ASCE 7-05 Seismic Factor Determination

Seismic Base Shear

Calculated for Strength Design Load Combinations *ASCE 7-05 Section 12.8.3*

Cs = 0.1082 from 12.8.1.1

W (see Sum Wi below) = 0.00 k

Vertical Distribution of Seismic Forces

Seismic Base Shear V = Cs * W = 0.00 k

" k " : hx exponent based on Ta = 1.00

Table of building Weights by Floor Level...

Level #	Wi : Weight	Hi : Height	(Wi * Hi) ^k	Cvx	Fx=Cvx * V	Sum Story Shear	Sum Story Moment

Sum Wi = 0.00 k Sum Wi * Hi = 0.00 k-ft Total Base Shear = 0.00 k

Base Moment = 0.0 k-ft

Diaphragm Forces : Seismic Design Category "B" & "C"

ASCE 7-05 9.5.2.6.2.7

Wp : Weight at level of diaphragm and other structure elements attached to it.

Fp = 0.2 SDS I Wp + Vpx

Vpx : Portion of seismic shear at level needing to be transferred because of offsets.

Level #	Wp	Fp : Final

Wall Anchorage

Concrete & Masonry Wall Normal Force : Seismic Design Category " B " per ACSE 7-05 12.11.1

Minimum Factor : 0.40 * SDS * Importance * Weight = 0.1298 * Weight

Concrete & Masonry Wall Anchorage : Seismic Design Category " B " per ACSE 7-05 12.11.2

Actual Wall Weight Tributary to Anchor = lbs/ lin. ft

Minimum #1 : 0.40 * SDS * Importance * Trib. Weight = 0.00 lbs/ lin. ft

Minimum #2 : 400 * SDS * Importance = 129.79 lbs/ lin. ft

Fp : Anchorage Design Force = 129.79 lbs/ lin. ft

Combination of Load Effects

ASCE 7-05 12.4.2.3

Load Description	D Dead Load	Qe Seismic Load			E H & V Load Effect
	0.000	0.000	E = p * Qe + 0.20 * SDS * D	=	0.000
	0.000	0.000	E = p * Qe + 0.20 * SDS * D	=	0.000
	0.000	0.000	E = p * Qe + 0.20 * SDS * D	=	0.000
	0.000	0.000	E = p * Qe + 0.20 * SDS * D	=	0.000
	0.000	0.000	E = p * Qe + 0.20 * SDS * D	=	0.000
	0.000	0.000	E = p * Qe + 0.20 * SDS * D	=	0.000
	0.000	0.000	E = p * Qe + 0.20 * SDS * D	=	0.000
	0.000	0.000	E = p * Qe + 0.20 * SDS * D	=	0.000

ASCE 7-05 Sect 6.4, MWFRS:Simplified Forces

Description : --None--

Analytical Values

Calculations per IBC 2006 & ASCE 7-05

V : Basic Wind Speed per Sect 6.5.4 & Figure 1	**100.0** mph	
Roof Slope Angle	0 to 5 degrees	
Occupancy per Table 1-1	II	All Buildings and other structures except those listed as Category I, III, and IV
Importance Factor per Sect. 6.5.5, & Table 6-1	**1.00**	
Exposure Category per 6.5.6.3, .4 & .5	Exposure C	
Mean Roof height	16.0 ft	
Lambda : per Figure 6.2, Pg 40	**1.21**	
Effective Wind Area of Component & Cladding	10.0 ft^2	
Roof pitch for cladding pressure	0 to 7 degrees	
User specified minimum design pressure	10.0 psf	
Topographic Factor Kzt per 6.5.7.2	**4.00**	

Design Wind Pressures

Minimum Additional Load Case per 6.4.2.1.1 = 10 PSF on entire vertical plane

Horizontal Pressures . . .

Zone: A =	76.96 psf	Zone: C =	50.82 psf
Zone: B =	-39.69 psf	Zone: D =	-23.72 psf

Vertical Pressures . . .

Zone: E =	-92.44 psf	Zone: G =	-64.37 psf
Zone: F =	-52.27 psf	Zone: H =	-40.66 psf

Overhangs . . .

Zone: Eoh =	-129.23 psf	Zone: Goh =	-101.16 psf

Component & Cladding Design Wind Pressures

Minimum Additional Load Case per 6.4.2.1.1 = 10 PSF on entire vertical plane

*Design Wind Pressure = Lambda * Kzt * Importance * Ps30 per ASCE 7-05 6.4.2.1 Eq 6-1*

Roof Zone 1 :	Positive :	35.332 psf
	Negative :	-87.120 psf
Roof Zone 2 :	Positive :	35.332 psf
	Negative :	-146.168 psf
Roof Zone 3 :	Positive :	35.332 psf
	Negative :	-219.736 psf
Wall Zone 4 :	Positive :	87.120 psf
	Negative :	-94.380 psf
Wall Zone 5 :	Positive :	87.120 psf
	Negative :	-116.644 psf
Roof Overhang Zone 2:		-31.339 psf
Roof Overhang Zone 3:		-51.667 psf

Steel Column

Description : h-3

General Information

Code Ref : 2006 IBC, AISC Manual 13th Edition

Steel Section Name :	TS5x5x3/8
Analysis Method :	2006 IBC & ASCE 7-05
Steel Stress Grade	
Fy : Steel Yield	46.0 ksi
E : Elastic Bending Modulus	29,000.0 ksi
Load Combination :	Allowable Stress

Overall Column Height 16.0 ft
Top & Bottom Fixity Top & Bottom Pinned

Brace condition for deflection (buckling) along columns :
X-X (width) axis : Fully braced against buckling along X-X Axis
Y-Y (depth) axis : Fully braced against buckling along Y-Y Axis

Applied Loads

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

Column self weight included : 381.62 lbs * Dead Load Factor
AXIAL LOADS . . .
valley bm & main roof: Axial Load at 16.0 ft, D = 9.90, S = 26.0 k
BENDING LOADS . . .
storefront header: Lat. Point Load at 10.0 ft creating Mx-x, W = 3.30 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.5091** : 1
Load Combination +D+W+H
Location of max.above base 9.987 ft
At maximum location values are . . .
Pu : Axial 10.282 k
Pn / Omega : Allowable 181.25 k
Mu-x : Applied -12.358 k-ft
Mn-x / Omega : Allowable 25.709 k-ft
Mu-y : Applied 0.0 k-ft
Mn-y / Omega : Allowable 25.709 k-ft

PASS Maximum Shear Stress Ratio = **0.04294** : 1
Load Combination +D+W+H
Location of max.above base 10.094 ft
At maximum location values are . . .
Vu : Applied 2.063 k
Vn / Omega : Allowable 48.031 k

Maximum SERVICE Load Reactions . .
Top along X-X 0.0 k
Bottom along X-X 0.0 k
Top along Y-Y 2.063 k
Bottom along Y-Y 1.238 k

Maximum SERVICE Load Deflections . . .
Along Y-Y -0.6834 in at 8.591 ft above base
for load combination : W Only
Along X-X 0.0 in at 0.0 ft above base
for load combination :

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
+D	0.057	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+L+H	0.057	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+Lr+H	0.057	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+S+H	0.200	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+H	0.164	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+W+H	0.509	PASS	9.99 ft	0.043	PASS	10.09 ft
+D+0.750Lr+0.750L+0.750W+H	0.389	PASS	9.99 ft	0.032	PASS	10.09 ft
+D+0.750L+0.750S+0.750W+H	0.443	PASS	9.99 ft	0.032	PASS	10.09 ft
+D+0.750L+0.750S+0.5250E+H	0.164	PASS	0.00 ft	0.000	PASS	10.09 ft
+0.60D+W+H	0.498	PASS	9.99 ft	0.043	PASS	10.09 ft

Maximum Reactions - Unfactored

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction		Y-Y Axis Reaction	
	@ Base	@ Top	@ Base	@ Top
D Only				
S Only				
W Only			1.238	-2.063

Maximum Deflections for Load Combinations - Unfactored Loads

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Steel Column

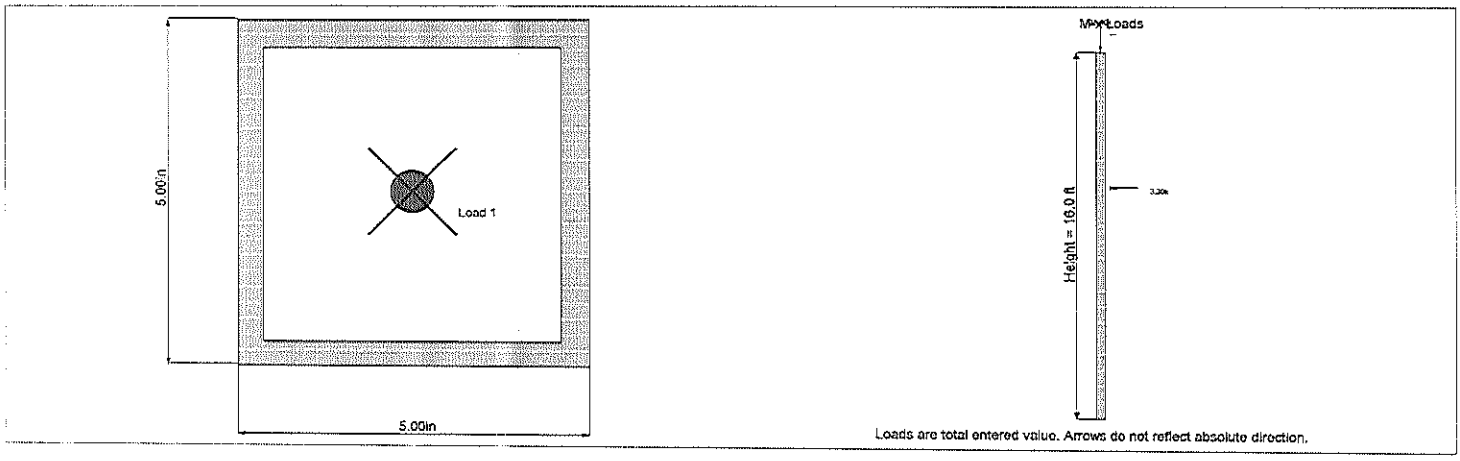
Description : h-3

Maximum Deflections for Load Combinations - Unfactored Loads

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
S Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
W Only	0.0000 in	0.000 ft	-0.683 in	8.591 ft

Steel Section Properties : TS5x5x3/8

Depth	=	5.000 in	I xx	=	22.80 in^4	J	=	38.200 in^4
Web Thick	=	0.000 in	S xx	=	9.11 in^3			
Flange Width	=	5.000 in	R xx	=	1.860 in			
Flange Thick	=	0.375 in						
Area	=	6.580 in^2	I yy	=	22.800 in^4			
Weight	=	23.852 plf	S yy	=	9.110 in^3			
			R yy	=	1.860 in			
Ycg	=	0.000 in						



Steel Beam Design

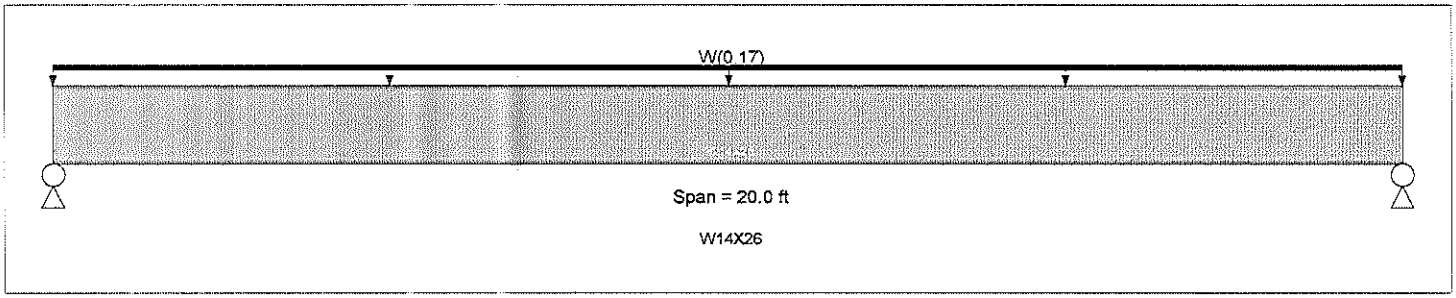
Description : existing w14 x 26 low beam

Material Properties

Calculations per IBC 2006, CBC 2007, 13th AISC

Analysis Method : Allowable Stress Design
Beam Bracing : Completely Unbraced
Bending Axis : Minor Axis Bending
Load Combination 2006 IBC & ASCE 7-05

Fy : Steel Yield : 36.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

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

Load for Span Number 1
Uniform Load : W = 0.170 k/ft, Tributary Width = 1.0 ft, (Unused)

DESIGN SUMMARY

Design N.G.

Maximum Bending Stress Ratio =	0.854 : 1	Maximum Shear Stress Ratio =	0.028 : 1
Section used for this span	W14X26	Section used for this span	W14X26
Mu : Applied	8.500 k-ft	Vu : Applied	1.70 k
Mn / Omega : Allowable	9.952 k-ft	Vn/Omega : Allowable	60.843 k
Load Combination	+D+W+H	Load Combination	+D+W+H
Location of maximum on span	10.000ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.000 in	Ratio =	0 <360
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	2.387 in	Ratio =	100 <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	V	Summary of Moment Values Mmax +	Mmax -	Ma - Max	Mny	Mny/Omega	Cb	Rm	Summary of Shear Values Va Max	Vny	Vny/Omega
Overall MAXimum Envelope													
Dsgn. L = 20.00 ft +D+L+H	1	0.854	0.028	8.50		8.50	16.62	9.95	1.14	1.00	1.70	91.26	60.84
Dsgn. L = 20.00 ft +D+Lr+H	1		0.000				16.62	9.95	1.00	1.00	-0.00	91.26	60.84
Dsgn. L = 20.00 ft +D+W+H	1		0.000				16.62	9.95	1.00	1.00	-0.00	91.26	60.84
Dsgn. L = 20.00 ft +D+0.750Lr+0.750L+0.750W+H	1	0.854	0.028	8.50		8.50	16.62	9.95	1.14	1.00	1.70	91.26	60.84
Dsgn. L = 20.00 ft +D+0.750L+0.750S+0.750W+H	1	0.641	0.021	6.38		6.38	16.62	9.95	1.14	1.00	1.28	91.26	60.84
Dsgn. L = 20.00 ft +0.60D+W+H	1	0.641	0.021	6.38		6.38	16.62	9.95	1.14	1.00	1.28	91.26	60.84
Dsgn. L = 20.00 ft	1	0.854	0.028	8.50		8.50	16.62	9.95	1.14	1.00	1.70	91.26	60.84

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	2.3875	10.100		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.700	1.700
W Only	1.700	1.700

Steel Beam Design

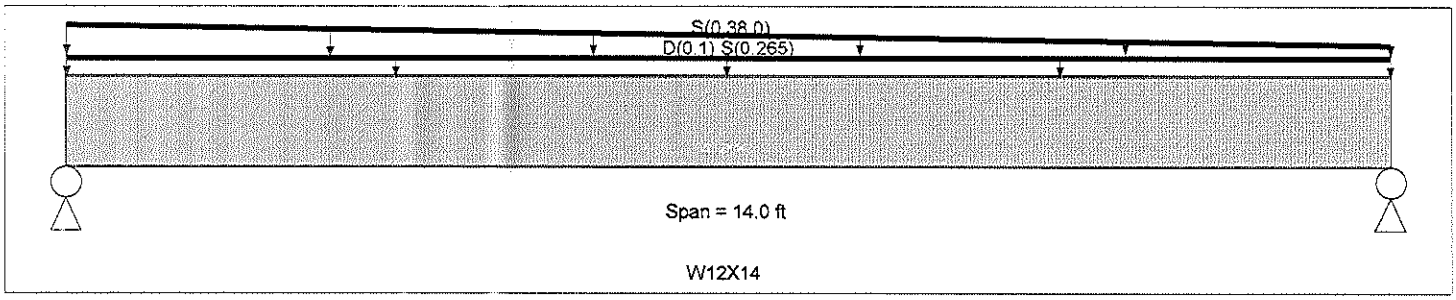
Description : typical roof beam

Material Properties

Calculations per IBC 2006, CBC 2007, 13th AISC

Analysis Method : Allowable Stress Design
Beam Bracing : Beam is Fully Braced against lateral-torsion buckling
Bending Axis : Major Axis Bending
Load Combination 2006 IBC & ASCE 7-05

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

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

Beam self weight calculated and added to loads
Load for Span Number 1
Uniform Load : D = 0.10, S = 0.2650 k/ft, Tributary Width = 1.0 ft, (dead and flat snow)
Varying Uniform Load : S(S,E) = 0.380->0.0 k/ft, Extent = 0.0 –>> 14.0 ft, Trib Width = 1.0 ft, (snow drift)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.322 : 1	Maximum Shear Stress Ratio =	0.104 : 1
Section used for this span	W12X14	Section used for this span	W12X14
Mu : Applied	13.987 k-ft	Vu : Applied	4.427 k
Mn / Omega : Allowable	43.413 k-ft	Vn/Omega : Allowable	42.754 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	6.580ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.154 in	Ratio =	1088
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.193 in	Ratio =	870
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
Overall MAXimum Envelope													
Dsgn. L = 14.00 ft +D	1	0.322	0.104	13.99		13.99	72.50	43.41	1.00	1.00	4.43	71.40	42.75
Dsgn. L = 14.00 ft +D+L+H	1	0.064	0.019	2.80		2.80	72.50	43.41	1.00	1.00	0.80	71.40	42.75
Dsgn. L = 14.00 ft +D+Lr+H	1	0.064	0.019	2.80		2.80	72.50	43.41	1.00	1.00	0.80	71.40	42.75
Dsgn. L = 14.00 ft +D+S+H	1	0.064	0.019	2.80		2.80	72.50	43.41	1.00	1.00	0.80	71.40	42.75
Dsgn. L = 14.00 ft +D+0.750L+0.750S+H	1	0.322	0.104	13.99		13.99	72.50	43.41	1.00	1.00	4.43	71.40	42.75
Dsgn. L = 14.00 ft +D+0.750L+0.750S+0.750W+H	1	0.258	0.082	11.19		11.19	72.50	43.41	1.00	1.00	3.52	71.40	42.75
Dsgn. L = 14.00 ft +D+0.750L+0.750S+0.5250E+H	1	0.258	0.082	11.19		11.19	72.50	43.41	1.00	1.00	3.52	71.40	42.75
Dsgn. L = 14.00 ft	1	0.258	0.082	11.19		11.19	72.50	43.41	1.00	1.00	3.52	71.40	42.75

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.1931	6.930		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	4.427	3.541
D Only	0.799	0.799
S Only	3.628	2.742

Description : typical roof beam

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
D+L+S	4.427	3.541

Steel Column

Description : biaxial bending at front canopy lo beam

General Information

Code Ref : 2006 IBC, AISC Manual 13th Edition

Steel Section Name :	HSS10X6X1/4
Analysis Method :	2006 IBC & ASCE 7-05
Steel Stress Grade	
Fy : Steel Yield	46.0 ksi
E : Elastic Bending Modulus	29,000.0 ksi
Load Combination :	Allowable Stress

Overall Column Height	20.0 ft
Top & Bottom Fixity	Top & Bottom Pinned

Brace condition for deflection (buckling) along columns :
X-X (width) axis : Fully braced against buckling along X-X Axis
Y-Y (depth) axis : Fully braced against buckling along Y-Y Axis

Applied Loads

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

Column self weight included : 515.84 lbs * Dead Load Factor
AXIAL LOADS . . .
dummy load: Axial Load at 20.0 ft, D = 0.10 k
BENDING LOADS . . .
ridge beam: Lat. Point Load at 10.0 ft creating Mx-x, D = 1.70, S = 3.20 k
wall weight: Lat. Uniform Load creating Mx-x, D = 0.30 k/ft
wind: Lat. Uniform Load creating My-y, W = 0.130 k/ft
varying wind: Lat. Point Load at 6.70 ft creating My-y, W = 0.60 k
varying wind: Lat. Point Load at 13.330 ft creating My-y, W = 0.60 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.8612** : 1

Load Combination	+D+0.750L+0.750S+0.750W+H
Location of max.above base	9.933 ft
At maximum location values are . . .	
Pu : Axial	0.6158 k
Pn / Omega : Allowable	195.57 k
Mu-x : Applied	-35.362 k-ft
Mn-x / Omega : Allowable	54.172 k-ft
Mu-y : Applied	7.883 k-ft
Mn-y / Omega : Allowable	38.104 k-ft

PASS Maximum Shear Stress Ratio = **0.07121** : 1

Load Combination	+D+S+H
Location of max.above base	0.0 ft
At maximum location values are . . .	
Vu : Applied	5.450 k
Vn / Omega : Allowable	76.538 k

Maximum SERVICE Load Reactions . .

Top along X-X	1.901 k
Bottom along X-X	1.899 k
Top along Y-Y	3.850 k
Bottom along Y-Y	3.850 k

Maximum SERVICE Load Deflections . . .

Along Y-Y -0.5645 in at 10.067 ft above base
for load combination : D Only

Along X-X 0.6029 in at 10.067 ft above base
for load combination : W Only

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
+D	0.434	PASS	10.07 ft	0.050	PASS	0.00 ft
+D+L+H	0.434	PASS	10.07 ft	0.050	PASS	0.00 ft
+D+Lr+H	0.434	PASS	10.07 ft	0.050	PASS	0.00 ft
+D+S+H	0.728	PASS	10.07 ft	0.071	PASS	0.00 ft
+D+0.750L+0.750S+H	0.654	PASS	10.07 ft	0.066	PASS	0.00 ft
+D+W+H	0.710	PASS	9.93 ft	0.050	PASS	0.00 ft
+D+0.750Lr+0.750L+0.750W+H	0.641	PASS	9.93 ft	0.050	PASS	0.00 ft
+D+0.750L+0.750S+0.750W+H	0.861	PASS	9.93 ft	0.066	PASS	0.00 ft
+D+0.750L+0.750S+0.5250E+H	0.654	PASS	10.07 ft	0.066	PASS	0.00 ft
+0.60D+W+H	0.536	PASS	9.93 ft	0.044	PASS	20.00 ft

Maximum Reactions - Unfactored

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction		Y-Y Axis Reaction	
	@ Base	@ Top	@ Base	@ Top
D Only			3.850	-3.850
S Only			1.600	-1.600

Steel Column

Description : biaxial bending at front canopy lo beam

Maximum Reactions - Unfactored

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
W Only	-1.899	1.901		

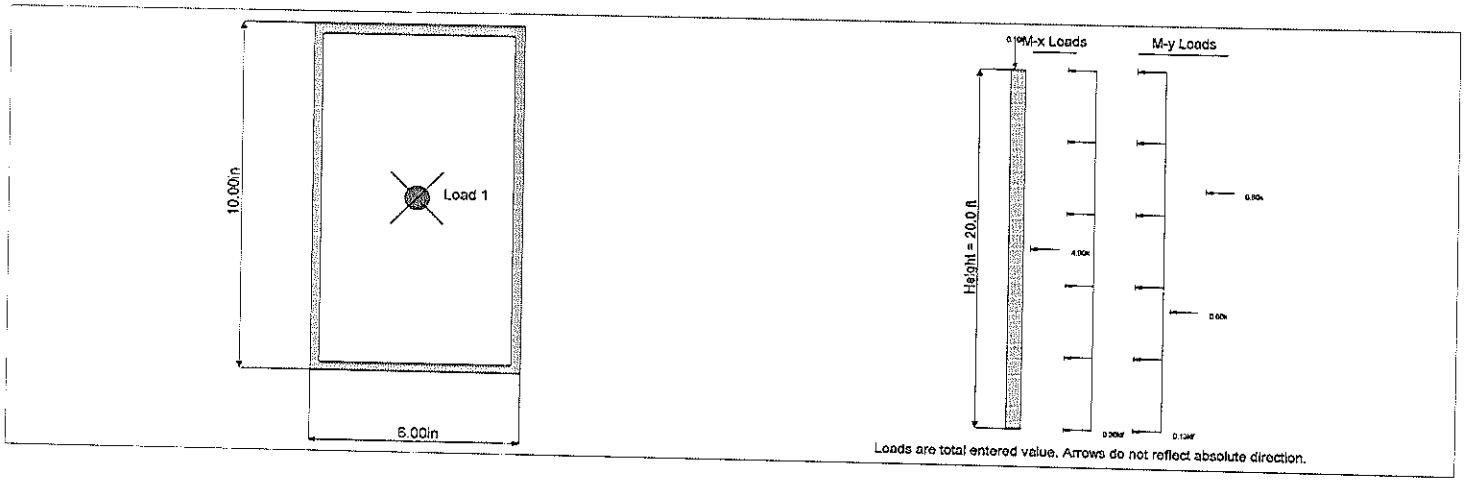
Maximum Deflections for Load Combinations - Unfactored Loads

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	-0.564 in	10.067 ft
S Only	0.0000 in	0.000 ft	-0.331 in	10.067 ft
W Only	0.6029 in	10.067 ft	0.000 in	0.000 ft

Steel Section Properties : HSS10X6X1/4

Depth	=	10.000 in	I xx	=	96.90 in^4	J	=	96.700 in^4
Web Thick	=	0.000 in	S xx	=	19.40 in^3			
Flange Width	=	6.000 in	R xx	=	3.690 in			
Flange Thick	=	0.250 in						
Area	=	7.100 in^2	I yy	=	44.100 in^4			
Weight	=	25.792 plf	S yy	=	14.700 in^3			
			R yy	=	2.490 in			

Ycg = 0.000 in



Steel Beam Design

Description : canopy ridge beam

Material Properties

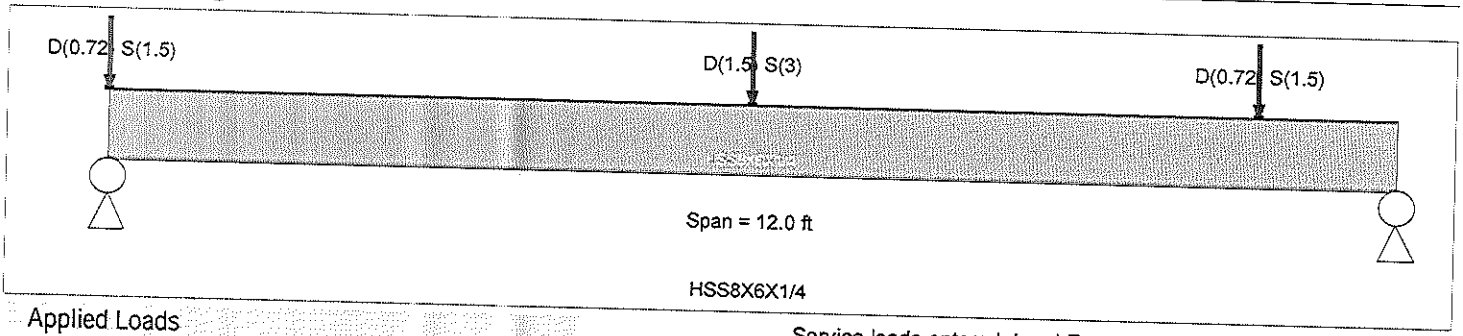
Calculations per IBC 2006, CBC 2007, 13th AISC

Analysis Method : Allowable Stress Design
Beam Bracing : Beam bracing is defined Beam-by-Beam
Bending Axis : Major Axis Bending
Load Combination 2006 IBC & ASCE 7-05

Fy : Steel Yield : 46.0 ksi
E: Modulus : 29,000.0 ksi

Unbraced Lengths

Span # 1, Braced @ 1/3 Points



Applied Loads

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

Beam self weight calculated and added to loads
Load(s) for Span Number 1
Point Load : D = 0.720, S = 1.50 k @ 0.0 ft, (front sloping timbe)
Point Load : D = 1.50, S = 3.0 k @ 6.0 ft, (middle timber beam)
Point Load : D = 0.720, S = 1.50 k @ 10.70 ft, (rear timber beam)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.396 : 1	Maximum Shear Stress Ratio =	0.078 : 1
Section used for this span	HSS8X6X1/4	Section used for this span	HSS8X6X1/4
Mu : Applied	15.346 k-ft	Vu : Applied	4.364 k
Mn / Omega : Allowable	38.792 k-ft	Vn/Omega : Allowable	56.229 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	6.000 ft	Location of maximum on span	12.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.133 in	Ratio =	1083
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.205 in	Ratio =	701
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
Overall MAXimum Envelope													
Dsgn. L = 3.96 ft	1	0.263	0.047	10.22		10.22	64.78	38.79	1.00	1.00	2.62	93.90	56.23
Dsgn. L = 4.02 ft	1	0.396	0.045	15.35	10.22	15.35	64.78	38.79	1.00	1.00	2.54	93.90	56.23
Dsgn. L = 4.02 ft	1	0.292	0.078	11.32		11.32	64.78	38.79	1.00	1.00	4.36	93.90	56.23
+D													
Dsgn. L = 3.96 ft	1	0.094	0.017	3.64		3.64	64.78	38.79	1.00	1.00	0.96	93.90	56.23
Dsgn. L = 4.02 ft	1	0.138	0.016	5.37	3.64	5.37	64.78	38.79	1.00	1.00	0.87	93.90	56.23
Dsgn. L = 4.02 ft	1	0.103	0.027	4.00		4.00	64.78	38.79	1.00	1.00	1.53	93.90	56.23
+D+L+H													
Dsgn. L = 3.96 ft	1	0.094	0.017	3.64		3.64	64.78	38.79	1.00	1.00	0.96	93.90	56.23
Dsgn. L = 4.02 ft	1	0.138	0.016	5.37	3.64	5.37	64.78	38.79	1.00	1.00	0.87	93.90	56.23
Dsgn. L = 4.02 ft	1	0.103	0.027	4.00		4.00	64.78	38.79	1.00	1.00	1.53	93.90	56.23
+D+Lr+H													
Dsgn. L = 3.96 ft	1	0.094	0.017	3.64		3.64	64.78	38.79	1.00	1.00	0.96	93.90	56.23
Dsgn. L = 4.02 ft	1	0.138	0.016	5.37	3.64	5.37	64.78	38.79	1.00	1.00	0.87	93.90	56.23
Dsgn. L = 4.02 ft	1	0.103	0.027	4.00		4.00	64.78	38.79	1.00	1.00	1.53	93.90	56.23
+D+S+H													
Dsgn. L = 3.96 ft	1	0.263	0.047	10.22		10.22	64.78	38.79	1.00	1.00	2.62	93.90	56.23
Dsgn. L = 4.02 ft	1	0.396	0.045	15.35	10.22	15.35	64.78	38.79	1.00	1.00	2.54	93.90	56.23
Dsgn. L = 4.02 ft	1	0.292	0.078	11.32		11.32	64.78	38.79	1.00	1.00	4.36	93.90	56.23
+D+0.750L+0.750S+H													
Dsgn. L = 3.96 ft	1	0.221	0.039	8.57		8.57	64.78	38.79	1.00	1.00	2.21	93.90	56.23
Dsgn. L = 4.02 ft	1	0.331	0.038	12.85	8.57	12.85	64.78	38.79	1.00	1.00	2.12	93.90	56.23

Steel Beam Design

Description : canopy ridge beam

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 = 4.02 ft	1	0.245	0.065	9.49		9.49	64.78	38.79	1.00	1.00	3.65	93.90	56.23
+D+0.750L+0.750S+0.750W+H													
Dsgn. L = 3.96 ft	1	0.221	0.039	8.57		8.57	64.78	38.79	1.00	1.00	2.21	93.90	56.23
Dsgn. L = 4.02 ft	1	0.331	0.038	12.85	8.57	12.85	64.78	38.79	1.00	1.00	2.12	93.90	56.23
Dsgn. L = 4.02 ft	1	0.245	0.065	9.49		9.49	64.78	38.79	1.00	1.00	3.65	93.90	56.23
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 3.96 ft	1	0.221	0.039	8.57		8.57	64.78	38.79	1.00	1.00	2.21	93.90	56.23
Dsgn. L = 4.02 ft	1	0.331	0.038	12.85	8.57	12.85	64.78	38.79	1.00	1.00	2.12	93.90	56.23
Dsgn. L = 4.02 ft	1	0.245	0.065	9.49		9.49	64.78	38.79	1.00	1.00	3.65	93.90	56.23

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.2054	6.120		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	4.845	4.364
D Only	1.682	1.526
S Only	3.163	2.838
D+L+S	4.845	4.364

Steel Beam Design

Description : canopy valley beam

Material Properties

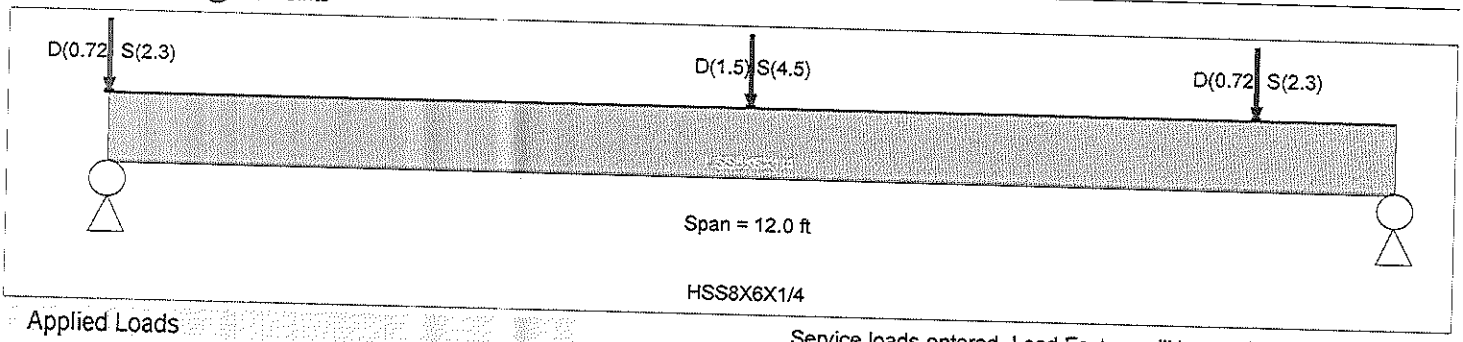
Calculations per IBC 2006, CBC 2007, 13th AISC

Analysis Method : Allowable Stress Design
Beam Bracing : Beam bracing is defined Beam-by-Beam
Bending Axis : Major Axis Bending
Load Combination 2006 IBC & ASCE 7-05

Fy : Steel Yield : 46.0 ksi
E: Modulus : 29,000.0 ksi

Unbraced Lengths

Span # 1, Braced @ 1/3 Points



Applied Loads

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

Beam self weight calculated and added to loads
Load(s) for Span Number 1
Point Load : D = 0.720, S = 2.30 k @ 0.0 ft, (front sloping timbe)
Point Load : D = 1.50, S = 4.50 k @ 6.0 ft, (middle timber beam)
Point Load : D = 0.720, S = 2.30 k @ 10.70 ft, (rear timber beam)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.525 : 1	Maximum Shear Stress Ratio =	0.104 : 1
Section used for this span	HSS8X6X1/4	Section used for this span	HSS8X6X1/4
Mu : Applied	20.366 k-ft	Vu : Applied	5.827 k
Mn / Omega : Allowable	38.792 k-ft	Vn/Omega : Allowable	56.229 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	6.000ft	Location of maximum on span	12.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.200 in	Ratio =	720
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.272 in	Ratio =	528
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
Overall MAXimum Envelope													
Dsgn. L = 3.96 ft	1	0.349	0.062	13.53		13.53	64.78	38.79	1.00	1.00	3.46	93.90	56.23
Dsgn. L = 4.02 ft	1	0.525	0.060	20.37	13.53	20.37	64.78	38.79	1.00	1.00	3.37	93.90	56.23
Dsgn. L = 4.02 ft	1	0.387	0.104	15.03		15.03	64.78	38.79	1.00	1.00	5.83	93.90	56.23
+D													
Dsgn. L = 3.96 ft	1	0.094	0.017	3.64		3.64	64.78	38.79	1.00	1.00	0.96	93.90	56.23
Dsgn. L = 4.02 ft	1	0.138	0.016	5.37	3.64	5.37	64.78	38.79	1.00	1.00	0.87	93.90	56.23
Dsgn. L = 4.02 ft	1	0.103	0.027	4.00		4.00	64.78	38.79	1.00	1.00	1.53	93.90	56.23
+D+L+H													
Dsgn. L = 3.96 ft	1	0.094	0.017	3.64		3.64	64.78	38.79	1.00	1.00	0.96	93.90	56.23
Dsgn. L = 4.02 ft	1	0.138	0.016	5.37	3.64	5.37	64.78	38.79	1.00	1.00	0.87	93.90	56.23
Dsgn. L = 4.02 ft	1	0.103	0.027	4.00		4.00	64.78	38.79	1.00	1.00	1.53	93.90	56.23
+D+Lr+H													
Dsgn. L = 3.96 ft	1	0.094	0.017	3.64		3.64	64.78	38.79	1.00	1.00	0.96	93.90	56.23
Dsgn. L = 4.02 ft	1	0.138	0.016	5.37	3.64	5.37	64.78	38.79	1.00	1.00	0.87	93.90	56.23
Dsgn. L = 4.02 ft	1	0.103	0.027	4.00		4.00	64.78	38.79	1.00	1.00	1.53	93.90	56.23
+D+S+H													
Dsgn. L = 3.96 ft	1	0.349	0.062	13.53		13.53	64.78	38.79	1.00	1.00	3.46	93.90	56.23
Dsgn. L = 4.02 ft	1	0.525	0.060	20.37	13.53	20.37	64.78	38.79	1.00	1.00	3.37	93.90	56.23
Dsgn. L = 4.02 ft	1	0.387	0.104	15.03		15.03	64.78	38.79	1.00	1.00	5.83	93.90	56.23
+D+0.750L+0.750S+H													
Dsgn. L = 3.96 ft	1	0.285	0.050	11.06		11.06	64.78	38.79	1.00	1.00	2.84	93.90	56.23
Dsgn. L = 4.02 ft	1	0.428	0.049	16.62	11.06	16.62	64.78	38.79	1.00	1.00	2.75	93.90	56.23

Steel Beam Design

Description : canopy valley beam

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 = 4.02 ft	1	0.316	0.085	12.27		12.27	64.78	38.79	1.00	1.00	4.75	93.90	56.23
+D+0.750L+0.750S+0.750W+H													
Dsgn. L = 3.96 ft	1	0.285	0.050	11.06		11.06	64.78	38.79	1.00	1.00	2.84	93.90	56.23
Dsgn. L = 4.02 ft	1	0.428	0.049	16.62	11.06	16.62	64.78	38.79	1.00	1.00	2.75	93.90	56.23
Dsgn. L = 4.02 ft	1	0.316	0.085	12.27		12.27	64.78	38.79	1.00	1.00	4.75	93.90	56.23
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 3.96 ft	1	0.285	0.050	11.06		11.06	64.78	38.79	1.00	1.00	2.84	93.90	56.23
Dsgn. L = 4.02 ft	1	0.428	0.049	16.62	11.06	16.62	64.78	38.79	1.00	1.00	2.75	93.90	56.23
Dsgn. L = 4.02 ft	1	0.316	0.085	12.27		12.27	64.78	38.79	1.00	1.00	4.75	93.90	56.23

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.2725	6.120		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	6.482	5.827
D Only	1.682	1.526
S Only	4.799	4.301
D+L+S	6.482	5.827

Steel Beam Design

Lic. # : KW-06000246 — License Owner : barry levin & associates, inc.

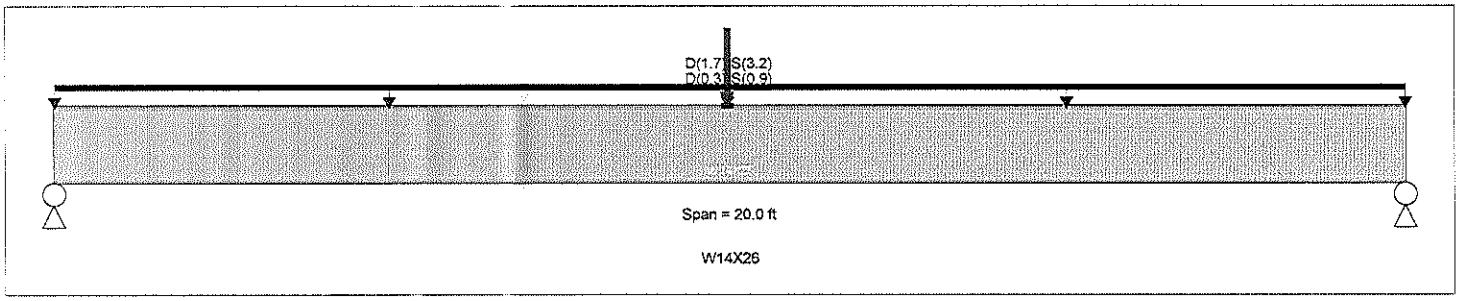
Description : roof beam along cl 3

Material Properties

Calculations per IBC 2006, CBC 2007, 13th AISC

Analysis Method : Allowable Stress Design
Beam Bracing : Beam is Fully Braced against lateral-torsion buckling
Bending Axis : Major Axis Bending
Load Combination 2006 IBC & ASCE 7-05

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

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

Beam self weight calculated and added to loads
Load for Span Number 1
Uniform Load : D = 0.30, S = 0.90 k/ft, Tributary Width = 1.0 ft, (roof loads)
Point Load : D = 1.70, S = 3.20 k @ 10.0 ft, (ridge beam)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.856 : 1	Maximum Shear Stress Ratio =	0.208 : 1
Section used for this span	W14X26	Section used for this span	W14X26
Mu : Applied	85.809 k-ft	Vu : Applied	14.712 k
Mn / Omega : Allowable	100.299 k-ft	Vn/Omega : Allowable	70.890 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	10.000ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.590 in	Ratio =	406
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.826 in	Ratio =	290
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
Overall MAXimum Envelope													
Dsgn. L = 20.00 ft +D	1	0.856	0.208	85.81		85.81	167.50	100.30	1.00	1.00	14.71	106.34	70.89
Dsgn. L = 20.00 ft +D+L+H	1	0.247	0.058	24.81		24.81	167.50	100.30	1.00	1.00	4.11	106.34	70.89
Dsgn. L = 20.00 ft +D+Lr+H	1	0.247	0.058	24.81		24.81	167.50	100.30	1.00	1.00	4.11	106.34	70.89
Dsgn. L = 20.00 ft +D+S+H	1	0.247	0.058	24.81		24.81	167.50	100.30	1.00	1.00	4.11	106.34	70.89
Dsgn. L = 20.00 ft +D+0.750L+0.750S+H	1	0.856	0.208	85.81		85.81	167.50	100.30	1.00	1.00	14.71	106.34	70.89
Dsgn. L = 20.00 ft +D+0.750L+0.750S+0.750W+H	1	0.703	0.170	70.56		70.56	167.50	100.30	1.00	1.00	12.06	106.34	70.89
Dsgn. L = 20.00 ft +D+0.750L+0.750S+0.5250E+H	1	0.703	0.170	70.56		70.56	167.50	100.30	1.00	1.00	12.06	106.34	70.89
Dsgn. L = 20.00 ft	1	0.703	0.170	70.56		70.56	167.50	100.30	1.00	1.00	12.06	106.34	70.89

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.8264	10.100		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 — Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	14.712	14.712
D Only	4.112	4.112
S Only	10.600	10.600

Steel Beam Design

Description : roof beam along cl 3

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
D+L+S	14.712	14.712

Steel Beam Design

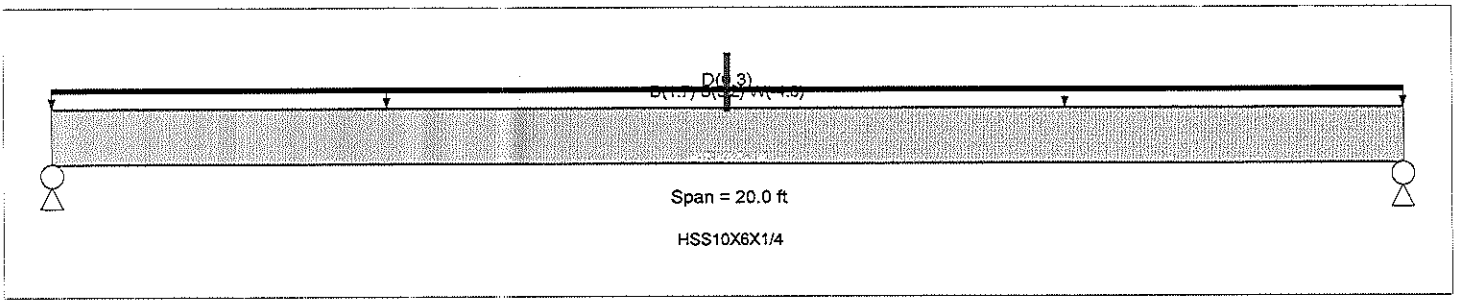
Description : low beam at front of canopy

Material Properties

Calculations per IBC 2006, CBC 2007, 13th AISC

Analysis Method : Allowable Stress Design
Beam Bracing : Completely Unbraced
Bending Axis : Major Axis Bending
Load Combination 2006 IBC & ASCE 7-05

Fy : Steel Yield : 46.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

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

Beam self weight calculated and added to loads
Load for Span Number 1
Uniform Load : D = 0.30 k/ft, Tributary Width = 1.0 ft, (wall)
Point Load : D = 1.70, S = 3.20, W = -4.80 k @ 10.0 ft, (ridge beam)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.753 : 1	Maximum Shear Stress Ratio =	0.080 : 1
Section used for this span	HSS10X6X1/4	Section used for this span	HSS10X6X1/4
Mu : Applied	40.790 k-ft	Vu : Applied	5.708 k
Mn / Omega : Allowable	54.172 k-ft	Vn/Omega : Allowable	71.632 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	10.000ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.330 in	Ratio =	726
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.927 in	Ratio =	258
Max Upward Total Deflection	-0.496 in	Ratio =	484

Maximum Forces & Stresses for Load Combinations

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
Overall MAXimum Envelope													
Dsgn. L = 20.00 ft +D	1	0.753	0.080	40.79		40.79	90.47	54.17	1.24	1.00	5.71	119.63	71.63
Dsgn. L = 20.00 ft +D+L+H	1	0.458	0.057	24.79		24.79	90.47	54.17	1.19	1.00	4.11	119.63	71.63
Dsgn. L = 20.00 ft +D+Lr+H	1	0.458	0.057	24.79		24.79	90.47	54.17	1.19	1.00	4.11	119.63	71.63
Dsgn. L = 20.00 ft +D+S+H	1	0.458	0.057	24.79		24.79	90.47	54.17	1.19	1.00	4.11	119.63	71.63
Dsgn. L = 20.00 ft +D+0.750L+0.750S+H	1	0.753	0.080	40.79		40.79	90.47	54.17	1.24	1.00	5.71	119.63	71.63
Dsgn. L = 20.00 ft +D+W+H	1	0.679	0.074	36.79		36.79	90.47	54.17	1.23	1.00	5.31	119.63	71.63
Dsgn. L = 20.00 ft +D+0.750Lr+0.750L+0.750W+H	1	0.083	0.024	4.48		4.48	90.47	54.17	1.36	1.00	1.71	119.63	71.63
Dsgn. L = 20.00 ft +D+0.750L+0.750S+0.750W+H	1	0.151	0.032	8.17		8.17	90.47	54.17	1.11	1.00	2.31	119.63	71.63
Dsgn. L = 20.00 ft +D+0.750L+0.750S+0.5250E+H	1	0.347	0.049	18.79		18.79	90.47	54.17	1.16	1.00	3.51	119.63	71.63
Dsgn. L = 20.00 ft +0.60D+W+H	1	0.679	0.074	36.79		36.79	90.47	54.17	1.23	1.00	5.31	119.63	71.63
Dsgn. L = 20.00 ft	1	0.168	0.026	0.01	-9.13	9.13	90.47	54.17	1.00	1.00	1.89	119.63	71.63

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.9267	10.100		0.0000	0.000

Steel Column

Description : column h-1

General Information

Code Ref : 2006 IBC, AISC Manual 13th Edition

Steel Section Name :	HSS6X6X1/4
Analysis Method :	2006 IBC & ASCE 7-05
Steel Stress Grade	
Fy : Steel Yield	46.0 ksi
E : Elastic Bending Modulus	29,000.0 ksi
Load Combination :	Allowable Stress

Overall Column Height 20.0 ft
Top & Bottom Fixity Top & Bottom Pinned

Brace condition for deflection (buckling) along columns :
X-X (width) axis : Fully braced against buckling along X-X Axis
Y-Y (depth) axis : Fully braced against buckling along Y-Y Axis

Applied Loads

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

Column self weight included : 379.73 lbs * Dead Load Factor
AXIAL LOADS . . .
valley beam: Axial Load at 20.0 ft, D = 1.70, S = 4.80 k
lo canopy beam: Axial Load at 10.0 ft, Xecc = 5.000in, D = 7.80, S = 3.20 k
BENDING LOADS . . .
lo canopy beam: Lat. Point Load at 10.0 ft creating Mx-x, W = 3.80 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = 0.8311 : 1
Load Combination +D+W+H
Location of max.above base 9.933 ft
At maximum location values are . . .
Pu : Axial 9.880 k
Pn / Omega : Allowable 144.34 k
Mu-x : Applied -18.872 k-ft
Mn-x / Omega : Allowable 25.709 k-ft
Mu-y : Applied 1.614 k-ft
Mn-y / Omega : Allowable 25.709 k-ft

PASS Maximum Shear Stress Ratio = 0.04374 : 1
Load Combination +D+W+H
Location of max.above base 0.0 ft
At maximum location values are . . .
Vu : Applied 1.90 k
Vn / Omega : Allowable 43.437 k

Maximum SERVICE Load Reactions . .
Top along X-X 0.1625 k
Bottom along X-X 0.1625 k
Top along Y-Y 1.90 k
Bottom along Y-Y 1.90 k

Maximum SERVICE Load Deflections . . .
Along Y-Y -1.333 in at 10.067ft above base
for load combination :W Only
Along X-X 0.02209 in at 5.906ft above base
for load combination :D Only

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
+D	0.097	PASS	9.93 ft	0.004	PASS	0.00 ft
+D+L+H	0.097	PASS	9.93 ft	0.004	PASS	0.00 ft
+D+Lr+H	0.097	PASS	9.93 ft	0.004	PASS	0.00 ft
+D+S+H	0.150	PASS	9.93 ft	0.005	PASS	0.00 ft
+D+0.750L+0.750S+H	0.137	PASS	9.93 ft	0.005	PASS	0.00 ft
+D+W+H	0.831	PASS	9.93 ft	0.044	PASS	0.00 ft
+D+0.750Lr+0.750L+0.750W+H	0.648	PASS	9.93 ft	0.033	PASS	0.00 ft
+D+0.750L+0.750S+0.750W+H	0.688	PASS	9.93 ft	0.033	PASS	0.00 ft
+D+0.750L+0.750S+0.5250E+H	0.137	PASS	9.93 ft	0.005	PASS	0.00 ft
+0.60D+W+H	0.792	PASS	9.93 ft	0.044	PASS	0.00 ft

Maximum Reactions - Unfactored

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction		Y-Y Axis Reaction	
	@ Base	@ Top	@ Base	@ Top
D Only	-0.163	-0.163		
S Only	-0.067	-0.067		
W Only			1.900	-1.900

Steel Column

Description : column h-1

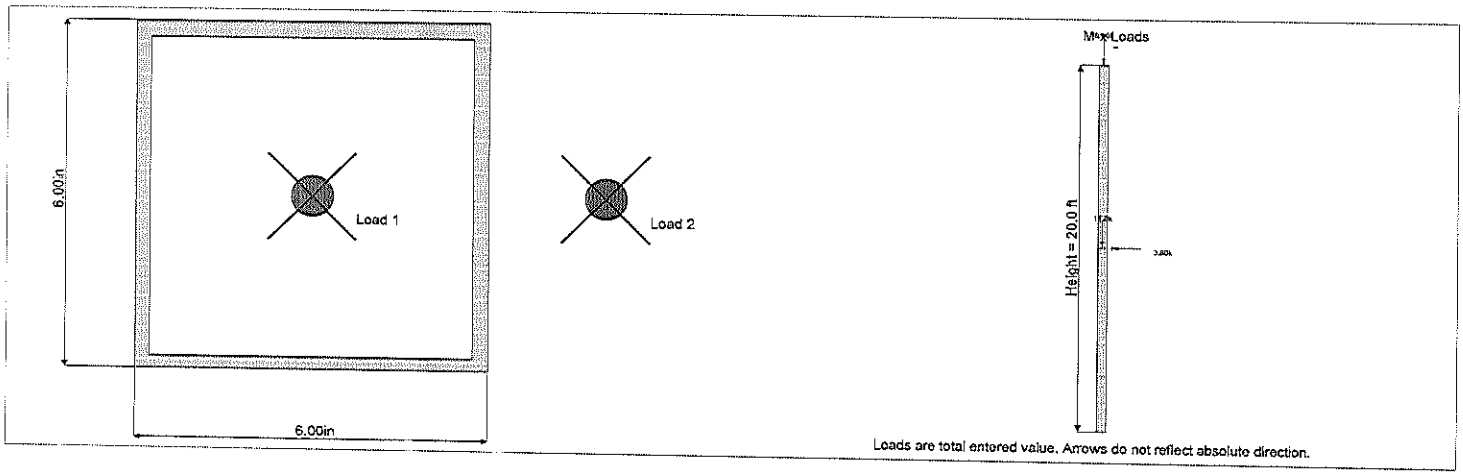
Maximum Deflections for Load Combinations - Unfactored Loads

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0221 in	5.906 ft	0.000 in	0.000 ft
S Only	0.0091 in	5.906 ft	0.000 in	0.000 ft
W Only	0.0000 in	0.000 ft	-1.333 in	10.067 ft

Steel Section Properties : HSS6X6X1/4

Depth	=	6.000 in	I xx	=	28.60 in^4	J	=	45.600 in^4
Web Thick	=	0.000 in	S xx	=	9.54 in^3			
Flange Width	=	6.000 in	R xx	=	2.340 in			
Flange Thick	=	0.250 in						
Area	=	5.240 in^2	I yy	=	28.600 in^4			
Weight	=	18.986 plf	S yy	=	9.540 in^3			
			R yy	=	2.340 in			

Ycg = 0.000 in



Loads are total entered value. Arrows do not reflect absolute direction.

Wood Beam Design

Description : front canopy sloping timber beam - unbalanced snow

Material Properties

Calculations per IBC 2006, CBC 2007, 2005 NDS

Analysis Method : Allowable Stress Design
Load Combination 2006 IBC & ASCE 7-05

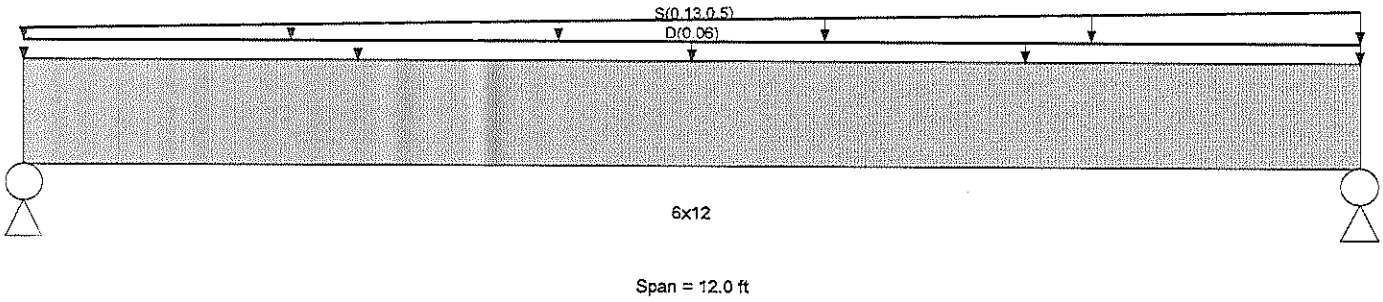
Wood Species : Hem Fir
Wood Grade : No.2

Fb - Tension	675.0 psi
Fb - Compr	675.0 psi
Fc - Prll	500.0 psi
Fc - Perp	405.0 psi
Fv	140.0 psi
Ft	350.0 psi

E : Modulus of Elasticity

Ebend- xx	1,100.0 ksi
Eminbend - xx	400.0 ksi
Density	27.70 pcf

Beam Bracing : Beam is Fully Braced against lateral-torsion buckling



Applied Loads

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

Load for Span Number 1
Uniform Load : D = 0.060 k/ft, Tributary Width = 1.0 ft, (dead weights)
Varying Uniform Load : S(S,E) = 0.130->0.50 k/ft, Extent = 0.0 -->> 12.0 ft, Trib Width = 1.0 ft, (unbalanced snow)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.996 : 1	Maximum Shear Stress Ratio	=	0.361 : 1
Section used for this span		6x12	Section used for this span		6x12
fb : Actual	=	672.61 psi	fv : Actual	=	50.48 psi
FB : Allowable	=	675.00 psi	Fv : Allowable	=	140.00 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	6.480 ft	Location of maximum on span	=	11.100 ft
Span # where maximum occurs	=	Span # 1	Span # where maximum occurs	=	Span # 1

Maximum Deflection

Max Downward L+Lr+S Deflection	0.193 in	Ratio =	745
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.230 in	Ratio =	625
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	C_d	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
+D										
Length = 12.0 ft	1	0.158	0.052	1.000	1.08	106.90	675.00	0.31	7.26	140.00
+D+L+H										
Length = 12.0 ft	1	0.158	0.052	1.000	1.08	106.90	675.00	0.31	7.26	140.00
+D+Lr+H										
Length = 12.0 ft	1	0.158	0.052	1.000	1.08	106.90	675.00	0.31	7.26	140.00
+D+S+H										
Length = 12.0 ft	1	0.996	0.361	1.000	6.80	672.61	675.00	2.13	50.48	140.00
+D+0.750L+0.750S+H										
Length = 12.0 ft	1	0.787	0.283	1.000	5.36	531.02	675.00	1.67	39.67	140.00
+D+0.750L+0.750S+0.750W+H										
Length = 12.0 ft	1	0.787	0.283	1.000	5.36	531.02	675.00	1.67	39.67	140.00
+D+0.750L+0.750S+0.5250E+H										
Length = 12.0 ft	1	0.787	0.283	1.000	5.36	531.02	675.00	1.67	39.67	140.00

Wood Beam Design

Description : front canopy sloping timber beam - balanced snow

Material Properties

Calculations per IBC 2006, CBC 2007, 2005 NDS

Analysis Method : Allowable Stress Design
Load Combination 2006 IBC & ASCE 7-05

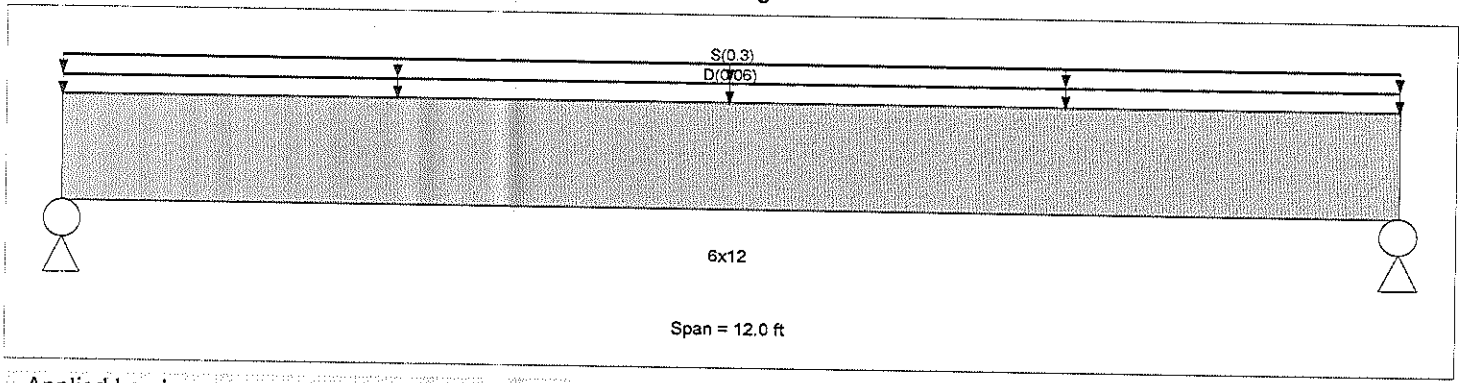
Wood Species : Hem Fir
Wood Grade : No.2

Beam Bracing : Beam is Fully Braced against lateral-torsion buckling

Fb - Tension	675.0 psi
Fb - Compr	675.0 psi
Fc - Prll	500.0 psi
Fc - Perp	405.0 psi
Fv	140.0 psi
Ft	350.0 psi

E : Modulus of Elasticity

Ebend- xx	1,100.0 ksi
Eminbend - xx	400.0 ksi
Density	27.70 pcf



Applied Loads

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

Load for Span Number 1
Uniform Load : D = 0.060 k/ft, Tributary Width = 1.0 ft, (dead weights)
Uniform Load : S = 0.30 k/ft, Tributary Width = 1.0 ft, (unbalanced snow)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	0.950 : 1	Maximum Shear Stress Ratio	=	0.311 : 1
Section used for this span		6x12	Section used for this span		6x12
fb : Actual	=	641.43 psi	fv : Actual	=	43.54 psi
FB : Allowable	=	675.00 psi	Fv : Allowable	=	140.00 psi
Load Combination		+D+S+H	Load Combination		+D+S+H
Location of maximum on span	=	6.000 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 L+Lr+S Deflection	0.184 in	Ratio =	782
Max Upward L+Lr+S Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.221 in	Ratio =	652
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	C_d	Summary of Moment Values Mactual	fb-design	Fb-allow	Summary of Shear Values Vactual	fv-design	Fv-allow
+D										
Length = 12.0 ft	1	0.158	0.052	1.000	1.08	106.90	675.00	0.31	7.26	140.00
+D+L+H										
Length = 12.0 ft	1	0.158	0.052	1.000	1.08	106.90	675.00	0.31	7.26	140.00
+D+Lr+H										
Length = 12.0 ft	1	0.158	0.052	1.000	1.08	106.90	675.00	0.31	7.26	140.00
+D+S+H										
Length = 12.0 ft	1	0.950	0.311	1.000	6.48	641.43	675.00	1.84	43.54	140.00
+D+0.750L+0.750S+H										
Length = 12.0 ft	1	0.752	0.246	1.000	5.13	507.80	675.00	1.45	34.47	140.00
+D+0.750L+0.750S+0.750W+H										
Length = 12.0 ft	1	0.752	0.246	1.000	5.13	507.80	675.00	1.45	34.47	140.00
+D+0.750L+0.750S+0.5250E+H										
Length = 12.0 ft	1	0.752	0.246	1.000	5.13	507.80	675.00	1.45	34.47	140.00

Wood Beam Design

Description : front canopy sloping timber beam - balanced snow

Overall Maximum Deflections - Unfactored Loads

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
D+L+S	1	0.2208	6.060		0.0000	0.000

Vertical Reactions - Unfactored

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	2.160	2.160
D Only	0.360	0.360
S Only	1.800	1.800
D+L+S	2.160	2.160

ELECTRICAL

Project Title: Trader Joe's
Project Location: 87 Marginal Way, Portland, Maine
Nature of Project: Electrical Improvements

D & D Electrical Contractors, Inc., licensed in the state of Maine, certifies that the electrical/fire alarm work for the above named project meets all applicable state and local electrical codes, all acceptable engineering practices and applicable laws and ordinances for the proposed use and occupancy.

I further certify that either I or my representative have been present on the construction site and have performed all the electrical work in accordance with the construction documents.

Daniel Pinto
Project Manager

PLUMBING APPLICATION

Department of Health and Division of Environmental

PROPERTY ADDRESS

Town or Plantation: Portland

Street Subdivision Lot #: 87 MARGINAL WAY

PROPERTY OWNERS NAME

Last: Trader Joe's First: Allstar plumbing

Applicant Name: Thomas Dorney

Mailing Address of Owner/Applicant (If Different): 10-12 Sunnyside Ave Lussett MA 02143

PORTLAND

Date Permit Issued: 7/2/10

Tammy Munson
Local Plumbing Insector Signature

PERMIT # 11341 TOWN COPY

$ 113.40 FEE ☐ If Double Fee Charged

L.P.I. # 3160

034 D 007

Owner/Applicant Statement

I certify that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Local Plumbing Inspectors to deny a Permit.

Signature of Owner/Applicant

7/2/2010
Date

Caution: Inspection Required

I have inspected the installation authorized above and found it to be in compliance with the Maine Plumbing Rules.

Local Plumbing Inspector Signature

Date Approved

PERMIT INFORMATION

034 D 007

This Application is for

1. ☑ NEW PLUMBING
2. ☐ RELOCATED PLUMBING

Type of Structure To Be Served:

1. ☐ SINGLE FAMILY DWELLING
2. ☐ MODULAR OR MOBILE HOME
3. ☐ MULTIPLE FAMILY DWELLING
4. ☑ OTHER – SPECIFY Supermarket

Plumbing To Be Installed By:

1. ☑ MASTER PLUMBER
2. ☐ OIL BURNERMAN
3. ☐ MFG'D. HOUSING DEALER/MECHANIC
4. ☐ PUBLIC UTILITY EMPLOYEE
5. ☐ PROPERTY OWNER

LICENSE # 11159

Hook-Up & Piping Relocation (Maximum of 1 Hook-Up)	Column 2 Number	Column 2 Type of Fixture	Column1 Number	Column1 Type of Fixture
1 HOOK-UP: to public sewer in those cases where the connection is not regulated and inspected by the local Sanitary District.		Hosebib / Sillcock		Bathtub (and Shower)
OR	15	Floor Drain		Shower (Separate)
1 HOOK-UP: to an existing subsurface wastewater disposal system.	1	Urinal	7	Sink
PIPING RELOCATION: of sanitary lines, drains, and piping without new fixtures.		Drinking Fountain		Wash Basin
		Indirect Waste	4	Water Closet (Toilet)
		Water Treatment Softener, Filter, etc.		Clothes Washer
		Grease / Oil Separator		Dish Washer
OR		Roof Drain		Garbage Disposal
TRANSFER FEE [$6.00]		Bidet		Laundry Tub
		Other:	1	Water Heater
		Fixtures (Subtotal) Column 2		Fixtures (Subtotal) Column 1
SEE PERMIT FEE SCHEDULE FOR CALCULATING FEE				Fixtures (Subtotal) Column 2
				Total Fixtures
				Fixture Fee
				Transfer Fee
				Hook-Up & Relocation Fee
				Permit Fee

84

Form # P 01

ELECTRICAL PERMIT
City of Portland, Me.

To the Chief Electrical Inspector, Portland Maine:
The undersigned hereby applies for a permit to make electrical installations in accordance with the laws of Maine, the City of Portland Electrical Ordinance, National Electrical Code and the following specifications:

Date _____
Permit # 2010 - 4618
CBL# 034 D 007

LOCATION: 87 Marginal Way
CMP ACCOUNT # _____
TENANT TRADER JOE
METER MAKE & # _____
OWNER _____
PHONE # _____

					TOTAL	EACH FEE
OUTLETS	Receptacles	Switches	Smoke Detector			.20
FIXTURES	Incandescent	Fluorescent	Strips			.20
SERVICES	Overhead	Underground	TTL AMPS	<800		15.00
	Overhead	Underground		>800		25.00
Temporary Service	Overhead	Underground	TTL AMPS			25.00
METERS	(number of)					25.00
MOTORS	(number of)					1.00
RESID/COM	Electric units					2.00
HEATING	oil/gas units	Interior	Exterior			1.00
APPLIANCES	Ranges	Cook Tops	Wall Ovens			5.00
	Insta-Hot	Water heaters	Fans			2.00
	Dryers	Disposals	Dishwasher			2.00
	Compactors	Spa	Washing Machine			2.00
	Others (denote)					2.00
MISC. (number of)	Air Cond/win					2.00
	Air Cond/cent		Pools			3.00
	HVAC	EMS	Thermostat			10.00
	Signs					5.00
	Alarms/res					10.00
	Alarms/com					5.00
	Heavy Duty(CRKT)					15.00
	Circus/Carnv					2.00
	Alterations					25.00
	Fire Repairs					5.00
	E Lights					15.00
	E Generators					1.00
LOW VOLTAGE	AUDIO, VIDEO AND DATA					20.00
PANELS	Service	Remote	Main			55.00
TRANSFORMER	0-25 Kva					4.00
	25-200 Kva					5.00
	Over 200 Kva					8.00
						10.00
	MINIMUM FEE/COMMERCIAL 55.00		TOTAL AMOUNT DUE			
			MINIMUM FEE	45.00		55

3447

RECEIVED
SEP - 8 2010
Dept. of Building Inspections
City of Portland Maine

CONTRACTORS NAME MERRITT MORRIS
ADDRESS PO BOX 427 TURNER MAINE
TELEPHONE 207 225-5115
MASTER LIC. # _____
LIMITED LIC. # _____

SIGNATURE OF CONTRACTOR _____

White Copy - Office • Yellow Copy - Applicant

Form # P 01

ELECTRICAL PERMIT
City of Portland, Me.

To the Chief Electrical Inspector, Portland Maine:
The undersigned hereby applies for a permit to make electrical installations in accordance with the laws of Maine, the City of Portland Electrical Ordinance, National Electrical Code and the following specifications:

Date _____
Permit # 2010 4459
CBL# 34-D-7

LOCATION: 87 Marginal Way
METER MAKE & # _____
CMP ACCOUNT # _____
OWNER _____
TENANT Trader Joe's
PHONE # _____

								TOTAL	EACH FEE
OUTLETS	52	Receptacles	10	Switches		Smoke Detector		.20	20
FIXTURES		Incandescent	258	Fluorescent		Strips		.20	52
SERVICES		Overhead		Underground		TTL AMPS	<800	15.00	100
		Overhead		Underground			>800	25.00	
Temporary Service		Overhead		Underground		TTL AMPS		25.00	25
METERS		(number of)						25.00	
MOTORS		(number of)						1.00	
RESID/COM		Electric units						2.00	
HEATING		oil/gas units		Interior	3	Exterior		1.00	
APPLIANCES		Ranges		Cook Tops		Wall Ovens		5.00	15
	2	Insta-Hot	1	Water heaters	1	Fans		2.00	
		Dryers		Disposals		Dishwasher		2.00	8
		Compactors		Spa		Washing Machine		2.00	
		Others (denote)						2.00	
MISC. (number of)		Air Cond/win						3.00	
		Air Cond/cent				Pools		10.00	
		HVAC		EMS		Thermostat		5.00	
	2	Signs						10.00	20
		Alarms/res						5.00	
		Alarms/com						15.00	
		Heavy Duty(CRKT)						2.00	
		Circus/Carnv						25.00	
		Alterations						5.00	
		Fire Repairs						15.00	
	20	E Lights						1.00	20
	1	E Generators						20.00	20
PANELS		Service	13	Remote		Main		4.00	52
TRANSFORMER		0-25 Kva						5.00	
		25-200 Kva						8.00	
		Over 200 Kva						10.00	
		MINIMUM FEE/COMMERCIAL 55.00				TOTAL AMOUNT DUE			$332.00
						MINIMUM FEE	45.00		254

PAID

RECEIVED
JUL 14 2010
Dept. of Building Inspections
City of Portland, Maine

CONTRACTORS NAME D+D Electrical Contractors Inc. MASTER LIC. # MS 600 19698
ADDRESS 10 Everberg Road Woburn MA 01801 LIMITED LIC. # _____
TELEPHONE 781-932-0907

SIGNATURE OF CONTRACTOR _____

White Copy - Office • Yellow Copy - Applicant