

STRUCTURAL CALCULATIONS FOR:

Tyler Pencek Building
28848 N. 79th Street
Scottsdale, AZ 85266
Job # TWP94809422

**(60' WIDE X 50' LONG BUILDING
WITH 23' EAVE HEIGHT
AND 3:12 ROOF PITCH)**

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Distributor:

Mueller Inc. West Phoenix

Structural Engineering by:

Metal Building Engineering, LLC

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Metal Building Engineering, LLC

JOB INFORMATION:

JOB NAME: Tyler Pencek
JOB ADDRESS: 28848 N. 79th Street
Scottsdale, AZ 85266
JOB NUMBER: TWPH94809422

MAIN BUILDING FRAME WIDTH (ft.): 20.00
OVERALL ENCLOSED BUILDING WIDTH (ft.): 40.00
MAIN BUILDING LENGTH (ft.): 50.00
MAIN BUILDING FRAME EAVE HEIGHT (ft.): 23.00
MAIN BUILDING FRAME ROOF SLOPE (?/12): 3.00
Corner Wall Zones (ft): 8.00
Sidewall Interior Zone (ft): 34.00

MATERIAL SPECIFICATIONS:

STRUCTURAL BOLTS: ASTM A325
METAL ROOF PANELS: ASTM A653, Grade 80 (Fy = 80,000 psi min.)
METAL WALL PANELS: ASTM A653, Grade 80 (Fy = 80,000 psi min.)
CEE AND ZEE COLD-FORMED STEEL: ASTM A1011, Grade 55 (Fy = 55,000 psi min.)

PROJECT PARAMETERS:

SITE CLASS: D
RISK CATEGORY: II

GOVERNING CODES: -- 2018 International Building Code (Load Combinations per 2018 IBC Section 1605.3.1)
-- AISI S100 (North American Specification for the Design of Cold-Formed Steel Structural Members)

VERTICAL LOADS:

DEAD LOADS:

METAL ROOF PANEL:	1.0	psf
PURLINS:	1.0	psf
MISC.:	0.0	psf
STEEL FRAMES:	1.0	psf
TOTAL ROOF DEAD LOAD:	3.0	psf
WALL DEAD LOAD:	3.0	psf

ROOF LIVE LOADS:

ROOF LIVE LOAD REDUCTION FACTORS (R1 x R2):	0.61	
DESIGN LIVE LOAD FOR CLEARSPAN FRAMES:	12.2	psf
DESIGN LIVE LOAD FOR PURLINS AND OTHER ELEMENTS:	20.0	psf

ROOF SNOW LOADS:

GROUND SNOW LOAD:	0.0	psf
SNOW LOAD IMPORTANCE FACTOR, Is:	1.00	
Ce, Exposure Factor:	1.00	
Ct, Thermal Factor:	1.00	
Cs, Slope Factor:	1.00	
DESIGN SLOPED ROOF SNOW LOAD:	0.0	psf

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LATERAL LOADS: SEISMIC LOADS:

(Based on ASCE 7-16, Chapter 12, using Site Class "D" and Risk Category "II")				
'Short' Period			1-sec. Period	
PERP. TO SIDEWALL (TRANSVERSE)	PERP. TO ENDWALL (LONGITUDINAL)		PERP. TO SIDEWALL	PERP. TO ENDWALL
Ss: 0.241	0.241	S1:	0.077	0.077
Fa: 1.600	1.600	Fv:	2.400	2.400
$S_{MS} = (F_a \times S_s) =$ 0.386	0.386	$S_{M1} =$	0.185	0.185
$S_{DS} = (2/3) \times S_{MS} =$ 0.257	0.257	$S_{D1} =$	0.123	0.123
R = 3.0	3.0		3.0	3.0
REDUNDANCY FACTOR, rho = 1.00	1.00		1.00	1.00
SEISMIC IMPORTANCE FACTOR, Ie = 1.00	1.00		1.00	1.00
Cs = 0.085	0.085		0.041	0.041
Eh = Cs x W x rho = 0.085 W	0.085 W		0.041 W	0.041 W
Eh (ASD) = Eh * .7 = 0.059 W	0.059 W		0.028 W	0.028 W
W = TOTAL SEISMIC DESIGN DEAD LOAD (lbs.) = 17670	17670		17670	17670
LATERAL SYSTEM SEISMIC SHEAR EFFECT, Eh (lbs.) = 1043	1043		495	495
SEISMIC DESIGN CATEGORY (FOR BOTH PERIODS PER SEC. 1613.5.6.1):			B	
.8 x Ts = 0.38		(ASCE 11.4.6)		
Ta (sec.) = 0.37	0.23	(ASCE 12.8.2.1)		

WIND LOADS:

ULTIMATE WIND SPEED (mph) = 115

EXPOSURE = C

BUILDING ENCLOSURE TYPE: ENCLOSED

MEAN ROOF HEIGHT (ft.): 24.25

VELOCITY EXPOSURE COEFFICIENT, Kz = 0.940

WIND TOPOGRAPHICAL FACTOR, Kt = 1.000

WIND DIRECTIONALITY FACTOR, Kd = 0.850

GROUND ELEVATION FACTOR, Ke = 0.923

ULTIMATE WIND PRESSURE (psf): 24.98

MAIN FORCE RESISTING SYSTEM (MFRS) DESIGN WIND PRESSURES (Perp. to Sidewall):

	G * Cp ± Gcpi	ULTIMATE WIND PRESSURE (psf):
Coefficient for Windward Wall Ballooning:	0.500	12.49 (pressure)
Coefficient for Leeward Wall Ballooning:	-0.571	-14.26 (suction)
Coefficient for Windward Roof Upward Ballooning:	-0.743	-18.55 (suction)
Coefficient for Leeward Roof Upward Ballooning:	-0.592	-14.80 (suction)
Coefficient for Windward Roof Downward Ballooning:	0.000	0.00
Coefficient for Leeward Roof Downward Ballooning:	-0.592	-14.80 (suction)
Coefficient for Windward Wall Deflation:	0.860	21.48 (pressure)
Coefficient for Leeward Wall Deflation:	-0.211	-5.27 (suction)
Coefficient for Windward Roof Upward Deflation:	-0.383	-9.56 (suction)
Coefficient for Leeward Roof Upward Deflation:	-0.232	-5.81 (suction)
Coefficient for Windward Roof Downward Deflation:	0.074	1.86 (pressure)
Coefficient for Leeward Roof Downward Deflation:	-0.232	-5.81 (suction)

ALLOWABLE STRESS LATERAL SYSTEM WIND FORCE PERP. TO SIDEWALLS, W (lbs.) = 9498

MAIN FORCE RESISTING SYSTEM (MFRS) DESIGN WIND PRESSURES (Perp. to Endwall):

Int. Zone Wall Pressure Horiz. Coefficient:	1.071
Int. Zone Endwall Ultimate Wind Pressure (psf):	26.75

ALLOWABLE STRESS LATERAL SYSTEM WIND FORCE PERP. TO ENDWALLS, W (lbs.) = 3372

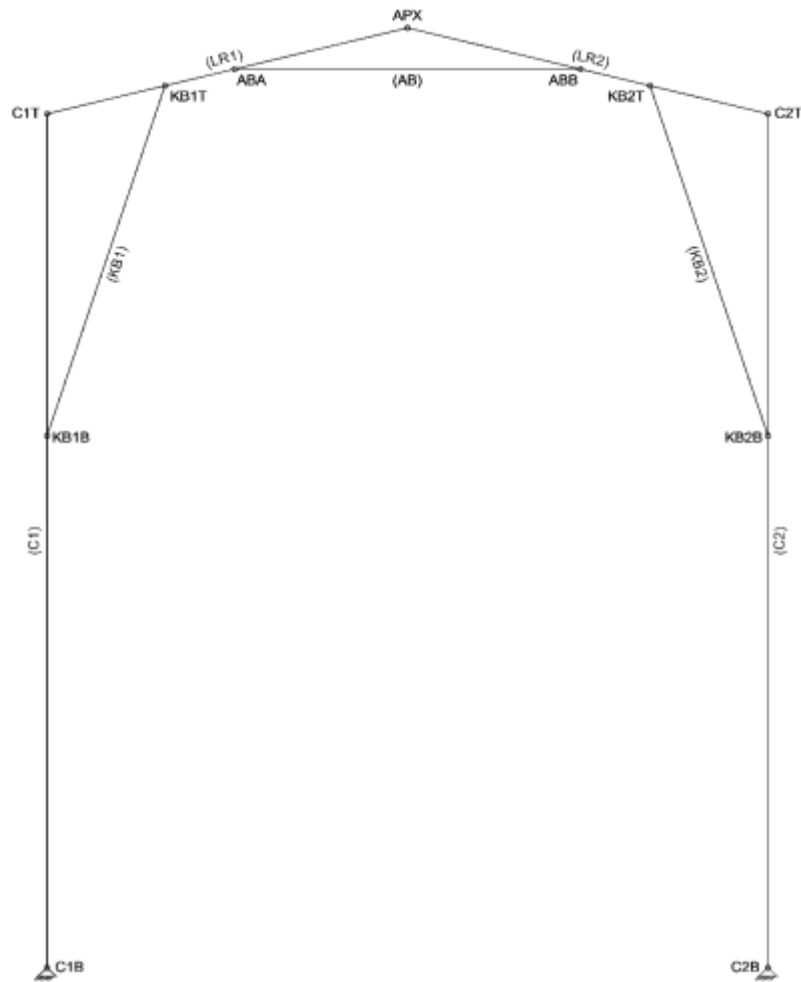
CLADDING AND COMPONENT ALLOWABLE STRESS DESIGN WIND PRESSURES:

Element	GCp ± Gcpi (FIELD)		Pressures (psf)	
	INWARD	OUTWARD	INWARD	OUTWARD
Roof Purlins:	0.518	-1.025	7.76	15.37
Sidewall Girts:	0.993	-1.093	14.88	16.37
Endwall Girts:	0.971	-1.071	14.55	16.04
Endwall Columns:	0.887	-0.987	13.29	14.78

CLEARSPAN FRAME ANALYSIS:

Analysis & Design Software: ACT Dimensions version 2.25.0.5 by ACT Building Systems

Applicable Frame Numbers: 2-5
Overall Nominal Frame Width: 20' - 0"
Nominal Eave Height: 23' - 0"
Roof Pitch: 3:12
Tributary Width: 177.00 in
Design Roof Snow Load: 0.00 psf
Roof Live Load: 20.00 psf
Wind Speed AndAlso Exposure: 115 mph, C



X - JOINT LABEL (SEE RISA ANALYSIS NEXT PAGE)
(X) - MEMBER LABEL (SEE RISA ANALYSIS NEXT PAGE)

FRAME NODE AND MEMBER DIAGRAM

Cold Formed Steel Properties

	Label	E[psi]	G[psi]	Nu	Therm/(1E5 F)	Density[lb/ft^3]	Yield[psi]	Fu[psi]
1	CF_STL	29500000	11300000	0.3	0.65	490	55000	70000

Joint Coordinates

	Label	X[ft]	Y[ft]
1	C1B	1.083	0.000
2	C1T	1.083	22.155
3	C2B	18.918	0.000
4	C2T	18.918	22.155
5	APX	10.000	24.385
6	KB1B	1.083	13.801
7	KB1T	4.000	22.884
8	KB2B	18.918	13.801
9	KB2T	16.001	22.884
10	ABA	5.721	23.315
11	ABB	14.280	23.315

Member Primary Data

	Label	I Joint	J Joint	Shape	Type	DesignList	Material	DesignRules
1	C1	C1B	C1T	2-14in x 4in 12G CEE-BB	Beam	CS	CF_STL	Typical
2	C2	C2B	C2T	2-14in x 4in 12G CEE-BB	Beam	CS	CF_STL	Typical
3	KB1	KB1B	KB1T	2-10in x 4in 12G CEE-BB	Beam	CS	CF_STL	Typical
4	KB2	KB2B	KB2T	2-10in x 4in 12G CEE-BB	Beam	CS	CF_STL	Typical
5	AB	ABA	ABB	2-10in x 4in 12G CEE-BB	Beam	CS	CF_STL	Typical
6	LR1	C1T	APX	2-14in x 4in 12G CEE-BB	Beam	CS	CF_STL	Typical
7	LR2	C2T	APX	2-14in x 4in 12G CEE-BB	Beam	CS	CF_STL	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[ft]	J Offset[ft]	T/C Only	Physical
1	C1		PIN	0.000	0.000		Yes
2	C2		PIN	0.000	0.000		Yes
3	KB1	PIN	PIN	0.000	0.000		
4	KB2	PIN	PIN	0.000	0.000		
5	AB	PIN	PIN	0.000	0.000		
6	LR1		PIN	0.499	0.000		Yes
7	LR2		PIN	0.499	0.000		Yes

Cold Formed Steel Design Parameters

	Label	Shape	Length[ft]	Lb-out[ft]	Lb-in[ft]	Lcomp top[ft]	Lcomp bot[ft]	K-out	K-in	Cm	Out sway	In sway
1	C1	2-14in x 4in 12G CEE-BB	22.155	7.667		7.667	7.667		0.8	1		Yes
2	C2	2-14in x 4in 12G CEE-BB	22.155	7.667		7.667	7.667		0.8	1		Yes
3	KB1	2-10in x 4in 12G CEE-BB	9.541									
4	KB2	2-10in x 4in 12G CEE-BB	9.541									
5	AB	2-10in x 4in 12G CEE-BB	8.558									
6	LR1	2-14in x 4in 12G CEE-BB	9.192	4.602			4.602		0.8	1		Yes
7	LR2	2-14in x 4in 12G CEE-BB	9.192	4.602		4.602			0.8	1		Yes

Basic Load Cases

	BLC Description	Category	Joint	Point	Distributed
1	Roof Dead	DL	0	2	2
2	Roof Snow	SL	0	0	0
3	Roof Live	RLL	0	2	2
4	Wall Dead	DL	0	0	0
5	Floor Dead	DL	0	0	0
6	Floor Live	LL	0	0	0
7	Wind To Right - Upward Ballooning	OL1	0	6	6
8	Wind To Right - Upward Deflation	OL2	0	6	6
9	Wind To Right - Downward Ballooning	OL3	0	6	4
10	Wind To Right - Downward Deflation	OL4	0	6	6
11	Wind To Left - Upward Ballooning	OL5	0	6	6
12	Wind To Left - Upward Deflation	OL6	0	6	6
13	Wind To Left - Downward Ballooning	OL7	0	6	4
14	Wind To Left - Downward Deflation	OL8	0	6	6
15	Earthquake+	None	0	2	4
16	Earthquake-	None	0	2	4

Member Distributor Loads (BLC 1 : Roof Dead)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	LR1	Y	-44.250	-44.250	-0.000	9.192
2	LR2	Y	-44.250	-44.250	-0.000	9.192

Member Distributor Loads (BLC 3 : Roof Live)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	LR1	Y	-174.577	-174.577	-0.000	9.192
2	LR2	Y	-174.577	-174.577	-0.000	9.192

Member Distributor Loads (BLC 7 : Wind To Right - Upward Ballooning)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	184.038	184.038	16.155	22.155
2	C2	X	210.172	210.172	16.155	22.155
3	LR1	X	-66.293	-66.293	-0.000	9.192
4	LR1	Y	265.173	265.173	-0.000	9.192
5	LR2	X	52.888	52.888	-0.000	9.192
6	LR2	Y	211.552	211.552	-0.000	9.192

Member Distributor Loads (BLC 8 : Wind To Right - Upward Deflation)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	316.546	316.546	16.155	22.155
2	C2	X	77.664	77.664	16.155	22.155
3	LR1	X	-34.155	-34.155	-0.000	9.192
4	LR1	Y	136.622	136.622	-0.000	9.192
5	LR2	X	20.750	20.750	-0.000	9.192
6	LR2	Y	83.001	83.001	-0.000	9.192

Member Distributor Loads (BLC 9 : Wind To Right - Downward Ballooning)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	184.038	184.038	16.155	22.155
2	C2	X	210.172	210.172	16.155	22.155
3	LR2	X	52.888	52.888	-0.000	9.192
4	LR2	Y	211.552	211.552	-0.000	9.192

Member Distributor Loads (BLC 10 : Wind To Right - Downward Deflation)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	316.546	316.546	16.155	22.155
2	C2	X	77.664	77.664	16.155	22.155
3	LR1	X	6.637	6.637	-0.000	9.192
4	LR1	Y	-26.548	-26.548	-0.000	9.192
5	LR2	X	20.750	20.750	-0.000	9.192
6	LR2	Y	83.001	83.001	-0.000	9.192

Member Distributor Loads (BLC 11 : Wind To Left - Upward Ballooning)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-210.172	-210.172	16.155	22.155
2	C2	X	-184.038	-184.038	16.155	22.155
3	LR1	X	-52.888	-52.888	-0.000	9.192
4	LR1	Y	211.552	211.552	-0.000	9.192
5	LR2	X	66.293	66.293	-0.000	9.192
6	LR2	Y	265.173	265.173	-0.000	9.192

Member Distributor Loads (BLC 12 : Wind To Left - Upward Deflation)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-77.664	-77.664	16.155	22.155
2	C2	X	-316.546	-316.546	16.155	22.155
3	LR1	X	-20.750	-20.750	-0.000	9.192
4	LR1	Y	83.001	83.001	-0.000	9.192
5	LR2	X	34.155	34.155	-0.000	9.192
6	LR2	Y	136.622	136.622	-0.000	9.192

Member Distributor Loads (BLC 13 : Wind To Left - Downward Ballooning)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-210.172	-210.172	16.155	22.155
2	C2	X	-184.038	-184.038	16.155	22.155
3	LR1	X	-52.888	-52.888	-0.000	9.192
4	LR1	Y	211.552	211.552	-0.000	9.192

Member Distributor Loads (BLC 14 : Wind To Left - Downward Deflation)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-77.664	-77.664	16.155	22.155
2	C2	X	-316.546	-316.546	16.155	22.155
3	LR1	X	-20.750	-20.750	-0.000	9.192
4	LR1	Y	83.001	83.001	-0.000	9.192
5	LR2	X	-6.637	-6.637	-0.000	9.192
6	LR2	Y	-26.548	-26.548	-0.000	9.192

Member Distributor Loads (BLC 15 : Earthquake+)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	3.792	3.792	0.000	22.155
2	C2	X	3.792	3.792	0.000	22.155
3	LR1	X	3.792	3.792	-0.000	9.192
4	LR2	X	3.792	3.792	-0.000	9.192

Member Distributor Loads (BLC 16 : Earthquake-)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-3.792	-3.792	0.000	22.155
2	C2	X	-3.792	-3.792	0.000	22.155
3	LR1	X	-3.792	-3.792	-0.000	9.192
4	LR2	X	-3.792	-3.792	-0.000	9.192

Load Combinations

	Description	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DL ONLY			DL	1						
2	FLL ONLY			LL	1						
3	IBC 16-9			DL	1	LL	1				
4	IBC 16-10 (a)			DL	1	RLL	1				
5	IBC 16-10 (b)			DL	1	SL	1				
6	IBC 16-11 (a)			DL	1	LL	0.75	RLL	0.75		
7	IBC 16-11 (b)			DL	1	LL	0.75	SL	0.75		
8	IBC 16-12 (a) 1			DL	1	OL1	0.6				
9	IBC 16-12 (a) 2			DL	1	OL2	0.6				
10	IBC 16-12 (a) 3			DL	1	OL3	0.6				
11	IBC 16-12 (a) 4			DL	1	OL4	0.6				
12	IBC 16-12 (a) 5			DL	1	OL5	0.6				
13	IBC 16-12 (a) 6			DL	1	OL6	0.6				
14	IBC 16-12 (a) 7			DL	1	OL7	0.6				
15	IBC 16-12 (a) 8			DL	1	OL8	0.6				
16	IBC 16-12 (b) 1			DL	1	15	0.7				
17	IBC 16-12 (b) 2			DL	1	16	0.7				
18	IBC 16-13 (a) 1			DL	1	LL	0.75	RLL	0.75	OL1	0.45
19	IBC 16-13 (a) 2			DL	1	LL	0.75	RLL	0.75	OL2	0.45
20	IBC 16-13 (a) 3			DL	1	LL	0.75	RLL	0.75	OL3	0.45
21	IBC 16-13 (a) 4			DL	1	LL	0.75	RLL	0.75	OL4	0.45
22	IBC 16-13 (a) 5			DL	1	LL	0.75	RLL	0.75	OL5	0.45
23	IBC 16-13 (a) 6			DL	1	LL	0.75	RLL	0.75	OL6	0.45
24	IBC 16-13 (a) 7			DL	1	LL	0.75	RLL	0.75	OL7	0.45
25	IBC 16-13 (a) 8			DL	1	LL	0.75	RLL	0.75	OL8	0.45
26	IBC 16-13 (b) 1			DL	1	LL	0.75	SL	0.75	OL1	0.45
27	IBC 16-13 (b) 2			DL	1	LL	0.75	SL	0.75	OL2	0.45
28	IBC 16-13 (b) 3			DL	1	LL	0.75	SL	0.75	OL3	0.45
29	IBC 16-13 (b) 4			DL	1	LL	0.75	SL	0.75	OL4	0.45
30	IBC 16-13 (b) 5			DL	1	LL	0.75	SL	0.75	OL5	0.45
31	IBC 16-13 (b) 6			DL	1	LL	0.75	SL	0.75	OL6	0.45
32	IBC 16-13 (b) 7			DL	1	LL	0.75	SL	0.75	OL7	0.45
33	IBC 16-13 (b) 8			DL	1	LL	0.75	SL	0.75	OL8	0.45
34	IBC 16-14 (a) 1			DL	1	LL	0.75	SL	0.75	15	0.525
35	IBC 16-14 (a) 2			DL	1	LL	0.75	SL	0.75	16	0.525
36	IBC 16-15 (a) 1			DL	0.6	OL1	0.6				
37	IBC 16-15 (a) 2			DL	0.6	OL2	0.6				

Load Combinations (continued)

	Description	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
38	IBC 16-15 (a) 3			DL	0.6	OL3	0.6				
39	IBC 16-15 (a) 4			DL	0.6	OL4	0.6				
40	IBC 16-15 (a) 5			DL	0.6	OL5	0.6				
41	IBC 16-15 (a) 6			DL	0.6	OL6	0.6				
42	IBC 16-15 (a) 7			DL	0.6	OL7	0.6				
43	IBC 16-15 (a) 8			DL	0.6	OL8	0.6				
44	IBC 16-16 (a) 1			DL	0.6	15	0.7				
45	IBC 16-16 (a) 2			DL	0.6	16	0.7				

Envelope Joint Reactions

	Joint		X[lb]	LC	Y[lb]	LC	Moment[ft-lb]	LC
1	C1B	max	2096	14	5337	25	0	37
2	C1B	min	-2088	38	-5092	36	-0	10
3	C2B	max	2088	42	5337	21	0	42
4	C2B	min	-2096	10	-5092	40	-0	10
5	Total	max	4171	14	8181	4	0	37
6	Total	min	-4171	38	-4675	36	-0	10

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	Shear[lb]	LC	Moment[ft-lb]	LC
1	C1	1	max	5337	25	2096	14	0	37
2		1	min	-5092	36	-2088	38	-0	10
3	C1	2	max	69827	10	18658	38	188326	38
4		2	min	-69165	42	-18977	14	-191975	14
5	C2	1	max	5337	21	2088	42	0	42
6		1	min	-5092	40	-2096	10	-0	10
7	C2	2	max	69827	14	18977	10	188326	42
8		2	min	-69165	38	-18658	42	-191975	10
9	KB1	1	max	13882	14	0	43	0	1
10		1	min	-14447	38	-0	10	0	1
11	KB1	2	max	27764	14	0	43	0	10
12		2	min	-28893	38	-0	10	-0	43
13	KB2	1	max	13882	10	0	14	0	1
14		1	min	-14447	42	-0	39	0	1
15	KB2	2	max	27764	10	0	14	0	39
16		2	min	-28893	42	-0	39	-0	14
17	AB	1	max	2393	39	0	14	0	1
18		1	min	-3481	4	-0	38	0	1
19	AB	2	max	4785	39	0	14	0	38
20		2	min	-6962	4	-0	38	-0	14
21	LR1	1	max	6316	38	8285	42	0	40
22		1	min	-6471	14	-8375	10	-0	8
23	LR1	2	max	25564	20	9678	42	181232	10
24		2	min	-26235	42	-9589	10	-179136	42
25	LR2	1	max	6316	42	8375	14	0	14
26		1	min	-6471	10	-8285	38	-0	36
27	LR2	2	max	25564	24	9589	14	181232	14
28		2	min	-26235	38	-9678	38	-179136	38

AISI S100-16 : ASD Cold Formed Steel Code Checks

Member		Shape	H1.2-1 Check	Loc[ft]	LC	H2-1 Check	Loc[ft]	LC
1	C1	2-14in x 4in 12G CEE-BB	0.98	13.800	4	0.67	13.800	4
2	C2	2-14in x 4in 12G CEE-BB	0.98	13.800	4	0.67	13.800	4
3	KB1	2-10in x 4in 12G CEE-BB	0.30	9.540	1	0.00	9.540	1
4	KB2	2-10in x 4in 12G CEE-BB	0.30	9.540	1	0.00	9.540	1
5	AB	2-10in x 4in 12G CEE-BB	0.05	8.558	1	0.00	8.558	1
6	LR1	2-14in x 4in 12G CEE-BB	0.81	3.006	4	0.78	3.006	4
7	LR2	2-14in x 4in 12G CEE-BB	0.81	3.006	4	0.78	3.006	4

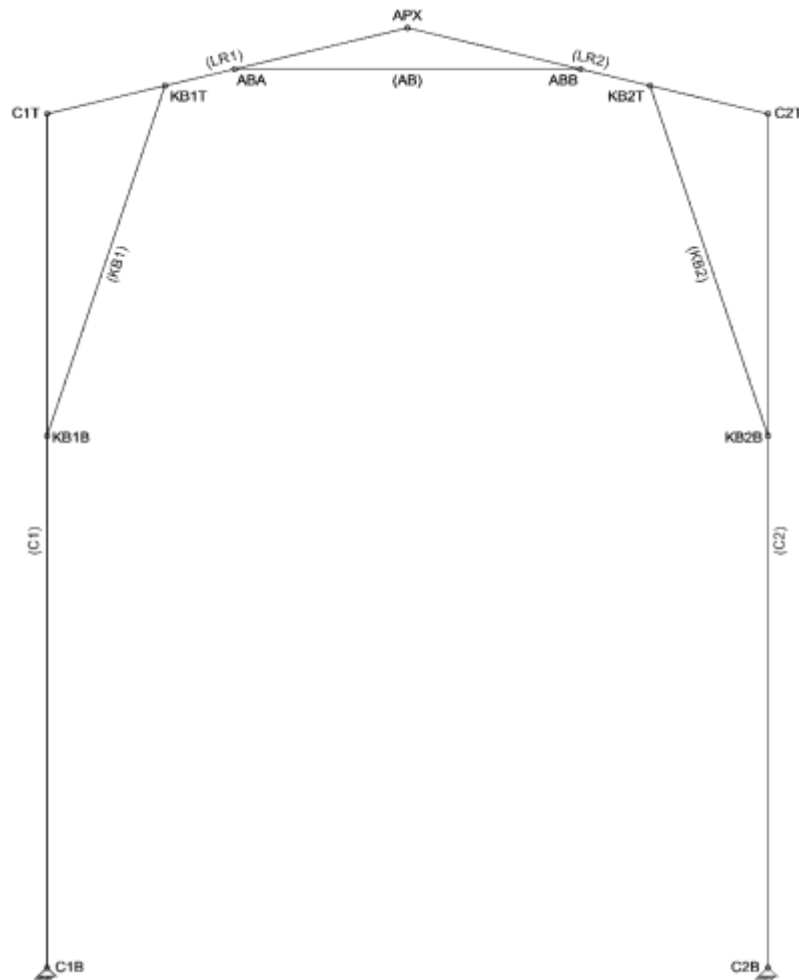
AISI S100-16 : ASD Cold Formed Steel Allowable Member Load

Member		Shape	Pn/Om[lb]	Tn/Om[lb]	Mn/Om[lb-ft]	Cb	Cm
1	C1	2-14in x 4in 12G CEE-BB	57724	147185	36393	1	1
2	C2	2-14in x 4in 12G CEE-BB	57724	147185	36393	1	1
3	KB1	2-10in x 4in 12G CEE-BB	46891	121519	24945	1	1
4	KB2	2-10in x 4in 12G CEE-BB	46891	121519	24945	1	1
5	AB	2-10in x 4in 12G CEE-BB	51414	121519	25308	1	1
6	LR1	2-14in x 4in 12G CEE-BB	53811	147185	36393	1	1
7	LR2	2-14in x 4in 12G CEE-BB	53811	147185	36393	1	1

ENDWALL A AND ENDWALL B ANALYSIS:

Analysis & Design Software: ACT Dimensions version 2.25.0.5 by ACT Building Systems

Applicable Frame Numbers: 1, 6
Overall Nominal Frame Width: 20' - 0"
Nominal Eave Height: 23' - 0"
Roof Pitch: 3:12
Tributary Width: 18.00 in
Design Roof Snow Load: 0.00 psf
Roof Live Load: 20.00 psf
Wind Speed AndAlso Exposure: 115 mph, C



X - JOINT LABEL (SEE RISA ANALYSIS NEXT PAGE)
(X) - MEMBER LABEL (SEE RISA ANALYSIS NEXT PAGE)

FRAME NODE AND MEMBER DIAGRAM

Cold Formed Steel Properties

	Label	E[psi]	G[psi]	Nu	Therm/(1E5 F)	Density[lb/ft^3]	Yield[psi]	Fu[psi]
1	CF_STL	29500000	11300000	0.3	0.65	490	55000	70000

Joint Coordinates

	Label	X[ft]	Y[ft]
1	C1B	1.083	0.000
2	C1T	1.083	22.155
3	C2B	18.918	0.000
4	C2T	18.918	22.155
5	APX	10.000	24.385
6	KB1B	1.083	13.801
7	KB1T	4.000	22.884
8	KB2B	18.918	13.801
9	KB2T	16.001	22.884
10	ABA	5.721	23.315
11	ABB	14.280	23.315

Member Primary Data

	Label	I Joint	J Joint	Shape	Type	DesignList	Material	DesignRules
1	C1	C1B	C1T	14in x 4in 12G CEE	Beam	CS	CF_STL	Typical
2	C2	C2B	C2T	14in x 4in 12G CEE	Beam	CS	CF_STL	Typical
3	KB1	KB1B	KB1T	10in x 4in 12G CEE	Beam	CS	CF_STL	Typical
4	KB2	KB2B	KB2T	10in x 4in 12G CEE	Beam	CS	CF_STL	Typical
5	AB	ABA	ABB	10in x 4in 12G CEE	Beam	CS	CF_STL	Typical
6	LR1	C1T	APX	14in x 4in 12G CEE	Beam	CS	CF_STL	Typical
7	LR2	C2T	APX	14in x 4in 12G CEE	Beam	CS	CF_STL	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[ft]	J Offset[ft]	T/C Only	Physical
1	C1		PIN	0.000	0.000		Yes
2	C2		PIN	0.000	0.000		Yes
3	KB1	PIN	PIN	0.000	0.000		
4	KB2	PIN	PIN	0.000	0.000		
5	AB	PIN	PIN	0.000	0.000		
6	LR1		PIN	0.499	0.000		Yes
7	LR2		PIN	0.499	0.000		Yes

Cold Formed Steel Design Parameters

	Label	Shape	Length[ft]	Lb-out[ft]	Lb-in[ft]	Lcomp top[ft]	Lcomp bot[ft]	K-out	K-in	Cm	Out sway	In sway
1	C1	14in x 4in 12G CEE	22.155	7.667			7.667		0.8	1		Yes
2	C2	14in x 4in 12G CEE	22.155	7.667		7.667			0.8	1		Yes
3	KB1	10in x 4in 12G CEE	9.541									
4	KB2	10in x 4in 12G CEE	9.541									
5	AB	10in x 4in 12G CEE	8.558									
6	LR1	14in x 4in 12G CEE	9.192	4.602			4.602		0.8	1		Yes
7	LR2	14in x 4in 12G CEE	9.192	4.602		4.602			0.8	1		Yes

Basic Load Cases

	BLC Description	Category	Joint	Point	Distributed
1	Roof Dead	DL	0	2	2
2	Roof Snow	SL	0	0	0
3	Roof Live	RLL	0	2	2
4	Wall Dead	DL	0	0	0
5	Floor Dead	DL	0	0	0
6	Floor Live	LL	0	0	0
7	Wind To Right - Upward Ballooning	OL1	0	6	6
8	Wind To Right - Upward Deflation	OL2	0	6	6
9	Wind To Right - Downward Ballooning	OL3	0	6	4
10	Wind To Right - Downward Deflation	OL4	0	6	6
11	Wind To Left - Upward Ballooning	OL5	0	6	6
12	Wind To Left - Upward Deflation	OL6	0	6	6
13	Wind To Left - Downward Ballooning	OL7	0	6	4
14	Wind To Left - Downward Deflation	OL8	0	6	6
15	Earthquake+	None	0	2	4
16	Earthquake-	None	0	2	4

Member Distributor Loads (BLC 1 : Roof Dead)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	LR1	Y	-4.500	-4.500	-0.000	9.192
2	LR2	Y	-4.500	-4.500	-0.000	9.192

Member Distributor Loads (BLC 3 : Roof Live)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	LR1	Y	-29.104	-29.104	-0.000	9.192
2	LR2	Y	-29.104	-29.104	-0.000	9.192

Member Distributor Loads (BLC 7 : Wind To Right - Upward Ballooning)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	18.716	18.716	16.155	22.155
2	C2	X	21.373	21.373	16.155	22.155
3	LR1	X	-6.742	-6.742	-0.000	9.192
4	LR1	Y	26.967	26.967	-0.000	9.192
5	LR2	X	5.378	5.378	-0.000	9.192
6	LR2	Y	21.514	21.514	-0.000	9.192

Member Distributor Loads (BLC 8 : Wind To Right - Upward Deflation)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	32.191	32.191	16.155	22.155
2	C2	X	7.898	7.898	16.155	22.155
3	LR1	X	-3.473	-3.473	-0.000	9.192
4	LR1	Y	13.894	13.894	-0.000	9.192
5	LR2	X	2.110	2.110	-0.000	9.192
6	LR2	Y	8.441	8.441	-0.000	9.192

Member Distributor Loads (BLC 9 : Wind To Right - Downward Ballooning)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	18.716	18.716	16.155	22.155
2	C2	X	21.373	21.373	16.155	22.155
3	LR2	X	5.378	5.378	-0.000	9.192
4	LR2	Y	21.514	21.514	-0.000	9.192

Member Distributor Loads (BLC 10 : Wind To Right - Downward Deflation)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	32.191	32.191	16.155	22.155
2	C2	X	7.898	7.898	16.155	22.155
3	LR1	X	0.675	0.675	-0.000	9.192
4	LR1	Y	-2.700	-2.700	-0.000	9.192
5	LR2	X	2.110	2.110	-0.000	9.192
6	LR2	Y	8.441	8.441	-0.000	9.192

Member Distributor Loads (BLC 11 : Wind To Left - Upward Ballooning)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-21.373	-21.373	16.155	22.155
2	C2	X	-18.716	-18.716	16.155	22.155
3	LR1	X	-5.378	-5.378	-0.000	9.192
4	LR1	Y	21.514	21.514	-0.000	9.192
5	LR2	X	6.742	6.742	-0.000	9.192
6	LR2	Y	26.967	26.967	-0.000	9.192

Member Distributor Loads (BLC 12 : Wind To Left - Upward Deflation)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-7.898	-7.898	16.155	22.155
2	C2	X	-32.191	-32.191	16.155	22.155
3	LR1	X	-2.110	-2.110	-0.000	9.192
4	LR1	Y	8.441	8.441	-0.000	9.192
5	LR2	X	3.473	3.473	-0.000	9.192
6	LR2	Y	13.894	13.894	-0.000	9.192

Member Distributor Loads (BLC 13 : Wind To Left - Downward Ballooning)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-21.373	-21.373	16.155	22.155
2	C2	X	-18.716	-18.716	16.155	22.155
3	LR1	X	-5.378	-5.378	-0.000	9.192
4	LR1	Y	21.514	21.514	-0.000	9.192

Member Distributor Loads (BLC 14 : Wind To Left - Downward Deflation)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-7.898	-7.898	16.155	22.155
2	C2	X	-32.191	-32.191	16.155	22.155
3	LR1	X	-2.110	-2.110	-0.000	9.192
4	LR1	Y	8.441	8.441	-0.000	9.192
5	LR2	X	-0.675	-0.675	-0.000	9.192
6	LR2	Y	-2.700	-2.700	-0.000	9.192

Member Distributor Loads (BLC 15 : Earthquake+)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	0.386	0.386	0.000	22.155
2	C2	X	0.386	0.386	0.000	22.155
3	LR1	X	0.386	0.386	-0.000	9.192
4	LR2	X	0.386	0.386	-0.000	9.192

Member Distributor Loads (BLC 16 : Earthquake-)

	Member Label	Direction	Start Mag[lb/ft]	End Mag[lb/ft]	Start Loc[ft/%]	End Loc[ft/%]
1	C1	X	-0.386	-0.386	0.000	22.155
2	C2	X	-0.386	-0.386	0.000	22.155
3	LR1	X	-0.386	-0.386	-0.000	9.192
4	LR2	X	-0.386	-0.386	-0.000	9.192

Load Combinations

	Description	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DL ONLY			DL	1						
2	FLL ONLY			LL	1						
3	IBC 16-9			DL	1	LL	1				
4	IBC 16-10 (a)			DL	1	RLL	1				
5	IBC 16-10 (b)			DL	1	SL	1				
6	IBC 16-11 (a)			DL	1	LL	0.75	RLL	0.75		
7	IBC 16-11 (b)			DL	1	LL	0.75	SL	0.75		
8	IBC 16-12 (a) 1			DL	1	OL1	0.6				
9	IBC 16-12 (a) 2			DL	1	OL2	0.6				
10	IBC 16-12 (a) 3			DL	1	OL3	0.6				
11	IBC 16-12 (a) 4			DL	1	OL4	0.6				
12	IBC 16-12 (a) 5			DL	1	OL5	0.6				
13	IBC 16-12 (a) 6			DL	1	OL6	0.6				
14	IBC 16-12 (a) 7			DL	1	OL7	0.6				
15	IBC 16-12 (a) 8			DL	1	OL8	0.6				
16	IBC 16-12 (b) 1			DL	1	15	0.7				
17	IBC 16-12 (b) 2			DL	1	16	0.7				
18	IBC 16-13 (a) 1			DL	1	LL	0.75	RLL	0.75	OL1	0.45
19	IBC 16-13 (a) 2			DL	1	LL	0.75	RLL	0.75	OL2	0.45
20	IBC 16-13 (a) 3			DL	1	LL	0.75	RLL	0.75	OL3	0.45
21	IBC 16-13 (a) 4			DL	1	LL	0.75	RLL	0.75	OL4	0.45
22	IBC 16-13 (a) 5			DL	1	LL	0.75	RLL	0.75	OL5	0.45
23	IBC 16-13 (a) 6			DL	1	LL	0.75	RLL	0.75	OL6	0.45
24	IBC 16-13 (a) 7			DL	1	LL	0.75	RLL	0.75	OL7	0.45
25	IBC 16-13 (a) 8			DL	1	LL	0.75	RLL	0.75	OL8	0.45
26	IBC 16-13 (b) 1			DL	1	LL	0.75	SL	0.75	OL1	0.45
27	IBC 16-13 (b) 2			DL	1	LL	0.75	SL	0.75	OL2	0.45
28	IBC 16-13 (b) 3			DL	1	LL	0.75	SL	0.75	OL3	0.45
29	IBC 16-13 (b) 4			DL	1	LL	0.75	SL	0.75	OL4	0.45
30	IBC 16-13 (b) 5			DL	1	LL	0.75	SL	0.75	OL5	0.45
31	IBC 16-13 (b) 6			DL	1	LL	0.75	SL	0.75	OL6	0.45
32	IBC 16-13 (b) 7			DL	1	LL	0.75	SL	0.75	OL7	0.45
33	IBC 16-13 (b) 8			DL	1	LL	0.75	SL	0.75	OL8	0.45
34	IBC 16-14 (a) 1			DL	1	LL	0.75	SL	0.75	15	0.525
35	IBC 16-14 (a) 2			DL	1	LL	0.75	SL	0.75	16	0.525
36	IBC 16-15 (a) 1			DL	0.6	OL1	0.6				
37	IBC 16-15 (a) 2			DL	0.6	OL2	0.6				

Load Combinations (continued)

	Description	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
38	IBC 16-15 (a) 3			DL	0.6	OL3	0.6				
39	IBC 16-15 (a) 4			DL	0.6	OL4	0.6				
40	IBC 16-15 (a) 5			DL	0.6	OL5	0.6				
41	IBC 16-15 (a) 6			DL	0.6	OL6	0.6				
42	IBC 16-15 (a) 7			DL	0.6	OL7	0.6				
43	IBC 16-15 (a) 8			DL	0.6	OL8	0.6				
44	IBC 16-16 (a) 1			DL	0.6	15	0.7				
45	IBC 16-16 (a) 2			DL	0.6	16	0.7				

Envelope Joint Reactions

	Joint		X[lb]	LC	Y[lb]	LC	Moment[ft-lb]	LC
1	C1B	max	213	14	702	25	0	38
2	C1B	min	-212	38	-518	36	-0	9
3	C2B	max	212	42	702	21	0	42
4	C2B	min	-213	10	-518	40	-0	11
5	Total	max	424	14	1256	4	0	42
6	Total	min	-424	38	-475	36	-0	11

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	Shear[lb]	LC	Moment[ft-lb]	LC
1	C1	1	max	702	25	213	14	0	38
2		1	min	-518	36	-212	38	-0	9
3	C1	2	max	7578	20	1897	38	19152	38
4		2	min	-7034	42	-1930	14	-19523	14
5	C2	1	max	702	21	212	42	0	42
6		1	min	-518	40	-213	10	-0	11
7	C2	2	max	7578	24	1930	10	19152	42
8		2	min	-7034	38	-1897	42	-19523	10
9	KB1	1	max	1412	14	0	43	0	1
10		1	min	-1469	38	-0	10	0	1
11	KB1	2	max	2823	14	0	43	0	10
12		2	min	-2938	38	-0	10	-0	43
13	KB2	1	max	1412	10	0	14	0	1
14		1	min	-1469	42	-0	39	0	1
15	KB2	2	max	2823	10	0	14	0	39
16		2	min	-2938	42	-0	39	-0	14
17	AB	1	max	243	39	0	38	0	1
18		1	min	-535	4	-0	14	0	1
19	AB	2	max	487	39	0	38	0	14
20		2	min	-1069	4	-0	14	-0	38
21	LR1	1	max	642	38	843	42	0	42
22		1	min	-658	14	-852	10	-0	8
23	LR1	2	max	3151	20	984	42	18430	10
24		2	min	-2668	42	-1001	20	-18217	42
25	LR2	1	max	642	42	852	14	0	42
26		1	min	-658	10	-843	38	-0	13
27	LR2	2	max	3151	24	1001	24	18430	14
28		2	min	-2668	38	-984	38	-18217	38

AISI S100-16 : ASD Cold Formed Steel Code Checks

Member		Shape	H1.2-1 Check	Loc[ft]	LC	H2-1 Check	Loc[ft]	LC
1	C1	14in x 4in 12G CEE	0.53	13.800	3	0.14	13.800	4
2	C2	14in x 4in 12G CEE	0.53	13.800	3	0.14	13.800	4
3	KB1	10in x 4in 12G CEE	0.06	9.540	1	0.00	9.540	1
4	KB2	10in x 4in 12G CEE	0.06	9.540	1	0.00	9.540	1
5	AB	10in x 4in 12G CEE	0.01	8.558	1	0.00	8.558	1
6	LR1	14in x 4in 12G CEE	0.16	3.006	4	0.16	3.006	4
7	LR2	14in x 4in 12G CEE	0.16	3.006	4	0.16	3.006	4

AISI S100-16 : ASD Cold Formed Steel Allowable Member Load

Member		Shape	Pn/Om[lb]	Tn/Om[lb]	Mn/Om[lb-ft]	Cb	Cm
1	C1	14in x 4in 12G CEE	8778	73593	15824	1	1
2	C2	14in x 4in 12G CEE	8778	73593	15824	1	1
3	KB1	10in x 4in 12G CEE	23445	60759	12473	1	1
4	KB2	10in x 4in 12G CEE	23445	60759	12473	1	1
5	AB	10in x 4in 12G CEE	25707	60759	12654	1	1
6	LR1	14in x 4in 12G CEE	26906	73593	18196	1	1
7	LR2	14in x 4in 12G CEE	26906	73593	18196	1	1

FRAME BRACE END SCREW CONNECTION DESIGN

Brace results apply at Frames 1-6

Gable Frame Columns: Double 14in x 4in 12G CEE**Gable Frame Rafters:** Double 14in x 4in 12G CEE*** Gable Frame Typ. Knee Braces:** Double 10in x 4in 12G CEE*** Gable Frame Apex Braces:** Double 10in x 4in 12G CEE**Knee Brace Vert. Intersection Dimension per Detail A/2 (ft.):** 14' - 3"**Knee Brace Horiz. Intersection Dimension per Detail A/2 (ft.):** 2' - 7 1/8"**Apex Brace Horiz. Dimension per Detail B/2 (ft.):** 3' - 3"**Screw Size:** #12**Ultimate Single Shear Screw Strength (lbs.):** 1875 $\Omega = 2.5$

	n Screws	R3d (group effect factor)	V single screw (lbs.)	P (design allowable, lbs.)
Knee Brace	18	0.65	403	7257
Apex Brace	4	0.77	480	1921

MAX. KNEE BRACE FORCE (lbs.): 7223 (INSTALL (18) #12 SCREWS AT EACH END OF EACH KNEE BRACE)

MAX. APEX BRACE FORCE (lbs.): 1741 (INSTALL (4) #12 SCREWS AT EACH END OF EACH APEX BRACE)

FRAME BRACE END ALTERNATE BOLT CONNECTION DESIGN

NOTATIONS

Fu = Tensile strength of connected part (psi)

Fy = Yield strength of connected part (psi)

db = Nominal bolt diameter (in.)

g1 = Nominal gauge of thinnest connected part (in.)

t1 = Thickness of thinnest connected part (in.)

Pn = Nominal bearing strength per bolt (lbs.)

ALLOWABLE SHEAR BASED ON CONNECTED MATERIALS:

Fu (psi) = 70000

Fy (psi) = 55000

d/t = 5.95

C = 3.00

Pn = 13781

db = 0.625

g1 = 12

t1 = 0.105

Allowable shear based on connected material bearing (lbs.): 5600

Bolt Grade: A325

Allowable shear based on A325 bolt in shear (lbs.): 8283

Allowable Shear on Each Bolt (lbs.): 5600

*** MAX. KNEE BRACE FORCE (lbs.): 7223** (USE MIN. (2) 5/8" DIAM. A325 BOLTS AT EACH END OF EACH KNEE BRACE)

*** MAX. APEX BRACE FORCE (lbs.): 1741** (USE MIN. (2) 5/8" DIAM. A325 BOLTS AT EACH END OF EACH APEX BRACE)

LATERAL FORCE RESISTANCE X-BRACING AND DIAPHRAGM ANALYSIS

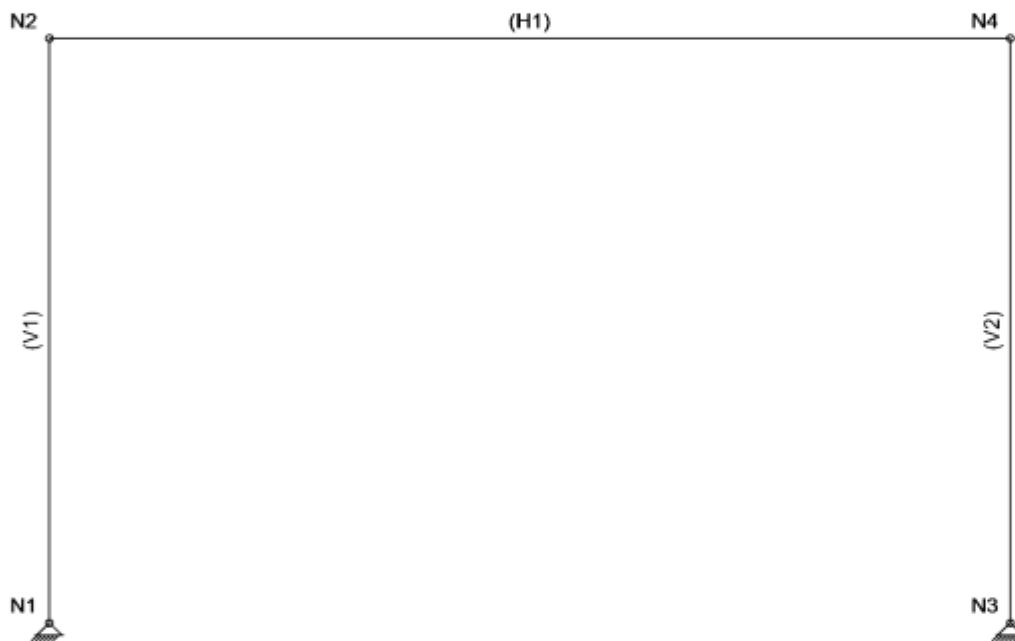
Reports verifying diaphragm capacity available upon request.

'ENDWALL A' X-BRACING TOTAL SHEAR FORCE, ASD, LBS.:	310	(ADD KNEE AND APEX BRACES TO ENDWALL FRAME IN LIEU OF X-
'ENDWALL B' X-BRACING TOTAL SHEAR FORCE, ASD, LBS.:	310	(ADD KNEE AND APEX BRACES TO ENDWALL FRAME IN LIEU OF X-
'SIDEWALL A' TOTAL SHEAR FORCE, ASD, LBS.:	3372	(MOMENT FRAME USED TO RESIST LOAD)
BAY #:	4	
MOMENT FRAME ANALYSIS, PGS:	B3 - B6	
'SIDEWALL B' X-BRACING TOTAL SHEAR FORCE, ASD, LBS.:	4405	(X-BRACING USED TO RESIST LOAD)
BAY #	3	
X-BRACING WIDTH (ft.):	15.00	
HEIGHT (ft.):	22.94	
SHEAR FORCE, ASD (lbs.):	4405	
BASE UPLIFT TENSION, ASD (lbs.):	6736	
X-BRACING TENSION, ASD (lbs.):	8048	
STRAP SIZE:	(2) 2" x 14ga. strap	
'ROOF' TOTAL SHEAR FORCE, ASD, LBS.:	0	(SHEETING DIAPHRAGM ACTION USED TO RESIST LOAD)
PANEL #:	1	
PANEL WIDTH (ft.):	50.00	
PANEL WIDTH RELATIVE STIFFNESS:	2500	
HEIGHT (ft.):	10.31	
MAX. PANEL SHEAR FORCE, ASD (lbs.):	0	
PANEL SHEAR, ASD (plf):	0	
ALLOWABLE PANEL SHEAR, ASD (plf):	159	
	OK	
REACTION AT PANEL END, ASD:	0	
'LEANTO A ROOF' TOTAL SHEAR FORCE, ASD, LBS.:	0	(SHEETING DIAPHRAGM ACTION USED TO RESIST LOAD)
PANEL #:	1	
PANEL WIDTH (ft.):	50.00	
PANEL WIDTH RELATIVE STIFFNESS:	2500	
HEIGHT (ft.):	20.62	
MAX. PANEL SHEAR FORCE, ASD (lbs.):	0	
PANEL SHEAR, ASD (plf):	0	
ALLOWABLE PANEL SHEAR, ASD (plf):	159	
	OK	
REACTION AT PANEL END, ASD:	0	

'LEANTO B ROOF' TOTAL SHEAR FORCE, ASD, LBS.:	0	(SHEETING DIAPHRAGM ACTION USED TO RESIST LOAD)
PANEL #:	1	
PANEL WIDTH (ft.):	50.00	
PANEL WIDTH RELATIVE STIFFNESS:	2500	
HEIGHT (ft.):	20.62	
MAX. PANEL SHEAR FORCE, ASD (lbs.):	0	
PANEL SHEAR, ASD (plf):	0	
ALLOWABLE PANEL SHEAR, ASD (plf):	159	
	OK	
REACTION AT PANEL END, ASD:	0	

MOMENT FRAME ANALYSIS:

Analysis & Design Software: ACT Dimensions version 2.25.0.5 by ACT Building Systems



X - JOINT LABEL (SEE RISA ANALYSIS NEXT PAGE)

(X) - MEMBER LABEL (SEE RISA ANALYSIS NEXT PAGE)

MOMENT FRAME NODE AND MEMBER DIAGRAM

Cold Formed Steel Properties

	Label	E[psi]	G[psi]	Nu	Therm/(1E5 F)	Density[lb/ft^3]	Yield[psi]	Fu[psi]
1	CF_STL	29007500	11603000	0.3	0.65	484	55000	70000

Joint Coordinates

	Label	X[ft]	Y[ft]
1	N1	0.000	0.000
2	N2	0.000	9.250
3	N3	14.501	0.000
4	N4	14.501	9.250

Member Primary Data

	Label	I Joint	J Joint	Shape	Type	DesignList	Material	DesignRules
1	V1	N1	N2	14in x 4in 12G CEE	Beam	CS	CF_STL	Typical
2	H2	N2	N4	14in x 4in 12G CEE	Beam	CS	CF_STL	Typical
3	V3	N3	N4	14in x 4in 12G CEE	Beam	CS	CF_STL	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[ft]	J Offset[ft]	T/C Only	Physical
1	V1			0.000	0.000		Yes
2	H2			0.000	0.000		Yes
3	V3			0.000	0.000		Yes

Cold Formed Steel Design Parameters

	Label	Shape	Length[ft]	Lb-out[ft]	Lb-in[ft]	Lcomp top[ft]	Lcomp bot[ft]	K-out	K-in	Cm	Out sway	In sway
1	V1	14in x 4in 12G CEE	9.250						0.8	1		Yes
2	H2	14in x 4in 12G CEE	14.501	7.250		7.250	7.250		0.8	1		Yes
3	V3	14in x 4in 12G CEE	9.250						0.8	1		Yes

Basic Load Cases

	BLC Description	Category	Joint	Point	Distributed
1	Roof Dead	DL	0	0	0
2	Roof Snow	SL	0	0	0
3	Roof Live	RLL	0	0	0
4	Wall Dead	DL	0	0	0
5	Floor Dead	DL	0	0	0
6	Floor Live	LL	0	0	0
7	Wind To Right - Upward Ballooning	OL1	0	2	0
8	Wind To Right - Upward Deflation	OL2	0	2	0
9	Wind To Right - Downward Ballooning	OL3	0	0	0
10	Wind To Right - Downward Deflation	OL4	0	0	0
11	Wind To Left - Upward Ballooning	OL5	0	0	0
12	Wind To Left - Upward Deflation	OL6	0	0	0
13	Wind To Left - Downward Ballooning	OL7	0	0	0
14	Wind To Left - Downward Deflation	OL8	0	0	0
15	Earthquake+	None	0	2	0
16	Earthquake-	None	0	2	0

Load Combinations

	Description	PDelta	SRSS	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DL ONLY			DL	1						
2	FLL ONLY			LL	1						
3	IBC 16-9			DL	1	LL	1				
4	IBC 16-10 (a)			DL	1	RLL	1				
5	IBC 16-10 (b)			DL	1	SL	1				
6	IBC 16-11 (a)			DL	1	LL	0.75	RLL	0.75		
7	IBC 16-11 (b)			DL	1	LL	0.75	SL	0.75		
8	IBC 16-12 (a) 1			DL	1	OL1	0.6				
9	IBC 16-12 (a) 2			DL	1	OL2	0.6				
10	IBC 16-12 (a) 3			DL	1	OL3	0.6				
11	IBC 16-12 (a) 4			DL	1	OL4	0.6				
12	IBC 16-12 (a) 5			DL	1	OL5	0.6				
13	IBC 16-12 (a) 6			DL	1	OL6	0.6				
14	IBC 16-12 (a) 7			DL	1	OL7	0.6				
15	IBC 16-12 (a) 8			DL	1	OL8	0.6				
16	IBC 16-12 (b) 1			DL	1	15	0.7				
17	IBC 16-12 (b) 2			DL	1	16	0.7				
18	IBC 16-13 (a) 1			DL	1	LL	0.75	RLL	0.75	OL1	0.45
19	IBC 16-13 (a) 2			DL	1	LL	0.75	RLL	0.75	OL2	0.45
20	IBC 16-13 (a) 3			DL	1	LL	0.75	RLL	0.75	OL3	0.45
21	IBC 16-13 (a) 4			DL	1	LL	0.75	RLL	0.75	OL4	0.45
22	IBC 16-13 (a) 5			DL	1	LL	0.75	RLL	0.75	OL5	0.45
23	IBC 16-13 (a) 6			DL	1	LL	0.75	RLL	0.75	OL6	0.45
24	IBC 16-13 (a) 7			DL	1	LL	0.75	RLL	0.75	OL7	0.45
25	IBC 16-13 (a) 8			DL	1	LL	0.75	RLL	0.75	OL8	0.45
26	IBC 16-13 (b) 1			DL	1	LL	0.75	SL	0.75	OL1	0.45
27	IBC 16-13 (b) 2			DL	1	LL	0.75	SL	0.75	OL2	0.45
28	IBC 16-13 (b) 3			DL	1	LL	0.75	SL	0.75	OL3	0.45
29	IBC 16-13 (b) 4			DL	1	LL	0.75	SL	0.75	OL4	0.45
30	IBC 16-13 (b) 5			DL	1	LL	0.75	SL	0.75	OL5	0.45
31	IBC 16-13 (b) 6			DL	1	LL	0.75	SL	0.75	OL6	0.45
32	IBC 16-13 (b) 7			DL	1	LL	0.75	SL	0.75	OL7	0.45
33	IBC 16-13 (b) 8			DL	1	LL	0.75	SL	0.75	OL8	0.45
34	IBC 16-14 (a) 1			DL	1	LL	0.75	SL	0.75	15	0.525
35	IBC 16-14 (a) 2			DL	1	LL	0.75	SL	0.75	16	0.525
36	IBC 16-15 (a) 1			DL	0.6	OL1	0.6				
37	IBC 16-15 (a) 2			DL	0.6	OL2	0.6				
38	IBC 16-15 (a) 3			DL	0.6	OL3	0.6				
39	IBC 16-15 (a) 4			DL	0.6	OL4	0.6				
40	IBC 16-15 (a) 5			DL	0.6	OL5	0.6				
41	IBC 16-15 (a) 6			DL	0.6	OL6	0.6				
42	IBC 16-15 (a) 7			DL	0.6	OL7	0.6				
43	IBC 16-15 (a) 8			DL	0.6	OL8	0.6				
44	IBC 16-16 (a) 1			DL	0.6	15	0.7				
45	IBC 16-16 (a) 2			DL	0.6	16	0.7				

Envelope Joint Reactions

Joint			X[lb]	LC	Y[lb]	LC	Moment[ft-lb]	LC
1	C1B	max	1686	37	2151	36	0	36
2	C1B	min	-1686	8	-2151	9	-0	9
3	C2B	max	1686	37	2151	37	0	36
4	C2B	min	-1686	8	-2151	8	-0	9
5	Total	max	3372	37	0	36	0	36
6	Total	min	-3372	8	-0	9	-0	9

Envelope Member Section Forces

Member		Sec		Axial[lb]	LC	Shear[lb]	LC	Moment[ft-lb]	LC
1	V1	1	max	2151	36	1686	37	0	36
2		1	min	-2151	9	-1686	8	-0	9
3	V1	2	max	55930	36	43837	37	202746	37
4		2	min	-55930	9	-43837	8	-202746	8
5	H2	1	max	0	45	2151	36	15596	37
6		1	min	0	1	-2151	9	-15596	8
7	H2	2	max	0	45	55930	36	0	36
8		2	min	0	1	-55930	9	-0	9
9	V3	1	max	2151	37	1686	37	0	36
10		1	min	-2151	8	-1686	8	-0	9
11	V3	2	max	55930	37	43837	37	202746	37
12		2	min	-55930	8	-43837	8	-202746	8

AISI S100-16 : ASD Cold Formed Steel Code Checks

Member		Shape	H1.2-1 Check	Loc[ft]	LC	H2-1 Check	Loc[ft]	LC
1	V1	14in x 4in 12G CEE	0.94	0.000	1	0.74	0.000	1
2	H2	14in x 4in 12G CEE	0.86	0.000	1	0.76	0.000	1
3	V3	14in x 4in 12G CEE	0.94	0.000	1	0.74	0.000	1

AISI S100-16 : ASD Cold Formed Steel Allowable Member Load

Member		Shape	Pn/Om[lb]	Tn/Om[lb]	Mn/Om[lb-ft]	Cb	Cm
1	V1	14in x 4in 12G CEE	26515	165583	18196	1	1
2	H2	14in x 4in 12G CEE	29406	165583	18196	1	1
3	V3	14in x 4in 12G CEE	26515	165583	18196	1	1

MOMENT FRAME BOLT PATTERN SECTION PROPERTIES

Vx (LBS.): 2151
 Vy (LBS.): -1686
 M rot. (FT.-LBS.): -15596
 BOLT ROWS: 2

BOLT TYPE: A325
 BOLT SIZE: 0.625

"X" COORD.	"Y" COORD.	(DELTA "x")^2 (to centroid)	(DELTA "y")^2 (to centroid)	vx (lbs.)	vy (lbs.)	V bolt res. (LBS.)
-6.00	-6.00	36.00	36.00	-2761	-3400	4380
-6.00	0.00	36.00	0.00	359	-3400	3419
-6.00	6.00	36.00	36.00	3478	-3400	4864
6.00	-6.00	36.00	36.00	-2761	2838	3959
6.00	0.00	36.00	0.00	359	2838	2861
6.00	6.00	36.00	36.00	3478	2838	4489
Max. Bolt Shear (lbs.) --->						4864

"X" CENTROID: 0.00

"Y" CENTROID: 0.00

Allowable Bolt Shear (lbs.) --->

5512

OK

AXIS ABOUT WHICH PROPERTIES
 ARE DESIRED:

"X": 0.00

"Y": 0.00

A: 6.00 BOLT-IN.^2

Ix: 144.00 BOLT-IN.^4

Iy: 216.00 BOLT-IN.^4

J: 360.00 BOLT-IN.^4

USE ---> (2) ROWS SPACED AT 12" O.C. WITH (3)-5/8" DIAM. A325 BOLTS @ 6" O.C.

Metal Building Engineering, LLC

MAIN BUILDING ROOF PURLIN DESIGN

MEMBER SIZE USED -->	6in x 3.125/3.375in 14G ZEE				
	BAY #1	BAY #2	BAY #3	BAY #4	BAY #5
SPAN (ft.):	2.50	14.50	15.00	14.50	2.50
DOWNWARD LOAD TRIB. WIDTH (ft.):	4.60	4.60	4.60	4.60	4.60
DOWNWARD DISTRIBUTED LOAD (lbs./ft.):	98	98	98	98	98
UPWARD LOAD TRIB. WIDTH (ft.):	4.60	4.60	4.60	4.60	4.60
UPWARD DISTRIBUTED LOAD (lbs./ft.):	62	62	62	62	62
DESIGN DOWNWARD BENDING MOMENT, Mu (ft.-lbs.):	128	4323	4626	4323	129
DESIGN DOWNWARD END SHEAR (lbs.):	123	714	739	714	123
DESIGN UPWARD BENDING MOMENT, Mu (ft.-lbs.):	64	2700	2889	2700	64
DESIGN UPWARD END SHEAR (lbs.):	77	446	461	446	77
PURLIN BRACING LOCATIONS:	---	M/S	M/S	M/S	---
INSIDE FLANGE UNBRACED LENGTH (FT.):	2.50	7.25	7.50	7.25	2.50
(Mn values from NASPEC Section C3.1) -->					
+Mn allow (ft.-lbs.):	7390	7390	7390	7390	7390
-Mn allow (ft.-lbs.):	6236	6236	6236	6236	6236
	OK	OK	OK	OK	OK
DOWNWARD DEFLECTION (in.):	0.00	0.56	0.65	0.56	0.00
	(> L/1000)	= (L/306)	= (L/276)	= (L/306)	(> L/1000)
UPWARD DEFLECTION (in.):	0.00	0.35	0.40	0.35	0.00
	(> L/1000)	= (L/490)	= (L/442)	= (L/490)	(> L/1000)
	6X2.5 14 EAVE Typ. OK				

Metal Building Engineering, LLC

MAIN BUILDING WALL GIRT DESIGN

SIDEWALL 'A' AND 'B' GIRT DESIGN					
MEMBER SIZE USED -->	6in x 3.125/3.375in 12G ZEE				
	BAY #1	BAY #2	BAY #3	BAY #4	BAY #5
BAY WIDTH (ft.):	2.50	14.50	15.00	14.50	2.50
MAX. GIRT SPAN (ft.):	2.50	14.50	15.00	14.50	2.50
TRIB. WIDTH (ft.):	3.83	3.83	3.83	3.83	3.83
INWARD DISTRIBUTED LOAD (lbs./ft.):	57	57	57	57	57
OUTWARD DISTRIBUTED LOAD (lbs./ft.):	63	63	63	63	63
DESIGN INWARD BENDING MOMENT, Mu (ft.-lbs.):	513	2503	2678	2503	513
DESIGN INWARD END SHEAR (lbs.):	197	413	428	413	197
DESIGN OUTWARD BENDING MOMENT, Mu (ft.-lbs.):	452	2755	2948	2755	452
DESIGN OUTWARD END SHEAR (lbs.):	216	455	471	455	216
GIRT BRACING LOCATIONS:	---	M/S	M/S	M/S	---
INSIDE FLANGE UNBRACED LENGTH (FT.):	2.50	7.25	7.50	7.25	2.50
(Mn values from NASPEC Section C3.1) -->					
+Mn allow (ft.-lbs.):	11666	11666	11666	11666	11666
-Mn allow (ft.-lbs.):	10871	10871	10871	10871	10871
	OK	OK	OK	OK	OK
INWARD DEFLECTION (in.):	0.00	0.22	0.25	0.22	0.00
	(> L/1000) = (L/776) = (L/701) = (L/776) (> L/1000)				
OUTWARD DEFLECTION (in.):	0.00	0.24	0.28	0.24	0.00
	(> L/1000) = (L/705) = (L/636) = (L/705) (> L/1000)				

ENDWALL 'A' GIRT DESIGN	
MEMBER SIZE USED -->	8in x 3.125/3.375in 12G ZEE
	BAY #1
BAY WIDTH (ft.):	16.67
MAX. GIRT SPAN (ft.):	16.67
TRIB. WIDTH (ft.):	7.67
INWARD DISTRIBUTED LOAD (lbs./ft.):	112
OUTWARD DISTRIBUTED LOAD (lbs./ft.):	123
DESIGN INWARD BENDING MOMENT, Mu (ft.-lbs.):	6519
DESIGN INWARD END SHEAR (lbs.):	963
DESIGN OUTWARD BENDING MOMENT, Mu (ft.-lbs.):	7191
DESIGN OUTWARD END SHEAR (lbs.):	1062
GIRT BRACING LOCATIONS:	M/S
INSIDE FLANGE UNBRACED LENGTH (FT.):	8.33
(Mn values from NASPEC Section C3.1) -->	
+Mn allow (ft.-lbs.):	16623
-Mn allow (ft.-lbs.):	15046
	OK
INWARD DEFLECTION (in.):	0.39
	= (L/506)
OUTWARD DEFLECTION (in.):	0.43
	= (L/459)

ENDWALL 'B' GIRT DESIGN	
MEMBER SIZE USED -->	8in x 3.125/3.375in 12G ZEE
	BAY #1
BAY WIDTH (ft.):	16.67
MAX. GIRT SPAN (ft.):	16.67
TRIB. WIDTH (ft.):	7.67
INWARD DISTRIBUTED LOAD (lbs./ft.):	112
OUTWARD DISTRIBUTED LOAD (lbs./ft.):	123
DESIGN INWARD BENDING MOMENT, Mu (ft.-lbs.):	6519
DESIGN INWARD END SHEAR (lbs.):	963
DESIGN OUTWARD BENDING MOMENT, Mu (ft.-lbs.):	7191
DESIGN OUTWARD END SHEAR (lbs.):	1062
GIRT BRACING LOCATIONS:	M/S
INSIDE FLANGE UNBRACED LENGTH (FT.):	8.33
(Mn values from NASPEC Section C3.1) -->	
+Mn allow (ft.-lbs.):	16623
-Mn allow (ft.-lbs.):	15046
	OK
INWARD DEFLECTION (in.):	0.39
	= (L/506)
OUTWARD DEFLECTION (in.):	0.43
	= (L/459)

Metal Building Engineering, LLC

OPENING FRAMING DESIGN

OPENING #	WALL LOCATION	BAY #	DESIGN WIND PRESSURE (psf):	BAY WIDTH (ft.)	MAX. DIST. FROM EDGE OF BAY TO OPENING C.L.	OPENING WIDTH (ft.)	OPENING HEIGHT (ft.)	DESIGN JAMB HEIGHT (ft.)	JAMB MOMENT (ft.-lbs.)	JAMB MEMBER	ALLOWABLE MOMENT FOR JAMB MEMBER (ft.-lbs.)		HEADER GIRT LENGTH (ft.)	HEADER GIRT MOMENT (ft.-lbs.)	HEADER GIRT MEMBER	HEADER GIRT MEMBER (SINGLE OR DOUBLE)	ALLOWABLE MOMENT FOR HEADER GIRT (ft.-lbs.)	BRACING (ft.)		OPENING #
1	Sidewall A	3	16.57	15.00	7.50	10.00	10.00	15.33	5073	6in x 3.5in 16G CEE	5080	OK	15.00	4159	6in x 3.125/3.375in 12G ZEE	SGL.	10871	5.00	OK	1
2	Sidewall A	2	17.18	14.50	7.25	10.00	10.00	15.33	5154	6in x 3.5in 14G CEE	6457	OK	14.50	3786	6in x 3.125/3.375in 12G ZEE	SGL.	10871	5.00	OK	2
3	Endwall B	1	17.24	16.67	10.00	6.00	8.00	15.33	5488	8in x 3.5in 16G CEE	6890	OK	15.97	10746	8in x 3.125/3.375in 12G ZEE	SGL.	15046	4.99	OK	3
4	Sidewall A	4	17.99	14.50	7.25	6.00	8.00	8.30	1323	6in x 2.875in 14G Channel	3238	OK	14.50	5383	6in x 3.125/3.375in 12G ZEE	SGL.	10871	4.25	OK	4
5	Endwall A	1	16.18	16.67	16.00	3.00	8.00	15.33	6936	8in x 2.875in 12G Channel	8357	OK	15.97	8173	8in x 3.125/3.375in 12G ZEE	SGL.	15046	4.99	OK	5
6	Endwall B	1	18.44	16.67	10.00	6.00	5.00	7.20	1294	8in x 2.875in 14G Channel	6437	OK	10.01	2030	8in x 3.125/3.375in 12G ZEE	SGL.	15046	3.00	OK	6
7	Endwall A	1	18.44	16.67	10.00	6.00	5.00	7.20	1294	8in x 2.875in 14G Channel	6437	OK	10.01	2030	8in x 3.125/3.375in 12G ZEE	SGL.	15046	3.00	OK	7
8	Leanto B Endwall B	1	17.58	20.00	10.79	7.00	4.00	14.46	4864	8in x 2.875in 14G Channel	5717	OK	---	---					OK	8
9	Leanto B Sidewall	2	18.44	14.50	9.00	6.00	4.00	11.50	2160	6in x 3.5in 16G CEE	5080	OK	---	---						9
10	Leanto B Sidewall	3	17.10	15.00	7.50	6.00	4.00	11.50	2474	6in x 3.5in 16G CEE	5080	OK	---	---						10
11	Leanto B Endwall A	1	16.21	20.00	15.67	6.00	4.00	14.05	6222	8in x 2.875in 12G Channel	8716	OK	2.70	557	8in x 3.125/3.375in 12G ZEE	SGL.	15070	1.83	OK	11
12	Sidewall A	3	17.90	15.00	7.50	8.00	3.00	5.25	591	6in x 2.875in 14G Channel	4530	OK	---	---						12
13	Sidewall A	2	18.72	14.50	7.25	8.00	3.00	5.25	605	6in x 2.875in 14G Channel	4530	OK	---	---						13
14	Sidewall A	4	18.72	14.50	7.25	8.00	3.00	5.25	605	6in x 2.875in 14G Channel	4530	OK	---	---						14
15	Sidewall B	3	17.90	15.00	7.50	8.00	3.00	5.25	591	6in x 2.875in 14G Channel	4530	OK	---	---						15
16	Sidewall B	2	18.72	14.50	7.25	8.00	3.00	5.25	605	6in x 2.875in 14G Channel	4530	OK	---	---						16
17	Sidewall B	4	18.72	14.50	7.25	8.00	3.00	5.25	605	6in x 2.875in 14G Channel	4530	OK	---	---						17
18	Leanto B Sidewall	4	17.55	14.50	7.25	6.00	3.00	11.50	2478	6in x 3.5in 16G CEE	5080	OK	---	---						18
19	Leanto B Sidewall	2	18.03	14.50	11.67	3.00	2.00	11.50	1159	6in x 2.875in 14G Channel	3896	OK	---	---						19

LEANTO RAFTER DESIGN

	LEANTO "A" (ELEV. 2/1)	LEANTO "B" (ELEV. 3/1)		
LEANTO ROOF PITCH:	3.00	3.00		
HEIGHT FROM FDN. TO BOTTOM OF HIGH END OF LEANTO CEE RAFTER IF RAFTER END AT FACE OF MAIN BUILDING COLUMN:	16' - 0.125"	16' - 0.125"		
HEIGHT FROM FDN. TO BOTTOM OF HIGH END OF LEANTO CEE RAFTER IF RAFTER END AT OUTSIDE OF SIDEWALL GIRTS:	15' - 10.625"	15' - 10.625"		
SPAN:	20.00	20.00	ft.	
MAXIMUM TRIB. WIDTH:	9.00	9.00	ft.	
DIST. LOAD (DL + RLL):	198	198	lbs./ft.	
LOAD (WIND - DL):	157	120	lbs./ft.	
DESIGN BENDING MOMENT (DL + RLL):	16530	16530	ft.-lbs.	(with $\Omega_f = 1.67$)
END SHEAR (DL + RLL):	1980	1980	lbs.	
DESIGN BENDING MOMENT (WIND-DL):	13137	10046	ft.-lbs.	(with $\Omega_f = 1.67$)
END SHEAR (WIND-DL):	1573	1203	lbs.	
LEANTO RAFTER SIZE USED -->	Double 7in x 4in 12G CEE	Double 7in x 4in 12G CEE		
DESIGN SECTION -->	7in x 4in 12G CEE	7in x 4in 12G CEE		
INSIDE FLANGE UNBRACED LENGTH (FT.):	20.00	20.00	ft.-lbs.	(Mn values from,
+Mn allow =	29400	29400	ft.-lbs.	AISI S100,
-Mn allow =	11254	11254	ft.-lbs.	Section C3.1)

NO GOOD!**LEANTO 'B' RAFTER OK**

Metal Building Engineering, LLC

LEANTO "A" ROOF PURLIN DESIGN

MEMBER SIZE USED -->	6in x 3.125/3.375in 14G ZEE			1	<-- LEANTO "A" 'START' BAY	5	<-- LEANTO "A" 'END' BAY
	BAY #1	BAY #2	BAY #3	BAY #4	BAY #5		
SPAN (ft.):	2.50	14.50	15.00	14.50	2.50		
MAX. DOWNWARD TRIB. WIDTH (ft.):	4.12	4.12	4.12	4.12	4.12		
DOWNWARD DISTR. LOAD (lbs./ft.):	91	91	91	91	91		
UPWARD LOAD TRIB. WIDTH (ft.):	4.12	4.12	4.12	4.12	4.12		
UPWARD DISTR. LOAD (lbs./ft.):	46	46	46	46	46		
DESIGN DOWNWARD BENDING MOMENT, Mu (ft.-lbs.):	118	3981	4260	3981	118		
DESIGN DOWNWARD END SHEAR (lbs.):	113	658	680	658	113		
DESIGN UPWARD BENDING MOMENT, Mu (ft.-lbs.):	61	2038	2181	2038	61		
DESIGN UPWARD END SHEAR (lbs.):	58	337	348	337	58		
PURLIN BRACING LOCATIONS:	---	---	---	---	---		
INSIDE FLANGE UNBRACED LENGTH (FT.):	2.50	14.50	15.00	14.50	2.50		
(Mn values from NASPEC Section C3.1) -->							
+Mn allow (ft.-lbs.):	7390	7390	7390	7390	7390		
-Mn allow (ft.-lbs.):	6236	3775	3528	3775	6236		
	OK	OK	OK	OK	OK		
INWARD DEFLECTION (in.):	0.00	0.52	0.59	0.52	0.00		
	= (L/64837)	= (L/332)	= (L/300)	= (L/332)	= (L/64837)		
OUTWARD DEFLECTION (in.):	0.00	0.26	0.30	0.26	0.00		
	= (L/126639)	= (L/649)	= (L/586)	= (L/649)	= (L/126639)		

LEANTO "B" ROOF PURLIN DESIGN

MEMBER SIZE USED -->		6in x 3.125/3.375in 14G ZEE			1	<-- LEANTO "B" 'START' BAY	5	<-- LEANTO "B" 'END' BAY
		BAY #1	BAY #2	BAY #3	BAY #4	BAY #5		
SPAN (ft.):		2.50	14.50	15.00	14.50	2.50		
MAX. DOWNWARD TRIB. WIDTH (ft.):		4.12	4.12	4.12	4.12	4.12		
DOWNWARD DISTR. LOAD (lbs./ft.):		91	91	91	91	91		
UPWARD LOAD TRIB. WIDTH (ft.):		4.12	4.12	4.12	4.12	4.12		
UPWARD DISTR. LOAD (lbs./ft.):		55	55	55	55	55		
DESIGN DOWNWARD BENDING MOMENT, Mu (ft.-lbs.):		118	3981	4260	3981	118		
DESIGN DOWNWARD END SHEAR (lbs.):		113	658	680	658	113		
DESIGN UPWARD BENDING MOMENT, Mu (ft.-lbs.):		72	2419	2589	2419	72		
DESIGN UPWARD END SHEAR (lbs.):		69	400	413	400	69		
PURLIN BRACING LOCATIONS:		---	---	---	---	---		
INSIDE FLANGE UNBRACED LENGTH (FT.):		2.50	14.50	15.00	14.50	2.50		
(Mn values from NASPEC Section C3.1) -->								
+Mn allow (ft.-lbs.):		7390	7390	7390	7390	7390		
-Mn allow (ft.-lbs.):		6236	3775	3528	3775	6236		
		OK	OK	OK	OK	OK		
INWARD DEFLECTION (in.):		0.00	0.52	0.59	0.52	0.00		
		= (L/64837)	= (L/332)	= (L/300)	= (L/332)	= (L/64837)		
OUTWARD DEFLECTION (in.):		0.00	0.31	0.36	0.31	0.00		
		= (L/106710)	= (L/546)	= (L/494)	= (L/546)	= (L/106710)		

Metal Building Engineering, LLC

LEANTO 'A' WALL GIRT DESIGN

SIDEWALL GIRT DESIGN			
MEMBER SIZE USED -->	1	<-- LEANTO "A" 'START' BAY	5 <-- LEANTO "A" 'END' BAY
BAY WIDTH (ft.):			
MAX. GIRT SPAN (ft.):			
TRIB. WIDTH (ft.):			
INWARD DISTR. LOAD (lbs./ft.):			
OUTWARD DISTR. LOAD (lbs./ft.):			
DESIGN INWARD BENDING MOMENT, Mu (ft.-lbs.):			
DESIGN INWARD END SHEAR (lbs.):			
DESIGN OUTWARD BENDING MOMENT, Mu (ft.-lbs.):			
DESIGN OUTWARD END SHEAR (lbs.):			
GIRT BRACING LOCATIONS:			
INSIDE FLANGE UNBRACED LENGTH (FT.):			
(Mn values from NASPEC Section C3.1) -->			
+Mn allow (ft.-lbs.):			
-Mn allow (ft.-lbs.):			
INWARD DEFLECTION (in.):			
OUTWARD DEFLECTION (in.):			

LEANTO "A" WALL GIRT DESIGN

LEANTO 'A', ENDWALL 'A' GIRT DESIGN	
MEMBER SIZE USED -->	8in x 3.125/3.375in 12G ZEE
BAY #	1
BAY WIDTH (ft.):	19.42
MAX. GIRT SPAN (ft.):	19.42
TRIB. WIDTH (ft.):	7.67
INWARD DISTR. LOAD (lbs./ft.):	88
OUTWARD DISTR. LOAD (lbs./ft.):	97
DESIGN INWARD BENDING MOMENT, Mu (ft.-lbs.):	6923
DESIGN INWARD END SHEAR (lbs.):	850
DESIGN OUTWARD BENDING MOMENT, Mu (ft.-lbs.):	7636
DESIGN OUTWARD END SHEAR (lbs.):	966
GIRT BRACING LOCATIONS:	M/S
INSIDE FLANGE UNBRACED LENGTH (FT.):	9.71
(Mn values from NASPEC Section C3.1) -->	
+Mn allow (ft.-lbs.):	16623
-Mn allow (ft.-lbs.):	14093
	OK
INWARD DEFLECTION (in.):	0.57 = (L/408)
OUTWARD DEFLECTION (in.):	0.62 = (L/370)

LEANTO 'A', ENDWALL 'B' GIRT DESIGN	
MEMBER SIZE USED -->	8in x 3.125/3.375in 12G ZEE
BAY #	1
BAY WIDTH (ft.):	19.42
MAX. GIRT SPAN (ft.):	19.42
TRIB. WIDTH (ft.):	7.67
INWARD DISTR. LOAD (lbs./ft.):	88
OUTWARD DISTR. LOAD (lbs./ft.):	97
DESIGN INWARD BENDING MOMENT, Mu (ft.-lbs.):	6923
DESIGN INWARD END SHEAR (lbs.):	850
DESIGN OUTWARD BENDING MOMENT, Mu (ft.-lbs.):	7636
DESIGN OUTWARD END SHEAR (lbs.):	966
GIRT BRACING LOCATIONS:	M/S
INSIDE FLANGE UNBRACED LENGTH (FT.):	9.71
(Mn values from NASPEC Section C3.1) -->	
+Mn allow (ft.-lbs.):	16623
-Mn allow (ft.-lbs.):	14093
	OK
INWARD DEFLECTION (in.):	0.57 = (L/408)
OUTWARD DEFLECTION (in.):	0.62 = (L/370)

Metal Building Engineering, LLC

LEANTO "B" WALL GIRT DESIGN

SIDEWALL GIRT DESIGN					
MEMBER SIZE USED -->	6in x 3.125/3.375in 12G ZEE			1 <-- LEANTO "A" 'START' BAY	5 <-- LEANTO "A" 'END' BAY
	BAY #	BAY #	BAY #	BAY #	BAY #
	1	2	3	4	5
BAY WIDTH (ft.):	2.50	14.50	15.00	14.50	2.50
MAX. GIRT SPAN (ft.):	2.50	14.50	15.00	14.50	2.50
TRIB. WIDTH (ft.):	7.67	7.67	7.67	7.67	7.67
INWARD DISTR. LOAD (lbs./ft.):	90	90	90	90	90
OUTWARD DISTR. LOAD (lbs./ft.):	99	99	99	99	99
DESIGN INWARD BENDING MOMENT, Mu (ft.-lbs.):	120	3928	4204	3928	120
DESIGN INWARD END SHEAR (lbs.):	119	649	671	649	119
DESIGN OUTWARD BENDING MOMENT, Mu (ft.-lbs.):	132	4324	4627	4324	132
DESIGN OUTWARD END SHEAR (lbs.):	131	714	739	714	131
GIRT BRACING LOCATIONS:	---	M/S	M/S	M/S	---
INSIDE FLANGE UNBRACED LENGTH (FT.):	2.50	7.25	7.50	7.25	2.50
(Mn values from NASPEC Section C3.1) -->					
+Mn allow (ft.-lbs.):	11666	11666	11666	11666	11666
-Mn allow (ft.-lbs.):	10871	10871	10871	10871	10871
	OK	OK	OK	OK	OK
INWARD DEFLECTION (in.):	0.00	0.35	0.40	0.35	0.00
	= (L/1000)	= (L/494)	= (L/446)	= (L/494)	= (L/1000)
OUTWARD DEFLECTION (in.):	0.00	0.38	0.44	0.38	0.00
	= (L/1000)	= (L/449)	= (L/405)	= (L/449)	= (L/1000)

ENDWALL 'A' GIRT DESIGN	
MEMBER SIZE USED -->	8in x 3.125/3.375in 12G ZEE
	BAY #
	1
BAY WIDTH (ft.):	19.42
MAX. GIRT SPAN (ft.):	19.42
TRIB. WIDTH (ft.):	7.67
INWARD DISTR. LOAD (lbs./ft.):	88
OUTWARD DISTR. LOAD (lbs./ft.):	97
DESIGN INWARD BENDING MOMENT, Mu (ft.-lbs.):	6923
DESIGN INWARD END SHEAR (lbs.):	876
DESIGN OUTWARD BENDING MOMENT, Mu (ft.-lbs.):	7636
DESIGN OUTWARD END SHEAR (lbs.):	966
GIRT BRACING LOCATIONS:	M/S
INSIDE FLANGE UNBRACED LENGTH (FT.):	9.71
(Mn values from NASPEC Section C3.1) -->	
+Mn allow (ft.-lbs.):	16623
-Mn allow (ft.-lbs.):	14093
	OK
INWARD DEFLECTION (in.):	0.57
	= (L/408)
OUTWARD DEFLECTION (in.):	0.62
	= (L/370)

ENDWALL 'B' GIRT DESIGN	
MEMBER SIZE USED -->	8in x 3.125/3.375in 12G ZEE
	BAY #
	1
BAY WIDTH (ft.):	19.42
MAX. GIRT SPAN (ft.):	19.42
TRIB. WIDTH (ft.):	7.67
INWARD DISTR. LOAD (lbs./ft.):	88
OUTWARD DISTR. LOAD (lbs./ft.):	97
DESIGN INWARD BENDING MOMENT, Mu (ft.-lbs.):	6923
DESIGN INWARD END SHEAR (lbs.):	876
DESIGN OUTWARD BENDING MOMENT, Mu (ft.-lbs.):	7636
DESIGN OUTWARD END SHEAR (lbs.):	966
GIRT BRACING LOCATIONS:	M/S
INSIDE FLANGE UNBRACED LENGTH (FT.):	9.71
(Mn values from NASPEC Section C3.1) -->	
+Mn allow (ft.-lbs.):	16623
-Mn allow (ft.-lbs.):	14093
	OK
INWARD DEFLECTION (in.):	0.57
	= (L/408)
OUTWARD DEFLECTION (in.):	0.62
	= (L/370)

ASD FOUNDATION REACTIONS BY LOAD COMBINATION FOR EACH COLUMN AT CLEARSPAN FRAME

Applies at frames 2-5, see page A1

LC' -- Load combinations as noted in frame calculation, per 'A' calc sheets.

ASD Foundation Reactions (positive is toward side B or upward, negative is toward side A or downward)

LC	C1B X [lb]	C1B Y [lb]	C2B X [lb]	C2B Y [lb]
1	33	-827	-33	-827
2	0	0	0	0
3	33	-827	-33	-827
4	162	-4090	-162	-4090
5	33	-827	-33	-827
6	129	-3275	-129	-3275
7	33	-827	-33	-827
8	-1091	4761	-1313	-748
9	-1019	3757	-988	-1880
10	-2075	2547	-2096	-2760
11	-1964	1760	-1677	-3577
12	1313	-748	1091	4761
13	988	-1880	1019	3757
14	2096	-2760	2075	2547
15	1677	-3577	1964	1760
16	-117	-570	-183	-1084
17	183	-1084	117	-570
18	-714	917	-1089	-3216
19	-659	163	-846	-4064
20	-1451	-744	-1677	-4724
21	-1368	-1334	-1362	-5337
22	1089	-3216	714	917
23	846	-4064	659	163
24	1677	-4724	1451	-744
25	1362	-5337	1368	-1334
26	-810	3364	-993	-768
27	-756	2611	-749	-1617
28	-1548	1704	-1580	-2276
29	-1465	1114	-1266	-2889
30	993	-768	810	3364
31	749	-1617	756	2611
32	1580	-2276	1548	1704
33	1266	-2889	1465	1114
34	-80	-635	-145	-1020
35	145	-1020	80	-635
36	-1104	5092	-1300	-418
37	-1032	4088	-975	-1549
38	-2088	2878	-2083	-2429
39	-1977	2091	-1664	-3246
40	1300	-418	1104	5092
41	975	-1549	1032	4088
42	2083	-2429	2088	2878
43	1664	-3246	1977	2091
44	-130	-239	-170	-753
45	170	-753	130	-239

ASD FOUNDATION REACTIONS BY LOAD COMBINATION FOR EACH COLUMN AT ENDWALL A AND ENDWALL B

Applies at frames 1, 6, see page A8

LC' -- Load combinations as noted in frame calculation, per 'A' calc sheets.

ASD Foundation Reactions (positive is toward side B or upward, negative is toward side A or downward)

LC	C1B X [lb]	C1B Y [lb]	C2B X [lb]	C2B Y [lb]
1	3	-84	-3	-84
2	0	0	0	0
3	3	-84	-3	-84
4	25	-628	-25	-628
5	3	-84	-3	-84
6	19	-492	-19	-492
7	3	-84	-3	-84
8	-111	484	-133	-76
9	-104	382	-100	-191
10	-211	259	-213	-281
11	-200	179	-171	-364
12	133	-76	111	484
13	100	-191	104	382
14	213	-281	211	259
15	171	-364	200	179
16	-12	-58	-19	-110
17	19	-110	12	-58
18	-66	-66	-117	-486
19	-61	-143	-92	-572
20	-141	-235	-177	-640
21	-133	-295	-145	-702
22	117	-486	66	-66
23	92	-572	61	-143
24	177	-640	141	-235
25	145	-702	133	-295
26	-82	342	-101	-78
27	-77	266	-76	-164
28	-157	173	-161	-232
29	-149	113	-129	-294
30	101	-78	82	342
31	76	-164	77	266
32	161	-232	157	173
33	129	-294	149	113
34	-8	-65	-15	-104
35	15	-104	8	-65
36	-112	518	-132	-42
37	-105	416	-99	-158
38	-212	293	-212	-247
39	-201	213	-169	-330
40	132	-42	112	518
41	99	-158	105	416
42	212	-247	212	293
43	169	-330	201	213
44	-13	-24	-17	-77
45	17	-77	13	-24

MAX. FOUNDATION REACTIONS (ASD) FOR ALL LOAD COMBINATIONS AT NON-FRAME COMPONENTS:

DOWNWARD LOAD AT LEANTO COLUMN	3245	lbs.
NET UPLIFT LOAD FROM LEANTO COLUMN	2579	lbs.
NET UPLIFT FROM LT SIDEWALL X-BRACE	0	lbs.
DOWNWARD LOAD AT ENDWALL COLUMN	0	lbs.
NET UPLIFT LOAD FROM ENDWALL COLUMN	0	lbs.
MAX. HORIZ. LOAD AT ENDWALL COLUMN PERP. TO WALL	0	lbs.

MAX. REACTIONS AT SIDEWALL X-BRACING COLUMNS:

SIDEWALL X-BRACING COLUMN SHEAR LOAD PARALLEL TO SIDEWALL	4405	lbs.
SIDEWALL X-BRACING COLUMN UPLIFT	6608	lbs.

MAX. REACTIONS AT ENDWALL X-BRACING COLUMNS:

ENDWALL X-BRACING COLUMN SHEAR LOAD PARALLEL TO ENDWALL	0	lbs.
ENDWALL X-BRACING COLUMN UPLIFT	0	lbs.



ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

PBR Roof Panel

29 Gauge (0.0133"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	93.75	52.73	33.75	23.44	17.22	13.18	10.42
	LIVE LOAD/DEFLECTION	67.01	32.53	16.66	9.64	6.07	4.07	2.86
2-span	NEGATIVE WIND LOAD	61.91	37.19	24.61	17.42	12.96	10.00	7.94
	LIVE LOAD/DEFLECTION	70.40	45.18	30.41	21.75	16.28	12.62	9.40
3-span	NEGATIVE WIND LOAD	73.01	44.74	29.96	21.37	15.96	12.36	9.84
	LIVE LOAD/DEFLECTION	80.00	53.43	36.52	22.73	14.32	9.59	6.74
4-span	NEGATIVE WIND LOAD	69.51	42.31	28.22	20.08	14.97	11.58	9.21
	LIVE LOAD/DEFLECTION	77.00	50.82	34.56	24.74	15.58	10.44	7.33

26 Gauge (0.0181"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	133.48	75.08	48.05	33.37	24.52	18.77	14.83
	LIVE LOAD/DEFLECTION	119.08	52.22	26.74	15.47	9.74	6.53	4.58
2-span	NEGATIVE WIND LOAD	114.41	66.59	43.33	30.37	22.44	17.24	13.66
	LIVE LOAD/DEFLECTION	105.60	71.09	46.37	32.55	24.07	18.51	13.88
3-span	NEGATIVE WIND LOAD	138.49	81.62	53.46	37.61	27.86	21.44	17.00
	LIVE LOAD/DEFLECTION	120.00	86.91	57.11	34.86	21.95	14.71	10.33
4-span	NEGATIVE WIND LOAD	130.70	76.70	50.12	35.22	26.06	20.05	15.89
	LIVE LOAD/DEFLECTION	115.50	81.75	53.58	37.71	23.77	15.93	11.18

24 Gauge (0.0223"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	126.37	71.08	45.49	31.59	23.21	17.77	14.04
	LIVE LOAD/DEFLECTION	125.69	70.70	38.51	22.28	14.03	9.40	6.60
2-span	NEGATIVE WIND LOAD	120.59	69.04	44.56	31.09	22.91	17.57	13.90
	LIVE LOAD/DEFLECTION	117.33	69.40	44.80	31.25	23.03	17.66	13.97
3-span	NEGATIVE WIND LOAD	148.17	85.44	55.34	38.68	28.53	21.90	17.34
	LIVE LOAD/DEFLECTION	133.33	85.87	55.62	38.89	28.68	19.34	13.58
4-span	NEGATIVE WIND LOAD	139.13	80.03	51.77	36.16	26.66	20.46	16.19
	LIVE LOAD/DEFLECTION	128.33	80.43	52.04	36.35	26.81	20.57	14.45

22 Gauge (0.0286"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	163.85	92.16	58.98	40.96	30.09	23.04	18.21
	LIVE LOAD/DEFLECTION	174.46	98.14	52.70	30.50	19.21	12.87	9.04
2-span	NEGATIVE WIND LOAD	168.30	96.14	61.98	43.21	31.83	24.41	19.31
	LIVE LOAD/DEFLECTION	158.71	90.50	58.30	40.63	29.91	22.94	18.14
3-span	NEGATIVE WIND LOAD	207.24	119.12	77.03	53.80	39.67	30.44	24.09
	LIVE LOAD/DEFLECTION	195.75	112.25	72.50	50.61	37.24	24.95	17.52
4-span	NEGATIVE WIND LOAD	194.44	111.53	72.04	50.29	37.06	28.43	22.50
	LIVE LOAD/DEFLECTION	183.56	105.06	67.79	47.29	34.84	26.54	18.64

Notes:

- Strength calculations based on the 2012 AISI Standard "North American Specification for the Design of Cold-formed Steel Structural Members."
- Allowable loads are applicable for uniform loading and spans without overhangs.
- LIVE LOAD/DEFLECTION load capacities are for those loads that push the panel against its supports. The applicable limit states are flexure, shear, combined shear and flexure, web crippling at end and interior supports, and a deflection limit of L/180 under strength-level loads.
- NEGATIVE WIND LOAD capacities are for those loads that pull the panel away from its supports. The applicable limit states are flexure, shear, combined shear and flexure, and a deflection limit of L/60 under 10-year wind loading.
- Panel pullover and Screw pullout capacity must be checked separately using the screws employed for each particular application when utilizing this load chart.
- Effective yield strength has been determined in accordance with section A2.3.2 of the 2012 NAS specification.
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Effective November 18, 2013



ALLOWABLE UNIFORM LOADS IN POUNDS PER SQUARE FOOT

PBR Wall Panel

29 Gauge (0.0133"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	93.75	52.73	33.75	23.44	17.22	13.18	10.42
	LIVE LOAD/DEFLECTION	67.01	41.08	26.29	18.26	13.41	10.27	8.11
2-span	NEGATIVE WIND LOAD	61.91	37.19	24.61	17.42	12.96	10.00	7.94
	LIVE LOAD/DEFLECTION	70.40	45.18	30.41	21.75	16.28	12.62	10.06
3-span	NEGATIVE WIND LOAD	73.01	44.74	29.96	21.37	15.96	12.36	9.84
	LIVE LOAD/DEFLECTION	80.00	53.43	36.52	26.39	19.89	15.50	12.40
4-span	NEGATIVE WIND LOAD	69.51	42.31	28.22	20.08	14.97	11.58	9.21
	LIVE LOAD/DEFLECTION	77.00	50.82	34.56	24.89	18.72	14.56	11.63

26 Gauge (0.0181"), Fy = 60 ksi, Fu = 61.5 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	133.48	75.08	48.05	33.37	24.52	18.77	14.83
	LIVE LOAD/DEFLECTION	119.08	69.83	44.69	31.04	22.80	17.46	13.79
2-span	NEGATIVE WIND LOAD	114.41	66.59	43.33	30.37	22.44	17.24	13.66
	LIVE LOAD/DEFLECTION	105.60	71.09	46.37	32.55	24.07	18.51	14.66
3-span	NEGATIVE WIND LOAD	138.49	81.62	53.46	37.61	27.86	21.44	17.00
	LIVE LOAD/DEFLECTION	120.00	86.91	57.11	40.25	29.85	22.99	18.24
4-span	NEGATIVE WIND LOAD	130.70	76.70	50.12	35.22	26.06	20.05	15.89
	LIVE LOAD/DEFLECTION	115.50	81.75	53.58	37.71	27.93	21.50	17.05

24 Gauge (0.0223"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	126.37	71.08	45.49	31.59	23.21	17.77	14.04
	LIVE LOAD/DEFLECTION	125.69	70.70	45.25	31.42	23.09	17.68	13.97
2-span	NEGATIVE WIND LOAD	120.59	69.04	44.56	31.09	22.91	17.57	13.90
	LIVE LOAD/DEFLECTION	117.33	69.40	44.80	31.25	23.03	17.66	13.97
3-span	NEGATIVE WIND LOAD	148.17	85.44	55.34	38.68	28.53	21.90	17.34
	LIVE LOAD/DEFLECTION	133.33	85.87	55.62	38.89	28.68	22.02	17.43
4-span	NEGATIVE WIND LOAD	139.13	80.03	51.77	36.16	26.66	20.46	16.19
	LIVE LOAD/DEFLECTION	128.33	80.43	52.04	36.35	26.81	20.57	16.28

22 Gauge (0.0286"), Fy = 50 ksi, Fu = 60 ksi								
SPAN TYPE	LOAD TYPE	SPAN IN FEET						
		3.0	4.0	5.0	6.0	7.0	8.0	9.0
1-span	NEGATIVE WIND LOAD	163.85	92.16	58.98	40.96	30.09	23.04	18.21
	LIVE LOAD/DEFLECTION	174.46	98.14	62.81	43.62	32.04	24.53	19.38
2-span	NEGATIVE WIND LOAD	168.30	96.14	61.98	43.21	31.83	24.41	19.31
	LIVE LOAD/DEFLECTION	158.71	90.50	58.30	40.63	29.91	22.94	18.14
3-span	NEGATIVE WIND LOAD	207.24	119.12	77.03	53.80	39.67	30.44	24.09
	LIVE LOAD/DEFLECTION	195.75	112.25	72.50	50.61	37.29	28.61	22.64
4-span	NEGATIVE WIND LOAD	194.44	111.53	72.04	50.29	37.06	28.43	22.50
	LIVE LOAD/DEFLECTION	183.58	105.06	67.79	47.29	34.84	26.72	21.14

Notes:

- Strength calculations based on the 2012 AISI Standard "North American Specification for the Design of Cold-Formed Steel Structural Members."
- Allowable loads are applicable for uniform loading and spans without overhangs.
- LIVE LOAD/DEFLECTION load capacities are for those loads that push the panel against its supports. The applicable limit states are flexure, shear, combined shear and flexure, web crippling at end and interior supports, and a deflection limit of L/60 under 10-year wind loading.
- NEGATIVE WIND LOAD capacities are for those loads that pull the panel away from its supports. The applicable limit states are flexure, shear, combined shear and flexure, and a deflection limit of L/60 under 10-year wind loading.
- Panel pullover and Screw pullout capacity must be checked separately using the screws employed for each particular application when utilizing this load chart.
- Effective yield strength has been determined in accordance with section A2.3.2 of the 2012 NAS specification.
- The use of any accessories other than those provided by the manufacturer may damage panels, void all warranties and will void all engineering data.
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SCREW CONNECTION DESIGN**NOTATIONS**

d_s = Nominal screw diameter (in.)
 Ω Omega = 3.0
 P_{ns} = Nominal shear strength per screw (lbs.)
 P_{nt} = Nominal tension strength per screw (lbs.)
 P_{not} = Nominal pull-out strength per screw (lbs.)
 P_{nov} = Nominal pull-over strength per screw (lbs.)
 g_1 = nominal gauge of member in contact with the screw head (in.)
 t_1 = Thickness of member in contact with the screw head (in.)
 g_2 = nominal gauge of member NOT in contact with the screw head (in.)
 t_2 = Thickness of member NOT in contact with the screw head (in.)
 F_{u1} = Tensile strength of member in contact with the screw head (lbs.)
 F_{u2} = Tensile strength of member NOT in contact with the screw head (lbs.)

ROOF PANEL (PBR Panel 26G)

g_1 = 26
 g_2 = 14
 t_1 = 0.0179
 t_2 = 0.0747
 F_{u1} = 80000
 F_{u2} = 67000
 Screw # = 12
 d_s (in.) = 0.216

WALL PANEL (R Panel 26G)

g_1 = 26
 g_2 = 12
 t_1 = 0.0179
 t_2 = 0.1046
 F_{u1} = 80000
 F_{u2} = 67000
 Screw # = 12
 d_s (in.) = 0.216

ALLOWABLE SHEAR BASED ON CONNECTED MATERIALS: t_2/t_1 = 4.17 t_2/t_1 = 5.84 P_{ns} (eq. E4.3.1-4) = 835 P_{ns} (eq. E4.3.1-4) = 835Allowable Shear per Screw (Ω Omega = 3.0): 278

Allowable Shear per Screw = 278

ALLOWABLE SHEAR BASED ON SCREW:

Allowable Shear per Screw = 625

Allowable Shear per Screw = 625

Design Shear per Screw = 278**Design Shear per Screw = 278****ALLOWABLE TENSION BASED ON CONNECTED MATERIALS:**Pullout Strength, P_{not} (eq. E4.4.1.1) = 919

1287

Pullover Strength, P_{nov} (eq. E4.4.2.1) = 537

537

Allowable Tension per Screw (lbs.) = **179****179**

Nominal Screw Tension Strength (lbs) = 860

860