.01	0	0.004
3	1	N44	0	1.564	-0.004	-0.01	0	0.004
4	1	N48	0	1.46	-0.004	-0.01	0	0.004
5	1	N30	0	0	-0.069	0	0	0
6	1	N52	0	0	-1.518	0	0	0
7	1	N46	0	0	-0.135	0	0	0
8	1	N49	0	0	-1.312	0	0	0
9	1	N89	0	0	-0.513	0	LOCKED	0
10	1	N92	0	1.271	-0.507	0	0	0
11	1	N42	NC	NC	NC	NC	LOCKED	NC
12	1	Totals:	0	5.288	-4.069			
13	1	COG (ft):	X: 19.615	Y: 4.182	Z: 0			
14	3	N0	0	0.515	0	0	0	0.005
15	3	N23	0	0.515	0	0	0	0.005
16	3	N44	0	1.603	0	0	0	0.005
17	3	N48	0	1.603	0	0	0	0.005
18	3	N30	0	0	0	0	0	0
19	3	N52	0	0	0	0	0	0
20	3	N46	0	0	0	0	0	0
21	3	N49	0	0	0	0	0	0
22	3	N89	0	0	0	0	LOCKED	0
23	3	N92	0	1.358	0	0	0	0
24	3	N42	NC	NC	NC	NC	LOCKED	NC
25	3	Totals:	0	5.594	0			
26	3	COG (ft):	X: 19.739	Y: 4.391	Z: 0			
27	4	N0	0	0.549	-0.003	-0.008	0	0.004
28	4	N23	0	0.471	-0.003	-0.008	0	0.004
29	4	N44	0	1.62	-0.003	-0.008	0	0.004
30	4	N48	0	1.541	-0.003	-0.008	0	0.004
31	4	N30	0	0	-0.051	0	0	0
32	4	N52	0	0	-1.14	0	0	0
33	4	N46	0	0	-0.101	0	0	0
34	4	N49	0	0	-0.983	0	0	0
35	4	N89	0	0	-0.386	0	LOCKED	0
36	4	N92	0	1.336	-0.379	0	0	0
37	4	N42	NC	NC	NC	NC	LOCKED	NC
38	4	Totals:	0	5.518	-3.052			
39	4	COG (ft):	X: 19.709	Y: 4.341	Z: 0			

AA ADM1-10: ASD - BUILDING Member Aluminum Code Checks

LC	Member	Shape	UC MaxLoc[ft]	Shear UCLoc[ft]	DirPnc/Om[k]	Pnt/Om[k]	Mny/Om[k-ft]	Mnz/Om[k-ft]	Vny/Om[k]	Vnz/Om[k]	Cb	Eqn				
1	1	M1	RT4X9X0.25	0.49	15.951	0.044	15.951	z	95.65	121.795	12.525	24.48	52.5	20.682	3.069	H.1-1
2	1	M2	RT5X5X.250	0.287	15.495	0.028	15.951	z	75.886	92.564	12.665	12.665	27.045	27.045	3.398	H.1-1
3	1	M4	RT1.25X2.5X0.125	0.214	3.875	0.022	0	y	3.857	17.051	0.619	0.907	6.761	2.784	1.19	H.1-1

AA ADM1-10: ASD - BUILDING Member Aluminum Code Checks (Continued)

LC	Member	Shape	UC	MaxLoc[ft]	Shear	UCLoc[ft]	Dir	Pnc/Om[k]	Pnt/Om[k]	Mny/Om[k-ft]	Mnz/Om[k-ft]	Vny/Om[k]	Vnz/Om[k]	Cb	Eqn	
4	1	M5	RT2.5X2.5X0.250	0.098	3.794	0.024	0.888	z	28.976	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
5	1	M7	RT2.5X2.5X0.250	0.013	1.105	0.022	2.21	y	37.45	43.846	2.715	2.715	11.136	11.136	1.137	H.1-1
6	1	M8	RT2.5X2.5X0.250	0.015	1.105	0.019	0	y	37.45	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
7	1	M29	RT2.5X2.5X0.250	0.027	7.75	0.004	7.75	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
8	1	M44	RT1.25X2.5X0.125	0.314	3.794	0.02	0.888	y	3.857	17.051	0.619	0.912	6.761	2.784	1.26	H.1-1
9	1	M45	RT2.5X2.5X0.250	0.114	3.794	0.013	0.888	z	28.976	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
10	1	M47	RT1.25X2.5X0.125	0.32	3.794	0.03	0.888	y	3.857	17.051	0.619	0.914	6.761	2.784	1.293	H.1-1
11	1	M53	RT2.5X2.5X0.250	0.118	3.875	0.05	7.75	z	28.976	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
12	1	M54	RT1.25X2.5X0.125	0.31	3.875	0.027	7.75	y	3.857	17.051	0.619	0.909	6.761	2.784	1.225	H.1-1
13	1	M52	RT2.5X2.5X0.250	0.022	1.373	0.018	2.745	y	35.47	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
14	1	M55	RT2.5X2.5X0.250	0.023	1.383	0.008	2.765	y	35.396	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
15	1	M56	RT2.5X2.5X0.250	0.022	1.355	0.022	2.71	y	35.6	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
16	1	M57	RT2.5X2.5X0.250	0.023	1.4	0.039	2.8	y	35.267	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
17	1	M58	RT2.5X2.5X0.250	0.022	1.35	0.031	2.7	y	35.637	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
18	1	M59	RT2.5X2.5X0.250	0.023	1.395	0.023	2.79	y	35.304	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
19	1	M43	RT2.5X2.5X0.250	0.153	3.875	0.017	7.75	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
20	1	M48	RT1.25X2.5X0.125	0.323	3.794	0.015	7.75	y	3.857	17.051	0.619	0.909	6.761	2.784	1.218	H.1-1
21	1	M50	RT2.5X2.5X0.250	0.022	1.357	0.006	0	y	35.588	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
22	1	M51	RT2.5X2.5X0.250	0.023	1.388	0.007	2.777	y	35.352	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
23	1	M66	RT2.5X2.5X0.250	0.14	3.794	0.016	7.75	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
24	1	M68	RT2.5X2.5X0.250	0.022	1.362	0.015	0	y	35.552	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
25	1	M69	RT1.25X2.5X0.125	0.32	3.794	0.02	0.888	y	3.857	17.051	0.619	0.909	6.761	2.784	1.217	H.1-1
26	1	M70	RT2.5X2.5X0.250	0.023	1.393	0.014	2.787	y	35.315	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
27	1	M72	RT2.5X2.5X0.250	0.134	3.794	0.02	0.888	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
28	1	M73	RT2.5X2.5X0.250	0.023	1.387	0.014	2.774	y	35.362	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
29	1	M75	RT2.5X2.5X0.250	0.022	1.355	0.017	0	y	35.597	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
30	1	M76	RT1.25X2.5X0.125	0.293	3.794	0.019	0.888	y	3.857	17.051	0.619	0.909	6.761	2.784	1.217	H.1-1
31	1	M78	RT2.5X2.5X0.250	0.163	3.794	0.018	0.888	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
32	1	M79	RT2.5X2.5X0.250	0.087	3.794	0.014	0	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
33	1	M80	RT1.25X2.5X0.125	0.235	3.794	0.018	0	y	3.857	17.051	0.619	0.907	6.761	2.784	1.198	H.1-1
34	1	M82	RT2.5X2.5X0.250	0.013	1.105	0.011	0	y	37.45	43.846	2.715	2.715	11.136	11.136	1.137	H.1-1
35	1	M84	RT2.5X2.5X0.250	0.014	1.102	0.013	2.205	y	37.469	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
36	1	M88	RT2.5X2.5X0.250	0.048	3.794	0.002	7.75	z	31.289	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
37	1	M91	RT2.5X2.5X0.250	0.047	7.75	0.016	7.75	z	11.4	43.846	2.715	2.715	11.136	11.136	1.693	H.1-1
38	1	M93	RT2.5X2.5X0.250	0.002	0.48	0.005	0.96	y	42.076	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
39	1	M94	RT2.5X2.5X0.250	0.002	0.48	0.013	0.96	y	42.076	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
40	3	M1	RT4X9X0.25	0.13	15.951	0.039	15.951	y	95.65	121.795	12.525	24.487	52.5	20.682	3.081	H.1-1
41	3	M2	RT5X5X.250	0.051	16.406	0.016	43.75	y	75.886	92.564	12.665	12.665	27.045	27.045	3.387	H.1-1
42	3	M4	RT1.25X2.5X0.125	0.013	3.875	0	3.794	z	3.857	17.051	0.619	0.936	6.761	2.784	1	H.1-1
43	3	M5	RT2.5X2.5X0.250	0.005	3.794	0	3.794	y	28.976	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
44	3	M7	RT2.5X2.5X0.250	0.009	1.151	0.004	2.21	y	37.45	43.846	2.715	2.715	11.136	11.136	1.137	H.1-1
45	3	M8	RT2.5X2.5X0.250	0.009	1.105	0.004	0	y	37.45	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
46	3	M29	RT2.5X2.5X0.250	0.014	3.794	0	3.794	y	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
47	3	M44	RT1.25X2.5X0.125	0.002	3.794	0	3.794	z	3.857	17.051	0.619	0.936	6.761	2.784	1	H.1-1
48	3	M45	RT2.5X2.5X0.250	0.005	3.794	0	3.794	y	28.976	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
49	3	M47	RT1.25X2.5X0.125	0.011	3.794	0	3.794	z	3.857	17.051	0.619	0.936	6.761	2.784	1	H.1-1
50	3	M53	RT2.5X2.5X0.250	0.017	3.875	0	3.794	y	28.976	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
51	3	M54	RT1.25X2.5X0.125	0.012	3.794	0	3.794	z	3.857	17.051	0.619	0.936	6.761	2.784	1	H.1-1
52	3	M52	RT2.5X2.5X0.250	0.014	1.373	0.005	2.745	y	35.47	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
53	3	M55	RT2.5X2.5X0.250	0.015	1.383	0.005	2.765	y	35.396	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
54	3	M56	RT2.5X2.5X0.250	0.014	1.355	0.005	2.71	y	35.6	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
55	3	M57	RT2.5X2.5X0.250	0.015	1.4	0.005	2.8	y	35.267	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
56	3	M58	RT2.5X2.5X0.250	0.014	1.35	0.005	2.7	y	35.637	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
57	3	M59	RT2.5X2.5X0.250	0.015	1.395	0.005	2.79	y	35.304	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
58	3	M43	RT2.5X2.5X0.250	0.055	3.794	0	3.794	y	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1

AA ADM1-10: ASD - BUILDING Member Aluminum Code Checks (Continued)

LC	Member	Shape	UC	MaxLoc[ft]	Shear	UCLoc[ft]	Dir	Pnc/Om[k]	Pnt/Om[k]	Mny/Om[k-ft]	Mnz/Om[k-ft]	Vny/Om[k]	Vnz/Om[k]	Cb	Eqn	
59	3	M48	RT1.25X2.5X0.125	0.028	3.794	0	3.794	z	3.857	17.051	0.619	0.936	6.761	2.784	1	H.1-1
60	3	M50	RT2.5X2.5X0.250	0.014	1.357	0.005	0	y	35.588	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
61	3	M51	RT2.5X2.5X0.250	0.015	1.388	0.005	2.777	y	35.352	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
62	3	M66	RT2.5X2.5X0.250	0.04	3.794	0	3.794	y	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
63	3	M68	RT2.5X2.5X0.250	0.014	1.362	0.005	0	y	35.552	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
64	3	M69	RT1.25X2.5X0.125	0.021	3.794	0	3.794	z	3.857	17.051	0.619	0.936	6.761	2.784	1	H.1-1
65	3	M70	RT2.5X2.5X0.250	0.015	1.393	0.005	2.787	y	35.315	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
66	3	M72	RT2.5X2.5X0.250	0.033	3.794	0	3.794	y	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
67	3	M73	RT2.5X2.5X0.250	0.015	1.387	0.005	2.774	y	35.362	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
68	3	M75	RT2.5X2.5X0.250	0.014	1.355	0.005	0	y	35.597	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
69	3	M76	RT1.25X2.5X0.125	0.027	3.875	0	3.794	z	3.857	17.051	0.619	0.936	6.761	2.784	1	H.1-1
70	3	M78	RT2.5X2.5X0.250	0.071	3.794	0	3.794	y	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
71	3	M79	RT2.5X2.5X0.250	0.037	3.794	0	3.794	y	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
72	3	M80	RT1.25X2.5X0.125	0.02	3.794	0	3.794	z	3.857	17.051	0.619	0.936	6.761	2.784	1	H.1-1
73	3	M82	RT2.5X2.5X0.250	0.009	1.059	0.004	0	y	37.45	43.846	2.715	2.715	11.136	11.136	1.137	H.1-1
74	3	M84	RT2.5X2.5X0.250	0.009	1.102	0.004	2.205	y	37.469	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
75	3	M88	RT2.5X2.5X0.250	0.036	3.794	0	3.794	y	31.289	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
76	3	M91	RT2.5X2.5X0.250	0.007	3.794	0.001	3.794	y	11.4	43.846	2.715	2.715	11.136	11.136	1.695	H.1-1
77	3	M93	RT2.5X2.5X0.250	0.002	0.48	0.002	0.96	y	42.076	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
78	3	M94	RT2.5X2.5X0.250	0.002	0.48	0.002	0.96	y	42.076	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
79	4	M1	RT4X9X0.25	0.404	15.951	0.039	15.951	y	95.65	121.795	12.525	24.486	52.5	20.682	3.078	H.1-1
80	4	M2	RT5X5X.250	0.225	15.495	0.021	15.951	z	75.886	92.564	12.665	12.665	27.045	27.045	3.39	H.1-1
81	4	M4	RT1.25X2.5X0.125	0.164	3.875	0.016	0	y	3.857	17.051	0.619	0.907	6.761	2.784	1.19	H.1-1
82	4	M5	RT2.5X2.5X0.250	0.075	3.794	0.018	0.888	z	28.976	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
83	4	M7	RT2.5X2.5X0.250	0.012	1.128	0.017	2.21	y	37.45	43.846	2.715	2.715	11.136	11.136	1.137	H.1-1
84	4	M8	RT2.5X2.5X0.250	0.013	1.105	0.015	0	y	37.45	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
85	4	M29	RT2.5X2.5X0.250	0.022	1.776	0.003	7.75	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
86	4	M44	RT1.25X2.5X0.125	0.236	3.794	0.015	0.888	y	3.857	17.051	0.619	0.912	6.761	2.784	1.259	H.1-1
87	4	M45	RT2.5X2.5X0.250	0.087	3.794	0.01	0.888	z	28.976	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
88	4	M47	RT1.25X2.5X0.125	0.241	3.794	0.022	0.888	y	3.857	17.051	0.619	0.914	6.761	2.784	1.293	H.1-1
89	4	M53	RT2.5X2.5X0.250	0.094	3.875	0.038	7.75	z	28.976	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
90	4	M54	RT1.25X2.5X0.125	0.233	3.875	0.02	7.75	y	3.857	17.051	0.619	0.909	6.761	2.784	1.225	H.1-1
91	4	M52	RT2.5X2.5X0.250	0.02	1.373	0.015	2.745	y	35.47	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
92	4	M55	RT2.5X2.5X0.250	0.021	1.383	0.007	2.765	y	35.396	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
93	4	M56	RT2.5X2.5X0.250	0.02	1.355	0.017	2.71	y	35.6	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
94	4	M57	RT2.5X2.5X0.250	0.021	1.4	0.03	2.8	y	35.267	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
95	4	M58	RT2.5X2.5X0.250	0.02	1.35	0.025	2.7	y	35.637	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
96	4	M59	RT2.5X2.5X0.250	0.021	1.395	0.019	2.79	y	35.304	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
97	4	M43	RT2.5X2.5X0.250	0.13	3.794	0.013	7.75	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
98	4	M48	RT1.25X2.5X0.125	0.251	3.794	0.011	7.75	y	3.857	17.051	0.619	0.909	6.761	2.784	1.218	H.1-1
99	4	M50	RT2.5X2.5X0.250	0.02	1.357	0.006	0	y	35.588	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
100	4	M51	RT2.5X2.5X0.250	0.021	1.388	0.007	2.777	y	35.352	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
101	4	M66	RT2.5X2.5X0.250	0.117	3.794	0.012	7.75	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
102	4	M68	RT2.5X2.5X0.250	0.02	1.362	0.013	0	y	35.552	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
103	4	M69	RT1.25X2.5X0.125	0.247	3.794	0.015	0.888	y	3.857	17.051	0.619	0.909	6.761	2.784	1.217	H.1-1
104	4	M70	RT2.5X2.5X0.250	0.021	1.393	0.012	2.787	y	35.315	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
105	4	M72	RT2.5X2.5X0.250	0.11	3.794	0.015	0.888	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
106	4	M73	RT2.5X2.5X0.250	0.021	1.387	0.012	2.774	y	35.362	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
107	4	M75	RT2.5X2.5X0.250	0.02	1.355	0.014	0	y	35.597	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1
108	4	M76	RT1.25X2.5X0.125	0.227	3.875	0.014	0.888	y	3.857	17.051	0.619	0.909	6.761	2.784	1.217	H.1-1
109	4	M78	RT2.5X2.5X0.250	0.143	3.794	0.013	0.888	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
110	4	M79	RT2.5X2.5X0.250	0.076	3.794	0.01	0	z	11.4	43.846	2.715	2.715	11.136	11.136	1.313	H.1-1
111	4	M80	RT1.25X2.5X0.125	0.182	3.794	0.014	0	y	3.857	17.051	0.619	0.907	6.761	2.784	1.199	H.1-1
112	4	M82	RT2.5X2.5X0.250	0.012	1.082	0.009	0	y	37.45	43.846	2.715	2.715	11.136	11.136	1.137	H.1-1
113	4	M84	RT2.5X2.5X0.250	0.013	1.102	0.011	2.205	y	37.469	43.846	2.715	2.715	11.136	11.136	1.136	H.1-1

AA ADM1-10: ASD - BUILDING Member Aluminum Code Checks (Continued)

LC	Member	Shape	UC	MaxLoc	Shear	UC	Loc	Dir	Pnc	Om	Pnt	Om	Mny	Om	Mnz	Om	Vny	Om	Vnz	Om	Cb	Eqn
114	4	M88	RT2.5X2.5X0.250	0.046	3.794	0.002	7.75	z	31.289	43.846	2.715	2.715	11.136	11.136	1.313	1.313	11.136	11.136	1.136	1.136	1.136	H.1-1
115	4	M91	RT2.5X2.5X0.250	0.036	7.75	0.012	7.75	z	11.4	43.846	2.715	2.715	11.136	11.136	1.695	1.695	11.136	11.136	1.136	1.136	1.136	H.1-1
116	4	M93	RT2.5X2.5X0.250	0.002	0.48	0.004	0.96	y	42.076	43.846	2.715	2.715	11.136	11.136	1.136	1.136	11.136	11.136	1.136	1.136	1.136	H.1-1
117	4	M94	RT2.5X2.5X0.250	0.002	0.48	0.01	0.96	y	42.076	43.846	2.715	2.715	11.136	11.136	1.136	1.136	11.136	11.136	1.136	1.136	1.136	H.1-1

AISC 14TH (360-10): ASD Member Steel Code Checks

LC	Member	Shape	UC	MaxLoc	Shear	UC	Loc	Pnc	om	Pnt	om	Mny	om	Mnz	om	Cb	Eqn
1	1	M3	HSS8.625X0.322	0.004	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
2	1	M13	1/4"CABLE	0.087	8.922	0.002	8.922	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
3	1	M14	1/4"CABLE	0	8.922	0	8.922	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1a
4	1	M15	1/4"CABLE	0	9.509	0	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
5	1	M41	HSS8.625X0.322	0.012	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
6	1	M60	1/4"CABLE	0.035	9.509	0.002	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
7	1	M61	1/4"CABLE	0	9.509	0	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
8	1	M62	1/4"CABLE	0.122	9.509	0.004	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
9	1	M63	1/4"CABLE	0.585	0	0.009	9.498	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a*
10	1	M64	1/4"CABLE	0	9.498	0	9.498	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
11	1	M37	HSS8.625X0.322	0.011	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
12	1	M38	HSS8.625X0.322	0.003	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
13	1	M46	1/4"CABLE	0.524	0	0.004	9.498	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a*
14	1	M65	1/4"CABLE	0	9.498	0	9.498	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
15	1	M67	1/4"CABLE	0.082	0	0.01	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
16	1	M71	1/4"CABLE	0	9.509	0	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
17	1	M74	1/4"CABLE	0	9.495	0	9.495	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
18	1	M77	1/4"CABLE	0.468	9.495	0.008	4.747	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a*
19	1	M81	1/4"CABLE	0.817	8.919	0.003	8.919	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1a*
20	1	M83	1/4"CABLE	0	8.919	0	8.919	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1a
21	3	M3	HSS8.625X0.322	0.004	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
22	3	M13	1/4"CABLE	0.093	8.922	0.001	8.922	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
23	3	M14	1/4"CABLE	0	8.922	0	8.922	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1a
24	3	M15	1/4"CABLE	0	9.509	0	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
25	3	M41	HSS8.625X0.322	0.012	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
26	3	M60	1/4"CABLE	0.037	9.509	0.001	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
27	3	M61	1/4"CABLE	0	9.509	0	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
28	3	M62	1/4"CABLE	0.13	9.509	0.001	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
29	3	M63	1/4"CABLE	0.627	0	0.001	9.498	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a*
30	3	M64	1/4"CABLE	0	9.498	0	9.498	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
31	3	M37	HSS8.625X0.322	0.012	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
32	3	M38	HSS8.625X0.322	0.004	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
33	3	M46	1/4"CABLE	0.561	0	0.001	9.498	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a*
34	3	M65	1/4"CABLE	0	9.498	0	9.498	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
35	3	M67	1/4"CABLE	0.088	0	0.001	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
36	3	M71	1/4"CABLE	0	9.509	0	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
37	3	M74	1/4"CABLE	0	9.495	0	9.495	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
38	3	M77	1/4"CABLE	0.501	9.495	0	4.747	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a*
39	3	M81	1/4"CABLE	0.874	8.919	0.001	8.919	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1a*
40	3	M83	1/4"CABLE	0	8.919	0	8.919	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1a
41	4	M3	HSS8.625X0.322	0.004	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
42	4	M13	1/4"CABLE	0.091	8.922	0.001	8.922	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
43	4	M14	1/4"CABLE	0	8.922	0	8.922	0.003	1.352	0.006	0.006	1	1	1	1	1	H1-1a
44	4	M15	1/4"CABLE	0	9.509	0	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
45	4	M41	HSS8.625X0.322	0.012	0	0	7.992	131.239	141.018	31.138	31.138	1	1	1	1	1	H1-1b*
46	4	M60	1/4"CABLE	0.036	9.509	0.002	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1b*
47	4	M61	1/4"CABLE	0	9.509	0	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1a
48	4	M62	1/4"CABLE	0.128	9.509	0.003	9.509	0.002	1.352	0.006	0.006	1	1	1	1	1	H1-1b*

AISC 14TH (360-10): ASD Member Steel Code Checks (Continued)

LC	Member	Shape	UC Max	Loc	Shear UC	Pnc/om	Pnt/om	Mnyy/om	Mnzz/om	Cb	Eqn
			[ft]	[ft]	[k]	[k]	[k-ft]	[k-ft]	[k-ft]		
49	4	M63	0.616	0	0.007	9.498	0.002	1.352	0.006	0.006	1 H1-1a*
50	4	M64	0	9.498	0	9.498	0.002	1.352	0.006	0.006	1 H1-1a
51	4	M37	0.012	0	0	7.992	131.239	141.018	31.138	31.138	1 H1-1b*
52	4	M38	0.004	0	0	7.992	131.239	141.018	31.138	31.138	1 H1-1b*
53	4	M46	0.552	0	0.003	9.498	0.002	1.352	0.006	0.006	1 H1-1a*
54	4	M65	0	9.498	0	9.498	0.002	1.352	0.006	0.006	1 H1-1a
55	4	M67	0.087	0	0.008	9.509	0.002	1.352	0.006	0.006	1 H1-1b*
56	4	M71	0	9.509	0	9.509	0.002	1.352	0.006	0.006	1 H1-1a
57	4	M74	0	9.495	0	9.495	0.002	1.352	0.006	0.006	1 H1-1a
58	4	M77	0.493	9.495	0.006	4.747	0.002	1.352	0.006	0.006	1 H1-1a*
59	4	M81	0.86	8.919	0.002	8.919	0.003	1.352	0.006	0.006	1 H1-1a*
60	4	M83	0	8.919	0	8.919	0.003	1.352	0.006	0.006	1 H1-1a