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CFS Engineering Group, Inc.

Casa Robles Aluminum Fence & Gate

CALCULATION REPORT

SPECIALTY ENGINEER SHOP DRAWING REVIEW

Review of design calculations and drawings prepared by delegated engineer (Specialty Engineer) does not constitute a detailed check of calculations, nor does it relieve the Specialty Engineer from the responsibility of the detailing of the specialty component or system.

Review is limited to confirming the following:

- That the specialty engineering documents conform with the intent of the engineer of record as expressed on the Structural Documents and have been prepared by a structural engineer registered in Florida;
- That the effect of the Specialty Engineer's work on the structural frame conforms with the intent of the Structural Documents.

- | | |
|---|--|
| ☒ NO EXCEPTIONS TAKEN | ☐ EXCEPTIONS NOTED |
| ☐ SUBMIT SPECIFIED ITEM | ☐ REVISE & RESUBMIT |
| ☐ NON-COMPLIANT SUBMITTAL | ☐ REJECTED |
| ☐ ACKNOWLEDGE RECEIPT FOR RECORD | |

CFS ENGINEERING GROUP, INC.

BY CS

DATE 06-29-26

Reviewed for compliance with loading criteria and for conformance to general design intent.

Digitally signed by Erick Guillen
Location: Casa Robles - Ground
Floor Fence & Gate
Reason: This item has been
digitally signed & sealed by Erick
Guillen, PE on 07/02/2026. Printed
copies of this document are not
considered signed & sealed and
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Date: 2026.07.02 15:34:19-04'00'



EGV Engineering
12090 SW 116th St, Miami, FL 33186
PE #92192

REVISION	DATE	CALCULATED BY	CHECKED BY	NOTES
00	06/23/2026			Structural Calculations for Miscellaneous Metals
00	06/27/2026			Revised per Comments

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1. SCOPE

This report shows the results of the analysis & design of all structural elements of the Miscellaneous Metals for the above mentioned project.

1.1. Codes & Standards

All calculations contained herein have been reviewed and meets or exceed all specifications and recommendations of the following codes and standards:

- FBC 2023. Florida Building Code 8th edition (2023) with amendments..
- ASCE 7-22. Minimum Design Loads and Associated Criteria for Buildings and Others Structures 2022.
- AISC 360-22. Specification for Structural Steel Buildings 2022. Steel Construction Manual 16TH Edition.
- ACI 318-19. Building Code Requirements for Structural Concrete.
- ADM-2020. Aluminum Design Manual.

2. LOADS

2.1. Dead Loads (D)

- Self-Weight
- IPE Wood Slats Weight: 70 pcf x 0.75 in / 12 = 4.375 psf

2.2. Wind Loads (W)

General:

Reference Abbreviations: T: Table, F: Figure, E: Equation, S: Section, ¶: Paragraph

Wind Load Standard	= FBC 2023	Basic Wind Speed	= 115.0 mph
Exposure Classification	= C	Risk Category	= II
Structure Type	= Solid Sign	Basis for Wind Pressures	= ASD
MWFRS Analysis Method	= Ch 29	C&C Analysis Method	= None
Dynamic Type of Structure	= Rigid	Advanced Options	= 0

Wind Speed Basis to be used in calculations:

V = Convert to ASD wind speed: $V_{ult} \cdot 0.6^{0.5} \cdot 1.2$ = 89.1 mph

Solid Sign Inputs:

h = Height from grade to top.	= 5.0000 ft	S = Height of Sign/Frame	= 5.0000 ft
B = Width of Sign/Frame	= 19.0000 ft	T = Thickness/Depth of Sign.	= 0.0800 ft
L _r = Dimension of return corner L _r	= 0.0000 ft	e = Solidity Ratio	= 1.000
AttachWall = Attached to Wall	= False	Dbl = Double Faced & Sides Enclosed	= False
IsCol = Supported on Columns	= False		

Exposure Constants T:26.11-1:

α = 3-s Gust-speed exponent T:26.11-1	= 9.800	z_g = Nominal Boundary Layer Ht T:26.11-1	= 2,460.0000 ft
$\hat{\alpha}$ = Reciprocal of α T:26.11-1	= 0.102	b = 3 sec gust speed factor T:26.11-1	= 1.000
α_m = Mean Hourly Exponent T:26.11-1	= 0.136	b_m = Mean Hourly Factor T:26.11-1	= 0.660
c = Turbulence Intensity T:26.11-1	= 0.200	e = Integral Length Exponent T:26.11-1	= 0.2000

Main Wind Force Resisting System (MWFRS) Wind Calculations for Solid Sign per §29.4

h = Mean structure height	= 5.000 ft	$K_h = 2.41 \cdot (15/z_g)^{2/\alpha}$ T:26.10-1	= 0.851
K_{zt} = No Topographic Feature	= 1.000	K_d = Directionality Factor T:26.6-1	= 0.85
LF = ASD Load Factor	= 0.60	K_e = Ground Elev Factor T:26.10-1	= 1.000
$q_h = .00256 \cdot K_h \cdot K_{zt} \cdot K_e \cdot V^2 \cdot LF$ T:26.10-1	= 17.29 psf		

Gust Factor Calculation for Wind:

Gust Factor Category I Rigid Structures - Simplified Method

G_1 = Simplified for Rigid Struc = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Z_m = Equiv Ht: $\text{Max}(0.6 \cdot h, z_{min})$ = 15.0000 ft

I_{zm} = $c \cdot (33/Z_m)^{1/6}$ E:26.11-7 = 0.2281

L_{zm} = $l \cdot (Z_m/33)^{1/6}$ E:26.11-9 = 427.0566 ft

B = Avg Structure Width Normal to Wind Direction = 19.0000 ft

Q_s = $(B+h)/L_{zm}$ = 0.056

Q = $[1/(1+0.63 \cdot Q_s^{0.68})]^{0.5}$ E:26.11-8 = 0.952

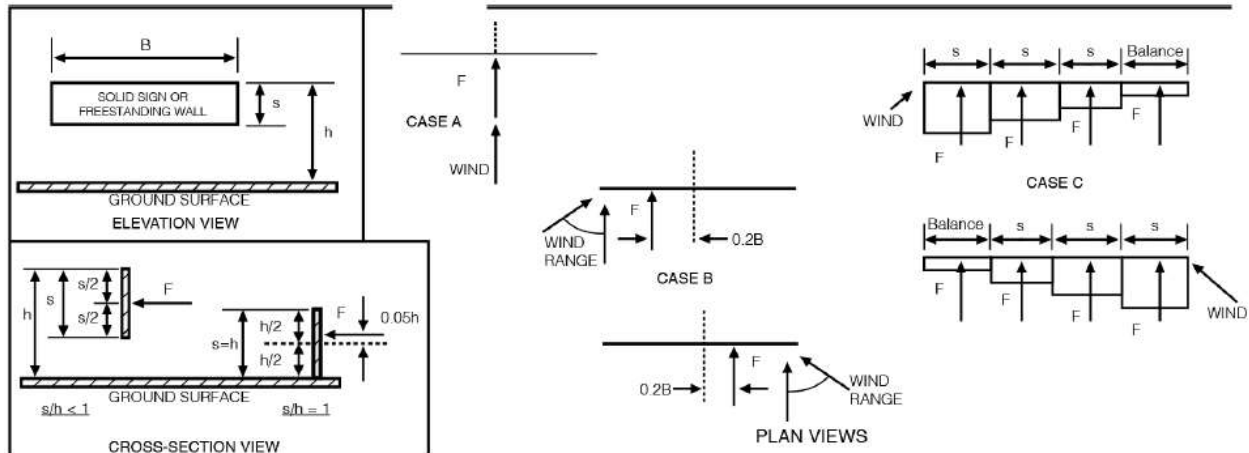
G_{2a} = $1+1.7 \cdot g_u \cdot I_{zm}$ = 2.318

G_2 = $0.925 \cdot [(1+1.7 \cdot g_u \cdot I_{zm} \cdot Q)/G_{2a}]$ E:26.11-6 = 0.900

Gust Factor Used in Analysis

G = Gust Factor: $\text{Min}(G_1, G_2)$ = 0.850

MWFRS Wind Pressures on Solid Sign per F:29.3-1



R	= Reduction factor to account for openings: $(1-(1-1)^{3/2})$	= 1.000
R_c	= Reduction factor for Case C since $s/h > 0.8$: $(1.8-s/h)$	= 0.800
A_s	= Gross Area of Solid Sign: $B \cdot s$	= 95.00 ft ²
B/s	= Aspect Ratio: B/s	= 3.800
s/h	= Clearance Ratio: s/h	= 1.000
C_e	= Net Force Coefficient for Case A and B per F:29.3-1	= 1.355
e	= Not Double Faced, Case B eccentricity is 0.2	= 0.2000

Case A: Resultant force acts normal to face through geometric center and since $s/h = 1$ then consider force acting $0.05 \cdot s$ above the geometric center

$0.05 \cdot s$	= Since $s/h = 1$, load applied at vertical offset from geom center	= 0.250 ft
F	= Wind Pressure: $q_s \cdot K_d \cdot G \cdot C_e \cdot A_{se}$ F:29.3-1	= 1608 lb
M	= Overturning Moment: $F \cdot (h/2 + 0.05 \cdot h)$	= 4,422 lb·ft

Case B: Resultant force acts normal to face at a distance from the geometric center toward the windward edge equal to e times the average width and since $s/h = 1$ then consider force acting $0.05 \cdot s$ above the geometric center

$0.05 \cdot s$	= Since $s/h = 1$, load applied at vertical offset from geom center	= 0.250 ft
D_x	= Force Offset from Center toward windward edge: $e \cdot B$	= 3.800 ft
F	= Wind Pressure: $q_s \cdot K_d \cdot G \cdot C_e \cdot A_{se}$ F:29.3-1	= 1608 lb
F_1	= Reduced Design Force: $F \cdot R$	= 1608 lb
T_1	= Torsion about Vertical Axis: $F_1 \cdot e \cdot b$	= 6,111 lb·ft
M_1	= Overturning Moment: $F_1 \cdot (h/2 + 0.05 \cdot h)$	= 4,422 lb·ft

Case C: Since $B/s \geq 2$ then B need not be considered and Case C must be considered
 Forces act normal to the face and through the geometric center of each region
 and since $s/h = 1$ then consider force acting $0.05 \cdot s$ above the geometric center

$0.05 \cdot s$ = Since $s/h = 1$, load applied at vertical offset from geom center = 0.250 ft

MWFRS Pressures per $F_{129.3-1}$ on Solid Sign
 All wind pressures include a Load Factor (LF) of 0.6

Range	Start Dist ft	End Dist ft	X_1 ft	C_e	R_{1z}	P_e psf	A ft ²	F_e lb	F_{cl} lb	M_x lb·ft	M_y lb·ft
0 to s	0.000	5.000	2.500	2.840	1.0003	5.48	25.00	887	710	1,951	-4,967
s to 2s	5.000	10.000	7.500	1.860	1.0002	3.24	25.00	581	465	1,278	-929
2s to 3s	10.000	15.000	12.500	1.270	1.0001	5.86	25.00	397	317	873	952
3s to 10s	15.000	19.000	17.000	1.100	1.0001	3.74	20.00	275	220	605	1,649
Total							95.00	2,139	1,711	4,706	-3,295

C_e = Force Coefficient from $F_{129.3-1}$
 A = Area Of Region: (End Dist - Start Dist) $\cdot$ s
 F_e = Wind Force: $q_h \cdot K_d \cdot G \cdot C_e \cdot A_{F_{129.3-1}}$
 P_e = Wind Pressure: $q_h \cdot K_d \cdot G \cdot C_{Fe, 129.3-1}$
 F_{cl} = Reduced Force acting on Region: $F_e \cdot R \cdot R_{1z} \cdot R_e$
 X_e = Horizontal Distance from windward edge to geometric center: $B/2 = 9.500$ ft
 X_1 = Horizontal distance from windward edge to load: $0.5 \cdot (\text{Start_Dist} + \text{End_Dist})$
 M_x = Moment about Base: $F_{cl} \cdot (h/2 + 0.05 \cdot h)$
 M_y = Moment about geometric center due to force: $F_{cl} \cdot (\text{Load_Dist} - X_e)$
 R_{1z} = Reduction factor for return corner per $F_{129.3-1}$ which applies for 0 to s for $B/s \geq 5$

Wind Load = $F / (B \times h) = 1608 \text{ lb} / (19 \text{ ft} \times 5 \text{ ft}) = \mathbf{16.93 \text{ psf}}$

Note: Wind load from wind calculation report already has the 0.6 factor applied (ASD).

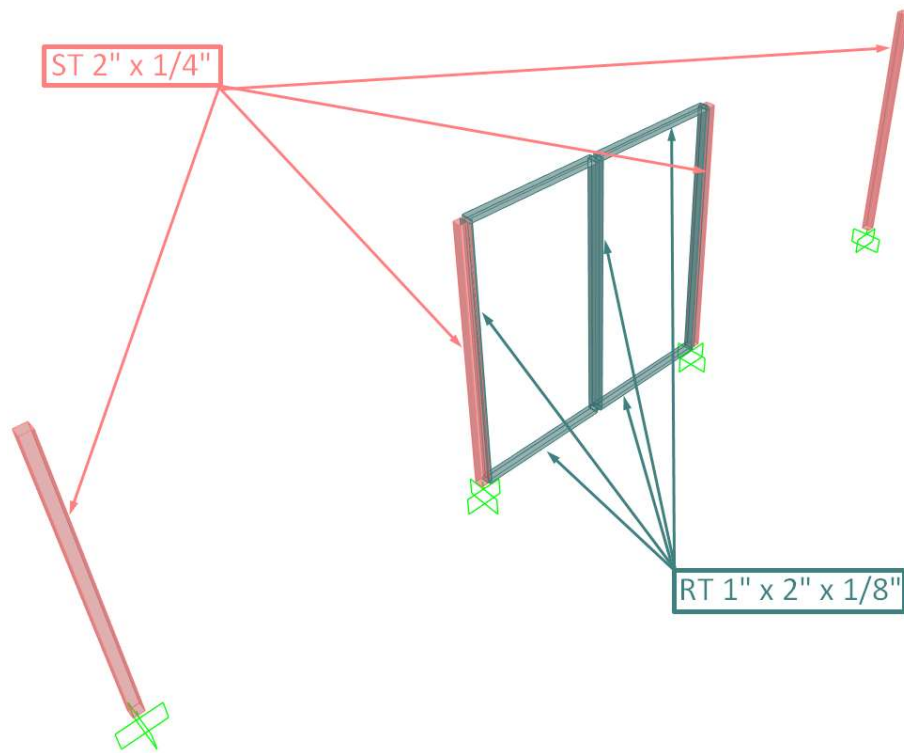
3. LOAD COMBINATIONS

- Combo-1 = 1.0 D + 0.6 W

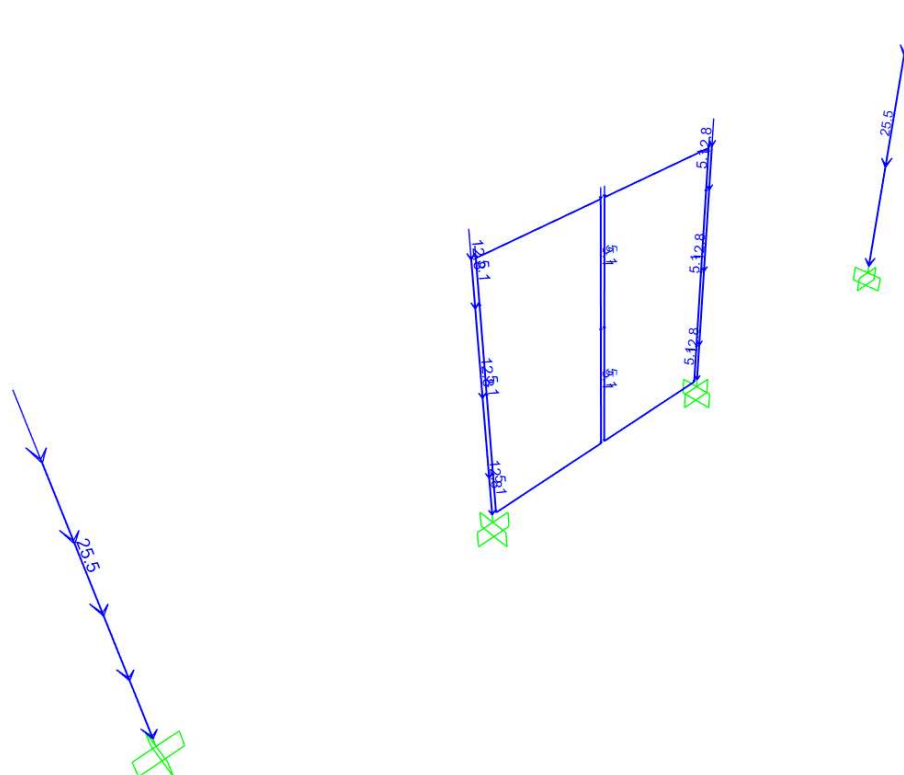
4. MATERIALS

- Aluminum Alloy 6061-T6 Unwelded
 - Compressive Yield Strength, $F_{cy} = 35.0$ ksi
 - Tensile Yield Strength, $F_{ty} = 35.0$ ksi
 - Tensile Ultimate Strength, $F_{tu} = 38.0$ ksi
 - Shear Ultimate Strength, $F_{su} = 24.0$ ksi
- Aluminum Alloy 6061-T6 Welded
 - Compressive Yield Strength, $F_{cy} = 15.0$ ksi
 - Tensile Yield Strength, $F_{ty} = 15.0$ ksi
 - Tensile Ultimate Strength, $F_{tu} = 24.0$ ksi
 - Shear Ultimate Strength, $F_{su} = 14.4$ ksi

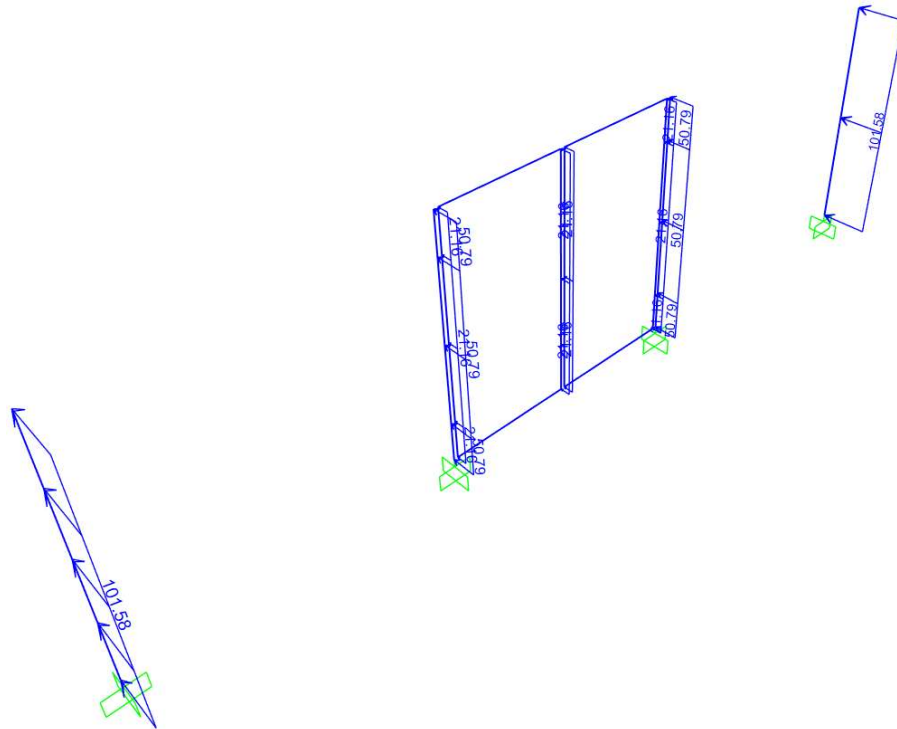
5. FENCE & GATE – ANALYSIS



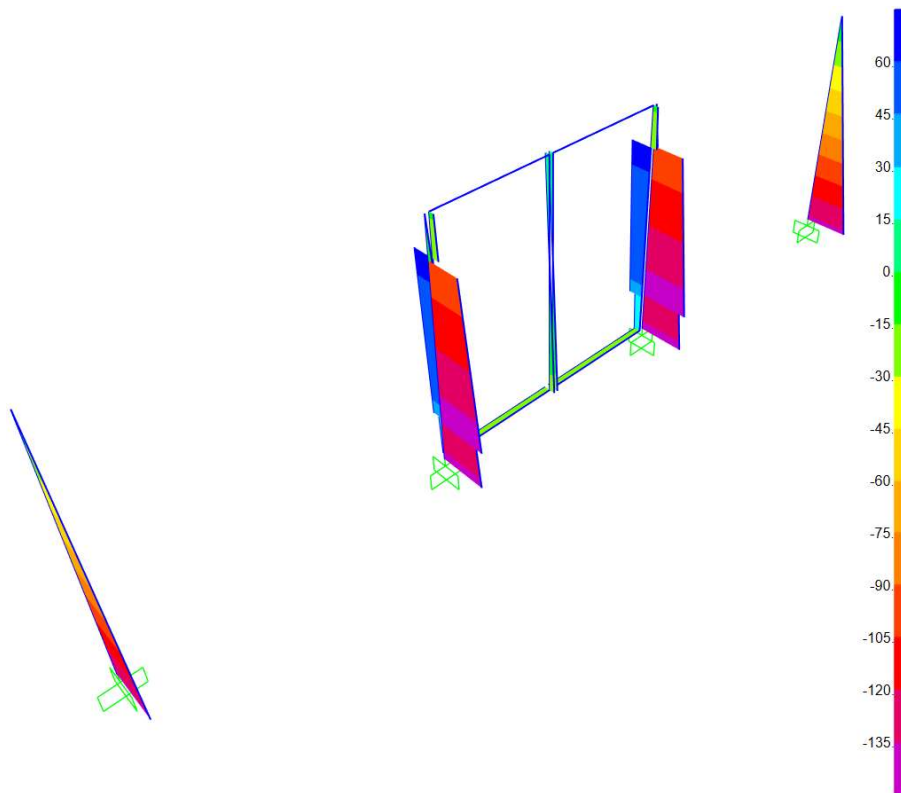
3D Model



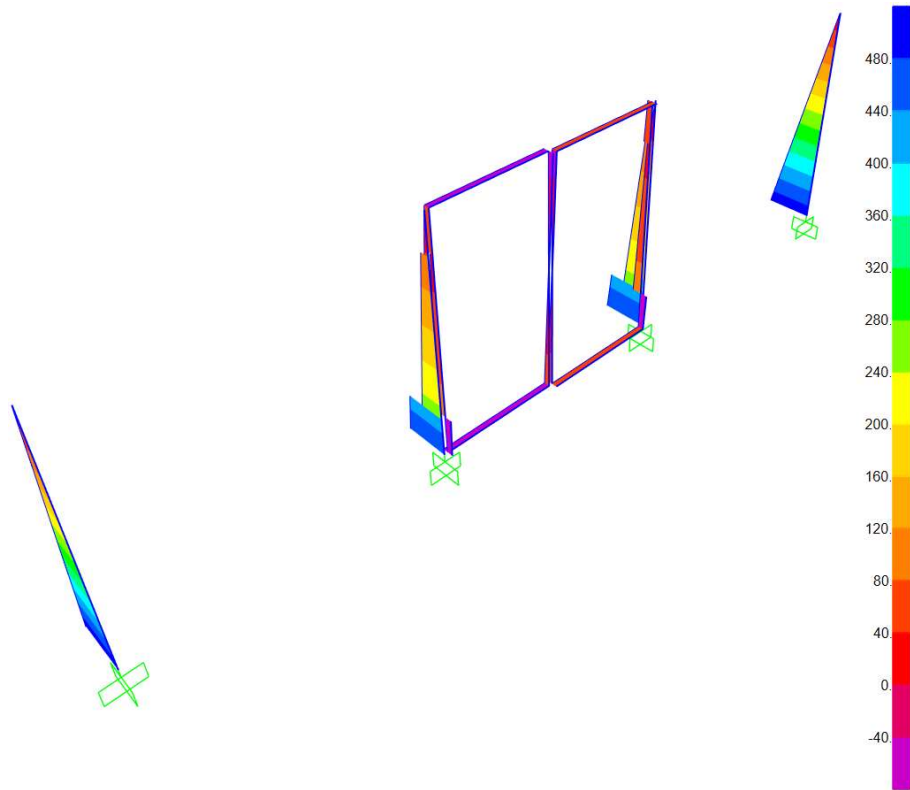
Dead Load (plf)



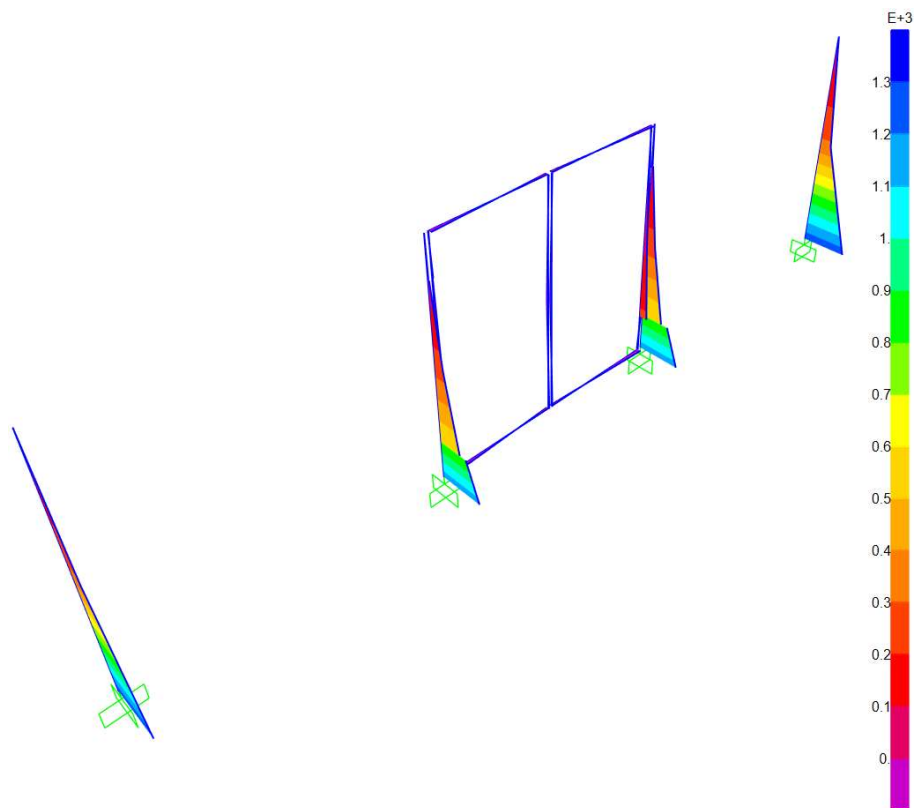
Wind Load (plf)



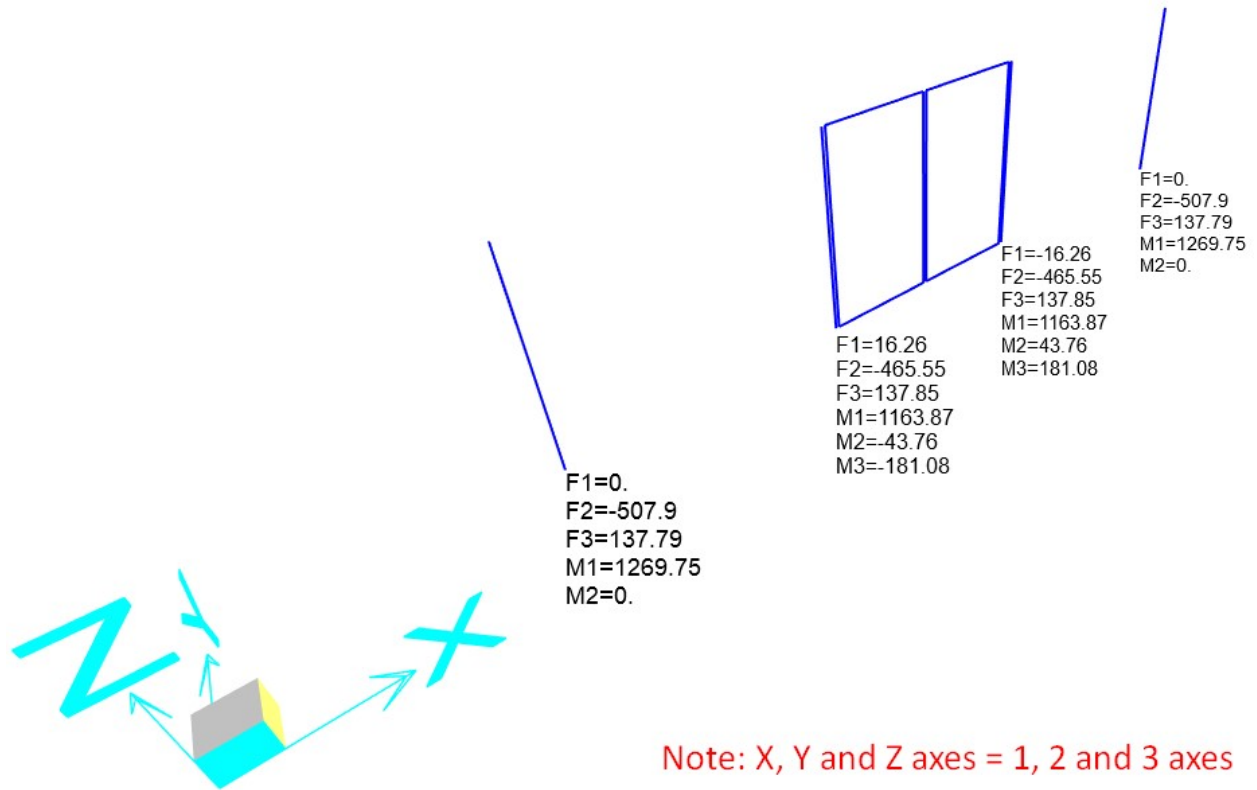
Axial Load (lbs) for Combo-1 = 1.0 D + 0.6 W



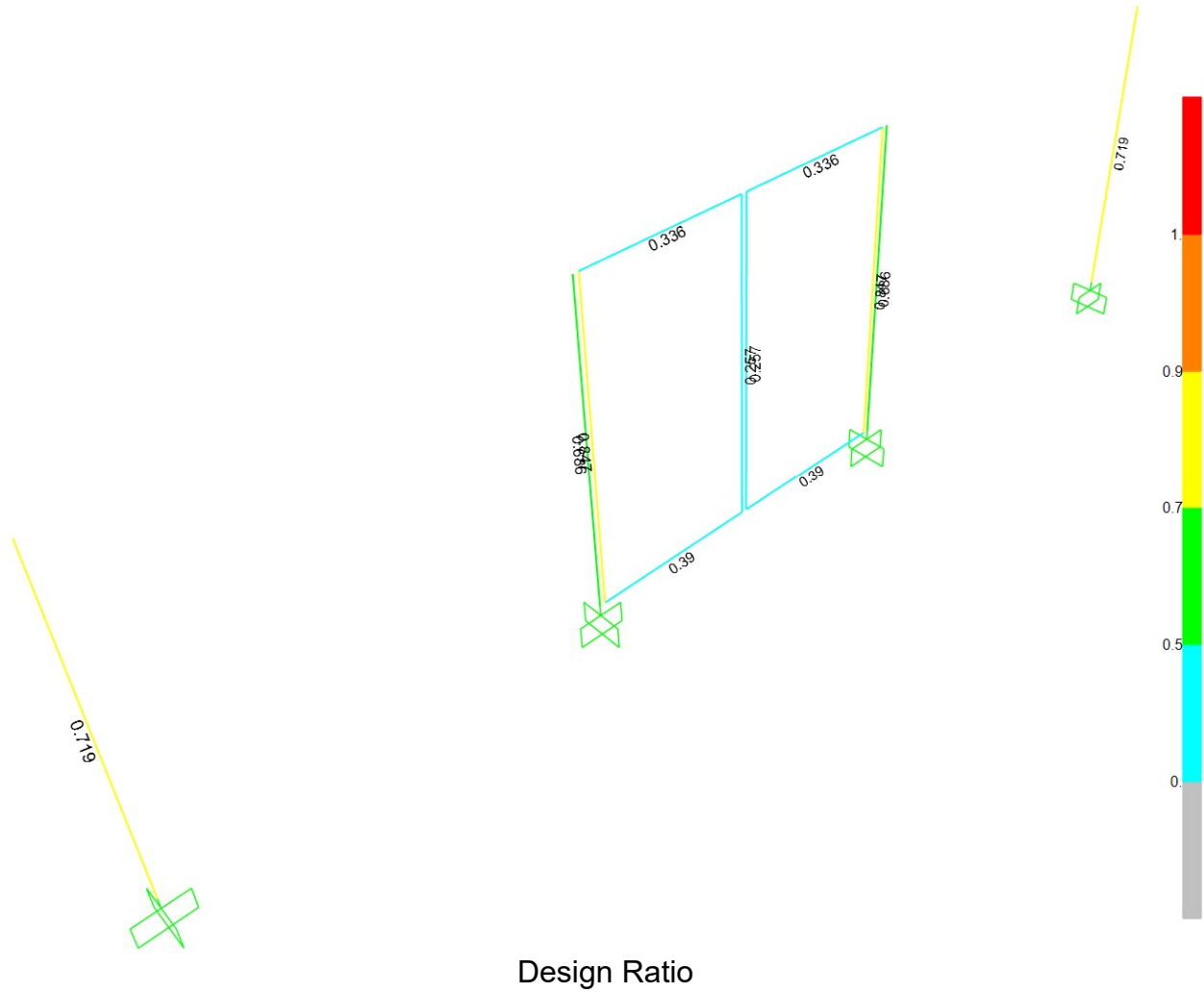
Shear Force (lbs) for Combo-1 = 1.0 D + 0.6 W



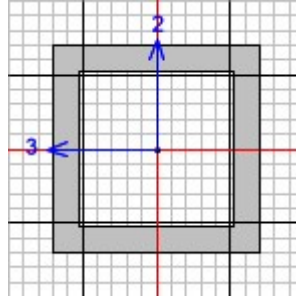
Bending Moment (lb-ft) for Combo-1 = 1.0 D + 0.6 W



6. FENCE & GATE – DESIGN



6.1. Post (ST 2" x 1/4")



AA 2020 ALUMINUM SECTION CHECK Units: Kip, in, F

FRAME ELEMENT INFORMATION

	Frame ID	Section ID	Stat Loc	FilletRad	LatFac	UseLatFac
	1	ST 2" x 1/4" Unwelded	0.	0.	1.	No
	L	K	iBraceLoc	jBraceLoc	LTB Restraint	Buckl./Bend. Axes
Major	60.	2.	0.	60.	No	Geometric
Minor	60.	2.	0.	60.		
LTB	60.	1.	0.	60.		

MATERIAL PROPERTIES

	Designation	E	Fcy	Fty	Fsy	Fy	Ftu
Fsu	6061-T6 Wrought Alloy	10100.	35.	35.	21.	35.	38.
24.							

BUCKLING CONSTANTS

	Bc	Dc	Cc	Bp	Dp	Cp	Bt	Dt	Ct	Bbr	Dbr
Cbr	39.	0.246	65.673	45.001	0.3	61.423	43.186	1.558	8.26E-05	66.824	0.666
66.92											
	Btb	Dtb	Ctb	Bs	Ds	Cs	K1c	K2c	K1b	K2b	
	65.	4.458	7.446	27.241	0.141	78.946	0.35	2.27	0.5	2.04	

SAFETY FACTORS

	OmegaTy	OmegaTr	OmegaC	OmegaBo	OmegaBr	OmegaVo	OmegaVr
Kt	1.65	1.95	1.65	1.65	1.95	1.65	1.95
1.							

SECTION PROPERTIES

	L	A	i22	i33	s22	s33	r22
r33	60.	1.75	0.911	0.911	0.911	0.911	0.722
0.722							
	G	J	Cw	z22	z33		
	0.	1.34	0.	1.156	1.156		

COMBINED RATIO EQUATION - (H.1-1) - GOVERNS THE DESIGN

	Pr/Pc	Mrx/Mcx	Mry/Mcy
COMBINED RATIO	0.719 =	0.042 +	0.676 + 0.

COMBINED RATIO LIMIT 1.

	Combo	P	M33	M22	V2	V3
DEMANDS	1.0 D + 0.6 W	-0.138	15.237	9.330E-16	0.508	3.110E-17
CAPACITIES		3.251	22.532	22.532	9.231	9.231
DEMAND/CAPACITY		0.042	0.676	0.	0.055	0.

AXIAL - TENSION	Area Ag	Area Ae	Yielding Pnt/OmegaTy	Rupture Pnt/OmegaTr	Tension
Pnt/Omega	1.75	1.75	37.121	34.103	
34.103					
AXIAL - COMPRESSION					
MEMBER BUCKLING	Lambda	Lambda1	Lambda2	Fc	Fe Pnc/OmegaC
Flex	166.254	17.762	65.673	3.065	N/A 3.251**
LOCAL BUCKLING	Lambda	Lambda1	Lambda2	Fc	Area Pnc/OmegaC
Flange	6.	20.81	32.771	35.	0.75 15.909
Web	6.	20.81	32.771	35.	0.75 15.909
Intersection	N/C	N/C	N/C	35.	0.25 5.303
Total					37.121
INTERACTION	Lambda	Fcr	Pnc/OmegaC		
Local: Flange	6.	1081.63	162.345		
Web	6.	1081.63	162.345		
Member: Flex	166.254*	3.065	N/N		

* used in calculation of Pnc limit for interaction

** MEMBER FLEXURAL BUCKLING governs AXIAL COMPRESSION CAPACITY

FLEXURE							
YIELDING/RUPTURE	St	Sc	Z*Fcy	1.5St*Fty	1.5Sc*Fcy	Mnp	Mnu
			/OmegaBo	/OmegaBo	/OmegaBo	/OmegaBo	/OmegaBr
MAJOR	0.911	0.911	24.527	29.001	29.001	24.527	22.532**
MINOR	0.911	0.911	24.527	29.001	29.001	24.527	22.532**
LOCAL BUCKLING	Lambda	Lambda1	Lambda2	Fb(or Fc)	If(or Iw)	Mnlb	
						/OmegaBo	
MAJOR							
Flange	6.	20.81	32.771	35.	0.771	18.687	
Web	6.	33.103	77.216	52.5	0.141	5.966	
Total						24.653	
MINOR							
Flange	6.	33.103	77.216	52.5	0.141	5.966	
Web	6.	20.81	32.771	35.	0.771	18.687	
Total						24.653	
LTB BUCKLING	Lambda	Cc	Me	Rye	Lb	MnLTB	MnLTBLim
						/OmegaBo	/OmegaBo
MAJOR	10.702	65.673	N/N	N/N	60.	22.61	N/A
	Cb	C1	C2	y0	go	betax	Iyf
Rm	2.286	N/N	N/N	N/N	N/N	N/N	0.167
1.							

** RUPTURE governs MAJOR MOMENT CAPACITY

** RUPTURE governs MINOR MOMENT CAPACITY

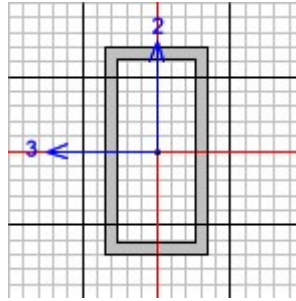
SHEAR							
Rupture Vn	Lambda	Lambda1	Lambda2	Fs	Yield Av	Rupture An	Yield Vn
/OmegaVr							/OmegaVo
MAJOR	6.	35.292	63.157	21.	1.	0.75	12.727
9.231							
MINOR	6.	35.292	63.157	21.	1.	0.75	12.727
9.231							

N/A: Not Applicable

N/C: Not Calculated

N/N: Not Needed

6.2. Frame (RT 1" x 2" x 1/8")



AA 2020 ALUMINUM SECTION CHECK Units: Kip, in, F

FRAME ELEMENT INFORMATION

	Frame ID	Section ID	Stat Loc	FilletRad	LatFac	UseLatFac
	245RT 1" x 2" x 1/8" Weld		10.	0.	1.	No
	L	K	iBraceLoc	jBraceLoc	LTB Restraint	Buckl./Bend. Axes
Major	60.	1.	0.	60.	No	Geometric
Minor	10.	1.164	0.	10.		
LTB	10.	1.	0.	10.		

MATERIAL PROPERTIES

	Designation	E	Fcy	Fty	Fsy	Fy	Ftu
Fsu	6061-T6 Wrought Alloy	10100.	15.	15.	9.	15.	24.
14.4							

BUCKLING CONSTANTS

	Bc	Dc	Cc	Bp	Dp	Cp	Bt	Dt	Ct	Bbr	Dbr
Cbr	16.2	0.065	102.295	18.232	0.077	96.501	17.962	0.484	1.26E-04	26.39	0.165
106.488											
	Btb	Dtb	Ctb	Bs	Ds	Cs	K1c	K2c	K1b	K2b	
	26.9	1.384	9.975	11.017	0.036	124.142	0.35	2.27	0.5	2.04	

SAFETY FACTORS	OmegaTy	OmegaTr	OmegaC	OmegaBo	OmegaBr	OmegaVo	OmegaVr
Kt	1.65	1.95	1.65	1.65	1.95	1.65	1.95
1.							

SECTION PROPERTIES	L	A	i22	i33	s22	s33	r22
r33	60.	0.687	0.105	0.332	0.21	0.332	0.391
0.695							
	G	J	Cw	z22	z33		
	0.	0.245	0.	0.254	0.426		

COMBINED RATIO EQUATION - (H.1-1) - GOVERNS THE DESIGN

	Pr/Pc	Mrx/Mcx	Mry/Mcy
COMBINED RATIO	0.847	0.007	0.69

COMBINED RATIO LIMIT 1.

	Combo	P	M33	M22	V2	V3
DEMANDS	1.0 D + 0.6 W	0.043	2.582	0.347	0.095	0.017
CAPACITIES		3.883	3.742	2.308	2.727	1.364
DEMAND/CAPACITY		0.007	0.69	0.15	0.035	0.012

AXIAL - TENSION Pnt/Omega	Area Ag	Area Ae	Yielding Pnt/OmegaTy	Rupture Pnt/OmegaTr	Tension
6.25	0.687	0.687	6.25	8.462	

AXIAL - COMPRESSION							
MEMBER BUCKLING							
	Flex	Lambda	Lambda1	Lambda2	Fc	Fe Pnc/OmegaC	
		86.38	18.834	102.295	9.32	N/A	3.883**
LOCAL BUCKLING							
	Flange	Lambda	Lambda1	Lambda2	Fc	Area Pnc/OmegaC	
		6.	26.075	51.487	15.	0.188	1.705
	Web	14.	26.075	51.487	15.	0.437	3.977
	Intersection	N/C	N/C	N/C	15.	0.063	0.568
	Total						6.25
INTERACTION							
Local:	Flange	Lambda	Fcr	Pnc/OmegaC			
		6.	1081.63	98.684			
	Web	14.	198.667	31.887			
Member:	Flex	86.38*	9.32	N/N			

* used in calculation of Pnc limit for interaction

** MEMBER FLEXURAL BUCKLING governs AXIAL COMPRESSION CAPACITY

FLEXURE								
YIELDING/RUPTURE								
	St	Sc	Z*Fcy /OmegaBo	1.5St*Fty /OmegaBo	1.5Sc*Fcy /OmegaBo	Mnp /OmegaBo	Mnu /OmegaBr	
MAJOR	0.332	0.332	3.871	4.523	4.523	3.871	5.24	
MINOR	0.21	0.21	2.308	2.868	2.868	2.308**	3.125	

LOCAL BUCKLING							
	Lambda	Lambda1	Lambda2	Fb(or Fc)	If(or Iw)	Mnlb /OmegaBo	
MAJOR							
Flange	6.	26.075	51.487	15.	0.22	2.134	
Web	14.	36.226	122.871	22.5	0.112	1.74	
Total						3.874	
MINOR							
Flange	6.	36.226	122.871	22.5	0.009	0.32	
Web	14.	26.075	51.487	15.	0.096	2.002	
Total						2.322	

LTB BUCKLING							
	Lambda	Cc	Me	Rye	Lb	MnLTB /OmegaBo	MnLTBLim /OmegaBo
MAJOR	6.744	102.295	N/N	N/N	10.	3.742**	N/A

Rm	Cb	C1	C2	y0	go	betax	Iyf
1.	2.405	N/N	N/N	N/N	N/N	N/N	0.01

** LATERAL-TORSIONAL BUCKLING governs MAJOR MOMENT CAPACITY

** YIELDING governs MINOR MOMENT CAPACITY

SHEAR								
Rupture Vn								
	Lambda	Lambda1	Lambda2	Fs	Yield Av	Rupture An	Yield Vn /OmegaVo	
MAJOR	14.	44.341	99.314	9.	0.5	0.437	2.727	
MINOR	6.	44.341	99.314	9.	0.25	0.188	1.364	

N/A: Not Applicable

N/C: Not Calculated

N/N: Not Needed

7. FOOTING EMBEDMENT IN SOIL

General Information

Pole Footing Shape Circular
Pole Footing Diameter 12.0 in
Calculate Min. Depth for Allowable Pressures
No Lateral Restraint at Ground Surface
Allow Passive 400.0 pcf
Max Passive 6,000.0 psf

Controlling Values

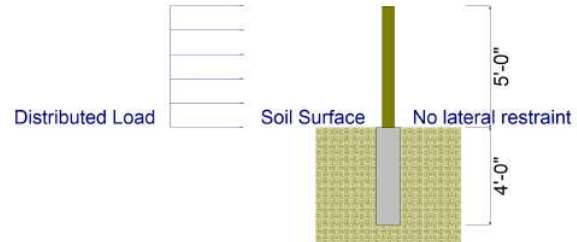
Governing Load Combination : +D+0.60W
Lateral Load 0.5079 k
Moment 1.270 k-ft

NO Ground Surface

Pressures at 1/3 Depth
Actual 517.93 psf
Allowable 519.82 psf

Minimum Required Depth 4.0 ft

Footing Base Area 0.7854 ft²
Maximum Soil Pressure 0.1755 ksf



Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (k/ft)			Vertical Load (k)
D : Dead Load	0.0 k	0.0	0.0	0.0 k/ft	0.1378 k
Lr : Roof Live	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
L : Live	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
S : Snow	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
W : Wind	0.0 k	0.1693	0.0	0.0 k/ft	0.0 k
E : Earthquake	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
H : Lateral Earth	0.0 k	0.0	0.0	0.0 k/ft	0.0 k
Load distance above ground surface	0.0 ft	TOP of Load above ground surface			
		5.0	0.0	0.0 ft	
		BOTTOM of Load above ground surface			
		0.0	0.0	0.0 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	0.508	1.270	4.00	517.9	519.8	1.000
+D+0.450W	0.381	0.952	3.50	460.8	461.1	1.000
+0.60D+0.60W	0.508	1.270	4.00	517.9	519.8	1.000
+0.60D	0.000	0.000	0.13	0.0	0.0	1.000