



Lee's Summit Municipal Airport - General Aviation Terminal Structural Calculations

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PEC Project No.: 250104-000

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Date: 03/04/2025



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Design Criteria

This project consists of a two-story steel and masonry structure in Lee's Summit, Missouri. The structure is supported by concrete pad footings under each interior column, a mat slab underneath the elevator core, and soil-supported grade beams around the exterior. The composite slab for the mezzanine portion of the building is comprised of a 5" total depth concrete slab on 2" metal deck spanning wide flange beams. The composite slab over the restroom area is comprised of a 6" total depth concrete slab on 2" metal deck. The roof is comprised of 1-1/2" steel deck over steel joists and wide flange girders. The floors and roof are supported by steel columns and load bearing masonry walls. The building exterior is comprised of light gauge metal stud framing supporting brick, metal panel, and glazing. The structure is laterally supported by steel moment frames, steel brace frames and masonry shear walls (R=3).

Design Criteria

Local jurisdictions require the Lee's Summit Municipal Airport – General Aviation Terminal Project to utilize the 2018 International Building Code for structural design. The following list of codes are permitted under this edition of the International Building Code, and were used for structural design:

- ASCE 7-16: Minimum Design Loads and Associated Criteria for Buildings and Other Structures
- AISC Steel Construction Manual: 15th Edition
- ACI 318-14: Building Code Requirements for Structural Concrete
- TMS 402/602-16: Building Code Requirements and Specifications for Masonry Structures

The following pages include additional design criteria that was used during design:



PROJECT NAME: Lee's Summit Municipal Airport - General Aviation Terminal

PROJECT NUMBER: 250104-000 DATE: 3/3/2025

ARCHITECT/POC: Jason Barker, Wellner Architects (816)-381-9047

A. Building Department/Phone Number: City of Lee's Summit (816)-969-1200

1. Code/Year/Amendments: IBC 2018

B. BUILDING SYSTEM:

1. Type of Construction & Occupancy Classification: Type II-B, A-3 Risk Category: II

2. Lateral System: Moment Frames, Brace Frames, and CMU walls

3. Gravity System: Joists and Steel beams with Steel columns and load bearing CMU walls.

4. Foundation System: Spread footings and Soil Supported grade beams

C. DESIGN CRITERIA:

1. Wind Speed: 109 MPH(250 MPH RESTROOM) (LRFD) Exposure: C

2. Internal Pressure Coefficient: +/- 0.18 Elevation Factor: 1

3. Seismic Design Category: B Site Class: C

4. R : 3 Base Shear V : 20 KIPS Analysis Procedure: ELF

5. I_e : 1.0 S₁ : 0.099 S_s : 0.068 S_{d1} : 0.106 S_{ds} : 0.108 C_s : 0.029

6. Ground Snow Load P_g : 20 PSF Roof Snow Load P_r : 20 PSF

7. I_s : 1 C_e : 1 Roof R-Value : N/A C_t : 1

D. FOUNDATION DESIGN:

1. Soil Bearing: 3,000 PSF

2. Frost Depth: 36 INCHES

3. Lateral Earth Pressure: N/A

4. Coefficient of Friction: 0.33

5. Skin Friction: N/A End Bearing: N/A

6. : _____

E. FLOOR LIVE LOADS

1. Typical Floor: 100 PSF Roof: 20 PSF

2. Mezzanines: N/A Special Floors: 100 PSF (ABOVE RESTROOM)

3. : _____

4. : _____

F. DEFLECTION CRITERIA

1. Roof: L/360 LL (L/240 TOTAL) Floor: L/360 LL (L/240 TOTAL) Wall: L/360 (L/600 BRICK)

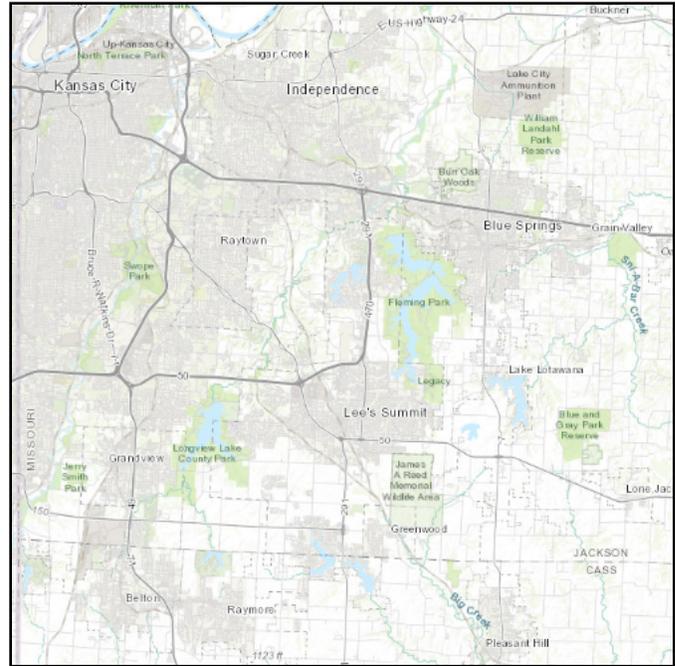
2. Drift : H/300

ASCE Hazards Report

Address:
2751 NE Douglas St
Lees Summit, Missouri
64064

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Latitude: 38.961325
Longitude: -94.376292
Elevation: 978.2048535925805 ft (NAVD 88)



Wind

Results:

Wind Speed	109 Vmph
10-year MRI	76 Vmph
25-year MRI	83 Vmph
50-year MRI	88 Vmph
100-year MRI	94 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Wed Feb 05 2025

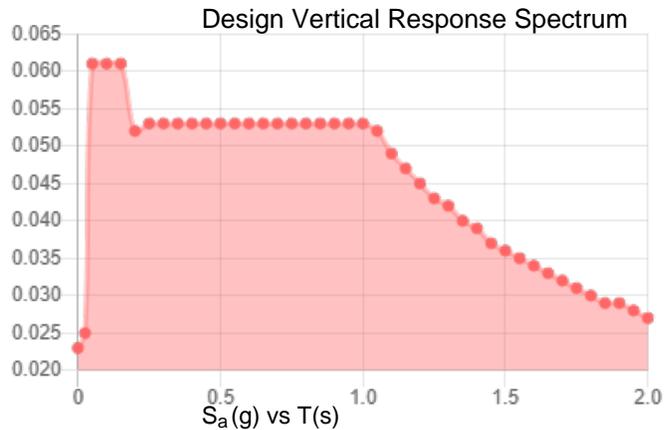
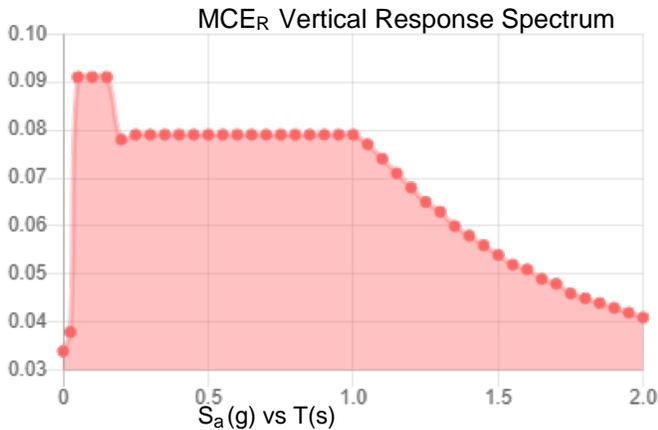
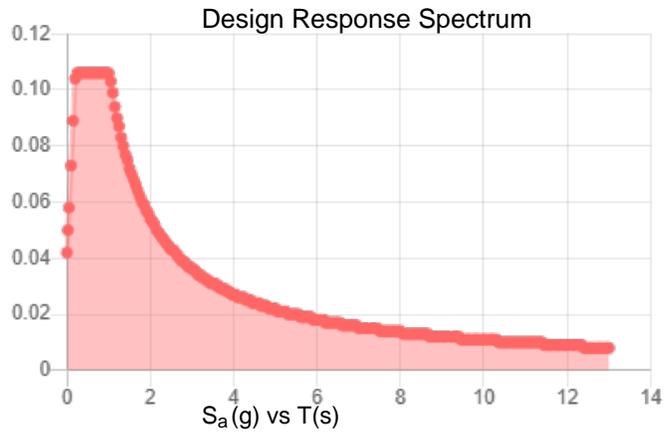
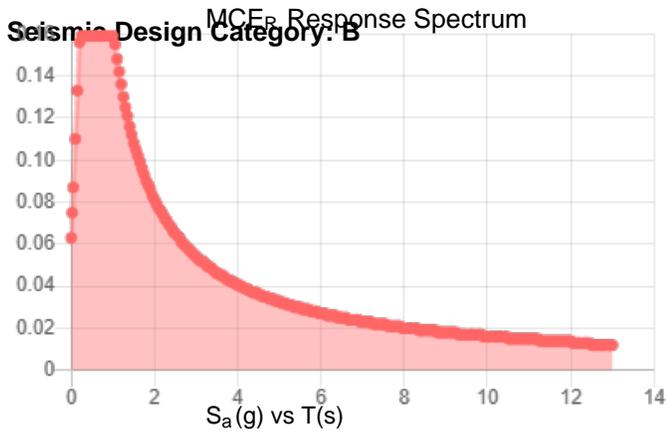
Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	0.099	S_{D1} :	0.108
S_1 :	0.068	T_L :	12
F_a :	1.6	PGA :	0.047
F_v :	2.4	PGA _M :	0.075
S_{MS} :	0.159	F_{PGA} :	1.6
S_{M1} :	0.163	I_e :	1
S_{DS} :	0.106	C_v :	0.7



Data Accessed: Wed Feb 05 2025

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Snow

Results:

Ground Snow Load, p_g :	20 lb/ft ²
Mapped Elevation:	978.2 ft
Data Source:	ASCE/SEI 7-16, Table 7.2-8
Date Accessed:	Wed Feb 05 2025

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

The ASCE Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Thrive

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City Government

Officials | Departments | Meetings

How Do I...

DEVELOPMENT SERVICES



Development Services > Design > Design Criteria > Building Codes and Amendments

Development Services

Doing Business	>
Design	∨
Development Process	>
Design Criteria	∨
Access Management Code	
Building Codes and Amendments	
Design & Construction Manual (Infrastructure)	
Development Policies	
Unified Development Ordinance	
Stormwater BMP O&M Manual	
Construction	>
Community Outreach	>

Building Codes and Amendments

NOTICE: the City of Lee's Summit adopted the following 2018 Codes, which go into effect on April 1, 2019. All projects received after this date will be subject to the applicable 2018 Codes.

On January 8, 2019, the Lee's Summit City Council adopted new building code regulations ([Ordinance #8536](#)) and a new fire code ([Ordinance #8537](#)). These ordinances adopt provisions from the following nationally published construction codes:

- 2018 International Building Code
- 2018 International Plumbing Code
- 2018 International Mechanical Code
- 2018 International Fuel Gas Code
- 2018 International Residential Code
- 2018 International Fire Code
- 2017 National Electrical Code
- ICC/ANSI A117.1-2009, Accessible and Usable Buildings and Facilities

These codes can be purchased on-line at the [ICC Store](#), or by calling the International Code Council Store at 1.800.786.4452.

Contact the Development Services Department for any questions related to the building related regulations at 816.969.1200 or the Fire Department at 816.969.1300 with any International Fire Code questions.

STRUCTURAL CALCULATIONS

FOR

LXT Terminal

Professional Engineering Consultants

351 Linden Street, Suite 100

Fort Collins, CO 80524

970-232-9558

www.pec1.com

JOB TITLE LXT Terminal

JOB NO. 250104-000

SHEET NO.

CALCULATED BY JSH

DATE 3/3/25

CHECKED BY

DATE

www.struware.com

Code Search**Code:** International Building Code 2018**Occupancy:**

Occupancy Group = B Business

Risk Category & Importance Factors:

Risk Category = II

Wind Factor = 1.00

Importance Factor = 1.00

Seismic Importance factor = 1.00

Type of Construction:

Fire Rating:

Roof = 0.0 hr

Floor = 0.0 hr

Building Geometry:Roof angle (θ) 0.50 / 12 2.4 deg

Building length 111.0 ft

Least width 98.0 ft

Mean Roof Ht (h) 31.0 ft

Parapet ht above grd 17.3 ft

Minimum parapet ht 2.3 ft

hb for Elevated bldg 0.0 ft

Live Loads:**Roof** 0 to 200 sf: 20 psf200 to 600 sf: $24 - 0.02 \text{Area}$, but not less than 12 psf

over 600 sf: 12 psf

Floor:

Typical Floor 100 psf

Partitions 15 psf

Corridors above first floor 80 psf

Lobbies & first floor corridors 100 psf

Stairs and exit ways 100 psf

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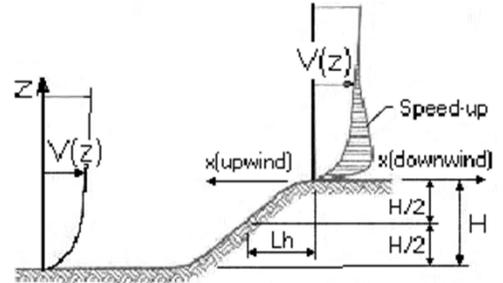
JOB NO. 250104-000 SHEET NO. _____
 CALCULATED BY JSH DATE 3/3/25
 CHECKED BY _____ DATE _____

Wind Loads : ASCE 7- 16

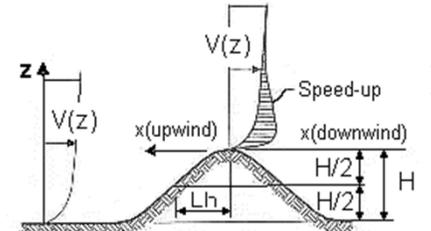
Ultimate Wind Speed	109 mph
Nominal Wind Speed	84.4 mph
Risk Category	II
Exposure Category	C
Enclosure Classif.	Enclosed Building
Internal pressure	+/-0.18
Bldg Directionality (Kd)	0.85
Kh MWFRS<=60	0.989
Kh all other	0.989
Type of roof	Monoslope

Topographic Factor (Kzt)

Topography	Flat
Hill Height (H)	80.0 ft
Half Hill Length (Lh)	100.0 ft
Actual H/Lh =	0.80
Use H/Lh =	0.50
Modified Lh =	160.0 ft
From top of crest: x =	50.0 ft
Bldg up/down wind?	downwind
H/Lh= 0.50 K ₁ = 0.000	
x/Lh = 0.31 K ₂ = 0.792	
z/Lh = 0.19 K ₃ = 1.000	
At Mean Roof Ht: Kzt = (1+K ₁ K ₂ K ₃) ² = 1.00	



ESCARPMENT



2D RIDGE or 3D AXISYMMETRICAL HILL

Gust Effect Factor

h =	31.0 ft
B =	98.0 ft
/z (0.6h) =	18.6 ft

Flexible structure if natural frequency < 1 Hz (T > 1 second).
 If building h/B > 4 then may be flexible and should be investigated.
 h/B = 0.32 Rigid structure (low rise bldg)

G = 0.85 Using rigid structure default

Rigid Structure

\bar{e} =	0.20
l =	500 ft
Z_{min} =	15 ft
c =	0.20
g_Q, g_v =	3.4
L_z =	445.8 ft
Q =	0.88
I_z =	0.22
G =	0.86 use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (η_1) =	0.7 Hz		
Damping ratio (β) =	0.01		
f/b =	0.650		
f/α =	0.154		
Vz =	95.1		
N ₁ =	3.28		
R _n =	0.066		
R _h =	0.555	$\eta = 1.049$	h = 31.0 ft
R _B =	0.256	$\eta = 3.317$	
R _L =	0.076	$\eta = 12.577$	
g_R =	4.104		
R =	0.729		
Gf =	1.052		

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Snow Loads : ASCE 7- 16

Nominal Snow Forces

Roof slope	=	2.4 deg
Horiz. eave to ridge dist (W)	=	98.0 ft
Roof length parallel to ridge (L)	=	111.0 ft
Type of Roof		Monoslope
Ground Snow Load	Pg =	20.0 psf
Risk Category	=	II
Importance Factor	I =	1.0
Roof R value	Rroof =	30
Thermal Factor	Ct =	1.000
Exposure Factor	Ce =	1.00
Pf = 0.7*Ce*Ct*I*Pg	=	14.0 psf
Unobstructed Slippery Surface		no
Sloped-roof Factor	Cs =	1.00
Balanced Snow Load	=	14.0 psf
Rain on Snow Surcharge Angle		1.96 deg
Code Maximum Rain Surcharge		5.0 psf
Rain on Snow Surcharge	=	0.0 psf
Ps plus rain surcharge	=	14.0 psf
Minimum Snow Load	Pm =	20.0 psf
Uniform Roof Design Snow Load	=	20.0 psf

Near ground level surface balanced snow load = **20.0 psf**

NOTE: Alternate spans of continuous beams shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code for loading diagrams and exceptions for gable roofs

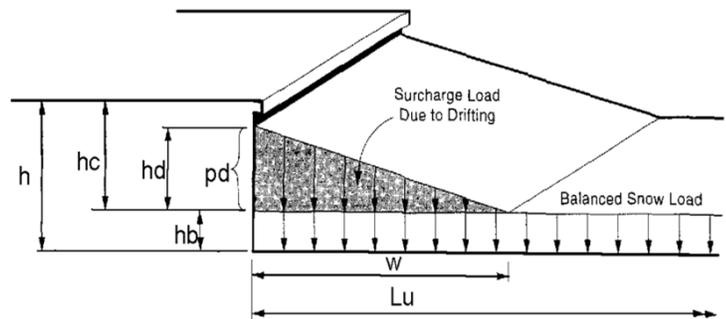
0-55

Snow Drift 1 - Against roof projections, parapets, etc

D1	Up or downwind fetch	lu =	30.0 ft
	Projection height	h =	2.0 ft
	Projection width/length	lp =	20.0 ft
	Snow density	γ =	16.6 pcf
	Balanced snow height	hb =	0.84 ft
		hd =	1.22 ft
		hc =	1.16 ft
	hc/hb > 0.2 = 1.4		Therefore, design for drift
	Drift height (hc)	=	1.16 ft
	Drift width	w =	5.15 ft
Surcharge load:	pd = γ*hd =	19.2 psf	
Balanced Snow load:	=	<u>14.0 psf</u>	
		33.2 psf	

Snow Drift 2- Against roof projections, parapets, etc

D1	Up or downwind fetch	lu =	73.0 ft
	Projection height	h =	2.0 ft
	Projection width/length	lp =	20.0 ft
	Snow density	γ =	16.6 pcf
	Balanced snow height	hb =	0.84 ft
		hd =	2.03 ft
		hc =	1.16 ft
	hc/hb > 0.2 = 1.4		Therefore, design for drift
	Drift height (hc)	=	1.16 ft
	Drift width	w =	9.25 ft
Surcharge load:	pd = γ*hd =	19.2 psf	
Balanced Snow load:	=	<u>14.0 psf</u>	
		33.2 psf	



Note: If bottom of projection is at least 2 feet above hb then snow drift is not required.

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Snow Loads : ASCE 7- 16

Nominal Snow Forces

Roof slope	=	2.4 deg
Horiz. eave to ridge dist (W)	=	98.0 ft
Roof length parallel to ridge (L)	=	111.0 ft
Type of Roof		Monoslope
Ground Snow Load	Pg =	20.0 psf
Risk Category	=	II
Importance Factor	I =	1.0
Roof R value	Rroof =	30
Thermal Factor	Ct =	1.000
Exposure Factor	Ce =	1.00
Pf = 0.7*Ce*Ct*I*Pg	=	14.0 psf
Unobstructed Slippery Surface		no
Sloped-roof Factor	Cs =	1.00
Balanced Snow Load	=	14.0 psf
Rain on Snow Surcharge Angle		1.96 deg
Code Maximum Rain Surcharge		5.0 psf
Rain on Snow Surcharge	=	0.0 psf
Ps plus rain surcharge	=	14.0 psf
Minimum Snow Load	Pm =	20.0 psf
Uniform Roof Design Snow Load	=	20.0 psf

Near ground level surface balanced snow load = **20.0 psf**

NOTE: Alternate spans of continuous beams shall be loaded with half the design roof snow load so as to produce the greatest possible effect - see code for loading diagrams and exceptions for gable roofs

0-55

Snow Drift 1 - Against roof projections, parapets, etc

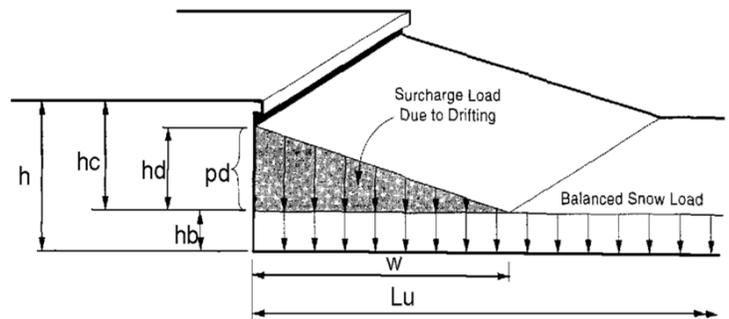
D1

Up or downwind fetch	lu =	30.0 ft
Projection height	h =	10.0 ft
Projection width/length	lp =	20.0 ft
Snow density	γ =	16.6 pcf
Balanced snow height	hb =	0.84 ft
	hd =	1.22 ft
	hc =	9.16 ft
hc/hb > 0.2 = 10.9		Therefore, design for drift
Drift height (hd)	=	1.22 ft
Drift width	w =	4.88 ft
Surcharge load:	pd = γ*hd =	20.3 psf
Balanced Snow load:	=	14.0 psf
		34.3 psf

Snow Drift 2- Against roof projections, parapets, etc

D2

Up or downwind fetch	lu =	73.0 ft
Projection height	h =	10.0 ft
Projection width/length	lp =	20.0 ft
Snow density	γ =	16.6 pcf
Balanced snow height	hb =	0.84 ft
	hd =	2.03 ft
	hc =	9.16 ft
hc/hb > 0.2 = 10.9		Therefore, design for drift
Drift height (hd)	=	2.03 ft
Drift width	w =	8.12 ft
Surcharge load:	pd = γ*hd =	33.7 psf
Balanced Snow load:	=	14.0 psf
		47.7 psf



Note: If bottom of projection is at least 2 feet above hb then snow drift is not required.

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Seismic Loads:

IBC 2018

Strength Level Forces

Risk Category : II
Importance Factor (Ie) : 1.00
Site Class : C

Ss (0.2 sec) = 0.10 g Fa = 1.300
S1 (1.0 sec) = 0.07 g Fv = 1.500

Sms = 0.129
Sm1 = 0.102

S_{DS} = 0.086
S_{D1} = 0.068

Site specific ground motion analysis performed:

Design Category = A
Design Category = B

Seismic Design Category = **B**
Redundancy Coefficient ρ = 1.00
Number of Stories: 2

Structure Type: All other building systems

Horizontal Struct Irregularities: No plan Irregularity
Vertical Structural Irregularities: No vertical Irregularity

Flexible Diaphragms: Yes

Building System: **Structural steel systems not specifically detailed for seismic resistance**

Seismic resisting system: **Structural steel systems not specifically detailed for seismic resistance**

System Structural Height Limit: **Height not limited**

Actual Structural Height (hn) = 31.0 ft

DESIGN COEFFICIENTS AND FACTORS

Response Modification Coefficient (R) = 3
Over-Strength Factor (Ωo) = 2.5
Deflection Amplification Factor (Cd) = 3

To = 0.2(Sd1/Sds) = 0.159
Ts = Sd1/Sds = 0.793
Long Period Transition Period (TL) = 12 sec

S_{DS} = 0.086
S_{D1} = 0.068

Seismic Load Effect (E) = Eh +/- Ev = ρ Q_E +/- 0.2S_{DS}D = Q_E +/- 0.000D Q_E = horizontal seismic force
Special Seismic Load Effect (Em) = Emh +/- Ev = Ωo Q_E +/- 0.2S_{DS}D = 2.5Q_E +/- 0.017D D = dead load

ALLOWABLE STORY DRIFT

Structure Type: All other structures

Allowable story drift Δa = 0.020hsx where hsx is the story height below level x

PERMITTED ANALYTICAL PROCEDURES

Index Force Analysis - Method Not Permitted (only applies to Seismic Category A)

Model & Seismic Response Analysis - Permitted (see code for procedure)

Equivalent Lateral-Force (ELF) Analysis - Permitted

Building period coef. (C_T) = 0.020 Cu = 1.70
Approx fundamental period (Ta) = C_Th_n^x = 0.263 sec x = 0.75 Tmax = CuTa = 0.447 sec
User calculated fundamental period = T = 0.263 sec

Seismic response coef. (Cs) = SdsI/R = 0.029
need not exceed Cs = Sd1 I /RT = 0.086
but not less than Cs = 0.044Sds*I = 0.010
USE Cs = 0.029

Design Base Shear V = 0.029W

SEISMIC FORCES AT FLOORS - ELF Procedure

Total Stories = 1
 Building length L = 111.0 ft
 Building width W = 98.0 ft
 hn = 31.0 ft
 k = 1.000
 V = 0.029W
 Bottom Floor (level 1) is a slab on grade

Floor Dead Load = 80.0 psf
 Floor LL to include = 0.0 psf
 Floor Equip wt = 0.0 kips
 Partition weight = 10.0 psf
 Ext Wall Weight = 50.0 psf
 Roof Dead Load = 20.0 psf

Roof Snow Load = 0.0 psf
 Roof Equip wt = 0.0 kips
 Parapet weight = 0.0 psf
 Parapet height = 0.0 ft

Diaphragm shall be designed for level force Fx, but not less than $F_{px} = (\sum F_i / \sum w_i) w_{px}$, but :
 $F_{px \text{ min}} = 0.2S_{DS} I_e w_{px} = 0.017 w_{px}$
 $F_{px \text{ max}} = 0.4S_{DS} I_e w_{px} = 0.034 w_{px}$

Seismic Forces (Including all exterior walls)

Level (x)	EL above Seismic Base hx (ft)	Level Weight Wx (kips)	Wx hx ² (ft-kips)	Cvx = Wx hx ² / Σ Wi hi ³	V = 10.1k Base Shear Distribution			Diaphragm Force Fpx		
					Fx=CvxV	Σ Fx (k)	Story M	Σ Wi (k)	Fpx	Design Fpx
Roof	13.00	353	4,594	1.000	10.11	10.1	0	353	10.1	10.1
1	0.00	0	0	0.000	0.00	0.0	0	0	0.0	0.0
Base		353		1.000		10.1	131			

131 = Base M

Diaphragm Forces excluding parallel exterior walls

Diaphragm Force Fpx Parallel to Bldg Length V= 8k						Diaphragm Force Fpx Normal to Bldg Length V= 8k						
Cvx =	Fx=CvxV	Σ Fx (k)	Σ Wi (k)	Fpx	Design Fpx	Level (x)	Cvx =	Fx=CvxV	Σ Fx (k)	Σ Wi (k)	Fpx	Design Fpx
1.000	8.04	8.0	281	8.0	8.0	Roof	1.000	8.3	8.3	290	8.3	8.3
0.000	0.00	0.0	0	0.0	0.0	1	0.000	0.0	0.0	0	0.0	0.0
1.000		8.0				Base	1.000		8.3			

Select location

1) Manually:

- a) By location (decimal degrees, use "-" for S and W): Latitude: Longitude:
- b) By station (list of MO stations):
- c) By address

2) Use map:

a) Select location
Move crosshair or double click

b) Click on station icon
 Show stations on map

Location information:
Name: Lees Summit, Missouri, USA*
Latitude: 38.9613°
Longitude: -94.3763°
Elevation: 977 ft **

* Source: ESRI Maps
** Source: USGS

POINT PRECIPITATION FREQUENCY (PF) ESTIMATES
WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 8, Version 2

POINT PRECIPITATION FREQUENCY (PF) ESTIMATES
WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 8, Version 2

PF tabular

PF graphical

Supplementary information

Print page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)¹

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.414 (0.328-0.517)	0.482 (0.382-0.603)	0.596 (0.471-0.747)	0.693 (0.545-0.872)	0.830 (0.634-1.08)	0.938 (0.702-1.23)	1.05 (0.761-1.41)	1.16 (0.813-1.60)	1.32 (0.889-1.86)	1.44 (0.947-2.05)
10-min	0.606 (0.481-0.757)	0.706 (0.560-0.883)	0.873 (0.690-1.09)	1.02 (0.798-1.28)	1.22 (0.929-1.58)	1.37 (1.03-1.80)	1.54 (1.11-2.06)	1.70 (1.19-2.34)	1.93 (1.30-2.72)	2.11 (1.39-3.00)
15-min	0.739 (0.586-0.923)	0.861 (0.682-1.08)	1.06 (0.841-1.33)	1.24 (0.973-1.56)	1.48 (1.13-1.92)	1.68 (1.25-2.20)	1.87 (1.36-2.51)	2.08 (1.45-2.85)	2.36 (1.59-3.32)	2.57 (1.69-3.66)
30-min	1.02 (0.813-1.28)	1.20 (0.951-1.50)	1.49 (1.18-1.87)	1.74 (1.37-2.18)	2.08 (1.59-2.70)	2.36 (1.76-3.09)	2.63 (1.91-3.53)	2.92 (2.04-4.00)	3.30 (2.23-4.65)	3.60 (2.37-5.13)
60-min	1.34 (1.06-1.67)	1.57 (1.24-1.96)	1.96 (1.55-2.46)	2.29 (1.80-2.88)	2.76 (2.11-3.59)	3.14 (2.35-4.12)	3.53 (2.56-4.73)	3.93 (2.74-5.40)	4.47 (3.02-6.30)	4.90 (3.22-6.98)
2-hr	1.65 (1.32-2.05)	1.94 (1.55-2.41)	2.43 (1.93-3.02)	2.85 (2.26-3.56)	3.45 (2.66-4.45)	3.93 (2.96-5.13)	4.42 (3.23-5.90)	4.94 (3.47-6.74)	5.64 (3.83-7.89)	6.19 (4.10-8.77)
3-hr	1.87 (1.50-2.31)	2.20 (1.76-2.72)	2.76 (2.20-3.42)	3.25 (2.58-4.04)	3.95 (3.06-5.09)	4.52 (3.42-5.88)	5.11 (3.75-6.79)	5.73 (4.04-7.80)	6.58 (4.49-9.18)	7.25 (4.82-10.2)



Column and Framing Design



Beam Design Criteria



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

TABLES SELECTED:

Master Steel Table: ramaisc
Default Steel Table: ramaisc
Alternate Steel Table: ramaisc

UNBRACED LENGTH:

Check Unbraced Length
Do Not Consider Point of Inflection as Brace Point
Noncomposite/Precomposite Beam Design:
 Deck Perpendicular to Beam Braces flange
 Deck Parallel to Beam does not Brace flange

Calculate C_b for all Simple Span Beams
Use $C_b=1$ for all Cantilevers

SPAN/DEPTH CRITERIA:

Maximum Span/Depth Ratio (ft/ft): 0.00

COMPOSITE IEFF:

Do Not Reduce I_{eff} per AISC 360 Commentary

DEMAND/CAPACITY LIMITS:

	Strength	Deflection
Steel Beam:	0.900	0.950
C-Beams:	1.000	1.000

DEFLECTION CRITERIA:

Default Criteria	L/d	Δ (in)
Unshored		
Initial (Construction Load):	240.0	0.0
Post Composite		
Live Load:	360.0	1.0
Total Superimposed:	240.0	1.2
Total (Init+Superimp-Camber):	240.0	1.2
Shored		
Dead Load:	240.0	0.0
Live Load:	360.0	1.0
Total Load:	240.0	1.2
Noncomposite		
Dead Load:	240.0	0.0
Live Load:	360.0	1.0
Total Load:	240.0	1.2
Perimeter - Brick Criteria	$20L/d$	Δ (in)

Beam Design Criteria



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

Unshored		
Initial (Construction Load):	240.0	0.0
Post Composite		
Live Load:	360.0	0.0
Total Superimposed:	600.0	0.3
Total (Init+Superimp-Camber):	360.0	0.0
Shored		
Dead Load:	240.0	0.0
Live Load:	600.0	1.0
Total Load:	360.0	1.2
Noncomposite		
Dead Load:	240.0	0.0
Live Load:	600.0	0.3
Total Load:	600.0	0.3

Note: 0.0 indicates No Limit

CAMBER CRITERIA FOR COMPOSITE BEAMS:

Do not Camber Beams with Span < 0.0 ft

Do not Camber Beams with Weight < 0.0 lbs/ft

Do not Camber Beams with Weight > 1000.0 lbs/ft

Do not Camber Beams with Depth < 0.0 in

Do not Camber Beams with Depth > 100.0 in

Do not Camber Beams with Cantilevers

Percent of Dead Load used for Camber: 80.00

(For Unshored Composite the specified % of Construction
DL is used)

Camber Increment (in): 0.250

Minimum Camber (in): 0.750

Maximum Camber (in): 4.000

CAMBER CRITERIA FOR NONCOMPOSITE BEAMS:

Do not Camber

STUD CRITERIA:

Stud Distribution: Use Uniform

Maximum % of Full Composite Allowed: 100.00

Minimum % of Full Composite Allowed - Short Span: 25.00

Minimum % of Full Composite Allowed - Long Span: 50.00

Long Span Defined as Span Greater Than: 30.00 ft

Maximum Rows of Studs Allowed: 3

Minimum Flange Width for 2 Rows of Studs (in): 5.500

Minimum Flange Width for 3 Rows of Studs (in): 8.500

Beam Design Criteria



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

Maximum Stud Spacing - Deck Parallel: Limit to (in): 12.00
Maximum Stud Spacing - Deck Not Parallel: Limit to (in): 12.00
Ductility of Shear Connection:
 Enforce AISC 360-16 Commentary I3.2d(1) for Spans greater than 30'

WEB OPENING CRITERIA:

Stiffener Fy (ksi): 36.000

Stiffener Dimensions

Minimum Width (in): 1.000

Minimum Thickness (in): 0.250

Increment of Width (in): 0.250

Increment of Thickness (in): 0.125

Increment of Length (in): 1.000

Do Not Allow Stiffeners on One Side of web

Allow Stiffeners on Two Sides of web

Floor Map

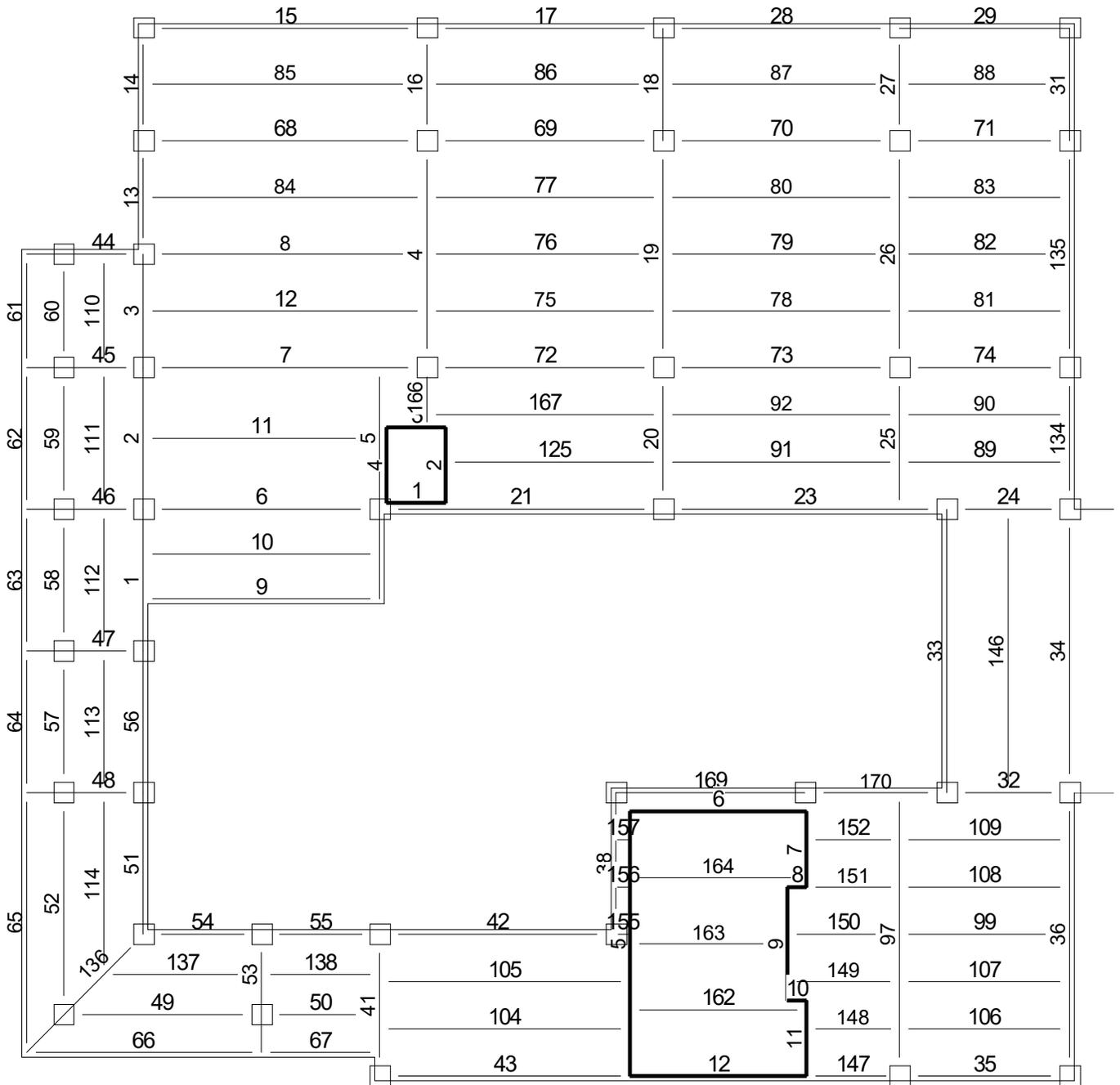


RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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03/03/25 11:14:13
Steel Code: AISC360-16 LRFD

Floor Type: 01-Low Roof

Beam Numbers



Floor Map

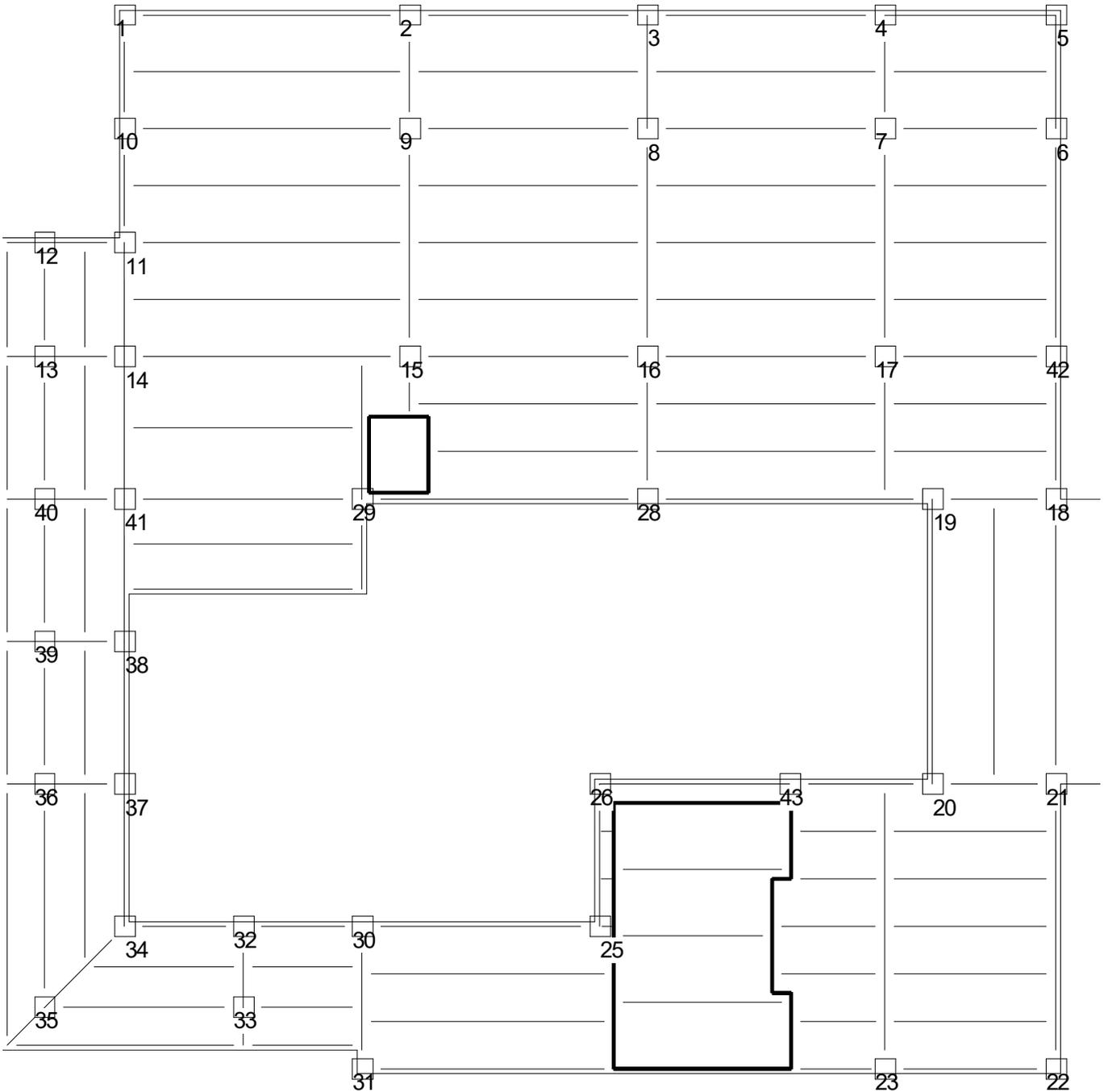


RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

Floor Type: 01-Low Roof

COLUMN NUMBERS



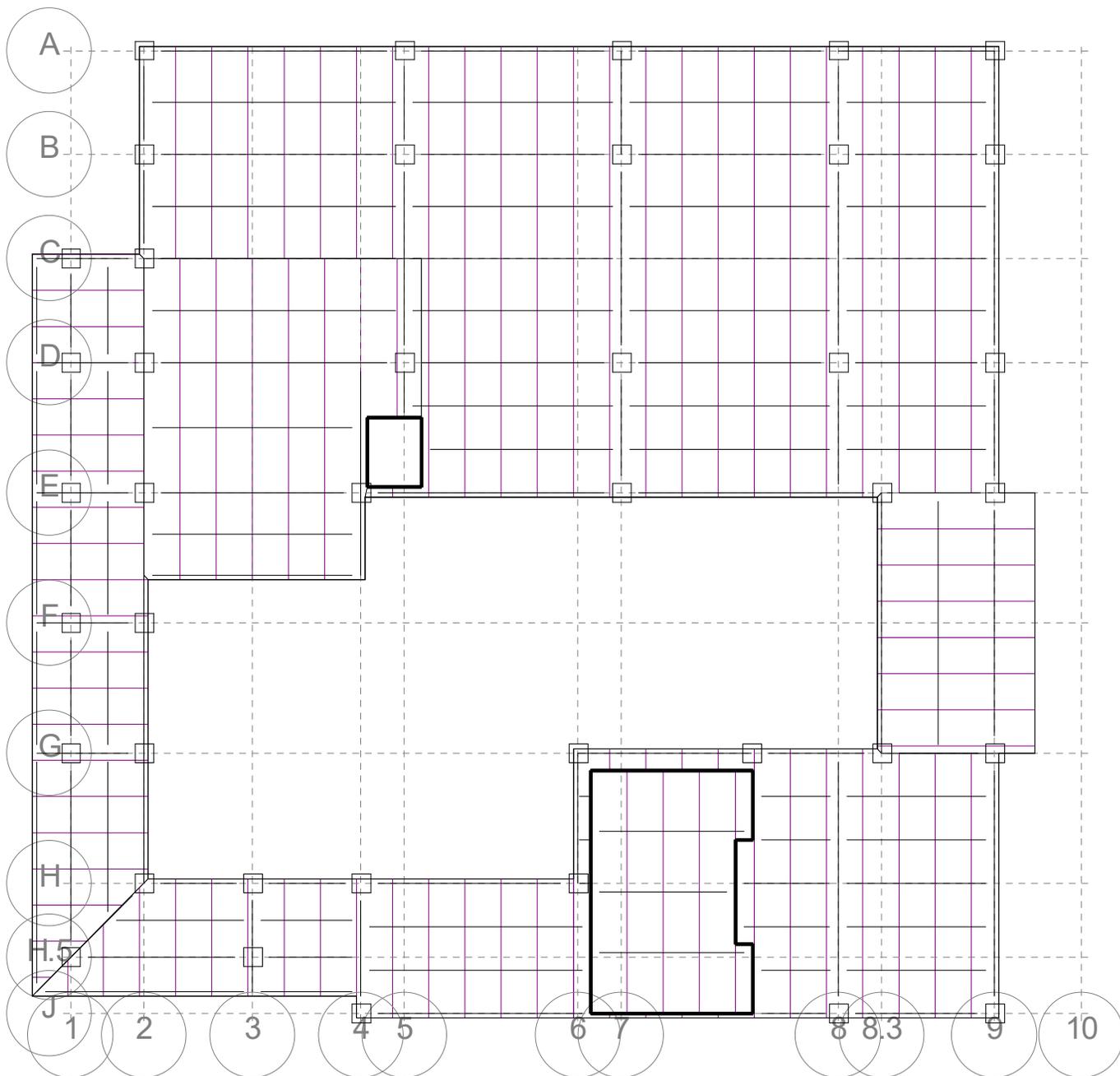
Floor Map



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

Floor Type: 01-Low Roof



Floor Map



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

Decks:	Deck Label	Deck Type	Slab Action	Orientation
<input type="checkbox"/>	Roof Deck	Noncomposite	One-Way	0.00 degrees
<input type="checkbox"/>	Roof Deck	Noncomposite	One-Way	90.00 degrees
<input type="checkbox"/>	5.5 in Comp Conc Slab	VULCRAFT 2VL	One-Way	90.00 degrees

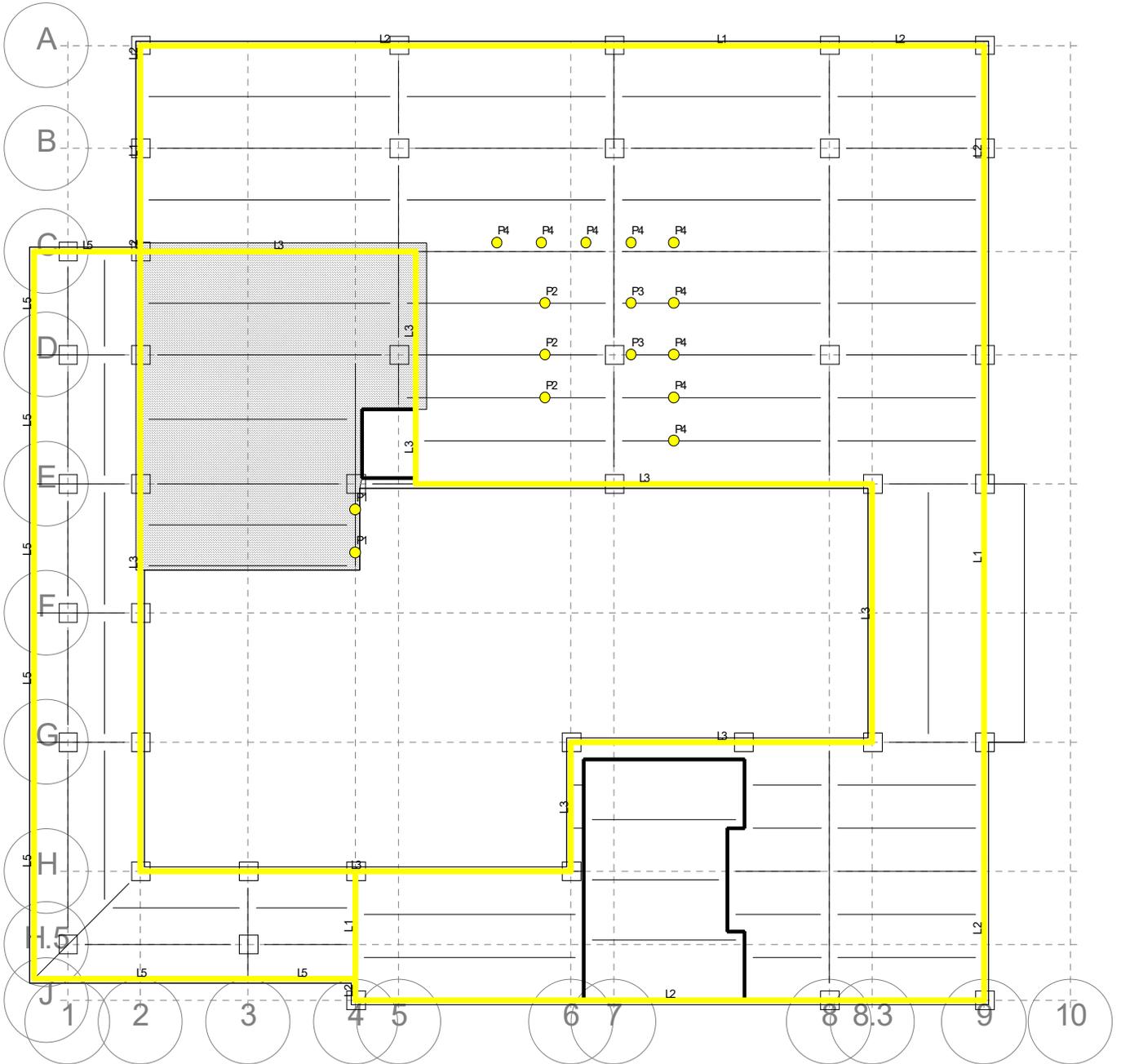
Floor Map



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

Floor Type: 01-Low Roof



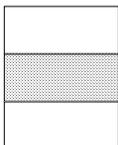
Floor Map



RAM Steel 24.00.01.18
 DataBase: 250104-000 LXT Terminal
 Building Code: IBC

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 Steel Code: AISC360-16 LRFD

Surface Loads



Label	DL psf	CDL psf	LLReduction psfType	PLL psf	CLL psf	Mass DL psf
Typ Roof	20.0	20.0	20.0Roof	0.0	20.0	20.0
Typ Comp Slab	65.0	50.0	100.0Unreducible	0.0	20.0	65.0
Comp Slab Restroom	75.0	50.0	100.0Roof	0.0	20.0	75.0

Line Loads

	Label	DL k/ft	CDL k/ft	LLReduction k/ftType	PLL k/ft	CLL k/ft	Mass DL k/ft
L1	Hanging Brick	0.367	0.000	0.000Reducible	0.000	0.000	0.467
L2	Brick FDN SUPPORT	0.000	0.000	0.000Reducible	0.000	0.000	0.517
L3	Glass or MP Above	0.320	0.000	0.000Reducible	0.000	0.000	0.160
L5	Fascia	0.010	0.000	0.000Reducible	0.000	0.000	0.100

Point Loads

	Label	DL kips	CDL kips	LLReduction kipsType	PLL kips	CLL kips	Mass DL kips
P1	Stairs	1.250	0.000	2.500Unreducible	0.000	0.000	1.250
P2	RTU	2.500	0.000	0.000Reducible	0.000	0.000	0.000
P3	CU	0.500	0.000	0.000Reducible	0.000	0.000	0.000
P4	Screenwall	1.500	0.000	0.000Reducible	0.000	0.000	0.000

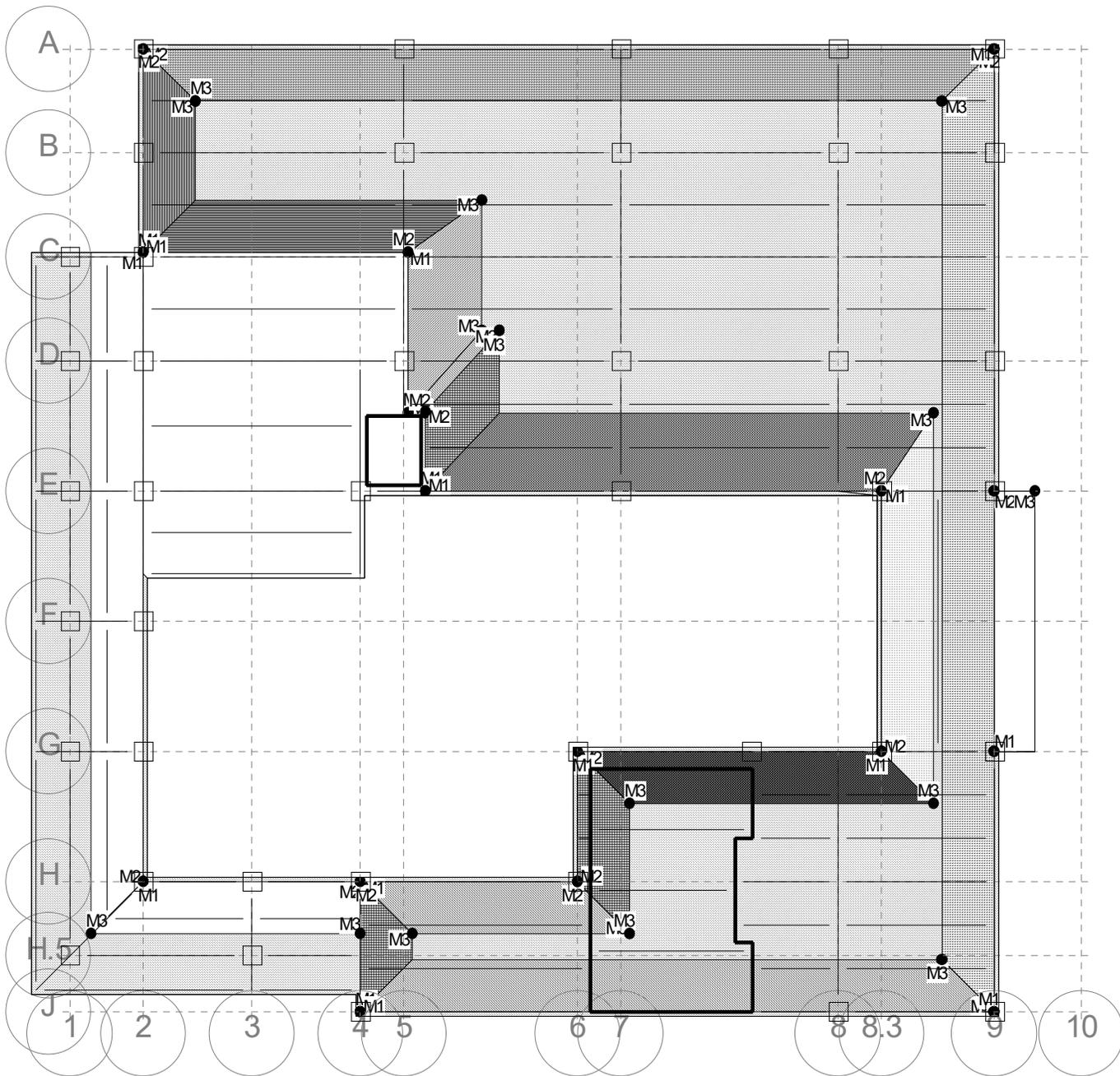
Floor Map



RAM Steel 24.00.01.18
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Steel Code: AISC360-16 LRFD

Floor Type: 01-Low Roof



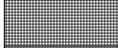
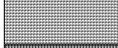
Floor Map



RAM Steel 24.00.01.18
 DataBase: 250104-000 LXT Terminal
 Building Code: IBC

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 Steel Code: AISC360-16 LRFD

Snow Loads

	Label	Type	Magnitude 1	Magnitude 2	Magnitude 3
			psf	psf	psf
	Balanced Snow	Constant	20.000	---	---
	Balanced Snow	Constant	20.000	---	---
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 2	Drift	48.000	48.000	20.000
	Drift 2	Drift	48.000	48.000	20.000
	Drift 2	Drift	48.000	48.000	20.000
	Drift 2	Drift	48.000	48.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000
	Drift 1	Drift	35.000	35.000	20.000

Floor Map

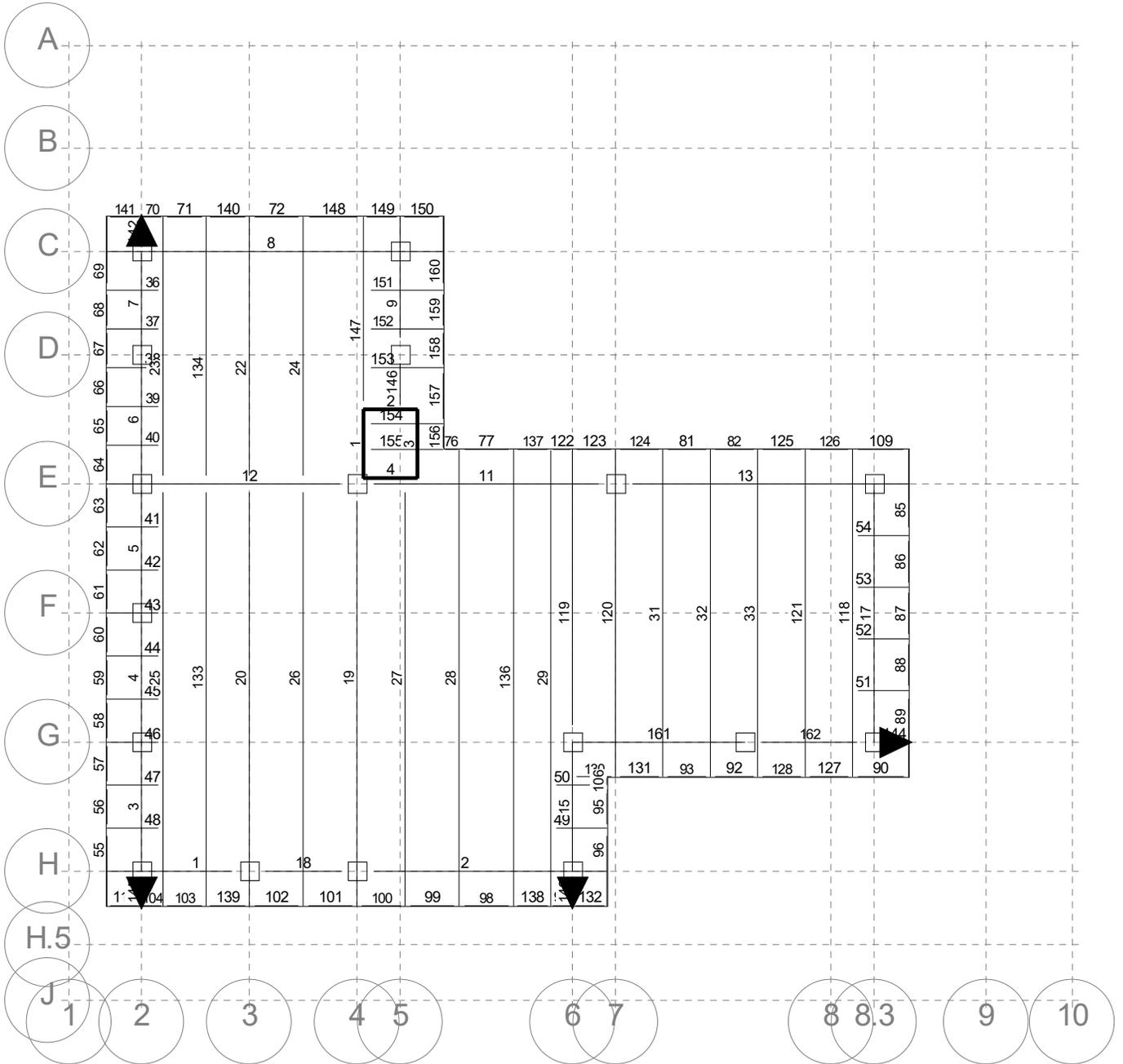


RAM Steel 24.00.01.18
 DataBase: 250104-000 LXT Terminal
 Building Code: IBC

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 Steel Code: AISC360-16 LRFD

Floor Type: 02-High Roof

Beam Numbers



Floor Map

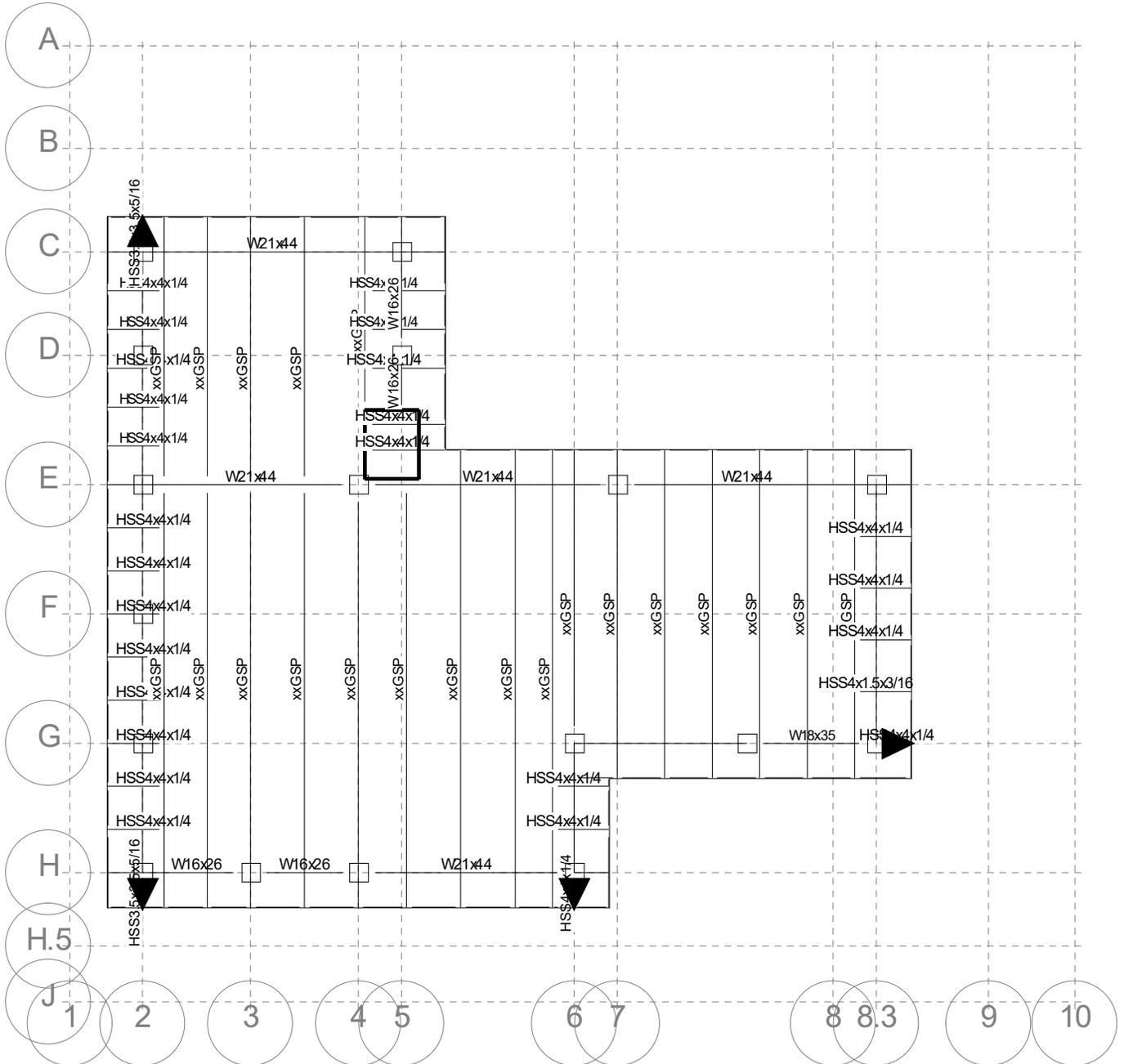


RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

Floor Type: 02-High Roof

Beam Designs



Floor Map

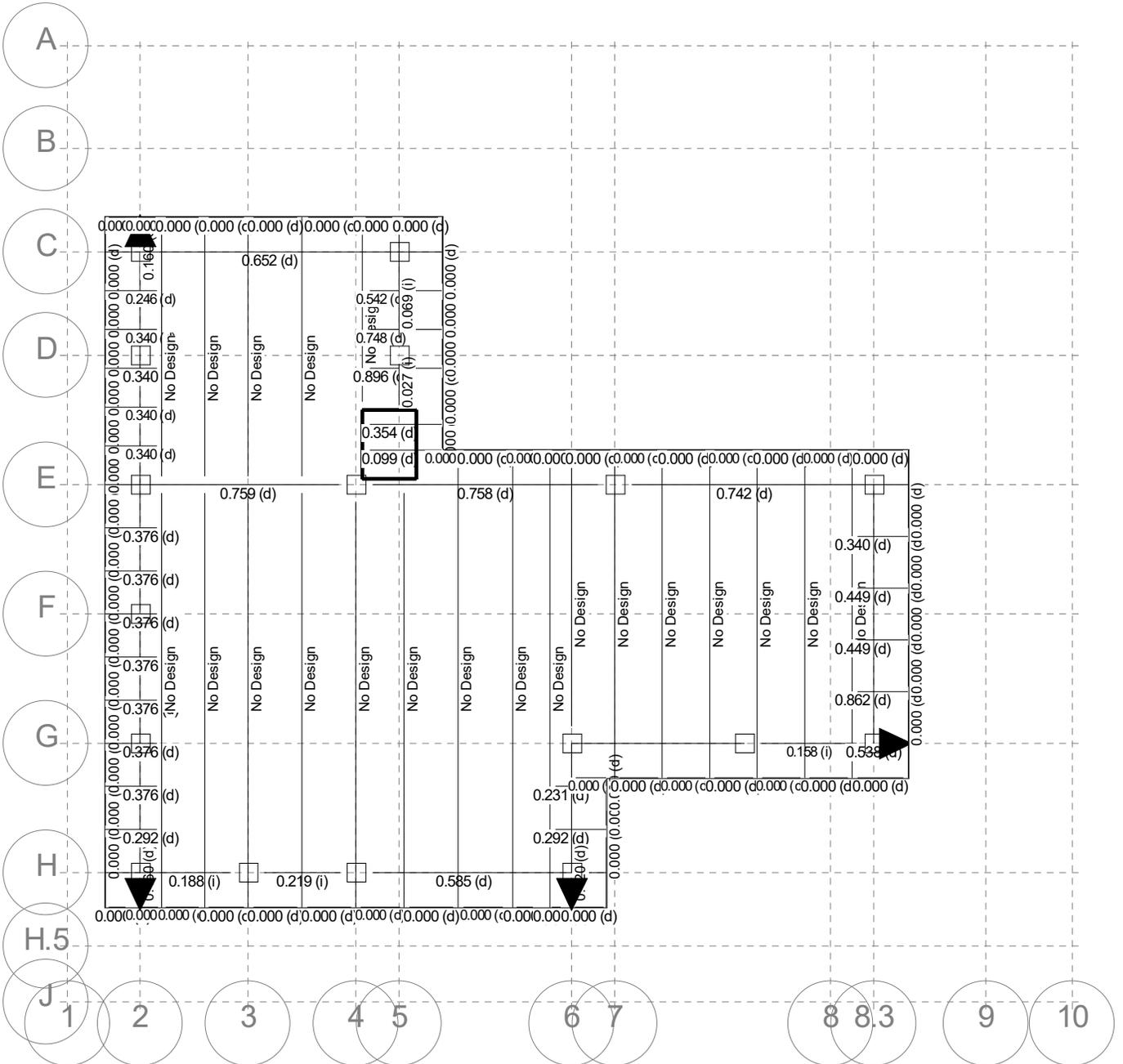


RAM Steel 24.00.01.18
 DataBase: 250104-000 LXT Terminal
 Building Code: IBC

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 Steel Code: AISC360-16 LRFD

Floor Type: 02-High Roof

Demand / Capacity Ratios: Controlling



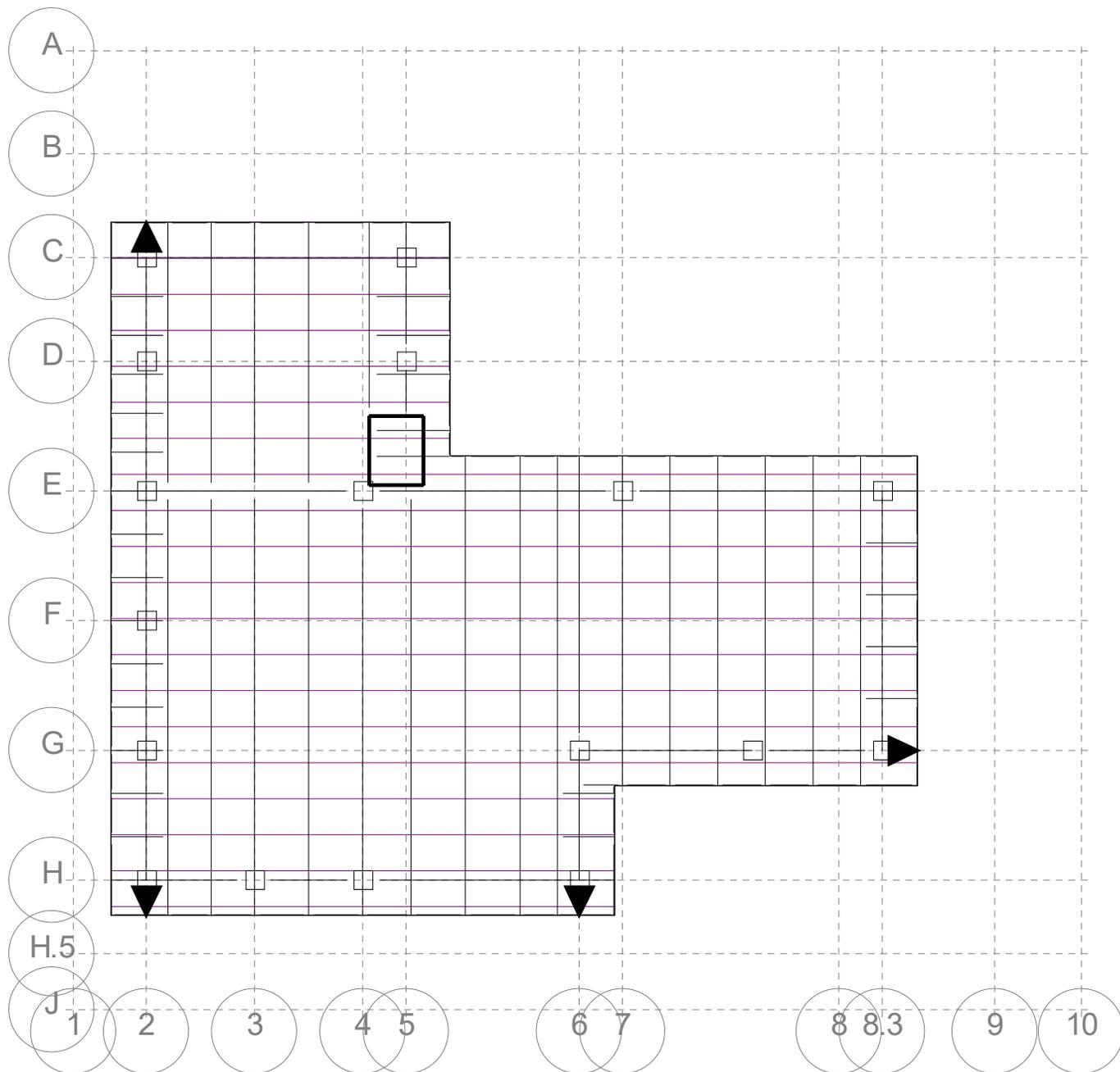
Floor Map



RAM Steel 24.00.01.18
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Steel Code: AISC360-16 LRFD

Floor Type: 02-High Roof



Floor Map



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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03/03/25 11:28:57
Steel Code: AISC360-16 LRFD

Decks:	Deck Label	Deck Type	Slab Action	Orientation
<input type="checkbox"/>	Roof Deck	Noncomposite	One-Way	0.00 degrees

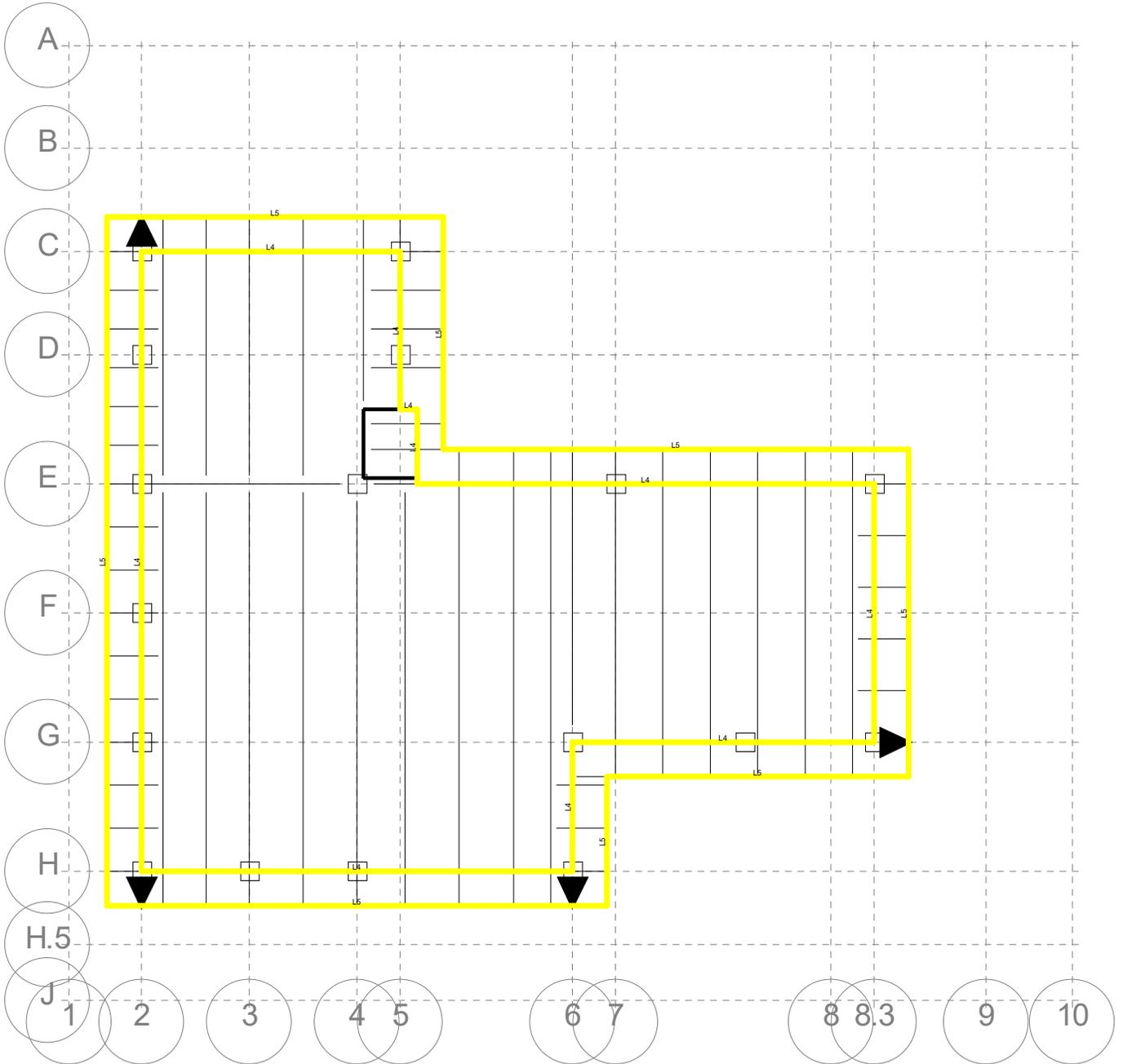
Floor Map



RAM Steel 24.00.01.18
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Steel Code: AISC360-16 LRFD

Floor Type: 02-High Roof



Floor Map



RAM Steel 24.00.01.18
 DataBase: 250104-000 LXT Terminal
 Building Code: IBC

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 Steel Code: AISC360-16 LRFD

Surface Loads

	Label	DL psf	CDL psf	LLReduction psfType	PLL psf	CLL psf	Mass DL psf
	Roof Solar Panel	30.0	20.0	20.0Roof	0.0	20.0	20.0

Line Loads

	Label	DL k/ft	CDL k/ft	LLReduction k/ftType	PLL k/ft	CLL k/ft	Mass DL k/ft
L4	Glass or MP Below	0.000	0.000	0.000Reducible	0.000	0.000	0.160
L5	Fascia	0.010	0.000	0.000Reducible	0.000	0.000	0.100

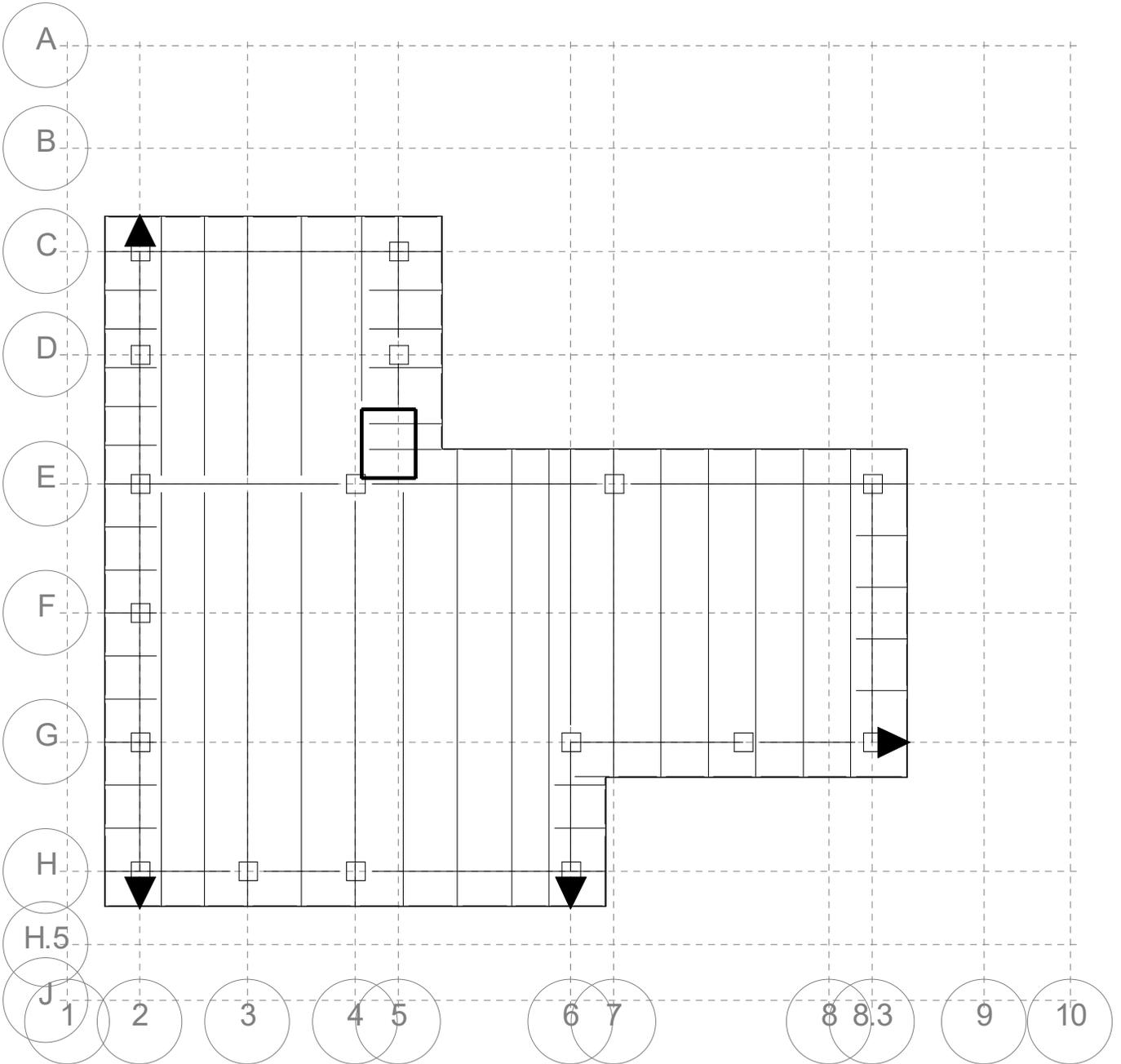
Floor Map



RAM Steel 24.00.01.18
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Steel Code: AISC360-16 LRFD

Floor Type: 02-High Roof



Floor Map



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

Snow Loads

	Label	Type	Magnitude 1	Magnitude 2	Magnitude 3
			psf	psf	psf
<input type="checkbox"/>	Balanced Snow	Constant	20.000	---	---



Initial reaction	6.69	6.69
DL reaction	6.24	6.24
Max +LL reaction	9.00	9.00
Max +total reaction (factored)	21.89	21.89

DEFLECTIONS:

							Ratio
Initial load (in)	at	15.00 ft	=	-0.681		L/D = 529 > 240	0.45
Live load (in)	at	15.00 ft	=	-0.370	< -	L/D = 972 > 360	0.37
					1.00		
Post Comp load (in)	at	15.00 ft	=	-0.426	< -	L/D = 845 > 240	0.34
					1.25		
Net Total load (in)	at	15.00 ft	=	-1.107	< -	L/D = 325 > 240	0.89
					1.25		

Gravity Beam Design ROOF BEAM EXAMPLE



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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Steel Code: AISC360-16 LRFD

Net Total load (in) at 12.12 ft = -0.211 < - L/D = 1424 > 240 0.17
1.2
50

Design Warnings



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal

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STEEL BEAM DESIGN SUMMARY:

Demand/Capacity Limits for: Strength: 0.900 Deflection: 0.950

Floor Type: 02-High Roof

Beam #	Length ft	+Mu kip-ft	-Mu kip-ft	ΦMn kip-ft	Fy ksi	Beam Size	Studs
1	4.00	0.0	-5.2				
	12.50	31.2	-5.2	137.9	50.0	W16X26	u
2	25.00	143.8	-5.4	87.9	50.0	W21X44	u
	4.00	0.0	-5.4				
8	4.00	0.0	-5.4				
	30.00	130.0	-8.3	69.4	50.0	W21X44	u
	5.00	0.0	-8.3				
9	12.00	11.5	-3.0	165.8	50.0	W16X26	u
	4.00	0.0	-3.0				
11	30.00	192.0	0.0	326.3	50.0	W21X44	
12	4.00	0.0	-3.2				
	25.00	189.2	-3.2	87.5	50.0	W21X44	
13	30.00	148.9	-7.4	67.5	50.0	W21X44	
	4.00	0.0	-7.4				
18	12.50	36.3	0.0	165.8	50.0	W16X26	u
36	4.00	0.0	-2.1				
	2.50	0.0	-2.1	17.6	50.0	HSS4X4X1/4	u
37	4.00	0.0	-2.8				
	2.50	0.0	-2.8	17.6	50.0	HSS4X4X1/4	u
38	4.00	0.0	-2.8				
	2.50	0.0	-2.8	17.6	50.0	HSS4X4X1/4	u
39	4.00	0.0	-2.8				
	2.50	0.0	-2.8	17.6	50.0	HSS4X4X1/4	u
40	4.00	0.0	-2.8				
	2.50	0.0	-2.8	17.6	50.0	HSS4X4X1/4	u
41	4.00	0.0	-3.1				
	2.50	0.0	-3.1	17.6	50.0	HSS4X4X1/4	u
42	4.00	0.0	-3.1				
	2.50	0.0	-3.1	17.6	50.0	HSS4X4X1/4	u
43	4.00	0.0	-3.1				
	2.50	0.0	-3.1	17.6	50.0	HSS4X4X1/4	u
44	4.00	0.0	-3.1				
	2.50	0.0	-3.1	17.6	50.0	HSS4X4X1/4	u

Design Warnings



RAM Steel 24.00.01.18
 DataBase: 250104-000 LXT Terminal

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45	4.00	0.0	-3.1				
	2.50	0.0	-3.1	17.6	50.0	HSS4X4X1/4	u
46	4.00	0.0	-3.1				
	2.50	0.0	-3.1	17.6	50.0	HSS4X4X1/4	u
47	4.00	0.0	-3.1				
	2.50	0.0	-3.1	17.6	50.0	HSS4X4X1/4	u
48	4.00	0.0	-2.5				
	2.50	0.0	-2.5	17.6	50.0	HSS4X4X1/4	u
49	2.50	0.0	-2.5	17.6	50.0	HSS4X4X1/4	u
	4.00	0.0	-2.5				
50	2.50	0.0	-1.9	17.6	50.0	HSS4X4X1/4	u
	4.00	0.0	-1.9				
51	2.50	0.0	-2.8	7.5	50.0	HSS4X1.5X3/16	
	4.00	0.0	-2.8				
52	2.50	0.0	-3.7	17.6	50.0	HSS4X4X1/4	u
	4.00	0.0	-3.7				
53	2.50	0.0	-3.7	17.6	50.0	HSS4X4X1/4	u
	4.00	0.0	-3.7				
54	2.50	0.0	-2.9	17.6	50.0	HSS4X4X1/4	u
	4.00	0.0	-2.9				
142	4.00	0.0	-2.0	15.5	50.0	HSS3.5X3.5X5/16	u
143	4.00	0.0	-2.0	17.6	50.0	HSS4X4X1/4	u
144	4.00	0.0	-7.1	17.6	50.0	HSS4X4X1/4	u
145	4.00	0.0	-2.0	15.5	50.0	HSS3.5X3.5X5/16	u
146	6.33	3.9	0.0	165.8	50.0	W16X26	u
151	4.33	0.0	-3.2	17.6	50.0	HSS4X4X1/4	u
	5.00	0.0	-3.2				
152	4.33	0.0	-4.3	17.6	50.0	HSS4X4X1/4	u
	5.00	0.0	-4.3				
153	4.33	0.0	-5.1	17.6	50.0	HSS4X4X1/4	u
	5.00	0.0	-5.1				
154	6.33	0.0	-2.1	17.6	50.0	HSS4X4X1/4	u
	3.00	0.0	-2.1				
155	6.33	0.0	-0.6	17.6	50.0	HSS4X4X1/4	u
	3.00	0.0	-0.6				
162	15.00	39.4	0.0	249.4	50.0	W18X35	u

Floor Type: 01-Low Roof

Beam #	Length ft	+Mu kip-ft	-Mu kip-ft	ΦMn kip-ft ₄₉	Fy ksi	Beam Size	Studs
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Design Warnings



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4	24.00	475.2	0.0	663.8	50.0	W24X68	u	
5	9.50	0.0	-222.2					
	15.00	49.2	-222.2	357.8	50.0	W21X44		
6	25.00	116.3	0.0	302.2	50.0	W16X26	u	25
7	30.00	204.7	-7.4	575.6	50.0	W21X44	u	30
8	30.00	171.1	0.0	311.2	50.0	W16X26		30
9	25.00	55.9	0.0	295.6	50.0	W16X26	u	25
10	25.00	90.8	0.0	301.0	50.0	W16X26	u	25
11	25.00	141.9	0.0	303.0	50.0	W16X26	u	25
12	30.00	164.2	0.0	321.4	50.0	W16X26	u	30
13	12.00	28.3	0.0	165.8	50.0	W16X26	u	
14	12.00	25.7	0.0	165.8	50.0	W16X26	u	
15	30.00	31.1	0.0	165.8	50.0	W16X26	u	
16	12.00	30.3	0.0	165.8	50.0	W16X26	u	
17	25.00	21.5	0.0	165.8	50.0	W16X26	u	
19	24.00	166.6	0.0	249.4	50.0	W18X35	u	
20	15.00	59.0	0.0	242.2	50.0	W18X35	u	
21	30.00	70.3	0.0	249.4	50.0	W18X35	u	
23	30.00	100.5	0.0	249.4	50.0	W18X35	u	
24	13.00	26.7	0.0	165.8	50.0	W16X26	u	
25	15.00	43.3	0.0	246.9	50.0	W18X35	u	
26	24.00	101.8	0.0	249.4	50.0	W18X35	u	
27	12.00	23.9	0.0	165.8	50.0	W16X26	u	
28	25.00	57.0	0.0	357.8	50.0	W21X44	u	
32	13.00	25.6	0.0	165.8	50.0	W16X26	u	
34	30.00	120.5	0.0	663.8	50.0	W24X68		
35	18.00	9.9	0.0	165.8	50.0	W16X26	u	
36	30.00	95.7	0.0	663.8	50.0	W24X68	u	
41	15.00	45.1	0.0	502.5	50.0	W24X55	u	
42	25.00	49.0	0.0	165.8	50.0	W16X26	u	
43	26.50	21.4	0.0	165.8	50.0	W16X26		
44	4.00	0.0	-4.6					
	8.50	2.9	-4.6	60.0	50.0	W10X15	u	
45	4.00	0.0	-9.4					
	8.50	5.8	-9.3	60.0	50.0	W10X15	u	
46	4.00	0.0	-10.4					
	8.50	6.4	-10.4	60.0	50.0	W10X15	u	
47	4.00	0.0	-10.4					
	8.50	6.4	-10.4	60.0	50.0	W10X15	u	

Design Warnings



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48	4.00	0.0	-14.6				
	8.50	6.6	-14.6	70.1	50.0	W10X17	u
49	21.00	13.6	0.0	60.0	50.0	W10X15	u
50	12.50	4.8	0.0	46.9	50.0	W10X12	u
52	23.50	17.1	0.0	60.0	50.0	W10X15	u
53	4.00	0.0	-12.9				
	8.50	5.5	-12.9	70.1	50.0	W10X17	u
54	12.50	12.2	0.0	357.8	50.0	W21X44	u
55	12.50	12.2	0.0	357.8	50.0	W21X44	u
57	15.00	6.9	0.0	46.9	50.0	W10X12	u
58	15.00	6.9	0.0	46.9	50.0	W10X12	u
59	15.00	6.9	0.0	46.9	50.0	W10X12	u
60	12.00	4.4	0.0	46.9	50.0	W10X12	u
61	12.00	3.1	0.0	59.6	50.0	C10X15.3	u
62	15.00	4.8	0.0	59.6	50.0	C10X15.3	u
63	15.00	4.8	0.0	59.6	50.0	C10X15.3	u
64	15.00	4.8	0.0	59.6	50.0	C10X15.3	u
65	27.50	16.0	0.0	59.6	50.0	C10X15.3	u
66	25.00	13.2	0.0	59.6	50.0	C10X15.3	u
67	12.50	3.3	0.0	59.6	50.0	C10X15.3	u
72	25.00	43.9	0.0	124.5	50.0	W14X22	u
73	25.00	34.7	0.0	249.4	50.0	W18X35	u
75	25.00	45.9	0.0	124.5	50.0	W14X22	u
76	25.00	50.9	0.0	249.4	50.0	W18X35	u
77	25.00	33.5	0.0	249.4	50.0	W18X35	u
78	25.00	36.8	0.0	249.4	50.0	W18X35	u
79	25.00	36.7	0.0	249.4	50.0	W18X35	u
80	25.00	30.9	0.0	249.4	50.0	W18X35	u
84	30.00	46.9	0.0	165.8	50.0	W16X26	u
91	25.00	39.3	0.0	249.4	50.0	W18X35	u
92	25.00	32.7	0.0	249.4	50.0	W18X35	u
97	30.00	100.0	0.0	249.4	50.0	W18X35	u
110	12.00	5.1	0.0	46.9	50.0	W10X12	u
111	15.00	8.0	0.0	46.9	50.0	W10X12	u
112	15.00	8.0	0.0	46.9	50.0	W10X12	u
113	15.00	8.0	0.0	46.9	50.0	W10X12	u
114	19.25	13.0	0.0	46.9	50.0	W10X12	u
125	23.00	27.2	0.0	124.5	50.0	W14X22	u
134	15.00	29.1	0.0	157.4	50.0	W16X26	u

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Bentley

135	24.00	61.3	0.0	348.0	50.0	W21X44	u	
136	5.66	0.0	-24.2					
	12.02	9.2	-24.2	97.5	50.0	W10X22	u	
137	16.75	9.8	0.0	46.9	50.0	W10X12	u	
138	12.50	5.6	0.0	46.9	50.0	W10X12	u	
146	30.00	50.9	0.0	165.8	50.0	W16X26	u	
147	9.83	2.9	0.0	124.5	50.0	W14X22	u	
148	9.83	3.9	0.0	65.2	50.0	W12X14	u	
149	11.83	5.1	0.0	65.2	50.0	W12X14	u	
150	11.83	5.2	0.0	65.2	50.0	W12X14	u	
151	9.83	3.6	0.0	65.2	50.0	W12X14	u	
152	9.83	3.9	0.0	65.2	50.0	W12X14	u	
155	1.50	0.1	0.0	32.9	50.0	W8X10		
156	1.50	0.1	0.0	32.9	50.0	W8X10		
157	1.50	0.1	0.0	32.9	50.0	W8X10		
162	18.67	35.3	0.0	216.3	50.0	W14X22	u	18
163	16.67	27.8	0.0	208.9	50.0	W14X22	u	16
164	18.67	34.8	0.0	216.3	50.0	W14X22	u	18
166	6.33	9.4	0.0	158.9	50.0	W14X22	u	8
167	25.00	41.5	0.0	124.5	50.0	W14X22	u	
170	15.00	53.1	0.0	249.4	50.0	W18X35	u	

* after Size denotes beam failed stress/capacity criteria.

after Size denotes beam failed deflection criteria.

u after Size denotes this size has been assigned by the User.

Gravity Column Design Criteria



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DEFAULT SPLICE LEVELS:

Level	Splice
02-High Roof	N
01-Low Roof	N

DEMAND/CAPACITY LIMIT FOR STRENGTH:

Columns: 0.900
 Baseplates: 1.000

DESIGN DEFAULTS:

Maximum Angle from column axis at which beam reaction is not split
 between column sides for calculating unbalanced moments: 30.0 deg.
 Skip-load the Live Load around Column

STANDARD COLUMN TRIAL GROUPS:

	Trial Group 1	Trial Group 2	Trial Group 3
I Section	W14	W12	W10
Rect. HSS	HSS5.5X5.5	HSS6X6	HSS5.5X5.5
Round HSS	HSS20	HSS18	HSS16

HANGING COLUMN TRIAL GROUPS:

	Trial Group 1	Trial Group 2	Trial Group 3
I Section	W14	W12	W10
Rect. HSS	HSS22X22	HSS20X20	HSS18X18
Round HSS	HSS20	HSS18	HSS16
Channel	C15	C12	C10
Tee	WT22	WT20X16	WT20X12
Flat Bar	FlatBar	FlatBar	FlatBar
Round Bar	RoundBar	RoundBar	RoundBar
Single Angle	L12X12	L10X10	L8X8
Double Angle	2L12X12	2L10X10	2L8X8

COLUMN BRACING:

Deck Braces Column
 Maximum Angle from column axis for which beam braces column: 60.0 deg.

BASE PLATES:

Design Code: AISC360-16 LRFD	
Plate Fy (ksi)	36.000
Minimum Dimension From Face of Column to Edge of Plate (in)	1.000
Minimum Dimension From Side of Column to Edge of Plate (in)	1.000
Increment of Plate Dimensions (in)	0.250
Increment of Plate Thickness (in)	0.125
Minimum Footing Dimension Parallel to Web (ft)	10.00
Minimum Footing Dimension Perpendicular to Web (ft)	10.00

Gravity Column Design Criteria



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Keep Base Plate Square:..... N

Gravity Column Design



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B_{1x} = 1.00 B_{1y} = 1.00

INTERACTION EQUATION

P_u/0.90*P_n = 0.314

Eq H1-1a: 0.314 + 8/9(0.034 + 0.388) = 0.689

Gravity Column Design Summary



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DEMAND/CAPACITY LIMIT FOR STRENGTH : 0.900

Column Line 1-H.5

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	14.8	0.0	0.0	1	0.13 Eq Axial	0.0	50 HSS5X5X1/4

Column Line 1-G

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	12.9	0.0	0.0	1	0.12 Eq Axial	0.0	50 HSS5X5X1/4

Column Line 1-F

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	10.0	0.0	0.0	1	0.09 Eq Axial	0.0	50 HSS5X5X1/4

Column Line 1-E

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	10.0	0.0	0.0	1	0.09 Eq Axial	0.0	50 HSS5X5X1/4

Column Line 1-D

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	9.0	0.0	0.0	1	0.08 Eq Axial	0.0	50 HSS5X5X1/4

Column Line 1-C

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	4.6	0.0	0.0	1	0.04 Eq Axial	0.0	50 HSS5X5X1/4

Column Line 2-B

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	15.7	2.3	0.9	6	0.18 Eq H1-1b	0.0	50 HSS5X5X1/4

Column Line 2-A

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	9.5	1.7	2.1	1	0.18 Eq H1-1b	0.0	50 HSS5X5X1/4

Column Line 3-H.5

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	11.3	0.0	0.0	1	0.10 Eq Axial	0.0	50 HSS5X5X1/4

Column Line 3-H

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
02-High Roof	23.2	0.0	0.0	1	0.07 Eq Axial	0.0	50 HSS8X8X3/8
01-Low Roof	32.1	0.0	0.0	1	0.09 Eq Axial	0.0	50 HSS8X8X3/8

Column Line 4-J

Gravity Column Design Summary



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Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	12.9	1.4	-3.9	1	0.24 Eq H1-1b	0.0	50 HSS5X5X1/4
Column Line 4-H							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
02-High Roof	35.6	0.0	0.0	1	0.10 Eq Axial	0.0	50 HSS8X8X3/8
01-Low Roof	57.3	0.0	0.0	1	0.15 Eq Axial	0.0	50 HSS8X8X3/8
Column Line 4-E							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
02-High Roof	44.4	-4.9	3.8	12	0.54 Eq H1-1a	0.0	50 HSS5X5X3/8
01-Low Roof	125.1	0.0	0.0	1	0.81 Eq Axial	0.0	50 HSS5X5X3/8
Column Line 5-D							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
02-High Roof	5.2	-4.8	-9.5	4	0.31 Eq H1-1b	0.0	50 HSS5X5X1/2
01-Low Roof	96.7	-4.7	-10.7	1	0.79 Eq H1-1a	0.0	50 HSS5X5X1/2
Column Line 5-C							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
02-High Roof	22.0	0.0	0.0	1	0.23 Eq Axial	0.0	50 HSS5X5X1/4
Column Line 5-B							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	48.5	-1.4	15.4	15	0.69 Eq H1-1a	0.0	50 HSS5X5X3/8
Column Line 5-A							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	11.0	-1.1	2.1	12	0.16 Eq H1-1b	0.0	50 HSS5X5X1/4
Column Line 7-E							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
02-High Roof	45.6	0.9	-2.3	5	0.42 Eq H1-1a	0.0	50 HSS5X5X3/8
01-Low Roof	79.2	0.4	-2.6	1	0.58 Eq H1-1a	0.0	50 HSS5X5X3/8
Column Line 7-D							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	38.8	-1.1	-5.9	16	0.57 Eq H1-1a	0.0	50 HSS5X5X1/4
Column Line 8-J							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	14.3	0.7	-4.7	8	0.25 Eq H1-1b	0.0	50 HSS5X5X1/4

Column Line 8-D

Gravity Column Design Summary



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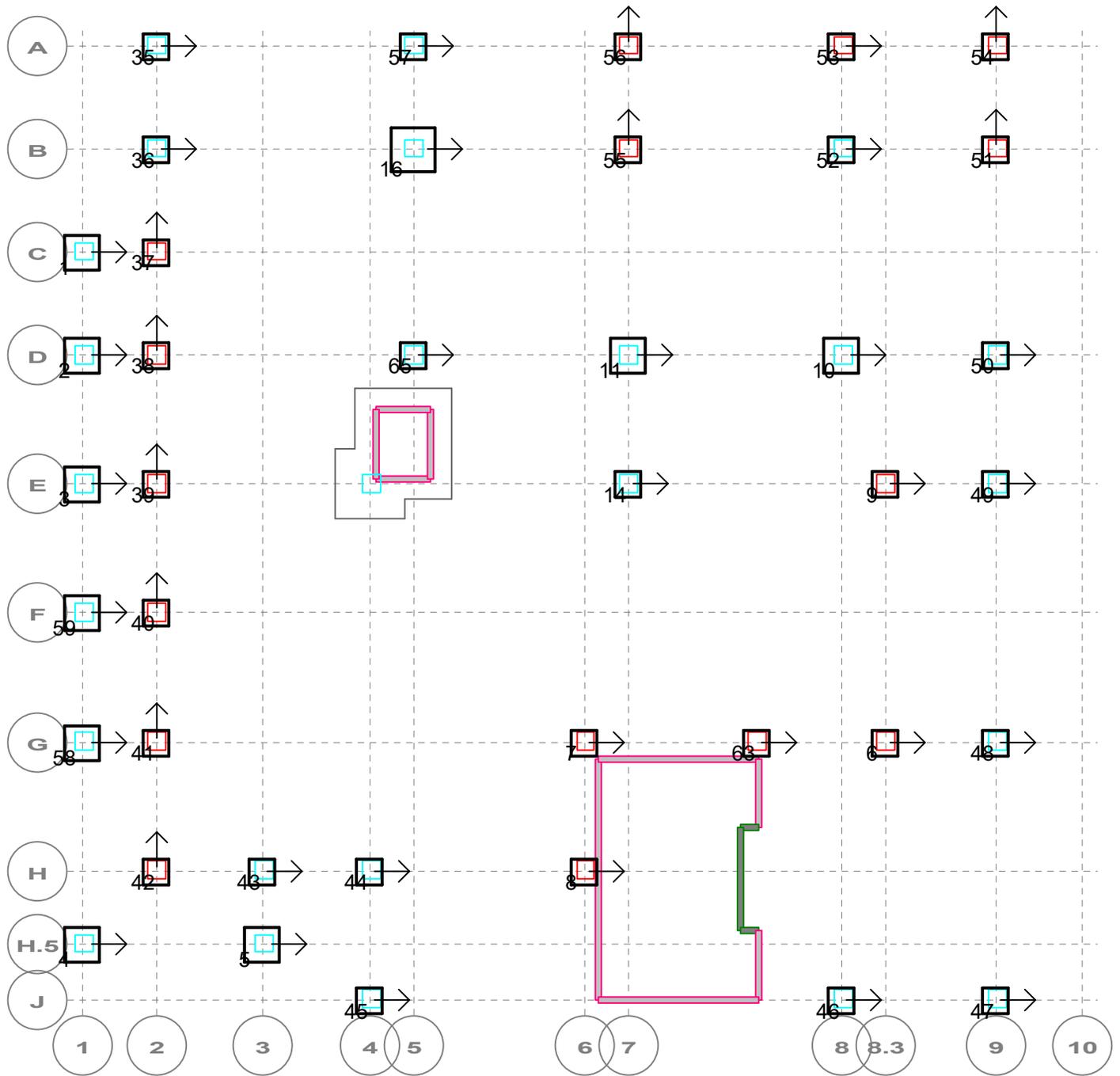
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	23.2	-1.6	-3.7	16	0.37 Eq H1-1a	0.0	50 HSS5X5X1/4
Column Line 8-B							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	22.5	-1.2	3.6	12	0.35 Eq H1-1a	0.0	50 HSS5X5X1/4
Column Line 9-J							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	12.6	-0.9	-4.2	1	0.24 Eq H1-1b	0.0	50 HSS5X5X1/4
Column Line 9-G							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	29.5	-1.9	-3.1	10	0.42 Eq H1-1a	0.0	50 HSS5X5X1/4
Column Line 9-E							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	25.6	-1.9	4.7	6	0.44 Eq H1-1a	0.0	50 HSS5X5X1/4
Column Line 9-D							
Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
01-Low Roof	18.0	-1.3	-2.2	10	0.20 Eq H1-1b	0.0	50 HSS5X5X1/4



Foundation Design



FOUNDATION NUMBERS FROM RAM SS



Load Case Forces



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Foundation Number: 1

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(1 - C)	D	0.00	0.00	2.05	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	1.35	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 2

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(1 - D)	D	0.00	0.00	3.77	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	2.82	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 3

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(1 - E)	D	0.00	0.00	4.15	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	3.14	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 4

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(1 - H.5)	D	0.00	0.00	6.31	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	4.55	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 5

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(3 - H.5)	D	0.00	0.00	4.75	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	3.52	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



Foundation Number: 6

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(8.3 - G)	D	0.00	-0.50	23.80	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.02	-0.10	11.82	0.00	0.00
	Sn	0.00	-0.00	-0.91	0.00	0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	0.00	4.52	-6.39	0.00	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	0.00	3.39	-4.79	0.00	0.00
	W6	0.00	3.39	-4.79	0.00	0.00
	W7	0.00	3.39	-4.79	0.00	0.00
W8	-0.00	-3.39	4.79	0.00	0.00	
W9	-0.00	2.54	-3.59	0.00	0.00	
W10	-0.00	2.54	-3.59	0.00	0.00	
W11	0.00	-2.54	3.59	0.00	0.00	

Load Case Forces



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W12	0.00	-2.54	3.59	0.00	0.00
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Load Case Forces

Foundation Number: 7

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(6 - G)	D	-0.00	-0.00	15.54	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	-0.00	-0.00	5.66	0.00	0.00
	Sn	0.00	0.00	-0.12	0.00	0.00
	W1	42.72	-0.15	-41.31	0.00	0.00
	W2	-0.02	17.32	22.34	0.00	0.00
	W3	32.04	-0.11	-30.98	0.00	0.00
	W4	32.04	-0.11	-30.98	0.00	0.00
	W5	-0.02	12.99	16.75	0.00	0.00
	W6	-0.02	12.99	16.75	0.00	0.00
	W7	32.02	12.88	-14.23	0.00	0.00
W8	32.06	-13.10	-47.73	0.00	0.00	
W9	24.02	9.66	-10.67	0.00	0.00	
W10	24.02	9.66	-10.67	0.00	0.00	
W11	24.04	-9.83	-35.80	0.00	0.00	

Load Case Forces



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W12	24.04	-9.83	-35.80	0.00	0.00
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Load Case Forces

Foundation Number: 8

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(6 - H)	D	0.00	0.00	20.70	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	9.11	0.00	0.00
	Sn	-0.00	-0.00	-0.54	0.00	0.00
	W1	-8.11	-0.00	-0.00	0.00	0.00
	W2	0.02	0.00	-22.34	0.00	0.00
	W3	-6.08	-0.00	-0.00	0.00	0.00
	W4	-6.08	-0.00	-0.00	0.00	0.00
	W5	0.02	-0.00	-16.75	0.00	0.00
	W6	0.02	-0.00	-16.75	0.00	0.00
	W7	-6.06	0.00	-16.75	0.00	0.00
	W8	-6.10	0.00	16.75	0.00	0.00
	W9	-4.55	0.00	-12.56	0.00	0.00
	W10	-4.55	0.00	-12.56	0.00	0.00
	W11	-4.57	0.00	12.56	0.00	0.00

Load Case Forces



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W12	-4.57	0.00	12.56	0.00	0.00
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Load Case Forces



Foundation Number: 9

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(8.3 - E)	D	0.00	0.50	31.63	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	-0.02	0.10	15.79	0.00	0.00
	Sn	0.00	0.00	-1.01	0.00	0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	-0.00	4.52	6.39	0.00	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	-0.00	3.39	4.79	0.00	0.00
	W6	-0.00	3.39	4.79	0.00	0.00
	W7	-0.00	3.39	4.79	0.00	0.00
W8	0.00	-3.39	-4.79	0.00	0.00	
W9	0.00	2.54	3.59	0.00	0.00	
W10	0.00	2.54	3.59	0.00	0.00	
W11	-0.00	-2.54	-3.59	0.00	0.00	

Load Case Forces



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W12	-0.00	-2.54	-3.59	0.00	0.00
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Load Case Forces



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Foundation Number: 10

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(8 - D)	D	0.00	0.00	12.28	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	8.95	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 11

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(7 - D)	D	0.00	0.00	24.08	0.00	0.00
	Lp	0.00	0.00	0.29	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	10.63	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 14

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(7 - E)	D	0.00	0.00	38.87	0.00	0.00
	Lp	0.00	0.00	0.03	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	20.32	0.00	0.00
	Sn	0.00	0.00	-0.31	0.00	0.00

Load Case Forces



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Foundation Number: 16

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(5 - B)	D	0.00	0.00	24.80	0.00	0.00
	Lp	0.00	0.00	6.34	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	13.12	0.00	0.00
	Sn	0.00	0.00	-0.29	0.00	0.00

Load Case Forces



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Foundation Number: 35

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(2 - A)	D	0.00	0.00	4.35	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	2.70	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 36

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(2 - B)	D	0.00	0.00	8.78	0.00	0.00
	Lp	0.00	0.00	0.06	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	4.40	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00



Load Case Forces

Foundation Number: 37

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(2 - C)	D	0.10	0.00	27.72	0.00	0.00
	Lp	0.10	0.00	9.70	0.00	0.00
	Ln	-0.00	-0.00	-0.02	0.00	0.00
	Sp	0.00	0.00	9.06	0.00	0.00
	Sn	0.00	0.00	-1.01	0.00	0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	2.26	0.00	10.22	0.00	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	1.70	0.00	7.67	0.00	0.00
	W6	1.70	0.00	7.67	0.00	0.00
	W7	1.70	0.00	7.67	0.00	0.00
	W8	-1.70	-0.00	-7.67	0.00	0.00
	W9	1.27	0.00	5.75	0.00	0.00
	W10	1.27	0.00	5.75	0.00	0.00
	W11	-1.27	-0.00	-5.75	0.00	0.00

Load Case Forces



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W12	-1.27	-0.00	-5.75	0.00	0.00
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Load Case Forces

Foundation Number: 38

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(2 - D)	D	0.01	0.00	27.02	0.00	0.00
	Lp	0.00	0.00	21.61	0.00	0.00
	Ln	0.00	0.00	-0.98	0.00	0.00
	Sp	0.01	0.00	4.50	0.00	0.00
	Sn	-0.00	-0.00	-0.50	0.00	0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	2.48	0.00	-5.57	0.00	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	1.86	0.00	-4.18	0.00	0.00
	W6	1.86	0.00	-4.18	0.00	0.00
	W7	1.86	0.00	-4.18	0.00	0.00
	W8	-1.86	-0.00	4.18	0.00	0.00
	W9	1.39	0.00	-3.13	0.00	0.00
	W10	1.39	0.00	-3.13	0.00	0.00
	W11	-1.39	-0.00	3.13	0.00	0.00

Load Case Forces



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W12	-1.39	-0.00	3.13	0.00	0.00
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Load Case Forces

Foundation Number: 39

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(2 - E)	D	0.04	0.00	35.87	0.00	0.00
	Lp	0.02	0.00	19.64	0.00	0.00
	Ln	0.00	0.00	-0.03	0.00	0.00
	Sp	0.01	0.00	12.13	0.00	0.00
	Sn	-0.00	-0.00	-2.15	0.00	0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	2.46	0.00	3.35	0.00	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	1.85	0.00	2.51	0.00	0.00
	W6	1.85	0.00	2.51	0.00	0.00
	W7	1.85	0.00	2.51	0.00	0.00
	W8	-1.85	-0.00	-2.51	0.00	0.00
	W9	1.39	0.00	1.88	0.00	0.00
	W10	1.39	0.00	1.88	0.00	0.00
	W11	-1.39	-0.00	-1.88	0.00	0.00

Load Case Forces



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W12	-1.39	-0.00	-1.88	0.00	0.00
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Load Case Forces

Foundation Number: 40

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(2 - F)	D	-0.15	-0.00	14.63	0.00	0.00
	Lp	-0.13	-0.00	3.29	0.00	0.00
	Ln	-0.00	-0.00	0.01	0.00	0.00
	Sp	-0.01	-0.00	4.34	0.00	0.00
	Sn	0.00	0.00	-0.39	0.00	0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	2.20	0.00	-8.00	0.00	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	1.65	0.00	-6.00	0.00	0.00
	W6	1.65	0.00	-6.00	0.00	0.00
	W7	1.65	0.00	-6.00	0.00	0.00
	W8	-1.65	-0.00	6.00	0.00	0.00
	W9	1.24	0.00	-4.50	0.00	0.00
	W10	1.24	0.00	-4.50	0.00	0.00
	W11	-1.24	-0.00	4.50	0.00	0.00

Load Case Forces



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W12	-1.24	-0.00	4.50	0.00	0.00
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Load Case Forces

Foundation Number: 41

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(2 - G)	D	0.02	0.00	12.73	0.18	0.00
	Lp	0.00	0.00	0.00	0.02	0.00
	Ln	0.00	0.00	-0.00	0.00	0.00
	Sp	0.01	0.00	4.58	0.07	0.00
	Sn	-0.00	-0.00	-0.55	-0.01	-0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	4.72	0.00	-0.00	46.12	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	3.54	0.00	-0.00	34.59	0.00
	W6	3.54	0.00	-0.00	34.59	0.00
	W7	3.54	0.00	-0.00	34.59	0.00
	W8	-3.54	-0.00	0.00	-34.59	-0.00
	W9	2.65	0.00	-0.00	25.94	0.00
	W10	2.65	0.00	-0.00	25.94	0.00
	W11	-2.65	-0.00	0.00	-25.94	-0.00

Load Case Forces



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W12	-2.65	-0.00	0.00	-25.94	-0.00
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Load Case Forces

Foundation Number: 42

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(2 - H)	D	-0.01	-0.00	13.03	0.04	0.00
	Lp	0.00	0.00	-0.00	0.02	0.00
	Ln	0.00	0.00	-0.00	0.00	0.00
	Sp	-0.01	-0.00	6.60	-0.00	-0.00
	Sn	-0.00	-0.00	-1.71	-0.01	-0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	4.70	0.00	-0.00	46.00	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	3.53	0.00	-0.00	34.50	0.00
	W6	3.53	0.00	-0.00	34.50	0.00
	W7	3.53	0.00	-0.00	34.50	0.00
	W8	-3.53	-0.00	0.00	-34.50	-0.00
	W9	2.64	0.00	-0.00	25.87	0.00
	W10	2.64	0.00	-0.00	25.87	0.00
	W11	-2.64	-0.00	0.00	-25.87	-0.00

Load Case Forces



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W12	-2.64	-0.00	0.00	-25.87	-0.00
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Load Case Forces



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Foundation Number: 43

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(3 - H)	D	0.00	0.00	16.20	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	8.41	0.00	0.00
	Sn	0.00	0.00	-0.80	0.00	0.00

Load Case Forces



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Foundation Number: 44

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(4 - H)	D	0.00	0.00	29.65	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	14.03	0.00	0.00
	Sn	0.00	0.00	-0.11	0.00	0.00

Load Case Forces



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Foundation Number: 45

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(4 - J)	D	0.00	0.00	5.92	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	3.61	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 46

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(8 - J)	D	0.00	0.00	5.69	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	5.07	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 47

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(9 - J)	D	0.00	0.00	5.47	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	3.77	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 48

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(9 - G)	D	0.00	0.00	17.98	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	7.92	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 49

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(9 - E)	D	0.00	0.00	14.70	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	6.24	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



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Foundation Number: 50

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(9 - D)	D	0.00	0.00	10.60	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	4.54	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00



Load Case Forces

Foundation Number: 51

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(9 - B)	D	-0.34	0.00	5.33	0.00	-0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	-0.35	0.00	4.18	0.00	-0.00
	Sn	0.00	0.00	0.00	0.00	0.00
	W1	0.00	-0.00	-0.00	0.00	0.00
	W2	8.11	-0.00	-18.92	0.00	0.00
	W3	0.00	-0.00	0.00	0.00	0.00
	W4	0.00	-0.00	0.00	0.00	0.00
	W5	6.08	-0.00	-14.19	0.00	0.00
	W6	6.08	-0.00	-14.19	0.00	0.00
	W7	6.08	-0.00	-14.19	0.00	0.00
	W8	-6.08	-0.00	14.19	0.00	0.00
	W9	4.56	-0.00	-10.64	0.00	0.00
	W10	4.56	-0.00	-10.64	0.00	0.00
	W11	-4.56	-0.00	10.64	0.00	0.00

Load Case Forces



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W12	-4.56	-0.00	10.64	0.00	0.00
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Load Case Forces



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Foundation Number: 52

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(8 - B)	D	0.00	0.00	9.59	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	7.99	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00



Load Case Forces

Foundation Number: 53

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(8 - A)	D	-0.39	-0.00	7.92	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	-0.37	-0.00	3.62	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00
	W1	4.90	-0.00	-7.63	0.00	0.00
	W2	0.00	0.00	0.00	0.00	0.00
	W3	3.68	-0.00	-5.72	0.00	0.00
	W4	3.68	-0.00	-5.72	0.00	0.00
	W5	0.00	0.00	0.00	0.00	0.00
	W6	0.00	0.00	0.00	0.00	0.00
	W7	3.68	0.00	-5.72	0.00	0.00
	W8	3.68	-0.00	-5.72	0.00	-0.00
	W9	2.76	0.00	-4.29	0.00	0.00
	W10	2.76	0.00	-4.29	0.00	0.00
	W11	2.76	-0.00	-4.29	0.00	-0.00

Load Case Forces



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W12	2.76	-0.00	-4.29	0.00	-0.00
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Load Case Forces

Foundation Number: 54

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(9 - A)	D	0.34	-0.39	1.83	0.00	-0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.35	-0.37	1.68	0.00	-0.00
	Sn	0.00	0.00	0.00	0.00	0.00
	W1	-0.00	-4.90	7.63	0.00	0.00
	W2	8.11	0.00	18.92	0.00	0.00
	W3	-0.00	-3.68	5.72	0.00	0.00
	W4	-0.00	-3.68	5.72	0.00	0.00
	W5	6.08	0.00	14.19	0.00	0.00
	W6	6.08	0.00	14.19	0.00	0.00
	W7	6.08	-3.68	19.91	0.00	0.00
	W8	-6.08	-3.68	-8.47	-0.00	0.00
	W9	4.56	-2.76	14.94	0.00	0.00
	W10	4.56	-2.76	14.94	0.00	0.00
	W11	-4.56	-2.76	-6.35	-0.00	0.00

Load Case Forces



RAM Foundation v24.00.01.18
DataBase: 250104-000 LXT Terminal

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W12	-4.56	-2.76	-6.35	-0.00	0.00
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Load Case Forces

Foundation Number: 55

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(7 - B)	D	-0.93	-0.00	14.93	0.00	0.00
	Lp	-0.00	-0.00	0.07	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	-0.81	-0.00	9.27	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	10.71	0.00	-24.99	0.00	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	8.03	0.00	-18.74	0.00	0.00
	W6	8.03	0.00	-18.74	0.00	0.00
	W7	8.03	0.00	-18.74	0.00	0.00
	W8	-8.03	-0.00	18.74	0.00	0.00
	W9	6.02	0.00	-14.06	0.00	0.00
	W10	6.02	0.00	-14.06	0.00	0.00
	W11	-6.02	-0.00	14.06	0.00	0.00

Load Case Forces



RAM Foundation v24.00.01.18
DataBase: 250104-000 LXT Terminal

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W12	-6.02	-0.00	14.06	0.00	0.00
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Load Case Forces

Foundation Number: 56

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(7 - A)	D	0.93	0.00	8.47	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.81	0.00	4.19	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00
	W1	0.00	0.00	0.00	0.00	0.00
	W2	10.71	0.00	24.99	0.00	0.00
	W3	0.00	0.00	0.00	0.00	0.00
	W4	0.00	0.00	0.00	0.00	0.00
	W5	8.03	0.00	18.74	0.00	0.00
	W6	8.03	0.00	18.74	0.00	0.00
	W7	8.03	0.00	18.74	0.00	0.00
	W8	-8.03	-0.00	-18.74	0.00	0.00
	W9	6.02	0.00	14.06	0.00	0.00
	W10	6.02	0.00	14.06	0.00	0.00
	W11	-6.02	-0.00	-14.06	0.00	0.00

Load Case Forces



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W12	-6.02	-0.00	-14.06	0.00	0.00
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Load Case Forces



Foundation Number: 57

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(5 - A)	D	0.00	0.00	4.66	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	4.62	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



RAM Foundation v24.00.01.18
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Foundation Number: 58

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(1 - G)	D	0.00	0.00	5.39	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	4.04	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



Foundation Number: 59

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(1 - F)	D	0.00	0.00	4.15	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	3.14	0.00	0.00
	Sn	0.00	0.00	0.00	0.00	0.00

Load Case Forces



Foundation Number: 63

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER
W1	Wind	Wind_ASCE716_1_X
W2	Wind	Wind_ASCE716_1_Y
W3	Wind	Wind_ASCE716_2_X+E
W4	Wind	Wind_ASCE716_2_X-E
W5	Wind	Wind_ASCE716_2_Y+E
W6	Wind	Wind_ASCE716_2_Y-E
W7	Wind	Wind_ASCE716_3_X+Y
W8	Wind	Wind_ASCE716_3_X-Y
W9	Wind	Wind_ASCE716_4_X+Y_CW
W10	Wind	Wind_ASCE716_4_X+Y_CCW
W11	Wind	Wind_ASCE716_4_X-Y_CW
W12	Wind	Wind_ASCE716_4_X-Y_CCW

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(78.50 - -81.00)	D	0.00	0.00	19.62	0.00	0.00
	Lp	0.00	0.00	0.00	0.00	0.00
	Ln	0.00	0.00	0.00	0.00	0.00
	Sp	0.00	0.00	9.02	0.00	0.00
	Sn	-0.00	-0.00	-0.22	0.00	0.00
	W1	0.00	0.15	41.31	0.00	0.00
	W2	-0.00	-3.49	-0.00	0.00	0.00
	W3	0.00	0.11	30.98	0.00	0.00
	W4	0.00	0.11	30.98	0.00	0.00
	W5	-0.00	-2.62	-0.00	0.00	0.00
	W6	-0.00	-2.62	-0.00	0.00	0.00
	W7	-0.00	-2.51	30.98	0.00	0.00
W8	-0.00	2.73	30.98	0.00	0.00	
W9	-0.00	-1.88	23.24	0.00	0.00	
W10	-0.00	-1.88	23.24	0.00	0.00	
W11	-0.00	2.05	23.24	0.00	0.00	

Load Case Forces



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W12	-0.00	2.05	23.24	0.00	0.00
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Load Case Forces



RAM Foundation v24.00.01.18
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Foundation Number: 65

LOAD CASE DEFINITIONS:

D	DeadLoad	RAMUSER
Lp	PosLiveLoad	RAMUSER
Ln	NegLiveLoad	RAMUSER
Sp	PosSnowLoad	RAMUSER
Sn	NegSnowLoad	RAMUSER

FORCES

Forces in Gravity Members from RAM Steel.

FOUNDATION LOADS

Location	Ld Case	Vmaj kip	Vmin kip	P kip	Mmaj kip-ft	Mmin kip-ft
(5 - D)	D	0.00	0.00	39.19	0.00	0.00
	Lp	0.00	0.00	27.52	0.00	0.00
	Ln	0.00	0.00	-5.12	0.00	0.00
	Sp	0.00	0.00	11.28	0.00	0.00
	Sn	0.00	0.00	-0.42	0.00	0.00

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

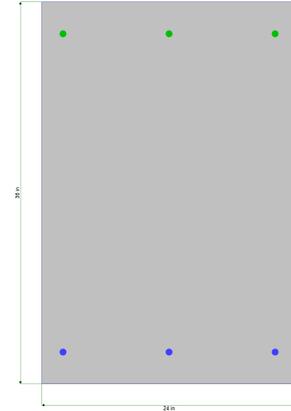
DESCRIPTION: Grid J

CODE REFERENCES

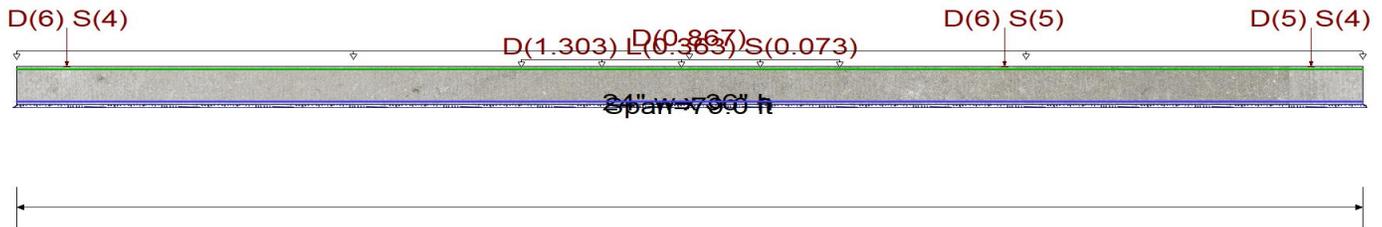
Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c^{1/2} \cdot 7.50$	=	474.342 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,605.0 ksi			
Soil Subgrade Modulus	=	100.0 psi / (inch deflection)			
Load Combination	IBC 2018				
f_y - Main Rebar	=	60.0 ksi	Fy - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2



Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 24.0 in, Height = 36.0 in

Span #1 Reinforcing....

3-#5 at 3.0 in from Bottom, from 0.0 to 79.0 ft in this span

3-#5 at 3.0 in from Top, from 0.0 to 79.0 ft in this span

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

Applied Loads

Beam self weight calculated and added to loads

Point Load : D = 6.0, S = 4.0 k @ 3.0 ft

Uniform Load : D = 1.303, L = 0.3630, S = 0.0730 k/ft, Extent = 29.670 -->> 48.330 ft, Tributary Width = 1.0 ft, (CMU)

Point Load : D = 6.0, S = 5.0 k @ 58.0 ft

Point Load : D = 5.0, S = 4.0 k @ 76.0 ft

Uniform Load : D = 0.8670 k/ft, Tributary Width = 1.0 ft, (Brick)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.336 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	48.680 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	144.936 k-ft	Max Downward Total Deflection	0.098 in
Load Combination	+1.20D+1.60L	Max Upward Total Deflection	0.028 in
Location of maximum on span	39.035 ft		
Span # where maximum occurs	Span # 1		

Maximum Soil Pressure = **1.412 ksf** at 41.26 ft LdComb: +D+L
 Allowable Soil Pressure = **3.0 ksf** **OK**

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \Phi V_c/2$, Req'd Vs = Not Req'd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combination

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope					118	
Span # 1		1	39.035	48.68	144.94	0.34

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid J

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
+1.40D						
Span # 1		1	39.035	39.11	144.94	0.27
+1.20D+1.60L						
Span # 1		1	39.035	48.68	144.94	0.34
+1.20D+1.60L+0.50S						
Span # 1		1	39.035	47.25	144.94	0.33
+1.20D+0.50L						
Span # 1		1	39.035	38.25	144.94	0.26
+1.20D						
Span # 1		1	39.035	33.51	144.94	0.23
+1.20D+0.50L+1.60S						
Span # 1		1	39.035	33.68	144.94	0.23
+1.20D+1.60S						
Span # 1		1	76.212	4.76	144.94	0.03
+1.20D+0.50L+0.50S						
Span # 1		1	39.035	36.82	144.94	0.25
+1.20D+0.50L+0.70S						
Span # 1		1	39.035	36.25	144.94	0.25
+0.90D						
Span # 1		1	39.035	25.12	144.94	0.17

Overall Maximum Deflections - Unfactored Lo:

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.0980	41.256		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Span Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60S	1	0.00	33.00	1.54	1.54	0.00	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	0.93	33.00	2.78	2.78	0.61	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.86	33.00	3.96	3.96	2.37	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.79	33.00	5.07	5.07	5.22	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	3.72	33.00	-7.57	7.57	0.80	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	4.65	33.00	-6.61	6.61	8.66	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	5.58	33.00	-5.71	5.71	15.63	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	6.51	33.00	-4.87	4.87	21.76	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	7.44	33.00	-4.09	4.09	27.11	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	8.36	33.00	-3.36	3.36	31.73	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	9.29	33.00	-2.69	2.69	35.68	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	10.22	33.00	-2.07	2.07	39.01	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	11.15	33.00	-1.49	1.49	41.75	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	12.08	33.00	-0.94	0.94	43.96	0.77	74.07	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	13.01	33.00	-0.50	0.50	36.77	0.49	73.08	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D	1	13.94	33.00	0.23	0.23	21.61	0.39	72.74	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.87	33.00	0.58	0.58	46.34	0.45	72.94	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	15.80	33.00	1.00	1.00	46.63	0.77	74.07	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.73	33.00	1.41	1.41	46.52	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.66	33.00	1.81	1.81	46.04	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	18.59	33.00	2.24	2.24	46.65	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	19.52	33.00	2.67	2.67	45.39	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	20.45	33.00	3.11	3.11	43.74	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	21.38	33.00	3.57	3.57	41.67	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+1.60S	1	22.31	33.00	4.06	4.06	39.17	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	23.24	33.00	4.61	4.61	29.42	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	24.16	33.00	5.26	5.26	25.96	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	25.09	33.00	5.95	5.95	21.90	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	26.02	33.00	6.70	6.70	17.19	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	26.95	33.00	7.49	7.49	11.79	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	27.88	33.00	8.34	8.34	5.65	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	28.81	33.00	9.25	9.25	1.28	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	29.74	33.00	10.05	10.05	9.04	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	30.67	33.00	9.04	9.04	16.62	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	31.60	33.00	8.07	8.07	23.25	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	32.53	33.00	7.15	7.15	28.98	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	33.46	33.00	6.28	6.28	33.86	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	34.39	33.00	5.45	5.45	37.93	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	35.32	33.00	4.65	4.65	41.23	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	36.25	33.00	3.88	3.88	43.78	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	37.18	33.00	3.14	3.14	45.62	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid J

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60L+0.50S	1	38.11	33.00	2.42	2.42	46.77	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	39.04	33.00	1.71	1.71	47.25	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	39.96	33.00	1.14	1.14	28.93	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	40.89	33.00	0.63	0.63	28.44	0.80	74.17	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	41.82	33.00	-0.42	0.42	46.14	0.33	72.52	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	42.75	33.00	-1.13	1.13	44.00	0.92	74.59	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	43.68	33.00	-1.85	1.85	41.20	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	44.61	33.00	-2.60	2.60	37.72	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	45.54	33.00	-3.37	3.37	33.56	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	46.47	33.00	-4.17	4.17	28.67	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	47.40	33.00	-5.01	5.01	23.04	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	48.33	33.00	-5.88	5.88	16.64	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	49.26	33.00	-4.80	4.80	10.35	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	50.19	33.00	-3.75	3.75	5.06	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	51.12	33.00	-2.75	2.75	0.75	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	52.05	33.00	-1.78	1.78	2.63	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	52.98	33.00	1.86	1.86	1.78	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	53.91	33.00	2.86	2.86	0.87	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	54.84	33.00	3.86	3.86	0.96	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	55.77	33.00	4.85	4.85	3.72	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	56.69	33.00	5.82	5.82	7.40	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	57.62	33.00	6.79	6.79	11.99	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	58.55	33.00	-7.48	7.48	7.56	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	59.48	33.00	-6.51	6.51	0.22	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	60.41	33.00	-5.58	5.58	5.56	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	61.34	33.00	-4.66	4.66	11.57	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	62.27	33.00	-3.76	3.76	16.73	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	63.20	33.00	-2.86	2.86	21.05	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	64.13	33.00	-1.97	1.97	24.53	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	65.06	33.00	-1.08	1.08	27.19	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	65.99	33.00	1.22	1.22	22.58	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	66.92	33.00	1.68	1.68	22.27	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	67.85	33.00	2.13	2.13	21.53	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	68.78	33.00	2.67	2.67	24.06	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	69.71	33.00	3.53	3.53	28.77	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	70.64	33.00	4.47	4.47	26.30	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	71.56	33.00	5.42	5.42	22.98	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	72.49	33.00	6.39	6.39	18.77	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	73.42	33.00	7.38	7.38	13.66	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	74.35	33.00	8.40	8.40	7.62	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	75.28	33.00	9.44	9.44	0.64	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	76.21	33.00	-1.94	1.94	4.76	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	77.14	33.00	-0.83	0.83	2.14	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.40D	1	78.07	33.00	0.69	0.69	0.26	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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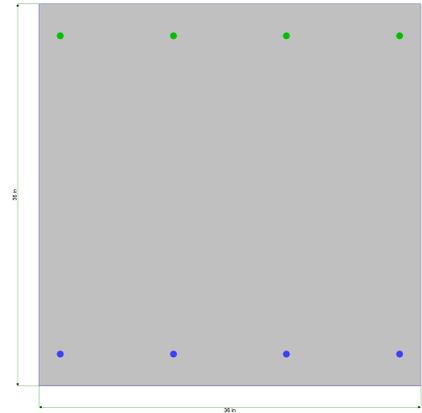
DESCRIPTION: Grid 4

CODE REFERENCES

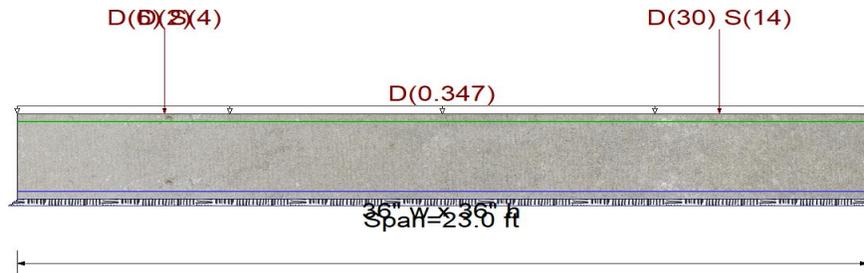
Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c^{1/2} \cdot 7.50$	=	psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,605.0 ksi			
Soil Subgrade Modulus	=	100.0 psi / (inch deflection)			
Load Combination	IBC 2018				
f_y - Main Rebar	=	60.0 ksi	Fy - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2



Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 36.0 in, Height = 36.0 in

Span #1 Reinforcing....

4-#5 at 3.0 in from Bottom, from 0.0 to 23.0 ft in this span

4-#5 at 3.0 in from Top, from 0.0 to 23.0 ft in this span

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

Applied Loads

Point Load : D = 6.0, S = 4.0 k @ 4.0 ft

Point Load : D = 30.0, S = 14.0 k @ 19.0 ft

Uniform Load : D = 0.3470 k/ft, Tributary Width = 1.0 ft, (Glass)

Point Load : D = 2.0 k @ 4.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.315 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	-61.213 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	194.096 k-ft	Max Downward Total Deflection	0.130 in
Load Combination	+1.20D+1.60S	Max Upward Total Deflection	0.003 in
Location of maximum on span	11.365 ft		
Span # where maximum occurs	Span # 1		

Maximum Soil Pressure = **1.873** ksf at 23.00 ft LdComb: +D+S
 Allowable Soil Pressure = **3.0** ksf **OK**

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \phi V_c/2$, Req'd Vs = Not Req'd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combination

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope						
Span # 1		1	18.941	50.49	194.10	0.26
+1.40D						
Span # 1		1	18.941	36.39	194.10 ¹²¹	0.19

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid 4

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
+1.20D						
Span # 1		1	18.941	31.19	194.10	0.16
+1.20D+0.50S						
Span # 1		1	18.941	37.22	194.10	0.19
+1.20D+1.60S						
Span # 1		1	18.941	50.49	194.10	0.26
+1.20D+0.70S						
Span # 1		1	18.941	39.63	194.10	0.20
+0.90D						
Span # 1		1	18.941	23.39	194.10	0.12

Overall Maximum Deflections - Unfactored Lo:

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.1301	23.000		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design					Req'd	Suggest
+1.40D	1	0.00	33.00	0.04	0.04	0.00	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.40D	1	0.27	33.00	0.02	0.02	0.01	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	0.54	33.00	0.01	0.01	0.02	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	0.81	33.00	0.02	0.02	0.03	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.08	33.00	0.06	0.06	0.04	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.35	33.00	0.11	0.11	0.04	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.62	33.00	0.19	0.19	0.03	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.89	33.00	0.29	0.29	0.01	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.16	33.00	0.40	0.40	0.07	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.44	33.00	0.54	0.54	0.17	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.71	33.00	0.69	0.69	0.30	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.98	33.00	0.87	0.87	0.47	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	3.25	33.00	1.07	1.07	0.69	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	3.52	33.00	1.28	1.28	0.96	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	3.79	33.00	1.52	1.52	1.29	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	4.06	33.00	-14.23	14.23	0.75	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	4.33	33.00	-13.95	13.95	3.12	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	4.60	33.00	-13.65	13.65	6.91	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	4.87	33.00	-13.34	13.34	10.62	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.14	33.00	-13.00	13.00	14.24	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.41	33.00	-12.64	12.64	17.77	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.68	33.00	-12.27	12.27	21.21	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.95	33.00	-11.87	11.87	24.54	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	6.22	33.00	-11.45	11.45	27.77	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	6.49	33.00	-11.02	11.02	30.89	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	6.76	33.00	-10.56	10.56	33.88	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	7.04	33.00	-10.08	10.08	36.75	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	7.31	33.00	-9.58	9.58	39.50	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	7.58	33.00	-9.06	9.06	42.10	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	7.85	33.00	-8.52	8.52	44.57	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.12	33.00	-7.96	7.96	46.89	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.39	33.00	-7.38	7.38	49.06	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.66	33.00	-6.77	6.77	51.07	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.93	33.00	-6.15	6.15	52.92	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	9.20	33.00	-5.50	5.50	54.60	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	9.47	33.00	-4.83	4.83	56.10	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	9.74	33.00	-4.14	4.14	57.42	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	10.01	33.00	-3.42	3.42	58.56	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	10.28	33.00	-2.69	2.69	59.50	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	10.55	33.00	-1.93	1.93	60.24	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	10.82	33.00	-1.15	1.15	60.78	0.68 110.23	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	11.09	33.00	-0.35	0.35	61.10	0.20 108.01	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	11.36	33.00	0.48	0.48	61.21	0.28 108.38	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	11.64	33.00	1.33	1.33	61.10	0.78 110.71	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	11.91	33.00	2.20	2.20	60.75	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.18	33.00	3.10	3.10	60.17	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.45	33.00	4.02	4.02	59.35	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.72	33.00	4.97	4.97	58.28	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.99	33.00	5.93	5.93	56.95	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.26	33.00	6.93	6.93	55.36	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.53	33.00	7.94	7.94	53.50	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 4

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60S	1	13.80	33.00	8.98	8.98	51.36	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.07	33.00	10.05	10.05	48.95	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.34	33.00	11.14	11.14	46.24	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.61	33.00	12.26	12.26	43.24	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.88	33.00	13.40	13.40	39.94	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	15.15	33.00	14.57	14.57	36.33	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	15.42	33.00	15.76	15.76	32.41	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	15.69	33.00	16.97	16.97	28.16	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	15.96	33.00	18.22	18.22	23.58	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.24	33.00	19.48	19.48	18.67	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.51	33.00	20.78	20.78	13.41	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.78	33.00	22.10	22.10	7.80	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.05	33.00	23.44	23.44	1.84	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.32	33.00	24.81	24.81	4.49	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.59	33.00	26.21	26.21	11.19	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.86	33.00	27.63	27.63	18.27	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	18.13	33.00	29.08	29.08	25.73	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	18.40	33.00	30.55	30.55	33.58	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	18.67	33.00	32.05	32.05	41.83	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	18.94	33.00	33.58	33.58	50.49	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	19.21	33.00	-23.28	23.28	47.19	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	19.48	33.00	-21.70	21.70	40.88	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	19.75	33.00	-20.10	20.10	34.99	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	20.02	33.00	-18.48	18.48	29.54	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	20.29	33.00	-16.83	16.83	24.52	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	20.56	33.00	-15.16	15.16	19.95	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	20.84	33.00	-13.46	13.46	15.84	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	21.11	33.00	-11.74	11.74	12.18	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	21.38	33.00	-9.99	9.99	8.99	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	21.65	33.00	-8.22	8.22	6.27	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	21.92	33.00	-6.42	6.42	4.03	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	22.19	33.00	-4.60	4.60	2.28	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	22.46	33.00	-2.76	2.76	1.02	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	22.73	33.00	-0.89	0.89	0.26	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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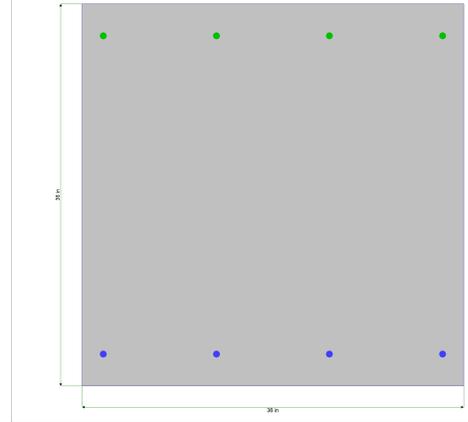
DESCRIPTION: Grid H

CODE REFERENCES

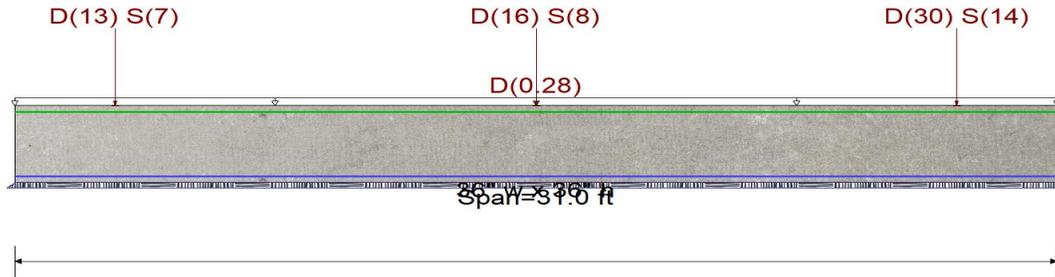
Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c^{1/2} \cdot 7.50$	=	474.342 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,605.0 ksi			
Soil Subgrade Modulus	=	100.0 psi / (inch deflection)			
Load Combination	IBC 2018				
f_y - Main Rebar	=	60.0 ksi	Fy - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2



Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 36.0 in, Height = 36.0 in

Span #1 Reinforcing....

4-#5 at 3.0 in from Bottom, from 0.0 to 31.0 ft in this span

4-#5 at 3.0 in from Top, from 0.0 to 31.0 ft in this span

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

Applied Loads

Point Load : D = 13.0, S = 7.0 k @ 3.0 ft

Point Load : D = 30.0, S = 14.0 k @ 28.0 ft

Uniform Load : D = 0.280 k/ft, Tributary Width = 1.0 ft, (Glass)

Point Load : D = 16.0, S = 8.0 k @ 15.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.532 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	-103.246 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	194.096 k-ft	Max Downward Total Deflection	0.129 in
Load Combination	+1.20D+1.60S	Max Upward Total Deflection	0.000 in
Location of maximum on span	20.424 ft		
Span # where maximum occurs	Span # 1		

Maximum Soil Pressure = **1.864** ksf at 31.00 ft LdComb: +D+S
 Allowable Soil Pressure = **3.0** ksf **OK**

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \phi V_c/2$, Req'd Vs = Not Reqd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combination

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope						
Span # 1		1	28.082	28.86	194.10	0.15
+1.40D						
Span # 1		1	28.082	20.84	194.10 ¹²⁴	0.11

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid H

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
+1.20D						
Span # 1		1	28.082	17.86	194.10	0.09
+1.20D+0.50S						
Span # 1		1	28.082	21.30	194.10	0.11
+1.20D+1.60S						
Span # 1		1	28.082	28.86	194.10	0.15
+1.20D+0.70S						
Span # 1		1	28.082	22.67	194.10	0.12
+0.90D						
Span # 1		1	28.082	13.40	194.10	0.07

Overall Maximum Deflections - Unfactored Lo:

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.1294	31.000		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design					Req'd	Suggest
+1.20D+1.60S	1	0.00	33.00	0.44	0.44	0.00	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	0.36	33.00	1.19	1.19	0.14	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	0.73	33.00	1.96	1.96	0.55	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.09	33.00	2.73	2.73	1.24	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.46	33.00	3.51	3.51	2.21	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.82	33.00	4.29	4.29	3.47	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.19	33.00	5.08	5.08	5.01	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.55	33.00	5.88	5.88	6.84	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.92	33.00	6.68	6.68	8.97	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	3.28	33.00	-19.31	19.31	3.81	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	3.65	33.00	-18.49	18.49	3.25	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	4.01	33.00	-17.67	17.67	10.02	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	4.38	33.00	-16.84	16.84	16.48	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	4.74	33.00	-16.00	16.00	22.64	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.11	33.00	-15.15	15.15	28.50	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.47	33.00	-14.30	14.30	34.05	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.84	33.00	-13.45	13.45	39.29	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	6.20	33.00	-12.58	12.58	44.22	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	6.56	33.00	-11.71	11.71	48.83	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	6.93	33.00	-10.82	10.82	53.12	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	7.29	33.00	-9.93	9.93	57.09	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	7.66	33.00	-9.03	9.03	60.73	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.02	33.00	-8.12	8.12	64.05	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.39	33.00	-7.20	7.20	67.03	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.75	33.00	-6.27	6.27	69.68	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	9.12	33.00	-5.33	5.33	71.99	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	9.48	33.00	-4.38	4.38	73.96	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	9.85	33.00	-3.42	3.42	75.58	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	10.21	33.00	-2.44	2.44	76.85	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	10.58	33.00	-1.45	1.45	77.76	0.67 110.19	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	10.94	33.00	-0.45	0.45	78.32	0.21 108.03	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	11.31	33.00	0.57	0.57	78.50	0.26 108.28	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	11.67	33.00	1.60	1.60	78.32	0.74 110.49	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.04	33.00	2.65	2.65	77.75	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.40	33.00	3.71	3.71	76.81	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.76	33.00	4.79	4.79	75.48	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.13	33.00	5.89	5.89	73.75	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.49	33.00	7.00	7.00	71.63	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.86	33.00	8.14	8.14	69.09	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.22	33.00	9.29	9.29	66.15	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.59	33.00	10.46	10.46	62.78	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.95	33.00	11.65	11.65	58.99	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	15.32	33.00	12.86	12.86	54.77	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	15.68	33.00	-17.91	17.91	55.94	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.05	33.00	-16.66	16.66	62.49	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.41	33.00	-15.39	15.39	68.59	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.78	33.00	-14.10	14.10	74.23	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.14	33.00	-12.78	12.78	79.39	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.51	33.00	-11.45	11.45	84.08	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.87	33.00	-10.09	10.09	88.27	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	18.24	33.00	-8.70	8.70	91.97	1.00 111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid H

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60S	1	18.60	33.00	-7.29	7.29	95.17	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	18.96	33.00	-5.86	5.86	97.85	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	19.33	33.00	-4.39	4.39	100.01	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	19.69	33.00	-2.91	2.91	101.63	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	20.06	33.00	-1.39	1.39	102.72	0.49	109.34	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	20.42	33.00	0.15	0.15	103.25	0.05	107.31	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	20.79	33.00	1.72	1.72	103.21	0.60	109.86	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	21.15	33.00	3.32	3.32	102.61	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	21.52	33.00	4.96	4.96	101.42	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	21.88	33.00	6.62	6.62	99.63	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	22.25	33.00	8.31	8.31	97.24	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	22.61	33.00	10.04	10.04	94.23	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	22.98	33.00	11.80	11.80	90.59	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	23.34	33.00	13.60	13.60	86.31	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	23.71	33.00	15.43	15.43	81.37	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	24.07	33.00	17.29	17.29	75.77	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	24.44	33.00	19.19	19.19	69.48	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	24.80	33.00	21.13	21.13	62.51	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	25.16	33.00	23.10	23.10	54.83	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	25.53	33.00	25.11	25.11	46.42	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	25.89	33.00	27.15	27.15	37.29	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	26.26	33.00	29.24	29.24	27.41	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	26.62	33.00	31.36	31.36	16.77	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	26.99	33.00	33.52	33.52	5.35	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	27.35	33.00	35.72	35.72	6.85	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	27.72	33.00	37.95	37.95	19.85	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	28.08	33.00	-18.18	18.18	28.86	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	28.45	33.00	-15.87	15.87	22.21	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	28.81	33.00	-13.52	13.52	16.40	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	29.18	33.00	-11.13	11.13	11.45	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	29.54	33.00	-8.71	8.71	7.36	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	29.91	33.00	-6.25	6.25	4.16	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	30.27	33.00	-3.76	3.76	1.86	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	30.64	33.00	-1.22	1.22	0.47	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 2 (F-A)

CODE REFERENCES

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2018

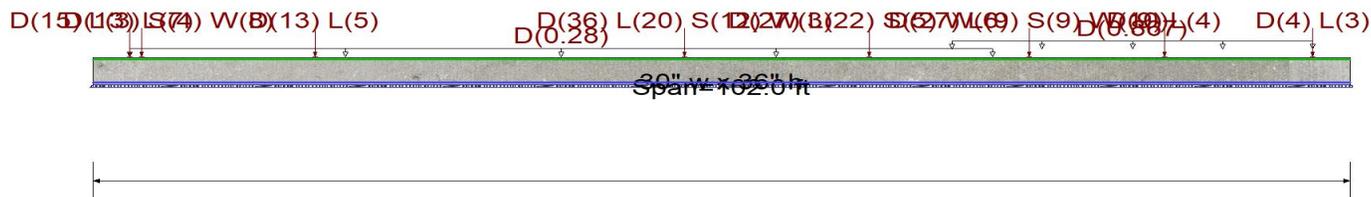
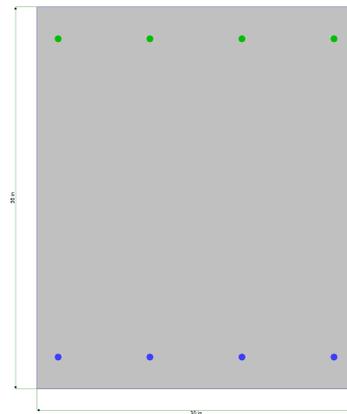
Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c^{1/2} \cdot 7.50$	=	474.342 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,605.0 ksi			
Soil Subgrade Modulus	=	100.0 psi / (inch deflection)			

Load Combination IBC 2018

f_y - Main Rebar	=	60.0 ksi	F_y - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2

Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 30.0 in, Height = 36.0 in

Span #1 Reinforcing....

4-#5 at 3.0 in from Bottom, from 0.0 to 102.0 ft in this span

4-#5 at 3.0 in from Top, from 0.0 to 102.0 ft in this span

Applied Loads

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

- Point Load : D = 15.0, L = 3.0, S = 4.0, W = 8.0 k @ 4.0 ft
- Uniform Load : D = 0.280 k/ft, Extent = 3.0 -->> 73.0 ft, Tributary Width = 1.0 ft, (Glass)
- Point Load : D = 36.0, L = 20.0, S = 12.0, W = 3.0 k @ 48.0 ft
- Uniform Load : D = 0.8670 k/ft, Extent = 69.750 -->> 99.0 ft, Tributary Width = 1.0 ft, (Glass)
- Point Load : D = 27.0, L = 22.0, S = 5.0, W = 6.0 k @ 63.0 ft
- Point Load : D = 27.0, L = 9.0, S = 9.0, W = 10.0 k @ 76.0 ft
- Point Load : D = 9.0, L = 4.0 k @ 87.0 ft
- Point Load : D = 4.0, L = 3.0 k @ 99.0 ft
- Point Load : D = 13.0, L = 7.0 k @ 3.0 ft
- Point Load : D = 13.0, L = 5.0 k @ 18.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.931 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	179.392 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	192.740 k-ft	Max Downward Total Deflection	0.135 in
Load Combination	+1.20D+1.60L+0.50S	Max Upward Total Deflection	0.010 in
Location of maximum on span	48.000 ft		
Span # where maximum occurs	Span # 1		
Maximum Soil Pressure =	1.945 ksf	at	0.00 ft
Allowable Soil Pressure =	3.0 ksf	OK	LdComb: +D+0.750L+0.750S+0.45

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \Phi V_c/2$, Req'd Vs = Not Req'd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combination

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 2 (F-A)

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope						
Span # 1		1	48.000	179.39	192.74	0.93
+1.40D						
Span # 1		1	48.000	106.14	192.74	0.55
+1.20D+1.60L						
Span # 1		1	48.000	163.80	192.74	0.85
+1.20D+1.60L+0.50S						
Span # 1		1	48.000	179.39	192.74	0.93
+1.20D+0.50L						
Span # 1		1	48.000	113.73	192.74	0.59
+1.20D+0.50W						
Span # 1		1	48.000	91.73	192.74	0.48
+1.20D+0.50L+1.60S						
Span # 1		1	48.000	163.64	192.74	0.85
+1.20D+1.60S+0.50W						
Span # 1		1	48.000	141.64	192.74	0.73
+1.20D+0.50L+W						
Span # 1		1	48.000	115.24	192.74	0.60
+1.20D+0.50L+0.50S+W						
Span # 1		1	48.000	130.84	192.74	0.68
+1.20D+0.50L+0.70S						
Span # 1		1	48.000	135.57	192.74	0.70
+0.90D+W						
Span # 1		1	75.600	82.86	192.74	0.43
+0.90D						
Span # 1		1	48.000	68.23	192.74	0.35

Overall Maximum Deflections - Unfactored Lo:

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.1351	0.000		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60L+0.50S	1	0.00	33.00	3.63	3.63	0.00	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	1.20	33.00	10.49	10.49	4.35	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	2.40	33.00	16.97	16.97	16.94	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	3.60	33.00	-4.69	4.69	19.94	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	4.80	33.00	-23.46	23.46	3.66	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	6.00	33.00	-18.58	18.58	32.06	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	7.20	33.00	-14.08	14.08	54.59	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	8.40	33.00	-9.96	9.96	71.73	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50L+0.50S+W	1	9.60	33.00	-6.48	6.48	75.49	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	10.80	33.00	-3.49	3.49	76.06	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	12.00	33.00	-0.98	0.98	80.49	0.44	91.27	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	13.20	33.00	3.49	3.49	89.70	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	14.40	33.00	6.00	6.00	85.75	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	15.60	33.00	8.27	8.27	78.80	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	16.80	33.00	10.33	10.33	69.12	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	18.00	33.00	12.20	12.20	56.96	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	19.20	33.00	-9.81	9.81	77.44	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	20.40	33.00	-8.26	8.26	89.46	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	21.60	33.00	-6.85	6.85	99.61	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	22.80	33.00	-5.55	5.55	108.07	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	24.00	33.00	-4.34	4.34	114.97	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	25.20	33.00	-3.20	3.20	113.47	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	26.40	33.00	-2.11	2.11	117.55	0.64	92.22	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L	1	27.60	33.00	-1.02	1.02	120.31	0.30	90.64	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	28.80	33.00	1.05	1.05	100.83	0.38	90.97	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	30.00	33.00	1.93	1.93	99.80	0.70	92.46	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	31.20	33.00	2.89	2.89	97.73	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	32.40	33.00	4.27	4.27	123.90	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	33.60	33.00	5.90	5.90	119.02	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	34.80	33.00	7.73	7.73	112.18	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	36.00	33.00	9.79	9.79	103.14	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	37.20	33.00	12.10	12.10	91.64	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	38.40	33.00	14.68	14.68	77.36	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	39.60	33.00	17.56	17.56	59.99	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60L+0.50S	1	40.80	33.00	20.74	20.74	39.16	1.00	93.87	Vu < PhiVc/2	Not Reqd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 2 (F-A)

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60L+0.50S	1	42.00	33.00	24.24	24.24	14.52	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	43.20	33.00	28.07	28.07	14.33	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	44.40	33.00	32.22	32.22	47.78	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	45.60	33.00	36.67	36.67	86.19	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	46.80	33.00	41.40	41.40	129.95	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	48.00	33.00	46.39	46.39	179.39	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	49.20	33.00	-29.62	29.62	137.38	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	50.40	33.00	-24.25	24.25	101.59	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	51.60	33.00	-18.74	18.74	72.25	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+1.60S	1	52.80	33.00	-13.68	13.68	41.17	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	54.00	33.00	-8.85	8.85	24.51	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+1.60S	1	55.20	33.00	-3.94	3.94	13.65	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	56.40	33.00	4.89	4.89	21.87	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	57.60	33.00	10.60	10.60	27.49	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	58.80	33.00	16.69	16.69	40.09	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	60.00	33.00	22.91	22.91	59.88	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	61.20	33.00	29.19	29.19	87.13	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	62.40	33.00	35.51	35.51	121.91	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	63.60	33.00	-28.27	28.27	122.22	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	64.80	33.00	-21.97	21.97	88.05	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	66.00	33.00	-15.72	15.72	61.44	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	67.20	33.00	-9.70	9.70	41.64	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	68.40	33.00	4.24	4.24	20.75	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	69.60	33.00	9.07	9.07	25.59	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	70.80	33.00	12.80	12.80	35.66	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	72.00	33.00	16.36	16.36	50.03	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	73.20	33.00	19.95	19.95	68.68	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	74.40	33.00	23.83	23.83	91.87	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	75.60	33.00	27.63	27.63	119.71	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	76.80	33.00	-20.84	20.84	83.48	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50L+0.50S+W	1	78.00	33.00	-16.95	16.95	79.17	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	79.20	33.00	-13.49	13.49	64.33	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	80.40	33.00	-10.25	10.25	47.39	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	81.60	33.00	-7.19	7.19	34.34	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	82.80	33.00	-4.32	4.32	24.96	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	84.00	33.00	2.31	2.31	1.11	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	85.20	33.00	5.17	5.17	3.13	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	86.40	33.00	7.83	7.83	8.59	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	87.60	33.00	-7.07	7.07	5.51	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	88.80	33.00	-4.72	4.72	3.72	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.40D	1	90.00	33.00	-2.73	2.73	7.65	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.40D	1	91.20	33.00	-1.45	1.45	3.49	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	92.40	33.00	1.01	1.01	15.55	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	93.60	33.00	2.49	2.49	15.09	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	94.80	33.00	3.76	3.76	12.84	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	96.00	33.00	4.83	4.83	9.08	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	97.20	33.00	5.70	5.70	4.03	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L+0.50S	1	98.40	33.00	6.36	6.36	2.06	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	99.60	33.00	-2.26	2.26	3.54	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60L	1	100.80	33.00	-0.69	0.69	0.83	1.00	93.87	Vu < PhiVc/2	Not Req'd	0.00	0.00

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC#: KW-06017529, Build:20.22.7.25

PEC

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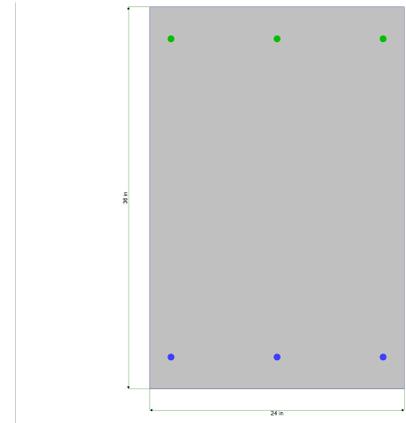
DESCRIPTION: Grid A (DOWNWARD)

CODE REFERENCES

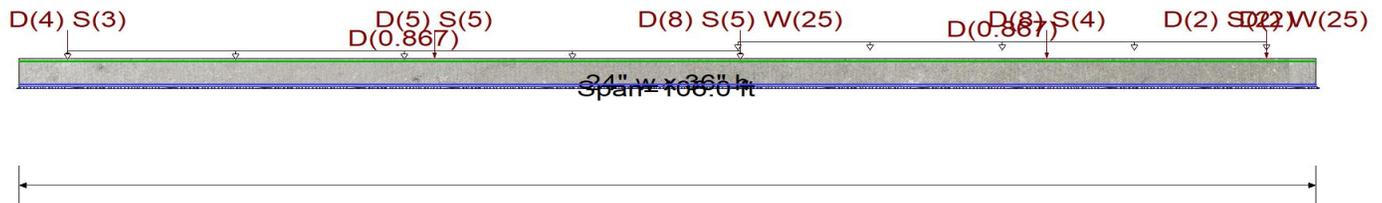
Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c^{1/2} \cdot 7.50$	=	474.342 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,605.0 ksi			
Soil Subgrade Modulus	=	100.0 psi / (inch deflection)			
Load Combination	IBC 2018				
f_y - Main Rebar	=	60.0 ksi	F_y - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2



Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 24.0 in, Height = 36.0 in

Span #1 Reinforcing....

3-#5 at 3.0 in from Bottom, from 0.0 to 106.0 ft in this span

3-#5 at 3.0 in from Top, from 0.0 to 106.0 ft in this span

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

Applied Loads

Beam self weight calculated and added to loads

Point Load : D = 4.0, S = 3.0 k @ 4.0 ft

Point Load : D = 5.0, S = 5.0 k @ 34.0 ft

Point Load : D = 8.0, S = 5.0, W = 25.0 k @ 59.0 ft

Uniform Load : D = 0.8670 k/ft, Extent = 4.0 --> 59.0 ft, Tributary Width = 1.0 ft, (Brick)

Point Load : D = 8.0, S = 4.0 k @ 84.0 ft

Point Load : D = 2.0, S = 2.0, W = 25.0 k @ 102.0 ft

Uniform Load : D = 0.8670 k/ft, Extent = 58.750 --> 102.0 ft, Tributary Width = 1.0 ft, (Brick)

Point Load : D = 2.0 k @ 102.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.693 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	100.476 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	144.936 k-ft	Max Downward Total Deflection	0.112 in
Load Combination	+1.20D+0.50S+W	Max Upward Total Deflection	0.046 in
Location of maximum on span	58.612 ft		
Span # where maximum occurs	Span # 1		

Maximum Soil Pressure = **1.606** ksf at 106.00 ft LdComb: +D+0.60W
 Allowable Soil Pressure = **3.0** ksf **OK**

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \phi V_c/2$, Req'd Vs = Not Req'd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combination

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid A (DOWNWARD)

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope						
+1.40D	Span # 1	1	58.612	100.48	144.94	0.69
+1.20D	Span # 1	1	83.553	27.95	144.94	0.19
+1.20D+0.50S	Span # 1	1	83.553	23.95	144.94	0.17
+1.20D+0.50W	Span # 1	1	83.553	27.06	144.94	0.19
+1.20D+1.60S	Span # 1	1	58.612	57.58	144.94	0.40
+1.20D+1.60S+0.50W	Span # 1	1	58.612	35.40	144.94	0.24
+1.20D+W	Span # 1	1	58.612	73.37	144.94	0.51
+1.20D+0.50S+W	Span # 1	1	58.612	95.54	144.94	0.66
+1.20D+0.70S	Span # 1	1	58.612	100.48	144.94	0.69
+0.90D+W	Span # 1	1	83.553	28.30	144.94	0.20
+0.90D	Span # 1	1	58.612	90.61	144.94	0.63
	Span # 1	1	83.553	17.94	144.94	0.12

Overall Maximum Deflections - Unfactored Lo:

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.1115	106.000		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60S	1	0.00	33.00	1.41	1.41	0.00	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	1.25	33.00	3.15	3.15	1.08	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	2.49	33.00	4.87	4.87	4.33	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	3.74	33.00	6.59	6.59	9.73	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	4.99	33.00	-2.36	2.36	7.22	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	6.24	33.00	-1.98	1.98	2.79	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	7.48	33.00	-1.61	1.61	1.17	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	8.73	33.00	-1.26	1.26	4.66	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	9.98	33.00	-0.92	0.92	7.71	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	11.22	33.00	-0.59	0.59	10.34	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+0.90D	1	12.47	33.00	0.51	0.51	0.33	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.40D	1	13.72	33.00	0.58	0.58	0.47	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.40D	1	14.96	33.00	0.69	0.69	1.36	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	16.21	33.00	0.88	0.88	15.63	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	17.46	33.00	1.23	1.23	16.01	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	18.71	33.00	1.59	1.59	15.97	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	19.95	33.00	1.96	1.96	15.47	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	21.20	33.00	2.36	2.36	14.51	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	22.45	33.00	2.79	2.79	13.05	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	23.69	33.00	3.24	3.24	11.06	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	24.94	33.00	3.72	3.72	8.50	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	26.19	33.00	4.24	4.24	5.35	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	27.44	33.00	4.80	4.80	1.54	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	28.68	33.00	5.39	5.39	2.96	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	29.93	33.00	6.02	6.02	8.20	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	31.18	33.00	6.68	6.68	14.21	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	32.42	33.00	7.37	7.37	21.06	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	33.67	33.00	8.08	8.08	28.76	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	34.92	33.00	-5.41	5.41	17.24	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	36.16	33.00	-4.59	4.59	9.02	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	37.41	33.00	-3.75	3.75	1.80	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	38.66	33.00	-2.99	2.99	3.34	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	39.91	33.00	-2.26	2.26	1.87	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	41.15	33.00	-1.53	1.53	6.18	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+0.90D+W	1	42.40	33.00	1.62	1.62	18.08	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+W	1	43.65	33.00	2.40	2.40	19.08	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+W	1	44.89	33.00	3.30	3.30	17.58	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid A (DOWNWARD)

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+0.50S+W	1	46.14	33.00	4.28	4.28	16.92	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	47.39	33.00	5.46	5.46	13.06	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	48.64	33.00	6.73	6.73	7.74	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	49.88	33.00	8.08	8.08	0.83	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	51.13	33.00	9.52	9.52	7.76	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	52.38	33.00	11.05	11.05	18.15	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	53.62	33.00	12.66	12.66	30.44	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	54.87	33.00	14.34	14.34	44.74	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	56.12	33.00	16.08	16.08	61.13	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	57.36	33.00	17.85	17.85	79.70	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	58.61	33.00	19.65	19.65	100.48	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	59.86	33.00	-15.92	15.92	91.38	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	61.11	33.00	-14.17	14.17	70.04	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	62.35	33.00	-12.48	12.48	50.88	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	63.60	33.00	-10.86	10.86	33.83	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	64.85	33.00	-9.32	9.32	18.81	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	66.09	33.00	-7.87	7.87	5.70	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	67.34	33.00	-6.50	6.50	5.60	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	68.59	33.00	-5.23	5.23	15.19	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	69.84	33.00	-4.04	4.04	23.20	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+0.90D+W	1	71.08	33.00	-3.11	3.11	25.19	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+0.90D+W	1	72.33	33.00	-2.30	2.30	30.35	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	73.58	33.00	3.02	3.02	14.88	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	74.82	33.00	3.87	3.87	12.60	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	76.07	33.00	4.73	4.73	9.26	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	77.32	33.00	5.60	5.60	4.84	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	78.56	33.00	6.49	6.49	0.66	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	79.81	33.00	7.39	7.39	7.27	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	81.06	33.00	8.31	8.31	15.01	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	82.31	33.00	9.23	9.23	23.88	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	83.55	33.00	10.15	10.15	33.91	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	84.80	33.00	-5.54	5.54	3.80	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	86.05	33.00	-4.46	4.46	4.60	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	87.29	33.00	-3.36	3.36	11.65	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	88.54	33.00	-2.35	2.35	12.65	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	89.79	33.00	-1.55	1.55	8.23	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+0.90D+W	1	91.04	33.00	1.91	1.91	52.72	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+0.90D+W	1	92.28	33.00	3.16	3.16	51.63	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+W	1	93.53	33.00	4.61	4.61	47.58	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	94.78	33.00	6.28	6.28	44.85	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	96.02	33.00	8.16	8.16	38.50	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	97.27	33.00	10.21	10.21	29.81	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	98.52	33.00	12.43	12.43	18.56	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	99.76	33.00	14.83	14.83	4.55	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	101.01	33.00	17.41	17.41	12.46	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	102.26	33.00	-10.36	10.36	24.76	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	103.51	33.00	-6.13	6.13	11.17	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	104.75	33.00	-1.74	1.74	2.84	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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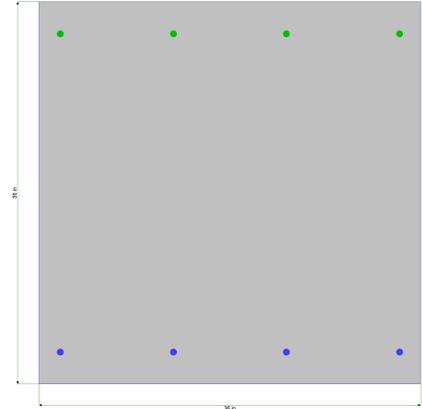
DESCRIPTION: Grid B (Downward)

CODE REFERENCES

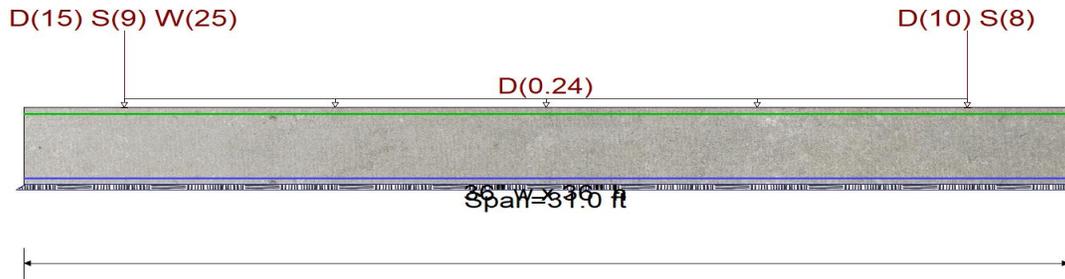
Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c^{1/2} \cdot 7.50$	=	474.342 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,605.0 ksi			
Soil Subgrade Modulus	=	100.0 psi / (inch deflection)			
Load Combination	IBC 2018				
f_y - Main Rebar	=	60.0 ksi	F_y - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2



Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 36.0 in, Height = 36.0 in

Span #1 Reinforcing....

4-#5 at 3.0 in from Bottom, from 0.0 to 31.0 ft in this span

4-#5 at 3.0 in from Top, from 0.0 to 31.0 ft in this span

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

Applied Loads

Beam self weight calculated and added to loads

Point Load : D = 15.0, S = 9.0, W = 25.0 k @ 3.0 ft

Point Load : D = 10.0, S = 8.0 k @ 28.0 ft

Uniform Load : D = 0.240 k/ft, Extent = 3.0 --> 28.0 ft, Tributary Width = 1.0 ft, (Metal Panel)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.651 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	-126.371 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	194.096 k-ft	Max Downward Total Deflection	0.119 in
Load Combination	+1.20D+1.60S+0.50W	Max Upward Total Deflection	0.032 in
Location of maximum on span	14.224 ft		
Span # where maximum occurs	Span # 1		
Maximum Soil Pressure =	1.709 ksf	at	0.00 ft
Allowable Soil Pressure =	3.0 ksf	OK	LdComb: +D+0.750S+0.450W

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \phi V_c/2$, Req'd Vs = Not Req'd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combination

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
Maximum Bending Envelope						
Span # 1		1	28.082	9.48	194.10	0.05
+1.40D						
Span # 1		1	28.082	5.53	194.10 ¹³³	0.03

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid B (Downward)

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
+1.20D						
Span # 1		1	28.082	4.74	194.10	0.02
+1.20D+0.50S						
Span # 1		1	28.082	6.22	194.10	0.03
+1.20D+0.50W						
Span # 1		1	28.082	3.21	194.10	0.02
+1.20D+1.60S						
Span # 1		1	28.082	9.48	194.10	0.05
+1.20D+1.60S+0.50W						
Span # 1		1	28.082	7.95	194.10	0.04
+1.20D+W						
Span # 1		1	28.082	1.69	194.10	0.01
+1.20D+0.50S+W						
Span # 1		1	28.082	3.17	194.10	0.02
+1.20D+0.70S						
Span # 1		1	28.082	6.81	194.10	0.04
+0.90D+W						
Span # 1		1	28.082	0.50	194.10	0.00
+0.90D						
Span # 1		1	28.082	3.55	194.10	0.02

Overall Maximum Deflections - Unfactored Lo:

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.1187	0.000		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Span Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+0.50S+W	1	0.00	33.00	1.28	1.28	0.00	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	0.36	33.00	3.31	3.31	0.38	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	0.73	33.00	5.31	5.31	1.50	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	1.09	33.00	7.26	7.26	3.35	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	1.46	33.00	9.18	9.18	5.91	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	1.82	33.00	11.05	11.05	9.17	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	2.19	33.00	12.89	12.89	13.11	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	2.55	33.00	14.69	14.69	17.73	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	2.92	33.00	16.45	16.45	23.00	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	3.28	33.00	-29.42	29.42	15.49	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	3.65	33.00	-27.85	27.85	4.65	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	4.01	33.00	-26.32	26.32	5.61	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	4.38	33.00	-24.82	24.82	15.32	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	4.74	33.00	-23.37	23.37	24.47	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	5.11	33.00	-21.96	21.96	33.10	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	5.47	33.00	-20.68	20.68	42.62	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	5.84	33.00	-19.47	19.47	50.27	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	6.20	33.00	-18.29	18.29	57.48	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	6.56	33.00	-17.15	17.15	64.26	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	6.93	33.00	-16.04	16.04	70.62	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	7.29	33.00	-14.96	14.96	76.57	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	7.66	33.00	-13.90	13.90	82.13	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	8.02	33.00	-12.88	12.88	87.31	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	8.39	33.00	-11.89	11.89	92.12	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	8.75	33.00	-10.93	10.93	96.56	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	9.12	33.00	-10.00	10.00	100.65	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	9.48	33.00	-9.09	9.09	104.40	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	9.85	33.00	-8.21	8.21	107.83	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	10.21	33.00	-7.36	7.36	110.93	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	10.58	33.00	-6.53	6.53	113.72	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	10.94	33.00	-5.73	5.73	116.20	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	11.31	33.00	-4.95	4.95	118.40	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	11.67	33.00	-4.19	4.19	120.31	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	12.04	33.00	-3.45	3.45	121.94	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.40	33.00	-2.90	2.90	97.90	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.76	33.00	-2.37	2.37	99.06	0.86	111.08	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.13	33.00	-1.86	1.86	100.03	0.67	110.18	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.49	33.00	-1.35	1.35	100.82	0.48	109.31	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	13.86	33.00	1.55	1.55	88.33	0.63	110.01	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	14.22	33.00	2.01	2.01	87.86	0.82	110.90	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+W	1	14.59	33.00	2.50	2.50	100.17	0.90	111.24	Vu < PhiVc/2	Not Reqd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid B (Downward)

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+W	1	14.95	33.00	2.97	2.97	99.36	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	15.32	33.00	3.48	3.48	114.15	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	15.68	33.00	4.00	4.00	112.98	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	16.05	33.00	4.49	4.49	111.63	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	16.41	33.00	4.96	4.96	110.10	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	16.78	33.00	5.41	5.41	108.40	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	17.14	33.00	5.85	5.85	106.53	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	17.51	33.00	6.27	6.27	104.50	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	17.87	33.00	6.68	6.68	102.32	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	18.24	33.00	7.07	7.07	99.99	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	18.60	33.00	7.45	7.45	97.52	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	18.96	33.00	7.81	7.81	94.91	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	19.33	33.00	8.16	8.16	92.17	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	19.69	33.00	8.52	8.52	103.69	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	20.06	33.00	9.00	9.00	100.68	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	20.42	33.00	9.48	9.48	97.51	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	20.79	33.00	9.95	9.95	94.16	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	21.15	33.00	10.42	10.42	90.64	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	21.52	33.00	10.90	10.90	86.94	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	21.88	33.00	11.37	11.37	83.07	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	22.25	33.00	11.85	11.85	79.03	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	22.61	33.00	12.32	12.32	74.82	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	22.98	33.00	12.80	12.80	70.43	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	23.34	33.00	13.28	13.28	65.87	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	23.71	33.00	13.77	13.77	61.13	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	24.07	33.00	14.26	14.26	56.21	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	24.44	33.00	14.75	14.75	51.12	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	24.80	33.00	15.25	15.25	45.84	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	25.16	33.00	15.75	15.75	40.39	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	25.53	33.00	16.25	16.25	34.75	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	25.89	33.00	16.77	16.77	28.93	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	26.26	33.00	17.28	17.28	22.92	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	26.62	33.00	17.80	17.80	16.72	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	26.99	33.00	18.33	18.33	10.34	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	27.35	33.00	18.87	18.87	3.76	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S+0.50W	1	27.72	33.00	19.41	19.41	3.02	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	28.08	33.00	-5.76	5.76	9.48	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	28.45	33.00	-5.00	5.00	7.29	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	28.81	33.00	-4.22	4.22	5.38	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	29.18	33.00	-3.44	3.44	3.75	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	29.54	33.00	-2.64	2.64	2.41	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	29.91	33.00	-1.83	1.83	1.36	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	30.27	33.00	-1.01	1.01	0.61	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	30.64	33.00	0.23	0.23	0.00	1.00	111.72	Vu < PhiVc/2	Not Reqd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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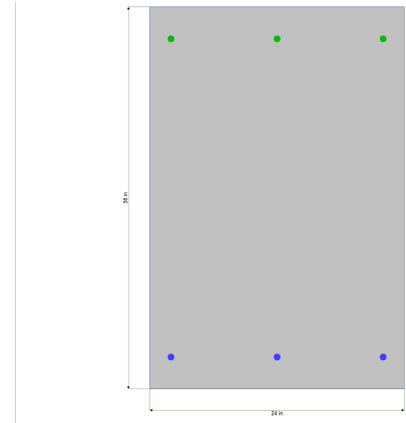
DESCRIPTION: Grid 9 (Downward) (E-A)

CODE REFERENCES

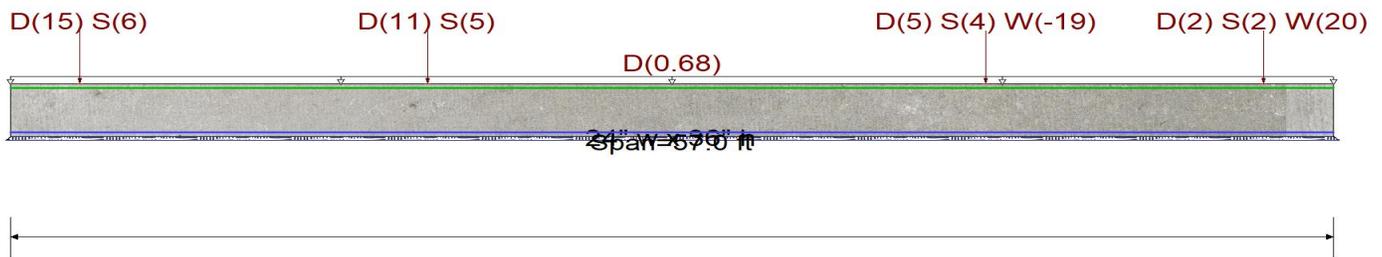
Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c^{1/2} \cdot 7.50$	=	474.342 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,605.0 ksi			
Soil Subgrade Modulus	=	100.0 psi / (inch deflection)			
Load Combination	IBC 2018				
f_y - Main Rebar	=	60.0 ksi	Fy - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2



Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 24.0 in, Height = 36.0 in
 Span #1 Reinforcing....

3-#5 at 3.0 in from Bottom, from 0.0 to 57.0 ft in this span

3-#5 at 3.0 in from Top, from 0.0 to 57.0 ft in this span

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

Applied Loads

Beam self weight calculated and added to loads

- Point Load : D = 15.0, S = 6.0 k @ 3.0 ft
- Point Load : D = 11.0, S = 5.0 k @ 18.0 ft
- Uniform Load : D = 0.680 k/ft, Tributary Width = 1.0 ft, (Brick)
- Point Load : D = 5.0, S = 4.0, W = -19.0 k @ 42.0 ft
- Point Load : D = 2.0, S = 2.0, W = 20.0 k @ 54.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.718 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	-104.052 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	144.936 k-ft	Max Downward Total Deflection	0.143 in
Load Combination	+0.90D+W	Max Upward Total Deflection	0.038 in
Location of maximum on span	42.247 ft		
Span # where maximum occurs	Span # 1		
Maximum Soil Pressure =	2.056 ksf	at	0.00 ft LdComb: +D+S
Allowable Soil Pressure =	3.0 ksf	OK	

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \phi V_c/2$, Req'd Vs = Not Req'd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combination

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
MAXimum Bending Envelope						
Span # 1		1	54.318	8.43	144.94 ¹³⁶	0.06

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 9 (Downward) (E-A)

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
+1.40D						
Span # 1		1	42.247	5.09	144.94	0.04
+1.20D						
Span # 1		1	42.247	4.36	144.94	0.03
+1.20D+0.50S						
Span # 1		1	42.247	6.56	144.94	0.05
+1.20D+0.50W						
Span # 1		1	54.318	4.53	144.94	0.03
+1.20D+1.60S						
Span # 1		1	42.247	11.40	144.94	0.08
+1.20D+1.60S+0.50W						
Span # 1		1	54.318	6.12	144.94	0.04
+1.20D+W						
Span # 1		1	54.318	7.93	144.94	0.05
+1.20D+0.50S+W						
Span # 1		1	54.318	8.43	144.94	0.06
+1.20D+0.70S						
Span # 1		1	42.247	7.44	144.94	0.05
+0.90D+W						
Span # 1		1	54.318	7.65	144.94	0.05
+0.90D						
Span # 1		1	42.247	3.26	144.94	0.02

Overall Maximum Deflections - Unfactored Lo:

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.1428	0.000		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60S+0.50W	1	0.00	33.00	1.72	1.72	0.00	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	0.67	33.00	3.96	3.96	0.77	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	1.34	33.00	6.13	6.13	3.05	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	2.01	33.00	8.24	8.24	6.78	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	2.68	33.00	10.28	10.28	11.93	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	3.35	33.00	-15.54	15.54	8.38	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	4.02	33.00	-13.67	13.67	2.43	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	4.69	33.00	-11.85	11.85	11.97	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	5.36	33.00	-10.10	10.10	20.30	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	6.04	33.00	-8.42	8.42	27.45	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	6.71	33.00	-6.79	6.79	33.47	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	7.38	33.00	-5.23	5.23	38.41	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	8.05	33.00	-3.73	3.73	42.30	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	8.72	33.00	-2.28	2.28	45.18	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	9.39	33.00	-0.89	0.89	47.09	0.68	73.76	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+W	1	10.06	33.00	1.00	1.00	27.21	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	10.73	33.00	1.99	1.99	45.92	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	11.40	33.00	3.21	3.21	44.97	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	12.07	33.00	4.38	4.38	43.20	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	12.74	33.00	5.50	5.50	40.64	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	13.41	33.00	6.57	6.57	37.33	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	14.08	33.00	7.60	7.60	33.31	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	14.75	33.00	8.58	8.58	28.59	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	15.42	33.00	9.52	9.52	23.21	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	16.09	33.00	10.43	10.43	20.32	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	16.76	33.00	11.34	11.34	13.70	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S	1	17.44	33.00	12.22	12.22	6.48	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	18.11	33.00	-8.33	8.33	2.08	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	18.78	33.00	-7.59	7.59	3.88	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	19.45	33.00	-6.89	6.89	9.35	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	20.12	33.00	-6.24	6.24	14.35	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	20.79	33.00	-5.62	5.62	18.91	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	21.46	33.00	-5.04	5.04	23.06	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	22.13	33.00	-4.50	4.50	26.82	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	22.80	33.00	-3.99	3.99	30.22	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+1.60S+0.50W	1	23.47	33.00	-3.52	3.52	33.27	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	24.14	33.00	-3.32	3.32	26.50	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	24.81	33.00	-3.18	3.18	29.11	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00
+1.20D+0.50S+W	1	25.48	33.00	-3.08	3.08	31.62	1.00	74.87	Vu < PhiVc/2	Not Req'd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 9 (Downward) (E-A)

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+0.50S+W	1	26.15	33.00	-3.00	3.00	34.06	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	26.82	33.00	-2.95	2.95	36.45	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	27.49	33.00	-2.94	2.94	27.46	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	28.16	33.00	-3.06	3.06	29.76	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	28.84	33.00	-3.20	3.20	32.15	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	29.51	33.00	-3.36	3.36	34.63	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	30.18	33.00	-3.54	3.54	37.21	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	30.85	33.00	-3.73	3.73	39.92	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	31.52	33.00	-3.93	3.93	42.75	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	32.19	33.00	-4.14	4.14	45.72	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	32.86	33.00	-4.37	4.37	48.83	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	33.53	33.00	-4.60	4.60	52.10	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	34.20	33.00	-4.83	4.83	55.51	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	34.87	33.00	-5.06	5.06	59.08	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	35.54	33.00	-5.30	5.30	62.81	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	36.21	33.00	-5.53	5.53	66.70	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	36.88	33.00	-5.75	5.75	70.74	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	37.55	33.00	5.97	5.97	16.28	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	38.22	33.00	6.34	6.34	12.65	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	38.89	33.00	6.72	6.72	8.78	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	39.56	33.00	7.10	7.10	4.65	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	40.24	33.00	7.49	7.49	0.27	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	40.91	33.00	7.89	7.89	4.37	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	41.58	33.00	8.29	8.29	9.28	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	42.25	33.00	7.61	7.61	104.05	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	42.92	33.00	7.61	7.61	99.28	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	43.59	33.00	7.66	7.66	94.51	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	44.26	33.00	7.75	7.75	89.71	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	44.93	33.00	7.91	7.91	84.85	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	45.60	33.00	8.12	8.12	79.88	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	46.27	33.00	8.39	8.39	74.77	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	46.94	33.00	8.73	8.73	69.48	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+0.90D+W	1	47.61	33.00	9.13	9.13	63.96	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+W	1	48.28	33.00	9.65	9.65	58.70	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+W	1	48.95	33.00	10.25	10.25	52.61	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	49.62	33.00	10.99	10.99	46.83	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	50.29	33.00	11.83	11.83	39.83	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	50.96	33.00	12.75	12.75	32.28	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	51.64	33.00	13.75	13.75	24.11	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	52.31	33.00	14.84	14.84	15.26	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	52.98	33.00	16.01	16.01	5.69	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	53.65	33.00	17.26	17.26	4.66	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	54.32	33.00	-4.80	4.80	8.43	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	54.99	33.00	-3.37	3.37	4.83	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+0.50S+W	1	55.66	33.00	-1.86	1.86	2.19	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.40D	1	56.33	33.00	0.49	0.49	0.08	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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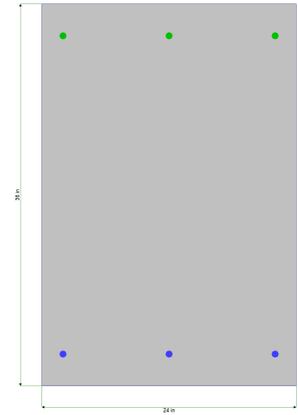
DESCRIPTION: Grid 9 (J-G)

CODE REFERENCES

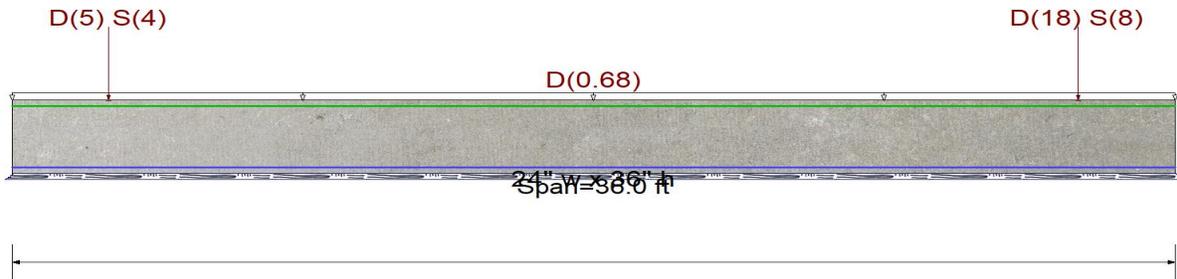
Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c^{1/2} \cdot 7.50$	=	474.342 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	0.850
λ Lt Wt Factor	=	1.0			
Elastic Modulus	=	3,605.0 ksi			
Soil Subgrade Modulus	=	100.0 psi / (inch deflection)			
Load Combination	IBC 2018				
f_y - Main Rebar	=	60.0 ksi	Fy - Stirrups	=	40.0 ksi
E - Main Rebar	=	29,000.0 ksi	E - Stirrups	=	29,000.0 ksi
			Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2



Beam is supported on an elastic foundation.



Cross Section & Reinforcing Details

Rectangular Section, Width = 24.0 in, Height = 36.0 in

Span #1 Reinforcing....

3-#5 at 3.0 in from Bottom, from 0.0 to 36.0 ft in this span

3-#5 at 3.0 in from Top, from 0.0 to 36.0 ft in this span

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

Applied Loads

Beam self weight calculated and added to loads

Point Load : D = 5.0, S = 4.0 k @ 3.0 ft

Point Load : D = 18.0, S = 8.0 k @ 33.0 ft

Uniform Load : D = 0.680 k/ft, Tributary Width = 1.0 ft, (Brick)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.663 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward L+Lr+S Deflection	0.000 in
Mu : Applied	-96.121 k-ft	Max Upward L+Lr+S Deflection	0.000 in
Mn * Phi : Allowable	144.936 k-ft	Max Downward Total Deflection	0.157 in
Load Combination	+1.20D+1.60S	Max Upward Total Deflection	0.048 in
Location of maximum on span	21.176 ft		
Span # where maximum occurs	Span # 1		

Maximum Soil Pressure = **2.264** ksf at 36.00 ft LdComb: +D+S
 Allowable Soil Pressure = **3.0** ksf **OK**

Shear Stirrup Requirements

Entire Beam Span Length : $V_u < \phi V_c/2$, Req'd Vs = Not Req'd, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combination

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
Maximum Bending Envelope						
Span # 1	1	1	33.035	16.32	144.94	0.11
+1.40D						
Span # 1	1	1	33.035	12.13	144.94 ¹³⁹	0.08

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid 9 (J-G)

Load Combination	Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft)		
				Mu : Max	Phi*Mnx	Stress Ratio
+1.20D						
Span # 1		1	33.035	10.40	144.94	0.07
+1.20D+0.50S						
Span # 1		1	33.035	12.25	144.94	0.08
+1.20D+1.60S						
Span # 1		1	33.035	16.32	144.94	0.11
+1.20D+0.70S						
Span # 1		1	33.035	12.99	144.94	0.09
+0.90D						
Span # 1		1	33.035	7.80	144.94	0.05

Overall Maximum Deflections - Unfactored Lo:

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
Span 1	1	0.1572	36.000		0.0000	0.000

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60S	1	0.00	33.00	0.52	0.52	0.00	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	0.42	33.00	0.85	0.85	0.07	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	0.85	33.00	1.16	1.16	0.28	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.27	33.00	1.47	1.47	0.62	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	1.69	33.00	1.78	1.78	1.09	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.12	33.00	2.07	2.07	1.69	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.54	33.00	2.36	2.36	2.42	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	2.96	33.00	2.64	2.64	3.27	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	3.39	33.00	-9.49	9.49	0.58	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	3.81	33.00	-9.22	9.22	4.75	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	4.24	33.00	-8.96	8.96	8.80	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	4.66	33.00	-8.71	8.71	12.75	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.08	33.00	-8.47	8.47	16.59	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.51	33.00	-8.23	8.23	20.33	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	5.93	33.00	-8.00	8.00	23.96	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	6.35	33.00	-7.78	7.78	27.50	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	6.78	33.00	-7.56	7.56	30.95	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	7.20	33.00	-7.34	7.34	34.30	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	7.62	33.00	-7.14	7.14	37.56	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.05	33.00	-6.94	6.94	40.74	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.47	33.00	-6.74	6.74	43.83	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	8.89	33.00	-6.55	6.55	46.83	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	9.32	33.00	-6.36	6.36	49.75	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	9.74	33.00	-6.17	6.17	52.60	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	10.16	33.00	-5.98	5.98	55.36	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	10.59	33.00	-5.80	5.80	58.05	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	11.01	33.00	-5.62	5.62	60.65	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	11.44	33.00	-5.44	5.44	63.18	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	11.86	33.00	-5.25	5.25	65.64	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.28	33.00	-5.07	5.07	68.02	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	12.71	33.00	-4.89	4.89	70.31	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.13	33.00	-4.70	4.70	72.54	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.55	33.00	-4.51	4.51	74.68	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	13.98	33.00	-4.31	4.31	76.74	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.40	33.00	-4.11	4.11	78.72	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	14.82	33.00	-3.91	3.91	80.61	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	15.25	33.00	-3.69	3.69	82.41	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	15.67	33.00	-3.47	3.47	84.13	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.09	33.00	-3.24	3.24	85.75	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.52	33.00	-3.00	3.00	87.28	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	16.94	33.00	-2.75	2.75	88.70	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.36	33.00	-2.49	2.49	90.01	1.00	74.85	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	17.79	33.00	-2.21	2.21	91.22	0.87	74.43	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	18.21	33.00	-1.92	1.92	92.31	0.75	74.00	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	18.64	33.00	-1.62	1.62	93.27	0.63	73.56	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	19.06	33.00	-1.30	1.30	94.11	0.50	73.12	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	19.48	33.00	-0.97	0.97	94.82	0.37	72.66	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.40D	1	19.91	33.00	-0.61	0.61	66.30	0.33	72.54	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.40D	1	20.33	33.00	-0.35	0.35	66.72	0.19	72.03	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	20.75	33.00	0.16	0.16	96.04	0.06	71.58	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	21.18	33.00	0.57	0.57	96.12	0.21	72.13	Vu < PhiVc/2	Not Reqd	0.00	0.00

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Beam on Elastic Foundation

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid 9 (J-G)

Detailed Shear Information

Load Combination	Span Number	Distance 'd'		Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Spacing (in)	
		(ft)	(in)	Actual	Design						Req'd	Suggest
+1.20D+1.60S	1	21.60	33.00	1.01	1.01	96.03	0.38	72.70	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	22.02	33.00	1.47	1.47	95.75	0.55	73.31	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	22.45	33.00	1.95	1.95	95.28	0.74	73.95	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	22.87	33.00	2.47	2.47	94.61	0.94	74.65	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	23.29	33.00	3.00	3.00	93.71	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	23.72	33.00	3.57	3.57	92.59	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	24.14	33.00	4.16	4.16	91.23	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	24.56	33.00	4.78	4.78	89.62	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	24.99	33.00	5.44	5.44	87.75	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	25.41	33.00	6.12	6.12	85.60	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	25.84	33.00	6.84	6.84	83.15	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	26.26	33.00	7.59	7.59	80.41	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	26.68	33.00	8.38	8.38	77.34	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	27.11	33.00	9.20	9.20	73.94	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	27.53	33.00	10.06	10.06	70.20	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	27.95	33.00	10.95	10.95	66.09	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	28.38	33.00	11.89	11.89	61.60	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	28.80	33.00	12.86	12.86	56.72	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	29.22	33.00	13.87	13.87	51.42	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	29.65	33.00	14.92	14.92	45.70	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	30.07	33.00	16.01	16.01	39.53	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	30.49	33.00	17.14	17.14	32.90	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	30.92	33.00	18.31	18.31	25.80	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	31.34	33.00	19.52	19.52	18.19	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	31.76	33.00	20.78	20.78	10.08	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	32.19	33.00	22.07	22.07	1.43	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	32.61	33.00	23.41	23.41	7.77	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	33.04	33.00	-9.61	9.61	16.32	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	33.46	33.00	-8.19	8.19	12.09	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	33.88	33.00	-6.73	6.73	8.47	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	34.31	33.00	-5.23	5.23	5.47	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	34.73	33.00	-3.69	3.69	3.11	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	35.15	33.00	-2.10	2.10	1.39	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00
+1.20D+1.60S	1	35.58	33.00	-0.48	0.48	0.35	1.00	74.87	Vu < PhiVc/2	Not Reqd	0.00	0.00

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 6 CMU Wall

Code References

Calculations per TMS 402-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Wall Material	MASONRY	f'm	2.0 ksi	Block Class	
Total Wall Height	14.0 ft	Fy - Rebar	60.0 ksi	Concrete Density	150.0 pcf
Base Wall Length	28.0 ft	Fy - HJR	70.0 ksi	Min. Bending As %	0.00180
R: Resp. Mod Factor		Em	3,120.0 ksi		
Ie: Seismic Import. Factor	1.0	Phi - Shear	0.80	Phi : Axial & Flexure	0.90

Wall Data

Bottom

Analysis Height	0.00 ft
Wall Offset	(datum) ft
Wall Length	28.0 ft
Effective Length 'd'	332.0 in
Nominal Block Thickness	8 in
Solid Grout?	Partial Groute

Reinforcing in Field of Wall

Vertical Bar Size #	5
Vertical Bar Spacing	16 in
Horiz. joint reinf. area (HJR)	0.55 in
HJR Spacing	24 in
Bond beam reinf. area	0.4 in
Spacing of bond beams	48 in

In each chord cell:

Vertical rebar size #	5
# Chord Cells @ Each End	1.0

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

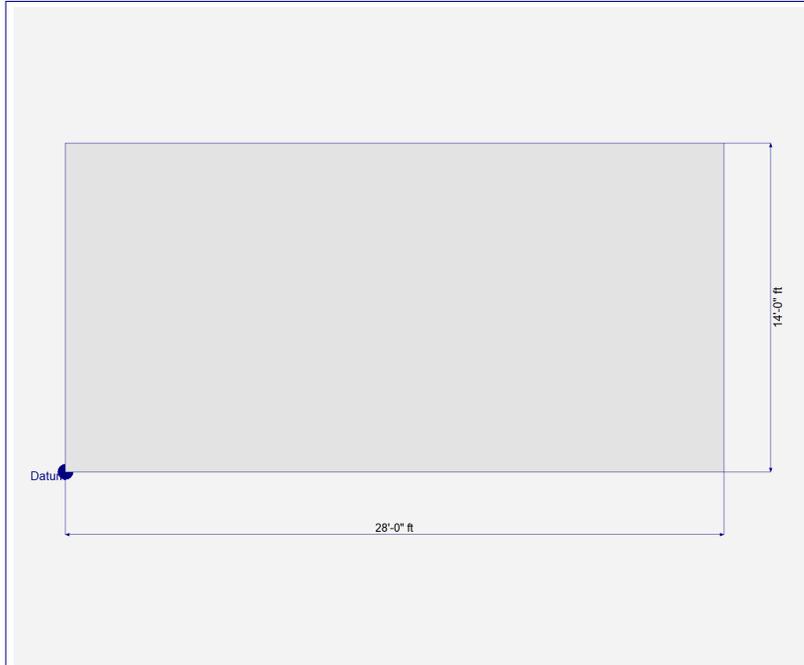
LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 6 CMU Wall

Wall Sketch



SHEAR ANALYSIS

Bottom Level

Special Boundary	
Elements Req'd?	Not Req'd
Vu : Story Shear	21.30 k
for Load Combination	+1.20D+0.50Lr+W
Controlling Mu/(Vud)	0.46
Vn Masonry	309.852 k
Vn Steel	141.40 k
Vn Masonry + Vn Steel	451.252 k
Vn Max	360.140 k
Phi Vn	288.112 k
Ratio: Vu/PhiVn (controlling)	0.07393
Vertical As >= Av/3	OK
Vertical Bar Spacing <= 96"	OK

AXIAL ANALYSIS

Bottom Level

H / d Ratio	0.51
Pu	111.580 k
for Load Combination	+1.20D+1.60Lr
Phi Pn	1.20D+1.60Lr k
Ratio: Pu/PhiPn (controlling)	0.03805

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 6 CMU Wall

BENDING ANALYSIS

Bottom Level

"a" : Flexural compression 1.52 in
 Length of defined chord zone
 is >= the "a" dimension of the OK
 masonry (the compression zone)
 "d" : Eff depth to tension reinf 332.0
 As-flex < As-max ? J<=1, R<=1.5
 Mu 276.701 k
 for Load Combination +0.90D+W
 Phi Mn 462.077 k
 Ratio: Mu/PhiMn (controlling) **0.5988**

Force Summary

Load Combination	Wall Level	Values for Wall section			Resultant Ecc (ft)	Overturning Ratio	Uplift (k)	
		Vu (k)	Mu (k)	Pu (k)			Left	Right
+1.40D								
Wall Level : 1			33.443	70.387	0.475			
+1.20D+0.50Lr								
Wall Level : 1			40.853	76.347	0.535			
+1.20D+0.50S								
Wall Level : 1			40.853	65.035	0.628			
+1.20D+1.60Lr								
Wall Level : 1			67.665	111.580	0.606			
+1.20D+1.60Lr+0.50W								
Wall Level : 1		10.650	81.435	111.580	0.730	10.459		
+1.20D+1.60S								
Wall Level : 1			67.665	75.381	0.898			
+1.20D+1.60S+0.50W								
Wall Level : 1		10.650	81.435	75.381	1.080	7.060		
+1.20D+0.50Lr+W								
Wall Level : 1		21.300	257.348	76.347	3.371	3.485		
+1.20D+0.50S+W								
Wall Level : 1		21.300	257.348	65.035	3.957	2.954	4.363	4.363
+1.20D+0.70S+E								
Wall Level : 1			45.728	66.916	0.683			
+0.90D+W								
Wall Level : 1		21.300	276.701	45.249	6.115	2.314	10.296	10.296
+0.90D+E								
Wall Level : 1			21.499	45.249	0.475			

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 6 CMU Wall

Footing Information

Footing Dimensions

Dist. Left	2.0 ft	f'c	4.0 ksi	Rebar Cover	3.0 in
Wall Length	28.0 ft	Fy	60.0 ksi	Footing Thickness	15.0 in
Dist. Right	2.0 ft			Width	2.50 ft
Total Ftg Length	32.0 ft				

Max Factored Soil Pressures

@ Left Side of Footing	1,779.01 psf
.... governing load comb	+1.20D+1.60Lr
@ Right Side of Footing	1,845.57 psf
.... governing load comb	+1.20D+0.50Lr+W

Max UNfactored Soil Pressures

@ Left Side of Footing	1,330.01 psf
.... governing load comb	D+Lr
@ Right Side of Footing	1,360.56 psf
.... governing load comb	D+0.750Lr+0.450W

Footing One-Way Shear Check...

vu @ Left End of Footing	14.494 psi
vu @ Right End of Footing	14.996 psi
vn * phi : Allowable	107.517 psi

Overtuning Stability... @ Left End of Ftg

Overtuning Moment	194.895 k-ft
Resisting Moment	583.52 k-ft
Stability Ratio	2.994 : 1
.... governing load comb	+0.60D+0.60W

@ Right End of Ftg

Overtuning Moment	194.895 k-ft
Resisting Moment	612.19 k-ft
Stability Ratio	3.141 : 1
.... governing load comb	+0.60D+0.60W

Footing Bending Design...

@ Left End

Mu	8.862 k-ft
Ru	27.352 psi
As % Req'd	0.00180 in^2
As Req'd in Footing Width	0.810 in^2

@ Right End

Mu	9.166 k-ft
Ru	28.291 psi
As % Req'd	0.00180 in^2
As Req'd in Footing Width	0.810 in^2

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 7.5ish CMU Wall

Code References

Calculations per TMS 402-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Wall Material	MASONRY	f'm	2.0 ksi	Block Class	
Total Wall Height	14.0 ft	Fy - Rebar	60.0 ksi	Concrete Density	150.0 pcf
Base Wall Length	8.0 ft	Fy - HJR	70.0 ksi	Min. Bending As %	0.00180
R: Resp. Mod Factor		Em	3,120.0 ksi		
Ie: Seismic Import. Factor	1.0	Phi - Shear	0.80	Phi : Axial & Flexure	0.90

Wall Data

Bottom

Analysis Height	0.00 ft
Wall Offset	(datum) ft
Wall Length	8.0 ft
Effective Length 'd'	92.0 in
Nominal Block Thickness	8 in
Solid Grout?	Partial Groute

Reinforcing in Field of Wall

Vertical Bar Size #	5
Vertical Bar Spacing	16 in
Horiz. joint reinf. area (HJR)	0.55 in
HJR Spacing	24 in
Bond beam reinf. area	0.4 in
Spacing of bond beams	48 in

In each chord cell:

Vertical rebar size #	5
# Chord Cells @ Each End	1.0

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

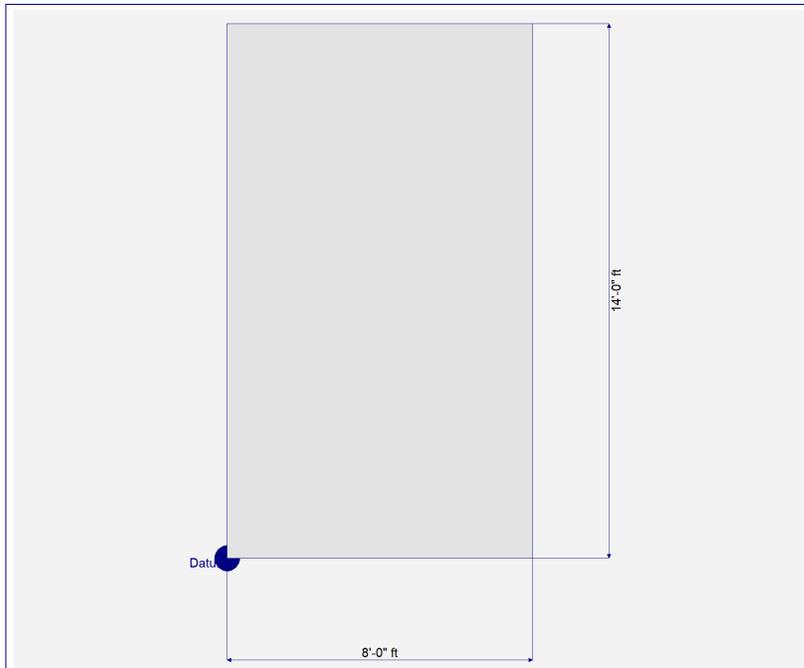
LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 7.5ish CMU Wall

Wall Sketch



SHEAR ANALYSIS

Bottom Level

Special Boundary	
Elements Req'd?	Not Req'd
Vu : Story Shear	7.90 k
for Load Combination	+1.20D+0.50Lr+W
Controlling Mu/(Vud)	1.00
Vn Masonry	67.666 k
Vn Steel	80.80 k
Vn Masonry + Vn Steel	148.466 k
Vn Max	78.566 k
Phi Vn	62.853 k
Ratio: Vu/PhiVn (controlling)	0.1257
Vertical As >= Av/3	OK
Vertical Bar Spacing <= 96"	OK

AXIAL ANALYSIS

Bottom Level

H / d Ratio	1.83
Pu	34.966 k
for Load Combination	+1.20D+1.60Lr
Phi Pn	1.20D+1.60Lr k
Ratio: Pu/PhiPn (controlling)	0.04018

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid 7.5ish CMU Wall

BENDING ANALYSIS

Bottom Level

"a" : Flexural compression 1.52 in
 Length of defined chord zone
 is >= the "a" dimension of the OK
 masonry (the compression zone)
 "d" : Eff depth to tension reinf 92.0
 As-flex < As-max ? 310 <= 8.288
 Mu 110.60 k
 for Load Combination +1.20D+0.50Lr+W
 Phi Mn 127.277 k
 Ratio: Mu/PhiMn (controlling) **0.8690**

Force Summary

Load Combination	Values for Wall section			Resultant Ecc (ft)	Overturning Ratio	Uplift (k)	
	Wall Level	Vu (k)	Mu (k)			Pu (k)	Left
+1.40D							
Wall Level : 1			19.887				
+1.20D+0.50Lr							
Wall Level : 1			22.646				
+1.20D+0.50S							
Wall Level : 1			18.166				
+1.20D+1.60Lr							
Wall Level : 1			34.966				
+1.20D+1.60Lr+0.50W							
Wall Level : 1	3.950	55.300	34.966	1.582	2.421		
+1.20D+1.60S							
Wall Level : 1			20.630				
+1.20D+1.60S+0.50W							
Wall Level : 1	3.950	55.300	20.630	2.681	1.384	5.041	5.041
+1.20D+0.50Lr+W							
Wall Level : 1	7.900	110.600	22.646	4.884	0.765	11.202	11.202
+1.20D+0.50S+W							
Wall Level : 1	7.900	110.600	18.166	6.088	0.603	13.540	13.540
+1.20D+0.70S+E							
Wall Level : 1			18.614				
+0.90D+W							
Wall Level : 1	7.900	110.600	12.785	8.651	0.490	13.676	13.676
+0.90D+E							
Wall Level : 1			12.785				

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Grid 7.5ish CMU Wall

Footing Information

Footing Dimensions

Dist. Left	3.50 ft	f'c	4.0 ksi	Rebar Cover	3.0 in
Wall Length	8.0 ft	Fy	60.0 ksi	Footing Thickness	16.0 in
Dist. Right	3.50 ft			Width	2.0 ft
Total Ftg Length	15.0 ft				

Max Factored Soil Pressures

@ Left Side of Footing	1,406.06 psf
.... governing load comb	+1.20D+1.60Lr
@ Right Side of Footing	7,195.31 psf
.... governing load comb	+0.90D+W

Max UNfactored Soil Pressures

@ Left Side of Footing	1,047.27 psf
.... governing load comb	D+Lr
@ Right Side of Footing	2,680.25 psf
.... governing load comb	0.60D+0.60W

Footing One-Way Shear Check...

vu @ Left End of Footing	25.626 psi
vu @ Right End of Footing	68.478 psi
vn * phi : Allowable	107.517 psi

Overtuning Stability... @ Left End of Ftg

Overtuning Moment	72.680 k-ft
Resisting Moment	85.524 k-ft
Stability Ratio	1.177 : 1
.... governing load comb	+0.60D+0.60W

@ Right End of Ftg

Overtuning Moment	72.680 k-ft
Resisting Moment	85.524 k-ft
Stability Ratio	1.177 : 1
.... governing load comb	+0.60D+0.60W

Footing Bending Design...

	<u>@ Left End</u>
Mu	17.224 k-ft
Ru	56.621 psi
As % Req'd	0.00180 in^2
As Req'd in Footing Width	0.6912 in^2

@ Right End

Mu	32.581 k-ft
Ru	107.103 psi
As % Req'd	0.002419 in^2
As Req'd in Footing Width	0.7547 in^2

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid G CMU Wall

Code References

Calculations per TMS 402-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Wall Material	MASONRY	f'm	2.0 ksi	Block Class	
Total Wall Height	14.0 ft	Fy - Rebar	60.0 ksi	Concrete Density	150.0 pcf
Base Wall Length	18.0 ft	Fy - HJR	70.0 ksi	Min. Bending As %	0.00180
R: Resp. Mod Factor		Em	3,120.0 ksi		
Ie: Seismic Import. Factor	1.0	Phi - Shear	0.80	Phi : Axial & Flexure	0.90

Wall Data

Bottom

Analysis Height	0.00 ft
Wall Offset	(datum) ft
Wall Length	18.0 ft
Effective Length 'd'	208.0 in
Nominal Block Thickness	8 in
Solid Grout?	Solid Grouted

Reinforcing in Field of Wall

Vertical Bar Size #	5
Vertical Bar Spacing	8 in
Horiz. joint reinf. area (HJR)	0.55 in
HJR Spacing	24 in
Bond beam reinf. area	0.4 in
Spacing of bond beams	48 in

In each chord cell:

Vertical rebar size #	5
# Chord Cells @ Each End	2.0

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

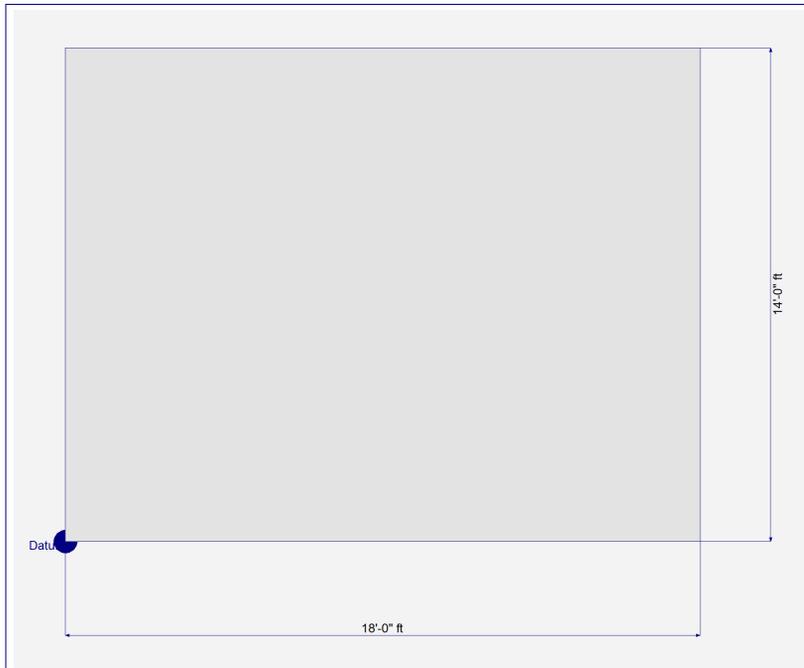
LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid G CMU Wall

Wall Sketch



SHEAR ANALYSIS

Bottom Level

Special Boundary	
Elements Req'd?	Not Req'd
Vu : Story Shear	33.90 k
for Load Combination	+1.20D+0.50Lr+W
Controlling Mu/(Vud)	0.78
Vn Masonry	204.490 k
Vn Steel	141.40 k
Vn Masonry + Vn Steel	345.890 k
Vn Max	337.163 k
Phi Vn	269.731 k
Ratio: Vu/PhiVn (controlling)	0.1257
Vertical As >= Av/3	OK
Vertical Bar Spacing <= 96"	OK

AXIAL ANALYSIS

Bottom Level

H / d Ratio	0.81
Pu	43.027 k
for Load Combination	+1.20D+1.60Lr
Phi Pn	1.20D+1.60Lr k
Ratio: Pu/PhiPn (controlling)	0.01760

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid G CMU Wall

BENDING ANALYSIS

Bottom Level

"a" : Flexural compression 3.05 in
 Length of defined chord zone
 is >= the "a" dimension of the OK
 masonry (the compression zone)
 "d" : Eff depth to tension reinf 208.0
 As-flex < As-max ? J<=1, R<=1.5
 Mu 474.60 k
 for Load Combination +1.20D+0.50Lr+W
 Phi Mn 576.07 k
 Ratio: Mu/PhiMn (controlling) **0.8239**

Force Summary

Load Combination	Wall Level	Values for Wall section			Resultant Ecc (ft)	Overturning Ratio	Uplift (k)	
		Vu (k)	Mu (k)	Pu (k)			Left	Right
+1.40D								
Wall Level : 1				35.078				
+1.20D+0.50Lr								
Wall Level : 1				34.117				
+1.20D+0.50S								
Wall Level : 1				30.877				
+1.20D+1.60Lr								
Wall Level : 1				43.027				
+1.20D+1.60Lr+0.50W								
Wall Level : 1		16.950	237.300	43.027	5.515	1.483	13.578	13.578
+1.20D+1.60S								
Wall Level : 1				32.659				
+1.20D+1.60S+0.50W								
Wall Level : 1		16.950	237.300	32.659	7.266	1.090	8.195	8.195
+1.20D+0.50Lr+W								
Wall Level : 1		33.900	474.600	34.117	13.911	0.572	22.642	22.642
+1.20D+0.50S+W								
Wall Level : 1		33.900	474.600	30.877	15.371	0.511	20.960	20.960
+1.20D+0.70S+E								
Wall Level : 1				31.201				
+0.90D+W								
Wall Level : 1		33.900	474.600	22.550	21.046	0.465	19.698	19.698
+0.90D+E								
Wall Level : 1				22.550				

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Masonry Shear Wall

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: Grid G CMU Wall

Footing Information

Footing Dimensions

Dist. Left	3.0 ft	f'c	4.0 ksi	Rebar Cover	3.0 in
Wall Length	18.0 ft	Fy	60.0 ksi	Footing Thickness	16.0 in
Dist. Right	3.0 ft			Width	3.0 ft
Total Ftg Length	24.0 ft				

Max Factored Soil Pressures

@ Left Side of Footing	837.98 psf
.... governing load comb	+1.20D+1.60Lr
@ Right Side of Footing	8,832.88 psf
.... governing load comb	+1.20D+0.50S+W

Max UNfactored Soil Pressures

@ Left Side of Footing	660.81 psf
.... governing load comb	D+Lr
@ Right Side of Footing	2,139.75 psf
.... governing load comb	D+0.60W

Footing One-Way Shear Check...

vu @ Left End of Footing	12.113 psi
vu @ Right End of Footing	94.031 psi
vn * phi : Allowable	107.517 psi

Overturning Stability... @ Left End of Ftg

Overturning Moment	311.880 k-ft
Resisting Moment	263.347 k-ft
Stability Ratio	0.8444 : 1
.... governing load comb	+0.60D+0.60W

@ Right End of Ftg

Overturning Moment	311.880 k-ft
Resisting Moment	263.347 k-ft
Stability Ratio	0.8444 : 1
.... governing load comb	+0.60D+0.60W

Footing Bending Design...

	<u>@ Left End</u>	<u>@ Right End</u>
Mu	11.313 k-ft	86.455 k-ft
Ru	24.792 psi	189.470 psi
As % Req'd	0.00180 in^2	0.003333 in^2
As Req'd in Footing Width	1.037 in^2	1.560 in^2

General Footing

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-8.3

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2018

General Information

Material Properties

f _c : Concrete 28 day strength	=	4.0 ksi
f _y : Rebar Yield	=	60.0 ksi
E _c : Concrete Elastic Modulus	=	3,605.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing depth

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

Increases based on footing plan dimension

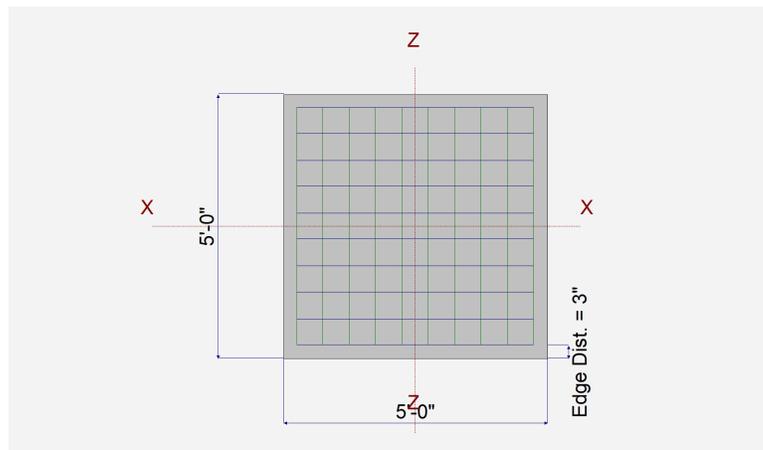
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf ft
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Dimensions

Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	16.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



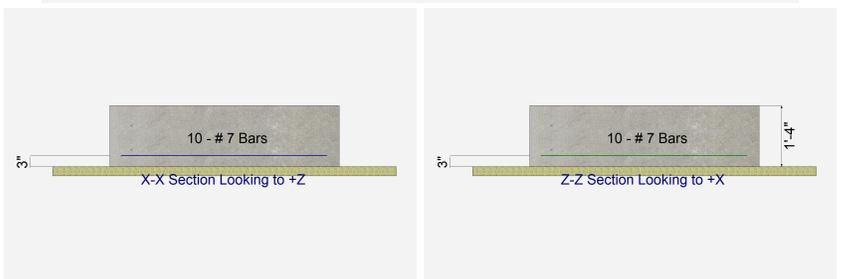
Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bars parallel to Z-Z Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bandwidth Distribution Check (ACI 15.4.4.2)

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



Applied Loads

	D	L _r	L	S	W	E	H
P : Column Load	=	26.490			11.820	3.120	k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-8.3

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5753	Soil Bearing	1.726 ksf	3.0 ksf	+D+S about Z-Z axis
PASS	n/a	Overturing - X-X	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Overturing - Z-Z	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.09983	Z Flexure (+X)	6.533 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.09983	Z Flexure (-X)	6.533 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.09983	X Flexure (+Z)	6.533 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.09983	X Flexure (-Z)	6.533 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1977	1-way Shear (+X)	18.760 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1977	1-way Shear (-X)	18.760 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1977	1-way Shear (+Z)	18.760 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1977	1-way Shear (-Z)	18.760 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.3877	2-way Punching	73.566 psi	189.737 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
		Zecc (in)		Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.253	1.253	n/a	n/a	0.418
X-X, +D+S	3.0	n/a	0.0	1.726	1.726	n/a	n/a	0.575
X-X, +D+0.750S	3.0	n/a	0.0	1.608	1.608	n/a	n/a	0.536
X-X, +D+0.60W	3.0	n/a	0.0	1.328	1.328	n/a	n/a	0.443
X-X, +D+0.450W	3.0	n/a	0.0	1.309	1.309	n/a	n/a	0.436
X-X, +D+0.750S+0.450W	3.0	n/a	0.0	1.664	1.664	n/a	n/a	0.555
X-X, +0.60D+0.60W	3.0	n/a	0.0	0.8266	0.8266	n/a	n/a	0.276
X-X, +0.60D	3.0	n/a	0.0	0.7518	0.7518	n/a	n/a	0.251
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.253	1.253	0.418
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	1.726	1.726	0.575
Z-Z, +D+0.750S	3.0	0.0	n/a	n/a	n/a	1.608	1.608	0.536
Z-Z, +D+0.60W	3.0	0.0	n/a	n/a	n/a	1.328	1.328	0.443
Z-Z, +D+0.450W	3.0	0.0	n/a	n/a	n/a	1.309	1.309	0.436
Z-Z, +D+0.750S+0.450W	3.0	0.0	n/a	n/a	n/a	1.664	1.664	0.555
Z-Z, +0.60D+0.60W	3.0	0.0	n/a	n/a	n/a	0.8266	0.8266	0.276
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.7518	0.7518	0.251

Overturing Stability

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

All units k

Sliding Stability

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

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	4.636	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.40D	4.636	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.974	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.974	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	4.712	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	4.712	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	4.169	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	4.169	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S	6.338	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK

Project Title:
 Engineer:
 Project ID:
 Project Descr:

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-8.3

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+1.60S	6.338	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	6.533	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	6.533	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	4.364	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	4.364	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	5.102	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	5.102	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	5.008	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	5.008	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	3.370	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	3.370	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.980	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.980	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	4.636	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	4.636	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.974	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.974	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	4.712	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	4.712	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	4.169	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	4.169	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	6.338	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	6.338	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	6.533	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	6.533	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	4.364	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	4.364	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	5.102	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	5.102	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	5.008	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	5.008	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	3.370	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	3.370	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.980	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.980	+X	Bottom	0.3456	AsMin	1.20	65.435	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	13.31 psi	94.87 psi	0.14	OK				
+1.20D	11.41 psi	94.87 psi	0.12	OK				
+1.20D+0.50S	13.53 psi	94.87 psi	0.14	OK				
+1.20D+0.50W	11.97 psi	94.87 psi	0.13	OK				
+1.20D+1.60S	18.20 psi	94.87 psi	0.19	OK				
+1.20D+1.60S+0.50W	18.76 psi	94.87 psi	0.20	OK				
+1.20D+W	12.53 psi	94.87 psi	0.13	OK				
+1.20D+0.50S+W	14.65 psi	94.87 psi	0.15	OK				
+1.20D+0.70S	14.38 psi	94.87 psi	0.15	OK				
+0.90D+W	9.68 psi	94.87 psi	0.10	OK				
+0.90D	8.56 psi	94.87 psi	0.09	OK				

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	52.21 psi	189.74psi	0.2751	OK
+1.20D	44.75 psi	189.74psi	0.2358	OK
+1.20D+0.50S	53.07 psi	189.74psi	0.2797	OK
+1.20D+0.50W	46.94 psi	189.74psi	0.2474	OK
+1.20D+1.60S	71.37 psi	189.74psi	0.3762	OK
+1.20D+1.60S+0.50W	73.57 psi	189.74psi	0.3877	OK
+1.20D+W	49.14 psi	189.74psi	0.259	OK
+1.20D+0.50S+W	57.46 psi	189.74psi	0.3028	OK
+1.20D+0.70S	56.40 psi	189.74psi	0.2972	OK
+0.90D+W	37.95 psi	189.74psi	0.2	OK
+0.90D	33.56 psi	189.74psi	0.1769	OK

All units k

General Footing

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: E-8.3

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2018

General Information

Material Properties

f _c : Concrete 28 day strength	=	4.0 ksi
f _y : Rebar Yield	=	60.0 ksi
E _c : Concrete Elastic Modulus	=	3,605.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing depth

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

Increases based on footing plan dimension

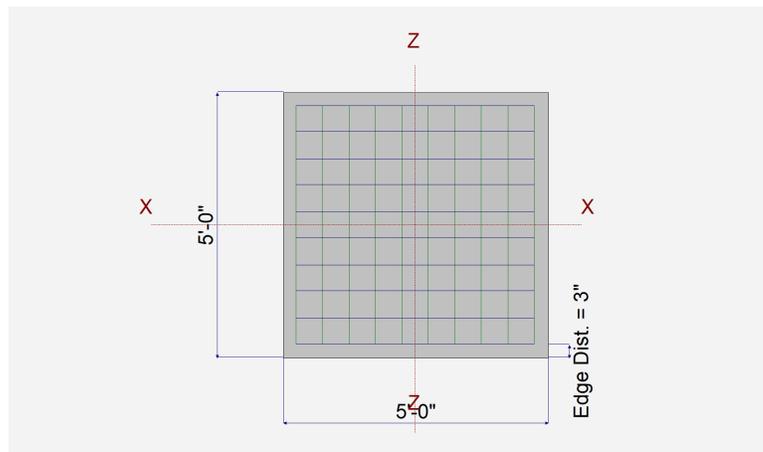
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf ft
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Dimensions

Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	16.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



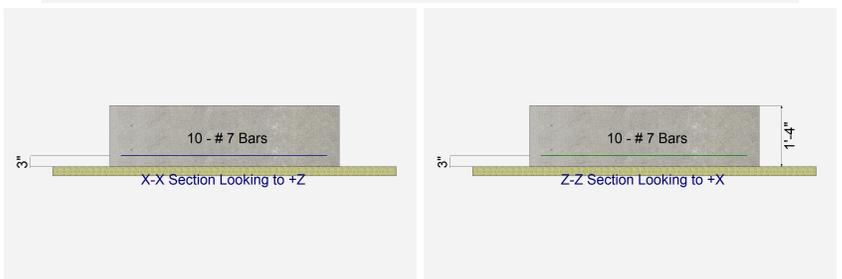
Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bars parallel to Z-Z Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bandwidth Distribution Check (ACI 15.4.4.2)

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



Applied Loads

	D	L _r	L	S	W	E	H
P : Column Load	=	33.430			15.780	3.120	k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: E-8.3

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.7207	Soil Bearing	2.162 ksf	3.0 ksf	+D+S about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.1278	Z Flexure (+X)	8.366 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1278	Z Flexure (-X)	8.366 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1278	X Flexure (+Z)	8.366 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1278	X Flexure (-Z)	8.366 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.2532	1-way Shear (+X)	24.024 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.2532	1-way Shear (-X)	24.024 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.2532	1-way Shear (+Z)	24.024 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.2532	1-way Shear (-Z)	24.024 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.4965	2-way Punching	94.208 psi	189.737 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
		Zecc (in)		Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.531	1.531	n/a	n/a	0.510
X-X, +D+S	3.0	n/a	0.0	2.162	2.162	n/a	n/a	0.721
X-X, +D+0.750S	3.0	n/a	0.0	2.004	2.004	n/a	n/a	0.668
X-X, +D+0.60W	3.0	n/a	0.0	1.605	1.605	n/a	n/a	0.535
X-X, +D+0.450W	3.0	n/a	0.0	1.587	1.587	n/a	n/a	0.529
X-X, +D+0.750S+0.450W	3.0	n/a	0.0	2.060	2.060	n/a	n/a	0.687
X-X, +0.60D+0.60W	3.0	n/a	0.0	0.9932	0.9932	n/a	n/a	0.331
X-X, +0.60D	3.0	n/a	0.0	0.9183	0.9183	n/a	n/a	0.306
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.531	1.531	0.510
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	2.162	2.162	0.721
Z-Z, +D+0.750S	3.0	0.0	n/a	n/a	n/a	2.004	2.004	0.668
Z-Z, +D+0.60W	3.0	0.0	n/a	n/a	n/a	1.605	1.605	0.535
Z-Z, +D+0.450W	3.0	0.0	n/a	n/a	n/a	1.587	1.587	0.529
Z-Z, +D+0.750S+0.450W	3.0	0.0	n/a	n/a	n/a	2.060	2.060	0.687
Z-Z, +0.60D+0.60W	3.0	0.0	n/a	n/a	n/a	0.9932	0.9932	0.331
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.9183	0.9183	0.306

Overturning Stability

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

All units k

Sliding Stability

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

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	5.850	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.40D	5.850	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	5.015	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	5.015	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	6.001	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	6.001	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	5.210	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	5.210	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S	8.171	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK

Project Title:
 Engineer:
 Project ID:
 Project Descr:

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: E-8.3

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+1.60S	8.171	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	8.366	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	8.366	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	5.405	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	5.405	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	6.391	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	6.391	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	6.395	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	6.395	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	4.151	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	4.151	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	3.761	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	3.761	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	5.850	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	5.850	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	5.015	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	5.015	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	6.001	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	6.001	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	5.210	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	5.210	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	8.171	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	8.171	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	8.366	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	8.366	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	5.405	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	5.405	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	6.391	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	6.391	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	6.395	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	6.395	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	4.151	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	4.151	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	3.761	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	3.761	+X	Bottom	0.3456	AsMin	1.20	65.435	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	16.80 psi	94.87 psi	0.18	OK				
+1.20D	14.40 psi	94.87 psi	0.15	OK				
+1.20D+0.50S	17.23 psi	94.87 psi	0.18	OK				
+1.20D+0.50W	14.96 psi	94.87 psi	0.16	OK				
+1.20D+1.60S	23.46 psi	94.87 psi	0.25	OK				
+1.20D+1.60S+0.50W	24.02 psi	94.87 psi	0.25	OK				
+1.20D+W	15.52 psi	94.87 psi	0.16	OK				
+1.20D+0.50S+W	18.35 psi	94.87 psi	0.19	OK				
+1.20D+0.70S	18.37 psi	94.87 psi	0.19	OK				
+0.90D+W	11.92 psi	94.87 psi	0.13	OK				
+0.90D	10.80 psi	94.87 psi	0.11	OK				

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	65.88 psi	189.74psi	0.3472	OK
+1.20D	56.47 psi	189.74psi	0.2976	OK
+1.20D+0.50S	67.58 psi	189.74psi	0.3562	OK
+1.20D+0.50W	58.67 psi	189.74psi	0.3092	OK
+1.20D+1.60S	92.01 psi	189.74psi	0.4849	OK
+1.20D+1.60S+0.50W	94.21 psi	189.74psi	0.4965	OK
+1.20D+W	60.86 psi	189.74psi	0.3208	OK
+1.20D+0.50S+W	71.97 psi	189.74psi	0.3793	OK
+1.20D+0.70S	72.02 psi	189.74psi	0.3796	OK
+0.90D+W	46.75 psi	189.74psi	0.2464	OK
+0.90D	42.35 psi	189.74psi	0.2232	OK

All units k

General Footing

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: H-6 Grid 6 Brace (NODE 71)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2018

General Information

Material Properties

f _c : Concrete 28 day strength	=	4.0 ksi
f _y : Rebar Yield	=	60.0 ksi
E _c : Concrete Elastic Modulus	=	3,605.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing depth

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

Increases based on footing plan dimension

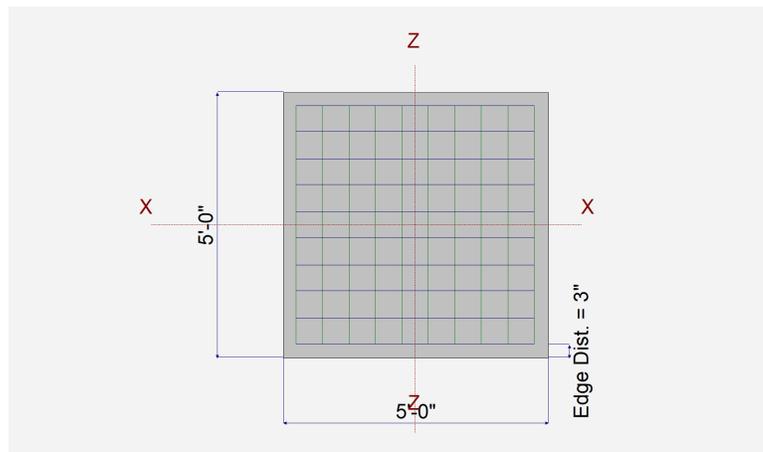
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf ft
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Dimensions

Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	16.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



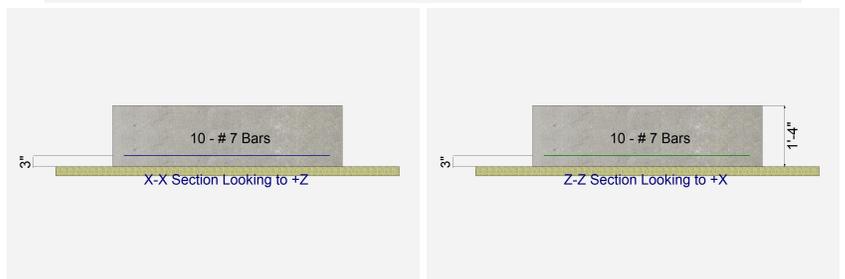
Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bars parallel to Z-Z Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bandwidth Distribution Check (ACI 15.4.4.2)

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



Applied Loads

	D	L _r	L	S	W	E	H
P : Column Load	=	21.980			9.080	8.730	k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k

General Footing

DESCRIPTION: H-6 Grid 6 Brace (NODE 71)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5007	Soil Bearing	1.502 ksf	3.0 ksf	+D+0.750S+0.450W about Z-Z axis
PASS	n/a	Overturing - X-X	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Overturing - Z-Z	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.08648	Z Flexure (+X)	5.659 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.08648	Z Flexure (-X)	5.659 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.08648	X Flexure (+Z)	5.659 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.08648	X Flexure (-Z)	5.659 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1713	1-way Shear (+X)	16.250 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1713	1-way Shear (-X)	16.250 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1713	1-way Shear (+Z)	16.250 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1713	1-way Shear (-Z)	16.250 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.3359	2-way Punching	63.725 psi	189.737 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
		Zecc (in)		Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.073	1.073	n/a	n/a	0.358
X-X, +D+S	3.0	n/a	0.0	1.436	1.436	n/a	n/a	0.479
X-X, +D+0.750S	3.0	n/a	0.0	1.345	1.345	n/a	n/a	0.448
X-X, +D+0.60W	3.0	n/a	0.0	1.282	1.282	n/a	n/a	0.427
X-X, +D+0.450W	3.0	n/a	0.0	1.230	1.230	n/a	n/a	0.410
X-X, +D+0.750S+0.450W	3.0	n/a	0.0	1.502	1.502	n/a	n/a	0.501
X-X, +0.60D+0.60W	3.0	n/a	0.0	0.8530	0.8530	n/a	n/a	0.284
X-X, +0.60D	3.0	n/a	0.0	0.6435	0.6435	n/a	n/a	0.215
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.073	1.073	0.358
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	1.436	1.436	0.479
Z-Z, +D+0.750S	3.0	0.0	n/a	n/a	n/a	1.345	1.345	0.448
Z-Z, +D+0.60W	3.0	0.0	n/a	n/a	n/a	1.282	1.282	0.427
Z-Z, +D+0.450W	3.0	0.0	n/a	n/a	n/a	1.230	1.230	0.410
Z-Z, +D+0.750S+0.450W	3.0	0.0	n/a	n/a	n/a	1.502	1.502	0.501
Z-Z, +0.60D+0.60W	3.0	0.0	n/a	n/a	n/a	0.8530	0.8530	0.284
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.6435	0.6435	0.215

Overturing Stability

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

All units k

Sliding Stability

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

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	3.847	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.40D	3.847	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.297	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.297	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	3.865	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	3.865	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	3.843	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	3.843	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S	5.113	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK

Project Title:
 Engineer:
 Project ID:
 Project Descr:

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: H-6 Grid 6 Brace (NODE 71)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+1.60S	5.113	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	5.659	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	5.659	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	4.388	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	4.388	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	4.956	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	4.956	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	4.092	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	4.092	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	3.564	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	3.564	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.473	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.473	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	3.847	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	3.847	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.297	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.297	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	3.865	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	3.865	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	3.843	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	3.843	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	5.113	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	5.113	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	5.659	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	5.659	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	4.388	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	4.388	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	4.956	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	4.956	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	4.092	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	4.092	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	3.564	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	3.564	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.473	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.473	+X	Bottom	0.3456	AsMin	1.20	65.435	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	11.05 psi	94.87 psi	0.12	OK				
+1.20D	9.47 psi	94.87 psi	0.10	OK				
+1.20D+0.50S	11.10 psi	94.87 psi	0.12	OK				
+1.20D+0.50W	11.04 psi	94.87 psi	0.12	OK				
+1.20D+1.60S	14.68 psi	94.87 psi	0.15	OK				
+1.20D+1.60S+0.50W	16.25 psi	94.87 psi	0.17	OK				
+1.20D+W	12.60 psi	94.87 psi	0.13	OK				
+1.20D+0.50S+W	14.23 psi	94.87 psi	0.15	OK				
+1.20D+0.70S	11.75 psi	94.87 psi	0.12	OK				
+0.90D+W	10.24 psi	94.87 psi	0.11	OK				
+0.90D	7.10 psi	94.87 psi	0.07	OK				

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	43.32 psi	189.74psi	0.2283	OK
+1.20D	37.13 psi	189.74psi	0.1957	OK
+1.20D+0.50S	43.52 psi	189.74psi	0.2294	OK
+1.20D+0.50W	43.27 psi	189.74psi	0.2281	OK
+1.20D+1.60S	57.58 psi	189.74psi	0.3035	OK
+1.20D+1.60S+0.50W	63.73 psi	189.74psi	0.3359	OK
+1.20D+W	49.42 psi	189.74psi	0.2605	OK
+1.20D+0.50S+W	55.81 psi	189.74psi	0.2941	OK
+1.20D+0.70S	46.08 psi	189.74psi	0.2428	OK
+0.90D+W	40.14 psi	189.74psi	0.2115	OK
+0.90D	27.85 psi	189.74psi	0.1468	OK

All units k

General Footing

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-7.5 (NODE 77)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2018

General Information

Material Properties

f _c : Concrete 28 day strength	=	4.0 ksi
f _y : Rebar Yield	=	60.0 ksi
E _c : Concrete Elastic Modulus	=	3,605.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing depth

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

Increases based on footing plan dimension

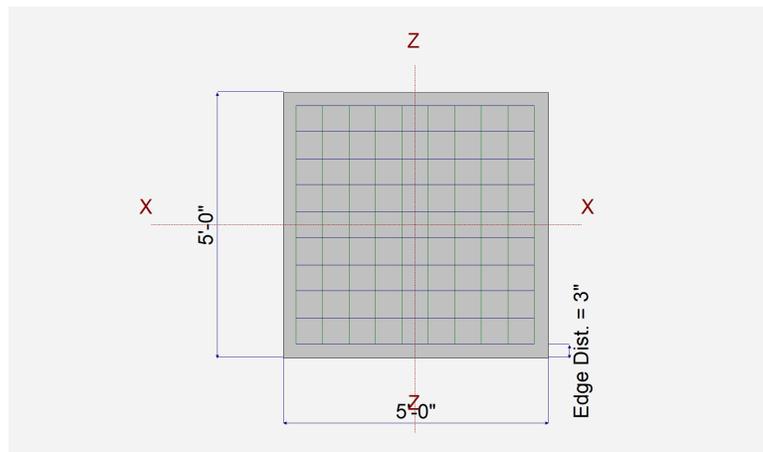
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf
	=	ft

Dimensions

Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	16.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



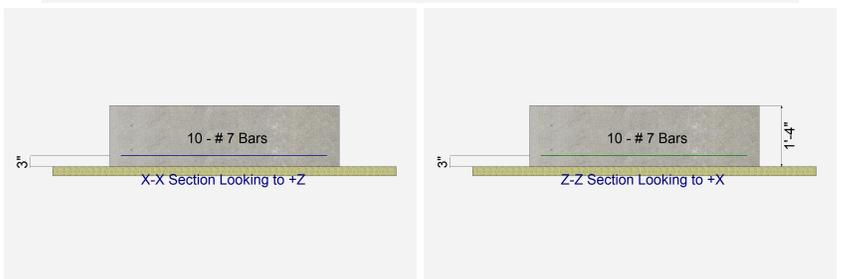
Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bars parallel to Z-Z Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bandwidth Distribution Check (ACI 15.4.4.2)

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



Applied Loads

	D	L _r	L	S	W	E	H
P : Column Load	=	21.680			9.020	13.660	k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-7.5 (NODE 77)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5257	Soil Bearing	1.577 ksf	3.0 ksf	+D+0.750S+0.450W about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.09031	Z Flexure (+X)	5.910 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.09031	Z Flexure (-X)	5.910 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.09031	X Flexure (+Z)	5.910 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.09031	X Flexure (-Z)	5.910 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1789	1-way Shear (+X)	16.972 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1789	1-way Shear (-X)	16.972 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1789	1-way Shear (+Z)	16.972 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1789	1-way Shear (-Z)	16.972 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.3508	2-way Punching	66.553 psi	189.737 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Zecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
				(in)		Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0		1.061	1.061	n/a	n/a	0.354	
X-X, +D+S	3.0	n/a	0.0		1.421	1.421	n/a	n/a	0.474	
X-X, +D+0.750S	3.0	n/a	0.0		1.331	1.331	n/a	n/a	0.444	
X-X, +D+0.60W	3.0	n/a	0.0		1.388	1.388	n/a	n/a	0.463	
X-X, +D+0.450W	3.0	n/a	0.0		1.306	1.306	n/a	n/a	0.435	
X-X, +D+0.750S+0.450W	3.0	n/a	0.0		1.577	1.577	n/a	n/a	0.526	
X-X, +0.60D+0.60W	3.0	n/a	0.0		0.9642	0.9642	n/a	n/a	0.321	
X-X, +0.60D	3.0	n/a	0.0		0.6363	0.6363	n/a	n/a	0.212	
Z-Z, D Only	3.0	0.0	n/a		n/a	n/a	1.061	1.061	0.354	
Z-Z, +D+S	3.0	0.0	n/a		n/a	n/a	1.421	1.421	0.474	
Z-Z, +D+0.750S	3.0	0.0	n/a		n/a	n/a	1.331	1.331	0.444	
Z-Z, +D+0.60W	3.0	0.0	n/a		n/a	n/a	1.388	1.388	0.463	
Z-Z, +D+0.450W	3.0	0.0	n/a		n/a	n/a	1.306	1.306	0.435	
Z-Z, +D+0.750S+0.450W	3.0	0.0	n/a		n/a	n/a	1.577	1.577	0.526	
Z-Z, +0.60D+0.60W	3.0	0.0	n/a		n/a	n/a	0.9642	0.9642	0.321	
Z-Z, +0.60D	3.0	0.0	n/a		n/a	n/a	0.6363	0.6363	0.212	

Overturning Stability

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

All units k

Sliding Stability

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

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	3.794	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.40D	3.794	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.252	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.252	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	3.816	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	3.816	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	4.106	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	4.106	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S	5.056	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK

Project Title:
 Engineer:
 Project ID:
 Project Descr:

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-7.5 (NODE 77)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+1.60S	5.056	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	5.910	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	5.910	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	4.960	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	4.960	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	5.523	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	5.523	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	4.041	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	4.041	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	4.147	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	4.147	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.439	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.439	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	3.794	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	3.794	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.252	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.252	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	3.816	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	3.816	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	4.106	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	4.106	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	5.056	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	5.056	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	5.910	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	5.910	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	4.960	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	4.960	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	5.523	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	5.523	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	4.041	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	4.041	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	4.147	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	4.147	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.439	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.439	+X	Bottom	0.3456	AsMin	1.20	65.435	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	10.90 psi	94.87 psi	0.11	OK				
+1.20D	9.34 psi	94.87 psi	0.10	OK				
+1.20D+0.50S	10.96 psi	94.87 psi	0.12	OK				
+1.20D+0.50W	11.79 psi	94.87 psi	0.12	OK				
+1.20D+1.60S	14.52 psi	94.87 psi	0.15	OK				
+1.20D+1.60S+0.50W	16.97 psi	94.87 psi	0.18	OK				
+1.20D+W	14.24 psi	94.87 psi	0.15	OK				
+1.20D+0.50S+W	15.86 psi	94.87 psi	0.17	OK				
+1.20D+0.70S	11.61 psi	94.87 psi	0.12	OK				
+0.90D+W	11.91 psi	94.87 psi	0.13	OK				
+0.90D	7.00 psi	94.87 psi	0.07	OK				

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	42.73 psi	189.74psi	0.2252	OK
+1.20D	36.62 psi	189.74psi	0.193	OK
+1.20D+0.50S	42.97 psi	189.74psi	0.2265	OK
+1.20D+0.50W	46.24 psi	189.74psi	0.2437	OK
+1.20D+1.60S	56.94 psi	189.74psi	0.3001	OK
+1.20D+1.60S+0.50W	66.55 psi	189.74psi	0.3508	OK
+1.20D+W	55.85 psi	189.74psi	0.2944	OK
+1.20D+0.50S+W	62.20 psi	189.74psi	0.3278	OK
+1.20D+0.70S	45.51 psi	189.74psi	0.2399	OK
+0.90D+W	46.70 psi	189.74psi	0.2461	OK
+0.90D	27.47 psi	189.74psi	0.1448	OK

All units k

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: G-6 Grid G Brace (NODE 76)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Material Properties

f _c : Concrete 28 day strength	=	4.0 ksi
f _y : Rebar Yield	=	60.0 ksi
E _c : Concrete Elastic Modulus	=	3,605.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing depth

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

Increases based on footing plan dimension

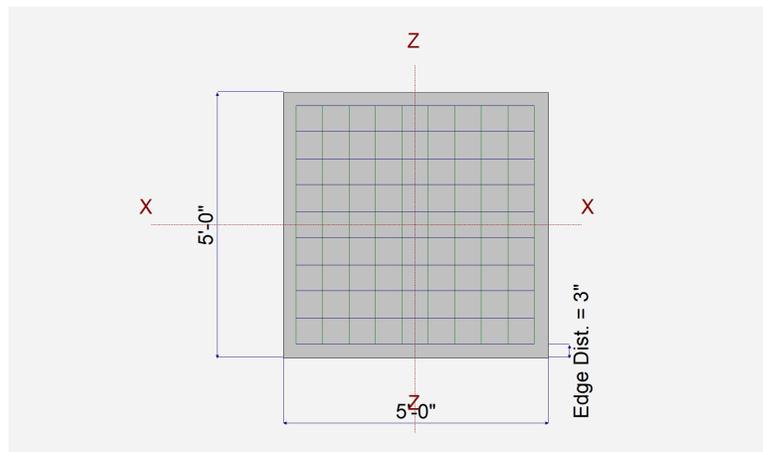
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf ft
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Dimensions

Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	16.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



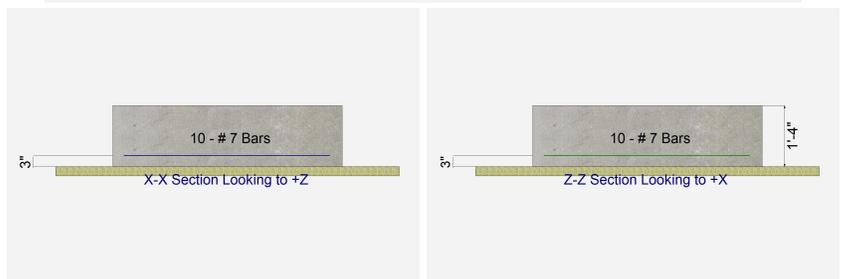
Reinforcing

Bars parallel to X-X Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bars parallel to Z-Z Axis	=	
Number of Bars	=	10.0
Reinforcing Bar Size	=	# 7

Bandwidth Distribution Check (ACI 15.4.4.2)

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



Applied Loads

	D	L _r	L	S	W	E	H
P : Column Load	=	25.760			9.560	13.660	k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-6 Grid G Brace (NODE 76)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5853	Soil Bearing	1.756 ksf	3.0 ksf	+D+0.750S+0.450W about Z-Z axis
PASS	n/a	Overturing - X-X	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Overturing - Z-Z	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.1013	Z Flexure (+X)	6.630 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1013	Z Flexure (-X)	6.630 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1013	X Flexure (+Z)	6.630 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1013	X Flexure (-Z)	6.630 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.2007	1-way Shear (+X)	19.039 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.2007	1-way Shear (-X)	19.039 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.2007	1-way Shear (+Z)	19.039 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.2007	1-way Shear (-Z)	19.039 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.3935	2-way Punching	74.661 psi	189.737 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
		Zecc (in)		Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.224	1.224	n/a	n/a	0.408
X-X, +D+S	3.0	n/a	0.0	1.606	1.606	n/a	n/a	0.535
X-X, +D+0.750S	3.0	n/a	0.0	1.511	1.511	n/a	n/a	0.504
X-X, +D+0.60W	3.0	n/a	0.0	1.552	1.552	n/a	n/a	0.517
X-X, +D+0.450W	3.0	n/a	0.0	1.470	1.470	n/a	n/a	0.490
X-X, +D+0.750S+0.450W	3.0	n/a	0.0	1.756	1.756	n/a	n/a	0.585
X-X, +0.60D+0.60W	3.0	n/a	0.0	1.062	1.062	n/a	n/a	0.354
X-X, +0.60D	3.0	n/a	0.0	0.7342	0.7342	n/a	n/a	0.245
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.224	1.224	0.408
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	1.606	1.606	0.535
Z-Z, +D+0.750S	3.0	0.0	n/a	n/a	n/a	1.511	1.511	0.504
Z-Z, +D+0.60W	3.0	0.0	n/a	n/a	n/a	1.552	1.552	0.517
Z-Z, +D+0.450W	3.0	0.0	n/a	n/a	n/a	1.470	1.470	0.490
Z-Z, +D+0.750S+0.450W	3.0	0.0	n/a	n/a	n/a	1.756	1.756	0.585
Z-Z, +0.60D+0.60W	3.0	0.0	n/a	n/a	n/a	1.062	1.062	0.354
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.7342	0.7342	0.245

Overturing Stability

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

All units k

Sliding Stability

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

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	4.508	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.40D	4.508	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.864	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.864	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	4.462	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	4.462	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	4.718	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	4.718	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S	5.776	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK

Project Title:
 Engineer:
 Project ID:
 Project Descr:

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-6 Grid G Brace (NODE 76)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+1.60S	5.776	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	6.630	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	6.630	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	5.572	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	5.572	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	6.169	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	6.169	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	4.701	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	4.701	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	4.606	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	4.606	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.898	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.898	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	4.508	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	4.508	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.864	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.864	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	4.462	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	4.462	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	4.718	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	4.718	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	5.776	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	5.776	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	6.630	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	6.630	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	5.572	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	5.572	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	6.169	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	6.169	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	4.701	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	4.701	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	4.606	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	4.606	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.898	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.898	+X	Bottom	0.3456	AsMin	1.20	65.435	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	12.95 psi	94.87 psi	0.14	OK				
+1.20D	11.10 psi	94.87 psi	0.12	OK				
+1.20D+0.50S	12.81 psi	94.87 psi	0.14	OK				
+1.20D+0.50W	13.55 psi	94.87 psi	0.14	OK				
+1.20D+1.60S	16.59 psi	94.87 psi	0.17	OK				
+1.20D+1.60S+0.50W	19.04 psi	94.87 psi	0.20	OK				
+1.20D+W	16.00 psi	94.87 psi	0.17	OK				
+1.20D+0.50S+W	17.72 psi	94.87 psi	0.19	OK				
+1.20D+0.70S	13.50 psi	94.87 psi	0.14	OK				
+0.90D+W	13.23 psi	94.87 psi	0.14	OK				
+0.90D	8.32 psi	94.87 psi	0.09	OK				

Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	50.77 psi	189.74psi	0.2676	OK
+1.20D	43.52 psi	189.74psi	0.2293	OK
+1.20D+0.50S	50.24 psi	189.74psi	0.2648	OK
+1.20D+0.50W	53.13 psi	189.74psi	0.28	OK
+1.20D+1.60S	65.05 psi	189.74psi	0.3428	OK
+1.20D+1.60S+0.50W	74.66 psi	189.74psi	0.3935	OK
+1.20D+W	62.74 psi	189.74psi	0.3307	OK
+1.20D+0.50S+W	69.47 psi	189.74psi	0.3662	OK
+1.20D+0.70S	52.94 psi	189.74psi	0.279	OK
+0.90D+W	51.87 psi	189.74psi	0.2734	OK
+0.90D	32.64 psi	189.74psi	0.172	OK

All units k

General Footing

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-6 Grid G Brace (NODE 70)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Material Properties

f _c : Concrete 28 day strength	=	4.0 ksi
f _y : Rebar Yield	=	60.0 ksi
E _c : Concrete Elastic Modulus	=	3,605.0 ksi
Concrete Density	=	145.0 pcf
φ Values Flexure	=	0.90
Shear	=	0.750

Soil Design Values

Allowable Soil Bearing	=	3.0 ksf
Soil Density	=	110.0 pcf
Increase Bearing By Footing Weight	=	No
Soil Passive Resistance (for Sliding)	=	250.0 pcf
Soil/Concrete Friction Coeff.	=	0.30

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	0.00180
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Increases based on footing depth

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

Increases based on footing plan dimension

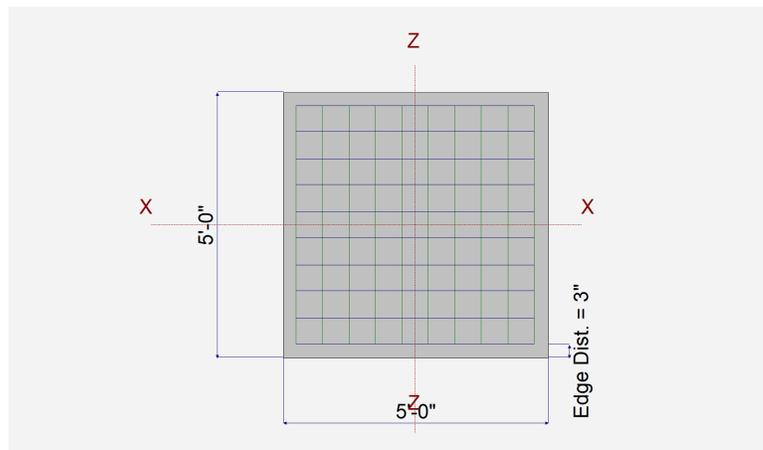
Allowable pressure increase per foot of depth when max. length or width is greater than	=	ksf ft
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Dimensions

Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	16.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	in
pz : parallel to Z-Z Axis	=	in
Height	=	in
Rebar Centerline to Edge of Concrete... at Bottom of footing	=	3.0 in



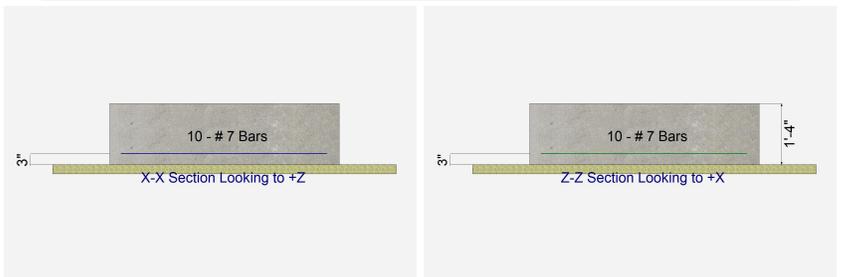
Reinforcing

Bars parallel to X-X Axis	=	10.0
Number of Bars	=	# 7
Reinforcing Bar Size	=	# 7

Bars parallel to Z-Z Axis	=	10.0
Number of Bars	=	# 7
Reinforcing Bar Size	=	# 7

Bandwidth Distribution Check (ACI 15.4.4.2)

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



Applied Loads

	D	L _r	L	S	W	E	H
P : Column Load	=	25.40			9.560	8.730	k
OB : Overburden	=						ksf
M-xx	=						k-ft
M-zz	=						k-ft
V-x	=						k
V-z	=						k

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-6 Grid G Brace (NODE 70)

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5510	Soil Bearing	1.653 ksf	3.0 ksf	+D+0.750S+0.450W about Z-Z axis
PASS	n/a	Overturing - X-X	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Overturing - Z-Z	0.0 k-ft	0.0 k-ft	No Overturing
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.09578	Z Flexure (+X)	6.268 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.09578	Z Flexure (-X)	6.268 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.09578	X Flexure (+Z)	6.268 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.09578	X Flexure (-Z)	6.268 k-ft/ft	65.435 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1897	1-way Shear (+X)	17.999 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1897	1-way Shear (-X)	17.999 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1897	1-way Shear (+Z)	17.999 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.1897	1-way Shear (-Z)	17.999 psi	94.868 psi	+1.20D+1.60S+0.50W
PASS	0.3720	2-way Punching	70.583 psi	189.737 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc		Zecc		Actual Soil Bearing Stress @ Location				Actual / Allow Ratio
			(in)		(in)	Bottom, -Z	Top, +Z	Left, -X	Right, +X	
X-X, D Only	3.0	n/a	0.0	1.209	1.209	n/a	n/a			0.403
X-X, +D+S	3.0	n/a	0.0	1.592	1.592	n/a	n/a			0.531
X-X, +D+0.750S	3.0	n/a	0.0	1.496	1.496	n/a	n/a			0.499
X-X, +D+0.60W	3.0	n/a	0.0	1.419	1.419	n/a	n/a			0.473
X-X, +D+0.450W	3.0	n/a	0.0	1.366	1.366	n/a	n/a			0.455
X-X, +D+0.750S+0.450W	3.0	n/a	0.0	1.653	1.653	n/a	n/a			0.551
X-X, +0.60D+0.60W	3.0	n/a	0.0	0.9351	0.9351	n/a	n/a			0.312
X-X, +0.60D	3.0	n/a	0.0	0.7256	0.7256	n/a	n/a			0.242
Z-Z, D Only	3.0	0.0	n/a	n/a	n/a	1.209	1.209			0.403
Z-Z, +D+S	3.0	0.0	n/a	n/a	n/a	1.592	1.592			0.531
Z-Z, +D+0.750S	3.0	0.0	n/a	n/a	n/a	1.496	1.496			0.499
Z-Z, +D+0.60W	3.0	0.0	n/a	n/a	n/a	1.419	1.419			0.473
Z-Z, +D+0.450W	3.0	0.0	n/a	n/a	n/a	1.366	1.366			0.455
Z-Z, +D+0.750S+0.450W	3.0	0.0	n/a	n/a	n/a	1.653	1.653			0.551
Z-Z, +0.60D+0.60W	3.0	0.0	n/a	n/a	n/a	0.9351	0.9351			0.312
Z-Z, +0.60D	3.0	0.0	n/a	n/a	n/a	0.7256	0.7256			0.242

Overturing Stability

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

All units k

Sliding Stability

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

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	4.445	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.40D	4.445	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.810	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D	3.810	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	4.408	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S	4.408	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	4.356	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50W	4.356	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S	5.722	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK

Project Title:
 Engineer:
 Project ID:
 Project Descr:

General Footing

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: G-6 Grid G Brace (NODE 70)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+1.60S	5.722	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	6.268	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+1.60S+0.50W	6.268	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	4.901	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+W	4.901	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	5.499	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.50S+W	5.499	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	4.647	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +1.20D+0.70S	4.647	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	3.949	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D+W	3.949	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.858	+Z	Bottom	0.3456	AsMin	1.20	65.435	OK
X-X, +0.90D	2.858	-Z	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	4.445	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.40D	4.445	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.810	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D	3.810	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	4.408	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S	4.408	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	4.356	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50W	4.356	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	5.722	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S	5.722	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	6.268	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+1.60S+0.50W	6.268	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	4.901	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+W	4.901	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	5.499	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.50S+W	5.499	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	4.647	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +1.20D+0.70S	4.647	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	3.949	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D+W	3.949	+X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.858	-X	Bottom	0.3456	AsMin	1.20	65.435	OK
Z-Z, +0.90D	2.858	+X	Bottom	0.3456	AsMin	1.20	65.435	OK

One Way Shear

Load Combination...	Vu @ -X	Vu @ +X	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	12.77 psi	94.87 psi	0.13	OK				
+1.20D	10.94 psi	94.87 psi	0.12	OK				
+1.20D+0.50S	12.66 psi	94.87 psi	0.13	OK				
+1.20D+0.50W	12.51 psi	94.87 psi	0.13	OK				
+1.20D+1.60S	16.43 psi	94.87 psi	0.17	OK				
+1.20D+1.60S+0.50W	18.00 psi	94.87 psi	0.19	OK				
+1.20D+W	14.08 psi	94.87 psi	0.15	OK				
+1.20D+0.50S+W	15.79 psi	94.87 psi	0.17	OK				
+1.20D+0.70S	13.34 psi	94.87 psi	0.14	OK				
+0.90D+W	11.34 psi	94.87 psi	0.12	OK				
+0.90D	8.21 psi	94.87 psi	0.09	OK				

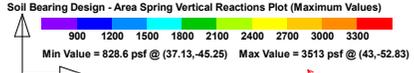
Two-Way "Punching" Shear

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	50.06 psi	189.74psi	0.2638	OK
+1.20D	42.91 psi	189.74psi	0.2261	OK
+1.20D+0.50S	49.64 psi	189.74psi	0.2616	OK
+1.20D+0.50W	49.05 psi	189.74psi	0.2585	OK
+1.20D+1.60S	64.44 psi	189.74psi	0.3396	OK
+1.20D+1.60S+0.50W	70.58 psi	189.74psi	0.372	OK
+1.20D+W	55.20 psi	189.74psi	0.2909	OK
+1.20D+0.50S+W	61.92 psi	189.74psi	0.3264	OK
+1.20D+0.70S	52.33 psi	189.74psi	0.2758	OK
+0.90D+W	44.47 psi	189.74psi	0.2344	OK
+0.90D	32.18 psi	189.74psi	0.1696	OK

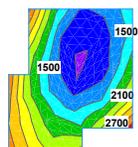
All units k

Soil Bearing Design: Max Soil Bearing Pressure Plan

Soil Bearing Design: User Lines; User Notes; User Dimensions; Latitude Span Designs; Longitude Span Designs; Latitude DS Designs; Longitude DS Designs; PC Designs; Element: Wall Elements Below; Wall Elements Above; Wall Element Outline Only; Column Elements Below; Column Elements Above; Slab Elements; Slab Element Outline Only; Scale = 1:250



33% INCREASE FOR TEMPORARY LOADING
 $3,000 * 1.33 = 4000$ PSF **OKAY**



Footing Information

Net Concrete Density	50	pcf
Concrete Compressive Strength	4000	psi
Reinforcement Yield Strength	60	ksi
Reinforcement Clear Cover	3.00	in

Footing Type	Footing Size			Reinforcement Information					Column Information			Footing Capacity			
	Length	Depth	Area	Quantity	Size	A _s	A _{s min}	Effective Depth	Type	Length	Perimeter of Critical Section	φM _n	φV _{n one-way}	φV _{c two-way}	φR _n
	ft	in	ft ²			in ²	in ²	in		in	in	kip-ft	kips	kips	kips
F-4	4.00	16	16.0	5	#6	2.21	1.38	12.250	Steel	12.00	97.0	117.7	55.8	225.5	N/A
F-5	5.00	16	25.0	6	#6	2.65	1.73	12.250	Steel	12.00	97.0	141.5	69.7	225.5	N/A
F-6	6.00	16	36.0	7	#6	3.09	2.07	12.250	Steel	12.00	97.0	165.2	83.7	225.5	N/A
F-7	7.00	20	49.0	8	#6	3.53	3.02	16.250	Steel	12.00	113.0	252.5	129.5	348.4	N/A
F-8	8.00	24	64.0	9	#7	5.41	4.15	20.125	Steel	12.00	128.5	478.0	183.3	490.7	N/A
F-9	9.00	24	81.0	10	#7	6.01	4.67	20.125	Steel	12.00	128.5	531.3	206.2	490.7	N/A
F-10	10.00	24	100.0	12	#9	11.99	5.18	19.872	Steel	12.00	127.5	1024.8	226.2	480.7	N/A
F-11	11.00	24	121.0	13	#9	12.99	5.70	19.872	Steel	12.00	127.5	1111.0	248.8	480.7	N/A
F-12	12.00	24	144.0	16	#9	15.99	6.22	19.872	Steel	12.00	127.5	1359.3	271.5	480.7	N/A
F-13	13.00	36	169.0	16	#10	20.27	10.11	31.730	Steel	12.00	174.9	2789.4	469.6	1053.1	N/A
F-14	14.00	36	196.0	17	#10	21.54	10.89	31.730	Steel	12.00	174.9	2965.3	505.7	1053.1	N/A
F-15	15.00	36	225.0	19	#10	24.07	11.66	31.730	Steel	12.00	174.9	3308.8	541.8	1053.1	N/A

Design Summary

Live Load Surcharge	100	psf
---------------------	-----	-----

Location	Footing Type			Axial Load		Soil Bearing				Flexure		One-Way Shear		Two-Way Shear		Bearing		Remarks
	Type	Suggested	Final	ASD	LRFD	Q _s	Q _u	Q _{max}	Q _s / Q _{max}	M _u	M _u / φM _u	V _u	V _u / φV _c	V _u	V _u / φV _c	R _u	R _u / φR _n	
				kip	kip													
	Max	Max	kip	kip	psf	psf	psf	kip-ft	kip-ft	kip	kip	kip	kip					
1-C	G-C	F-4	F-4	2	3	295	179	1500	0.20	0.8	0.01	0.3	0.01	2.1	0.01	2.9	N/A	
1-D	G-C	F-4	F-4	4	5	402	330	1500	0.27	1.5	0.01	0.6	0.01	3.9	0.02	5.3	N/A	
1-E	G-C	F-4	F-4	4	6	426	363	1500	0.28	1.6	0.01	0.7	0.01	4.3	0.02	5.8	N/A	
1-H.5	G-C	F-4	F-4	6	9	561	552	1500	0.37	2.5	0.02	1.1	0.02	6.6	0.03	8.8	N/A	
3-H.5	G-C	F-4	F-4	5	7	464	416	1500	0.31	1.9	0.02	0.8	0.01	5.0	0.02	6.7	N/A	
8.3-G	L-M	F-4	F-4	27	34	1868	2153	3000	0.62	9.7	0.08	4.1	0.07	25.7	0.11	34.4	N/A	
6-G	L-B	F-4	F-5	44	66	1928	2648	3000	0.64	26.5	0.19	13.0	0.19	55.4	0.25	66.2	N/A	
6-H	L-B	F-4	F-4	34	47	2288	2937	3000	0.76	13.2	0.11	5.6	0.10	35.0	0.16	47.0	N/A	
8.3-E	L-M	F-4	F-4	35	44	2380	2768	3000	0.79	12.5	0.11	5.3	0.10	33.0	0.15	44.3	N/A	
8-D	G-C	F-4	F-4	12	17	934	1075	3000	0.31	4.8	0.04	2.1	0.04	12.8	0.06	17.2	N/A	
7-D	G-C	F-4	F-4	24	33	1667	2076	3000	0.56	9.3	0.08	4.0	0.07	24.7	0.11	33.2	N/A	
7-E	G-C	F-4	F-4	39	54	2597	3399	3000	0.87	15.3	0.13	6.5	0.12	40.5	0.18	54.4	N/A	
5-B	G-C	F-4	F-4	31	40	2094	2471	3000	0.70	11.1	0.09	4.7	0.08	29.4	0.13	39.5	N/A	
2-A	G-C	F-4	F-4	4	6	437	378	3000	0.15	1.7	0.01	0.7	0.01	4.5	0.02	6.0	N/A	Soil-Supported Grade Beam
2-B	G-C	F-4	F-4	9	12	714	761	3000	0.24	3.4	0.03	1.5	0.03	9.1	0.04	12.2	N/A	Soil-Supported Grade Beam
2-C	L-M	F-4	F-4	39	49	2635	3042	3000	0.88	13.7	0.12	5.8	0.10	36.2	0.16	48.7	N/A	Soil-Supported Grade Beam
2-D	L-M	F-5	F-5	48	67	2106	2673	3000	0.70	26.7	0.19	13.1	0.19	55.9	0.25	66.8	N/A	Soil-Supported Grade Beam
2-E	L-M	F-5	F-5	55	74	2385	2976	3000	0.79	29.8	0.21	14.6	0.21	62.2	0.28	74.4	N/A	Soil-Supported Grade Beam
2-F	L-M	F-4	F-4	21	27	1453	1691	3000	0.48	7.6	0.06	3.2	0.06	20.2	0.09	27.1	N/A	Soil-Supported Grade Beam
2-G	L-M	F-4	F-4	13	18	954	1103	3000	0.32	5.0	0.04	2.1	0.04	13.1	0.06	17.6	N/A	Soil-Supported Grade Beam
2-H	L-M	F-4	F-4	13	18	979	1137	3000	0.33	5.1	0.04	2.2	0.04	13.5	0.06	18.2	N/A	Soil-Supported Grade Beam
3-H	G-C	F-4	F-4	16	23	1179	1418	3000	0.39	6.4	0.05	2.7	0.05	16.9	0.07	22.7	N/A	Soil-Supported Grade Beam
4-H	G-C	F-4	F-4	30	41	2015	2587	3000	0.67	11.6	0.10	5.0	0.09	30.8	0.14	41.4	N/A	Soil-Supported Grade Beam
4-J	G-C	F-4	F-4	6	8	531	510	3000	0.18	2.3	0.02	1.0	0.02	6.1	0.03	8.2	N/A	Soil-Supported Grade Beam
8-J	G-C	F-4	F-4	6	8	517	490	3000	0.17	2.2	0.02	0.9	0.02	5.8	0.03	7.8	N/A	Soil-Supported Grade Beam
9-J	G-C	F-4	F-4	5	8	506	475	3000	0.17	2.1	0.02	0.9	0.02	5.7	0.03	7.6	N/A	Soil-Supported Grade Beam
9-G	G-C	F-4	F-4	18	25	1290	1573	3000	0.43	7.1	0.06	3.0	0.05	18.7	0.08	25.2	N/A	Soil-Supported Grade Beam
9-E	G-C	F-4	F-4	15	21	1085	1286	3000	0.36	5.8	0.05	2.5	0.04	15.3	0.07	20.6	N/A	Soil-Supported Grade Beam
9-D	G-C	F-4	F-4	11	15	829	928	3000	0.28	4.2	0.04	1.8	0.03	11.1	0.05	14.8	N/A	Soil-Supported Grade Beam
9-B	L-B	F-4	F-4	17	25	1209	1582	3000	0.40	7.1	0.06	3.0	0.05	18.9	0.08	25.3	N/A	Soil-Supported Grade Beam
8-B	G-C	F-4	F-4	10	13	766	839	3000	0.26	3.8	0.03	1.6	0.03	10.0	0.04	13.4	N/A	Soil-Supported Grade Beam
8-A	L-B	F-4	F-4	12	17	948	1071	3000	0.32	4.8	0.04	2.1	0.04	12.8	0.06	17.1	N/A	Soil-Supported Grade Beam
9-A	L-B	F-4	F-4	14	22	1028	1382	3000	0.34	6.2	0.05	2.6	0.05	16.5	0.07	22.1	N/A	Soil-Supported Grade Beam
7-B	L-B	F-4	F-4	30	43	2031	2677	3000	0.68	12.0	0.10	5.1	0.09	31.9	0.14	42.8	N/A	Soil-Supported Grade Beam
7-A	L-B	F-4	F-4	23	35	1630	2193	3000	0.54	9.9	0.08	4.2	0.08	26.1	0.12	35.1	N/A	Soil-Supported Grade Beam
5-A	G-C	F-4	F-4	5	6	455	403	3000	0.15	1.8	0.02	0.8	0.01	4.8	0.02	6.5	N/A	Soil-Supported Grade Beam
1-G	G-C	F-4	F-4	5	8	504	472	3000	0.17	2.1	0.02	0.9	0.02	5.6	0.02	7.5	N/A	Soil-Supported Grade Beam
1-F	G-C	F-4	F-4	4	6	426	363	3000	0.14	1.6	0.01	0.7	0.01	4.3	0.02	5.8	N/A	Soil-Supported Grade Beam
7.5-G	L-B	F-4	F-5	44	64	1929	2577	3000	0.64	25.8	0.18	12.6	0.18	53.9	0.24	64.4	N/A	
5-D	G-C	F-5	F-6	67	91	2016	2524	3000	0.67	47.3	0.29	22.4	0.27	80.6	0.36	90.9	N/A	



Lateral Force Analysis



LOAD FROM BELOW →

MOMENT FRAME #1 (1) 72' LONG
 LOAD FROM SOUTH ELEVATION CONTROLS
 $4 \times 291 \text{ PLF} = 291 \times 291 \text{ PLF} = 1.4 \text{ KIPS} + 2.5 \text{ KIPS} \times (16.5/29) + 3.7 \text{ KIPS} \times (4/29) = 8.8 \text{ KIPS}$
 DRAG $\Rightarrow 8.8 \text{ KIPS} / 758 \text{ K/FT} = 11.6'$ REQUIRED. (NO DRAG)

CMU CORE (21 AND 22) 8.75' LONG EACH
 LOAD FROM SOUTH ELEVATION CONTROLS
 $29/2 \times 291 \text{ PLF} + 21/2 \times 291 \text{ PLF} + 2.5 \text{ KIPS} \times (12.5/29) + 3.7 \text{ KIPS} \times (25/29) = 11.6 \text{ KIPS}$
 SPLIT EVENLY BETWEEN WALLS $11.6 \text{ KIPS} / 2 = 5.8 \text{ KIPS}$
 DRAG $\Rightarrow 5.8 \text{ KIPS} / 0.758 \text{ K/FT} = 7.6'$ REQUIRED. (NO DRAG)

BRACE FRAME #1 (3) 35' LONG
 LOAD IS THE SAME FROM NORTH AND SOUTH ELEVATIONS
 $21/2 \times 291 \text{ PLF} + 35/2 \times 291 \text{ PLF} = 8.2 \text{ KIPS}$
 DRAG $\Rightarrow 8.2 \text{ KIPS} / 0.758 \text{ K/FT} = 10.8'$ REQUIRED. (NO DRAG)

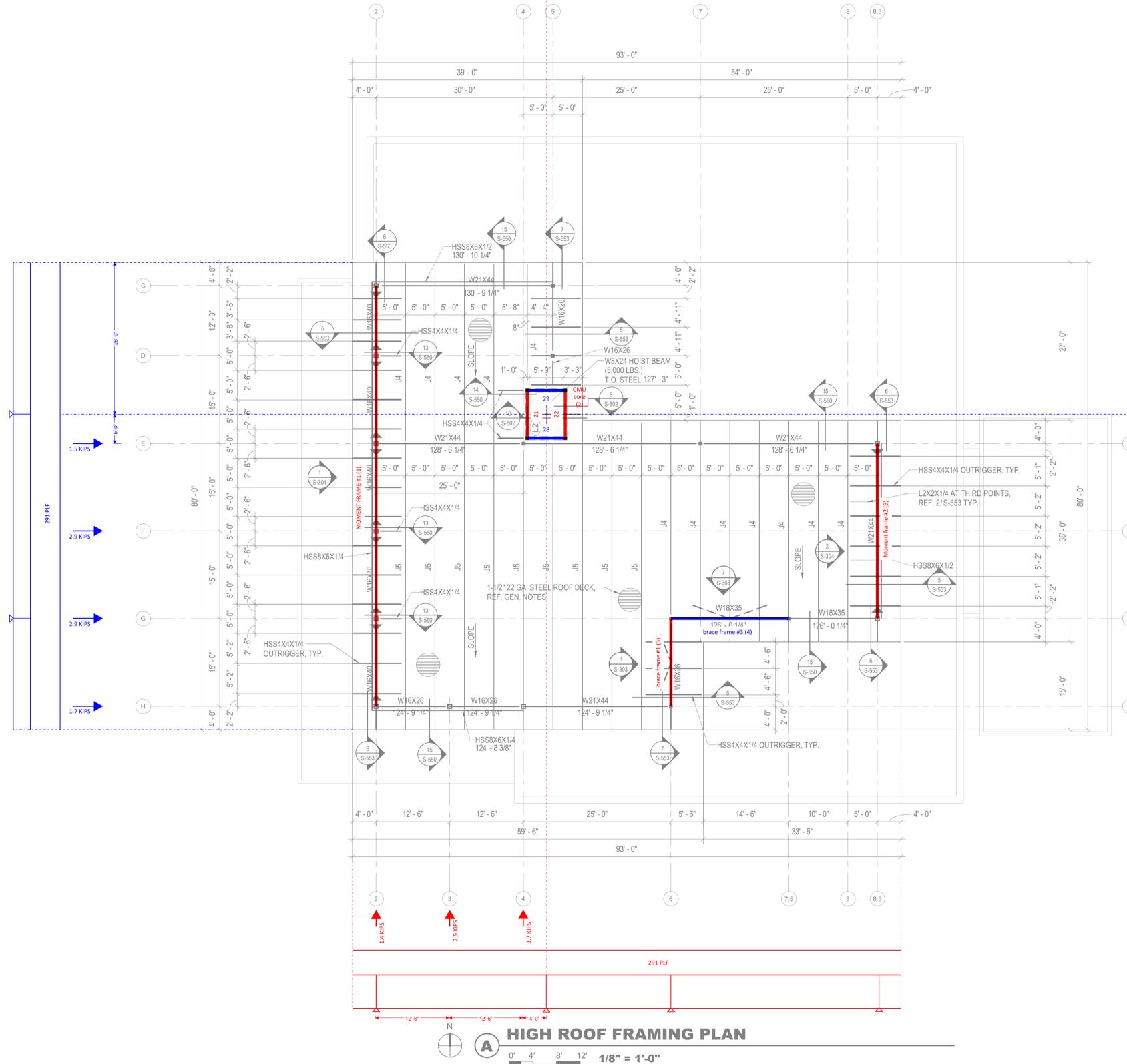
MOMENT FRAME #2 (5) 30' LONG
 LOAD IS THE SAME FROM NORTH AND SOUTH ELEVATIONS
 $35/2 \times 291 \text{ PLF} + 4 \times 291 \text{ PLF} = 6.3 \text{ KIPS}$
 DRAG $\Rightarrow 6.3 \text{ KIPS} / 0.758 \text{ K/FT} = 8.3'$ REQUIRED. (NO DRAG)

TOTAL SHEAR = 35 KIPS

CMU CORE (28 AND 29)
 LOAD IS THE SAME FROM EAST AND WEST ELEVATIONS
 $26 \times 291 \text{ PLF} + 35/2 \times 291 \text{ PLF} = 1.5 \text{ KIPS} \times (30/35) + 2.9 \text{ KIPS} (15/35) = 15.2 \text{ KIPS}$
 SPLIT EVENLY BETWEEN WALLS $15.2 \text{ KIPS} / 2 = 7.6 \text{ KIPS}$
 DRAG $\Rightarrow 7.6 \text{ KIPS} / 0.758 \text{ K/FT} = 10'$ REQUIRED. NEED TO ADD DRAG.

BRACE FRAME #3 (4)
 LOAD FROM WEST ELEVATION CONTROLS
 $35/2 \times 291 \text{ PLF} + 18 \times 291 \text{ PLF} = 1.7 \text{ KIPS} + 2.9 \text{ KIPS} \times 2.9 \text{ KIPS} \times (15/35) + 1.5 \text{ KIPS} \times (5/35) = 17.1 \text{ KIPS}$
 DRAG $\Rightarrow 17.1 \text{ KIPS} / 0.758 \text{ K/FT} = 22.6'$ REQUIRED. NEED TO ADD DRAG.

TOTAL SHEAR = 32.3 KIPS



A HIGH ROOF FRAMING PLAN
 0' 4' 8' 12' 1/8" = 1'-0"



1627 MAIN STREET, SUITE 600
 KANSAS CITY, MO 64108



1627 MAIN STREET, SUITE 100
 KANSAS CITY, MO 64108



PEC AUTHORITY NUMBER: EGC 000465F
 1100 MAIN ST, STE 1800
 KANSAS CITY, MO 64105



1301 BURLINGTON
 NORTH KANSAS CITY, MO 64116

LEE'S SUMMIT MUNICIPAL AIRPORT
 LEE'S SUMMIT AIRPORT

GENERAL AVIATION TERMINAL
 CITY PROJECT NO. - 17932172

MARCH 13, 2025

MARK	DATE	DESCRIPTION
ISSUED FOR:	FINAL REVIEW	
PROJECT NO:	250104-000	
REVIT FILE:	250104-000_STRUCT_R24.rvt	
DESIGNED BY:	JSH	
DRAWN BY:	DGC	
CHECKED BY:	MWK	
APPROVED BY:	WTL	
COPYRIGHT	2025	
SHEET TITLE	HIGH ROOF FRAMING PLAN	

S-103

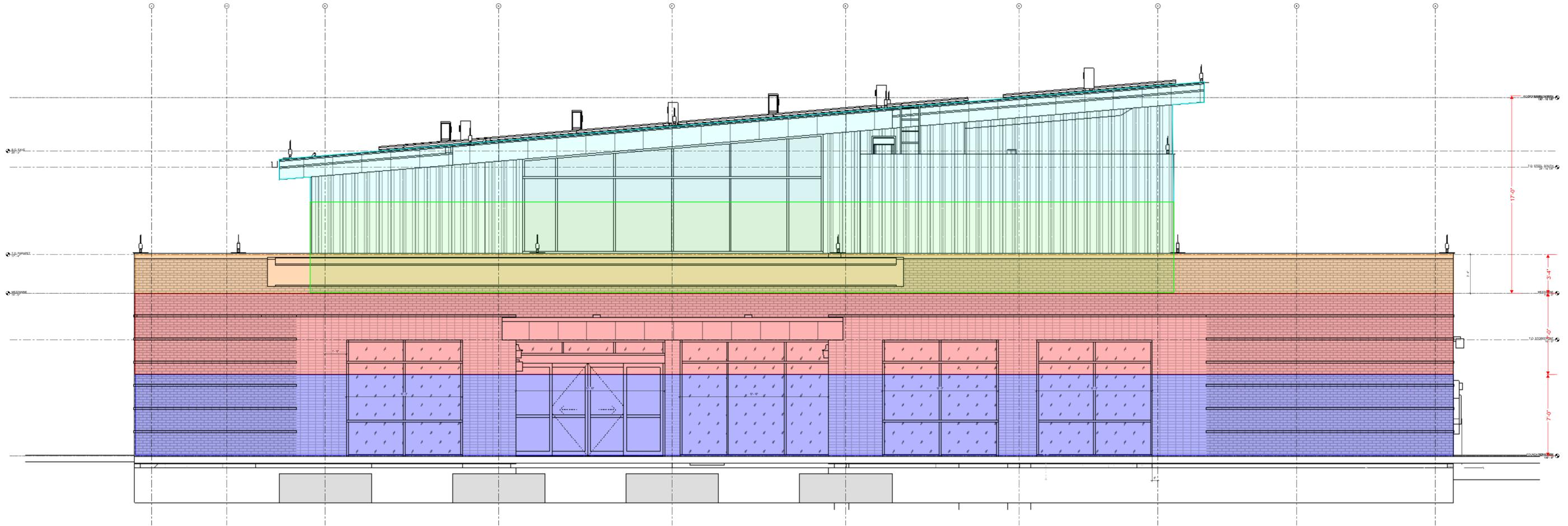
X-DIRECTION
EXPOSURE IN RAM
EAST ELEVATION

- AT ROOF LEVEL = USE 29 PSF
- AT SECOND FLOOR BELOW = USE 29 PSF
- AT SECOND FLOOR ABOVE = USE 26 PSF
- GROUND LEVEL = LOAD TO FOUNDATION
- PARAPET = USE 57 PSF

AREA = 600 SF
 AREA = 800 SF
 AREA = 525 SF
 AREA = N/A
 LEFT AREA = 380 SF

FORCE = 17.4 KIPS
 FORCE = 23.2 KIPS
 FORCE = 13.7 KIPS
 FORCE = N/A
 FORCE = 21.7 KIPS

TOTAL AT ROOF = 18 KIPS
 TOTAL AT SECOND = 23.2 + 13.7 + 21.7 = 59 KIPS



HIGH ROOF => LOADING IS CONSTANT THROUGHOUT DIAPHRAGM => 18 KIPS / 80' = 225 PLF => USE 290 PLF (WORST CASE IN ANY DIRECTION AT ROOF)

LOW ROOF



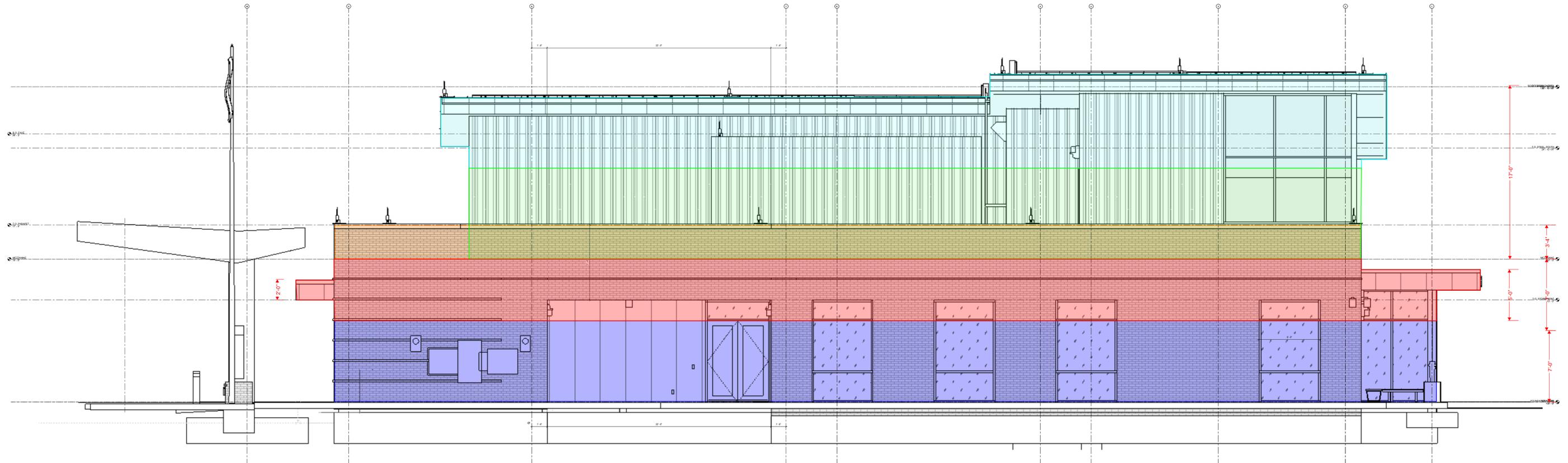
Y-DIRECTION
EXPOSURE IN RAM
NORTH ELEVATION

- AT ROOF LEVEL = USE 29 PSF
- AT SECOND FLOOR BELOW = USE 29 PSF
- AT SECOND FLOOR ABOVE = USE 26 PSF
- GROUND LEVEL = LOAD TO FOUNDATION
- PARAPET = USE 57 PSF

AREA = 920 SF
 AREA = 775 SF
 AREA = 615 SF
 AREA = N/A
 LEFT AREA = 340 SF

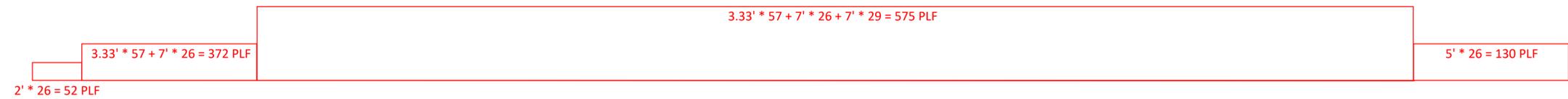
FORCE = 26.7 KIPS
 FORCE = 22.5 KIPS
 FORCE = 16.0 KIPS
 FORCE = N/A
 FORCE = 19.4 KIPS

TOTAL AT ROOF = 27 KIPS
 TOTAL AT SECOND = 22.5 + 16 + 19.4 = 58 KIPS



HIGH ROOF => LOADING IS CONSTANT THROUGHOUT DIAPHRAGM => 27 KIPS / 93' = 291 PLF

LOW ROOF



Y-DIRECTION
EXPOSURE IN RAM
SOUTH ELEVATION

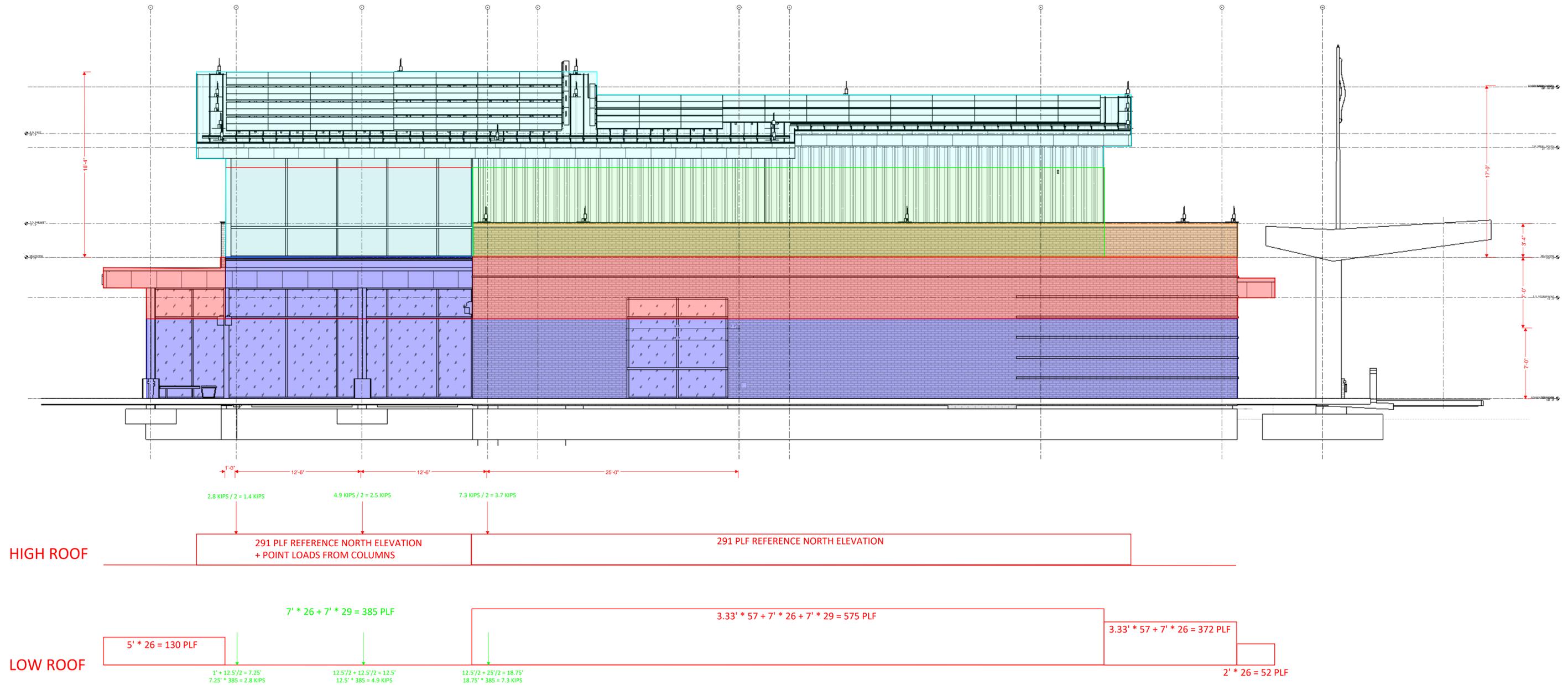
- AT ROOF LEVEL = USE 29 PSF
- AT SECOND FLOOR BELOW = USE 29 PSF
- AT SECOND FLOOR ABOVE = USE 26 PSF
- GROUND LEVEL = LOAD TO FOUNDATION
- PARAPET = USE 57 PSF

AREA = 1115 SF
LEFT AREA = 65 SF, RIGHT AREA = 540 SF
AREA = 440 SF
AREA = N/A
LEFT AREA = 255 SF

FORCE = 32.4 KIPS
LEFT FORCE = 1.89 KIPS, RIGHT FORCE = 15.7 KIPS
FORCE = 11.5 KIPS
FORCE = N/A
FORCE = 14.6 KIPS

TOTAL AT ROOF = 33 KIPS
TOTAL AT SECOND = 1.89 + 15.7 + 11.5 + 14.6 = 44 KIPS

AREAS SHOWN ARE WHERE THE LOAD TRACKS TO. GROUND OR HIGH ROOF.
← LOAD GETS TO DIAPHRAGM VIA THE →
COLUMNS BENDING DUE TO INTERMEDIATE GIRTS



X-DIRECTION
EXPOSURE IN RAM
WEST ELEVATION

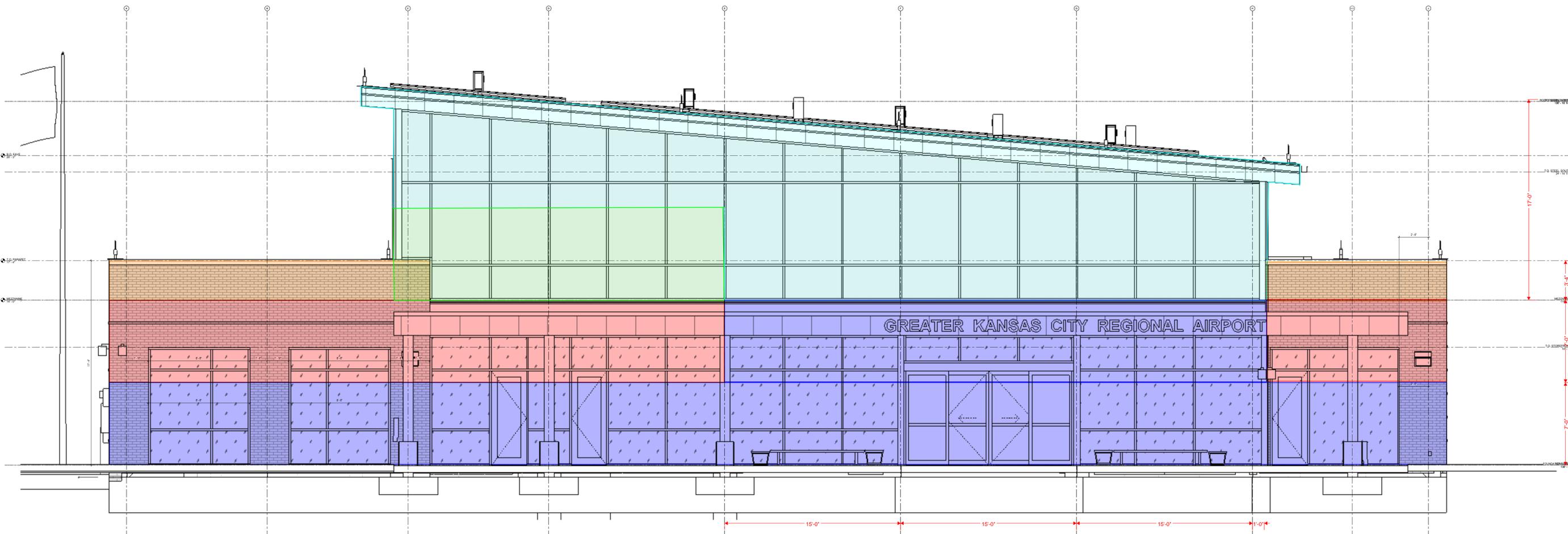
- AT ROOF LEVEL = USE 29 PSF
- AT SECOND FLOOR BELOW = USE 29 PSF
- AT SECOND FLOOR ABOVE = USE 26 PSF
- GROUND LEVEL = LOAD TO FOUNDATION
- PARAPET = USE 57 PSF

AREA = 960 SF
LEFT AREA = 368 SF, RIGHT AREA = 115 SF
AREA = 200 SF
AREA = N/A
LEFT AREA = 95 SF, RIGHT AREA = 55 SF

FORCE = 27.9 KIPS
LEFT FORCE = 10.7 KIPS, RIGHT FORCE = 3.4 KIPS
FORCE = 5.2 KIPS
FORCE = N/A
LEFT FORCE = 5.5 KIPS, RIGHT FORCE = 3.2 KIPS

TOTAL AT ROOF = 28 KIPS
TOTAL AT SECOND = 10.7 + 3.4 + 5.2 + 5.5 3.2 = 28 KIPS

AREAS SHOWN ARE WHERE THE LOAD TRACKS TO. GROUND OR HIGH ROOF.
LOAD GETS TO DIAPHRAGM VIA THE COLUMNS BENDING DUE TO INTERMEDIATE GIRTS



HIGH ROOF

291 PLF REFERENCE EAST ELEVATION

291 PLF REFERENCE EAST ELEVATION
+ POINT LOADS FROM COLUMNS

LOW ROOF

$3.33' * 57 + 7' * 26 = 372$ PLF

$7' * 26 + 7' * 29 = 385$ PLF

$7' * 26 + 7' * 29 = 385$ PLF

$3.33' * 57 + 7' * 26 = 372$ PLF

$3.33' * 57 + 7' * 26 + 7' * 29 = 575$ PLF

$15/2 = 7.5'$
 $7.5' * 385 = 2.9$ KIPS

$15/2 + 15/2 = 15'$
 $15' * 385 = 5.8$ KIPS

$15/2 + 15/2 = 15'$
 $15' * 385 = 5.8$ KIPS

$15/2 + 1 = 8.5'$
 $8.5' * 385 = 3.3$ KIPS

Loads and Applied Forces



LOAD CASE: Wind

ASCE 7-16

Exposure: C

Basic Wind Speed (mph): 109.0

Apply Directionality Factor, $K_d = 0.85$

Use Topography Factor, $K_{zt} = 1.00$

Ground Elevation Factor, $K_e = 1.00$

Use Natural Frequency for X-Direction (Hz) = 2.50

Use Natural Frequency for Y-Direction (Hz) = 2.50

Gust Factor for Rigid Structures, G: Use $G = 0.85$ for X-Dir.

Gust Factor for Rigid Structures, G: Use $G = 0.85$ for Y-Dir.

Damping Ratio for Flexible Structures = 0.01

Mean Roof Height (ft): User Defined = 30.00

Ground Level for X-Dir.: Base

Ground Level for Y-Dir.: Base

WIND PRESSURES:

X-Direction: Natural Frequency = 2.500 Structure is Rigid

Y-Direction: Natural Frequency = 2.500 Structure is Rigid

$C_{pWindward} = 0.80$

$q_{Leeward} (qh \text{ X-Dir.}) = 25.39 \text{ psf}$

$q_{Leeward} (qh \text{ Y-Dir.}) = 25.39 \text{ psf}$

GCpn (Parapet): Windward = 1.50 Leeward = -1.00

use these for lateral calcs.

X-Direction:

Height (ft)	K_z	K_{zt}	q_z (psf)	Gust Factor G	$C_{pLeeward}$	Pressure (psf)
30.00	0.982	1.000	25.394	0.850	-0.468	29 psf 27.361
17.33	0.875	1.000	22.624	----	----	57 psf 56.559
14.00	0.849	1.000	21.946	0.850	-0.493	26 psf 25.575
0.00	0.849	1.000	21.946	0.850	-0.493	25.575

Y-Direction:

Height (ft)	K_z	K_{zt}	q_z (psf)	Gust Factor G	$C_{pLeeward}$	Pressure (psf)
30.00	0.982	1.000	25.394	0.850	-0.500	29 psf 28.061
17.33	0.875	1.000	22.624	----	----	57 psf 56.559
14.00	0.849	1.000	21.946	0.850	-0.500	26 psf 25.716
0.00	0.849	1.000	21.946	0.850	-0.500	25.716

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_1_X

Level	Diaph.#	Ht ft 182	Fx kips	Fy kips	X ft	Y ft

Professional Engineering Consultants

351 Linden Street, Suite 100
Fort Collins, CO 80524
970-232-9558
www.pec1.com

JOB TITLE LXT Terminal

JOB NO. 250104-000 SHEET NO. _____
CALCULATED BY JSH DATE 2/5/25
CHECKED BY _____ DATE _____

Wind Loads - MWFRS all h (Except for Open Buildings)

Base pressure (q_h) = **25.6 psf** Kh = 0.989 GC_{pi} = +/-0.18
Roof Angle (θ) = 2.4 deg Bldg dim parallel to ridge = 111.0 ft G = 0.85
Roof tributary area: Bldg dim normal to ridge = 98.0 ft q_i = q_h
Wind normal to ridge =(h/2)*L: 1721 sf h = 31.0 ft
Wind parallel to ridge =(h/2)*L: 1519 sf ridge ht = 33.0 ft

Ultimate Wind Surface Pressures (psf)

Surface	Wind Normal to Ridge				Wind Parallel to Ridge				
	L/B = 0.88		h/L = 0.32		L/B = 1.13		h/L = 0.28		
	C _p	q _h GC _p	w/+q _i GC _{pi}	w/-q _i GC _{pi}	Dist.*	C _p	q _h GC _p	w/+q _i GC _{pi}	w/-q _i GC _{pi}
Windward Wall (WW)	0.80	17.4	see table below			0.80	17.4	see table below	
Leeward Wall (LW)	-0.50	-10.9	-15.5	-6.3		-0.47	-10.3	-14.9	-5.7
Side Wall (SW)	-0.70	-15.2	-19.8	-10.6		-0.70	-15.2	-19.8	-10.6
Leeward Roof (LR)	**				Included in windward roof				
Neg Windward Roof: 0 to h/2*	-0.90	-19.6	-24.2	-15.0	0 to h/2*	-0.90	-19.6	-24.2	-15.0
h/2 to h*	-0.90	-19.6	-24.2	-15.0	h/2 to h*	-0.90	-19.6	-24.2	-15.0
h to 2h*	-0.50	-10.9	-15.5	-6.3	h to 2h*	-0.50	-10.9	-15.5	-6.3
> 2h*	-0.30	-6.5	-11.1	-1.9	> 2h*	-0.30	-6.5	-11.1	-1.9
Pos/min windward roof press.	-0.18	-3.9	-8.5	0.7	Min press.	-0.18	-3.9	-8.5	0.7

*Horizontal distance from windward edge

**Roof angle < 10 degrees. Therefore, leeward roof is included in windward roof pressure zones.

For monoslope roofs, entire roof surface is either windward or leeward surface.

Windward roof overhangs : 17.4 psf (upward : add to q_hGC_p windward roof pressure)

Parapet

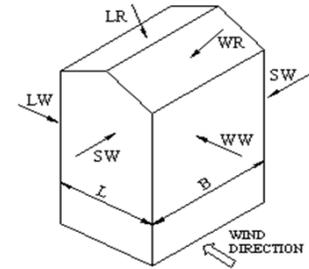
z	K _z	K _{zt}	q _p (psf)
0.0 ft	0.849	1.00	0.0

windward parapet: 0.0 psf (GC_{pn} = +1.0)
leeward parapet: 0.0 psf (GC_{pn} = -1.0)

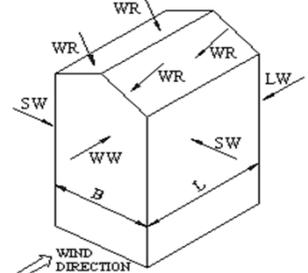
57 psf for parapet

Windward Wall Pressures at "z" (psf)

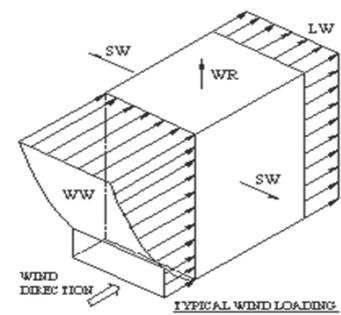
z	K _z	K _{zt}	Windward Wall			Combined WW + LW	
			q _z GC _p	w/+q _i GC _{pi}	w/-q _i GC _{pi}	Wind Normal to Ridge	Wind Parallel to Ridge
0 to 15'	0.85	1.00	14.9	10.3	19.5	25.8	26 psf
20.0 ft	0.90	1.00	15.9	11.3	20.5	26.7	26.1
25.0 ft	0.95	1.00	16.6	12.0	21.2	27.5	26.9
30.0 ft	0.98	1.00	17.3	12.7	21.9	28.1	27.6
h = 31.0 ft	0.99	1.00	17.4	12.8	22.0	28.3	27.7
ridge = 33.0 ft	1.00	1.00	17.6	13.0	22.2	28.5	29 psf



WIND NORMAL TO RIDGE



WIND PARALLEL TO RIDGE



TYPICAL WIND LOADING

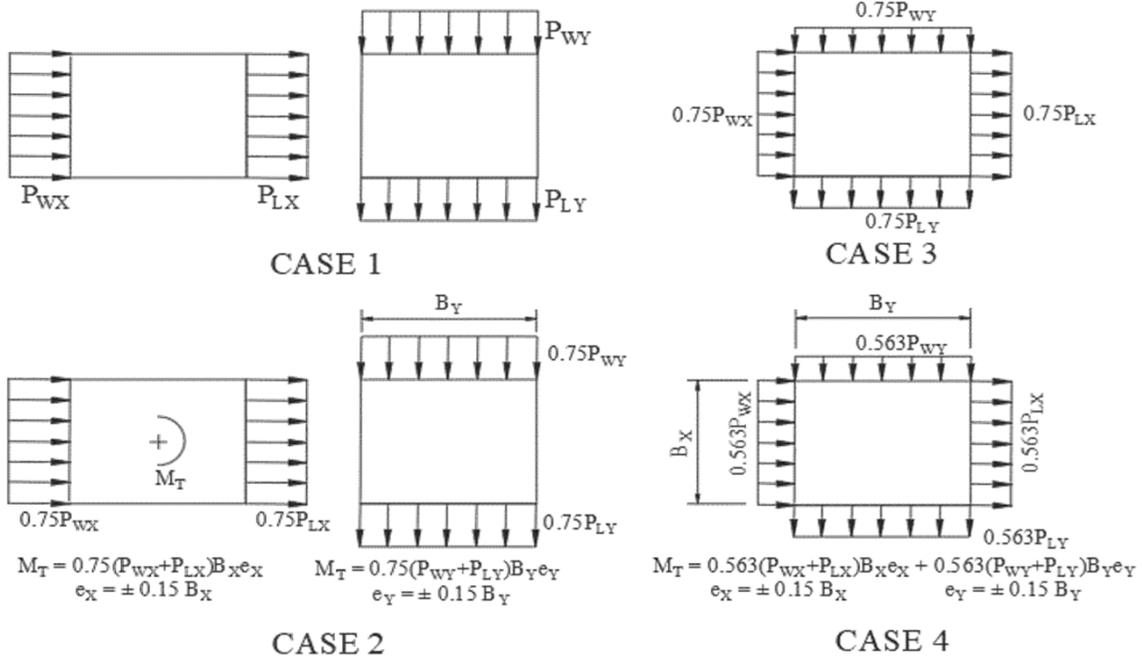
Professional Engineering Consultants

351 Linden Street, Suite 100
 Fort Collins, CO 80524
 970-232-9558
 www.pec1.com

JOB TITLE LXT Terminal

JOB NO. 250104-000 SHEET NO. _____
 CALCULATED BY JSH DATE 2/5/25
 CHECKED BY _____ DATE _____

NOTE: ASCE 7 requires the application of full and partial loading of the wind pressures per the 4 cases below



Wind Forces at Floors

Total Floors above grade = 1
 T/Fdn (dist below grade) = 0.0 ft

Building dimension (parallel with ridge) = 111.0 ft
 Building dimension (normal to ridge) = 98.0 ft
 L is the building dimension parallel to the wind direction

$e = 16.65$ ft
 $e = 14.70$ ft

Level	Elevation Above Grade (ft)	Height of Centroid to Fdn (ft)	Wind Normal to Ridge						Wind Parallel to Ridge			
			L	B	Area (sf)	Applied Force (k)	Story Shear (k)	Overturning Moment (k)	Area	Applied Force (k)	Story Shear (k)	Overturning Moment (k)
Equip, etc	0.00	0.00	wind on equip, screenwalls, etc =						0			
Parapet	0.00	0.00							0.0			
T/Ridge		0.00							0.0			
Roof	30.00	30.00	80.0	92.0	736.0	20.7	20.7	0.0	640.0	17.6	17.6	0.0 Roof
1	14.00	14.00	111.0	98.0	1,470.0	37.1	57.8	331.3	1,665.0	42.9	60.5	281.4 1
GRD	0.00	0.00							1,140.1			
FDN	0.00	0.00							1,140.1			
									1,128.9 FDN			

22 ga 1.5B-36 Grade 50 Roof Deck

Wind Diaphragm Shear

For Both Ends Lapped Deck



5/8" Visible Dia. Arc Spot Weld Connections to Supports
 36 / 7 Perpendicular Connection Pattern to Supports
 #10 Screw Sidelap Connections

A572 GR50 Support Member or Equivalent
 0.25 ≤ Support Thickness (in.)
 2 in. Minimum Deck End Bearing Length

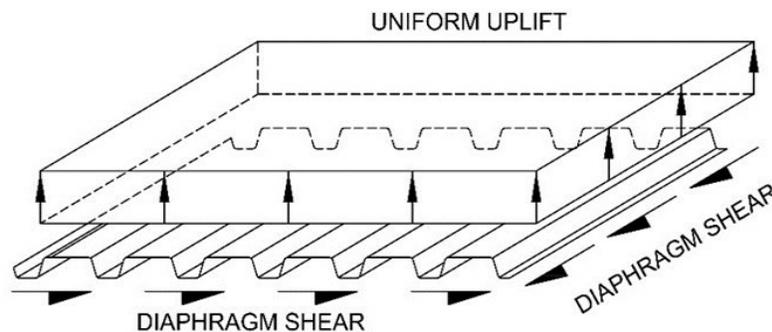
LRFD Design Wind Diaphragm Shear Strength ΦS_n (plf)

Generic 3 Span Condition

Sidelap Connections per Span	Span								
	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"
3	1013	918	830	758	697	644	598	558	524
4	1099	999	913	833	766	709	659	615	578
5	1182	1077	988	909	836	773	719	671	631
6	1262	1152	1059	978	905	838	779	728	684
7	1340	1226	1128	1043	970	902	840	785	737
8	1416	1297	1195	1107	1031	963	900	841	790
9	1489	1366	1261	1170	1090	1020	957	898	844

Average Connection Spacing to Supports at Parallel Chords & Collectors (in.)

Sidelap Connections per Span	Span								
	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"
3	27	20	22	24	20	21	23	24	26
4	27	20	22	24	20	21	23	24	26
5	24	20	22	24	20	21	23	24	26
6	20	20	22	24	20	21	23	24	26
7	18	20	22	24	20	21	23	24	26
8	16	17	19	21	20	21	23	24	26
9	14	16	17	19	20	21	23	24	26



22 ga 1.5B-36 Grade 50 Roof Deck

Seismic Diaphragm Shear

For Both Ends Lapped Deck



5/8" Visible Dia. Arc Spot Weld Connections to Supports
 36 / 7 Perpendicular Connection Pattern to Supports
 #10 Screw Sidelap Connections

A572 GR50 Support Member or Equivalent
 0.25 ≤ Support Thickness (in.)
 2 in. Minimum Deck End Bearing Length

Seismic or Wind Diaphragm Shear Stiffness, G' (kip/in.)

Generic 3 Span Condition

Sidelap Connections per Span	Span								
	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"
3	122	116	110	105	100	96	92	88	85
4	131	124	118	113	108	104	100	96	93
5	138	132	126	121	116	112	107	104	100
6	144	138	133	127	123	118	114	110	107
7	150	144	139	133	129	124	120	116	113
8	155	149	144	139	134	130	126	122	118
9	160	154	149	144	139	135	131	127	123

LRFD Design Seismic Diaphragm Shear Strength ΦS_n (plf)

Generic 3 Span Condition

Sidelap Connections per Span	Span								
	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"
3	743	673	609	556	511	472	439	409	385
4	806	733	669	611	562	520	483	451	424
5	867	790	724	666	613	567	527	492	463
6	926	845	776	717	664	614	571	534	502
7	983	899	827	765	712	662	616	575	541
8	1038	951	876	812	756	707	660	617	580
9	1092	1002	925	858	799	748	702	658	619

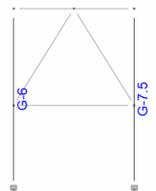
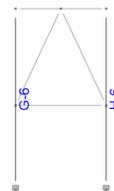
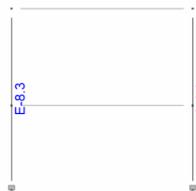
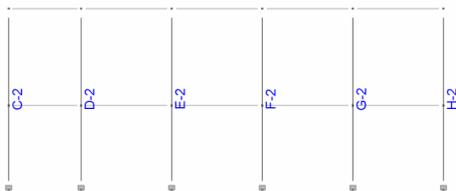
Average Connection Spacing to Supports at Parallel Chords & Collectors (in.)

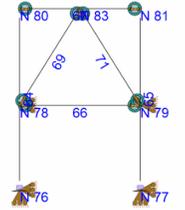
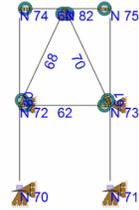
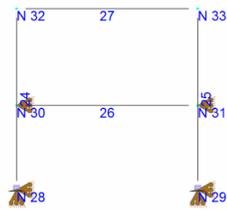
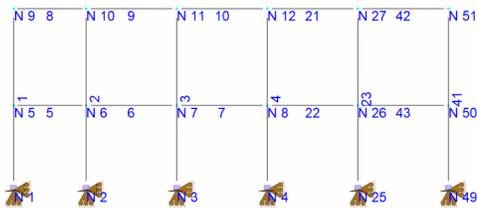
Sidelap Connections per Span	Span								
	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"
3	27	20	22	24	20	21	23	24	26
4	27	20	22	24	20	21	23	24	26
5	24	20	22	24	20	21	23	24	26
6	20	20	22	24	20	21	23	24	26
7	18	20	22	24	20	21	23	24	26
8	16	17	19	21	20	21	23	24	26
9	14	16	17	19	20	21	23	24	26

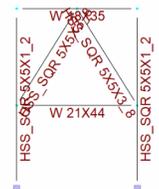
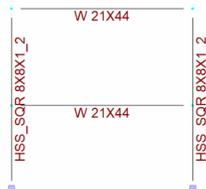
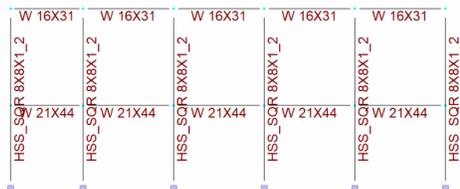
Bare Deck Diaphragm V5.3 in accordance with:
 AISI S100-16 (2020) w/ S2-20
 IAPMO UES ER-0423
 IAPMO UES ER-0652
 CAN/CSA-S136 (R2021) for Canadian references

Date: 10/14/2024

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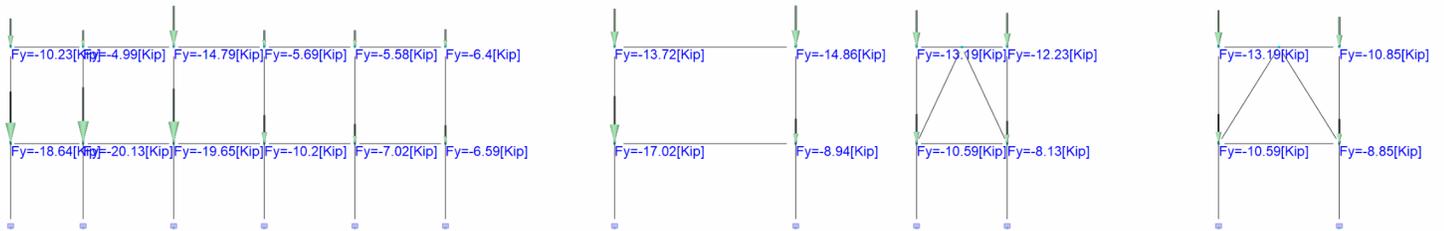
Units system: English

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Load condition: DL=Dead Load

Loads

Concentrated - Nodes





Current Date: 3/3/2025 12:56 PM

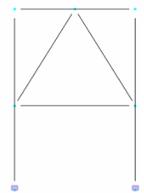
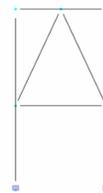
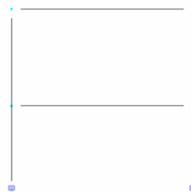
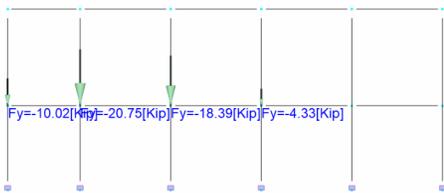
Units system: English

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Load condition: LL=Live Load

Loads

Concentrated - Nodes





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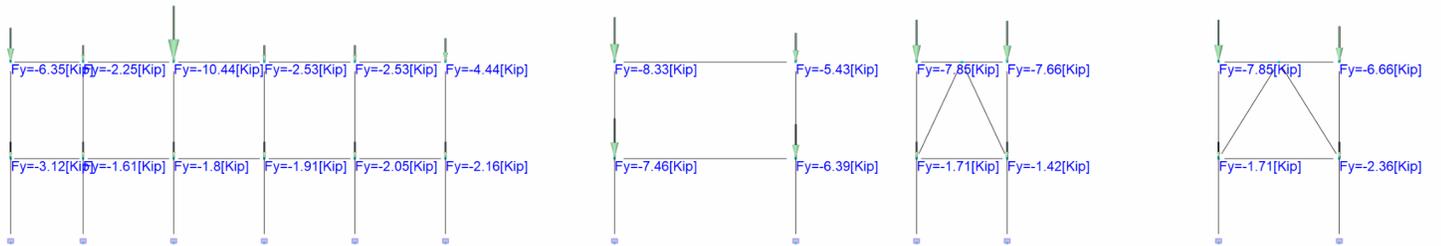
Units system: English

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Load condition: SL=Snow Load

Loads

Concentrated - Nodes





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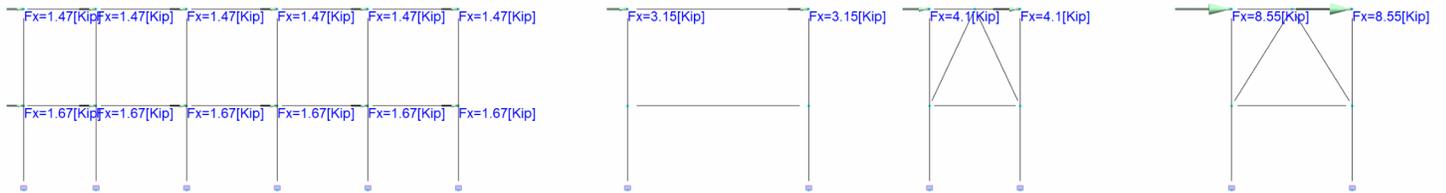
Units system: English

File name: U:\KansasCity\2025\250104\000\2PD3_Design_Svcs\010\2- Lateral Design\Moment Frames.retx

Load condition: WLP=Wind Load

Loads

Concentrated - Nodes





Current Date: 3/3/2025 12:59 PM

Units system: English

File name: U:\KansasCity\2025\250104\000\2PD3_Design_Svcs\010\2- Lateral Design\Moment Frames.retx

Analysis result

Nodes

Nodal displacements envelope

Note.- Ic is the controlling load condition
Nodal displacements envelope for :

- S1=DL
- S2=DL+LL
- S3=DL+SL
- S4=DL+0.75LL
- S5=DL+0.75SL
- S6=DL+0.75LL+0.75SL
- S7=DL+0.6WLP
- S8=DL-0.6WLn
- S9=DL+0.7EQ
- S10=DL+0.75LL+0.75SL+0.45WLP
- S11=DL+0.75LL+0.75SL-0.45WLn
- S12=DL+0.75LL+0.45WLP
- S13=DL+0.75LL-0.45WLn
- S14=DL+0.75SL+0.45WLP
- S15=DL+0.75SL-0.45WLn
- S16=0.6DL+0.6WLP
- S17=0.6DL-0.6WLn
- S18=DL+0.7EQ
- S19=DL+0.75LL+0.525EQ
- S20=DL+0.75LL+0.75SL
- S21=DL+0.75LL+0.75SL+0.525EQ
- S22=DL+0.525EQ
- S23=DL+0.75SL
- S24=DL+0.75SL+0.525EQ
- S25=0.6DL+0.7EQ

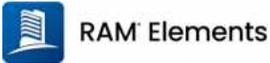
$H/300 \Rightarrow 30' * 12/300 = 1.2'' \text{ MAX}$

SERVICE LOAD COMBOS.

Node	Translation						Rotation						
	X Ic	Y Ic	Z Ic	Rx Ic	Ry Ic	Rz Ic	[in]	[in]	[in]	[Rad]	[Rad]	[Rad]	
MF 9	Max	1.082	S16	-0.008	S16	0.000	S1	0.00000	S1	0.00000	S1	0.00006	S3
	Min	-0.005	S3	-0.027	S6	0.000	S1	0.00000	S1	0.00000	S1	-0.00024	S16
MF 10	Max	1.082	S16	-0.009	S17	0.000	S1	0.00000	S1	0.00000	S1	-0.00001	S17
	Min	-0.005	S3	-0.025	S10	0.000	S1	0.00000	S1	0.00000	S1	-0.00014	S7
MF 11	Max	1.081	S16	-0.014	S16	0.000	S1	0.00000	S1	0.00000	S1	0.00003	S2
	Min	-0.005	S3	-0.036	S6	0.000	S1	0.00000	S1	0.00000	S1	-0.00013	S16
MF 12	Max	1.082	S16	-0.007	S17	0.000	S1	0.00000	S1	0.00000	S1	0.00008	S6
	Min	-0.005	S3	-0.015	S10	0.000	S1	0.00000	S1	0.00000	S1	-0.00011	S16
MF 27	Max	1.082	S16	-0.005	S16	0.000	S1	0.00000	S1	0.00000	S1	0.00000	S17
	Min	-0.005	S3	-0.013	S3	0.000	S1	0.00000	S1	0.00000	S1	-0.00013	S7
MF 32	Max	0.394	S16	-0.012	S16	0.000	S1	0.00000	S1	0.00000	S1	0.00037	S17
	Min	-0.396	S8	-0.032	S3	0.000	S1	0.00000	S1	0.00000	S1	-0.00062	S7
MF 33	Max	0.394	S16	-0.010	S17	0.000	S1	0.00000	S1	0.00000	S1	0.00064	S8
	Min	-0.396	S8	-0.027	S3	0.000	S1	0.00000	S1	0.00000	S1	-0.00036	S16
MF 51	Max	1.082	S16	-0.006	S17	0.000	S1	0.00000	S1	0.00000	S1	0.00003	S1
	Min	-0.005	S3	-0.015	S14	0.000	S1	0.00000	S1	0.00000	S1	-0.00026	S16
BF 74	Max	0.024	S16	-0.014	S16	0.000	S1	0.00000	S1	0.00000	S1	0.00018	S8
	Min	-0.028	S8	-0.043	S3	0.000	S1	0.00000	S1	0.00000	S1	-0.00016	S16
BF 75	Max	0.024	S16	-0.012	S17	0.000	S1	0.00000	S1	0.00000	S1	0.00018	S8
	Min	-0.028	S8	-0.039	S3	0.000	S1	0.00000	S1	0.00000	S1	-0.00016	S16

RAM ELEMENTS MODEL. (MOMENT FRAME AND HIGH BRACE FRAMES)

BF	80	Max	0.033	S16	-0.012	S16	0.000	S1	0.00000	S1	0.00000	S1	0.00024	S8
		Min	-0.037	S8	-0.045	S11	0.000	S1	0.00000	S1	0.00000	S1	-0.00022	S16
BF	81	Max	0.033	S16	-0.009	S17	0.000	S1	0.00000	S1	0.00000	S1	0.00024	S8
		Min	-0.037	S8	-0.039	S10	0.000	S1	0.00000	S1	0.00000	S1	-0.00022	S16
BF	82	Max	0.023	S16	-0.011	S16	0.000	S1	0.00000	S1	0.00000	S1	0.00006	S8
		Min	-0.027	S8	-0.025	S3	0.000	S1	0.00000	S1	0.00000	S1	-0.00003	S16
BF	83	Max	0.031	S16	-0.011	S16	0.000	S1	0.00000	S1	0.00000	S1	0.00007	S8
		Min	-0.035	S8	-0.025	S3	0.000	S1	0.00000	S1	0.00000	S1	-0.00004	S16



Current Date: 3/3/2025 1:00 PM

Units system: English

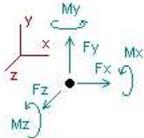
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Analysis result

Nodes

Envelope for nodal reactions

Note.- Ic is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

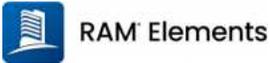
- D1=1.4DL
- D2=1.2DL+1.6LL
- D3=1.2DL+0.5SL
- D4=1.2DL+1.6LL+0.5SL
- D5=1.2DL+1.6SL
- D6=1.2DL+0.5WLP
- D7=1.2DL-0.5WLn
- D8=1.2DL+LL+1.6SL
- D9=1.2DL+1.6SL+0.5WLP
- D10=1.2DL+1.6SL-0.5WLn
- D11=1.2DL+WLP
- D12=1.2DL-WLn
- D13=1.2DL+0.5SL+WLP
- D14=1.2DL+0.5SL-WLn
- D15=1.2DL+LL+WLP
- D16=1.2DL+LL-WLn
- D17=1.2DL+LL+0.5SL+WLP
- D18=1.2DL+LL+0.5SL-WLn
- D19=0.9DL+WLP
- D20=0.9DL-WLn
- D21=1.2DL+0.2SL
- D22=1.2DL+EQ
- D23=1.2DL+LL+0.2SL
- D24=1.2DL+0.2SL+EQ
- D25=1.2DL+LL+EQ
- D26=1.2DL+LL+0.2SL+EQ
- D27=0.9DL+EQ

LRFD LOAD COMBOS.

Node		Forces						Moments					
		Fx	Ic	Fy	Ic	Fz	Ic	Mx	Ic	My	Ic	Mz	Ic
		[Kip]		[Kip]		[Kip]		[Kip*ft]		[Kip*ft]		[Kip*ft]	
1	Max	0.020	D2	61.593	D8	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-3.019	D13	18.780	D19	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
2	Max	0.020	D4	68.710	D4	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-3.236	D19	25.244	D20	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
3	Max	0.002	D5	80.736	D8	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-3.197	D15	32.187	D19	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
4	Max	-0.008	D20	34.515	D8	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-3.208	D17	16.898	D20	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
25	Max	0.009	D5	25.396	D5	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-3.232	D19	11.215	D19	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
28	Max	0.308	D11	66.933	D10	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-0.216	D20	26.962	D19	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1

RAM ELEMENTS MODEL. (MOMENT FRAME AND HIGH BRACE FRAMES)

29	Max	0.211	D19	52.264	D9	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-0.316	D14	20.720	D20	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
49	Max	0.000	D8	31.661	D9	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-2.973	D11	13.339	D20	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
70	Max	0.008	D19	50.146	D10	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-0.009	D14	14.132	D19	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
71	Max	0.008	D19	45.277	D9	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-0.009	D14	11.056	D20	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
76	Max	0.011	D19	53.041	D10	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-0.012	D14	9.521	D19	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
77	Max	0.011	D19	47.283	D9	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1
	Min	-0.012	D14	5.850	D20	0.000	D1	0.00000	D1	0.00000	D1	0.00000	D1



Current Date: 3/3/2025 1:00 PM

Units system: English

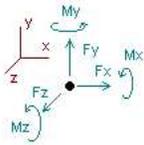
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Analysis result

Nodes

LOAD CASES FOR ENERCALC FOOTING DESIGNS

Reactions



Direction of positive forces and moments

Node	Forces [Kip]			Moments [Kip*ft]		
	FX	FY	FZ	MX	MY	MZ
Condition DL=Dead Load						
1	0.00150	30.45298	0.00000	0.00000	0.00000	0.00000
2	0.00746	28.04835	0.00000	0.00000	0.00000	0.00000
3	-0.00103	36.31002	0.00000	0.00000	0.00000	0.00000
4	-0.00838	18.77550	0.00000	0.00000	0.00000	0.00000
25	0.00411	15.10737	0.00000	0.00000	0.00000	0.00000
E-8.3 28	0.04393	33.42578	0.00000	0.00000	0.00000	0.00000
G-8.3 29	-0.04937	26.49086	0.00000	0.00000	0.00000	0.00000
49	-0.00366	14.82091	0.00000	0.00000	0.00000	0.00000
G-6 70	-0.00052	25.40370	0.00000	0.00000	0.00000	0.00000
H-6 71	-0.00052	21.98564	0.00000	0.00000	0.00000	0.00000
G-6 76	-0.00047	25.76094	0.00000	0.00000	0.00000	0.00000
G-7.5 77	-0.00047	21.68224	0.00000	0.00000	0.00000	0.00000
SUM	-0.00742	298.26428	0.00000	0.00000	0.00000	0.00000
Condition LL=Live Load						
1	0.01134	10.17573	0.00000	0.00000	0.00000	0.00000
2	0.00623	20.56886	0.00000	0.00000	0.00000	0.00000
3	-0.00860	18.28765	0.00000	0.00000	0.00000	0.00000
4	-0.00846	4.47561	0.00000	0.00000	0.00000	0.00000
25	-0.00088	-0.00708	0.00000	0.00000	0.00000	0.00000
49	0.00036	-0.01076	0.00000	0.00000	0.00000	0.00000
SUM	0.00000	53.49000	0.00000	0.00000	0.00000	0.00000
Condition SL=Snow Load						
1	-0.00561	9.29584	0.00000	0.00000	0.00000	0.00000
2	0.00221	4.28371	0.00000	0.00000	0.00000	0.00000
3	0.00186	11.79760	0.00000	0.00000	0.00000	0.00000
4	-0.00340	4.69330	0.00000	0.00000	0.00000	0.00000
25	0.00268	4.54172	0.00000	0.00000	0.00000	0.00000
E-8.3 28	-0.00163	15.78848	0.00000	0.00000	0.00000	0.00000
G-8.3 29	-0.00163	11.82152	0.00000	0.00000	0.00000	0.00000
49	0.00227	6.57783	0.00000	0.00000	0.00000	0.00000
G-6 70	-0.00007	9.55986	0.00000	0.00000	0.00000	0.00000
H-6 71	-0.00007	9.08014	0.00000	0.00000	0.00000	0.00000
G-6 76	-0.00006	9.55991	0.00000	0.00000	0.00000	0.00000
G-7.5 77	-0.00006	9.02009	0.00000	0.00000	0.00000	0.00000
SUM	-0.00352	106.02000	0.00000	0.00000	0.00000	0.00000

RAM ELEMENTS MODEL. (MOMENT FRAME AND HIGH BRACE FRAMES)

Condition WLP=Wind Load							
1	-3.01780	-8.62762	0.00000	0.00000	0.00000	0.00000	0.00000
2	-3.24308	4.34055	0.00000	0.00000	0.00000	0.00000	0.00000
3	-3.18706	-0.49159	0.00000	0.00000	0.00000	0.00000	0.00000
4	-3.18738	0.45723	0.00000	0.00000	0.00000	0.00000	0.00000
25	-3.23593	-2.38131	0.00000	0.00000	0.00000	0.00000	0.00000
E-8.3	28	0.25577	-3.12129	0.00000	0.00000	0.00000	0.00000
G-8.3	29	0.25577	3.12129	0.00000	0.00000	0.00000	0.00000
	49	-2.96875	6.70274	0.00000	0.00000	0.00000	0.00000
G-6	70	0.00821	-8.73133	0.00000	0.00000	0.00000	0.00000
H-6	71	0.00821	8.73133	0.00000	0.00000	0.00000	0.00000
G-6	76	0.01127	-13.66423	0.00000	0.00000	0.00000	0.00000
G-7.5	77	0.01127	13.66423	0.00000	0.00000	0.00000	0.00000

SUM	-18.28951	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Condition EQ=Seismic Load							

SUM	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Condition WLn=Wind Load							
E-8.3	28	0.25577	-3.12129	0.00000	0.00000	0.00000	0.00000
G-8.3	29	0.25577	3.12129	0.00000	0.00000	0.00000	0.00000
G-6	70	0.00821	-8.73133	0.00000	0.00000	0.00000	0.00000
H-6	71	0.00821	8.73133	0.00000	0.00000	0.00000	0.00000
G-6	76	0.01127	-13.66423	0.00000	0.00000	0.00000	0.00000
G-7.5	77	0.01127	13.66423	0.00000	0.00000	0.00000	0.00000

SUM	0.55049	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 14:50:15
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.066$$

$$\text{Eq H1-1b: } 0.033 + 0.019 + 0.026 = 0.078$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 14:50:15
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.122$$

$$\text{Eq H1-1b: } 0.061 + 0.021 + 0.030 = 0.113$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 14:51:49
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.220$$

$$\text{Eq H1-1a: } 0.220 + 8/9(0.219 + 0.018) = 0.430$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 14:51:49
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90 \cdot P_n = 0.284$$

$$\text{Eq H1-1a: } 0.284 + 8/9(0.064 + 0.020) = 0.359$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

Page 2/2
02/11/25 14:52:15
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.19 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90 \cdot P_n = 0.209$$

$$\text{Eq H1-1a: } 0.209 + 8/9(0.000 + 0.049) = 0.253$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

Page 2/2
02/11/25 14:52:46
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.251$$

$$\text{Eq H1-1a: } 0.251 + 8/9(0.038 + 0.080) = 0.356$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

Page 2/4
02/11/25 15:18:59
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.034$$

$$\text{Eq H1-1b: } 0.017 + 0.020 + 0.036 = 0.073$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 15:18:59
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.112$$

$$\text{Eq H1-1b: } 0.056 + 0.023 + 0.041 = 0.120$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

Page 2/4
02/11/25 15:19:34
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.016$$

$$\text{Eq H1-1b: } 0.008 + 0.017 + 0.046 = 0.071$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 15:19:34
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.117$$

$$\text{Eq H1-1b: } 0.059 + 0.019 + 0.053 = 0.131$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 15:20:00
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.051$$

$$\text{Eq H1-1b: } 0.025 + 0.018 + 0.033 = 0.076$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 15:20:00
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.140$$

$$\text{Eq H1-1b: } 0.070 + 0.021 + 0.038 = 0.129$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 15:20:27
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.018$$

$$\text{Eq H1-1b: } 0.009 + 0.020 + 0.001 = 0.030$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 15:20:27
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.057$$

$$\text{Eq H1-1b: } 0.029 + 0.022 + 0.001 = 0.052$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 15:20:57
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.024$$

$$\text{Eq H1-1b: } 0.012 + 0.002 + 0.003 = 0.016$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 15:20:57
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.044$$

$$\text{Eq H1-1b: } 0.022 + 0.002 + 0.003 = 0.027$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

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02/11/25 15:21:21
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.033$$

$$\text{Eq H1-1b: } 0.016 + 0.014 + 0.007 = 0.037$$

Gravity Column Design



RAM Steel 24.00.01.18
Building Code: IBC

Page 4/4
02/11/25 15:21:21
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.050$$

$$\text{Eq H1-1b: } 0.025 + 0.009 + 0.008 = 0.042$$

Gravity Column Design



RAM Steel 24.00.01.18
 DataBase: 250104-000 LXT Terminal
 Building Code: IBC

G-7.5

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 03/03/25 12:42:53
 Steel Code: AISC360-16 LRFD

Story level 02-High Roof, Column Line 78.50ft--81.00ft, Column # 17

Fy (ksi) = 50.00 Column Size = HSS5X5X1/2
 Orientation (deg.) = 0.0

INPUT DESIGN PARAMETERS:

	X-Axis	Y-Axis
Lu (ft)	16.00	16.00
K	1	1
Braced Against Joint Translation	Yes	Yes
Column Eccentricity (in) Top	5.00	5.00
Bottom	5.00	5.00

CONTROLLING AXIAL COLUMN LOADS - Skip-Load Case 1:

	Dead	Live	Roof
Axial (kip)	10.85	0.00	6.66
DEMAND CAPACITY RATIO: (1.2DL + 1.6RF)			
Pu (kip) = 23.68 0.90Pnx (kip) =	156.66	Pu/0.90Pnx =	0.151
0.90Pny (kip) =	156.66	Pu/0.90Pny =	0.151
0.90Pn (kip) =	156.66	Pu/0.90Pn =	0.151

DEMAND/CAPACITY LIMIT FOR STRENGTH : 0.900

CONTROLLING COMBINED COLUMN LOADS - Skip-Load Case 12:

	Dead	Live	Roof
Axial (kip)	10.85	0.00	3.32
Moments TopMx (kip-ft)	-0.11	0.00	-1.38
My (kip-ft)	0.00	0.00	0.00
BotMx (kip-ft)	0.11	0.00	0.37
My (kip-ft)	0.00	0.00	0.00

Single curvature about X-Axis
 Single curvature about Y-Axis

CALCULATED PARAMETERS: (1.2DL + 1.6RF)

Pu (kip) =	18.33	0.90*Pn (kip) =	156.66
Mux (kip-ft) =	-2.34	0.90*Mnx (kip-ft) =	49.13
Muy (kip-ft) =	0.00	0.90*Mny (kip-ft) =	49.13
Rm =	1.00		
Cbx =	1.38	Cby =	1.00
Cmx =	0.73	Cmy =	1.00
Pex (kip) =	201.87	Pey (kip) =	201.87

Gravity Column Design



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

G-7.5

Page 2/4
03/03/25 12:42:53
Steel Code: AISC360-16 LRFD

B_{1x} = 1.00 B_{1y} = 1.10

INTERACTION EQUATION

$P_u/0.90 \cdot P_n = 0.117$

Eq H1-1b: $0.058 + 0.048 + 0.000 = 0.106$

Gravity Column Design



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

G-7.5

Page 4/4
03/03/25 12:42:53
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90 \cdot P_n = 0.201$$

$$\text{Eq H1-1a: } 0.201 + 8/9(0.014 + 0.000) = 0.213$$

Gravity Column Design



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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03/03/25 12:43:42
Steel Code: AISC360-16 LRFD

$$B_{1x} = 1.00 \quad B_{1y} = 1.00$$

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.033$$

$$\text{Eq H1-1b: } 0.017 + 0.032 + 0.035 = 0.084$$

Gravity Column Design



RAM Steel 24.00.01.18
DataBase: 250104-000 LXT Terminal
Building Code: IBC

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03/03/25 12:43:42
Steel Code: AISC360-16 LRFD

INTERACTION EQUATION

$$P_u/0.90*P_n = 0.092$$

$$\text{Eq H1-1b: } 0.046 + 0.021 + 0.021 = 0.089$$

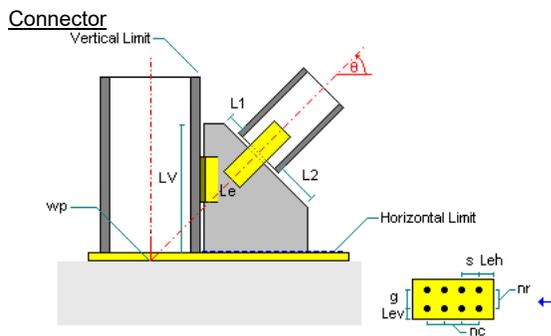
Steel Connections

Detailed report

Connection: 4 - Gusset BP

Family: Column - Base (CB)
Type: Gusset
Description: Smart Gusset Base Plate 1

General information



Members

Actual members

Right brace : No
Left brace : Yes

Column

General

Section : HSS_SQR 5X5X1_4
Material : RamFy 50Tube
Column orientation : Longitudinal
Longitudinal offset : 3.5 in
Include opposite stiffener : No

Left brace

General

Section : HSS_SQR 5X5X1_4
Material : RamFy 50Tube
Brace slope angle (degrees) : 57.265
Brace long leg on gusset : Yes

Additional geometric data

wpx: WP horizontal displacement : 0 in
wpy: WP vertical displacement : 0 in
Le: Minimum distance to other members : 1 in
L1: Left distance : 2 in
L2: Right distance : 2 in

Base plate

Base plate

Position on the support : Center
N: Longitudinal dimension : 19 in
B: Transversal dimension : 12 in
Thickness : 0.75 in
Material : A36
Column weld : E70XX
D: Column weld size (1/16 in) : 4
Override A2/A1 ratio : No

Include shear lug	:	No
<u>Support</u>		
With pedestal	:	No
Longitudinal dimension	:	10 ft
Transversal dimension	:	10 ft
Thickness	:	30 in
Material	:	C 4-60
Include grouting	:	No
<u>Anchor</u>		
Anchor position	:	Longitudinal position
Rows number per side	:	1
Anchors per row	:	3
Longitudinal edge distance on the plate	:	2 in
Transverse edge distance on the plate	:	2 in
Anchor type	:	Headed
Head type	:	Hexagonal
Include lock nut	:	No
Anchor	:	3/4"
Effective embedment depth	:	12 in
Total length	:	13.74 in
Material	:	F1554 Gr36
Fy	:	36 kip/in2
Fu	:	58 kip/in2
Cracked concrete	:	No
Brittle steel	:	No
Anchors welded to base plate	:	No
<u>Anchor reinforcement</u>		
Type of reinforcement	:	Primary
Tension reinforcement	:	No
Shear reinforcement	:	No

Interfaces

Left brace - Gusset

<u>General</u>		
tp: Thickness	:	0.375 in
Material	:	A36
LV: Length on column	:	16 in
LH: Length over plate	:	9.5 in

Left brace - Gusset/Brace connection

<u>General</u>		
Connection type	:	Welded
Lt: Length on toe	:	6 in
Lh: Length on heel	:	6 in
Brace weld	:	E70XX
D: Weld size (1/16 in)	:	4
dp: Distance between weld and plate end	:	1 in

Left brace - Gusset/Column connection

<u>General</u>		
Connection type to column	:	Connection: Directly welded
<u>Directly welded</u>		
Column weld	:	E70XX
D: Weld size to column (1/16 in)	:	4

Left brace - Gusset/Base plate connection

<u>Directly welded</u>		
Base plate weld	:	E70XX
D: Base plate weld size (1/16 in)	:	4

Design code: AISC 360-16 LRFD, ACI 318-11

Design calculations

Interface between Gusset - Top left brace
Connection: Directly welded

Demands

Pu [kip]	Description	Load type
-0.73	dl	Design
0.00	lln	Design
0.00	llp	Design
0.00	llrn	Design
0.00	llrp	Design

-0.69	Sp	Design
0.00	Sn	Design
9.07	Wind	Design
0.00	Wind1	Design
6.80	Wind2	Design
6.80	Wind3	Design
0.00	Wind4	Design
0.00	Wind5	Design
6.80	Wind6	Design
6.80	Wind7	Design
5.10	Wind8	Design
5.10	Wind9	Design
5.10	Wind10	Design
5.10	Wind11	Design
-1.02	C1	Design
-1.22	C2	Design
-0.88	C3	Design
-0.88	C4	Design
-0.88	C5	Design
-1.98	C6	Design
-0.88	C7	Design
-1.98	C8	Design
-0.88	C9	Design
2.55	C10	Design
-1.98	C11	Design
1.42	C12	Design
1.42	C13	Design
-1.98	C14	Design
-1.98	C15	Design
1.42	C16	Design
1.42	C17	Design
0.57	C18	Design
0.57	C19	Design
0.57	C20	Design
0.57	C21	Design
-6.51	C22	Design
-1.98	C23	Design
-5.38	C24	Design
-5.38	C25	Design
-1.98	C26	Design
-1.98	C27	Design
-5.38	C28	Design
-5.38	C29	Design
-4.53	C30	Design
-4.53	C31	Design
-4.53	C32	Design
-4.53	C33	Design
3.66	C34	Design
-0.88	C35	Design
2.53	C36	Design
2.53	C37	Design
-0.88	C38	Design
-0.88	C39	Design
2.53	C40	Design
2.53	C41	Design
1.68	C42	Design
1.68	C43	Design
1.68	C44	Design
1.68	C45	Design
-5.41	C46	Design
-0.88	C47	Design
-4.28	C48	Design
-4.28	C49	Design
-0.88	C50	Design
-0.88	C51	Design
-4.28	C52	Design
-4.28	C53	Design
-3.43	C54	Design
-3.43	C55	Design
-3.43	C56	Design
-3.43	C57	Design
7.85	C58	Design
-1.22	C59	Design
5.58	C60	Design
5.58	C61	Design
-1.22	C62	Design
-1.22	C63	Design

5.58	C64	Design
5.58	C65	Design
3.88	C66	Design
3.88	C67	Design
3.88	C68	Design
3.88	C69	Design
-10.29	C70	Design
-1.22	C71	Design
-8.02	C72	Design
-8.02	C73	Design
-1.22	C74	Design
-1.22	C75	Design
-8.02	C76	Design
-8.02	C77	Design
-6.32	C78	Design
-6.32	C79	Design
-6.32	C80	Design
-6.32	C81	Design
8.19	C82	Design
-0.88	C83	Design
5.93	C84	Design
5.93	C85	Design
-0.88	C86	Design
-0.88	C87	Design
5.93	C88	Design
5.93	C89	Design
4.23	C90	Design
4.23	C91	Design
4.23	C92	Design
4.23	C93	Design
-9.94	C94	Design
-0.88	C95	Design
-7.68	C96	Design
-7.68	C97	Design
-0.88	C98	Design
-0.88	C99	Design
-7.68	C100	Design
-7.68	C101	Design
-5.98	C102	Design
-5.98	C103	Design
-5.98	C104	Design
-5.98	C105	Design
8.19	C106	Design
-0.88	C107	Design
5.93	C108	Design
5.93	C109	Design
-0.88	C110	Design
-0.88	C111	Design
5.93	C112	Design
5.93	C113	Design
4.23	C114	Design
4.23	C115	Design
4.23	C116	Design
4.23	C117	Design
-9.94	C118	Design
-0.88	C119	Design
-7.68	C120	Design
-7.68	C121	Design
-0.88	C122	Design
-0.88	C123	Design
-7.68	C124	Design
-7.68	C125	Design
-5.98	C126	Design
-5.98	C127	Design
-5.98	C128	Design
-5.98	C129	Design
8.19	C130	Design
-0.88	C131	Design
5.93	C132	Design
5.93	C133	Design
-0.88	C134	Design
-0.88	C135	Design
5.93	C136	Design
5.93	C137	Design
4.23	C138	Design
4.23	C139	Design
4.23	C140	Design

4.23	C141	Design
-9.94	C142	Design
-0.88	C143	Design
-7.68	C144	Design
-7.68	C145	Design
-0.88	C146	Design
-0.88	C147	Design
-7.68	C148	Design
-7.68	C149	Design
-5.98	C150	Design
-5.98	C151	Design
-5.98	C152	Design
-5.98	C153	Design
7.85	C154	Design
-1.22	C155	Design
5.58	C156	Design
5.58	C157	Design
-1.22	C158	Design
-1.22	C159	Design
5.58	C160	Design
5.58	C161	Design
3.88	C162	Design
3.88	C163	Design
3.88	C164	Design
3.88	C165	Design
-10.29	C166	Design
-1.22	C167	Design
-8.02	C168	Design
-8.02	C169	Design
-1.22	C170	Design
-1.22	C171	Design
-8.02	C172	Design
-8.02	C173	Design
-6.32	C174	Design
-6.32	C175	Design
-6.32	C176	Design
-6.32	C177	Design
8.19	C178	Design
-0.88	C179	Design
5.93	C180	Design
5.93	C181	Design
-0.88	C182	Design
-0.88	C183	Design
5.93	C184	Design
5.93	C185	Design
4.23	C186	Design
4.23	C187	Design
4.23	C188	Design
4.23	C189	Design
-9.94	C190	Design
-0.88	C191	Design
-7.68	C192	Design
-7.68	C193	Design
-0.88	C194	Design
-0.88	C195	Design
-7.68	C196	Design
-7.68	C197	Design
-5.98	C198	Design
-5.98	C199	Design
-5.98	C200	Design
-5.98	C201	Design
8.19	C202	Design
-0.88	C203	Design
5.93	C204	Design
5.93	C205	Design
-0.88	C206	Design
-0.88	C207	Design
5.93	C208	Design
5.93	C209	Design
4.23	C210	Design
4.23	C211	Design
4.23	C212	Design
4.23	C213	Design
-9.94	C214	Design
-0.88	C215	Design
-7.68	C216	Design
-7.68	C217	Design

-0.88	C218	Design
-0.88	C219	Design
-7.68	C220	Design
-7.68	C221	Design
-5.98	C222	Design
-5.98	C223	Design
-5.98	C224	Design
-5.98	C225	Design
8.41	C226	Design
-0.66	C227	Design
6.15	C228	Design
6.15	C229	Design
-0.66	C230	Design
-0.66	C231	Design
6.15	C232	Design
6.15	C233	Design
4.44	C234	Design
4.44	C235	Design
4.44	C236	Design
4.44	C237	Design
-9.73	C238	Design
-0.66	C239	Design
-7.46	C240	Design
-7.46	C241	Design
-0.66	C242	Design
-0.66	C243	Design
-7.46	C244	Design
-7.46	C245	Design
-5.76	C246	Design
-5.76	C247	Design
-5.76	C248	Design
-5.76	C249	Design
-0.88	D1	Design
-1.22	D2	Design
-1.22	D3	Design
-1.98	D4	Design
3.66	D5	Design
-0.88	D6	Design
2.53	D7	Design
2.53	D8	Design
-0.88	D9	Design
-0.88	D10	Design
2.53	D11	Design
2.53	D12	Design
1.68	D13	Design
1.68	D14	Design
1.68	D15	Design
1.68	D16	Design
-1.98	D17	Design
2.55	D18	Design
-1.98	D19	Design
1.42	D20	Design
1.42	D21	Design
-1.98	D22	Design
-1.98	D23	Design
1.42	D24	Design
1.42	D25	Design
0.57	D26	Design
0.57	D27	Design
0.57	D28	Design
0.57	D29	Design
7.85	D30	Design
-1.22	D31	Design
5.58	D32	Design
5.58	D33	Design
-1.22	D34	Design
-1.22	D35	Design
5.58	D36	Design
5.58	D37	Design
3.88	D38	Design
3.88	D39	Design
3.88	D40	Design
3.88	D41	Design
8.19	D42	Design
-0.88	D43	Design
5.93	D44	Design
5.93	D45	Design

-0.88	D46	Design
-0.88	D47	Design
5.93	D48	Design
5.93	D49	Design
4.23	D50	Design
4.23	D51	Design
4.23	D52	Design
4.23	D53	Design
7.85	D54	Design
-1.22	D55	Design
5.58	D56	Design
5.58	D57	Design
-1.22	D58	Design
-1.22	D59	Design
5.58	D60	Design
5.58	D61	Design
3.88	D62	Design
3.88	D63	Design
3.88	D64	Design
3.88	D65	Design
-1.01	D66	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Member						
Weld size	[1/16in]	4	2	4	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Branch						
Total weld design strength	[Kip]	133.64	10.29	C70	0.08	Eq. J2-6
Maximum weld force that brace can develop	[Kip]	163.57	10.29	C70	0.06	Eq. J4-4
Maximum weld force that gusset can develop	[Kip]	117.45	10.29	C70	0.09	Eq. J4-4
Gusset						
Block shear on gusset	[Kip]	166.61	9.07	Wind	0.05	Eq. J4-5
Ratio		0.09				

Checks for gusset and brace

Demands

Pu [kip]	Description	Load type
-0.73	dl	Design
0.00	lln	Design
0.00	llp	Design
0.00	llrn	Design
0.00	llrp	Design
-0.69	Sp	Design
0.00	Sn	Design
9.07	Wind	Design
0.00	Wind1	Design
6.80	Wind2	Design
6.80	Wind3	Design
0.00	Wind4	Design
0.00	Wind5	Design
6.80	Wind6	Design
6.80	Wind7	Design
5.10	Wind8	Design
5.10	Wind9	Design
5.10	Wind10	Design
5.10	Wind11	Design
-1.02	C1	Design
-1.22	C2	Design

-0.88	C3	Design
-0.88	C4	Design
-0.88	C5	Design
-1.98	C6	Design
-0.88	C7	Design
-1.98	C8	Design
-0.88	C9	Design
2.55	C10	Design
-1.98	C11	Design
1.42	C12	Design
1.42	C13	Design
-1.98	C14	Design
-1.98	C15	Design
1.42	C16	Design
1.42	C17	Design
0.57	C18	Design
0.57	C19	Design
0.57	C20	Design
0.57	C21	Design
-6.51	C22	Design
-1.98	C23	Design
-5.38	C24	Design
-5.38	C25	Design
-1.98	C26	Design
-1.98	C27	Design
-5.38	C28	Design
-5.38	C29	Design
-4.53	C30	Design
-4.53	C31	Design
-4.53	C32	Design
-4.53	C33	Design
3.66	C34	Design
-0.88	C35	Design
2.53	C36	Design
2.53	C37	Design
-0.88	C38	Design
-0.88	C39	Design
2.53	C40	Design
2.53	C41	Design
1.68	C42	Design
1.68	C43	Design
1.68	C44	Design
1.68	C45	Design
-5.41	C46	Design
-0.88	C47	Design
-4.28	C48	Design
-4.28	C49	Design
-0.88	C50	Design
-0.88	C51	Design
-4.28	C52	Design
-4.28	C53	Design
-3.43	C54	Design
-3.43	C55	Design
-3.43	C56	Design
-3.43	C57	Design
7.85	C58	Design
-1.22	C59	Design
5.58	C60	Design
5.58	C61	Design
-1.22	C62	Design
-1.22	C63	Design
5.58	C64	Design
5.58	C65	Design
3.88	C66	Design
3.88	C67	Design
3.88	C68	Design
3.88	C69	Design
-10.29	C70	Design
-1.22	C71	Design
-8.02	C72	Design
-8.02	C73	Design
-1.22	C74	Design
-1.22	C75	Design
-8.02	C76	Design
-8.02	C77	Design
-6.32	C78	Design
-6.32	C79	Design

-6.32	C80	Design
-6.32	C81	Design
8.19	C82	Design
-0.88	C83	Design
5.93	C84	Design
5.93	C85	Design
-0.88	C86	Design
-0.88	C87	Design
5.93	C88	Design
5.93	C89	Design
4.23	C90	Design
4.23	C91	Design
4.23	C92	Design
4.23	C93	Design
-9.94	C94	Design
-0.88	C95	Design
-7.68	C96	Design
-7.68	C97	Design
-0.88	C98	Design
-0.88	C99	Design
-7.68	C100	Design
-7.68	C101	Design
-5.98	C102	Design
-5.98	C103	Design
-5.98	C104	Design
-5.98	C105	Design
8.19	C106	Design
-0.88	C107	Design
5.93	C108	Design
5.93	C109	Design
-0.88	C110	Design
-0.88	C111	Design
5.93	C112	Design
5.93	C113	Design
4.23	C114	Design
4.23	C115	Design
4.23	C116	Design
4.23	C117	Design
-9.94	C118	Design
-0.88	C119	Design
-7.68	C120	Design
-7.68	C121	Design
-0.88	C122	Design
-0.88	C123	Design
-7.68	C124	Design
-7.68	C125	Design
-5.98	C126	Design
-5.98	C127	Design
-5.98	C128	Design
-5.98	C129	Design
8.19	C130	Design
-0.88	C131	Design
5.93	C132	Design
5.93	C133	Design
-0.88	C134	Design
-0.88	C135	Design
5.93	C136	Design
5.93	C137	Design
4.23	C138	Design
4.23	C139	Design
4.23	C140	Design
4.23	C141	Design
-9.94	C142	Design
-0.88	C143	Design
-7.68	C144	Design
-7.68	C145	Design
-0.88	C146	Design
-0.88	C147	Design
-7.68	C148	Design
-7.68	C149	Design
-5.98	C150	Design
-5.98	C151	Design
-5.98	C152	Design
-5.98	C153	Design
7.85	C154	Design
-1.22	C155	Design
5.58	C156	Design

5.58	C157	Design
-1.22	C158	Design
-1.22	C159	Design
5.58	C160	Design
5.58	C161	Design
3.88	C162	Design
3.88	C163	Design
3.88	C164	Design
3.88	C165	Design
-10.29	C166	Design
-1.22	C167	Design
-8.02	C168	Design
-8.02	C169	Design
-1.22	C170	Design
-1.22	C171	Design
-8.02	C172	Design
-8.02	C173	Design
-6.32	C174	Design
-6.32	C175	Design
-6.32	C176	Design
-6.32	C177	Design
8.19	C178	Design
-0.88	C179	Design
5.93	C180	Design
5.93	C181	Design
-0.88	C182	Design
-0.88	C183	Design
5.93	C184	Design
5.93	C185	Design
4.23	C186	Design
4.23	C187	Design
4.23	C188	Design
4.23	C189	Design
-9.94	C190	Design
-0.88	C191	Design
-7.68	C192	Design
-7.68	C193	Design
-0.88	C194	Design
-0.88	C195	Design
-7.68	C196	Design
-7.68	C197	Design
-5.98	C198	Design
-5.98	C199	Design
-5.98	C200	Design
-5.98	C201	Design
8.19	C202	Design
-0.88	C203	Design
5.93	C204	Design
5.93	C205	Design
-0.88	C206	Design
-0.88	C207	Design
5.93	C208	Design
5.93	C209	Design
4.23	C210	Design
4.23	C211	Design
4.23	C212	Design
4.23	C213	Design
-9.94	C214	Design
-0.88	C215	Design
-7.68	C216	Design
-7.68	C217	Design
-0.88	C218	Design
-0.88	C219	Design
-7.68	C220	Design
-7.68	C221	Design
-5.98	C222	Design
-5.98	C223	Design
-5.98	C224	Design
-5.98	C225	Design
8.41	C226	Design
-0.66	C227	Design
6.15	C228	Design
6.15	C229	Design
-0.66	C230	Design
-0.66	C231	Design
6.15	C232	Design
6.15	C233	Design

4.44	C234	Design
4.44	C235	Design
4.44	C236	Design
4.44	C237	Design
-9.73	C238	Design
-0.66	C239	Design
-7.46	C240	Design
-7.46	C241	Design
-0.66	C242	Design
-0.66	C243	Design
-7.46	C244	Design
-7.46	C245	Design
-5.76	C246	Design
-5.76	C247	Design
-5.76	C248	Design
-5.76	C249	Design
-0.88	D1	Design
-1.22	D2	Design
-1.22	D3	Design
-1.98	D4	Design
3.66	D5	Design
-0.88	D6	Design
2.53	D7	Design
2.53	D8	Design
-0.88	D9	Design
-0.88	D10	Design
2.53	D11	Design
2.53	D12	Design
1.68	D13	Design
1.68	D14	Design
1.68	D15	Design
1.68	D16	Design
-1.98	D17	Design
2.55	D18	Design
-1.98	D19	Design
1.42	D20	Design
1.42	D21	Design
-1.98	D22	Design
-1.98	D23	Design
1.42	D24	Design
1.42	D25	Design
0.57	D26	Design
0.57	D27	Design
0.57	D28	Design
0.57	D29	Design
7.85	D30	Design
-1.22	D31	Design
5.58	D32	Design
5.58	D33	Design
-1.22	D34	Design
-1.22	D35	Design
5.58	D36	Design
5.58	D37	Design
3.88	D38	Design
3.88	D39	Design
3.88	D40	Design
3.88	D41	Design
8.19	D42	Design
-0.88	D43	Design
5.93	D44	Design
5.93	D45	Design
-0.88	D46	Design
-0.88	D47	Design
5.93	D48	Design
5.93	D49	Design
4.23	D50	Design
4.23	D51	Design
4.23	D52	Design
4.23	D53	Design
7.85	D54	Design
-1.22	D55	Design
5.58	D56	Design
5.58	D57	Design
-1.22	D58	Design
-1.22	D59	Design
5.58	D60	Design
5.58	D61	Design

3.88	D62	Design
3.88	D63	Design
3.88	D64	Design
3.88	D65	Design
-1.01	D66	Design

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Member						
Yielding strength due to axial load	[Kip]	193.50	9.07	Wind	0.05	Eq. J4-1
Tension rupture	[Kip]	136.31	9.07	Wind	0.07	Eq. J4-2
Gusset						
Tension yielding on the Whitmore section	[Kip]	164.98	9.07	Wind	0.05	Eq. J4-1
Buckling on the Whitmore section	[Kip]	142.19	10.29	C70	0.07	Eq. E3-1
Ratio		0.07				

Interface Left gusset - base plate Connection: *Directly welded*

Demands

Description	Beam			Column			Load type
	Ru [kip]	Pu [kip]	Mu [kip*ft]	Pu [kip]	Mu22 [kip*ft]	Mu33 [kip*ft]	
dl	-0.24	-0.05	0.00	0.00	0.00	0.00	Design
lln	0.00	0.00	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrn	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	0.00	0.00	Design
Sp	-0.23	-0.04	0.00	0.00	0.00	0.00	Design
Sn	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind	3.02	0.57	-0.04	0.00	0.00	0.00	Design
Wind1	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind2	2.26	0.42	-0.03	0.00	0.00	0.00	Design
Wind3	2.26	0.42	-0.03	0.00	0.00	0.00	Design
Wind4	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind5	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind6	2.26	0.42	-0.03	0.00	0.00	0.00	Design
Wind7	2.26	0.42	-0.03	0.00	0.00	0.00	Design
Wind8	1.70	0.32	-0.02	0.00	0.00	0.00	Design
Wind9	1.70	0.32	-0.02	0.00	0.00	0.00	Design
Wind10	1.70	0.32	-0.02	0.00	0.00	0.00	Design
Wind11	1.70	0.32	-0.02	0.00	0.00	0.00	Design
C1	-0.34	-0.06	0.00	0.00	0.00	0.00	Design
C2	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C3	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C4	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C5	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C6	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
C7	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C8	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
C9	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C10	0.85	0.16	-0.01	0.00	0.00	0.00	Design
C11	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
C12	0.47	0.09	-0.01	0.00	0.00	0.00	Design
C13	0.47	0.09	-0.01	0.00	0.00	0.00	Design
C14	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
C15	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
C16	0.47	0.09	-0.01	0.00	0.00	0.00	Design
C17	0.47	0.09	-0.01	0.00	0.00	0.00	Design
C18	0.19	0.04	0.00	0.00	0.00	0.00	Design
C19	0.19	0.04	0.00	0.00	0.00	0.00	Design
C20	0.19	0.04	0.00	0.00	0.00	0.00	Design
C21	0.19	0.04	0.00	0.00	0.00	0.00	Design
C22	-2.17	-0.41	0.03	0.00	0.00	0.00	Design
C23	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
C24	-1.79	-0.34	0.02	0.00	0.00	0.00	Design

C25	-1.79	-0.34	0.02	0.00	0.00	0.00	Design
C26	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
C27	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
C28	-1.79	-0.34	0.02	0.00	0.00	0.00	Design
C29	-1.79	-0.34	0.02	0.00	0.00	0.00	Design
C30	-1.51	-0.28	0.02	0.00	0.00	0.00	Design
C31	-1.51	-0.28	0.02	0.00	0.00	0.00	Design
C32	-1.51	-0.28	0.02	0.00	0.00	0.00	Design
C33	-1.51	-0.28	0.02	0.00	0.00	0.00	Design
C34	1.22	0.23	-0.01	0.00	0.00	0.00	Design
C35	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C36	0.84	0.16	-0.01	0.00	0.00	0.00	Design
C37	0.84	0.16	-0.01	0.00	0.00	0.00	Design
C38	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C39	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C40	0.84	0.16	-0.01	0.00	0.00	0.00	Design
C41	0.84	0.16	-0.01	0.00	0.00	0.00	Design
C42	0.56	0.10	-0.01	0.00	0.00	0.00	Design
C43	0.56	0.10	-0.01	0.00	0.00	0.00	Design
C44	0.56	0.10	-0.01	0.00	0.00	0.00	Design
C45	0.56	0.10	-0.01	0.00	0.00	0.00	Design
C46	-1.80	-0.34	0.02	0.00	0.00	0.00	Design
C47	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C48	-1.42	-0.27	0.02	0.00	0.00	0.00	Design
C49	-1.42	-0.27	0.02	0.00	0.00	0.00	Design
C50	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C51	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C52	-1.42	-0.27	0.02	0.00	0.00	0.00	Design
C53	-1.42	-0.27	0.02	0.00	0.00	0.00	Design
C54	-1.14	-0.21	0.01	0.00	0.00	0.00	Design
C55	-1.14	-0.21	0.01	0.00	0.00	0.00	Design
C56	-1.14	-0.21	0.01	0.00	0.00	0.00	Design
C57	-1.14	-0.21	0.01	0.00	0.00	0.00	Design
C58	2.61	0.49	-0.03	0.00	0.00	0.00	Design
C59	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C60	1.86	0.35	-0.02	0.00	0.00	0.00	Design
C61	1.86	0.35	-0.02	0.00	0.00	0.00	Design
C62	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C63	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C64	1.86	0.35	-0.02	0.00	0.00	0.00	Design
C65	1.86	0.35	-0.02	0.00	0.00	0.00	Design
C66	1.29	0.24	-0.02	0.00	0.00	0.00	Design
C67	1.29	0.24	-0.02	0.00	0.00	0.00	Design
C68	1.29	0.24	-0.02	0.00	0.00	0.00	Design
C69	1.29	0.24	-0.02	0.00	0.00	0.00	Design
C70	-3.42	-0.64	0.04	0.00	0.00	0.00	Design
C71	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C72	-2.67	-0.50	0.03	0.00	0.00	0.00	Design
C73	-2.67	-0.50	0.03	0.00	0.00	0.00	Design
C74	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C75	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C76	-2.67	-0.50	0.03	0.00	0.00	0.00	Design
C77	-2.67	-0.50	0.03	0.00	0.00	0.00	Design
C78	-2.10	-0.39	0.02	0.00	0.00	0.00	Design
C79	-2.10	-0.39	0.02	0.00	0.00	0.00	Design
C80	-2.10	-0.39	0.02	0.00	0.00	0.00	Design
C81	-2.10	-0.39	0.02	0.00	0.00	0.00	Design
C82	2.73	0.51	-0.03	0.00	0.00	0.00	Design
C83	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C84	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C85	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C86	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C87	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C88	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C89	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C90	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C91	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C92	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C93	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C94	-3.31	-0.62	0.04	0.00	0.00	0.00	Design
C95	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C96	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C97	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C98	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C99	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C100	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C101	-2.56	-0.48	0.03	0.00	0.00	0.00	Design

C102	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C103	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C104	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C105	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C106	2.73	0.51	-0.03	0.00	0.00	0.00	Design
C107	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C108	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C109	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C110	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C111	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C112	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C113	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C114	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C115	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C116	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C117	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C118	-3.31	-0.62	0.04	0.00	0.00	0.00	Design
C119	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C120	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C121	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C122	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C123	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C124	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C125	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C126	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C127	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C128	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C129	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C130	2.73	0.51	-0.03	0.00	0.00	0.00	Design
C131	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C132	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C133	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C134	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C135	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C136	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C137	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C138	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C139	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C140	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C141	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C142	-3.31	-0.62	0.04	0.00	0.00	0.00	Design
C143	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C144	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C145	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C146	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C147	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C148	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C149	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C150	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C151	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C152	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C153	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C154	2.61	0.49	-0.03	0.00	0.00	0.00	Design
C155	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C156	1.86	0.35	-0.02	0.00	0.00	0.00	Design
C157	1.86	0.35	-0.02	0.00	0.00	0.00	Design
C158	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C159	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C160	1.86	0.35	-0.02	0.00	0.00	0.00	Design
C161	1.86	0.35	-0.02	0.00	0.00	0.00	Design
C162	1.29	0.24	-0.02	0.00	0.00	0.00	Design
C163	1.29	0.24	-0.02	0.00	0.00	0.00	Design
C164	1.29	0.24	-0.02	0.00	0.00	0.00	Design
C165	1.29	0.24	-0.02	0.00	0.00	0.00	Design
C166	-3.42	-0.64	0.04	0.00	0.00	0.00	Design
C167	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C168	-2.67	-0.50	0.03	0.00	0.00	0.00	Design
C169	-2.67	-0.50	0.03	0.00	0.00	0.00	Design
C170	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C171	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
C172	-2.67	-0.50	0.03	0.00	0.00	0.00	Design
C173	-2.67	-0.50	0.03	0.00	0.00	0.00	Design
C174	-2.10	-0.39	0.02	0.00	0.00	0.00	Design
C175	-2.10	-0.39	0.02	0.00	0.00	0.00	Design
C176	-2.10	-0.39	0.02	0.00	0.00	0.00	Design
C177	-2.10	-0.39	0.02	0.00	0.00	0.00	Design
C178	2.73	0.51	-0.03	0.00	0.00	0.00	Design

C179	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C180	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C181	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C182	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C183	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C184	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C185	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C186	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C187	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C188	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C189	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C190	-3.31	-0.62	0.04	0.00	0.00	0.00	Design
C191	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C192	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C193	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C194	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C195	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C196	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C197	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C198	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C199	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C200	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C201	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C202	2.73	0.51	-0.03	0.00	0.00	0.00	Design
C203	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C204	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C205	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C206	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C207	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C208	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C209	1.97	0.37	-0.02	0.00	0.00	0.00	Design
C210	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C211	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C212	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C213	1.41	0.26	-0.02	0.00	0.00	0.00	Design
C214	-3.31	-0.62	0.04	0.00	0.00	0.00	Design
C215	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C216	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C217	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C218	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C219	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
C220	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C221	-2.56	-0.48	0.03	0.00	0.00	0.00	Design
C222	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C223	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C224	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C225	-1.99	-0.37	0.02	0.00	0.00	0.00	Design
C226	2.80	0.52	-0.03	0.00	0.00	0.00	Design
C227	-0.22	-0.04	0.00	0.00	0.00	0.00	Design
C228	2.05	0.38	-0.02	0.00	0.00	0.00	Design
C229	2.05	0.38	-0.02	0.00	0.00	0.00	Design
C230	-0.22	-0.04	0.00	0.00	0.00	0.00	Design
C231	-0.22	-0.04	0.00	0.00	0.00	0.00	Design
C232	2.05	0.38	-0.02	0.00	0.00	0.00	Design
C233	2.05	0.38	-0.02	0.00	0.00	0.00	Design
C234	1.48	0.28	-0.02	0.00	0.00	0.00	Design
C235	1.48	0.28	-0.02	0.00	0.00	0.00	Design
C236	1.48	0.28	-0.02	0.00	0.00	0.00	Design
C237	1.48	0.28	-0.02	0.00	0.00	0.00	Design
C238	-3.24	-0.61	0.04	0.00	0.00	0.00	Design
C239	-0.22	-0.04	0.00	0.00	0.00	0.00	Design
C240	-2.48	-0.47	0.03	0.00	0.00	0.00	Design
C241	-2.48	-0.47	0.03	0.00	0.00	0.00	Design
C242	-0.22	-0.04	0.00	0.00	0.00	0.00	Design
C243	-0.22	-0.04	0.00	0.00	0.00	0.00	Design
C244	-2.48	-0.47	0.03	0.00	0.00	0.00	Design
C245	-2.48	-0.47	0.03	0.00	0.00	0.00	Design
C246	-1.92	-0.36	0.02	0.00	0.00	0.00	Design
C247	-1.92	-0.36	0.02	0.00	0.00	0.00	Design
C248	-1.92	-0.36	0.02	0.00	0.00	0.00	Design
C249	-1.92	-0.36	0.02	0.00	0.00	0.00	Design
D1	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
D2	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
D3	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
D4	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
D5	1.22	0.23	-0.01	0.00	0.00	0.00	Design
D6	-0.29	-0.05	0.00	0.00	0.00	0.00	Design

D7	0.84	0.16	-0.01	0.00	0.00	0.00	Design
D8	0.84	0.16	-0.01	0.00	0.00	0.00	Design
D9	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
D10	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
D11	0.84	0.16	-0.01	0.00	0.00	0.00	Design
D12	0.84	0.16	-0.01	0.00	0.00	0.00	Design
D13	0.56	0.10	-0.01	0.00	0.00	0.00	Design
D14	0.56	0.10	-0.01	0.00	0.00	0.00	Design
D15	0.56	0.10	-0.01	0.00	0.00	0.00	Design
D16	0.56	0.10	-0.01	0.00	0.00	0.00	Design
D17	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
D18	0.85	0.16	-0.01	0.00	0.00	0.00	Design
D19	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
D20	0.47	0.09	-0.01	0.00	0.00	0.00	Design
D21	0.47	0.09	-0.01	0.00	0.00	0.00	Design
D22	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
D23	-0.66	-0.12	0.01	0.00	0.00	0.00	Design
D24	0.47	0.09	-0.01	0.00	0.00	0.00	Design
D25	0.47	0.09	-0.01	0.00	0.00	0.00	Design
D26	0.19	0.04	0.00	0.00	0.00	0.00	Design
D27	0.19	0.04	0.00	0.00	0.00	0.00	Design
D28	0.19	0.04	0.00	0.00	0.00	0.00	Design
D29	0.19	0.04	0.00	0.00	0.00	0.00	Design
D30	2.61	0.49	-0.03	0.00	0.00	0.00	Design
D31	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
D32	1.86	0.35	-0.02	0.00	0.00	0.00	Design
D33	1.86	0.35	-0.02	0.00	0.00	0.00	Design
D34	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
D35	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
D36	1.86	0.35	-0.02	0.00	0.00	0.00	Design
D37	1.86	0.35	-0.02	0.00	0.00	0.00	Design
D38	1.29	0.24	-0.02	0.00	0.00	0.00	Design
D39	1.29	0.24	-0.02	0.00	0.00	0.00	Design
D40	1.29	0.24	-0.02	0.00	0.00	0.00	Design
D41	1.29	0.24	-0.02	0.00	0.00	0.00	Design
D42	2.73	0.51	-0.03	0.00	0.00	0.00	Design
D43	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
D44	1.97	0.37	-0.02	0.00	0.00	0.00	Design
D45	1.97	0.37	-0.02	0.00	0.00	0.00	Design
D46	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
D47	-0.29	-0.05	0.00	0.00	0.00	0.00	Design
D48	1.97	0.37	-0.02	0.00	0.00	0.00	Design
D49	1.97	0.37	-0.02	0.00	0.00	0.00	Design
D50	1.41	0.26	-0.02	0.00	0.00	0.00	Design
D51	1.41	0.26	-0.02	0.00	0.00	0.00	Design
D52	1.41	0.26	-0.02	0.00	0.00	0.00	Design
D53	1.41	0.26	-0.02	0.00	0.00	0.00	Design
D54	2.61	0.49	-0.03	0.00	0.00	0.00	Design
D55	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
D56	1.86	0.35	-0.02	0.00	0.00	0.00	Design
D57	1.86	0.35	-0.02	0.00	0.00	0.00	Design
D58	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
D59	-0.41	-0.08	0.00	0.00	0.00	0.00	Design
D60	1.86	0.35	-0.02	0.00	0.00	0.00	Design
D61	1.86	0.35	-0.02	0.00	0.00	0.00	Design
D62	1.29	0.24	-0.02	0.00	0.00	0.00	Design
D63	1.29	0.24	-0.02	0.00	0.00	0.00	Design
D64	1.29	0.24	-0.02	0.00	0.00	0.00	Design
D65	1.29	0.24	-0.02	0.00	0.00	0.00	Design
D66	-0.34	-0.06	0.00	0.00	0.00	0.00	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Gusset Weld size	[1/16in]	4	3	5	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Gusset						
Beam yielding (normal stress)	[Kip]	115.43	0.84	C70	0.01	Eq. B-1, Appendix B, DG29
Shear yielding	[Kip]	76.95	3.42	C70	0.04	Eq. J4-3
Gusset edge tension stress	[Kip/in2]	32.40	0.18	C70	0.01	Eq. B-1, Appendix B, DG29
Gusset edge shear stress	[Kip/in2]	21.60	0.96	C70	0.04	J4-1
Weld capacity	[Kip]	107.43	4.37	C70	0.04	Tables 8-4 .. 8-11

Ratio **0.04**

Interface Upper left gusset - column
Connection: Directly welded

Demands

Description	Beam			Column			Load type
	Ru [kip]	Pu [kip]	Mu [kip*ft]	Pu [kip]	Mu22 [kip*ft]	Mu33 [kip*ft]	
dl	-0.57	-0.15	-0.02	-7.31	0.00	0.00	Design
lln	0.00	0.00	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrn	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	0.00	0.00	Design
Sp	-0.54	-0.14	-0.02	-3.03	0.00	0.00	Design
Sn	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind	7.06	1.89	0.21	0.00	0.00	0.00	Design
Wind1	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind2	5.30	1.41	0.16	0.00	0.00	0.00	Design
Wind3	5.30	1.41	0.16	0.00	0.00	0.00	Design
Wind4	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind5	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind6	5.30	1.41	0.16	0.00	0.00	0.00	Design
Wind7	5.30	1.41	0.16	0.00	0.00	0.00	Design
Wind8	3.97	1.06	0.12	0.00	0.00	0.00	Design
Wind9	3.97	1.06	0.12	0.00	0.00	0.00	Design
Wind10	3.97	1.06	0.12	0.00	0.00	0.00	Design
Wind11	3.97	1.06	0.12	0.00	0.00	0.00	Design
C1	-0.80	-0.21	-0.02	-10.23	0.00	0.00	Design
C2	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C3	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C4	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C5	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C6	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
C7	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C8	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
C9	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C10	1.99	0.53	0.06	-13.63	0.00	0.00	Design
C11	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
C12	1.11	0.30	0.03	-13.63	0.00	0.00	Design
C13	1.11	0.30	0.03	-13.63	0.00	0.00	Design
C14	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
C15	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
C16	1.11	0.30	0.03	-13.63	0.00	0.00	Design
C17	1.11	0.30	0.03	-13.63	0.00	0.00	Design
C18	0.44	0.12	0.01	-13.63	0.00	0.00	Design
C19	0.44	0.12	0.01	-13.63	0.00	0.00	Design
C20	0.44	0.12	0.01	-13.63	0.00	0.00	Design
C21	0.44	0.12	0.01	-13.63	0.00	0.00	Design
C22	-5.07	-1.35	-0.15	-13.63	0.00	0.00	Design
C23	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
C24	-4.19	-1.12	-0.13	-13.63	0.00	0.00	Design
C25	-4.19	-1.12	-0.13	-13.63	0.00	0.00	Design
C26	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
C27	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
C28	-4.19	-1.12	-0.13	-13.63	0.00	0.00	Design
C29	-4.19	-1.12	-0.13	-13.63	0.00	0.00	Design

C30	-3.53	-0.94	-0.11	-13.63	0.00	0.00	Design
C31	-3.53	-0.94	-0.11	-13.63	0.00	0.00	Design
C32	-3.53	-0.94	-0.11	-13.63	0.00	0.00	Design
C33	-3.53	-0.94	-0.11	-13.63	0.00	0.00	Design
C34	2.85	0.76	0.09	-8.77	0.00	0.00	Design
C35	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C36	1.97	0.53	0.06	-8.77	0.00	0.00	Design
C37	1.97	0.53	0.06	-8.77	0.00	0.00	Design
C38	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C39	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C40	1.97	0.53	0.06	-8.77	0.00	0.00	Design
C41	1.97	0.53	0.06	-8.77	0.00	0.00	Design
C42	1.30	0.35	0.04	-8.77	0.00	0.00	Design
C43	1.30	0.35	0.04	-8.77	0.00	0.00	Design
C44	1.30	0.35	0.04	-8.77	0.00	0.00	Design
C45	1.30	0.35	0.04	-8.77	0.00	0.00	Design
C46	-4.21	-1.12	-0.13	-8.77	0.00	0.00	Design
C47	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C48	-3.33	-0.89	-0.10	-8.77	0.00	0.00	Design
C49	-3.33	-0.89	-0.10	-8.77	0.00	0.00	Design
C50	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C51	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C52	-3.33	-0.89	-0.10	-8.77	0.00	0.00	Design
C53	-3.33	-0.89	-0.10	-8.77	0.00	0.00	Design
C54	-2.67	-0.71	-0.08	-8.77	0.00	0.00	Design
C55	-2.67	-0.71	-0.08	-8.77	0.00	0.00	Design
C56	-2.67	-0.71	-0.08	-8.77	0.00	0.00	Design
C57	-2.67	-0.71	-0.08	-8.77	0.00	0.00	Design
C58	6.11	1.63	0.19	-10.29	0.00	0.00	Design
C59	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C60	4.35	1.16	0.13	-10.29	0.00	0.00	Design
C61	4.35	1.16	0.13	-10.29	0.00	0.00	Design
C62	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C63	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C64	4.35	1.16	0.13	-10.29	0.00	0.00	Design
C65	4.35	1.16	0.13	-10.29	0.00	0.00	Design
C66	3.02	0.81	0.09	-10.29	0.00	0.00	Design
C67	3.02	0.81	0.09	-10.29	0.00	0.00	Design
C68	3.02	0.81	0.09	-10.29	0.00	0.00	Design
C69	3.02	0.81	0.09	-10.29	0.00	0.00	Design
C70	-8.01	-2.14	-0.24	-10.29	0.00	0.00	Design
C71	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C72	-6.25	-1.67	-0.19	-10.29	0.00	0.00	Design
C73	-6.25	-1.67	-0.19	-10.29	0.00	0.00	Design
C74	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C75	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C76	-6.25	-1.67	-0.19	-10.29	0.00	0.00	Design
C77	-6.25	-1.67	-0.19	-10.29	0.00	0.00	Design
C78	-4.92	-1.31	-0.15	-10.29	0.00	0.00	Design
C79	-4.92	-1.31	-0.15	-10.29	0.00	0.00	Design
C80	-4.92	-1.31	-0.15	-10.29	0.00	0.00	Design
C81	-4.92	-1.31	-0.15	-10.29	0.00	0.00	Design
C82	6.38	1.70	0.19	-8.77	0.00	0.00	Design
C83	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C84	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C85	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C86	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C87	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C88	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C89	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C90	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C91	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C92	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C93	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C94	-7.74	-2.07	-0.24	-8.77	0.00	0.00	Design
C95	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C96	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C97	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C98	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C99	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C100	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C101	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C102	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C103	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C104	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C105	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C106	6.38	1.70	0.19	-8.77	0.00	0.00	Design

C107	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C108	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C109	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C110	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C111	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C112	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C113	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C114	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C115	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C116	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C117	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C118	-7.74	-2.07	-0.24	-8.77	0.00	0.00	Design
C119	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C120	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C121	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C122	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C123	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C124	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C125	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C126	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C127	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C128	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C129	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C130	6.38	1.70	0.19	-8.77	0.00	0.00	Design
C131	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C132	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C133	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C134	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C135	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C136	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C137	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C138	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C139	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C140	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C141	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C142	-7.74	-2.07	-0.24	-8.77	0.00	0.00	Design
C143	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C144	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C145	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C146	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C147	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C148	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C149	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C150	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C151	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C152	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C153	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C154	6.11	1.63	0.19	-10.29	0.00	0.00	Design
C155	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C156	4.35	1.16	0.13	-10.29	0.00	0.00	Design
C157	4.35	1.16	0.13	-10.29	0.00	0.00	Design
C158	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C159	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C160	4.35	1.16	0.13	-10.29	0.00	0.00	Design
C161	4.35	1.16	0.13	-10.29	0.00	0.00	Design
C162	3.02	0.81	0.09	-10.29	0.00	0.00	Design
C163	3.02	0.81	0.09	-10.29	0.00	0.00	Design
C164	3.02	0.81	0.09	-10.29	0.00	0.00	Design
C165	3.02	0.81	0.09	-10.29	0.00	0.00	Design
C166	-8.01	-2.14	-0.24	-10.29	0.00	0.00	Design
C167	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C168	-6.25	-1.67	-0.19	-10.29	0.00	0.00	Design
C169	-6.25	-1.67	-0.19	-10.29	0.00	0.00	Design
C170	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C171	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
C172	-6.25	-1.67	-0.19	-10.29	0.00	0.00	Design
C173	-6.25	-1.67	-0.19	-10.29	0.00	0.00	Design
C174	-4.92	-1.31	-0.15	-10.29	0.00	0.00	Design
C175	-4.92	-1.31	-0.15	-10.29	0.00	0.00	Design
C176	-4.92	-1.31	-0.15	-10.29	0.00	0.00	Design
C177	-4.92	-1.31	-0.15	-10.29	0.00	0.00	Design
C178	6.38	1.70	0.19	-8.77	0.00	0.00	Design
C179	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C180	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C181	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C182	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C183	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design

C184	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C185	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C186	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C187	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C188	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C189	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C190	-7.74	-2.07	-0.24	-8.77	0.00	0.00	Design
C191	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C192	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C193	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C194	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C195	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C196	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C197	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C198	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C199	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C200	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C201	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C202	6.38	1.70	0.19	-8.77	0.00	0.00	Design
C203	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C204	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C205	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C206	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C207	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C208	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C209	4.62	1.23	0.14	-8.77	0.00	0.00	Design
C210	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C211	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C212	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C213	3.29	0.88	0.10	-8.77	0.00	0.00	Design
C214	-7.74	-2.07	-0.24	-8.77	0.00	0.00	Design
C215	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C216	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C217	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C218	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C219	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
C220	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C221	-5.98	-1.60	-0.18	-8.77	0.00	0.00	Design
C222	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C223	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C224	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C225	-4.65	-1.24	-0.14	-8.77	0.00	0.00	Design
C226	6.55	1.75	0.20	-6.58	0.00	0.00	Design
C227	-0.51	-0.14	-0.02	-6.58	0.00	0.00	Design
C228	4.79	1.28	0.15	-6.58	0.00	0.00	Design
C229	4.79	1.28	0.15	-6.58	0.00	0.00	Design
C230	-0.51	-0.14	-0.02	-6.58	0.00	0.00	Design
C231	-0.51	-0.14	-0.02	-6.58	0.00	0.00	Design
C232	4.79	1.28	0.15	-6.58	0.00	0.00	Design
C233	4.79	1.28	0.15	-6.58	0.00	0.00	Design
C234	3.46	0.92	0.11	-6.58	0.00	0.00	Design
C235	3.46	0.92	0.11	-6.58	0.00	0.00	Design
C236	3.46	0.92	0.11	-6.58	0.00	0.00	Design
C237	3.46	0.92	0.11	-6.58	0.00	0.00	Design
C238	-7.57	-2.02	-0.23	-6.58	0.00	0.00	Design
C239	-0.51	-0.14	-0.02	-6.58	0.00	0.00	Design
C240	-5.81	-1.55	-0.18	-6.58	0.00	0.00	Design
C241	-5.81	-1.55	-0.18	-6.58	0.00	0.00	Design
C242	-0.51	-0.14	-0.02	-6.58	0.00	0.00	Design
C243	-0.51	-0.14	-0.02	-6.58	0.00	0.00	Design
C244	-5.81	-1.55	-0.18	-6.58	0.00	0.00	Design
C245	-5.81	-1.55	-0.18	-6.58	0.00	0.00	Design
C246	-4.48	-1.20	-0.14	-6.58	0.00	0.00	Design
C247	-4.48	-1.20	-0.14	-6.58	0.00	0.00	Design
C248	-4.48	-1.20	-0.14	-6.58	0.00	0.00	Design
C249	-4.48	-1.20	-0.14	-6.58	0.00	0.00	Design
D1	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
D2	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
D3	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
D4	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
D5	2.85	0.76	0.09	-8.77	0.00	0.00	Design
D6	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
D7	1.97	0.53	0.06	-8.77	0.00	0.00	Design
D8	1.97	0.53	0.06	-8.77	0.00	0.00	Design
D9	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
D10	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
D11	1.97	0.53	0.06	-8.77	0.00	0.00	Design

D12	1.97	0.53	0.06	-8.77	0.00	0.00	Design
D13	1.30	0.35	0.04	-8.77	0.00	0.00	Design
D14	1.30	0.35	0.04	-8.77	0.00	0.00	Design
D15	1.30	0.35	0.04	-8.77	0.00	0.00	Design
D16	1.30	0.35	0.04	-8.77	0.00	0.00	Design
D17	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
D18	1.99	0.53	0.06	-13.63	0.00	0.00	Design
D19	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
D20	1.11	0.30	0.03	-13.63	0.00	0.00	Design
D21	1.11	0.30	0.03	-13.63	0.00	0.00	Design
D22	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
D23	-1.54	-0.41	-0.05	-13.63	0.00	0.00	Design
D24	1.11	0.30	0.03	-13.63	0.00	0.00	Design
D25	1.11	0.30	0.03	-13.63	0.00	0.00	Design
D26	0.44	0.12	0.01	-13.63	0.00	0.00	Design
D27	0.44	0.12	0.01	-13.63	0.00	0.00	Design
D28	0.44	0.12	0.01	-13.63	0.00	0.00	Design
D29	0.44	0.12	0.01	-13.63	0.00	0.00	Design
D30	6.11	1.63	0.19	-10.29	0.00	0.00	Design
D31	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
D32	4.35	1.16	0.13	-10.29	0.00	0.00	Design
D33	4.35	1.16	0.13	-10.29	0.00	0.00	Design
D34	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
D35	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
D36	4.35	1.16	0.13	-10.29	0.00	0.00	Design
D37	4.35	1.16	0.13	-10.29	0.00	0.00	Design
D38	3.02	0.81	0.09	-10.29	0.00	0.00	Design
D39	3.02	0.81	0.09	-10.29	0.00	0.00	Design
D40	3.02	0.81	0.09	-10.29	0.00	0.00	Design
D41	3.02	0.81	0.09	-10.29	0.00	0.00	Design
D42	6.38	1.70	0.19	-8.77	0.00	0.00	Design
D43	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
D44	4.62	1.23	0.14	-8.77	0.00	0.00	Design
D45	4.62	1.23	0.14	-8.77	0.00	0.00	Design
D46	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
D47	-0.68	-0.18	-0.02	-8.77	0.00	0.00	Design
D48	4.62	1.23	0.14	-8.77	0.00	0.00	Design
D49	4.62	1.23	0.14	-8.77	0.00	0.00	Design
D50	3.29	0.88	0.10	-8.77	0.00	0.00	Design
D51	3.29	0.88	0.10	-8.77	0.00	0.00	Design
D52	3.29	0.88	0.10	-8.77	0.00	0.00	Design
D53	3.29	0.88	0.10	-8.77	0.00	0.00	Design
D54	6.11	1.63	0.19	-10.29	0.00	0.00	Design
D55	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
D56	4.35	1.16	0.13	-10.29	0.00	0.00	Design
D57	4.35	1.16	0.13	-10.29	0.00	0.00	Design
D58	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
D59	-0.95	-0.25	-0.03	-10.29	0.00	0.00	Design
D60	4.35	1.16	0.13	-10.29	0.00	0.00	Design
D61	4.35	1.16	0.13	-10.29	0.00	0.00	Design
D62	3.02	0.81	0.09	-10.29	0.00	0.00	Design
D63	3.02	0.81	0.09	-10.29	0.00	0.00	Design
D64	3.02	0.81	0.09	-10.29	0.00	0.00	Design
D65	3.02	0.81	0.09	-10.29	0.00	0.00	Design
D66	-0.79	-0.21	-0.02	-9.38	0.00	0.00	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Gusset						
Weld size	[1/16in]	4	2	4	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Gusset						
Beam yielding (normal stress)	[Kip]	194.40	2.87	C70	0.01	Eq. B-1, Appendix B, DG29
Shear yielding	[Kip]	129.60	8.01	C70	0.06	Eq. J4-3
Gusset edge tension stress	[Kip/in2]	32.40	0.36	C70	0.01	Eq. B-1,

Gusset edge shear stress	[Kip/in ²]	21.60	1.34	C70	0.06	J4-1
Weld capacity	[Kip]	198.59	10.45	C70	0.05	Tables 8-4 .. 8-11

Chord

HSS wall strength due out-of-plane transverse load	[Kip]	33.45	2.14	C70	0.06	p.9-16
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Ratio **0.06**

Interface between Column - base plate

Demands

Description	Pu [kip]	Mu22 [kip*ft]	Mu33 [kip*ft]	Vu2 [kip]	Vu3 [kip]	Load type
dl	-7.92	0.00	-2.25	-0.39	0.00	Design
lln	0.00	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	0.00	Design
llm	0.00	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	0.00	Design
Sp	-3.62	0.00	-1.00	-0.37	0.00	Design
Sn	0.00	0.00	0.00	0.00	0.00	Design
Wind	7.63	0.00	1.49	4.90	0.00	Design
Wind1	0.00	0.00	0.00	0.00	0.00	Design
Wind2	5.72	0.00	1.12	3.68	0.00	Design
Wind3	5.72	0.00	1.12	3.68	0.00	Design
Wind4	0.00	0.00	0.00	0.00	0.00	Design
Wind5	0.00	0.00	0.00	0.00	0.00	Design
Wind6	5.72	0.00	1.12	3.68	0.00	Design
Wind7	5.72	0.00	1.12	3.68	0.00	Design
Wind8	4.29	0.00	0.84	2.76	0.00	Design
Wind9	4.29	0.00	0.84	2.76	0.00	Design
Wind10	4.29	0.00	0.84	2.76	0.00	Design
Wind11	4.29	0.00	0.84	2.76	0.00	Design
C1	-11.09	0.00	-3.15	-0.55	0.00	Design
C2	-11.31	0.00	-3.20	-0.66	0.00	Design
C3	-9.51	0.00	-2.70	-0.47	0.00	Design
C4	-9.51	0.00	-2.70	-0.47	0.00	Design
C5	-9.51	0.00	-2.70	-0.47	0.00	Design
C6	-15.29	0.00	-4.30	-1.07	0.00	Design
C7	-9.51	0.00	-2.70	-0.47	0.00	Design
C8	-15.29	0.00	-4.30	-1.07	0.00	Design
C9	-9.51	0.00	-2.70	-0.47	0.00	Design
C10	-11.48	0.00	-3.55	1.38	0.00	Design
C11	-15.29	0.00	-4.30	-1.07	0.00	Design
C12	-12.43	0.00	-3.74	0.77	0.00	Design
C13	-12.43	0.00	-3.74	0.77	0.00	Design
C14	-15.29	0.00	-4.30	-1.07	0.00	Design
C15	-15.29	0.00	-4.30	-1.07	0.00	Design
C16	-12.43	0.00	-3.74	0.77	0.00	Design
C17	-12.43	0.00	-3.74	0.77	0.00	Design
C18	-13.15	0.00	-3.88	0.31	0.00	Design
C19	-13.15	0.00	-3.88	0.31	0.00	Design
C20	-13.15	0.00	-3.88	0.31	0.00	Design
C21	-13.15	0.00	-3.88	0.31	0.00	Design
C22	-19.11	0.00	-5.04	-3.52	0.00	Design
C23	-15.29	0.00	-4.30	-1.07	0.00	Design
C24	-18.15	0.00	-4.86	-2.91	0.00	Design
C25	-18.15	0.00	-4.86	-2.91	0.00	Design
C26	-15.29	0.00	-4.30	-1.07	0.00	Design
C27	-15.29	0.00	-4.30	-1.07	0.00	Design
C28	-18.15	0.00	-4.86	-2.91	0.00	Design
C29	-18.15	0.00	-4.86	-2.91	0.00	Design
C30	-17.44	0.00	-4.72	-2.45	0.00	Design
C31	-17.44	0.00	-4.72	-2.45	0.00	Design
C32	-17.44	0.00	-4.72	-2.45	0.00	Design
C33	-17.44	0.00	-4.72	-2.45	0.00	Design
C34	-5.69	0.00	-1.96	1.98	0.00	Design

C35	-9.51	0.00	-2.70	-0.47	0.00	Design
C36	-6.65	0.00	-2.14	1.37	0.00	Design
C37	-6.65	0.00	-2.14	1.37	0.00	Design
C38	-9.51	0.00	-2.70	-0.47	0.00	Design
C39	-9.51	0.00	-2.70	-0.47	0.00	Design
C40	-6.65	0.00	-2.14	1.37	0.00	Design
C41	-6.65	0.00	-2.14	1.37	0.00	Design
C42	-7.36	0.00	-2.28	0.91	0.00	Design
C43	-7.36	0.00	-2.28	0.91	0.00	Design
C44	-7.36	0.00	-2.28	0.91	0.00	Design
C45	-7.36	0.00	-2.28	0.91	0.00	Design
C46	-13.32	0.00	-3.45	-2.93	0.00	Design
C47	-9.51	0.00	-2.70	-0.47	0.00	Design
C48	-12.37	0.00	-3.26	-2.31	0.00	Design
C49	-12.37	0.00	-3.26	-2.31	0.00	Design
C50	-9.51	0.00	-2.70	-0.47	0.00	Design
C51	-9.51	0.00	-2.70	-0.47	0.00	Design
C52	-12.37	0.00	-3.26	-2.31	0.00	Design
C53	-12.37	0.00	-3.26	-2.31	0.00	Design
C54	-11.65	0.00	-3.12	-1.85	0.00	Design
C55	-11.65	0.00	-3.12	-1.85	0.00	Design
C56	-11.65	0.00	-3.12	-1.85	0.00	Design
C57	-11.65	0.00	-3.12	-1.85	0.00	Design
C58	-3.69	0.00	-1.71	4.24	0.00	Design
C59	-11.31	0.00	-3.20	-0.66	0.00	Design
C60	-5.59	0.00	-2.08	3.02	0.00	Design
C61	-5.59	0.00	-2.08	3.02	0.00	Design
C62	-11.31	0.00	-3.20	-0.66	0.00	Design
C63	-11.31	0.00	-3.20	-0.66	0.00	Design
C64	-5.59	0.00	-2.08	3.02	0.00	Design
C65	-5.59	0.00	-2.08	3.02	0.00	Design
C66	-7.02	0.00	-2.36	2.10	0.00	Design
C67	-7.02	0.00	-2.36	2.10	0.00	Design
C68	-7.02	0.00	-2.36	2.10	0.00	Design
C69	-7.02	0.00	-2.36	2.10	0.00	Design
C70	-18.94	0.00	-4.69	-5.56	0.00	Design
C71	-11.31	0.00	-3.20	-0.66	0.00	Design
C72	-17.04	0.00	-4.32	-4.34	0.00	Design
C73	-17.04	0.00	-4.32	-4.34	0.00	Design
C74	-11.31	0.00	-3.20	-0.66	0.00	Design
C75	-11.31	0.00	-3.20	-0.66	0.00	Design
C76	-17.04	0.00	-4.32	-4.34	0.00	Design
C77	-17.04	0.00	-4.32	-4.34	0.00	Design
C78	-15.61	0.00	-4.04	-3.42	0.00	Design
C79	-15.61	0.00	-4.04	-3.42	0.00	Design
C80	-15.61	0.00	-4.04	-3.42	0.00	Design
C81	-15.61	0.00	-4.04	-3.42	0.00	Design
C82	-1.88	0.00	-1.21	4.43	0.00	Design
C83	-9.51	0.00	-2.70	-0.47	0.00	Design
C84	-3.79	0.00	-1.58	3.20	0.00	Design
C85	-3.79	0.00	-1.58	3.20	0.00	Design
C86	-9.51	0.00	-2.70	-0.47	0.00	Design
C87	-9.51	0.00	-2.70	-0.47	0.00	Design
C88	-3.79	0.00	-1.58	3.20	0.00	Design
C89	-3.79	0.00	-1.58	3.20	0.00	Design
C90	-5.22	0.00	-1.86	2.29	0.00	Design
C91	-5.22	0.00	-1.86	2.29	0.00	Design
C92	-5.22	0.00	-1.86	2.29	0.00	Design
C93	-5.22	0.00	-1.86	2.29	0.00	Design
C94	-17.14	0.00	-4.19	-5.38	0.00	Design
C95	-9.51	0.00	-2.70	-0.47	0.00	Design
C96	-15.23	0.00	-3.82	-4.15	0.00	Design
C97	-15.23	0.00	-3.82	-4.15	0.00	Design
C98	-9.51	0.00	-2.70	-0.47	0.00	Design
C99	-9.51	0.00	-2.70	-0.47	0.00	Design
C100	-15.23	0.00	-3.82	-4.15	0.00	Design
C101	-15.23	0.00	-3.82	-4.15	0.00	Design
C102	-13.80	0.00	-3.54	-3.23	0.00	Design
C103	-13.80	0.00	-3.54	-3.23	0.00	Design
C104	-13.80	0.00	-3.54	-3.23	0.00	Design
C105	-13.80	0.00	-3.54	-3.23	0.00	Design
C106	-1.88	0.00	-1.21	4.43	0.00	Design
C107	-9.51	0.00	-2.70	-0.47	0.00	Design
C108	-3.79	0.00	-1.58	3.20	0.00	Design
C109	-3.79	0.00	-1.58	3.20	0.00	Design
C110	-9.51	0.00	-2.70	-0.47	0.00	Design
C111	-9.51	0.00	-2.70	-0.47	0.00	Design

C112	-3.79	0.00	-1.58	3.20	0.00	Design
C113	-3.79	0.00	-1.58	3.20	0.00	Design
C114	-5.22	0.00	-1.86	2.29	0.00	Design
C115	-5.22	0.00	-1.86	2.29	0.00	Design
C116	-5.22	0.00	-1.86	2.29	0.00	Design
C117	-5.22	0.00	-1.86	2.29	0.00	Design
C118	-17.14	0.00	-4.19	-5.38	0.00	Design
C119	-9.51	0.00	-2.70	-0.47	0.00	Design
C120	-15.23	0.00	-3.82	-4.15	0.00	Design
C121	-15.23	0.00	-3.82	-4.15	0.00	Design
C122	-9.51	0.00	-2.70	-0.47	0.00	Design
C123	-9.51	0.00	-2.70	-0.47	0.00	Design
C124	-15.23	0.00	-3.82	-4.15	0.00	Design
C125	-15.23	0.00	-3.82	-4.15	0.00	Design
C126	-13.80	0.00	-3.54	-3.23	0.00	Design
C127	-13.80	0.00	-3.54	-3.23	0.00	Design
C128	-13.80	0.00	-3.54	-3.23	0.00	Design
C129	-13.80	0.00	-3.54	-3.23	0.00	Design
C130	-1.88	0.00	-1.21	4.43	0.00	Design
C131	-9.51	0.00	-2.70	-0.47	0.00	Design
C132	-3.79	0.00	-1.58	3.20	0.00	Design
C133	-3.79	0.00	-1.58	3.20	0.00	Design
C134	-9.51	0.00	-2.70	-0.47	0.00	Design
C135	-9.51	0.00	-2.70	-0.47	0.00	Design
C136	-3.79	0.00	-1.58	3.20	0.00	Design
C137	-3.79	0.00	-1.58	3.20	0.00	Design
C138	-5.22	0.00	-1.86	2.29	0.00	Design
C139	-5.22	0.00	-1.86	2.29	0.00	Design
C140	-5.22	0.00	-1.86	2.29	0.00	Design
C141	-5.22	0.00	-1.86	2.29	0.00	Design
C142	-17.14	0.00	-4.19	-5.38	0.00	Design
C143	-9.51	0.00	-2.70	-0.47	0.00	Design
C144	-15.23	0.00	-3.82	-4.15	0.00	Design
C145	-15.23	0.00	-3.82	-4.15	0.00	Design
C146	-9.51	0.00	-2.70	-0.47	0.00	Design
C147	-9.51	0.00	-2.70	-0.47	0.00	Design
C148	-15.23	0.00	-3.82	-4.15	0.00	Design
C149	-15.23	0.00	-3.82	-4.15	0.00	Design
C150	-13.80	0.00	-3.54	-3.23	0.00	Design
C151	-13.80	0.00	-3.54	-3.23	0.00	Design
C152	-13.80	0.00	-3.54	-3.23	0.00	Design
C153	-13.80	0.00	-3.54	-3.23	0.00	Design
C154	-3.69	0.00	-1.71	4.24	0.00	Design
C155	-11.31	0.00	-3.20	-0.66	0.00	Design
C156	-5.59	0.00	-2.08	3.02	0.00	Design
C157	-5.59	0.00	-2.08	3.02	0.00	Design
C158	-11.31	0.00	-3.20	-0.66	0.00	Design
C159	-11.31	0.00	-3.20	-0.66	0.00	Design
C160	-5.59	0.00	-2.08	3.02	0.00	Design
C161	-5.59	0.00	-2.08	3.02	0.00	Design
C162	-7.02	0.00	-2.36	2.10	0.00	Design
C163	-7.02	0.00	-2.36	2.10	0.00	Design
C164	-7.02	0.00	-2.36	2.10	0.00	Design
C165	-7.02	0.00	-2.36	2.10	0.00	Design
C166	-18.94	0.00	-4.69	-5.56	0.00	Design
C167	-11.31	0.00	-3.20	-0.66	0.00	Design
C168	-17.04	0.00	-4.32	-4.34	0.00	Design
C169	-17.04	0.00	-4.32	-4.34	0.00	Design
C170	-11.31	0.00	-3.20	-0.66	0.00	Design
C171	-11.31	0.00	-3.20	-0.66	0.00	Design
C172	-17.04	0.00	-4.32	-4.34	0.00	Design
C173	-17.04	0.00	-4.32	-4.34	0.00	Design
C174	-15.61	0.00	-4.04	-3.42	0.00	Design
C175	-15.61	0.00	-4.04	-3.42	0.00	Design
C176	-15.61	0.00	-4.04	-3.42	0.00	Design
C177	-15.61	0.00	-4.04	-3.42	0.00	Design
C178	-1.88	0.00	-1.21	4.43	0.00	Design
C179	-9.51	0.00	-2.70	-0.47	0.00	Design
C180	-3.79	0.00	-1.58	3.20	0.00	Design
C181	-3.79	0.00	-1.58	3.20	0.00	Design
C182	-9.51	0.00	-2.70	-0.47	0.00	Design
C183	-9.51	0.00	-2.70	-0.47	0.00	Design
C184	-3.79	0.00	-1.58	3.20	0.00	Design
C185	-3.79	0.00	-1.58	3.20	0.00	Design
C186	-5.22	0.00	-1.86	2.29	0.00	Design
C187	-5.22	0.00	-1.86	2.29	0.00	Design
C188	-5.22	0.00	-1.86	2.29	0.00	Design

C189	-5.22	0.00	-1.86	2.29	0.00	Design
C190	-17.14	0.00	-4.19	-5.38	0.00	Design
C191	-9.51	0.00	-2.70	-0.47	0.00	Design
C192	-15.23	0.00	-3.82	-4.15	0.00	Design
C193	-15.23	0.00	-3.82	-4.15	0.00	Design
C194	-9.51	0.00	-2.70	-0.47	0.00	Design
C195	-9.51	0.00	-2.70	-0.47	0.00	Design
C196	-15.23	0.00	-3.82	-4.15	0.00	Design
C197	-15.23	0.00	-3.82	-4.15	0.00	Design
C198	-13.80	0.00	-3.54	-3.23	0.00	Design
C199	-13.80	0.00	-3.54	-3.23	0.00	Design
C200	-13.80	0.00	-3.54	-3.23	0.00	Design
C201	-13.80	0.00	-3.54	-3.23	0.00	Design
C202	-1.88	0.00	-1.21	4.43	0.00	Design
C203	-9.51	0.00	-2.70	-0.47	0.00	Design
C204	-3.79	0.00	-1.58	3.20	0.00	Design
C205	-3.79	0.00	-1.58	3.20	0.00	Design
C206	-9.51	0.00	-2.70	-0.47	0.00	Design
C207	-9.51	0.00	-2.70	-0.47	0.00	Design
C208	-3.79	0.00	-1.58	3.20	0.00	Design
C209	-3.79	0.00	-1.58	3.20	0.00	Design
C210	-5.22	0.00	-1.86	2.29	0.00	Design
C211	-5.22	0.00	-1.86	2.29	0.00	Design
C212	-5.22	0.00	-1.86	2.29	0.00	Design
C213	-5.22	0.00	-1.86	2.29	0.00	Design
C214	-17.14	0.00	-4.19	-5.38	0.00	Design
C215	-9.51	0.00	-2.70	-0.47	0.00	Design
C216	-15.23	0.00	-3.82	-4.15	0.00	Design
C217	-15.23	0.00	-3.82	-4.15	0.00	Design
C218	-9.51	0.00	-2.70	-0.47	0.00	Design
C219	-9.51	0.00	-2.70	-0.47	0.00	Design
C220	-15.23	0.00	-3.82	-4.15	0.00	Design
C221	-15.23	0.00	-3.82	-4.15	0.00	Design
C222	-13.80	0.00	-3.54	-3.23	0.00	Design
C223	-13.80	0.00	-3.54	-3.23	0.00	Design
C224	-13.80	0.00	-3.54	-3.23	0.00	Design
C225	-13.80	0.00	-3.54	-3.23	0.00	Design
C226	0.50	0.00	-0.54	4.55	0.00	Design
C227	-7.13	0.00	-2.03	-0.36	0.00	Design
C228	-1.41	0.00	-0.91	3.32	0.00	Design
C229	-1.41	0.00	-0.91	3.32	0.00	Design
C230	-7.13	0.00	-2.03	-0.36	0.00	Design
C231	-7.13	0.00	-2.03	-0.36	0.00	Design
C232	-1.41	0.00	-0.91	3.32	0.00	Design
C233	-1.41	0.00	-0.91	3.32	0.00	Design
C234	-2.84	0.00	-1.19	2.40	0.00	Design
C235	-2.84	0.00	-1.19	2.40	0.00	Design
C236	-2.84	0.00	-1.19	2.40	0.00	Design
C237	-2.84	0.00	-1.19	2.40	0.00	Design
C238	-14.76	0.00	-3.52	-5.26	0.00	Design
C239	-7.13	0.00	-2.03	-0.36	0.00	Design
C240	-12.85	0.00	-3.14	-4.03	0.00	Design
C241	-12.85	0.00	-3.14	-4.03	0.00	Design
C242	-7.13	0.00	-2.03	-0.36	0.00	Design
C243	-7.13	0.00	-2.03	-0.36	0.00	Design
C244	-12.85	0.00	-3.14	-4.03	0.00	Design
C245	-12.85	0.00	-3.14	-4.03	0.00	Design
C246	-11.42	0.00	-2.86	-3.11	0.00	Design
C247	-11.42	0.00	-2.86	-3.11	0.00	Design
C248	-11.42	0.00	-2.86	-3.11	0.00	Design
C249	-11.42	0.00	-2.86	-3.11	0.00	Design
D1	-9.51	0.00	-2.70	-0.47	0.00	Design
D2	-11.31	0.00	-3.20	-0.66	0.00	Design
D3	-11.31	0.00	-3.20	-0.66	0.00	Design
D4	-15.29	0.00	-4.30	-1.07	0.00	Design
D5	-5.69	0.00	-1.96	1.98	0.00	Design
D6	-9.51	0.00	-2.70	-0.47	0.00	Design
D7	-6.65	0.00	-2.14	1.37	0.00	Design
D8	-6.65	0.00	-2.14	1.37	0.00	Design
D9	-9.51	0.00	-2.70	-0.47	0.00	Design
D10	-9.51	0.00	-2.70	-0.47	0.00	Design
D11	-6.65	0.00	-2.14	1.37	0.00	Design
D12	-6.65	0.00	-2.14	1.37	0.00	Design
D13	-7.36	0.00	-2.28	0.91	0.00	Design
D14	-7.36	0.00	-2.28	0.91	0.00	Design
D15	-7.36	0.00	-2.28	0.91	0.00	Design
D16	-7.36	0.00	-2.28	0.91	0.00	Design

D17	-15.29	0.00	-4.30	-1.07	0.00	Design
D18	-11.48	0.00	-3.55	1.38	0.00	Design
D19	-15.29	0.00	-4.30	-1.07	0.00	Design
D20	-12.43	0.00	-3.74	0.77	0.00	Design
D21	-12.43	0.00	-3.74	0.77	0.00	Design
D22	-15.29	0.00	-4.30	-1.07	0.00	Design
D23	-15.29	0.00	-4.30	-1.07	0.00	Design
D24	-12.43	0.00	-3.74	0.77	0.00	Design
D25	-12.43	0.00	-3.74	0.77	0.00	Design
D26	-13.15	0.00	-3.88	0.31	0.00	Design
D27	-13.15	0.00	-3.88	0.31	0.00	Design
D28	-13.15	0.00	-3.88	0.31	0.00	Design
D29	-13.15	0.00	-3.88	0.31	0.00	Design
D30	-3.69	0.00	-1.71	4.24	0.00	Design
D31	-11.31	0.00	-3.20	-0.66	0.00	Design
D32	-5.59	0.00	-2.08	3.02	0.00	Design
D33	-5.59	0.00	-2.08	3.02	0.00	Design
D34	-11.31	0.00	-3.20	-0.66	0.00	Design
D35	-11.31	0.00	-3.20	-0.66	0.00	Design
D36	-5.59	0.00	-2.08	3.02	0.00	Design
D37	-5.59	0.00	-2.08	3.02	0.00	Design
D38	-7.02	0.00	-2.36	2.10	0.00	Design
D39	-7.02	0.00	-2.36	2.10	0.00	Design
D40	-7.02	0.00	-2.36	2.10	0.00	Design
D41	-7.02	0.00	-2.36	2.10	0.00	Design
D42	-1.88	0.00	-1.21	4.43	0.00	Design
D43	-9.51	0.00	-2.70	-0.47	0.00	Design
D44	-3.79	0.00	-1.58	3.20	0.00	Design
D45	-3.79	0.00	-1.58	3.20	0.00	Design
D46	-9.51	0.00	-2.70	-0.47	0.00	Design
D47	-9.51	0.00	-2.70	-0.47	0.00	Design
D48	-3.79	0.00	-1.58	3.20	0.00	Design
D49	-3.79	0.00	-1.58	3.20	0.00	Design
D50	-5.22	0.00	-1.86	2.29	0.00	Design
D51	-5.22	0.00	-1.86	2.29	0.00	Design
D52	-5.22	0.00	-1.86	2.29	0.00	Design
D53	-5.22	0.00	-1.86	2.29	0.00	Design
D54	-3.69	0.00	-1.71	4.24	0.00	Design
D55	-11.31	0.00	-3.20	-0.66	0.00	Design
D56	-5.59	0.00	-2.08	3.02	0.00	Design
D57	-5.59	0.00	-2.08	3.02	0.00	Design
D58	-11.31	0.00	-3.20	-0.66	0.00	Design
D59	-11.31	0.00	-3.20	-0.66	0.00	Design
D60	-5.59	0.00	-2.08	3.02	0.00	Design
D61	-5.59	0.00	-2.08	3.02	0.00	Design
D62	-7.02	0.00	-2.36	2.10	0.00	Design
D63	-7.02	0.00	-2.36	2.10	0.00	Design
D64	-7.02	0.00	-2.36	2.10	0.00	Design
D65	-7.02	0.00	-2.36	2.10	0.00	Design
D66	-10.23	0.00	-2.90	-0.55	0.00	Design

Design calculations

Design for major axis Base plate (AISC 360-16 LRFD)

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Base plate						
Distance from anchor to edge	[in]	1.62	0.25	--	✓	table J2.4
Weld size	[1/16in]	4	2	--	✓	
Left gusset						
Weld size	[1/16in]	4	3	--	✓	table J2.4

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Concrete base						
Axial bearing	[Kip/in ²]	4.42	0.12	C22	0.03	DG1 3.1.1
Base plate						
Flexural yielding (bearing interface)	[Kip*ft/ft]	4.56	1.07	C70	0.24	DG1 Sec 3.1.2
Flexural yielding (tension interface)	[Kip*ft/ft]	4.56	1.21	Wind	0.27	DG1 Eq. 3.3.13
Column						
Weld capacity	[Kip/ft]	100.23	4.70	Wind	0.05	HSS Manual p. 7-10
Ratio		0.27				

Anchors

Geometric Considerations

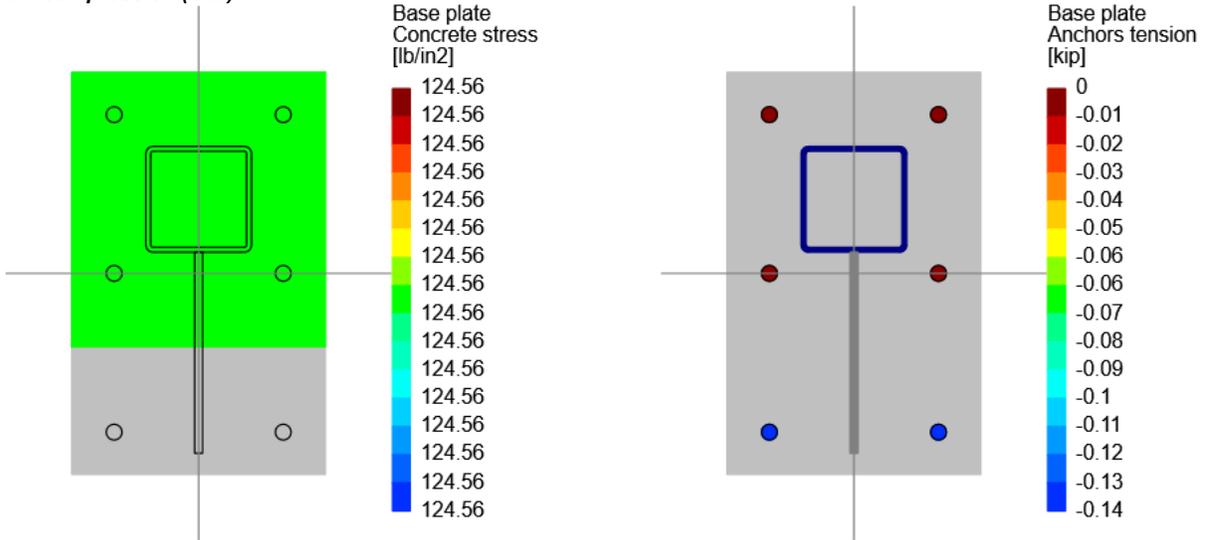
Dimensions	Unit	Value	Min.	Max.	Sta.	References
Anchors						
Anchor spacing	[in]	7.50	3.00	--	✓	Sec. D.8.1
Concrete cover	[in]	52.12	3.00	--	✓	Sec. 7.7.1
Effective length	[in]	12.49	--	29.51	✓	

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Anchor tension	[Kip]	14.55	1.87	Wind	0.13	Eq. D-2
Breakout of anchor in tension	[Kip]	55.69	1.87	Wind	0.03	Sec. D.3.3.4.4
Breakout of group of anchors in tension	[Kip]	85.32	7.63	Wind	0.09	Sec. D.3.3.4.4
Pullout of anchor in tension	[Kip]	20.51	1.87	Wind	0.09	Sec. D.3.3.4.4
Anchor shear	[Kip]	7.57	0.93	C70	0.12	Eq. D-29
Breakout of anchor in shear	[Kip]	96.04	0.93	C70	0.01	Table D.4.1.1, Sec. D.4.3
Breakout of group of anchors in shear	[Kip]	99.79	5.56	C70	0.06	Table D.4.1.1, Sec. D.4.3
Pryout of anchor in shear	[Kip]	111.38	0.93	C70	0.01	Table D.4.1.1, Sec. D.4.3
Pryout of group of anchors in shear	[Kip]	192.86	5.56	C70	0.03	Table D.4.1.1, Sec. D.4.3
Interaction of tensile and shear forces	[Kip]	1.20	0.00	dl	0.00	Sec. D.7
Ratio		0.13				
Ratio		0.27				

Major axis

Maximum compression (C22)

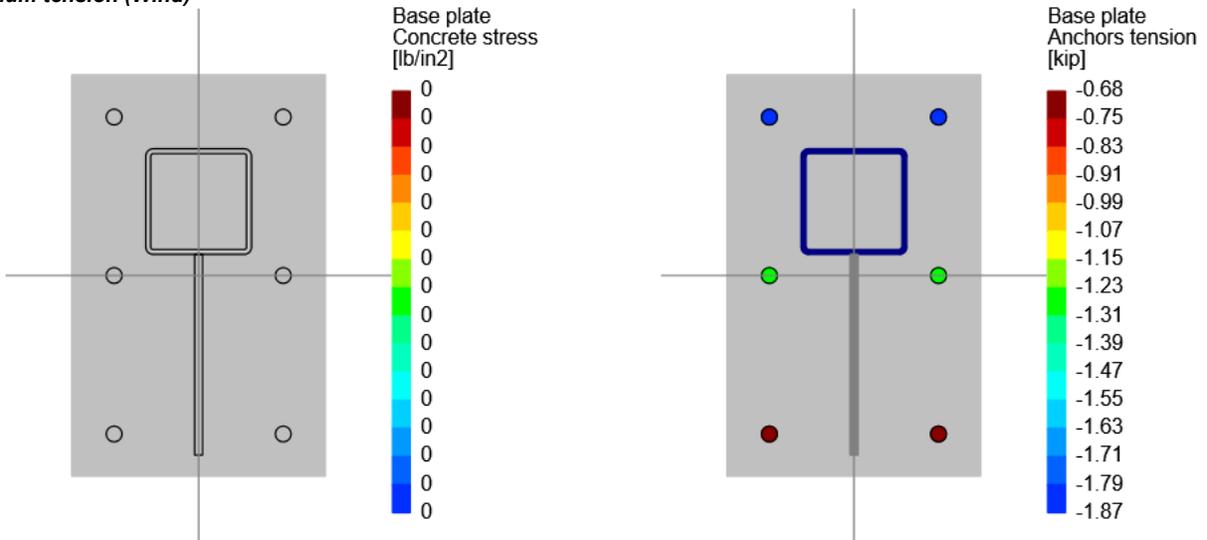


Maximum bearing pressure	124.56	[lb/in2]
Minimum bearing pressure	124.56	[lb/in2]
Maximum anchor tension	0.14	[kip]
Minimum anchor tension	0.00	[kip]
Neutral axis angle	0.00	[deg]
Neutral axis location	12.97	[in]
Bearing length	12.97	[in]

Anchors tensions

Anchor	Transverse [in]	Longitudinal [in]	Shear [kip]	Tension [kip]
1	-4.00	-7.50	-0.59	0.14
2	-4.00	0.00	-0.59	0.00
3	-4.00	7.50	-0.59	0.00
4	4.00	7.50	-0.59	0.00
5	4.00	0.00	-0.59	0.00
6	4.00	-7.50	-0.59	0.14

Maximum tension (Wind)



Maximum bearing pressure	0.00	[lb/in2]
Minimum bearing pressure	0.00	[lb/in2]
Maximum anchor tension	1.87	[kip]
Minimum anchor tension	0.68	[kip]
Neutral axis angle	0.00	[deg]
Neutral axis location	-6.50	[in]

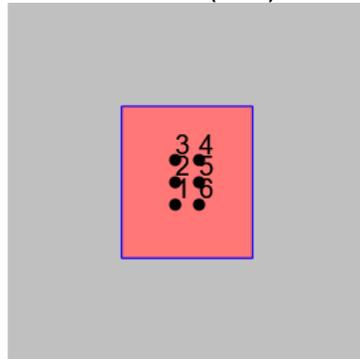
Bearing length 0.00 [in]

Anchors tensions

Anchor	Transverse [in]	Longitudinal [in]	Shear [kip]	Tension [kip]
1	-4.00	-7.50	0.82	0.68
2	-4.00	0.00	0.82	1.27
3	-4.00	7.50	0.82	1.87
4	4.00	7.50	0.82	1.87
5	4.00	0.00	0.82	1.27
6	4.00	-7.50	0.82	0.68

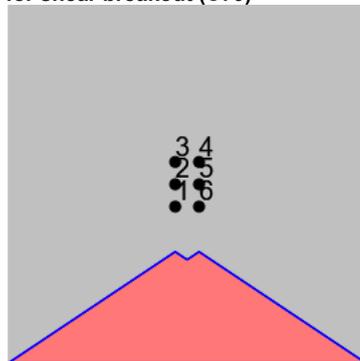
Major axis

Results for tensile breakout (Wind)



Group	Area [in2]	Tension [kip]	Anchors
1	2244.00	7.63	1, 2, 3, 4, 5, 6

Results for shear breakout (C70)



Group	Area [in2]	Shear [kip]	Anchors
1	3600.00	1.85	1, 6
2	3600.00	3.71	1, 2, 5, 6
3	3600.00	5.56	1, 2, 3, 4, 5, 6

Global critical strength ratio 0.27

References

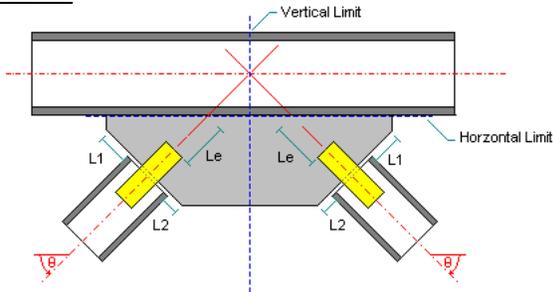
[9] AISC 2005, Design Examples Version 13.0, pp. IIC-26 - IIC-27

Connection: 7 - CVR

Family: Chevron - Braces (CVR)
 Type: Gusset
 Description: CVR 1

General information

Connector



Members

Existing members
 Upper gusset : No
 Lower gusset : Yes
 Lower gusset members : Both

Beam

General
 Section : W 16X26
 Material : RamFy 50

Lower left brace

General
 Section : HSS_SQR 5X5X1_4
 Material : RamFy 50Tube
 Brace slope angle (degrees) : 57.26
 Brace long leg on gusset : Yes

Additional geometric data

wpx: WP horizontal displacement : 0 in
 wpy: WP vertical displacement : 0 in
 Le: Minimum distance to other members : 2 in
 L1: Left distance : 2 in
 L2: Right distance : 2 in
 LH: Length on beam : 14.278 in

Lower right brace

General
 Section : HSS_SQR 5X5X1_4
 Material : RamFy 50Tube
 Brace slope angle (degrees) : 57.26
 Brace long leg on gusset : Yes

Additional geometric data

wpx: WP horizontal displacement : 0 in
 wpy: WP vertical displacement : 0 in
 Le: Minimum distance to other members : 2 in
 L1: Left distance : 2 in
 L2: Right distance : 2 in
 LH: Length on beam : 14.278 in

Interfaces

Lower gusset

General
 tp: Thickness : 0.375 in
 Material : A36
 LV: Length over vertical limit : 11.193 in
 LH: Length on beam : 14.278 in

Bottom gusset-to-beam connection
 Connection type to beam : Connection: Directly welded

Directly welded
 Welding electrode to beam : E70XX
 D: Weld size to beam (1/16 in) : 4

Lower left brace

Gusset-to-Brace connection

Connection type : Welded
 Lt: Length on toe : 6 in
 Lh: Length on heel : 6 in
 Brace weld : E70XX
 D: Weld size (1/16 in) : 4
 dp: Distance between weld and plate end : 1 in

Lower right brace

Gusset-to-Brace connection

Connection type : Welded
 Lt: Length on toe : 6 in
 Lh: Length on heel : 6 in
 Brace weld : E70XX
 D: Weld size (1/16 in) : 4
 dp: Distance between weld and plate end : 1 in

Design code: AISC 360-16 LRFD

Demands

Description	Beam			Pu				Load type
	Pu [kip]	Vu [kip]	Mu33 [kip*ft]	Brace1 [kip]	Brace2 [kip]	Brace3 [kip]	Brace4 [kip]	
dl	0.00	0.00	0.00	0.00	0.00	-0.73	-0.73	Design
lln	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
Sp	0.00	0.00	0.00	0.00	0.00	-0.69	-0.69	Design
Sn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind	0.00	0.00	0.00	0.00	0.00	9.07	-9.07	Design
Wind1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind2	0.00	0.00	0.00	0.00	0.00	6.80	-6.80	Design
Wind3	0.00	0.00	0.00	0.00	0.00	6.80	-6.80	Design
Wind4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind6	0.00	0.00	0.00	0.00	0.00	6.80	-6.80	Design
Wind7	0.00	0.00	0.00	0.00	0.00	6.80	-6.80	Design
Wind8	0.00	0.00	0.00	0.00	0.00	5.10	-5.10	Design
Wind9	0.00	0.00	0.00	0.00	0.00	5.10	-5.10	Design
Wind10	0.00	0.00	0.00	0.00	0.00	5.10	-5.10	Design
Wind11	0.00	0.00	0.00	0.00	0.00	5.10	-5.10	Design
Seismic_Xp	0.00	0.00	0.00	0.00	0.00	1.28	-1.28	Design
Seismic_Xm	0.00	0.00	0.00	0.00	0.00	1.28	-1.28	Design
Seismic_Yp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
Seismic_Ym	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
COR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
Virtual_Work	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
C1	0.00	0.00	0.00	0.00	0.00	-1.02	-1.02	Design
C2	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C3	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C4	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C5	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C6	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
C7	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C8	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
C9	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C10	0.00	0.00	0.00	0.00	0.00	2.55	-6.51	Design
C11	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
C12	0.00	0.00	0.00	0.00	0.00	1.42	-5.38	Design
C13	0.00	0.00	0.00	0.00	0.00	1.42	-5.38	Design
C14	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
C15	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
C16	0.00	0.00	0.00	0.00	0.00	1.42	-5.38	Design
C17	0.00	0.00	0.00	0.00	0.00	1.42	-5.38	Design
C18	0.00	0.00	0.00	0.00	0.00	0.57	-4.53	Design
C19	0.00	0.00	0.00	0.00	0.00	0.57	-4.53	Design
C20	0.00	0.00	0.00	0.00	0.00	0.57	-4.53	Design
C21	0.00	0.00	0.00	0.00	0.00	0.57	-4.53	Design
C22	0.00	0.00	0.00	0.00	0.00	-6.51	2.55	Design
C23	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
C24	0.00	0.00	0.00	0.00	0.00	-5.38	1.42	Design
C25	0.00	0.00	0.00	0.00	0.00	-5.38	1.42	Design
C26	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
C27	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design

C28	0.00	0.00	0.00	0.00	0.00	-5.38	1.42	Design
C29	0.00	0.00	0.00	0.00	0.00	-5.38	1.42	Design
C30	0.00	0.00	0.00	0.00	0.00	-4.53	0.57	Design
C31	0.00	0.00	0.00	0.00	0.00	-4.53	0.57	Design
C32	0.00	0.00	0.00	0.00	0.00	-4.53	0.57	Design
C33	0.00	0.00	0.00	0.00	0.00	-4.53	0.57	Design
C34	0.00	0.00	0.00	0.00	0.00	3.66	-5.41	Design
C35	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C36	0.00	0.00	0.00	0.00	0.00	2.53	-4.28	Design
C37	0.00	0.00	0.00	0.00	0.00	2.53	-4.28	Design
C38	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C39	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C40	0.00	0.00	0.00	0.00	0.00	2.53	-4.28	Design
C41	0.00	0.00	0.00	0.00	0.00	2.53	-4.28	Design
C42	0.00	0.00	0.00	0.00	0.00	1.68	-3.43	Design
C43	0.00	0.00	0.00	0.00	0.00	1.68	-3.43	Design
C44	0.00	0.00	0.00	0.00	0.00	1.68	-3.43	Design
C45	0.00	0.00	0.00	0.00	0.00	1.68	-3.43	Design
C46	0.00	0.00	0.00	0.00	0.00	-5.41	3.66	Design
C47	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C48	0.00	0.00	0.00	0.00	0.00	-4.28	2.53	Design
C49	0.00	0.00	0.00	0.00	0.00	-4.28	2.53	Design
C50	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C51	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C52	0.00	0.00	0.00	0.00	0.00	-4.28	2.53	Design
C53	0.00	0.00	0.00	0.00	0.00	-4.28	2.53	Design
C54	0.00	0.00	0.00	0.00	0.00	-3.43	1.68	Design
C55	0.00	0.00	0.00	0.00	0.00	-3.43	1.68	Design
C56	0.00	0.00	0.00	0.00	0.00	-3.43	1.68	Design
C57	0.00	0.00	0.00	0.00	0.00	-3.43	1.68	Design
C58	0.00	0.00	0.00	0.00	0.00	7.85	-10.29	Design
C59	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C60	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
C61	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
C62	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C63	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C64	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
C65	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
C66	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
C67	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
C68	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
C69	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
C70	0.00	0.00	0.00	0.00	0.00	-10.29	7.85	Design
C71	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C72	0.00	0.00	0.00	0.00	0.00	-8.02	5.58	Design
C73	0.00	0.00	0.00	0.00	0.00	-8.02	5.58	Design
C74	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C75	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C76	0.00	0.00	0.00	0.00	0.00	-8.02	5.58	Design
C77	0.00	0.00	0.00	0.00	0.00	-8.02	5.58	Design
C78	0.00	0.00	0.00	0.00	0.00	-6.32	3.88	Design
C79	0.00	0.00	0.00	0.00	0.00	-6.32	3.88	Design
C80	0.00	0.00	0.00	0.00	0.00	-6.32	3.88	Design
C81	0.00	0.00	0.00	0.00	0.00	-6.32	3.88	Design
C82	0.00	0.00	0.00	0.00	0.00	8.19	-9.94	Design
C83	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C84	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C85	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C86	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C87	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C88	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C89	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C90	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C91	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C92	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C93	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C94	0.00	0.00	0.00	0.00	0.00	-9.94	8.19	Design
C95	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C96	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C97	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C98	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C99	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C100	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C101	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C102	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C103	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C104	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design

C105	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C106	0.00	0.00	0.00	0.00	0.00	8.19	-9.94	Design
C107	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C108	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C109	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C110	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C111	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C112	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C113	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C114	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C115	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C116	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C117	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C118	0.00	0.00	0.00	0.00	0.00	-9.94	8.19	Design
C119	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C120	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C121	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C122	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C123	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C124	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C125	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C126	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C127	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C128	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C129	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C130	0.00	0.00	0.00	0.00	0.00	8.19	-9.94	Design
C131	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C132	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C133	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C134	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C135	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C136	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C137	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C138	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C139	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C140	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C141	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C142	0.00	0.00	0.00	0.00	0.00	-9.94	8.19	Design
C143	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C144	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C145	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C146	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C147	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C148	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C149	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C150	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C151	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C152	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C153	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C154	0.00	0.00	0.00	0.00	0.00	7.85	-10.29	Design
C155	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C156	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
C157	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
C158	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C159	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C160	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
C161	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
C162	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
C163	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
C164	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
C165	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
C166	0.00	0.00	0.00	0.00	0.00	-10.29	7.85	Design
C167	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C168	0.00	0.00	0.00	0.00	0.00	-8.02	5.58	Design
C169	0.00	0.00	0.00	0.00	0.00	-8.02	5.58	Design
C170	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C171	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
C172	0.00	0.00	0.00	0.00	0.00	-8.02	5.58	Design
C173	0.00	0.00	0.00	0.00	0.00	-8.02	5.58	Design
C174	0.00	0.00	0.00	0.00	0.00	-6.32	3.88	Design
C175	0.00	0.00	0.00	0.00	0.00	-6.32	3.88	Design
C176	0.00	0.00	0.00	0.00	0.00	-6.32	3.88	Design
C177	0.00	0.00	0.00	0.00	0.00	-6.32	3.88	Design
C178	0.00	0.00	0.00	0.00	0.00	8.19	-9.94	Design
C179	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C180	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C181	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design

C182	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C183	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C184	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C185	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C186	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C187	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C188	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C189	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C190	0.00	0.00	0.00	0.00	0.00	-9.94	8.19	Design
C191	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C192	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C193	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C194	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C195	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C196	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C197	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C198	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C199	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C200	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C201	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C202	0.00	0.00	0.00	0.00	0.00	8.19	-9.94	Design
C203	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C204	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C205	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C206	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C207	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C208	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C209	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
C210	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C211	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C212	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C213	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
C214	0.00	0.00	0.00	0.00	0.00	-9.94	8.19	Design
C215	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C216	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C217	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C218	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C219	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
C220	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C221	0.00	0.00	0.00	0.00	0.00	-7.68	5.93	Design
C222	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C223	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C224	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C225	0.00	0.00	0.00	0.00	0.00	-5.98	4.23	Design
C226	0.00	0.00	0.00	0.00	0.00	8.41	-9.73	Design
C227	0.00	0.00	0.00	0.00	0.00	-0.66	-0.66	Design
C228	0.00	0.00	0.00	0.00	0.00	6.15	-7.46	Design
C229	0.00	0.00	0.00	0.00	0.00	6.15	-7.46	Design
C230	0.00	0.00	0.00	0.00	0.00	-0.66	-0.66	Design
C231	0.00	0.00	0.00	0.00	0.00	-0.66	-0.66	Design
C232	0.00	0.00	0.00	0.00	0.00	6.15	-7.46	Design
C233	0.00	0.00	0.00	0.00	0.00	6.15	-7.46	Design
C234	0.00	0.00	0.00	0.00	0.00	4.44	-5.76	Design
C235	0.00	0.00	0.00	0.00	0.00	4.44	-5.76	Design
C236	0.00	0.00	0.00	0.00	0.00	4.44	-5.76	Design
C237	0.00	0.00	0.00	0.00	0.00	4.44	-5.76	Design
C238	0.00	0.00	0.00	0.00	0.00	-9.73	8.41	Design
C239	0.00	0.00	0.00	0.00	0.00	-0.66	-0.66	Design
C240	0.00	0.00	0.00	0.00	0.00	-7.46	6.15	Design
C241	0.00	0.00	0.00	0.00	0.00	-7.46	6.15	Design
C242	0.00	0.00	0.00	0.00	0.00	-0.66	-0.66	Design
C243	0.00	0.00	0.00	0.00	0.00	-0.66	-0.66	Design
C244	0.00	0.00	0.00	0.00	0.00	-7.46	6.15	Design
C245	0.00	0.00	0.00	0.00	0.00	-7.46	6.15	Design
C246	0.00	0.00	0.00	0.00	0.00	-5.76	4.44	Design
C247	0.00	0.00	0.00	0.00	0.00	-5.76	4.44	Design
C248	0.00	0.00	0.00	0.00	0.00	-5.76	4.44	Design
C249	0.00	0.00	0.00	0.00	0.00	-5.76	4.44	Design
C250	0.00	0.00	0.00	0.00	0.00	-0.09	-2.65	Design
C251	0.00	0.00	0.00	0.00	0.00	-0.09	-2.65	Design
C252	0.00	0.00	0.00	0.00	0.00	-1.37	-1.37	Design
C253	0.00	0.00	0.00	0.00	0.00	-1.37	-1.37	Design
C254	0.00	0.00	0.00	0.00	0.00	-2.65	-0.09	Design
C255	0.00	0.00	0.00	0.00	0.00	-2.65	-0.09	Design
C256	0.00	0.00	0.00	0.00	0.00	-1.37	-1.37	Design
C257	0.00	0.00	0.00	0.00	0.00	-1.37	-1.37	Design
C258	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design

C259	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design
C260	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C261	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C262	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C263	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C264	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C265	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C266	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design
C267	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design
C268	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C269	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C270	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C271	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C272	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C273	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C274	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design
C275	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design
C276	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C277	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C278	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C279	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C280	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C281	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C282	0.00	0.00	0.00	0.00	0.00	-0.09	-2.65	Design
C283	0.00	0.00	0.00	0.00	0.00	-0.09	-2.65	Design
C284	0.00	0.00	0.00	0.00	0.00	-1.37	-1.37	Design
C285	0.00	0.00	0.00	0.00	0.00	-1.37	-1.37	Design
C286	0.00	0.00	0.00	0.00	0.00	-2.65	-0.09	Design
C287	0.00	0.00	0.00	0.00	0.00	-2.65	-0.09	Design
C288	0.00	0.00	0.00	0.00	0.00	-1.37	-1.37	Design
C289	0.00	0.00	0.00	0.00	0.00	-1.37	-1.37	Design
C290	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design
C291	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design
C292	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C293	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C294	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C295	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C296	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C297	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C298	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design
C299	0.00	0.00	0.00	0.00	0.00	0.39	-2.17	Design
C300	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C301	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C302	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C303	0.00	0.00	0.00	0.00	0.00	-2.17	0.39	Design
C304	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C305	0.00	0.00	0.00	0.00	0.00	-0.89	-0.89	Design
C306	0.00	0.00	0.00	0.00	0.00	0.64	-1.92	Design
C307	0.00	0.00	0.00	0.00	0.00	0.64	-1.92	Design
C308	0.00	0.00	0.00	0.00	0.00	-0.64	-0.64	Design
C309	0.00	0.00	0.00	0.00	0.00	-0.64	-0.64	Design
C310	0.00	0.00	0.00	0.00	0.00	-1.92	0.64	Design
C311	0.00	0.00	0.00	0.00	0.00	-1.92	0.64	Design
C312	0.00	0.00	0.00	0.00	0.00	-0.64	-0.64	Design
C313	0.00	0.00	0.00	0.00	0.00	-0.64	-0.64	Design
D1	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D2	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
D3	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
D4	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
D5	0.00	0.00	0.00	0.00	0.00	3.66	-5.41	Design
D6	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D7	0.00	0.00	0.00	0.00	0.00	2.53	-4.28	Design
D8	0.00	0.00	0.00	0.00	0.00	2.53	-4.28	Design
D9	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D10	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D11	0.00	0.00	0.00	0.00	0.00	2.53	-4.28	Design
D12	0.00	0.00	0.00	0.00	0.00	2.53	-4.28	Design
D13	0.00	0.00	0.00	0.00	0.00	1.68	-3.43	Design
D14	0.00	0.00	0.00	0.00	0.00	1.68	-3.43	Design
D15	0.00	0.00	0.00	0.00	0.00	1.68	-3.43	Design
D16	0.00	0.00	0.00	0.00	0.00	1.68	-3.43	Design
D17	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
D18	0.00	0.00	0.00	0.00	0.00	2.55	-6.51	Design
D19	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
D20	0.00	0.00	0.00	0.00	0.00	1.42	-5.38	Design
D21	0.00	0.00	0.00	0.00	0.00	1.42	-5.38	Design
D22	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design

D23	0.00	0.00	0.00	0.00	0.00	-1.98	-1.98	Design
D24	0.00	0.00	0.00	0.00	0.00	1.42	-5.38	Design
D25	0.00	0.00	0.00	0.00	0.00	1.42	-5.38	Design
D26	0.00	0.00	0.00	0.00	0.00	0.57	-4.53	Design
D27	0.00	0.00	0.00	0.00	0.00	0.57	-4.53	Design
D28	0.00	0.00	0.00	0.00	0.00	0.57	-4.53	Design
D29	0.00	0.00	0.00	0.00	0.00	0.57	-4.53	Design
D30	0.00	0.00	0.00	0.00	0.00	7.85	-10.29	Design
D31	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
D32	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
D33	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
D34	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
D35	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
D36	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
D37	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
D38	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
D39	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
D40	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
D41	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
D42	0.00	0.00	0.00	0.00	0.00	8.19	-9.94	Design
D43	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D44	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
D45	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
D46	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D47	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D48	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
D49	0.00	0.00	0.00	0.00	0.00	5.93	-7.68	Design
D50	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
D51	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
D52	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
D53	0.00	0.00	0.00	0.00	0.00	4.23	-5.98	Design
D54	0.00	0.00	0.00	0.00	0.00	7.85	-10.29	Design
D55	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
D56	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
D57	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
D58	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
D59	0.00	0.00	0.00	0.00	0.00	-1.22	-1.22	Design
D60	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
D61	0.00	0.00	0.00	0.00	0.00	5.58	-8.02	Design
D62	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
D63	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
D64	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
D65	0.00	0.00	0.00	0.00	0.00	3.88	-6.32	Design
D66	0.00	0.00	0.00	0.00	0.00	-1.01	-1.01	Design
D67	0.00	0.00	0.00	0.00	0.00	0.41	-2.16	Design
D68	0.00	0.00	0.00	0.00	0.00	0.41	-2.16	Design
D69	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D70	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D71	0.00	0.00	0.00	0.00	0.00	-1.01	-1.01	Design
D72	0.00	0.00	0.00	0.00	0.00	0.27	-2.29	Design
D73	0.00	0.00	0.00	0.00	0.00	0.27	-2.29	Design
D74	0.00	0.00	0.00	0.00	0.00	-1.01	-1.01	Design
D75	0.00	0.00	0.00	0.00	0.00	-1.01	-1.01	Design
D76	0.00	0.00	0.00	0.00	0.00	0.41	-2.16	Design
D77	0.00	0.00	0.00	0.00	0.00	0.41	-2.16	Design
D78	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D79	0.00	0.00	0.00	0.00	0.00	-0.88	-0.88	Design
D80	0.00	0.00	0.00	0.00	0.00	0.27	-2.29	Design
D81	0.00	0.00	0.00	0.00	0.00	0.27	-2.29	Design
D82	0.00	0.00	0.00	0.00	0.00	-1.01	-1.01	Design
D83	0.00	0.00	0.00	0.00	0.00	-1.01	-1.01	Design
D84	0.00	0.00	0.00	0.00	0.00	0.62	-1.94	Design
D85	0.00	0.00	0.00	0.00	0.00	0.62	-1.94	Design
D86	0.00	0.00	0.00	0.00	0.00	-0.66	-0.66	Design
D87	0.00	0.00	0.00	0.00	0.00	-0.66	-0.66	Design

Design calculations

Interface between Gusset - Bottom left brace
Connection: Directly welded

Demands

Pu [kip]	Description	Load type
-0.73	dl	Design
0.00	lln	Design
0.00	llp	Design
0.00	llrn	Design
0.00	llrp	Design
-0.69	Sp	Design
0.00	Sn	Design
9.07	Wind	Design
0.00	Wind1	Design
6.80	Wind2	Design
6.80	Wind3	Design
0.00	Wind4	Design
0.00	Wind5	Design
6.80	Wind6	Design
6.80	Wind7	Design
5.10	Wind8	Design
5.10	Wind9	Design
5.10	Wind10	Design
5.10	Wind11	Design
1.28	Seismic_Xp	Design
1.28	Seismic_Xm	Design
0.00	Seismic_Yp	Design
0.00	Seismic_Ym	Design
0.00	COR	Design
0.00	Virtual_Work	Design
-1.02	C1	Design
-1.22	C2	Design
-0.88	C3	Design
-0.88	C4	Design
-0.88	C5	Design
-1.98	C6	Design
-0.88	C7	Design
-1.98	C8	Design
-0.88	C9	Design
2.55	C10	Design
-1.98	C11	Design
1.42	C12	Design
1.42	C13	Design
-1.98	C14	Design
-1.98	C15	Design
1.42	C16	Design
1.42	C17	Design
0.57	C18	Design
0.57	C19	Design
0.57	C20	Design
0.57	C21	Design
-6.51	C22	Design
-1.98	C23	Design
-5.38	C24	Design
-5.38	C25	Design
-1.98	C26	Design
-1.98	C27	Design
-5.38	C28	Design
-5.38	C29	Design
-4.53	C30	Design
-4.53	C31	Design
-4.53	C32	Design
-4.53	C33	Design
3.66	C34	Design
-0.88	C35	Design
2.53	C36	Design
2.53	C37	Design
-0.88	C38	Design
-0.88	C39	Design
2.53	C40	Design
2.53	C41	Design
1.68	C42	Design
1.68	C43	Design
1.68	C44	Design
1.68	C45	Design
-5.41	C46	Design
-0.88	C47	Design
-4.28	C48	Design
-4.28	C49	Design

-0.88	C50	Design
-0.88	C51	Design
-4.28	C52	Design
-4.28	C53	Design
-3.43	C54	Design
-3.43	C55	Design
-3.43	C56	Design
-3.43	C57	Design
7.85	C58	Design
-1.22	C59	Design
5.58	C60	Design
5.58	C61	Design
-1.22	C62	Design
-1.22	C63	Design
5.58	C64	Design
5.58	C65	Design
3.88	C66	Design
3.88	C67	Design
3.88	C68	Design
3.88	C69	Design
-10.29	C70	Design
-1.22	C71	Design
-8.02	C72	Design
-8.02	C73	Design
-1.22	C74	Design
-1.22	C75	Design
-8.02	C76	Design
-8.02	C77	Design
-6.32	C78	Design
-6.32	C79	Design
-6.32	C80	Design
-6.32	C81	Design
8.19	C82	Design
-0.88	C83	Design
5.93	C84	Design
5.93	C85	Design
-0.88	C86	Design
-0.88	C87	Design
5.93	C88	Design
5.93	C89	Design
4.23	C90	Design
4.23	C91	Design
4.23	C92	Design
4.23	C93	Design
-9.94	C94	Design
-0.88	C95	Design
-7.68	C96	Design
-7.68	C97	Design
-0.88	C98	Design
-0.88	C99	Design
-7.68	C100	Design
-7.68	C101	Design
-5.98	C102	Design
-5.98	C103	Design
-5.98	C104	Design
-5.98	C105	Design
8.19	C106	Design
-0.88	C107	Design
5.93	C108	Design
5.93	C109	Design
-0.88	C110	Design
-0.88	C111	Design
5.93	C112	Design
5.93	C113	Design
4.23	C114	Design
4.23	C115	Design
4.23	C116	Design
4.23	C117	Design
-9.94	C118	Design
-0.88	C119	Design
-7.68	C120	Design
-7.68	C121	Design
-0.88	C122	Design
-0.88	C123	Design
-7.68	C124	Design
-7.68	C125	Design
-5.98	C126	Design

-5.98	C127	Design
-5.98	C128	Design
-5.98	C129	Design
8.19	C130	Design
-0.88	C131	Design
5.93	C132	Design
5.93	C133	Design
-0.88	C134	Design
-0.88	C135	Design
5.93	C136	Design
5.93	C137	Design
4.23	C138	Design
4.23	C139	Design
4.23	C140	Design
4.23	C141	Design
-9.94	C142	Design
-0.88	C143	Design
-7.68	C144	Design
-7.68	C145	Design
-0.88	C146	Design
-0.88	C147	Design
-7.68	C148	Design
-7.68	C149	Design
-5.98	C150	Design
-5.98	C151	Design
-5.98	C152	Design
-5.98	C153	Design
7.85	C154	Design
-1.22	C155	Design
5.58	C156	Design
5.58	C157	Design
-1.22	C158	Design
-1.22	C159	Design
5.58	C160	Design
5.58	C161	Design
3.88	C162	Design
3.88	C163	Design
3.88	C164	Design
3.88	C165	Design
-10.29	C166	Design
-1.22	C167	Design
-8.02	C168	Design
-8.02	C169	Design
-1.22	C170	Design
-1.22	C171	Design
-8.02	C172	Design
-8.02	C173	Design
-6.32	C174	Design
-6.32	C175	Design
-6.32	C176	Design
-6.32	C177	Design
8.19	C178	Design
-0.88	C179	Design
5.93	C180	Design
5.93	C181	Design
-0.88	C182	Design
-0.88	C183	Design
5.93	C184	Design
5.93	C185	Design
4.23	C186	Design
4.23	C187	Design
4.23	C188	Design
4.23	C189	Design
-9.94	C190	Design
-0.88	C191	Design
-7.68	C192	Design
-7.68	C193	Design
-0.88	C194	Design
-0.88	C195	Design
-7.68	C196	Design
-7.68	C197	Design
-5.98	C198	Design
-5.98	C199	Design
-5.98	C200	Design
-5.98	C201	Design
8.19	C202	Design
-0.88	C203	Design

5.93	C204	Design
5.93	C205	Design
-0.88	C206	Design
-0.88	C207	Design
5.93	C208	Design
5.93	C209	Design
4.23	C210	Design
4.23	C211	Design
4.23	C212	Design
4.23	C213	Design
-9.94	C214	Design
-0.88	C215	Design
-7.68	C216	Design
-7.68	C217	Design
-0.88	C218	Design
-0.88	C219	Design
-7.68	C220	Design
-7.68	C221	Design
-5.98	C222	Design
-5.98	C223	Design
-5.98	C224	Design
-5.98	C225	Design
8.41	C226	Design
-0.66	C227	Design
6.15	C228	Design
6.15	C229	Design
-0.66	C230	Design
-0.66	C231	Design
6.15	C232	Design
6.15	C233	Design
4.44	C234	Design
4.44	C235	Design
4.44	C236	Design
4.44	C237	Design
-9.73	C238	Design
-0.66	C239	Design
-7.46	C240	Design
-7.46	C241	Design
-0.66	C242	Design
-0.66	C243	Design
-7.46	C244	Design
-7.46	C245	Design
-5.76	C246	Design
-5.76	C247	Design
-5.76	C248	Design
-5.76	C249	Design
-0.09	C250	Design
-0.09	C251	Design
-1.37	C252	Design
-1.37	C253	Design
-2.65	C254	Design
-2.65	C255	Design
-1.37	C256	Design
-1.37	C257	Design
0.39	C258	Design
0.39	C259	Design
-0.89	C260	Design
-0.89	C261	Design
-2.17	C262	Design
-2.17	C263	Design
-0.89	C264	Design
-0.89	C265	Design
0.39	C266	Design
0.39	C267	Design
-0.89	C268	Design
-0.89	C269	Design
-2.17	C270	Design
-2.17	C271	Design
-0.89	C272	Design
-0.89	C273	Design
0.39	C274	Design
0.39	C275	Design
-0.89	C276	Design
-0.89	C277	Design
-2.17	C278	Design
-2.17	C279	Design
-0.89	C280	Design

-0.89	C281	Design
-0.09	C282	Design
-0.09	C283	Design
-1.37	C284	Design
-1.37	C285	Design
-2.65	C286	Design
-2.65	C287	Design
-1.37	C288	Design
-1.37	C289	Design
0.39	C290	Design
0.39	C291	Design
-0.89	C292	Design
-0.89	C293	Design
-2.17	C294	Design
-2.17	C295	Design
-0.89	C296	Design
-0.89	C297	Design
0.39	C298	Design
0.39	C299	Design
-0.89	C300	Design
-0.89	C301	Design
-2.17	C302	Design
-2.17	C303	Design
-0.89	C304	Design
-0.89	C305	Design
0.64	C306	Design
0.64	C307	Design
-0.64	C308	Design
-0.64	C309	Design
-1.92	C310	Design
-1.92	C311	Design
-0.64	C312	Design
-0.64	C313	Design
-0.88	D1	Design
-1.22	D2	Design
-1.22	D3	Design
-1.98	D4	Design
3.66	D5	Design
-0.88	D6	Design
2.53	D7	Design
2.53	D8	Design
-0.88	D9	Design
-0.88	D10	Design
2.53	D11	Design
2.53	D12	Design
1.68	D13	Design
1.68	D14	Design
1.68	D15	Design
1.68	D16	Design
-1.98	D17	Design
2.55	D18	Design
-1.98	D19	Design
1.42	D20	Design
1.42	D21	Design
-1.98	D22	Design
-1.98	D23	Design
1.42	D24	Design
1.42	D25	Design
0.57	D26	Design
0.57	D27	Design
0.57	D28	Design
0.57	D29	Design
7.85	D30	Design
-1.22	D31	Design
5.58	D32	Design
5.58	D33	Design
-1.22	D34	Design
-1.22	D35	Design
5.58	D36	Design
5.58	D37	Design
3.88	D38	Design
3.88	D39	Design
3.88	D40	Design
3.88	D41	Design
8.19	D42	Design
-0.88	D43	Design
5.93	D44	Design

5.93	D45	Design
-0.88	D46	Design
-0.88	D47	Design
5.93	D48	Design
5.93	D49	Design
4.23	D50	Design
4.23	D51	Design
4.23	D52	Design
4.23	D53	Design
7.85	D54	Design
-1.22	D55	Design
5.58	D56	Design
5.58	D57	Design
-1.22	D58	Design
-1.22	D59	Design
5.58	D60	Design
5.58	D61	Design
3.88	D62	Design
3.88	D63	Design
3.88	D64	Design
3.88	D65	Design
-1.01	D66	Design
0.41	D67	Design
0.41	D68	Design
-0.88	D69	Design
-0.88	D70	Design
-1.01	D71	Design
0.27	D72	Design
0.27	D73	Design
-1.01	D74	Design
-1.01	D75	Design
0.41	D76	Design
0.41	D77	Design
-0.88	D78	Design
-0.88	D79	Design
0.27	D80	Design
0.27	D81	Design
-1.01	D82	Design
-1.01	D83	Design
0.62	D84	Design
0.62	D85	Design
-0.66	D86	Design
-0.66	D87	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Member						
Weld size	[1/16in]	4	2	4	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Branch						
Total weld design strength	[Kip]	133.64	10.29	C70	0.08	Eq. J2-6
Maximum weld force that brace can develop	[Kip]	163.57	10.29	C70	0.06	Eq. J4-4
Maximum weld force that gusset can develop	[Kip]	117.45	10.29	C70	0.09	Eq. J4-4
Gusset						
Block shear on gusset	[Kip]	166.61	9.07	Wind	0.05	Eq. J4-5
Ratio	0.09					

Checks for gusset and brace

Demands

Pu [kip]	Description	Load type
-0.73	dl	Design
0.00	lln	Design
0.00	llp	Design
0.00	llrn	Design
0.00	llrp	Design
-0.69	Sp	Design
0.00	Sn	Design
9.07	Wind	Design
0.00	Wind1	Design
6.80	Wind2	Design
6.80	Wind3	Design
0.00	Wind4	Design
0.00	Wind5	Design
6.80	Wind6	Design
6.80	Wind7	Design
5.10	Wind8	Design
5.10	Wind9	Design
5.10	Wind10	Design
5.10	Wind11	Design
1.28	Seismic_Xp	Design
1.28	Seismic_Xm	Design
0.00	Seismic_Yp	Design
0.00	Seismic_Ym	Design
0.00	COR	Design
0.00	Virtual_Work	Design
-1.02	C1	Design
-1.22	C2	Design
-0.88	C3	Design
-0.88	C4	Design
-0.88	C5	Design
-1.98	C6	Design
-0.88	C7	Design
-1.98	C8	Design
-0.88	C9	Design
2.55	C10	Design
-1.98	C11	Design
1.42	C12	Design
1.42	C13	Design
-1.98	C14	Design
-1.98	C15	Design
1.42	C16	Design
1.42	C17	Design
0.57	C18	Design
0.57	C19	Design
0.57	C20	Design
0.57	C21	Design
-6.51	C22	Design
-1.98	C23	Design
-5.38	C24	Design
-5.38	C25	Design
-1.98	C26	Design
-1.98	C27	Design
-5.38	C28	Design
-5.38	C29	Design
-4.53	C30	Design
-4.53	C31	Design
-4.53	C32	Design
-4.53	C33	Design
3.66	C34	Design
-0.88	C35	Design
2.53	C36	Design
2.53	C37	Design
-0.88	C38	Design
-0.88	C39	Design
2.53	C40	Design
2.53	C41	Design
1.68	C42	Design
1.68	C43	Design
1.68	C44	Design
1.68	C45	Design
-5.41	C46	Design
-0.88	C47	Design
-4.28	C48	Design
-4.28	C49	Design

-0.88	C50	Design
-0.88	C51	Design
-4.28	C52	Design
-4.28	C53	Design
-3.43	C54	Design
-3.43	C55	Design
-3.43	C56	Design
-3.43	C57	Design
7.85	C58	Design
-1.22	C59	Design
5.58	C60	Design
5.58	C61	Design
-1.22	C62	Design
-1.22	C63	Design
5.58	C64	Design
5.58	C65	Design
3.88	C66	Design
3.88	C67	Design
3.88	C68	Design
3.88	C69	Design
-10.29	C70	Design
-1.22	C71	Design
-8.02	C72	Design
-8.02	C73	Design
-1.22	C74	Design
-1.22	C75	Design
-8.02	C76	Design
-8.02	C77	Design
-6.32	C78	Design
-6.32	C79	Design
-6.32	C80	Design
-6.32	C81	Design
8.19	C82	Design
-0.88	C83	Design
5.93	C84	Design
5.93	C85	Design
-0.88	C86	Design
-0.88	C87	Design
5.93	C88	Design
5.93	C89	Design
4.23	C90	Design
4.23	C91	Design
4.23	C92	Design
4.23	C93	Design
-9.94	C94	Design
-0.88	C95	Design
-7.68	C96	Design
-7.68	C97	Design
-0.88	C98	Design
-0.88	C99	Design
-7.68	C100	Design
-7.68	C101	Design
-5.98	C102	Design
-5.98	C103	Design
-5.98	C104	Design
-5.98	C105	Design
8.19	C106	Design
-0.88	C107	Design
5.93	C108	Design
5.93	C109	Design
-0.88	C110	Design
-0.88	C111	Design
5.93	C112	Design
5.93	C113	Design
4.23	C114	Design
4.23	C115	Design
4.23	C116	Design
4.23	C117	Design
-9.94	C118	Design
-0.88	C119	Design
-7.68	C120	Design
-7.68	C121	Design
-0.88	C122	Design
-0.88	C123	Design
-7.68	C124	Design
-7.68	C125	Design
-5.98	C126	Design

-5.98	C127	Design
-5.98	C128	Design
-5.98	C129	Design
8.19	C130	Design
-0.88	C131	Design
5.93	C132	Design
5.93	C133	Design
-0.88	C134	Design
-0.88	C135	Design
5.93	C136	Design
5.93	C137	Design
4.23	C138	Design
4.23	C139	Design
4.23	C140	Design
4.23	C141	Design
-9.94	C142	Design
-0.88	C143	Design
-7.68	C144	Design
-7.68	C145	Design
-0.88	C146	Design
-0.88	C147	Design
-7.68	C148	Design
-7.68	C149	Design
-5.98	C150	Design
-5.98	C151	Design
-5.98	C152	Design
-5.98	C153	Design
7.85	C154	Design
-1.22	C155	Design
5.58	C156	Design
5.58	C157	Design
-1.22	C158	Design
-1.22	C159	Design
5.58	C160	Design
5.58	C161	Design
3.88	C162	Design
3.88	C163	Design
3.88	C164	Design
3.88	C165	Design
-10.29	C166	Design
-1.22	C167	Design
-8.02	C168	Design
-8.02	C169	Design
-1.22	C170	Design
-1.22	C171	Design
-8.02	C172	Design
-8.02	C173	Design
-6.32	C174	Design
-6.32	C175	Design
-6.32	C176	Design
-6.32	C177	Design
8.19	C178	Design
-0.88	C179	Design
5.93	C180	Design
5.93	C181	Design
-0.88	C182	Design
-0.88	C183	Design
5.93	C184	Design
5.93	C185	Design
4.23	C186	Design
4.23	C187	Design
4.23	C188	Design
4.23	C189	Design
-9.94	C190	Design
-0.88	C191	Design
-7.68	C192	Design
-7.68	C193	Design
-0.88	C194	Design
-0.88	C195	Design
-7.68	C196	Design
-7.68	C197	Design
-5.98	C198	Design
-5.98	C199	Design
-5.98	C200	Design
-5.98	C201	Design
8.19	C202	Design
-0.88	C203	Design

5.93	C204	Design
5.93	C205	Design
-0.88	C206	Design
-0.88	C207	Design
5.93	C208	Design
5.93	C209	Design
4.23	C210	Design
4.23	C211	Design
4.23	C212	Design
4.23	C213	Design
-9.94	C214	Design
-0.88	C215	Design
-7.68	C216	Design
-7.68	C217	Design
-0.88	C218	Design
-0.88	C219	Design
-7.68	C220	Design
-7.68	C221	Design
-5.98	C222	Design
-5.98	C223	Design
-5.98	C224	Design
-5.98	C225	Design
8.41	C226	Design
-0.66	C227	Design
6.15	C228	Design
6.15	C229	Design
-0.66	C230	Design
-0.66	C231	Design
6.15	C232	Design
6.15	C233	Design
4.44	C234	Design
4.44	C235	Design
4.44	C236	Design
4.44	C237	Design
-9.73	C238	Design
-0.66	C239	Design
-7.46	C240	Design
-7.46	C241	Design
-0.66	C242	Design
-0.66	C243	Design
-7.46	C244	Design
-7.46	C245	Design
-5.76	C246	Design
-5.76	C247	Design
-5.76	C248	Design
-5.76	C249	Design
-0.09	C250	Design
-0.09	C251	Design
-1.37	C252	Design
-1.37	C253	Design
-2.65	C254	Design
-2.65	C255	Design
-1.37	C256	Design
-1.37	C257	Design
0.39	C258	Design
0.39	C259	Design
-0.89	C260	Design
-0.89	C261	Design
-2.17	C262	Design
-2.17	C263	Design
-0.89	C264	Design
-0.89	C265	Design
0.39	C266	Design
0.39	C267	Design
-0.89	C268	Design
-0.89	C269	Design
-2.17	C270	Design
-2.17	C271	Design
-0.89	C272	Design
-0.89	C273	Design
0.39	C274	Design
0.39	C275	Design
-0.89	C276	Design
-0.89	C277	Design
-2.17	C278	Design
-2.17	C279	Design
-0.89	C280	Design

-0.89	C281	Design
-0.09	C282	Design
-0.09	C283	Design
-1.37	C284	Design
-1.37	C285	Design
-2.65	C286	Design
-2.65	C287	Design
-1.37	C288	Design
-1.37	C289	Design
0.39	C290	Design
0.39	C291	Design
-0.89	C292	Design
-0.89	C293	Design
-2.17	C294	Design
-2.17	C295	Design
-0.89	C296	Design
-0.89	C297	Design
0.39	C298	Design
0.39	C299	Design
-0.89	C300	Design
-0.89	C301	Design
-2.17	C302	Design
-2.17	C303	Design
-0.89	C304	Design
-0.89	C305	Design
0.64	C306	Design
0.64	C307	Design
-0.64	C308	Design
-0.64	C309	Design
-1.92	C310	Design
-1.92	C311	Design
-0.64	C312	Design
-0.64	C313	Design
-0.88	D1	Design
-1.22	D2	Design
-1.22	D3	Design
-1.98	D4	Design
3.66	D5	Design
-0.88	D6	Design
2.53	D7	Design
2.53	D8	Design
-0.88	D9	Design
-0.88	D10	Design
2.53	D11	Design
2.53	D12	Design
1.68	D13	Design
1.68	D14	Design
1.68	D15	Design
1.68	D16	Design
-1.98	D17	Design
2.55	D18	Design
-1.98	D19	Design
1.42	D20	Design
1.42	D21	Design
-1.98	D22	Design
-1.98	D23	Design
1.42	D24	Design
1.42	D25	Design
0.57	D26	Design
0.57	D27	Design
0.57	D28	Design
0.57	D29	Design
7.85	D30	Design
-1.22	D31	Design
5.58	D32	Design
5.58	D33	Design
-1.22	D34	Design
-1.22	D35	Design
5.58	D36	Design
5.58	D37	Design
3.88	D38	Design
3.88	D39	Design
3.88	D40	Design
3.88	D41	Design
8.19	D42	Design
-0.88	D43	Design
5.93	D44	Design

5.93	D45	Design
-0.88	D46	Design
-0.88	D47	Design
5.93	D48	Design
5.93	D49	Design
4.23	D50	Design
4.23	D51	Design
4.23	D52	Design
4.23	D53	Design
7.85	D54	Design
-1.22	D55	Design
5.58	D56	Design
5.58	D57	Design
-1.22	D58	Design
-1.22	D59	Design
5.58	D60	Design
5.58	D61	Design
3.88	D62	Design
3.88	D63	Design
3.88	D64	Design
3.88	D65	Design
-1.01	D66	Design
0.41	D67	Design
0.41	D68	Design
-0.88	D69	Design
-0.88	D70	Design
-1.01	D71	Design
0.27	D72	Design
0.27	D73	Design
-1.01	D74	Design
-1.01	D75	Design
0.41	D76	Design
0.41	D77	Design
-0.88	D78	Design
-0.88	D79	Design
0.27	D80	Design
0.27	D81	Design
-1.01	D82	Design
-1.01	D83	Design
0.62	D84	Design
0.62	D85	Design
-0.66	D86	Design
-0.66	D87	Design

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Member						
Yielding strength due to axial load	[Kip]	193.50	9.07	Wind	0.05	Eq. J4-1
Tension rupture	[Kip]	136.31	9.07	Wind	0.07	Eq. J4-2
Gusset						
Tension yielding on the Whitmore section	[Kip]	144.93	9.07	Wind	0.06	Eq. J4-1
Buckling on the Whitmore section	[Kip]	140.45	10.29	C70	0.07	Eq. E3-1
Ratio	0.07					

Interface between Gusset - Bottom right brace
Connection: Directly welded

Demands

Pu [kip]	Description	Load type
-0.73	dl	Design
0.00	lln	Design
0.00	llp	Design
0.00	llrn	Design
0.00	llrp	Design
-0.69	Sp	Design

0.00	Sn	Design
-9.07	Wind	Design
0.00	Wind1	Design
-6.80	Wind2	Design
-6.80	Wind3	Design
0.00	Wind4	Design
0.00	Wind5	Design
-6.80	Wind6	Design
-6.80	Wind7	Design
-5.10	Wind8	Design
-5.10	Wind9	Design
-5.10	Wind10	Design
-5.10	Wind11	Design
-1.28	Seismic_Xp	Design
-1.28	Seismic_Xm	Design
0.00	Seismic_Yp	Design
0.00	Seismic_Ym	Design
0.00	COR	Design
0.00	Virtual_Work	Design
-1.02	C1	Design
-1.22	C2	Design
-0.88	C3	Design
-0.88	C4	Design
-0.88	C5	Design
-1.98	C6	Design
-0.88	C7	Design
-1.98	C8	Design
-0.88	C9	Design
-6.51	C10	Design
-1.98	C11	Design
-5.38	C12	Design
-5.38	C13	Design
-1.98	C14	Design
-1.98	C15	Design
-5.38	C16	Design
-5.38	C17	Design
-4.53	C18	Design
-4.53	C19	Design
-4.53	C20	Design
-4.53	C21	Design
2.55	C22	Design
-1.98	C23	Design
1.42	C24	Design
1.42	C25	Design
-1.98	C26	Design
-1.98	C27	Design
1.42	C28	Design
1.42	C29	Design
0.57	C30	Design
0.57	C31	Design
0.57	C32	Design
0.57	C33	Design
-5.41	C34	Design
-0.88	C35	Design
-4.28	C36	Design
-4.28	C37	Design
-0.88	C38	Design
-0.88	C39	Design
-4.28	C40	Design
-4.28	C41	Design
-3.43	C42	Design
-3.43	C43	Design
-3.43	C44	Design
-3.43	C45	Design
3.66	C46	Design
-0.88	C47	Design
2.53	C48	Design
2.53	C49	Design
-0.88	C50	Design
-0.88	C51	Design
2.53	C52	Design
2.53	C53	Design
1.68	C54	Design
1.68	C55	Design
1.68	C56	Design
1.68	C57	Design
-10.29	C58	Design

-1.22	C59	Design
-8.02	C60	Design
-8.02	C61	Design
-1.22	C62	Design
-1.22	C63	Design
-8.02	C64	Design
-8.02	C65	Design
-6.32	C66	Design
-6.32	C67	Design
-6.32	C68	Design
-6.32	C69	Design
7.85	C70	Design
-1.22	C71	Design
5.58	C72	Design
5.58	C73	Design
-1.22	C74	Design
-1.22	C75	Design
5.58	C76	Design
5.58	C77	Design
3.88	C78	Design
3.88	C79	Design
3.88	C80	Design
3.88	C81	Design
-9.94	C82	Design
-0.88	C83	Design
-7.68	C84	Design
-7.68	C85	Design
-0.88	C86	Design
-0.88	C87	Design
-7.68	C88	Design
-7.68	C89	Design
-5.98	C90	Design
-5.98	C91	Design
-5.98	C92	Design
-5.98	C93	Design
8.19	C94	Design
-0.88	C95	Design
5.93	C96	Design
5.93	C97	Design
-0.88	C98	Design
-0.88	C99	Design
5.93	C100	Design
5.93	C101	Design
4.23	C102	Design
4.23	C103	Design
4.23	C104	Design
4.23	C105	Design
-9.94	C106	Design
-0.88	C107	Design
-7.68	C108	Design
-7.68	C109	Design
-0.88	C110	Design
-0.88	C111	Design
-7.68	C112	Design
-7.68	C113	Design
-5.98	C114	Design
-5.98	C115	Design
-5.98	C116	Design
-5.98	C117	Design
8.19	C118	Design
-0.88	C119	Design
5.93	C120	Design
5.93	C121	Design
-0.88	C122	Design
-0.88	C123	Design
5.93	C124	Design
5.93	C125	Design
4.23	C126	Design
4.23	C127	Design
4.23	C128	Design
4.23	C129	Design
-9.94	C130	Design
-0.88	C131	Design
-7.68	C132	Design
-7.68	C133	Design
-0.88	C134	Design
-0.88	C135	Design

-7.68	C136	Design
-7.68	C137	Design
-5.98	C138	Design
-5.98	C139	Design
-5.98	C140	Design
-5.98	C141	Design
8.19	C142	Design
-0.88	C143	Design
5.93	C144	Design
5.93	C145	Design
-0.88	C146	Design
-0.88	C147	Design
5.93	C148	Design
5.93	C149	Design
4.23	C150	Design
4.23	C151	Design
4.23	C152	Design
4.23	C153	Design
-10.29	C154	Design
-1.22	C155	Design
-8.02	C156	Design
-8.02	C157	Design
-1.22	C158	Design
-1.22	C159	Design
-8.02	C160	Design
-8.02	C161	Design
-6.32	C162	Design
-6.32	C163	Design
-6.32	C164	Design
-6.32	C165	Design
7.85	C166	Design
-1.22	C167	Design
5.58	C168	Design
5.58	C169	Design
-1.22	C170	Design
-1.22	C171	Design
5.58	C172	Design
5.58	C173	Design
3.88	C174	Design
3.88	C175	Design
3.88	C176	Design
3.88	C177	Design
-9.94	C178	Design
-0.88	C179	Design
-7.68	C180	Design
-7.68	C181	Design
-0.88	C182	Design
-0.88	C183	Design
-7.68	C184	Design
-7.68	C185	Design
-5.98	C186	Design
-5.98	C187	Design
-5.98	C188	Design
-5.98	C189	Design
8.19	C190	Design
-0.88	C191	Design
5.93	C192	Design
5.93	C193	Design
-0.88	C194	Design
-0.88	C195	Design
5.93	C196	Design
5.93	C197	Design
4.23	C198	Design
4.23	C199	Design
4.23	C200	Design
4.23	C201	Design
-9.94	C202	Design
-0.88	C203	Design
-7.68	C204	Design
-7.68	C205	Design
-0.88	C206	Design
-0.88	C207	Design
-7.68	C208	Design
-7.68	C209	Design
-5.98	C210	Design
-5.98	C211	Design
-5.98	C212	Design

-5.98	C213	Design
8.19	C214	Design
-0.88	C215	Design
5.93	C216	Design
5.93	C217	Design
-0.88	C218	Design
-0.88	C219	Design
5.93	C220	Design
5.93	C221	Design
4.23	C222	Design
4.23	C223	Design
4.23	C224	Design
4.23	C225	Design
-9.73	C226	Design
-0.66	C227	Design
-7.46	C228	Design
-7.46	C229	Design
-0.66	C230	Design
-0.66	C231	Design
-7.46	C232	Design
-7.46	C233	Design
-5.76	C234	Design
-5.76	C235	Design
-5.76	C236	Design
-5.76	C237	Design
8.41	C238	Design
-0.66	C239	Design
6.15	C240	Design
6.15	C241	Design
-0.66	C242	Design
-0.66	C243	Design
6.15	C244	Design
6.15	C245	Design
4.44	C246	Design
4.44	C247	Design
4.44	C248	Design
4.44	C249	Design
-2.65	C250	Design
-2.65	C251	Design
-1.37	C252	Design
-1.37	C253	Design
-0.09	C254	Design
-0.09	C255	Design
-1.37	C256	Design
-1.37	C257	Design
-2.17	C258	Design
-2.17	C259	Design
-0.89	C260	Design
-0.89	C261	Design
0.39	C262	Design
0.39	C263	Design
-0.89	C264	Design
-0.89	C265	Design
-2.17	C266	Design
-2.17	C267	Design
-0.89	C268	Design
-0.89	C269	Design
0.39	C270	Design
0.39	C271	Design
-0.89	C272	Design
-0.89	C273	Design
-2.17	C274	Design
-2.17	C275	Design
-0.89	C276	Design
-0.89	C277	Design
0.39	C278	Design
0.39	C279	Design
-0.89	C280	Design
-0.89	C281	Design
-2.65	C282	Design
-2.65	C283	Design
-1.37	C284	Design
-1.37	C285	Design
-0.09	C286	Design
-0.09	C287	Design
-1.37	C288	Design
-1.37	C289	Design

-2.17	C290	Design
-2.17	C291	Design
-0.89	C292	Design
-0.89	C293	Design
0.39	C294	Design
0.39	C295	Design
-0.89	C296	Design
-0.89	C297	Design
-2.17	C298	Design
-2.17	C299	Design
-0.89	C300	Design
-0.89	C301	Design
0.39	C302	Design
0.39	C303	Design
-0.89	C304	Design
-0.89	C305	Design
-1.92	C306	Design
-1.92	C307	Design
-0.64	C308	Design
-0.64	C309	Design
0.64	C310	Design
0.64	C311	Design
-0.64	C312	Design
-0.64	C313	Design
-0.88	D1	Design
-1.22	D2	Design
-1.22	D3	Design
-1.98	D4	Design
-5.41	D5	Design
-0.88	D6	Design
-4.28	D7	Design
-4.28	D8	Design
-0.88	D9	Design
-0.88	D10	Design
-4.28	D11	Design
-4.28	D12	Design
-3.43	D13	Design
-3.43	D14	Design
-3.43	D15	Design
-3.43	D16	Design
-1.98	D17	Design
-6.51	D18	Design
-1.98	D19	Design
-5.38	D20	Design
-5.38	D21	Design
-1.98	D22	Design
-1.98	D23	Design
-5.38	D24	Design
-5.38	D25	Design
-4.53	D26	Design
-4.53	D27	Design
-4.53	D28	Design
-4.53	D29	Design
-10.29	D30	Design
-1.22	D31	Design
-8.02	D32	Design
-8.02	D33	Design
-1.22	D34	Design
-1.22	D35	Design
-8.02	D36	Design
-8.02	D37	Design
-6.32	D38	Design
-6.32	D39	Design
-6.32	D40	Design
-6.32	D41	Design
-9.94	D42	Design
-0.88	D43	Design
-7.68	D44	Design
-7.68	D45	Design
-0.88	D46	Design
-0.88	D47	Design
-7.68	D48	Design
-7.68	D49	Design
-5.98	D50	Design
-5.98	D51	Design
-5.98	D52	Design
-5.98	D53	Design

-10.29	D54	Design
-1.22	D55	Design
-8.02	D56	Design
-8.02	D57	Design
-1.22	D58	Design
-1.22	D59	Design
-8.02	D60	Design
-8.02	D61	Design
-6.32	D62	Design
-6.32	D63	Design
-6.32	D64	Design
-6.32	D65	Design
-1.01	D66	Design
-2.16	D67	Design
-2.16	D68	Design
-0.88	D69	Design
-0.88	D70	Design
-1.01	D71	Design
-2.29	D72	Design
-2.29	D73	Design
-1.01	D74	Design
-1.01	D75	Design
-2.16	D76	Design
-2.16	D77	Design
-0.88	D78	Design
-0.88	D79	Design
-2.29	D80	Design
-2.29	D81	Design
-1.01	D82	Design
-1.01	D83	Design
-1.94	D84	Design
-1.94	D85	Design
-0.66	D86	Design
-0.66	D87	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Member						
Weld size	[1/16in]	4	2	4	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Branch						
Total weld design strength	[Kip]	133.64	10.29	C58	0.08	Eq. J2-6
Maximum weld force that brace can develop	[Kip]	163.57	10.29	C58	0.06	Eq. J4-4
Maximum weld force that gusset can develop	[Kip]	117.45	10.29	C58	0.09	Eq. J4-4
Gusset						
Block shear on gusset	[Kip]	166.61	8.41	C238	0.05	Eq. J4-5

Ratio **0.09**

Checks for gusset and brace

Demands

Pu [kip]	Description	Load type
-0.73	dl	Design
0.00	lln	Design
0.00	llp	Design
0.00	llrn	Design
0.00	llrp	Design
-0.69	Sp	Design
0.00	Sn	Design
-9.07	Wind	Design

0.00	Wind1	Design
-6.80	Wind2	Design
-6.80	Wind3	Design
0.00	Wind4	Design
0.00	Wind5	Design
-6.80	Wind6	Design
-6.80	Wind7	Design
-5.10	Wind8	Design
-5.10	Wind9	Design
-5.10	Wind10	Design
-5.10	Wind11	Design
-1.28	Seismic_Xp	Design
-1.28	Seismic_Xm	Design
0.00	Seismic_Yp	Design
0.00	Seismic_Ym	Design
0.00	COR	Design
0.00	Virtual_Work	Design
-1.02	C1	Design
-1.22	C2	Design
-0.88	C3	Design
-0.88	C4	Design
-0.88	C5	Design
-1.98	C6	Design
-0.88	C7	Design
-1.98	C8	Design
-0.88	C9	Design
-6.51	C10	Design
-1.98	C11	Design
-5.38	C12	Design
-5.38	C13	Design
-1.98	C14	Design
-1.98	C15	Design
-5.38	C16	Design
-5.38	C17	Design
-4.53	C18	Design
-4.53	C19	Design
-4.53	C20	Design
-4.53	C21	Design
2.55	C22	Design
-1.98	C23	Design
1.42	C24	Design
1.42	C25	Design
-1.98	C26	Design
-1.98	C27	Design
1.42	C28	Design
1.42	C29	Design
0.57	C30	Design
0.57	C31	Design
0.57	C32	Design
0.57	C33	Design
-5.41	C34	Design
-0.88	C35	Design
-4.28	C36	Design
-4.28	C37	Design
-0.88	C38	Design
-0.88	C39	Design
-4.28	C40	Design
-4.28	C41	Design
-3.43	C42	Design
-3.43	C43	Design
-3.43	C44	Design
-3.43	C45	Design
3.66	C46	Design
-0.88	C47	Design
2.53	C48	Design
2.53	C49	Design
-0.88	C50	Design
-0.88	C51	Design
2.53	C52	Design
2.53	C53	Design
1.68	C54	Design
1.68	C55	Design
1.68	C56	Design
1.68	C57	Design
-10.29	C58	Design
-1.22	C59	Design
-8.02	C60	Design

-8.02	C61	Design
-1.22	C62	Design
-1.22	C63	Design
-8.02	C64	Design
-8.02	C65	Design
-6.32	C66	Design
-6.32	C67	Design
-6.32	C68	Design
-6.32	C69	Design
7.85	C70	Design
-1.22	C71	Design
5.58	C72	Design
5.58	C73	Design
-1.22	C74	Design
-1.22	C75	Design
5.58	C76	Design
5.58	C77	Design
3.88	C78	Design
3.88	C79	Design
3.88	C80	Design
3.88	C81	Design
-9.94	C82	Design
-0.88	C83	Design
-7.68	C84	Design
-7.68	C85	Design
-0.88	C86	Design
-0.88	C87	Design
-7.68	C88	Design
-7.68	C89	Design
-5.98	C90	Design
-5.98	C91	Design
-5.98	C92	Design
-5.98	C93	Design
8.19	C94	Design
-0.88	C95	Design
5.93	C96	Design
5.93	C97	Design
-0.88	C98	Design
-0.88	C99	Design
5.93	C100	Design
5.93	C101	Design
4.23	C102	Design
4.23	C103	Design
4.23	C104	Design
4.23	C105	Design
-9.94	C106	Design
-0.88	C107	Design
-7.68	C108	Design
-7.68	C109	Design
-0.88	C110	Design
-0.88	C111	Design
-7.68	C112	Design
-7.68	C113	Design
-5.98	C114	Design
-5.98	C115	Design
-5.98	C116	Design
-5.98	C117	Design
8.19	C118	Design
-0.88	C119	Design
5.93	C120	Design
5.93	C121	Design
-0.88	C122	Design
-0.88	C123	Design
5.93	C124	Design
5.93	C125	Design
4.23	C126	Design
4.23	C127	Design
4.23	C128	Design
4.23	C129	Design
-9.94	C130	Design
-0.88	C131	Design
-7.68	C132	Design
-7.68	C133	Design
-0.88	C134	Design
-0.88	C135	Design
-7.68	C136	Design
-7.68	C137	Design

-5.98	C138	Design
-5.98	C139	Design
-5.98	C140	Design
-5.98	C141	Design
8.19	C142	Design
-0.88	C143	Design
5.93	C144	Design
5.93	C145	Design
-0.88	C146	Design
-0.88	C147	Design
5.93	C148	Design
5.93	C149	Design
4.23	C150	Design
4.23	C151	Design
4.23	C152	Design
4.23	C153	Design
-10.29	C154	Design
-1.22	C155	Design
-8.02	C156	Design
-8.02	C157	Design
-1.22	C158	Design
-1.22	C159	Design
-8.02	C160	Design
-8.02	C161	Design
-6.32	C162	Design
-6.32	C163	Design
-6.32	C164	Design
-6.32	C165	Design
7.85	C166	Design
-1.22	C167	Design
5.58	C168	Design
5.58	C169	Design
-1.22	C170	Design
-1.22	C171	Design
5.58	C172	Design
5.58	C173	Design
3.88	C174	Design
3.88	C175	Design
3.88	C176	Design
3.88	C177	Design
-9.94	C178	Design
-0.88	C179	Design
-7.68	C180	Design
-7.68	C181	Design
-0.88	C182	Design
-0.88	C183	Design
-7.68	C184	Design
-7.68	C185	Design
-5.98	C186	Design
-5.98	C187	Design
-5.98	C188	Design
-5.98	C189	Design
8.19	C190	Design
-0.88	C191	Design
5.93	C192	Design
5.93	C193	Design
-0.88	C194	Design
-0.88	C195	Design
5.93	C196	Design
5.93	C197	Design
4.23	C198	Design
4.23	C199	Design
4.23	C200	Design
4.23	C201	Design
-9.94	C202	Design
-0.88	C203	Design
-7.68	C204	Design
-7.68	C205	Design
-0.88	C206	Design
-0.88	C207	Design
-7.68	C208	Design
-7.68	C209	Design
-5.98	C210	Design
-5.98	C211	Design
-5.98	C212	Design
-5.98	C213	Design
8.19	C214	Design

-0.88	C215	Design
5.93	C216	Design
5.93	C217	Design
-0.88	C218	Design
-0.88	C219	Design
5.93	C220	Design
5.93	C221	Design
4.23	C222	Design
4.23	C223	Design
4.23	C224	Design
4.23	C225	Design
-9.73	C226	Design
-0.66	C227	Design
-7.46	C228	Design
-7.46	C229	Design
-0.66	C230	Design
-0.66	C231	Design
-7.46	C232	Design
-7.46	C233	Design
-5.76	C234	Design
-5.76	C235	Design
-5.76	C236	Design
-5.76	C237	Design
8.41	C238	Design
-0.66	C239	Design
6.15	C240	Design
6.15	C241	Design
-0.66	C242	Design
-0.66	C243	Design
6.15	C244	Design
6.15	C245	Design
4.44	C246	Design
4.44	C247	Design
4.44	C248	Design
4.44	C249	Design
-2.65	C250	Design
-2.65	C251	Design
-1.37	C252	Design
-1.37	C253	Design
-0.09	C254	Design
-0.09	C255	Design
-1.37	C256	Design
-1.37	C257	Design
-2.17	C258	Design
-2.17	C259	Design
-0.89	C260	Design
-0.89	C261	Design
0.39	C262	Design
0.39	C263	Design
-0.89	C264	Design
-0.89	C265	Design
-2.17	C266	Design
-2.17	C267	Design
-0.89	C268	Design
-0.89	C269	Design
0.39	C270	Design
0.39	C271	Design
-0.89	C272	Design
-0.89	C273	Design
-2.17	C274	Design
-2.17	C275	Design
-0.89	C276	Design
-0.89	C277	Design
0.39	C278	Design
0.39	C279	Design
-0.89	C280	Design
-0.89	C281	Design
-2.65	C282	Design
-2.65	C283	Design
-1.37	C284	Design
-1.37	C285	Design
-0.09	C286	Design
-0.09	C287	Design
-1.37	C288	Design
-1.37	C289	Design
-2.17	C290	Design
-2.17	C291	Design

-0.89	C292	Design
-0.89	C293	Design
0.39	C294	Design
0.39	C295	Design
-0.89	C296	Design
-0.89	C297	Design
-2.17	C298	Design
-2.17	C299	Design
-0.89	C300	Design
-0.89	C301	Design
0.39	C302	Design
0.39	C303	Design
-0.89	C304	Design
-0.89	C305	Design
-1.92	C306	Design
-1.92	C307	Design
-0.64	C308	Design
-0.64	C309	Design
0.64	C310	Design
0.64	C311	Design
-0.64	C312	Design
-0.64	C313	Design
-0.88	D1	Design
-1.22	D2	Design
-1.22	D3	Design
-1.98	D4	Design
-5.41	D5	Design
-0.88	D6	Design
-4.28	D7	Design
-4.28	D8	Design
-0.88	D9	Design
-0.88	D10	Design
-4.28	D11	Design
-4.28	D12	Design
-3.43	D13	Design
-3.43	D14	Design
-3.43	D15	Design
-3.43	D16	Design
-1.98	D17	Design
-6.51	D18	Design
-1.98	D19	Design
-5.38	D20	Design
-5.38	D21	Design
-1.98	D22	Design
-1.98	D23	Design
-5.38	D24	Design
-5.38	D25	Design
-4.53	D26	Design
-4.53	D27	Design
-4.53	D28	Design
-4.53	D29	Design
-10.29	D30	Design
-1.22	D31	Design
-8.02	D32	Design
-8.02	D33	Design
-1.22	D34	Design
-1.22	D35	Design
-8.02	D36	Design
-8.02	D37	Design
-6.32	D38	Design
-6.32	D39	Design
-6.32	D40	Design
-6.32	D41	Design
-9.94	D42	Design
-0.88	D43	Design
-7.68	D44	Design
-7.68	D45	Design
-0.88	D46	Design
-0.88	D47	Design
-7.68	D48	Design
-7.68	D49	Design
-5.98	D50	Design
-5.98	D51	Design
-5.98	D52	Design
-5.98	D53	Design
-10.29	D54	Design
-1.22	D55	Design

-8.02	D56	Design
-8.02	D57	Design
-1.22	D58	Design
-1.22	D59	Design
-8.02	D60	Design
-8.02	D61	Design
-6.32	D62	Design
-6.32	D63	Design
-6.32	D64	Design
-6.32	D65	Design
-1.01	D66	Design
-2.16	D67	Design
-2.16	D68	Design
-0.88	D69	Design
-0.88	D70	Design
-1.01	D71	Design
-2.29	D72	Design
-2.29	D73	Design
-1.01	D74	Design
-1.01	D75	Design
-2.16	D76	Design
-2.16	D77	Design
-0.88	D78	Design
-0.88	D79	Design
-2.29	D80	Design
-2.29	D81	Design
-1.01	D82	Design
-1.01	D83	Design
-1.94	D84	Design
-1.94	D85	Design
-0.66	D86	Design
-0.66	D87	Design

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Member						
Yielding strength due to axial load	[Kip]	193.50	8.41	C238	0.04	Eq. J4-1
Tension rupture	[Kip]	136.31	8.41	C238	0.06	Eq. J4-2
Gusset						
Tension yielding on the Whitmore section	[Kip]	144.93	8.41	C238	0.06	Eq. J4-1
Buckling on the Whitmore section	[Kip]	140.45	10.29	C58	0.07	Eq. E3-1
Ratio		0.07				

Interface Lower gusset - beam Connection: *Directly welded*

Demands

Description	Beam			Column			Load type
	Ru [kip]	Pu [kip]	Mu [kip*ft]	Pu [kip]	Mu22 [kip*ft]	Mu33 [kip*ft]	
dl	0.00	-1.23	0.00	0.00	0.00	0.00	Design
lln	0.00	0.00	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrn	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	0.00	0.00	Design
Sp	0.00	-1.16	0.00	0.00	0.00	0.00	Design
Sn	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind	-9.81	0.00	-6.42	0.00	0.00	0.00	Design
Wind1	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind2	-7.36	0.00	-4.81	0.00	0.00	0.00	Design
Wind3	-7.36	0.00	-4.81	0.00	0.00	0.00	Design
Wind4	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind5	0.00	0.00	0.00	0.00	0.00	0.00	Design
Wind6	-7.36	0.00	-4.81	0.00	0.00	0.00	Design
Wind7	-7.36	0.00	-4.81	0.00	0.00	0.00	Design
Wind8	-5.52	0.00	-3.61	0.00	0.00	0.00	Design

Wind9	-5.52	0.00	-3.61	0.00	0.00	0.00	Design
Wind10	-5.52	0.00	-3.61	0.00	0.00	0.00	Design
Wind11	-5.52	0.00	-3.61	0.00	0.00	0.00	Design
Seismic_Xp	-1.39	0.00	-0.91	0.00	0.00	0.00	Design
Seismic_Xm	-1.39	0.00	-0.91	0.00	0.00	0.00	Design
Seismic_Yp	0.00	0.00	0.00	0.00	0.00	0.00	Design
Seismic_Ym	0.00	0.00	0.00	0.00	0.00	0.00	Design
COR	0.00	0.00	0.00	0.00	0.00	0.00	Design
Virtual_Work	0.00	0.00	0.00	0.00	0.00	0.00	Design
C1	0.00	-1.72	0.00	0.00	0.00	0.00	Design
C2	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C3	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C4	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C5	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C6	0.00	-3.33	0.00	0.00	0.00	0.00	Design
C7	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C8	0.00	-3.33	0.00	0.00	0.00	0.00	Design
C9	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C10	-4.90	-3.33	-3.21	0.00	0.00	0.00	Design
C11	0.00	-3.33	0.00	0.00	0.00	0.00	Design
C12	-3.68	-3.33	-2.41	0.00	0.00	0.00	Design
C13	-3.68	-3.33	-2.41	0.00	0.00	0.00	Design
C14	0.00	-3.33	0.00	0.00	0.00	0.00	Design
C15	0.00	-3.33	0.00	0.00	0.00	0.00	Design
C16	-3.68	-3.33	-2.41	0.00	0.00	0.00	Design
C17	-3.68	-3.33	-2.41	0.00	0.00	0.00	Design
C18	-2.76	-3.33	-1.80	0.00	0.00	0.00	Design
C19	-2.76	-3.33	-1.80	0.00	0.00	0.00	Design
C20	-2.76	-3.33	-1.80	0.00	0.00	0.00	Design
C21	-2.76	-3.33	-1.80	0.00	0.00	0.00	Design
C22	4.90	-3.33	3.21	0.00	0.00	0.00	Design
C23	0.00	-3.33	0.00	0.00	0.00	0.00	Design
C24	3.68	-3.33	2.41	0.00	0.00	0.00	Design
C25	3.68	-3.33	2.41	0.00	0.00	0.00	Design
C26	0.00	-3.33	0.00	0.00	0.00	0.00	Design
C27	0.00	-3.33	0.00	0.00	0.00	0.00	Design
C28	3.68	-3.33	2.41	0.00	0.00	0.00	Design
C29	3.68	-3.33	2.41	0.00	0.00	0.00	Design
C30	2.76	-3.33	1.80	0.00	0.00	0.00	Design
C31	2.76	-3.33	1.80	0.00	0.00	0.00	Design
C32	2.76	-3.33	1.80	0.00	0.00	0.00	Design
C33	2.76	-3.33	1.80	0.00	0.00	0.00	Design
C34	-4.90	-1.47	-3.21	0.00	0.00	0.00	Design
C35	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C36	-3.68	-1.47	-2.41	0.00	0.00	0.00	Design
C37	-3.68	-1.47	-2.41	0.00	0.00	0.00	Design
C38	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C39	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C40	-3.68	-1.47	-2.41	0.00	0.00	0.00	Design
C41	-3.68	-1.47	-2.41	0.00	0.00	0.00	Design
C42	-2.76	-1.47	-1.80	0.00	0.00	0.00	Design
C43	-2.76	-1.47	-1.80	0.00	0.00	0.00	Design
C44	-2.76	-1.47	-1.80	0.00	0.00	0.00	Design
C45	-2.76	-1.47	-1.80	0.00	0.00	0.00	Design
C46	4.90	-1.47	3.21	0.00	0.00	0.00	Design
C47	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C48	3.68	-1.47	2.41	0.00	0.00	0.00	Design
C49	3.68	-1.47	2.41	0.00	0.00	0.00	Design
C50	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C51	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C52	3.68	-1.47	2.41	0.00	0.00	0.00	Design
C53	3.68	-1.47	2.41	0.00	0.00	0.00	Design
C54	2.76	-1.47	1.80	0.00	0.00	0.00	Design
C55	2.76	-1.47	1.80	0.00	0.00	0.00	Design
C56	2.76	-1.47	1.80	0.00	0.00	0.00	Design
C57	2.76	-1.47	1.80	0.00	0.00	0.00	Design
C58	-9.81	-2.05	-6.42	0.00	0.00	0.00	Design
C59	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C60	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
C61	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
C62	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C63	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C64	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
C65	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
C66	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
C67	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
C68	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design

C69	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
C70	9.81	-2.05	6.42	0.00	0.00	0.00	Design
C71	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C72	7.36	-2.05	4.81	0.00	0.00	0.00	Design
C73	7.36	-2.05	4.81	0.00	0.00	0.00	Design
C74	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C75	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C76	7.36	-2.05	4.81	0.00	0.00	0.00	Design
C77	7.36	-2.05	4.81	0.00	0.00	0.00	Design
C78	5.52	-2.05	3.61	0.00	0.00	0.00	Design
C79	5.52	-2.05	3.61	0.00	0.00	0.00	Design
C80	5.52	-2.05	3.61	0.00	0.00	0.00	Design
C81	5.52	-2.05	3.61	0.00	0.00	0.00	Design
C82	-9.81	-1.47	-6.42	0.00	0.00	0.00	Design
C83	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C84	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C85	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C86	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C87	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C88	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C89	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C90	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C91	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C92	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C93	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C94	9.81	-1.47	6.42	0.00	0.00	0.00	Design
C95	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C96	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C97	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C98	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C99	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C100	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C101	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C102	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C103	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C104	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C105	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C106	-9.81	-1.47	-6.42	0.00	0.00	0.00	Design
C107	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C108	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C109	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C110	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C111	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C112	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C113	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C114	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C115	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C116	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C117	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C118	9.81	-1.47	6.42	0.00	0.00	0.00	Design
C119	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C120	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C121	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C122	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C123	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C124	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C125	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C126	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C127	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C128	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C129	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C130	-9.81	-1.47	-6.42	0.00	0.00	0.00	Design
C131	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C132	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C133	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C134	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C135	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C136	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C137	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C138	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C139	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C140	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C141	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C142	9.81	-1.47	6.42	0.00	0.00	0.00	Design
C143	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C144	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C145	7.36	-1.47	4.81	0.00	0.00	0.00	Design

C146	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C147	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C148	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C149	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C150	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C151	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C152	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C153	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C154	-9.81	-2.05	-6.42	0.00	0.00	0.00	Design
C155	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C156	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
C157	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
C158	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C159	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C160	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
C161	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
C162	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
C163	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
C164	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
C165	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
C166	9.81	-2.05	6.42	0.00	0.00	0.00	Design
C167	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C168	7.36	-2.05	4.81	0.00	0.00	0.00	Design
C169	7.36	-2.05	4.81	0.00	0.00	0.00	Design
C170	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C171	0.00	-2.05	0.00	0.00	0.00	0.00	Design
C172	7.36	-2.05	4.81	0.00	0.00	0.00	Design
C173	7.36	-2.05	4.81	0.00	0.00	0.00	Design
C174	5.52	-2.05	3.61	0.00	0.00	0.00	Design
C175	5.52	-2.05	3.61	0.00	0.00	0.00	Design
C176	5.52	-2.05	3.61	0.00	0.00	0.00	Design
C177	5.52	-2.05	3.61	0.00	0.00	0.00	Design
C178	-9.81	-1.47	-6.42	0.00	0.00	0.00	Design
C179	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C180	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C181	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C182	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C183	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C184	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C185	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C186	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C187	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C188	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C189	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C190	9.81	-1.47	6.42	0.00	0.00	0.00	Design
C191	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C192	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C193	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C194	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C195	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C196	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C197	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C198	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C199	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C200	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C201	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C202	-9.81	-1.47	-6.42	0.00	0.00	0.00	Design
C203	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C204	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C205	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C206	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C207	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C208	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C209	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
C210	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C211	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C212	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C213	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
C214	9.81	-1.47	6.42	0.00	0.00	0.00	Design
C215	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C216	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C217	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C218	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C219	0.00	-1.47	0.00	0.00	0.00	0.00	Design
C220	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C221	7.36	-1.47	4.81	0.00	0.00	0.00	Design
C222	5.52	-1.47	3.61	0.00	0.00	0.00	Design

C223	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C224	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C225	5.52	-1.47	3.61	0.00	0.00	0.00	Design
C226	-9.81	-1.10	-6.42	0.00	0.00	0.00	Design
C227	0.00	-1.10	0.00	0.00	0.00	0.00	Design
C228	-7.36	-1.10	-4.81	0.00	0.00	0.00	Design
C229	-7.36	-1.10	-4.81	0.00	0.00	0.00	Design
C230	0.00	-1.10	0.00	0.00	0.00	0.00	Design
C231	0.00	-1.10	0.00	0.00	0.00	0.00	Design
C232	-7.36	-1.10	-4.81	0.00	0.00	0.00	Design
C233	-7.36	-1.10	-4.81	0.00	0.00	0.00	Design
C234	-5.52	-1.10	-3.61	0.00	0.00	0.00	Design
C235	-5.52	-1.10	-3.61	0.00	0.00	0.00	Design
C236	-5.52	-1.10	-3.61	0.00	0.00	0.00	Design
C237	-5.52	-1.10	-3.61	0.00	0.00	0.00	Design
C238	9.81	-1.10	6.42	0.00	0.00	0.00	Design
C239	0.00	-1.10	0.00	0.00	0.00	0.00	Design
C240	7.36	-1.10	4.81	0.00	0.00	0.00	Design
C241	7.36	-1.10	4.81	0.00	0.00	0.00	Design
C242	0.00	-1.10	0.00	0.00	0.00	0.00	Design
C243	0.00	-1.10	0.00	0.00	0.00	0.00	Design
C244	7.36	-1.10	4.81	0.00	0.00	0.00	Design
C245	7.36	-1.10	4.81	0.00	0.00	0.00	Design
C246	5.52	-1.10	3.61	0.00	0.00	0.00	Design
C247	5.52	-1.10	3.61	0.00	0.00	0.00	Design
C248	5.52	-1.10	3.61	0.00	0.00	0.00	Design
C249	5.52	-1.10	3.61	0.00	0.00	0.00	Design
C250	-1.39	-2.31	-0.91	0.00	0.00	0.00	Design
C251	-1.39	-2.31	-0.91	0.00	0.00	0.00	Design
C252	0.00	-2.31	0.00	0.00	0.00	0.00	Design
C253	0.00	-2.31	0.00	0.00	0.00	0.00	Design
C254	1.39	-2.31	0.91	0.00	0.00	0.00	Design
C255	1.39	-2.31	0.91	0.00	0.00	0.00	Design
C256	0.00	-2.31	0.00	0.00	0.00	0.00	Design
C257	0.00	-2.31	0.00	0.00	0.00	0.00	Design
C258	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design
C259	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design
C260	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C261	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C262	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C263	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C264	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C265	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C266	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design
C267	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design
C268	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C269	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C270	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C271	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C272	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C273	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C274	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design
C275	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design
C276	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C277	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C278	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C279	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C280	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C281	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C282	-1.39	-2.31	-0.91	0.00	0.00	0.00	Design
C283	-1.39	-2.31	-0.91	0.00	0.00	0.00	Design
C284	0.00	-2.31	0.00	0.00	0.00	0.00	Design
C285	0.00	-2.31	0.00	0.00	0.00	0.00	Design
C286	1.39	-2.31	0.91	0.00	0.00	0.00	Design
C287	1.39	-2.31	0.91	0.00	0.00	0.00	Design
C288	0.00	-2.31	0.00	0.00	0.00	0.00	Design
C289	0.00	-2.31	0.00	0.00	0.00	0.00	Design
C290	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design
C291	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design
C292	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C293	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C294	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C295	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C296	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C297	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C298	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design
C299	-1.39	-1.50	-0.91	0.00	0.00	0.00	Design

C300	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C301	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C302	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C303	1.39	-1.50	0.91	0.00	0.00	0.00	Design
C304	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C305	0.00	-1.50	0.00	0.00	0.00	0.00	Design
C306	-1.39	-1.08	-0.91	0.00	0.00	0.00	Design
C307	-1.39	-1.08	-0.91	0.00	0.00	0.00	Design
C308	0.00	-1.08	0.00	0.00	0.00	0.00	Design
C309	0.00	-1.08	0.00	0.00	0.00	0.00	Design
C310	1.39	-1.08	0.91	0.00	0.00	0.00	Design
C311	1.39	-1.08	0.91	0.00	0.00	0.00	Design
C312	0.00	-1.08	0.00	0.00	0.00	0.00	Design
C313	0.00	-1.08	0.00	0.00	0.00	0.00	Design
D1	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D2	0.00	-2.05	0.00	0.00	0.00	0.00	Design
D3	0.00	-2.05	0.00	0.00	0.00	0.00	Design
D4	0.00	-3.33	0.00	0.00	0.00	0.00	Design
D5	-4.90	-1.47	-3.21	0.00	0.00	0.00	Design
D6	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D7	-3.68	-1.47	-2.41	0.00	0.00	0.00	Design
D8	-3.68	-1.47	-2.41	0.00	0.00	0.00	Design
D9	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D10	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D11	-3.68	-1.47	-2.41	0.00	0.00	0.00	Design
D12	-3.68	-1.47	-2.41	0.00	0.00	0.00	Design
D13	-2.76	-1.47	-1.80	0.00	0.00	0.00	Design
D14	-2.76	-1.47	-1.80	0.00	0.00	0.00	Design
D15	-2.76	-1.47	-1.80	0.00	0.00	0.00	Design
D16	-2.76	-1.47	-1.80	0.00	0.00	0.00	Design
D17	0.00	-3.33	0.00	0.00	0.00	0.00	Design
D18	-4.90	-3.33	-3.21	0.00	0.00	0.00	Design
D19	0.00	-3.33	0.00	0.00	0.00	0.00	Design
D20	-3.68	-3.33	-2.41	0.00	0.00	0.00	Design
D21	-3.68	-3.33	-2.41	0.00	0.00	0.00	Design
D22	0.00	-3.33	0.00	0.00	0.00	0.00	Design
D23	0.00	-3.33	0.00	0.00	0.00	0.00	Design
D24	-3.68	-3.33	-2.41	0.00	0.00	0.00	Design
D25	-3.68	-3.33	-2.41	0.00	0.00	0.00	Design
D26	-2.76	-3.33	-1.80	0.00	0.00	0.00	Design
D27	-2.76	-3.33	-1.80	0.00	0.00	0.00	Design
D28	-2.76	-3.33	-1.80	0.00	0.00	0.00	Design
D29	-2.76	-3.33	-1.80	0.00	0.00	0.00	Design
D30	-9.81	-2.05	-6.42	0.00	0.00	0.00	Design
D31	0.00	-2.05	0.00	0.00	0.00	0.00	Design
D32	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
D33	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
D34	0.00	-2.05	0.00	0.00	0.00	0.00	Design
D35	0.00	-2.05	0.00	0.00	0.00	0.00	Design
D36	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
D37	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
D38	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
D39	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
D40	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
D41	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
D42	-9.81	-1.47	-6.42	0.00	0.00	0.00	Design
D43	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D44	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
D45	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
D46	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D47	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D48	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
D49	-7.36	-1.47	-4.81	0.00	0.00	0.00	Design
D50	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
D51	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
D52	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
D53	-5.52	-1.47	-3.61	0.00	0.00	0.00	Design
D54	-9.81	-2.05	-6.42	0.00	0.00	0.00	Design
D55	0.00	-2.05	0.00	0.00	0.00	0.00	Design
D56	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
D57	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
D58	0.00	-2.05	0.00	0.00	0.00	0.00	Design
D59	0.00	-2.05	0.00	0.00	0.00	0.00	Design
D60	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
D61	-7.36	-2.05	-4.81	0.00	0.00	0.00	Design
D62	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
D63	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design

D64	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
D65	-5.52	-2.05	-3.61	0.00	0.00	0.00	Design
D66	0.00	-1.70	0.00	0.00	0.00	0.00	Design
D67	-1.39	-1.47	-0.91	0.00	0.00	0.00	Design
D68	-1.39	-1.47	-0.91	0.00	0.00	0.00	Design
D69	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D70	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D71	0.00	-1.70	0.00	0.00	0.00	0.00	Design
D72	-1.39	-1.70	-0.91	0.00	0.00	0.00	Design
D73	-1.39	-1.70	-0.91	0.00	0.00	0.00	Design
D74	0.00	-1.70	0.00	0.00	0.00	0.00	Design
D75	0.00	-1.70	0.00	0.00	0.00	0.00	Design
D76	-1.39	-1.47	-0.91	0.00	0.00	0.00	Design
D77	-1.39	-1.47	-0.91	0.00	0.00	0.00	Design
D78	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D79	0.00	-1.47	0.00	0.00	0.00	0.00	Design
D80	-1.39	-1.70	-0.91	0.00	0.00	0.00	Design
D81	-1.39	-1.70	-0.91	0.00	0.00	0.00	Design
D82	0.00	-1.70	0.00	0.00	0.00	0.00	Design
D83	0.00	-1.70	0.00	0.00	0.00	0.00	Design
D84	-1.39	-1.10	-0.91	0.00	0.00	0.00	Design
D85	-1.39	-1.10	-0.91	0.00	0.00	0.00	Design
D86	0.00	-1.10	0.00	0.00	0.00	0.00	Design
D87	0.00	-1.10	0.00	0.00	0.00	0.00	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Gusset						
Weld size	[1/16in]	4	3	5	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Gusset						
Beam yielding (normal stress)	[Kip]	346.95	12.84	C58	0.04	Eq. B-1, Appendix B, DG29
Shear yielding	[Kip]	231.30	9.81	Wind	0.04	Eq. J4-3
Gusset edge tension stress	[Kip/in2]	32.40	0.31	C6	0.01	Eq. B-1, Appendix B, DG29
Gusset edge shear stress	[Kip/in2]	21.60	0.92	Wind	0.04	J4-1
Weld capacity	[Kip]	278.26	12.53	C58	0.05	Tables 8-4 .. 8-11
Chord						
Web crippling	[Kip]	231.59	12.84	C58	0.06	Eq. B-1, Appendix B, DG29
Local web yielding	[Kip]	403.63	12.84	C58	0.03	Eq. B-1, Appendix B, DG29
Transverse section web yielding	[Kip]	117.75	3.33	C6	0.03	Eq. G2-1
Ratio		0.06				

Global critical strength ratio **0.09**

References

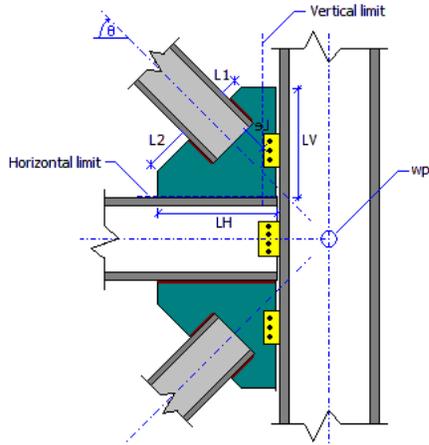
[9] AISC 2005, Design Examples Version 13.0, pp. IIC-26 - IIC-27

Connection: 13 - CBB_SP

Family: Column - Beams - Braces (CBB)
 Type: Gusset
 Description: CBB_SP 1

General information

Connector



Members

Existing members

Right beam	:	No
Left beam	:	Yes
Upper right brace	:	No
Upper left brace	:	Yes
Lower left brace	:	No
Lower right brace	:	No
Align beams to top edge	:	No

Column

General

Column section	:	HSS_SQR 5X5X3_8
Column material	:	RamFy 50Tube
Column orientation	:	Longitudinal
Is column end	:	No

Left beam

General

Section	:	W 14X22
Material	:	RamFy 50

Coped

dct: Top cope depth	:	0 in
ct: Top-flange cope length	:	0 in
dcb: Bottom cope depth	:	0 in
cb: Bottom-flange cope length	:	0 in

Upper left brace

General

Section	:	HSS_SQR 5X5X1_4
Material	:	RamFy 50Tube
Brace slope angle (degrees)	:	64.88
Brace long leg on gusset	:	Yes

Additional geometric data

wpx: WP horizontal displacement	:	0 in
wpy: WP vertical displacement	:	0 in
Le: Minimum distance to other members	:	2 in
L1: Left distance	:	2 in
L2: Right distance	:	2 in

Interfaces

Left beam

Beam-to-Column connection

Connection type to column : Connection: Single plate
 sb: Setback to column : 0.5 in

Single plate

Description : PL 3/8x4 1/2x8 1/2
 tp: Plate thickness : 0.375 in
 Material : A36
 Bolts : 3/4" A325 N
 Hole type : Standard (STD)
 nr: Rows of Bolts : 3
 nc: Bolt columns : 1
 s: Pitch - longitudinal center-to-center spacing : 3 in
 Lev: Vertical edge distance : 1.25 in
 Leh: Horizontal edge distance : 2 in
 a: Distance between weld and bolts : 2.5 in
 Weld to column : E70XX
 D: Weld size (1/16 in) : 4
 Eccentricity : 0 in

Upper left brace

Gusset

General

tp: Thickness : 0.375 in
 Material : A36
 LV: Length on column : 24.622 in
 LH: Length on beam : 11.968 in

Gusset-to-Brace connection

General

Connection type : Welded
 Lt: Length on toe : 6 in
 Lh: Length on heel : 6 in
 Brace weld : E70XX
 D: Weld size (1/16 in) : 4
 dp: Distance between weld and plate end : 1 in

Gusset-to-Column connection

General

Connection type to column : Connection: Single plate
 sc: Setback : 0.5 in

Single plate

Description : PL 1/4x5x16
 tp: Plate thickness : 0.25 in
 Material : A36
 Bolts : 3/4" A325 N
 Hole type : Standard (STD)
 nr: Rows of Bolts : 5
 nc: Bolt columns : 1
 s: Pitch - longitudinal center-to-center spacing : 3 in
 Lev: Vertical edge distance : 2 in
 Leh: Horizontal edge distance : 2 in
 a: Distance between weld and bolts : 3 in
 Weld to column : E70XX
 D: Weld size (1/16 in) : 4
 Eccentricity : 0 in

Gusset-to-Beam connection

General

Connection type to beam : Connection: Directly welded

Directly welded

Welding electrode to beam : E70XX
 D: Weld size to beam (1/16 in) : 4

Design code: AISC 360-16 LRFD

Demands

Description	Right beam			Left beam			Column		Load type
	Pu [kip]	Vu [kip]	Mu33 [kip*ft]	Pu [kip]	Vu [kip]	Mu33 [kip*ft]	Pu [kip]	Vu [kip]	
dl	0.00	0.00	0.00	0.58	2.72	0.00	-20.42	0.00	Design
lln	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
Sp	0.00	0.00	0.00	0.35	0.20	0.00	-9.11	0.00	Design
Sn	0.00	0.00	0.00	-0.03	0.00	0.00	0.54	0.00	Design
Wind	0.00	0.00	0.00	0.35	0.00	0.00	-0.76	0.00	Design

Wind1	0.00	0.00	0.00	-8.99	0.00	0.00	19.25	0.00	Design
Wind2	0.00	0.00	0.00	0.27	0.00	0.00	-0.57	0.00	Design
Wind3	0.00	0.00	0.00	0.27	0.00	0.00	-0.57	0.00	Design
Wind4	0.00	0.00	0.00	-6.74	0.00	0.00	14.43	0.00	Design
Wind5	0.00	0.00	0.00	-6.74	0.00	0.00	14.43	0.00	Design
Wind6	0.00	0.00	0.00	-6.48	0.00	0.00	13.87	0.00	Design
Wind7	0.00	0.00	0.00	7.01	0.00	0.00	-15.00	0.00	Design
Wind8	0.00	0.00	0.00	-4.86	0.00	0.00	10.40	0.00	Design
Wind9	0.00	0.00	0.00	-4.86	0.00	0.00	10.40	0.00	Design
Wind10	0.00	0.00	0.00	5.26	0.00	0.00	-11.25	0.00	Design
Wind11	0.00	0.00	0.00	5.26	0.00	0.00	-11.25	0.00	Design
Seismic_Xp	0.00	0.00	0.00	0.03	0.00	0.00	-0.06	0.00	Design
Seismic_Xm	0.00	0.00	0.00	0.03	0.00	0.00	-0.06	0.00	Design
Seismic_Yp	0.00	0.00	0.00	-1.28	0.00	0.00	2.75	0.00	Design
Seismic_Ym	0.00	0.00	0.00	-1.28	0.00	0.00	2.75	0.00	Design
COR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
Virtual_Work	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Design
C1	0.00	0.00	0.00	0.82	3.81	0.00	-28.59	0.00	Design
C2	0.00	0.00	0.00	0.88	3.36	0.00	-29.06	0.00	Design
C3	0.00	0.00	0.00	0.68	3.26	0.00	-24.24	0.00	Design
C4	0.00	0.00	0.00	0.70	3.26	0.00	-24.51	0.00	Design
C5	0.00	0.00	0.00	0.70	3.26	0.00	-24.51	0.00	Design
C6	0.00	0.00	0.00	1.26	3.58	0.00	-39.08	0.00	Design
C7	0.00	0.00	0.00	0.64	3.26	0.00	-23.65	0.00	Design
C8	0.00	0.00	0.00	1.26	3.58	0.00	-39.08	0.00	Design
C9	0.00	0.00	0.00	0.64	3.26	0.00	-23.65	0.00	Design
C10	0.00	0.00	0.00	1.44	3.58	0.00	-39.46	0.00	Design
C11	0.00	0.00	0.00	-3.23	3.58	0.00	-29.46	0.00	Design
C12	0.00	0.00	0.00	1.40	3.58	0.00	-39.37	0.00	Design
C13	0.00	0.00	0.00	1.40	3.58	0.00	-39.37	0.00	Design
C14	0.00	0.00	0.00	-2.11	3.58	0.00	-31.87	0.00	Design
C15	0.00	0.00	0.00	-2.11	3.58	0.00	-31.87	0.00	Design
C16	0.00	0.00	0.00	-1.98	3.58	0.00	-32.15	0.00	Design
C17	0.00	0.00	0.00	4.77	3.58	0.00	-46.58	0.00	Design
C18	0.00	0.00	0.00	-1.17	3.58	0.00	-33.88	0.00	Design
C19	0.00	0.00	0.00	-1.17	3.58	0.00	-33.88	0.00	Design
C20	0.00	0.00	0.00	3.89	3.58	0.00	-44.71	0.00	Design
C21	0.00	0.00	0.00	3.89	3.58	0.00	-44.71	0.00	Design
C22	0.00	0.00	0.00	1.09	3.58	0.00	-38.71	0.00	Design
C23	0.00	0.00	0.00	5.76	3.58	0.00	-48.71	0.00	Design
C24	0.00	0.00	0.00	1.13	3.58	0.00	-38.80	0.00	Design
C25	0.00	0.00	0.00	1.13	3.58	0.00	-38.80	0.00	Design
C26	0.00	0.00	0.00	4.63	3.58	0.00	-46.30	0.00	Design
C27	0.00	0.00	0.00	4.63	3.58	0.00	-46.30	0.00	Design
C28	0.00	0.00	0.00	4.50	3.58	0.00	-46.02	0.00	Design
C29	0.00	0.00	0.00	-2.24	3.58	0.00	-31.58	0.00	Design
C30	0.00	0.00	0.00	3.69	3.58	0.00	-44.28	0.00	Design
C31	0.00	0.00	0.00	3.69	3.58	0.00	-44.28	0.00	Design
C32	0.00	0.00	0.00	-1.37	3.58	0.00	-33.46	0.00	Design
C33	0.00	0.00	0.00	-1.37	3.58	0.00	-33.46	0.00	Design
C34	0.00	0.00	0.00	0.82	3.26	0.00	-24.03	0.00	Design
C35	0.00	0.00	0.00	-3.85	3.26	0.00	-14.03	0.00	Design
C36	0.00	0.00	0.00	0.78	3.26	0.00	-23.93	0.00	Design
C37	0.00	0.00	0.00	0.78	3.26	0.00	-23.93	0.00	Design
C38	0.00	0.00	0.00	-2.73	3.26	0.00	-16.43	0.00	Design
C39	0.00	0.00	0.00	-2.73	3.26	0.00	-16.43	0.00	Design
C40	0.00	0.00	0.00	-2.60	3.26	0.00	-16.71	0.00	Design
C41	0.00	0.00	0.00	4.15	3.26	0.00	-31.15	0.00	Design
C42	0.00	0.00	0.00	-1.79	3.26	0.00	-18.45	0.00	Design
C43	0.00	0.00	0.00	-1.79	3.26	0.00	-18.45	0.00	Design
C44	0.00	0.00	0.00	3.27	3.26	0.00	-29.27	0.00	Design
C45	0.00	0.00	0.00	3.27	3.26	0.00	-29.27	0.00	Design
C46	0.00	0.00	0.00	0.47	3.26	0.00	-23.27	0.00	Design
C47	0.00	0.00	0.00	5.14	3.26	0.00	-33.27	0.00	Design
C48	0.00	0.00	0.00	0.51	3.26	0.00	-23.37	0.00	Design
C49	0.00	0.00	0.00	0.51	3.26	0.00	-23.37	0.00	Design
C50	0.00	0.00	0.00	4.02	3.26	0.00	-30.87	0.00	Design
C51	0.00	0.00	0.00	4.02	3.26	0.00	-30.87	0.00	Design
C52	0.00	0.00	0.00	3.88	3.26	0.00	-30.58	0.00	Design
C53	0.00	0.00	0.00	-2.86	3.26	0.00	-16.15	0.00	Design
C54	0.00	0.00	0.00	3.07	3.26	0.00	-28.85	0.00	Design
C55	0.00	0.00	0.00	3.07	3.26	0.00	-28.85	0.00	Design
C56	0.00	0.00	0.00	-1.98	3.26	0.00	-18.02	0.00	Design
C57	0.00	0.00	0.00	-1.98	3.26	0.00	-18.02	0.00	Design
C58	0.00	0.00	0.00	1.23	3.36	0.00	-29.82	0.00	Design
C59	0.00	0.00	0.00	-8.12	3.36	0.00	-9.81	0.00	Design
C60	0.00	0.00	0.00	1.14	3.36	0.00	-29.63	0.00	Design

C61	0.00	0.00	0.00	1.14	3.36	0.00	-29.63	0.00	Design
C62	0.00	0.00	0.00	-5.87	3.36	0.00	-14.63	0.00	Design
C63	0.00	0.00	0.00	-5.87	3.36	0.00	-14.63	0.00	Design
C64	0.00	0.00	0.00	-5.60	3.36	0.00	-15.19	0.00	Design
C65	0.00	0.00	0.00	7.89	3.36	0.00	-44.06	0.00	Design
C66	0.00	0.00	0.00	-3.98	3.36	0.00	-18.66	0.00	Design
C67	0.00	0.00	0.00	-3.98	3.36	0.00	-18.66	0.00	Design
C68	0.00	0.00	0.00	6.13	3.36	0.00	-40.31	0.00	Design
C69	0.00	0.00	0.00	6.13	3.36	0.00	-40.31	0.00	Design
C70	0.00	0.00	0.00	0.52	3.36	0.00	-28.31	0.00	Design
C71	0.00	0.00	0.00	9.87	3.36	0.00	-48.31	0.00	Design
C72	0.00	0.00	0.00	0.61	3.36	0.00	-28.49	0.00	Design
C73	0.00	0.00	0.00	0.61	3.36	0.00	-28.49	0.00	Design
C74	0.00	0.00	0.00	7.62	3.36	0.00	-43.50	0.00	Design
C75	0.00	0.00	0.00	7.62	3.36	0.00	-43.50	0.00	Design
C76	0.00	0.00	0.00	7.35	3.36	0.00	-42.93	0.00	Design
C77	0.00	0.00	0.00	-6.14	3.36	0.00	-14.06	0.00	Design
C78	0.00	0.00	0.00	5.73	3.36	0.00	-39.46	0.00	Design
C79	0.00	0.00	0.00	5.73	3.36	0.00	-39.46	0.00	Design
C80	0.00	0.00	0.00	-4.38	3.36	0.00	-17.81	0.00	Design
C81	0.00	0.00	0.00	-4.38	3.36	0.00	-17.81	0.00	Design
C82	0.00	0.00	0.00	1.04	3.26	0.00	-24.99	0.00	Design
C83	0.00	0.00	0.00	-8.31	3.26	0.00	-4.99	0.00	Design
C84	0.00	0.00	0.00	0.95	3.26	0.00	-24.80	0.00	Design
C85	0.00	0.00	0.00	0.95	3.26	0.00	-24.80	0.00	Design
C86	0.00	0.00	0.00	-6.06	3.26	0.00	-9.80	0.00	Design
C87	0.00	0.00	0.00	-6.06	3.26	0.00	-9.80	0.00	Design
C88	0.00	0.00	0.00	-5.80	3.26	0.00	-10.37	0.00	Design
C89	0.00	0.00	0.00	7.69	3.26	0.00	-39.24	0.00	Design
C90	0.00	0.00	0.00	-4.18	3.26	0.00	-13.84	0.00	Design
C91	0.00	0.00	0.00	-4.18	3.26	0.00	-13.84	0.00	Design
C92	0.00	0.00	0.00	5.94	3.26	0.00	-35.49	0.00	Design
C93	0.00	0.00	0.00	5.94	3.26	0.00	-35.49	0.00	Design
C94	0.00	0.00	0.00	0.33	3.26	0.00	-23.48	0.00	Design
C95	0.00	0.00	0.00	9.67	3.26	0.00	-43.48	0.00	Design
C96	0.00	0.00	0.00	0.42	3.26	0.00	-23.67	0.00	Design
C97	0.00	0.00	0.00	0.42	3.26	0.00	-23.67	0.00	Design
C98	0.00	0.00	0.00	7.43	3.26	0.00	-38.67	0.00	Design
C99	0.00	0.00	0.00	7.43	3.26	0.00	-38.67	0.00	Design
C100	0.00	0.00	0.00	7.16	3.26	0.00	-38.11	0.00	Design
C101	0.00	0.00	0.00	-6.33	3.26	0.00	-9.24	0.00	Design
C102	0.00	0.00	0.00	5.54	3.26	0.00	-34.64	0.00	Design
C103	0.00	0.00	0.00	5.54	3.26	0.00	-34.64	0.00	Design
C104	0.00	0.00	0.00	-4.58	3.26	0.00	-12.99	0.00	Design
C105	0.00	0.00	0.00	-4.58	3.26	0.00	-12.99	0.00	Design
C106	0.00	0.00	0.00	1.05	3.26	0.00	-25.26	0.00	Design
C107	0.00	0.00	0.00	-8.29	3.26	0.00	-5.26	0.00	Design
C108	0.00	0.00	0.00	0.96	3.26	0.00	-25.07	0.00	Design
C109	0.00	0.00	0.00	0.96	3.26	0.00	-25.07	0.00	Design
C110	0.00	0.00	0.00	-6.05	3.26	0.00	-10.07	0.00	Design
C111	0.00	0.00	0.00	-6.05	3.26	0.00	-10.07	0.00	Design
C112	0.00	0.00	0.00	-5.78	3.26	0.00	-10.64	0.00	Design
C113	0.00	0.00	0.00	7.71	3.26	0.00	-39.51	0.00	Design
C114	0.00	0.00	0.00	-4.16	3.26	0.00	-14.10	0.00	Design
C115	0.00	0.00	0.00	-4.16	3.26	0.00	-14.10	0.00	Design
C116	0.00	0.00	0.00	5.96	3.26	0.00	-35.76	0.00	Design
C117	0.00	0.00	0.00	5.96	3.26	0.00	-35.76	0.00	Design
C118	0.00	0.00	0.00	0.34	3.26	0.00	-23.75	0.00	Design
C119	0.00	0.00	0.00	9.69	3.26	0.00	-43.75	0.00	Design
C120	0.00	0.00	0.00	0.43	3.26	0.00	-23.94	0.00	Design
C121	0.00	0.00	0.00	0.43	3.26	0.00	-23.94	0.00	Design
C122	0.00	0.00	0.00	7.44	3.26	0.00	-38.94	0.00	Design
C123	0.00	0.00	0.00	7.44	3.26	0.00	-38.94	0.00	Design
C124	0.00	0.00	0.00	7.18	3.26	0.00	-38.37	0.00	Design
C125	0.00	0.00	0.00	-6.31	3.26	0.00	-9.50	0.00	Design
C126	0.00	0.00	0.00	5.56	3.26	0.00	-34.91	0.00	Design
C127	0.00	0.00	0.00	5.56	3.26	0.00	-34.91	0.00	Design
C128	0.00	0.00	0.00	-4.56	3.26	0.00	-13.25	0.00	Design
C129	0.00	0.00	0.00	-4.56	3.26	0.00	-13.25	0.00	Design
C130	0.00	0.00	0.00	1.05	3.26	0.00	-25.26	0.00	Design
C131	0.00	0.00	0.00	-8.29	3.26	0.00	-5.26	0.00	Design
C132	0.00	0.00	0.00	0.96	3.26	0.00	-25.07	0.00	Design
C133	0.00	0.00	0.00	0.96	3.26	0.00	-25.07	0.00	Design
C134	0.00	0.00	0.00	-6.05	3.26	0.00	-10.07	0.00	Design
C135	0.00	0.00	0.00	-6.05	3.26	0.00	-10.07	0.00	Design
C136	0.00	0.00	0.00	-5.78	3.26	0.00	-10.64	0.00	Design
C137	0.00	0.00	0.00	7.71	3.26	0.00	-39.51	0.00	Design

C138	0.00	0.00	0.00	-4.16	3.26	0.00	-14.10	0.00	Design
C139	0.00	0.00	0.00	-4.16	3.26	0.00	-14.10	0.00	Design
C140	0.00	0.00	0.00	5.96	3.26	0.00	-35.76	0.00	Design
C141	0.00	0.00	0.00	5.96	3.26	0.00	-35.76	0.00	Design
C142	0.00	0.00	0.00	0.34	3.26	0.00	-23.75	0.00	Design
C143	0.00	0.00	0.00	9.69	3.26	0.00	-43.75	0.00	Design
C144	0.00	0.00	0.00	0.43	3.26	0.00	-23.94	0.00	Design
C145	0.00	0.00	0.00	0.43	3.26	0.00	-23.94	0.00	Design
C146	0.00	0.00	0.00	7.44	3.26	0.00	-38.94	0.00	Design
C147	0.00	0.00	0.00	7.44	3.26	0.00	-38.94	0.00	Design
C148	0.00	0.00	0.00	7.18	3.26	0.00	-38.37	0.00	Design
C149	0.00	0.00	0.00	-6.31	3.26	0.00	-9.50	0.00	Design
C150	0.00	0.00	0.00	5.56	3.26	0.00	-34.91	0.00	Design
C151	0.00	0.00	0.00	5.56	3.26	0.00	-34.91	0.00	Design
C152	0.00	0.00	0.00	-4.56	3.26	0.00	-13.25	0.00	Design
C153	0.00	0.00	0.00	-4.56	3.26	0.00	-13.25	0.00	Design
C154	0.00	0.00	0.00	1.23	3.36	0.00	-29.82	0.00	Design
C155	0.00	0.00	0.00	-8.12	3.36	0.00	-9.81	0.00	Design
C156	0.00	0.00	0.00	1.14	3.36	0.00	-29.63	0.00	Design
C157	0.00	0.00	0.00	1.14	3.36	0.00	-29.63	0.00	Design
C158	0.00	0.00	0.00	-5.87	3.36	0.00	-14.63	0.00	Design
C159	0.00	0.00	0.00	-5.87	3.36	0.00	-14.63	0.00	Design
C160	0.00	0.00	0.00	-5.60	3.36	0.00	-15.19	0.00	Design
C161	0.00	0.00	0.00	7.89	3.36	0.00	-44.06	0.00	Design
C162	0.00	0.00	0.00	-3.98	3.36	0.00	-18.66	0.00	Design
C163	0.00	0.00	0.00	-3.98	3.36	0.00	-18.66	0.00	Design
C164	0.00	0.00	0.00	6.13	3.36	0.00	-40.31	0.00	Design
C165	0.00	0.00	0.00	6.13	3.36	0.00	-40.31	0.00	Design
C166	0.00	0.00	0.00	0.52	3.36	0.00	-28.31	0.00	Design
C167	0.00	0.00	0.00	9.87	3.36	0.00	-48.31	0.00	Design
C168	0.00	0.00	0.00	0.61	3.36	0.00	-28.49	0.00	Design
C169	0.00	0.00	0.00	0.61	3.36	0.00	-28.49	0.00	Design
C170	0.00	0.00	0.00	7.62	3.36	0.00	-43.50	0.00	Design
C171	0.00	0.00	0.00	7.62	3.36	0.00	-43.50	0.00	Design
C172	0.00	0.00	0.00	7.35	3.36	0.00	-42.93	0.00	Design
C173	0.00	0.00	0.00	-6.14	3.36	0.00	-14.06	0.00	Design
C174	0.00	0.00	0.00	5.73	3.36	0.00	-39.46	0.00	Design
C175	0.00	0.00	0.00	5.73	3.36	0.00	-39.46	0.00	Design
C176	0.00	0.00	0.00	-4.38	3.36	0.00	-17.81	0.00	Design
C177	0.00	0.00	0.00	-4.38	3.36	0.00	-17.81	0.00	Design
C178	0.00	0.00	0.00	1.04	3.26	0.00	-24.99	0.00	Design
C179	0.00	0.00	0.00	-8.31	3.26	0.00	-4.99	0.00	Design
C180	0.00	0.00	0.00	0.95	3.26	0.00	-24.80	0.00	Design
C181	0.00	0.00	0.00	0.95	3.26	0.00	-24.80	0.00	Design
C182	0.00	0.00	0.00	-6.06	3.26	0.00	-9.80	0.00	Design
C183	0.00	0.00	0.00	-6.06	3.26	0.00	-9.80	0.00	Design
C184	0.00	0.00	0.00	-5.80	3.26	0.00	-10.37	0.00	Design
C185	0.00	0.00	0.00	7.69	3.26	0.00	-39.24	0.00	Design
C186	0.00	0.00	0.00	-4.18	3.26	0.00	-13.84	0.00	Design
C187	0.00	0.00	0.00	-4.18	3.26	0.00	-13.84	0.00	Design
C188	0.00	0.00	0.00	5.94	3.26	0.00	-35.49	0.00	Design
C189	0.00	0.00	0.00	5.94	3.26	0.00	-35.49	0.00	Design
C190	0.00	0.00	0.00	0.33	3.26	0.00	-23.48	0.00	Design
C191	0.00	0.00	0.00	9.67	3.26	0.00	-43.48	0.00	Design
C192	0.00	0.00	0.00	0.42	3.26	0.00	-23.67	0.00	Design
C193	0.00	0.00	0.00	0.42	3.26	0.00	-23.67	0.00	Design
C194	0.00	0.00	0.00	7.43	3.26	0.00	-38.67	0.00	Design
C195	0.00	0.00	0.00	7.43	3.26	0.00	-38.67	0.00	Design
C196	0.00	0.00	0.00	7.16	3.26	0.00	-38.11	0.00	Design
C197	0.00	0.00	0.00	-6.33	3.26	0.00	-9.24	0.00	Design
C198	0.00	0.00	0.00	5.54	3.26	0.00	-34.64	0.00	Design
C199	0.00	0.00	0.00	5.54	3.26	0.00	-34.64	0.00	Design
C200	0.00	0.00	0.00	-4.58	3.26	0.00	-12.99	0.00	Design
C201	0.00	0.00	0.00	-4.58	3.26	0.00	-12.99	0.00	Design
C202	0.00	0.00	0.00	1.05	3.26	0.00	-25.26	0.00	Design
C203	0.00	0.00	0.00	-8.29	3.26	0.00	-5.26	0.00	Design
C204	0.00	0.00	0.00	0.96	3.26	0.00	-25.07	0.00	Design
C205	0.00	0.00	0.00	0.96	3.26	0.00	-25.07	0.00	Design
C206	0.00	0.00	0.00	-6.05	3.26	0.00	-10.07	0.00	Design
C207	0.00	0.00	0.00	-6.05	3.26	0.00	-10.07	0.00	Design
C208	0.00	0.00	0.00	-5.78	3.26	0.00	-10.64	0.00	Design
C209	0.00	0.00	0.00	7.71	3.26	0.00	-39.51	0.00	Design
C210	0.00	0.00	0.00	-4.16	3.26	0.00	-14.10	0.00	Design
C211	0.00	0.00	0.00	-4.16	3.26	0.00	-14.10	0.00	Design
C212	0.00	0.00	0.00	5.96	3.26	0.00	-35.76	0.00	Design
C213	0.00	0.00	0.00	5.96	3.26	0.00	-35.76	0.00	Design
C214	0.00	0.00	0.00	0.34	3.26	0.00	-23.75	0.00	Design

C215	0.00	0.00	0.00	9.69	3.26	0.00	-43.75	0.00	Design
C216	0.00	0.00	0.00	0.43	3.26	0.00	-23.94	0.00	Design
C217	0.00	0.00	0.00	0.43	3.26	0.00	-23.94	0.00	Design
C218	0.00	0.00	0.00	7.44	3.26	0.00	-38.94	0.00	Design
C219	0.00	0.00	0.00	7.44	3.26	0.00	-38.94	0.00	Design
C220	0.00	0.00	0.00	7.18	3.26	0.00	-38.37	0.00	Design
C221	0.00	0.00	0.00	-6.31	3.26	0.00	-9.50	0.00	Design
C222	0.00	0.00	0.00	5.56	3.26	0.00	-34.91	0.00	Design
C223	0.00	0.00	0.00	5.56	3.26	0.00	-34.91	0.00	Design
C224	0.00	0.00	0.00	-4.56	3.26	0.00	-13.25	0.00	Design
C225	0.00	0.00	0.00	-4.56	3.26	0.00	-13.25	0.00	Design
C226	0.00	0.00	0.00	0.88	2.45	0.00	-19.14	0.00	Design
C227	0.00	0.00	0.00	-8.47	2.45	0.00	0.87	0.00	Design
C228	0.00	0.00	0.00	0.79	2.45	0.00	-18.95	0.00	Design
C229	0.00	0.00	0.00	0.79	2.45	0.00	-18.95	0.00	Design
C230	0.00	0.00	0.00	-6.22	2.45	0.00	-3.94	0.00	Design
C231	0.00	0.00	0.00	-6.22	2.45	0.00	-3.94	0.00	Design
C232	0.00	0.00	0.00	-5.95	2.45	0.00	-4.51	0.00	Design
C233	0.00	0.00	0.00	7.53	2.45	0.00	-33.38	0.00	Design
C234	0.00	0.00	0.00	-4.34	2.45	0.00	-7.98	0.00	Design
C235	0.00	0.00	0.00	-4.34	2.45	0.00	-7.98	0.00	Design
C236	0.00	0.00	0.00	5.78	2.45	0.00	-29.63	0.00	Design
C237	0.00	0.00	0.00	5.78	2.45	0.00	-29.63	0.00	Design
C238	0.00	0.00	0.00	0.17	2.45	0.00	-17.62	0.00	Design
C239	0.00	0.00	0.00	9.52	2.45	0.00	-37.63	0.00	Design
C240	0.00	0.00	0.00	0.26	2.45	0.00	-17.81	0.00	Design
C241	0.00	0.00	0.00	0.26	2.45	0.00	-17.81	0.00	Design
C242	0.00	0.00	0.00	7.27	2.45	0.00	-32.81	0.00	Design
C243	0.00	0.00	0.00	7.27	2.45	0.00	-32.81	0.00	Design
C244	0.00	0.00	0.00	7.00	2.45	0.00	-32.25	0.00	Design
C245	0.00	0.00	0.00	-6.49	2.45	0.00	-3.38	0.00	Design
C246	0.00	0.00	0.00	5.38	2.45	0.00	-28.78	0.00	Design
C247	0.00	0.00	0.00	5.38	2.45	0.00	-28.78	0.00	Design
C248	0.00	0.00	0.00	-4.73	2.45	0.00	-7.13	0.00	Design
C249	0.00	0.00	0.00	-4.73	2.45	0.00	-7.13	0.00	Design
C250	0.00	0.00	0.00	0.98	3.46	0.00	-31.37	0.00	Design
C251	0.00	0.00	0.00	0.98	3.46	0.00	-31.37	0.00	Design
C252	0.00	0.00	0.00	-0.33	3.46	0.00	-28.57	0.00	Design
C253	0.00	0.00	0.00	-0.33	3.46	0.00	-28.57	0.00	Design
C254	0.00	0.00	0.00	0.93	3.46	0.00	-31.26	0.00	Design
C255	0.00	0.00	0.00	0.93	3.46	0.00	-31.26	0.00	Design
C256	0.00	0.00	0.00	2.24	3.46	0.00	-34.06	0.00	Design
C257	0.00	0.00	0.00	2.24	3.46	0.00	-34.06	0.00	Design
C258	0.00	0.00	0.00	0.71	3.32	0.00	-24.62	0.00	Design
C259	0.00	0.00	0.00	0.71	3.32	0.00	-24.62	0.00	Design
C260	0.00	0.00	0.00	-0.60	3.32	0.00	-21.82	0.00	Design
C261	0.00	0.00	0.00	-0.60	3.32	0.00	-21.82	0.00	Design
C262	0.00	0.00	0.00	0.66	3.32	0.00	-24.51	0.00	Design
C263	0.00	0.00	0.00	0.66	3.32	0.00	-24.51	0.00	Design
C264	0.00	0.00	0.00	1.97	3.32	0.00	-27.31	0.00	Design
C265	0.00	0.00	0.00	1.97	3.32	0.00	-27.31	0.00	Design
C266	0.00	0.00	0.00	0.74	3.32	0.00	-24.99	0.00	Design
C267	0.00	0.00	0.00	0.74	3.32	0.00	-24.99	0.00	Design
C268	0.00	0.00	0.00	-0.57	3.32	0.00	-22.19	0.00	Design
C269	0.00	0.00	0.00	-0.57	3.32	0.00	-22.19	0.00	Design
C270	0.00	0.00	0.00	0.69	3.32	0.00	-24.88	0.00	Design
C271	0.00	0.00	0.00	0.69	3.32	0.00	-24.88	0.00	Design
C272	0.00	0.00	0.00	2.00	3.32	0.00	-27.69	0.00	Design
C273	0.00	0.00	0.00	2.00	3.32	0.00	-27.69	0.00	Design
C274	0.00	0.00	0.00	0.74	3.32	0.00	-24.99	0.00	Design
C275	0.00	0.00	0.00	0.74	3.32	0.00	-24.99	0.00	Design
C276	0.00	0.00	0.00	-0.57	3.32	0.00	-22.19	0.00	Design
C277	0.00	0.00	0.00	-0.57	3.32	0.00	-22.19	0.00	Design
C278	0.00	0.00	0.00	0.69	3.32	0.00	-24.88	0.00	Design
C279	0.00	0.00	0.00	0.69	3.32	0.00	-24.88	0.00	Design
C280	0.00	0.00	0.00	2.00	3.32	0.00	-27.69	0.00	Design
C281	0.00	0.00	0.00	2.00	3.32	0.00	-27.69	0.00	Design
C282	0.00	0.00	0.00	0.98	3.46	0.00	-31.37	0.00	Design
C283	0.00	0.00	0.00	0.98	3.46	0.00	-31.37	0.00	Design
C284	0.00	0.00	0.00	-0.33	3.46	0.00	-28.57	0.00	Design
C285	0.00	0.00	0.00	-0.33	3.46	0.00	-28.57	0.00	Design
C286	0.00	0.00	0.00	0.93	3.46	0.00	-31.26	0.00	Design
C287	0.00	0.00	0.00	0.93	3.46	0.00	-31.26	0.00	Design
C288	0.00	0.00	0.00	2.24	3.46	0.00	-34.06	0.00	Design
C289	0.00	0.00	0.00	2.24	3.46	0.00	-34.06	0.00	Design
C290	0.00	0.00	0.00	0.71	3.32	0.00	-24.62	0.00	Design
C291	0.00	0.00	0.00	0.71	3.32	0.00	-24.62	0.00	Design

C292	0.00	0.00	0.00	-0.60	3.32	0.00	-21.82	0.00	Design
C293	0.00	0.00	0.00	-0.60	3.32	0.00	-21.82	0.00	Design
C294	0.00	0.00	0.00	0.66	3.32	0.00	-24.51	0.00	Design
C295	0.00	0.00	0.00	0.66	3.32	0.00	-24.51	0.00	Design
C296	0.00	0.00	0.00	1.97	3.32	0.00	-27.31	0.00	Design
C297	0.00	0.00	0.00	1.97	3.32	0.00	-27.31	0.00	Design
C298	0.00	0.00	0.00	0.74	3.32	0.00	-24.99	0.00	Design
C299	0.00	0.00	0.00	0.74	3.32	0.00	-24.99	0.00	Design
C300	0.00	0.00	0.00	-0.57	3.32	0.00	-22.19	0.00	Design
C301	0.00	0.00	0.00	-0.57	3.32	0.00	-22.19	0.00	Design
C302	0.00	0.00	0.00	0.69	3.32	0.00	-24.88	0.00	Design
C303	0.00	0.00	0.00	0.69	3.32	0.00	-24.88	0.00	Design
C304	0.00	0.00	0.00	2.00	3.32	0.00	-27.69	0.00	Design
C305	0.00	0.00	0.00	2.00	3.32	0.00	-27.69	0.00	Design
C306	0.00	0.00	0.00	0.54	2.39	0.00	-18.00	0.00	Design
C307	0.00	0.00	0.00	0.54	2.39	0.00	-18.00	0.00	Design
C308	0.00	0.00	0.00	-0.77	2.39	0.00	-15.20	0.00	Design
C309	0.00	0.00	0.00	-0.77	2.39	0.00	-15.20	0.00	Design
C310	0.00	0.00	0.00	0.49	2.39	0.00	-17.89	0.00	Design
C311	0.00	0.00	0.00	0.49	2.39	0.00	-17.89	0.00	Design
C312	0.00	0.00	0.00	1.80	2.39	0.00	-20.69	0.00	Design
C313	0.00	0.00	0.00	1.80	2.39	0.00	-20.69	0.00	Design
D1	0.00	0.00	0.00	0.70	3.26	0.00	-24.51	0.00	Design
D2	0.00	0.00	0.00	0.86	3.36	0.00	-28.79	0.00	Design
D3	0.00	0.00	0.00	0.86	3.36	0.00	-28.79	0.00	Design
D4	0.00	0.00	0.00	1.21	3.58	0.00	-38.23	0.00	Design
D5	0.00	0.00	0.00	0.88	3.26	0.00	-24.88	0.00	Design
D6	0.00	0.00	0.00	-3.80	3.26	0.00	-14.88	0.00	Design
D7	0.00	0.00	0.00	0.83	3.26	0.00	-24.79	0.00	Design
D8	0.00	0.00	0.00	0.83	3.26	0.00	-24.79	0.00	Design
D9	0.00	0.00	0.00	-2.67	3.26	0.00	-17.29	0.00	Design
D10	0.00	0.00	0.00	-2.67	3.26	0.00	-17.29	0.00	Design
D11	0.00	0.00	0.00	-2.54	3.26	0.00	-17.57	0.00	Design
D12	0.00	0.00	0.00	4.20	3.26	0.00	-32.01	0.00	Design
D13	0.00	0.00	0.00	-1.73	3.26	0.00	-19.31	0.00	Design
D14	0.00	0.00	0.00	-1.73	3.26	0.00	-19.31	0.00	Design
D15	0.00	0.00	0.00	3.33	3.26	0.00	-30.13	0.00	Design
D16	0.00	0.00	0.00	3.33	3.26	0.00	-30.13	0.00	Design
D17	0.00	0.00	0.00	1.21	3.58	0.00	-38.23	0.00	Design
D18	0.00	0.00	0.00	1.38	3.58	0.00	-38.60	0.00	Design
D19	0.00	0.00	0.00	-3.29	3.58	0.00	-28.60	0.00	Design
D20	0.00	0.00	0.00	1.34	3.58	0.00	-38.51	0.00	Design
D21	0.00	0.00	0.00	1.34	3.58	0.00	-38.51	0.00	Design
D22	0.00	0.00	0.00	-2.16	3.58	0.00	-31.01	0.00	Design
D23	0.00	0.00	0.00	-2.16	3.58	0.00	-31.01	0.00	Design
D24	0.00	0.00	0.00	-2.03	3.58	0.00	-31.29	0.00	Design
D25	0.00	0.00	0.00	4.71	3.58	0.00	-45.73	0.00	Design
D26	0.00	0.00	0.00	-1.22	3.58	0.00	-33.03	0.00	Design
D27	0.00	0.00	0.00	-1.22	3.58	0.00	-33.03	0.00	Design
D28	0.00	0.00	0.00	3.84	3.58	0.00	-43.85	0.00	Design
D29	0.00	0.00	0.00	3.84	3.58	0.00	-43.85	0.00	Design
D30	0.00	0.00	0.00	1.21	3.36	0.00	-29.55	0.00	Design
D31	0.00	0.00	0.00	-8.13	3.36	0.00	-9.55	0.00	Design
D32	0.00	0.00	0.00	1.12	3.36	0.00	-29.36	0.00	Design
D33	0.00	0.00	0.00	1.12	3.36	0.00	-29.36	0.00	Design
D34	0.00	0.00	0.00	-5.89	3.36	0.00	-14.36	0.00	Design
D35	0.00	0.00	0.00	-5.89	3.36	0.00	-14.36	0.00	Design
D36	0.00	0.00	0.00	-5.62	3.36	0.00	-14.93	0.00	Design
D37	0.00	0.00	0.00	7.87	3.36	0.00	-43.80	0.00	Design
D38	0.00	0.00	0.00	-4.00	3.36	0.00	-18.39	0.00	Design
D39	0.00	0.00	0.00	-4.00	3.36	0.00	-18.39	0.00	Design
D40	0.00	0.00	0.00	6.12	3.36	0.00	-40.04	0.00	Design
D41	0.00	0.00	0.00	6.12	3.36	0.00	-40.04	0.00	Design
D42	0.00	0.00	0.00	1.05	3.26	0.00	-25.26	0.00	Design
D43	0.00	0.00	0.00	-8.29	3.26	0.00	-5.26	0.00	Design
D44	0.00	0.00	0.00	0.96	3.26	0.00	-25.07	0.00	Design
D45	0.00	0.00	0.00	0.96	3.26	0.00	-25.07	0.00	Design
D46	0.00	0.00	0.00	-6.05	3.26	0.00	-10.07	0.00	Design
D47	0.00	0.00	0.00	-6.05	3.26	0.00	-10.07	0.00	Design
D48	0.00	0.00	0.00	-5.78	3.26	0.00	-10.64	0.00	Design
D49	0.00	0.00	0.00	7.71	3.26	0.00	-39.51	0.00	Design
D50	0.00	0.00	0.00	-4.16	3.26	0.00	-14.10	0.00	Design
D51	0.00	0.00	0.00	-4.16	3.26	0.00	-14.10	0.00	Design
D52	0.00	0.00	0.00	5.96	3.26	0.00	-35.76	0.00	Design
D53	0.00	0.00	0.00	5.96	3.26	0.00	-35.76	0.00	Design
D54	0.00	0.00	0.00	1.21	3.36	0.00	-29.55	0.00	Design
D55	0.00	0.00	0.00	-8.13	3.36	0.00	-9.55	0.00	Design

D56	0.00	0.00	0.00	1.12	3.36	0.00	-29.36	0.00	Design
D57	0.00	0.00	0.00	1.12	3.36	0.00	-29.36	0.00	Design
D58	0.00	0.00	0.00	-5.89	3.36	0.00	-14.36	0.00	Design
D59	0.00	0.00	0.00	-5.89	3.36	0.00	-14.36	0.00	Design
D60	0.00	0.00	0.00	-5.62	3.36	0.00	-14.93	0.00	Design
D61	0.00	0.00	0.00	7.87	3.36	0.00	-43.80	0.00	Design
D62	0.00	0.00	0.00	-4.00	3.36	0.00	-18.39	0.00	Design
D63	0.00	0.00	0.00	-4.00	3.36	0.00	-18.39	0.00	Design
D64	0.00	0.00	0.00	6.12	3.36	0.00	-40.04	0.00	Design
D65	0.00	0.00	0.00	6.12	3.36	0.00	-40.04	0.00	Design
D66	0.00	0.00	0.00	0.76	3.30	0.00	-26.22	0.00	Design
D67	0.00	0.00	0.00	0.73	3.26	0.00	-24.56	0.00	Design
D68	0.00	0.00	0.00	0.73	3.26	0.00	-24.56	0.00	Design
D69	0.00	0.00	0.00	-0.59	3.26	0.00	-21.76	0.00	Design
D70	0.00	0.00	0.00	-0.59	3.26	0.00	-21.76	0.00	Design
D71	0.00	0.00	0.00	0.76	3.30	0.00	-26.22	0.00	Design
D72	0.00	0.00	0.00	0.79	3.30	0.00	-26.28	0.00	Design
D73	0.00	0.00	0.00	0.79	3.30	0.00	-26.28	0.00	Design
D74	0.00	0.00	0.00	-0.52	3.30	0.00	-23.47	0.00	Design
D75	0.00	0.00	0.00	-0.52	3.30	0.00	-23.47	0.00	Design
D76	0.00	0.00	0.00	0.73	3.26	0.00	-24.56	0.00	Design
D77	0.00	0.00	0.00	0.73	3.26	0.00	-24.56	0.00	Design
D78	0.00	0.00	0.00	-0.59	3.26	0.00	-21.76	0.00	Design
D79	0.00	0.00	0.00	-0.59	3.26	0.00	-21.76	0.00	Design
D80	0.00	0.00	0.00	0.79	3.30	0.00	-26.28	0.00	Design
D81	0.00	0.00	0.00	0.79	3.30	0.00	-26.28	0.00	Design
D82	0.00	0.00	0.00	-0.52	3.30	0.00	-23.47	0.00	Design
D83	0.00	0.00	0.00	-0.52	3.30	0.00	-23.47	0.00	Design
D84	0.00	0.00	0.00	0.55	2.45	0.00	-18.44	0.00	Design
D85	0.00	0.00	0.00	0.55	2.45	0.00	-18.44	0.00	Design
D86	0.00	0.00	0.00	-0.76	2.45	0.00	-15.63	0.00	Design
D87	0.00	0.00	0.00	-0.76	2.45	0.00	-15.63	0.00	Design

Description	Pu				Load type
	Brace1 [kip]	Brace2 [kip]	Brace3 [kip]	Brace4 [kip]	
dl	0.00	-1.51	0.00	0.00	Design
lln	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	Design
llrn	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	Design
Sp	0.00	-0.91	0.00	0.00	Design
Sn	0.00	0.08	0.00	0.00	Design
Wind	0.00	-0.83	0.00	0.00	Design
Wind1	0.00	21.19	0.00	0.00	Design
Wind2	0.00	-0.63	0.00	0.00	Design
Wind3	0.00	-0.63	0.00	0.00	Design
Wind4	0.00	15.89	0.00	0.00	Design
Wind5	0.00	15.89	0.00	0.00	Design
Wind6	0.00	15.26	0.00	0.00	Design
Wind7	0.00	-16.52	0.00	0.00	Design
Wind8	0.00	11.45	0.00	0.00	Design
Wind9	0.00	11.45	0.00	0.00	Design
Wind10	0.00	-12.39	0.00	0.00	Design
Wind11	0.00	-12.39	0.00	0.00	Design
Seismic_Xp	0.00	-0.06	0.00	0.00	Design
Seismic_Xm	0.00	-0.06	0.00	0.00	Design
Seismic_Yp	0.00	3.03	0.00	0.00	Design
Seismic_Ym	0.00	3.03	0.00	0.00	Design
COR	0.00	0.00	0.00	0.00	Design
Virtual_Work	0.00	0.00	0.00	0.00	Design
C1	0.00	-2.12	0.00	0.00	Design
C2	0.00	-2.27	0.00	0.00	Design
C3	0.00	-1.77	0.00	0.00	Design
C4	0.00	-1.81	0.00	0.00	Design
C5	0.00	-1.81	0.00	0.00	Design
C6	0.00	-3.26	0.00	0.00	Design
C7	0.00	-1.68	0.00	0.00	Design
C8	0.00	-3.26	0.00	0.00	Design
C9	0.00	-1.68	0.00	0.00	Design
C10	0.00	-3.68	0.00	0.00	Design
C11	0.00	7.33	0.00	0.00	Design
C12	0.00	-3.58	0.00	0.00	Design
C13	0.00	-3.58	0.00	0.00	Design
C14	0.00	4.68	0.00	0.00	Design

C15	0.00	4.68	0.00	0.00	Design
C16	0.00	4.37	0.00	0.00	Design
C17	0.00	-11.52	0.00	0.00	Design
C18	0.00	2.46	0.00	0.00	Design
C19	0.00	2.46	0.00	0.00	Design
C20	0.00	-9.46	0.00	0.00	Design
C21	0.00	-9.46	0.00	0.00	Design
C22	0.00	-2.85	0.00	0.00	Design
C23	0.00	-13.86	0.00	0.00	Design
C24	0.00	-2.95	0.00	0.00	Design
C25	0.00	-2.95	0.00	0.00	Design
C26	0.00	-11.21	0.00	0.00	Design
C27	0.00	-11.21	0.00	0.00	Design
C28	0.00	-10.90	0.00	0.00	Design
C29	0.00	4.99	0.00	0.00	Design
C30	0.00	-8.99	0.00	0.00	Design
C31	0.00	-8.99	0.00	0.00	Design
C32	0.00	2.93	0.00	0.00	Design
C33	0.00	2.93	0.00	0.00	Design
C34	0.00	-2.10	0.00	0.00	Design
C35	0.00	8.91	0.00	0.00	Design
C36	0.00	-2.00	0.00	0.00	Design
C37	0.00	-2.00	0.00	0.00	Design
C38	0.00	6.26	0.00	0.00	Design
C39	0.00	6.26	0.00	0.00	Design
C40	0.00	5.95	0.00	0.00	Design
C41	0.00	-9.94	0.00	0.00	Design
C42	0.00	4.04	0.00	0.00	Design
C43	0.00	4.04	0.00	0.00	Design
C44	0.00	-7.88	0.00	0.00	Design
C45	0.00	-7.88	0.00	0.00	Design
C46	0.00	-1.27	0.00	0.00	Design
C47	0.00	-12.28	0.00	0.00	Design
C48	0.00	-1.37	0.00	0.00	Design
C49	0.00	-1.37	0.00	0.00	Design
C50	0.00	-9.63	0.00	0.00	Design
C51	0.00	-9.63	0.00	0.00	Design
C52	0.00	-9.32	0.00	0.00	Design
C53	0.00	6.57	0.00	0.00	Design
C54	0.00	-7.41	0.00	0.00	Design
C55	0.00	-7.41	0.00	0.00	Design
C56	0.00	4.51	0.00	0.00	Design
C57	0.00	4.51	0.00	0.00	Design
C58	0.00	-3.10	0.00	0.00	Design
C59	0.00	18.92	0.00	0.00	Design
C60	0.00	-2.89	0.00	0.00	Design
C61	0.00	-2.89	0.00	0.00	Design
C62	0.00	13.62	0.00	0.00	Design
C63	0.00	13.62	0.00	0.00	Design
C64	0.00	13.00	0.00	0.00	Design
C65	0.00	-18.78	0.00	0.00	Design
C66	0.00	9.18	0.00	0.00	Design
C67	0.00	9.18	0.00	0.00	Design
C68	0.00	-14.65	0.00	0.00	Design
C69	0.00	-14.65	0.00	0.00	Design
C70	0.00	-1.43	0.00	0.00	Design
C71	0.00	-23.45	0.00	0.00	Design
C72	0.00	-1.64	0.00	0.00	Design
C73	0.00	-1.64	0.00	0.00	Design
C74	0.00	-18.16	0.00	0.00	Design
C75	0.00	-18.16	0.00	0.00	Design
C76	0.00	-17.53	0.00	0.00	Design
C77	0.00	14.25	0.00	0.00	Design
C78	0.00	-13.72	0.00	0.00	Design
C79	0.00	-13.72	0.00	0.00	Design
C80	0.00	10.12	0.00	0.00	Design
C81	0.00	10.12	0.00	0.00	Design
C82	0.00	-2.61	0.00	0.00	Design
C83	0.00	19.42	0.00	0.00	Design
C84	0.00	-2.40	0.00	0.00	Design
C85	0.00	-2.40	0.00	0.00	Design
C86	0.00	14.12	0.00	0.00	Design
C87	0.00	14.12	0.00	0.00	Design
C88	0.00	13.49	0.00	0.00	Design
C89	0.00	-18.29	0.00	0.00	Design
C90	0.00	9.68	0.00	0.00	Design
C91	0.00	9.68	0.00	0.00	Design

C92	0.00	-14.16	0.00	0.00	Design
C93	0.00	-14.16	0.00	0.00	Design
C94	0.00	-0.94	0.00	0.00	Design
C95	0.00	-22.96	0.00	0.00	Design
C96	0.00	-1.15	0.00	0.00	Design
C97	0.00	-1.15	0.00	0.00	Design
C98	0.00	-17.66	0.00	0.00	Design
C99	0.00	-17.66	0.00	0.00	Design
C100	0.00	-17.04	0.00	0.00	Design
C101	0.00	14.74	0.00	0.00	Design
C102	0.00	-13.22	0.00	0.00	Design
C103	0.00	-13.22	0.00	0.00	Design
C104	0.00	10.61	0.00	0.00	Design
C105	0.00	10.61	0.00	0.00	Design
C106	0.00	-2.65	0.00	0.00	Design
C107	0.00	19.37	0.00	0.00	Design
C108	0.00	-2.44	0.00	0.00	Design
C109	0.00	-2.44	0.00	0.00	Design
C110	0.00	14.08	0.00	0.00	Design
C111	0.00	14.08	0.00	0.00	Design
C112	0.00	13.45	0.00	0.00	Design
C113	0.00	-18.33	0.00	0.00	Design
C114	0.00	9.64	0.00	0.00	Design
C115	0.00	9.64	0.00	0.00	Design
C116	0.00	-14.20	0.00	0.00	Design
C117	0.00	-14.20	0.00	0.00	Design
C118	0.00	-0.98	0.00	0.00	Design
C119	0.00	-23.00	0.00	0.00	Design
C120	0.00	-1.19	0.00	0.00	Design
C121	0.00	-1.19	0.00	0.00	Design
C122	0.00	-17.70	0.00	0.00	Design
C123	0.00	-17.70	0.00	0.00	Design
C124	0.00	-17.08	0.00	0.00	Design
C125	0.00	14.70	0.00	0.00	Design
C126	0.00	-13.26	0.00	0.00	Design
C127	0.00	-13.26	0.00	0.00	Design
C128	0.00	10.57	0.00	0.00	Design
C129	0.00	10.57	0.00	0.00	Design
C130	0.00	-2.65	0.00	0.00	Design
C131	0.00	19.37	0.00	0.00	Design
C132	0.00	-2.44	0.00	0.00	Design
C133	0.00	-2.44	0.00	0.00	Design
C134	0.00	14.08	0.00	0.00	Design
C135	0.00	14.08	0.00	0.00	Design
C136	0.00	13.45	0.00	0.00	Design
C137	0.00	-18.33	0.00	0.00	Design
C138	0.00	9.64	0.00	0.00	Design
C139	0.00	9.64	0.00	0.00	Design
C140	0.00	-14.20	0.00	0.00	Design
C141	0.00	-14.20	0.00	0.00	Design
C142	0.00	-0.98	0.00	0.00	Design
C143	0.00	-23.00	0.00	0.00	Design
C144	0.00	-1.19	0.00	0.00	Design
C145	0.00	-1.19	0.00	0.00	Design
C146	0.00	-17.70	0.00	0.00	Design
C147	0.00	-17.70	0.00	0.00	Design
C148	0.00	-17.08	0.00	0.00	Design
C149	0.00	14.70	0.00	0.00	Design
C150	0.00	-13.26	0.00	0.00	Design
C151	0.00	-13.26	0.00	0.00	Design
C152	0.00	10.57	0.00	0.00	Design
C153	0.00	10.57	0.00	0.00	Design
C154	0.00	-3.10	0.00	0.00	Design
C155	0.00	18.92	0.00	0.00	Design
C156	0.00	-2.89	0.00	0.00	Design
C157	0.00	-2.89	0.00	0.00	Design
C158	0.00	13.62	0.00	0.00	Design
C159	0.00	13.62	0.00	0.00	Design
C160	0.00	13.00	0.00	0.00	Design
C161	0.00	-18.78	0.00	0.00	Design
C162	0.00	9.18	0.00	0.00	Design
C163	0.00	9.18	0.00	0.00	Design
C164	0.00	-14.65	0.00	0.00	Design
C165	0.00	-14.65	0.00	0.00	Design
C166	0.00	-1.43	0.00	0.00	Design
C167	0.00	-23.45	0.00	0.00	Design
C168	0.00	-1.64	0.00	0.00	Design

C169	0.00	-1.64	0.00	0.00	Design
C170	0.00	-18.16	0.00	0.00	Design
C171	0.00	-18.16	0.00	0.00	Design
C172	0.00	-17.53	0.00	0.00	Design
C173	0.00	14.25	0.00	0.00	Design
C174	0.00	-13.72	0.00	0.00	Design
C175	0.00	-13.72	0.00	0.00	Design
C176	0.00	10.12	0.00	0.00	Design
C177	0.00	10.12	0.00	0.00	Design
C178	0.00	-2.61	0.00	0.00	Design
C179	0.00	19.42	0.00	0.00	Design
C180	0.00	-2.40	0.00	0.00	Design
C181	0.00	-2.40	0.00	0.00	Design
C182	0.00	14.12	0.00	0.00	Design
C183	0.00	14.12	0.00	0.00	Design
C184	0.00	13.49	0.00	0.00	Design
C185	0.00	-18.29	0.00	0.00	Design
C186	0.00	9.68	0.00	0.00	Design
C187	0.00	9.68	0.00	0.00	Design
C188	0.00	-14.16	0.00	0.00	Design
C189	0.00	-14.16	0.00	0.00	Design
C190	0.00	-0.94	0.00	0.00	Design
C191	0.00	-22.96	0.00	0.00	Design
C192	0.00	-1.15	0.00	0.00	Design
C193	0.00	-1.15	0.00	0.00	Design
C194	0.00	-17.66	0.00	0.00	Design
C195	0.00	-17.66	0.00	0.00	Design
C196	0.00	-17.04	0.00	0.00	Design
C197	0.00	14.74	0.00	0.00	Design
C198	0.00	-13.22	0.00	0.00	Design
C199	0.00	-13.22	0.00	0.00	Design
C200	0.00	10.61	0.00	0.00	Design
C201	0.00	10.61	0.00	0.00	Design
C202	0.00	-2.65	0.00	0.00	Design
C203	0.00	19.37	0.00	0.00	Design
C204	0.00	-2.44	0.00	0.00	Design
C205	0.00	-2.44	0.00	0.00	Design
C206	0.00	14.08	0.00	0.00	Design
C207	0.00	14.08	0.00	0.00	Design
C208	0.00	13.45	0.00	0.00	Design
C209	0.00	-18.33	0.00	0.00	Design
C210	0.00	9.64	0.00	0.00	Design
C211	0.00	9.64	0.00	0.00	Design
C212	0.00	-14.20	0.00	0.00	Design
C213	0.00	-14.20	0.00	0.00	Design
C214	0.00	-0.98	0.00	0.00	Design
C215	0.00	-23.00	0.00	0.00	Design
C216	0.00	-1.19	0.00	0.00	Design
C217	0.00	-1.19	0.00	0.00	Design
C218	0.00	-17.70	0.00	0.00	Design
C219	0.00	-17.70	0.00	0.00	Design
C220	0.00	-17.08	0.00	0.00	Design
C221	0.00	14.70	0.00	0.00	Design
C222	0.00	-13.26	0.00	0.00	Design
C223	0.00	-13.26	0.00	0.00	Design
C224	0.00	10.57	0.00	0.00	Design
C225	0.00	10.57	0.00	0.00	Design
C226	0.00	-2.19	0.00	0.00	Design
C227	0.00	19.83	0.00	0.00	Design
C228	0.00	-1.99	0.00	0.00	Design
C229	0.00	-1.99	0.00	0.00	Design
C230	0.00	14.53	0.00	0.00	Design
C231	0.00	14.53	0.00	0.00	Design
C232	0.00	13.91	0.00	0.00	Design
C233	0.00	-17.88	0.00	0.00	Design
C234	0.00	10.09	0.00	0.00	Design
C235	0.00	10.09	0.00	0.00	Design
C236	0.00	-13.75	0.00	0.00	Design
C237	0.00	-13.75	0.00	0.00	Design
C238	0.00	-0.53	0.00	0.00	Design
C239	0.00	-22.55	0.00	0.00	Design
C240	0.00	-0.73	0.00	0.00	Design
C241	0.00	-0.73	0.00	0.00	Design
C242	0.00	-17.25	0.00	0.00	Design
C243	0.00	-17.25	0.00	0.00	Design
C244	0.00	-16.62	0.00	0.00	Design
C245	0.00	15.16	0.00	0.00	Design

C246	0.00	-12.81	0.00	0.00	Design
C247	0.00	-12.81	0.00	0.00	Design
C248	0.00	11.03	0.00	0.00	Design
C249	0.00	11.03	0.00	0.00	Design
C250	0.00	-2.54	0.00	0.00	Design
C251	0.00	-2.54	0.00	0.00	Design
C252	0.00	0.55	0.00	0.00	Design
C253	0.00	0.55	0.00	0.00	Design
C254	0.00	-2.42	0.00	0.00	Design
C255	0.00	-2.42	0.00	0.00	Design
C256	0.00	-5.50	0.00	0.00	Design
C257	0.00	-5.50	0.00	0.00	Design
C258	0.00	-1.85	0.00	0.00	Design
C259	0.00	-1.85	0.00	0.00	Design
C260	0.00	1.24	0.00	0.00	Design
C261	0.00	1.24	0.00	0.00	Design
C262	0.00	-1.73	0.00	0.00	Design
C263	0.00	-1.73	0.00	0.00	Design
C264	0.00	-4.81	0.00	0.00	Design
C265	0.00	-4.81	0.00	0.00	Design
C266	0.00	-1.91	0.00	0.00	Design
C267	0.00	-1.91	0.00	0.00	Design
C268	0.00	1.18	0.00	0.00	Design
C269	0.00	1.18	0.00	0.00	Design
C270	0.00	-1.78	0.00	0.00	Design
C271	0.00	-1.78	0.00	0.00	Design
C272	0.00	-4.87	0.00	0.00	Design
C273	0.00	-4.87	0.00	0.00	Design
C274	0.00	-1.91	0.00	0.00	Design
C275	0.00	-1.91	0.00	0.00	Design
C276	0.00	1.18	0.00	0.00	Design
C277	0.00	1.18	0.00	0.00	Design
C278	0.00	-1.78	0.00	0.00	Design
C279	0.00	-1.78	0.00	0.00	Design
C280	0.00	-4.87	0.00	0.00	Design
C281	0.00	-4.87	0.00	0.00	Design
C282	0.00	-2.54	0.00	0.00	Design
C283	0.00	-2.54	0.00	0.00	Design
C284	0.00	0.55	0.00	0.00	Design
C285	0.00	0.55	0.00	0.00	Design
C286	0.00	-2.42	0.00	0.00	Design
C287	0.00	-2.42	0.00	0.00	Design
C288	0.00	-5.50	0.00	0.00	Design
C289	0.00	-5.50	0.00	0.00	Design
C290	0.00	-1.85	0.00	0.00	Design
C291	0.00	-1.85	0.00	0.00	Design
C292	0.00	1.24	0.00	0.00	Design
C293	0.00	1.24	0.00	0.00	Design
C294	0.00	-1.73	0.00	0.00	Design
C295	0.00	-1.73	0.00	0.00	Design
C296	0.00	-4.81	0.00	0.00	Design
C297	0.00	-4.81	0.00	0.00	Design
C298	0.00	-1.91	0.00	0.00	Design
C299	0.00	-1.91	0.00	0.00	Design
C300	0.00	1.18	0.00	0.00	Design
C301	0.00	1.18	0.00	0.00	Design
C302	0.00	-1.78	0.00	0.00	Design
C303	0.00	-1.78	0.00	0.00	Design
C304	0.00	-4.87	0.00	0.00	Design
C305	0.00	-4.87	0.00	0.00	Design
C306	0.00	-1.39	0.00	0.00	Design
C307	0.00	-1.39	0.00	0.00	Design
C308	0.00	1.70	0.00	0.00	Design
C309	0.00	1.70	0.00	0.00	Design
C310	0.00	-1.27	0.00	0.00	Design
C311	0.00	-1.27	0.00	0.00	Design
C312	0.00	-4.35	0.00	0.00	Design
C313	0.00	-4.35	0.00	0.00	Design
D1	0.00	-1.81	0.00	0.00	Design
D2	0.00	-2.23	0.00	0.00	Design
D3	0.00	-2.23	0.00	0.00	Design
D4	0.00	-3.13	0.00	0.00	Design
D5	0.00	-2.23	0.00	0.00	Design
D6	0.00	8.78	0.00	0.00	Design
D7	0.00	-2.13	0.00	0.00	Design
D8	0.00	-2.13	0.00	0.00	Design
D9	0.00	6.13	0.00	0.00	Design

D10	0.00	6.13	0.00	0.00	Design
D11	0.00	5.82	0.00	0.00	Design
D12	0.00	-10.07	0.00	0.00	Design
D13	0.00	3.91	0.00	0.00	Design
D14	0.00	3.91	0.00	0.00	Design
D15	0.00	-8.01	0.00	0.00	Design
D16	0.00	-8.01	0.00	0.00	Design
D17	0.00	-3.13	0.00	0.00	Design
D18	0.00	-3.55	0.00	0.00	Design
D19	0.00	7.46	0.00	0.00	Design
D20	0.00	-3.45	0.00	0.00	Design
D21	0.00	-3.45	0.00	0.00	Design
D22	0.00	4.81	0.00	0.00	Design
D23	0.00	4.81	0.00	0.00	Design
D24	0.00	4.50	0.00	0.00	Design
D25	0.00	-11.39	0.00	0.00	Design
D26	0.00	2.59	0.00	0.00	Design
D27	0.00	2.59	0.00	0.00	Design
D28	0.00	-9.33	0.00	0.00	Design
D29	0.00	-9.33	0.00	0.00	Design
D30	0.00	-3.06	0.00	0.00	Design
D31	0.00	18.96	0.00	0.00	Design
D32	0.00	-2.85	0.00	0.00	Design
D33	0.00	-2.85	0.00	0.00	Design
D34	0.00	13.66	0.00	0.00	Design
D35	0.00	13.66	0.00	0.00	Design
D36	0.00	13.04	0.00	0.00	Design
D37	0.00	-18.74	0.00	0.00	Design
D38	0.00	9.22	0.00	0.00	Design
D39	0.00	9.22	0.00	0.00	Design
D40	0.00	-14.61	0.00	0.00	Design
D41	0.00	-14.61	0.00	0.00	Design
D42	0.00	-2.65	0.00	0.00	Design
D43	0.00	19.37	0.00	0.00	Design
D44	0.00	-2.44	0.00	0.00	Design
D45	0.00	-2.44	0.00	0.00	Design
D46	0.00	14.08	0.00	0.00	Design
D47	0.00	14.08	0.00	0.00	Design
D48	0.00	13.45	0.00	0.00	Design
D49	0.00	-18.33	0.00	0.00	Design
D50	0.00	9.64	0.00	0.00	Design
D51	0.00	9.64	0.00	0.00	Design
D52	0.00	-14.20	0.00	0.00	Design
D53	0.00	-14.20	0.00	0.00	Design
D54	0.00	-3.06	0.00	0.00	Design
D55	0.00	18.96	0.00	0.00	Design
D56	0.00	-2.85	0.00	0.00	Design
D57	0.00	-2.85	0.00	0.00	Design
D58	0.00	13.66	0.00	0.00	Design
D59	0.00	13.66	0.00	0.00	Design
D60	0.00	13.04	0.00	0.00	Design
D61	0.00	-18.74	0.00	0.00	Design
D62	0.00	9.22	0.00	0.00	Design
D63	0.00	9.22	0.00	0.00	Design
D64	0.00	-14.61	0.00	0.00	Design
D65	0.00	-14.61	0.00	0.00	Design
D66	0.00	-1.98	0.00	0.00	Design
D67	0.00	-1.88	0.00	0.00	Design
D68	0.00	-1.88	0.00	0.00	Design
D69	0.00	1.21	0.00	0.00	Design
D70	0.00	1.21	0.00	0.00	Design
D71	0.00	-1.98	0.00	0.00	Design
D72	0.00	-2.04	0.00	0.00	Design
D73	0.00	-2.04	0.00	0.00	Design
D74	0.00	1.05	0.00	0.00	Design
D75	0.00	1.05	0.00	0.00	Design
D76	0.00	-1.88	0.00	0.00	Design
D77	0.00	-1.88	0.00	0.00	Design
D78	0.00	1.21	0.00	0.00	Design
D79	0.00	1.21	0.00	0.00	Design
D80	0.00	-2.04	0.00	0.00	Design
D81	0.00	-2.04	0.00	0.00	Design
D82	0.00	1.05	0.00	0.00	Design
D83	0.00	1.05	0.00	0.00	Design
D84	0.00	-1.42	0.00	0.00	Design
D85	0.00	-1.42	0.00	0.00	Design
D86	0.00	1.67	0.00	0.00	Design

Design calculations

Interface between Gusset - Top left brace **Connection: Directly welded**

Demands

Pu [kip]	Description	Load type
-1.51	dl	Design
0.00	lln	Design
0.00	llp	Design
0.00	llm	Design
0.00	llrp	Design
-0.91	Sp	Design
0.08	Sn	Design
-0.83	Wind	Design
21.19	Wind1	Design
-0.63	Wind2	Design
-0.63	Wind3	Design
15.89	Wind4	Design
15.89	Wind5	Design
15.26	Wind6	Design
-16.52	Wind7	Design
11.45	Wind8	Design
11.45	Wind9	Design
-12.39	Wind10	Design
-12.39	Wind11	Design
-0.06	Seismic_Xp	Design
-0.06	Seismic_Xm	Design
3.03	Seismic_Yp	Design
3.03	Seismic_Ym	Design
0.00	COR	Design
0.00	Virtual_Work	Design
-2.12	C1	Design
-2.27	C2	Design
-1.77	C3	Design
-1.81	C4	Design
-1.81	C5	Design
-3.26	C6	Design
-1.68	C7	Design
-3.26	C8	Design
-1.68	C9	Design
-3.68	C10	Design
7.33	C11	Design
-3.58	C12	Design
-3.58	C13	Design
4.68	C14	Design
4.68	C15	Design
4.37	C16	Design
-11.52	C17	Design
2.46	C18	Design
2.46	C19	Design
-9.46	C20	Design
-9.46	C21	Design
-2.85	C22	Design
-13.86	C23	Design
-2.95	C24	Design
-2.95	C25	Design
-11.21	C26	Design
-11.21	C27	Design
-10.90	C28	Design
4.99	C29	Design
-8.99	C30	Design
-8.99	C31	Design
2.93	C32	Design
2.93	C33	Design
-2.10	C34	Design
8.91	C35	Design
-2.00	C36	Design
-2.00	C37	Design
6.26	C38	Design

6.26	C39	Design
5.95	C40	Design
-9.94	C41	Design
4.04	C42	Design
4.04	C43	Design
-7.88	C44	Design
-7.88	C45	Design
-1.27	C46	Design
-12.28	C47	Design
-1.37	C48	Design
-1.37	C49	Design
-9.63	C50	Design
-9.63	C51	Design
-9.32	C52	Design
6.57	C53	Design
-7.41	C54	Design
-7.41	C55	Design
4.51	C56	Design
4.51	C57	Design
-3.10	C58	Design
18.92	C59	Design
-2.89	C60	Design
-2.89	C61	Design
13.62	C62	Design
13.62	C63	Design
13.00	C64	Design
-18.78	C65	Design
9.18	C66	Design
9.18	C67	Design
-14.65	C68	Design
-14.65	C69	Design
-1.43	C70	Design
-23.45	C71	Design
-1.64	C72	Design
-1.64	C73	Design
-18.16	C74	Design
-18.16	C75	Design
-17.53	C76	Design
14.25	C77	Design
-13.72	C78	Design
-13.72	C79	Design
10.12	C80	Design
10.12	C81	Design
-2.61	C82	Design
19.42	C83	Design
-2.40	C84	Design
-2.40	C85	Design
14.12	C86	Design
14.12	C87	Design
13.49	C88	Design
-18.29	C89	Design
9.68	C90	Design
9.68	C91	Design
-14.16	C92	Design
-14.16	C93	Design
-0.94	C94	Design
-22.96	C95	Design
-1.15	C96	Design
-1.15	C97	Design
-17.66	C98	Design
-17.66	C99	Design
-17.04	C100	Design
14.74	C101	Design
-13.22	C102	Design
-13.22	C103	Design
10.61	C104	Design
10.61	C105	Design
-2.65	C106	Design
19.37	C107	Design
-2.44	C108	Design
-2.44	C109	Design
14.08	C110	Design
14.08	C111	Design
13.45	C112	Design
-18.33	C113	Design
9.64	C114	Design
9.64	C115	Design

-14.20	C116	Design
-14.20	C117	Design
-0.98	C118	Design
-23.00	C119	Design
-1.19	C120	Design
-1.19	C121	Design
-17.70	C122	Design
-17.70	C123	Design
-17.08	C124	Design
14.70	C125	Design
-13.26	C126	Design
-13.26	C127	Design
10.57	C128	Design
10.57	C129	Design
-2.65	C130	Design
19.37	C131	Design
-2.44	C132	Design
-2.44	C133	Design
14.08	C134	Design
14.08	C135	Design
13.45	C136	Design
-18.33	C137	Design
9.64	C138	Design
9.64	C139	Design
-14.20	C140	Design
-14.20	C141	Design
-0.98	C142	Design
-23.00	C143	Design
-1.19	C144	Design
-1.19	C145	Design
-17.70	C146	Design
-17.70	C147	Design
-17.08	C148	Design
14.70	C149	Design
-13.26	C150	Design
-13.26	C151	Design
10.57	C152	Design
10.57	C153	Design
-3.10	C154	Design
18.92	C155	Design
-2.89	C156	Design
-2.89	C157	Design
13.62	C158	Design
13.62	C159	Design
13.00	C160	Design
-18.78	C161	Design
9.18	C162	Design
9.18	C163	Design
-14.65	C164	Design
-14.65	C165	Design
-1.43	C166	Design
-23.45	C167	Design
-1.64	C168	Design
-1.64	C169	Design
-18.16	C170	Design
-18.16	C171	Design
-17.53	C172	Design
14.25	C173	Design
-13.72	C174	Design
-13.72	C175	Design
10.12	C176	Design
10.12	C177	Design
-2.61	C178	Design
19.42	C179	Design
-2.40	C180	Design
-2.40	C181	Design
14.12	C182	Design
14.12	C183	Design
13.49	C184	Design
-18.29	C185	Design
9.68	C186	Design
9.68	C187	Design
-14.16	C188	Design
-14.16	C189	Design
-0.94	C190	Design
-22.96	C191	Design
-1.15	C192	Design

-1.15	C193	Design
-17.66	C194	Design
-17.66	C195	Design
-17.04	C196	Design
14.74	C197	Design
-13.22	C198	Design
-13.22	C199	Design
10.61	C200	Design
10.61	C201	Design
-2.65	C202	Design
19.37	C203	Design
-2.44	C204	Design
-2.44	C205	Design
14.08	C206	Design
14.08	C207	Design
13.45	C208	Design
-18.33	C209	Design
9.64	C210	Design
9.64	C211	Design
-14.20	C212	Design
-14.20	C213	Design
-0.98	C214	Design
-23.00	C215	Design
-1.19	C216	Design
-1.19	C217	Design
-17.70	C218	Design
-17.70	C219	Design
-17.08	C220	Design
14.70	C221	Design
-13.26	C222	Design
-13.26	C223	Design
10.57	C224	Design
10.57	C225	Design
-2.19	C226	Design
19.83	C227	Design
-1.99	C228	Design
-1.99	C229	Design
14.53	C230	Design
14.53	C231	Design
13.91	C232	Design
-17.88	C233	Design
10.09	C234	Design
10.09	C235	Design
-13.75	C236	Design
-13.75	C237	Design
-0.53	C238	Design
-22.55	C239	Design
-0.73	C240	Design
-0.73	C241	Design
-17.25	C242	Design
-17.25	C243	Design
-16.62	C244	Design
15.16	C245	Design
-12.81	C246	Design
-12.81	C247	Design
11.03	C248	Design
11.03	C249	Design
-2.54	C250	Design
-2.54	C251	Design
0.55	C252	Design
0.55	C253	Design
-2.42	C254	Design
-2.42	C255	Design
-5.50	C256	Design
-5.50	C257	Design
-1.85	C258	Design
-1.85	C259	Design
1.24	C260	Design
1.24	C261	Design
-1.73	C262	Design
-1.73	C263	Design
-4.81	C264	Design
-4.81	C265	Design
-1.91	C266	Design
-1.91	C267	Design
1.18	C268	Design
1.18	C269	Design

-1.78	C270	Design
-1.78	C271	Design
-4.87	C272	Design
-4.87	C273	Design
-1.91	C274	Design
-1.91	C275	Design
1.18	C276	Design
1.18	C277	Design
-1.78	C278	Design
-1.78	C279	Design
-4.87	C280	Design
-4.87	C281	Design
-2.54	C282	Design
-2.54	C283	Design
0.55	C284	Design
0.55	C285	Design
-2.42	C286	Design
-2.42	C287	Design
-5.50	C288	Design
-5.50	C289	Design
-1.85	C290	Design
-1.85	C291	Design
1.24	C292	Design
1.24	C293	Design
-1.73	C294	Design
-1.73	C295	Design
-4.81	C296	Design
-4.81	C297	Design
-1.91	C298	Design
-1.91	C299	Design
1.18	C300	Design
1.18	C301	Design
-1.78	C302	Design
-1.78	C303	Design
-4.87	C304	Design
-4.87	C305	Design
-1.39	C306	Design
-1.39	C307	Design
1.70	C308	Design
1.70	C309	Design
-1.27	C310	Design
-1.27	C311	Design
-4.35	C312	Design
-4.35	C313	Design
-1.81	D1	Design
-2.23	D2	Design
-2.23	D3	Design
-3.13	D4	Design
-2.23	D5	Design
8.78	D6	Design
-2.13	D7	Design
-2.13	D8	Design
6.13	D9	Design
6.13	D10	Design
5.82	D11	Design
-10.07	D12	Design
3.91	D13	Design
3.91	D14	Design
-8.01	D15	Design
-8.01	D16	Design
-3.13	D17	Design
-3.55	D18	Design
7.46	D19	Design
-3.45	D20	Design
-3.45	D21	Design
4.81	D22	Design
4.81	D23	Design
4.50	D24	Design
-11.39	D25	Design
2.59	D26	Design
2.59	D27	Design
-9.33	D28	Design
-9.33	D29	Design
-3.06	D30	Design
18.96	D31	Design
-2.85	D32	Design
-2.85	D33	Design

13.66	D34	Design
13.66	D35	Design
13.04	D36	Design
-18.74	D37	Design
9.22	D38	Design
9.22	D39	Design
-14.61	D40	Design
-14.61	D41	Design
-2.65	D42	Design
19.37	D43	Design
-2.44	D44	Design
-2.44	D45	Design
14.08	D46	Design
14.08	D47	Design
13.45	D48	Design
-18.33	D49	Design
9.64	D50	Design
9.64	D51	Design
-14.20	D52	Design
-14.20	D53	Design
-3.06	D54	Design
18.96	D55	Design
-2.85	D56	Design
-2.85	D57	Design
13.66	D58	Design
13.66	D59	Design
13.04	D60	Design
-18.74	D61	Design
9.22	D62	Design
9.22	D63	Design
-14.61	D64	Design
-14.61	D65	Design
-1.98	D66	Design
-1.88	D67	Design
-1.88	D68	Design
1.21	D69	Design
1.21	D70	Design
-1.98	D71	Design
-2.04	D72	Design
-2.04	D73	Design
1.05	D74	Design
1.05	D75	Design
-1.88	D76	Design
-1.88	D77	Design
1.21	D78	Design
1.21	D79	Design
-2.04	D80	Design
-2.04	D81	Design
1.05	D82	Design
1.05	D83	Design
-1.42	D84	Design
-1.42	D85	Design
1.67	D86	Design
1.67	D87	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Member						
Weld size	[1/16in]	4	2	4	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Branch						
Total weld design strength	[Kip]	133.64	23.45	C71	0.18	Eq. J2-6
Maximum weld force that brace can develop	[Kip]	163.57	23.45	C71	0.14	Eq. J4-4
Maximum weld force that gusset can develop	[Kip]	117.45	23.45	C71	0.20	Eq. J4-4

Gusset

Block shear on gusset

[Kip]

166.61

21.19 Wind1

0.13 Eq. J4-5**Ratio****0.20****Checks for gusset and brace****Demands**

Pu [kip]	Description	Load type
-1.51	dl	Design
0.00	lln	Design
0.00	llp	Design
0.00	llrn	Design
0.00	llrp	Design
-0.91	Sp	Design
0.08	Sn	Design
-0.83	Wind	Design
21.19	Wind1	Design
-0.63	Wind2	Design
-0.63	Wind3	Design
15.89	Wind4	Design
15.89	Wind5	Design
15.26	Wind6	Design
-16.52	Wind7	Design
11.45	Wind8	Design
11.45	Wind9	Design
-12.39	Wind10	Design
-12.39	Wind11	Design
-0.06	Seismic_Xp	Design
-0.06	Seismic_Xm	Design
3.03	Seismic_Yp	Design
3.03	Seismic_Ym	Design
0.00	COR	Design
0.00	Virtual_Work	Design
-2.12	C1	Design
-2.27	C2	Design
-1.77	C3	Design
-1.81	C4	Design
-1.81	C5	Design
-3.26	C6	Design
-1.68	C7	Design
-3.26	C8	Design
-1.68	C9	Design
-3.68	C10	Design
7.33	C11	Design
-3.58	C12	Design
-3.58	C13	Design
4.68	C14	Design
4.68	C15	Design
4.37	C16	Design
-11.52	C17	Design
2.46	C18	Design
2.46	C19	Design
-9.46	C20	Design
-9.46	C21	Design
-2.85	C22	Design
-13.86	C23	Design
-2.95	C24	Design
-2.95	C25	Design
-11.21	C26	Design
-11.21	C27	Design
-10.90	C28	Design
4.99	C29	Design
-8.99	C30	Design
-8.99	C31	Design
2.93	C32	Design
2.93	C33	Design
-2.10	C34	Design

8.91	C35	Design
-2.00	C36	Design
-2.00	C37	Design
6.26	C38	Design
6.26	C39	Design
5.95	C40	Design
-9.94	C41	Design
4.04	C42	Design
4.04	C43	Design
-7.88	C44	Design
-7.88	C45	Design
-1.27	C46	Design
-12.28	C47	Design
-1.37	C48	Design
-1.37	C49	Design
-9.63	C50	Design
-9.63	C51	Design
-9.32	C52	Design
6.57	C53	Design
-7.41	C54	Design
-7.41	C55	Design
4.51	C56	Design
4.51	C57	Design
-3.10	C58	Design
18.92	C59	Design
-2.89	C60	Design
-2.89	C61	Design
13.62	C62	Design
13.62	C63	Design
13.00	C64	Design
-18.78	C65	Design
9.18	C66	Design
9.18	C67	Design
-14.65	C68	Design
-14.65	C69	Design
-1.43	C70	Design
-23.45	C71	Design
-1.64	C72	Design
-1.64	C73	Design
-18.16	C74	Design
-18.16	C75	Design
-17.53	C76	Design
14.25	C77	Design
-13.72	C78	Design
-13.72	C79	Design
10.12	C80	Design
10.12	C81	Design
-2.61	C82	Design
19.42	C83	Design
-2.40	C84	Design
-2.40	C85	Design
14.12	C86	Design
14.12	C87	Design
13.49	C88	Design
-18.29	C89	Design
9.68	C90	Design
9.68	C91	Design
-14.16	C92	Design
-14.16	C93	Design
-0.94	C94	Design
-22.96	C95	Design
-1.15	C96	Design
-1.15	C97	Design
-17.66	C98	Design
-17.66	C99	Design
-17.04	C100	Design
14.74	C101	Design
-13.22	C102	Design
-13.22	C103	Design
10.61	C104	Design
10.61	C105	Design
-2.65	C106	Design
19.37	C107	Design
-2.44	C108	Design
-2.44	C109	Design
14.08	C110	Design
14.08	C111	Design

13.45	C112	Design
-18.33	C113	Design
9.64	C114	Design
9.64	C115	Design
-14.20	C116	Design
-14.20	C117	Design
-0.98	C118	Design
-23.00	C119	Design
-1.19	C120	Design
-1.19	C121	Design
-17.70	C122	Design
-17.70	C123	Design
-17.08	C124	Design
14.70	C125	Design
-13.26	C126	Design
-13.26	C127	Design
10.57	C128	Design
10.57	C129	Design
-2.65	C130	Design
19.37	C131	Design
-2.44	C132	Design
-2.44	C133	Design
14.08	C134	Design
14.08	C135	Design
13.45	C136	Design
-18.33	C137	Design
9.64	C138	Design
9.64	C139	Design
-14.20	C140	Design
-14.20	C141	Design
-0.98	C142	Design
-23.00	C143	Design
-1.19	C144	Design
-1.19	C145	Design
-17.70	C146	Design
-17.70	C147	Design
-17.08	C148	Design
14.70	C149	Design
-13.26	C150	Design
-13.26	C151	Design
10.57	C152	Design
10.57	C153	Design
-3.10	C154	Design
18.92	C155	Design
-2.89	C156	Design
-2.89	C157	Design
13.62	C158	Design
13.62	C159	Design
13.00	C160	Design
-18.78	C161	Design
9.18	C162	Design
9.18	C163	Design
-14.65	C164	Design
-14.65	C165	Design
-1.43	C166	Design
-23.45	C167	Design
-1.64	C168	Design
-1.64	C169	Design
-18.16	C170	Design
-18.16	C171	Design
-17.53	C172	Design
14.25	C173	Design
-13.72	C174	Design
-13.72	C175	Design
10.12	C176	Design
10.12	C177	Design
-2.61	C178	Design
19.42	C179	Design
-2.40	C180	Design
-2.40	C181	Design
14.12	C182	Design
14.12	C183	Design
13.49	C184	Design
-18.29	C185	Design
9.68	C186	Design
9.68	C187	Design
-14.16	C188	Design

-14.16	C189	Design
-0.94	C190	Design
-22.96	C191	Design
-1.15	C192	Design
-1.15	C193	Design
-17.66	C194	Design
-17.66	C195	Design
-17.04	C196	Design
14.74	C197	Design
-13.22	C198	Design
-13.22	C199	Design
10.61	C200	Design
10.61	C201	Design
-2.65	C202	Design
19.37	C203	Design
-2.44	C204	Design
-2.44	C205	Design
14.08	C206	Design
14.08	C207	Design
13.45	C208	Design
-18.33	C209	Design
9.64	C210	Design
9.64	C211	Design
-14.20	C212	Design
-14.20	C213	Design
-0.98	C214	Design
-23.00	C215	Design
-1.19	C216	Design
-1.19	C217	Design
-17.70	C218	Design
-17.70	C219	Design
-17.08	C220	Design
14.70	C221	Design
-13.26	C222	Design
-13.26	C223	Design
10.57	C224	Design
10.57	C225	Design
-2.19	C226	Design
19.83	C227	Design
-1.99	C228	Design
-1.99	C229	Design
14.53	C230	Design
14.53	C231	Design
13.91	C232	Design
-17.88	C233	Design
10.09	C234	Design
10.09	C235	Design
-13.75	C236	Design
-13.75	C237	Design
-0.53	C238	Design
-22.55	C239	Design
-0.73	C240	Design
-0.73	C241	Design
-17.25	C242	Design
-17.25	C243	Design
-16.62	C244	Design
15.16	C245	Design
-12.81	C246	Design
-12.81	C247	Design
11.03	C248	Design
11.03	C249	Design
-2.54	C250	Design
-2.54	C251	Design
0.55	C252	Design
0.55	C253	Design
-2.42	C254	Design
-2.42	C255	Design
-5.50	C256	Design
-5.50	C257	Design
-1.85	C258	Design
-1.85	C259	Design
1.24	C260	Design
1.24	C261	Design
-1.73	C262	Design
-1.73	C263	Design
-4.81	C264	Design
-4.81	C265	Design

-1.91	C266	Design
-1.91	C267	Design
1.18	C268	Design
1.18	C269	Design
-1.78	C270	Design
-1.78	C271	Design
-4.87	C272	Design
-4.87	C273	Design
-1.91	C274	Design
-1.91	C275	Design
1.18	C276	Design
1.18	C277	Design
-1.78	C278	Design
-1.78	C279	Design
-4.87	C280	Design
-4.87	C281	Design
-2.54	C282	Design
-2.54	C283	Design
0.55	C284	Design
0.55	C285	Design
-2.42	C286	Design
-2.42	C287	Design
-5.50	C288	Design
-5.50	C289	Design
-1.85	C290	Design
-1.85	C291	Design
1.24	C292	Design
1.24	C293	Design
-1.73	C294	Design
-1.73	C295	Design
-4.81	C296	Design
-4.81	C297	Design
-1.91	C298	Design
-1.91	C299	Design
1.18	C300	Design
1.18	C301	Design
-1.78	C302	Design
-1.78	C303	Design
-4.87	C304	Design
-4.87	C305	Design
-1.39	C306	Design
-1.39	C307	Design
1.70	C308	Design
1.70	C309	Design
-1.27	C310	Design
-1.27	C311	Design
-4.35	C312	Design
-4.35	C313	Design
-1.81	D1	Design
-2.23	D2	Design
-2.23	D3	Design
-3.13	D4	Design
-2.23	D5	Design
8.78	D6	Design
-2.13	D7	Design
-2.13	D8	Design
6.13	D9	Design
6.13	D10	Design
5.82	D11	Design
-10.07	D12	Design
3.91	D13	Design
3.91	D14	Design
-8.01	D15	Design
-8.01	D16	Design
-3.13	D17	Design
-3.55	D18	Design
7.46	D19	Design
-3.45	D20	Design
-3.45	D21	Design
4.81	D22	Design
4.81	D23	Design
4.50	D24	Design
-11.39	D25	Design
2.59	D26	Design
2.59	D27	Design
-9.33	D28	Design
-9.33	D29	Design

-3.06	D30	Design
18.96	D31	Design
-2.85	D32	Design
-2.85	D33	Design
13.66	D34	Design
13.66	D35	Design
13.04	D36	Design
-18.74	D37	Design
9.22	D38	Design
9.22	D39	Design
-14.61	D40	Design
-14.61	D41	Design
-2.65	D42	Design
19.37	D43	Design
-2.44	D44	Design
-2.44	D45	Design
14.08	D46	Design
14.08	D47	Design
13.45	D48	Design
-18.33	D49	Design
9.64	D50	Design
9.64	D51	Design
-14.20	D52	Design
-14.20	D53	Design
-3.06	D54	Design
18.96	D55	Design
-2.85	D56	Design
-2.85	D57	Design
13.66	D58	Design
13.66	D59	Design
13.04	D60	Design
-18.74	D61	Design
9.22	D62	Design
9.22	D63	Design
-14.61	D64	Design
-14.61	D65	Design
-1.98	D66	Design
-1.88	D67	Design
-1.88	D68	Design
1.21	D69	Design
1.21	D70	Design
-1.98	D71	Design
-2.04	D72	Design
-2.04	D73	Design
1.05	D74	Design
1.05	D75	Design
-1.88	D76	Design
-1.88	D77	Design
1.21	D78	Design
1.21	D79	Design
-2.04	D80	Design
-2.04	D81	Design
1.05	D82	Design
1.05	D83	Design
-1.42	D84	Design
-1.42	D85	Design
1.67	D86	Design
1.67	D87	Design

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Member						
Yielding strength due to axial load	[Kip]	193.50	21.19	Wind1	0.11	Eq. J4-1
Tension rupture	[Kip]	136.31	21.19	Wind1	0.16	Eq. J4-2
Gusset						
Tension yielding on the Whitmore section	[Kip]	144.93	21.19	Wind1	0.15	Eq. J4-1
Buckling on the Whitmore section	[Kip]	103.32	23.45	C71	0.23	Eq. E3-1
Ratio	0.23					

Interface Upper left gusset - beam
Connection: Directly welded

Demands

Description	Beam			Column			Load type
	Ru [kip]	Pu [kip]	Mu [kip*ft]	Pu [kip]	Mu22 [kip*ft]	Mu33 [kip*ft]	
dl	-0.46	-0.49	0.00	0.00	0.00	0.00	Design
lln	0.00	0.00	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	0.00	0.00	Design
llm	0.00	0.00	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	0.00	0.00	Design
Sp	-0.28	-0.29	0.00	0.00	0.00	0.00	Design
Sn	0.02	0.03	0.00	0.00	0.00	0.00	Design
Wind	-0.26	-0.27	0.00	0.00	0.00	0.00	Design
Wind1	6.49	6.86	0.00	0.00	0.00	0.00	Design
Wind2	-0.19	-0.20	0.00	0.00	0.00	0.00	Design
Wind3	-0.19	-0.20	0.00	0.00	0.00	0.00	Design
Wind4	4.87	5.14	0.00	0.00	0.00	0.00	Design
Wind5	4.87	5.14	0.00	0.00	0.00	0.00	Design
Wind6	4.68	4.94	0.00	0.00	0.00	0.00	Design
Wind7	-5.06	-5.35	0.00	0.00	0.00	0.00	Design
Wind8	3.51	3.71	0.00	0.00	0.00	0.00	Design
Wind9	3.51	3.71	0.00	0.00	0.00	0.00	Design
Wind10	-3.80	-4.01	0.00	0.00	0.00	0.00	Design
Wind11	-3.80	-4.01	0.00	0.00	0.00	0.00	Design
Seismic_Xp	-0.02	-0.02	0.00	0.00	0.00	0.00	Design
Seismic_Xm	-0.02	-0.02	0.00	0.00	0.00	0.00	Design
Seismic_Yp	0.93	0.98	0.00	0.00	0.00	0.00	Design
Seismic_Ym	0.93	0.98	0.00	0.00	0.00	0.00	Design
COR	0.00	0.00	0.00	0.00	0.00	0.00	Design
Virtual_Work	0.00	0.00	0.00	0.00	0.00	0.00	Design
C1	-0.65	-0.68	0.00	0.00	0.00	0.00	Design
C2	-0.69	-0.73	0.00	0.00	0.00	0.00	Design
C3	-0.54	-0.57	0.00	0.00	0.00	0.00	Design
C4	-0.56	-0.59	0.00	0.00	0.00	0.00	Design
C5	-0.56	-0.59	0.00	0.00	0.00	0.00	Design
C6	-1.00	-1.06	0.00	0.00	0.00	0.00	Design
C7	-0.52	-0.54	0.00	0.00	0.00	0.00	Design
C8	-1.00	-1.06	0.00	0.00	0.00	0.00	Design
C9	-0.52	-0.54	0.00	0.00	0.00	0.00	Design
C10	-1.13	-1.19	0.00	0.00	0.00	0.00	Design
C11	2.25	2.37	0.00	0.00	0.00	0.00	Design
C12	-1.10	-1.16	0.00	0.00	0.00	0.00	Design
C13	-1.10	-1.16	0.00	0.00	0.00	0.00	Design
C14	1.43	1.52	0.00	0.00	0.00	0.00	Design
C15	1.43	1.52	0.00	0.00	0.00	0.00	Design
C16	1.34	1.41	0.00	0.00	0.00	0.00	Design
C17	-3.53	-3.73	0.00	0.00	0.00	0.00	Design
C18	0.75	0.80	0.00	0.00	0.00	0.00	Design
C19	0.75	0.80	0.00	0.00	0.00	0.00	Design
C20	-2.90	-3.06	0.00	0.00	0.00	0.00	Design
C21	-2.90	-3.06	0.00	0.00	0.00	0.00	Design
C22	-0.87	-0.92	0.00	0.00	0.00	0.00	Design
C23	-4.25	-4.49	0.00	0.00	0.00	0.00	Design
C24	-0.90	-0.96	0.00	0.00	0.00	0.00	Design
C25	-0.90	-0.96	0.00	0.00	0.00	0.00	Design
C26	-3.43	-3.63	0.00	0.00	0.00	0.00	Design
C27	-3.43	-3.63	0.00	0.00	0.00	0.00	Design
C28	-3.34	-3.53	0.00	0.00	0.00	0.00	Design
C29	1.53	1.62	0.00	0.00	0.00	0.00	Design
C30	-2.75	-2.91	0.00	0.00	0.00	0.00	Design
C31	-2.75	-2.91	0.00	0.00	0.00	0.00	Design
C32	0.90	0.95	0.00	0.00	0.00	0.00	Design
C33	0.90	0.95	0.00	0.00	0.00	0.00	Design
C34	-0.64	-0.68	0.00	0.00	0.00	0.00	Design
C35	2.73	2.88	0.00	0.00	0.00	0.00	Design
C36	-0.61	-0.65	0.00	0.00	0.00	0.00	Design
C37	-0.61	-0.65	0.00	0.00	0.00	0.00	Design
C38	1.92	2.03	0.00	0.00	0.00	0.00	Design
C39	1.92	2.03	0.00	0.00	0.00	0.00	Design
C40	1.82	1.93	0.00	0.00	0.00	0.00	Design
C41	-3.05	-3.22	0.00	0.00	0.00	0.00	Design
C42	1.24	1.31	0.00	0.00	0.00	0.00	Design

C43	1.24	1.31	0.00	0.00	0.00	0.00	Design
C44	-2.41	-2.55	0.00	0.00	0.00	0.00	Design
C45	-2.41	-2.55	0.00	0.00	0.00	0.00	Design
C46	-0.39	-0.41	0.00	0.00	0.00	0.00	Design
C47	-3.76	-3.97	0.00	0.00	0.00	0.00	Design
C48	-0.42	-0.44	0.00	0.00	0.00	0.00	Design
C49	-0.42	-0.44	0.00	0.00	0.00	0.00	Design
C50	-2.95	-3.12	0.00	0.00	0.00	0.00	Design
C51	-2.95	-3.12	0.00	0.00	0.00	0.00	Design
C52	-2.85	-3.02	0.00	0.00	0.00	0.00	Design
C53	2.01	2.13	0.00	0.00	0.00	0.00	Design
C54	-2.27	-2.40	0.00	0.00	0.00	0.00	Design
C55	-2.27	-2.40	0.00	0.00	0.00	0.00	Design
C56	1.38	1.46	0.00	0.00	0.00	0.00	Design
C57	1.38	1.46	0.00	0.00	0.00	0.00	Design
C58	-0.95	-1.00	0.00	0.00	0.00	0.00	Design
C59	5.80	6.12	0.00	0.00	0.00	0.00	Design
C60	-0.89	-0.94	0.00	0.00	0.00	0.00	Design
C61	-0.89	-0.94	0.00	0.00	0.00	0.00	Design
C62	4.17	4.41	0.00	0.00	0.00	0.00	Design
C63	4.17	4.41	0.00	0.00	0.00	0.00	Design
C64	3.98	4.21	0.00	0.00	0.00	0.00	Design
C65	-5.75	-6.08	0.00	0.00	0.00	0.00	Design
C66	2.81	2.97	0.00	0.00	0.00	0.00	Design
C67	2.81	2.97	0.00	0.00	0.00	0.00	Design
C68	-4.49	-4.74	0.00	0.00	0.00	0.00	Design
C69	-4.49	-4.74	0.00	0.00	0.00	0.00	Design
C70	-0.44	-0.46	0.00	0.00	0.00	0.00	Design
C71	-7.19	-7.59	0.00	0.00	0.00	0.00	Design
C72	-0.50	-0.53	0.00	0.00	0.00	0.00	Design
C73	-0.50	-0.53	0.00	0.00	0.00	0.00	Design
C74	-5.56	-5.88	0.00	0.00	0.00	0.00	Design
C75	-5.56	-5.88	0.00	0.00	0.00	0.00	Design
C76	-5.37	-5.67	0.00	0.00	0.00	0.00	Design
C77	4.37	4.61	0.00	0.00	0.00	0.00	Design
C78	-4.20	-4.44	0.00	0.00	0.00	0.00	Design
C79	-4.20	-4.44	0.00	0.00	0.00	0.00	Design
C80	3.10	3.28	0.00	0.00	0.00	0.00	Design
C81	3.10	3.28	0.00	0.00	0.00	0.00	Design
C82	-0.80	-0.84	0.00	0.00	0.00	0.00	Design
C83	5.95	6.28	0.00	0.00	0.00	0.00	Design
C84	-0.73	-0.78	0.00	0.00	0.00	0.00	Design
C85	-0.73	-0.78	0.00	0.00	0.00	0.00	Design
C86	4.33	4.57	0.00	0.00	0.00	0.00	Design
C87	4.33	4.57	0.00	0.00	0.00	0.00	Design
C88	4.13	4.37	0.00	0.00	0.00	0.00	Design
C89	-5.60	-5.92	0.00	0.00	0.00	0.00	Design
C90	2.96	3.13	0.00	0.00	0.00	0.00	Design
C91	2.96	3.13	0.00	0.00	0.00	0.00	Design
C92	-4.34	-4.58	0.00	0.00	0.00	0.00	Design
C93	-4.34	-4.58	0.00	0.00	0.00	0.00	Design
C94	-0.29	-0.30	0.00	0.00	0.00	0.00	Design
C95	-7.03	-7.43	0.00	0.00	0.00	0.00	Design
C96	-0.35	-0.37	0.00	0.00	0.00	0.00	Design
C97	-0.35	-0.37	0.00	0.00	0.00	0.00	Design
C98	-5.41	-5.72	0.00	0.00	0.00	0.00	Design
C99	-5.41	-5.72	0.00	0.00	0.00	0.00	Design
C100	-5.22	-5.51	0.00	0.00	0.00	0.00	Design
C101	4.52	4.77	0.00	0.00	0.00	0.00	Design
C102	-4.05	-4.28	0.00	0.00	0.00	0.00	Design
C103	-4.05	-4.28	0.00	0.00	0.00	0.00	Design
C104	3.25	3.44	0.00	0.00	0.00	0.00	Design
C105	3.25	3.44	0.00	0.00	0.00	0.00	Design
C106	-0.81	-0.86	0.00	0.00	0.00	0.00	Design
C107	5.94	6.27	0.00	0.00	0.00	0.00	Design
C108	-0.75	-0.79	0.00	0.00	0.00	0.00	Design
C109	-0.75	-0.79	0.00	0.00	0.00	0.00	Design
C110	4.31	4.56	0.00	0.00	0.00	0.00	Design
C111	4.31	4.56	0.00	0.00	0.00	0.00	Design
C112	4.12	4.35	0.00	0.00	0.00	0.00	Design
C113	-5.62	-5.93	0.00	0.00	0.00	0.00	Design
C114	2.95	3.12	0.00	0.00	0.00	0.00	Design
C115	2.95	3.12	0.00	0.00	0.00	0.00	Design
C116	-4.35	-4.60	0.00	0.00	0.00	0.00	Design
C117	-4.35	-4.60	0.00	0.00	0.00	0.00	Design
C118	-0.30	-0.32	0.00	0.00	0.00	0.00	Design
C119	-7.05	-7.45	0.00	0.00	0.00	0.00	Design

C120	-0.36	-0.38	0.00	0.00	0.00	0.00	Design
C121	-0.36	-0.38	0.00	0.00	0.00	0.00	Design
C122	-5.42	-5.73	0.00	0.00	0.00	0.00	Design
C123	-5.42	-5.73	0.00	0.00	0.00	0.00	Design
C124	-5.23	-5.53	0.00	0.00	0.00	0.00	Design
C125	4.50	4.76	0.00	0.00	0.00	0.00	Design
C126	-4.06	-4.29	0.00	0.00	0.00	0.00	Design
C127	-4.06	-4.29	0.00	0.00	0.00	0.00	Design
C128	3.24	3.42	0.00	0.00	0.00	0.00	Design
C129	3.24	3.42	0.00	0.00	0.00	0.00	Design
C130	-0.81	-0.86	0.00	0.00	0.00	0.00	Design
C131	5.94	6.27	0.00	0.00	0.00	0.00	Design
C132	-0.75	-0.79	0.00	0.00	0.00	0.00	Design
C133	-0.75	-0.79	0.00	0.00	0.00	0.00	Design
C134	4.31	4.56	0.00	0.00	0.00	0.00	Design
C135	4.31	4.56	0.00	0.00	0.00	0.00	Design
C136	4.12	4.35	0.00	0.00	0.00	0.00	Design
C137	-5.62	-5.93	0.00	0.00	0.00	0.00	Design
C138	2.95	3.12	0.00	0.00	0.00	0.00	Design
C139	2.95	3.12	0.00	0.00	0.00	0.00	Design
C140	-4.35	-4.60	0.00	0.00	0.00	0.00	Design
C141	-4.35	-4.60	0.00	0.00	0.00	0.00	Design
C142	-0.30	-0.32	0.00	0.00	0.00	0.00	Design
C143	-7.05	-7.45	0.00	0.00	0.00	0.00	Design
C144	-0.36	-0.38	0.00	0.00	0.00	0.00	Design
C145	-0.36	-0.38	0.00	0.00	0.00	0.00	Design
C146	-5.42	-5.73	0.00	0.00	0.00	0.00	Design
C147	-5.42	-5.73	0.00	0.00	0.00	0.00	Design
C148	-5.23	-5.53	0.00	0.00	0.00	0.00	Design
C149	4.50	4.76	0.00	0.00	0.00	0.00	Design
C150	-4.06	-4.29	0.00	0.00	0.00	0.00	Design
C151	-4.06	-4.29	0.00	0.00	0.00	0.00	Design
C152	3.24	3.42	0.00	0.00	0.00	0.00	Design
C153	3.24	3.42	0.00	0.00	0.00	0.00	Design
C154	-0.95	-1.00	0.00	0.00	0.00	0.00	Design
C155	5.80	6.12	0.00	0.00	0.00	0.00	Design
C156	-0.89	-0.94	0.00	0.00	0.00	0.00	Design
C157	-0.89	-0.94	0.00	0.00	0.00	0.00	Design
C158	4.17	4.41	0.00	0.00	0.00	0.00	Design
C159	4.17	4.41	0.00	0.00	0.00	0.00	Design
C160	3.98	4.21	0.00	0.00	0.00	0.00	Design
C161	-5.75	-6.08	0.00	0.00	0.00	0.00	Design
C162	2.81	2.97	0.00	0.00	0.00	0.00	Design
C163	2.81	2.97	0.00	0.00	0.00	0.00	Design
C164	-4.49	-4.74	0.00	0.00	0.00	0.00	Design
C165	-4.49	-4.74	0.00	0.00	0.00	0.00	Design
C166	-0.44	-0.46	0.00	0.00	0.00	0.00	Design
C167	-7.19	-7.59	0.00	0.00	0.00	0.00	Design
C168	-0.50	-0.53	0.00	0.00	0.00	0.00	Design
C169	-0.50	-0.53	0.00	0.00	0.00	0.00	Design
C170	-5.56	-5.88	0.00	0.00	0.00	0.00	Design
C171	-5.56	-5.88	0.00	0.00	0.00	0.00	Design
C172	-5.37	-5.67	0.00	0.00	0.00	0.00	Design
C173	4.37	4.61	0.00	0.00	0.00	0.00	Design
C174	-4.20	-4.44	0.00	0.00	0.00	0.00	Design
C175	-4.20	-4.44	0.00	0.00	0.00	0.00	Design
C176	3.10	3.28	0.00	0.00	0.00	0.00	Design
C177	3.10	3.28	0.00	0.00	0.00	0.00	Design
C178	-0.80	-0.84	0.00	0.00	0.00	0.00	Design
C179	5.95	6.28	0.00	0.00	0.00	0.00	Design
C180	-0.73	-0.78	0.00	0.00	0.00	0.00	Design
C181	-0.73	-0.78	0.00	0.00	0.00	0.00	Design
C182	4.33	4.57	0.00	0.00	0.00	0.00	Design
C183	4.33	4.57	0.00	0.00	0.00	0.00	Design
C184	4.13	4.37	0.00	0.00	0.00	0.00	Design
C185	-5.60	-5.92	0.00	0.00	0.00	0.00	Design
C186	2.96	3.13	0.00	0.00	0.00	0.00	Design
C187	2.96	3.13	0.00	0.00	0.00	0.00	Design
C188	-4.34	-4.58	0.00	0.00	0.00	0.00	Design
C189	-4.34	-4.58	0.00	0.00	0.00	0.00	Design
C190	-0.29	-0.30	0.00	0.00	0.00	0.00	Design
C191	-7.03	-7.43	0.00	0.00	0.00	0.00	Design
C192	-0.35	-0.37	0.00	0.00	0.00	0.00	Design
C193	-0.35	-0.37	0.00	0.00	0.00	0.00	Design
C194	-5.41	-5.72	0.00	0.00	0.00	0.00	Design
C195	-5.41	-5.72	0.00	0.00	0.00	0.00	Design
C196	-5.22	-5.51	0.00	0.00	0.00	0.00	Design

C197	4.52	4.77	0.00	0.00	0.00	0.00	Design
C198	-4.05	-4.28	0.00	0.00	0.00	0.00	Design
C199	-4.05	-4.28	0.00	0.00	0.00	0.00	Design
C200	3.25	3.44	0.00	0.00	0.00	0.00	Design
C201	3.25	3.44	0.00	0.00	0.00	0.00	Design
C202	-0.81	-0.86	0.00	0.00	0.00	0.00	Design
C203	5.94	6.27	0.00	0.00	0.00	0.00	Design
C204	-0.75	-0.79	0.00	0.00	0.00	0.00	Design
C205	-0.75	-0.79	0.00	0.00	0.00	0.00	Design
C206	4.31	4.56	0.00	0.00	0.00	0.00	Design
C207	4.31	4.56	0.00	0.00	0.00	0.00	Design
C208	4.12	4.35	0.00	0.00	0.00	0.00	Design
C209	-5.62	-5.93	0.00	0.00	0.00	0.00	Design
C210	2.95	3.12	0.00	0.00	0.00	0.00	Design
C211	2.95	3.12	0.00	0.00	0.00	0.00	Design
C212	-4.35	-4.60	0.00	0.00	0.00	0.00	Design
C213	-4.35	-4.60	0.00	0.00	0.00	0.00	Design
C214	-0.30	-0.32	0.00	0.00	0.00	0.00	Design
C215	-7.05	-7.45	0.00	0.00	0.00	0.00	Design
C216	-0.36	-0.38	0.00	0.00	0.00	0.00	Design
C217	-0.36	-0.38	0.00	0.00	0.00	0.00	Design
C218	-5.42	-5.73	0.00	0.00	0.00	0.00	Design
C219	-5.42	-5.73	0.00	0.00	0.00	0.00	Design
C220	-5.23	-5.53	0.00	0.00	0.00	0.00	Design
C221	4.50	4.76	0.00	0.00	0.00	0.00	Design
C222	-4.06	-4.29	0.00	0.00	0.00	0.00	Design
C223	-4.06	-4.29	0.00	0.00	0.00	0.00	Design
C224	3.24	3.42	0.00	0.00	0.00	0.00	Design
C225	3.24	3.42	0.00	0.00	0.00	0.00	Design
C226	-0.67	-0.71	0.00	0.00	0.00	0.00	Design
C227	6.07	6.42	0.00	0.00	0.00	0.00	Design
C228	-0.61	-0.64	0.00	0.00	0.00	0.00	Design
C229	-0.61	-0.64	0.00	0.00	0.00	0.00	Design
C230	4.45	4.70	0.00	0.00	0.00	0.00	Design
C231	4.45	4.70	0.00	0.00	0.00	0.00	Design
C232	4.26	4.50	0.00	0.00	0.00	0.00	Design
C233	-5.48	-5.79	0.00	0.00	0.00	0.00	Design
C234	3.09	3.27	0.00	0.00	0.00	0.00	Design
C235	3.09	3.27	0.00	0.00	0.00	0.00	Design
C236	-4.21	-4.45	0.00	0.00	0.00	0.00	Design
C237	-4.21	-4.45	0.00	0.00	0.00	0.00	Design
C238	-0.16	-0.17	0.00	0.00	0.00	0.00	Design
C239	-6.91	-7.30	0.00	0.00	0.00	0.00	Design
C240	-0.22	-0.24	0.00	0.00	0.00	0.00	Design
C241	-0.22	-0.24	0.00	0.00	0.00	0.00	Design
C242	-5.29	-5.58	0.00	0.00	0.00	0.00	Design
C243	-5.29	-5.58	0.00	0.00	0.00	0.00	Design
C244	-5.09	-5.38	0.00	0.00	0.00	0.00	Design
C245	4.64	4.91	0.00	0.00	0.00	0.00	Design
C246	-3.92	-4.15	0.00	0.00	0.00	0.00	Design
C247	-3.92	-4.15	0.00	0.00	0.00	0.00	Design
C248	3.38	3.57	0.00	0.00	0.00	0.00	Design
C249	3.38	3.57	0.00	0.00	0.00	0.00	Design
C250	-0.78	-0.82	0.00	0.00	0.00	0.00	Design
C251	-0.78	-0.82	0.00	0.00	0.00	0.00	Design
C252	0.17	0.18	0.00	0.00	0.00	0.00	Design
C253	0.17	0.18	0.00	0.00	0.00	0.00	Design
C254	-0.74	-0.78	0.00	0.00	0.00	0.00	Design
C255	-0.74	-0.78	0.00	0.00	0.00	0.00	Design
C256	-1.69	-1.78	0.00	0.00	0.00	0.00	Design
C257	-1.69	-1.78	0.00	0.00	0.00	0.00	Design
C258	-0.57	-0.60	0.00	0.00	0.00	0.00	Design
C259	-0.57	-0.60	0.00	0.00	0.00	0.00	Design
C260	0.38	0.40	0.00	0.00	0.00	0.00	Design
C261	0.38	0.40	0.00	0.00	0.00	0.00	Design
C262	-0.53	-0.56	0.00	0.00	0.00	0.00	Design
C263	-0.53	-0.56	0.00	0.00	0.00	0.00	Design
C264	-1.47	-1.56	0.00	0.00	0.00	0.00	Design
C265	-1.47	-1.56	0.00	0.00	0.00	0.00	Design
C266	-0.58	-0.62	0.00	0.00	0.00	0.00	Design
C267	-0.58	-0.62	0.00	0.00	0.00	0.00	Design
C268	0.36	0.38	0.00	0.00	0.00	0.00	Design
C269	0.36	0.38	0.00	0.00	0.00	0.00	Design
C270	-0.55	-0.58	0.00	0.00	0.00	0.00	Design
C271	-0.55	-0.58	0.00	0.00	0.00	0.00	Design
C272	-1.49	-1.58	0.00	0.00	0.00	0.00	Design
C273	-1.49	-1.58	0.00	0.00	0.00	0.00	Design

C274	-0.58	-0.62	0.00	0.00	0.00	0.00	Design
C275	-0.58	-0.62	0.00	0.00	0.00	0.00	Design
C276	0.36	0.38	0.00	0.00	0.00	0.00	Design
C277	0.36	0.38	0.00	0.00	0.00	0.00	Design
C278	-0.55	-0.58	0.00	0.00	0.00	0.00	Design
C279	-0.55	-0.58	0.00	0.00	0.00	0.00	Design
C280	-1.49	-1.58	0.00	0.00	0.00	0.00	Design
C281	-1.49	-1.58	0.00	0.00	0.00	0.00	Design
C282	-0.78	-0.82	0.00	0.00	0.00	0.00	Design
C283	-0.78	-0.82	0.00	0.00	0.00	0.00	Design
C284	0.17	0.18	0.00	0.00	0.00	0.00	Design
C285	0.17	0.18	0.00	0.00	0.00	0.00	Design
C286	-0.74	-0.78	0.00	0.00	0.00	0.00	Design
C287	-0.74	-0.78	0.00	0.00	0.00	0.00	Design
C288	-1.69	-1.78	0.00	0.00	0.00	0.00	Design
C289	-1.69	-1.78	0.00	0.00	0.00	0.00	Design
C290	-0.57	-0.60	0.00	0.00	0.00	0.00	Design
C291	-0.57	-0.60	0.00	0.00	0.00	0.00	Design
C292	0.38	0.40	0.00	0.00	0.00	0.00	Design
C293	0.38	0.40	0.00	0.00	0.00	0.00	Design
C294	-0.53	-0.56	0.00	0.00	0.00	0.00	Design
C295	-0.53	-0.56	0.00	0.00	0.00	0.00	Design
C296	-1.47	-1.56	0.00	0.00	0.00	0.00	Design
C297	-1.47	-1.56	0.00	0.00	0.00	0.00	Design
C298	-0.58	-0.62	0.00	0.00	0.00	0.00	Design
C299	-0.58	-0.62	0.00	0.00	0.00	0.00	Design
C300	0.36	0.38	0.00	0.00	0.00	0.00	Design
C301	0.36	0.38	0.00	0.00	0.00	0.00	Design
C302	-0.55	-0.58	0.00	0.00	0.00	0.00	Design
C303	-0.55	-0.58	0.00	0.00	0.00	0.00	Design
C304	-1.49	-1.58	0.00	0.00	0.00	0.00	Design
C305	-1.49	-1.58	0.00	0.00	0.00	0.00	Design
C306	-0.43	-0.45	0.00	0.00	0.00	0.00	Design
C307	-0.43	-0.45	0.00	0.00	0.00	0.00	Design
C308	0.52	0.55	0.00	0.00	0.00	0.00	Design
C309	0.52	0.55	0.00	0.00	0.00	0.00	Design
C310	-0.39	-0.41	0.00	0.00	0.00	0.00	Design
C311	-0.39	-0.41	0.00	0.00	0.00	0.00	Design
C312	-1.33	-1.41	0.00	0.00	0.00	0.00	Design
C313	-1.33	-1.41	0.00	0.00	0.00	0.00	Design
D1	-0.56	-0.59	0.00	0.00	0.00	0.00	Design
D2	-0.68	-0.72	0.00	0.00	0.00	0.00	Design
D3	-0.68	-0.72	0.00	0.00	0.00	0.00	Design
D4	-0.96	-1.01	0.00	0.00	0.00	0.00	Design
D5	-0.68	-0.72	0.00	0.00	0.00	0.00	Design
D6	2.69	2.84	0.00	0.00	0.00	0.00	Design
D7	-0.65	-0.69	0.00	0.00	0.00	0.00	Design
D8	-0.65	-0.69	0.00	0.00	0.00	0.00	Design
D9	1.88	1.98	0.00	0.00	0.00	0.00	Design
D10	1.88	1.98	0.00	0.00	0.00	0.00	Design
D11	1.78	1.88	0.00	0.00	0.00	0.00	Design
D12	-3.09	-3.26	0.00	0.00	0.00	0.00	Design
D13	1.20	1.27	0.00	0.00	0.00	0.00	Design
D14	1.20	1.27	0.00	0.00	0.00	0.00	Design
D15	-2.45	-2.59	0.00	0.00	0.00	0.00	Design
D16	-2.45	-2.59	0.00	0.00	0.00	0.00	Design
D17	-0.96	-1.01	0.00	0.00	0.00	0.00	Design
D18	-1.09	-1.15	0.00	0.00	0.00	0.00	Design
D19	2.29	2.41	0.00	0.00	0.00	0.00	Design
D20	-1.06	-1.12	0.00	0.00	0.00	0.00	Design
D21	-1.06	-1.12	0.00	0.00	0.00	0.00	Design
D22	1.47	1.56	0.00	0.00	0.00	0.00	Design
D23	1.47	1.56	0.00	0.00	0.00	0.00	Design
D24	1.38	1.46	0.00	0.00	0.00	0.00	Design
D25	-3.49	-3.69	0.00	0.00	0.00	0.00	Design
D26	0.79	0.84	0.00	0.00	0.00	0.00	Design
D27	0.79	0.84	0.00	0.00	0.00	0.00	Design
D28	-2.86	-3.02	0.00	0.00	0.00	0.00	Design
D29	-2.86	-3.02	0.00	0.00	0.00	0.00	Design
D30	-0.94	-0.99	0.00	0.00	0.00	0.00	Design
D31	5.81	6.14	0.00	0.00	0.00	0.00	Design
D32	-0.87	-0.92	0.00	0.00	0.00	0.00	Design
D33	-0.87	-0.92	0.00	0.00	0.00	0.00	Design
D34	4.19	4.42	0.00	0.00	0.00	0.00	Design
D35	4.19	4.42	0.00	0.00	0.00	0.00	Design
D36	3.99	4.22	0.00	0.00	0.00	0.00	Design
D37	-5.74	-6.07	0.00	0.00	0.00	0.00	Design

D38	2.83	2.99	0.00	0.00	0.00	0.00	Design
D39	2.83	2.99	0.00	0.00	0.00	0.00	Design
D40	-4.48	-4.73	0.00	0.00	0.00	0.00	Design
D41	-4.48	-4.73	0.00	0.00	0.00	0.00	Design
D42	-0.81	-0.86	0.00	0.00	0.00	0.00	Design
D43	5.94	6.27	0.00	0.00	0.00	0.00	Design
D44	-0.75	-0.79	0.00	0.00	0.00	0.00	Design
D45	-0.75	-0.79	0.00	0.00	0.00	0.00	Design
D46	4.31	4.56	0.00	0.00	0.00	0.00	Design
D47	4.31	4.56	0.00	0.00	0.00	0.00	Design
D48	4.12	4.35	0.00	0.00	0.00	0.00	Design
D49	-5.62	-5.93	0.00	0.00	0.00	0.00	Design
D50	2.95	3.12	0.00	0.00	0.00	0.00	Design
D51	2.95	3.12	0.00	0.00	0.00	0.00	Design
D52	-4.35	-4.60	0.00	0.00	0.00	0.00	Design
D53	-4.35	-4.60	0.00	0.00	0.00	0.00	Design
D54	-0.94	-0.99	0.00	0.00	0.00	0.00	Design
D55	5.81	6.14	0.00	0.00	0.00	0.00	Design
D56	-0.87	-0.92	0.00	0.00	0.00	0.00	Design
D57	-0.87	-0.92	0.00	0.00	0.00	0.00	Design
D58	4.19	4.42	0.00	0.00	0.00	0.00	Design
D59	4.19	4.42	0.00	0.00	0.00	0.00	Design
D60	3.99	4.22	0.00	0.00	0.00	0.00	Design
D61	-5.74	-6.07	0.00	0.00	0.00	0.00	Design
D62	2.83	2.99	0.00	0.00	0.00	0.00	Design
D63	2.83	2.99	0.00	0.00	0.00	0.00	Design
D64	-4.48	-4.73	0.00	0.00	0.00	0.00	Design
D65	-4.48	-4.73	0.00	0.00	0.00	0.00	Design
D66	-0.61	-0.64	0.00	0.00	0.00	0.00	Design
D67	-0.57	-0.61	0.00	0.00	0.00	0.00	Design
D68	-0.57	-0.61	0.00	0.00	0.00	0.00	Design
D69	0.37	0.39	0.00	0.00	0.00	0.00	Design
D70	0.37	0.39	0.00	0.00	0.00	0.00	Design
D71	-0.61	-0.64	0.00	0.00	0.00	0.00	Design
D72	-0.63	-0.66	0.00	0.00	0.00	0.00	Design
D73	-0.63	-0.66	0.00	0.00	0.00	0.00	Design
D74	0.32	0.34	0.00	0.00	0.00	0.00	Design
D75	0.32	0.34	0.00	0.00	0.00	0.00	Design
D76	-0.57	-0.61	0.00	0.00	0.00	0.00	Design
D77	-0.57	-0.61	0.00	0.00	0.00	0.00	Design
D78	0.37	0.39	0.00	0.00	0.00	0.00	Design
D79	0.37	0.39	0.00	0.00	0.00	0.00	Design
D80	-0.63	-0.66	0.00	0.00	0.00	0.00	Design
D81	-0.63	-0.66	0.00	0.00	0.00	0.00	Design
D82	0.32	0.34	0.00	0.00	0.00	0.00	Design
D83	0.32	0.34	0.00	0.00	0.00	0.00	Design
D84	-0.44	-0.46	0.00	0.00	0.00	0.00	Design
D85	-0.44	-0.46	0.00	0.00	0.00	0.00	Design
D86	0.51	0.54	0.00	0.00	0.00	0.00	Design
D87	0.51	0.54	0.00	0.00	0.00	0.00	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Gusset						
Weld size	[1/16in]	4	3	4	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Gusset						
Beam yielding (normal stress)	[Kip]	145.41	7.59	C71	0.05	Eq. B-1, Appendix B, DG29
Shear yielding	[Kip]	96.94	7.19	C71	0.07	Eq. J4-3
Gusset edge tension stress	[Kip/in2]	32.40	1.69	C71	0.05	Eq. B-1, Appendix B, DG29
Gusset edge shear stress	[Kip/in2]	21.60	1.60	C71	0.07	J4-1
Weld capacity	[Kip]	174.53	13.07	C71	0.07	Tables 8-4 .. 8-11

Chord

Weld block shear	[Kip]	151.56	7.19	C71	0.05	Eq. J4-5
Web crippling	[Kip]	66.28	7.59	C71	0.11	Eq. B-1, Appendix B, DG29
Local web yielding	[Kip]	158.76	7.59	C71	0.05	Eq. B-1, Appendix B, DG29
Transverse section web yielding	[Kip]	94.53	7.59	C71	0.08	Eq. G2-1

Ratio**0.11**

Interface Upper left gusset - column
Connection: Single plate

Demands

Description	Beam		Column			Load type
	Ru [kip]	Pu [kip]	Pu [kip]	Mu22 [kip*ft]	Mu33 [kip*ft]	
dl	-0.88	-0.18	-20.42	0.00	0.00	Design
lln	0.00	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	0.00	Design
llrn	0.00	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	0.00	Design
Sp	-0.53	-0.11	-9.11	0.00	0.00	Design
Sn	0.05	0.01	0.54	0.00	0.00	Design
Wind	-0.49	-0.10	-0.76	0.00	0.00	Design
Wind1	12.33	2.50	19.25	0.00	0.00	Design
Wind2	-0.36	-0.07	-0.57	0.00	0.00	Design
Wind3	-0.36	-0.07	-0.57	0.00	0.00	Design
Wind4	9.24	1.88	14.43	0.00	0.00	Design
Wind5	9.24	1.88	14.43	0.00	0.00	Design
Wind6	8.88	1.80	13.87	0.00	0.00	Design
Wind7	-9.61	-1.95	-15.00	0.00	0.00	Design
Wind8	6.66	1.35	10.40	0.00	0.00	Design
Wind9	6.66	1.35	10.40	0.00	0.00	Design
Wind10	-7.21	-1.46	-11.25	0.00	0.00	Design
Wind11	-7.21	-1.46	-11.25	0.00	0.00	Design
Seismic_Xp	-0.04	-0.01	-0.06	0.00	0.00	Design
Seismic_Xm	-0.04	-0.01	-0.06	0.00	0.00	Design
Seismic_Yp	1.76	0.36	2.75	0.00	0.00	Design
Seismic_Ym	1.76	0.36	2.75	0.00	0.00	Design
COR	0.00	0.00	0.00	0.00	0.00	Design
Virtual_Work	0.00	0.00	0.00	0.00	0.00	Design
C1	-1.23	-0.25	-28.59	0.00	0.00	Design
C2	-1.32	-0.27	-29.06	0.00	0.00	Design
C3	-1.03	-0.21	-24.24	0.00	0.00	Design
C4	-1.05	-0.21	-24.51	0.00	0.00	Design
C5	-1.05	-0.21	-24.51	0.00	0.00	Design
C6	-1.90	-0.39	-39.08	0.00	0.00	Design
C7	-0.98	-0.20	-23.65	0.00	0.00	Design
C8	-1.90	-0.39	-39.08	0.00	0.00	Design
C9	-0.98	-0.20	-23.65	0.00	0.00	Design
C10	-2.14	-0.43	-39.46	0.00	0.00	Design
C11	4.26	0.87	-29.46	0.00	0.00	Design
C12	-2.08	-0.42	-39.37	0.00	0.00	Design
C13	-2.08	-0.42	-39.37	0.00	0.00	Design
C14	2.72	0.55	-31.87	0.00	0.00	Design
C15	2.72	0.55	-31.87	0.00	0.00	Design
C16	2.54	0.52	-32.15	0.00	0.00	Design
C17	-6.70	-1.36	-46.58	0.00	0.00	Design
C18	1.43	0.29	-33.88	0.00	0.00	Design
C19	1.43	0.29	-33.88	0.00	0.00	Design
C20	-5.50	-1.12	-44.71	0.00	0.00	Design
C21	-5.50	-1.12	-44.71	0.00	0.00	Design
C22	-1.66	-0.34	-38.71	0.00	0.00	Design
C23	-8.06	-1.64	-48.71	0.00	0.00	Design
C24	-1.72	-0.35	-38.80	0.00	0.00	Design

C25	-1.72	-0.35	-38.80	0.00	0.00	Design
C26	-6.52	-1.32	-46.30	0.00	0.00	Design
C27	-6.52	-1.32	-46.30	0.00	0.00	Design
C28	-6.34	-1.29	-46.02	0.00	0.00	Design
C29	2.91	0.59	-31.58	0.00	0.00	Design
C30	-5.23	-1.06	-44.28	0.00	0.00	Design
C31	-5.23	-1.06	-44.28	0.00	0.00	Design
C32	1.70	0.35	-33.46	0.00	0.00	Design
C33	1.70	0.35	-33.46	0.00	0.00	Design
C34	-1.22	-0.25	-24.03	0.00	0.00	Design
C35	5.18	1.05	-14.03	0.00	0.00	Design
C36	-1.16	-0.24	-23.93	0.00	0.00	Design
C37	-1.16	-0.24	-23.93	0.00	0.00	Design
C38	3.64	0.74	-16.43	0.00	0.00	Design
C39	3.64	0.74	-16.43	0.00	0.00	Design
C40	3.46	0.70	-16.71	0.00	0.00	Design
C41	-5.78	-1.17	-31.15	0.00	0.00	Design
C42	2.35	0.48	-18.45	0.00	0.00	Design
C43	2.35	0.48	-18.45	0.00	0.00	Design
C44	-4.58	-0.93	-29.27	0.00	0.00	Design
C45	-4.58	-0.93	-29.27	0.00	0.00	Design
C46	-0.74	-0.15	-23.27	0.00	0.00	Design
C47	-7.14	-1.45	-33.27	0.00	0.00	Design
C48	-0.80	-0.16	-23.37	0.00	0.00	Design
C49	-0.80	-0.16	-23.37	0.00	0.00	Design
C50	-5.60	-1.14	-30.87	0.00	0.00	Design
C51	-5.60	-1.14	-30.87	0.00	0.00	Design
C52	-5.42	-1.10	-30.58	0.00	0.00	Design
C53	3.82	0.78	-16.15	0.00	0.00	Design
C54	-4.31	-0.88	-28.85	0.00	0.00	Design
C55	-4.31	-0.88	-28.85	0.00	0.00	Design
C56	2.62	0.53	-18.02	0.00	0.00	Design
C57	2.62	0.53	-18.02	0.00	0.00	Design
C58	-1.80	-0.37	-29.82	0.00	0.00	Design
C59	11.01	2.24	-9.81	0.00	0.00	Design
C60	-1.68	-0.34	-29.63	0.00	0.00	Design
C61	-1.68	-0.34	-29.63	0.00	0.00	Design
C62	7.93	1.61	-14.63	0.00	0.00	Design
C63	7.93	1.61	-14.63	0.00	0.00	Design
C64	7.56	1.54	-15.19	0.00	0.00	Design
C65	-10.93	-2.22	-44.06	0.00	0.00	Design
C66	5.34	1.08	-18.66	0.00	0.00	Design
C67	5.34	1.08	-18.66	0.00	0.00	Design
C68	-8.52	-1.73	-40.31	0.00	0.00	Design
C69	-8.52	-1.73	-40.31	0.00	0.00	Design
C70	-0.83	-0.17	-28.31	0.00	0.00	Design
C71	-13.64	-2.77	-48.31	0.00	0.00	Design
C72	-0.95	-0.19	-28.49	0.00	0.00	Design
C73	-0.95	-0.19	-28.49	0.00	0.00	Design
C74	-10.56	-2.14	-43.50	0.00	0.00	Design
C75	-10.56	-2.14	-43.50	0.00	0.00	Design
C76	-10.20	-2.07	-42.93	0.00	0.00	Design
C77	8.29	1.68	-14.06	0.00	0.00	Design
C78	-7.98	-1.62	-39.46	0.00	0.00	Design
C79	-7.98	-1.62	-39.46	0.00	0.00	Design
C80	5.89	1.20	-17.81	0.00	0.00	Design
C81	5.89	1.20	-17.81	0.00	0.00	Design
C82	-1.52	-0.31	-24.99	0.00	0.00	Design
C83	11.29	2.29	-4.99	0.00	0.00	Design
C84	-1.40	-0.28	-24.80	0.00	0.00	Design
C85	-1.40	-0.28	-24.80	0.00	0.00	Design
C86	8.21	1.67	-9.80	0.00	0.00	Design
C87	8.21	1.67	-9.80	0.00	0.00	Design
C88	7.85	1.59	-10.37	0.00	0.00	Design
C89	-10.64	-2.16	-39.24	0.00	0.00	Design
C90	5.63	1.14	-13.84	0.00	0.00	Design
C91	5.63	1.14	-13.84	0.00	0.00	Design
C92	-8.24	-1.67	-35.49	0.00	0.00	Design
C93	-8.24	-1.67	-35.49	0.00	0.00	Design
C94	-0.55	-0.11	-23.48	0.00	0.00	Design
C95	-13.36	-2.71	-43.48	0.00	0.00	Design
C96	-0.67	-0.14	-23.67	0.00	0.00	Design
C97	-0.67	-0.14	-23.67	0.00	0.00	Design
C98	-10.28	-2.09	-38.67	0.00	0.00	Design
C99	-10.28	-2.09	-38.67	0.00	0.00	Design
C100	-9.91	-2.01	-38.11	0.00	0.00	Design
C101	8.58	1.74	-9.24	0.00	0.00	Design

C102	-7.69	-1.56	-34.64	0.00	0.00	Design
C103	-7.69	-1.56	-34.64	0.00	0.00	Design
C104	6.18	1.25	-12.99	0.00	0.00	Design
C105	6.18	1.25	-12.99	0.00	0.00	Design
C106	-1.54	-0.31	-25.26	0.00	0.00	Design
C107	11.27	2.29	-5.26	0.00	0.00	Design
C108	-1.42	-0.29	-25.07	0.00	0.00	Design
C109	-1.42	-0.29	-25.07	0.00	0.00	Design
C110	8.19	1.66	-10.07	0.00	0.00	Design
C111	8.19	1.66	-10.07	0.00	0.00	Design
C112	7.83	1.59	-10.64	0.00	0.00	Design
C113	-10.66	-2.17	-39.51	0.00	0.00	Design
C114	5.61	1.14	-14.10	0.00	0.00	Design
C115	5.61	1.14	-14.10	0.00	0.00	Design
C116	-8.26	-1.68	-35.76	0.00	0.00	Design
C117	-8.26	-1.68	-35.76	0.00	0.00	Design
C118	-0.57	-0.12	-23.75	0.00	0.00	Design
C119	-13.38	-2.72	-43.75	0.00	0.00	Design
C120	-0.69	-0.14	-23.94	0.00	0.00	Design
C121	-0.69	-0.14	-23.94	0.00	0.00	Design
C122	-10.30	-2.09	-38.94	0.00	0.00	Design
C123	-10.30	-2.09	-38.94	0.00	0.00	Design
C124	-9.94	-2.02	-38.37	0.00	0.00	Design
C125	8.55	1.74	-9.50	0.00	0.00	Design
C126	-7.71	-1.57	-34.91	0.00	0.00	Design
C127	-7.71	-1.57	-34.91	0.00	0.00	Design
C128	6.15	1.25	-13.25	0.00	0.00	Design
C129	6.15	1.25	-13.25	0.00	0.00	Design
C130	-1.54	-0.31	-25.26	0.00	0.00	Design
C131	11.27	2.29	-5.26	0.00	0.00	Design
C132	-1.42	-0.29	-25.07	0.00	0.00	Design
C133	-1.42	-0.29	-25.07	0.00	0.00	Design
C134	8.19	1.66	-10.07	0.00	0.00	Design
C135	8.19	1.66	-10.07	0.00	0.00	Design
C136	7.83	1.59	-10.64	0.00	0.00	Design
C137	-10.66	-2.17	-39.51	0.00	0.00	Design
C138	5.61	1.14	-14.10	0.00	0.00	Design
C139	5.61	1.14	-14.10	0.00	0.00	Design
C140	-8.26	-1.68	-35.76	0.00	0.00	Design
C141	-8.26	-1.68	-35.76	0.00	0.00	Design
C142	-0.57	-0.12	-23.75	0.00	0.00	Design
C143	-13.38	-2.72	-43.75	0.00	0.00	Design
C144	-0.69	-0.14	-23.94	0.00	0.00	Design
C145	-0.69	-0.14	-23.94	0.00	0.00	Design
C146	-10.30	-2.09	-38.94	0.00	0.00	Design
C147	-10.30	-2.09	-38.94	0.00	0.00	Design
C148	-9.94	-2.02	-38.37	0.00	0.00	Design
C149	8.55	1.74	-9.50	0.00	0.00	Design
C150	-7.71	-1.57	-34.91	0.00	0.00	Design
C151	-7.71	-1.57	-34.91	0.00	0.00	Design
C152	6.15	1.25	-13.25	0.00	0.00	Design
C153	6.15	1.25	-13.25	0.00	0.00	Design
C154	-1.80	-0.37	-29.82	0.00	0.00	Design
C155	11.01	2.24	-9.81	0.00	0.00	Design
C156	-1.68	-0.34	-29.63	0.00	0.00	Design
C157	-1.68	-0.34	-29.63	0.00	0.00	Design
C158	7.93	1.61	-14.63	0.00	0.00	Design
C159	7.93	1.61	-14.63	0.00	0.00	Design
C160	7.56	1.54	-15.19	0.00	0.00	Design
C161	-10.93	-2.22	-44.06	0.00	0.00	Design
C162	5.34	1.08	-18.66	0.00	0.00	Design
C163	5.34	1.08	-18.66	0.00	0.00	Design
C164	-8.52	-1.73	-40.31	0.00	0.00	Design
C165	-8.52	-1.73	-40.31	0.00	0.00	Design
C166	-0.83	-0.17	-28.31	0.00	0.00	Design
C167	-13.64	-2.77	-48.31	0.00	0.00	Design
C168	-0.95	-0.19	-28.49	0.00	0.00	Design
C169	-0.95	-0.19	-28.49	0.00	0.00	Design
C170	-10.56	-2.14	-43.50	0.00	0.00	Design
C171	-10.56	-2.14	-43.50	0.00	0.00	Design
C172	-10.20	-2.07	-42.93	0.00	0.00	Design
C173	8.29	1.68	-14.06	0.00	0.00	Design
C174	-7.98	-1.62	-39.46	0.00	0.00	Design
C175	-7.98	-1.62	-39.46	0.00	0.00	Design
C176	5.89	1.20	-17.81	0.00	0.00	Design
C177	5.89	1.20	-17.81	0.00	0.00	Design
C178	-1.52	-0.31	-24.99	0.00	0.00	Design

C179	11.29	2.29	-4.99	0.00	0.00	Design
C180	-1.40	-0.28	-24.80	0.00	0.00	Design
C181	-1.40	-0.28	-24.80	0.00	0.00	Design
C182	8.21	1.67	-9.80	0.00	0.00	Design
C183	8.21	1.67	-9.80	0.00	0.00	Design
C184	7.85	1.59	-10.37	0.00	0.00	Design
C185	-10.64	-2.16	-39.24	0.00	0.00	Design
C186	5.63	1.14	-13.84	0.00	0.00	Design
C187	5.63	1.14	-13.84	0.00	0.00	Design
C188	-8.24	-1.67	-35.49	0.00	0.00	Design
C189	-8.24	-1.67	-35.49	0.00	0.00	Design
C190	-0.55	-0.11	-23.48	0.00	0.00	Design
C191	-13.36	-2.71	-43.48	0.00	0.00	Design
C192	-0.67	-0.14	-23.67	0.00	0.00	Design
C193	-0.67	-0.14	-23.67	0.00	0.00	Design
C194	-10.28	-2.09	-38.67	0.00	0.00	Design
C195	-10.28	-2.09	-38.67	0.00	0.00	Design
C196	-9.91	-2.01	-38.11	0.00	0.00	Design
C197	8.58	1.74	-9.24	0.00	0.00	Design
C198	-7.69	-1.56	-34.64	0.00	0.00	Design
C199	-7.69	-1.56	-34.64	0.00	0.00	Design
C200	6.18	1.25	-12.99	0.00	0.00	Design
C201	6.18	1.25	-12.99	0.00	0.00	Design
C202	-1.54	-0.31	-25.26	0.00	0.00	Design
C203	11.27	2.29	-5.26	0.00	0.00	Design
C204	-1.42	-0.29	-25.07	0.00	0.00	Design
C205	-1.42	-0.29	-25.07	0.00	0.00	Design
C206	8.19	1.66	-10.07	0.00	0.00	Design
C207	8.19	1.66	-10.07	0.00	0.00	Design
C208	7.83	1.59	-10.64	0.00	0.00	Design
C209	-10.66	-2.17	-39.51	0.00	0.00	Design
C210	5.61	1.14	-14.10	0.00	0.00	Design
C211	5.61	1.14	-14.10	0.00	0.00	Design
C212	-8.26	-1.68	-35.76	0.00	0.00	Design
C213	-8.26	-1.68	-35.76	0.00	0.00	Design
C214	-0.57	-0.12	-23.75	0.00	0.00	Design
C215	-13.38	-2.72	-43.75	0.00	0.00	Design
C216	-0.69	-0.14	-23.94	0.00	0.00	Design
C217	-0.69	-0.14	-23.94	0.00	0.00	Design
C218	-10.30	-2.09	-38.94	0.00	0.00	Design
C219	-10.30	-2.09	-38.94	0.00	0.00	Design
C220	-9.94	-2.02	-38.37	0.00	0.00	Design
C221	8.55	1.74	-9.50	0.00	0.00	Design
C222	-7.71	-1.57	-34.91	0.00	0.00	Design
C223	-7.71	-1.57	-34.91	0.00	0.00	Design
C224	6.15	1.25	-13.25	0.00	0.00	Design
C225	6.15	1.25	-13.25	0.00	0.00	Design
C226	-1.28	-0.26	-19.14	0.00	0.00	Design
C227	11.53	2.34	0.87	0.00	0.00	Design
C228	-1.16	-0.23	-18.95	0.00	0.00	Design
C229	-1.16	-0.23	-18.95	0.00	0.00	Design
C230	8.45	1.72	-3.94	0.00	0.00	Design
C231	8.45	1.72	-3.94	0.00	0.00	Design
C232	8.09	1.64	-4.51	0.00	0.00	Design
C233	-10.40	-2.11	-33.38	0.00	0.00	Design
C234	5.87	1.19	-7.98	0.00	0.00	Design
C235	5.87	1.19	-7.98	0.00	0.00	Design
C236	-8.00	-1.62	-29.63	0.00	0.00	Design
C237	-8.00	-1.62	-29.63	0.00	0.00	Design
C238	-0.31	-0.06	-17.62	0.00	0.00	Design
C239	-13.12	-2.66	-37.63	0.00	0.00	Design
C240	-0.43	-0.09	-17.81	0.00	0.00	Design
C241	-0.43	-0.09	-17.81	0.00	0.00	Design
C242	-10.04	-2.04	-32.81	0.00	0.00	Design
C243	-10.04	-2.04	-32.81	0.00	0.00	Design
C244	-9.67	-1.96	-32.25	0.00	0.00	Design
C245	8.82	1.79	-3.38	0.00	0.00	Design
C246	-7.45	-1.51	-28.78	0.00	0.00	Design
C247	-7.45	-1.51	-28.78	0.00	0.00	Design
C248	6.42	1.30	-7.13	0.00	0.00	Design
C249	6.42	1.30	-7.13	0.00	0.00	Design
C250	-1.48	-0.30	-31.37	0.00	0.00	Design
C251	-1.48	-0.30	-31.37	0.00	0.00	Design
C252	0.32	0.06	-28.57	0.00	0.00	Design
C253	0.32	0.06	-28.57	0.00	0.00	Design
C254	-1.41	-0.29	-31.26	0.00	0.00	Design
C255	-1.41	-0.29	-31.26	0.00	0.00	Design

C256	-3.20	-0.65	-34.06	0.00	0.00	Design
C257	-3.20	-0.65	-34.06	0.00	0.00	Design
C258	-1.08	-0.22	-24.62	0.00	0.00	Design
C259	-1.08	-0.22	-24.62	0.00	0.00	Design
C260	0.72	0.15	-21.82	0.00	0.00	Design
C261	0.72	0.15	-21.82	0.00	0.00	Design
C262	-1.00	-0.20	-24.51	0.00	0.00	Design
C263	-1.00	-0.20	-24.51	0.00	0.00	Design
C264	-2.80	-0.57	-27.31	0.00	0.00	Design
C265	-2.80	-0.57	-27.31	0.00	0.00	Design
C266	-1.11	-0.23	-24.99	0.00	0.00	Design
C267	-1.11	-0.23	-24.99	0.00	0.00	Design
C268	0.69	0.14	-22.19	0.00	0.00	Design
C269	0.69	0.14	-22.19	0.00	0.00	Design
C270	-1.04	-0.21	-24.88	0.00	0.00	Design
C271	-1.04	-0.21	-24.88	0.00	0.00	Design
C272	-2.83	-0.58	-27.69	0.00	0.00	Design
C273	-2.83	-0.58	-27.69	0.00	0.00	Design
C274	-1.11	-0.23	-24.99	0.00	0.00	Design
C275	-1.11	-0.23	-24.99	0.00	0.00	Design
C276	0.69	0.14	-22.19	0.00	0.00	Design
C277	0.69	0.14	-22.19	0.00	0.00	Design
C278	-1.04	-0.21	-24.88	0.00	0.00	Design
C279	-1.04	-0.21	-24.88	0.00	0.00	Design
C280	-2.83	-0.58	-27.69	0.00	0.00	Design
C281	-2.83	-0.58	-27.69	0.00	0.00	Design
C282	-1.48	-0.30	-31.37	0.00	0.00	Design
C283	-1.48	-0.30	-31.37	0.00	0.00	Design
C284	0.32	0.06	-28.57	0.00	0.00	Design
C285	0.32	0.06	-28.57	0.00	0.00	Design
C286	-1.41	-0.29	-31.26	0.00	0.00	Design
C287	-1.41	-0.29	-31.26	0.00	0.00	Design
C288	-3.20	-0.65	-34.06	0.00	0.00	Design
C289	-3.20	-0.65	-34.06	0.00	0.00	Design
C290	-1.08	-0.22	-24.62	0.00	0.00	Design
C291	-1.08	-0.22	-24.62	0.00	0.00	Design
C292	0.72	0.15	-21.82	0.00	0.00	Design
C293	0.72	0.15	-21.82	0.00	0.00	Design
C294	-1.00	-0.20	-24.51	0.00	0.00	Design
C295	-1.00	-0.20	-24.51	0.00	0.00	Design
C296	-2.80	-0.57	-27.31	0.00	0.00	Design
C297	-2.80	-0.57	-27.31	0.00	0.00	Design
C298	-1.11	-0.23	-24.99	0.00	0.00	Design
C299	-1.11	-0.23	-24.99	0.00	0.00	Design
C300	0.69	0.14	-22.19	0.00	0.00	Design
C301	0.69	0.14	-22.19	0.00	0.00	Design
C302	-1.04	-0.21	-24.88	0.00	0.00	Design
C303	-1.04	-0.21	-24.88	0.00	0.00	Design
C304	-2.83	-0.58	-27.69	0.00	0.00	Design
C305	-2.83	-0.58	-27.69	0.00	0.00	Design
C306	-0.81	-0.16	-18.00	0.00	0.00	Design
C307	-0.81	-0.16	-18.00	0.00	0.00	Design
C308	0.99	0.20	-15.20	0.00	0.00	Design
C309	0.99	0.20	-15.20	0.00	0.00	Design
C310	-0.74	-0.15	-17.89	0.00	0.00	Design
C311	-0.74	-0.15	-17.89	0.00	0.00	Design
C312	-2.53	-0.51	-20.69	0.00	0.00	Design
C313	-2.53	-0.51	-20.69	0.00	0.00	Design
D1	-1.05	-0.21	-24.51	0.00	0.00	Design
D2	-1.29	-0.26	-28.79	0.00	0.00	Design
D3	-1.29	-0.26	-28.79	0.00	0.00	Design
D4	-1.82	-0.37	-38.23	0.00	0.00	Design
D5	-1.30	-0.26	-24.88	0.00	0.00	Design
D6	5.11	1.04	-14.88	0.00	0.00	Design
D7	-1.24	-0.25	-24.79	0.00	0.00	Design
D8	-1.24	-0.25	-24.79	0.00	0.00	Design
D9	3.57	0.72	-17.29	0.00	0.00	Design
D10	3.57	0.72	-17.29	0.00	0.00	Design
D11	3.39	0.69	-17.57	0.00	0.00	Design
D12	-5.86	-1.19	-32.01	0.00	0.00	Design
D13	2.28	0.46	-19.31	0.00	0.00	Design
D14	2.28	0.46	-19.31	0.00	0.00	Design
D15	-4.66	-0.95	-30.13	0.00	0.00	Design
D16	-4.66	-0.95	-30.13	0.00	0.00	Design
D17	-1.82	-0.37	-38.23	0.00	0.00	Design
D18	-2.07	-0.42	-38.60	0.00	0.00	Design
D19	4.34	0.88	-28.60	0.00	0.00	Design

D20	-2.01	-0.41	-38.51	0.00	0.00	Design
D21	-2.01	-0.41	-38.51	0.00	0.00	Design
D22	2.80	0.57	-31.01	0.00	0.00	Design
D23	2.80	0.57	-31.01	0.00	0.00	Design
D24	2.62	0.53	-31.29	0.00	0.00	Design
D25	-6.63	-1.35	-45.73	0.00	0.00	Design
D26	1.51	0.31	-33.03	0.00	0.00	Design
D27	1.51	0.31	-33.03	0.00	0.00	Design
D28	-5.43	-1.10	-43.85	0.00	0.00	Design
D29	-5.43	-1.10	-43.85	0.00	0.00	Design
D30	-1.78	-0.36	-29.55	0.00	0.00	Design
D31	11.03	2.24	-9.55	0.00	0.00	Design
D32	-1.66	-0.34	-29.36	0.00	0.00	Design
D33	-1.66	-0.34	-29.36	0.00	0.00	Design
D34	7.95	1.61	-14.36	0.00	0.00	Design
D35	7.95	1.61	-14.36	0.00	0.00	Design
D36	7.59	1.54	-14.93	0.00	0.00	Design
D37	-10.90	-2.21	-43.80	0.00	0.00	Design
D38	5.37	1.09	-18.39	0.00	0.00	Design
D39	5.37	1.09	-18.39	0.00	0.00	Design
D40	-8.50	-1.73	-40.04	0.00	0.00	Design
D41	-8.50	-1.73	-40.04	0.00	0.00	Design
D42	-1.54	-0.31	-25.26	0.00	0.00	Design
D43	11.27	2.29	-5.26	0.00	0.00	Design
D44	-1.42	-0.29	-25.07	0.00	0.00	Design
D45	-1.42	-0.29	-25.07	0.00	0.00	Design
D46	8.19	1.66	-10.07	0.00	0.00	Design
D47	8.19	1.66	-10.07	0.00	0.00	Design
D48	7.83	1.59	-10.64	0.00	0.00	Design
D49	-10.66	-2.17	-39.51	0.00	0.00	Design
D50	5.61	1.14	-14.10	0.00	0.00	Design
D51	5.61	1.14	-14.10	0.00	0.00	Design
D52	-8.26	-1.68	-35.76	0.00	0.00	Design
D53	-8.26	-1.68	-35.76	0.00	0.00	Design
D54	-1.78	-0.36	-29.55	0.00	0.00	Design
D55	11.03	2.24	-9.55	0.00	0.00	Design
D56	-1.66	-0.34	-29.36	0.00	0.00	Design
D57	-1.66	-0.34	-29.36	0.00	0.00	Design
D58	7.95	1.61	-14.36	0.00	0.00	Design
D59	7.95	1.61	-14.36	0.00	0.00	Design
D60	7.59	1.54	-14.93	0.00	0.00	Design
D61	-10.90	-2.21	-43.80	0.00	0.00	Design
D62	5.37	1.09	-18.39	0.00	0.00	Design
D63	5.37	1.09	-18.39	0.00	0.00	Design
D64	-8.50	-1.73	-40.04	0.00	0.00	Design
D65	-8.50	-1.73	-40.04	0.00	0.00	Design
D66	-1.15	-0.23	-26.22	0.00	0.00	Design
D67	-1.09	-0.22	-24.56	0.00	0.00	Design
D68	-1.09	-0.22	-24.56	0.00	0.00	Design
D69	0.70	0.14	-21.76	0.00	0.00	Design
D70	0.70	0.14	-21.76	0.00	0.00	Design
D71	-1.15	-0.23	-26.22	0.00	0.00	Design
D72	-1.19	-0.24	-26.28	0.00	0.00	Design
D73	-1.19	-0.24	-26.28	0.00	0.00	Design
D74	0.61	0.12	-23.47	0.00	0.00	Design
D75	0.61	0.12	-23.47	0.00	0.00	Design
D76	-1.09	-0.22	-24.56	0.00	0.00	Design
D77	-1.09	-0.22	-24.56	0.00	0.00	Design
D78	0.70	0.14	-21.76	0.00	0.00	Design
D79	0.70	0.14	-21.76	0.00	0.00	Design
D80	-1.19	-0.24	-26.28	0.00	0.00	Design
D81	-1.19	-0.24	-26.28	0.00	0.00	Design
D82	0.61	0.12	-23.47	0.00	0.00	Design
D83	0.61	0.12	-23.47	0.00	0.00	Design
D84	-0.83	-0.17	-18.44	0.00	0.00	Design
D85	-0.83	-0.17	-18.44	0.00	0.00	Design
D86	0.97	0.20	-15.63	0.00	0.00	Design
D87	0.97	0.20	-15.63	0.00	0.00	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Shear plate						
Number of bolts		5	2	12	✓	p 10-102
Distance from the bolt line to the weld line	[in]	3.00	--	3.50	✓	p 10-102
Minimum plate or beam web thickness	[in]	0.25	--	0.44	✓	Table 10-9
Length	[in]	16.00	12.31	16.00	✓	p. 10-104
Thickness, precludes a punching failure of the HSS wall	[in]	0.25	--	--	✓	
Vertical edge distance	[in]	2.00	1.00	--	✓	Tables J3.4, J3.5
Horizontal edge distance	[in]	2.00	1.50	--	✓	p. 10-103
Vertical center-to-center spacing (pitch)	[in]	3.00	2.00	6.00	✓	Sec. J3.5
Beam						
Vertical edge distance	[in]	6.31	1.00	--	✓	Tables J3.4, J3.5
Horizontal edge distance	[in]	2.50	1.50	--	✓	p. 10-103
Support						
Maximum value of the specified yield stress	[Kip/in ²]	50.00	--	--	✓	
Yield stress to tensile stress ratio		0.77	--	0.80	✓	Table K2.1
Weld size	[1/16in]	4	3	--	✓	p. 10-87
Weld length	[in]	16.00	1.00	--	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Shear plate						
Bolts shear	[Kip]	81.81	13.92	C71	0.17	Tables (7-1..14)
Bolt bearing under shear load	[Kip]	89.46	13.64	C71	0.15	p. 7-18
Shear yielding	[Kip]	86.40	13.64	C71	0.16	Eq. J4-3
Shear rupture	[Kip]	75.85	13.64	C71	0.18	Eq. J4-4
Block shear	[Kip]	73.69	13.64	C71	0.19	Eq. J4-5
Bolt bearing under axial load	[Kip]	89.46	2.50	Wind1	0.03	p. 7-18
Tension yielding	[Kip]	129.60	2.50	Wind1	0.02	Eq. J4-1
Tension rupture	[Kip]	126.42	2.50	Wind1	0.02	Eq. J4-2
Tear out under axial load	[Kip]	108.64	2.50	Wind1	0.02	Eq. J4-5
Plate (support side)						
Weld capacity	[Kip]	186.10	13.92	C71	0.07	Tables 8-4 .. 8-11
Beam						
Bolt bearing under shear load	[Kip]	134.19	13.64	C71	0.10	p. 7-18
Shear yielding	[Kip]	199.44	13.64	C71	0.07	Eq. J4-3
Bolt bearing under axial load	[Kip]	146.81	2.50	Wind1	0.02	Eq. J3-6
Yielding strength due to axial load	[Kip]	299.16	2.50	Wind1	0.01	Eq. J4-1
Tension rupture	[Kip]	330.28	2.50	Wind1	0.01	Eq. J4-2
Tear out under axial load	[Kip]	169.03	2.50	Wind1	0.01	Eq. J4-5
Support						
Welds rupture	[Kip/ft]	163.33	6.67	C71	0.04	p. 9-5
Punching shear (shear rupture)	[Kip]	290.37	13.64	C71	0.05	p. 10-153
HSS wall strength due out-of-plane transverse load	[Kip]	65.21	2.77	C71	0.04	p.9-16
Ratio		0.19				

Interface Left beam - column Connection: Single plate

Demands

Description	Beam		Column			Load type
	Ru [kip]	Pu [kip]	Pu [kip]	Mu22 [kip*ft]	Mu33 [kip*ft]	
dl	3.21	0.12	-20.42	0.00	0.00	Design
lln	0.00	0.00	0.00	0.00	0.00	Design
llp	0.00	0.00	0.00	0.00	0.00	Design
llrn	0.00	0.00	0.00	0.00	0.00	Design
llrp	0.00	0.00	0.00	0.00	0.00	Design
Sp	0.49	0.07	-9.11	0.00	0.00	Design
Sn	-0.03	-0.01	0.54	0.00	0.00	Design
Wind	0.27	0.10	-0.76	0.00	0.00	Design
Wind1	-6.86	-2.50	19.25	0.00	0.00	Design
Wind2	0.20	0.07	-0.57	0.00	0.00	Design
Wind3	0.20	0.07	-0.57	0.00	0.00	Design
Wind4	-5.14	-1.88	14.43	0.00	0.00	Design
Wind5	-5.14	-1.88	14.43	0.00	0.00	Design
Wind6	-4.94	-1.80	13.87	0.00	0.00	Design
Wind7	5.35	1.95	-15.00	0.00	0.00	Design
Wind8	-3.71	-1.35	10.40	0.00	0.00	Design
Wind9	-3.71	-1.35	10.40	0.00	0.00	Design
Wind10	4.01	1.46	-11.25	0.00	0.00	Design
Wind11	4.01	1.46	-11.25	0.00	0.00	Design
Seismic_Xp	0.02	0.01	-0.06	0.00	0.00	Design
Seismic_Xm	0.02	0.01	-0.06	0.00	0.00	Design
Seismic_Yp	-0.98	-0.36	2.75	0.00	0.00	Design
Seismic_Ym	-0.98	-0.36	2.75	0.00	0.00	Design
COR	0.00	0.00	0.00	0.00	0.00	Design
Virtual_Work	0.00	0.00	0.00	0.00	0.00	Design
C1	4.49	0.17	-28.59	0.00	0.00	Design
C2	4.10	0.18	-29.06	0.00	0.00	Design
C3	3.84	0.14	-24.24	0.00	0.00	Design
C4	3.85	0.14	-24.51	0.00	0.00	Design
C5	3.85	0.14	-24.51	0.00	0.00	Design
C6	4.64	0.26	-39.08	0.00	0.00	Design
C7	3.81	0.13	-23.65	0.00	0.00	Design
C8	4.64	0.26	-39.08	0.00	0.00	Design
C9	3.81	0.13	-23.65	0.00	0.00	Design
C10	4.77	0.31	-39.46	0.00	0.00	Design
C11	1.21	-0.99	-29.46	0.00	0.00	Design
C12	4.74	0.30	-39.37	0.00	0.00	Design
C13	4.74	0.30	-39.37	0.00	0.00	Design
C14	2.07	-0.68	-31.87	0.00	0.00	Design
C15	2.07	-0.68	-31.87	0.00	0.00	Design
C16	2.17	-0.64	-32.15	0.00	0.00	Design
C17	7.31	1.24	-46.58	0.00	0.00	Design
C18	2.79	-0.41	-33.88	0.00	0.00	Design
C19	2.79	-0.41	-33.88	0.00	0.00	Design
C20	6.64	0.99	-44.71	0.00	0.00	Design
C21	6.64	0.99	-44.71	0.00	0.00	Design
C22	4.50	0.21	-38.71	0.00	0.00	Design
C23	8.07	1.51	-48.71	0.00	0.00	Design
C24	4.54	0.23	-38.80	0.00	0.00	Design
C25	4.54	0.23	-38.80	0.00	0.00	Design
C26	7.21	1.20	-46.30	0.00	0.00	Design
C27	7.21	1.20	-46.30	0.00	0.00	Design
C28	7.11	1.16	-46.02	0.00	0.00	Design
C29	1.97	-0.71	-31.58	0.00	0.00	Design
C30	6.49	0.94	-44.28	0.00	0.00	Design
C31	6.49	0.94	-44.28	0.00	0.00	Design
C32	2.63	-0.47	-33.46	0.00	0.00	Design
C33	2.63	-0.47	-33.46	0.00	0.00	Design
C34	3.94	0.18	-24.03	0.00	0.00	Design
C35	0.38	-1.12	-14.03	0.00	0.00	Design
C36	3.91	0.17	-23.93	0.00	0.00	Design
C37	3.91	0.17	-23.93	0.00	0.00	Design
C38	1.23	-0.81	-16.43	0.00	0.00	Design
C39	1.23	-0.81	-16.43	0.00	0.00	Design
C40	1.34	-0.77	-16.71	0.00	0.00	Design
C41	6.48	1.10	-31.15	0.00	0.00	Design
C42	1.95	-0.55	-18.45	0.00	0.00	Design
C43	1.95	-0.55	-18.45	0.00	0.00	Design
C44	5.81	0.86	-29.27	0.00	0.00	Design
C45	5.81	0.86	-29.27	0.00	0.00	Design
C46	3.67	0.08	-23.27	0.00	0.00	Design
C47	7.24	1.38	-33.27	0.00	0.00	Design
C48	3.71	0.09	-23.37	0.00	0.00	Design

C49	3.71	0.09	-23.37	0.00	0.00	Design
C50	6.38	1.07	-30.87	0.00	0.00	Design
C51	6.38	1.07	-30.87	0.00	0.00	Design
C52	6.28	1.03	-30.58	0.00	0.00	Design
C53	1.13	-0.85	-16.15	0.00	0.00	Design
C54	5.66	0.80	-28.85	0.00	0.00	Design
C55	5.66	0.80	-28.85	0.00	0.00	Design
C56	1.80	-0.60	-18.02	0.00	0.00	Design
C57	1.80	-0.60	-18.02	0.00	0.00	Design
C58	4.37	0.28	-29.82	0.00	0.00	Design
C59	-2.76	-2.32	-9.81	0.00	0.00	Design
C60	4.30	0.25	-29.63	0.00	0.00	Design
C61	4.30	0.25	-29.63	0.00	0.00	Design
C62	-1.05	-1.70	-14.63	0.00	0.00	Design
C63	-1.05	-1.70	-14.63	0.00	0.00	Design
C64	-0.85	-1.62	-15.19	0.00	0.00	Design
C65	9.44	2.13	-44.06	0.00	0.00	Design
C66	0.39	-1.17	-18.66	0.00	0.00	Design
C67	0.39	-1.17	-18.66	0.00	0.00	Design
C68	8.11	1.64	-40.31	0.00	0.00	Design
C69	8.11	1.64	-40.31	0.00	0.00	Design
C70	3.83	0.08	-28.31	0.00	0.00	Design
C71	10.95	2.68	-48.31	0.00	0.00	Design
C72	3.89	0.11	-28.49	0.00	0.00	Design
C73	3.89	0.11	-28.49	0.00	0.00	Design
C74	9.24	2.06	-43.50	0.00	0.00	Design
C75	9.24	2.06	-43.50	0.00	0.00	Design
C76	9.04	1.98	-42.93	0.00	0.00	Design
C77	-1.25	-1.77	-14.06	0.00	0.00	Design
C78	7.80	1.53	-39.46	0.00	0.00	Design
C79	7.80	1.53	-39.46	0.00	0.00	Design
C80	0.09	-1.28	-17.81	0.00	0.00	Design
C81	0.09	-1.28	-17.81	0.00	0.00	Design
C82	4.11	0.24	-24.99	0.00	0.00	Design
C83	-3.02	-2.36	-4.99	0.00	0.00	Design
C84	4.04	0.21	-24.80	0.00	0.00	Design
C85	4.04	0.21	-24.80	0.00	0.00	Design
C86	-1.31	-1.74	-9.80	0.00	0.00	Design
C87	-1.31	-1.74	-9.80	0.00	0.00	Design
C88	-1.11	-1.66	-10.37	0.00	0.00	Design
C89	9.18	2.09	-39.24	0.00	0.00	Design
C90	0.13	-1.21	-13.84	0.00	0.00	Design
C91	0.13	-1.21	-13.84	0.00	0.00	Design
C92	7.84	1.60	-35.49	0.00	0.00	Design
C93	7.84	1.60	-35.49	0.00	0.00	Design
C94	3.57	0.04	-23.48	0.00	0.00	Design
C95	10.69	2.64	-43.48	0.00	0.00	Design
C96	3.63	0.06	-23.67	0.00	0.00	Design
C97	3.63	0.06	-23.67	0.00	0.00	Design
C98	8.98	2.01	-38.67	0.00	0.00	Design
C99	8.98	2.01	-38.67	0.00	0.00	Design
C100	8.78	1.94	-38.11	0.00	0.00	Design
C101	-1.51	-1.81	-9.24	0.00	0.00	Design
C102	7.54	1.49	-34.64	0.00	0.00	Design
C103	7.54	1.49	-34.64	0.00	0.00	Design
C104	-0.17	-1.32	-12.99	0.00	0.00	Design
C105	-0.17	-1.32	-12.99	0.00	0.00	Design
C106	4.12	0.24	-25.26	0.00	0.00	Design
C107	-3.01	-2.36	-5.26	0.00	0.00	Design
C108	4.05	0.22	-25.07	0.00	0.00	Design
C109	4.05	0.22	-25.07	0.00	0.00	Design
C110	-1.30	-1.73	-10.07	0.00	0.00	Design
C111	-1.30	-1.73	-10.07	0.00	0.00	Design
C112	-1.09	-1.66	-10.64	0.00	0.00	Design
C113	9.19	2.09	-39.51	0.00	0.00	Design
C114	0.14	-1.21	-14.10	0.00	0.00	Design
C115	0.14	-1.21	-14.10	0.00	0.00	Design
C116	7.86	1.61	-35.76	0.00	0.00	Design
C117	7.86	1.61	-35.76	0.00	0.00	Design
C118	3.58	0.04	-23.75	0.00	0.00	Design
C119	10.71	2.64	-43.75	0.00	0.00	Design
C120	3.65	0.07	-23.94	0.00	0.00	Design
C121	3.65	0.07	-23.94	0.00	0.00	Design
C122	8.99	2.02	-38.94	0.00	0.00	Design
C123	8.99	2.02	-38.94	0.00	0.00	Design
C124	8.79	1.95	-38.37	0.00	0.00	Design
C125	-1.50	-1.81	-9.50	0.00	0.00	Design

C126	7.55	1.49	-34.91	0.00	0.00	Design
C127	7.55	1.49	-34.91	0.00	0.00	Design
C128	-0.16	-1.32	-13.25	0.00	0.00	Design
C129	-0.16	-1.32	-13.25	0.00	0.00	Design
C130	4.12	0.24	-25.26	0.00	0.00	Design
C131	-3.01	-2.36	-5.26	0.00	0.00	Design
C132	4.05	0.22	-25.07	0.00	0.00	Design
C133	4.05	0.22	-25.07	0.00	0.00	Design
C134	-1.30	-1.73	-10.07	0.00	0.00	Design
C135	-1.30	-1.73	-10.07	0.00	0.00	Design
C136	-1.09	-1.66	-10.64	0.00	0.00	Design
C137	9.19	2.09	-39.51	0.00	0.00	Design
C138	0.14	-1.21	-14.10	0.00	0.00	Design
C139	0.14	-1.21	-14.10	0.00	0.00	Design
C140	7.86	1.61	-35.76	0.00	0.00	Design
C141	7.86	1.61	-35.76	0.00	0.00	Design
C142	3.58	0.04	-23.75	0.00	0.00	Design
C143	10.71	2.64	-43.75	0.00	0.00	Design
C144	3.65	0.07	-23.94	0.00	0.00	Design
C145	3.65	0.07	-23.94	0.00	0.00	Design
C146	8.99	2.02	-38.94	0.00	0.00	Design
C147	8.99	2.02	-38.94	0.00	0.00	Design
C148	8.79	1.95	-38.37	0.00	0.00	Design
C149	-1.50	-1.81	-9.50	0.00	0.00	Design
C150	7.55	1.49	-34.91	0.00	0.00	Design
C151	7.55	1.49	-34.91	0.00	0.00	Design
C152	-0.16	-1.32	-13.25	0.00	0.00	Design
C153	-0.16	-1.32	-13.25	0.00	0.00	Design
C154	4.37	0.28	-29.82	0.00	0.00	Design
C155	-2.76	-2.32	-9.81	0.00	0.00	Design
C156	4.30	0.25	-29.63	0.00	0.00	Design
C157	4.30	0.25	-29.63	0.00	0.00	Design
C158	-1.05	-1.70	-14.63	0.00	0.00	Design
C159	-1.05	-1.70	-14.63	0.00	0.00	Design
C160	-0.85	-1.62	-15.19	0.00	0.00	Design
C161	9.44	2.13	-44.06	0.00	0.00	Design
C162	0.39	-1.17	-18.66	0.00	0.00	Design
C163	0.39	-1.17	-18.66	0.00	0.00	Design
C164	8.11	1.64	-40.31	0.00	0.00	Design
C165	8.11	1.64	-40.31	0.00	0.00	Design
C166	3.83	0.08	-28.31	0.00	0.00	Design
C167	10.95	2.68	-48.31	0.00	0.00	Design
C168	3.89	0.11	-28.49	0.00	0.00	Design
C169	3.89	0.11	-28.49	0.00	0.00	Design
C170	9.24	2.06	-43.50	0.00	0.00	Design
C171	9.24	2.06	-43.50	0.00	0.00	Design
C172	9.04	1.98	-42.93	0.00	0.00	Design
C173	-1.25	-1.77	-14.06	0.00	0.00	Design
C174	7.80	1.53	-39.46	0.00	0.00	Design
C175	7.80	1.53	-39.46	0.00	0.00	Design
C176	0.09	-1.28	-17.81	0.00	0.00	Design
C177	0.09	-1.28	-17.81	0.00	0.00	Design
C178	4.11	0.24	-24.99	0.00	0.00	Design
C179	-3.02	-2.36	-4.99	0.00	0.00	Design
C180	4.04	0.21	-24.80	0.00	0.00	Design
C181	4.04	0.21	-24.80	0.00	0.00	Design
C182	-1.31	-1.74	-9.80	0.00	0.00	Design
C183	-1.31	-1.74	-9.80	0.00	0.00	Design
C184	-1.11	-1.66	-10.37	0.00	0.00	Design
C185	9.18	2.09	-39.24	0.00	0.00	Design
C186	0.13	-1.21	-13.84	0.00	0.00	Design
C187	0.13	-1.21	-13.84	0.00	0.00	Design
C188	7.84	1.60	-35.49	0.00	0.00	Design
C189	7.84	1.60	-35.49	0.00	0.00	Design
C190	3.57	0.04	-23.48	0.00	0.00	Design
C191	10.69	2.64	-43.48	0.00	0.00	Design
C192	3.63	0.06	-23.67	0.00	0.00	Design
C193	3.63	0.06	-23.67	0.00	0.00	Design
C194	8.98	2.01	-38.67	0.00	0.00	Design
C195	8.98	2.01	-38.67	0.00	0.00	Design
C196	8.78	1.94	-38.11	0.00	0.00	Design
C197	-1.51	-1.81	-9.24	0.00	0.00	Design
C198	7.54	1.49	-34.64	0.00	0.00	Design
C199	7.54	1.49	-34.64	0.00	0.00	Design
C200	-0.17	-1.32	-12.99	0.00	0.00	Design
C201	-0.17	-1.32	-12.99	0.00	0.00	Design
C202	4.12	0.24	-25.26	0.00	0.00	Design

C203	-3.01	-2.36	-5.26	0.00	0.00	Design
C204	4.05	0.22	-25.07	0.00	0.00	Design
C205	4.05	0.22	-25.07	0.00	0.00	Design
C206	-1.30	-1.73	-10.07	0.00	0.00	Design
C207	-1.30	-1.73	-10.07	0.00	0.00	Design
C208	-1.09	-1.66	-10.64	0.00	0.00	Design
C209	9.19	2.09	-39.51	0.00	0.00	Design
C210	0.14	-1.21	-14.10	0.00	0.00	Design
C211	0.14	-1.21	-14.10	0.00	0.00	Design
C212	7.86	1.61	-35.76	0.00	0.00	Design
C213	7.86	1.61	-35.76	0.00	0.00	Design
C214	3.58	0.04	-23.75	0.00	0.00	Design
C215	10.71	2.64	-43.75	0.00	0.00	Design
C216	3.65	0.07	-23.94	0.00	0.00	Design
C217	3.65	0.07	-23.94	0.00	0.00	Design
C218	8.99	2.02	-38.94	0.00	0.00	Design
C219	8.99	2.02	-38.94	0.00	0.00	Design
C220	8.79	1.95	-38.37	0.00	0.00	Design
C221	-1.50	-1.81	-9.50	0.00	0.00	Design
C222	7.55	1.49	-34.91	0.00	0.00	Design
C223	7.55	1.49	-34.91	0.00	0.00	Design
C224	-0.16	-1.32	-13.25	0.00	0.00	Design
C225	-0.16	-1.32	-13.25	0.00	0.00	Design
C226	3.16	0.21	-19.14	0.00	0.00	Design
C227	-3.97	-2.39	0.87	0.00	0.00	Design
C228	3.09	0.18	-18.95	0.00	0.00	Design
C229	3.09	0.18	-18.95	0.00	0.00	Design
C230	-2.26	-1.77	-3.94	0.00	0.00	Design
C231	-2.26	-1.77	-3.94	0.00	0.00	Design
C232	-2.05	-1.69	-4.51	0.00	0.00	Design
C233	8.23	2.06	-33.38	0.00	0.00	Design
C234	-0.82	-1.24	-7.98	0.00	0.00	Design
C235	-0.82	-1.24	-7.98	0.00	0.00	Design
C236	6.90	1.57	-29.63	0.00	0.00	Design
C237	6.90	1.57	-29.63	0.00	0.00	Design
C238	2.62	0.01	-17.62	0.00	0.00	Design
C239	9.74	2.61	-37.63	0.00	0.00	Design
C240	2.68	0.03	-17.81	0.00	0.00	Design
C241	2.68	0.03	-17.81	0.00	0.00	Design
C242	8.03	1.98	-32.81	0.00	0.00	Design
C243	8.03	1.98	-32.81	0.00	0.00	Design
C244	7.83	1.91	-32.25	0.00	0.00	Design
C245	-2.46	-1.84	-3.38	0.00	0.00	Design
C246	6.59	1.46	-28.78	0.00	0.00	Design
C247	6.59	1.46	-28.78	0.00	0.00	Design
C248	-1.12	-1.35	-7.13	0.00	0.00	Design
C249	-1.12	-1.35	-7.13	0.00	0.00	Design
C250	4.28	0.21	-31.37	0.00	0.00	Design
C251	4.28	0.21	-31.37	0.00	0.00	Design
C252	3.28	-0.16	-28.57	0.00	0.00	Design
C253	3.28	-0.16	-28.57	0.00	0.00	Design
C254	4.24	0.19	-31.26	0.00	0.00	Design
C255	4.24	0.19	-31.26	0.00	0.00	Design
C256	5.24	0.56	-34.06	0.00	0.00	Design
C257	5.24	0.56	-34.06	0.00	0.00	Design
C258	3.92	0.15	-24.62	0.00	0.00	Design
C259	3.92	0.15	-24.62	0.00	0.00	Design
C260	2.92	-0.22	-21.82	0.00	0.00	Design
C261	2.92	-0.22	-21.82	0.00	0.00	Design
C262	3.88	0.13	-24.51	0.00	0.00	Design
C263	3.88	0.13	-24.51	0.00	0.00	Design
C264	4.88	0.50	-27.31	0.00	0.00	Design
C265	4.88	0.50	-27.31	0.00	0.00	Design
C266	3.94	0.15	-24.99	0.00	0.00	Design
C267	3.94	0.15	-24.99	0.00	0.00	Design
C268	2.94	-0.21	-22.19	0.00	0.00	Design
C269	2.94	-0.21	-22.19	0.00	0.00	Design
C270	3.90	0.14	-24.88	0.00	0.00	Design
C271	3.90	0.14	-24.88	0.00	0.00	Design
C272	4.90	0.50	-27.69	0.00	0.00	Design
C273	4.90	0.50	-27.69	0.00	0.00	Design
C274	3.94	0.15	-24.99	0.00	0.00	Design
C275	3.94	0.15	-24.99	0.00	0.00	Design
C276	2.94	-0.21	-22.19	0.00	0.00	Design
C277	2.94	-0.21	-22.19	0.00	0.00	Design
C278	3.90	0.14	-24.88	0.00	0.00	Design
C279	3.90	0.14	-24.88	0.00	0.00	Design

C280	4.90	0.50	-27.69	0.00	0.00	Design
C281	4.90	0.50	-27.69	0.00	0.00	Design
C282	4.28	0.21	-31.37	0.00	0.00	Design
C283	4.28	0.21	-31.37	0.00	0.00	Design
C284	3.28	-0.16	-28.57	0.00	0.00	Design
C285	3.28	-0.16	-28.57	0.00	0.00	Design
C286	4.24	0.19	-31.26	0.00	0.00	Design
C287	4.24	0.19	-31.26	0.00	0.00	Design
C288	5.24	0.56	-34.06	0.00	0.00	Design
C289	5.24	0.56	-34.06	0.00	0.00	Design
C290	3.92	0.15	-24.62	0.00	0.00	Design
C291	3.92	0.15	-24.62	0.00	0.00	Design
C292	2.92	-0.22	-21.82	0.00	0.00	Design
C293	2.92	-0.22	-21.82	0.00	0.00	Design
C294	3.88	0.13	-24.51	0.00	0.00	Design
C295	3.88	0.13	-24.51	0.00	0.00	Design
C296	4.88	0.50	-27.31	0.00	0.00	Design
C297	4.88	0.50	-27.31	0.00	0.00	Design
C298	3.94	0.15	-24.99	0.00	0.00	Design
C299	3.94	0.15	-24.99	0.00	0.00	Design
C300	2.94	-0.21	-22.19	0.00	0.00	Design
C301	2.94	-0.21	-22.19	0.00	0.00	Design
C302	3.90	0.14	-24.88	0.00	0.00	Design
C303	3.90	0.14	-24.88	0.00	0.00	Design
C304	4.90	0.50	-27.69	0.00	0.00	Design
C305	4.90	0.50	-27.69	0.00	0.00	Design
C306	2.84	0.11	-18.00	0.00	0.00	Design
C307	2.84	0.11	-18.00	0.00	0.00	Design
C308	1.84	-0.25	-15.20	0.00	0.00	Design
C309	1.84	-0.25	-15.20	0.00	0.00	Design
C310	2.80	0.10	-17.89	0.00	0.00	Design
C311	2.80	0.10	-17.89	0.00	0.00	Design
C312	3.80	0.46	-20.69	0.00	0.00	Design
C313	3.80	0.46	-20.69	0.00	0.00	Design
D1	3.85	0.14	-24.51	0.00	0.00	Design
D2	4.08	0.18	-28.79	0.00	0.00	Design
D3	4.08	0.18	-28.79	0.00	0.00	Design
D4	4.60	0.25	-38.23	0.00	0.00	Design
D5	3.98	0.19	-24.88	0.00	0.00	Design
D6	0.42	-1.11	-14.88	0.00	0.00	Design
D7	3.95	0.18	-24.79	0.00	0.00	Design
D8	3.95	0.18	-24.79	0.00	0.00	Design
D9	1.28	-0.79	-17.29	0.00	0.00	Design
D10	1.28	-0.79	-17.29	0.00	0.00	Design
D11	1.38	-0.76	-17.57	0.00	0.00	Design
D12	6.52	1.12	-32.01	0.00	0.00	Design
D13	2.00	-0.53	-19.31	0.00	0.00	Design
D14	2.00	-0.53	-19.31	0.00	0.00	Design
D15	5.85	0.87	-30.13	0.00	0.00	Design
D16	5.85	0.87	-30.13	0.00	0.00	Design
D17	4.60	0.25	-38.23	0.00	0.00	Design
D18	4.73	0.30	-38.60	0.00	0.00	Design
D19	1.17	-1.00	-28.60	0.00	0.00	Design
D20	4.70	0.28	-38.51	0.00	0.00	Design
D21	4.70	0.28	-38.51	0.00	0.00	Design
D22	2.03	-0.69	-31.01	0.00	0.00	Design
D23	2.03	-0.69	-31.01	0.00	0.00	Design
D24	2.13	-0.65	-31.29	0.00	0.00	Design
D25	7.27	1.22	-45.73	0.00	0.00	Design
D26	2.74	-0.43	-33.03	0.00	0.00	Design
D27	2.74	-0.43	-33.03	0.00	0.00	Design
D28	6.60	0.98	-43.85	0.00	0.00	Design
D29	6.60	0.98	-43.85	0.00	0.00	Design
D30	4.35	0.27	-29.55	0.00	0.00	Design
D31	-2.78	-2.33	-9.55	0.00	0.00	Design
D32	4.29	0.25	-29.36	0.00	0.00	Design
D33	4.29	0.25	-29.36	0.00	0.00	Design
D34	-1.06	-1.70	-14.36	0.00	0.00	Design
D35	-1.06	-1.70	-14.36	0.00	0.00	Design
D36	-0.86	-1.63	-14.93	0.00	0.00	Design
D37	9.43	2.13	-43.80	0.00	0.00	Design
D38	0.38	-1.18	-18.39	0.00	0.00	Design
D39	0.38	-1.18	-18.39	0.00	0.00	Design
D40	8.09	1.64	-40.04	0.00	0.00	Design
D41	8.09	1.64	-40.04	0.00	0.00	Design
D42	4.12	0.24	-25.26	0.00	0.00	Design
D43	-3.01	-2.36	-5.26	0.00	0.00	Design

D44	4.05	0.22	-25.07	0.00	0.00	Design
D45	4.05	0.22	-25.07	0.00	0.00	Design
D46	-1.30	-1.73	-10.07	0.00	0.00	Design
D47	-1.30	-1.73	-10.07	0.00	0.00	Design
D48	-1.09	-1.66	-10.64	0.00	0.00	Design
D49	9.19	2.09	-39.51	0.00	0.00	Design
D50	0.14	-1.21	-14.10	0.00	0.00	Design
D51	0.14	-1.21	-14.10	0.00	0.00	Design
D52	7.86	1.61	-35.76	0.00	0.00	Design
D53	7.86	1.61	-35.76	0.00	0.00	Design
D54	4.35	0.27	-29.55	0.00	0.00	Design
D55	-2.78	-2.33	-9.55	0.00	0.00	Design
D56	4.29	0.25	-29.36	0.00	0.00	Design
D57	4.29	0.25	-29.36	0.00	0.00	Design
D58	-1.06	-1.70	-14.36	0.00	0.00	Design
D59	-1.06	-1.70	-14.36	0.00	0.00	Design
D60	-0.86	-1.63	-14.93	0.00	0.00	Design
D61	9.43	2.13	-43.80	0.00	0.00	Design
D62	0.38	-1.18	-18.39	0.00	0.00	Design
D63	0.38	-1.18	-18.39	0.00	0.00	Design
D64	8.09	1.64	-40.04	0.00	0.00	Design
D65	8.09	1.64	-40.04	0.00	0.00	Design
D66	3.94	0.16	-26.22	0.00	0.00	Design
D67	3.87	0.15	-24.56	0.00	0.00	Design
D68	3.87	0.15	-24.56	0.00	0.00	Design
D69	2.87	-0.21	-21.76	0.00	0.00	Design
D70	2.87	-0.21	-21.76	0.00	0.00	Design
D71	3.94	0.16	-26.22	0.00	0.00	Design
D72	3.96	0.16	-26.28	0.00	0.00	Design
D73	3.96	0.16	-26.28	0.00	0.00	Design
D74	2.96	-0.20	-23.47	0.00	0.00	Design
D75	2.96	-0.20	-23.47	0.00	0.00	Design
D76	3.87	0.15	-24.56	0.00	0.00	Design
D77	3.87	0.15	-24.56	0.00	0.00	Design
D78	2.87	-0.21	-21.76	0.00	0.00	Design
D79	2.87	-0.21	-21.76	0.00	0.00	Design
D80	3.96	0.16	-26.28	0.00	0.00	Design
D81	3.96	0.16	-26.28	0.00	0.00	Design
D82	2.96	-0.20	-23.47	0.00	0.00	Design
D83	2.96	-0.20	-23.47	0.00	0.00	Design
D84	2.91	0.11	-18.44	0.00	0.00	Design
D85	2.91	0.11	-18.44	0.00	0.00	Design
D86	1.91	-0.25	-15.63	0.00	0.00	Design
D87	1.91	-0.25	-15.63	0.00	0.00	Design

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Shear plate						
Number of bolts		3	2	12	✓	p 10-102
Distance from the bolt line to the weld line	[in]	2.50	--	3.50	✓	p 10-102
Minimum plate or beam web thickness	[in]	0.23	--	0.44	✓	Table 10-9
Length	[in]	8.50	6.11	12.23	✓	p. 10-104
Thickness, precludes a punching failure of the HSS wall	[in]	0.38	--	--	✓	
Vertical edge distance	[in]	1.25	1.00	--	✓	Tables J3.4, J3.5
Horizontal edge distance	[in]	2.00	1.50	--	✓	p. 10-103
Vertical center-to-center spacing (pitch)	[in]	3.00	2.00	5.52	✓	Sec. J3.5
Beam						
Vertical edge distance	[in]	3.85	1.00	--	✓	Tables J3.4, J3.5
Horizontal edge distance	[in]	2.00	1.50	--	✓	p. 10-103
Support						
Maximum value of the specified yield stress	[Kip/in ²]	50.00	--	--	✓	
Yield stress to tensile stress ratio		0.77	--	0.80	✓	Table K2.1
Weld size	[1/16in]	4	4	--	✓	p. 10-87
Weld length	[in]	8.50	1.00	--	✓	Sec. J2.2b

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Shear plate						
Bolts shear	[Kip]	46.13	11.28	C71	0.24	Tables (7-1..14)
Bolt bearing under shear load	[Kip]	42.56	10.95	C71	0.26	p. 7-18
Shear yielding	[Kip]	68.85	10.95	C71	0.16	Eq. J4-3
Shear rupture	[Kip]	57.50	10.95	C71	0.19	Eq. J4-4
Block shear	[Kip]	69.53	10.95	C71	0.16	Eq. J4-5
Bolt bearing under axial load	[Kip]	75.67	2.68	C71	0.04	p. 7-18
Tension yielding	[Kip]	103.27	2.68	C71	0.03	Eq. J4-1
Tension rupture	[Kip]	95.84	2.68	C71	0.03	Eq. J4-2
Tear out under axial load	[Kip]	93.63	2.68	C71	0.03	Eq. J4-5
Plate (support side)						
Weld capacity	[Kip]	100.15	11.28	C71	0.11	Tables 8-4 .. 8-11
Beam						
Bolt bearing under shear load	[Kip]	52.01	10.95	C71	0.21	p. 7-18
Shear yielding	[Kip]	94.53	10.95	C71	0.12	Eq. J4-3
Bolt bearing under axial load	[Kip]	60.55	2.68	C71	0.04	Eq. J3-6
Yielding strength due to axial load	[Kip]	292.05	2.68	C71	0.01	Eq. D2-1
Tension rupture	[Kip]	132.51	2.68	C71	0.02	Eq. J4-2
Tear out under axial load	[Kip]	68.35	2.68	C71	0.04	Eq. J4-5
Support						
Welds rupture	[Kip/ft]	163.33	10.03	C71	0.06	p. 9-5
Punching shear (shear rupture)	[Kip]	98.34	10.95	C71	0.11	p. 10-153
HSS wall strength due out-of-plane transverse load	[Kip]	47.13	2.68	C71	0.06	p.9-16
Ratio		0.26				
Global critical strength ratio		0.26				

Notes

The plate is designed with the conventional configuration criteria.

References

[9] AISC 2005, Design Examples Version 13.0, pp. IIC-26 - IIC-27

[8] Dowswell, B., 2003, Connection Design For Steel Structures, Structural Design Solutions, LLC. Chapter 13, p. 14

MOMENT CONNECTIONS

CONTROLLING LOADS (FACTORED)

TOP MOMENT W16x31	CONNECTIONS ⇒	AXIAL = 0.28 k SHEAR = 2.02 k MOMENT = 11.61 k-ft FORCE COUPLE = 8.71 k	11.61 / (16/12)
Bot MOMENT W21x44	CONNECTIONS ⇒	AXIAL = 0.16 k SHEAR = 7.63 k MOMENT = 51.16 k-ft FORCE COUPLE = 29.3 k	51.16 / (21/12)

PLATES ARE CONTINUOUS THROUGH COLUMN.
 LD CHECK THAT ALL AROUND WELD IS SUFFICIENT
 TO TRANSFER MOMENT FROM PLATES TO COLUMN.

HSS 8x8x1/2 COLUMNS

$$S_w = 8^2(8^2) + (5.5H^2)/3 = 75.02 \text{ in}^2$$

$$\text{WORKABLE FLAT} = 5.5H^2$$

$$\phi R_n = \left(\frac{51.16 \text{ k-ft}}{2 \text{ PLATES}} \right) \times 12 \text{ ft} / 75.02 \text{ in}^2 = 4.09 \text{ k/in}$$

$$\text{WELD SIZE REQ'D} = 4.09 / 1.392 = 2.94 / 16 \text{ mm}$$

∴ USE 5/16" ALL AROUND FIRST.

MOMENT CONNECTIONS

- SHEAR IS TAKEN THROUGH SHEAR PLATE CONN.
- AXIAL LOAD IS NEGLIGIBLE

CHECK PLATES FOR TENSION/COMPRESSION FROM FORG CORRE.

TRY $1/2"$ PLATES

USE (8) $3/4"$ BOLTS IN TOP + BOT. PLATE

BOLT SHEAR \Rightarrow TABLE 7-1 $\phi F_n = 17.9 \text{ k/BOLT}$

$$8(17.9) = 143.2 \text{ k} > 29.3 \text{ k}$$

BEARING STRENGTH OF PLATE PER BOLT

$$\phi F_n = 0.75(2.4)(3/4")(\frac{1}{2}")(58 \text{ ksi}) = 39.15 \text{ k/BOLT} > 17.9$$

BOLT SHEAR CONTROLS

TENSION STRENGTH OF PLATE PER BOLT

$$\text{INT. } l_c = s - d = 3 - \frac{13}{16} = 2.1875"$$

$$\phi F_n = 1.2(2.1875)(\frac{1}{2}")(58 \text{ ksi})(0.75) = 57.09 \text{ k/BOLT}$$

BOLT SHEAR CONTROLS

$$\text{EXT. } l_c = L_{ev} = 0.5d = 2 - 0.5(\frac{13}{16}) = 1.593"$$

$$\phi F_n = 0.75(1.2)(1.593)(58)(\frac{1}{2}") = 41.6 \text{ k/BOLT}$$

BOLT SHEAR CONTROLS

MOMENT CONNECTIONS

CONTINUOUS LOADS (FACTORS)

 GRID 8.3 MOMENT CONNECTIONS @
 W21x44

 AXIAL = 0.25k
 SHEAR = 2.46k
 MOMENT = 26.73k-ft
 TORQUE = 15.5k 26.73/(21/12)

* BOT MOMENT CONN. CONTROL *

CONNECTIONS WILL BE DESIGNED AS SLIP CRITICAL

$$\phi R_n = \mu D_u h_f T_b n_s *$$

$$\phi = 1.0$$

$$D_u = 1.13$$

$$T_b = 28 \text{ kips [TABLE J3.1]}$$

$$h_f = 1.0 \quad 1.0 \text{ FILLERS}$$

$$n_s = 1 \quad 1 \text{ SLIP PLANE}$$

$$\mu = 1.0 \quad \text{CLASS A FATIGUE}$$

$$* = 8 \text{ BOLTS}$$

$$\phi R_n = 1.0 (1.13) (28) (1) (1) (1) (8) = 253k > 29.3k \quad \text{OKAY}$$



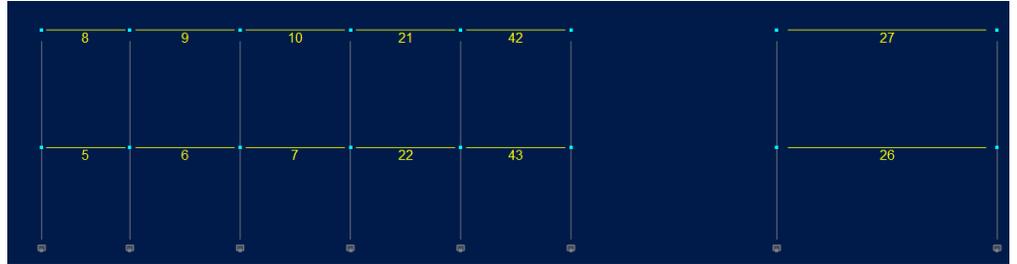
Analysis result

Members

Maximum forces at members

Note.- Ic is the controlling load condition
Forces envelope for :

- D1=1.4DL
- D2=1.2DL+1.6LL
- D3=1.2DL+0.5SL
- D4=1.2DL+1.6LL+0.5SL
- D5=1.2DL+1.6SL
- D6=1.2DL+0.5WLP
- D7=1.2DL-0.5WLn
- D8=1.2DL+LL+1.6SL
- D9=1.2DL+1.6SL+0.5WLP
- D10=1.2DL+1.6SL-0.5WLn
- D11=1.2DL+WLP
- D12=1.2DL-WLn
- D13=1.2DL+0.5SL+WLP
- D14=1.2DL+0.5SL-WLn
- D15=1.2DL+LL+WLP
- D16=1.2DL+LL-WLn
- D17=1.2DL+LL+0.5SL+WLP
- D18=1.2DL+LL+0.5SL-WLn
- D19=0.9DL+WLP
- D20=0.9DL-WLn
- D21=1.2DL+0.2SL
- D22=1.2DL+EQ
- D23=1.2DL+LL+0.2SL
- D24=1.2DL+0.2SL+EQ
- D25=1.2DL+LL+EQ
- D26=1.2DL+LL+0.2SL+EQ
- D27=0.9DL+EQ
- S1=DL
- S2=DL+LL
- S3=DL+SL
- S4=DL+0.75LL
- S5=DL+0.75SL
- S6=DL+0.75LL+0.75SL
- S7=DL+0.6WLP
- S8=DL-0.6WLn
- S9=DL+0.7EQ
- S10=DL+0.75LL+0.75SL+0.45WLP
- S11=DL+0.75LL+0.75SL-0.45WLn
- S12=DL+0.75LL+0.45WLP
- S13=DL+0.75LL-0.45WLn
- S14=DL+0.75SL+0.45WLP
- S15=DL+0.75SL-0.45WLn
- S16=0.6DL+0.6WLP
- S17=0.6DL-0.6WLn
- S18=DL+0.7EQ
- S19=DL+0.75LL+0.525EQ
- S20=DL+0.75LL+0.75SL
- S21=DL+0.75LL+0.75SL+0.525EQ
- S22=DL+0.525EQ
- S23=DL+0.75SL
- S24=DL+0.75SL+0.525EQ
- S25=0.6DL+0.7EQ



CONTROLS FOR BOTTOM MOMENT CONNECTIONS.

MEMBER 5

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.15	D15	0.34	D2	0.00	D1	0.00	D1	0.00	D1	51.16	D13
Min	-0.04	D5	-7.63	D13	0.00	D1	0.00	D1	0.00	D1	-36.57	D13

MEMBER 6

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.09	D15	0.79	D5	0.00	D1	0.00	D1	0.00	D1	22.47	D15
Min	0.01	D5	-3.65	D15	0.00	D1	0.00	D1	0.00	D1	-26.80	D19

MEMBER 7

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.05	D2	0.23	D1	0.00	D1	0.00	D1	0.00	D1	31.18	D17
Min	0.00	D19	-4.64	D17	0.00	D1	0.00	D1	0.00	D1	-32.48	D17

CONTROLS FOR TOP MOMENT CONNECTIONS.

MEMBER 8

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.05	D5	0.08	D2	0.00	D1	0.00	D1	0.00	D1	11.61	D13
Min	-0.28	D15	-2.02	D13	0.00	D1	0.00	D1	0.00	D1	-9.91	D13

MEMBER 9

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	-0.01	D5	0.69	D5	0.00	D1	0.00	D1	0.00	D1	5.52	D15
Min	-0.14	D15	-1.01	D15	0.00	D1	0.00	D1	0.00	D1	-5.85	D19

MEMBER 10

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.02	D19	-0.01	S17	0.00	D1	0.00	D1	0.00	D1	9.67	D17
Min	-0.08	D2	-1.55	D17	0.00	D1	0.00	D1	0.00	D1	-9.41	D17

MEMBER 21

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.17	D13	0.33	D8	0.00	D1	0.00	D1	0.00	D1	6.13	D19
Min	0.00	S17	-1.16	D11	0.00	D1	0.00	D1	0.00	D1	-7.27	D15

MEMBER 22

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.00	S17	0.52	D1	0.00	D1	0.00	D1	0.00	D1	26.03	D19
Min	-0.09	D13	-3.80	D11	0.00	D1	0.00	D1	0.00	D1	-25.66	D15

MEMBER 26

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.00	D1	2.25	D14	0.00	D1	0.00	D1	0.00	D1	20.07	D20
Min	0.00	D1	-2.24	D11	0.00	D1	0.00	D1	0.00	D1	-24.11	D14

CONTROLS FOR GRID 8.3 MOMENT CONNECTIONS.

MEMBER 27

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	-0.10	S16	2.46	D14	0.00	D1	0.00	D1	0.00	D1	23.77	D20
Min	-0.23	D1	-2.46	D11	0.00	D1	0.00	D1	0.00	D1	-26.73	D14

MEMBER 42

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.33	D17	0.30	D1	0.00	D1	0.00	D1	0.00	D1	7.42	D11
Min	-0.02	D1	-1.46	D11	0.00	D1	0.00	D1	0.00	D1	-10.30	D11

MEMBER 43

	Axial [Kip]	lc	Shear V2 [Kip]	lc	Shear V3 [Kip]	lc	Torsion [Kip*ft]	lc	M22 [Kip*ft]	lc	M33 [Kip*ft]	lc
Max	0.01	D1	0.55	D1	0.00	D1	0.00	D1	0.00	D1	32.79	D19
Min	-0.16	D17	-5.87	D11	0.00	D1	0.00	D1	0.00	D1	-49.71	D11

MOMENT CONNECTIONS (CANOPY)
MOMENT CONNECTIONS

RAM ELEMENTS WAS USED TO DESIGN CANOPY COLUMN MEMBERS

- WELD OF W14x90 TO CAP PL TO THE SAME AS AT THE BASE PL.
 $\frac{3}{8}$ " ALL AROUND FILLET

* MOMENT DEMAND IS SMALLER AT TOP OF COLUMN

OKAY

MOMENT DEMAND AT TOP OF COLUMN

$$M_v = 129.86 \text{ k-ft}$$

$$129.86 \text{ k-ft} / (22/16") = 70.83 \text{ k}$$

$$70.83 \text{ k} / 10 \text{ BOLTS} = 7.08 \text{ k/BOLT} < 17.9 \text{ k}$$

* BOLT SHEAR WAS CONTROLLING LIMIT STATE AT 17.9 k/BOLT

∴ CONN. OKAY AS DESIGNED



Current Date: 2/18/2025 12:26 PM

Units system: English

File name: U:\KansasCity\2025\250104\000\2PD3_Design_Svcs\010\7 - Miscellaneous Design\Canopy.ret

Analysis result

Members

Forces envelope

Note.- Ic is the controlling load condition

- Forces envelope for :
- D1=1.4DL
 - D2=1.2DL+0.5SL
 - D3=1.2DL+1.6SL
 - D4=1.2DL+0.5WLD
 - D5=1.2DL+0.5WLU
 - D6=1.2DL+1.6SL+0.5WLD
 - D7=1.2DL+1.6SL+0.5WLU
 - D8=1.2DL+WLD
 - D9=1.2DL+WLU
 - D10=1.2DL+0.5SL+WLD
 - D11=1.2DL+0.5SL+WLU
 - D12=0.9DL+WLD
 - D13=0.9DL+WLU
 - D14=1.2DL+0.2SL
 - S1=DL
 - S2=DL+SL
 - S3=DL+0.75SL
 - S4=DL+0.6WLD
 - S5=DL+0.6WLU
 - S6=DL+0.75SL+0.45WLD
 - S7=DL+0.75SL+0.45WLU
 - S8=0.6DL+0.6WLD
 - S9=0.6DL+0.6WLU
 - S10=DL+0.75SL
 - D2a=1.2DL+0.5SLU
 - D3a=1.2DL+1.6SLU
 - D6a=1.2DL+0.5WLD+1.6SLU
 - D7a=1.2DL+1.6SLU+0.5WLU
 - D10a=1.2DL+WLD+0.5SLU
 - D11a=1.2DL+0.5SLU+WLU
 - D14a=1.2DL+0.2SL
 - S2a=DL+SLU
 - S3a=DL+0.75SLU
 - S6a=DL+0.45WLD+0.75SLU
 - S7a=DL+0.75SLU+0.45WLU
 - S10a=DL+0.75SLU

MEMBER 7

Station		Axial [Kip]	Ic	Shear V2 [Kip]	Ic	Shear V3 [Kip]	Ic	Torsion [Kip*ft]	Ic	M22 [Kip*ft]	Ic	M33 [Kip*ft]	Ic
0%	Max	8.62	D13	4.38	D13	0.02	D6	0.00	D13	0.13	D6	-8.59	S9
	Min	-24.42	D6	-0.40	D3a	-0.01	D13	0.00	D10a	-0.07	D13	-150.13	D10a
25%	Max	8.92	D13	4.19	D13	0.02	D6	0.00	D13	0.04	D6	3.62	D13
	Min	-24.02	D6	-0.40	D3a	-0.01	D13	0.00	D10a	-0.02	D13	-139.40	D10a
50%	Max	9.23	D13	4.00	D13	0.02	D6	0.00	D13	0.02	D13	18.98	D13
	Min	-23.62	D6	-0.40	D3a	-0.01	D13	0.00	D10a	-0.05	D6	-128.67	D10a
75%	Max	9.53	D13	3.82	D13	0.02	D6	0.00	D13	0.07	D13	33.65	D13
	Min	-23.21	D6	-0.40	D3a	-0.01	D13	0.00	D10a	-0.15	D6	-122.85	D6a
100%	Max	9.83	D13	3.63	D13	0.02	D6	0.00	D13	0.11	D13	47.61	D13
	Min	-22.81	D6	-0.40	D3a	-0.01	D13	0.00	D10a	-0.24	D6	-118.63	D6a

MAX MOMENT AT TOP OF COLUMN.



Current Date: 2/19/2025 9:28 AM

Units system: English

File name: U:\KansasCity\2025\250104\000\2PD3_Design_Svcs\010\7 - Miscellaneous Design\Canopy.ret

Analysis result

Members

Forces envelope

Note.- Ic is the controlling load condition

Forces envelope for :

- D1=1.4DL
- D2=1.2DL+0.5SL
- D3=1.2DL+1.6SL
- D4=1.2DL+0.5WLD
- D5=1.2DL+0.5WLU
- D6=1.2DL+1.6SL+0.5WLD
- D7=1.2DL+1.6SL+0.5WLU
- D8=1.2DL+WLD
- D9=1.2DL+WLU
- D10=1.2DL+0.5SL+WLD
- D11=1.2DL+0.5SL+WLU
- D12=0.9DL+WLD
- D13=0.9DL+WLU
- D14=1.2DL+0.2SL
- S1=DL
- S2=DL+SL
- S3=DL+0.75SL
- S4=DL+0.6WLD
- S5=DL+0.6WLU
- S6=DL+0.75SL+0.45WLD
- S7=DL+0.75SL+0.45WLU
- S8=0.6DL+0.6WLD
- S9=0.6DL+0.6WLU
- S10=DL+0.75SL
- D2a=1.2DL+0.5SLU
- D3a=1.2DL+1.6SLU
- D6a=1.2DL+0.5WLD+1.6SLU
- D7a=1.2DL+1.6SLU+0.5WLU
- D10a=1.2DL+WLD+0.5SLU
- D11a=1.2DL+0.5SLU+WLU
- D14a=1.2DL+0.2SL
- S2a=DL+SLU
- S3a=DL+0.75SLU
- S6a=DL+0.45WLD+0.75SLU
- S7a=DL+0.75SLU+0.45WLU
- S10a=DL+0.75SLU

MAX MOMENT AT BEAM

MEMBER 9

Station		Axial [Kip]	Ic	Shear V2 [Kip]	Ic	Shear V3 [Kip]	Ic	Torsion [Kip*ft]	Ic	M22 [Kip*ft]	Ic	M33 [Kip*ft]	Ic
0%	Max	0.68	D13	14.01	D6	0.18	D10a	0.03	D6	0.45	D10a	55.96	D13
	Min	-1.85	D6a	-5.87	D13	-0.03	D13	-0.02	D13	-0.07	D13	-130.10	D6
25%	Max	0.70	D13	13.72	D6	0.18	D10a	0.03	D6	0.05	D13	32.29	D13
	Min	-1.82	D6a	-6.09	D13	-0.03	D13	-0.02	D13	-0.27	D10a	-75.20	D6
50%	Max	0.42	D13	8.28	D6	0.18	D10a	0.01	D13	0.04	D10a	15.12	D13
	Min	-1.12	D6a	-3.56	D13	-0.03	D13	-0.03	D6a	-0.01	D13	-35.46	D6
75%	Max	0.13	D13	2.88	D6	0.30	D10a	0.03	D13	0.19	D10a	4.36	D13
	Min	-0.43	D6a	-1.05	D13	-0.05	D13	-0.06	D6a	-0.04	D13	-10.43	D6
100%	Max	0.15	D13	2.62	D6	0.30	D10a	0.03	D13	0.17	D13	0.48	D6a
	Min	-0.40	D6a	-1.24	D13	-0.05	D13	-0.06	D6a	-0.98	D10a	-0.17	D13



Current Date: 3/3/2025 3:40 PM

Units system: English

File name: U:\KansasCity\2025\250104\000\2PD3_Design_Svcs\010\2- Lateral Design\Shear Walls\21 and 22.msw

Design Results Masonry wall

General Information

Global status : OK

Design code : TMS 402-22 ASD

Materials:

Material : CMU 1.5-60
Mortar type : Port/Mort - M/S
Grouting type : Full grouting
Masonry compression strength (F_m) : 1.5 [Kip/in²]
Steel tension strength (f_y) : 60 [Kip/in²]
Steel allowable tension strength (F_s) : 32 [Kip/in²]
Steel elasticity modulus (E_s) : 29000 [Kip/in²]
Masonry elasticity modulus (E_m) : 1350 [Kip/in²]
Masonry unit weight : 0.135 [Kip/ft³]

Geometry

Total height : 30.00 [ft]
Total length : 8.00 [ft]
Foundation type : Continuous
Wall bottom restraint : Pinned
Column bottom restraint : Fixed
Rigidity elements : Flanges

Number of stories: 2

Story	Story height [ft]	Wall thickness [in]	Effective unit weight [Kip/ft ³]
1	14.00	7.63	0.14
2	16.00	7.63	0.14

Load Conditions

ID	Comb.	Category	Description
DL	No	DL	Dead Load
LL	No	LL	Live Load
SL	No	SNOW	Snow Load
WL	No	WIND	Wind Load
EQ	No	EQ	Seismic Load
SM1	Yes		DL
DM1	Yes		DL
D1	Yes		1.4DL
D2	Yes		1.2DL+1.6LL
D3	Yes		1.2DL+0.5SL
D4	Yes		1.2DL+1.6LL+0.5SL
D5	Yes		1.2DL+1.6SL
D6	Yes		1.2DL+0.5WL
D7	Yes		1.2DL+1.6SL+LL
D8	Yes		1.2DL+1.6SL+0.5WL
D9	Yes		1.2DL+WL
D10	Yes		1.2DL+WL+0.5SL
D11	Yes		1.2DL+WL+LL
D12	Yes		1.2DL+WL+LL+0.5SL

D13	Yes	0.9DL+WL
D14	Yes	1.2DL+0.2SL
D15	Yes	1.2DL+EQ
D16	Yes	1.2DL+LL+0.2SL
D17	Yes	1.2DL+EQ+0.2SL
D18	Yes	1.2DL+EQ+LL
D19	Yes	1.2DL+EQ+LL+0.2SL
D20	Yes	0.9DL+EQ
S1	Yes	DL
S2	Yes	DL+LL
S3	Yes	DL+SL
S4	Yes	DL+0.75LL
S5	Yes	DL+0.75SL
S6	Yes	DL+0.75LL+0.75SL
S7	Yes	DL+0.6WL
S8	Yes	DL+0.7EQ
S9	Yes	DL+0.75LL+0.45WL+0.75SL
S10	Yes	DL+0.75LL+0.45WL
S11	Yes	DL+0.45WL+0.75SL
S12	Yes	0.6DL+0.6WL
S13	Yes	DL+0.7EQ
S14	Yes	DL+0.75LL+0.525EQ
S15	Yes	DL+0.75LL+0.75SL
S16	Yes	DL+0.75LL+0.525EQ+0.75SL
S17	Yes	DL+0.525EQ
S18	Yes	DL+0.75SL
S19	Yes	DL+0.525EQ+0.75SL
S20	Yes	0.6DL+0.7EQ

Loads

Concentrated loads:

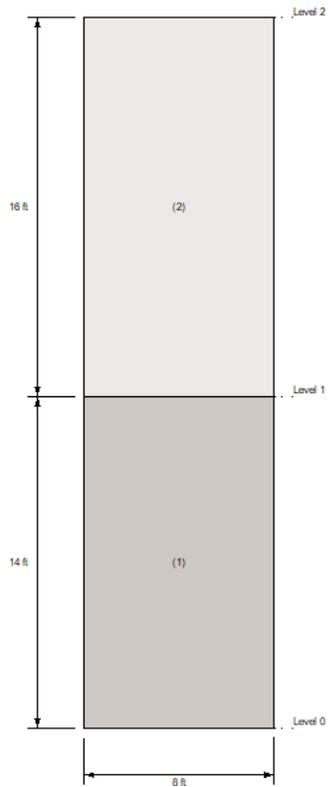
Story	Condition	Direction	Magnitude [Kip]	Eccentricity [in]	Distance [ft]
2	WL	Horizontal	5.80	0.00	0.00
1	WL	Horizontal	8.00	0.00	0.00

Distributed loads:

Consider self weight : DL

Bearing Wall Design

Status : OK



Geometry

Level	Segment	X Coordinate [ft]	Y Coordinate [ft]	Width [ft]	Height [ft]
0	1	0.00	0.00	8.00	14.00
1	2	0.00	14.00	8.00	16.00

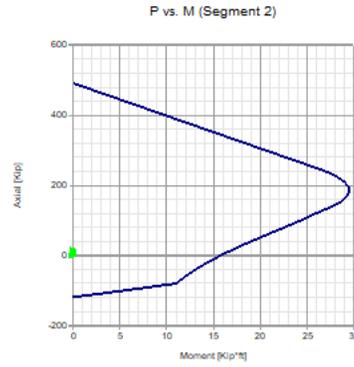
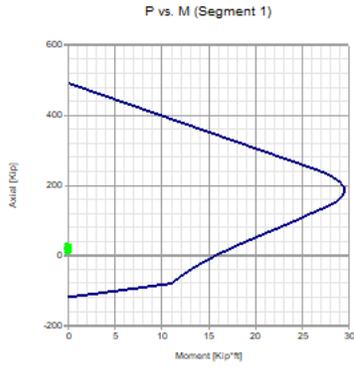
Vertical reinforcement

Segment	Bars	Spacing [in]	Ld [in]
1	12-#5	8.00	39.33
2	12-#5	8.00	39.33

Combined axial flexure

Segment	Condition	P [Kip]	M [Kip*ft]	Ma [Kip*ft]	Ratio
1	D1(Max)	26.74	-0.02	17.90	0.00
2	D13(Bottom)	9.44	0.10	16.51	0.01

Interaction diagrams, P vs. M



Axial compression

Segment	Condition	P [Kip]	Pa [Kip]	Ratio
1	D1(Bottom)	28.78	230.60	0.12 <input type="text"/>
2	D1(Max)	15.42	200.80	0.08 <input type="text"/>

Axial tension

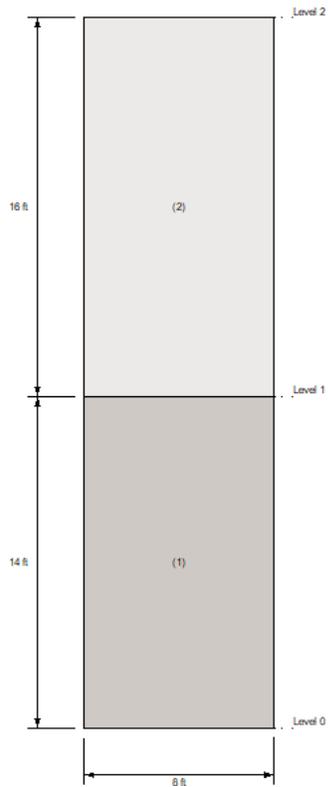
Segment	Condition	ft [Kip/in ²]	Fs [Kip/in ²]	Ratio
1	DM1(Top)	0.00	32.00	0.00 <input type="text"/>
2	DM1(Top)	0.00	32.00	0.00 <input type="text"/>

Shear

Segment	Condition	fv [Kip/in ²]	Fv [Kip/in ²]	Ratio
1	D1(Bottom)	0.000	0.080	0.00 <input type="text"/>
2	D13(Bottom)	0.000	0.049	0.00 <input type="text"/>

Shear Wall Design

Status : OK



Geometry

Level	Segment	X Coordinate [ft]	Y Coordinate [ft]	Width [ft]	Height [ft]
0	1	0.00	0.00	8.00	14.00
1	2	0.00	14.00	8.00	16.00

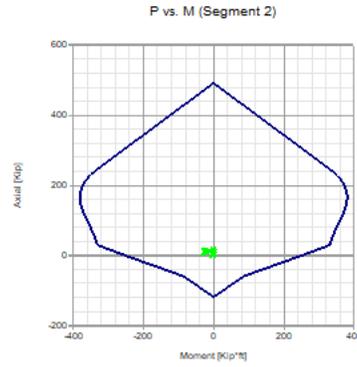
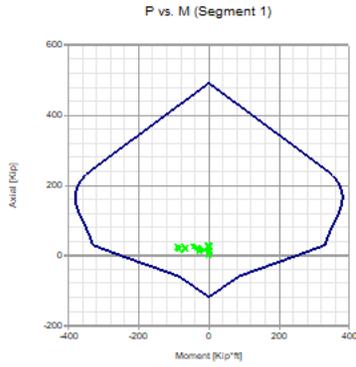
Reinforcement

Segment	Vertical reinforcement			Horizontal reinforcement		
	Bars	Spacing [in]	Ld [in]	Bars	Spacing [in]	Ld [in]
1	12-#5	8.00	39.33	--	0.00	0.00
2	12-#5	8.00	39.33	--	0.00	0.00

Combined axial flexure

Segment	Condition	P [Kip]	M [Kip*ft]	Ma [Kip*ft]	Ratio
1	D13(Bottom)	18.58	-86.75	301.75	0.29
2	D13(Bottom)	9.44	-24.67	277.46	0.09

Interaction diagrams, P vs. M



Axial compression

Segment	Condition	P [Kip]	Pa [Kip]	Ratio
1	D1(Bottom)	28.78	230.60	0.12
2	D1(Bottom)	15.42	200.80	0.08

Axial tension

Segment	Condition	ft [Kip/in ²]	Fs [Kip/in ²]	Ratio
1	DM1(Top)	0.00	32.00	0.00
2	DM1(Top)	0.00	32.00	0.00

Shear

Segment	Condition	fv [Kip/in ²]	Fv [Kip/in ²]	Ratio
1	D13(Bottom)	0.020	0.056	0.36
2	D13(Bottom)	0.009	0.063	0.14

Notes

- * P = Axial load
- * Pa = Allowable compressive force due to axial load.
- * M = Moment at the section under consideration.
- * Ma = Wall allowable moment due to axial force or lintel pure flexure allowable moment
- * fa = Calculated compressive stress due to axial load only
- * fb = Calculated compressive stress due to axial flexure only
- * ft = Calculated axial tension
- * Fa = Allowable compressive stress due to axial load only
- * Fb = Allowable compressive stress due to axial flexure only
- * fv = Calculated shear stress
- * Fs = Allowable tensile or compressive stress
- * Fv = Allowable shear stress
- * ld = Embedment length
- * As = Effective cross sectional area of reinforcement
- * δs = Calculated deflection
- * δmax = Maximum allowable deflection



Current Date: 3/3/2025 3:43 PM

Units system: English

File name: U:\KansasCity\2025\250104\000\2PD3_Design_Svcs\010\2- Lateral Design\Shear Walls\28 and 29.msw

Design Results Masonry wall

General Information

Global status : OK

Design code : TMS 402-22 ASD

Materials:

Material : CMU 1.5-60
 Mortar type : Port/Mort - M/S
 Grouting type : Full grouting
 Masonry compression strength (F_m) : 1.5 [Kip/in²]
 Steel tension strength (f_y) : 60 [Kip/in²]
 Steel allowable tension strength (F_s) : 32 [Kip/in²]
 Steel elasticity modulus (E_s) : 29000 [Kip/in²]
 Masonry elasticity modulus (E_m) : 1350 [Kip/in²]
 Masonry unit weight : 0.135 [Kip/ft³]

Geometry

Total height : 30.00 [ft]
 Total length : 6.33 [ft]
 Foundation type : Continuous
 Wall bottom restraint : Pinned
 Column bottom restraint : Fixed
 Rigidity elements : Flanges

Number of stories: 2

Story	Story height [ft]	Wall thickness [in]	Effective unit weight [Kip/ft ³]
1	14.00	7.63	0.14
2	16.00	7.63	0.14

Load Conditions

ID	Comb.	Category	Description
DL	No	DL	Dead Load
LL	No	LL	Live Load
SL	No	SNOW	Snow Load
WL	No	WIND	Wind Load
EQ	No	EQ	Seismic Load
SM1	Yes		DL
DM1	Yes		DL
D1	Yes		1.4DL
D2	Yes		1.2DL+1.6LL
D3	Yes		1.2DL+0.5SL
D4	Yes		1.2DL+1.6LL+0.5SL
D5	Yes		1.2DL+1.6SL
D6	Yes		1.2DL+0.5WL
D7	Yes		1.2DL+1.6SL+LL
D8	Yes		1.2DL+1.6SL+0.5WL
D9	Yes		1.2DL+WL
D10	Yes		1.2DL+WL+0.5SL
D11	Yes		1.2DL+WL+LL
D12	Yes		1.2DL+WL+LL+0.5SL

D13	Yes	0.9DL+WL
D14	Yes	1.2DL+0.2SL
D15	Yes	1.2DL+EQ
D16	Yes	1.2DL+LL+0.2SL
D17	Yes	1.2DL+EQ+0.2SL
D18	Yes	1.2DL+EQ+LL
D19	Yes	1.2DL+EQ+LL+0.2SL
D20	Yes	0.9DL+EQ
S1	Yes	DL
S2	Yes	DL+LL
S3	Yes	DL+SL
S4	Yes	DL+0.75LL
S5	Yes	DL+0.75SL
S6	Yes	DL+0.75LL+0.75SL
S7	Yes	DL+0.6WL
S8	Yes	DL+0.7EQ
S9	Yes	DL+0.75LL+0.45WL+0.75SL
S10	Yes	DL+0.75LL+0.45WL
S11	Yes	DL+0.45WL+0.75SL
S12	Yes	0.6DL+0.6WL
S13	Yes	DL+0.7EQ
S14	Yes	DL+0.75LL+0.525EQ
S15	Yes	DL+0.75LL+0.75SL
S16	Yes	DL+0.75LL+0.525EQ+0.75SL
S17	Yes	DL+0.525EQ
S18	Yes	DL+0.75SL
S19	Yes	DL+0.525EQ+0.75SL
S20	Yes	0.6DL+0.7EQ

Loads

Concentrated loads:

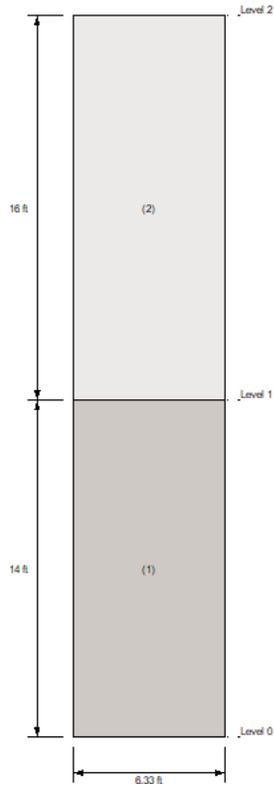
Story	Condition	Direction	Magnitude [Kip]	Eccentricity [in]	Distance [ft]
2	WL	Horizontal	7.60	0.00	0.00
1	WL	Horizontal	11.40	0.00	0.00

Distributed loads:

Consider self weight : DL

Bearing Wall Design

Status : OK



Geometry

Level	Segment	X Coordinate [ft]	Y Coordinate [ft]	Width [ft]	Height [ft]
0	1	0.00	0.00	6.33	14.00
1	2	0.00	14.00	6.33	16.00

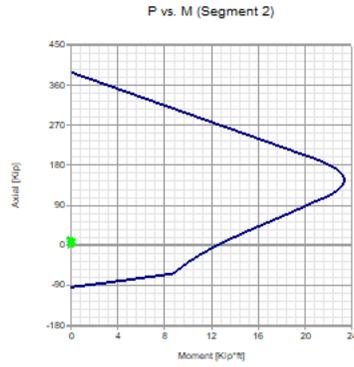
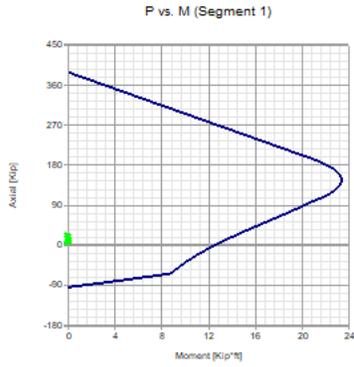
Vertical reinforcement

Segment	Bars	Spacing [in]	Ld [in]
1	9-#5	8.00	39.33
2	9-#5	8.00	39.33

Combined axial flexure

Segment	Condition	P [Kip]	M [Kip*ft]	Ma [Kip*ft]	Ratio
1	D13(Max)	9.45	-0.04	13.22	0.00
2	D13(Bottom)	8.09	0.12	13.11	0.01

Interaction diagrams, P vs. M



Axial compression

Segment	Condition	P [Kip]	Pa [Kip]	Ratio
1	D1(Bottom)	22.87	182.46	0.13 <input type="text"/>
2	D1(Bottom)	12.19	158.89	0.08 <input type="text"/>

Axial tension

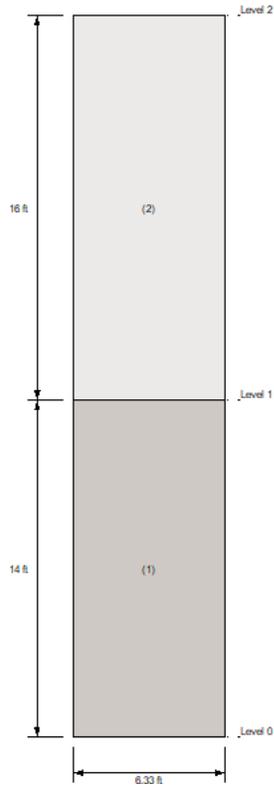
Segment	Condition	ft [Kip/in ²]	Fs [Kip/in ²]	Ratio
1	DM1(Top)	0.00	32.00	0.00 <input type="text"/>
2	DM1(Top)	0.00	32.00	0.00 <input type="text"/>

Shear

Segment	Condition	fv [Kip/in ²]	Fv [Kip/in ²]	Ratio
1	D1(Bottom)	0.000	0.083	0.00 <input type="text"/>
2	D13(Bottom)	0.000	0.049	0.01 <input type="text"/>

Shear Wall Design

Status : OK



Geometry

Level	Segment	X Coordinate [ft]	Y Coordinate [ft]	Width [ft]	Height [ft]
0	1	0.00	0.00	6.33	14.00
1	2	0.00	14.00	6.33	16.00

Reinforcement

Segment	Vertical reinforcement			Horizontal reinforcement		
	Bars	Spacing [in]	Ld [in]	Bars	Spacing [in]	Ld [in]
1	9-#5	8.00	39.33	--	0.00	0.00
2	9-#5	8.00	39.33	--	0.00	0.00

Combined axial flexure

Segment	Condition	P [Kip]	M [Kip*ft]	Ma [Kip*ft]	Ratio
1	D13(Bottom)	14.71	-121.56	191.35	0.64 
2	D13(Bottom)	8.09	-28.23	177.38	0.16 

Interaction diagrams, P vs. M



Current Date: 3/3/2025 3:57 PM

Units system: English

File name: U:\KansasCity\2025\250104\000\2PD3_Design_Svcs\010\2- Lateral Design\Shear Walls\39.msw

Design Results Masonry wall

General Information

Global status : OK

Design code : TMS 402-22 ASD

Materials:

Material : CMU 2.0-60
 Mortar type : Port/Mort - M/S
 Grouting type : Full grouting
 Masonry compression strength (F_m) : 2 [Kip/in²]
 Steel tension strength (f_y) : 60 [Kip/in²]
 Steel allowable tension strength (F_s) : 32 [Kip/in²]
 Steel elasticity modulus (E_s) : 29000 [Kip/in²]
 Masonry elasticity modulus (E_m) : 1800 [Kip/in²]
 Masonry unit weight : 0.135 [Kip/ft³]

Geometry

Total height : 12.00 [ft]
 Total length : 18.67 [ft]
 Foundation type : Continuous
 Wall bottom restraint : Pinned
 Column bottom restraint : Fixed
 Rigidity elements : Flanges

Number of stories: 1

Story	Story height [ft]	Wall thickness [in]	Effective unit weight [Kip/ft ³]
1	12.00	7.63	0.14

Load Conditions

ID	Comb.	Category	Description
DL	No	DL	Dead Load
LL	No	LL	Live Load
SL	No	SNOW	Snow Load
WL	No	WIND	Wind Load
EQ	No	EQ	Seismic Load
SM1	Yes		DL
DM1	Yes		DL
D1	Yes		1.4DL
D2	Yes		1.2DL+1.6LL
D3	Yes		1.2DL+0.5SL
D4	Yes		1.2DL+1.6LL+0.5SL
D5	Yes		1.2DL+1.6SL
D6	Yes		1.2DL+0.5WL
D7	Yes		1.2DL+1.6SL+LL
D8	Yes		1.2DL+1.6SL+0.5WL
D9	Yes		1.2DL+WL
D10	Yes		1.2DL+WL+0.5SL
D11	Yes		1.2DL+WL+LL
D12	Yes		1.2DL+WL+LL+0.5SL
D13	Yes		0.9DL+WL

D14	Yes	1.2DL+0.2SL
D15	Yes	1.2DL+EQ
D16	Yes	1.2DL+LL+0.2SL
D17	Yes	1.2DL+EQ+0.2SL
D18	Yes	1.2DL+EQ+LL
D19	Yes	1.2DL+EQ+LL+0.2SL
D20	Yes	0.9DL+EQ
S1	Yes	DL
S2	Yes	DL+LL
S3	Yes	DL+SL
S4	Yes	DL+0.75LL
S5	Yes	DL+0.75SL
S6	Yes	DL+0.75LL+0.75SL
S7	Yes	DL+0.6WL
S8	Yes	DL+0.7EQ
S9	Yes	DL+0.75LL+0.45WL+0.75SL
S10	Yes	DL+0.75LL+0.45WL
S11	Yes	DL+0.45WL+0.75SL
S12	Yes	0.6DL+0.6WL
S13	Yes	DL+0.7EQ
S14	Yes	DL+0.75LL+0.525EQ
S15	Yes	DL+0.75LL+0.75SL
S16	Yes	DL+0.75LL+0.525EQ+0.75SL
S17	Yes	DL+0.525EQ
S18	Yes	DL+0.75SL
S19	Yes	DL+0.525EQ+0.75SL
S20	Yes	0.6DL+0.7EQ

Loads

Concentrated loads:

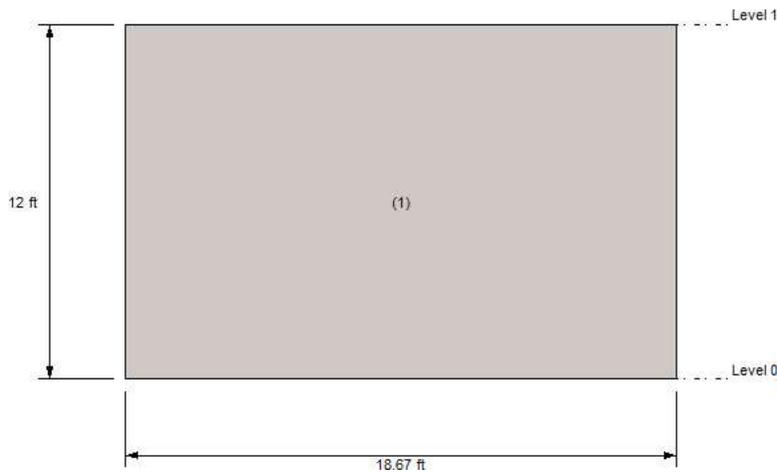
Story	Condition	Direction	Magnitude [Kip]	Eccentricity [in]	Distance [ft]
1	WL	Horizontal	33.90	0.00	0.00

Distributed loads:

Consider self weight : DL

Bearing Wall Design

Status : OK



Geometry

Level	Segment	X Coordinate [ft]	Y Coordinate [ft]	Width [ft]	Height [ft]
0	1	0.00	0.00	18.67	12.00

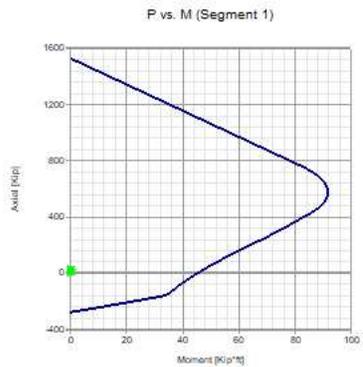
Vertical reinforcement

Segment	Bars	Spacing [in]	Ld [in]
1	28-#5	8.00	34.07

Combined axial flexure

Segment	Condition	P [Kip]	M [Kip*ft]	Ma [Kip*ft]	Ratio
1	D13(Max)	11.04	-0.68	46.13	0.01 

Interaction diagrams, P vs. M



Axial compression

Segment	Condition	P [Kip]	Pa [Kip]	Ratio
1	D9(Bottom)	34.79	797.91	0.04 

Axial tension

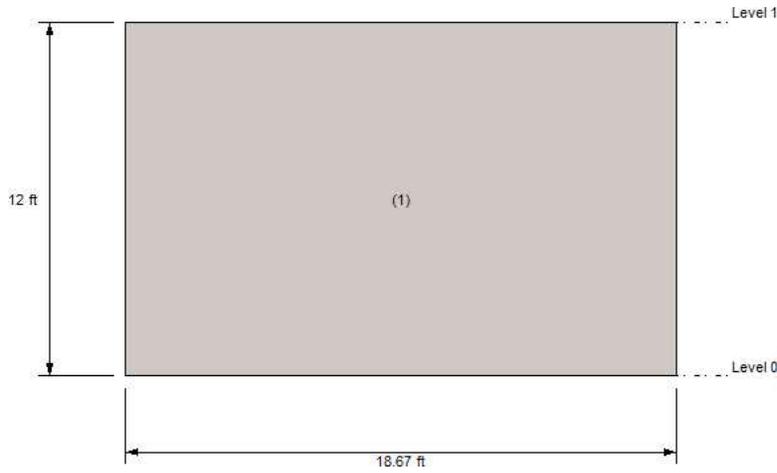
Segment	Condition	ft [Kip/in ²]	Fs [Kip/in ²]	Ratio
1	DM1(Top)	0.00	32.00	0.00 

Shear

Segment	Condition	fv [Kip/in ²]	Fv [Kip/in ²]	Ratio
1	D13(Bottom)	0.000	0.065	0.01 

Shear Wall Design

Status : OK



Geometry

Level	Segment	X Coordinate [ft]	Y Coordinate [ft]	Width [ft]	Height [ft]
0	1	0.00	0.00	18.67	12.00

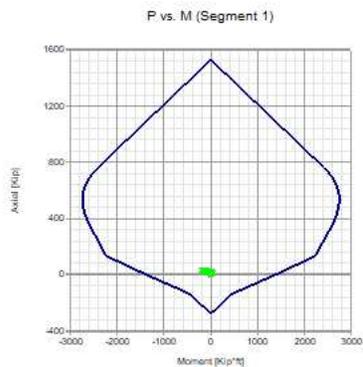
Reinforcement

Segment	Vertical reinforcement			Horizontal reinforcement		
	Bars	Spacing [in]	Ld [in]	Bars	Spacing [in]	Ld [in]
1	28-#5	8.00	34.07	--	0.00	0.00

Combined axial flexure

Segment	Condition	P [Kip]	M [Kip*ft]	Ma [Kip*ft]	Ratio
1	D13(Bottom)	29.00	-180.35	1565.24	0.12

Interaction diagrams, P vs. M



Axial compression

Segment	Condition	P [Kip]	Pa [Kip]	Ratio	
1	D9(Bottom)	34.79	797.92	0.04	

Axial tension

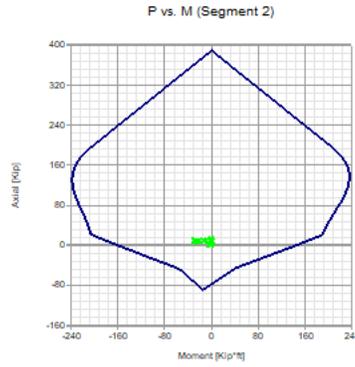
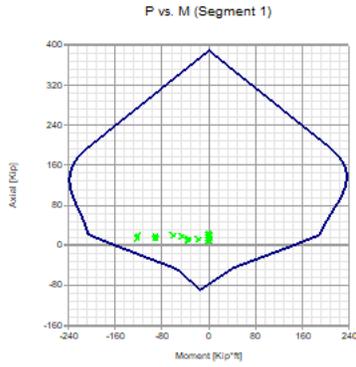
Segment	Condition	ft [Kip/in2]	Fs [Kip/in2]	Ratio	
1	DM1(Top)	0.00	32.00	0.00	

Shear

Segment	Condition	fv [Kip/in2]	Fv [Kip/in2]	Ratio	
1	D13(Bottom)	0.020	0.082	0.25	

Notes

- * P = Axial load
- * Pa = Allowable compressive force due to axial load.
- * M = Moment at the section under consideration.
- * Ma = Wall allowable moment due to axial force or lintel pure flexure allowable moment
- * fa = Calculated compressive stress due to axial load only
- * fb = Calculated compressive stress due to axial flexure only
- * ft = Calculated axial tension
- * Fa = Allowable compressive stress due to axial load only
- * Fb = Allowable compressive stress due to axial flexure only
- * fv = Calculated shear stress
- * Fs = Allowable tensile or compressive stress
- * Fv = Allowable shear stress
- * ld = Embedment length
- * As = Effective cross sectional area of reinforcement
- * δ_s = Calculated deflection
- * δ_{max} = Maximum allowable deflection



Axial compression

Segment	Condition	P [Kip]	Pa [Kip]	Ratio	
1	D1(Bottom)	22.87	182.51	0.13	<div style="width: 13%; background-color: green;"></div>
2	D1(Bottom)	12.19	158.93	0.08	<div style="width: 8%; background-color: green;"></div>

Axial tension

Segment	Condition	ft [Kip/in ²]	Fs [Kip/in ²]	Ratio	
1	DM1(Top)	0.00	32.00	0.00	<div style="width: 0%; background-color: red;"></div>
2	DM1(Top)	0.00	32.00	0.00	<div style="width: 0%; background-color: red;"></div>

Shear

Segment	Condition	fv [Kip/in ²]	Fv [Kip/in ²]	Ratio	
1	D13(Bottom)	0.036	0.049	0.74	<div style="width: 74%; background-color: green;"></div>
2	D13(Bottom)	0.015	0.061	0.24	<div style="width: 24%; background-color: green;"></div>

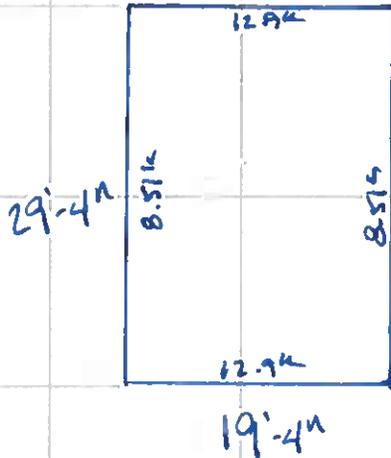
Notes

- * P = Axial load
- * Pa = Allowable compressive force due to axial load.
- * M = Moment at the section under consideration.
- * Ma = Wall allowable moment due to axial force or lintel pure flexure allowable moment
- * fa = Calculated compressive stress due to axial load only
- * fb = Calculated compressive stress due to axial flexure only
- * ft = Calculated axial tension
- * Fa = Allowable compressive stress due to axial load only
- * Fb = Allowable compressive stress due to axial flexure only
- * fv = Calculated shear stress
- * Fs = Allowable tensile or compressive stress
- * Fv = Allowable shear stress
- * ld = Embedment length
- * As = Effective cross sectional area of reinforcement
- * δs = Calculated deflection
- * δmax = Maximum allowable deflection



Miscellaneous Design



SHELTER


$$\text{HEIGHT} = 313' - 8\frac{1}{2}"$$

$$\text{WIND PRESSURE} = 128 \text{ PSF}$$

WIND LINE LOAD

$$E-W \Rightarrow 128 (13.75/2) = 880 \text{ PLF}$$

$$N-S \Rightarrow 128 (13.75/2) = 880 \text{ PLF}$$

CHOLD FORCE

E-W

$$880 (29.33)/2 = 12.9 \text{ k}$$

N-S

$$880 (29.33)/2 = 8.51 \text{ k}$$

UPLIFT

120.5 PSF UP

DL = 70 PSF UPLIFT

50 PSF UPLIFT DIFFERENCE

$$\text{TRIB} = 2'-2" (19.33/2) = 69.9 \text{ PSF}$$

$$69.3 (50 \text{ PSF}) = 3.47 \text{ k}$$

BEAM AS BOLCED POUND

w/ 3/4" ϕ ANCHOR

BOLTS w/ 12" EMBED.

CHOLD FORCE

$$880 (29.33)^2/8 = \frac{94.63}{19.33} = 4.9 \text{ k}$$

$$880 (19.33)^2/8 = \frac{41.1 \text{ k-ft}}{29.33} = 1.41 \text{ k}$$

\therefore USE (2) - #5 CONF.
OKAY BY INSPECTION.

$$7.167' \times 13.75' \times 75 \text{ PSF} = 7.39 \text{ k} > 3.47 \text{ k} \Rightarrow \text{WALL OKAY}$$

75 PSF (WEIGHT OF 8" FULLY GROUTED)

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: PARAPET ABOVE SHELTER

Code References

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Steel Section Name : HSS5x5x1/4	Overall Column Height	3.58 ft
Analysis Method : Load Resistance Factor	Top & Bottom Fixity	Top Free, Bottom Fixed
Steel Stress Grade	Brace condition for deflection (buckling) along columns :	
Fy : Steel Yield	X-X (width) axis :	
50 ksi	Unbraced Length for buckling ABOUT Y-Y Axis = 3.58 ft, K = 1.0	
E : Elastic Bending Modulus	Y-Y (depth) axis :	
29,000.0 ksi	Unbraced Length for buckling ABOUT X-X Axis = 3.58 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations

Column self weight included : 55.789 lbs * Dead Load Factor
 BENDING LOADS . . .
 Lat. Point Load at 3.580 ft creating Mx-x, W = 0.5240 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio =	0.06592 : 1	Maximum Load Reactions . .	
Load Combination	+1.20D+W	Top along X-X	0.0 k
Location of max.above base	0.0 ft	Bottom along X-X	0.0 k
At maximum location values are . . .		Top along Y-Y	0.0 k
Pu	0.06695 k	Bottom along Y-Y	0.5240 k
0.9 * Pn	186.616 k	Maximum Load Deflections . . .	
Mu-x	-1.876 k-ft	Along Y-Y	0.02970 in at 3.580ft above base
0.9 * Mn-x :	28.538 k-ft	for load combination :W Only	
Mu-y	0.0 k-ft	Along X-X	0.0 in at 0.0ft above base
0.9 * Mn-y :	28.538 k-ft	for load combination :	
PASS Maximum Shear Stress Rati	0.0 : 1		
Load Combination	0.0		
Location of max.above base	0.0 ft		
At maximum location values are . . .			
Vu : Applied	0.0 k		
Vn * Phi : Allowable	0.0 k		

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios				Maximum Shear Ratios					
	Stress Ratio	Status	Location	Cbx	Cby	KxLx/Ry	KyLy/Rx	Stress Ratio	Status	Location
+1.40D	0.000	PASS	0.00 ft	1.67	1.00	22.26	22.26	0.000	PASS	0.00 ft
+1.20D	0.000	PASS	0.00 ft	1.67	1.00	22.26	22.26	0.000	PASS	0.00 ft
+1.20D+0.50W	0.033	PASS	0.00 ft	1.67	1.00	22.26	22.26	0.000	PASS	0.00 ft
+1.20D+W	0.066	PASS	0.00 ft	1.67	1.00	22.26	22.26	0.000	PASS	0.00 ft
+0.90D+W	0.066	PASS	0.00 ft	1.67	1.00	22.26	22.26	0.000	PASS	0.00 ft
+0.90D	0.000	PASS	0.00 ft	1.67	1.00	22.26	22.26	0.000	PASS	0.00 ft

Maximum Reactions

Note: Only non-zero reactions are listed

Load Combination	Axial Reaction @ Base	X-X Axis Reaction @ Base @ Top		k	Y-Y Axis Reaction @ Base @ Top		Mx - End Moments k-ft @ Base @ Top		My - End Moments @ Base @ Top	
D Only	0.056									
+D+0.60W	0.056				0.314			-1.126		
+D+0.450W	0.056				0.236			-0.844		
+0.60D+0.60W	0.033				0.314			-1.126		
+0.60D	0.033									
W Only					0.524			-1.876		

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: PARAPET ABOVE SHELTER

Extreme Reactions

Item	Extreme Value	Axial Reaction	X-X Axis Reaction		k	Y-Y Axis Reaction		Mx - End Moments		k-ft	My - End Moments	
		@ Base	@ Base	@ Top		@ Base	@ Top	@ Base	@ Top		@ Base	@ Top
Axial @ Base	Maximum	0.056										
"	Minimum					0.524		-1.876				
Reaction, X-X Axis Base	Maximum	0.056										
"	Minimum	0.056										
Reaction, Y-Y Axis Base	Maximum					0.524		-1.876				
"	Minimum	0.056										
Reaction, X-X Axis Top	Maximum	0.056										
"	Minimum	0.056										
Reaction, Y-Y Axis Top	Maximum	0.056										
"	Minimum	0.056										
Moment, X-X Axis Base	Maximum	0.056										
"	Minimum		-1.876			0.524		-1.876				
Moment, Y-Y Axis Base	Maximum	0.056										
"	Minimum	0.056										
Moment, X-X Axis Top	Maximum	0.056										
"	Minimum	0.056										
Moment, Y-Y Axis Top	Maximum	0.056										
"	Minimum	0.056										

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.60W	0.0000 in	0.000 ft	0.018 in	3.580 ft
+D+0.450W	0.0000 in	0.000 ft	0.013 in	3.580 ft
+0.60D+0.60W	0.0000 in	0.000 ft	0.018 in	3.580 ft
+0.60D	0.0000 in	0.000 ft	0.000 in	0.000 ft
W Only	0.0000 in	0.000 ft	0.029 in	3.556 ft

Steel Section Properties : HSS5x5x1/4

Depth	=	5.000 in	I xx	=	16.00 in^4	J	=	25.800 in^4
Design Thick	=	0.233 in	S xx	=	6.41 in^3			
Width	=	5.000 in	R xx	=	1.930 in			
Wall Thick	=	0.250 in	Zx	=	7.610 in^3			
Area	=	4.300 in^2	I yy	=	16.000 in^4	C	=	10.500 in^3
Weight	=	15.584 plf	S yy	=	6.410 in^3			
			R yy	=	1.930 in			
Ycg	=	0.000 in						

Steel Column

Project File: LXT Terminal 250104-000.ec6

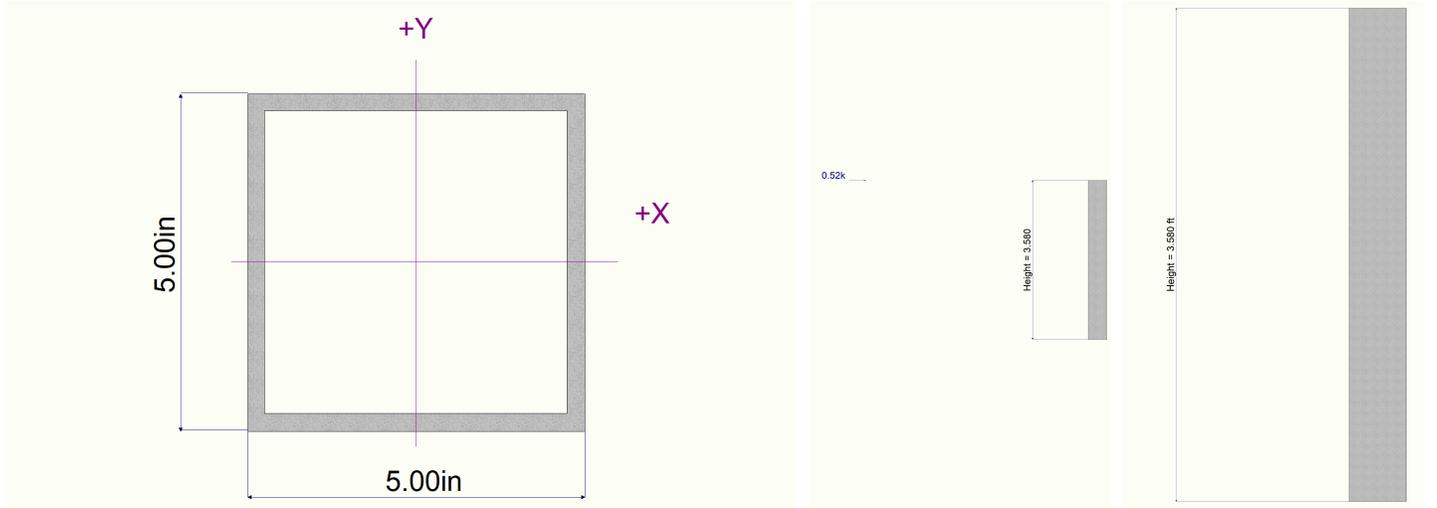
LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: PARAPET ABOVE SHELTER

Sketches



PARAPET AT TOP OF SHELFER
PARAPET AT TOP OF SHELFER

~ DESIGNED FOR BUILDING WL NOT SHELFER WL.

PARAPET LOAD FROM CTC (10 ft², INTERIOR ZONE)
 => 72.4 PSF



LING LOAD AT TOP OF PARAPET
 (1/2 LOAD TO TOP + BOT.)

$$3.58' / 2 = 1.8' (72.4 \text{ PSF}) = 131 \text{ PLF}$$

$$131 (4') = 524 \text{ k}$$

↳ DESIGN W/ BRIST CASE

$$PCR = 0.04$$

$$\Delta = 0.03 \text{ in @ TOP}$$

$$M_U = 1.876 \text{ k ft}$$

$$SHEAR = 0.524 \text{ k}$$

BRICK SUPPORT DETAIL
BRICK SUPPORT DETAIL
LOADS

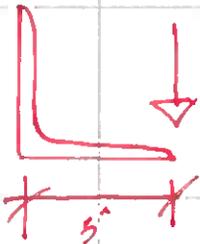
 BRICK = 40 PSF → 294 PLF
 STOPS = 10 PSF → 74 PLF

TRIB = 7'-4"

 * SEE ATTACHED DETAILS
 FOR DETAIL &
 DIMENSIONS

 TOTAL LINE LOAD IN RAM SS
367 PLF
SHELF ANGLE DESIGN

BENDING ABOUT HORIZONTAL LEG



$$M_u = 1.4 (294 \text{ PLF}) (5') = 2,058 \text{ k}\cdot\text{ft}$$

$$\phi M_n = 0.9 (36 \text{ ksi}) = 12'' \times (3/8)''^2 / 4 = 13.68 \text{ k}\cdot\text{ft}$$

BENDING ABOUT VERTICAL LEG (4'-0" SPAN)

$$M_u = 1.4 (294 \text{ PLF}) (4')^2 / 8 = 0.823 \text{ k}\cdot\text{ft} = 9.87 \text{ k}\cdot\text{in}$$

$$\phi M_n = 0.9 (36 \text{ ksi}) (3/8) (5')^2 / 4 = 75.94 \text{ k}\cdot\text{in}$$

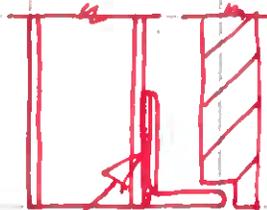
$$\phi M_n = 1 \left[1.52 - 0.294 \left(\frac{48 (5)}{(3/8)^2} \right) \frac{36}{29,000} \right] (0.375 \times \frac{5^2}{6}) (36) (0.9) = \underline{\underline{47.56}}$$

$$\phi M_n = \frac{1.9 (29,000) (1)}{48'' (5)} \times \frac{3}{8} \times \frac{5^2}{6} = 50.44 \text{ k}\cdot\text{in}$$

$$9.87 < 47.56 \quad \text{OK}$$

BRICK SUPPORT DETAIL

SHELF ANGLE TO C6 CHANNELS



TRY 1/4" FILLET OF TDE OF CHANNEL TO BACK OF L5x5x3/8

LENGTH OF WELD = 5" (2 SIDES) 10" TOTAL



MOMENT @ WELD GROUP

$$1.4(4')(294)(5" \text{ ECCENTRICITY}) = 8.232 \text{ k-in}$$

$$\text{SHEAR} = 1.4(294)(4') = 1.65 \text{ k}$$

$$S_w = (5")^2 / 3 = 8.33$$

$$R_u = 1.65 \text{ k} / 10" \text{ WELD} + 8.232 \text{ k-in} / 8.33 \text{ in}^2 = 1.15 \text{ k/in}$$

$$\text{WELD} = 1.15 \text{ k/in} / 1.392 = 0.83 / 16 \text{ MS}$$

AXIAL LOAD TO JOIST

ⓐ BACK KICKER

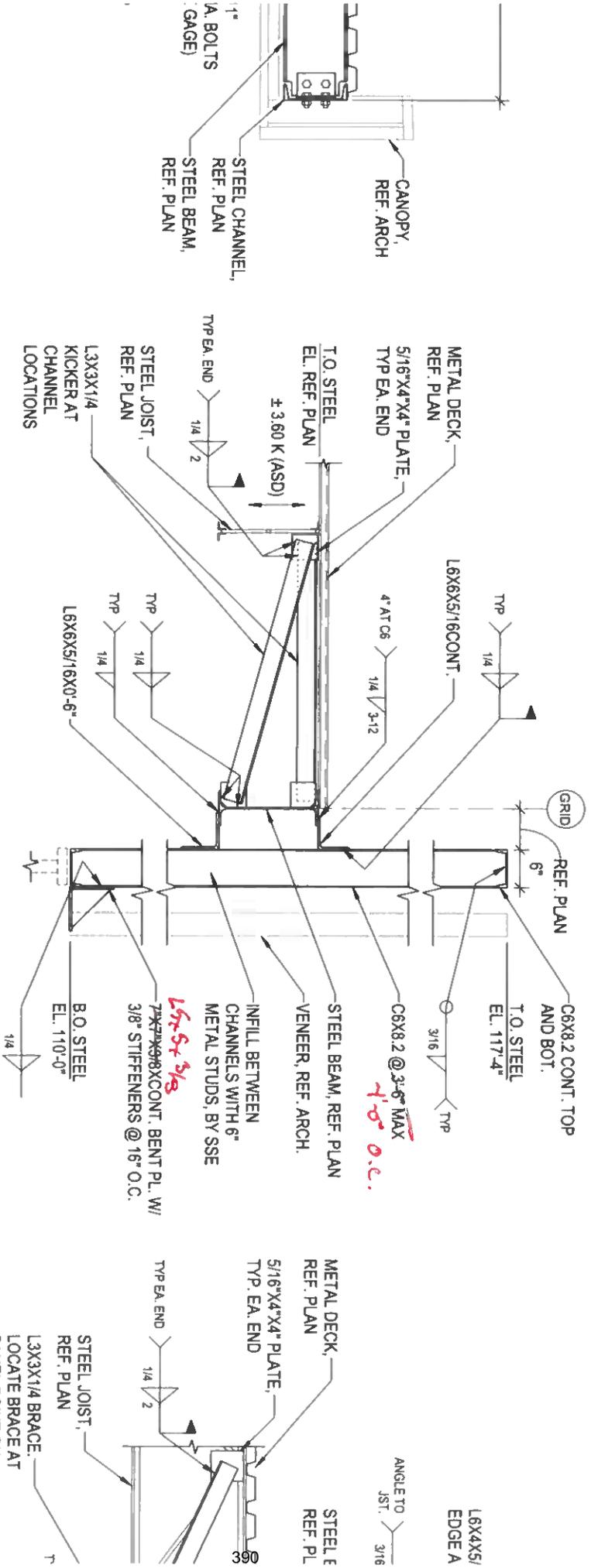
$$74 \text{ PLF}(6) (9') + 294(6)(1'-6") = 2.979 \text{ k-ft}$$

$$2.979 \text{ k-ft} / \frac{21" \text{ BEAM}}{12" \text{ ft}} = 1.702 \text{ k-ft}$$

∴ USE 20 k PT LOAD TO JOIST AS SHOWN 2nd DETAIL

3/4" = 1'-0"

3/4" = 1'-0"



DECK EDGE

7

FRAMING SECTION

3/4" = 1'-0"

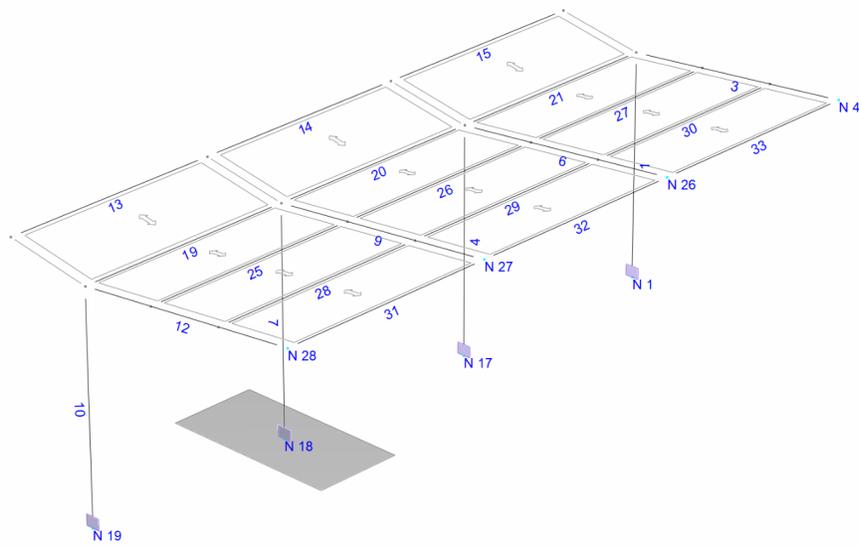
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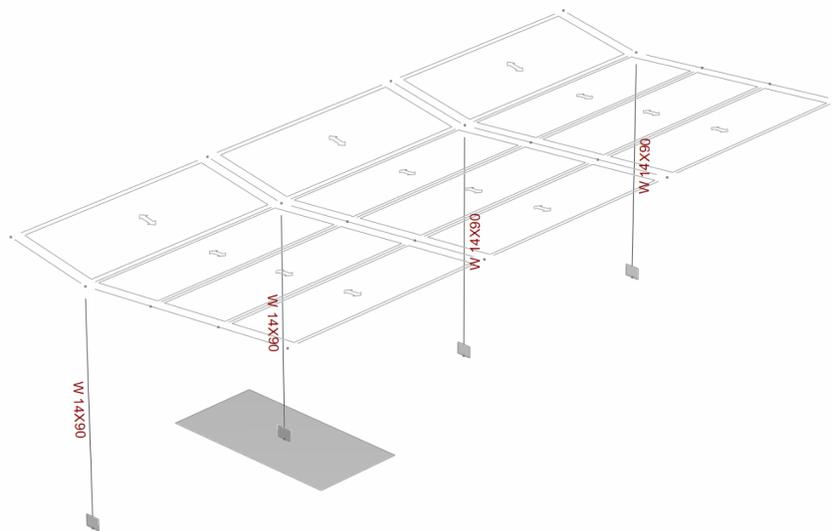
FRAMING SECTION

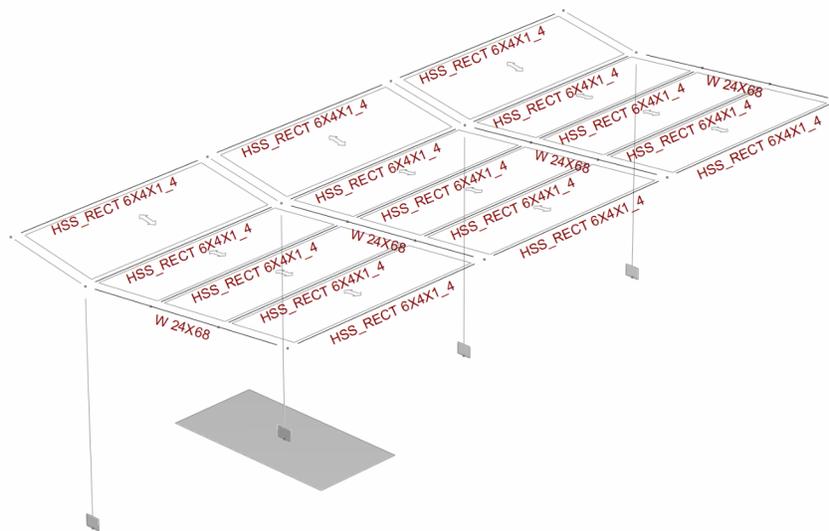
3/4" = 1'-0"

FRAMING SECTION

3/4" = 1'-0"



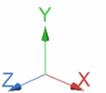
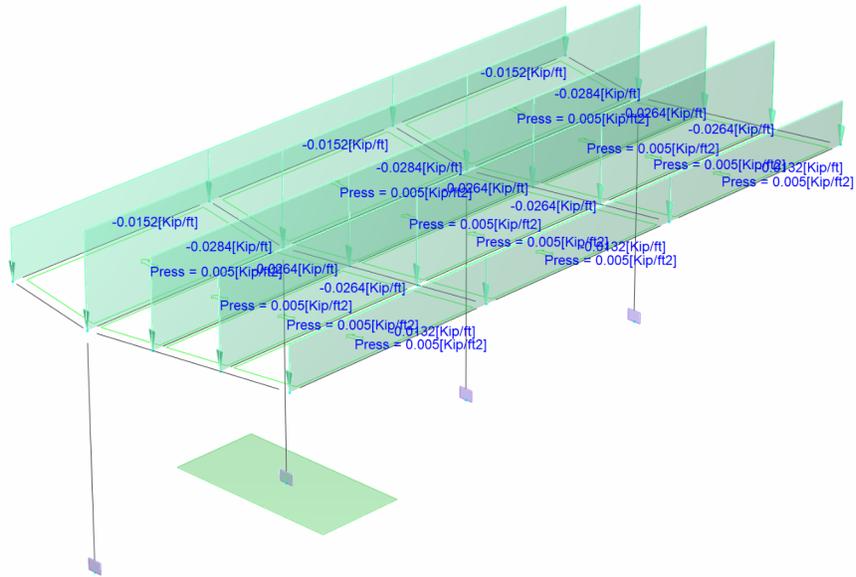






Loads

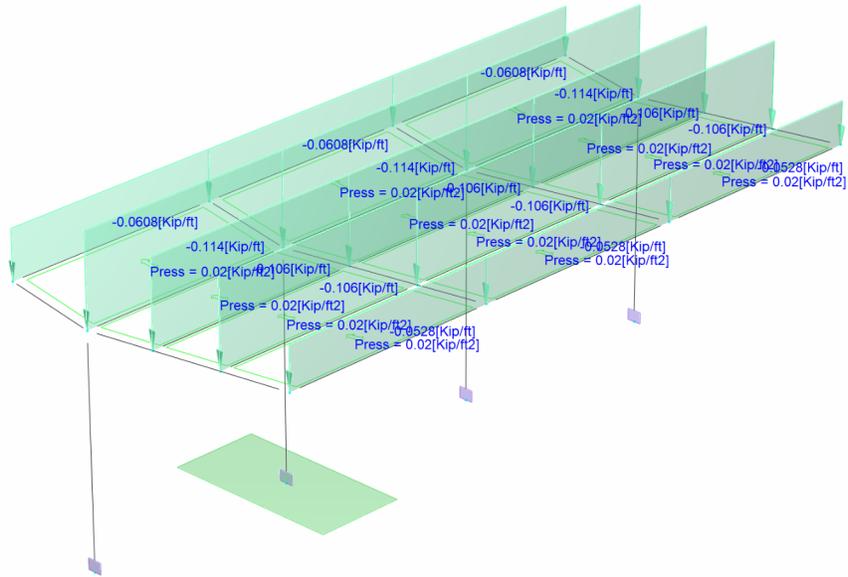
■ Distributed area loads - Members





Loads

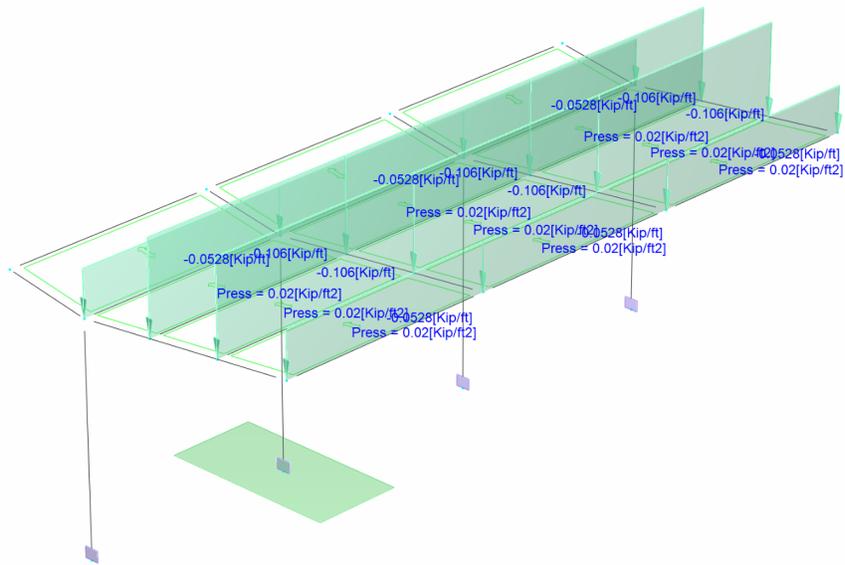
■ Distributed area loads - Members





Loads

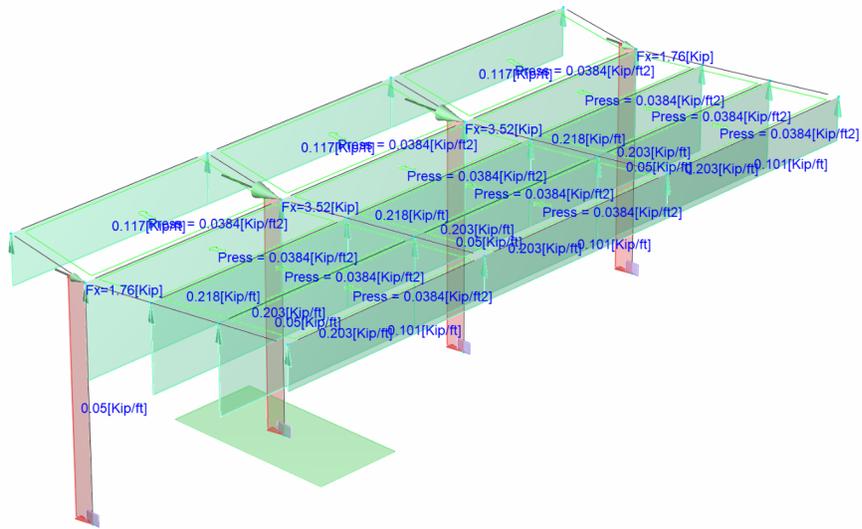
■ Distributed area loads - Members





Loads

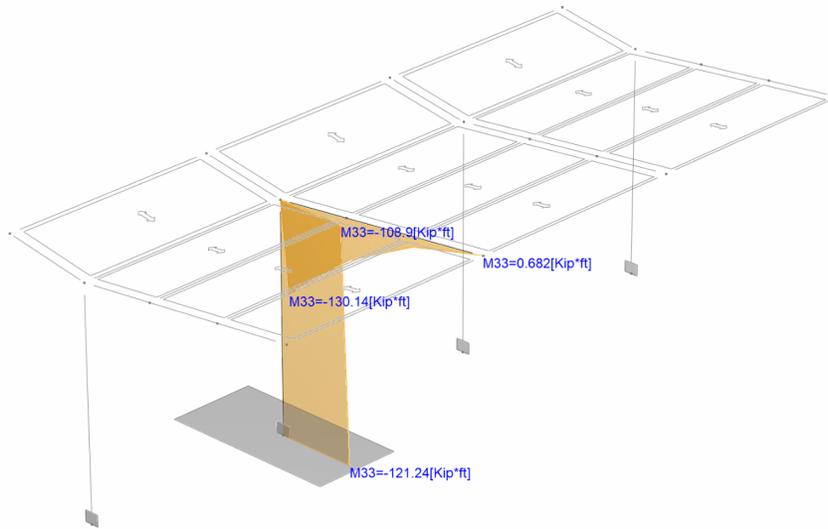
- Distributed user loads - Members
- Distributed area loads - Members
- Concentrated - Nodes





Internal forces

■ Bending moments



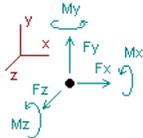


Analysis result

Nodes

Envelope for nodal reactions

Note.- Ic is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

- D1=1.4DL
- D2=1.2DL+0.5SL
- D3=1.2DL+1.6SL
- D4=1.2DL+0.5WLD
- D5=1.2DL+0.5WLU
- D6=1.2DL+1.6SL+0.5WLD
- D7=1.2DL+1.6SL+0.5WLU
- D8=1.2DL+WLD
- D9=1.2DL+WLU
- D10=1.2DL+0.5SL+WLD
- D11=1.2DL+0.5SL+WLU
- D12=0.9DL+WLD
- D13=0.9DL+WLU
- D14=1.2DL+0.2SL
- D2a=1.2DL+0.5SLU
- D3a=1.2DL+1.6SLU
- D6a=1.2DL+0.5WLD+1.6SLU
- D7a=1.2DL+1.6SLU+0.5WLU
- D10a=1.2DL+WLD+0.5SLU
- D11a=1.2DL+0.5SLU+WLU
- D14a=1.2DL+0.2SL

Node		Forces						Moments					
		Fx	Ic	Fy	Ic	Fz	Ic	Mx	Ic	My	Ic	Mz	Ic
		[Kip]		[Kip]		[Kip]		[Kip*ft]		[Kip*ft]		[Kip*ft]	
19	Max	-0.158	D1	11.854	D6	0.319	D13	1.56367	D13	0.00087	D6a	94.08718	D10a
	Min	-2.805	D10a	-2.057	D13	-0.607	D6	-2.98591	D6	-0.00010	D13	13.20309	D13
18	Max	0.629	D3a	24.571	D6	0.027	D6	0.13712	D6	0.00085	D10a	143.86855	D10a
	Min	-4.432	D13	-8.504	D13	-0.012	D13	-0.06578	D13	-0.00015	D13	14.27101	D13
17	Max	0.629	D3a	24.571	D6	0.012	D13	0.06578	D13	0.00015	D13	143.86855	D10a
	Min	-4.432	D13	-8.504	D13	-0.027	D6	-0.13712	D6	-0.00085	D10a	14.27101	D13
1	Max	-0.158	D1	11.854	D6	0.607	D6	2.98591	D6	0.00010	D13	94.08718	D10a
	Min	-2.805	D10a	-2.057	D13	-0.319	D13	-1.56367	D13	-0.00087	D6a	13.20309	D13



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Analysis result

Nodes

Nodal displacements envelope

Note.- **Ic** is the controlling load condition
Nodal displacements envelope for :

- S1=DL
- S2=DL+SL
- S3=DL+0.75SL
- S4=DL+0.6WLD
- S5=DL+0.6WLU
- S6=DL+0.75SL+0.45WLD
- S7=DL+0.75SL+0.45WLU
- S8=0.6DL+0.6WLD
- S9=0.6DL+0.6WLU
- S10=DL+0.75SL
- S2a=DL+SLU
- S3a=DL+0.75SLU
- S6a=DL+0.45WLD+0.75SLU
- S7a=DL+0.75SLU+0.45WLU
- S10a=DL+0.75SLU

MAX DEFLECTION AT TIP OF CANTILEVER
 CANTILEVER LENGTH = 16'-0"
 DEFLECTION = $2^*L/240 = 2^*16FT^*12$
 IN/FT / 240 = 1.6" > 1.542" **OKAY**

Node		Translation						Rotation					
		X [in]	Ic	Y [in]	Ic	Z [in]	Ic	Rx [Rad]	Ic	Ry [Rad]	Ic	Rz [Rad]	Ic
28	Max	0.449	S6a	0.053	S9	0.001	S6a	0.00224	S9	0.00025	S9	0.00038	S9
	Min	0.013	S9	-0.863	S6a	0.000	S9	-0.00688	S6a	-0.00083	S6a	-0.00495	S6a
27	Max	0.747	S6a	0.254	S9	0.000	S6a	0.00037	S9	0.00005	S9	0.00159	S9
	Min	-0.041	S9	-1.542	S6a	0.000	S9	-0.00153	S6a	-0.00026	S6a	-0.00887	S6a
26	Max	0.747	S6a	0.254	S9	0.000	S9	0.00153	S6a	0.00026	S6a	0.00159	S9
	Min	-0.041	S9	-1.542	S6a	0.000	S6a	-0.00037	S9	-0.00005	S9	-0.00887	S6a
4	Max	0.449	S6a	0.053	S9	0.000	S9	0.00688	S6a	0.00083	S6a	0.00038	S9
	Min	0.013	S9	-0.863	S6a	-0.001	S6a	-0.00224	S9	-0.00025	S9	-0.00495	S6a
19	Max	0.000	S1	0.000	S1	0.000	S1	0.00000	S1	0.00000	S1	0.00000	S1
	Min	0.000	S1	0.000	S1	0.000	S1	0.00000	S1	0.00000	S1	0.00000	S1
18	Max	0.000	S1	0.000	S1	0.000	S1	0.00000	S1	0.00000	S1	0.00000	S1
	Min	0.000	S1	0.000	S1	0.000	S1	0.00000	S1	0.00000	S1	0.00000	S1
17	Max	0.000	S1	0.000	S1	0.000	S1	0.00000	S1	0.00000	S1	0.00000	S1
	Min	0.000	S1	0.000	S1	0.000	S1	0.00000	S1	0.00000	S1	0.00000	S1
1	Max	0.000	S1	0.000	S1	0.000	S1	0.00000	S1	0.00000	S1	0.00000	S1
	Min	0.000	S1	0.000	S1	0.000	S1	0.00000	S1	0.00000	S1	0.00000	S1



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Steel Connections Results

Connection: 3 - Fixed uniaxial major axis BP

Family: Column - Base (CB)
Type: Base plate
Description: Smart Fixed Uniaxial Major Axis Base Plate 1

Design code: AISC 360-16 LRFD, ACI 318-19

Demands

Description	Pu [kip]	Mu22 [kip*ft]	Mu33 [kip*ft]	Vu2 [kip]	Vu3 [kip]	Load type
DL	-5.52	0.02	18.38	0.11	0.00	Design
SL	-7.01	0.04	29.30	0.27	0.01	Design
WLD	-13.45	0.09	104.62	-2.76	0.02	Design
SLU	-5.09	0.03	34.40	0.31	0.01	Design
WLU	13.48	-0.08	-2.27	-4.53	-0.02	Design
D1	-7.73	0.02	25.73	0.16	0.00	Design
D2	-10.14	0.04	36.70	0.27	0.01	Design
D3	-17.85	0.09	68.93	0.56	0.02	Design
D4	-13.35	0.07	74.36	-1.25	0.01	Design
D5	0.11	-0.02	20.92	-2.13	0.00	Design
D6	-24.57	0.14	121.24	-0.82	0.03	Design
D7	-11.11	0.05	67.80	-1.71	0.01	Design
D8	-20.08	0.11	126.67	-2.63	0.02	Design
D9	6.85	-0.06	19.78	-4.40	-0.01	Design
D10	-23.58	0.13	141.32	-2.50	0.03	Design
D11	3.34	-0.04	34.43	-4.27	-0.01	Design
D12	-18.42	0.11	121.15	-2.66	0.02	Design
D13	8.50	-0.07	14.27	-4.43	-0.01	Design
D14	-8.03	0.03	27.91	0.19	0.01	Design
D2a	-9.17	0.03	39.25	0.29	0.01	Design
D3a	-14.77	0.06	77.10	0.63	0.01	Design
D6a	-21.49	0.11	129.41	-0.75	0.02	Design
D7a	-8.03	0.02	75.96	-1.64	0.00	Design
D10a	-22.62	0.12	143.87	-2.47	0.02	Design
D11a	4.30	-0.05	36.99	-4.24	-0.01	Design
D14a	-8.03	0.03	27.91	0.19	0.01	Design

Design calculations

Design for major axis Base plate (AISC 360-16 LRFD)

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Base plate						
Distance from anchor to edge	[in]	1.37	0.25	--	✓	
Weld size	[1/16in]	5	3	--	✓	table J2.4

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Concrete base						
Axial bearing	[Kip/in ²]	4.42	0.79	D10a	0.18	DG1 3.1.1
Base plate						
Flexural yielding (bearing interface)	[Kip*ft/ft]	24.81	15.88	D10a	0.64	DG1 Sec 3.1.2
Flexural yielding (tension interface)	[Kip*ft/ft]	24.81	15.51	D10a	0.63	DG1 Eq. 3.3.13
Column						
Weld capacity	[Kip/ft]	125.29	35.65	D10a	0.28	DG1 p. 35
Elastic method weld shear capacity	[Kip/ft]	83.53	2.39	WLU	0.03	Sec. J2.4
Elastic method weld axial capacity	[Kip/ft]	125.29	50.87	D10a	0.41	Sec. J2.4
Ratio	0.64					

Anchors

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Anchors						
Anchor spacing	[in]	8.00	5.00	--	✓	Sec. 17.9.2
Concrete cover	[in]	36.37	3.00	--	✓	Sec. 20.5.1.3.1
Effective length	[in]	18.81	--	23.19	✓	

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Anchor tension	[Kip]	42.16	23.77	D10a	0.56	Eq. 17.6.1.2
Breakout of anchor in tension	[Kip]	109.47	23.77	D10a	0.22	Sec. 17.5.2
Breakout of group of anchors in tension	[Kip]	141.90	71.30	D10a	0.50	Sec. 17.5.2
Pullout of anchor in tension	[Kip]	57.00	23.77	D10a	0.42	Sec. 17.5.2
Anchor shear	[Kip]	21.92	0.76	WLU	0.03	Eq. 17.7.1.2b
Breakout of anchor in shear	[Kip]	65.08	0.76	WLU	0.01	Sec. 17.5.2
Breakout of anchor in shear parallel to edge	[Kip]	142.80	0.76	WLU	0.01	Sec. 17.5.2
Breakout of group of anchors in shear	[Kip]	71.40	4.53	WLU	0.06	Sec. 17.5.2
Breakout of group of anchors in shear parallel to edge	[Kip]	142.80	4.53	WLU	0.03	Sec. 17.5.2
Pryout of anchor in shear	[Kip]	218.93	0.76	WLU	0.00	Sec. 17.5.2
Pryout of group of anchors in shear	[Kip]	399.42	4.53	WLU	0.01	Sec. 17.5.2
Interaction of tensile and shear forces	[Kip]	1.20	0.00	DL	0.00	Sec. 17.8.1
Ratio	0.56					

Design for minor axis Base plate (AISC 360-16 LRFD)

Geometric Considerations

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Base plate						
Distance from anchor to edge	[in]	1.37	0.25	--	✓	
Weld size	[1/16in]	5	3	--	✓	table J2.4

Design Check

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Concrete base						
Axial bearing	[Kip/in ²]	4.42	0.05	D6	0.01	DG1 3.1.1

Base plate

Flexural yielding (bearing interface)	[Kip*ft/ft]	24.81	0.48	D6	0.02	DG1 Sec 3.1.2
Flexural yielding (tension interface)	[Kip*ft/ft]	24.81	1.47	WLU	0.06	DG1 Eq. 3.3.13

Column

Weld capacity	[Kip/ft]	125.29	3.37	WLU	0.03	DG1 p. 35
Elastic method weld shear capacity	[Kip/ft]	83.53	0.01	D6	0.00	Sec. J2.4
Elastic method weld axial capacity	[Kip/ft]	125.29	3.18	WLU	0.03	Sec. J2.4

Ratio **0.06**

Anchors**Geometric Considerations**

Dimensions	Unit	Value	Min.	Max.	Sta.	References
Anchors						
Anchor spacing	[in]	8.00	5.00	--	✓	Sec. 17.9.2
Concrete cover	[in]	36.37	3.00	--	✓	Sec. 20.5.1.3.1
Effective length	[in]	18.81	--	23.19	✓	

Design Check

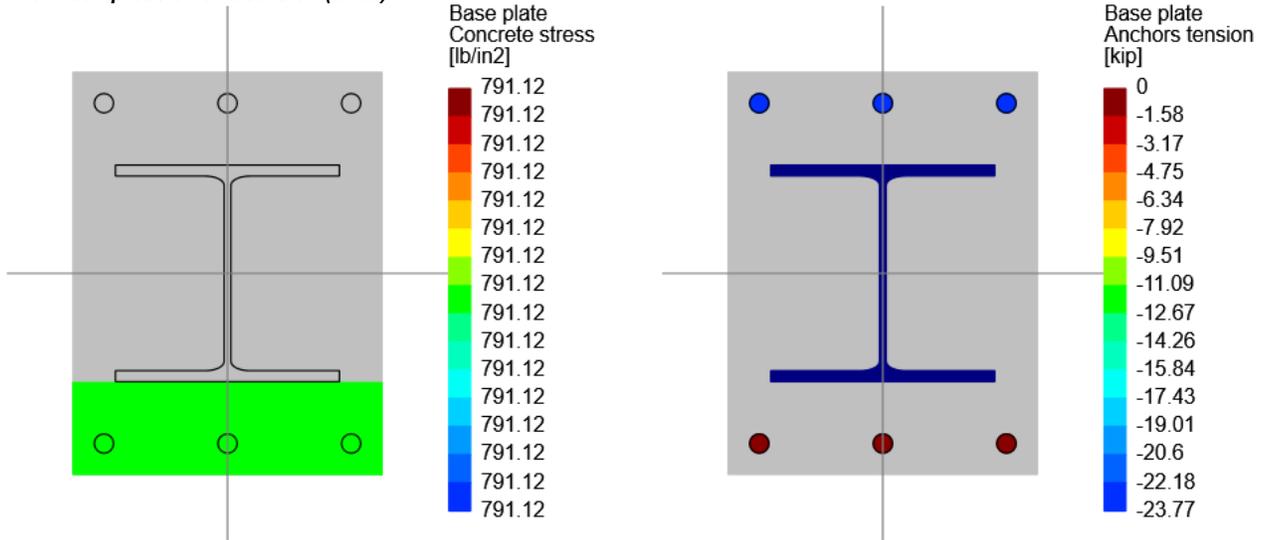
Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Anchor tension	[Kip]	42.16	2.25	WLU	0.05	Eq. 17.6.1.2
Breakout of anchor in tension	[Kip]	109.47	2.25	WLU	0.02	Sec. 17.5.2
Breakout of group of anchors in tension	[Kip]	199.71	13.48	WLU	0.07	Sec. 17.5.2
Pullout of anchor in tension	[Kip]	57.00	2.25	WLU	0.04	Sec. 17.5.2
Anchor shear	[Kip]	21.92	0.00	D6	0.00	Eq. 17.7.1.2b
Breakout of anchor in shear	[Kip]	63.41	0.00	D6	0.00	Sec. 17.5.2
Breakout of anchor in shear parallel to edge	[Kip]	142.06	0.00	D6	0.00	Sec. 17.5.2
Breakout of group of anchors in shear	[Kip]	71.40	0.03	D6	0.00	Sec. 17.5.2
Breakout of group of anchors in shear parallel to edge	[Kip]	142.80	0.03	D6	0.00	Sec. 17.5.2
Pryout of anchor in shear	[Kip]	218.93	0.00	D6	0.00	Sec. 17.5.2
Pryout of group of anchors in shear	[Kip]	399.42	0.03	D6	0.00	Sec. 17.5.2
Interaction of tensile and shear forces	[Kip]	1.20	0.00	WLU	0.00	Sec. 17.8.1

Ratio **0.07**

Global critical strength ratio **0.64**

Major axis

Maximum compression and tension (D10a)



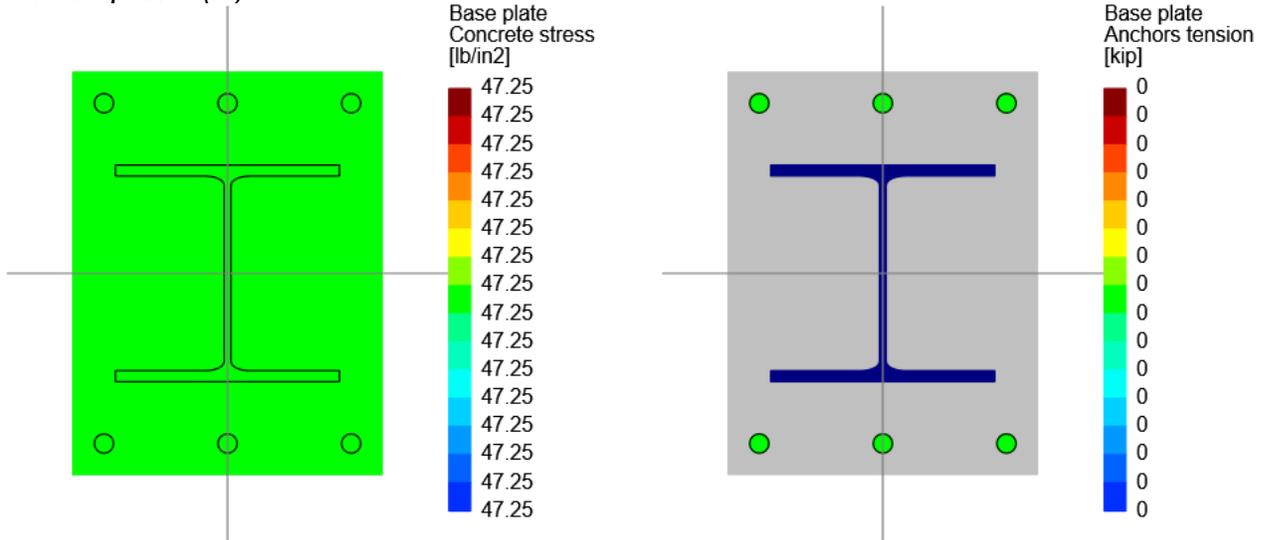
Maximum bearing pressure	791.12	[lb/in2]
Minimum bearing pressure	791.12	[lb/in2]
Maximum anchor tension	23.77	[kip]
Minimum anchor tension	0.00	[kip]
Neutral axis angle	0.00	[deg]
Neutral axis location	5.94	[in]
Bearing length	5.94	[in]

Anchors tensions

Anchor	Transverse [in]	Longitudinal [in]	Shear [kip]	Tension [kip]
1	-8.00	-11.00	-0.41	0.00
2	0.00	-11.00	-0.41	0.00
3	8.00	-11.00	-0.41	0.00
4	8.00	11.00	-0.41	23.77
5	0.00	11.00	-0.41	23.77
6	-8.00	11.00	-0.41	23.77

Minor axis

Maximum compression (D6)

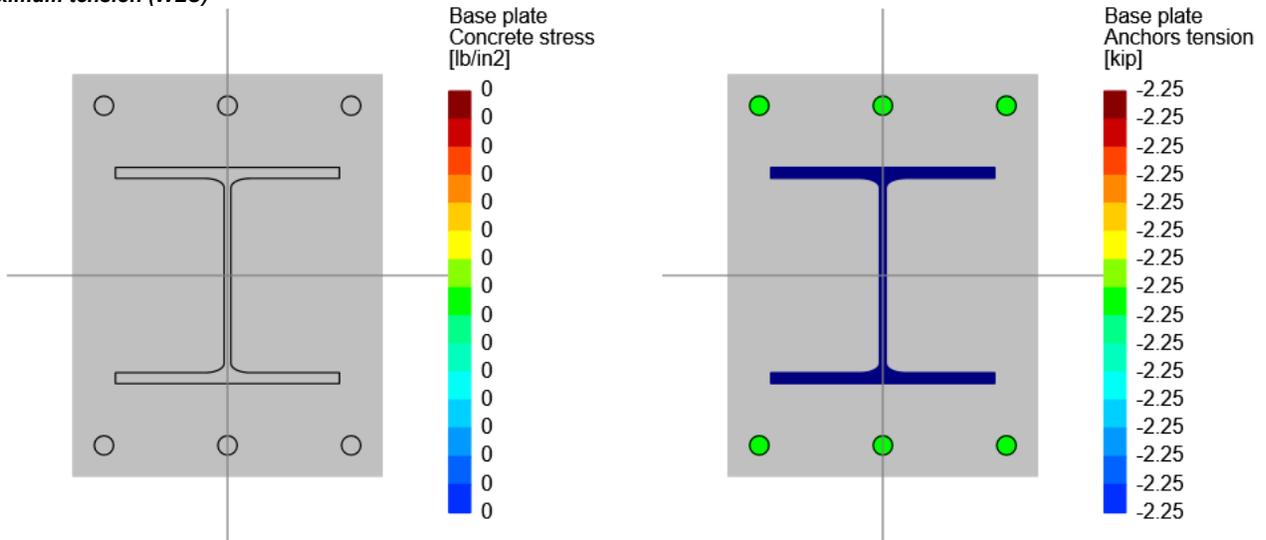


Maximum bearing pressure	47.25	[lb/in2]
Minimum bearing pressure	47.25	[lb/in2]
Maximum anchor tension	0.00	[kip]
Minimum anchor tension	0.00	[kip]
Neutral axis angle	0.00	[deg]
Neutral axis location	1.2E31	[in]
Bearing length	20.00	[in]

Anchors tensions

Anchor	Transverse [in]	Longitudinal [in]	Shear [kip]	Tension [kip]
1	-8.00	-11.00	0.00	0.00
2	0.00	-11.00	0.00	0.00
3	8.00	-11.00	0.00	0.00
4	8.00	11.00	0.00	0.00
5	0.00	11.00	0.00	0.00
6	-8.00	11.00	0.00	0.00

Maximum tension (WLU)



Maximum bearing pressure	0.00	[lb/in2]
Minimum bearing pressure	0.00	[lb/in2]
Maximum anchor tension	2.25	[kip]
Minimum anchor tension	2.25	[kip]
Neutral axis angle	0.00	[deg]
Neutral axis location	-1.2E31	[in]

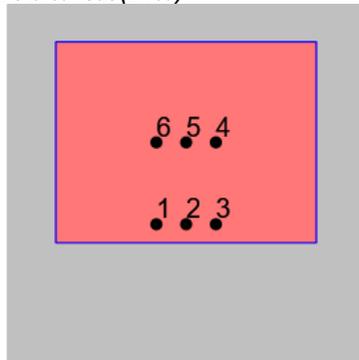
Bearing length 0.00 [in]

Anchors tensions

Anchor	Transverse [in]	Longitudinal [in]	Shear [kip]	Tension [kip]
1	-8.00	-11.00	0.00	2.25
2	0.00	-11.00	0.00	2.25
3	8.00	-11.00	0.00	2.25
4	8.00	11.00	0.00	2.25
5	0.00	11.00	0.00	2.25
6	-8.00	11.00	0.00	2.25

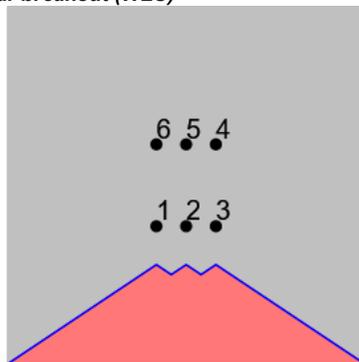
Major axis

Results for tensile breakout (D10a)



Group	Area [in2]	Tension [kip]	Anchors
1	3780.00	71.30	4, 5, 6

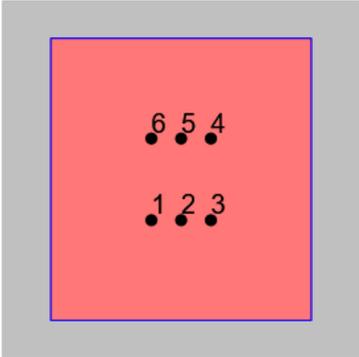
Results for shear breakout (WLU)



Group	Area [in2]	Shear [kip]	Anchors
1	2304.00	2.27	1, 2, 3
2	2304.00	4.53	1, 2, 3, 4, 5, 6

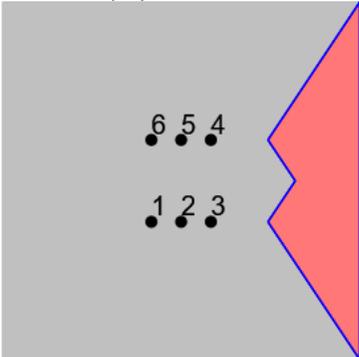
Minor axis

Results for tensile breakout (WLU)



Group	Area [in ²]	Tension [kip]	Anchors
1	5320.00	13.48	1, 2, 3, 4, 5, 6

Results for shear breakout (D6)



Group	Area [in ²]	Shear [kip]	Anchors
1	2304.00	0.03	1, 2, 3, 4, 5, 6
2	2304.00	0.02	2, 3, 4, 5
3	2304.00	0.01	3, 4



Design Results Reinforced Concrete Footings

General Information

Global status : OK
Design Code : ACI 318-2019
Footing type : Spread
Column type : Steel

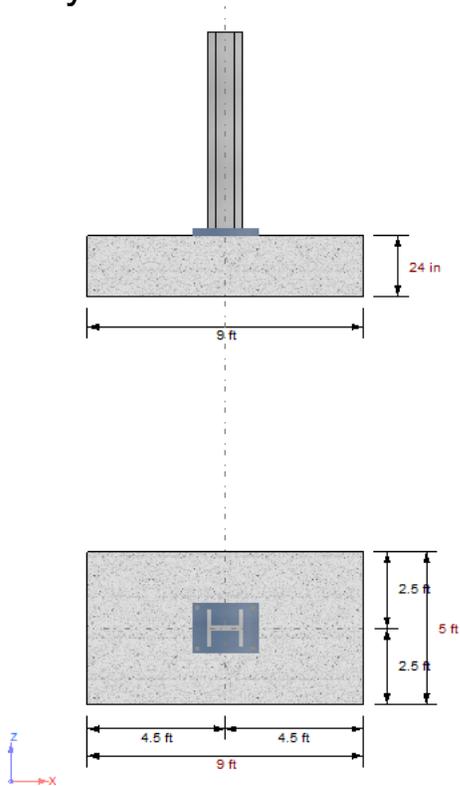
Materials

Concrete, f_c	: 4.00 [Kip/in ²]	Steel, f_y	: 60.00 [Kip/in ²]
Concrete type	: Normal	Epoxy coated	: No
Concrete elasticity modulus	: 3605.00 [Kip/in ²]	Steel elasticity modulus	: 29000.00 [Kip/in ²]
Unit weight	: 0.15 [Kip/ft ³]		

Soil

Modulus of subgrade reaction : 200.00 [Kip/ft³]
Unit weight (wet) : 0.11 [Kip/ft³]

Geometry



Length	:	9.00 [ft]	
Width	:	5.00 [ft]	
Thickness	:	2.00 [ft]	
Base depth	:	3.50 [ft]	
Base area	:	45.00 [ft2]	
Footing volume	:	90.00 [ft3]	
Base plate length	:	26.00 [in]	
Base plate width	:	20.00 [in]	
Column length	:	14.00 [in]	
Column width	:	14.50 [in]	
Column location relative to footing g.c.	:		Centered

Reinforcement

Longitudinal reinforcement

Free cover	:	3.00 [in]
Maximum Rho/Rho balanced ratio	:	0.75
Bottom reinforcement // to L (xx)	:	6-#6 @ 10.00"
Top reinforcement // to L (xx)	:	6-#6 @ 10.00"
Bottom reinforcement // to B (zz)	:	3-#6 @ 10.00" (Zone 1)
Bottom reinforcement // to B (zz)	:	8-#6 @ 8.00" (Zone 2)
Bottom reinforcement // to B (zz)	:	3-#6 @ 10.00" (Zone 3)
Top reinforcement // to B (zz)	:	3-#6 @ 10.00"
Top reinforcement // to B (zz)	:	5-#6 @ 15.00"
Top reinforcement // to B (zz)	:	3-#6 @ 10.00"

Load Conditions

Service loads:

S1	:	DL
S2	:	DL+SL
S3	:	DL+0.75SL
S4	:	DL+0.6WLD
S5	:	DL+0.6WLU
S6	:	DL+0.75SL+0.45WLD
S7	:	DL+0.75SL+0.45WLU
S8	:	0.6DL+0.6WLD
S9	:	0.6DL+0.6WLU
S10	:	DL+0.75SL
S2a	:	DL+SLU
S3a	:	DL+0.75SLU
S6a	:	DL+0.45WLD+0.75SLU
S7a	:	DL+0.75SLU+0.45WLU
S10a	:	DL+0.75SLU

Design strength loads:

D1	:	1.4DL
D2	:	1.2DL+0.5SL
D3	:	1.2DL+1.6SL
D4	:	1.2DL+0.5WLD
D5	:	1.2DL+0.5WLU
D6	:	1.2DL+1.6SL+0.5WLD
D7	:	1.2DL+1.6SL+0.5WLU
D8	:	1.2DL+WLD
D9	:	1.2DL+WLU
D10	:	1.2DL+0.5SL+WLD
D11	:	1.2DL+0.5SL+WLU
D12	:	0.9DL+WLD
D13	:	0.9DL+WLU
D14	:	1.2DL+0.2SL
D2a	:	1.2DL+0.5SLU
D3a	:	1.2DL+1.6SLU
D6a	:	1.2DL+0.5WLD+1.6SLU
D7a	:	1.2DL+1.6SLU+0.5WLU
D10a	:	1.2DL+WLD+0.5SLU
D11a	:	1.2DL+0.5SLU+WLU
D14a	:	1.2DL+0.2SL

Loads

Condition	Footing	Node	Axial [Kip]	Mxx [Kip*ft]	Mzz [Kip*ft]	Vx [Kip]	Vz [Kip]
DL	1	18	5.52	0.02	-18.38	0.11	0.00
SL	1	18	7.01	0.04	-29.30	0.27	-0.01
WLD	1	18	13.45	0.09	-104.62	-2.76	-0.02
WLU	1	18	-13.48	-0.08	2.27	-4.53	0.02
SLU	1	18	5.09	0.03	-34.40	0.31	-0.01

Design

Status : OK

Soil Foundation Interaction

Allowable stress : 3E03 [Lb/ft2]
 Min. safety factor for sliding : 1.25
 Min. safety factor for overturning : 1.25

Controlling condition : S8 - 1

Condition	qmean [Lb/ft2]	qmax [Lb/ft2]	Δ max [in]	Area in compression		Overturning		FS slip
				[ft2]	(%)	FSx	FSz	
S8 - 1	1.35E03	2.7E03	0.162	17.75	39	548.50	1.36	10.47

Bending

Factor ϕ : 0.90
 Min rebar ratio : 0.00180

Development length

Axis	Pos.	ld [in]	lhd [in]	Dist1 [in]	Dist2 [in]
z	Bot.	21.56	7.54	18.38	18.38
x	Bot.	27.94	9.78	41.00	41.00
z	Top	12.00	6.00	19.75	19.75
x	Top	12.00	6.00	44.00	44.00

Axis	Pos.	Condition	Mu [Kip*ft]	ϕ *Mn [Kip*ft]	Asreq [in2]	Asprov [in2]	Asreq/Asprov	Mu/(ϕ *Mn)	
zz	Top	D8 - 1	-18.74	-240.41	0.20	2.64	0.077	0.078	
zz	Bot.	D10a - 1	94.05	240.41	2.39	2.64	0.905	0.391	
xx	Top	D13 - 1	-2.73	-424.27	0.03	4.84	0.006	0.006	
xx	Bot.	D6 - 1	7.86	536.98	4.67	6.16	0.757	0.015	

Shear

Factor ϕ : 0.75
 Shear area (plane zz) : 8.59 [ft2]
 Shear area (plane xx) : 14.91 [ft2]

Plane	Condition	Vu [Kip]	Vc [Kip]	Vu/(ϕ *Vn)	
xy	D6 - 1	0.62	154.34	0.005	
yz	D10a - 1	30.27	80.60	0.501	

Punching shear

Factor ϕ : 0.75
Perimeter of critical section (bo 1) : 12.96 [ft]
Punching shear area : 21.87 [ft²]

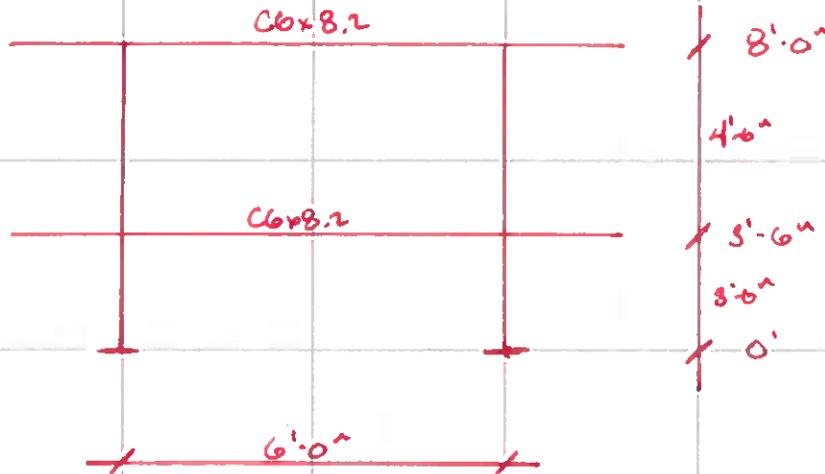
Column	Condition Footing	Vu [Kip]	Vc [Kip]	Vu/(ϕ *Vn)
column 1	D10a - 1	26.16	796.61	0.044 

Notes

- * Soil under the footing is considered elastic and homogeneous. A linear soil pressure variation is assumed.
- * The required flexural reinforcement considers at least the minimum reinforcement
- * The design bending moment is calculated at the critical sections located at the support faces
- * Only rectangular footings with uniform sections and rectangular columns are considered.
- * The nominal shear strength is calculated in critical sections located at a distance d from the support face
- * The punching shear strength is calculated in a perimetral section located at a distance d/2 from the support faces
- * Transverse reinforcement is not considered in footings
- * Values shown in red are not in compliance with a provision of the code
- * q_{prom} = Mean compression pressure on soil.
- * q_{max} = Maximum compression pressure on soil.
- * Δ_{max} = maximum total settlement (considering an elastic soil modeled by the subgrade reaction modulus).
- * M_n = Nominal moment strength
- * $M_u/(\phi * M_n)$ = Strength ratio.
- * V_n = Nominal shear or punchure force (for footings $V_n = V_c$).
- * $V_u/(\phi * V_n)$ = Shear or punching shear strength ratio.

SCREENWALL CALCS
SCREENWALL CALCS

WIND LOAD = 57 PSF (PARALLEL LOADING)



$$\begin{aligned} \text{POINT LOAD AT TOP OF COL} &= 4'-0''/2 \times 6' (57) = 770 \# \\ \text{BOT OF COL} &= 770 \# \end{aligned}$$

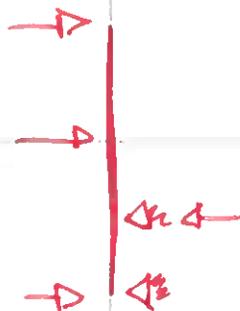
$$\text{LINE LOAD ON TOP \& BOT CHANNEL} = 4'-0''/2 \times 57 = 129 \#/\text{ft}$$

DESIGN CHANNEL w/ ENBRACE
 DCR = 0.038
 $A = 0.006 \text{ m}$

$$A \geq B \times 12 / 240 = 0.40 \text{ in MAP}$$

DESIGN POST w/ 2AM ELEMENTS

$$\Delta \text{ AT TP} = 0.217 \text{ in} < 0.4 \text{ in}$$



REACTIONS

$$\text{AT DECK} = 7.44 \text{ k}$$

$$\text{AT BOT. CHANNEL} = 5.9 \text{ k}$$

SCREENWALL CALCS

CHECK $L6 \times 6 \times \frac{1}{8}$ BACK TO BACK BETWEEN TOPS OF BEAMS.

USE ENBRAC TO CHECK SINGLE $L6 \times 6 \times \frac{1}{8}$ W/ $\frac{1}{2}$ THE LOAD.

$$7.44 \text{ k} / 2 = 3.72 \text{ k} \text{ LOAD } 1'-0" \text{ FROM EDGE}$$

\rightarrow 6'-0" SPAN

$$DCR = 0.291$$

CHECK HSS $6 \times 2 \times \frac{1}{4}$ AT BOT. OF $W18 \times 35$ BETWEEN BOTTOM OF BEAM.

USE ENBRAC TO CHECK BEAM W/ FULL LOAD

$$5.9 \text{ k} \text{ LOAD } 1'-0" \text{ FROM EDGE}$$

\rightarrow 6'-0" SPAN

$$DCR = 0.196$$

CHECK $L3 \times 3 \times \frac{1}{4}$ FOR AXIAL LOAD

$$5.9 \text{ k} / 2 \times (\sqrt{2}) = 4.18 \text{ k}$$

$$DCR = 0.06$$

WELDS = ALL WELDS HAVE DEMAND OF 7 kips or less

$$1.392 (3) 2" = 8.352 \text{ k} \text{ AS CAPACITY OF } 2" \text{ OF } \frac{3}{16}" \text{ FULLER.}$$

\therefore WELDS OKAY.



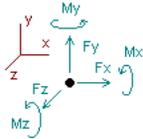
Analysis result

Nodes

Translations

Node	Translations [in]			Rotations [Rad]		
	TX	TY	TZ	RX	RY	RZ
Condition D3=1.2DL+WL						
4	0.00000	0.00000	0.00000	0.00000	0.00000	0.00017
5	0.00000	0.00000	0.00000	0.00000	0.00000	-0.00079
6	0.11004	0.00000	0.00000	0.00000	0.00000	-0.00391
7	0.36308	0.00000	0.00000	0.00000	0.00000	-0.00504
Condition S2=DL+0.6WL						
4	0.00000	0.00000	0.00000	0.00000	0.00000	0.00010
5	0.00000	0.00000	0.00000	0.00000	0.00000	-0.00048
6	0.06603	0.00000	0.00000	0.00000	0.00000	-0.00235
7	0.21785	0.00000	0.00000	0.00000	0.00000	-0.00303

Reactions



Direction of positive forces and moments



Node	Forces [Kip]			Moments [Kip*ft]		
	FX	FY	FZ	MX	MY	MZ
Condition D3=1.2DL+WL						
4	5.90333	0.00000	0.00000	0.00000	0.00000	0.00000
5	-7.44333	0.00000	0.00000	0.00000	0.00000	0.00000
SUM	-1.54000	0.00000	0.00000	0.00000	0.00000	0.00000
Condition S2=DL+0.6WL						
4	3.54200	0.00000	0.00000	0.00000	0.00000	0.00000
5	-4.46600	0.00000	0.00000	0.00000	0.00000	0.00000
SUM	-0.92400	0.00000	0.00000	0.00000	0.00000	0.00000

Steel Beam

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: TOP AND BOT CHANNEL SCREENWALL C6X8.2

CODE REFERENCES

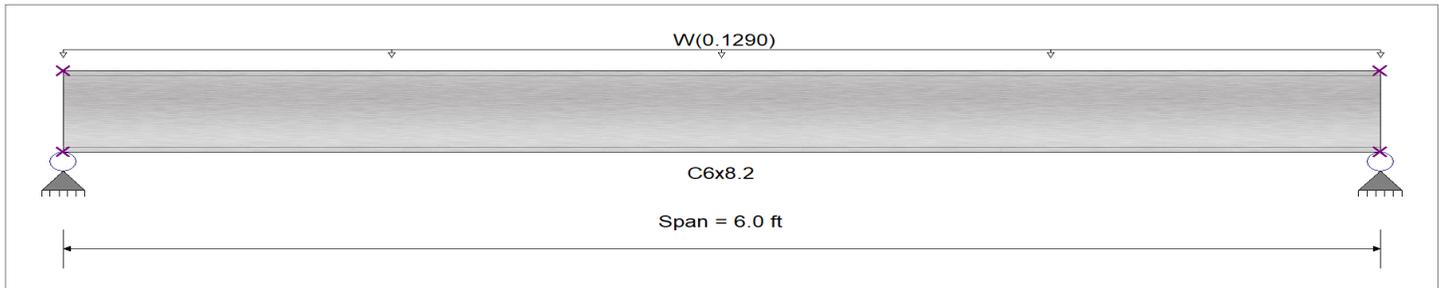
Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

Material Properties

Analysis Method Load Resistance Factor Design
 Beam Bracing : Completely Unbraced
 Bending Axis : Major Axis Bending

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



Applied Loads

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

Beam self weight NOT internally calculated and added
 Loads on all spans...

Uniform Load on ALL spans : W = 0.1290 k/ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.038 : 1	Maximum Shear Stress Ratio =	0.012 : 1
Section used for this span	C6x8.2	Section used for this span	C6x8.2
Mu : Applied	0.581 k-ft	Vu : Applied	0.3870 k
Mn * Phi : Allowable	15.271 k-ft	Vn * Phi : Allowable	32.40 k
Load Combination	W Only	Load Combination	W Only
Span # where maximum occurs	Span # 1	Location of maximum on span	0.000 ft
		Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.010 in	Ratio =	7,238 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.006 in	Ratio =	12064 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		Summary of Moment Values					Summary of Shear Values				
			M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx	Phi*Vnx
Dsgn. L =	6.00 ft	1		0.000				14.94	13.44	1.00	1.00	-0.00	36.00	32.40
+0.50W														
Dsgn. L =	6.00 ft	1	0.019	0.006	0.29		0.29	16.97	15.27	1.14	1.00	0.19	36.00	32.40
W Only														
Dsgn. L =	6.00 ft	1	0.038	0.012	0.58		0.58	16.97	15.27	1.14	1.00	0.39	36.00	32.40

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.0099	3.017		0.0000	0.000

Vertical Reactions

Load Combination	Support notation : Far left is #		Values in KIPS	
	Support 1	Support 2		
Overall MAXimum	0.387	0.387		
Overall MINimum	0.174	0.174		
+0.60W	0.232	0.232		
+0.450W	0.174	0.174		
W Only	0.387	0.387		

Steel Beam

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: L6X6X3/8 AT SCREENWALL

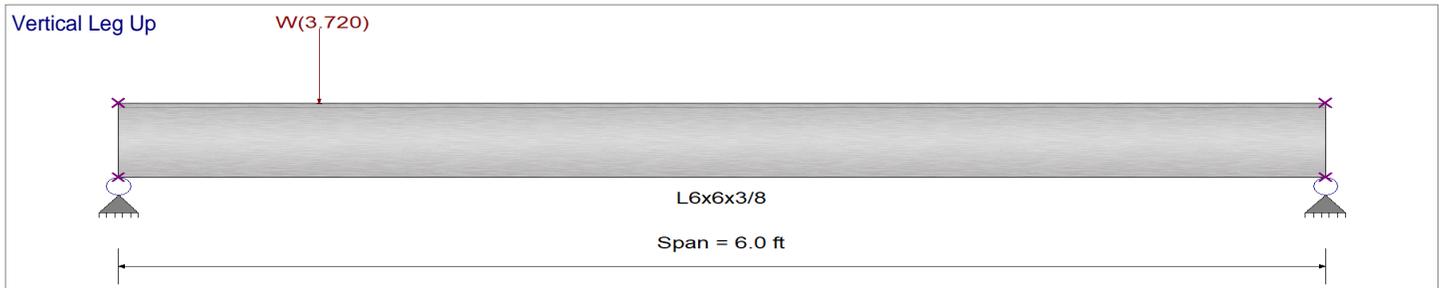
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method Load Resistance Factor Design
 Beam Bracing : Completely Unbraced
 Bending Axis : Major Axis Bending

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



Applied Loads

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

Beam self weight NOT internally calculated and added
 Load(s) for Span Number 1
 Point Load : W = 3.720 k @ 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.291 : 1	Maximum Shear Stress Ratio =	0.071 : 1
Section used for this span	L6x6x3/8	Section used for this span	L6x6x3/8
Mu : Applied	3.093 k-ft	Vu : Applied	3.10 k
Mn * Phi : Allowable	10.626 k-ft	Vn * Phi : Allowable	43.740 k
Load Combination	W Only	Load Combination	W Only
Span # where maximum occurs	Span # 1	Location of maximum on span	0.000 ft
		Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.032 in Ratio = 2,246	>=360	
Max Upward Transient Deflection	0.000 in Ratio = 0	<360	Span: 1 : W Only
Max Downward Total Deflection	0.019 in Ratio = 3744	>=180	Span: 1 : +0.60W
Max Upward Total Deflection	0.000 in Ratio = 0	<180	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		Summary of Moment Values					Summary of Shear Values				
			M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx	Phi*Vnx
Dsgn. L =	6.00 ft	1		0.000				10.89	9.80	1.00	1.00	-0.00	48.60	43.74
+0.50W														
Dsgn. L =	6.00 ft	1	0.146	0.035	1.55		1.55	11.81	10.63	1.47	1.00	1.55	48.60	43.74
W Only														
Dsgn. L =	6.00 ft	1	0.291	0.071	3.09		3.09	11.81	10.63	1.47	1.00	3.10	48.60	43.74

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.0321	2.589		0.0000	0.000

Vertical Reactions

Load Combination	Support 1	Support 2
Overall MAXimum	3.100	0.620
Overall MINimum	1.395	0.279
+0.60W	1.860	0.372
+0.450W	1.395	0.279
W Only	3.100	0.620

Steel Beam

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: HSS6X2X1/4 AT SCREENWALL

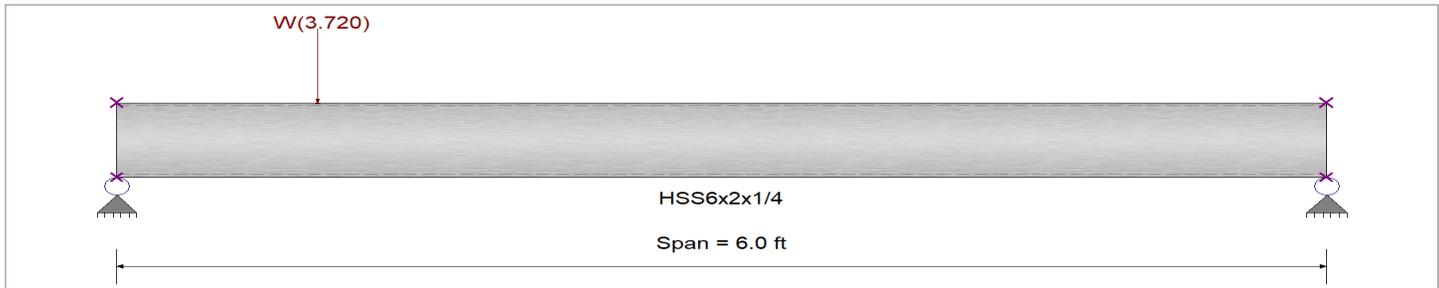
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method Load Resistance Factor Design
 Beam Bracing : Completely Unbraced
 Bending Axis : Major Axis Bending

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



Applied Loads

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

Beam self weight NOT internally calculated and added
 Load(s) for Span Number 1
 Point Load : W = 3.720 k @ 1.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.196 : 1	Maximum Shear Stress Ratio =	0.065 : 1
Section used for this span	HSS6x2x1/4	Section used for this span	HSS6x2x1/4
Mu : Applied	3.093 k-ft	Vu : Applied	3.10 k
Mn * Phi : Allowable	15.768 k-ft	Vn * Phi : Allowable	48.022 k
Load Combination	W Only	Load Combination	W Only
Span # where maximum occurs	Span # 1	Location of maximum on span	0.000 ft
		Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.038 in	Ratio =	1,910 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.023 in	Ratio =	3185 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		Summary of Moment Values					Summary of Shear Values				
			M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx	Phi*Vnx
Dsgn. L =	6.00 ft	1		0.000				17.52	15.77	1.00	1.00	-0.00	53.36	48.02
+0.50W														
Dsgn. L =	6.00 ft	1	0.098	0.032	1.55		1.55	17.52	15.77	1.47	1.00	1.55	53.36	48.02
W Only														
Dsgn. L =	6.00 ft	1	0.196	0.065	3.09		3.09	17.52	15.77	1.47	1.00	3.10	53.36	48.02

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.0377	2.589		0.0000	0.000

Vertical Reactions

Load Combination	Support 1	Support 2
Overall MAXimum	3.100	0.620
Overall MINimum	1.395	0.279
+0.60W	1.860	0.372
+0.450W	1.395	0.279
W Only	3.100	0.620

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: L3X3X1/4 KICKER AT SCREENWALL

Code References

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Steel Section Name :	LL 3x3x1/4	Overall Column Height	5 ft
Analysis Method :	Load Resistance Factor	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade		Brace condition for deflection (buckling) along columns :	
Fy : Steel Yield	36.0 ksi	X-X (width) axis :	
E : Elastic Bending Modulus	29,000.0 ksi	Unbraced Length for buckling ABOUT Y-Y Axis = 5 ft, K = 1.0	
		Y-Y (depth) axis :	
		Unbraced Length for buckling ABOUT X-X Axis = 5 ft, K = 1.0	

Applied Loads

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

Column self weight included : 48.850 lbs * Dead Load Factor
 AXIAL LOADS . . .
 Axial Load at 5.0 ft, W = 4.180 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio =	0.06069 : 1	Maximum Load Reactions . .	
Load Combination	+1.20D+W	Top along X-X	0.0 k
Location of max.above base	0.0 ft	Bottom along X-X	0.0 k
At maximum location values are . . .		Top along Y-Y	0.0 k
Pu	4.239 k	Bottom along Y-Y	0.0 k
0.9 * Pn	69.845 k	Maximum Load Deflections . . .	
Mu-x	0.0 k-ft	Along Y-Y	0.0 in at
0.9 * Mn-x :	4.617 k-ft	for load combination :	0.0ft above base
Mu-y	0.0 k-ft	Along X-X	0.0 in at
0.9 * Mn-y :	0.0 k-ft	for load combination :	0.0ft above base
PASS Maximum Shear Stress Ratio	0.0 : 1		
Load Combination	0.0		
Location of max.above base	0.0 ft		
At maximum location values are . . .			
Vu : Applied	0.0 k		
Vn * Phi : Allowable	0.0 k		

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Cb _x	Cb _y	K _x L _x /R _y	K _y L _y /R _x	Maximum Shear Ratios		
	Stress Ratio	Status	Location					Stress Ratio	Status	Location
+1.40D	0.001	PASS	0.00 ft	1.00	1.00	48.00	64.79	0.000	PASS	0.00 ft
+1.20D	0.001	PASS	0.00 ft	1.00	1.00	48.00	64.79	0.000	PASS	0.00 ft
+1.20D+0.50W	0.031	PASS	0.00 ft	1.00	1.00	48.00	64.79	0.000	PASS	0.00 ft
+1.20D+W	0.061	PASS	0.00 ft	1.00	1.00	48.00	64.79	0.000	PASS	0.00 ft
+0.90D+W	0.060	PASS	0.00 ft	1.00	1.00	48.00	64.79	0.000	PASS	0.00 ft
+0.90D	0.001	PASS	0.00 ft	1.00	1.00	48.00	64.79	0.000	PASS	0.00 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial Reaction	X-X Axis Reaction		k	Y-Y Axis Reaction		M _x - End Moments		M _y - End Moments	
	@ Base	@ Base	@ Top		@ Base	@ Top	@ Base	@ Top	@ Base	@ Top
D Only	0.049									
+D+0.60W	2.557									
+D+0.450W	1.930									
+0.60D+0.60W	2.537									
+0.60D	0.029									
W Only	4.180									

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: L3X3X1/4 KICKER AT SCREENWALL

Extreme Reactions

Item	Extreme Value	Axial Reaction	X-X Axis Reaction		k	Y-Y Axis Reaction		Mx - End Moments		k-ft	My - End Moments	
		@ Base	@ Base	@ Top		@ Base	@ Top	@ Base	@ Top		@ Base	@ Top
Axial @ Base	Maximum	4.180										
"	Minimum	0.029										
Reaction, X-X Axis Base	Maximum	0.049										
"	Minimum	0.049										
Reaction, Y-Y Axis Base	Maximum	0.049										
"	Minimum	0.049										
Reaction, X-X Axis Top	Maximum	0.049										
"	Minimum	0.049										
Reaction, Y-Y Axis Top	Maximum	0.049										
"	Minimum	0.049										
Moment, X-X Axis Base	Maximum	0.049										
"	Minimum	0.049										
Moment, Y-Y Axis Base	Maximum	0.049										
"	Minimum	0.049										
Moment, X-X Axis Top	Maximum	0.049										
"	Minimum	0.049										
Moment, Y-Y Axis Top	Maximum	0.049										
"	Minimum	0.049										

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.60W	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.450W	0.0000 in	0.000 ft	0.000 in	0.000 ft
+0.60D+0.60W	0.0000 in	0.000 ft	0.000 in	0.000 ft
+0.60D	0.0000 in	0.000 ft	0.000 in	0.000 ft
W Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Steel Section Properties : LL 3x3x1/4

Depth	=	3.000 in	I xx	=	2.46 in^4	J	=	0.063 in^4
			S xx	=	1.14 in^3			
Leg Width	=	3.000 in	R xx	=	0.926 in			
Thickness	=	0.250 in	Zx	=	2.040 in^3	H	=	0.827 in
Area	=	2.870 in^2	I yy	=	4.484 in^4			
Weight	=	9.770 plf	S yy	=	1.495 in^3			
			R yy	=	1.250 in			
Ycg	=	2.164 in	Qs	=	1.000			
Xcg	=	3.000 in						
Leg Spacing	=	0.000 in						

Steel Column

Project File: LXT Terminal 250104-000.ec6

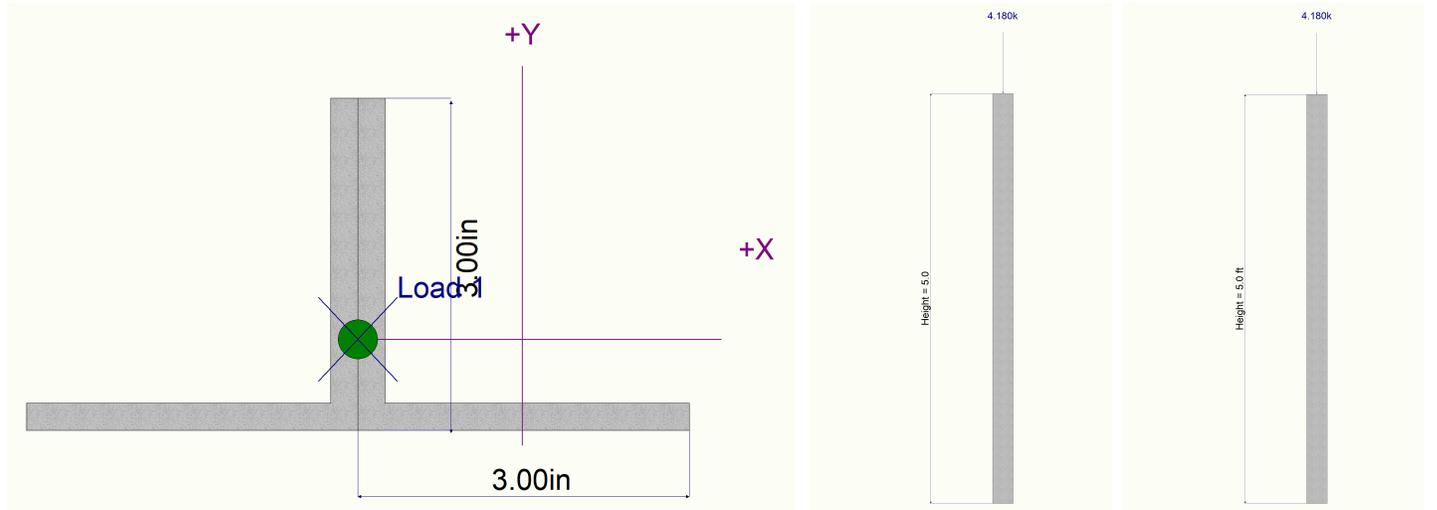
LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: L3X3X1/4 KICKER AT SCREENWALL

Sketches



Steel Beam

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: HSS AT BOT OF GLAZING ON GRID 2 (Strong Axis Wind load) 18' gravity load 9' wind load.

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

Material Properties

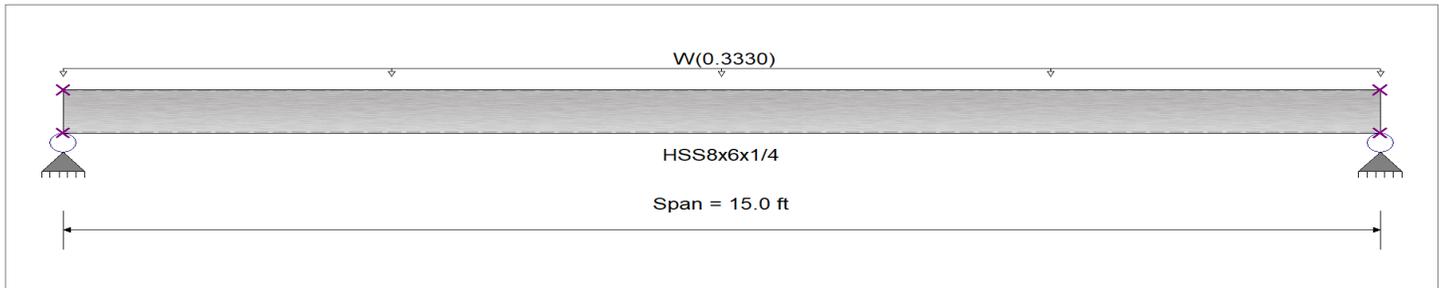
Analysis Method Load Resistance Factor Design

Fy : Steel Yield : 50.0 ksi

Beam Bracing : Completely Unbraced

E: Modulus : 29,000.0 ksi

Bending Axis : Major Axis Bending



Applied Loads

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

Beam self weight NOT internally calculated and added

Loads on all spans...

Uniform Load on ALL spans : W = 0.0370 ksf, Tributary Width = 9.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.148 : 1	Maximum Shear Stress Ratio =	0.027 : 1
Section used for this span	HSS8x6x1/4	Section used for this span	HSS8x6x1/4
Mu : Applied	9.366 k-ft	Vu : Applied	2.498 k
Mn * Phi : Allowable	63.375 k-ft	Vn * Phi : Allowable	91.861 k
Load Combination	W Only	Load Combination	W Only
Span # where maximum occurs	Span # 1	Location of maximum on span	0.000 ft
		Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.232 in	Ratio =	775 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.139 in	Ratio =	1292 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		Summary of Moment Values					Summary of Shear Values				
			M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx	Phi*Vnx
Dsgn. L = 15.00 ft		1		0.000				70.42	63.38	1.00	1.00	-0.00	102.07	91.86
+0.50W														
Dsgn. L = 15.00 ft		1	0.074	0.014	4.68		4.68	70.42	63.38	1.14	1.00	1.25	102.07	91.86
W Only														
Dsgn. L = 15.00 ft		1	0.148	0.027	9.37		9.37	70.42	63.38	1.14	1.00	2.50	102.07	91.86

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.2321	7.543		0.0000	0.000

Vertical Reactions

Load Combination	Support notation : Far left is #		Values in KIPS	
	Support 1	Support 2		
Overall MAXimum	2.498	2.498		
Overall MINimum	1.124	1.124		
+0.60W	1.499	1.499		
+0.450W	1.124	1.124		
W Only	2.498	2.498		

Steel Beam

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: HSS AT BOT OF GLAZING ON GRID 8.3 (Strong Axis Gravity load) 10' gravity load 5+3.5' = 8.5' wind

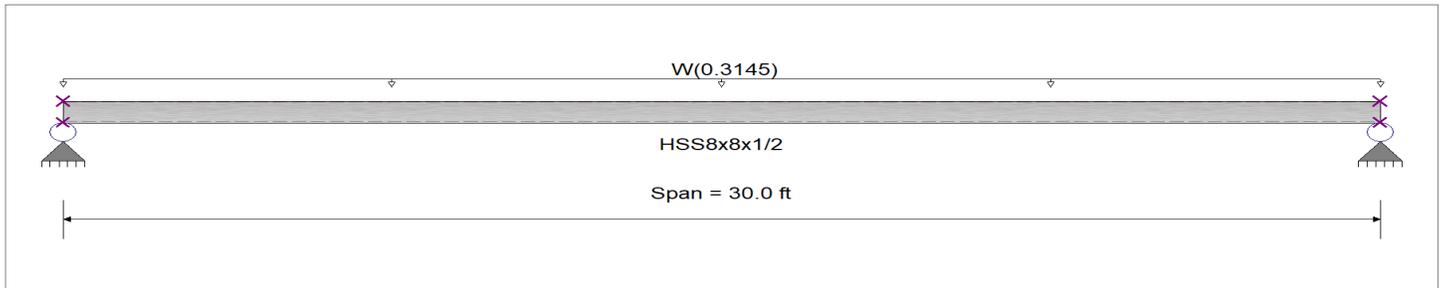
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method Load Resistance Factor Design
 Beam Bracing : Completely Unbraced
 Bending Axis : Major Axis Bending

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



Applied Loads

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

Beam self weight NOT internally calculated and added
 Loads on all spans...
 Uniform Load on ALL spans : W = 0.0370 ksf, Tributary Width = 8.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.252 : 1	Maximum Shear Stress Ratio =	0.028 : 1
Section used for this span	HSS8x8x1/2	Section used for this span	HSS8x8x1/2
Mu : Applied	35.381 k-ft	Vu : Applied	4.718 k
Mn * Phi : Allowable	140.625 k-ft	Vn * Phi : Allowable	165.852 k
Load Combination	W Only	Load Combination	W Only
Span # where maximum occurs	Span # 1	Location of maximum on span	0.000 ft
		Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 <360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.953 in	Ratio =	378 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180
		Span: 1 : +0.60W	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		Summary of Moment Values					Summary of Shear Values			
			M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx
Dsgn. L = 30.00 ft		1		0.000			156.25	140.63	1.00	1.00	-0.00	184.28	165.85
+0.50W													
Dsgn. L = 30.00 ft		1	0.126	0.014	17.69	17.69	156.25	140.63	1.14	1.00	2.36	184.28	165.85
W Only													
Dsgn. L = 30.00 ft		1	0.252	0.028	35.38	35.38	156.25	140.63	1.14	1.00	4.72	184.28	165.85

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+0.60W	1	0.9530	15.086		0.0000	0.000

Vertical Reactions

Load Combination	Support notation : Far left is #		Values in KIPS	
	Support 1	Support 2		
Overall MAXimum	4.718	4.718		
Overall MINimum	2.123	2.123		
+0.60W	2.831	2.831		
+0.450W	2.123	2.123		
W Only	4.718	4.718		

Steel Beam

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: HSS AT TOP OF GLAZING ON GRID 8.3 (Strong Axis WIND load) 10' gravity load 5+1.5' = 6.5' wind load.

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

Material Properties

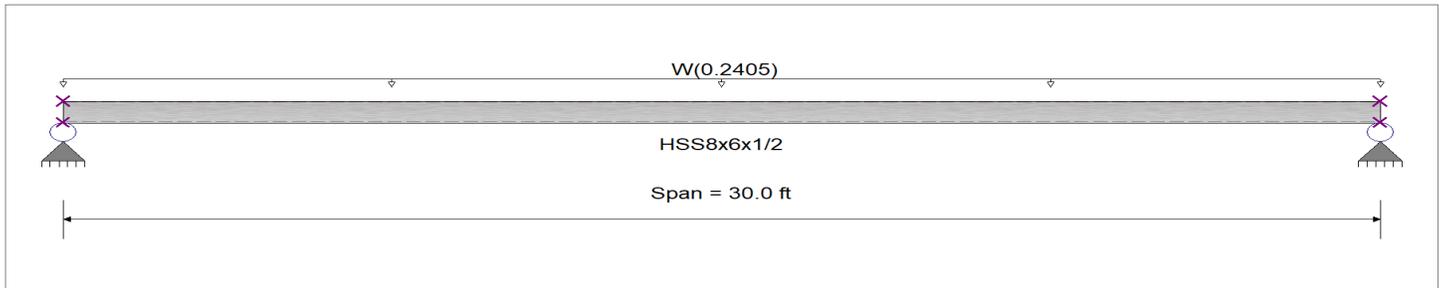
Analysis Method Load Resistance Factor Design

Fy : Steel Yield : 50.0 ksi

Beam Bracing : Completely Unbraced

E: Modulus : 29,000.0 ksi

Bending Axis : Major Axis Bending



Applied Loads

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

Beam self weight NOT internally calculated and added

Loads on all spans...

Uniform Load on ALL spans : W = 0.0370 ksf, Tributary Width = 6.50 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.237 : 1	Maximum Shear Stress Ratio =	0.022 : 1
Section used for this span	HSS8x6x1/2	Section used for this span	HSS8x6x1/2
Mu : Applied	27.056 k-ft	Vu : Applied	3.608 k
Mn * Phi : Allowable	114.375 k-ft	Vn * Phi : Allowable	165.852 k
Load Combination	W Only	Load Combination	W Only
Span # where maximum occurs	Span # 1	Location of maximum on span	0.000 ft
		Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 <360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.928 in	Ratio =	388 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180
		Span: 1 : +0.60W	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		Summary of Moment Values					Summary of Shear Values			
			M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx
Dsgn. L = 30.00 ft		1		0.000			127.08	114.38	1.00	1.00	-0.00	184.28	165.85
+0.50W													
Dsgn. L = 30.00 ft		1	0.118	0.011	13.53	13.53	127.08	114.38	1.14	1.00	1.80	184.28	165.85
W Only													
Dsgn. L = 30.00 ft		1	0.237	0.022	27.06	27.06	127.08	114.38	1.14	1.00	3.61	184.28	165.85

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+0.60W	1	0.9277	15.086		0.0000	0.000

Vertical Reactions

Load Combination	Support notation : Far left is #		Values in KIPS	
	Support 1	Support 2		
Overall MAXimum	3.608	3.608		
Overall MINimum	1.623	1.623		
+0.60W	2.165	2.165		
+0.450W	1.623	1.623		
W Only	3.608	3.608		

Steel Beam

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: HSS AT TOP OF TOP GLAZING ON GRID 2 (Strong Axis Wind load) 9' wind load.

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

Material Properties

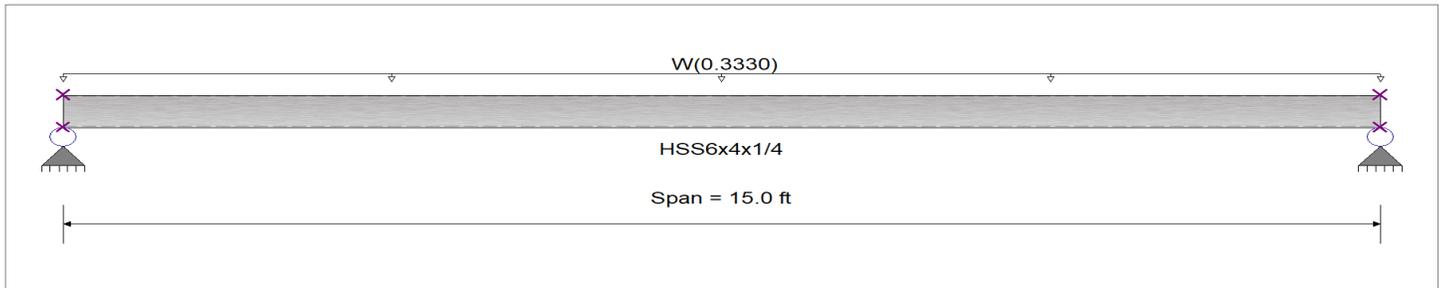
Analysis Method Load Resistance Factor Design

Fy : Steel Yield : 50.0 ksi

Beam Bracing : Completely Unbraced

E: Modulus : 29,000.0 ksi

Bending Axis : Major Axis Bending



Applied Loads

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

Beam self weight NOT internally calculated and added

Loads on all spans...

Uniform Load on ALL spans : W = 0.0370 ksf, Tributary Width = 9.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.293 : 1	Maximum Shear Stress Ratio =	0.037 : 1
Section used for this span	HSS6x4x1/4	Section used for this span	HSS6x4x1/4
Mu : Applied	9.366 k-ft	Vu : Applied	2.498 k
Mn * Phi : Allowable	31.988 k-ft	Vn * Phi : Allowable	66.697 k
Load Combination	W Only	Load Combination	W Only
Span # where maximum occurs	Span # 1	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 <360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.377 in	Ratio =	477 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180
		Span: 1 : +0.60W	

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		Summary of Moment Values					Summary of Shear Values			
			M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx
Dsgn. L = 15.00 ft		1		0.000			35.54	31.99	1.00	1.00	-0.00	74.11	66.70
+0.50W													
Dsgn. L = 15.00 ft		1	0.146	0.019	4.68	4.68	35.54	31.99	1.14	1.00	1.25	74.11	66.70
W Only													
Dsgn. L = 15.00 ft		1	0.293	0.037	9.37	9.37	35.54	31.99	1.14	1.00	2.50	74.11	66.70

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+0.60W	1	0.3772	7.543		0.0000	0.000

Vertical Reactions

Support notation : Far left is #

Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	2.498	2.498
Overall MINimum	1.124	1.124
+0.60W	1.499	1.499
+0.450W	1.124	1.124
W Only	2.498	2.498

Steel Beam

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

(c) ENERCALC INC 1983-2022

DESCRIPTION: HSS AT TOP OF GLAZING AT UNDERSIDE OF CANOPY ON GRID 2 (Strong Axis Wind load) 7' wind

CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : IBC 2018

Material Properties

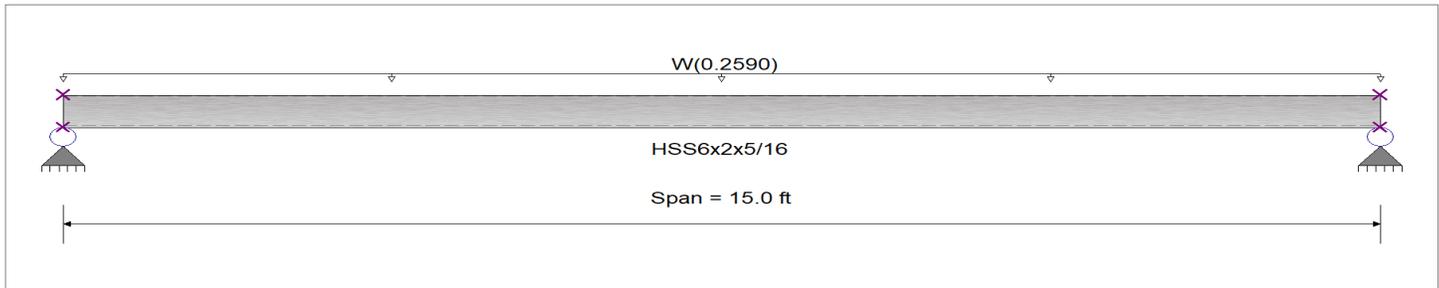
Analysis Method Load Resistance Factor Design

Fy : Steel Yield : 50.0 ksi

Beam Bracing : Completely Unbraced

E: Modulus : 29,000.0 ksi

Bending Axis : Major Axis Bending



Applied Loads

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

Beam self weight NOT internally calculated and added

Loads on all spans...

Uniform Load on ALL spans : W = 0.0370 ksf, Tributary Width = 7.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.279 : 1	Maximum Shear Stress Ratio =	0.024 : 1
Section used for this span	HSS6x2x5/16	Section used for this span	HSS6x2x5/16
Mu : Applied	7.284 k-ft	Vu : Applied	1.943 k
Mn * Phi : Allowable	26.063 k-ft	Vn * Phi : Allowable	80.566 k
Load Combination	W Only	Load Combination	W Only
Span # where maximum occurs	Span # 1	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.000 in	Ratio =	0 <360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.401 in	Ratio =	449 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180
Span: 1 : +0.60W			

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		Summary of Moment Values					Summary of Shear Values				
			M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx	Phi*Vnx
Dsgn. L = 15.00 ft		1		0.000				28.96	26.06	1.00	1.00	-0.00	89.52	80.57
+0.50W														
Dsgn. L = 15.00 ft		1	0.140	0.012	3.64		3.64	28.96	26.06	1.14	1.00	0.97	89.52	80.57
W Only														
Dsgn. L = 15.00 ft		1	0.279	0.024	7.28		7.28	28.96	26.06	1.14	1.00	1.94	89.52	80.57

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+0.60W	1	0.4008	7.543		0.0000	0.000

Vertical Reactions

Load Combination	Support notation : Far left is #		Values in KIPS	
	Support 1	Support 2		
Overall MAXimum	1.943	1.943		
Overall MINimum	0.874	0.874		
+0.60W	1.166	1.166		
+0.450W	0.874	0.874		
W Only	1.943	1.943		

Steel Beam

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Stair Stringer

CODE REFERENCES

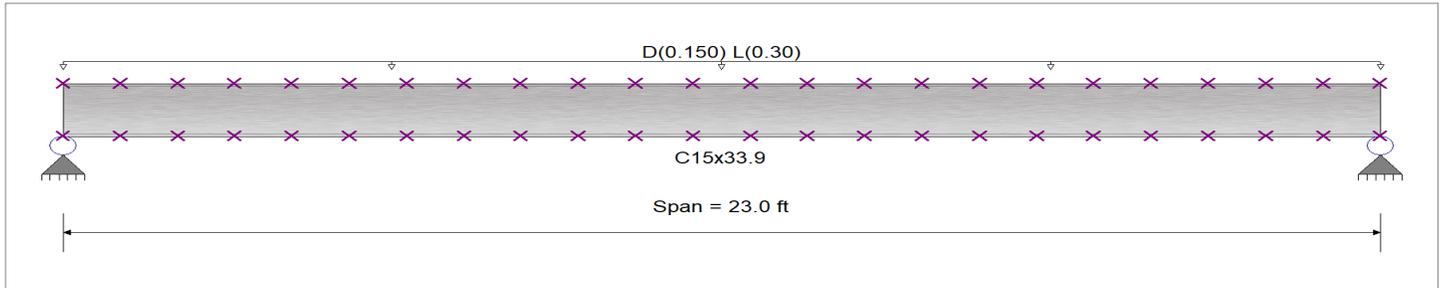
Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

Material Properties

Analysis Method Load Resistance Factor Design	Fy : Steel Yield :	36.0 ksi
Beam Bracing : Beam bracing is defined Beam-by-Beam	E: Modulus :	29,000.0 ksi
Bending Axis : Major Axis Bending		

Unbraced Lengths

Span # 1, Defined Brace Spacing, First Brace at 1.0 ft and spaced at 1.0 ft



Applied Loads

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

Beam self weight NOT internally calculated and added
 Uniform Load : D = 0.050, L = 0.10 ksf, Tributary Width = 3.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.318 : 1	Maximum Shear Stress Ratio =	0.065 : 1
Section used for this span	C15x33.9	Section used for this span	C15x33.9
Mu : Applied	43.643 k-ft	Vu : Applied	7.590 k
Mn * Phi : Allowable	137.160 k-ft	Vn * Phi : Allowable	116.640 k
Load Combination	+1.20D+1.60L	Load Combination	+1.20D+1.60L
Span # where maximum occurs	Span # 1	Location of maximum on span	0.000 ft
		Span # where maximum occurs	Span # 1
Maximum Deflection			
Max Downward Transient Deflection	0.208 in	Ratio =	1,328 >=360
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.312 in	Ratio =	886 >=180
Max Upward Total Deflection	0.000 in	Ratio =	0 <180

Maximum Forces & Stresses for Load Combinations

Load Combination	Segment Length	Span #	Max Stress Ratios		Summary of Moment Values					Summary of Shear Values				
			M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx	Phi*Vnx
+1.40D														
Dsgn. L =	0.99 ft	1	0.017	0.021	2.28		2.28	152.40	137.16	1.72	1.00	2.42	129.60	116.64
Dsgn. L =	0.99 ft	1	0.032	0.019	4.35	2.28	4.35	152.40	137.16	1.25	1.00	2.21	129.60	116.64
Dsgn. L =	0.99 ft	1	0.045	0.017	6.22	4.35	6.22	152.40	137.16	1.14	1.00	2.00	129.60	116.64
Dsgn. L =	0.99 ft	1	0.058	0.015	7.89	6.22	7.89	152.40	137.16	1.10	1.00	1.79	129.60	116.64
Dsgn. L =	1.05 ft	1	0.069	0.014	9.44	7.89	9.44	152.40	137.16	1.07	1.00	1.59	129.60	116.64
Dsgn. L =	0.99 ft	1	0.078	0.012	10.69	9.44	10.69	152.40	137.16	1.05	1.00	1.37	129.60	116.64
Dsgn. L =	0.99 ft	1	0.086	0.010	11.73	10.69	11.73	152.40	137.16	1.04	1.00	1.16	129.60	116.64
Dsgn. L =	0.99 ft	1	0.092	0.008	12.56	11.73	12.56	152.40	137.16	1.03	1.00	0.95	129.60	116.64
Dsgn. L =	0.99 ft	1	0.096	0.006	13.20	12.56	13.20	152.40	137.16	1.02	1.00	0.75	129.60	116.64
Dsgn. L =	1.05 ft	1	0.099	0.005	13.65	13.20	13.65	152.40	137.16	1.01	1.00	0.54	129.60	116.64
Dsgn. L =	0.99 ft	1	0.101	0.003	13.86	13.65	13.86	152.40	137.16	1.01	1.00	0.32	129.60	116.64
Dsgn. L =	0.99 ft	1	0.101	0.001	13.89	13.86	13.89	152.40	137.16	1.00	1.00	0.11	129.60	116.64
Dsgn. L =	0.99 ft	1	0.101	0.003	13.86	13.67	13.86	152.40	137.16	1.00	1.00	0.30	129.60	116.64
Dsgn. L =	1.05 ft	1	0.100	0.004	13.67	13.23	13.67	152.40	137.16	1.01	1.00	0.52	129.60	116.64
Dsgn. L =	0.99 ft	1	0.096	0.006	13.23	12.61	13.23	152.40	137.16	1.02	1.00	0.73	129.60	116.64
Dsgn. L =	0.99 ft	1	0.092	0.008	12.61	11.79	12.61	152.40	137.16	1.02	1.00	0.94	129.60	116.64
Dsgn. L =	0.99 ft	1	0.086	0.010	11.79	10.76	11.79	152.40	137.16	1.03	1.00	1.15	129.60	116.64
Dsgn. L =	0.99 ft	1	0.078	0.012	10.76	9.53	10.76	152.40	137.16	1.04	1.00	1.35	129.60	116.64
Dsgn. L =	1.05 ft	1	0.069	0.013	9.53	7.99	9.53	152.40	137.16	1.07	1.00	1.57	129.60	116.64

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Beam

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Stair Stringer

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios				Summary of Moment Values						Summary of Shear Values		
Segment Length	Span #	M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx	Phi*Vnx	
Dsgn. L = 0.99 ft	1	0.058	0.015	7.99	6.34	7.99	152.40	137.16	1.08	1.00	1.78	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.046	0.017	6.34	4.48	6.34	152.40	137.16	1.12	1.00	1.99	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.033	0.019	4.48	2.42	4.48	152.40	137.16	1.20	1.00	2.19	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.018	0.021	2.42		2.42	152.40	137.16	1.64	1.00	2.41	129.60	116.64	
+1.20D+1.60L														
Dsgn. L = 0.99 ft	1	0.052	0.065	7.16		7.16	152.40	137.16	1.72	1.00	7.59	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.100	0.059	13.68	7.16	13.68	152.40	137.16	1.25	1.00	6.94	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.143	0.054	19.56	13.68	19.56	152.40	137.16	1.14	1.00	6.29	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.181	0.048	24.80	19.56	24.80	152.40	137.16	1.10	1.00	5.64	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.216	0.043	29.68	24.80	29.68	152.40	137.16	1.07	1.00	4.99	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.245	0.037	33.59	29.68	33.59	152.40	137.16	1.05	1.00	4.29	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.269	0.031	36.86	33.59	36.86	152.40	137.16	1.04	1.00	3.64	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.288	0.026	39.49	36.86	39.49	152.40	137.16	1.03	1.00	2.99	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.302	0.020	41.47	39.49	41.47	152.40	137.16	1.02	1.00	2.34	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.313	0.015	42.89	41.47	42.89	152.40	137.16	1.01	1.00	1.69	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.318	0.009	43.55	42.89	43.55	152.40	137.16	1.01	1.00	1.00	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.318	0.003	43.64	43.55	43.64	152.40	137.16	1.00	1.00	0.35	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.318	0.008	43.57	42.95	43.57	152.40	137.16	1.00	1.00	0.95	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.313	0.014	42.95	41.58	42.95	152.40	137.16	1.01	1.00	1.65	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.303	0.020	41.58	39.64	41.58	152.40	137.16	1.02	1.00	2.30	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.289	0.025	39.64	37.05	39.64	152.40	137.16	1.02	1.00	2.95	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.270	0.031	37.05	33.83	37.05	152.40	137.16	1.03	1.00	3.60	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.247	0.036	33.83	29.96	33.83	152.40	137.16	1.04	1.00	4.25	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.218	0.042	29.96	25.12	29.96	152.40	137.16	1.07	1.00	4.94	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.183	0.048	25.12	19.93	25.12	152.40	137.16	1.08	1.00	5.59	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.145	0.054	19.93	14.09	19.93	152.40	137.16	1.12	1.00	6.25	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.103	0.059	14.09	7.62	14.09	152.40	137.16	1.20	1.00	6.90	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.056	0.065	7.62		7.62	152.40	137.16	1.64	1.00	7.59	129.60	116.64	
+1.20D+0.50L														
Dsgn. L = 0.99 ft	1	0.026	0.033	3.58		3.58	152.40	137.16	1.72	1.00	3.80	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.050	0.030	6.84	3.58	6.84	152.40	137.16	1.25	1.00	3.47	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.071	0.027	9.78	6.84	9.78	152.40	137.16	1.14	1.00	3.14	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.090	0.024	12.40	9.78	12.40	152.40	137.16	1.10	1.00	2.82	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.108	0.021	14.84	12.40	14.84	152.40	137.16	1.07	1.00	2.49	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.122	0.018	16.79	14.84	16.79	152.40	137.16	1.05	1.00	2.15	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.134	0.016	18.43	16.79	18.43	152.40	137.16	1.04	1.00	1.82	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.144	0.013	19.74	18.43	19.74	152.40	137.16	1.03	1.00	1.50	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.151	0.010	20.74	19.74	20.74	152.40	137.16	1.02	1.00	1.17	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.156	0.007	21.44	20.74	21.44	152.40	137.16	1.01	1.00	0.85	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.159	0.004	21.78	21.44	21.78	152.40	137.16	1.01	1.00	0.50	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.159	0.001	21.82	21.78	21.82	152.40	137.16	1.00	1.00	0.17	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.159	0.004	21.79	21.48	21.79	152.40	137.16	1.00	1.00	0.48	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.157	0.007	21.48	20.79	21.48	152.40	137.16	1.01	1.00	0.82	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.152	0.010	20.79	19.82	20.79	152.40	137.16	1.02	1.00	1.15	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.145	0.013	19.82	18.53	19.82	152.40	137.16	1.02	1.00	1.47	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.135	0.015	18.53	16.91	18.53	152.40	137.16	1.03	1.00	1.80	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.123	0.018	16.91	14.98	16.91	152.40	137.16	1.04	1.00	2.13	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.109	0.021	14.98	12.56	14.98	152.40	137.16	1.07	1.00	2.47	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.092	0.024	12.56	9.96	12.56	152.40	137.16	1.08	1.00	2.80	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.073	0.027	9.96	7.05	9.96	152.40	137.16	1.12	1.00	3.12	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.051	0.030	7.05	3.81	7.05	152.40	137.16	1.20	1.00	3.45	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.028	0.033	3.81		3.81	152.40	137.16	1.64	1.00	3.79	129.60	116.64	
+1.20D														
Dsgn. L = 0.99 ft	1	0.014	0.018	1.95		1.95	152.40	137.16	1.72	1.00	2.07	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.027	0.016	3.73	1.95	3.73	152.40	137.16	1.25	1.00	1.89	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.039	0.015	5.33	3.73	5.33	152.40	137.16	1.14	1.00	1.72	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.049	0.013	6.76	5.33	6.76	152.40	137.16	1.10	1.00	1.54	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.059	0.012	8.09	6.76	8.09	152.40	137.16	1.07	1.00	1.36	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.067	0.010	9.16	8.09	9.16	152.40	137.16	1.05	1.00	1.17	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.073	0.009	10.05	9.16	10.05	152.40	137.16	1.04	1.00	0.99	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.079	0.007	10.77	10.05	10.77	152.40	137.16	1.03	1.00	0.82	129.60	116.64	
Dsgn. L = 0.99 ft	1	0.082	0.005	11.31	10.77	11.31	152.40	137.16	1.02	1.00	0.64	129.60	116.64	
Dsgn. L = 1.05 ft	1	0.085	0.004	11.70	11.31	11.70	152.40	137.16	1.01	1.00	0.46	129.60	116.64	

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Beam

Project File: LXT Terminal 250104-000.ec6

LIC# : KW-06017529, Build:20.22.7.25

PEC

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DESCRIPTION: Stair Stringer

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios				Summary of Moment Values					Summary of Shear Values		
Segment Length	Span #	M	V	max Mu +	max Mu -	Mu Max	Mnx	Phi*Mnx	Cb	Rm	VuMax	Vnx	Phi*Vnx
Dsgn. L = 0.99 ft	1	0.087	0.002	11.88	11.70	11.88	152.40	137.16	1.01	1.00	0.27	129.60	116.64
Dsgn. L = 0.99 ft	1	0.087	0.001	11.90	11.88	11.90	152.40	137.16	1.00	1.00	0.09	129.60	116.64
Dsgn. L = 0.99 ft	1	0.087	0.002	11.88	11.71	11.88	152.40	137.16	1.00	1.00	0.26	129.60	116.64
Dsgn. L = 1.05 ft	1	0.085	0.004	11.71	11.34	11.71	152.40	137.16	1.01	1.00	0.45	129.60	116.64
Dsgn. L = 0.99 ft	1	0.083	0.005	11.34	10.81	11.34	152.40	137.16	1.02	1.00	0.63	129.60	116.64
Dsgn. L = 0.99 ft	1	0.079	0.007	10.81	10.11	10.81	152.40	137.16	1.02	1.00	0.80	129.60	116.64
Dsgn. L = 0.99 ft	1	0.074	0.008	10.11	9.23	10.11	152.40	137.16	1.03	1.00	0.98	129.60	116.64
Dsgn. L = 0.99 ft	1	0.067	0.010	9.23	8.17	9.23	152.40	137.16	1.04	1.00	1.16	129.60	116.64
Dsgn. L = 1.05 ft	1	0.060	0.012	8.17	6.85	8.17	152.40	137.16	1.07	1.00	1.35	129.60	116.64
Dsgn. L = 0.99 ft	1	0.050	0.013	6.85	5.43	6.85	152.40	137.16	1.08	1.00	1.53	129.60	116.64
Dsgn. L = 0.99 ft	1	0.040	0.015	5.43	3.84	5.43	152.40	137.16	1.12	1.00	1.70	129.60	116.64
Dsgn. L = 0.99 ft	1	0.028	0.016	3.84	2.08	3.84	152.40	137.16	1.20	1.00	1.88	129.60	116.64
Dsgn. L = 1.05 ft	1	0.015	0.018	2.08		2.08	152.40	137.16	1.64	1.00	2.07	129.60	116.64
+0.90D													
Dsgn. L = 0.99 ft	1	0.011	0.013	1.46		1.46	152.40	137.16	1.72	1.00	1.55	129.60	116.64
Dsgn. L = 0.99 ft	1	0.020	0.012	2.80	1.46	2.80	152.40	137.16	1.25	1.00	1.42	129.60	116.64
Dsgn. L = 0.99 ft	1	0.029	0.011	4.00	2.80	4.00	152.40	137.16	1.14	1.00	1.29	129.60	116.64
Dsgn. L = 0.99 ft	1	0.037	0.010	5.07	4.00	5.07	152.40	137.16	1.10	1.00	1.15	129.60	116.64
Dsgn. L = 1.05 ft	1	0.044	0.009	6.07	5.07	6.07	152.40	137.16	1.07	1.00	1.02	129.60	116.64
Dsgn. L = 0.99 ft	1	0.050	0.008	6.87	6.07	6.87	152.40	137.16	1.05	1.00	0.88	129.60	116.64
Dsgn. L = 0.99 ft	1	0.055	0.006	7.54	6.87	7.54	152.40	137.16	1.04	1.00	0.75	129.60	116.64
Dsgn. L = 0.99 ft	1	0.059	0.005	8.08	7.54	8.08	152.40	137.16	1.03	1.00	0.61	129.60	116.64
Dsgn. L = 0.99 ft	1	0.062	0.004	8.48	8.08	8.48	152.40	137.16	1.02	1.00	0.48	129.60	116.64
Dsgn. L = 1.05 ft	1	0.064	0.003	8.77	8.48	8.77	152.40	137.16	1.01	1.00	0.35	129.60	116.64
Dsgn. L = 0.99 ft	1	0.065	0.002	8.91	8.77	8.91	152.40	137.16	1.01	1.00	0.20	129.60	116.64
Dsgn. L = 0.99 ft	1	0.065	0.001	8.93	8.91	8.93	152.40	137.16	1.00	1.00	0.07	129.60	116.64
Dsgn. L = 0.99 ft	1	0.065	0.002	8.91	8.79	8.91	152.40	137.16	1.00	1.00	0.20	129.60	116.64
Dsgn. L = 1.05 ft	1	0.064	0.003	8.79	8.51	8.79	152.40	137.16	1.01	1.00	0.34	129.60	116.64
Dsgn. L = 0.99 ft	1	0.062	0.004	8.51	8.11	8.51	152.40	137.16	1.02	1.00	0.47	129.60	116.64
Dsgn. L = 0.99 ft	1	0.059	0.005	8.11	7.58	8.11	152.40	137.16	1.02	1.00	0.60	129.60	116.64
Dsgn. L = 0.99 ft	1	0.055	0.006	7.58	6.92	7.58	152.40	137.16	1.03	1.00	0.74	129.60	116.64
Dsgn. L = 0.99 ft	1	0.050	0.007	6.92	6.13	6.92	152.40	137.16	1.04	1.00	0.87	129.60	116.64
Dsgn. L = 1.05 ft	1	0.045	0.009	6.13	5.14	6.13	152.40	137.16	1.07	1.00	1.01	129.60	116.64
Dsgn. L = 0.99 ft	1	0.037	0.010	5.14	4.08	5.14	152.40	137.16	1.08	1.00	1.14	129.60	116.64
Dsgn. L = 0.99 ft	1	0.030	0.011	4.08	2.88	4.08	152.40	137.16	1.12	1.00	1.28	129.60	116.64
Dsgn. L = 0.99 ft	1	0.021	0.012	2.88	1.56	2.88	152.40	137.16	1.20	1.00	1.41	129.60	116.64
Dsgn. L = 1.05 ft	1	0.011	0.013	1.56		1.56	152.40	137.16	1.64	1.00	1.55	129.60	116.64

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+L	1	0.3116	11.566		0.0000	0.000

Vertical Reactions

Load Combination	Support 1	Support 2	Support notation : Far left is #'	Values in KIPS
Overall MAXimum	5.175	5.175		
Overall MINimum	1.035	1.035		
D Only	1.725	1.725		
+D+L	5.175	5.175		
+D+0.750L	4.313	4.313		
+0.60D	1.035	1.035		
L Only	3.450	3.450		