STRUCTURAL CALCULATIONS FOR

NEW LONGVIEW BUILDING 31
3140 SW LONGVIEW BLVD
LEE'S SUMMIT, MO 64081z

Project # 20291
5/17/2021

1.0 - DESIGN CRITERIA

1.1 - GRAVITY LOADS

Deck General Properties

	Label	Material Type	Deck	Unbraced[ft]	Max Span[ft]
1	3" NW Concrete on 2" Compo...	Concrete Deck	3" NW Concrete Deck, Concrete, Normal Weight...	2	10
2	1 1/2" Metal Roof Deck	Vulcraft Steel Roof Deck	1.5 B22	2	10

Uniform Area Loads

	Label	Additive	PreDL[ksf]	PostDL[ksf]	LL[ksf]	LL Type	VL[ksf]	Dyn Load[ksf]
1	Office			0.015	0.05	LL-Reduce	0.011	0.01
2	Storage			0.01	0.125	LLS-Non	0.011	0.05
3	Public			0.01	0.1	LL-Non	0.004	0.01
4	Add Piping	Yes		0.02		LL-Non	0.011	0.02
5	Roof			0.015	0.025	SL	0.011	0.01
6	Roof Patio			0.04	0.075	LL-Non	0.011	0.01

Other Uniform Area Loads

	Label	OL1[ksf]	Direction	OL2[ksf]	Direction	OL3[ksf]	Direction	OL4[ksf]	Direction
1	Office		Y		Y		Y		Y
2	Storage		Y		Y		Y		Y
3	Public		Y		Y		Y		Y
4	Add Piping		Y		Y		Y		Y
5	Roof		Y		Y		Y		Y
6	Roof Patio		Y		Y		Y		Y

Tapered Area Loads : Upper Roof

	A Point	B Point	C Point	D Point	Base Mag[ksf]	Peak Mag[ksf]	Category	Direction
1	N28	N79	REV_N15	N81	0	0.05	SL	PY
2	N82	N83	N84	REV_N11	0	0.05	SL	PY
3	N85	N86	N87	N88	0	0.05	SL	PY
4	N89	N90	N91	N46	0	0.05	SL	PY
5	N67	N68	REV_N9	REV_N8	0	0.05	SL	PY
6	N64	N62	N23	N22	0	0.05	SL	PY
7	N66	N65	REV_N3	REV_N5	0	0.05	SL	PY
8	N53	N56	REV_N16	REV_N15	0	0.05	SL	PY
9	N104	N42	REV_N11	N100	0	0.05	SL	PY

Tapered Area Loads : 2nd Floor

	A Point	B Point	C Point	D Point	Base Mag[ksf]	Peak Mag[ksf]	Category	Direction
1	N100	N96	REV_N2	REV_N1	0	0.05	SL	PY
2	REV_N29	REV_N40	REV_N74	REV_N75	0	0.05	SL	PY
3	N78	N79	REV_N75	REV_N1	0	0.05	SL	PY
4	N84	N87	REV_N74	REV_N2	0	0.05	SL	PY

Tapered Area Loads : Lower Roof

	A Point	B Point	C Point	D Point	Base Mag[ksf]	Peak Mag[ksf]	Category	Direction
1	N100	N96	REV_N2	REV_N1	0	0.05	SL	PY
2	REV_N29	REV_N40	REV_N74	REV_N75	0	0.05	SL	PY
3	N78	N79	REV_N75	REV_N1	0	0.05	SL	PY
4	N84	N87	REV_N74	REV_N2	0	0.05	SL	PY

Floors

	Label	Elevation[ft]	Floor Type	Area Load Default	Inactive	Splice Dis..	Splice Type	No Wind/...	Parapet Hei...
1	Upper Roof	26.217	Floor Beam	Roof		9.384	Moment		0
2	2nd Floor	13.333	Floor Beam	Office		13.333	Moment		0
3	Lower Roof	14.833	Floor Beam	Office		0.416	Moment		0

Beam Floors

	Label	Deck Default	Deck Angle Default (deg)	Parent
1	Upper Roof	1 1/2" Metal Roof Deck	0	None
2	2nd Floor	3" NW Concrete on 2" Composite ...	0	None
3	Lower Roof	1 1/2" Metal Roof Deck	0	None

Combinations

	Label	Sol...	Cat...	Fac...	Cat...	Fac...	Cat...	Fac...	Cat...	Fac...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...	Cat...	Fact...
1	IBC 16-8...	Yes	DLP...	1																		
2	IBC 16-9...	Yes	DLP...	1	LLC...	1																
3	D	Yes	DL	1																		
4	D+L	Yes	DL	1	LL	1	LLS	1														
5	IBC 16-1...	Yes	DL	1	RLL	1																
6	IBC 16-1...	Yes	DL	1	SL	1	SLN	1														
7	IBC 16-1...	Yes	DL	1	LL	0.75	LLS	0.75	RLL	0.75												
8	IBC 16-1...	Yes	DL	1	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75										
9	IBC 16-1...	Yes	DL	1	LL	0.75	LLS	0.75														

Combination Design

	Label	ASIF	CD	Service	Hot Rolled ...	Cold Form...	Wood	Wood Pro...	Concrete	Masonry	Connection
1	IBC 16-8 Pre		0.9	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	IBC 16-9 Pre			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	D		0.9	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	D+L			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	IBC 16-10 (a) ...		1.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	IBC 16-10 (b) ...		1.15	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	IBC 16-11 (a) ...		1.25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	IBC 16-11 (b) ...		1.15	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	IBC 16-11 (c) ...		1.15	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

1.2 - WIND LOAD

Wind Generation Input

Wind Code:	**ASCE 7-16**	Topographic Factor K1:	**1**
Wind Speed, V(mph):	**109**	Topographic Factor K2:	**1**
		Topographic Factor K3:	**1**
Exposure Category:	**C**	Directionality Factor Kd:	**0.85**
Base Elevation(ft):	**0**	Parapet Height(ft):	**0**

Wind Generation Detail Results

		Kzt:	**4**
Exposure Constant Alpha:	**9.5**	h (ft):	**26.217**
Exposure Constant zg:	**900**	Kh:	**0.955**
Gust Effect Factor, G:	**0.85**	Windward Cp:	**0.8**
		qh (ksf):	**0.084**
		GCpn (windward):	**+1.5**
		GCpn (leeward):	**-1.0**

Wind Generation Floor Geometry Results

Floor Level	Height (ft)	Kz	Width (X) (ft)	Length (Z) (ft)	Leeward Cp(X)	Leeward Cp(Z)
Upper Roof	**26.217**	**0.955**	**64.125**	**84.25**	**0.5**	**0.437**
Lower Roof	**14.833**	**0.849**	**43.75**	**40.333**	**0.483**	**0.5**
2nd Floor	**13.333**	**0.849**	**63.125**	**83.25**	**0.5**	**0.436**

Wind Generation Floor Force Results

Floor Level	qz (ksf)	Windward Pres. (ksf)	Leeward Pres. X (ksf)	Leeward Pres. Z (ksf)	Force X (k)	Force Z (k)
Upper Roof	**0.084**	**0.057**	**0.036**	**0.031**	**44.472**	**32.215**
Lower Roof	**0.075**	**0.051**	**0.034**	**0.036**	**22.137**	**24.353**
2nd Floor	**0.075**	**0.051**	**0.036**	**0.031**	**53.35**	**38.324**

1.3 - SEISMIC

SEISMIC BASE SHEAR AND VERTICAL SHEAR DISTRIBUTION

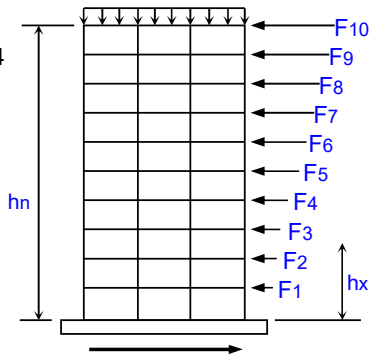
Per IBC 2012 and ASCE 7-10 Specifications

Using Equivalent Lateral Force Procedure for Regular Multi-Level Building/Structural Systems

Job Name:		Subject:			
Job Number:		Originator:		Checker:	

Input Data:

Risk Category =	II	IBC 2012, Table 1604.5, page 336
Importance Factor, I =	1.00	ASCE 7-10 Table 1.5-2, page 5
Soil Site Class =	C	ASCE 7-10 Table 20.3-1, page 204
Location Zip Code =		(not required)
Spectral Accel., Ss =	0.099	ASCE 7-10 Figures 22-1 to 22-11
Spectral Accel., S1 =	0.068	ASCE 7-10 Figures 22-1 to 22-11
Long. Trans. Period, TL =	12.000	sec. ASCE 7 Fig's. 22-12 to 22-18
Structure Height, hn =	33.000	ft.
Actual Calc. Period, Tc =		sec. from independent analysis
Seismic Resist. System =	H1	Steel systems not specifically detailed for seismic resistance (ASCE 7-10 Table 12.2-1)



V = Cs*W = Σ(Fi) = 11.4 kips

Structure Weight Distribution:

No. of Seismic Levels = 2

Seismic Level x	Height, hx (ft.)	Weight, Wx (kips)
2	26.250	97.00
1	13.000	335.00

Seismic Base Shear

(Regular Bldg. Configurations Only)

Floor	Area	Weight (PSF)	Weight (Kips)
roof	660	6	3.96
walls	432	6	2.592
			6.552

Total Weight, W = ΣWx = 432.00 kips (ASCE 7-10 Section 12.7.2)

Results:

Site Coefficients:

Fa =	1.200	ASCE 7-10 Table 11.4-1, page 66
Fv =	1.700	ASCE Table 11.4-2, page 66

Maximum Spectral Response Accelerations for Short and 1-Second Periods:

SMS =	0.119	SMS = Fa*Ss, ASCE Eqn. 11.4-1, page 65
SM1 =	0.116	SM1 = Fv*S1, ASCE Eqn. 11.4-2, page 65

Design Spectral Response Accelerations for Short and 1-Second Periods :

SDS =	0.079	SDS = 2*SMS/3, ASCE 7-10 Eqn. 11.4-3, page 65
SD1 =	0.077	SD1 = 2*SM1/3, ASCE Eqn. 11.4-4, page 65

(continued:)

Seismic Design Category:

Category(for S_{DS}) =	A	ASCE 7-10 Table 11.6-1, page 67
Category(for S_{D1}) =	B	ASCE 7-10 Table 11.6-2, page 67
Use Category =	B	Most critical of either category case above controls

Fundamental Period:

Period Coefficient, C_T =	0.020	ASCE 7-10 Table 12.8-2, page 90
Period Exponent, x =	0.75	ASCE 7-10 Table 12.8-2, page 90
Approx. Period, T_a =	0.275	sec., $T_a = C_T*h_n\text{^}(x)$, ASCE 7-10 Section 12.8.2.1, Eqn. 12.8-7
Upper Limit Coef., C_u =	1.700	ASCE 7-10 Table 12.8-1, page 90
Period max., $T_{(max)}$ =	0.468	sec., $T_{(max)} = C_u*T_a$, ASCE 7-10 Section 12.8.2, page 90
Fundamental Period, T =	0.275	sec., T = Ta <= Cu*Ta, ASCE 7-10 Section 12.8.2, page 90

Seismic Design Coefficients and Factors:

Response Mod. Coef., R =	3	ASCE 7-10 Table 12.2-1, pages 73-75
Overstrength Factor, Ωo =	3	ASCE 7-10 Table 12.2-1, pages 73-75
Defl. Amplif. Factor, C_d =	3	ASCE 7-10 Table 12.2-1, pages 73-75
C_S =	0.026	$C_S = S_{DS}/(R/I)$, ASCE 7-10 Section 12.8.1.1, Eqn. 12.8-2
$C_{S(max)}$ =	0.093	For T<=TL, CS(max) = SD1/(T*(R/I)), ASCE 7-10 Eqn. 12.8-3
$C_{S(min)}$ =	0.010	CS(min) = 0.044*SDS*I >= 0.01, ASCE 7-10 Eqn. 12.8-5
Use: C_S =	0.026	$C_{S(min)}$ <= C_S <= $C_{S(max)}$

Seismic Base Shear:

V =	11.40	kips, $V = C_S*W$, ASCE 7-10 Section 12.8.1, Eqn. 12.8-1

Seismic Shear Vertical Distribution:

Distribution Exponent, k = 1.00 — k = 1 for T<=0.5 sec., k = 2 for T>=2.5 sec.
k = (2-1)*(T-0.5)/(2.5-0.5)+1, for 0.5 sec. < T < 2.5 sec.

Lateral Force at Any Level: $F_x = C_{vx}*V$, ASCE 7-10 Section 12.8.3, Eqn. 12.8-11, page 91

Vertical Distribution Factor: $C_{vx} = W_x*h_x\text{^}k/(\Sigma W_i*h_i\text{^}k)$, ASCE 7-10 Eqn. 12.8-12, page 91

Seismic Level x	Weight, Wx (kips)	$h_x\text{^}k$ (ft.)	$W_x*h\text{^}k$ (ft-kips)	C_{vx} (%)	Shear, F_x (kips)	Σ Story Shears
2	97.00	26.250	2546.3	0.369	4.21	4.21
1	335.00	13.000	4355.0	0.631	7.20	11.40
Σ =	432.00		6901.3	1.000	11.40	

Comments:

2.0 - FOUNDATION DESIGN

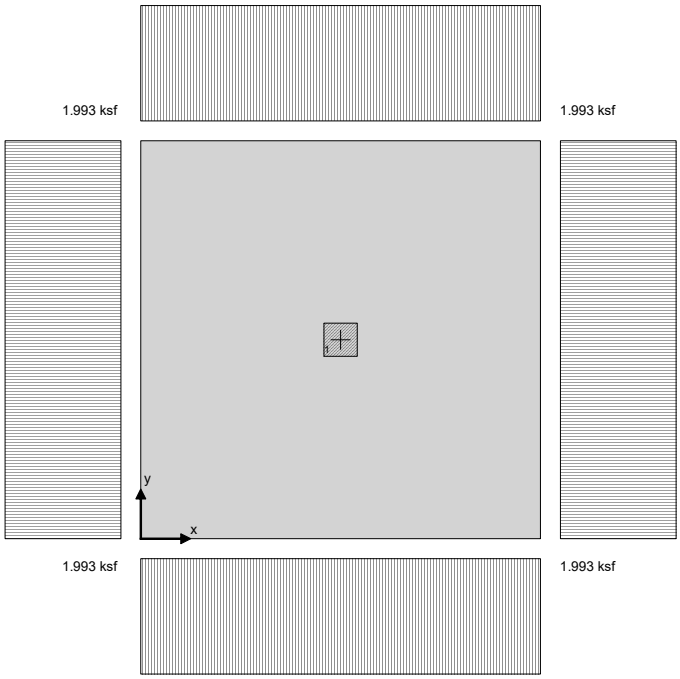
FOUNDATION ANALYSIS & DESIGN (ACI318)

In accordance with ACI318-11 incorporating Errata as of August 8, 2014

Tedds calculation version 3.2.09

FOOTING ANALYSIS

Length of foundation	L_x = **4** ft
Width of foundation	L_y = **4** ft
Foundation area	$A = L_x \times L_y$ = **16** ft^2
Depth of foundation	h = **12** in
Depth of soil over foundation	h_{soil} = **6** in
Density of concrete	γ_{conc} = **145.0** lb/ft^3



Column no.1 details

Length of column	l_{x1} = **4.00** in
Width of column	l_{y1} = **4.00** in
position in x-axis	x_1 = **24.00** in
position in y-axis	y_1 = **24.00** in

Soil properties

Gross allowable bearing pressure	q_{allow_Gross} = **2** ksf
Density of soil	γ_{soil} = **120.0** lb/ft^3
Angle of internal friction	ϕ_b = **30.0** deg
Design base friction angle	δ_{bb} = **30.0** deg
Coefficient of base friction	$\tan(\delta_{bb})$ = **0.577**

Foundation loads

Live surcharge load — F_{Lsur} = **100** psf

Self weight — $F_{swt} = h \times \gamma_{conc}$ = **145** psf

Soil weight — $F_{soil} = h_{soil} \times \gamma_{soil}$ = **60** psf

Column no.1 loads

Dead load in z — F_{Dz1} = **12.0** kips

Live load in z — F_{Lz1} = **15.0** kips

Footing analysis for soil and stability

Load combinations per ASCE 7-10

1.0D (0.477)
1.0D + 1.0L (0.996)
1.0D + 0.6W (0.477)
1.0D + 0.75L + 0.75Lr + 0.45W (0.867)

Combination 2 results: 1.0D + 1.0L

Forces on foundation

Force in z-axis — $F_{dz} = \gamma_D \times A \times (F_{swt} + F_{soil}) + \gamma_L \times A \times F_{Lsur} + \gamma_D \times F_{Dz1} + \gamma_L \times F_{Lz1}$ = **31.9** kips

Moments on foundation

Moment in x-axis, about x is 0 — $M_{dx} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_x / 2) + \gamma_L \times A \times F_{Lsur} \times L_x / 2 + \gamma_D \times (F_{Dz1} \times x_1) + \gamma_L \times (F_{Lz1} \times x_1)$ = **63.8** kip_ft

Moment in y-axis, about y is 0 — $M_{dy} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_y / 2) + \gamma_L \times A \times F_{Lsur} \times L_y / 2 + \gamma_D \times (F_{Dz1} \times y_1) + \gamma_L \times (F_{Lz1} \times y_1)$ = **63.8** kip_ft

Uplift verification

Vertical force — F_{dz} = **31.88** kips

PASS - Foundation is not subject to uplift

Bearing resistance

Eccentricity of base reaction

Eccentricity of base reaction in x-axis — $e_{dx} = M_{dx} / F_{dz} - L_x / 2$ = **0** in

Eccentricity of base reaction in y-axis — $e_{dy} = M_{dy} / F_{dz} - L_y / 2$ = **0** in

Pad base pressures

$q_1 = F_{dz} \times (1 - 6 \times e_{dx} / L_x - 6 \times e_{dy} / L_y) / (L_x \times L_y)$ = **1.992** ksf

$q_2 = F_{dz} \times (1 - 6 \times e_{dx} / L_x + 6 \times e_{dy} / L_y) / (L_x \times L_y)$ = **1.992** ksf

$q_3 = F_{dz} \times (1 + 6 \times e_{dx} / L_x - 6 \times e_{dy} / L_y) / (L_x \times L_y)$ = **1.992** ksf

$q_4 = F_{dz} \times (1 + 6 \times e_{dx} / L_x + 6 \times e_{dy} / L_y) / (L_x \times L_y)$ = **1.992** ksf

Minimum base pressure — $q_{min} = \min(q_1,q_2,q_3,q_4)$ = **1.992** ksf

Maximum base pressure — $q_{max} = \max(q_1,q_2,q_3,q_4)$ = **1.992** ksf

Allowable bearing capacity

Allowable bearing capacity — $q_{allow} = q_{allow\_Gross}$ = **2** ksf

q_{max} / q_{allow} = **0.996**

PASS - Allowable bearing capacity exceeds design base pressure

FOOTING DESIGN (ACI318)

In accordance with ACI318-11 incorporating Errata as of August 8, 2014

Material details

Compressive strength of concrete	f'_c = **4000** psi
Yield strength of reinforcement	f_y = **60000** psi
Cover to reinforcement	c_{nom} = **3** in
Concrete type	Normal weight
Concrete modification factor	λ = **1.00**
Column type	Concrete

Analysis and design of concrete footing

Load combinations per ASCE 7-10

1.4D (0.205)
1.2D + 1.6L + 0.5Lr (0.468)
1.2D + 1.0L + 0.5Lr + 1.0W (0.358)
0.9D + 1.0W (0.143)

Combination 2 results: 1.2D + 1.6L + 0.5Lr

Forces on foundation

Ultimate force in z-axis

$F_{uz} = \gamma_D \times A \times (F_{swt} + F_{soil}) + \gamma_L \times A \times F_{Lsur} + \gamma_D \times F_{Dz1} + \gamma_L \times F_{Lz1}$ = **44.9** kips

Moments on foundation

Ultimate moment in x-axis, about x is 0

$M_{ux} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_x / 2) + \gamma_L \times A \times F_{Lsur} \times L_x / 2 + \gamma_D \times (F_{Dz1} \times x_1) + \gamma_L \times (F_{Lz1} \times x_1)$ = **89.8** kip_ft

Ultimate moment in y-axis, about y is 0

$M_{uy} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_y / 2) + \gamma_L \times A \times F_{Lsur} \times L_y / 2 + \gamma_D \times (F_{Dz1} \times y_1) + \gamma_L \times (F_{Lz1} \times y_1)$ = **89.8** kip_ft

Eccentricity of base reaction

Eccentricity of base reaction in x-axis

$e_{ux} = M_{ux} / F_{uz} - L_x / 2$ = **0** in

Eccentricity of base reaction in y-axis

$e_{uy} = M_{uy} / F_{uz} - L_y / 2$ = **0** in

Pad base pressures

$q_{u1} = F_{uz} \times (1 - 6 \times e_{ux} / L_x - 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.806** ksf

$q_{u2} = F_{uz} \times (1 - 6 \times e_{ux} / L_x + 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.806** ksf

$q_{u3} = F_{uz} \times (1 + 6 \times e_{ux} / L_x - 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.806** ksf

$q_{u4} = F_{uz} \times (1 + 6 \times e_{ux} / L_x + 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.806** ksf

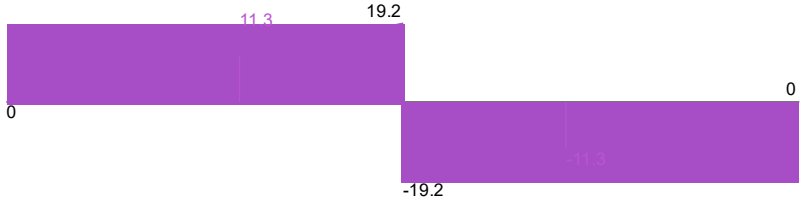
Minimum ultimate base pressure

$q_{umin} = \min(q_{u1},q_{u2},q_{u3},q_{u4})$ = **2.806** ksf

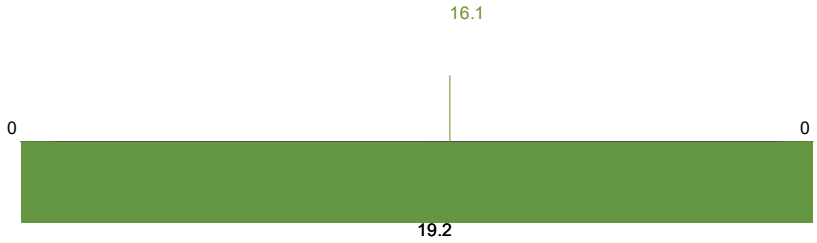
Maximum ultimate base pressure

$q_{umax} = \max(q_{u1},q_{u2},q_{u3},q_{u4})$ = **2.806** ksf

Shear diagram, x axis (kips)



Moment diagram, x axis (kip_ft)



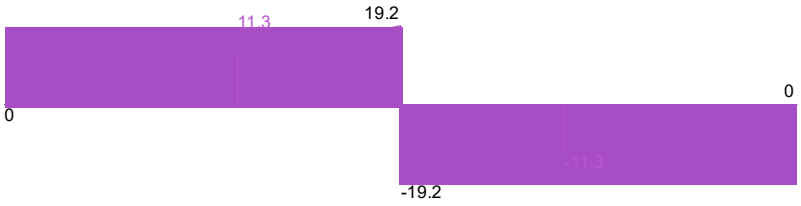
Moment design, x direction, positive moment

Ultimate bending moment	$M_{u.x.max}$ = **16.133** kip_ft
Tension reinforcement provided	4 No.6 bottom bars (13.7 in c/c)
Area of tension reinforcement provided	$A_{sx.bot.prov}$ = **1.76** in^2
Minimum area of reinforcement (10.5.4)	$A_{s.min} = 0.0018 \times L_y \times h$ = **1.037** in^2
	PASS - Area of reinforcement provided exceeds minimum
Maximum spacing of reinforcement (10.5.4)	$s_{max} = \min(3 \times h, 18\ in)$ = **18** in
	PASS - Maximum permissible reinforcement spacing exceeds actual spacing
Depth to tension reinforcement	$d = h - c_{nom} - \phi_{x.bot} / 2$ = **8.625** in
Depth of compression block	$a = A_{sx.bot.prov} \times f_y / (0.85 \times f'_c \times L_y)$ = **0.647** in
Neutral axis factor	β_1 = **0.85**
Depth to neutral axis	$c = a / \beta_1$ = **0.761** in
Strain in tensile reinforcement (10.3.5)	$\varepsilon_t = 0.003 \times d / c - 0.003$ = **0.03099**
	PASS - Tensile strain exceeds minimum required, 0.004
Nominal moment capacity	$M_n = A_{sx.bot.prov} \times f_y \times (d - a / 2)$ = **73.053** kip_ft
Flexural strength reduction factor	$\phi_f = \min(\max(0.65 + (\varepsilon_t - 0.002) \times (250 / 3), 0.65), 0.9)$ = **0.900**
Design moment capacity	$\phi M_n = \phi_f \times M_n$ = **65.748** kip_ft
	$M_{u.x.max} / \phi M_n$ = **0.245**
	PASS - Design moment capacity exceeds ultimate moment load

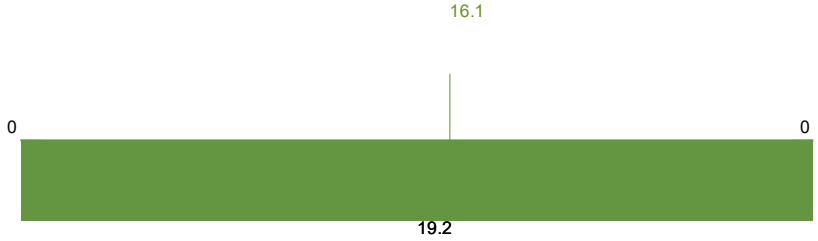
One-way shear design, x direction

Ultimate shear force	$V_{u.x}$ = **11.3** kips
Depth to reinforcement	$d_v = h - c_{nom} - \phi_{x.bot} / 2$ = **8.625** in
Shear strength reduction factor	ϕ_v = **0.75**
Nominal shear capacity (Eq. 11-3)	$V_n = 2 \times \lambda \times \sqrt{(f'_c \times 1\ psi)} \times L_y \times d_v$ = **52.367** kips
Design shear capacity	$\phi V_n = \phi_v \times V_n$ = **39.275** kips
	$V_{u.x} / \phi V_n$ = **0.288**
	PASS - Design shear capacity exceeds ultimate shear load

Shear diagram, y axis (kips)



Moment diagram, y axis (kip_ft)



Moment design, y direction, positive moment

Ultimate bending moment	$M_{u.y.max}$ = **16.133** kip_ft
Tension reinforcement provided	4 No.6 bottom bars (13.7 in c/c)
Area of tension reinforcement provided	$A_{sy.bot.prov}$ = **1.76** in^2
Minimum area of reinforcement (10.5.4)	$A_{s.min} = 0.0018 \times L_x \times h$ = **1.037** in^2
	PASS - Area of reinforcement provided exceeds minimum
Maximum spacing of reinforcement (10.5.4)	$s_{max} = \min(3 \times h, 18\text{ in})$ = **18** in
	PASS - Maximum permissible reinforcement spacing exceeds actual spacing
Depth to tension reinforcement	$d = h - c_{nom} - \phi_{x.bot} - \phi_{y.bot} / 2$ = **7.875** in
Depth of compression block	$a = A_{sy.bot.prov} \times f_y / (0.85 \times f'_c \times L_x)$ = **0.647** in
Neutral axis factor	β_1 = **0.85**
Depth to neutral axis	$c = a / \beta_1$ = **0.761** in
Strain in tensile reinforcement (10.3.5)	$\varepsilon_t = 0.003 \times d / c - 0.003$ = **0.02803**
	PASS - Tensile strain exceeds minimum required, 0.004
Nominal moment capacity	$M_n = A_{sy.bot.prov} \times f_y \times (d - a / 2)$ = **66.453** kip_ft
Flexural strength reduction factor	$\phi_f = \min(\max(0.65 + (\varepsilon_t - 0.002) \times (250 / 3), 0.65), 0.9)$ = **0.900**
Design moment capacity	$\phi M_n = \phi_f \times M_n$ = **59.808** kip_ft
	$M_{u.y.max} / \phi M_n$ = **0.270**
	PASS - Design moment capacity exceeds ultimate moment load

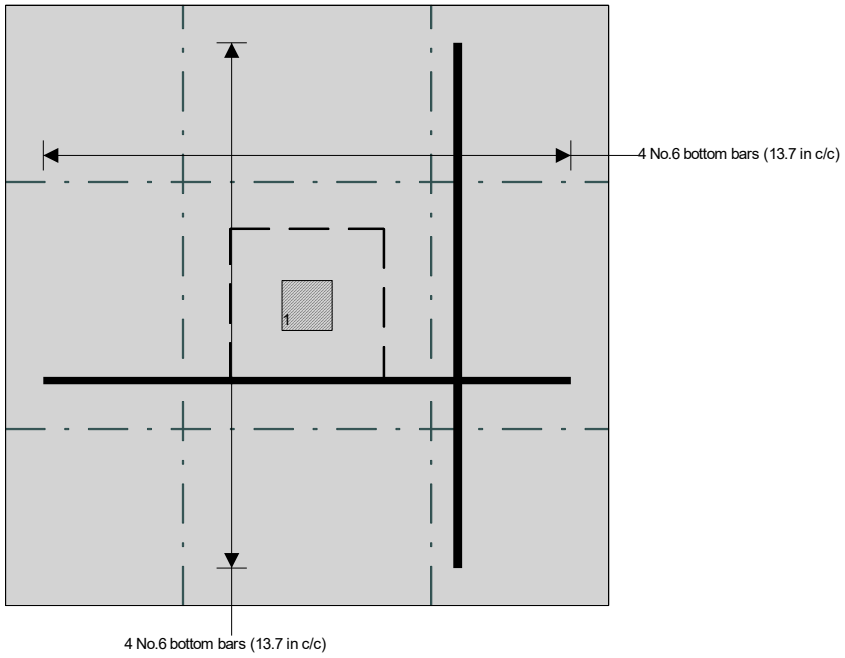
One-way shear design, y direction

Ultimate shear force	$V_{u.y}$ = **11.3** kips
Depth to reinforcement	$d_v = h - c_{nom} - \phi_{x.bot} - \phi_{y.bot} / 2$ = **7.875** in
Shear strength reduction factor	ϕ_v = **0.75**
Nominal shear capacity (Eq. 11-3)	$V_n = 2 \times \lambda \times \sqrt{(f'_c \times 1\text{ psi})} \times L_x \times d_v$ = **47.814** kips
Design shear capacity	$\phi V_n = \phi_v \times V_n$ = **35.86** kips
	$V_{u.y} / \phi V_n$ = **0.315**
	PASS - Design shear capacity exceeds ultimate shear load

Two-way shear design at column 1

Depth to reinforcement	d_{v2} = **8.25** in
Shear perimeter length (11.11.1.2)	l_{xp} = **12.250** in
Shear perimeter width (11.11.1.2)	l_{yp} = **12.250** in
Shear perimeter (11.11.1.2)	$b_o = 2 \times (l_{x1} + d_{v2}) + 2 \times (l_{y1} + d_{v2})$ = **49.000** in
Shear area	$A_p = l_{x,perim} \times l_{y,perim}$ = **150.062** in^2

Surcharge loaded area	$A_{sur} = A_p - l_{x1} \times l_{y1} =$ **134.062** in^2
Ultimate bearing pressure at center of shear area	$q_{up.avg} =$ **2.806** ksf
Ultimate shear load	$F_{up} = \gamma_D \times F_{Dz1} + \gamma_L \times F_{Lz1} + \gamma_D \times A_p \times F_{swt} + \gamma_D \times A_{sur} \times F_{soil} + \gamma_L \times A_{sur} \times F_{Lsur} - q_{up.avg} \times A_p =$ **35.873** kips
Ultimate shear stress from vertical load	$v_{ug} = \max(F_{up} / (b_o \times d_{v2}), 0 \text{ psi}) =$ **88.740** psi
Column geometry factor (11.11.2.1)	$\beta = l_{y1} / l_{x1} =$ **1.00**
Column location factor (11.11.2.1)	$\alpha_s =$ **40**
Concrete shear strength (11.11.2.1)	$v_{cpa} = (2 + 4 / \beta) \times \lambda \times \sqrt{f'_c \times 1 \text{ psi}}) =$ **379.473** psi
	$v_{cpb} = (\alpha_s \times d_{v2} / b_o + 2) \times \lambda \times \sqrt{f'_c \times 1 \text{ psi}}) =$ **552.431** psi
	$v_{cpc} = 4 \times \lambda \times \sqrt{f'_c \times 1 \text{ psi}}) =$ **252.982** psi
	$v_{cp} = \min(v_{cpa}, v_{cpb}, v_{cpc}) =$ **252.982** psi
Shear strength reduction factor	$\phi_v =$ **0.75**
Nominal shear stress capacity (Eq. 11-2)	$v_n = v_{cp} =$ **252.982** psi
Design shear stress capacity (Eq. 11-1)	$\phi v_n = \phi_v \times v_n =$ **189.737** psi
	$v_{ug} / \phi v_n =$ **0.468**
	PASS - Design shear stress capacity exceeds ultimate shear stress load



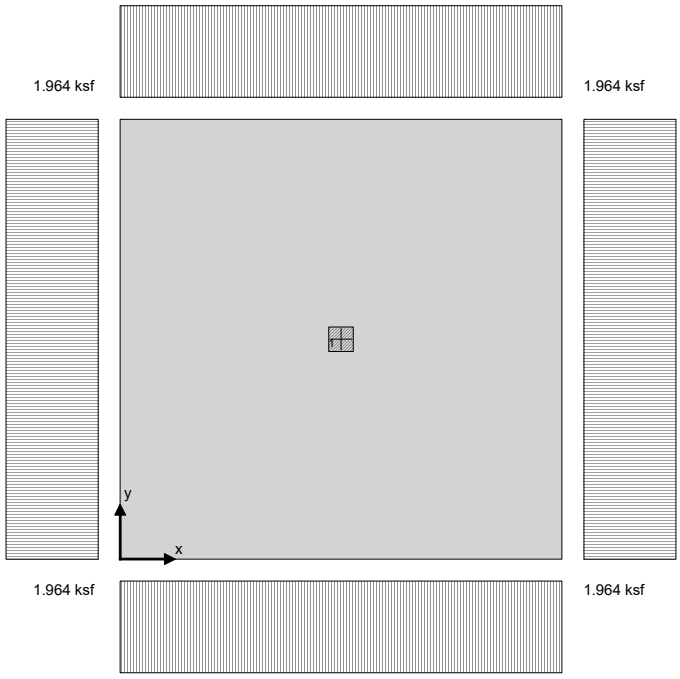
FOUNDATION ANALYSIS & DESIGN (ACI318)

In accordance with ACI318-11 incorporating Errata as of August 8, 2014

Tedds calculation version 3.2.09

FOOTING ANALYSIS

Length of foundation	L_x = **6** ft
Width of foundation	L_y = **6** ft
Foundation area	$A = L_x \times L_y$ = **36** ft^2
Depth of foundation	h = **16** in
Depth of soil over foundation	h_{soil} = **6** in
Density of concrete	γ_{conc} = **145.0** lb/ft^3



Column no.1 details

Length of column	l_{x1} = **4.00** in
Width of column	l_{y1} = **4.00** in
position in x-axis	x_1 = **36.00** in
position in y-axis	y_1 = **36.00** in

Soil properties

Gross allowable bearing pressure	q_{allow_Gross} = **2** ksf
Density of soil	γ_{soil} = **120.0** lb/ft^3
Angle of internal friction	ϕ_b = **30.0** deg
Design base friction angle	δ_{bb} = **30.0** deg
Coefficient of base friction	$\tan(\delta_{bb})$ = **0.577**

Foundation loads

Live surcharge load — F_{Lsur} = **100** psf

Self weight — $F_{swt} = h \times \gamma_{conc}$ = **193.3** psf

Soil weight — $F_{soil} = h_{soil} \times \gamma_{soil}$ = **60** psf

Column no.1 loads

Dead load in z — F_{Dz1} = **38.0** kips

Live load in z — F_{Lz1} = **20.0** kips

Footing analysis for soil and stability

Load combinations per ASCE 7-10

1.0D (0.654)

1.0D + 1.0L (0.982)

1.0D + 0.6W (0.654)

1.0D + 0.75L + 0.75Lr + 0.45W (0.900)

Combination 2 results: 1.0D + 1.0L

Forces on foundation

Force in z-axis — $F_{dz} = \gamma_D \times A \times (F_{swt} + F_{soil}) + \gamma_L \times A \times F_{Lsur} + \gamma_D \times F_{Dz1} + \gamma_L \times F_{Lz1}$ = **70.7** kips

Moments on foundation

Moment in x-axis, about x is 0 — $M_{dx} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_x / 2) + \gamma_L \times A \times F_{Lsur} \times L_x / 2 + \gamma_D \times (F_{Dz1} \times x_1) + \gamma_L \times (F_{Lz1} \times x_1)$ = **212.2** kip_ft

Moment in y-axis, about y is 0 — $M_{dy} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_y / 2) + \gamma_L \times A \times F_{Lsur} \times L_y / 2 + \gamma_D \times (F_{Dz1} \times y_1) + \gamma_L \times (F_{Lz1} \times y_1)$ = **212.2** kip_ft

Uplift verification

Vertical force — F_{dz} = **70.72** kips

PASS - Foundation is not subject to uplift

Bearing resistance

Eccentricity of base reaction

Eccentricity of base reaction in x-axis — $e_{dx} = M_{dx} / F_{dz} - L_x / 2$ = **0** in

Eccentricity of base reaction in y-axis — $e_{dy} = M_{dy} / F_{dz} - L_y / 2$ = **0** in

Pad base pressures

$q_1 = F_{dz} \times (1 - 6 \times e_{dx} / L_x - 6 \times e_{dy} / L_y) / (L_x \times L_y)$ = **1.964** ksf

$q_2 = F_{dz} \times (1 - 6 \times e_{dx} / L_x + 6 \times e_{dy} / L_y) / (L_x \times L_y)$ = **1.964** ksf

$q_3 = F_{dz} \times (1 + 6 \times e_{dx} / L_x - 6 \times e_{dy} / L_y) / (L_x \times L_y)$ = **1.964** ksf

$q_4 = F_{dz} \times (1 + 6 \times e_{dx} / L_x + 6 \times e_{dy} / L_y) / (L_x \times L_y)$ = **1.964** ksf

Minimum base pressure — $q_{min} = \min(q_1,q_2,q_3,q_4)$ = **1.964** ksf

Maximum base pressure — $q_{max} = \max(q_1,q_2,q_3,q_4)$ = **1.964** ksf

Allowable bearing capacity

Allowable bearing capacity — $q_{allow} = q_{allow\_Gross}$ = **2** ksf

q_{max} / q_{allow} = **0.982**

PASS - Allowable bearing capacity exceeds design base pressure

FOOTING DESIGN (ACI318)

In accordance with ACI318-11 incorporating Errata as of August 8, 2014

Material details

Compressive strength of concrete	f'_c = **4000** psi
Yield strength of reinforcement	f_y = **60000** psi
Cover to reinforcement	c_{nom} = **3** in
Concrete type	Normal weight
Concrete modification factor	λ = **1.00**
Column type	Concrete

Analysis and design of concrete footing

Load combinations per ASCE 7-10

1.4D (0.334)
1.2D + 1.6L + 0.5Lr (0.487)
1.2D + 1.0L + 0.5Lr + 1.0W (0.412)
0.9D + 1.0W (0.227)

Combination 2 results: 1.2D + 1.6L + 0.5Lr

Forces on foundation

Ultimate force in z-axis

$F_{uz} = \gamma_D \times A \times (F_{swt} + F_{soil}) + \gamma_L \times A \times F_{Lsur} + \gamma_D \times F_{Dz1} + \gamma_L \times F_{Lz1}$ = **94.3** kips

Moments on foundation

Ultimate moment in x-axis, about x is 0

$M_{ux} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_x / 2) + \gamma_L \times A \times F_{Lsur} \times L_x / 2 + \gamma_D \times (F_{Dz1} \times x_1) + \gamma_L \times (F_{Lz1} \times x_1)$ = **282.9** kip_ft

Ultimate moment in y-axis, about y is 0

$M_{uy} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_y / 2) + \gamma_L \times A \times F_{Lsur} \times L_y / 2 + \gamma_D \times (F_{Dz1} \times y_1) + \gamma_L \times (F_{Lz1} \times y_1)$ = **282.9** kip_ft

Eccentricity of base reaction

Eccentricity of base reaction in x-axis

$e_{ux} = M_{ux} / F_{uz} - L_x / 2$ = **0** in

Eccentricity of base reaction in y-axis

$e_{uy} = M_{uy} / F_{uz} - L_y / 2$ = **0** in

Pad base pressures

$q_{u1} = F_{uz} \times (1 - 6 \times e_{ux} / L_x - 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.62** ksf

$q_{u2} = F_{uz} \times (1 - 6 \times e_{ux} / L_x + 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.62** ksf

$q_{u3} = F_{uz} \times (1 + 6 \times e_{ux} / L_x - 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.62** ksf

$q_{u4} = F_{uz} \times (1 + 6 \times e_{ux} / L_x + 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.62** ksf

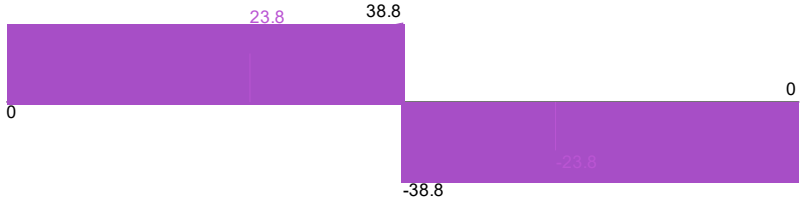
Minimum ultimate base pressure

$q_{umin} = \min(q_{u1},q_{u2},q_{u3},q_{u4})$ = **2.62** ksf

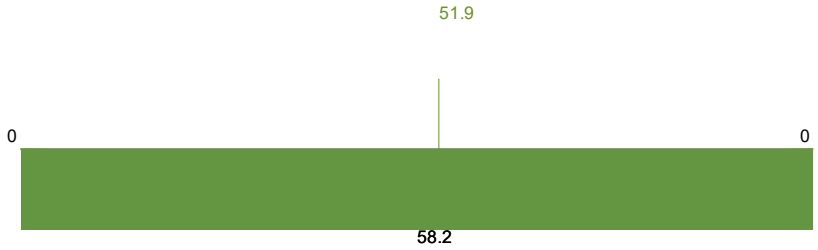
Maximum ultimate base pressure

$q_{umax} = \max(q_{u1},q_{u2},q_{u3},q_{u4})$ = **2.62** ksf

Shear diagram, x axis (kips)



Moment diagram, x axis (kip_ft)



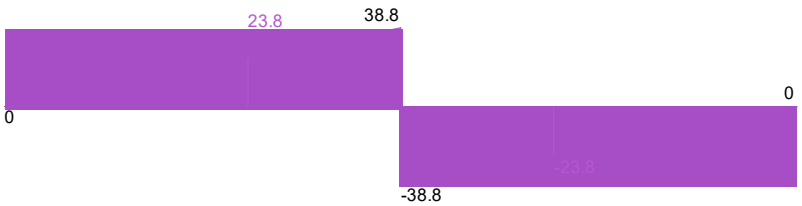
Moment design, x direction, positive moment

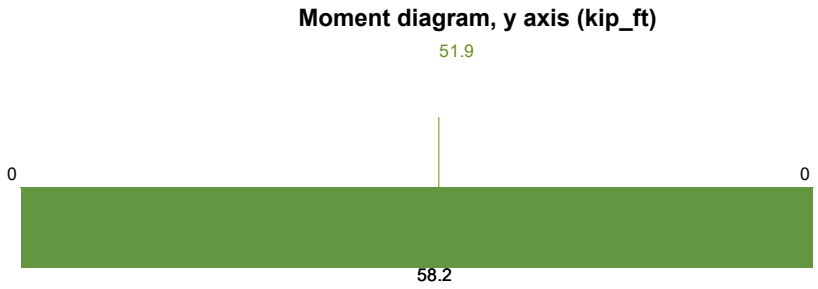
Ultimate bending moment	$M_{u.x.max}$ = **51.913** kip_ft
Tension reinforcement provided	6 No.6 bottom bars (13.0 in c/c)
Area of tension reinforcement provided	$A_{sx.bot.prov}$ = **2.64** in^2
Minimum area of reinforcement (10.5.4)	$A_{s.min}$ = 0.0018 × L_y × h = **2.074** in^2
	PASS - Area of reinforcement provided exceeds minimum
Maximum spacing of reinforcement (10.5.4)	s_{max} = min(3 × h, 18 in) = **18** in
	PASS - Maximum permissible reinforcement spacing exceeds actual spacing
Depth to tension reinforcement	d = h - c_{nom} - $\phi_{x.bot}$ / 2 = **12.625** in
Depth of compression block	a = $A_{sx.bot.prov}$ × f_y / (0.85 × f'$_c$ × L_y) = **0.647** in
Neutral axis factor	β_1 = **0.85**
Depth to neutral axis	c = a / β_1 = **0.761** in
Strain in tensile reinforcement (10.3.5)	ε_t = 0.003 × d / c - 0.003 = **0.04675**
	PASS - Tensile strain exceeds minimum required, 0.004
Nominal moment capacity	M_n = $A_{sx.bot.prov}$ × f_y × (d - a / 2) = **162.379** kip_ft
Flexural strength reduction factor	ϕ_f = min(max(0.65 + (ε_t - 0.002) × (250 / 3), 0.65), 0.9) = **0.900**
Design moment capacity	ϕM_n = ϕ_f × M_n = **146.141** kip_ft
	$M_{u.x.max}$ / ϕM_n = **0.355**
	PASS - Design moment capacity exceeds ultimate moment load

One-way shear design, x direction

Ultimate shear force	$V_{u.x}$ = **23.846** kips
Depth to reinforcement	d_v = h - c_{nom} - $\phi_{x.bot}$ / 2 = **12.625** in
Shear strength reduction factor	ϕ_v = **0.75**
Nominal shear capacity (Eq. 11-3)	V_n = 2 × λ × √(f'$_c$ × 1 psi) × L_y × d_v = **114.98** kips
Design shear capacity	ϕV_n = ϕ_v × V_n = **86.235** kips
	$V_{u.x}$ / ϕV_n = **0.277**
	PASS - Design shear capacity exceeds ultimate shear load

Shear diagram, y axis (kips)





Moment design, y direction, positive moment

Ultimate bending moment	$M_{u.y.max}$ = **51.913** kip_ft
Tension reinforcement provided	6 No.6 bottom bars (13.0 in c/c)
Area of tension reinforcement provided	$A_{sy.bot.prov}$ = **2.64** in^2
Minimum area of reinforcement (10.5.4)	$A_{s.min} = 0.0018 \times L_x \times h$ = **2.074** in^2
	PASS - Area of reinforcement provided exceeds minimum
Maximum spacing of reinforcement (10.5.4)	$s_{max} = \min(3 \times h, 18\text{ in})$ = **18** in
	PASS - Maximum permissible reinforcement spacing exceeds actual spacing
Depth to tension reinforcement	$d = h - c_{nom} - \phi_{x.bot} - \phi_{y.bot} / 2$ = **11.875** in
Depth of compression block	$a = A_{sy.bot.prov} \times f_y / (0.85 \times f'_c \times L_x)$ = **0.647** in
Neutral axis factor	β_1 = **0.85**
Depth to neutral axis	$c = a / \beta_1$ = **0.761** in
Strain in tensile reinforcement (10.3.5)	$\varepsilon_t = 0.003 \times d / c - 0.003$ = **0.04380**
	PASS - Tensile strain exceeds minimum required, 0.004
Nominal moment capacity	$M_n = A_{sy.bot.prov} \times f_y \times (d - a / 2)$ = **152.479** kip_ft
Flexural strength reduction factor	$\phi_f = \min(\max(0.65 + (\varepsilon_t - 0.002) \times (250 / 3), 0.65), 0.9)$ = **0.900**
Design moment capacity	$\phi M_n = \phi_f \times M_n$ = **137.231** kip_ft
	$M_{u.y.max} / \phi M_n$ = **0.378**
	PASS - Design moment capacity exceeds ultimate moment load

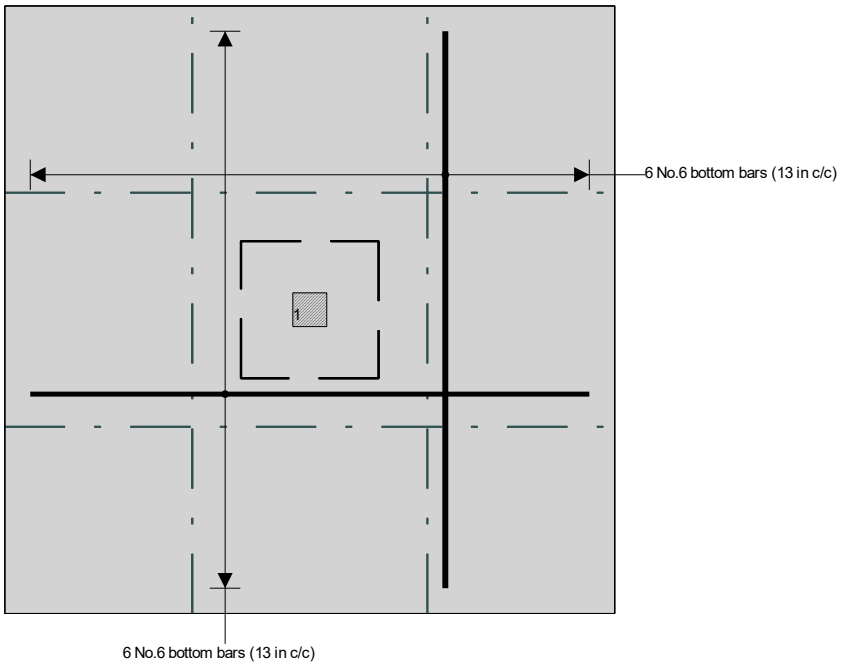
One-way shear design, y direction

Ultimate shear force	$V_{u.y}$ = **23.846** kips
Depth to reinforcement	$d_v = h - c_{nom} - \phi_{x.bot} - \phi_{y.bot} / 2$ = **11.875** in
Shear strength reduction factor	ϕ_v = **0.75**
Nominal shear capacity (Eq. 11-3)	$V_n = 2 \times \lambda \times \sqrt{(f'_c \times 1\text{ psi})} \times L_x \times d_v$ = **108.15** kips
Design shear capacity	$\phi V_n = \phi_v \times V_n$ = **81.112** kips
	$V_{u.y} / \phi V_n$ = **0.294**
	PASS - Design shear capacity exceeds ultimate shear load

Two-way shear design at column 1

Depth to reinforcement	d_{v2} = **12.25** in
Shear perimeter length (11.11.1.2)	l_{xp} = **16.250** in
Shear perimeter width (11.11.1.2)	l_{yp} = **16.250** in
Shear perimeter (11.11.1.2)	$b_o = 2 \times (l_{x1} + d_{v2}) + 2 \times (l_{y1} + d_{v2})$ = **65.000** in
Shear area	$A_p = l_{x.perim} \times l_{y.perim}$ = **264.062** in^2

Surcharge loaded area	$A_{sur} = A_p - l_{x1} \times l_{y1}$ = **248.062** in^2
Ultimate bearing pressure at center of shear area	$q_{up.avg}$ = **2.620** ksf
Ultimate shear load	$F_{up} = \gamma_D \times F_{Dz1} + \gamma_L \times F_{Lz1} + \gamma_D \times A_p \times F_{swt} + \gamma_D \times A_{sur} \times F_{soil} + \gamma_L \times A_{sur} \times F_{Lsur} - q_{up.avg} \times A_p$ = **73.621** kips
Ultimate shear stress from vertical load	$v_{ug} = \max(F_{up} / (b_o \times d_{v2}), 0\ psi)$ = **92.460** psi
Column geometry factor (11.11.2.1)	$\beta = l_{y1} / l_{x1}$ = **1.00**
Column location factor (11.11.2.1)	α_s =**40**
Concrete shear strength (11.11.2.1)	$v_{cpa} = (2 + 4 / \beta) \times \lambda \times \sqrt{f'_c \times 1\ psi}$ = **379.473** psi
	$v_{cpb} = (\alpha_s \times d_{v2} / b_o + 2) \times \lambda \times \sqrt{f'_c \times 1\ psi}$ = **603.265** psi
	$v_{cpc} = 4 \times \lambda \times \sqrt{f'_c \times 1\ psi}$ = **252.982** psi
	$v_{cp} = \min(v_{cpa}, v_{cpb}, v_{cpc})$ = **252.982** psi
Shear strength reduction factor	ϕ_v = **0.75**
Nominal shear stress capacity (Eq. 11-2)	$v_n = v_{cp}$ = **252.982** psi
Design shear stress capacity (Eq. 11-1)	$\phi v_n = \phi_v \times v_n$ = **189.737** psi
	$v_{ug} / \phi v_n$ = **0.487**
	PASS - Design shear stress capacity exceeds ultimate shear stress load



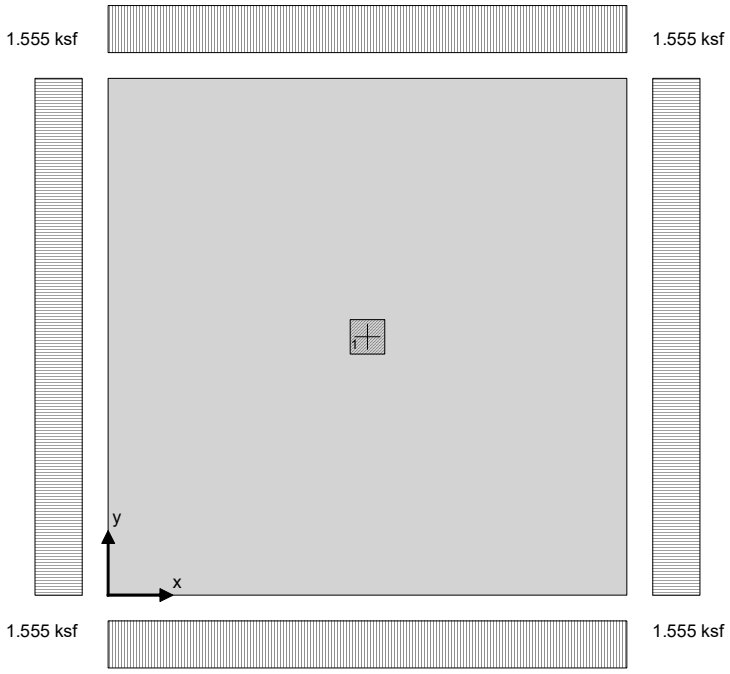
FOUNDATION ANALYSIS & DESIGN (ACI318)

In accordance with ACI318-11 incorporating Errata as of August 8, 2014

Tedds calculation version 3.2.09

FOOTING ANALYSIS

Length of foundation	L_x = **5** ft
Width of foundation	L_y = **5** ft
Foundation area	$A = L_x \times L_y$ = **25** ft^2
Depth of foundation	h = **14** in
Depth of soil over foundation	h_{soil} = **18** in
Density of concrete	γ_{conc} = **150.0** lb/ft^3



Column no.1 details

Length of column	l_{x1} = **4.00** in
Width of column	l_{y1} = **4.00** in
position in x-axis	x_1 = **30.00** in
position in y-axis	y_1 = **30.00** in

Soil properties

Gross allowable bearing pressure	q_{allow_Gross} = **2** ksf
Density of soil	γ_{soil} = **120.0** lb/ft^3
Angle of internal friction	ϕ_b = **30.0** deg
Design base friction angle	δ_{bb} = **30.0** deg
Coefficient of base friction	$\tan(\delta_{bb})$ = **0.577**
Live surcharge load	F_{Lsur} = **100** psf

Self weight $F_{swt} = h \times \gamma_{conc} =$ **175** psf

Soil weight $F_{soil} = h_{soil} \times \gamma_{soil} =$ **180** psf

Column no.1 loads

Dead load in z $F_{Dz1} =$ **6.0** kips

Live load in z $F_{Lz1} =$ **3.0** kips

Wind load in z $F_{Wz1} =$ **40.0** kips

Footing analysis for soil and stability

Load combinations per ASCE 7-10

1.0D (0.297)

1.0D + 1.0L (0.407)

1.0D + 0.6W (0.777)

1.0D + 0.75L + 0.75Lr + 0.45W (0.740)

Combination 9 results: 1.0D + 0.6W

Forces on foundation

Force in z-axis $F_{dz} = \gamma_D \times A \times (F_{swt} + F_{soil}) + \gamma_D \times F_{Dz1} + \gamma_W \times F_{Wz1} =$ **38.9** kips

Moments on foundation

Moment in x-axis, about x is 0 $M_{dx} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_x / 2) + \gamma_D \times (F_{Dz1} \times x_1) + \gamma_W \times (F_{Wz1} \times x_1) =$ **97.2** kip_ft

Moment in y-axis, about y is 0 $M_{dy} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_y / 2) + \gamma_D \times (F_{Dz1} \times y_1) + \gamma_W \times (F_{Wz1} \times y_1) =$ **97.2** kip_ft

Uplift verification

Vertical force $F_{dz} =$ **38.875** kips

PASS - Foundation is not subject to uplift

Bearing resistance

Eccentricity of base reaction

Eccentricity of base reaction in x-axis $e_{dx} = M_{dx} / F_{dz} - L_x / 2 =$ **0** in

Eccentricity of base reaction in y-axis $e_{dy} = M_{dy} / F_{dz} - L_y / 2 =$ **0** in

Pad base pressures

$q_1 = F_{dz} \times (1 - 6 \times e_{dx} / L_x - 6 \times e_{dy} / L_y) / (L_x \times L_y) =$ **1.555** ksf

$q_2 = F_{dz} \times (1 - 6 \times e_{dx} / L_x + 6 \times e_{dy} / L_y) / (L_x \times L_y) =$ **1.555** ksf

$q_3 = F_{dz} \times (1 + 6 \times e_{dx} / L_x - 6 \times e_{dy} / L_y) / (L_x \times L_y) =$ **1.555** ksf

$q_4 = F_{dz} \times (1 + 6 \times e_{dx} / L_x + 6 \times e_{dy} / L_y) / (L_x \times L_y) =$ **1.555** ksf

Minimum base pressure $q_{min} = \min(q_1,q_2,q_3,q_4) =$ **1.555** ksf

Maximum base pressure $q_{max} = \max(q_1,q_2,q_3,q_4) =$ **1.555** ksf

Allowable bearing capacity

Allowable bearing capacity $q_{allow} = q_{allow\_Gross} =$ **2** ksf

$q_{max} / q_{allow} =$ **0.777**

PASS - Allowable bearing capacity exceeds design base pressure

FOOTING DESIGN (ACI318)

In accordance with ACI318-11 incorporating Errata as of August 8, 2014

Material details

Compressive strength of concrete	f'_c = **4000** psi
Yield strength of reinforcement	f_y = **60000** psi
Cover to reinforcement	c_{nom} = **3** in
Concrete type	Normal weight
Concrete modification factor	λ = **1.00**
Column type	Concrete

Analysis and design of concrete footing

Load combinations per ASCE 7-10

1.4D (0.071)
1.2D + 1.6L + 0.5Lr (0.102)
1.2D + 1.0L + 0.5Lr + 1.0W (0.400)
0.9D + 1.0W (0.386)

Combination 11 results: 1.2D + 1.0L + 0.5Lr + 1.0W

Forces on foundation

Ultimate force in z-axis

$F_{uz} = \gamma_D \times A \times (F_{swt} + F_{soil}) + \gamma_L \times A \times F_{Lsur} + \gamma_D \times F_{Dz1} + \gamma_L \times F_{Lz1} + \gamma_W \times F_{Wz1}$ = **63.4** kips

Moments on foundation

Ultimate moment in x-axis, about x is 0

$M_{ux} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_x / 2) + \gamma_L \times A \times F_{Lsur} \times L_x / 2 + \gamma_D \times (F_{Dz1} \times x_1) + \gamma_L \times (F_{Lz1} \times x_1) + \gamma_W \times (F_{Wz1} \times x_1)$ = **158.4** kip_ft

Ultimate moment in y-axis, about y is 0

$M_{uy} = \gamma_D \times (A \times (F_{swt} + F_{soil}) \times L_y / 2) + \gamma_L \times A \times F_{Lsur} \times L_y / 2 + \gamma_D \times (F_{Dz1} \times y_1) + \gamma_L \times (F_{Lz1} \times y_1) + \gamma_W \times (F_{Wz1} \times y_1)$ = **158.4** kip_ft

Eccentricity of base reaction

Eccentricity of base reaction in x-axis

$e_{ux} = M_{ux} / F_{uz} - L_x / 2$ = **0** in

Eccentricity of base reaction in y-axis

$e_{uy} = M_{uy} / F_{uz} - L_y / 2$ = **0** in

Pad base pressures

$q_{u1} = F_{uz} \times (1 - 6 \times e_{ux} / L_x - 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.534** ksf

$q_{u2} = F_{uz} \times (1 - 6 \times e_{ux} / L_x + 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.534** ksf

$q_{u3} = F_{uz} \times (1 + 6 \times e_{ux} / L_x - 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.534** ksf

$q_{u4} = F_{uz} \times (1 + 6 \times e_{ux} / L_x + 6 \times e_{uy} / L_y) / (L_x \times L_y)$ = **2.534** ksf

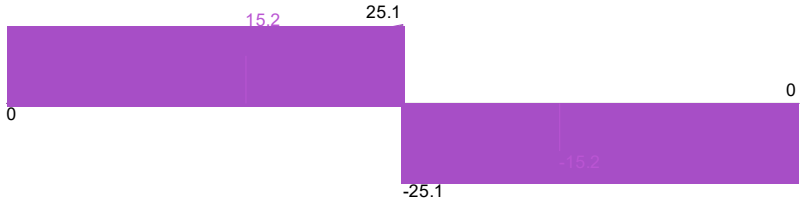
Minimum ultimate base pressure

$q_{umin} = \min(q_{u1},q_{u2},q_{u3},q_{u4})$ = **2.534** ksf

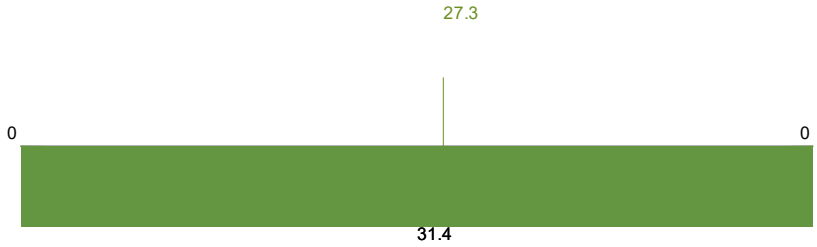
Maximum ultimate base pressure

$q_{umax} = \max(q_{u1},q_{u2},q_{u3},q_{u4})$ = **2.534** ksf

Shear diagram, x axis (kips)



Moment diagram, x axis (kip_ft)



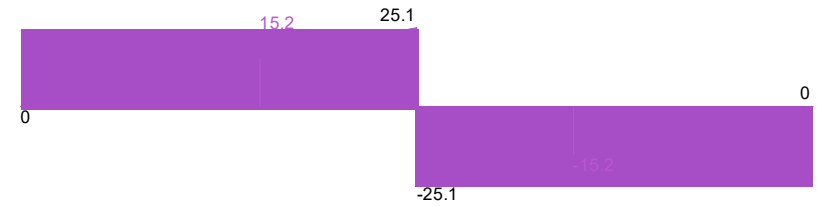
Moment design, x direction, positive moment

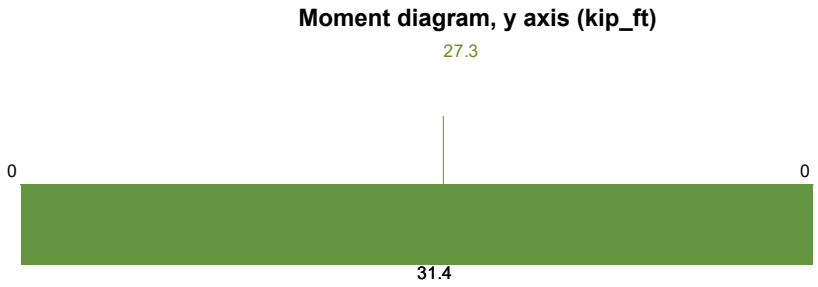
Ultimate bending moment	$M_{u.x.max}$ = **27.331** kip_ft
Tension reinforcement provided	5 No.6 bottom bars (13.3 in c/c)
Area of tension reinforcement provided	$A_{sx.bot.prov}$ = **2.2** in^2
Minimum area of reinforcement (10.5.4)	$A_{s.min} = 0.0018 \times L_y \times h$ = **1.512** in^2
	PASS - Area of reinforcement provided exceeds minimum
Maximum spacing of reinforcement (10.5.4)	$s_{max} = \min(3 \times h, 18\ in)$ = **18** in
	PASS - Maximum permissible reinforcement spacing exceeds actual spacing
Depth to tension reinforcement	$d = h - c_{nom} - \phi_{x.bot} / 2$ = **10.625** in
Depth of compression block	$a = A_{sx.bot.prov} \times f_y / (0.85 \times f'_c \times L_y)$ = **0.647** in
Neutral axis factor	β_1 = **0.85**
Depth to neutral axis	$c = a / \beta_1$ = **0.761** in
Strain in tensile reinforcement (10.3.5)	$\varepsilon_t = 0.003 \times d / c - 0.003$ = **0.03887**
	PASS - Tensile strain exceeds minimum required, 0.004
Nominal moment capacity	$M_n = A_{sx.bot.prov} \times f_y \times (d - a / 2)$ = **113.316** kip_ft
Flexural strength reduction factor	$\phi_f = \min(\max(0.65 + (\varepsilon_t - 0.002) \times (250 / 3), 0.65), 0.9)$ = **0.900**
Design moment capacity	$\phi M_n = \phi_f \times M_n$ = **101.985** kip_ft
	$M_{u.x.max} / \phi M_n$ = **0.268**
	PASS - Design moment capacity exceeds ultimate moment load

One-way shear design, x direction

Ultimate shear force	$V_{u.x}$ = **15.165** kips
Depth to reinforcement	$d_v = h - c_{nom} - \phi_{x.bot} / 2$ = **10.625** in
Shear strength reduction factor	ϕ_v = **0.75**
Nominal shear capacity (Eq. 11-3)	$V_n = 2 \times \lambda \times \sqrt{(f'_c \times 1\ psi)} \times L_y \times d_v$ = **80.638** kips
Design shear capacity	$\phi V_n = \phi_v \times V_n$ = **60.479** kips
	$V_{u.x} / \phi V_n$ = **0.251**
	PASS - Design shear capacity exceeds ultimate shear load

Shear diagram, y axis (kips)





Moment design, y direction, positive moment

Ultimate bending moment	$M_{u.y.max}$ = **27.331** kip_ft
Tension reinforcement provided	5 No.6 bottom bars (13.3 in c/c)
Area of tension reinforcement provided	$A_{sy.bot.prov}$ = **2.2** in^2
Minimum area of reinforcement (10.5.4)	$A_{s.min} = 0.0018 \times L_x \times h$ = **1.512** in^2
	PASS - Area of reinforcement provided exceeds minimum
Maximum spacing of reinforcement (10.5.4)	$s_{max} = \min(3 \times h, 18\ in)$ = **18** in
	PASS - Maximum permissible reinforcement spacing exceeds actual spacing
Depth to tension reinforcement	$d = h - c_{nom} - \phi_{x.bot} - \phi_{y.bot} / 2$ = **9.875** in
Depth of compression block	$a = A_{sy.bot.prov} \times f_y / (0.85 \times f'_c \times L_x)$ = **0.647** in
Neutral axis factor	β_1 = **0.85**
Depth to neutral axis	$c = a / \beta_1$ = **0.761** in
Strain in tensile reinforcement (10.3.5)	$\varepsilon_t = 0.003 \times d / c - 0.003$ = **0.03592**
	PASS - Tensile strain exceeds minimum required, 0.004
Nominal moment capacity	$M_n = A_{sy.bot.prov} \times f_y \times (d - a / 2)$ = **105.066** kip_ft
Flexural strength reduction factor	$\phi_f = \min(\max(0.65 + (\varepsilon_t - 0.002) \times (250 / 3), 0.65), 0.9)$ = **0.900**
Design moment capacity	$\phi M_n = \phi_f \times M_n$ = **94.56** kip_ft
	$M_{u.y.max} / \phi M_n$ = **0.289**
	PASS - Design moment capacity exceeds ultimate moment load

One-way shear design, y direction

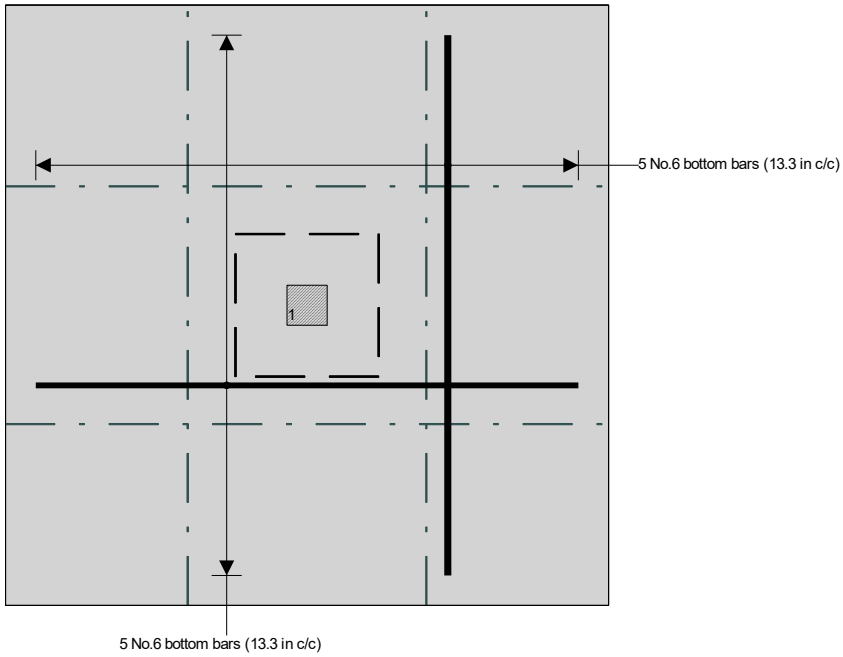
Ultimate shear force	$V_{u.y}$ = **15.165** kips
Depth to reinforcement	$d_v = h - c_{nom} - \phi_{x.bot} - \phi_{y.bot} / 2$ = **9.875** in
Shear strength reduction factor	ϕ_v = **0.75**
Nominal shear capacity (Eq. 11-3)	$V_n = 2 \times \lambda \times \sqrt{(f'_c \times 1\ psi)} \times L_x \times d_v$ = **74.946** kips
Design shear capacity	$\phi V_n = \phi_v \times V_n$ = **56.209** kips
	$V_{u.y} / \phi V_n$ = **0.270**
	PASS - Design shear capacity exceeds ultimate shear load

Two-way shear design at column 1

Depth to reinforcement	d_{v2} = **10.25** in
Shear perimeter length (11.11.1.2)	l_{xp} = **14.250** in
Shear perimeter width (11.11.1.2)	l_{yp} = **14.250** in
Shear perimeter (11.11.1.2)	$b_o = 2 \times (l_{x1} + d_{v2}) + 2 \times (l_{y1} + d_{v2})$ = **57.000** in
Shear area	$A_p = l_{x,perim} \times l_{y,perim}$ = **203.062** in^2

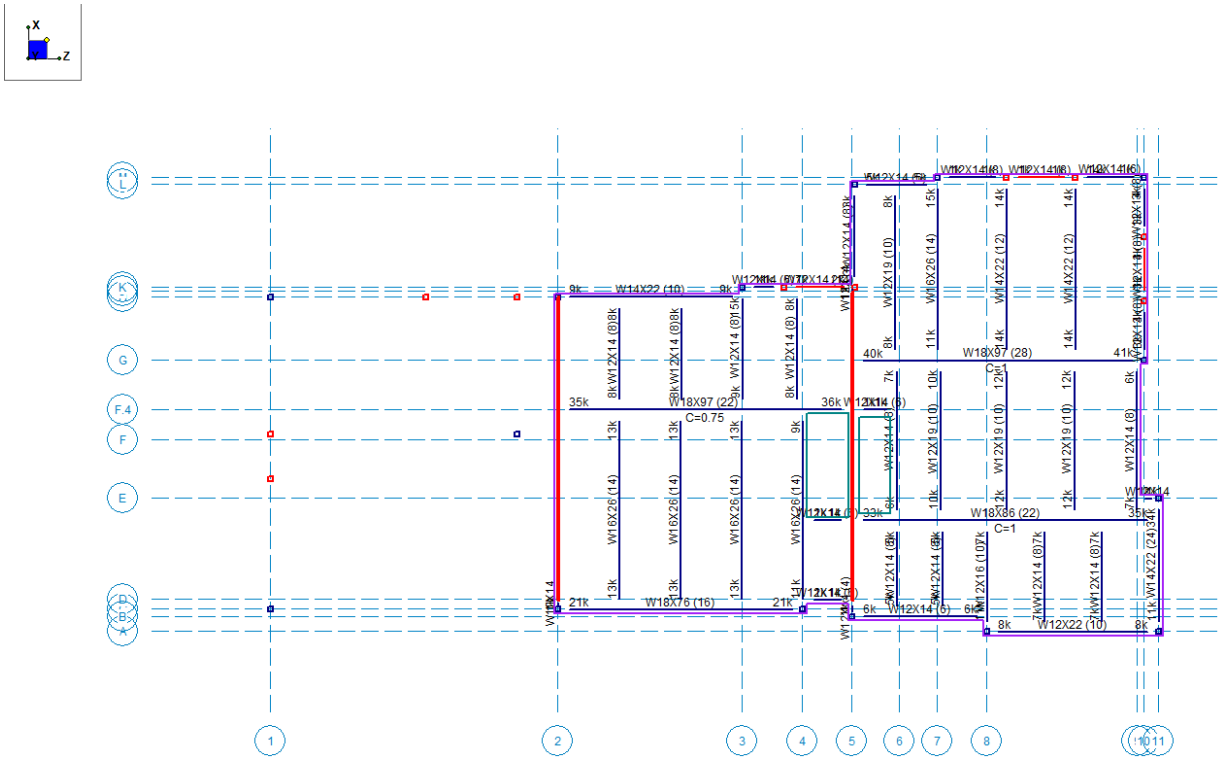
Surcharge loaded area	$A_{sur} = A_p - l_{x1} \times l_{y1} =$ **187.062** in^2
Ultimate bearing pressure at center of shear area	$q_{up.avg} =$ **2.534** ksf
Ultimate shear load	$F_{up} = \gamma_D \times F_{Dz1} + \gamma_L \times F_{Lz1} + \gamma_W \times F_{Wz1} + \gamma_D \times A_p \times F_{swt} + \gamma_D \times A_{sur} \times F_{soil} + \gamma_L \times A_{sur} \times F_{Lsur} - q_{up.avg} \times A_p =$ **47.333** kips
Ultimate shear stress from vertical load	$v_{ug} = \max(F_{up} / (b_o \times d_{v2}), 0\ \text{psi}) =$ **81.015** psi
Column geometry factor (11.11.2.1)	$\beta = l_{y1} / l_{x1} =$ **1.00**
Column location factor (11.11.2.1)	$\alpha_s =$ **40**
Concrete shear strength (11.11.2.1)	$v_{cpa} = (2 + 4 / \beta) \times \lambda \times \sqrt{f'_c \times 1\ \text{psi}}) =$ **379.473** psi
	$v_{cpb} = (\alpha_s \times d_{v2} / b_o + 2) \times \lambda \times \sqrt{f'_c \times 1\ \text{psi}}) =$ **581.415** psi
	$v_{cpc} = 4 \times \lambda \times \sqrt{f'_c \times 1\ \text{psi}}) =$ **252.982** psi
	$v_{cp} = \min(v_{cpa}, v_{cpb}, v_{cpc}) =$ **252.982** psi
Shear strength reduction factor	$\phi_v =$ **0.75**
Nominal shear stress capacity (Eq. 11-2)	$v_n = v_{cp} =$ **252.982** psi
Design shear stress capacity (Eq. 11-1)	$\phi v_n = \phi_v \times v_n =$ **189.737** psi
	$v_{ug} / \phi v_n =$ **0.427**

PASS - Design shear stress capacity exceeds ultimate shear stress load

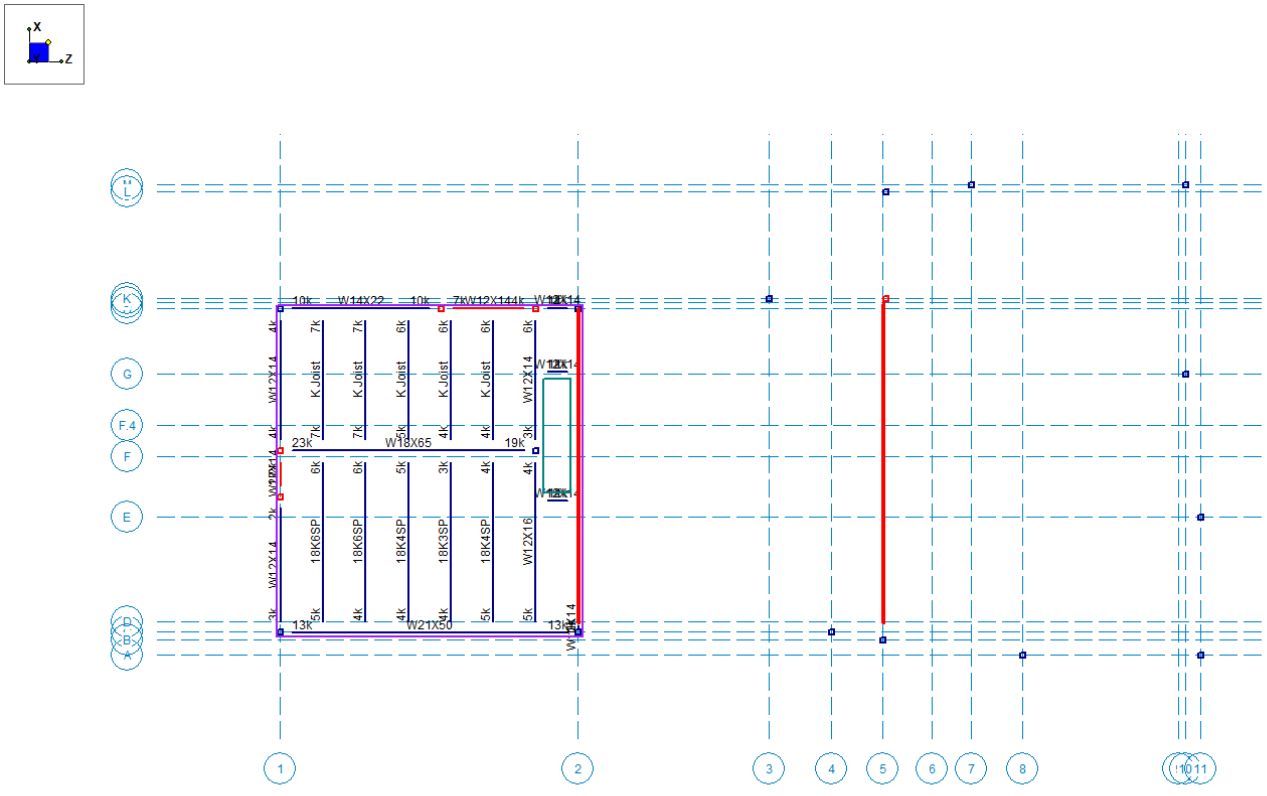


3.0 - STEEL FRAMING GRAVITY DESIGN

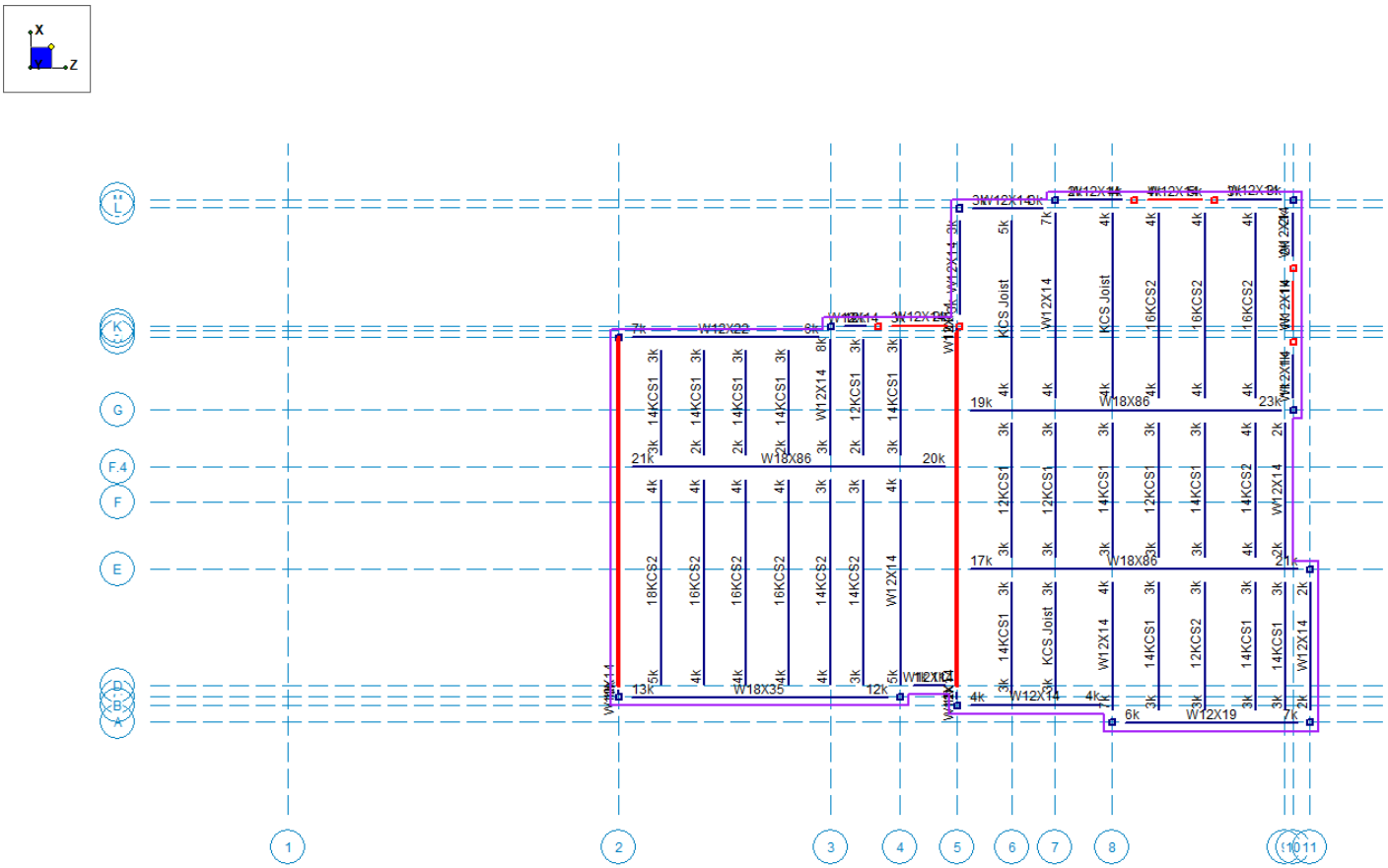
RISA LAYOUT



LEVEL 2



LOW ROOF



HIGH ROOF

3.1 - STEEL BEAMS

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	0.3	0.65	0.49	65	1.1	80	1.1
9	Metal Stud Layer	30457.925	11603.019	0.3	0.667	0.49	30.023	1.5	50.038	1.2
10	Metal Furring	30457.925	11603.019	0.3	0.667	0.49	30.023	1.5	50.038	1.2
11	Metal Deck	30457.925	11603.019	0.3	0.667	0.49	30.023	1.5	50.038	1.2
12	Steel ASTM A572	29001.601	11154.562	0.3	0.65	0.49	50.003	1.5	65.006	1.2
13	Steel ASTM A36	29001.601	11154.562	0.3	0.65	0.49	36.002	1.5	58.001	1.2
14	Steel ASTM A53	29001.601	11154.562	0.3	0.65	0.49	35.002	1.5	60.002	1.2
15	Steel ASTM A500, ...	29001.601	11154.562	0.3	0.65	0.49	42.002	1.5	58.001	1.2
16	Steel ASTM A500, ...	29001.601	11154.562	0.3	0.65	0.49	46.002	1.5	58.001	1.2
17	Steel ASTM A500, ...	29001.601	11240.57	0.3	0.65	0.49	46.002	1.5	58.001	1.2
18	Steel ASTM A500, ...	29001.601	11154.562	0.3	0.65	0.49	50.003	1.5	62.004	1.2
19	Steel ASTM A992	29001.601	11154.562	0.3	0.65	0.49	50.003	1.5	65.006	1.2
20	Grade 65	0		0	0	0.49	0.009	1.5	0	1.2
21	REV ASTM A992	29000	11240	0.29	0.65	0.49	50	1.5	65	1.2
22	REV ASTM A500 B...	29000	11240	0.29	0.65	0.49	46	1.5	58	1.2
23	Stainless Steel, Bru...	28282.359	12473.245	0.29	0.961	0.499	31.183	1.5	73.244	1.2
24	Metal - Steel - AST...	29000	11240	0.29	0.65	0.49	50	1.5	65	1.2
25	REV ASTM A36	29000	11240	0.29	0.65	0.49	36	1.5	58	1.2
26	REV ASTM A53	29000	11240	0.29	0.65	0.49	35	1.5	60	1.2
27	REV ASTM A500 B...	29000	11240	0.29	0.65	0.49	42	1.5	58	1.2
28	REV ASTM A500 C...	29000	11240	0.29	0.65	0.49	50	1.5	62	1.2
29	REV ASTM A500 C...	29000	11240	0.29	0.65	0.49	46	1.5	58	1.2
30	Rebar - ASTM A61...	29000	11240	0.29	0.65	0.49	60	1.5	90	1.2
31	Steel	30457.925	11603.019	0.3	0.667	0.49	30.023	1.5	50.038	1.2

Beam Primary Data : Upper Roof

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
1	M1	REV_N16	REV_N1	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
2	M6	REV_N4	REV_N3	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
3	M7	REV_N3	REV_N5	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
4	M16	REV_N11	N100	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
5	M23	REV_N20	N27	Wide Flange	A992	Girder	Gravity	Strong Axis	Pinned	Pinned	
6	M14	N28	REV_N9	Wide Flange	A992	Girder	Gravity	Strong Axis	Pinned	Pinned	
7	M15	N25	REV_N5	Wide Flange	A992	Girder	Gravity	Strong Axis	Pinned	Pinned	
8	M19	N22	N23	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
9	M22	REV_N10	N26	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
10	M24	REV_N11	N29	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
11	M26	REV_N13	N30	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
12	M28	REV_N15	REV_N14	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
13	M37	N41	N42	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
14	M40	N41	N45	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
15	M41	N45	N46	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
16	M42	N26	N47	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
17	M43	N47	N48	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	

Beam Primary Data : Upper Roof (Continued)

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
18	M46	N52	N53	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
19	M51	N59	N60	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
20	M52	N60	N58	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
21	M54	N63	N64	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
22	M55	N64	N62	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
23	M57	N67	N68	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
24	M58	N68	N66	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
25	M50	N57	N58	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
26	M53	N61	N62	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
27	M56	N65	N66	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
28	M63	N74	N75	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
29	M64	N75	N69	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
30	M65	REV_N1	N31	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
31	M67	N23	N76	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
32	M59	REV_N4	N69	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
33	M60	N93	N52	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
34	M68	N102	N103	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
35	M70	N31	N108	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
36	M71	N103	N110	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
37	M47	N94	N96	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
38	M48	N98	N94	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
39	M49	N101	N106	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
40	M61	N114	N101	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
41	M62	N115	N116	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
42	M69	N117	N115	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
43	M72	N118	N30	KCS Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
44	M66	N32	REV_N17	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
45	M76	REV_N17	N24	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
46	M73	N107	N109	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
47	M74	REV_N16	N88	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
48	M75	REV_N13	N120	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
49	M77	N120	N100	Wide Flange	A992	Beam	Lateral	Strong Axis	Pinned	Pinned	
50	M78	REV_N10	N121	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
51	M79	N121	N122	Wide Flange	A992	Beam	Lateral	Strong Axis	Pinned	Pinned	
52	M80	N122	REV_N8	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
53	M81	REV_N8	N123	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
54	M82	N123	N124	Wide Flange	A992	Beam	Lateral	Strong Axis	Pinned	Pinned	
55	M83	N124	REV_N9	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
56	M84	N24	N35	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	

Beam Primary Data : 2nd Floor

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
1	REV_M5	REV_N18	REV_N3	W18X76	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
2	REV_M10	N98	REV_N13	Wide Flange	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
3	REV_M17	REV_N7	REV_N5	Wide Flange	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
4	REV_M18	REV_N5	REV_N6	Wide Flange	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
5	REV_M37	REV_N45	REV_N46	Wide Flange	Steel AS...	Girder	Gravity	Strong Axis	Pinned	Pinned	
6	M43	REV_N15	N80	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
7	M41	REV_N17	N81	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
8	M49	REV_N9	N155	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
9	M48	N86	REV_N7	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	

Beam Primary Data : 2nd Floor (Continued)

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
10	M71	REV_N18	N77	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
11	M22	REV_N11	N83	Wide Flange	A992	Girder	Gravity	Strong Axis	Pinned	Pinned	
12	M24	N91	REV_N82	Wide Flange	A992	Girder	Gravity	Strong Axis	Pinned	Pinned	
13	PUR24	N109	N110	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
14	PUR25	N113	N114	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
15	PUR26	N117	N118	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
16	M36	REV_N12	N136	Wide Flange	A992	Girder	Gravity	Strong Axis	Pinned	Pinned	
17	M38	REV_N6	N137	Wide Flange	A992	Girder	Gravity	Strong Axis	Pinned	Pinned	
18	M42	REV_N3	REV_N81	Wide Flange	A992	Girder	Gravity	Strong Axis	Pinned	Pinned	
19	PUR41	N138	N139	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
20	PUR42	N140	N141	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
21	PUR43	N142	N143	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
22	PUR44	N144	N145	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
23	PUR46	N148	N149	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
24	PUR47	REV_N57	N150	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
25	PUR48	N151	N152	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
26	M44	REV_N13	N89	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
27	PUR45	N156	N157	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
28	PUR49	N158	N159	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
29	PUR50	N153	N154	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
30	M46	N160	N162	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
31	M47	GRDR80	N116	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
32	M51	N116	REV_N21	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
33	M52	N163	REV_N82	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
34	M53	REV_N15	N164	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
35	M54	N164	N98	Wide Flange	A992	Beam	Lateral	Strong Axis	Pinned	Pinned	
36	M55	REV_N12	N139	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
37	M56	N139	N166	Wide Flange	A992	Beam	Lateral	Strong Axis	Pinned	Pinned	
38	M57	N166	REV_N10	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
39	M58	REV_N10	N167	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
40	M59	N167	N168	Wide Flange	A992	Beam	Lateral	Strong Axis	Pinned	Pinned	
41	M60	N168	REV_N11	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
42	M50	N92	N157	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
43	M61	N93	N94	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
44	M62	N95	N97	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
45	M63	N99	N101	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
46	M64	REV_N46	N102	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
47	M65	REV_N21	GRDR99	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	

Beam Primary Data : Lower Roof

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
1	REV_M2	REV_N20	REV_N1	Wide Flange	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
2	REV_M4	REV_N18	REV_N2	W21X50	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
3	REV_M25	REV_N20	REV_N28	Wide Flange	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
4	REV_M57	REV_N74	REV_N28	Wide Flange	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
5	REV_M58	REV_N28	REV_N75	Wide Flange	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
6	REV_M59	REV_N76	REV_N77	Wide Flange	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
7	REV_M60	REV_N78	REV_N79	Wide Flange	Steel AS...	Beam	Gravity	Strong Axis	Pinned	Pinned	
8	M71	REV_N18	N77	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
9	PUR11	N131	N132	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
10	PUR12	N133	N134	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	

Beam Primary Data : Lower Roof (Continued)

	Label	Start Point	End Point	Shape	Material	Design Rules	Function	Orientation	Start Rel...	End Rele...	Outrigger?
11	PUR13	N135	N136	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
12	PUR14	N137	N138	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
13	PUR15	N139	N140	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
14	PUR16	N141	N131	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
15	PUR17	N142	N133	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
16	PUR18	N143	N135	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
17	PUR19	N144	N137	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
18	PUR20	N145	N139	K Joist	Steel Jois...	Beam	Gravity	Strong Axis	Pinned	Pinned	
19	M19	REV_N17	REV_N75	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
20	M20	REV_N75	N149	Wide Flange	A992	Beam	Lateral	Strong Axis	Pinned	Pinned	
21	M21	N149	REV_N1	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
22	M22	REV_N2	N150	Wide Flange	A992	Beam	Gravity	Strong Axis	Pinned	Pinned	
23	M23	N150	REV_N20	Wide Flange	A992	Beam	Lateral	Strong Axis	Pinned	Pinned	

Hot Rolled : Upper Roof

	Label	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp To...	Lcomp Bot...	L-torqu...	Cb	Composite	Camber[in]	B-eff Left[...	B-eff Righ...
1	M1	33.5			Framing							
2	M6	23.5			Framing							
3	M7	18.209			Framing							
4	M16	14			Framing							
5	M23	40.25			Framing							
6	M14	40			Framing							
7	M15	42			6							
8	M19	18.916			Framing							
9	M22	25			Framing							
10	M24	11.334			Framing							
11	M26	16.755			Framing							
12	M28	25.25			Framing							
13	M65	27.328			Framing							
14	M59	18.209			Framing							
15	M66	6.75			Framing							
16	M76	2.333			Framing							
17	M73	0.583			Framing							
18	M74	1.333			Framing							
19	M75	5.663			Framing							
20	M77	9.67			Framing							
21	M78	9.444			Framing							
22	M79	9.429			Framing							
23	M80	9.46			Framing							
24	M81	8.083			Framing							
25	M82	8.837			Framing							
26	M83	8.08			Framing							
27	M84	18.5			Framing							

Hot Rolled : 2nd Floor

	Label	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp To...	Lcomp Bot...	L-torqu...	Cb	Composite	Camber[in]	B-eff Left[...	B-eff Righ...
1	REV_M5	33.5			Framing				Yes			
2	REV_M10	14			Framing				Yes			
3	REV_M17	18.209			Framing				Yes			
4	REV_M18	23.5			Framing				Yes			
5	REV_M37	40.25			Framing				Yes			

Hot Rolled : 2nd Floor (Continued)

	Label	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp To...	Lcomp Bot...	L-torqu...	Cb	Composite	Camber[in]	B-eff Left[...	B-eff Righ...
6	M43	16.755			Framing				Yes			
7	M41	25.25			Framing				Yes			
8	M49	21.902			Framing				Yes			
9	M48	3			Framing							
10	M71	1.333			Framing							
11	M22	40			Framing				Yes			
12	M24	42			Framing				Yes			
13	PUR24	15.422			Framing				Yes			
14	PUR25	15.422			Framing				Yes			
15	PUR26	16.755			Framing				Yes			
16	M36	25			Framing				Yes			
17	M38	15.223			Framing				Yes			
18	M42	27.328			Framing				Yes			
19	PUR41	25			Framing				Yes			
20	PUR42	25			Framing				Yes			
21	PUR43	15.223			Framing				Yes			
22	PUR44	15.223			Framing				Yes			
23	PUR46	27.328			Framing				Yes			
24	PUR47	27.328			Framing				Yes			
25	PUR48	27.328			Framing				Yes			
26	M44	11.334			Framing				Yes			
27	PUR45	13.181			Framing				Yes			
28	PUR49	13.181			Framing				Yes			
29	PUR50	24			Framing				Yes			
30	M46	0.583			Framing							
31	M47	6.75			Framing				Yes			
32	M51	2.333			Framing				Yes			
33	M52	6.75			Framing				Yes			
34	M53	5.663			Framing				Yes			
35	M54	9.67			Framing				Yes			
36	M55	9.444			Framing				Yes			
37	M56	9.429			Framing				Yes			
38	M57	9.46			Framing				Yes			
39	M58	8.083			Framing				Yes			
40	M59	8.837			Framing				Yes			
41	M60	8.08			Framing				Yes			
42	M50	21.902			Framing				Yes			
43	M61	21.902			Framing				Yes			
44	M62	21.902			Framing				Yes			
45	M63	21.902			Framing				Yes			
46	M64	6.167			Framing				Yes			
47	M65	18.5			Framing				Yes			

Hot Rolled : Lower Roof

	Label	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp To...	Lcomp Bot...	L-torqu...	Cb	Composite	Camber[in]	B-eff Left[...	B-eff Righ...
1	REV_M2	18.756			Framing							
2	REV_M4	39.333			Framing							
3	REV_M25	33.682			Framing							
4	REV_M57	23.994			Framing							
5	REV_M58	18.756			Framing							
6	REV_M59	5.651			Framing							

Hot Rolled : Lower Roof (Continued)

	Label	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp To...	Lcomp Bot...	L-torqu...	Cb	Composite	Camber[in]	B-eff Left[...	B-eff Righ...
7	REV_M60	5.651			Framing							
8	M71	1.333			Framing							
9	M19	5.651			Framing							
10	M20	12.5			Framing							
11	M21	21.182			Framing							
12	M22	17.911			Framing							
13	M23	6.083			Framing							

Beam Floors

	Label	Deck Default	Deck Angle Default (deg)	Parent
1	Upper Roof	1 1/2" Metal Roof Deck	0	None
2	2nd Floor	3" NW Concrete on 2" Composite ...	0	None
3	Lower Roof	1 1/2" Metal Roof Deck	0	None

Beam Design for Hot Rolled : Upper Roof

	Label	Size	Explicit	Studs	Camber[i...	Material	Max Start ...	Max End R...	Min Start ...	Min End R...
1	M1	W18X35	No		0	A992	12.165	11.852	1.299	1.325
2	M6	W12X19	No		0	A992	5.594	6.902	0.497	0.552
3	M7	W12X14	No		0	A992	1.859	1.722	0.169	0.169
4	M16	W12X14	No		0	A992	2.366	2.043	0.15	0.149
5	M23	W18X86	No		0	A992	20.277	19.157	3.056	3.085
6	M14	W18X86	No		0	A992	18.187	22.263	2.857	3.12
7	M15	W18X86	No		0	A992	16.792	20.984	2.793	3.041
8	M19	W12X14	No		0	A992	1.926	1.926	0.179	0.179
9	M22	W12X14	No		0	A992	6.37	3.497	0.494	0.318
10	M24	W12X14	No		0	A992	2.201	2.546	0.179	0.195
11	M26	W12X14	No		0	A992	7.814	2.396	0.677	0.228
12	M28	W12X22	No		0	A992	6.173	5.987	0.54	0.539
13	M65	W12X14	No		0	A992	4.068	3.465	0.373	0.331
14	M59	W12X14	No		0	A992	6.062	3.1	0.468	0.26
15	M66	W12X14	No		0	A992	0.168	0.168	0.053	0.053
16	M76	W12X14	No		0	A992	0.206	0.221	0.025	0.025
17	M73	W12X14	No		0	A992	0.085	0.085	0.008	0.008
18	M74	W12X14	No		0	A992	0.17	0.17	0.014	0.014
19	M75	W12X14	No		0	A992	0.843	1.641	0.08	0.122
20	M77	W12X14	No		0	A992	2.403	1.111	0.178	0.12
21	M78	W12X14	No		0	A992	1.376	3.173	0.134	0.229
22	M79	W12X14	No		0	A992	3.195	4.742	0.26	0.354
23	M80	W12X14	No		0	A992	2.136	2.327	0.181	0.192
24	M81	W12X14	No		0	A992	1.104	1.01	0.081	0.081
25	M82	W12X14	No		0	A992	0.994	0.994	0.088	0.088
26	M83	W12X14	No		0	A992	0.909	0.909	0.081	0.081
27	M84	W12X14	No		0	A992	3.411	3.351	0.286	0.28

Beam Design for Hot Rolled : 2nd Floor

	Label	Size	Explicit	Studs	Camber[i...	Material	Max Start ...	Max End R...	Min Start ...	Min End R...
1	REV_M5	W18X76	Yes	16	0	Steel AST...	20.115	20.115	10.133	10.133
2	REV_M10	W12X14	No	8	0	Steel AST...	2.616	2.63	1.146	1.151
3	REV_M17	W14X22	No	24	0	Steel AST...	33.606	10.057	16.8	4.984
4	REV_M18	W12X22	No	10	0	Steel AST...	7.654	7.654	3.396	3.396

Beam Design for Hot Rolled : 2nd Floor (Continued)

	Label	Size	Explicit	Studs	Camber[i...	Material	Max Start ...	Max End R...	Min Start ...	Min End R...
5	REV_M37	W18X97	No	22	0.75	Steel AST...	34.888	35.229	18.617	18.838
6	M43	W12X14	No	8	0	A992	14.631	8.173	6.361	3.485
7	M41	W14X22	No	10	0	A992	8.31	8.297	3.682	3.676
8	M49	W12X14	No	8	0	A992	5.961	6.319	2.571	2.728
9	M48	W12X14	No		0	A992	0.092	0.104	0.05	0.056
10	M71	W12X14	No		0	A992	0.357	0.357	0.154	0.154
11	M22	W18X97	No	28	1	A992	40.297	39.009	21.6	20.996
12	M24	W18X86	No	22	1	A992	34.125	32.146	17.996	17.024
13	PUR24	W12X14	No	8	0	A992	7.329	7.329	3.111	3.111
14	PUR25	W12X14	No	8	0	A992	7.329	7.329	3.111	3.111
15	PUR26	W12X14	No	8	0	A992	7.109	7.109	3.025	3.025
16	M36	W16X26	No	14	0	A992	14.421	10.908	6.404	4.814
17	M38	W12X16	No	10	0	A992	10.032	6.712	4.355	2.879
18	M42	W16X26	No	14	0	A992	10.407	8.429	4.577	3.727
19	PUR41	W14X22	No	12	0	A992	13.057	13.057	5.736	5.736
20	PUR42	W14X22	No	12	0	A992	13.057	13.057	5.736	5.736
21	PUR43	W12X14	No	8	0	A992	6.741	6.741	2.865	2.865
22	PUR44	W12X14	No	8	0	A992	6.741	6.741	2.865	2.865
23	PUR46	W16X26	No	14	0	A992	12.808	12.808	5.65	5.65
24	PUR47	W16X26	No	14	0	A992	12.808	12.808	5.65	5.65
25	PUR48	W16X26	No	14	0	A992	12.808	12.808	5.65	5.65
26	M44	W12X14	No	6	0	A992	4.426	4.182	1.955	1.85
27	PUR45	W12X14	No	8	0	A992	4.615	4.615	1.973	1.973
28	PUR49	W12X14	No	8	0	A992	4.615	4.615	1.973	1.973
29	PUR50	W12X19	No	10	0	A992	7.939	7.831	3.434	3.389
30	M46	W12X14	No		0	A992	0.22	0.22	0.094	0.094
31	M47	W12X14	No	6	0	A992	0.222	0.222	0.12	0.12
32	M51	W12X14	No	4	0	A992	0.469	0.481	0.204	0.209
33	M52	W12X14	No	6	0	A992	0.222	0.222	0.12	0.12
34	M53	W12X14	No	6	0	A992	0.198	0.198	0.106	0.106
35	M54	W12X14	No	14	0	A992	6.103	1.887	2.633	0.84
36	M55	W12X14	No	8	0	A992	0.33	0.33	0.176	0.176
37	M56	W12X14	No	8	0	A992	0.329	0.329	0.176	0.176
38	M57	W12X14	No	6	0	A992	13.717	0.352	5.903	0.186
39	M58	W12X14	No	8	0	A992	2.405	2.405	1.033	1.033
40	M59	W12X14	No	8	0	A992	2.63	2.63	1.13	1.13
41	M60	W12X14	No	8	0	A992	2.404	2.404	1.033	1.033
42	M50	W12X14	No	8	0	A992	6.543	5.299	2.828	2.301
43	M61	W12X19	No	10	0	A992	9.319	9.319	3.996	3.996
44	M62	W12X19	No	10	0	A992	11.368	11.368	4.85	4.85
45	M63	W12X19	No	10	0	A992	11.096	11.096	4.734	4.734
46	M64	W12X14	No	6	0	A992	0.331	0.331	0.163	0.163
47	M65	W12X14	No	6	0	A992	5.26	5.246	2.318	2.312

Beam Design for Hot Rolled : Lower Roof

	Label	Size	Explicit	Studs	Camber[i...	Material	Max Start ...	Max End R...	Min Start ...	Min End R...
1	REV_M2	W12X14	No		0	Steel AST...	3.52	3.688	0.188	0.188
2	REV_M4	W21X50	Yes		0	Steel AST...	12.808	12.592	1.72	1.657
3	REV_M25	W18X65	No		0	Steel AST...	22.532	18.272	1.981	1.964
4	REV_M57	W12X16	No		0	Steel AST...	4.342	3.574	0.321	0.326
5	REV_M58	W12X14	No		0	Steel AST...	2.94	5.074	0.221	0.241

Beam Design for Hot Rolled : Lower Roof (Continued)

	Label	Size	Explicit	Studs	Camber[i...	Material	Max Start ...	Max End R...	Min Start ...	Min End R...
6	REV_M59	W12X14	No		0	Steel AST...	0.137	0.137	0.044	0.044
7	REV_M60	W12X14	No		0	Steel AST...	0.137	0.137	0.044	0.044
8	M71	W12X14	No		0	A992	0.157	0.157	0.013	0.013
9	M19	W12X14	No		0	A992	0.134	0.134	0.043	0.043
10	M20	W12X14	No		0	A992	3.551	6.703	0.186	0.283
11	M21	W14X22	No		0	A992	9.759	9.146	0.467	0.442
12	M22	W12X14	No		0	A992	2.266	1.95	0.182	0.184
13	M23	W12X14	No		0	A992	1.142	1.142	0.061	0.061

Beam Code Summary for Hot Rolled : Upper Roof

	Label	Size	Explicit	Studs	Camb...	Material	Bending...	Loc[ft]	LC	Defl Ch...	Loc[ft]	Cat	Shear C...	Loc[ft]	LC
1	M1	W18X35	No		0	A992	0.677	15.354	6	0.926	16.75	DL+...	0.115	0	6
2	M6	W12X19	No		0	A992	0.681	11.016	6	0.94	11.75	LL	0.12	23.5	6
3	M7	W12X14	No		0	A992	0.187	8.725	6	0.228	9.105	LL	0.043	0	6
4	M16	W12X14	No		0	A992	0.17	6.854	6	0.165	6.854	LL	0.055	0	6
5	M23	W18X86	No		0	A992	0.487	20.125	6	0.998	20.125	DL+...	0.115	0	6
6	M14	W18X86	No		0	A992	0.461	18.75	6	0.943	20	DL+...	0.126	40	6
7	M15	W18X86	No		0	A992	0.453	23.187	6	0.976	21	DL+...	0.119	42	6
8	M19	W12X14	No		0	A992	0.212	9.458	6	0.259	9.458	LL	0.045	18.9...	6
9	M22	W12X14	No		0	A992	0.531	11.719	6	0.823	12.239	DL+...	0.149	0	6
10	M24	W12X14	No		0	A992	0.287	6.139	6	0.175	5.785	LL	0.06	11.3...	6
11	M26	W12X14	No		0	A992	0.32	5.76	6	0.33	7.679	LL	0.183	0	6
12	M28	W12X22	No		0	A992	0.613	11.836	6	0.958	12.625	LL	0.097	0	6
13	M65	W12X14	No		0	A992	0.561	13.379	6	0.941	13.379	DL+...	0.095	0	6
14	M59	W12X14	No		0	A992	0.405	7.018	6	0.457	8.725	DL+...	0.142	0	6
15	M66	W12X14	No		0	A992	0.007	3.375	6	0.036	0	LL	0.004	6.75	6
16	M76	W12X14	No		0	A992	0.003	1.167	6	0.036	0	LL	0.005	2.333	6
17	M73	W12X14	No		0	A992	0	0.292	6	0.036	0	LL	0.002	0.583	6
18	M74	W12X14	No		0	A992	0.001	0.667	6	0.036	0	LL	0.004	1.333	6
19	M75	W12X14	No		0	A992	0.065	3.834	6	0.036	0	LL	0.038	5.663	6
20	M77	W12X14	No		0	A992	0.138	2.619	6	0.071	4.231	LL	0.056	0	6
21	M78	W12X14	No		0	A992	0.185	6.788	6	0.09	5.214	DL+...	0.074	9.444	6
22	M79	W12X14	No		0	A992	0.206	2.946	6	0.119	4.616	DL+...	0.111	9.429	6
23	M80	W12X14	No		0	A992	0.227	4.927	6	0.118	4.927	LL	0.054	9.46	6
24	M81	W12X14	No		0	A992	0.051	3.957	6	0.036	0	LL	0.026	0	6
25	M82	W12X14	No		0	A992	0.051	4.418	6	0.036	0	LL	0.023	8.837	6
26	M83	W12X14	No		0	A992	0.042	4.04	6	0.036	0	LL	0.021	8.08	6
27	M84	W12X14	No		0	A992	0.5	11.563	6	0.573	9.25	LL	0.08	0	6

Beam Code Summary for Hot Rolled : 2nd Floor

	Label	Size	Explicit	Studs	Camb...	Material	Bending...	Loc[ft]	LC	Defl Ch...	Loc[ft]	Cat	Shear C...	Loc[ft]	LC
1	REV_M5	W18X76	Yes	16	0	Steel ...	0.452	16.75	4	0.599	16.75	DL+...	0.13	33.5	4
2	REV_M10	W12X14	No	8	0	Steel ...	0.14	7	4	0.135	7	DL+...	0.062	14	4
3	REV_M17	W14X22	No	24	0	Steel ...	0.917	3.035	4	0.802	7.777	DL+...	0.533	0	4
4	REV_M18	W12X22	No	10	0	Steel ...	0.542	11.75	4	0.86	11.75	DL+...	0.12	0	4
5	REV_M37	W18X97	No	22	0.75	Steel ...	0.691	16.771	4	0.991	20.125	DL+...	0.177	40.25	4
6	M43	W12X14	No	8	0	A992	0.559	8.028	4	0.663	8.028	DL+...	0.342	0	4
7	M41	W14X22	No	10	0	A992	0.571	12.625	4	0.859	12.625	DL+...	0.132	0	4
8	M49	W12X14	No	8	0	A992	0.497	11.179	4	0.754	11.179	DL+...	0.148	21.9...	4
9	M48	W12X14	No		0	A992	0.002	1.5	4	0.036	0	LL	0.002	3	4
10	M71	W12X14	No		0	A992	0.003	0.667	4	0.036	0	LL	0.008	1.333	4

Beam Code Summary for Hot Rolled : 2nd Floor (Continued)

	Label	Size	Explicit	Studs	Camb...	Material	Bending...	Loc[ft]	LC	Defl Ch...	Loc[ft]	Cat	Shear C..	Loc[ft]	LC
11	M22	W18X97	No	28	1	A992	0.709	18.75	4	0.847	20	DL+...	0.202	0	4
12	M24	W18X86	No	22	1	A992	0.711	21	4	0.977	21	DL+...	0.193	0	4
13	PUR24	W12X14	No	8	0	A992	0.426	7.711	4	0.45	7.711	DL+...	0.171	0	4
14	PUR25	W12X14	No	8	0	A992	0.426	7.711	4	0.45	7.711	DL+...	0.171	0	4
15	PUR26	W12X14	No	8	0	A992	0.449	8.378	4	0.515	8.378	DL+...	0.166	0	4
16	M36	W16X26	No	14	0	A992	0.44	12.76	4	0.747	13.021	DL+...	0.205	0	4
17	M38	W12X16	No	10	0	A992	0.368	6.977	4	0.531	6.977	DL+...	0.19	0	4
18	M42	W16X26	No	14	0	A992	0.43	12.241	4	0.793	13.379	DL+...	0.148	0	4
19	PUR41	W14X22	No	12	0	A992	0.688	12.5	4	0.981	12.5	DL+...	0.207	25	4
20	PUR42	W14X22	No	12	0	A992	0.688	12.5	4	0.981	12.5	DL+...	0.207	0	4
21	PUR43	W12X14	No	8	0	A992	0.387	7.612	4	0.403	7.612	DL+...	0.158	0	4
22	PUR44	W12X14	No	8	0	A992	0.387	7.612	4	0.403	7.612	DL+...	0.158	0	4
23	PUR46	W16X26	No	14	0	A992	0.557	13.664	4	0.769	13.664	DL+...	0.182	0	4
24	PUR47	W16X26	No	14	0	A992	0.557	13.664	4	0.769	13.664	DL+...	0.182	27.3...	4
25	PUR48	W16X26	No	14	0	A992	0.557	13.664	4	0.769	13.664	DL+...	0.182	0	4
26	M44	W12X14	No	6	0	A992	0.358	5.549	4	0.246	5.549	DL+...	0.104	0	4
27	PUR45	W12X14	No	8	0	A992	0.23	6.591	4	0.208	6.591	DL+...	0.108	13.1...	4
28	PUR49	W12X14	No	8	0	A992	0.23	6.591	4	0.208	6.591	DL+...	0.108	13.1...	4
29	PUR50	W12X19	No	10	0	A992	0.522	12	4	0.818	12	DL+...	0.138	0	4
30	M46	W12X14	No		0	A992	0	0.292	4	0.036	0	LL	0.005	0.583	4
31	M47	W12X14	No	6	0	A992	0.006	3.375	2	0.036	0	LL	0.005	0	4
32	M51	W12X14	No	4	0	A992	0.005	1.167	4	0.036	0	LL	0.011	2.333	4
33	M52	W12X14	No	6	0	A992	0.006	3.375	2	0.036	0	LL	0.005	6.75	4
34	M53	W12X14	No	6	0	A992	0.004	2.832	4	0.036	0	LL	0.005	5.663	4
35	M54	W12X14	No	14	0	A992	0.187	1.914	4	0.099	4.13	DL+...	0.143	0	4
36	M55	W12X14	No	8	0	A992	0.012	4.722	2	0.036	0	LL	0.008	9.444	4
37	M56	W12X14	No	8	0	A992	0.012	4.714	2	0.036	0	LL	0.008	0	4
38	M57	W12X14	No	6	0	A992	0.014	4.237	4	0.036	0	LL	0.321	0	4
39	M58	W12X14	No	8	0	A992	0.074	4.041	4	0.041	4.041	DL+...	0.056	0	4
40	M59	W12X14	No	8	0	A992	0.089	4.418	4	0.054	4.418	DL+...	0.062	0	4
41	M60	W12X14	No	8	0	A992	0.074	4.04	4	0.041	4.04	DL+...	0.056	0	4
42	M50	W12X14	No	8	0	A992	0.471	10.039	4	0.727	10.723	DL+...	0.153	0	4
43	M61	W12X19	No	10	0	A992	0.564	10.951	4	0.804	10.951	DL+...	0.163	0	4
44	M62	W12X19	No	10	0	A992	0.688	10.951	4	0.98	10.951	DL+...	0.198	0	4
45	M63	W12X19	No	10	0	A992	0.672	10.951	4	0.957	10.951	DL+...	0.194	21.9...	4
46	M64	W12X14	No	6	0	A992	0.009	3.083	4	0.036	0	LL	0.008	0	4
47	M65	W12X14	No	6	0	A992	0.484	9.25	4	0.641	9.25	DL+...	0.123	0	4

Beam Code Summary for Hot Rolled : Lower Roof

	Label	Size	Explicit	Studs	Camb...	Material	Bending...	Loc[ft]	LC	Defl Ch...	Loc[ft]	Cat	Shear C..	Loc[ft]	LC
1	REV_M2	W12X14	No		0	Steel ...	0.38	9.378	4	0.545	9.378	LL	0.086	18.7...	8
2	REV_M4	W21X50	Yes		0	Steel ...	0.512	17.208	6	0.786	19.667	DL+...	0.081	0	6
3	REV_M25	W18X65	No		0	Steel ...	0.605	16.841	8	0.929	16.49	DL+...	0.136	0	8
4	REV_M57	W12X16	No		0	Steel ...	0.483	11.747	8	0.95	11.747	LL	0.082	0	8
5	REV_M58	W12X14	No		0	Steel ...	0.429	11.136	8	0.602	9.769	LL	0.119	18.7...	8
6	REV_M59	W12X14	No		0	Steel ...	0.005	2.826	6	0.036	0	LL	0.003	5.651	6
7	REV_M60	W12X14	No		0	Steel ...	0.005	2.826	6	0.036	0	LL	0.003	5.651	6
8	M71	W12X14	No		0	A992	0.001	0.667	4	0.036	0	LL	0.004	1.333	4
9	M19	W12X14	No		0	A992	0.004	2.826	4	0.036	0	LL	0.003	5.651	4
10	M20	W12X14	No		0	A992	0.442	5.599	8	0.385	6.12	LL	0.157	12.5	8
11	M21	W14X22	No		0	A992	0.776	9.929	4	0.92	10.591	DL+...	0.155	0	4

Beam Code Summary for Hot Rolled : Lower Roof (Continued)

	Label	Size	Explicit	Studs	Camb...	Material	Bending...	Loc[ft]	LC	Defl Ch...	Loc[ft]	Cat	Shear C..	Loc[ft]	LC
12	M22	W12X14	No		0	A992	0.205	8.582	6	0.274	8.769	LL	0.053	0	6
13	M23	W12X14	No		0	A992	0.04	3.042	4	0.036	0	LL	0.027	6.083	4

3.2 - STEEL COLUMNS

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	0.3	0.65	0.49	65	1.1	80	1.1
9	Metal Stud Layer	30457.925	11603.019	0.3	0.667	0.49	30.023	1.5	50.038	1.2
10	Metal Furring	30457.925	11603.019	0.3	0.667	0.49	30.023	1.5	50.038	1.2
11	Metal Deck	30457.925	11603.019	0.3	0.667	0.49	30.023	1.5	50.038	1.2
12	Steel ASTM A572	29001.601	11154.562	0.3	0.65	0.49	50.003	1.5	65.006	1.2
13	Steel ASTM A36	29001.601	11154.562	0.3	0.65	0.49	36.002	1.5	58.001	1.2
14	Steel ASTM A53	29001.601	11154.562	0.3	0.65	0.49	35.002	1.5	60.002	1.2
15	Steel ASTM A500, ...	29001.601	11154.562	0.3	0.65	0.49	42.002	1.5	58.001	1.2
16	Steel ASTM A500, ...	29001.601	11154.562	0.3	0.65	0.49	46.002	1.5	58.001	1.2
17	Steel ASTM A500, ...	29001.601	11240.57	0.3	0.65	0.49	46.002	1.5	58.001	1.2
18	Steel ASTM A500, ...	29001.601	11154.562	0.3	0.65	0.49	50.003	1.5	62.004	1.2
19	Steel ASTM A992	29001.601	11154.562	0.3	0.65	0.49	50.003	1.5	65.006	1.2
20	Grade 65	0		0	0	0.49	0.009	1.5	0	1.2
21	REV ASTM A992	29000	11240	0.29	0.65	0.49	50	1.5	65	1.2
22	REV ASTM A500 B...	29000	11240	0.29	0.65	0.49	46	1.5	58	1.2
23	Stainless Steel, Bru...	28282.359	12473.245	0.29	0.961	0.499	31.183	1.5	73.244	1.2
24	Metal - Steel - AST...	29000	11240	0.29	0.65	0.49	50	1.5	65	1.2
25	REV ASTM A36	29000	11240	0.29	0.65	0.49	36	1.5	58	1.2
26	REV ASTM A53	29000	11240	0.29	0.65	0.49	35	1.5	60	1.2
27	REV ASTM A500 B...	29000	11240	0.29	0.65	0.49	42	1.5	58	1.2
28	REV ASTM A500 C...	29000	11240	0.29	0.65	0.49	50	1.5	62	1.2
29	REV ASTM A500 C...	29000	11240	0.29	0.65	0.49	46	1.5	58	1.2
30	Rebar - ASTM A61...	29000	11240	0.29	0.65	0.49	60	1.5	90	1.2
31	Steel	30457.925	11603.019	0.3	0.667	0.49	30.023	1.5	50.038	1.2

Columns : Upper Roof

	Label	Point	Shape	Material	Function	Angle (d...	Orient Point	Desi...	Splice Dist...		Splice Type	Splice...	Parapet ...	Top F...
1	(4-C) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
2	(11-A) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
3	(8-A) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
4	CS7 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
5	(10-M) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
6	(10-G) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
7	(7-M) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
8	CS13 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
9	CS14 L1	N100	HSS4X4X6	REV AS...	Lateral			Colu...					Default (0)	Fixed
10	(3-K) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
11	CS17 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
12	(2-C) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
13	(B-5) L1	N24	HSS4X4X6	A500 Gr...	Gravity			Colu...					Default (0)	Fixed
14	CS19 L1	N120	HSS4X4X6	Steel AS...	Lateral			Colu...					Default (0)	Fixed
15	CS20 L1	N121	HSS4X4X6	Steel AS...	Lateral			Colu...					Default (0)	Fixed
16	CS21 L1	N122	HSS4X4X6	Steel AS...	Lateral			Colu...					Default (0)	Fixed
17	CS22 L1	N123	HSS4X4X6	Steel AS...	Lateral			Colu...					Default (0)	Fixed

Columns : Upper Roof (Continued)

	Label	Point	Shape	Material	Function	Angle (d...	Orient Point	Desi...	Splice	Dist...	Splice Type	Splice...	Parapet ...	Top F...
18	CS23_1_L1	N124	HSS4X4X6	Steel AS...	Lateral			Colu...					Default (0)	Fixed

Columns : 2nd Floor

	Label	Point	Shape	Material	Function	Angle (d...	Orient Point	Desi...	Splice	Dist...	Splice Type	Splice...	Parapet ...	Top F...
1	(1-J) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
2	(1-C) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
3	(4-C) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
4	(11-A) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
5	(8-A) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
6	CS7 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
7	(10-M) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
8	(10-G) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
9	(7-M) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
10	CS13 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
11	CS14 L1	N98	HSS4X4X6	REV AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
12	(3-K) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
13	CS17 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
14	(2-C) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
15	(F-1) L1	REV...	HSS4X4X6	REV AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
16	CS23 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
17	(B-5) L1	REV...	HSS4X4X6	A500 Gr...	Gravity			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
18	CS19 L1	N164	HSS4X4X6	Steel AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
19	CS20 L1	N139	HSS4X4X6	Steel AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
20	CS21 L1	N166	HSS4X4X6	Steel AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
21	CS22 L1	N167	HSS4X4X6	Steel AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
22	CS23_1_L1	N168	HSS4X4X6	Steel AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
23	CS23_2_L1	N169	HSS4X4X6	Steel AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
24	CS24 L1	N170	HSS4X4X6	Steel AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA
25	CS25 L1	N171	HSS4X4X6	Steel AS...	Lateral			Colu...	Yes	Defa...	Default (Mo...	None	NA	NA

Columns : Lower Roof

	Label	Point	Shape	Material	Function	Angle (d...	Orient Point	Desi...	Splice	Dist...	Splice Type	Splice...	Parapet ...	Top F...
1	(1-J) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
2	(1-C) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					Default (0)	Fixed
3	(4-C) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
4	(11-A) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
5	(8-A) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
6	CS7 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
7	(10-M) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
8	(10-G) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
9	(7-M) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
10	CS13 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
11	CS14 L1	REV...	HSS4X4X6	REV AS...	Lateral			Colu...					NA	NA
12	(3-K) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
13	CS17 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
14	(2-C) L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	NA
15	(F-1) L1	REV...	HSS4X4X6	REV AS...	Lateral			Colu...					Default (0)	Fixed
16	CS23 L1	REV...	HSS4X4X6	REV AS...	Gravity			Colu...					NA	Fixed
17	(B-5) L1	REV...	HSS4X4X6	A500 Gr...	Gravity			Colu...					NA	NA
18	CS23_2_L1	REV...	HSS4X4X6	Steel AS...	Lateral			Colu...					Default (0)	Fixed
19	CS24 L1	N149	HSS4X4X6	Steel AS...	Lateral			Colu...					Default (0)	Fixed

Columns : Lower Roof (Continued)

	Label	Point	Shape	Material	Function	Angle (d...	Orient Point	Desi...	Splice Dist...		Splice Type	Splice...	Parapet ...	Top F...
20	CS25_L1	N150	HSS4X4X6	Steel AS...	Lateral			Colu...					Default (0)	Fixed

Column Design Parameters : Upper Roof

	Label	Lbyy[ft]	Lbzz[ft]	Lcomp Top[ft]	Lcomp Bot[ft]	L-torque...	Kyy	Kzz	Cb	a[ft]
1	(4-C)_L1									NA
2	(11-A)_L1									NA
3	(8-A)_L1									NA
4	CS7_L1									NA
5	(10-M)_L1									NA
6	(10-G)_L1									NA
7	(7-M)_L1									NA
8	CS13_L1									NA
9	CS14_L1									NA
10	(3-K)_L1									NA
11	CS17_L1									NA
12	(2-C)_L1									NA
13	(B-5)_L1									NA
14	CS19_L1									NA
15	CS20_L1									NA
16	CS21_L1									NA
17	CS22_L1									NA
18	CS23_1_L1									NA

Column Design Parameters : 2nd Floor

	Label	Lbyy[ft]	Lbzz[ft]	Lcomp Top[ft]	Lcomp Bot[ft]	L-torque...	Kyy	Kzz	Cb	a[ft]
1	(1-J)_L1									NA
2	(1-C)_L1									NA
3	(4-C)_L1									NA
4	(11-A)_L1									NA
5	(8-A)_L1									NA
6	CS7_L1									NA
7	(10-M)_L1									NA
8	(10-G)_L1									NA
9	(7-M)_L1									NA
10	CS13_L1									NA
11	CS14_L1									NA
12	(3-K)_L1									NA
13	CS17_L1									NA
14	(2-C)_L1									NA
15	(F-1)_L1									NA
16	CS23_L1									NA
17	(B-5)_L1									NA
18	CS19_L1									NA
19	CS20_L1									NA
20	CS21_L1									NA
21	CS22_L1									NA
22	CS23_1_L1									NA
23	CS23_2_L1									NA
24	CS24_L1									NA
25	CS25_L1									NA

Column Design Parameters : Lower Roof

	Label	Lbyy[ft]	Lbzz[ft]	Lcomp Top[ft]	Lcomp Bot[ft]	L-torque...	Kyy	Kzz	Cb	a[ft]
1	(1-J) L1									NA
2	(1-C) L1									NA
3	(4-C) L1									NA
4	(11-A) L1									NA
5	(8-A) L1									NA
6	CS7 L1									NA
7	(10-M) L1									NA
8	(10-G) L1									NA
9	(7-M) L1									NA
10	CS13 L1									NA
11	CS14 L1									NA
12	(3-K) L1									NA
13	CS17 L1									NA
14	(2-C) L1									NA
15	(F-1) L1									NA
16	CS23 L1									NA
17	(B-5) L1									NA
18	CS23 2 L1									NA
19	CS24 L1									NA
20	CS25 L1									NA

Column Stacks

	Stack La...	Project ...	Z [ft]	X [ft]	Lift No.	Length...	Bot El...	Top El...	Shape	Material	Functi...	Design ...	Flexural ...	Shear La...
1	(1-J)	1-H	-38.4...	-86.9...	1	14.833	0	14.833	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
2	(1-C)	1-C	-38.4...	-129....	1	14.833	0	14.833	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
3	(4-C)	4-C	34.391	-129....	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
4	(11-A)	11-A	83.141	-132....	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
5	(8-A)	8-A	59.641	-132....	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
6	CS7	11-E	83.141	-114....	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
7	(10-M)	10-M	81.141	-70.5...	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
8	(10-G)	10-G	81.141	-95.5...	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
9	(7-M)	7-M	52.808	-70.5...	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
10	CS13	-	41.474	-71.5...	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
11	CS14	-	41.474	-85.5...	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Lateral	Column	N/A	N/A
12	(3-K)	3-K	26.141	-85.5...	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
13	CS17	2-H	0.891	-86.9...	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
14	(2-C)	2-C	0.891	-129....	1	26.217	0	26.217	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
15	(F-1)	-	-38.4...	-105....	1	14.833	0	14.833	HSS4X4X6	REV ASTM A5...	Lateral	Column	N/A	N/A
16	CS23	-	-4.76	-105....	1	14.833	0	14.833	HSS4X4X6	REV ASTM A5...	Gravity	Column	N/A	N/A
17	(B-5)	B-5	41.141	-130....	1	26.217	0	26.217	HSS4X4X6	A500 Gr.B Rect	Gravity	Column	N/A	N/A
18	CS19	-	31.804	-85.5...	1	26.217	0	26.217	HSS4X4X6	Steel ASTM A5...	Lateral	Column	N/A	N/A
19	CS20	-	62.252	-70.5...	1	26.217	0	26.217	HSS4X4X6	Steel ASTM A5...	Lateral	Column	N/A	N/A
20	CS21	-	71.681	-70.5...	1	26.217	0	26.217	HSS4X4X6	Steel ASTM A5...	Lateral	Column	N/A	N/A
21	CS22	-	81.141	-78.6...	1	26.217	0	26.217	HSS4X4X6	Steel ASTM A5...	Lateral	Column	N/A	N/A
22	CS23_1	-	81.141	-87.5...	1	26.217	0	26.217	HSS4X4X6	Steel ASTM A5...	Lateral	Column	N/A	N/A
23	CS23_2	-	-4.76	-86.9...	1	14.833	0	14.833	HSS4X4X6	Steel ASTM A5...	Lateral	Column	N/A	N/A
24	CS24	-	-17.26	-86.9...	1	14.833	0	14.833	HSS4X4X6	Steel ASTM A5...	Lateral	Column	N/A	N/A
25	CS25	-	-38.4...	-111....	1	14.833	0	14.833	HSS4X4X6	Steel ASTM A5...	Lateral	Column	N/A	N/A

Beam Floors

	Label	Deck Default	Deck Angle Default (deg)	Parent
1	Upper Roof	1 1/2" Metal Roof Deck	0	None
2	2nd Floor	3" NW Concrete on 2" Composite ...	0	None
3	Lower Roof	1 1/2" Metal Roof Deck	0	None

Column Forces/Moments, Dead & Other Categories : Axial Force

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
1	(1-J)	1	2nd Floor	-38.442,-8...	12.907	4	0.871	4.998	0	0	0	0
2		1	Lower Roof				0.654	4.782	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	15.1	6	2.08	5.947	0	0	0	0
4		1	Lower Roof				1.863	5.731	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-12...	39.785	8	16.834	25.243	0	0	0	0
6		1	Lower Roof				1.907	6.27	0	0	0	0
7		1	Upper Roof				1.882	6.246	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-13...	23.487	8	9.528	13.843	0	0	0	0
9		1	Lower Roof				0.931	2.849	0	0	0	0
10		1	Upper Roof				0.907	2.824	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-13...	25.093	8	9.143	14.351	0	0	0	0
12		1	Lower Roof				1.175	4.09	0	0	0	0
13		1	Upper Roof				1.151	4.066	0	0	0	0
14	CS7	1	2nd Floor	83.141,-11...	49.157	8	20.492	30.924	0	0	0	0
15		1	Lower Roof				3.42	9.154	0	0	0	0
16		1	Upper Roof				3.395	9.13	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-70...	5.725	8	1.918	3.058	0	0	0	0
18		1	Lower Roof				0.482	1.267	0	0	0	0
19		1	Upper Roof				0.458	1.242	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-95...	58.972	8	26.26	38.988	0	0	0	0
21		1	Lower Roof				3.41	9.77	0	0	0	0
22		1	Upper Roof				3.386	9.745	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-70...	19.865	8	7.634	11.677	0	0	0	0
24		1	Lower Roof				0.838	2.933	0	0	0	0
25		1	Upper Roof				0.813	2.908	0	0	0	0
26	CS13	1	2nd Floor	41.474,-71...	10.476	8	3.862	5.754	0	0	0	0
27		1	Lower Roof				0.538	1.519	0	0	0	0
28		1	Upper Roof				0.514	1.495	0	0	0	0
29	CS14	1	2nd Floor	41.474,-85...	7.054	8	2.681	3.964	0	0	0	0
30		1	Lower Roof				0.479	1.181	0	0	0	0
31		1	Upper Roof				0.455	1.156	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-85...	20.393	8	7.65	11.553	0	0	0	0
33		1	Lower Roof				0.967	2.94	0	0	0	0
34		1	Upper Roof				0.942	2.916	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86....	13.068	8	4.69	7.137	0	0	0	0
36		1	Lower Roof				0.792	2.17	0	0	0	0
37		1	Upper Roof				0.725	2.082	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-129...	41.19	8	13.76	22.989	0	0	0	0
39		1	Lower Roof				3.256	9.738	0	0	0	0
40		1	Upper Roof				1.498	4.7	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	27.396	8	2.471	12.371	0	0	0	0
42		1	Lower Roof				2.254	12.154	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-105...	25.027	8	2.752	11.007	0	0	0	0
44		1	Lower Roof				2.535	10.791	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-13...	8.618	8	3.297	4.978	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Axial Force (Continued)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
46		1	Lower Roof				0.536	1.476	0	0	0	0
47		1	Upper Roof				0.51	1.449	0	0	0	0
48	CS19	1	2nd Floor	31.804,-85...	9.396	8	3.465	5.269	0	0	0	0
49		1	Upper Roof				0.509	1.491	0	0	0	0
50	CS20	1	2nd Floor	62.252,-70...	17.974	8	7.003	10.656	0	0	0	0
51		1	Upper Roof				0.698	2.51	0	0	0	0
52	CS21	1	2nd Floor	71.681,-70...	18.37	8	7.04	10.764	0	0	0	0
53		1	Upper Roof				0.745	2.63	0	0	0	0
54	CS22	1	2nd Floor	81.141,-78...	6.557	8	2.758	3.833	0	0	0	0
55		1	Upper Roof				0.378	0.791	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-87...	6.48	8	2.758	3.833	0	0	0	0
57		1	Upper Roof				0.378	0.791	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	8.983	8	0.711	3.527	0	0	0	0
59		1	Lower Roof				0.494	3.31	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-86...	16.466	4	0.992	6.589	0	0	0	0
61		1	Lower Roof				0.775	6.373	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-1...	3.285	8	0.487	1.347	0	0	0	0
63		1	Lower Roof				0.27	1.13	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Shear z-z

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
1	(1-J)	1	2nd Floor	-38.442,-8...	0	1	0	0	0	0	0	0
2		1	Lower Roof				0	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
4		1	Lower Roof				0	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-12...	0	9	0	0	0	0	0	0
6		1	Lower Roof				0	0	0	0	0	0
7		1	Upper Roof				0	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-13...	0	4	0	0	0	0	0	0
9		1	Lower Roof				0	0	0	0	0	0
10		1	Upper Roof				0	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-13...	0	4	0	0	0	0	0	0
12		1	Lower Roof				0	0	0	0	0	0
13		1	Upper Roof				0	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-11...	0	4	0	0	0	0	0	0
15		1	Lower Roof				0	0	0	0	0	0
16		1	Upper Roof				0	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-70...	0	9	0	0	0	0	0	0
18		1	Lower Roof				0	0	0	0	0	0
19		1	Upper Roof				0	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-95...	0	9	0	0	0	0	0	0
21		1	Lower Roof				0	0	0	0	0	0
22		1	Upper Roof				0	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-70...	0	4	0	0	0	0	0	0
24		1	Lower Roof				0	0	0	0	0	0
25		1	Upper Roof				0	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-71...	0	1	0	0	0	0	0	0
27		1	Lower Roof				0	0	0	0	0	0
28		1	Upper Roof				0	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-85...	0	1	0	0	0	0	0	0
30		1	Lower Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Shear z-z (Continued)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
31		1	Upper Roof				0	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-85...	0	9	0	0	0	0	0	0
33		1	Lower Roof				0	0	0	0	0	0
34		1	Upper Roof				0	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86....	0	1	0	0	0	0	0	0
36		1	Lower Roof				0	0	0	0	0	0
37		1	Upper Roof				0	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-129...	0	1	0	0	0	0	0	0
39		1	Lower Roof				0	0	0	0	0	0
40		1	Upper Roof				0	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
42		1	Lower Roof				0	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-105...	0	1	0	0	0	0	0	0
44		1	Lower Roof				0	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-13...	0	1	0	0	0	0	0	0
46		1	Lower Roof				0	0	0	0	0	0
47		1	Upper Roof				0	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-85...	0	4	0	0	0	0	0	0
49		1	Upper Roof				0	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-70...	0	9	0	0	0	0	0	0
51		1	Upper Roof				0	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-70...	0	1	0	0	0	0	0	0
53		1	Upper Roof				0	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-78...	0	9	0	0	0	0	0	0
55		1	Upper Roof				0	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-87...	0	9	0	0	0	0	0	0
57		1	Upper Roof				0	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	0	1	0	0	0	0	0	0
59		1	Lower Roof				0	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-86...	0	1	0	0	0	0	0	0
61		1	Lower Roof				0	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
63		1	Lower Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Shear y-y

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
1	(1-J)	1	2nd Floor	-38.442,-8...	0	1	0	0	0	0	0	0
2		1	Lower Roof				0	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
4		1	Lower Roof				0	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-12...	0	4	0	0	0	0	0	0
6		1	Lower Roof				0	0	0	0	0	0
7		1	Upper Roof				0	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-13...	0	1	0	0	0	0	0	0
9		1	Lower Roof				0	0	0	0	0	0
10		1	Upper Roof				0	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-13...	0	1	0	0	0	0	0	0
12		1	Lower Roof				0	0	0	0	0	0
13		1	Upper Roof				0	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-11...	0	9	0	0	0	0	0	0
15		1	Lower Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Shear y-y (Continued)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
16		1	Upper Roof				0	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-70...	0	1	0	0	0	0	0	0
18		1	Lower Roof				0	0	0	0	0	0
19		1	Upper Roof				0	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-95...	0	2	0	0	0	0	0	0
21		1	Lower Roof				0	0	0	0	0	0
22		1	Upper Roof				0	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-70...	0	1	0	0	0	0	0	0
24		1	Lower Roof				0	0	0	0	0	0
25		1	Upper Roof				0	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-71...	0	4	0	0	0	0	0	0
27		1	Lower Roof				0	0	0	0	0	0
28		1	Upper Roof				0	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-85...	0	1	0	0	0	0	0	0
30		1	Lower Roof				0	0	0	0	0	0
31		1	Upper Roof				0	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-85...	0	1	0	0	0	0	0	0
33		1	Lower Roof				0	0	0	0	0	0
34		1	Upper Roof				0	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86....	0	4	0	0	0	0	0	0
36		1	Lower Roof				0	0	0	0	0	0
37		1	Upper Roof				0	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-129...	0	8	0	0	0	0	0	0
39		1	Lower Roof				0	0	0	0	0	0
40		1	Upper Roof				0	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
42		1	Lower Roof				0	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-105...	0	1	0	0	0	0	0	0
44		1	Lower Roof				0	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-13...	0	9	0	0	0	0	0	0
46		1	Lower Roof				0	0	0	0	0	0
47		1	Upper Roof				0	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-85...	0	1	0	0	0	0	0	0
49		1	Upper Roof				0	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-70...	0	1	0	0	0	0	0	0
51		1	Upper Roof				0	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-70...	0	1	0	0	0	0	0	0
53		1	Upper Roof				0	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-78...	0	1	0	0	0	0	0	0
55		1	Upper Roof				0	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-87...	0	1	0	0	0	0	0	0
57		1	Upper Roof				0	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	0	1	0	0	0	0	0	0
59		1	Lower Roof				0	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-86...	0	1	0	0	0	0	0	0
61		1	Lower Roof				0	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
63		1	Lower Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Moment z-z (Top)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
1	(1-J)	1	2nd Floor	-38.442,-8...	0	1	0	0	0	0	0	0
2		1	Lower Roof				0	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
4		1	Lower Roof				0	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-12...	0	4	0	0	0	0	0	0
6		1	Lower Roof				0	0	0	0	0	0
7		1	Upper Roof				0	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-13...	0	1	0	0	0	0	0	0
9		1	Lower Roof				0	0	0	0	0	0
10		1	Upper Roof				0	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-13...	0	1	0	0	0	0	0	0
12		1	Lower Roof				0	0	0	0	0	0
13		1	Upper Roof				0	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-11...	0	9	0	0	0	0	0	0
15		1	Lower Roof				0	0	0	0	0	0
16		1	Upper Roof				0	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-70...	0	1	0	0	0	0	0	0
18		1	Lower Roof				0	0	0	0	0	0
19		1	Upper Roof				0	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-95...	0	2	0	0	0	0	0	0
21		1	Lower Roof				0	0	0	0	0	0
22		1	Upper Roof				0	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-70...	0	1	0	0	0	0	0	0
24		1	Lower Roof				0	0	0	0	0	0
25		1	Upper Roof				0	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-71...	0	4	0	0	0	0	0	0
27		1	Lower Roof				0	0	0	0	0	0
28		1	Upper Roof				0	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-85...	0	1	0	0	0	0	0	0
30		1	Lower Roof				0	0	0	0	0	0
31		1	Upper Roof				0	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-85...	0	1	0	0	0	0	0	0
33		1	Lower Roof				0	0	0	0	0	0
34		1	Upper Roof				0	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86....	0	4	0	0	0	0	0	0
36		1	Lower Roof				0	0	0	0	0	0
37		1	Upper Roof				0	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-129...	0	8	0	0	0	0	0	0
39		1	Lower Roof				0	0	0	0	0	0
40		1	Upper Roof				0	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
42		1	Lower Roof				0	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-105...	0	1	0	0	0	0	0	0
44		1	Lower Roof				0	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-13...	0	9	0	0	0	0	0	0
46		1	Lower Roof				0	0	0	0	0	0
47		1	Upper Roof				0	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-85...	0	1	0	0	0	0	0	0
49		1	Upper Roof				0	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-70...	0	1	0	0	0	0	0	0
51		1	Upper Roof				0	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-70...	0	1	0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Moment z-z (Top) (Continued)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
53		1	Upper Roof				0	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-78...	0	1	0	0	0	0	0	0
55		1	Upper Roof				0	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-87...	0	1	0	0	0	0	0	0
57		1	Upper Roof				0	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	0	1	0	0	0	0	0	0
59		1	Lower Roof				0	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-86...	0	1	0	0	0	0	0	0
61		1	Lower Roof				0	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
63		1	Lower Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Moment y-y (Top)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
1	(1-J)	1	2nd Floor	-38.442,-8...	0	1	0	0	0	0	0	0
2		1	Lower Roof				0	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
4		1	Lower Roof				0	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-12...	0	4	0	0	0	0	0	0
6		1	Lower Roof				0	0	0	0	0	0
7		1	Upper Roof				0	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-13...	0	9	0	0	0	0	0	0
9		1	Lower Roof				0	0	0	0	0	0
10		1	Upper Roof				0	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-13...	0	9	0	0	0	0	0	0
12		1	Lower Roof				0	0	0	0	0	0
13		1	Upper Roof				0	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-11...	0	9	0	0	0	0	0	0
15		1	Lower Roof				0	0	0	0	0	0
16		1	Upper Roof				0	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-70...	0	4	0	0	0	0	0	0
18		1	Lower Roof				0	0	0	0	0	0
19		1	Upper Roof				0	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-95...	0	4	0	0	0	0	0	0
21		1	Lower Roof				0	0	0	0	0	0
22		1	Upper Roof				0	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-70...	0	9	0	0	0	0	0	0
24		1	Lower Roof				0	0	0	0	0	0
25		1	Upper Roof				0	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-71...	0	1	0	0	0	0	0	0
27		1	Lower Roof				0	0	0	0	0	0
28		1	Upper Roof				0	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-85...	0	1	0	0	0	0	0	0
30		1	Lower Roof				0	0	0	0	0	0
31		1	Upper Roof				0	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-85...	0	4	0	0	0	0	0	0
33		1	Lower Roof				0	0	0	0	0	0
34		1	Upper Roof				0	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86....	0	1	0	0	0	0	0	0
36		1	Lower Roof				0	0	0	0	0	0
37		1	Upper Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Moment y-y (Top) (Continued)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
38	(2-C)	1	2nd Floor	0.891,-129...	0	1	0	0	0	0	0	0
39		1	Lower Roof				0	0	0	0	0	0
40		1	Upper Roof				0	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
42		1	Lower Roof				0	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-105...	0	1	0	0	0	0	0	0
44		1	Lower Roof				0	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-13...	0	1	0	0	0	0	0	0
46		1	Lower Roof				0	0	0	0	0	0
47		1	Upper Roof				0	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-85...	0	9	0	0	0	0	0	0
49		1	Upper Roof				0	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-70...	0	4	0	0	0	0	0	0
51		1	Upper Roof				0	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-70...	0	1	0	0	0	0	0	0
53		1	Upper Roof				0	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-78...	0	4	0	0	0	0	0	0
55		1	Upper Roof				0	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-87...	0	4	0	0	0	0	0	0
57		1	Upper Roof				0	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	0	1	0	0	0	0	0	0
59		1	Lower Roof				0	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-86...	0	1	0	0	0	0	0	0
61		1	Lower Roof				0	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
63		1	Lower Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Moment z-z (Bot)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
1	(1-J)	1	2nd Floor	-38.442,-8...	0	1	0	0	0	0	0	0
2		1	Lower Roof				0	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
4		1	Lower Roof				0	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-12...	0	4	0	0	0	0	0	0
6		1	Lower Roof				0	0	0	0	0	0
7		1	Upper Roof				0	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-13...	0	1	0	0	0	0	0	0
9		1	Lower Roof				0	0	0	0	0	0
10		1	Upper Roof				0	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-13...	0	1	0	0	0	0	0	0
12		1	Lower Roof				0	0	0	0	0	0
13		1	Upper Roof				0	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-11...	0	9	0	0	0	0	0	0
15		1	Lower Roof				0	0	0	0	0	0
16		1	Upper Roof				0	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-70...	0	1	0	0	0	0	0	0
18		1	Lower Roof				0	0	0	0	0	0
19		1	Upper Roof				0	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-95...	0	2	0	0	0	0	0	0
21		1	Lower Roof				0	0	0	0	0	0
22		1	Upper Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Moment z-z (Bot) (Continued)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
23	(7-M)	1	2nd Floor	52.808,-70...	0	1	0	0	0	0	0	0
24		1	Lower Roof				0	0	0	0	0	0
25		1	Upper Roof				0	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-71...	0	4	0	0	0	0	0	0
27		1	Lower Roof				0	0	0	0	0	0
28		1	Upper Roof				0	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-85...	0	1	0	0	0	0	0	0
30		1	Lower Roof				0	0	0	0	0	0
31		1	Upper Roof				0	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-85...	0	1	0	0	0	0	0	0
33		1	Lower Roof				0	0	0	0	0	0
34		1	Upper Roof				0	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86....	0	4	0	0	0	0	0	0
36		1	Lower Roof				0	0	0	0	0	0
37		1	Upper Roof				0	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-129...	0	8	0	0	0	0	0	0
39		1	Lower Roof				0	0	0	0	0	0
40		1	Upper Roof				0	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
42		1	Lower Roof				0	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-105...	0	1	0	0	0	0	0	0
44		1	Lower Roof				0	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-13...	0	9	0	0	0	0	0	0
46		1	Lower Roof				0	0	0	0	0	0
47		1	Upper Roof				0	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-85...	0	1	0	0	0	0	0	0
49		1	Upper Roof				0	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-70...	0	1	0	0	0	0	0	0
51		1	Upper Roof				0	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-70...	0	1	0	0	0	0	0	0
53		1	Upper Roof				0	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-78...	0	1	0	0	0	0	0	0
55		1	Upper Roof				0	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-87...	0	1	0	0	0	0	0	0
57		1	Upper Roof				0	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	0	1	0	0	0	0	0	0
59		1	Lower Roof				0	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-86...	0	1	0	0	0	0	0	0
61		1	Lower Roof				0	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
63		1	Lower Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Moment y-y (Bot)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
1	(1-J)	1	2nd Floor	-38.442,-8...	0	1	0	0	0	0	0	0
2		1	Lower Roof				0	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
4		1	Lower Roof				0	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-12...	0	4	0	0	0	0	0	0
6		1	Lower Roof				0	0	0	0	0	0
7		1	Upper Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Moment y-y (Bot) (Continued)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
8	(11-A)	1	2nd Floor	83.141,-13...	0	9	0	0	0	0	0	0
9		1	Lower Roof				0	0	0	0	0	0
10		1	Upper Roof				0	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-13...	0	9	0	0	0	0	0	0
12		1	Lower Roof				0	0	0	0	0	0
13		1	Upper Roof				0	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-11...	0	9	0	0	0	0	0	0
15		1	Lower Roof				0	0	0	0	0	0
16		1	Upper Roof				0	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-70...	0	4	0	0	0	0	0	0
18		1	Lower Roof				0	0	0	0	0	0
19		1	Upper Roof				0	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-95...	0	4	0	0	0	0	0	0
21		1	Lower Roof				0	0	0	0	0	0
22		1	Upper Roof				0	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-70...	0	9	0	0	0	0	0	0
24		1	Lower Roof				0	0	0	0	0	0
25		1	Upper Roof				0	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-71...	0	1	0	0	0	0	0	0
27		1	Lower Roof				0	0	0	0	0	0
28		1	Upper Roof				0	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-85...	0	1	0	0	0	0	0	0
30		1	Lower Roof				0	0	0	0	0	0
31		1	Upper Roof				0	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-85...	0	4	0	0	0	0	0	0
33		1	Lower Roof				0	0	0	0	0	0
34		1	Upper Roof				0	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86....	0	1	0	0	0	0	0	0
36		1	Lower Roof				0	0	0	0	0	0
37		1	Upper Roof				0	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-129...	0	1	0	0	0	0	0	0
39		1	Lower Roof				0	0	0	0	0	0
40		1	Upper Roof				0	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
42		1	Lower Roof				0	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-105...	0	1	0	0	0	0	0	0
44		1	Lower Roof				0	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-13...	0	1	0	0	0	0	0	0
46		1	Lower Roof				0	0	0	0	0	0
47		1	Upper Roof				0	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-85...	0	9	0	0	0	0	0	0
49		1	Upper Roof				0	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-70...	0	4	0	0	0	0	0	0
51		1	Upper Roof				0	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-70...	0	1	0	0	0	0	0	0
53		1	Upper Roof				0	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-78...	0	4	0	0	0	0	0	0
55		1	Upper Roof				0	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-87...	0	4	0	0	0	0	0	0
57		1	Upper Roof				0	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	0	1	0	0	0	0	0	0
59		1	Lower Roof				0	0	0	0	0	0

Column Forces/Moments, Dead & Other Categories : Moment y-y (Bot) (Continued)

	Column St...	Lift No.	Floor Label	Coordinate...	Max Base Reactio...	Max Bas...	DLPre[k]	DL[k]	OL1[k]	OL2[k]	OL3[k]	OL4[k]
60	CS24	1	2nd Floor	-17.26,-86...	0	1	0	0	0	0	0	0
61		1	Lower Roof				0	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-1...	0	1	0	0	0	0	0	0
63		1	Lower Roof				0	0	0	0	0	0

Column Forces/Moments, Floor Live Load : Axial Force

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
1	(1-J)	1	2nd Floor	-38.442,-8...	9.984	1	7.409	0.499	1	0	0
2		1	Lower Roof		9.984	1	7.409	0.499	1	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	19.763	1	0.732	0.941	1	0	0
4		1	Lower Roof		19.763	1	0.732	0.941	1	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.707	0	13.486	0.8	0	0
6		1	Lower Roof		0	1	0	0	1	0	0
7		1	Upper Roof		0	1	0	0	1	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	0.843	0	7.99	0.843	0	0
9		1	Lower Roof		0	1	0	0	1	0	0
10		1	Upper Roof		0	1	0	0	1	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	0.857	0	7.642	0.857	0	0
12		1	Lower Roof		0	1	0	0	1	0	0
13		1	Upper Roof		0	1	0	0	1	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.674	0	15.657	0.8	0	0
15		1	Lower Roof		0	1	0	0	1	0	0
16		1	Upper Roof		0	1	0	0	1	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	1.183	1	0	0
18		1	Lower Roof		0	1	0	0	1	0	0
19		1	Upper Roof		0	1	0	0	1	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.614	0	21.228	0.8	0	0
21		1	Lower Roof		0	1	0	0	1	0	0
22		1	Upper Roof		0	1	0	0	1	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	0.908	0	6.49	0.908	0	0
24		1	Lower Roof		0	1	0	0	1	0	0
25		1	Upper Roof		0	1	0	0	1	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	3.038	1	0	0
27		1	Lower Roof		0	1	0	0	1	0	0
28		1	Upper Roof		0	1	0	0	1	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	1.937	1	0	0
30		1	Lower Roof		0	1	0	0	1	0	0
31		1	Upper Roof		0	1	0	0	1	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	0.911	0	6.433	0.911	0	0
33		1	Lower Roof		0	1	0	0	1	0	0
34		1	Upper Roof		0	1	0	0	1	0	0
35	CS17	1	2nd Floor	0.891,-86...	72.624	1	0	3.631	1	0	0
36		1	Lower Roof		1.413	1	0	0.071	1	0	0
37		1	Upper Roof		0	1	0	0	1	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.753	0.249	11.104	0.8	0	0
39		1	Lower Roof		39.448	1	0.249	1.946	1	0	0
40		1	Upper Roof		0	1	0	0	1	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	8.686	1	14.352	0.31	1	0	0
42		1	Lower Roof		8.686	1	14.352	0.31	1	0	0
43	CS23	1	2nd Floor	-4.76,-105...	19.717	1	6.837	0.897	1	0	0
44		1	Lower Roof		19.717	1	6.837	0.897	1	0	0

Column Forces/Moments, Floor Live Load : Axial Force (Continued)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	2.472	1	0	0
46		1	Lower Roof		0	1	0	0	1	0	0
47		1	Upper Roof		0	1	0	0	1	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	2.74	1	0	0
49		1	Upper Roof		0	1	0	0	1	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	0.927	0	6.139	0.927	0	0
51		1	Upper Roof		0	1	0	0	1	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	0.927	0	6.129	0.927	0	0
53		1	Upper Roof		0	1	0	0	1	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	2.209	1	0	0
55		1	Upper Roof		0	1	0	0	1	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	2.209	1	0	0
57		1	Upper Roof		0	1	0	0	1	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	4.537	1	4.514	0.227	1	0	0
59		1	Lower Roof		4.537	1	4.514	0.227	1	0	0
60	CS24	1	2nd Floor	-17.26,-86...	8.42	1	9.456	0.421	1	0	0
61		1	Lower Roof		8.42	1	9.456	0.421	1	0	0
62	CS25	1	2nd Floor	-38.442,-1...	5.999	1	0.795	0.3	1	0	0
63		1	Lower Roof		5.999	1	0.795	0.3	1	0	0

Column Forces/Moments, Floor Live Load : Shear z-z

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
1	(1-J)	1	2nd Floor	-38.442,-8...	9.984	1	0	0	1	0	0
2		1	Lower Roof		9.984	1	0	0	1	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	19.763	1	0	0	1	0	0
4		1	Lower Roof		19.763	1	0	0	1	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.707	0	0	0.8	0	0
6		1	Lower Roof		0	1	0	0	1	0	0
7		1	Upper Roof		0	1	0	0	1	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	0.843	0	0	0.843	0	0
9		1	Lower Roof		0	1	0	0	1	0	0
10		1	Upper Roof		0	1	0	0	1	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	0.857	0	0	0.857	0	0
12		1	Lower Roof		0	1	0	0	1	0	0
13		1	Upper Roof		0	1	0	0	1	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.674	0	0	0.8	0	0
15		1	Lower Roof		0	1	0	0	1	0	0
16		1	Upper Roof		0	1	0	0	1	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	1	0	0
18		1	Lower Roof		0	1	0	0	1	0	0
19		1	Upper Roof		0	1	0	0	1	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.614	0	0	0.8	0	0
21		1	Lower Roof		0	1	0	0	1	0	0
22		1	Upper Roof		0	1	0	0	1	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	0.908	0	0	0.908	0	0
24		1	Lower Roof		0	1	0	0	1	0	0
25		1	Upper Roof		0	1	0	0	1	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	1	0	0
27		1	Lower Roof		0	1	0	0	1	0	0
28		1	Upper Roof		0	1	0	0	1	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Shear z-z (Continued)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
30		1	Lower Roof		0	1	0	0	1	0	0
31		1	Upper Roof		0	1	0	0	1	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	0.911	0	0	0.911	0	0
33		1	Lower Roof		0	1	0	0	1	0	0
34		1	Upper Roof		0	1	0	0	1	0	0
35	CS17	1	2nd Floor	0.891,-86....	72.624	1	0	0	1	0	0
36		1	Lower Roof		1.413	1	0	0	1	0	0
37		1	Upper Roof		0	1	0	0	1	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.753	0	0	0.8	0	0
39		1	Lower Roof		39.448	1	0	0	1	0	0
40		1	Upper Roof		0	1	0	0	1	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	8.686	1	0	0	1	0	0
42		1	Lower Roof		8.686	1	0	0	1	0	0
43	CS23	1	2nd Floor	-4.76,-105...	19.717	1	0	0	1	0	0
44		1	Lower Roof		19.717	1	0	0	1	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	1	0	0
46		1	Lower Roof		0	1	0	0	1	0	0
47		1	Upper Roof		0	1	0	0	1	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	1	0	0
49		1	Upper Roof		0	1	0	0	1	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	0.927	0	0	0.927	0	0
51		1	Upper Roof		0	1	0	0	1	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	0.927	0	0	0.927	0	0
53		1	Upper Roof		0	1	0	0	1	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	1	0	0
55		1	Upper Roof		0	1	0	0	1	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	1	0	0
57		1	Upper Roof		0	1	0	0	1	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	4.537	1	0	0	1	0	0
59		1	Lower Roof		4.537	1	0	0	1	0	0
60	CS24	1	2nd Floor	-17.26,-86...	8.42	1	0	0	1	0	0
61		1	Lower Roof		8.42	1	0	0	1	0	0
62	CS25	1	2nd Floor	-38.442,-1...	5.999	1	0	0	1	0	0
63		1	Lower Roof		5.999	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Shear y-y

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
1	(1-J)	1	2nd Floor	-38.442,-8...	9.984	1	0	0	1	0	0
2		1	Lower Roof		9.984	1	0	0	1	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	19.763	1	0	0	1	0	0
4		1	Lower Roof		19.763	1	0	0	1	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.707	0	0	0.8	0	0
6		1	Lower Roof		0	1	0	0	1	0	0
7		1	Upper Roof		0	1	0	0	1	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	0.843	0	0	0.843	0	0
9		1	Lower Roof		0	1	0	0	1	0	0
10		1	Upper Roof		0	1	0	0	1	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	0.857	0	0	0.857	0	0
12		1	Lower Roof		0	1	0	0	1	0	0
13		1	Upper Roof		0	1	0	0	1	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.674	0	0	0.8	0	0

Column Forces/Moments, Floor Live Load : Shear y-y (Continued)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
15		1	Lower Roof		0	1	0	0	1	0	0
16		1	Upper Roof		0	1	0	0	1	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	1	0	0
18		1	Lower Roof		0	1	0	0	1	0	0
19		1	Upper Roof		0	1	0	0	1	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.614	0	0	0.8	0	0
21		1	Lower Roof		0	1	0	0	1	0	0
22		1	Upper Roof		0	1	0	0	1	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	0.908	0	0	0.908	0	0
24		1	Lower Roof		0	1	0	0	1	0	0
25		1	Upper Roof		0	1	0	0	1	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	1	0	0
27		1	Lower Roof		0	1	0	0	1	0	0
28		1	Upper Roof		0	1	0	0	1	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	1	0	0
30		1	Lower Roof		0	1	0	0	1	0	0
31		1	Upper Roof		0	1	0	0	1	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	0.911	0	0	0.911	0	0
33		1	Lower Roof		0	1	0	0	1	0	0
34		1	Upper Roof		0	1	0	0	1	0	0
35	CS17	1	2nd Floor	0.891,-86....	72.624	1	0	0	1	0	0
36		1	Lower Roof		1.413	1	0	0	1	0	0
37		1	Upper Roof		0	1	0	0	1	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.753	0	0	0.8	0	0
39		1	Lower Roof		39.448	1	0	0	1	0	0
40		1	Upper Roof		0	1	0	0	1	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	8.686	1	0	0	1	0	0
42		1	Lower Roof		8.686	1	0	0	1	0	0
43	CS23	1	2nd Floor	-4.76,-105...	19.717	1	0	0	1	0	0
44		1	Lower Roof		19.717	1	0	0	1	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	1	0	0
46		1	Lower Roof		0	1	0	0	1	0	0
47		1	Upper Roof		0	1	0	0	1	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	1	0	0
49		1	Upper Roof		0	1	0	0	1	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	0.927	0	0	0.927	0	0
51		1	Upper Roof		0	1	0	0	1	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	0.927	0	0	0.927	0	0
53		1	Upper Roof		0	1	0	0	1	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	1	0	0
55		1	Upper Roof		0	1	0	0	1	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	1	0	0
57		1	Upper Roof		0	1	0	0	1	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	4.537	1	0	0	1	0	0
59		1	Lower Roof		4.537	1	0	0	1	0	0
60	CS24	1	2nd Floor	-17.26,-86...	8.42	1	0	0	1	0	0
61		1	Lower Roof		8.42	1	0	0	1	0	0
62	CS25	1	2nd Floor	-38.442,-1...	5.999	1	0	0	1	0	0
63		1	Lower Roof		5.999	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Moment z-z (Top)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
1	(1-J)	1	2nd Floor	-38.442,-8...	9.984	1	0	0	1	0	0
2		1	Lower Roof		9.984	1	0	0	1	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	19.763	1	0	0	1	0	0
4		1	Lower Roof		19.763	1	0	0	1	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.707	0	0	0.8	0	0
6		1	Lower Roof		0	1	0	0	1	0	0
7		1	Upper Roof		0	1	0	0	1	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	0.843	0	0	0.843	0	0
9		1	Lower Roof		0	1	0	0	1	0	0
10		1	Upper Roof		0	1	0	0	1	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	0.857	0	0	0.857	0	0
12		1	Lower Roof		0	1	0	0	1	0	0
13		1	Upper Roof		0	1	0	0	1	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.674	0	0	0.8	0	0
15		1	Lower Roof		0	1	0	0	1	0	0
16		1	Upper Roof		0	1	0	0	1	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	1	0	0
18		1	Lower Roof		0	1	0	0	1	0	0
19		1	Upper Roof		0	1	0	0	1	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.614	0	0	0.8	0	0
21		1	Lower Roof		0	1	0	0	1	0	0
22		1	Upper Roof		0	1	0	0	1	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	0.908	0	0	0.908	0	0
24		1	Lower Roof		0	1	0	0	1	0	0
25		1	Upper Roof		0	1	0	0	1	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	1	0	0
27		1	Lower Roof		0	1	0	0	1	0	0
28		1	Upper Roof		0	1	0	0	1	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	1	0	0
30		1	Lower Roof		0	1	0	0	1	0	0
31		1	Upper Roof		0	1	0	0	1	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	0.911	0	0	0.911	0	0
33		1	Lower Roof		0	1	0	0	1	0	0
34		1	Upper Roof		0	1	0	0	1	0	0
35	CS17	1	2nd Floor	0.891,-86....	72.624	1	0	0	1	0	0
36		1	Lower Roof		1.413	1	0	0	1	0	0
37		1	Upper Roof		0	1	0	0	1	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.753	0	0	0.8	0	0
39		1	Lower Roof		39.448	1	0	0	1	0	0
40		1	Upper Roof		0	1	0	0	1	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	8.686	1	0	0	1	0	0
42		1	Lower Roof		8.686	1	0	0	1	0	0
43	CS23	1	2nd Floor	-4.76,-105...	19.717	1	0	0	1	0	0
44		1	Lower Roof		19.717	1	0	0	1	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	1	0	0
46		1	Lower Roof		0	1	0	0	1	0	0
47		1	Upper Roof		0	1	0	0	1	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	1	0	0
49		1	Upper Roof		0	1	0	0	1	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	0.927	0	0	0.927	0	0
51		1	Upper Roof		0	1	0	0	1	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	0.927	0	0	0.927	0	0

Column Forces/Moments, Floor Live Load : Moment z-z (Top) (Continued)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
53		1	Upper Roof		0	1	0	0	1	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	1	0	0
55		1	Upper Roof		0	1	0	0	1	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	1	0	0
57		1	Upper Roof		0	1	0	0	1	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	4.537	1	0	0	1	0	0
59		1	Lower Roof		4.537	1	0	0	1	0	0
60	CS24	1	2nd Floor	-17.26,-86...	8.42	1	0	0	1	0	0
61		1	Lower Roof		8.42	1	0	0	1	0	0
62	CS25	1	2nd Floor	-38.442,-1...	5.999	1	0	0	1	0	0
63		1	Lower Roof		5.999	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Moment y-y (Top)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
1	(1-J)	1	2nd Floor	-38.442,-8...	9.984	1	0	0	1	0	0
2		1	Lower Roof		9.984	1	0	0	1	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	19.763	1	0	0	1	0	0
4		1	Lower Roof		19.763	1	0	0	1	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.707	0	0	0.8	0	0
6		1	Lower Roof		0	1	0	0	1	0	0
7		1	Upper Roof		0	1	0	0	1	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	0.843	0	0	0.843	0	0
9		1	Lower Roof		0	1	0	0	1	0	0
10		1	Upper Roof		0	1	0	0	1	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	0.857	0	0	0.857	0	0
12		1	Lower Roof		0	1	0	0	1	0	0
13		1	Upper Roof		0	1	0	0	1	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.674	0	0	0.8	0	0
15		1	Lower Roof		0	1	0	0	1	0	0
16		1	Upper Roof		0	1	0	0	1	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	1	0	0
18		1	Lower Roof		0	1	0	0	1	0	0
19		1	Upper Roof		0	1	0	0	1	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.614	0	0	0.8	0	0
21		1	Lower Roof		0	1	0	0	1	0	0
22		1	Upper Roof		0	1	0	0	1	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	0.908	0	0	0.908	0	0
24		1	Lower Roof		0	1	0	0	1	0	0
25		1	Upper Roof		0	1	0	0	1	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	1	0	0
27		1	Lower Roof		0	1	0	0	1	0	0
28		1	Upper Roof		0	1	0	0	1	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	1	0	0
30		1	Lower Roof		0	1	0	0	1	0	0
31		1	Upper Roof		0	1	0	0	1	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	0.911	0	0	0.911	0	0
33		1	Lower Roof		0	1	0	0	1	0	0
34		1	Upper Roof		0	1	0	0	1	0	0
35	CS17	1	2nd Floor	0.891,-86....	72.624	1	0	0	1	0	0
36		1	Lower Roof		1.413	1	0	0	1	0	0
37		1	Upper Roof		0	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Moment y-y (Top) (Continued)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.753	0	0	0.8	0	0
39		1	Lower Roof		39.448	1	0	0	1	0	0
40		1	Upper Roof		0	1	0	0	1	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	8.686	1	0	0	1	0	0
42		1	Lower Roof		8.686	1	0	0	1	0	0
43	CS23	1	2nd Floor	-4.76,-105...	19.717	1	0	0	1	0	0
44		1	Lower Roof		19.717	1	0	0	1	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	1	0	0
46		1	Lower Roof		0	1	0	0	1	0	0
47		1	Upper Roof		0	1	0	0	1	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	1	0	0
49		1	Upper Roof		0	1	0	0	1	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	0.927	0	0	0.927	0	0
51		1	Upper Roof		0	1	0	0	1	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	0.927	0	0	0.927	0	0
53		1	Upper Roof		0	1	0	0	1	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	1	0	0
55		1	Upper Roof		0	1	0	0	1	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	1	0	0
57		1	Upper Roof		0	1	0	0	1	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	4.537	1	0	0	1	0	0
59		1	Lower Roof		4.537	1	0	0	1	0	0
60	CS24	1	2nd Floor	-17.26,-86...	8.42	1	0	0	1	0	0
61		1	Lower Roof		8.42	1	0	0	1	0	0
62	CS25	1	2nd Floor	-38.442,-1...	5.999	1	0	0	1	0	0
63		1	Lower Roof		5.999	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Moment z-z (Bot)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
1	(1-J)	1	2nd Floor	-38.442,-8...	9.984	1	0	0	1	0	0
2		1	Lower Roof		9.984	1	0	0	1	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	19.763	1	0	0	1	0	0
4		1	Lower Roof		19.763	1	0	0	1	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.707	0	0	0.8	0	0
6		1	Lower Roof		0	1	0	0	1	0	0
7		1	Upper Roof		0	1	0	0	1	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	0.843	0	0	0.843	0	0
9		1	Lower Roof		0	1	0	0	1	0	0
10		1	Upper Roof		0	1	0	0	1	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	0.857	0	0	0.857	0	0
12		1	Lower Roof		0	1	0	0	1	0	0
13		1	Upper Roof		0	1	0	0	1	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.674	0	0	0.8	0	0
15		1	Lower Roof		0	1	0	0	1	0	0
16		1	Upper Roof		0	1	0	0	1	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	1	0	0
18		1	Lower Roof		0	1	0	0	1	0	0
19		1	Upper Roof		0	1	0	0	1	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.614	0	0	0.8	0	0
21		1	Lower Roof		0	1	0	0	1	0	0
22		1	Upper Roof		0	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Moment z-z (Bot) (Continued)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	0.908	0	0	0.908	0	0
24		1	Lower Roof		0	1	0	0	1	0	0
25		1	Upper Roof		0	1	0	0	1	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	1	0	0
27		1	Lower Roof		0	1	0	0	1	0	0
28		1	Upper Roof		0	1	0	0	1	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	1	0	0
30		1	Lower Roof		0	1	0	0	1	0	0
31		1	Upper Roof		0	1	0	0	1	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	0.911	0	0	0.911	0	0
33		1	Lower Roof		0	1	0	0	1	0	0
34		1	Upper Roof		0	1	0	0	1	0	0
35	CS17	1	2nd Floor	0.891,-86....	72.624	1	0	0	1	0	0
36		1	Lower Roof		1.413	1	0	0	1	0	0
37		1	Upper Roof		0	1	0	0	1	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.753	0	0	0.8	0	0
39		1	Lower Roof		39.448	1	0	0	1	0	0
40		1	Upper Roof		0	1	0	0	1	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	8.686	1	0	0	1	0	0
42		1	Lower Roof		8.686	1	0	0	1	0	0
43	CS23	1	2nd Floor	-4.76,-105...	19.717	1	0	0	1	0	0
44		1	Lower Roof		19.717	1	0	0	1	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	1	0	0
46		1	Lower Roof		0	1	0	0	1	0	0
47		1	Upper Roof		0	1	0	0	1	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	1	0	0
49		1	Upper Roof		0	1	0	0	1	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	0.927	0	0	0.927	0	0
51		1	Upper Roof		0	1	0	0	1	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	0.927	0	0	0.927	0	0
53		1	Upper Roof		0	1	0	0	1	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	1	0	0
55		1	Upper Roof		0	1	0	0	1	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	1	0	0
57		1	Upper Roof		0	1	0	0	1	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	4.537	1	0	0	1	0	0
59		1	Lower Roof		4.537	1	0	0	1	0	0
60	CS24	1	2nd Floor	-17.26,-86...	8.42	1	0	0	1	0	0
61		1	Lower Roof		8.42	1	0	0	1	0	0
62	CS25	1	2nd Floor	-38.442,-1...	5.999	1	0	0	1	0	0
63		1	Lower Roof		5.999	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Moment y-y (Bot)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
1	(1-J)	1	2nd Floor	-38.442,-8...	9.984	1	0	0	1	0	0
2		1	Lower Roof		9.984	1	0	0	1	0	0
3	(1-C)	1	2nd Floor	-38.442,-1...	19.763	1	0	0	1	0	0
4		1	Lower Roof		19.763	1	0	0	1	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.707	0	0	0.8	0	0
6		1	Lower Roof		0	1	0	0	1	0	0
7		1	Upper Roof		0	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Moment y-y (Bot) (Continued)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	0.843	0	0	0.843	0	0
9		1	Lower Roof		0	1	0	0	1	0	0
10		1	Upper Roof		0	1	0	0	1	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	0.857	0	0	0.857	0	0
12		1	Lower Roof		0	1	0	0	1	0	0
13		1	Upper Roof		0	1	0	0	1	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.674	0	0	0.8	0	0
15		1	Lower Roof		0	1	0	0	1	0	0
16		1	Upper Roof		0	1	0	0	1	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	1	0	0
18		1	Lower Roof		0	1	0	0	1	0	0
19		1	Upper Roof		0	1	0	0	1	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.614	0	0	0.8	0	0
21		1	Lower Roof		0	1	0	0	1	0	0
22		1	Upper Roof		0	1	0	0	1	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	0.908	0	0	0.908	0	0
24		1	Lower Roof		0	1	0	0	1	0	0
25		1	Upper Roof		0	1	0	0	1	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	1	0	0
27		1	Lower Roof		0	1	0	0	1	0	0
28		1	Upper Roof		0	1	0	0	1	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	1	0	0
30		1	Lower Roof		0	1	0	0	1	0	0
31		1	Upper Roof		0	1	0	0	1	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	0.911	0	0	0.911	0	0
33		1	Lower Roof		0	1	0	0	1	0	0
34		1	Upper Roof		0	1	0	0	1	0	0
35	CS17	1	2nd Floor	0.891,-86....	72.624	1	0	0	1	0	0
36		1	Lower Roof		1.413	1	0	0	1	0	0
37		1	Upper Roof		0	1	0	0	1	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.753	0	0	0.8	0	0
39		1	Lower Roof		39.448	1	0	0	1	0	0
40		1	Upper Roof		0	1	0	0	1	0	0
41	(F-1)	1	2nd Floor	-38.442,-1...	8.686	1	0	0	1	0	0
42		1	Lower Roof		8.686	1	0	0	1	0	0
43	CS23	1	2nd Floor	-4.76,-105...	19.717	1	0	0	1	0	0
44		1	Lower Roof		19.717	1	0	0	1	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	1	0	0
46		1	Lower Roof		0	1	0	0	1	0	0
47		1	Upper Roof		0	1	0	0	1	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	1	0	0
49		1	Upper Roof		0	1	0	0	1	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	0.927	0	0	0.927	0	0
51		1	Upper Roof		0	1	0	0	1	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	0.927	0	0	0.927	0	0
53		1	Upper Roof		0	1	0	0	1	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	1	0	0
55		1	Upper Roof		0	1	0	0	1	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	1	0	0
57		1	Upper Roof		0	1	0	0	1	0	0
58	CS23_2	1	2nd Floor	-4.76,-86....	4.537	1	0	0	1	0	0
59		1	Lower Roof		4.537	1	0	0	1	0	0

Column Forces/Moments, Floor Live Load : Moment y-y (Bot) (Continued)

	Column Stack	Lift No.	Floor Label	Coordinate...	Reducible ...	LL Reduce	NonReduc...	LL[k] (unr...	LLS Reduce	NonReduc...	LLS[k] (un...
60	CS24	1	2nd Floor	-17.26,-86...	8.42	1	0	0	1	0	0
61		1	Lower Roof		8.42	1	0	0	1	0	0
62	CS25	1	2nd Floor	-38.442,-1...	5.999	1	0	0	1	0	0
63		1	Lower Roof		5.999	1	0	0	1	0	0

Column Forces/Moments, Roof Load : Axial Force

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
1	(1-J)	1	2nd Floor	-38.442,-...	9.984	1	0	0	1.943	0	0
2		1	Lower Roof		9.984	1	0	0	1.943	0	0
3	(1-C)	1	2nd Floor	-38.442,-...	19.763	1	0	0	9.153	0	0
4		1	Lower Roof		19.763	1	0	0	9.153	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.93	0	0	9.859	0	0
6		1	Lower Roof		0	1	0	0	9.859	0	0
7		1	Upper Roof		0	1	0	0	9.859	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	1	0	0	6.121	0	0
9		1	Lower Roof		0	1	0	0	6.121	0	0
10		1	Upper Roof		0	1	0	0	6.121	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	1	0	0	7.776	0	0
12		1	Lower Roof		0	1	0	0	7.776	0	0
13		1	Upper Roof		0	1	0	0	7.776	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.887	0	0	13.761	0	0
15		1	Lower Roof		0	1	0	0	13.761	0	0
16		1	Upper Roof		0	1	0	0	13.761	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	2.374	0	0
18		1	Lower Roof		0	1	0	0	2.374	0	0
19		1	Upper Roof		0	1	0	0	2.374	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.775	0	0	13.612	0	0
21		1	Lower Roof		0	1	0	0	13.612	0	0
22		1	Upper Roof		0	1	0	0	13.612	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	1	0	0	5.023	0	0
24		1	Lower Roof		0	1	0	0	5.023	0	0
25		1	Upper Roof		0	1	0	0	5.023	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	3.258	0	0
27		1	Lower Roof		0	1	0	0	3.258	0	0
28		1	Upper Roof		0	1	0	0	3.258	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	2.182	0	0
30		1	Lower Roof		0	1	0	0	2.182	0	0
31		1	Upper Roof		0	1	0	0	2.182	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	1	0	0	5.926	0	0
33		1	Lower Roof		0	1	0	0	5.926	0	0
34		1	Upper Roof		0	1	0	0	5.926	0	0
35	CS17	1	2nd Floor	0.891,-86...	72.624	1	0	0	4.276	0	0
36		1	Lower Roof		1.413	1	0	0	4.276	0	0
37		1	Upper Roof		0	1	0	0	4.276	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.977	0	0	15.661	0	0
39		1	Lower Roof		39.448	1	0	0	15.661	0	0
40		1	Upper Roof		0	1	0	0	7.82	0	0
41	(F-1)	1	2nd Floor	-38.442,-...	8.686	1	0	0	5.371	0	0
42		1	Lower Roof		8.686	1	0	0	5.371	0	0
43	CS23	1	2nd Floor	-4.76,-10...	19.717	1	0	0	10.958	0	0
44		1	Lower Roof		19.717	1	0	0	10.958	0	0

Column Forces/Moments, Roof Load : Axial Force (Continued)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	2.382	0	0
46		1	Lower Roof		0	1	0	0	2.382	0	0
47		1	Upper Roof		0	1	0	0	2.382	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	2.763	0	0
49		1	Upper Roof		0	1	0	0	2.763	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	1	0	0	4.068	0	0
51		1	Upper Roof		0	1	0	0	4.068	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	1	0	0	4.457	0	0
53		1	Upper Roof		0	1	0	0	4.457	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	1.422	0	0
55		1	Upper Roof		0	1	0	0	1.422	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	1.322	0	0
57		1	Upper Roof		0	1	0	0	1.322	0	0
58	CS23_2	1	2nd Floor	-4.76,-86...	4.537	1	0	0	2.533	0	0
59		1	Lower Roof		4.537	1	0	0	2.533	0	0
60	CS24	1	2nd Floor	-17.26,-8...	8.42	1	0	0	2.717	0	0
61		1	Lower Roof		8.42	1	0	0	2.717	0	0
62	CS25	1	2nd Floor	-38.442,-...	5.999	1	0	0	1.49	0	0
63		1	Lower Roof		5.999	1	0	0	1.49	0	0

Column Forces/Moments, Roof Load : Shear z-z

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
1	(1-J)	1	2nd Floor	-38.442,-...	9.984	1	0	0	0	0	0
2		1	Lower Roof		9.984	1	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-...	19.763	1	0	0	0	0	0
4		1	Lower Roof		19.763	1	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.93	0	0	0	0	0
6		1	Lower Roof		0	1	0	0	0	0	0
7		1	Upper Roof		0	1	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	1	0	0	0	0	0
9		1	Lower Roof		0	1	0	0	0	0	0
10		1	Upper Roof		0	1	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	1	0	0	0	0	0
12		1	Lower Roof		0	1	0	0	0	0	0
13		1	Upper Roof		0	1	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.887	0	0	0	0	0
15		1	Lower Roof		0	1	0	0	0	0	0
16		1	Upper Roof		0	1	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	0	0	0
18		1	Lower Roof		0	1	0	0	0	0	0
19		1	Upper Roof		0	1	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.775	0	0	0	0	0
21		1	Lower Roof		0	1	0	0	0	0	0
22		1	Upper Roof		0	1	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	1	0	0	0	0	0
24		1	Lower Roof		0	1	0	0	0	0	0
25		1	Upper Roof		0	1	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	0	0	0
27		1	Lower Roof		0	1	0	0	0	0	0
28		1	Upper Roof		0	1	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Shear z-z (Continued)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
30		1	Lower Roof		0	1	0	0	0	0	0
31		1	Upper Roof		0	1	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	1	0	0	0	0	0
33		1	Lower Roof		0	1	0	0	0	0	0
34		1	Upper Roof		0	1	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86...	72.624	1	0	0	0	0	0
36		1	Lower Roof		1.413	1	0	0	0	0	0
37		1	Upper Roof		0	1	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.977	0	0	0	0	0
39		1	Lower Roof		39.448	1	0	0	0	0	0
40		1	Upper Roof		0	1	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-...	8.686	1	0	0	0	0	0
42		1	Lower Roof		8.686	1	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-10...	19.717	1	0	0	0	0	0
44		1	Lower Roof		19.717	1	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	0	0	0
46		1	Lower Roof		0	1	0	0	0	0	0
47		1	Upper Roof		0	1	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	0	0	0
49		1	Upper Roof		0	1	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	1	0	0	0	0	0
51		1	Upper Roof		0	1	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	1	0	0	0	0	0
53		1	Upper Roof		0	1	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	0	0	0
55		1	Upper Roof		0	1	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	0	0	0
57		1	Upper Roof		0	1	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86...	4.537	1	0	0	0	0	0
59		1	Lower Roof		4.537	1	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-8...	8.42	1	0	0	0	0	0
61		1	Lower Roof		8.42	1	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-...	5.999	1	0	0	0	0	0
63		1	Lower Roof		5.999	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Shear y-y

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
1	(1-J)	1	2nd Floor	-38.442,-...	9.984	1	0	0	0	0	0
2		1	Lower Roof		9.984	1	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-...	19.763	1	0	0	0	0	0
4		1	Lower Roof		19.763	1	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.93	0	0	0	0	0
6		1	Lower Roof		0	1	0	0	0	0	0
7		1	Upper Roof		0	1	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	1	0	0	0	0	0
9		1	Lower Roof		0	1	0	0	0	0	0
10		1	Upper Roof		0	1	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	1	0	0	0	0	0
12		1	Lower Roof		0	1	0	0	0	0	0
13		1	Upper Roof		0	1	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.887	0	0	0	0	0

Column Forces/Moments, Roof Load : Shear y-y (Continued)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
15		1	Lower Roof		0	1	0	0	0	0	0
16		1	Upper Roof		0	1	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	0	0	0
18		1	Lower Roof		0	1	0	0	0	0	0
19		1	Upper Roof		0	1	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.775	0	0	0	0	0
21		1	Lower Roof		0	1	0	0	0	0	0
22		1	Upper Roof		0	1	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	1	0	0	0	0	0
24		1	Lower Roof		0	1	0	0	0	0	0
25		1	Upper Roof		0	1	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	0	0	0
27		1	Lower Roof		0	1	0	0	0	0	0
28		1	Upper Roof		0	1	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	0	0	0
30		1	Lower Roof		0	1	0	0	0	0	0
31		1	Upper Roof		0	1	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	1	0	0	0	0	0
33		1	Lower Roof		0	1	0	0	0	0	0
34		1	Upper Roof		0	1	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86...	72.624	1	0	0	0	0	0
36		1	Lower Roof		1.413	1	0	0	0	0	0
37		1	Upper Roof		0	1	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.977	0	0	0	0	0
39		1	Lower Roof		39.448	1	0	0	0	0	0
40		1	Upper Roof		0	1	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-...	8.686	1	0	0	0	0	0
42		1	Lower Roof		8.686	1	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-10...	19.717	1	0	0	0	0	0
44		1	Lower Roof		19.717	1	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	0	0	0
46		1	Lower Roof		0	1	0	0	0	0	0
47		1	Upper Roof		0	1	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	0	0	0
49		1	Upper Roof		0	1	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	1	0	0	0	0	0
51		1	Upper Roof		0	1	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	1	0	0	0	0	0
53		1	Upper Roof		0	1	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	0	0	0
55		1	Upper Roof		0	1	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	0	0	0
57		1	Upper Roof		0	1	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86...	4.537	1	0	0	0	0	0
59		1	Lower Roof		4.537	1	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-8...	8.42	1	0	0	0	0	0
61		1	Lower Roof		8.42	1	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-...	5.999	1	0	0	0	0	0
63		1	Lower Roof		5.999	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Moment z-z (Top)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
1	(1-J)	1	2nd Floor	-38.442,-...	9.984	1	0	0	0	0	0
2		1	Lower Roof		9.984	1	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-...	19.763	1	0	0	0	0	0
4		1	Lower Roof		19.763	1	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.93	0	0	0	0	0
6		1	Lower Roof		0	1	0	0	0	0	0
7		1	Upper Roof		0	1	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	1	0	0	0	0	0
9		1	Lower Roof		0	1	0	0	0	0	0
10		1	Upper Roof		0	1	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	1	0	0	0	0	0
12		1	Lower Roof		0	1	0	0	0	0	0
13		1	Upper Roof		0	1	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.887	0	0	0	0	0
15		1	Lower Roof		0	1	0	0	0	0	0
16		1	Upper Roof		0	1	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	0	0	0
18		1	Lower Roof		0	1	0	0	0	0	0
19		1	Upper Roof		0	1	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.775	0	0	0	0	0
21		1	Lower Roof		0	1	0	0	0	0	0
22		1	Upper Roof		0	1	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	1	0	0	0	0	0
24		1	Lower Roof		0	1	0	0	0	0	0
25		1	Upper Roof		0	1	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	0	0	0
27		1	Lower Roof		0	1	0	0	0	0	0
28		1	Upper Roof		0	1	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	0	0	0
30		1	Lower Roof		0	1	0	0	0	0	0
31		1	Upper Roof		0	1	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	1	0	0	0	0	0
33		1	Lower Roof		0	1	0	0	0	0	0
34		1	Upper Roof		0	1	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86...	72.624	1	0	0	0	0	0
36		1	Lower Roof		1.413	1	0	0	0	0	0
37		1	Upper Roof		0	1	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.977	0	0	0	0	0
39		1	Lower Roof		39.448	1	0	0	0	0	0
40		1	Upper Roof		0	1	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-...	8.686	1	0	0	0	0	0
42		1	Lower Roof		8.686	1	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-10...	19.717	1	0	0	0	0	0
44		1	Lower Roof		19.717	1	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	0	0	0
46		1	Lower Roof		0	1	0	0	0	0	0
47		1	Upper Roof		0	1	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	0	0	0
49		1	Upper Roof		0	1	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	1	0	0	0	0	0
51		1	Upper Roof		0	1	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Moment z-z (Top) (Continued)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
53		1	Upper Roof		0	1	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	0	0	0
55		1	Upper Roof		0	1	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	0	0	0
57		1	Upper Roof		0	1	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86...	4.537	1	0	0	0	0	0
59		1	Lower Roof		4.537	1	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-8...	8.42	1	0	0	0	0	0
61		1	Lower Roof		8.42	1	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-...	5.999	1	0	0	0	0	0
63		1	Lower Roof		5.999	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Moment y-y (Top)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
1	(1-J)	1	2nd Floor	-38.442,-...	9.984	1	0	0	0	0	0
2		1	Lower Roof		9.984	1	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-...	19.763	1	0	0	0	0	0
4		1	Lower Roof		19.763	1	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.93	0	0	0	0	0
6		1	Lower Roof		0	1	0	0	0	0	0
7		1	Upper Roof		0	1	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	1	0	0	0	0	0
9		1	Lower Roof		0	1	0	0	0	0	0
10		1	Upper Roof		0	1	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	1	0	0	0	0	0
12		1	Lower Roof		0	1	0	0	0	0	0
13		1	Upper Roof		0	1	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.887	0	0	0	0	0
15		1	Lower Roof		0	1	0	0	0	0	0
16		1	Upper Roof		0	1	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	0	0	0
18		1	Lower Roof		0	1	0	0	0	0	0
19		1	Upper Roof		0	1	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.775	0	0	0	0	0
21		1	Lower Roof		0	1	0	0	0	0	0
22		1	Upper Roof		0	1	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	1	0	0	0	0	0
24		1	Lower Roof		0	1	0	0	0	0	0
25		1	Upper Roof		0	1	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	0	0	0
27		1	Lower Roof		0	1	0	0	0	0	0
28		1	Upper Roof		0	1	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	0	0	0
30		1	Lower Roof		0	1	0	0	0	0	0
31		1	Upper Roof		0	1	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	1	0	0	0	0	0
33		1	Lower Roof		0	1	0	0	0	0	0
34		1	Upper Roof		0	1	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86...	72.624	1	0	0	0	0	0
36		1	Lower Roof		1.413	1	0	0	0	0	0
37		1	Upper Roof		0	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Moment y-y (Top) (Continued)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.977	0	0	0	0	0
39		1	Lower Roof		39.448	1	0	0	0	0	0
40		1	Upper Roof		0	1	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-...	8.686	1	0	0	0	0	0
42		1	Lower Roof		8.686	1	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-10...	19.717	1	0	0	0	0	0
44		1	Lower Roof		19.717	1	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	0	0	0
46		1	Lower Roof		0	1	0	0	0	0	0
47		1	Upper Roof		0	1	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	0	0	0
49		1	Upper Roof		0	1	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	1	0	0	0	0	0
51		1	Upper Roof		0	1	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	1	0	0	0	0	0
53		1	Upper Roof		0	1	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	0	0	0
55		1	Upper Roof		0	1	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	0	0	0
57		1	Upper Roof		0	1	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86...	4.537	1	0	0	0	0	0
59		1	Lower Roof		4.537	1	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-8...	8.42	1	0	0	0	0	0
61		1	Lower Roof		8.42	1	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-...	5.999	1	0	0	0	0	0
63		1	Lower Roof		5.999	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Moment z-z (Bot)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
1	(1-J)	1	2nd Floor	-38.442,-...	9.984	1	0	0	0	0	0
2		1	Lower Roof		9.984	1	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-...	19.763	1	0	0	0	0	0
4		1	Lower Roof		19.763	1	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.93	0	0	0	0	0
6		1	Lower Roof		0	1	0	0	0	0	0
7		1	Upper Roof		0	1	0	0	0	0	0
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	1	0	0	0	0	0
9		1	Lower Roof		0	1	0	0	0	0	0
10		1	Upper Roof		0	1	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	1	0	0	0	0	0
12		1	Lower Roof		0	1	0	0	0	0	0
13		1	Upper Roof		0	1	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.887	0	0	0	0	0
15		1	Lower Roof		0	1	0	0	0	0	0
16		1	Upper Roof		0	1	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	0	0	0
18		1	Lower Roof		0	1	0	0	0	0	0
19		1	Upper Roof		0	1	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.775	0	0	0	0	0
21		1	Lower Roof		0	1	0	0	0	0	0
22		1	Upper Roof		0	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Moment z-z (Bot) (Continued)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu..	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	1	0	0	0	0	0
24		1	Lower Roof		0	1	0	0	0	0	0
25		1	Upper Roof		0	1	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	0	0	0
27		1	Lower Roof		0	1	0	0	0	0	0
28		1	Upper Roof		0	1	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	0	0	0
30		1	Lower Roof		0	1	0	0	0	0	0
31		1	Upper Roof		0	1	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	1	0	0	0	0	0
33		1	Lower Roof		0	1	0	0	0	0	0
34		1	Upper Roof		0	1	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86...	72.624	1	0	0	0	0	0
36		1	Lower Roof		1.413	1	0	0	0	0	0
37		1	Upper Roof		0	1	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.977	0	0	0	0	0
39		1	Lower Roof		39.448	1	0	0	0	0	0
40		1	Upper Roof		0	1	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-...	8.686	1	0	0	0	0	0
42		1	Lower Roof		8.686	1	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-10...	19.717	1	0	0	0	0	0
44		1	Lower Roof		19.717	1	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	0	0	0
46		1	Lower Roof		0	1	0	0	0	0	0
47		1	Upper Roof		0	1	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	0	0	0
49		1	Upper Roof		0	1	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	1	0	0	0	0	0
51		1	Upper Roof		0	1	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	1	0	0	0	0	0
53		1	Upper Roof		0	1	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	0	0	0
55		1	Upper Roof		0	1	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	0	0	0
57		1	Upper Roof		0	1	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86...	4.537	1	0	0	0	0	0
59		1	Lower Roof		4.537	1	0	0	0	0	0
60	CS24	1	2nd Floor	-17.26,-8...	8.42	1	0	0	0	0	0
61		1	Lower Roof		8.42	1	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-...	5.999	1	0	0	0	0	0
63		1	Lower Roof		5.999	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Moment y-y (Bot)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu..	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
1	(1-J)	1	2nd Floor	-38.442,-...	9.984	1	0	0	0	0	0
2		1	Lower Roof		9.984	1	0	0	0	0	0
3	(1-C)	1	2nd Floor	-38.442,-...	19.763	1	0	0	0	0	0
4		1	Lower Roof		19.763	1	0	0	0	0	0
5	(4-C)	1	2nd Floor	34.391,-1...	269.718	0.93	0	0	0	0	0
6		1	Lower Roof		0	1	0	0	0	0	0
7		1	Upper Roof		0	1	0	0	0	0	0

Column Forces/Moments, Roof Load : Moment y-y (Bot) (Continued)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
8	(11-A)	1	2nd Floor	83.141,-1...	159.8	1	0	0	0	0	0
9		1	Lower Roof		0	1	0	0	0	0	0
10		1	Upper Roof		0	1	0	0	0	0	0
11	(8-A)	1	2nd Floor	59.641,-1...	152.835	1	0	0	0	0	0
12		1	Lower Roof		0	1	0	0	0	0	0
13		1	Upper Roof		0	1	0	0	0	0	0
14	CS7	1	2nd Floor	83.141,-1...	313.144	0.887	0	0	0	0	0
15		1	Lower Roof		0	1	0	0	0	0	0
16		1	Upper Roof		0	1	0	0	0	0	0
17	(10-M)	1	2nd Floor	81.141,-7...	23.665	1	0	0	0	0	0
18		1	Lower Roof		0	1	0	0	0	0	0
19		1	Upper Roof		0	1	0	0	0	0	0
20	(10-G)	1	2nd Floor	81.141,-9...	424.55	0.775	0	0	0	0	0
21		1	Lower Roof		0	1	0	0	0	0	0
22		1	Upper Roof		0	1	0	0	0	0	0
23	(7-M)	1	2nd Floor	52.808,-7...	129.804	1	0	0	0	0	0
24		1	Lower Roof		0	1	0	0	0	0	0
25		1	Upper Roof		0	1	0	0	0	0	0
26	CS13	1	2nd Floor	41.474,-7...	60.761	1	0	0	0	0	0
27		1	Lower Roof		0	1	0	0	0	0	0
28		1	Upper Roof		0	1	0	0	0	0	0
29	CS14	1	2nd Floor	41.474,-8...	38.735	1	0	0	0	0	0
30		1	Lower Roof		0	1	0	0	0	0	0
31		1	Upper Roof		0	1	0	0	0	0	0
32	(3-K)	1	2nd Floor	26.141,-8...	128.656	1	0	0	0	0	0
33		1	Lower Roof		0	1	0	0	0	0	0
34		1	Upper Roof		0	1	0	0	0	0	0
35	CS17	1	2nd Floor	0.891,-86...	72.624	1	0	0	0	0	0
36		1	Lower Roof		1.413	1	0	0	0	0	0
37		1	Upper Roof		0	1	0	0	0	0	0
38	(2-C)	1	2nd Floor	0.891,-12...	222.602	0.977	0	0	0	0	0
39		1	Lower Roof		39.448	1	0	0	0	0	0
40		1	Upper Roof		0	1	0	0	0	0	0
41	(F-1)	1	2nd Floor	-38.442,-...	8.686	1	0	0	0	0	0
42		1	Lower Roof		8.686	1	0	0	0	0	0
43	CS23	1	2nd Floor	-4.76,-10...	19.717	1	0	0	0	0	0
44		1	Lower Roof		19.717	1	0	0	0	0	0
45	(B-5)	1	2nd Floor	41.141,-1...	49.437	1	0	0	0	0	0
46		1	Lower Roof		0	1	0	0	0	0	0
47		1	Upper Roof		0	1	0	0	0	0	0
48	CS19	1	2nd Floor	31.804,-8...	54.794	1	0	0	0	0	0
49		1	Upper Roof		0	1	0	0	0	0	0
50	CS20	1	2nd Floor	62.252,-7...	122.771	1	0	0	0	0	0
51		1	Upper Roof		0	1	0	0	0	0	0
52	CS21	1	2nd Floor	71.681,-7...	122.58	1	0	0	0	0	0
53		1	Upper Roof		0	1	0	0	0	0	0
54	CS22	1	2nd Floor	81.141,-7...	44.18	1	0	0	0	0	0
55		1	Upper Roof		0	1	0	0	0	0	0
56	CS23_1	1	2nd Floor	81.141,-8...	44.173	1	0	0	0	0	0
57		1	Upper Roof		0	1	0	0	0	0	0
58	CS23_2	1	2nd Floor	-4.76,-86...	4.537	1	0	0	0	0	0
59		1	Lower Roof		4.537	1	0	0	0	0	0

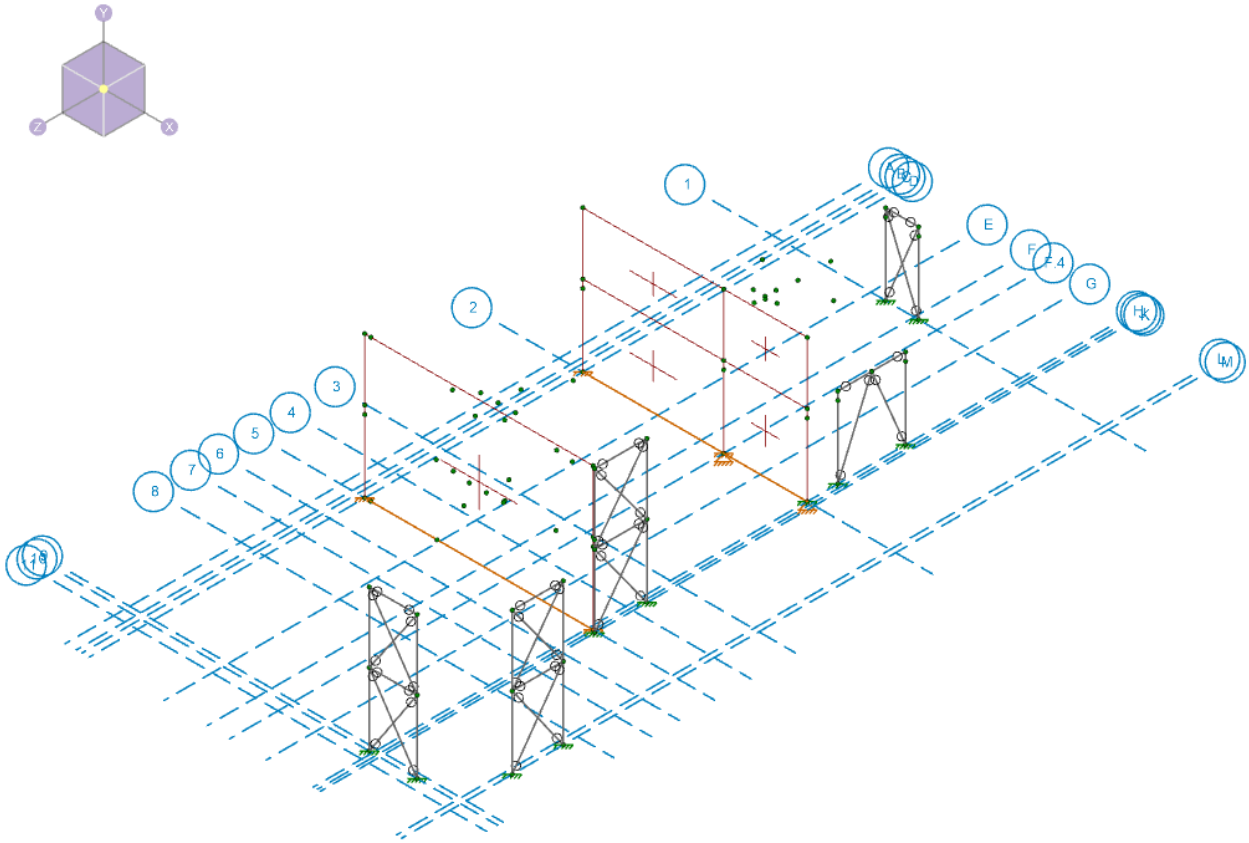
Column Forces/Moments, Roof Load : Moment y-y (Bot) (Continued)

	Column Sta...	Lift No.	Floor Label	Coordinat...	Reducible Area[ft^2]	RLL Redu...	NonRedu...	RLL[k] (u...	SL[k]	SLN[k]	RL[k]
60	CS24	1	2nd Floor	-17.26,-8...	8.42	1	0	0	0	0	0
61		1	Lower Roof		8.42	1	0	0	0	0	0
62	CS25	1	2nd Floor	-38.442,-...	5.999	1	0	0	0	0	0
63		1	Lower Roof		5.999	1	0	0	0	0	0

Hot Rolled Steel Column Code Checks

	Stack	Lift	Shape	Code C...	Elev[...	LC	She...	Elev[ft]	Dir	LC	Pnc/om [k]	Pnt/om...	Mnyy/...	Mnzz/o...	Cb	AISC13th Eqn
1	(1-J)	1	HSS4X4X6	0.264	13.2...	4	0	14.833		9	48.865	131.665	14.668	14.668	1	H1-1a
2	(1-C)	1	HSS4X4X6	0.309	13.2...	6	0	14.833		9	48.865	131.665	14.668	14.668	1	H1-1a
3	(4-C)	1	HSS4X4X6	0.672	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1a
4	(11-A)	1	HSS4X4X6	0.397	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1a
5	(8-A)	1	HSS4X4X6	0.424	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1a
6	CS7	1	HSS4X4X6	0.83	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1a
7	(10-M)	1	HSS4X4X6	0.097	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1b*
8	(10-G)	1	HSS4X4X6	0.996	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1a
9	(7-M)	1	HSS4X4X6	0.335	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1a
10	CS13	1	HSS4X4X6	0.177	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1b*
11	CS14	1	HSS4X4X6	0.119	13.1...	8	0	26.217		9	59.212	131.665	14.668	14.668	1	H1-1b*
12	(3-K)	1	HSS4X4X6	0.344	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1a
13	CS17	1	HSS4X4X6	0.221	13.1...	8	0	26.217		9	59.212	131.665	14.668	14.668	1	H1-1a
14	(2-C)	1	HSS4X4X6	0.696	13.1...	8	0	26.217		8	59.212	131.665	14.668	14.668	1	H1-1a
15	(F-1)	1	HSS4X4X6	0.561	13.2...	8	0	14.833		9	48.865	131.665	14.668	14.668	1	H1-1a
16	CS23	1	HSS4X4X6	0.512	13.2...	8	0	14.833		9	48.865	131.665	14.668	14.668	1	H1-1a
17	(B-5)	1	HSS4X4X6	0.146	13.1...	8	0	26.217		4	59.212	131.665	14.668	14.668	1	H1-1b*
18	CS19	1	HSS4X4X6	0.159	13.1...	8	0	26.217		4	59.216	131.672	14.668	14.668	1	H1-1b*
19	CS20	1	HSS4X4X6	0.304	13.1...	8	0	26.217		4	59.216	131.672	14.668	14.668	1	H1-1a
20	CS21	1	HSS4X4X6	0.31	13.1...	8	0	26.217		9	59.216	131.672	14.668	14.668	1	H1-1a
21	CS22	1	HSS4X4X6	0.111	13.1...	8	0	26.217		4	59.216	131.672	14.668	14.668	1	H1-1b*
22	CS2...	1	HSS4X4X6	0.109	13.1...	8	0	26.217		4	59.216	131.672	14.668	14.668	1	H1-1b*
23	CS2...	1	HSS4X4X6	0.184	13.2...	8	0	14.833		9	48.868	131.672	14.668	14.668	1	H1-1b*
24	CS24	1	HSS4X4X6	0.337	13.2...	4	0	14.833		9	48.868	131.672	14.668	14.668	1	H1-1a
25	CS25	1	HSS4X4X6	0.067	13.2...	8	0	14.833		9	48.868	131.672	14.668	14.668	1	H1-1b*

4.0 - LATERAL DESIGN


Y
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Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	CS14_L1	N64	F1_REV_N12	HSS4X4X6	Column	None	REV ASTM A500 B-RS	Column
2	(F-1)_L1	N136A	F3_REV_N20	HSS4X4X6	Column	None	REV ASTM A500 B-RS	Column
3	F1_M77	F1_N120	F1_REV_N12	W12X14	Beam	Wide Flange	A992	Beam
4	F1_M79	F1_N121	F1_N122	W12X14	Beam	Wide Flange	A992	Beam
5	F1_M82	F1_N123	F1_N124	W12X14	Beam	Wide Flange	A992	Beam
6	F3_M20	F3_REV_N75	F3_N149	W12X14	Beam	Wide Flange	A992	Beam
7	F3_M23	F3_N150	F3_REV_N20	W12X14	Beam	Wide Flange	A992	Beam
8	F2_M54	F2_N164	F2_REV_N14	W12X14	Beam	Wide Flange	A992	Beam
9	F2_M56	F2_N139	F2_N166	W12X14	Beam	Wide Flange	A992	Beam
10	F2_M59	F2_N167	F2_N168	W12X14	Beam	Wide Flange	A992	Beam
11	CS19_L1	N138	F1_N120	HSS4X4X6	Column	None	Steel ASTM A500, Grade B, Round	Column
12	CS20_L1	N140	F1_N121	HSS4X4X6	Column	None	Steel ASTM A500, Grade B, Round	Column
13	CS21_L1	N142	F1_N122	HSS4X4X6	Column	None	Steel ASTM A500, Grade B, Round	Column
14	CS22_L1	N144	F1_N123	HSS4X4X6	Column	None	Steel ASTM A500, Grade B, Round	Column
15	CS23_1_L1	N146	F1_N124	HSS4X4X6	Column	None	Steel ASTM A500, Grade B, Round	Column
16	CS23_2_L1	N148	F3_REV_N75	HSS4X4X6	Column	None	Steel ASTM A500, Grade B, Round	Column
17	CS24_L1	N150	F3_N149	HSS4X4X6	Column	None	Steel ASTM A500, Grade B, Round	Column
18	CS25_L1	N152	F3_N150	HSS4X4X6	Column	None	Steel ASTM A500, Grade B, Round	Column
19	M19	F3_N150	N136A	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
20	M20	F3_REV_N20	N152	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
21	M21	N148	N97	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
22	M22	N97	N150	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
23	M23	F1_REV_N12	F2_N164	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
24	M24	F2_N164	N64	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
25	M25	F1_N120	F2_REV_N14	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
26	M26	F2_REV_N14	N138	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
27	M27	F1_N121	F2_N166	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
28	M28	F2_N166	N140	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
29	M29	F1_N122	F2_N139	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
30	M30	F2_N139	N142	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
31	M31	F1_N124	F2_N167	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
32	M32	F2_N167	N146	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
33	M33	F1_N123	F2_N168	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column
34	M34	F2_N168	N144	BRACE	HBrace	SquareTube	A500 Gr.B Rect	Column

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	Function
1	CS14_L1	HSS4X4X6	26.217	Floor	Floor	Floor	Floor	Floor	Lateral
2	(F-1)_L1	HSS4X4X6	14.833	Floor	Floor	Floor	Floor	Floor	Lateral
3	F1_M77	W12X14	9.67			Floor			Lateral
4	F1_M79	W12X14	9.429			Floor			Lateral
5	F1_M82	W12X14	8.837			Floor			Lateral
6	F3_M20	W12X14	12.5			Floor			Lateral
7	F3_M23	W12X14	6.083			Floor			Lateral
8	F2_M54	W12X14	9.67			Floor			Lateral
9	F2_M56	W12X14	9.429			Floor			Lateral
10	F2_M59	W12X14	8.837			Floor			Lateral
11	CS19_L1	HSS4X4X6	26.217	Floor	Floor	Floor	Floor	Floor	Lateral
12	CS20_L1	HSS4X4X6	26.217	Floor	Floor	Floor	Floor	Floor	Lateral
13	CS21_L1	HSS4X4X6	26.217	Floor	Floor	Floor	Floor	Floor	Lateral
14	CS22_L1	HSS4X4X6	26.217	Floor	Floor	Floor	Floor	Floor	Lateral
15	CS23_1_L1	HSS4X4X6	26.217	Floor	Floor	Floor	Floor	Floor	Lateral
16	CS23_2_L1	HSS4X4X6	14.833	Floor	Floor	Floor	Floor	Floor	Lateral
17	CS24_L1	HSS4X4X6	14.833	Floor	Floor	Floor	Floor	Floor	Lateral
18	CS25_L1	HSS4X4X6	14.833	Floor	Floor	Floor	Floor	Floor	Lateral
19	M19	BRACE	16.032						Lateral
20	M20	BRACE	16.032						Lateral
21	M21	BRACE	16.096						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lb y-y [ft]	Lb z-z [ft]	Lcomp top [ft]	Lcomp bot [ft]	L-Torque [ft]	Function
22	M22	BRACE	16.096						Lateral
23	M23	BRACE	16.109						Lateral
24	M24	BRACE	16.471						Lateral
25	M25	BRACE	16.109						Lateral
26	M26	BRACE	16.471						Lateral
27	M27	BRACE	15.966						Lateral
28	M28	BRACE	16.33						Lateral
29	M29	BRACE	15.966						Lateral
30	M30	BRACE	16.33						Lateral
31	M31	BRACE	15.623						Lateral
32	M32	BRACE	15.996						Lateral
33	M33	BRACE	15.623						Lateral
34	M34	BRACE	15.996						Lateral

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
1	CS14_L1	1	max	31.018	11	0.006	8	0.023	17	0.004	16	0.269	47	0.066	8
2			min	-26.558	53	-0.006	50	-0.022	47	-0.004	46	-0.276	17	-0.063	50
3		2	max	30.911	11	0.006	8	0.023	17	0.004	16	0.126	47	0.024	8
4			min	-26.622	53	-0.006	50	-0.022	47	-0.004	46	-0.129	17	-0.021	50
5		3	max	30.804	11	0.006	8	0.023	17	0.004	16	0.019	17	0.022	14
6			min	-26.686	53	-0.006	50	-0.022	47	-0.004	46	-0.017	47	-0.019	44
7		4	max	7.58	11	0.002	14	0.002	47	0.005	52	0.012	17	0.008	14
8			min	-6.202	53	-0.001	44	-0.002	17	-0.005	10	-0.012	47	-0.007	44
9		5	max	7.474	11	0.002	14	0.002	47	0.005	52	0	91	0.002	44
10			min	-6.266	53	-0.001	44	-0.002	17	-0.005	10	0	1	-0.002	14
11	(F-1)_L1	1	max	26.627	41	0.011	17	0.017	53	0.018	17	0.243	47	0.181	17
12			min	-4.021	47	-0.009	47	-0.018	47	-0.013	47	-0.249	17	-0.139	47
13		2	max	26.566	41	0.011	17	0.017	53	0.018	17	0.178	47	0.139	17
14			min	-4.057	47	-0.009	47	-0.018	47	-0.013	47	-0.186	17	-0.103	47
15		3	max	26.506	41	0.011	17	0.017	53	0.018	17	0.112	47	0.099	41
16			min	-4.093	47	-0.009	47	-0.018	47	-0.013	47	-0.123	17	-0.068	47
17		4	max	26.446	41	0.011	17	0.017	53	0.018	17	0.047	11	0.06	41
18			min	-4.129	47	-0.009	47	-0.018	47	-0.013	47	-0.061	17	-0.033	47
19		5	max	26.385	41	0.025	41	0.028	17	0.018	17	0.019	17	0	91
20			min	-4.166	47	-0.008	11	-0.017	11	-0.013	47	-0.016	47	0	1
21	F1_M77	1	max	0	91	2.403	6	0	91	0	10	0	91	0	91
22			min	0	1	0	2	0	1	0	52	0	1	0	1
23		2	max	0	91	2.268	6	0	91	0	10	0	91	0	2
24			min	0	1	0	2	0	1	0	52	0	1	-5.646	6
25		3	max	0	91	0	2	0	91	0	10	0	91	0	2
26			min	0	1	-0.776	6	0	1	0	52	0	1	-4.428	6
27		4	max	0	91	0	2	0	91	0	10	0	91	0	2
28			min	0	1	-0.911	6	0	1	0	52	0	1	-2.388	6
29		5	max	0	91	0	2	0	91	0	10	0	91	0	91
30			min	0	1	-1.111	6	0	1	0	52	0	1	0	1
31	F1_M79	1	max	0	91	3.195	6	0	91	0	10	0	91	0	91
32			min	0	1	0	2	0	1	0	52	0	1	0	1
33		2	max	0	91	3.064	6	0	91	0	10	0	91	0	2
34			min	0	1	0	2	0	1	0	52	0	1	-7.377	6
35		3	max	0	91	0	2	0	91	0	10	0	91	0	2
36			min	0	1	-0.693	6	0	1	0	52	0	1	-7.825	6
37		4	max	0	91	0	2	0	91	0	10	0	91	0	2
38			min	0	1	-0.825	6	0	1	0	52	0	1	-6.036	6
39		5	max	0	91	0	2	0	91	0	10	0	91	0	6
40			min	0	1	-4.742	6	0	1	0	52	0	1	0	2
41	F1_M82	1	max	0	91	0.994	6	0	91	0	10	0	91	0	91
42			min	0	1	0	2	0	1	0	52	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
43		2	max	0	91	0.497	6	0	91	0	10	0	91	0	2
44			min	0	1	0	2	0	1	0	52	0	1	-1.647	6
45		3	max	0	91	0	91	0	91	0	10	0	91	0	2
46			min	0	1	0	1	0	1	0	52	0	1	-2.196	6
47		4	max	0	91	0	2	0	91	0	10	0	91	0	2
48			min	0	1	-0.497	6	0	1	0	52	0	1	-1.647	6
49		5	max	0	91	0	2	0	91	0	10	0	91	0	91
50			min	0	1	-0.994	6	0	1	0	52	0	1	0	1
51	F3_M20	1	max	0.002	53	0.083	78	0	53	0	9	0	91	0	91
52			min	-0.002	11	0.018	85	0	11	0	51	0	1	0	1
53		2	max	0.002	53	-0.007	6	0	53	0	9	0	53	0.076	5
54			min	-0.002	11	-0.099	3	0	11	0	51	0	11	-0.122	6
55		3	max	0.002	53	-1.143	87	0	53	0	47	0	53	3.625	73
56			min	-0.002	11	-5.31	73	0	11	0	41	0	11	0.831	87
57		4	max	0.002	11	1.526	73	0	11	0	47	0	53	-0.335	85
58			min	-0.002	53	0.353	87	0	53	0	41	0	11	-1.38	3
59		5	max	0.002	11	-0.767	85	0	11	0	47	0	91	0	91
60			min	-0.002	53	-3.249	78	0	53	0	41	0	1	0	2
61	F3_M23	1	max	0	91	1.141	5	0	91	0	47	0	91	0	91
62			min	0	1	0.249	89	0	1	0	18	0	1	0	1
63		2	max	0	91	0.571	5	0	91	0	47	0	91	-0.284	91
64			min	0	1	0.124	89	0	1	0	18	0	1	-1.302	3
65		3	max	0	91	0	85	0	91	0	47	0	91	-0.378	91
66			min	0	1	0	3	0	1	0	18	0	1	-1.736	3
67		4	max	0	91	-0.124	85	0	91	0	47	0	91	-0.284	91
68			min	0	1	-0.571	3	0	1	0	18	0	1	-1.302	3
69		5	max	0	91	-0.249	85	0	91	0	47	0	91	0	5
70			min	0	1	-1.142	3	0	1	0	18	0	1	0	83
71	F2_M54	1	max	0	91	6.103	5	0	91	0	10	0	91	0	91
72			min	0	1	2.01	80	0	1	0	16	0	1	0	1
73		2	max	0	91	-0.375	91	0	91	0	10	0	91	-3.435	91
74			min	0	1	-1.174	3	0	1	0	16	0	1	-10.423	3
75		3	max	0	91	-0.439	91	0	91	0	10	0	91	-2.451	91
76			min	0	1	-1.343	3	0	1	0	16	0	1	-7.38	3
77		4	max	0	91	-0.502	91	0	91	0	10	0	91	-1.314	91
78			min	0	1	-1.512	3	0	1	0	16	0	1	-3.93	3
79		5	max	0	91	-0.633	91	0	91	0	10	0	91	0	91
80			min	0	1	-1.887	3	0	1	0	16	0	1	0	1
81	F2_M56	1	max	0	47	0.329	5	0	91	0	10	0	91	0	91
82			min	0	17	0.118	2	0	1	0	52	0	1	0	1
83		2	max	0	47	0.164	5	0	91	0	10	0	91	-0.208	2
84			min	0	17	0.059	2	0	1	0	52	0	1	-0.581	3
85		3	max	0	47	0	91	0	91	0	10	0	91	-0.278	2
86			min	0	17	0	3	0	1	0	52	0	1	-0.775	3
87		4	max	0	47	-0.059	2	0	91	0	10	0	91	-0.208	2
88			min	0	17	-0.165	3	0	1	0	52	0	1	-0.581	3
89		5	max	0	47	-0.118	2	0	91	0	10	0	91	0	5
90			min	0	17	-0.329	3	0	1	0	52	0	1	0	89
91	F2_M59	1	max	0	91	2.63	5	0	91	0	10	0	91	0	91
92			min	0	1	0.864	80	0	1	0	52	0	1	0	1
93		2	max	0	91	1.315	5	0	91	0	10	0	91	-1.431	91
94			min	0	1	0.432	80	0	1	0	52	0	1	-4.357	3
95		3	max	0	91	0	91	0	91	0	10	0	91	-1.908	91
96			min	0	1	0	1	0	1	0	52	0	1	-5.809	3
97		4	max	0	91	-0.432	91	0	91	0	10	0	91	-1.431	91
98			min	0	1	-1.315	3	0	1	0	52	0	1	-4.357	3
99		5	max	0	91	-0.864	91	0	91	0	10	0	91	0	91
100			min	0	1	-2.63	3	0	1	0	52	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
101	CS19_L1	1	max	32.186	17	0.006	8	0.022	17	0.004	16	0.269	47	0.058	8
102			min	-25.857	47	-0.006	50	-0.022	47	-0.004	46	-0.276	17	-0.055	50
103		2	max	32.079	17	0.006	8	0.022	17	0.004	16	0.126	47	0.02	8
104			min	-25.921	47	-0.006	50	-0.022	47	-0.004	46	-0.129	17	-0.017	50
105		3	max	31.973	17	0.006	8	0.022	17	0.004	16	0.018	17	0.022	14
106			min	-25.985	47	-0.006	50	-0.022	47	-0.004	46	-0.017	47	-0.02	44
107		4	max	7.686	17	0.001	14	0.002	47	0.005	52	0.012	17	0.007	14
108			min	-6.139	47	-0.001	44	-0.002	17	-0.005	10	-0.011	47	-0.006	44
109		5	max	7.579	17	0.001	14	0.002	47	0.005	52	0	91	0.001	44
110			min	-6.203	47	-0.001	44	-0.002	17	-0.005	10	0	1	-0.001	14
111	CS20_L1	1	max	34.228	17	0.009	46	0.021	17	0.004	16	0.254	47	0.09	10
112			min	-21.926	47	-0.009	16	-0.021	47	-0.004	46	-0.261	17	-0.088	52
113		2	max	34.122	17	0.009	46	0.021	17	0.004	16	0.12	47	0.033	10
114			min	-21.99	47	-0.009	16	-0.021	47	-0.004	46	-0.123	17	-0.03	52
115		3	max	34.015	17	0.009	46	0.021	17	0.004	16	0.015	17	0.029	16
116			min	-22.054	47	-0.009	16	-0.021	47	-0.004	46	-0.015	11	-0.025	46
117		4	max	8.647	41	0.002	16	0.001	11	0.005	52	0.01	17	0.009	16
118			min	-5.28	47	-0.001	46	-0.002	17	-0.005	10	-0.01	11	-0.008	46
119		5	max	8.54	41	0.002	16	0.001	11	0.005	52	0	91	0.001	46
120			min	-5.344	47	-0.001	46	-0.002	17	-0.005	10	0	1	-0.002	16
121	CS21_L1	1	max	33.419	11	0.01	46	0.021	17	0.004	16	0.254	47	0.101	10
122			min	-22.412	53	-0.01	16	-0.021	47	-0.004	46	-0.261	17	-0.099	52
123		2	max	33.312	11	0.01	46	0.021	17	0.004	16	0.12	47	0.038	10
124			min	-22.476	53	-0.01	16	-0.021	47	-0.004	46	-0.123	17	-0.035	52
125		3	max	33.206	11	0.01	46	0.021	17	0.004	16	0.015	17	0.03	16
126			min	-22.54	53	-0.01	16	-0.021	47	-0.004	46	-0.015	11	-0.026	46
127		4	max	8.538	35	0.002	16	0.001	11	0.005	52	0.01	17	0.011	16
128			min	-5.36	53	-0.002	46	-0.002	17	-0.005	10	-0.01	11	-0.009	46
129		5	max	8.432	35	0.002	16	0.001	11	0.005	52	0	91	0.003	46
130			min	-5.424	53	-0.002	46	-0.002	17	-0.005	10	0	1	-0.003	16
131	CS22_L1	1	max	11.436	10	0.01	46	0.024	17	0.004	16	0.27	47	0.11	10
132			min	-6.3	52	-0.01	16	-0.023	47	-0.004	46	-0.277	17	-0.109	52
133		2	max	11.329	10	0.01	46	0.024	17	0.004	16	0.119	47	0.044	10
134			min	-6.364	52	-0.01	16	-0.023	47	-0.004	46	-0.122	17	-0.041	52
135		3	max	11.223	10	0.01	46	0.024	17	0.004	16	0.032	17	0.027	16
136			min	-6.428	52	-0.01	16	-0.023	47	-0.004	46	-0.031	47	-0.023	46
137		4	max	2.399	34	0.002	16	0	47	0.005	52	0.005	17	0.015	16
138			min	-0.555	52	-0.002	46	0	17	-0.005	10	-0.004	47	-0.013	46
139		5	max	2.292	34	0.002	16	0	47	0.005	52	0.001	52	0	91
140			min	-0.619	52	-0.002	46	0	17	-0.005	10	-0.001	10	0	1
141	CS23_1_L1	1	max	10.478	16	0.01	46	0.024	17	0.004	16	0.278	47	0.11	10
142			min	-6.875	46	-0.01	16	-0.024	47	-0.004	46	-0.285	17	-0.109	52
143		2	max	10.371	16	0.01	46	0.024	17	0.004	16	0.123	47	0.044	10
144			min	-6.939	46	-0.01	16	-0.024	47	-0.004	46	-0.126	17	-0.041	52
145		3	max	10.264	16	0.01	46	0.024	17	0.004	16	0.033	17	0.027	16
146			min	-7.003	46	-0.01	16	-0.024	47	-0.004	46	-0.032	47	-0.023	46
147		4	max	1.512	40	0.002	16	0.001	47	0.005	52	0.006	17	0.015	16
148			min	-0.855	46	-0.002	46	-0.001	17	-0.005	10	-0.006	47	-0.013	46
149		5	max	1.405	40	0.002	16	0.001	47	0.005	52	0.002	11	0	91
150			min	-0.919	46	-0.002	46	-0.001	17	-0.005	10	-0.002	17	0	1
151	CS23_2_L1	1	max	5.539	78	0.003	9	0.011	53	0.018	17	0.175	11	0.042	9
152			min	1.296	85	-0.002	51	-0.012	11	-0.013	47	-0.167	53	-0.031	51
153		2	max	5.478	78	0.003	9	0.011	53	0.018	17	0.132	11	0.032	9
154			min	1.261	85	-0.002	51	-0.012	11	-0.013	47	-0.126	53	-0.023	51
155		3	max	5.417	78	0.003	9	0.011	53	0.018	17	0.088	11	0.021	9
156			min	1.225	85	-0.002	51	-0.012	11	-0.013	47	-0.084	53	-0.015	51
157		4	max	5.356	78	0.003	9	0.011	53	0.018	17	0.045	11	0.011	33
158			min	1.19	85	-0.002	51	-0.012	11	-0.013	47	-0.042	53	-0.008	51

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
159		5	max	5.295	78	0.003	33	0.012	17	0.018	17	0	91	0	51
160			min	1.155	85	-0.002	51	-0.013	11	-0.013	47	0	1	0	9
161	CS24_L1	1	max	13.23	5	0.006	17	0.011	53	0.018	17	0.174	11	0.095	17
162			min	3.088	85	-0.005	47	-0.012	11	-0.013	47	-0.167	53	-0.07	47
163		2	max	13.17	5	0.006	17	0.011	53	0.018	17	0.132	11	0.072	17
164			min	3.053	85	-0.005	47	-0.012	11	-0.013	47	-0.126	53	-0.052	47
165		3	max	13.11	5	0.006	17	0.011	53	0.018	17	0.089	11	0.049	41
166			min	3.018	85	-0.005	47	-0.012	11	-0.013	47	-0.084	53	-0.035	47
167		4	max	13.05	5	0.006	17	0.011	53	0.018	17	0.046	11	0.026	41
168			min	2.983	85	-0.005	47	-0.012	11	-0.013	47	-0.044	17	-0.018	47
169		5	max	12.989	5	0.009	41	0.013	17	0.018	17	0	91	0	47
170			min	2.947	85	-0.005	47	-0.014	11	-0.013	47	0	1	0	41
171	CS25_L1	1	max	8.769	47	0.013	17	0.02	17	0.018	17	0.254	47	0.192	17
172			min	-10.406	17	-0.009	47	-0.017	47	-0.013	47	-0.284	17	-0.135	47
173		2	max	8.733	47	0.013	17	0.02	17	0.018	17	0.19	47	0.142	17
174			min	-10.467	17	-0.009	47	-0.017	47	-0.013	47	-0.208	17	-0.103	47
175		3	max	8.697	47	0.013	17	0.02	17	0.018	17	0.126	47	0.092	17
176			min	-10.527	17	-0.009	47	-0.017	47	-0.013	47	-0.132	17	-0.07	47
177		4	max	8.661	47	0.013	17	0.02	17	0.018	17	0.062	47	0.042	41
178			min	-10.587	17	-0.009	47	-0.017	47	-0.013	47	-0.056	17	-0.037	47
179		5	max	8.624	47	0.009	41	0.013	53	0.018	17	0.009	53	0	91
180			min	-10.648	17	-0.012	47	-0.023	47	-0.013	47	-0.01	11	0	1
181	M19	1	max	13.56	41	0.054	66	0	91	0.025	11	0	91	0	91
182			min	-8.594	47	0	2	0	1	-0.023	53	0	1	0	1
183		2	max	13.625	41	0.027	66	0	91	0.025	11	0	91	0	2
184			min	-8.555	47	0	2	0	1	-0.023	53	0	1	-0.162	66
185		3	max	13.69	41	0	91	0	91	0.025	11	0	91	0	2
186			min	-8.516	47	0	1	0	1	-0.023	53	0	1	-0.216	66
187		4	max	13.755	41	0	2	0	91	0.025	11	0	91	0	2
188			min	-8.477	47	-0.027	58	0	1	-0.023	53	0	1	-0.162	66
189		5	max	13.82	41	0	2	0	91	0.025	11	0	91	0	91
190			min	-8.438	47	-0.054	58	0	1	-0.023	53	0	1	0	1
191	M20	1	max	16.15	35	0.054	65	0	91	0.05	17	0	91	0	91
192			min	-7.881	53	0	2	0	1	-0.043	47	0	1	0	1
193		2	max	16.215	35	0.027	65	0	91	0.05	17	0	91	0	2
194			min	-7.842	53	0	2	0	1	-0.043	47	0	1	-0.162	65
195		3	max	16.28	35	0	91	0	91	0.05	17	0	91	0	2
196			min	-7.803	53	0	1	0	1	-0.043	47	0	1	-0.216	65
197		4	max	16.345	35	0	2	0	91	0.05	17	0	91	0	2
198			min	-7.764	53	-0.027	58	0	1	-0.043	47	0	1	-0.162	65
199		5	max	16.41	35	0	2	0	91	0.05	17	0	91	0	91
200			min	-7.725	53	-0.054	58	0	1	-0.043	47	0	1	0	1
201	M21	1	max	22.527	11	0.055	67	0	91	0.014	17	0	91	0	91
202			min	-18.832	53	0	2	0	1	-0.01	47	0	1	0	1
203		2	max	22.462	11	0.028	67	0	91	0.014	17	0	91	0	2
204			min	-18.871	53	0	2	0	1	-0.01	47	0	1	-0.167	67
205		3	max	22.397	11	0	91	0	91	0.014	17	0	91	0	2
206			min	-18.91	53	0	1	0	1	-0.01	47	0	1	-0.223	67
207		4	max	22.333	11	0	2	0	91	0.014	17	0	91	0	2
208			min	-18.949	53	-0.028	57	0	1	-0.01	47	0	1	-0.167	67
209		5	max	22.268	11	0	2	0	91	0.014	17	0	91	0	91
210			min	-18.988	53	-0.055	57	0	1	-0.01	47	0	1	0	1
211	M22	1	max	21.093	17	0.055	61	0	91	0.016	17	0	91	0	91
212			min	-19.701	47	0	2	0	1	-0.011	47	0	1	0	1
213		2	max	21.158	17	0.028	61	0	91	0.016	17	0	91	0	2
214			min	-19.663	47	0	2	0	1	-0.011	47	0	1	-0.167	61
215		3	max	21.223	17	0	91	0	91	0.016	17	0	91	0	2
216			min	-19.624	47	0	1	0	1	-0.011	47	0	1	-0.223	61

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
217		4	max	21.288	17	0	2	0	91	0.016	17	0	91	0	2
218			min	-19.585	47	-0.028	65	0	1	-0.011	47	0	1	-0.167	61
219		5	max	21.353	17	0	2	0	91	0.016	17	0	91	0	91
220			min	-19.546	47	-0.055	65	0	1	-0.011	47	0	1	0	1
221	M23	1	max	8.748	17	0.086	61	0	91	0.004	14	0	91	0	91
222			min	-8.191	47	0	2	0	1	-0.004	44	0	1	0	1
223		2	max	8.805	17	0.043	61	0	91	0.004	14	0	91	0	2
224			min	-8.157	47	0	2	0	1	-0.004	44	0	1	-0.259	60
225		3	max	8.861	17	0	91	0	91	0.004	14	0	91	0	2
226			min	-8.123	47	0	1	0	1	-0.004	44	0	1	-0.346	60
227		4	max	8.918	17	0	2	0	91	0.004	14	0	91	0	2
228			min	-8.089	47	-0.043	66	0	1	-0.004	44	0	1	-0.259	60
229		5	max	8.974	17	0	2	0	91	0.004	14	0	91	0	91
230			min	-8.056	47	-0.086	66	0	1	-0.004	44	0	1	0	1
231	M24	1	max	20.129	11	0.086	61	0	91	0.008	50	0	91	0	91
232			min	-17.163	53	0	2	0	1	-0.009	8	0	1	0	1
233		2	max	20.187	11	0.043	61	0	91	0.008	50	0	91	0	2
234			min	-17.128	53	0	2	0	1	-0.009	8	0	1	-0.265	59
235		3	max	20.245	11	0	91	0	91	0.008	50	0	91	0	2
236			min	-17.093	53	0	1	0	1	-0.009	8	0	1	-0.353	59
237		4	max	20.303	11	0	2	0	91	0.008	50	0	91	0	2
238			min	-17.058	53	-0.043	66	0	1	-0.009	8	0	1	-0.265	59
239		5	max	20.362	11	0	2	0	91	0.008	50	0	91	0	91
240			min	-17.023	53	-0.086	66	0	1	-0.009	8	0	1	0	1
241	M25	1	max	9.005	11	0.086	65	0	91	0.002	44	0	91	0	91
242			min	-8.037	53	0	2	0	1	-0.002	14	0	1	0	1
243		2	max	9.062	11	0.043	65	0	91	0.002	44	0	91	0	2
244			min	-8.003	53	0	2	0	1	-0.002	14	0	1	-0.259	65
245		3	max	9.118	11	0	91	0	91	0.002	44	0	91	0	2
246			min	-7.969	53	0	1	0	1	-0.002	14	0	1	-0.346	65
247		4	max	9.174	11	0	2	0	91	0.002	44	0	91	0	2
248			min	-7.935	53	-0.043	66	0	1	-0.002	14	0	1	-0.259	65
249		5	max	9.231	11	0	2	0	91	0.002	44	0	91	0	91
250			min	-7.902	53	-0.086	66	0	1	-0.002	14	0	1	0	1
251	M26	1	max	20.466	17	0.086	67	0	91	0.007	8	0	91	0	91
252			min	-16.958	47	0	2	0	1	-0.006	50	0	1	0	1
253		2	max	20.524	17	0.043	67	0	91	0.007	8	0	91	0	2
254			min	-16.923	47	0	2	0	1	-0.006	50	0	1	-0.265	66
255		3	max	20.582	17	0	91	0	91	0.007	8	0	91	0	2
256			min	-16.888	47	0	1	0	1	-0.006	50	0	1	-0.353	66
257		4	max	20.641	17	0	2	0	91	0.007	8	0	91	0	2
258			min	-16.853	47	-0.043	61	0	1	-0.006	50	0	1	-0.265	66
259		5	max	20.699	17	0	2	0	91	0.007	8	0	91	0	91
260			min	-16.818	47	-0.086	61	0	1	-0.006	50	0	1	0	1
261	M27	1	max	8.717	11	0.084	65	0	91	0.002	46	0	91	0	91
262			min	-7.354	53	0	2	0	1	-0.003	16	0	1	0	1
263		2	max	8.773	11	0.042	65	0	91	0.002	46	0	91	0	2
264			min	-7.321	53	0	2	0	1	-0.003	16	0	1	-0.251	65
265		3	max	8.83	11	0	91	0	91	0.002	46	0	91	0	2
266			min	-7.287	53	0	1	0	1	-0.003	16	0	1	-0.334	65
267		4	max	8.886	11	0	2	0	91	0.002	46	0	91	0	2
268			min	-7.253	53	-0.042	59	0	1	-0.003	16	0	1	-0.251	65
269		5	max	8.942	11	0	2	0	91	0.002	46	0	91	0	91
270			min	-7.219	53	-0.084	59	0	1	-0.003	16	0	1	0	1
271	M28	1	max	21.874	17	0.084	61	0	91	0.011	10	0	91	0	91
272			min	-14.002	47	0	2	0	1	-0.01	52	0	1	0	1
273		2	max	21.932	17	0.042	61	0	91	0.011	10	0	91	0	2
274			min	-13.967	47	0	2	0	1	-0.01	52	0	1	-0.256	61

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
275		3	max	21.991	17	0	91	0	91	0.011	10	0	91	0	2
276			min	-13.932	47	0	1	0	1	-0.01	52	0	1	-0.342	61
277		4	max	22.049	17	0	2	0	91	0.011	10	0	91	0	2
278			min	-13.897	47	-0.042	65	0	1	-0.01	52	0	1	-0.256	61
279		5	max	22.107	17	0	2	0	91	0.011	10	0	91	0	91
280			min	-13.862	47	-0.084	65	0	1	-0.01	52	0	1	0	1
281	M29	1	max	9.029	17	0.084	59	0	91	0.005	16	0	91	0	91
282			min	-7.167	47	0	2	0	1	-0.004	46	0	1	0	1
283		2	max	9.085	17	0.042	59	0	91	0.005	16	0	91	0	2
284			min	-7.133	47	0	2	0	1	-0.004	46	0	1	-0.251	59
285		3	max	9.142	17	0	91	0	91	0.005	16	0	91	0	2
286			min	-7.1	47	0	1	0	1	-0.004	46	0	1	-0.334	59
287		4	max	9.198	17	0	2	0	91	0.005	16	0	91	0	2
288			min	-7.066	47	-0.042	65	0	1	-0.004	46	0	1	-0.251	59
289		5	max	9.254	17	0	2	0	91	0.005	16	0	91	0	91
290			min	-7.032	47	-0.084	65	0	1	-0.004	46	0	1	0	1
291	M30	1	max	21.368	11	0.084	65	0	91	0.014	52	0	91	0	91
292			min	-14.307	53	0	2	0	1	-0.015	10	0	1	0	1
293		2	max	21.426	11	0.042	65	0	91	0.014	52	0	91	0	2
294			min	-14.272	53	0	2	0	1	-0.015	10	0	1	-0.256	64
295		3	max	21.484	11	0	91	0	91	0.014	52	0	91	0	2
296			min	-14.237	53	0	1	0	1	-0.015	10	0	1	-0.342	64
297		4	max	21.543	11	0	2	0	91	0.014	52	0	91	0	2
298			min	-14.202	53	-0.042	60	0	1	-0.015	10	0	1	-0.256	64
299		5	max	21.601	11	0	2	0	91	0.014	52	0	91	0	91
300			min	-14.167	53	-0.084	60	0	1	-0.015	10	0	1	0	1
301	M31	1	max	2.116	34	0.078	56	0	91	0.003	17	0	91	0	91
302			min	-0.911	52	0	2	0	1	-0.003	11	0	1	0	1
303		2	max	2.173	34	0.039	56	0	91	0.003	17	0	91	0	2
304			min	-0.877	52	0	2	0	1	-0.003	11	0	1	-0.23	56
305		3	max	2.229	34	0	91	0	91	0.003	17	0	91	0	2
306			min	-0.843	52	0	1	0	1	-0.003	11	0	1	-0.306	56
307		4	max	2.285	34	0	2	0	91	0.003	17	0	91	0	2
308			min	-0.809	52	-0.039	57	0	1	-0.003	11	0	1	-0.23	56
309		5	max	2.342	34	0	2	0	91	0.003	17	0	91	0	91
310			min	-0.776	52	-0.078	57	0	1	-0.003	11	0	1	0	1
311	M32	1	max	9.147	16	0.078	63	0	91	0.047	17	0	91	0	91
312			min	-6.376	46	0	2	0	1	-0.046	47	0	1	0	1
313		2	max	9.205	16	0.039	63	0	91	0.047	17	0	91	0	2
314			min	-6.341	46	0	2	0	1	-0.046	47	0	1	-0.235	60
315		3	max	9.263	16	0	91	0	91	0.047	17	0	91	0	2
316			min	-6.307	46	0	1	0	1	-0.046	47	0	1	-0.314	60
317		4	max	9.322	16	0	2	0	91	0.047	17	0	91	0	2
318			min	-6.272	46	-0.039	66	0	1	-0.046	47	0	1	-0.235	60
319		5	max	9.38	16	0	2	0	91	0.047	17	0	91	0	91
320			min	-6.237	46	-0.078	66	0	1	-0.046	47	0	1	0	1
321	M33	1	max	1.205	52	0.078	65	0	91	0.002	52	0	91	0	91
322			min	-1.297	10	0	2	0	1	-0.002	10	0	1	0	1
323		2	max	1.239	52	0.039	65	0	91	0.002	52	0	91	0	2
324			min	-1.241	10	0	2	0	1	-0.002	10	0	1	-0.23	64
325		3	max	1.295	16	0	91	0	91	0.002	52	0	91	0	2
326			min	-1.207	46	0	1	0	1	-0.002	10	0	1	-0.306	64
327		4	max	1.351	16	0	2	0	91	0.002	52	0	91	0	2
328			min	-1.173	46	-0.039	58	0	1	-0.002	10	0	1	-0.23	64
329		5	max	1.408	16	0	2	0	91	0.002	52	0	91	0	91
330			min	-1.139	46	-0.078	58	0	1	-0.002	10	0	1	0	1
331	M34	1	max	9.097	10	0.078	56	0	91	0.043	47	0	91	0	91
332			min	-6.406	52	0	2	0	1	-0.044	17	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
333		2	max	9.155	10	0.039	56	0	91	0.043	47	0	91	0	2
334			min	-6.371	52	0	2	0	1	-0.044	17	0	1	-0.235	56
335		3	max	9.214	10	0	91	0	91	0.043	47	0	91	0	2
336			min	-6.336	52	0	1	0	1	-0.044	17	0	1	-0.314	56
337		4	max	9.272	10	0	2	0	91	0.043	47	0	91	0	2
338			min	-6.301	52	-0.039	62	0	1	-0.044	17	0	1	-0.235	56
339		5	max	9.33	10	0	2	0	91	0.043	47	0	91	0	91
340			min	-6.267	52	-0.078	62	0	1	-0.044	17	0	1	0	1

Envelope Maximum Member Section Forces

	Member		Axial[k]	Loc[ft]	LC	y Shear[k]	Loc[ft]	LC	z Shear[k]	Loc[ft]	LC	Torque[k-ft]	Loc[ft]	LC	y-y Moment[k-ft]	Loc[ft]	LC	z-z Moment[k-ft]	Loc[ft]	LC
1	CS14_L1	max	31.018	0	11	0.006	13.109	8	0.023	13.109	17	0.005	14.747	52	0.269	0	47	0.066	0	8
2		min	-26.686	13.109	53	-0.006	0	50	-0.022	0	47	-0.005	15.02	10	-0.276	0	17	-0.063	0	50
3	(F-1)_L1	max	26.627	0	41	0.025	14.833	41	0.028	14.833	17	0.018	14.833	17	0.243	0	47	0.181	0	17
4		min	-4.166	14.833	47	-0.009	0	47	-0.018	0	47	-0.013	13.442	47	-0.249	0	17	-0.139	0	47
5	F1_M77	max	0	9.67	91	2.403	0	6	0	9.67	91	0	9.67	10	0	9.67	91	0	9.67	91
6		min	0	0	1	-1.111	9.67	6	0	0	1	0	0	52	0	0	1	-6.011	2.619	6
7	F1_M79	max	0	9.429	91	3.195	0	6	0	9.429	91	0	9.429	10	0	9.429	91	0	9.429	6
8		min	0	0	1	-4.742	9.429	6	0	0	1	0	0	52	0	0	1	-8.963	2.946	6
9	F1_M82	max	0	8.837	91	0.994	0	6	0	8.837	91	0	8.837	10	0	8.837	91	0	8.837	91
10		min	0	0	1	-0.994	8.837	6	0	0	1	0	0	52	0	0	1	-2.196	4.418	6
11	F3_M20	max	0.002	12.5	11	1.65	6.38	73	0	6.25	53	0	12.5	47	0	6.25	53	3.625	6.25	73
12		min	-0.002	0	11	-5.31	6.25	73	0	0	11	0	6.25	41	0	6.25	11	-4.058	11.198	78
13	F3_M23	max	0	6.083	91	1.141	0	5	0	6.083	91	0	6.083	47	0	6.083	91	0	6.083	5
14		min	0	0	1	-1.142	6.083	3	0	0	1	0	0	18	0	0	1	-1.736	3.041	3
15	F2_M54	max	0	9.67	91	6.103	0	5	0	9.67	91	0	9.67	10	0	9.67	91	0	9.67	91
16		min	0	0	1	-1.887	9.67	3	0	0	1	0	0	16	0	0	1	-11.006	1.914	3
17	F2_M56	max	0	9.429	47	0.329	0	5	0	9.429	91	0	9.429	10	0	9.429	91	0	9.429	5
18		min	0	0	17	-0.329	9.429	3	0	0	1	0	0	52	0	0	1	-0.775	4.714	3
19	F2_M59	max	0	8.837	91	2.63	0	5	0	8.837	91	0	8.837	10	0	8.837	91	0	8.837	91
20		min	0	0	1	-2.63	8.837	3	0	0	1	0	0	52	0	0	1	-5.809	4.418	3
21	CS19_L1	max	32.186	0	17	0.006	13.109	8	0.022	13.109	17	0.005	26.217	52	0.269	0	47	0.058	0	8
22		min	-25.985	13.109	47	-0.006	0	50	-0.022	0	47	-0.005	13.382	10	-0.276	0	17	-0.055	0	50
23	CS20_L1	max	34.228	0	17	0.009	13.109	46	0.021	13.109	17	0.005	26.217	52	0.254	0	47	0.09	0	10
24		min	-22.054	13.109	47	-0.009	0	16	-0.021	0	47	-0.005	13.382	10	-0.261	0	17	-0.088	0	52
25	CS21_L1	max	33.419	0	11	0.01	13.109	46	0.021	13.109	17	0.005	26.217	52	0.254	0	47	0.101	0	10
26		min	-22.54	13.109	53	-0.01	0	16	-0.021	0	47	-0.005	13.382	10	-0.261	0	17	-0.099	0	52
27	CS22_L1	max	11.436	0	10	0.01	13.109	46	0.024	13.109	17	0.005	26.217	52	0.27	0	47	0.11	0	10
28		min	-6.428	13.109	52	-0.01	0	16	-0.023	0	47	-0.005	13.382	10	-0.277	0	17	-0.109	0	52
29	CS23_1_L1	max	10.478	0	16	0.01	13.109	46	0.024	13.109	17	0.005	26.217	52	0.278	0	47	0.11	0	10
30		min	-7.003	13.109	46	-0.01	0	16	-0.024	0	47	-0.005	13.382	10	-0.285	0	17	-0.109	0	52
31	CS23_2_L1	max	5.539	0	78	0.003	14.833	33	0.012	14.833	17	0.018	14.833	17	0.175	0	11	0.042	0	9
32		min	1.155	14.833	85	-0.002	13.442	51	-0.013	13.442	11	-0.013	13.442	47	-0.167	0	53	-0.031	0	51
33	CS24_L1	max	13.23	0	5	0.009	14.833	41	0.013	14.833	17	0.018	14.833	17	0.174	0	11	0.095	0	17
34		min	2.947	14.833	85	-0.005	13.442	47	-0.014	13.442	11	-0.013	13.442	47	-0.167	0	53	-0.07	0	47
35	CS25_L1	max	8.769	0	47	0.013	13.288	17	0.02	13.288	17	0.018	13.288	17	0.254	0	47	0.192	0	17
36		min	-10.648	14.833	17	-0.012	13.442	47	-0.023	13.442	47	-0.013	13.442	47	-0.284	0	17	-0.135	0	47
37	M19	max	13.82	16.032	41	0.054	0	66	0	16.032	91	0.025	16.032	11	0	16.032	91	0	16.032	91
38		min	-8.594	0	47	-0.054	16.032	58	0	0	1	-0.023	0	53	0	0	1	-0.216	8.016	66
39	M20	max	16.41	16.032	35	0.054	0	65	0	16.032	91	0.05	16.032	17	0	16.032	91	0	16.032	91
40		min	-7.881	0	53	-0.054	16.032	58	0	0	1	-0.043	0	47	0	0	1	-0.216	8.016	65
41	M21	max	22.527	0	11	0.055	0	67	0	16.096	91	0.014	16.096	17	0	16.096	91	0	16.096	91
42		min	-18.988	16.096	53	-0.055	16.096	57	0	0	1	-0.01	0	47	0	0	1	-0.223	8.048	67
43	M22	max	21.353	16.096	17	0.055	0	61	0	16.096	91	0.016	16.096	17	0	16.096	91	0	16.096	91
44		min	-19.701	0	47	-0.055	16.096	65	0	0	1	-0.011	0	47	0	0	1	-0.223	8.048	61
45	M23	max	8.974	16.109	17	0.086	0	61	0	16.109	91	0.004	16.109	14	0	16.109	91	0	16.109	91
46		min	-8.191	0	47	-0.086	16.109	66	0	0	1	-0.004	0	44	0	0	1	-0.346	8.055	60
47	M24	max	20.362	16.471	11	0.086	0	61	0	16.471	91	0.008	16.471	50	0	16.471	91	0	16.471	91

Envelope Maximum Member Section Forces (Continued)

	Member		Axial[k]	Loc[ft]	LC	y Shear[k]	Loc[ft]	LC	z Shear[k]	Loc[ft]	LC	Torque[k-ft]	Loc[ft]	LC	y-y Moment[k-ft]	Loc[ft]	LC	z-z Moment[k-ft]	Loc[ft]	LC
48		min	-17.163	0	53	-0.086	16.471	66	0	0	1	-0.009	0	8	0	0	1	-0.353	8.235	59
49	M25	max	9.231	16.109	11	0.086	0	65	0	16.109	91	0.002	16.109	44	0	16.109	91	0	16.109	91
50		min	-8.037	0	53	-0.086	16.109	66	0	0	1	-0.002	0	14	0	0	1	-0.346	8.055	65
51	M26	max	20.699	16.471	17	0.086	0	67	0	16.471	91	0.007	16.471	8	0	16.471	91	0	16.471	91
52		min	-16.958	0	47	-0.086	16.471	61	0	0	1	-0.006	0	50	0	0	1	-0.353	8.235	66
53	M27	max	8.942	15.966	11	0.084	0	65	0	15.966	91	0.002	15.966	46	0	15.966	91	0	15.966	91
54		min	-7.354	0	53	-0.084	15.966	59	0	0	1	-0.003	0	16	0	0	1	-0.334	7.983	65
55	M28	max	22.107	16.33	17	0.084	0	61	0	16.33	91	0.011	16.33	10	0	16.33	91	0	16.33	91
56		min	-14.002	0	47	-0.084	16.33	65	0	0	1	-0.01	0	52	0	0	1	-0.342	8.165	61
57	M29	max	9.254	15.966	17	0.084	0	59	0	15.966	91	0.005	15.966	16	0	15.966	91	0	15.966	91
58		min	-7.167	0	47	-0.084	15.966	65	0	0	1	-0.004	0	46	0	0	1	-0.334	7.983	59
59	M30	max	21.601	16.33	11	0.084	0	65	0	16.33	91	0.014	16.33	52	0	16.33	91	0	16.33	91
60		min	-14.307	0	53	-0.084	16.33	60	0	0	1	-0.015	0	10	0	0	1	-0.342	8.165	64
61	M31	max	2.342	15.623	34	0.078	0	56	0	15.623	91	0.003	15.623	17	0	15.623	91	0	15.623	91
62		min	-0.911	0	52	-0.078	15.623	57	0	0	1	-0.003	0	11	0	0	1	-0.306	7.812	56
63	M32	max	9.38	15.996	16	0.078	0	63	0	15.996	91	0.047	15.996	17	0	15.996	91	0	15.996	91
64		min	-6.376	0	46	-0.078	15.996	66	0	0	1	-0.046	0	47	0	0	1	-0.314	7.998	60
65	M33	max	1.408	15.623	16	0.078	0	65	0	15.623	91	0.002	15.623	52	0	15.623	91	0	15.623	91
66		min	-1.297	0	10	-0.078	15.623	58	0	0	1	-0.002	0	10	0	0	1	-0.306	7.812	64
67	M34	max	9.33	15.996	10	0.078	0	56	0	15.996	91	0.043	15.996	47	0	15.996	91	0	15.996	91
68		min	-6.406	0	52	-0.078	15.996	62	0	0	1	-0.044	0	17	0	0	1	-0.314	7.998	56

Envelope Member End Reactions

	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
1	CS14_L1	I	max	31.018	11	0.006	8	0.023	17	0.004	16	0.269	47	0.066	8
2			min	-26.558	53	-0.006	50	-0.022	47	-0.004	46	-0.276	17	-0.063	50
3		J	max	7.474	11	0.002	14	0.002	47	0.005	52	0	91	0.002	44
4			min	-6.266	53	-0.001	44	-0.002	17	-0.005	10	0	1	-0.002	14
5	(F-1)_L1	I	max	26.627	41	0.011	17	0.017	53	0.018	17	0.243	47	0.181	17
6			min	-4.021	47	-0.009	47	-0.018	47	-0.013	47	-0.249	17	-0.139	47
7		J	max	26.385	41	0.025	41	0.028	17	0.018	17	0.019	17	0	91
8			min	-4.166	47	-0.008	11	-0.017	11	-0.013	47	-0.016	47	0	1
9	F1_M77	I	max	0	91	2.403	6	0	91	0	10	0	91	0	91
10			min	0	1	0	2	0	1	0	52	0	1	0	1
11		J	max	0	91	0	2	0	91	0	10	0	91	0	91
12			min	0	1	-1.111	6	0	1	0	52	0	1	0	1
13	F1_M79	I	max	0	91	3.195	6	0	91	0	10	0	91	0	91
14			min	0	1	0	2	0	1	0	52	0	1	0	1
15		J	max	0	91	0	2	0	91	0	10	0	91	0	6
16			min	0	1	-4.742	6	0	1	0	52	0	1	0	2
17	F1_M82	I	max	0	91	0.994	6	0	91	0	10	0	91	0	91
18			min	0	1	0	2	0	1	0	52	0	1	0	1
19		J	max	0	91	0	2	0	91	0	10	0	91	0	91
20			min	0	1	-0.994	6	0	1	0	52	0	1	0	1
21	F3_M20	I	max	0.002	53	0.083	78	0	53	0	9	0	91	0	91
22			min	-0.002	11	0.018	85	0	11	0	51	0	1	0	1
23		J	max	0.002	11	-0.767	85	0	11	0	47	0	91	0	91
24			min	-0.002	53	-3.249	78	0	53	0	41	0	1	0	2
25	F3_M23	I	max	0	91	1.141	5	0	91	0	47	0	91	0	91
26			min	0	1	0.249	89	0	1	0	18	0	1	0	1
27		J	max	0	91	-0.249	85	0	91	0	47	0	91	0	5
28			min	0	1	-1.142	3	0	1	0	18	0	1	0	83
29	F2_M54	I	max	0	91	6.103	5	0	91	0	10	0	91	0	91
30			min	0	1	2.01	80	0	1	0	16	0	1	0	1
31		J	max	0	91	-0.633	91	0	91	0	10	0	91	0	91
32			min	0	1	-1.887	3	0	1	0	16	0	1	0	1
33	F2_M56	I	max	0	47	0.329	5	0	91	0	10	0	91	0	91
34			min	0	17	0.118	2	0	1	0	52	0	1	0	1

Envelope Member End Reactions (Continued)

	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
35		J	max	0	47	-0.118	2	0	91	0	10	0	91	0	5
36			min	0	17	-0.329	3	0	1	0	52	0	1	0	89
37	F2_M59	I	max	0	91	2.63	5	0	91	0	10	0	91	0	91
38			min	0	1	0.864	80	0	1	0	52	0	1	0	1
39		J	max	0	91	-0.864	91	0	91	0	10	0	91	0	91
40			min	0	1	-2.63	3	0	1	0	52	0	1	0	1
41	CS19_L1	I	max	32.186	17	0.006	8	0.022	17	0.004	16	0.269	47	0.058	8
42			min	-25.857	47	-0.006	50	-0.022	47	-0.004	46	-0.276	17	-0.055	50
43		J	max	7.579	17	0.001	14	0.002	47	0.005	52	0	91	0.001	44
44			min	-6.203	47	-0.001	44	-0.002	17	-0.005	10	0	1	-0.001	14
45	CS20_L1	I	max	34.228	17	0.009	46	0.021	17	0.004	16	0.254	47	0.09	10
46			min	-21.926	47	-0.009	16	-0.021	47	-0.004	46	-0.261	17	-0.088	52
47		J	max	8.54	41	0.002	16	0.001	11	0.005	52	0	91	0.001	46
48			min	-5.344	47	-0.001	46	-0.002	17	-0.005	10	0	1	-0.002	16
49	CS21_L1	I	max	33.419	11	0.01	46	0.021	17	0.004	16	0.254	47	0.101	10
50			min	-22.412	53	-0.01	16	-0.021	47	-0.004	46	-0.261	17	-0.099	52
51		J	max	8.432	35	0.002	16	0.001	11	0.005	52	0	91	0.003	46
52			min	-5.424	53	-0.002	46	-0.002	17	-0.005	10	0	1	-0.003	16
53	CS22_L1	I	max	11.436	10	0.01	46	0.024	17	0.004	16	0.27	47	0.11	10
54			min	-6.3	52	-0.01	16	-0.023	47	-0.004	46	-0.277	17	-0.109	52
55		J	max	2.292	34	0.002	16	0	47	0.005	52	0.001	52	0	91
56			min	-0.619	52	-0.002	46	0	17	-0.005	10	-0.001	10	0	1
57	CS23_1_L1	I	max	10.478	16	0.01	46	0.024	17	0.004	16	0.278	47	0.11	10
58			min	-6.875	46	-0.01	16	-0.024	47	-0.004	46	-0.285	17	-0.109	52
59		J	max	1.405	40	0.002	16	0.001	47	0.005	52	0.002	11	0	91
60			min	-0.919	46	-0.002	46	-0.001	17	-0.005	10	-0.002	17	0	1
61	CS23_2_L1	I	max	5.539	78	0.003	9	0.011	53	0.018	17	0.175	11	0.042	9
62			min	1.296	85	-0.002	51	-0.012	11	-0.013	47	-0.167	53	-0.031	51
63		J	max	5.295	78	0.003	33	0.012	17	0.018	17	0	91	0	51
64			min	1.155	85	-0.002	51	-0.013	11	-0.013	47	0	1	0	9
65	CS24_L1	I	max	13.23	5	0.006	17	0.011	53	0.018	17	0.174	11	0.095	17
66			min	3.088	85	-0.005	47	-0.012	11	-0.013	47	-0.167	53	-0.07	47
67		J	max	12.989	5	0.009	41	0.013	17	0.018	17	0	91	0	47
68			min	2.947	85	-0.005	47	-0.014	11	-0.013	47	0	1	0	41
69	CS25_L1	I	max	8.769	47	0.013	17	0.02	17	0.018	17	0.254	47	0.192	17
70			min	-10.406	17	-0.009	47	-0.017	47	-0.013	47	-0.284	17	-0.135	47
71		J	max	8.624	47	0.009	41	0.013	53	0.018	17	0.009	53	0	91
72			min	-10.648	17	-0.012	47	-0.023	47	-0.013	47	-0.01	11	0	1
73	M19	I	max	13.56	41	0.054	66	0	91	0.025	11	0	91	0	91
74			min	-8.594	47	0	2	0	1	-0.023	53	0	1	0	1
75		J	max	13.82	41	0	2	0	91	0.025	11	0	91	0	91
76			min	-8.438	47	-0.054	58	0	1	-0.023	53	0	1	0	1
77	M20	I	max	16.15	35	0.054	65	0	91	0.05	17	0	91	0	91
78			min	-7.881	53	0	2	0	1	-0.043	47	0	1	0	1
79		J	max	16.41	35	0	2	0	91	0.05	17	0	91	0	91
80			min	-7.725	53	-0.054	58	0	1	-0.043	47	0	1	0	1
81	M21	I	max	22.527	11	0.055	67	0	91	0.014	17	0	91	0	91
82			min	-18.832	53	0	2	0	1	-0.01	47	0	1	0	1
83		J	max	22.268	11	0	2	0	91	0.014	17	0	91	0	91
84			min	-18.988	53	-0.055	57	0	1	-0.01	47	0	1	0	1
85	M22	I	max	21.093	17	0.055	61	0	91	0.016	17	0	91	0	91
86			min	-19.701	47	0	2	0	1	-0.011	47	0	1	0	1
87		J	max	21.353	17	0	2	0	91	0.016	17	0	91	0	91
88			min	-19.546	47	-0.055	65	0	1	-0.011	47	0	1	0	1
89	M23	I	max	8.748	17	0.086	61	0	91	0.004	14	0	91	0	91
90			min	-8.191	47	0	2	0	1	-0.004	44	0	1	0	1
91		J	max	8.974	17	0	2	0	91	0.004	14	0	91	0	91
92			min	-8.056	47	-0.086	66	0	1	-0.004	44	0	1	0	1

Envelope Member End Reactions (Continued)

	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
93	M24	I	max	20.129	11	0.086	61	0	91	0.008	50	0	91	0	91
94			min	-17.163	53	0	2	0	1	-0.009	8	0	1	0	1
95		J	max	20.362	11	0	2	0	91	0.008	50	0	91	0	91
96			min	-17.023	53	-0.086	66	0	1	-0.009	8	0	1	0	1
97	M25	I	max	9.005	11	0.086	65	0	91	0.002	44	0	91	0	91
98			min	-8.037	53	0	2	0	1	-0.002	14	0	1	0	1
99		J	max	9.231	11	0	2	0	91	0.002	44	0	91	0	91
100			min	-7.902	53	-0.086	66	0	1	-0.002	14	0	1	0	1
101	M26	I	max	20.466	17	0.086	67	0	91	0.007	8	0	91	0	91
102			min	-16.958	47	0	2	0	1	-0.006	50	0	1	0	1
103		J	max	20.699	17	0	2	0	91	0.007	8	0	91	0	91
104			min	-16.818	47	-0.086	61	0	1	-0.006	50	0	1	0	1
105	M27	I	max	8.717	11	0.084	65	0	91	0.002	46	0	91	0	91
106			min	-7.354	53	0	2	0	1	-0.003	16	0	1	0	1
107		J	max	8.942	11	0	2	0	91	0.002	46	0	91	0	91
108			min	-7.219	53	-0.084	59	0	1	-0.003	16	0	1	0	1
109	M28	I	max	21.874	17	0.084	61	0	91	0.011	10	0	91	0	91
110			min	-14.002	47	0	2	0	1	-0.01	52	0	1	0	1
111		J	max	22.107	17	0	2	0	91	0.011	10	0	91	0	91
112			min	-13.862	47	-0.084	65	0	1	-0.01	52	0	1	0	1
113	M29	I	max	9.029	17	0.084	59	0	91	0.005	16	0	91	0	91
114			min	-7.167	47	0	2	0	1	-0.004	46	0	1	0	1
115		J	max	9.254	17	0	2	0	91	0.005	16	0	91	0	91
116			min	-7.032	47	-0.084	65	0	1	-0.004	46	0	1	0	1
117	M30	I	max	21.368	11	0.084	65	0	91	0.014	52	0	91	0	91
118			min	-14.307	53	0	2	0	1	-0.015	10	0	1	0	1
119		J	max	21.601	11	0	2	0	91	0.014	52	0	91	0	91
120			min	-14.167	53	-0.084	60	0	1	-0.015	10	0	1	0	1
121	M31	I	max	2.116	34	0.078	56	0	91	0.003	17	0	91	0	91
122			min	-0.911	52	0	2	0	1	-0.003	11	0	1	0	1
123		J	max	2.342	34	0	2	0	91	0.003	17	0	91	0	91
124			min	-0.776	52	-0.078	57	0	1	-0.003	11	0	1	0	1
125	M32	I	max	9.147	16	0.078	63	0	91	0.047	17	0	91	0	91
126			min	-6.376	46	0	2	0	1	-0.046	47	0	1	0	1
127		J	max	9.38	16	0	2	0	91	0.047	17	0	91	0	91
128			min	-6.237	46	-0.078	66	0	1	-0.046	47	0	1	0	1
129	M33	I	max	1.205	52	0.078	65	0	91	0.002	52	0	91	0	91
130			min	-1.297	10	0	2	0	1	-0.002	10	0	1	0	1
131		J	max	1.408	16	0	2	0	91	0.002	52	0	91	0	91
132			min	-1.139	46	-0.078	58	0	1	-0.002	10	0	1	0	1
133	M34	I	max	9.097	10	0.078	56	0	91	0.043	47	0	91	0	91
134			min	-6.406	52	0	2	0	1	-0.044	17	0	1	0	1
135		J	max	9.33	10	0	2	0	91	0.043	47	0	91	0	91
136			min	-6.267	52	-0.078	62	0	1	-0.044	17	0	1	0	1

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
1	CS14_L1	HSS4X4X6	0.542	0	11	0	13.109	z	17	59.212	131.665	14.668	14.668	1.892	H1-1a
2	(F-1)_L1	HSS4X4X6	0.568	0	41	0.002	14.833	z	17	48.865	131.665	14.668	14.668	1.453	H1-1a
3	F1_M77	W12X14	0.138	2.619	6	0.056	0	y	6	26.344	124.551	4.741	43.413	1.09	H1-1b
4	F1_M79	W12X14	0.206	2.946	6	0.111	9.429	y	6	27.709	124.551	4.741	43.413	1.052	H1-1b
5	F1_M82	W12X14	0.051	4.418	6	0.023	8.837	y	6	31.544	124.551	4.741	43.413	1.018	H1-1b
6	F3_M20	W12X14	0.177	6.25	71	0.125	6.25	y	79	15.766	124.551	4.741	20.475	1.761	H1-1b
7	F3_M23	W12X14	0.04	3.041	5	0.027	6.083	y	5	61.102	124.551	4.741	43.413	1.014	H1-1b
8	F2_M54	W12X14	0.254	1.914	5	0.143	0	y	5	26.344	124.551	4.741	43.413	1.084	H1-1b
9	F2_M56	W12X14	0.018	4.714	5	0.008	9.429	y	5	27.709	124.551	4.741	43.413	1.008	H1-1b
10	F2_M59	W12X14	0.134	4.418	5	0.062	8.837	y	5	31.544	124.551	4.741	43.413	1.018	H1-1b
11	CS19_L1	HSS4X4X6	0.561	0	17	0	13.109	z	17	59.216	131.672	14.668	14.668	2.186	H1-1a

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-ft]	Mnzz/om [k-ft]	Cb	Eqn
12	CS20_L1	HSS4X4X6	0.596	0	17	0	13.109	z	17	59.216	131.672	14.668	14.668	2.148	H1-1a
13	CS21_L1	HSS4X4X6	0.583	0	11	0	13.109	z	17	59.216	131.672	14.668	14.668	1.943	H1-1a
14	CS22_L1	HSS4X4X6	0.193	0	10	0	13.109	z	17	59.216	131.672	14.668	14.668	1.92	H1-1b*
15	CS23_1_L1	HSS4X4X6	0.177	0	16	0	13.109	z	17	59.216	131.672	14.668	14.668	2.005	H1-1b*
16	CS23_2_L1	HSS4X4X6	0.113	0	78	0.002	14.833	z	17	48.868	131.672	14.668	14.668	1.538	H1-1b*
17	CS24_L1	HSS4X4X6	0.273	0	5	0.002	14.833	z	17	48.868	131.672	14.668	14.668	1.51	H1-1a
18	CS25_L1	HSS4X4X6	0.179	0	47	0.002	13.288	z	17	48.868	131.672	14.668	14.668	1.523	H1-1b*
19	M19	HSS4X4X6	0.34	9.018	41	0.004	16.032	y	11	41.83	131.665	14.668	14.668	1.136	H1-1a
20	M20	HSS4X4X6	0.402	9.018	35	0.005	16.032	y	17	41.83	131.665	14.668	14.668	1.136	H1-1a
21	M21	HSS4X4X6	0.553	7.042	11	0.003	16.096	y	17	41.497	131.665	14.668	14.668	1.136	H1-1a
22	M22	HSS4X4X6	0.525	9.054	17	0.003	16.096	y	17	41.497	131.665	14.668	14.668	1.136	H1-1a
23	M23	HSS4X4X6	0.235	8.558	17	0.003	16.109	y	14	41.429	131.665	14.668	14.668	1.136	H1-1a
24	M24	HSS4X4X6	0.532	8.75	11	0.003	16.471	y	8	39.632	131.665	14.668	14.668	1.136	H1-1a
25	M25	HSS4X4X6	0.241	8.558	11	0.003	16.109	y	14	41.429	131.665	14.668	14.668	1.136	H1-1a
26	M26	HSS4X4X6	0.541	8.75	17	0.003	16.471	y	8	39.632	131.665	14.668	14.668	1.136	H1-1a
27	M27	HSS4X4X6	0.229	8.482	11	0.003	15.966	y	16	42.178	131.665	14.668	14.668	1.136	H1-1a
28	M28	HSS4X4X6	0.566	8.675	17	0.003	16.33	y	10	40.316	131.665	14.668	14.668	1.136	H1-1a
29	M29	HSS4X4X6	0.237	8.482	17	0.003	15.966	y	16	42.178	131.665	14.668	14.668	1.136	H1-1a
30	M30	HSS4X4X6	0.553	8.675	11	0.004	16.33	y	10	40.316	131.665	14.668	14.668	1.136	H1-1a
31	M31	HSS4X4X6	0.053	15.623	34	0.003	15.623	y	17	44.046	131.665	14.668	14.668	1.136	H1-1b*
32	M32	HSS4X4X6	0.239	8.664	16	0.006	15.996	y	17	42.019	131.665	14.668	14.668	1.136	H1-1a
33	M33	HSS4X4X6	0.035	7.974	16	0.002	15.623	y	10	44.046	131.665	14.668	14.668	1.136	H1-1b
34	M34	HSS4X4X6	0.238	8.664	10	0.006	15.996	y	17	42.019	131.665	14.668	14.668	1.136	H1-1a

Envelope X-Direction Story Drift - Service

	Story (Elevation)		Story Drift[in]	Loc (Z,X)	LC	Drift Ratio (%)	Loc (Z,X)	LC	2nd/1st Ratio	Loc (Z,X)	LC
1	Upper Roof - Diaph.: 1 (26.217 ft)	max	0.028	41.141, -128.342	69	0.021	41.141, -128.342	69	1.008	0.891, -128.342	43
2		min	-0.016	41.141, -86.175	50	0	41.141, -86.175	2	1	41.141, -86.175	2
3	Lower Roof - Diaph.: 2 (14.833 ft)	max	0.029	-38.442, -105.681	79	0.161	-38.442, -105.681	79	1.054	-38.442, -105.681	41
4		min	-0.011	-38.442, -111.764	47	0.007	41.141, -86.175	25	1	41.141, -86.175	59
5	2nd Floor - Diaph.: 3 (13.333 ft)	max	0.157	-38.442, -111.764	79	0.098	-38.442, -111.764	79	1.018	81.141, -78.675	37
6		min	-0.062	-38.442, -105.681	47	0.005	81.141, -78.675	25	1.001	81.141, -87.512	52

Envelope Z-Direction Story Drift - Service

	Story (Elevation)		Story Drift[in]	Loc (Z,X)	LC	Drift Ratio (%)	Loc (Z,X)	LC	2nd/1st Ratio	Loc (Z,X)	LC
1	Upper Roof - Diaph.: 1 (26.217 ft)	max	0.199	0.891, -128.342	73	0.146	0.891, -128.342	73	1.017	0.891, -128.342	72
2		min	-0.179	0.891, -86.925	67	0.003	0.891, -128.342	39	1.001	0.891, -86.925	64
3	Lower Roof - Diaph.: 2 (14.833 ft)	max	0.056	0.891, -86.925	66	0.622	0.891, -128.342	69	1.021	0.891, -128.342	73
4		min	-0.112	0.891, -128.342	69	0.003	0.891, -86.925	39	0.996	0.891, -128.342	49
5	2nd Floor - Diaph.: 3 (13.333 ft)	max	0.126	41.141, -128.342	47	0.081	0.891, -128.342	17	1.026	-38.442, -111.764	34
6		min	-0.13	0.891, -128.342	17	0.001	0.891, -128.342	27	1.002	0.891, -128.342	86

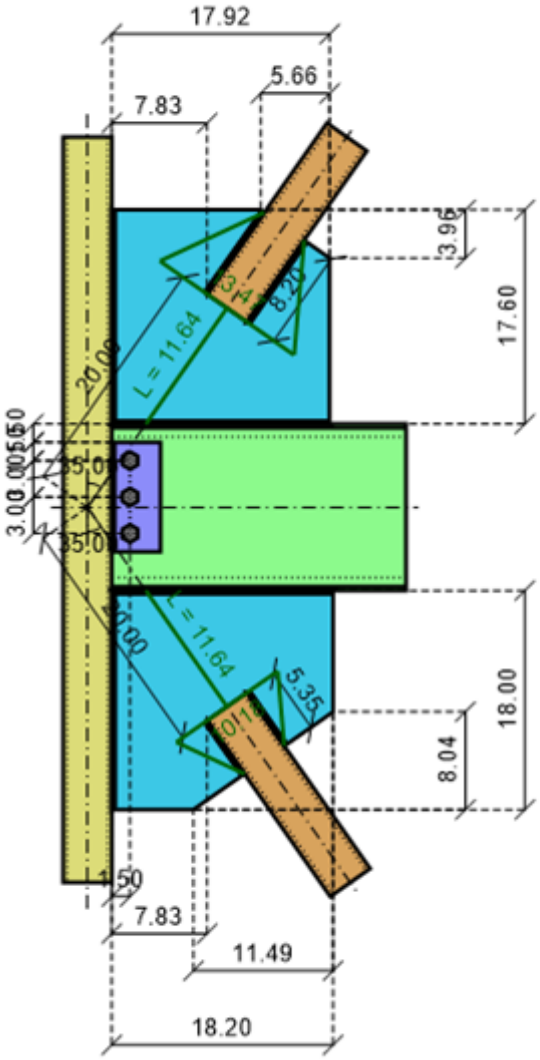
Global Parameters - Description:

Project Title	New Longview Building 31
Company	Stand-SEI
Designer	NPS
Job Number	20291
Notes	

Global Parameters - Solution:

Design Method	AISC 15th (360-16): ASD
Bolt Group Analysis Method	Center of Rotation
Weld Analysis Method	Elastic
Consider Bolt Hole Deformation?	Yes
Check Rotational Ductility?	Yes
Check Weld Filler Metal Matching?	Yes
Full Shear Eccentricity Considered?	No
Panel-Zone Shear Deformation Considered?	No
Check Weld Base Material Thickness?	Yes
Reduce Available Bolt Strength by Prying Effects Factor Q?	No

Side view



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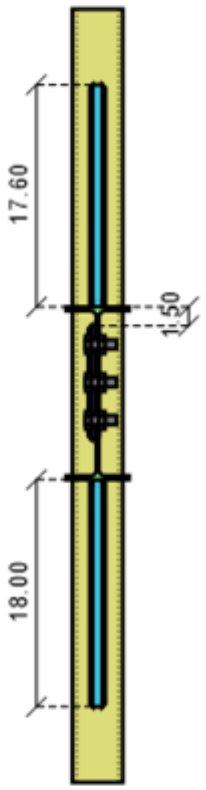
Brace at Floor: 2D Views Report (continued):

Front view



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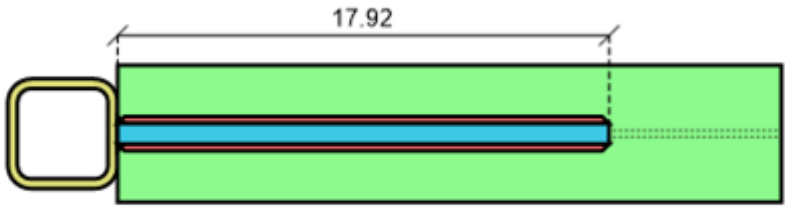
Brace at Floor: 2D Views Report (continued):

Top view



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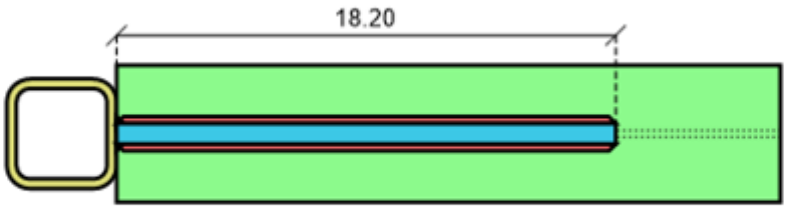
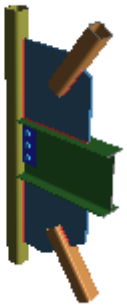
Brace at Floor: 2D Views Report (continued):

Bottom view



Brace at Floor: Summary Report

Vertical Brace Diagonal Connection



Material Properties:

Beam	W14X22	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Plate	P0.38x4.00x9.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Top Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Top Gusset	P0.75x17.60x17.92	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Bottom Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Bottom Gusset	P0.75x18.00x18.20	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:

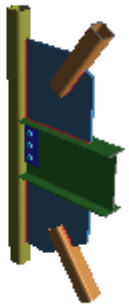
Shear Load	7.00 kips	*User Input Shear Load*
Beam Axial Load	0.00 kips	*User Input Beam Axial Force*
Column Force	34.20 kips	*User Input Column Force*
Axial Transfer Force	0.00 kips	*Required axial transfer force from connected horizontal braces*
Shear Transfer Force	0.00 kips	*Required shear transfer force from connected horizontal braces*
Column Moment	4.00 kips-ft	*User Input Column Moment*
Top Brace Axial	-9.00 kips	*User Input Top Brace Axial Force (tension)*
Bottom Brace Axial	22.00 kips	*User Input Bottom Brace Axial Force (compression)*

Note: Unless specified, all code references are from AISC 360-16

Connection	Required	Max Unity Check	Result
Beam/Column connection	Bolt Shear at Beam	**0.12**	**PASS**
Top Gusset/Beam connection	Beam Weld Strength	**0.05**	**PASS**
Bottom Gusset/Beam connection	Beam Weld Strength	**0.10**	**PASS**
Top Gusset/Column connection	Column Weld Strength	**0.04**	**PASS**
Bottom Gusset/Column connection	Column Weld Strength	**0.10**	**PASS**
Top Gusset/Brace connection	Brace Tensile Rupture	**0.09**	**PASS**
Bottom Gusset/Brace connection	Brace Weld Strength	**0.28**	**PASS**

Brace at Floor: Beam/Column Report

Vertical Brace Diagonal Connection



Material Properties:				
Beam	W14X22	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Plate	P0.38x4.00x9.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Top Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Top Gusset	P0.75x17.60x17.92	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Bottom Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Bottom Gusset	P0.75x18.00x18.20	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Total Shear Load	-4.02 kips	*Calculated Shear Load*
Total Axial Load	1.33 kips	*Calculated Axial Load (compression)*
Column Force	34.20 kips	*User Input Column Force*
Column Moment	4.00 kips-ft	*User Input Column Moment*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Required Load Calculation				**n/a**
Uniform Force Method			(AISC Steel Design Manual pg 13-5)	
V_{bm}	7.00 kips	*Shear load in beam (user input)*		
P_{bm}	0.00 kips	*Axial load in beam (user input)*		
TF_v	0.00 kips	*Shear transfer force from connected horizontal braces (user input)*		
TF_a	0.00 kips	*Axial transfer force from connected horizontal braces (user input)*		
V_{b_t}	-3.23 kips	*Axial load at top gusset/beam, see Top Gusset/Beam tab*		
V_{b_b}	7.79 kips	*Axial load at bottom gusset/beam, see Bot Gusset/Beam tab*		
H_{brace_t}	-5.16 kips	*Horizontal component of the top brace axial load*		
H_{brace_b}	12.62 kips	*Horizontal component of the bottom brace axial load*		
H_{b_t}	-4.22 kips	*Shear load at top gusset/beam, see Top Gusset/Beam tab*		
H_{b_b}	10.34 kips	*Shear load at bottom gusset/beam, see Bot Gusset/Beam tab*		
Beam/Column Forces				
V_{bc}	-4.02 kips	*Shear load at Beam/Column, $V_{bc} = V_{bm} + TF_v + V_{b\_t} - V_{b\_b}$*		
H_{bc}	1.33 kips	*Axial load at Beam/Column, $H_{bc} = P_{bm} + TF_a + (H_{brace\_t} - H_{b\_t}) + (H_{brace\_b} - H_{b\_b})$*		
HSS Limitations				**PASS**
Check Column Slenderness	**Pass**	*Condition: b/t ≤ Limit per AISC 15th p.10-153*		
E	29000.00 ksi	*Modulus of elasticity*		
F_y	46.00 ksi	*Column yield strength*		
t	0.35 in	*Column wall thickness*		
B	4.00 in	*Column face width*		

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Brace at Floor: Beam/Column Report (continued):

Limit State	Required	Available	Unity Check	Result
b	2.95 in	*Inside width of column per Table B4.1a, b = B - 3*t*		
b / t	8.46	*Column slenderness ratio per AISC 15th p.10-153*		
Limit	35.15	*Slender wall limit per p.10-153, 1.40 * (E / Fy)^0.5*		
Geometry Restrictions at Beam				**PASS**
Check Min Bolt Spacing	**Pass**	*Condition: S_{min} >= (2+2/3) * d_{bolt}*		*(J3.3)*
S_{min}	3.00 in	*Min bolt spacing*		
d_{bolt}	0.75 in	*Bolt diameter*		
Check Max Bolt Spacing	**Pass**	*Condition: S_{max}<= min(12.00 in, 24*t)*		*(J3.5a)*
S_{max}	3.00 in	*Max bolt spacing*		
t	0.23 in	*Thickness of governing element (Beam)*		
Check Min Edge Distance	**Pass**	*Condition: ED_{min} >= ED_{allow}*		*(J3.4)*
Check Max Edge Distance	**Pass**	*Condition: ED_{max} <= min (6.00 in, 12*t)*		*(J3.5)*
Column Weld Limitations				**PASS**
Weld Max/Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: L_{min} ≥ 4*D per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	9.00 in	*Min weld segment length*		
Check Weld Max Length	**Pass**	*Condition: L_{max} ≤ 100*D*		
D	0.25 in	*Weld size*		
L_{max}	9.00 in	*Max weld segment length*		
Beam Shear Yield	4.02 kips	63.02 kips	**0.06**	**PASS**
R_n = 0.6 *F_y*A_{gv}*C_{v1}		**Ω = 1.50**	(G2-1)	
F_y	50.00 ksi	*Minimum yield stress of material*		
A_{gv}	3.15 in^2	*Gross area subject to shear*		
C_{v1}	1.00	*Web shear coefficient (G2-2)*		
R_n/Ω	63.02 kips	*Shear yield strength*		
Plate Shear Yield	4.02 kips	48.60 kips	**0.08**	**PASS**
R_n = 0.6 *F_y*A_{gv}		**Ω = 1.50**	(J4-3)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_{gv}	3.38 in^2	*Gross area subject to shear*		
R_n/Ω	48.60 kips	*Shear yield strength*		
Beam Shear Rupture	4.02 kips	49.67 kips	**0.08**	**PASS**
R_n = 0.6 *F_u*A_{nv}		**Ω = 2.0**	(J4-4)	
F_u	65.00 ksi	*Minimum tensile stress of material*		
A_{nv}	2.55 in^2	*Net area subject to shear*		
R_n/Ω	49.67 kips	*Shear rupture strength*		
Plate Shear Rupture at Beam	4.02 kips	41.60 kips	**0.10**	**PASS**
R_n = 0.6 *F_u*A_{nv}		**Ω = 2.0**	(J4-4)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_{nv}	2.39 in^2	*Net area subject to shear*		

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Brace at Floor: Beam/Column Report (continued):

Limit State	Required	Available	Unity Check	Result
R_n/Ω	41.60 kips	*Shear rupture strength*		
Beam Axial Yield	1.33 kips	194.31 kips	**0.01**	**PASS**
$R_n = F_y*A_g$		**Ω = 1.67**	(J4-1)	
F_y	50.00 ksi	*Minimum yield stress of material*		
A_g	6.49 in^2	*Gross area subject to tension*		
R_n/Ω	194.31 kips	*Tensile yield strength*		
Plate Axial Yield	1.33 kips	72.75 kips	**0.02**	**PASS**
$R_n = F_y*A_g$		**Ω = 1.67**	(J4-1)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	3.38 in^2	*Gross area subject to tension*		
R_n/Ω	72.75 kips	*Tensile yield strength*		
Beam Block Shear	4.02 kips	54.07 kips	**0.07**	**PASS**
$R_n = [\ \min(0.6*F_u*A_{nv}, 0.6*F_y*A_{gv}) + U_{bs}*F_u*A_{nt}\ ]$		**Ω = 2.00**	(J4-5)	
A_{gv}	3.08 in^2	*Gross area subject to shear*		
A_{nv}	2.57 in^2	*Net area subject to shear*		
U_{bs}	1.00	*Uniform tension stress factor*		
A_{nt}	0.24 in^2	*Net area subject to tension*		
F_u	65.00 ksi	*Minimum tensile stress of material*		
F_y	50.00 ksi	*Minimum yield stress of material*		
R_n/Ω	54.07 kips	*Block shear strength*		
Plate Block Shear at Beam	4.02 kips	52.80 kips	**0.08**	**PASS**
$R_n = [\ \min(0.6*F_u*A_{nv}, 0.6*F_y*A_{gv}) + U_{bs}*F_u*A_{nt}\ ]$		**Ω = 2.00**	(J4-5)	
A_{gv}	2.81 in^2	*Gross area subject to shear*		
A_{nv}	1.99 in^2	*Net area subject to shear*		
U_{bs}	1.00	*Uniform tension stress factor*		
A_{nt}	0.77 in^2	*Net area subject to tension*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
F_y	36.00 ksi	*Minimum yield stress of material*		
R_n/Ω	52.80 kips	*Block shear strength*		
Compression Buckling of the Plate	1.33 kips	72.75 kips	**0.02**	**PASS**
$R_n = F_y * A_g$		**Ω = 1.67**	(J4-6)	
K	1.00	*Effective length factor*		
L	1.50 in	*Unbraced length*		
r	0.11 in	*Radius of gyration*		
L_c	1.50 in	*Effective length, L_c=K*L*		
L_c/r	13.84	*Plate slenderness check from J4-6*		
F_y	36.00 ksi	*Capacity = Minimum Yield stress for L_c/r <= 25*		
A_g	3.38 in^2	*Gross area subject to compression*		
R_n/Ω	72.75 kips	*Compressive strength*		
Plate Flexural Yield			**0.01**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(AISC 15^{th} Eq.10-5)	
P_r	1.33 kips	*Calculated axial load*		
V_r	-4.02 kips	*Calculated shear load*		

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Brace at Floor: Beam/Column Report (continued):

Limit State	Required	Available	Unity Check	Result
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	3.38 in^2	*Gross area of the plate*		
Z_{pl}	7.59 in^3	*Plastic modulus of the shear plate*		
P_c	72.75 kips	*Available tensile strength (see check 'Axial Yield')*		
V_c	48.60 kips	*Available shear strength (see check 'Shear Yield')*		
ex	1.50 in	*Horizontal eccentricity*		
ey	0.85 in	*Vertical eccentricity*		
M_r	-0.41 kips-ft	*Moment due to eccentricity = V_r*ex + P_r*ey*		
M_c	13.64 kips-ft	*Available moment M_c=1/Ω*(F_y* Z), Ω=1.67*		
UC	0.01	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Plate Flexural Rupture			**0.01**	**PASS**
$(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$			(Eq.10-5)	
P_r	1.33 kips	*Calculated axial load*		
V_r	-4.02 kips	*Calculated shear load*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	2.39 in^2	*Net area of the plate*		
Z_{net}	5.55 in^3	*Plastic modulus of net section*		
V_c	41.60 kips	*Available shear strength (see check 'Shear Rupture')*		
ex	1.50 in	*Horizontal eccentricity*		
ey	0.85 in	*Vertical eccentricity*		
M_r	-0.41 kips-ft	*Moment due to eccentricity = V_r*ex + P_r*ey*		
M_c	13.42 kips-ft	*Available moment M_c= 1/Ω*(F_u* Znet), Ω=2.00*		
UC	0.01	*Unity check per interaction equation, $(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$*		
Plate Flexural Buckling			**0.09**	**PASS**
$P / (P_n/Ω) + V / (V_n/Ω) <= 1.0$		**Ω = 1.67**	(AISC 14th Edition)	
P	1.33 kips	*Calculated axial load*		
V	4.02 kips	*Calculated shear load*		
K	1.00	*Effective length factor*		
L	1.50 in	*Length of connecting element (distance between the applied load and resisting element)*		
r	0.11 in	*Radius of gyration of the plate*		
L_c	1.50 in	*Effective length, L_c=K*L*		
L_c/r	13.84	*Plate slenderness check from J4-6*		
F_e	1494.08 ksi	*Elastic critical buckling stress, per eqn E3-4, $F_e = (\pi^2 * E)/(L_c/r)^2$*		
F_y	36.00 ksi	*Minimum yield stress of material*		
F_{cr_Comp}	35.64 ksi	*Compression stress = F_y when $L_c/r <= 25$, per J4.4*		
A_g	3.38 in^2	*Gross area of the plate*		
λ	0.33	*Buckling factor AISC 14th (eqn 9-18)*		
Q	1.00	*Buckling factor AISC 14th (eqn 9-15 through 9-17)*		
F_{cr_Flex}	36.00 ksi	*Critical stress, AISC 14th per eqn 9-14, Fcr = Fy * Q*		
S_{net}	3.74 in^3	*Section modulus of net section*		
a	1.50 in	*Design eccentricity*		
P_n	121.50 kips	*Compressive capacity, per eqn J4-1, Pn = Fy * Ag*		

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Brace at Floor: Beam/Column Report (continued):

Limit State	Required	Available	Unity Check	Result
V_n	89.67 kips	*Plate flexural buckling, per AISC 14th eqn 9-6, Vn = (Fcr_Flex * Snet) /a*		
UC	0.09	*Unity check per interaction equation, P/(Pn/Ω) + V/(Vn/Ω) <= 1*		
Bolt Bearing on Beam	4.23 kips	35.78 kips	**0.12**	**PASS**
$R_n = 1*R_{n\_boltA} + 2*R_{n\_boltB}$		**Ω = 2.00**	(section J3.10)	
V	-4.02 kips	*Applied shear force*		
P	1.33 kips	*Applied axial force*		
$R=(V^2 + P^2)^{0.5}$	4.23 kips	*Resultant shear force*		
Θ	71.65 degrees	*Angle between the resultant shear force and horizontal*		
d_b	0.75 in	*Bolt diameter*		
d_v	0.81 in	*Slotted hole vertical dimension*		
d_h	0.81 in	*Slotted hole horizontal dimension*		
d_c	0.41 in	*Distance from center of bolt to the edge of the hole*		
F_u	65.00 ksi	*Minimum tensile stress of material*		
t	0.23 in	*Thickness of material*		
s_v	3.00 in	*Vertical bolt spacing*		
s_h	0.00 in	*Horizontal bolt spacing*		
e_v	3.00 in	*Vertical edge spacing*		
L_{c_boltB}	2.33 in	*Minimum clear distance for the side edge bolts: Lc_boltB = (s_v - 0.5 * d_v) /sin(Θ) - d_c*		
R_{n_boltA}	23.86 kips	*Available bearing strength for the corner edge bolt: Rn_boltA = min[(2.4*d_b * t * Fu), $R_{n\text{-}bolt}$]*		
R_{n_boltB}	23.86 kips	*Available bearing strength for each side edge bolt: Rn_boltB = min[(1.2* Lc_boltB * t * Fu), (2.4*d_b * t * Fu), $R_{n\text{-}bolt}$]*		
$R_{n\text{-}bolt}$	23.86 kips	*Bolt shear strength $R_{n\text{-}bolt}=F_{nv}*A_{bolt}$*		
F_{nv}	54.00 ksi	*Nominal shear stress of bolt*		
$R_n/Ω$	35.78 kips	*Total bolt bearing strength*		
Bolt Bearing on Plate at Beam	4.23 kips	35.78 kips	**0.12**	**PASS**
$R_n = 1*R_{n\_boltA} + 2*R_{n\_boltB}$		**Ω = 2.00**	(section J3.10)	
V	-4.02 kips	*Applied shear force*		
P	1.33 kips	*Applied axial force*		
$R=(V^2 + P^2)^{0.5}$	4.23 kips	*Resultant shear force*		
Θ	71.65 degrees	*Angle between the resultant shear force and horizontal*		
d_b	0.75 in	*Bolt diameter*		
d_v	0.81 in	*Slotted hole vertical dimension*		
d_h	0.81 in	*Slotted hole horizontal dimension*		
d_c	0.41 in	*Distance from center of bolt to the edge of the hole*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
t	0.38 in	*Thickness of material*		
s_v	3.00 in	*Vertical bolt spacing*		
s_h	0.00 in	*Horizontal bolt spacing*		
e_v	1.50 in	*Vertical edge spacing*		
e_h	1.50 in	*Horizontal edge spacing*		
L_{c_boltA}	1.17 in	*Minimum clear distance for the corner edge bolt: Lc_boltA = min(e_v /sin(Θ), e_h /cos(Θ)) - d_c*		

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Brace at Floor: Beam/Column Report (continued):

Limit State	Required	Available	Unity Check	Result
L_{c_boltB}	2.33 in	*Minimum clear distance for the side edge bolts: Lc_boltB = min ((s_v - 0.5 * d_v) /sin(Θ), e_h /cos(Θ)) - d_c*		
R_{n_boltA}	23.86 kips	*Available bearing strength for the corner edge bolt: Rn_boltA = min[(1.2* Lc_boltA * t * Fu), (2.4*d_b * t * Fu), $R_{n\text{-}bolt}$]*		
R_{n_boltB}	23.86 kips	*Available bearing strength for each side edge bolt: Rn_boltB = min[(1.2* Lc_boltB * t * Fu), (2.4*d_b * t * Fu), $R_{n\text{-}bolt}$]*		
$R_{n\text{-}bolt}$	23.86 kips	*Bolt shear strength $R_{n\text{-}bolt}$=F_{nv}*A_{bolt}*		
F_{nv}	54.00 ksi	*Nominal shear stress of bolt*		
R_n/Ω	35.78 kips	*Total bolt bearing strength*		
Bolt Shear at Beam	4.23 kips	34.57 kips	**0.12**	**PASS**
$R_n = F_{nv}*A_b*N_{bolt}*C$		**Ω = 2.00**	(J3-1)	
V	-4.02 kips	*Applied shear force*		
P	1.33 kips	*Applied axial force*		
$R=(V^2 + P^2)^{0.5}$	4.23 kips	*Resultant force in bolts*		
F_{nv}	54.00 ksi	*Shear stress N type*		
A_b	0.44 in^2	*Area of bolt*		
N_{bolt}	3	*Number of bolts*		
C	0.97	*Eccentricity coefficient*		
R_n/Ω	34.57 kips	*Bolt shear rupture strength*		
Bolt Group Eccentricity		***0.97***		
IC method (+interpolation)			(AISC 15th p.7-6)	
C	0.97	*Coefficient (2.8985 / 3)*		
N_{rows}	1	*Number of rows of bolts*		
N_{cols}	3	*Number of bolts per row*		
D_x	0.00 in	*Horizontal bolt spacing*		
D_y	3.00 in	*Vertical bolt spacing*		
E_x	0.00 in	*Horizontal eccentricity*		
E_y	0.85 in	*Vertical eccentricity*		
Ang	71.65	*Angle of force in degrees, relative X axis*		
IC_x	10.25 in	*Center of rotation, X*		
IC_y	-3.55 in	*Center of rotation, Y*		
Weld at Column	4.23 kips	66.82 kips	**0.06**	**PASS**
$Rn/\Omega = 2 * C_1 * \alpha * 0.928 * D_{16} * L$				
Double Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	9.00 in	*Weld length*		
Rn/Ω	66.82 kips	*Weld strength*		
HSS Column Transverse Plastification	1.33 kips	44.05 kips	**0.03**	**PASS**
$R_n = (0.5*t^2*F_y) * ((a+b)*(4*((T*a*b)/(a+b))^{0.5} +L)/(a*b))*Q_f$		**Ω = 1.50**	(AISC 15th Eq.9-30)	

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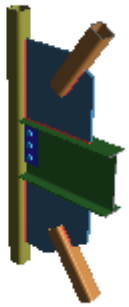
Brace at Floor: Beam/Column Report (continued):

Limit State	Required	Available	Unity Check	Result
F_y	46.00 ksi	*Minimum yield stress of column material*		
B	4.00 in	*Column width*		
t	0.35 in	*Column wall thickness*		
L	9.00 in	*Length of shear plate*		
T	2.95 in	*Unbraced length of HSS column face (AISC 15th Fig.9-5), T = B - 3*t*		
a	0.99 in	*Distance from left side to edge of shear plate (AISC 15th Fig.9-5)*		
b	1.59 in	*Distance from right side to edge of shear plate (AISC 15th Fig.9 -5)*		
c	0.38 in	*Width of shear plate connection*		
Q_f	1.00	*Column stress interaction parameter (user input)*		
R_n/Ω	44.05 kips	*Transverse plastification strength*		

Brace at Floor: Top Gusset/Beam Report

Vertical Brace Diagonal Connection



Material Properties:				
Beam	W14X22	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Plate	P0.38x4.00x9.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Top Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Top Gusset	P0.75x17.60x17.92	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Bottom Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Bottom Gusset	P0.75x18.00x18.20	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Shear Load	-4.22 kips	*Calculated Shear Load*
Axial Load	-3.23 kips	*Calculated Axial Load (tension)*
Moment Load	0.00 kips-ft	*Calculated Moment*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Required Load Calculation				**n/a**
Zero Moment (Uniform Force Method)			(AISC Steel Design Manual pg 13-5)	
P_{br}	-9.00 kips	*Axial load in the brace*		
θ	35.00 degrees	*Brace angle from vertical*		
g_c	0.00 in	*Gap between column and gusset*		
g_b	0.00 in	*Gap between beam and gusset*		
L_g	17.92 in	*Gusset to beam length*		
H_g	17.60 in	*Gusset to column height*		
e_b	6.85 in	*One half depth of beam*		
e_c	2.00 in	*One half depth of column*		
α	8.96 in	*Distance from face of column to the centroid of gusset/beam connection*		
β	8.80 in	*Distance from face of beam flange to the centroid of gusset/column connection*		
r	19.10 in	*Per Eqn (13-6), $r = ((\alpha + e_c)^2 + (\beta + e_b)^2)^{0.5}$*		
Check Uniform Force Method Applicability				
Ratio	Pass	*Condition: $\alpha - \beta * \tan(\vartheta) = e_b * \tan(\vartheta) - e_c$*		
Top Gusset/Beam Forces				
V_{b_t}	-3.23 kips	*Axial load at top gusset/beam per Eqn (13-4), $V_{b\_t} = (e_b/r)*P_{br}$*		
H_{b_t}	-4.22 kips	*Shear load at top gusset/beam per Eqn (13-5), $H_{b\_t} = (\alpha/r)*P_{br}$*		
Beam Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		

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Brace at Floor: Top Gusset/Beam Report (continued):

Limit State	Required	Available	Unity Check	Result
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.34 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	17.92 in	*Min weld segment length*		
Plate Shear Yield	4.22 kips	193.49 kips	**0.02**	**PASS**
$R_n = 0.6 * F_y * A_{gv}$		**Ω = 1.50**	(J4-3)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_{gv}	13.44 in^2	*Gross area subject to shear*		
$R_n/Ω$	193.49 kips	*Shear yield strength*		
Plate Shear Rupture	4.22 kips	233.80 kips	**0.02**	**PASS**
$R_n = 0.6 * F_u * A_{nv}$		**Ω = 2.0**	(J4-4)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_{nv}	13.44 in^2	*Net area subject to shear*		
$R_n/Ω$	233.80 kips	*Shear rupture strength*		
Plate Axial Yield	3.23 kips	289.66 kips	**0.01**	**PASS**
$R_n = F_y * A_g$		**Ω = 1.67**	(J4-1)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	13.44 in^2	*Gross area subject to tension*		
$R_n/Ω$	289.66 kips	*Tensile yield strength*		
Plate Tension Rupture	3.23 kips	389.67 kips	**0.01**	**PASS**
$R_n = F_u * A_n$		**Ω = 2.0**	(J4-2)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	13.44 in^2	*Net area subject to tension*		
$R_n/Ω$	389.67 kips	*Tensile rupture strength*		
Plate Flexural Yield			**0.00**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(AISC 15th Eq.10-5)	
P_r	-3.23 kips	*Calculated axial load*		
V_r	4.22 kips	*Calculated shear load*		
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	13.44 in^2	*Gross area of the plate*		
Z_{pl}	60.18 in^3	*Plastic modulus of the shear plate*		
P_c	289.66 kips	*Available tensile strength (see check 'Axial Yield')*		
V_c	193.49 kips	*Available shear strength (see check 'Shear Yield')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	108.11 kips-ft	*Available moment $M_c=1/Ω*(F_y * Z)$, $Ω=1.67$*		
UC	0.00	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Plate Flexural Rupture			**0.00**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(Eq.10-5)	
P_r	-3.23 kips	*Calculated axial load*		
V_r	4.22 kips	*Calculated shear load*		

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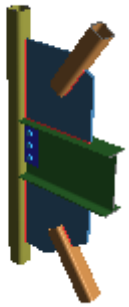
Brace at Floor: Top Gusset/Beam Report (continued):

Limit State	Required	Available	Unity Check	Result
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	13.44 in^2	*Net area of the plate*		
Z_{net}	60.18 in^3	*Plastic modulus of net section*		
P_c	389.67 kips	*Available tensile strength (see check 'Tension Rupture')*		
V_c	233.80 kips	*Available shear strength (see check 'Shear Rupture')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	145.44 kips-ft	*Available moment M_c= 1/Ω*(F_u* Znet), Ω=2.00*		
UC	0.00	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Beam Weld Strength	5.31 kips	106.41 kips	**0.05**	**PASS**
$Rn/\Omega = 2 * C_1 * \alpha * \beta * 0.928 * D_{16} * L$				
Double Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.34 in	*Base material thickness (beam)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
β	0.80	*Force redistribution adjustment factor*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	17.92 in	*Weld length*		
Rn/Ω	106.41 kips	*Weld strength*		
Beam Web Yielding	3.23 kips	165.53 kips	**0.02**	**PASS**
$R_n = (5 * k + l_b) * F_y * t_w$		**Ω = 1.50**	(J10-2)	
F_y	50.00 ksi	*Minimum yield stress of beam*		
t_w	0.23 in	*Beam web thickness*		
k	0.73 in	*Distance from outer face of the flange to the web toe of the fillet*		
l_b	17.92 in	*Length of bearing*		
R_n/Ω	165.53 kips	*Beam web local yielding*		

Brace at Floor: Bot Gusset/Beam Report

Vertical Brace Diagonal Connection



Material Properties:				
Beam	W14X22	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Plate	P0.38x4.00x9.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Top Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Top Gusset	P0.75x17.60x17.92	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Bottom Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Bottom Gusset	P0.75x18.00x18.20	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Shear Load	10.34 kips	*Calculated Shear Load*
Axial Load	7.79 kips	*Calculated Axial Load (compression)*
Moment Load	0.00 kips-ft	*Calculated Moment*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Required Load Calculation				**n/a**
Zero Moment (Uniform Force Method)			(AISC Steel Design Manual pg 13-5)	
P_{br}	22.00 kips	*Axial load in the brace*		
θ	35.00 degrees	*Brace angle from vertical*		
g_c	0.00 in	*Gap between column and gusset*		
g_b	0.00 in	*Gap between beam and gusset*		
L_g	18.20 in	*Gusset to beam length*		
H_g	18.00 in	*Gusset to column height*		
e_b	6.85 in	*One half depth of beam*		
e_c	2.00 in	*One half depth of column*		
α	9.10 in	*Distance from face of column to the centroid of gusset/beam connection*		
β	9.00 in	*Distance from face of beam flange to the centroid of gusset/column connection*		
r	19.35 in	*Per Eqn (13-6), $r = ((\alpha + e_c)^2 + (\beta + e_b)^2)^{0.5}$*		
Check Uniform Force Method Applicability				
Ratio	Pass	*Condition: $\alpha - \beta * \tan(\vartheta) = e_b * \tan(\vartheta) - e_c$*		
Bottom Gusset/Beam Forces				
V_{b_b}	7.79 kips	*Axial load at bottom gusset/beam per Eqn (13-4), $V_{b\_b} = (e_b/r)*P_{br}$*		
H_{b_b}	10.34 kips	*Shear load at bottom gusset/beam per Eqn (13-5), $H_{b\_b} = (\alpha/r)*P_{br}$*		

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Brace at Floor: Bot Gusset/Beam Report (continued):

Limit State	Required	Available	Unity Check	Result
Beam Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.34 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	18.20 in	*Min weld segment length*		
Plate Shear Yield	10.34 kips	196.52 kips	**0.05**	**PASS**
$R_n = 0.6 * F_y * A_{gv}$		**Ω = 1.50**	(J4-3)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_{gv}	13.65 in^2	*Gross area subject to shear*		
$R_n/Ω$	196.52 kips	*Shear yield strength*		
Plate Shear Rupture	10.34 kips	237.47 kips	**0.04**	**PASS**
$R_n = 0.6 * F_u * A_{nv}$		**Ω = 2.0**	(J4-4)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_{nv}	13.65 in^2	*Net area subject to shear*		
$R_n/Ω$	237.47 kips	*Shear rupture strength*		
Plate Axial Yield	7.79 kips	294.20 kips	**0.03**	**PASS**
$R_n = F_y * A_g$		**Ω = 1.67**	(J4-1)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	13.65 in^2	*Gross area subject to tension*		
$R_n/Ω$	294.20 kips	*Tensile yield strength*		
Plate Flexural Yield			**0.00**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(AISC 15th Eq.10-5)	
P_r	7.79 kips	*Calculated axial load*		
V_r	10.34 kips	*Calculated shear load*		
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	13.65 in^2	*Gross area of the plate*		
Z_{pl}	62.08 in^3	*Plastic modulus of the shear plate*		
P_c	294.20 kips	*Available tensile strength (see check 'Axial Yield')*		
V_c	196.52 kips	*Available shear strength (see check 'Shear Yield')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	111.53 kips-ft	*Available moment $M_c = 1/Ω*(F_y * Z)$, Ω=1.67*		
UC	0.00	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Plate Flexural Rupture			**0.00**	**PASS**
$(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$			(Eq.10-5)	
P_r	0.00 kips	*Calculated axial load*		
V_r	10.34 kips	*Calculated shear load*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	13.65 in^2	*Net area of the plate*		

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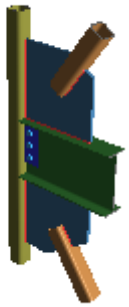
Brace at Floor: Bot Gusset/Beam Report (continued):

Limit State	Required	Available	Unity Check	Result
Z_{net}	62.08 in^3	*Plastic modulus of net section*		
V_c	237.47 kips	*Available shear strength (see check 'Shear Rupture')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	150.04 kips-ft	*Available moment M_c= 1/Ω*(F_u* Znet), Ω=2.00*		
UC	0.00	*Unity check per interaction equation, $(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$*		
Beam Weld Strength	10.34 kips	108.07 kips	**0.10**	**PASS**
Rn/Ω = 2 * C_1 * α * β * 0.928 * D_{16} * L				
Double Fillet				
0.928 = 0.6 * F_{E70} * $2^{0.5}$/2 * 1/16 / Ω, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.34 in	*Base material thickness (beam)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
β	0.80	*Force redistribution adjustment factor*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	18.20 in	*Weld length*		
Rn/Ω	108.07 kips	*Weld strength*		
Beam Web Yielding	7.79 kips	167.68 kips	**0.05**	**PASS**
R_n = (5 * k + l_b) * F_y * t_w		**Ω = 1.50**	(J10-2)	
F_y	50.00 ksi	*Minimum yield stress of beam*		
t_w	0.23 in	*Beam web thickness*		
k	0.73 in	*Distance from outer face of the flange to the web toe of the fillet*		
l_b	18.20 in	*Length of bearing*		
R_n/Ω	167.68 kips	*Beam web local yielding*		

Brace at Floor: Top Gusset/Col Report

Vertical Brace Diagonal Connection



Material Properties:

Beam	W14X22	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Plate	P0.38x4.00x9.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Top Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Top Gusset	P0.75x17.60x17.92	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Bottom Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Bottom Gusset	P0.75x18.00x18.20	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:

Shear Load	-4.15 kips	*Calculated Shear Load*
Axial Load	-0.94 kips	*Calculated Axial Load (tension)*
Moment Load	0.00 kips-ft	*Calculated Moment*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Required Load Calculation				**n/a**
Zero Moment (Uniform Force Method)			(AISC Steel Design Manual pg 13-5)	
P_{br}	-9.00 kips	*Axial load in the brace*		
θ	35.00 degrees	*Brace angle from vertical*		
g_c	0.00 in	*Gap between column and gusset*		
g_b	0.00 in	*Gap between beam and gusset*		
L_g	17.92 in	*Gusset to beam length*		
H_g	17.60 in	*Gusset to column height*		
e_b	6.85 in	*One half depth of beam*		
e_c	2.00 in	*One half depth of column*		
α	8.96 in	*Distance from face of column to the centroid of gusset/beam connection*		
β	8.80 in	*Distance from face of beam flange to the centroid of gusset/column connection*		
r	19.10 in	*Per Eqn (13-6), $r = ((\alpha + e_c)^2 + (\beta + e_b)^2)^{0.5}$*		
Check Uniform Force Method Applicability				
Ratio	Pass	*Condition: $\alpha - \beta * \tan(\vartheta) = e_b * \tan(\vartheta) - e_c$*		
Top Gusset/Column Forces				
V_{c_t}	-4.15 kips	*Shear load at top gusset/column per Eqn (13-2), $V_{c\_t} = (\beta/r) * P_{br}$*		
H_{c_t}	-0.94 kips	*Axial load at top gusset/column per Eqn (13-3), $H_{c\_t} = (e_c/r) * P_{br}$*		
HSS Limitations				**PASS**
Check Column Slenderness	**Pass**	*Condition: b/t ≤ Limit per AISC 15th p.10-153*		

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Brace at Floor: Top Gusset/Col Report (continued):

Limit State	Required	Available	Unity Check	Result
E	29000.00 ksi	*Modulus of elasticity*		
F_y	46.00 ksi	*Column yield strength*		
t	0.35 in	*Column wall thickness*		
B	4.00 in	*Column face width*		
b	2.95 in	*Inside width of column per Table B4.1a, b = B - 3*t*		
b / t	8.46	*Column slenderness ratio per AISC 15th p.10-153*		
Limit	35.15	*Slender wall limit per p.10-153, 1.40 * (E / Fy)^0.5*		
Column Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	17.60 in	*Min weld segment length*		
Plate Shear Yield	4.15 kips	190.07 kips	**0.02**	**PASS**
$R_n = 0.6 * F_y * A_{gv}$		**Ω = 1.50**	(J4-3)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_{gv}	13.20 in^2	*Gross area subject to shear*		
$R_n/Ω$	190.07 kips	*Shear yield strength*		
Plate Shear Rupture	4.15 kips	229.67 kips	**0.02**	**PASS**
$R_n = 0.6 * F_u * A_{nv}$		**Ω = 2.0**	(J4-4)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_{nv}	13.20 in^2	*Net area subject to shear*		
$R_n/Ω$	229.67 kips	*Shear rupture strength*		
Plate Axial Yield	0.94 kips	284.54 kips	**0.00**	**PASS**
$R_n = F_y * A_g$		**Ω = 1.67**	(J4-1)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	13.20 in^2	*Gross area subject to tension*		
$R_n/Ω$	284.54 kips	*Tensile yield strength*		
Plate Tension Rupture	0.94 kips	382.78 kips	**0.00**	**PASS**
$R_n = F_u * A_n$		**Ω = 2.0**	(J4-2)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	13.20 in^2	*Net area subject to tension*		
$R_n/Ω$	382.78 kips	*Tensile rupture strength*		
Plate Flexural Yield			**0.00**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(AISC 15th Eq.10-5)	
P_r	-0.94 kips	*Calculated axial load*		
V_r	4.15 kips	*Calculated shear load*		
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	13.20 in^2	*Gross area of the plate*		
Z_{pl}	58.07 in^3	*Plastic modulus of the shear plate*		
P_c	284.54 kips	*Available tensile strength (see check 'Axial Yield')*		

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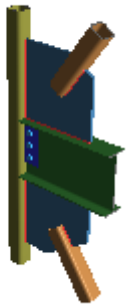
Brace at Floor: Top Gusset/Col Report (continued):

Limit State	Required	Available	Unity Check	Result
V_c	190.07 kips	*Available shear strength (see check 'Shear Yield')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	104.33 kips-ft	*Available moment M_c=1/Ω*(F_y* Z), Ω=1.67*		
UC	0.00	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Plate Flexural Rupture			**0.00**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(Eq.10-5)	
P_r	-0.94 kips	*Calculated axial load*		
V_r	4.15 kips	*Calculated shear load*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	13.20 in^2	*Net area of the plate*		
Z_{net}	58.07 in^3	*Plastic modulus of net section*		
P_c	382.78 kips	*Available tensile strength (see check 'Tension Rupture')*		
V_c	229.67 kips	*Available shear strength (see check 'Shear Rupture')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	140.35 kips-ft	*Available moment M_c= 1/Ω*(F_u* Znet), Ω=2.00*		
UC	0.00	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Column Weld Strength	4.25 kips	104.53 kips	**0.04**	**PASS**
$Rn/\Omega = 2 * C_1 * \alpha * \beta * 0.928 * D_{16} * L$				
Double Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
β	0.80	*Force redistribution adjustment factor*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	17.60 in	*Weld length*		
Rn/Ω	104.53 kips	*Weld strength*		
HSS Column Transverse Plastification	0.94 kips	76.98 kips	**0.01**	**PASS**
$R_n = (0.5*t^2*F_y) * ((a+b)*(4*((T*a*b)/(a+b))^{0.5} +L)/(a*b))*Q_f$		**Ω = 1.50**	(AISC 15th Eq.9-30)	
F_y	46.00 ksi	*Minimum yield stress of column material*		
B	4.00 in	*Column width*		
t	0.35 in	*Column wall thickness*		
L	17.60 in	*Length of gusset plate*		
T	2.95 in	*Unbraced length of HSS column face (AISC 15th Fig.9-5), T = B - 3*t*		
a	1.10 in	*Distance from left side to edge of gusset plate (AISC 15th Fig.9-5)*		
b	1.10 in	*Distance from right side to edge of gusset plate (AISC 15th Fig.9-5)*		
c	0.75 in	*Width of gusset plate connection*		
Q_f	1.00	*Column stress interaction parameter (user input)*		
R_n/Ω	76.98 kips	*Transverse plastification strength*		

Brace at Floor: Bot Gusset/Col Report

Vertical Brace Diagonal Connection



Material Properties:				
Beam	W14X22	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Plate	P0.38x4.00x9.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Top Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Top Gusset	P0.75x17.60x17.92	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Bottom Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Bottom Gusset	P0.75x18.00x18.20	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Shear Load	10.23 kips	*Calculated Shear Load*
Axial Load	2.27 kips	*Calculated Axial Load (compression)*
Moment Load	0.00 kips-ft	*Calculated Moment*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Required Load Calculation				**n/a**
Zero Moment (Uniform Force Method)			(AISC Steel Design Manual pg 13-5)	
P_{br}	22.00 kips	*Axial load in the brace*		
θ	35.00 degrees	*Brace angle from vertical*		
g_c	0.00 in	*Gap between column and gusset*		
g_b	0.00 in	*Gap between beam and gusset*		
L_g	18.20 in	*Gusset to beam length*		
H_g	18.00 in	*Gusset to column height*		
e_b	6.85 in	*One half depth of beam*		
e_c	2.00 in	*One half depth of column*		
α	9.10 in	*Distance from face of column to the centroid of gusset/beam connection*		
β	9.00 in	*Distance from face of beam flange to the centroid of gusset/column connection*		
r	19.35 in	*Per Eqn (13-6), $r = ((\alpha + e_c)^2 + (\beta + e_b)^2)^{0.5}$*		
Check Uniform Force Method Applicability				
Ratio	Pass	*Condition: $\alpha - \beta * \tan(\vartheta) = e_b * \tan(\vartheta) - e_c$*		
Bottom Gusset/Column Forces				
V_{c_b}	10.23 kips	*Shear load at bottom gusset/column per Eqn (13-2), $V_{c\_b} = (\beta/r) * P_{br}$*		
H_{c_b}	2.27 kips	*Axial load at bottom gusset/column per Eqn (13-3), $H_{c\_b} = (e_c/r) * P_{br}$*		
HSS Limitations				**PASS**

continued on next page...

Brace at Floor: Bot Gusset/Col Report (continued):

Limit State	Required	Available	Unity Check	Result
Check Column Slenderness	**Pass**	*Condition: b/t ≤ Limit per AISC 15th p.10-153*		
E	29000.00 ksi	*Modulus of elasticity*		
F_y	46.00 ksi	*Column yield strength*		
t	0.35 in	*Column wall thickness*		
B	4.00 in	*Column face width*		
b	2.95 in	*Inside width of column per Table B4.1a, b = B - 3*t*		
b / t	8.46	*Column slenderness ratio per AISC 15th p.10-153*		
Limit	35.15	*Slender wall limit per p.10-153, 1.40 * (E / Fy)$^{0.5}$*		
Column Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: L_{min} ≥ 4*D per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	18.00 in	*Min weld segment length*		
Plate Shear Yield	10.23 kips	194.40 kips	**0.05**	**PASS**
R_n = 0.6 *F_y*A_{gv}		**Ω = 1.50**	(J4-3)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_{gv}	13.50 in^2	*Gross area subject to shear*		
R_n/Ω	194.40 kips	*Shear yield strength*		
Plate Shear Rupture	10.23 kips	234.90 kips	**0.04**	**PASS**
R_n = 0.6 *F_u*A_{nv}		**Ω = 2.0**	(J4-4)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_{nv}	13.50 in^2	*Net area subject to shear*		
R_n/Ω	234.90 kips	*Shear rupture strength*		
Plate Axial Yield	2.27 kips	291.02 kips	**0.01**	**PASS**
R_n = F_y*A_g		**Ω = 1.67**	(J4-1)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	13.50 in^2	*Gross area subject to tension*		
R_n/Ω	291.02 kips	*Tensile yield strength*		
Plate Flexural Yield			**0.00**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(AISC 15th Eq.10-5)	
P_r	2.27 kips	*Calculated axial load*		
V_r	10.23 kips	*Calculated shear load*		
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	13.50 in^2	*Gross area of the plate*		
Z_{pl}	60.75 in^3	*Plastic modulus of the shear plate*		
P_c	291.02 kips	*Available tensile strength (see check 'Axial Yield')*		
V_c	194.40 kips	*Available shear strength (see check 'Shear Yield')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	109.13 kips-ft	*Available moment M_c=1/Ω*(F_y* Z), Ω=1.67*		

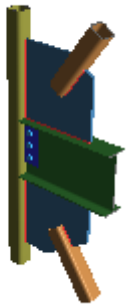
continued on next page...

Brace at Floor: Bot Gusset/Col Report (continued):

Limit State	Required	Available	Unity Check	Result
UC	0.00	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Plate Flexural Rupture			**0.00**	**PASS**
$(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$			(Eq.10-5)	
P_r	0.00 kips	*Calculated axial load*		
V_r	10.23 kips	*Calculated shear load*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	13.50 in^2	*Net area of the plate*		
Z_{net}	60.75 in^3	*Plastic modulus of net section*		
V_c	234.90 kips	*Available shear strength (see check 'Shear Rupture')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	146.81 kips-ft	*Available moment $M_c = 1/\Omega * (F_u * Znet)$, $\Omega=2.00$*		
UC	0.00	*Unity check per interaction equation, $(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$*		
Column Weld Strength	10.23 kips	106.91 kips	**0.10**	**PASS**
$Rn/\Omega = 2 * C_1 * \alpha * \beta * 0.928 * D_{16} * L$				
Double Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, $\Omega=2.00$ (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
β	0.80	*Force redistribution adjustment factor*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	18.00 in	*Weld length*		
Rn/Ω	106.91 kips	*Weld strength*		
HSS Column Transverse Plastification	2.27 kips	78.34 kips	**0.03**	**PASS**
$R_n = (0.5*t^2*F_y) * ((a+b)*(4*((T*a*b)/(a+b))^{0.5} +L)/(a*b))*Q_f$		**Ω = 1.50**	(AISC 15th Eq.9-30)	
F_y	46.00 ksi	*Minimum yield stress of column material*		
B	4.00 in	*Column width*		
t	0.35 in	*Column wall thickness*		
L	18.00 in	*Length of gusset plate*		
T	2.95 in	*Unbraced length of HSS column face (AISC 15th Fig.9-5), T = B - 3*t*		
a	1.10 in	*Distance from left side to edge of gusset plate (AISC 15th Fig.9-5)*		
b	1.10 in	*Distance from right side to edge of gusset plate (AISC 15th Fig.9-5)*		
c	0.75 in	*Width of gusset plate connection*		
Q_f	1.00	*Column stress interaction parameter (user input)*		
R_n/Ω	78.34 kips	*Transverse plastification strength*		

Brace at Floor: Top Gusset/Brace Report

Vertical Brace Diagonal Connection



Material Properties:

Beam	W14X22	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Plate	P0.38x4.00x9.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Top Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Top Gusset	P0.75x17.60x17.92	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Bottom Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Bottom Gusset	P0.75x18.00x18.20	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:

Brace Axial	-9.00 kips	*Brace Axial (tension)*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Brace Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	8.20 in	*Min weld segment length*		
Check Weld Max Length	**Pass**	*Condition: $L_{max} \leq 100*D$*		
D	0.25 in	*Weld size*		
L_{max}	8.20 in	*Max weld segment length*		
Gusset Plate Tensile Yield (Whitmore)	9.00 kips	217.83 kips	**0.04**	**PASS**
$R_n = F_y*A_g$		**Ω = 1.67**	(J4-1)	
F_y	36.00 ksi	*Gusset plate yield stress*		
A_g	10.11 in^2	*Gross area of plate (Whitmore) $A_g=L_w*t$*		
L_w	13.47 in	*Whitmore tensile width*		
t	0.75 in	*Thickness of plate*		
$R_n/Ω$	217.83 kips	*Plate tensile yield strength*		
Gusset Plate Tensile Rupture (Whitmore)	9.00 kips	293.05 kips	**0.03**	**PASS**
$R_n = F_u*A_n$		**Ω = 2.0**	(J4-2)	
F_u	58.00 ksi	*Gusset plate tensile stress*		
A_n	10.11 in^2	*Net area of plate*		
L_w	13.47 in	*Whitmore tensile width*		
t	0.75 in	*Thickness of plate*		

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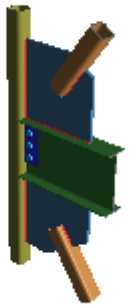
Brace at Floor: Top Gusset/Brace Report (continued):

Limit State	Required	Available	Unity Check	Result
R_n/Ω	293.05 kips	*Plate tensile rupture strength*		
Brace Tensile Yield	9.00 kips	131.66 kips	**0.07**	**PASS**
$R_n = F_y * A_g$		**Ω = 1.67**	(D2-1)	
F_y	46.00 ksi	*Minimum yield stress of material*		
A_g	4.78 in^2	*Gross area subject to tension*		
R_n/Ω	131.66 kips	*Tensile yield strength*		
Brace Tensile Rupture	9.00 kips	98.80 kips	**0.09**	**PASS**
$R_n = F_u * A_e$		**Ω = 2.00**	(D2-2)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_e	3.41 in^2	*Effective net area, $A_e = A_n * U$*		
A_n	4.17 in^2	*Net area subject to tension*		
$U_{D3.1}$	0.82	*Shear lag factor (table D3.1)*		
U_{Bound}	0.48	*Shear lag factor (lower bound)*		
U	0.82	*Governing shear lag factor, max($U_{D3.1}$, U_{Bound})*		
R_n/Ω	98.80 kips	*Tensile rupture strength*		
Brace Weld Strength	9.00 kips	121.82 kips	**0.07**	**PASS**
$Rn/\Omega = 4 * C_1 * \alpha * 0.928 * D_{16} * L$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (top brace)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	8.20 in	*Weld length*		
Rn/Ω	121.82 kips	*Weld strength*		

Brace at Floor: Bot Gusset/Brace Report

Vertical Brace Diagonal Connection



Material Properties:

Beam	W14X22	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Plate	P0.38x4.00x9.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Top Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Top Gusset	P0.75x17.60x17.92	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Bottom Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Bottom Gusset	P0.75x18.00x18.20	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:

Brace Axial	22.00 kips	*Brace Axial (compression)*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Brace Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	5.35 in	*Min weld segment length*		
Check Weld Max Length	**Pass**	*Condition: $L_{max} \leq 100*D$*		
D	0.25 in	*Weld size*		
L_{max}	5.35 in	*Max weld segment length*		
Gusset Plate Compression (Whitmore)	22.00 kips	158.44 kips	**0.14**	**PASS**
$P_n = F_{cr}*A_g$		**Ω = 1.67**	(E3-1)	
K	0.50	*Effective length factor*		
L	11.64 in	*Unbraced length*		
r	0.22 in	*Radius of gyration*		
L_c	5.82 in	*Effective length, L_c=K*L*		
L_c/r	26.88	*Plate slenderness check from J4-6*		
F_{cr}	34.66 ksi	*Flexural buckling stress (E3-2)*		
A_g	7.63 in^2	*Gross area of plate (Whitmore section)*		
$P_n/Ω$	158.44 kips	*Gusset plate compressive strength*		

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Brace at Floor: Bot Gusset/Brace Report (continued):

Limit State	Required	Available	Unity Check	Result
Brace Weld Strength	22.00 kips	79.47 kips	**0.28**	**PASS**
$Rn/\Omega = 4 * C_1 * \alpha * 0.928 * D_{16} * L$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (bottom brace)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	5.35 in	*Weld length*		
Rn/Ω	79.47 kips	*Weld strength*		

General

Connection	
Connection Title	Brace at Floor
Connection Type	Vertical Brace Diagonal Connection
Seismic Detailing	
Seismic System	None
Connection Category	
Braces	Both
Column Connection Type	Narrow
Loading (ASD)	
Shear Load	7.000 kips
Beam Axial Load	0.000 kips
Column Force	34.200 kips
Axial Transfer Force	0.000 kips
Shear Transfer Force	0.000 kips
Column Moment	4.000 kips-ft
Top Brace Axial	-9.000 kips
Bottom Brace Axial	22.000 kips
Qf	1.000 Coeff
Components	
Beam Section	W14X22
Material	A992
Web Hole Type	STD
Column Section	HSS4X4X6
Material	A500 Gr.B Rect
Top Brace Section	HSS4X4X6
Material	A500 Gr.B Rect
Member Orientation	Long Side Vertical
Bottom Brace Section	HSS4X4X6
Material	A500 Gr.B Rect
Member Orientation	Long Side Vertical
Assembly	
Auto-Update Connections	Yes
Top Brace Angle from Vertical	35.000
Bottom Brace Angle from Vertical	35.000
Workpoint Location	Concentric

Beam

Beam-Column Connection Components	
Type	Shear Tab
Beam Fastener Type	Bolted
Plate Section	P0.38x4.00x9.00
Material	A36
Thickness	0.375 in
Width	4.000 in
Depth	9.000 in
Hole Type	STD
Column Weld	E70
Type	Double Fillet
Fillet Size	4.000 Sixteenths
Beam Bolts	3/4" Group A-N
Beam Bolts	Group A-N
Diameter, in.	3/4"

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Brace at Floor: Connection Properties Report (continued):

Rows	1
Bolts per Row	3
Longitudinal Spacing	3.000 in
Transverse Spacing	3.000 in
Slip Critical	No
Assembly	
Column/Beam Clearance	0.000 in
Plate Vertical Position	1.500 in
Beam Bolts Edge Distance Dimensions	
Beam Bolts/Beam Edge Dist	1.500 in
Beam Bolts Horz Edge Dist	2.500 in
Beam Bolts Vert Edge Dist	1.500 in

Top Brace

Components	
Top Gusset	P0.75x17.60x17.92
Material	A36
Tapered ?	No
Thickness	0.750 in
Width	17.599 in
Length	17.916 in
Width to Length Ratio	Zero Moment (Uniform Force Method)
Top Gusset-Brace Connection	
Connection Type	Slotted Around Gusset
Brace Gusset Weld	E70
Type	Fillet
Fillet Size	4.000 Sixteenths
Top Gusset-Beam Connection	
Type	Direct Weld
Beam Weld	E70
Type	Double Fillet
Fillet Size	4.000 Sixteenths
Top Gusset-Column Connection	
Type	Direct Weld
Column Weld	E70
Type	Double Fillet
Fillet Size	4.000 Sixteenths
Assembly	
Brace Min Clearance	7.833 in
Brace WorkPoint Distance	20.000 in
Brace/Gusset Overlap	8.204 in
Gusset/Column Gap	0.000 in
Gusset/Beam Gap	0.000 in
Gusset Clip	
Vertical Clip	3.963 in
Horizontal Clip	5.660 in
Brace/Clip Edge Dist	0.346 in

Bottom Brace

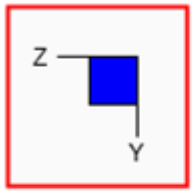
Components	
Bottom Gusset	P0.75x18.00x18.20
Material	A36
Tapered ?	No
Thickness	0.750 in

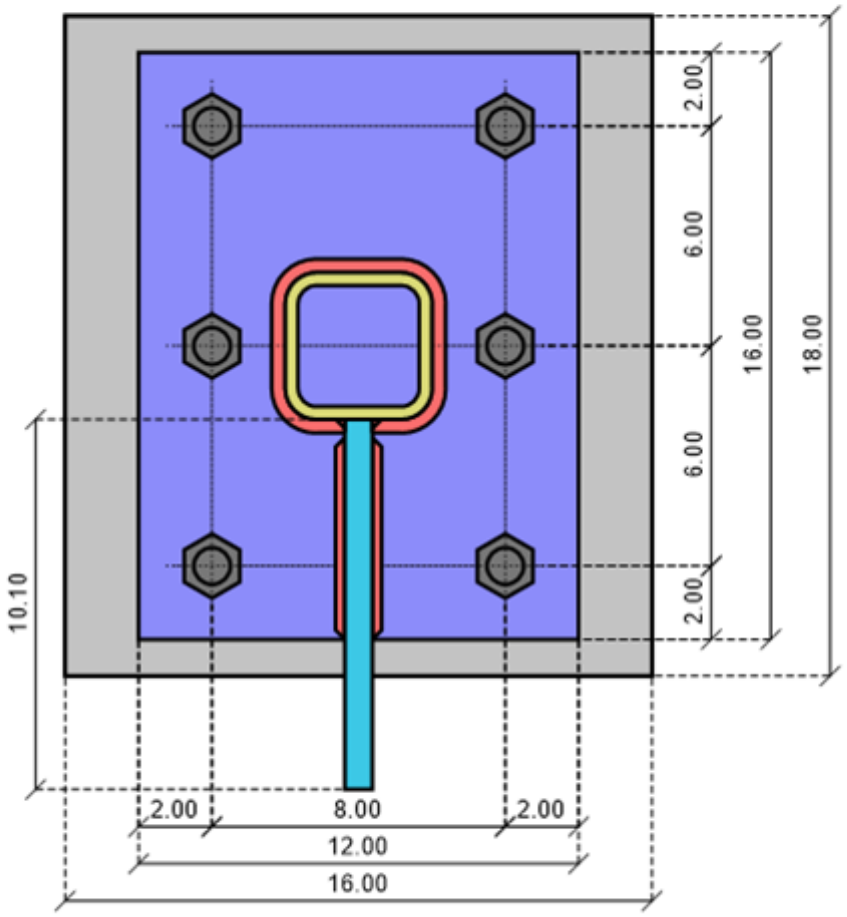
continued on next page...

Brace at Floor: Connection Properties Report (continued):

Width	18.000 in
Length	18.197 in
Width to Length Ratio	Zero Moment (Uniform Force Method)
Bottom Gusset-Brace Connection	
Connection Type	Slotted Around Gusset
Brace Gusset Weld	E70
Type	Fillet
Fillet Size	4.000 Sixteenths
Bottom Gusset-Beam Connection	
Type	Direct Weld
Beam Weld	E70
Type	Double Fillet
Fillet Size	4.000 Sixteenths
Bottom Gusset-Column Connection	
Type	Direct Weld
Column Weld	E70
Type	Double Fillet
Fillet Size	4.000 Sixteenths
Assembly	
Brace Min Clearance	7.833 in
Brace WorkPoint Distance	20.000 in
Brace/Gusset Overlap	5.352 in
Gusset/Column Gap	0.000 in
Gusset/Beam Gap	0.000 in
Gusset Clip	
Vertical Clip	8.043 in
Horizontal Clip	11.486 in
Brace/Clip Edge Dist	5.118 in

Top view





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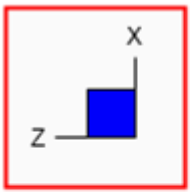
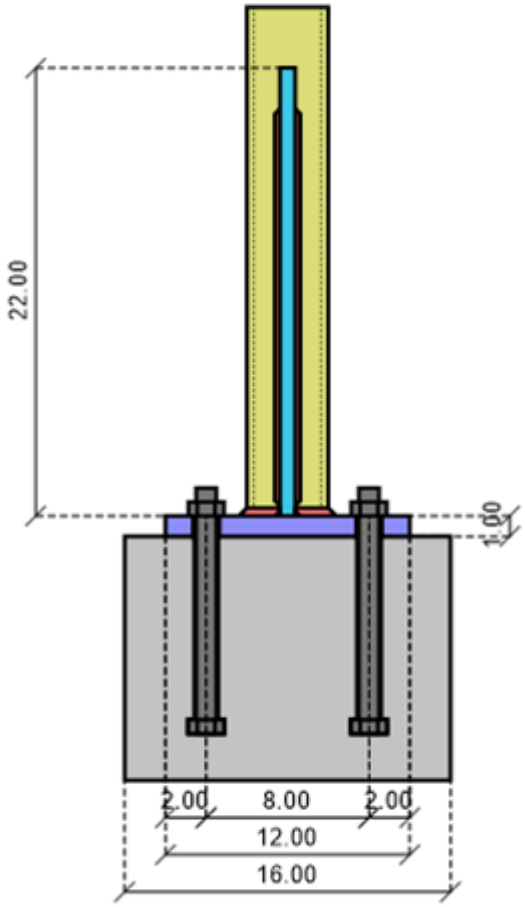
Brace Frame Base Cnxn: 2D Views Report (continued):

Front view





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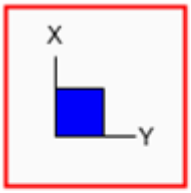
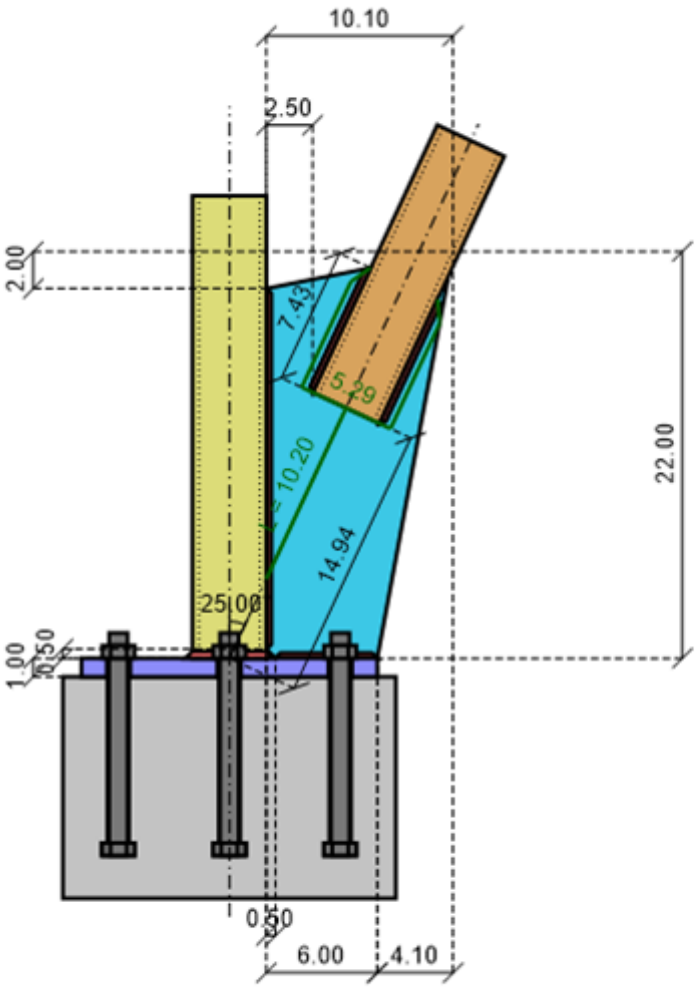
Brace Frame Base Cnxn: 2D Views Report (continued):

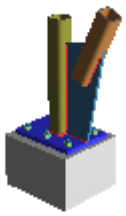
Left view





Brace Frame Base Cnxn: Summary Report

Brace to Column Base Plate Connection



Material Properties:				
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P1.00x12.00x16.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Gusset	P0.75x10.10x22.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

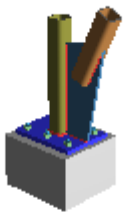
Input Data:		
Brace Axial	-22.00 kips	*Brace Axial (tension)*
Column Axial	-22.00 kips	*Axial load on the column*
Column Strong Axis Shear	10.00 kips	*Shear load on the column that causes strong axis bending*
Column Weak Axis Shear	0.00 kips	*Shear load on the column that causes weak axis bending*
Column Strong Axis Moment	0.00 kips-ft	*Column moment about the strong axis*
Column Weak Axis Moment	0.00 kips-ft	*Column moment about the weak axis*

Note: Unless specified, all code references are from AISC 360-16

Connection	Required	Max Unity Check	Result
Column/Base Plate connection	Plate Flexural Yielding(Tension)	**0.89**	**PASS**
Gusset/Column connection	Column Weld Strength	**0.18**	**PASS**
Gusset/Brace connection	Gusset Plate Tensile Yield (Whitmore)	**0.26**	**PASS**

Brace Frame Base Cnxn: Base Plate Report

Brace to Column Base Plate Connection



Material Properties:				
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P1.00x12.00x16.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Gusset	P0.75x10.10x22.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Design Axial	-41.94 kips	*Axial load on the column*
Design Strong Axis Shear	19.30 kips	*Shear load on the column that causes strong axis bending*
Design Weak Axis Shear	0.00 kips	*Shear load on the column that causes weak axis bending*
Design Strong Axis Moment	0.00 kips-ft	*Column moment about the strong axis*
Design Weak Axis Moment	0.00 kips-ft	*Column moment about the weak axis*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Geometry Restrictions				**PASS**
Check Min Bolt Spacing	**Pass**	*Condition: S_{min} >= (2+2/3)d_{bolt} (J3.3)*		
S_{min}	6.00 in	*Min bolt spacing*		
d_{bolt}	1.00 in	*Anchor bolt diameter*		
Check Min Edge Distance	**Pass**	*Condition: min(e_z , e_y) >= ED_{allow} (J3.4)*		
e_y	2.00 in	*Min edge distance y*		
e_z	2.00 in	*Min edge distance z*		
ED_{allow}	1.38 in	*Minimum allowed edge distance*		
Check Max Edge Distance	**Pass**	*Condition: Condition: max(d_z , d_y) <= min(6.00 in, 12*t) (J3.5)*		
d_y	2.00 in	*Max edge distance y*		
d_z	2.00 in	*Max edge distance z*		
ED_{allow}	6.00 in	*Maximum allowed edge distance*		
t	1.00 in	*Thickness of base plate*		
Check Anchor Bolt Encroachment on Column	**Pass**			
Loading at Base Plate				**n/a**
P_c	-22.00 kips	*User input axial load in column*		
V_{zc}	10.00 kips	*User input strong axis shear in column*		
V_{yc}	0.00 kips	*User input weak axis shear in column*		
M_{zc}	0.00 kips-ft	*User input strong axis moment in column*		
M_{yc}	0.00 kips-ft	*User input weak axis moment in column*		
P	-22.00 kips	*User input axial load in brace*		
θ	25.00 degrees	*Brace angle from vertical*		
V	-19.94 kips	*Vertical component of brace load, V=P*cos(ϑ)*		

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Brace Frame Base Cnxn: Base Plate Report (continued):

Limit State	Required	Available	Unity Check	Result
H	-9.30 kips	*Horizontal component of brace load, H=P*sin(ϑ)*		
e	0.00 in	*Workpoint vertical offset*		
e_c	2.00 in	*Half the column depth*		
β	10.25 in	*Distance from the top face of the base plate to the centroid of the gusset to column connection*		
H_b	-5.41 kips	*Calculated shear at the gusset to base plate connection, $H_b=(H*(ß-e) - V*e_c)/ß$ per AISC DG 29, section 4.3*		
H_c	-3.89 kips	*Calculated axial at the gusset to column connection, $H_c=(H*e + V*e_c)/ß$ per AISC DG 29, section 4.3*		
P_{bp}	-41.94 kips	*Design axial load, $P_{bp} = P_c + V$*		
V_{z_bp}	19.30 kips	*Design strong axis shear load, $V_{z\_bp} = V_{zc} - H$*		
V_{y_bp}	0.00 kips	*Design weak axis shear load, $V_{y\_bp} = V_{yc}$*		
M_{z_bp}	0.00 kips-ft	*Design strong axis moment load, $M_{z\_bp} = M_{zc} + H_c*e$*		
M_{y_bp}	0.00 kips-ft	*Design weak axis moment load, $M_{y\_bp} = M_{yc}$*		
Gusset Shear Yield	5.41 kips	59.40 kips	**0.09**	**PASS**
$R_n = 0.6 * F_y * A_{gv}$		**Ω = 1.50**	(J4-3)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_{gv}	4.13 in^2	*Gross area subject to shear*		
$R_n/Ω$	59.40 kips	*Shear yield strength*		
Gusset Shear Rupture	5.41 kips	71.77 kips	**0.08**	**PASS**
$R_n = 0.6 * F_u * A_{nv}$		**Ω = 2.0**	(J4-4)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_{nv}	4.13 in^2	*Net area subject to shear*		
$R_n/Ω$	71.77 kips	*Shear rupture strength*		
Plate Flexural Yielding(Tension)	2.39 kips-ft	2.69 kips-ft	**0.89**	**PASS**
$M_n = b_e * F_y * t_p^2 / 4$		**Ω = 1.67**	(AISC DG1 (3.3.13))	
b_e	6.00 in	*Effective width of plate section (corner bolt)*		
F_y	36.00 ksi	*Minimum yield strength of base plate*		
t_p	1.00 in	*Thickness of base plate*		
$M_n/Ω$	2.69 kips-ft	*Base plate bending strength*		
T	6.99 kips	*Tension force in anchor bolt*		
x	4.10 in	*Moment arm for anchor bolt*		
M_{pl}	2.39 kips-ft	*Bending moment caused by tension at bolt, $M_{pl}=T*x$*		
Anchor Bolt Tension	6.99 kips	12.63 kips	**0.55**	**PASS**
$R_n = F'_{nt} * A_b$		**Ω = 2.00**	(J3-2)	
Prying effects are ignored				
Check User Note Limit:	**$f_{rt}/(F_{nt}/Ω) <= 0.3$**			
f_{rt}	8.90 ksi	*Required tensile stress = T_{bolt} / A_b*		
F_{nt}	56.25 ksi	*Nominal tensile stress, per Table J3.2*		
Because $f_{rt}/(F_{nt}/Ω) > 0.3$, the Bolt Tensile Check is required				
Check Interaction Limit:	**$f_{rv} / (F_{nv}/Ω) <= 0.3$**			
f_{rv}	12.29 ksi	*Required shear stress: $f_{rv} = (V_u / N_{bolt}) / A_b$*		
F_{nv}	33.75 ksi	*Nominal shear stress, per Table J3.2*		

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Brace Frame Base Cnxn: Base Plate Report (continued):

Limit State	Required	Available	Unity Check	Result
Because f_{rv} / (R_{nv}/Ω) > 0.3, this check shall use the modified F'_{nt} stress				
F'_{nt}	32.17 ksi	*Modified nominal tensile stress = min(1.3*F_{nt}-((Ω*F_{nt})/F_{nv})*f_{rv}), F_{nt})*		
T_{bolt}	6.99 kips	*Tension at bolts*		
V_u	19.30 kips	*Resultant shear force, see 'Anchor Bolt Shear' check*		
N_{bolt}	2	*Number of bolts (DG-1, Section 3.5.3)*		
A_b	0.79 in^2	*Bolt cross sectional area*		
R_n/Ω	12.63 kips	*Bolt tensile strength*		
Anchor Bolt Shear	19.30 kips	26.51 kips	**0.73**	**PASS**
$R_n = F_{nv} * A_b * N_{bolt}$		**Ω = 2.00**	(J3-1)	
V_{uy}	19.30 kips	*Strong axis shear*		
V_{uz}	0.00 kips	*Weak axis shear*		
$V_u = (V_{uy}^2 + V_{uz}^2)^{0.5}$	19.30 kips	*Resultant shear force*		
F_{nv}	33.75 ksi	*Shear stress N type*		
A_b	0.79 in^2	*Area of bolt*		
N_{bolt}	2	*Number of bolts (per AISC DG1, Section 3.5.3)*		
R_n/Ω	26.51 kips	*Bolt shear rupture strength*		
Anchor Bolt Bearing on Base Plate	19.30 kips	26.51 kips	**0.73**	**PASS**
$R_n = N_{bolt} * min(1.2*L_c*t_p*F_u, 2.4*d_b*t_p*F_u, R_{n\text{-}bolt})$		**Ω = 2.00**	(section J3.10)	
V_u	19.30 kips	*Resultant shear force, see 'Anchor Bolt Shear' check*		
N_{bolt}	2	*Number of bolts (per AISC DG1, Section 3.5.3)*		
Θ	90.00 degrees	*Angle between the resultant shear force and z-axis*		
e_y	2.00 in	*Edge distance y*		
e_z	2.00 in	*Edge distance z*		
d_c	0.63 in	*Distance from center of bolt to the edge of hole*		
L_c	1.38 in	*Minimum clear distance for the weakest bolt, $L_c = e_y - d_c$*		
t_p	1.00 in	*Thickness of base plate*		
d_b	1.00 in	*Bolt diameter*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
$R_{n\text{-}bolt}$	26.51 kips	*Bolt shear strength, $R_{n\text{-}bolt}=F_{nv}*A_{bolt}$*		
F_{nv}	33.75 ksi	*Nominal shear stress of bolt*		
A_{bolt}	0.79 in^2	*Area of bolt*		
Rn/Ω	26.51 kips	*Bolt bearing strength*		
Column Weld Limitations				**PASS**
Weld Min Size			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.38 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Weld Limitations at Gusset				**PASS**
Weld Max/Min Size, Length			(J2.2b)	
Check Weld Max Size	**Pass**			
D	0.25 in	*Weld size*		

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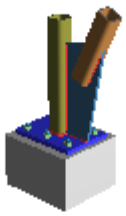
Brace Frame Base Cnxn: Base Plate Report (continued):

Limit State	Required	Available	Unity Check	Result
D_{max}	0.69 in	*Max Size Allowed*		
t	0.75 in	*Min shelf dimension*		
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.25 in	*Min size allowed per Table J2.4*		
t_{min}	0.75 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	5.50 in	*Min weld segment length*		
Column Flange Weld Strength	4.03 kips/in	5.57 kips/in	**0.72**	**PASS**
$Rn/\Omega = C_1 * \alpha * 0.928 * D_{16}$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
D_{16}	6.00	*Weld fillet size in sixteenths of an inch*		
r_u	0.00 kips/in	*Required strength of the weld for in-plane force*		
r_0	4.03 kips/in	*Required strength of the weld for out-of-plane force (tensile)*		
r_{3d}	4.03 kips/in	*Resultant force $r_{3d} = (r_u^2 + r_0^2)^{0.5}$*		
Rn/Ω	5.57 kips/in	*Weld strength*		
Column Web Weld Strength	4.83 kips/in	5.57 kips/in	**0.87**	**PASS**
$Rn/\Omega = C_1 * \alpha * 0.928 * D_{16}$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
D_{16}	6.00	*Weld fillet size in sixteenths of an inch*		
r_u	2.67 kips/in	*Required strength of the weld for in-plane force*		
r_0	4.03 kips/in	*Required strength of the weld for out-of-plane force (tensile)*		
r_{3d}	4.83 kips/in	*Resultant force $r_{3d} = (r_u^2 + r_0^2)^{0.5}$*		
Rn/Ω	5.57 kips/in	*Weld strength*		
Gusset Weld Strength	5.41 kips	40.83 kips	**0.13**	**PASS**
$Rn/\Omega = 2 * C_1 * \alpha * 0.928 * D_{16} * L$				
Double Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	1.00 in	*Base material thickness (base plate)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	5.50 in	*Weld length*		
Rn/Ω	40.83 kips	*Weld strength*		

Brace Frame Base Cnxn: Gusset/Column Report

Brace to Column Base Plate Connection



Material Properties:				
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P1.00x12.00x16.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Gusset	P0.75x10.10x22.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Shear Load	-19.94 kips	*Calculated Shear Load*
Axial Load	-3.89 kips	*Calculated Axial Load (tension)*
Moment Load	-0.00 kips-ft	*Calculated Moment*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
HSS Limitations				**PASS**
Check Column Slenderness	**Pass**	*Condition: b/t ≤ Limit per AISC 15th p.10-153*		
E	29000.00 ksi	*Modulus of elasticity*		
F_y	46.00 ksi	*Column yield strength*		
t	0.35 in	*Column wall thickness*		
B	4.00 in	*Column face width*		
b	2.95 in	*Inside width of column per Table B4.1a, b = B - 3*t*		
b / t	8.46	*Column slenderness ratio per AISC 15th p.10-153*		
Limit	35.15	*Slender wall limit per p.10-153, 1.40 * (E / Fy)$^{0.5}$*		
Column Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: L_{min} ≥ 4*D per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	19.50 in	*Min weld segment length*		
Loading at Gusset to Column				**n/a**
P	-22.00 kips	*User input axial load in brace*		
θ	25.00 degrees	*Brace angle from vertical*		
V	-19.94 kips	*Vertical component of brace load, V=P*cos(ϑ)*		
H	-9.30 kips	*Horizontal component of brace load, H=P*sin(ϑ)*		
e	0.00 in	*Workpoint vertical offset*		
e_c	2.00 in	*Half the column depth*		
β	10.25 in	*Distance from the top face of the base plate to the centroid of the gusset to column connection*		
H_c	-3.89 kips	*Calculated axial at the gusset to column connection, H_c=(H*e + V*e_c)/β per AISC DG 29, section 4.3*		

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Brace Frame Base Cnxn: Gusset/Column Report (continued):

Limit State	Required	Available	Unity Check	Result
Gusset Shear Yield	19.94 kips	210.60 kips	**0.09**	**PASS**
$R_n = 0.6 * F_y * A_{gv}$		**Ω = 1.50**	(J4-3)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_{gv}	14.63 in^2	*Gross area subject to shear*		
$R_n/Ω$	210.60 kips	*Shear yield strength*		
Gusset Shear Rupture	19.94 kips	254.47 kips	**0.08**	**PASS**
$R_n = 0.6 * F_u * A_{nv}$		**Ω = 2.0**	(J4-4)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_{nv}	14.63 in^2	*Net area subject to shear*		
$R_n/Ω$	254.47 kips	*Shear rupture strength*		
Gusset Axial Yield	3.89 kips	315.27 kips	**0.01**	**PASS**
$R_n = F_y * A_g$		**Ω = 1.67**	(J4-1)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	14.63 in^2	*Gross area subject to tension*		
$R_n/Ω$	315.27 kips	*Tensile yield strength*		
Gusset Tensile Rupture	3.89 kips	424.13 kips	**0.01**	**PASS**
$R_n = F_u * A_n$		**Ω = 2.0**	(J4-2)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	14.63 in^2	*Net area subject to tension*		
$R_n/Ω$	424.13 kips	*Tensile rupture strength*		
Gusset Flexural Yield			**0.01**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(AISC 15th Eq.10-5)	
P_r	-3.89 kips	*Calculated axial load*		
V_r	19.94 kips	*Calculated shear load*		
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	14.63 in^2	*Gross area of the plate*		
Z_{pl}	71.30 in^3	*Plastic modulus of the shear plate*		
P_c	315.27 kips	*Available tensile strength (see check 'Axial Yield')*		
V_c	210.60 kips	*Available shear strength (see check 'Shear Yield')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	128.08 kips-ft	*Available moment $M_c = 1/Ω * (F_y * Z)$, Ω=1.67*		
UC	0.01	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Gusset Flexural Rupture			**0.01**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(Eq.10-5)	
P_r	-3.89 kips	*Calculated axial load*		
V_r	19.94 kips	*Calculated shear load*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	14.63 in^2	*Net area of the plate*		
Z_{net}	71.30 in^3	*Plastic modulus of net section*		
P_c	424.13 kips	*Available tensile strength (see check 'Tension Rupture')*		
V_c	254.47 kips	*Available shear strength (see check 'Shear Rupture')*		

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Brace Frame Base Cnxn: Gusset/Column Report (continued):

Limit State	Required	Available	Unity Check	Result
M_r	0.00 kips-ft	*Calculated moment*		
M_c	172.30 kips-ft	*Available moment M_c= 1/Ω*(F_u* Znet), Ω=2.00*		
UC	0.01	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Column Weld Strength	20.31 kips	115.81 kips	**0.18**	**PASS**
Rn/Ω = 2 * C_1 * α * β * 0.928 * D_{16} * L				
Double Fillet				
0.928 = 0.6 * F_{E70} * $2^{0.5}$/2 * 1/16 / Ω, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (column)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
β	0.80	*Force redistribution adjustment factor*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	19.50 in	*Weld length*		
Rn/Ω	115.81 kips	*Weld strength*		
Column Web Bending	3.32 kips-ft	79.15 kips-ft	**0.04**	**PASS**
M_n = k*m_p*L		**Ω = 1.67**	(AISC DG#29 Eqn 4-17)	
H_c	-3.89 kips	*Calculated axial at the gusset to column connection*		
β	10.25 in	*Distance from the top face of the base plate to the centroid of the gusset to column connection*		
M_{req}	3.32 kips-ft	*Required moment in column web, M_{req}=|H_c|*β*		
B	4.00 in	*Column width*		
t_{des}	0.35 in	*Column wall thickness*		
h	3.30 in	*Distance between column flanges, h=B-2*t_{des}*		
L	20.00 in	*Gusset to column length*		
k	56.62	*Average 'k' value, k=h/L+ 8*L/h+ 8*		
F_{yc}	46.00 ksi	*Minimum yield stress of column material*		
m_p	1.40 kips	*Column force, m_p=0.25*F_{yc}*t_{des}^2*		
Mn/Ω	79.15 kips-ft	*Available moment per (AISC DG29, Eqn 4-17)*		
HSS Punching Shear	3.32 kips-ft	67.47 kips-ft	**0.05**	**PASS**
M_n = 0.2*F_u*t*l_p^2		**Ω = 2.0**	(AISC 15th Eq.10-7)	
F_u	58.00 ksi	*Column tensile strength*		
t	0.35 in	*Column wall thickness*		
l_p	20.00 in	*Plate length*		
M_e	3.32 kips-ft	*Required moment per Column Web Bending*		
M_n/Ω	67.47 kips-ft	*Allowable shear rupture (punching shear)*		
HSS Column Transverse Plastification	3.89 kips	85.12 kips	**0.05**	**PASS**
R_n = (0.5*t^2*F_y) * ((a+b)*(4*((T*a*b)/(a+b))$^{0.5}$ +L)/(a*b))*Q$_f$		**Ω = 1.50**	(AISC 15th Eq.9-30)	
F_y	46.00 ksi	*Minimum yield stress of column material*		
B	4.00 in	*Column width*		
t	0.35 in	*Column wall thickness*		
L	20.00 in	*Length of gusset plate*		

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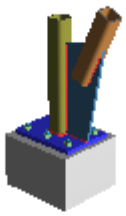
Brace Frame Base Cnxn: Gusset/Column Report (continued):

Limit State	Required	Available	Unity Check	Result
T	2.95 in	*Unbraced length of HSS column face (AISC 15th Fig.9-5), T = B - 3*t*		
a	1.10 in	*Distance from left side to edge of gusset plate (AISC 15th Fig.9-5)*		
b	1.10 in	*Distance from right side to edge of gusset plate (AISC 15th Fig.9-5)*		
c	0.75 in	*Width of gusset plate connection*		
Q_f	1.00	*Column stress interaction parameter (user input)*		
R_n/Ω	85.12 kips	*Transverse plastification strength*		

Brace Frame Base Cnxn: Gusset/Brace Report

Brace to Column Base Plate Connection



Material Properties:				
Column	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Base Plate	P1.00x12.00x16.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi
Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Gusset	P0.75x10.10x22.00	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Brace Axial	-22.00 kips	*Brace Axial (tension)*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Brace Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	7.43 in	*Min weld segment length*		
Check Weld Max Length	**Pass**	*Condition: $L_{max} \leq 100*D$*		
D	0.25 in	*Weld size*		
L_{max}	7.43 in	*Max weld segment length*		
Gusset Plate Tensile Yield (Whitmore)	22.00 kips	85.58 kips	**0.26**	**PASS**
$R_n = F_y*A_g$		**Ω = 1.67**	(J4-1)	
F_y	36.00 ksi	*Gusset plate yield stress*		
A_g	3.97 in^2	*Gross area of plate (Whitmore) $A_g=L_w*t$*		
L_w	5.29 in	*Whitmore tensile width*		
t	0.75 in	*Thickness of plate*		
R_n/Ω	85.58 kips	*Plate tensile yield strength*		
Gusset Plate Tensile Rupture (Whitmore)	22.00 kips	115.13 kips	**0.19**	**PASS**
$R_n = F_u*A_n$		**Ω = 2.0**	(J4-2)	
F_u	58.00 ksi	*Gusset plate tensile stress*		
A_n	3.97 in^2	*Net area of plate*		
L_w	5.29 in	*Whitmore tensile width*		
t	0.75 in	*Thickness of plate*		
R_n/Ω	115.13 kips	*Plate tensile rupture strength*		
Brace Tensile Yield	22.00 kips	131.66 kips	**0.17**	**PASS**
$R_n = F_y*A_g$		**Ω = 1.67**	(D2-1)	
F_y	46.00 ksi	*Minimum yield stress of material*		

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Brace Frame Base Cnxn: Gusset/Brace Report (continued):

Limit State	Required	Available	Unity Check	Result
A_g	4.78 in^2	*Gross area subject to tension*		
R_n/Ω	131.66 kips	*Tensile yield strength*		
Brace Tensile Rupture	22.00 kips	96.50 kips	**0.23**	**PASS**
$R_n = F_u * A_e$		**Ω = 2.00**	(D2-2)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_e	3.33 in^2	*Effective net area, $A_e = A_n * U$*		
A_n	4.17 in^2	*Net area subject to tension*		
$U_{D3.1}$	0.80	*Shear lag factor (table D3.1)*		
U_{Bound}	0.48	*Shear lag factor (lower bound)*		
U	0.80	*Governing shear lag factor, max($U_{D3.1}$, U_{Bound})*		
R_n/Ω	96.50 kips	*Tensile rupture strength*		
Brace Weld Strength	22.00 kips	110.33 kips	**0.20**	**PASS**
$Rn/\Omega = 4 * C_1 * \alpha * 0.928 * D_{16} * L$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (brace)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	7.43 in	*Weld length*		
Rn/Ω	110.33 kips	*Weld strength*		

Brace Frame Base Cnxn: Connection Properties Report

Connection	
Connection Title	Brace Frame Base Cnxn
Connection Type	Brace to Column Base Plate Connection
Connection Category	
Gusset to Column Orientation	Strong Axis
Brace Location	Front
Bolt Layout	Six
Plate Washers	No
Loading (ASD)	
Brace Axial	-22.000 kips
Column Axial	-22.000 kips
Column Strong Axis Shear	10.000 kips
Column Weak Axis Shear	0.000 kips
Column Strong Axis Moment	0.000 kips-ft
Column Weak Axis Moment	0.000 kips-ft
Qf	1.000 Coeff
Components	
Brace Section	HSS4X4X6
Material	A500 Gr.B Rect
Member Orientation	Long Side Vertical
Column Section	HSS4X4X6
Material	A500 Gr.B Rect
Gusset	P0.75x10.10x22.00
Material	A36
Tapered ?	Cut Back
Thickness	0.750 in
Width	10.098 in
Length	22.000 in
Cut Width	4.098 in
Cut Length	2.000 in
Gusset to Base Plate Length	6.000 in
Base Plate	P1.00x12.00x16.00
Material	A36
Length	16.000 in
Width	12.000 in
Thickness	1.000 in
Static Friction Coefficient	0.550 Coeff
Hole Type	OVS
Concrete Support	C18.00x16.00x12.00
Length	18.000 in
Width	16.000 in
Thickness	
Compressive Strength (f'c)	4.000 ksi
Anchor Bolts	1" F1554 Gr.55-N
Material	F1554 Gr.55-N
Diameter, in.	1"
Bolt Spacing y	6.000 in
Bolt Spacing z	8.000 in
Column Weld	E70
Type	Fillet
Fillet Size	6.000 Sixteenths
Brace-Gusset Connection	
Connection Type	Slotted Around Gusset

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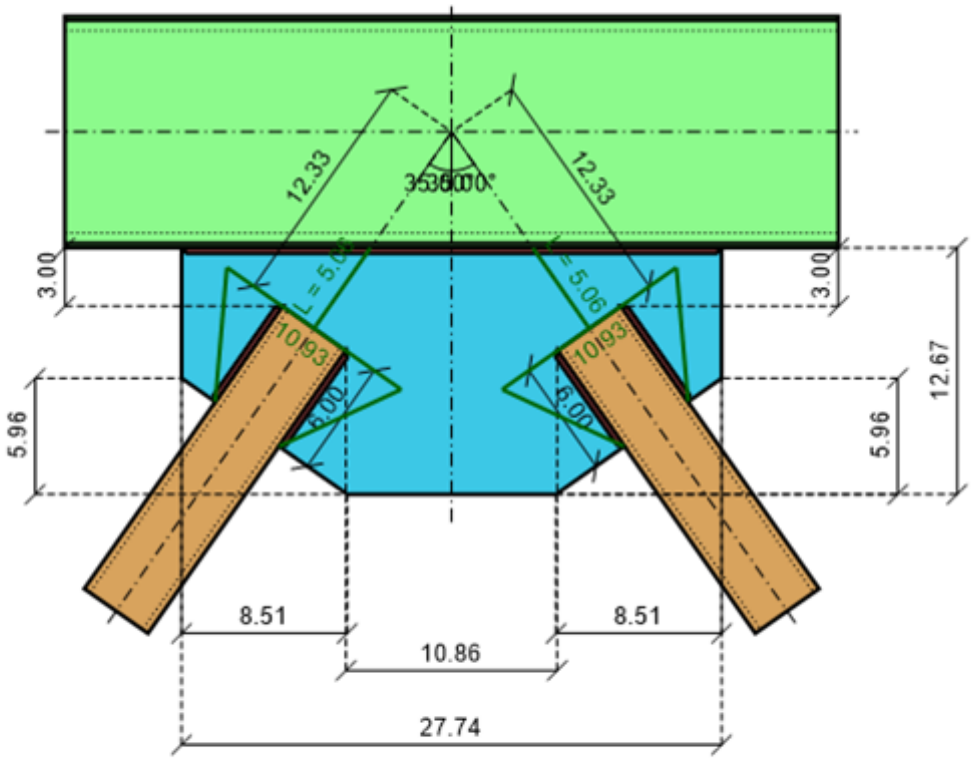
Brace Frame Base Cnxn: Connection Properties Report (continued):

Brace Gusset Weld	E70
Type	Fillet
Fillet Size	4.000 Sixteenths
Gusset-Column Connection	
Type	Direct Weld
Column Weld	E70
Type	Double Fillet
Fillet Size	4.000 Sixteenths
Gusset-Base Plate Connection	
Type	Direct Weld
Gusset Baseplate Weld	E70
Type	Double Fillet
Fillet Size	4.000 Sixteenths
Assembly	
Auto-Update Connection	Yes
WorkPoint Location	Concentric
Brace Clearance	2.500 in
Brace WorkPoint Distance	14.937 in
Brace/Gusset Overlap	7.431 in
Gusset Clip	
Horizontal Clip	0.000 in
Vertical Clip	0.000 in
Brace/Clip Edge Dist	-3.667 in
Gusset to Column Clip	
Vertical Clip	0.500 in
Horizontal Clip	0.500 in
Brace Angle from Vertical	25.000
Edge Distance y	2.000 in
Edge Distance z	2.000 in

Left view



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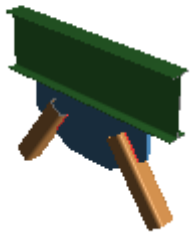
Chevron Brace: 2D Views Report (continued):

Bottom view

Chevron Brace: Summary Report

Vertical Brace Chevron Connection



Material Properties:				
Beam	W12X14	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Left Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Right Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Gusset	P0.75x12.67x27.74	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

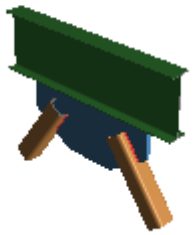
Input Data:		
Left Brace Axial	22.00 kips	*User Input Left Brace Axial Force (compression)*
Right Brace Axial	-22.00 kips	*User Input Right Brace Axial Force (tension)*

Note: Unless specified, all code references are from AISC 360-16

Connection	Required	Max Unity Check	Result
Gusset/Beam connection	Beam Weld Strength	**0.25**	**PASS**
Gusset/Left Brace connection	Brace Weld Strength	**0.25**	**PASS**
Gusset/Right Brace connection	Brace Weld Strength	**0.25**	**PASS**

Chevron Brace: Gusset/Beam Report

Vertical Brace Chevron Connection



Material Properties:

Beam	W12X14	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Left Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Right Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Gusset	P0.75x12.67x27.74	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:

Shear Load (Section a-a)	25.24 kips	*At Beam-Gusset interface, parallel to beam*
Axial Load (Section a-a)	0.00 kips	*At Beam-Gusset interface, perp. to beam*
Moment Load (Section a-a)	12.51 kips-ft	*At Beam-Gusset interface, in gusset plane*
Shear Load (Section b-b)	9.90 kips	*At Gusset Centroid, perp. to beam*
Axial Load (Section b-b)	0.00 kips	*At Gusset Centroid, parallel to beam*
Moment Load (Section b-b)	0.00 kips-ft	*At Gusset Centroid, in gusset plane*
Beam Moment	-12.51 kips-ft	*Induced by Workpoint offset*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Required Load Calculation				**n/a**
Chevron Brace Gusset Forces				
P_{br_l}	22.00 kips	*Axial load in left brace*		
θ_l	35.00 degrees	*Left brace angle from vertical*		
P_{br_r}	-22.00 kips	*Axial load in right brace*		
θ_r	35.00 degrees	*Right brace angle from vertical*		
P_{hbr_l}	12.62 kips	*Horizontal component of the axial load in left brace,* $P_{hbr\_l} = P_{br\_l} * \sin(\vartheta_l)$		
P_{vbr_l}	18.02 kips	*Vertical component of the axial load in left brace,* $P_{vbr\_l} = P_{br\_l} * \cos(\vartheta_l)$		
P_{hbr_r}	12.62 kips	*Horizontal component of the axial load in right brace ,* $P_{hbr\_r} = - P_{br\_r} * \sin(\vartheta_r)$		
P_{vbr_r}	-18.02 kips	*Vertical component of the axial load in right brace,* $P_{vbr\_r} = P_{br\_r} * \cos(\vartheta_r)$		
d_{bm}	11.90 in	*Depth of beam*		
H_p	12.67 in	*Height of gusset plate*		
L_p	27.74 in	*Length of gusset plate*		
t_p	0.75 in	*Thickness of gusset plate*		
g_b	0.00 in	*Gap between beam and gusset*		
Δ_l	3.41 in	*Ecc. between left brace centerline and centroid at gusset to bm connection,* $\Delta_l = (d_{bm}/2)*\sin(\vartheta_l)$		
Δ_r	3.41 in	*Ecc. between right brace centerline and centroid at gusset to bm connection,* $\Delta_r = (d_{bm}/2)*\sin(\vartheta_r)$		

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Chevron Brace: Gusset/Beam Report (continued):

Limit State	Required	Available	Unity Check	Result
S_{aa}	96.20 in^3	*Section modulus of section a-a, $S_{aa} = (t_p/6) * L_p^2$*		
Δ'_l	7.05 in	*Ecc. between left brace centerline and plate centroid at section b-b, $\Delta'_l = (0.5* d_{bm} + 0.5* H_p + g_b)* \sin(\vartheta_l)$*		
Net Forces at Section a-a				
N_{aa}	0.00 kips	*Axial load at section a-a, $N_{aa} = P_{vbr\_l} + P_{vbr\_r}$*		
V_{aa}	25.24 kips	*Shear load at section a-a, $V_{aa} = P_{hbr\_l} + P_{hbr\_r}$*		
M_{aa}	12.51 kips-ft	*Moment at section a-a, $M_{aa} = P_{br\_l} * \Delta_l - P_{br\_r} * \Delta_r$*		
n_s	0.91 ksi	*Uniform shear across section a-a, $n_s = V_{aa}/L_p$*		
n_m	1.17 ksi	*Uniform shear due to moment across section a-a, $n_m = (M_{aa} * t_p)/ S_{aa}$*		
n_p	0.00 ksi	*Uniform axial load across section a-a, $n_p = N_{aa}/L_p$*		
N_s	12.62 kips	*Resultant due to uniform shear at left side of section a-a, $N_s = n_s * 0.5*L_p$*		
N_m	8.12 kips	*Resultant due to uniform moment at left side of section a-a, $N_m = (n_m/2) * (L_p/2)$*		
N_p	0.00 kips	*Resultant due to uniform axial load at left side of section a-a, $N_p = n_p * (L_p/2)$*		
Net Forces at Section b-b				
N_{bb}	0.00 kips	*Axial load at section b-b, $N_{bb} = P_{hbr\_l} - N_s$*		
V_{bb}	9.90 kips	*Shear load at section b-b, $V_{bb} = P_{vbr\_l} – N_m - N_p$*		
M_{bb}	0.00 kips-ft	*Moment at section b-b, $M_{bb} = Pbr\_l * \Delta'_l - N_m * (L_p/3) - N_p * (L_p/4) - N_s * (H_p/2)$*		
Geometry Restrictions at Beam				**PASS**
Check Workpoint Horiz. Offset	**Pass**	*Condition: $-d_{beam} <= WP_h <= d_{beam}$*		
WP_h	0.00 in	*Horizontal brace workpoint offset*		
d_{beam}	11.90 in	*Depth of beam*		
Check Workpoint Vert. Offset	**Pass**	*Condition: $-0.5*d_{beam} <= WP_v <= d_{beam}$*		
WP_v	0.00 in	*Vertical brace workpoint offset*		
d_{beam}	11.90 in	*Depth of beam*		
Beam Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.13 in	*Min size allowed per Table J2.4*		
t_{min}	0.23 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	27.74 in	*Min weld segment length*		
Plate Shear Yield (Section a-a)	25.24 kips	299.60 kips	**0.08**	**PASS**
$R_n = 0.6 *F_y*A_{gv}$		**Ω = 1.50**	(J4-3)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_{gv}	20.81 in^2	*Gross area subject to shear*		
$R_n/Ω$	299.60 kips	*Shear yield strength*		

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Chevron Brace: Gusset/Beam Report (continued):

Limit State	Required	Available	Unity Check	Result
Plate Shear Rupture (Section a-a)	25.24 kips	362.02 kips	**0.07**	**PASS**
$R_n = 0.6 * F_u * A_{nv}$		**Ω = 2.0**	(J4-4)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_{nv}	20.81 in^2	*Net area subject to shear*		
$R_n/Ω$	362.02 kips	*Shear rupture strength*		
Plate Flexural Yield (Section a-a)			**0.01**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(AISC 15th Eq.10-5)	
P_r	0.00 kips	*Calculated axial load*		
V_r	25.24 kips	*Calculated shear load*		
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	20.81 in^2	*Gross area of the plate*		
Z_{pl}	144.30 in^3	*Plastic modulus of the shear plate*		
P_c	0.00 kips	*Available tensile strength (see check 'Axial Yield')*		
V_c	299.60 kips	*Available shear strength (see check 'Shear Yield')*		
M_r	12.51 kips-ft	*Calculated moment*		
M_c	259.21 kips-ft	*Available moment $M_c=1/Ω*(F_y * Z)$, Ω=1.67*		
UC	0.01	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Plate Flexural Rupture (Section a-a)			**0.01**	**PASS**
$(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$			(Eq.10-5)	
P_r	0.00 kips	*Calculated axial load*		
V_r	25.24 kips	*Calculated shear load*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	20.81 in^2	*Net area of the plate*		
Z_{net}	144.30 in^3	*Plastic modulus of net section*		
V_c	362.02 kips	*Available shear strength (see check 'Shear Rupture')*		
M_r	12.51 kips-ft	*Calculated moment*		
M_c	348.71 kips-ft	*Available moment $M_c= 1/Ω*(F_u * Znet)$, Ω=2.00*		
UC	0.01	*Unity check per interaction equation, $(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$*		
Plate Shear Yield (Section b-b)	9.90 kips	136.80 kips	**0.07**	**PASS**
$R_n = 0.6 * F_y * A_{gv}$		**Ω = 1.50**	(J4-3)	
F_y	36.00 ksi	*Minimum yield stress of material*		
A_{gv}	9.50 in^2	*Gross area subject to shear*		
$R_n/Ω$	136.80 kips	*Shear yield strength*		
Plate Shear Rupture (Section b-b)	9.90 kips	165.30 kips	**0.06**	**PASS**
$R_n = 0.6 * F_u * A_{nv}$		**Ω = 2.0**	(J4-4)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_{nv}	9.50 in^2	*Net area subject to shear*		
$R_n/Ω$	165.30 kips	*Shear rupture strength*		
Plate Flexural Yield (Section b-b)			**0.01**	**PASS**
$(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$			(AISC 15th Eq.10-5)	
P_r	0.00 kips	*Calculated axial load*		

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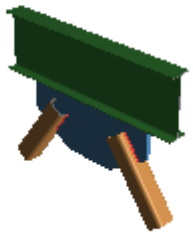
Chevron Brace: Gusset/Beam Report (continued):

Limit State	Required	Available	Unity Check	Result
V_r	9.90 kips	*Calculated shear load*		
F_y	36.00 ksi	*Minimum yield stress of material*		
A_g	9.50 in^2	*Gross area of the plate*		
Z_{pl}	30.08 in^3	*Plastic modulus of the shear plate*		
P_c	0.00 kips	*Available tensile strength (see check 'Axial Yield')*		
V_c	136.80 kips	*Available shear strength (see check 'Shear Yield')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	54.04 kips-ft	*Available moment M_c=1/Ω*(F_y* Z), Ω=1.67*		
UC	0.01	*Unity check per interaction equation, $(V_r/V_c)^2 + (P_r/P_c + M_r/M_c)^2 <= 1$*		
Plate Flexural Rupture (Section b-b)			**0.00**	**PASS**
$(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$			(Eq.10-5)	
P_r	0.00 kips	*Calculated axial load*		
V_r	9.90 kips	*Calculated shear load*		
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_n	9.50 in^2	*Net area of the plate*		
Z_{net}	30.08 in^3	*Plastic modulus of net section*		
V_c	165.30 kips	*Available shear strength (see check 'Shear Rupture')*		
M_r	0.00 kips-ft	*Calculated moment*		
M_c	72.70 kips-ft	*Available moment M_c= 1/Ω*(F_u* Znet), Ω=2.00*		
UC	0.00	*Unity check per interaction equation, $(V_r/V_c)^2 + (M_r/M_c)^2 <= 1$*		
Beam Weld Strength	1.48 kips/in	5.94 kips/in	**0.25**	**PASS**
$Rn/\Omega = 2 * C_1 * \alpha * \beta * 0.928 * D_{16}$				
Double Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
V	25.24 kips	*Shear Load*		
P	0.00 kips	*Axial Load*		
M	12.51 kips-ft	*Moment*		
e_{eff}	5.95 in	*Effective eccentricity*		
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.23 in	*Base material thickness (beam)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
β	0.80	*Force redistribution adjustment factor*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
r_u	1.48 kips/in	*Required weld stress per AISC 15th Eqn 8-11*		
Rn/Ω	5.94 kips/in	*Weld strength*		

Chevron Brace: Gusset/Left Brace Report

Vertical Brace Chevron Connection



Material Properties:				
Beam	W12X14	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Left Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Right Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Gusset	P0.75x12.67x27 .74	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Brace Axial	22.00 kips	*Brace Axial (compression)*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Brace Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	6.00 in	*Min weld segment length*		
Check Weld Max Length	**Pass**	*Condition: $L_{max} \leq 100*D$*		
D	0.25 in	*Weld size*		
L_{max}	6.00 in	*Max weld segment length*		
Gusset Plate Compression (Whitmore)	22.00 kips	169.51 kips	**0.13**	**PASS**
$P_n = F_{cr}*A_g$		**Ω = 1.67**	(E3-1)	
K	1.20	*Effective length factor*		
L	5.06 in	*Unbraced length*		
r	0.22 in	*Radius of gyration*		
L_c	6.08 in	*Effective length, L_c=K*L*		
L_c/r	28.06	*Plate slenderness check from J4-6*		
F_{cr}	34.54 ksi	*Flexural buckling stress (E3-2)*		
A_g	8.20 in^2	*Gross area of plate (Whitmore section)*		
$P_n/Ω$	169.51 kips	*Gusset plate compressive strength*		
Brace Weld Strength	22.00 kips	89.09 kips	**0.25**	**PASS**
$Rn/Ω = 4 * C_1 * α * 0.928 * D_{16} * L$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / Ω$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (left brace)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		

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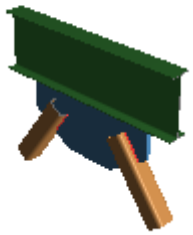
Chevron Brace: Gusset/Left Brace Report (continued):

Limit State	Required	Available	Unity Check	Result
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	6.00 in	*Weld length*		
Rn/Ω	89.09 kips	*Weld strength*		

Chevron Brace: Gusset/Right Brace Report

Vertical Brace Chevron Connection



Material Properties:				
Beam	W12X14	A992	F_y = 50.00 ksi	F_u = 65.00 ksi
Left Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Right Brace	HSS4X4X6	A500 Gr.B Rect	F_y = 46.00 ksi	F_u = 58.00 ksi
Gusset	P0.75x12.67x27.74	A36	F_y = 36.00 ksi	F_u = 58.00 ksi

Input Data:		
Brace Axial	-22.00 kips	*Brace Axial (tension)*

Note: Unless specified, all code references are from AISC 360-16

Limit State	Required	Available	Unity Check	Result
Brace Weld Limitations				**PASS**
Weld Min Size, Length			(J2.2b)	
Check Weld Min Size	**Pass**			
D	0.25 in	*Weld size*		
D_{min}	0.19 in	*Min size allowed per Table J2.4*		
t_{min}	0.35 in	*Controlling member thickness*		
Check Weld Min Length	**Pass**	*Condition: $L_{min} \geq 4*D$ per J2.2b*		
D	0.25 in	*Weld size*		
L_{min}	6.00 in	*Min weld segment length*		
Check Weld Max Length	**Pass**	*Condition: $L_{max} \leq 100*D$*		
D	0.25 in	*Weld size*		
L_{max}	6.00 in	*Max weld segment length*		
Gusset Plate Tensile Yield (Whitmore)	22.00 kips	176.68 kips	**0.12**	**PASS**
$R_n = F_y*A_g$		**Ω = 1.67**	(J4-1)	
F_y	36.00 ksi	*Gusset plate yield stress*		
A_g	8.20 in^2	*Gross area of plate (Whitmore) $A_g=L_w*t$*		
L_w	10.93 in	*Whitmore tensile width*		
t	0.75 in	*Thickness of plate*		
$R_n/Ω$	176.68 kips	*Plate tensile yield strength*		
Gusset Plate Tensile Rupture (Whitmore)	22.00 kips	237.69 kips	**0.09**	**PASS**
$R_n = F_u*A_n$		**Ω = 2.0**	(J4-2)	
F_u	58.00 ksi	*Gusset plate tensile stress*		
A_n	8.20 in^2	*Net area of plate*		
L_w	10.93 in	*Whitmore tensile width*		
t	0.75 in	*Thickness of plate*		
$R_n/Ω$	237.69 kips	*Plate tensile rupture strength*		
Brace Tensile Yield	22.00 kips	131.66 kips	**0.17**	**PASS**
$R_n = F_y*A_g$		**Ω = 1.67**	(D2-1)	
F_y	46.00 ksi	*Minimum yield stress of material*		

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Chevron Brace: Gusset/Right Brace Report (continued):

Limit State	Required	Available	Unity Check	Result
A_g	4.78 in^2	*Gross area subject to tension*		
R_n/Ω	131.66 kips	*Tensile yield strength*		
Brace Tensile Rupture	22.00 kips	90.68 kips	**0.24**	**PASS**
$R_n = F_u * A_e$		**Ω = 2.00**	(D2-2)	
F_u	58.00 ksi	*Minimum tensile stress of material*		
A_e	3.13 in^2	*Effective net area, $A_e = A_n * U$*		
A_n	4.17 in^2	*Net area subject to tension*		
$U_{D3.1}$	0.75	*Shear lag factor (table D3.1)*		
U_{Bound}	0.48	*Shear lag factor (lower bound)*		
U	0.75	*Governing shear lag factor, max($U_{D3.1}$, U_{Bound})*		
R_n/Ω	90.68 kips	*Tensile rupture strength*		
Brace Weld Strength	22.00 kips	89.09 kips	**0.25**	**PASS**
$Rn/\Omega = 4 * C_1 * \alpha * 0.928 * D_{16} * L$				
Single Fillet				
$0.928 = 0.6 * F_{E70} * 2^{0.5}/2 * 1/16 / \Omega$, Ω=2.00 (AISC 15th Eqn 8-2b)				
C_1	1.00	*Electrode strength coefficient (AISC 15th table 8-3)*		
t	0.35 in	*Base material thickness (right brace)*		
α	1.00	*Base material proration factor (re-arrangement of AISC 15th Eqn 9-2)*		
D_{16}	4.00	*Weld fillet size in sixteenths of an inch*		
L	6.00 in	*Weld length*		
Rn/Ω	89.09 kips	*Weld strength*		

Chevron Brace: Connection Properties Report

Connection	
Connection Title	Chevron Brace
Connection Type	Vertical Brace Chevron Connection
Seismic Detailing	
Seismic System	None
Connection Category	
Braces	Below
Workpoint Location	Concentric
Loading (ASD)	
Left Brace Axial	22.000 kips
Right Brace Axial	-22.000 kips
Components	
Left Brace Section	HSS4X4X6
Material	A500 Gr.B Rect
Member Orientation	Long Side Vertical
Right Brace Section	HSS4X4X6
Material	A500 Gr.B Rect
Member Orientation	Long Side Vertical
Beam Section	W12X14
Material	A992
Gusset	P0.75x12.67x27.74
Material	A36
Thickness	0.750 in
Width	12.667 in
Length	27.741 in
Left Brace-Gusset Connection	
Connection Type	Slotted Around Gusset
Brace Gusset Weld	E70
Type	Fillet
Fillet Size	4.000 Sixteenths
Right Brace-Gusset Connection	
Connection Type	Slotted Around Gusset
Brace Gusset Weld	E70
Type	Fillet
Fillet Size	4.000 Sixteenths
Gusset-Beam Connection	
Type	Direct Weld
Beam Weld	E70
Type	Double Fillet
Fillet Size	4.000 Sixteenths
Assembly	
Auto-Update Connection	Yes
Gusset/Beam Gap	0.000 in
Left Brace Clearance	3.000 in
Right Brace Clearance	3.000 in
Clearance between Braces	10.864 in
Left Brace WorkPoint Distance	12.326 in
Right Brace WorkPoint Distance	12.326 in
Left Brace/Gusset Overlap	6.000 in
Right Brace/Gusset Overlap	6.000 in
Left Gusset Clip	
Vertical Clip	5.957 in
Horizontal Clip	8.507 in

continued on next page...

Chevron Brace: Connection Properties Report (continued):

Brace/Clip Edge Dist	4.284 in
Right Gusset Clip	
Vertical Clip	5.957 in
Horizontal Clip	8.507 in
Brace/Clip Edge Dist	4.284 in
Left Brace Angle from Vertical	35.000
Right Brace Angle from Vertical	35.000