

Born to the **Sun**
Empowering the future

Structural Calculation Report

Project Fixed Structure

Type 2Px27

Log of the report

Rev	Project	Date	Edit	Approval	Note
V1.1	IRN Zarch Project	2026-06	WL	Wan	

Catalogue

About ESET	3
1. Design Criteria	3
2. Description.....	4
3. Material & Section	4
4. Load Calculation	8
4.1 Combining Nominal Loads	8
4.2 Dead Load.....	10
4.3 Wind Load.....	12
4.4 Snow Load	14
5. PV Brackets Calculation And Checking	16
5.1 Inputs in Software	16
5.2 Calculation Output.....	20
5.2.1 P-M-M result.....	20
5.2.2 Cold Formed Design Result Table	21
5.3 Design of Column.....	26
5.4 Design of Purlin	29
5.5 Design of Beam	32
5.6 Design of Brace	34
5.7 Design of Pile	40
5.8 Joint Reactions.....	42

About ESET

We are a group enterprise with 9 subsidiaries and headquarters METAVAST is located in Xuzhou, China. Our business scope included new style power systems, metal processing, steel structure fabrication, metal surface treatment, digital coating equipment, laser equipment, ZAM (Zn-Al-Mg) materials and industrial vertical e-commerce platform, etc. The full name of our company is Jiangsu Evershine Energy Technology Co., Ltd. An abbreviation name of ESET will stands the company follow in this manual.



1. Design Criteria

The following standards and documents are to be applied for the verifications of the upper structure components:

NSCP-2015 Volume I: Buildings, Woters, And Other Vertical Structures

ASCE/SEI 7-22 Minimum Design Loads for Buildings and Other Structures

NSI/AISC 360-22 Specification for Structural Steel Buildings

AISI 100-16 North American Specification for the design of Cold-Formed Steel Structural Members

ISO9223 Corrosion of metals and alloys – Corrosivity of atmospheres – Classification, determination and estimation

ISO9224 Corrosion of metals and alloys – Corrosivity of atmospheres –Guiding values for the corrosivity categories.

ASCE/SEI 48-19 : Design of Steel Transmission Pole Structures

AISC 341 Seismic Provisions for Structural Steel Buildings

2. Description

This document presents the calculation of PV steel brackets. It mainly includes calculation of Steel Brackets, and reactions on pile top (for pile test purpose), etc.

Project location:	Iran
Wind speed:	51.5 m/s (3s gust,MRI=300 y)
Terrain Category:	C
Bracket tilt angle:	27°
Clearance from ground:	1000 mm
Solar Panel size(L×W×T):	2384mm×1303mm×33mm
Solar Panel weight:	38.3 kg

3. Material & Section

Steel ST-37	Material properties
Minimum Yield strength	2400 kg/cm ²
Ultimate tensile strength	3700 kg/cm ²
Density	7850 kg/m ³
Young's Modulus	2100000 kg/cm ²

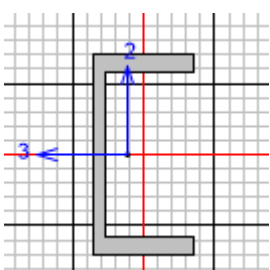
Steel Q235B	Material properties
Minimum Yield strength	235Mpa
Ultimate tensile strength	370Mpa
Density	7850 kg/m ³
Young's Modulus	206000MPa

Steel Q355B	Material properties
Minimum Yield strength	355Mpa
Ultimate tensile strength	470Mpa
Density	7850 kg/m ³
Young's Modulus	206000MPa

Steel S350GD	Material properties
Minimum Yield strength	350Mpa
Ultimate tensile strength	420Mpa
Density	7850 kg/m ³
Young's Modulus	206000MPa

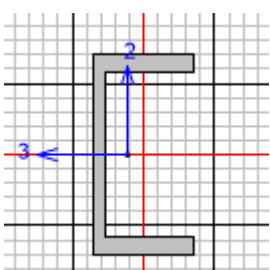
Steel S500GD	Material properties
Minimum Yield strength	500Mpa
Ultimate tensile strength	530Mpa
Density	7850 kg/m ³
Young's Modulus	206000MPa

Front Pile UNP100 (ST-37)



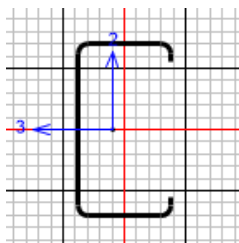
Section Name UNP 100			
Properties			
Cross-section (axial) area	1384.125	Section modulus about 3 axis (top)	42527.7
Moment of Inertia about 3 axis	2128385.2	Section modulus about 3 axis (bottom)	42527.7
Moment of Inertia about 2 axis	333405.1	Section modulus about 2 axis (left)	20033.025
Product of Inertia about 2-3	2.328E-10	Section modulus about 2 axis (right)	9994.9883
Torsional constant	24498.265	Warping Constant (Cw)	4.853E+08
Shear area in 2 direction	605.8346	Plastic modulus about 3 axis	50645.26
Shear area in 3 direction	792.8414	Plastic modulus about 2 axis	18019.685
CG offset in 3 direction	8.3572	Radius of Gyration about 3 axis	39.1952
CG offset in 2 direction	7.105E-15	Radius of Gyration about 2 axis	15.5202
Shear Center Offset (x3)	32.7634		
Shear Center Offset (x2)*	0.	* Value is not used in analysis	

Rear Pile UNP120 (ST-37)



Section Name UNP 120			
Properties			
Cross-section (axial) area	1744.5	Section modulus about 3 axis (top)	62863.
Moment of Inertia about 3 axis	3771780.	Section modulus about 3 axis (bottom)	62863.
Moment of Inertia about 2 axis	494256.2	Section modulus about 2 axis (left)	28648.895
Product of Inertia about 2-3	1.164E-09	Section modulus about 2 axis (right)	13093.638
Torsional constant	35846.76	Warping Constant (Cw)	1.053E+09
Shear area in 2 direction	818.7905	Plastic modulus about 3 axis	75128.56
Shear area in 3 direction	934.7053	Plastic modulus about 2 axis	23733.956
CG offset in 3 direction	10.2478	Radius of Gyration about 3 axis	46.4984
CG offset in 2 direction	1.421E-14	Radius of Gyration about 2 axis	16.8322
Shear Center Offset (x3)	33.8789		
Shear Center Offset (x2)*	0.	* Value is not used in analysis	

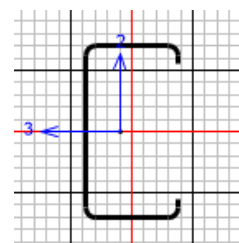
Front Column C105x55x20x2.2 (S500GD)



Section Name F Column C105x55x20x2.2			
Properties			
Cross-section (axial) area	522.3773	Section modulus about 3 axis (top)	17321.313
Moment of Inertia about 3 axis	909368.9	Section modulus about 3 axis (bottom)	17321.313
Moment of Inertia about 2 axis	228025.8	Section modulus about 2 axis (left)	11247.736
Product of Inertia about 2-3	0.	Section modulus about 2 axis (right)	6566.2471
Torsional constant	842.7688	Warping Constant (Cw)	6.618E+08
Shear area in 2 direction	203.72	Plastic modulus about 3 axis	17321.313
Shear area in 3 direction	187.44	Plastic modulus about 2 axis	6566.2471
CG offset in 3 direction	7.227	Radius of Gyration about 3 axis	41.7232
CG offset in 2 direction	0.	Radius of Gyration about 2 axis	20.893
Shear Center Offset (x3)*	47.5389		
Shear Center Offset (x2)*	0.		

* Value is not used in analysis

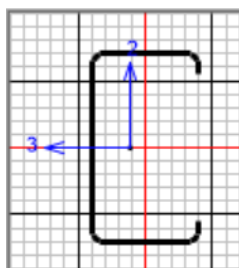
Rear Column C105x55x20x2.2 (S500GD)



Section Name F Column C105x55x20x2.2			
Properties			
Cross-section (axial) area	522.3773	Section modulus about 3 axis (top)	17321.313
Moment of Inertia about 3 axis	909368.9	Section modulus about 3 axis (bottom)	17321.313
Moment of Inertia about 2 axis	228025.8	Section modulus about 2 axis (left)	11247.736
Product of Inertia about 2-3	0.	Section modulus about 2 axis (right)	6566.2471
Torsional constant	842.7688	Warping Constant (Cw)	6.618E+08
Shear area in 2 direction	203.72	Plastic modulus about 3 axis	17321.313
Shear area in 3 direction	187.44	Plastic modulus about 2 axis	6566.2471
CG offset in 3 direction	7.227	Radius of Gyration about 3 axis	41.7232
CG offset in 2 direction	0.	Radius of Gyration about 2 axis	20.893
Shear Center Offset (x3)*	47.5389		
Shear Center Offset (x2)*	0.		

* Value is not used in analysis

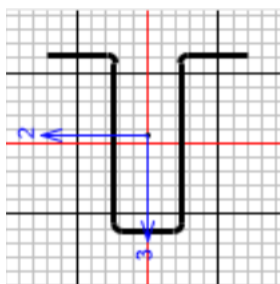
Brace C85x45x15x1.6 (S500GD)



Section Name XC C85x45x15x1.6			
Properties			
Cross-section (axial) area	306.7724	Section modulus about 3 axis (top)	8337.7527
Moment of Inertia about 3 axis	354354.5	Section modulus about 3 axis (bottom)	8337.7527
Moment of Inertia about 2 axis	88668.32	Section modulus about 2 axis (left)	5448.0668
Product of Inertia about 2-3	0.	Section modulus about 2 axis (right)	3086.82
Torsional constant	261.7791	Warping Constant (Cw)	1.620E+08
Shear area in 2 direction	120.64	Plastic modulus about 3 axis	8337.7527
Shear area in 3 direction	113.28	Plastic modulus about 2 axis	3086.82
CG offset in 3 direction	6.2248	Radius of Gyration about 3 axis	33.9868
CG offset in 2 direction	0.	Radius of Gyration about 2 axis	17.0011
Shear Center Offset (x3)*	38.3016		
Shear Center Offset (x2)*	0.		

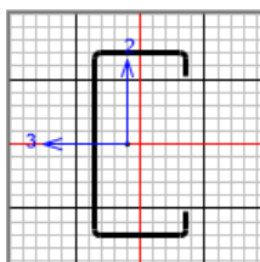
* Value is not used in analysis

Purlin Ω 30x70x30x2.0 (S500GD)



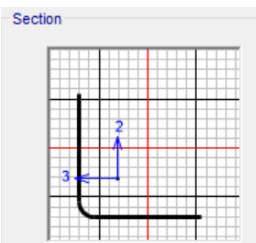
Section Name		Purlin Ω 30x70x30x2	
Properties			
Cross-section (axial) area	426.8319	Section modulus about 3 axis (top)	3627.3944
Moment of Inertia about 3 axis	155977.96	Section modulus about 3 axis (bottom)	3627.3944
Moment of Inertia about 2 axis	273114.26	Section modulus about 2 axis (left)	6865.7211
Product of Inertia about 2-3	0.	Section modulus about 2 axis (right)	9037.354
Torsional constant	569.1091	Warping Constant (Cw)	1.116E+08
Shear area in 2 direction	84.	Plastic modulus about 3 axis	3627.3944
Shear area in 3 direction	232.	Plastic modulus about 2 axis	6865.7211
CG offset in 3 direction	-4.7794	Radius of Gyration about 3 axis	19.1163
CG offset in 2 direction	0.	Radius of Gyration about 2 axis	25.2955
Shear Center Offset (x3)*	45.9811		
Shear Center Offset (x2)*	0.	* Value is not used in analysis	

Beam C110x55x15x1.8 (S500GD)



Section Name		C110x55x15x1.8-beam	
Properties			
Cross-section (axial) area	423.1338	Section modulus about 3 axis (top)	14946.97
Moment of Inertia about 3 axis	822083.3	Section modulus about 3 axis (bottom)	14946.97
Moment of Inertia about 2 axis	173847.13	Section modulus about 2 axis (left)	9423.862
Product of Inertia about 2-3	0.	Section modulus about 2 axis (right)	4756.099
Torsional constant	456.9845	Warping Constant (Cw)	4.752E+08
Shear area in 2 direction	178.56	Plastic modulus about 3 axis	14946.97
Shear area in 3 direction	159.12	Plastic modulus about 2 axis	4756.099
CG offset in 3 direction	9.0525	Radius of Gyration about 3 axis	44.0777
CG offset in 2 direction	0.	Radius of Gyration about 2 axis	20.2696
Shear Center Offset (x3)*	43.7529		
Shear Center Offset (x2)*	0.	* Value is not used in analysis	

Purlin Brace L30x1.6 (S350GD)



Section Name		Purlin Brace L30x1.6	
Properties			
Cross-section (axial) area	90.6931	Section modulus about 3 axis (top)	375.0604
Moment of Inertia about 3 axis	8123.4646	Section modulus about 3 axis (bottom)	973.9295
Moment of Inertia about 2 axis	8123.4646	Section modulus about 2 axis (left)	973.9295
Product of Inertia about 2-3	-5150.14	Section modulus about 2 axis (right)	375.0604
Torsional constant	77.3914	Warping Constant (Cw)	0.
Shear area in 2 direction	40.32	Plastic modulus about 3 axis	375.0604
Shear area in 3 direction	40.32	Plastic modulus about 2 axis	375.0604
CG offset in 3 direction	6.6591	Radius of Gyration about 3 axis	9.4642
CG offset in 2 direction	-6.6591	Radius of Gyration about 2 axis	9.4642
Shear Center Offset (x3)*	N/C		
Shear Center Offset (x2)*	N/C	* Value is not used in analysis	

4. Load Calculation

4.1 Combining Nominal Loads

The combination of loading condition and load shall be as given according to Section 2.3

2.3 LOAD COMBINATIONS FOR STRENGTH DESIGN

2.3.1 Basic Combinations Structures, components, and foundations shall be designed so that their design strength equals or exceeds the effects of the factored loads in the following combinations. Effects of one or more loads not acting shall be considered. Seismic load effects shall be combined loads, in accordance with Section 2.3.6. The most unfavorable effects from wind loads, tornado loads, and earthquake loads shall be considered, where appropriate, but they need not be assumed to act simultaneously. Refer to Sections 1.4, 2.3.6, 12.4, and 12.14.3 for the specific definition of the earthquake load effect, E . Each relevant strength limit state shall be investigated.

- 1a. $1.4D$
- 2a. $1.2D + 1.6L + (0.5L_r \text{ or } 0.3S \text{ or } 0.5R)$
- 3a. $1.2D + (1.6L_r \text{ or } 1.0S \text{ or } 1.6R) + (L \text{ or } 0.5W)$
- 4a. $1.2D + 1.0(W \text{ or } W_T) + L + (0.5L_r \text{ or } 0.3S \text{ or } 0.5R)$
- 5a. $0.9D + 1.0(W \text{ or } W_T)$

2.3.6 Basic Combinations with Seismic Load Effects When a structure is subject to seismic load effects, the following load combinations shall be considered in addition to the basic combinations in Section 2.3.1. The most unfavorable effects from seismic loads shall be investigated where appropriate, but they need not be considered to act simultaneously with wind or tornado loads.

Where the prescribed seismic load effect, $E = f(E_v, E_h)$, defined in Sections 12.4.2 or 12.14.3.1, is combined with the effects of other loads, the following seismic load combinations shall be used:

- 6. $1.2D + E_v + E_h + L + 0.15S$
- 7. $0.9D - E_v + E_h$



Load of Combination-1: $1.2D+0.3S_n$
Load of Combination-2: $1.2D+1.0W(A+)+0.3S_n$
Load of Combination-3: $1.2D+1.0W(B+)+0.3S_n$
Load of Combination-4: $1.2D+1.0S_n+0.5W(A+)$
Load of Combination-5: $1.2D+1.0S_n+0.5W(B+)$
Load of Combination-6: $0.9D+1.0W(A-)$
Load of Combination-7: $0.9D+1.0W(B-)$
Load of Combination-8: $1.2D+1.0E_x+0.15S_n$
Load of Combination-9: $1.2D+1.0E_y+0.15S_n$

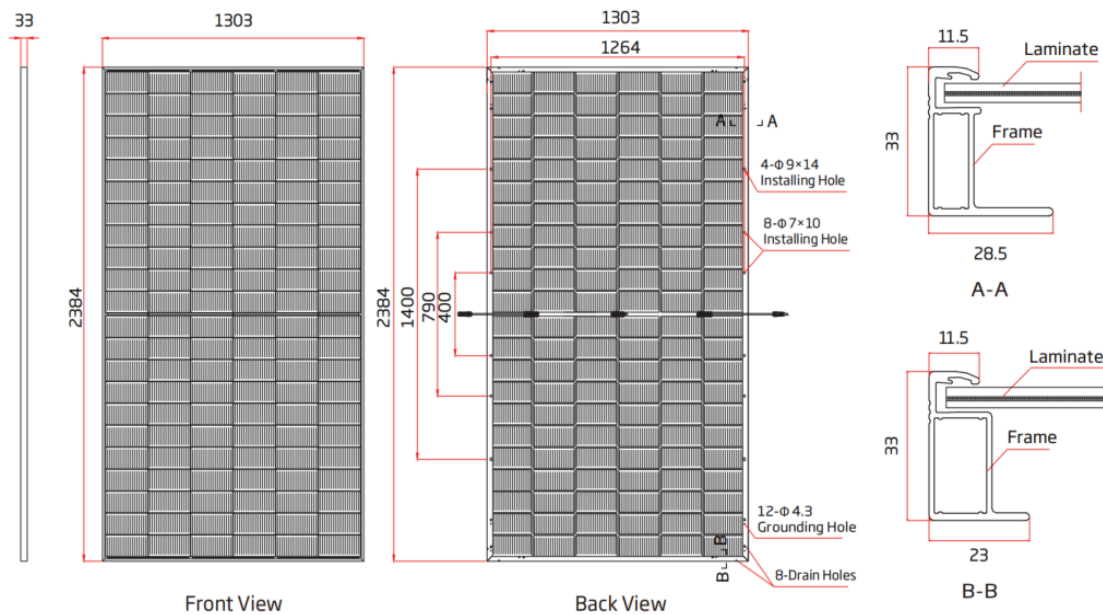
Note:

D : Dead Load ;
S_n : Snow Load ;
W(A₊) : Wind Load ;
W(A₋) : Wind Load;
W(B₊) : Wind Load ;
W(B₋) : Wind Load.
E_x : Seismic Load ;
E_y : Seismic Load ;



4.2 Dead Load

The permanent loads consist on the own weight of the structural elements, and the weight of the PV Panel. The PV Panel model to be installed with a specification dimensions as following.



$L = 2384 \text{ mm}$, $W = 1303 \text{ mm}$

The weight of the panel is 38.3 kg.

A linear weight along the torque tube is considered in the calculations models as linear permanent load due to the panels.

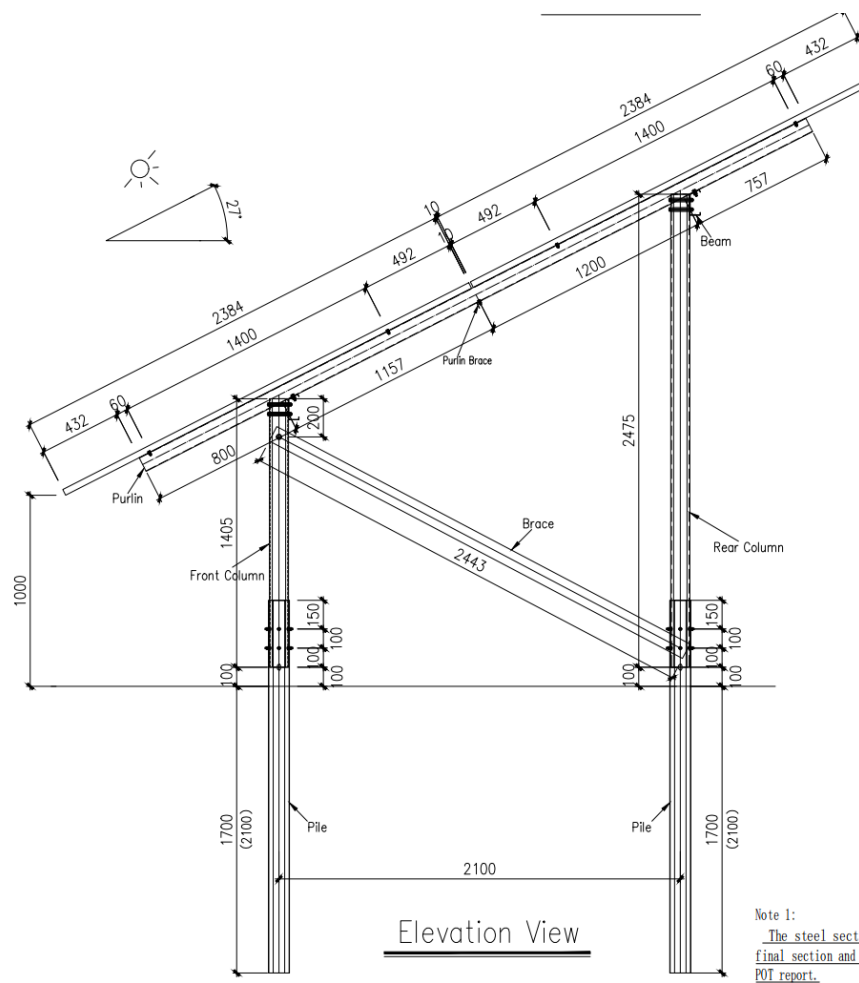
The value of permanent load is

$D = 0.192 \text{ kN/m}$ -middle.

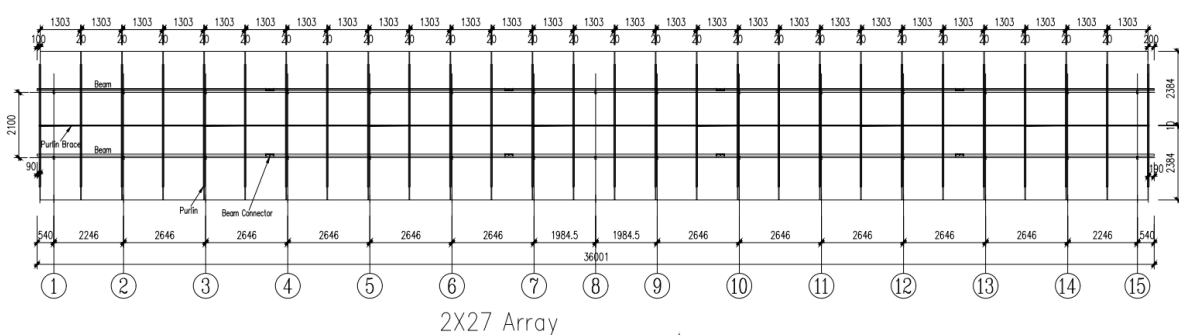
$D = 0.096 \text{ kN/m}$ -edge.

The self-weight of the torque tube is added by the SAP2000 software.

PV Mounting System Design:



Slope : S-N Flat / Slope : W-E Flat



4.3 Wind Load

Wind speed	$V_{300} = 51.5 \text{ m/s}$
Terrain Category	$= C$
Structure height	$Z = 3.2 \text{ m}$
Wind directionality factor	$K_d = 0.85$
Topographic factor	$K_{zt} = 1.00$
Ground elevation factor	$K_e = 1.00$
Velocity pressure exposure coefficient	$K_z = 0.85$
Velocity pressure	$q(z) = 1.382 \text{ kN/m}^2$
Gust factor	$G = 0.85$

$$V_T/V_{50} = [0.36 + 0.1 \ln(12T)] \quad (\text{Eq. C26.5-2})$$

where

V_T = wind speed associated with MRI of T in years

V_{50} = wind speed associated with MRI of 50 years

T = MRI in years

By substituting the square root of 1.6 for V_T/V_{50} , the value of T is 700 years. The wind speed map in Fig. 26.5-1A for Risk Category II structures is for an MRI of 700 years.

$$q_z = 0.00256 K_z K_{zt} K_e V^2 (\text{lb/ft}^2); V, \text{ mi/h} \quad (26.10-1)$$

$$q_z = 0.613 K_z K_{zt} K_e V^2 (\text{N/m}^2); V, \text{ m/s} \quad (26.10-1.SI)$$

where

K_z = Velocity pressure exposure coefficient, see Section 26.10.1;

K_{zt} = Topographic factor, see Section 26.8.2;

K_e = Ground elevation factor, see Section 26.9;

V = Basic wind speed, see Section 26.5; and

q_z = Velocity pressure at height z .

27.3.2 Open Buildings with Monoslope, Pitched, or Troughed Free Roofs The net design pressure for the MWFRS of open buildings with monoslope, pitched, or troughed free roofs in lb/ft^2 (N/m^2), shall be determined by Equation (27.3-2):

$$p = q_h K_d G C_N \quad (27.3-2)$$

where

q_h = Velocity pressure evaluated at mean roof height, h , using the exposure as defined in Section 26.7.3 that results in the highest wind loads for any wind direction at the site;

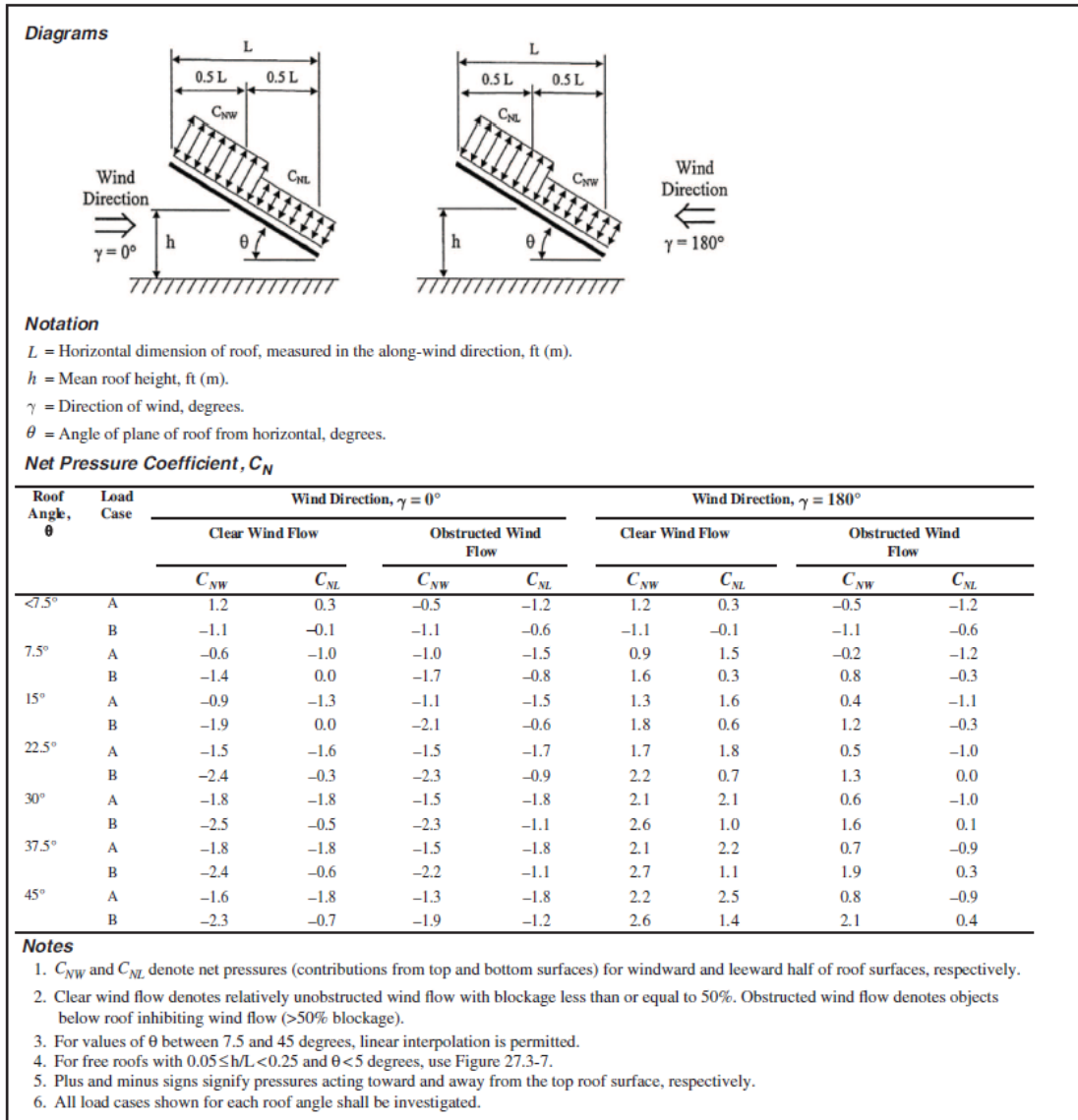


Figure 27.3-4. Main wind force resisting system ($0.25 \leq h/L \leq 1.0$): net pressure coefficient, C_N , for open buildings with monoslope free roofs ($\theta \leq 45^\circ$, $\gamma = 0^\circ$, 180°).

28.3.6 Minimum Design Wind Loads The wind pressure to be used in the design of the MWFRS for an enclosed or partially enclosed building shall not be less than 16 lb/ft^2 (0.77 kN/m^2) multiplied by the wall area of the building, and 8 lb/ft^2 (0.38 kN/m^2) multiplied by the roof area of the building projected onto a vertical plane normal to the assumed wind direction.

Clear Wind Flow Net Pressure Coefficient, C_N					
Angle	Load Case	$\theta = 0^\circ$		$\theta = 180^\circ$	
		CNW	CNL	CNW	CNL
27°	A	-1.68	-1.72	1.94	1.98
	B	-2.46	-0.42	2.44	0.88

Design Clear Wind Pressure (kN/m ²)					
Angle	Load Case	$\theta=0^\circ$		$\theta=180^\circ$	
		CNW	CNL	CNW	CNL
27°	A	-1.677	-1.717	1.937	1.977
	B	-2.456	-0.770	2.436	0.879

The value of purlin wind load is

	DEAD	S _n	W _a ⁺		W _a ⁻		W _b ⁺		W _b ⁻		
			下	上	下	上	下	上	下	上	
middle	0.192	0.470	3.075	3.138	-2.725	-2.662	3.867	1.395	-1.222	-3.898	KN/m
edge	0.096	0.235	1.537	1.569	-1.363	-1.331	1.933	0.698	-0.611	-1.949	KN/m

4.4 Snow Load

Snow Loads P _g	p _g = 0.5 kN/m ²
Terrain Category	= C
Structure height	Z = 3.2 m
Exposure Factor	C _e = 0.90
Thermal Factor	C _t = 1.20
roof slope factor,	C _s = 0.78
Velocity pressure	P _s = 0.296 kN/m ²

7.3 FLAT ROOF SNOW LOADS, p_f

The flat roof snow load, p_f , shall be calculated in lb/ft² (kN/m²) using the following formula:

$$p_f = 0.7C_e C_t p_g \quad (7.3-1)$$

7.3.1 Exposure Factor, C_e The value for C_e shall be determined from Table 7.3-1.

7.3.2 Thermal Factor, C_t The value for C_t shall be determined from Tables 7.3-2 and 7.3-3.

For values of P_g and R_{roof} that fall between those shown in Table 7.3-3, linear interpolation may be used to determine the value of C_t .

7.4 SLOPED ROOF SNOW LOADS, p_s

Snow loads acting on a sloping surface shall be assumed to act on the horizontal projection of that surface. The sloped roof (balanced) snow load, p_s , shall be obtained by multiplying the flat roof snow load, p_f , by the roof slope factor, C_s :

$$p_s = C_s p_f \quad (7.4-1)$$

Table 7.3-1. Exposure Factor, C_e .

Surface Roughness Category	Exposure of Roof ^a		
	Fully Exposed ^b	Partially Exposed	Sheltered
B (see Section 26.7)	0.9	1.0	1.2
C (see Section 26.7)	0.9	1.0	1.1
D (see Section 26.7)	0.8	0.9	1.0
Above the tree line in windswept mountainous areas	0.7	0.8	N/A
In Alaska, in areas where trees do not exist within a 2 mi (3 km) radius of the site	0.7	0.8	N/A

Table 7.3-2. Thermal Factor, C_t .

Thermal condition ^a	C_t
All structures except as indicated as follows	See Table 7.3-3
Unheated structures, open-air structures, structures kept just above freezing [40 to 50 °F (4 to 10 °C)], and other structures with cold, ventilated roofs meeting the minimum requirements of the applicable energy code	1.2
Freezer building	1.3
Continuously heated greenhouses ^b with a roof having a thermal resistance (R-value) less than 2.0 h·ft ² ·°F/Btu (0.4 m ² ·K/W) or a thermal transmittance (U-factor) greater than 0.5 Btu/h·ft ² ·°F (2.5 W/m ² ·K)	0.85

^a These conditions shall be representative of the anticipated conditions during winters for the life of the structure.

^b Greenhouses with a constantly maintained interior temperature of 50°F (10°C) or more, at any point 3 ft (0.9 m) above the floor level during winters and having either a maintenance attendant on duty at all times or a temperature alarm system to provide warning in the event of a heating failure.

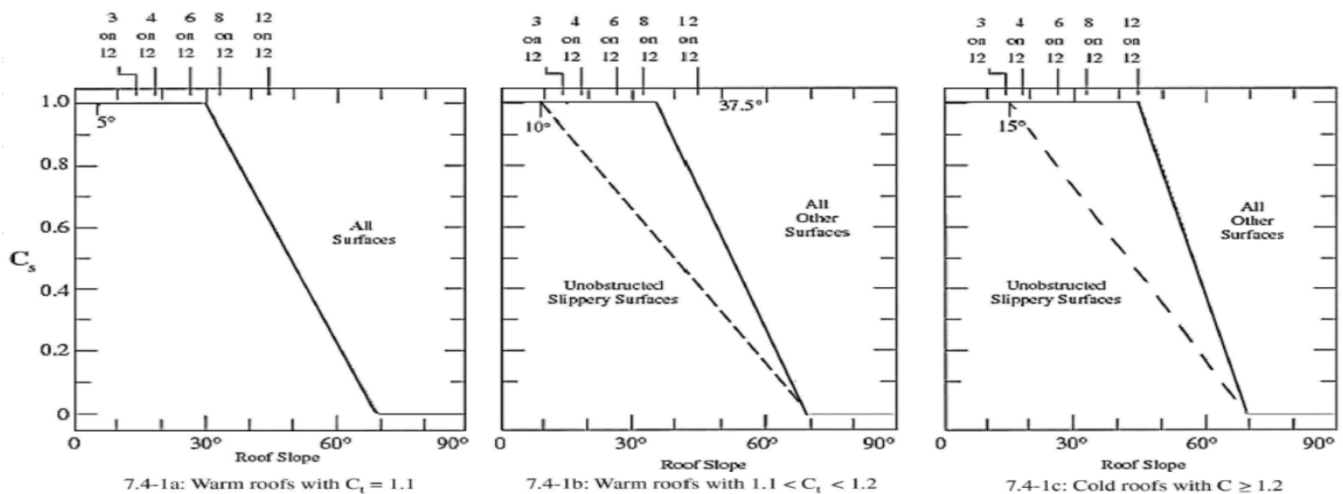


Figure 7.4-1. Graphs for determining slope factor, C_s .

Note: See Tables 7.3-2 and 7.3-3 for C_t definitions.

The value of purlin snow load is

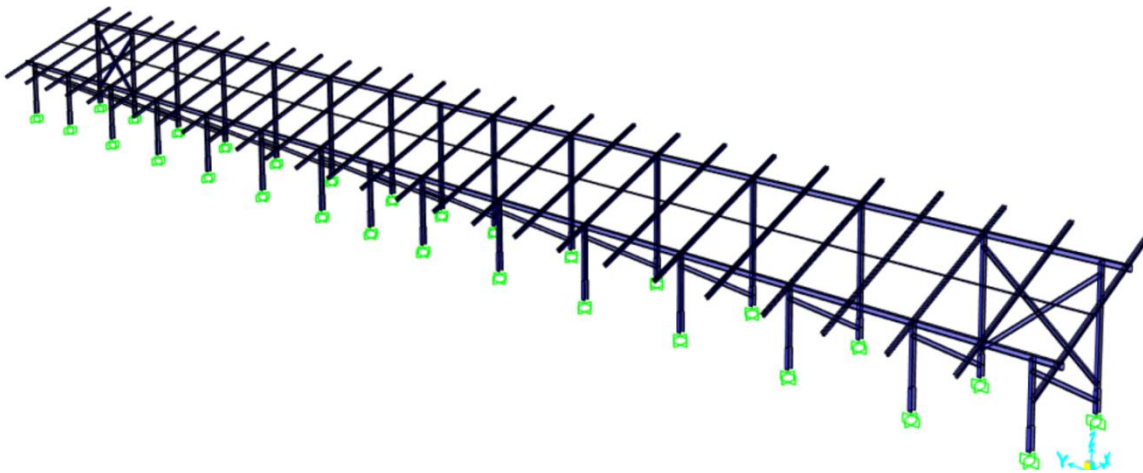
$$S_n = 0.470 \cdot \cos 27^\circ = 0.419 \text{ kN/m} \text{ -middle.}$$

$$S_n = 0.235 \cdot \cos 27^\circ = 0.21 \text{ kN/m -edge.}$$

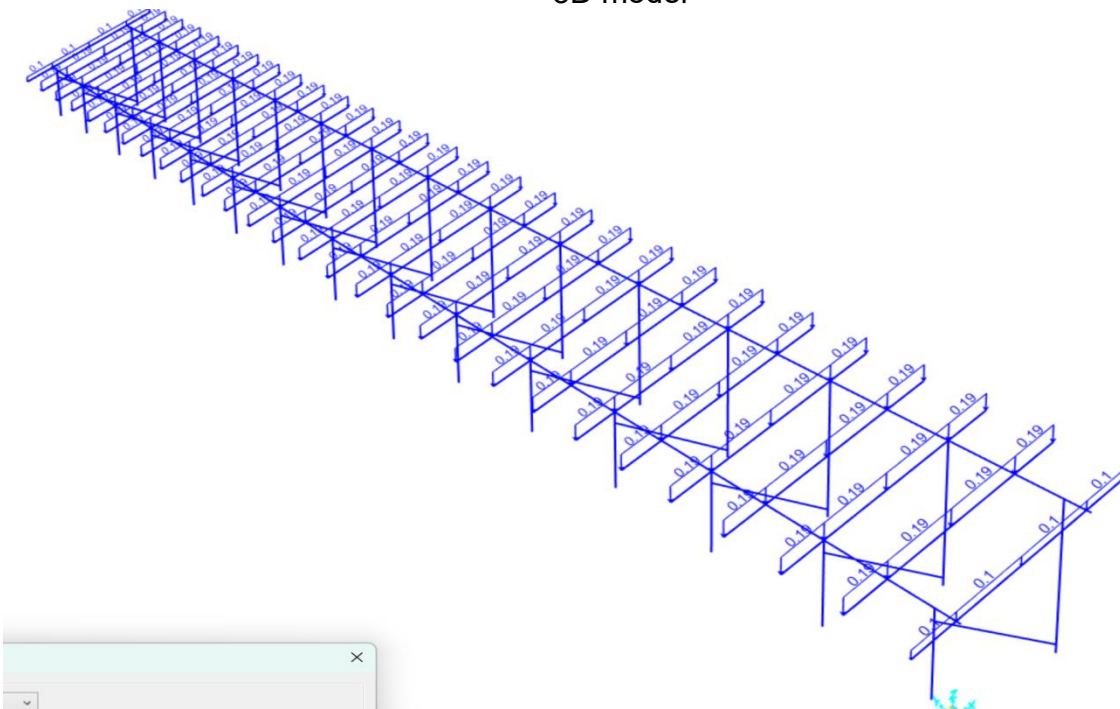
5. PV Brackets Calculation And Checking

5.1 Inputs in Software

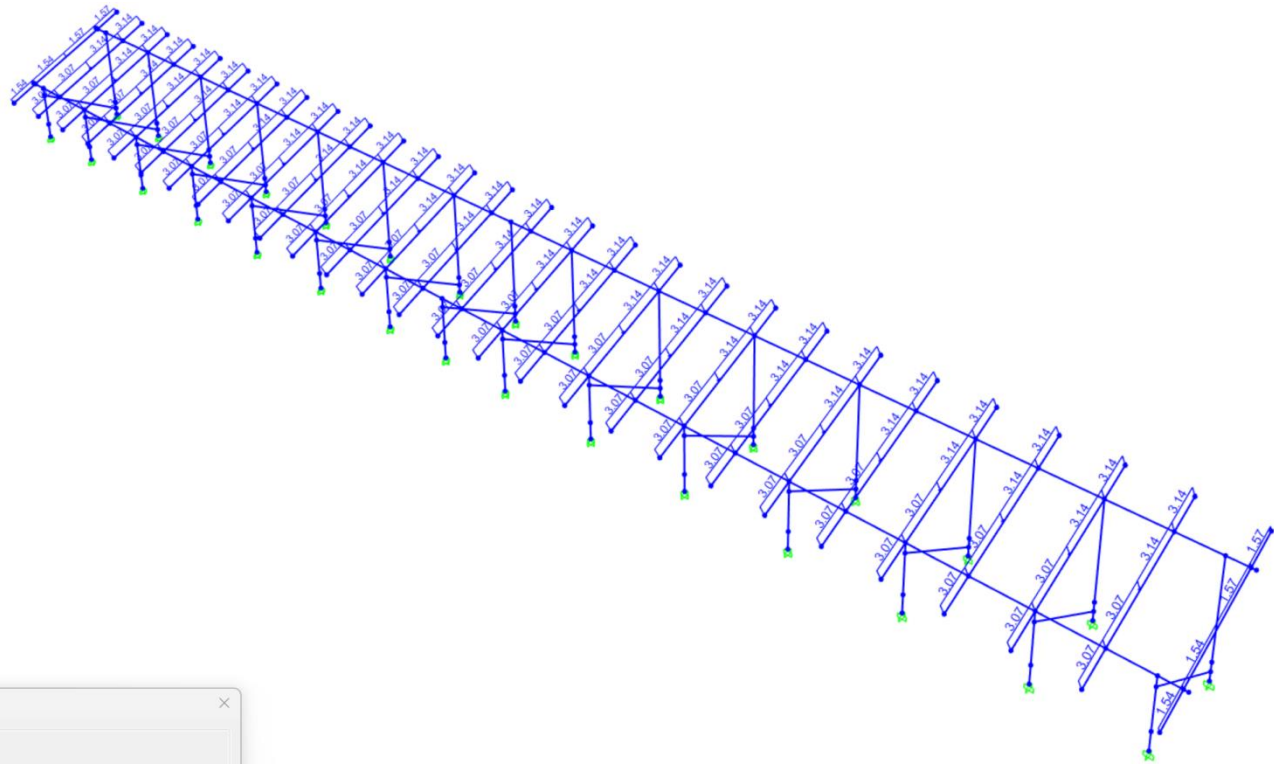
The software used for PV brackets modeling is SAP2000 V25.0.



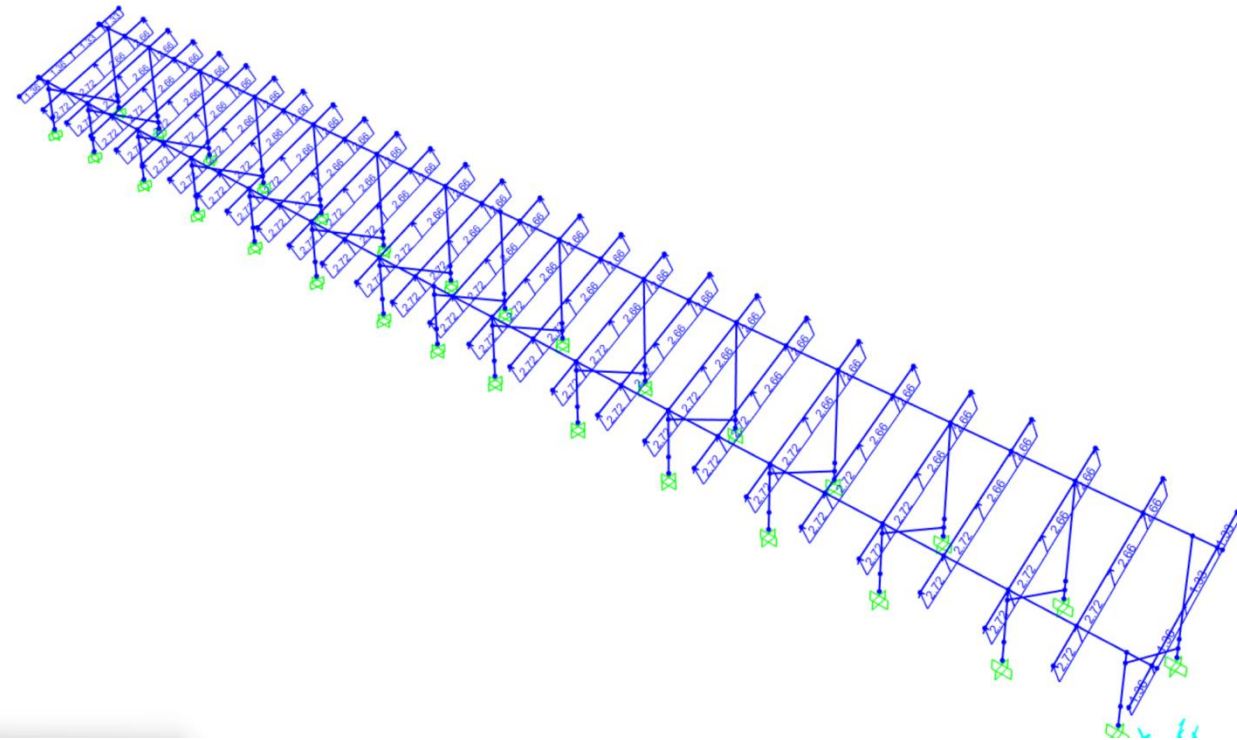
3D model



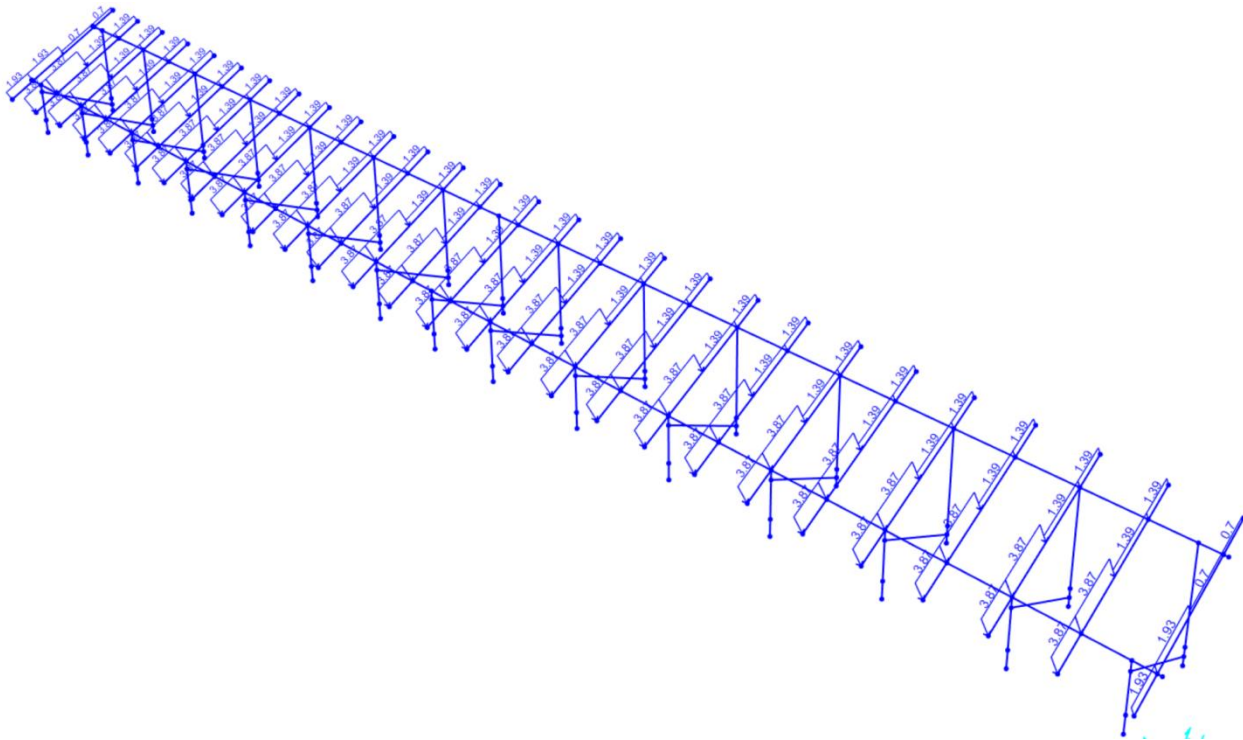
Dead Load



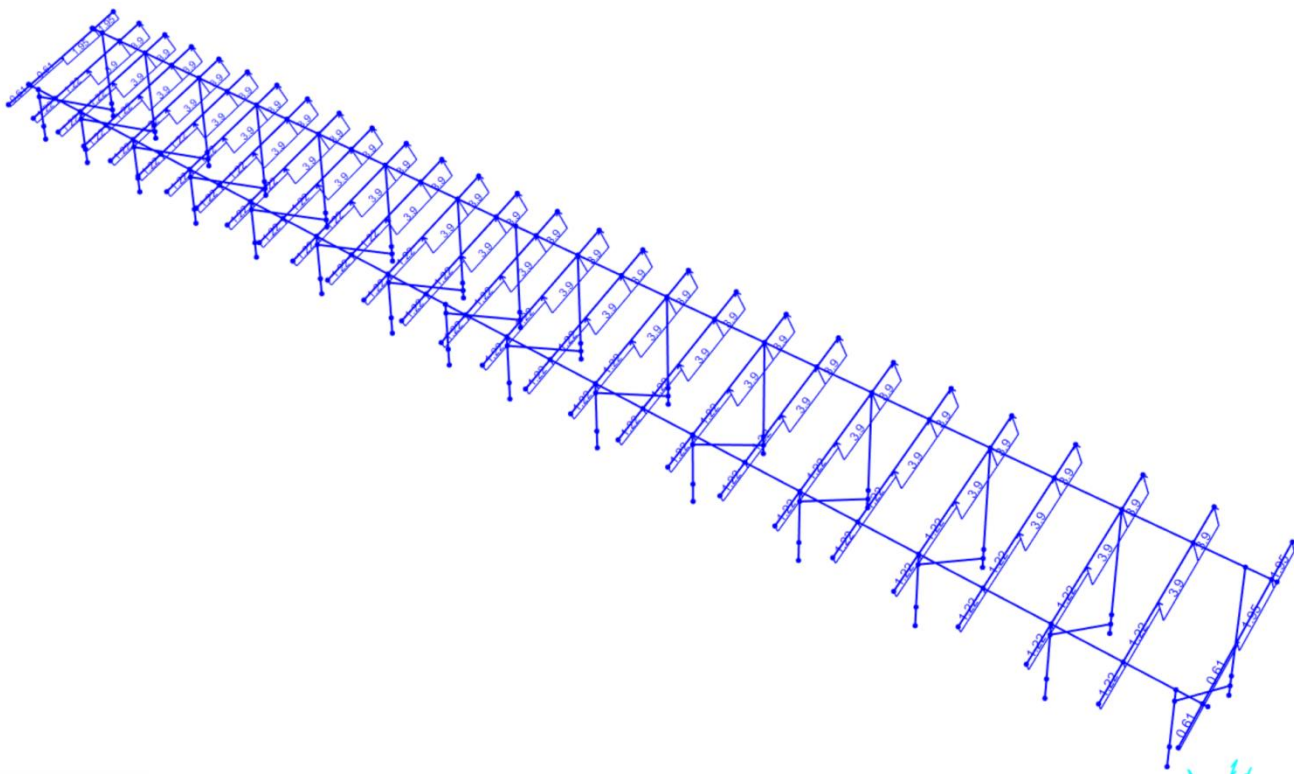
Wind Load : $W_{A(+)}$



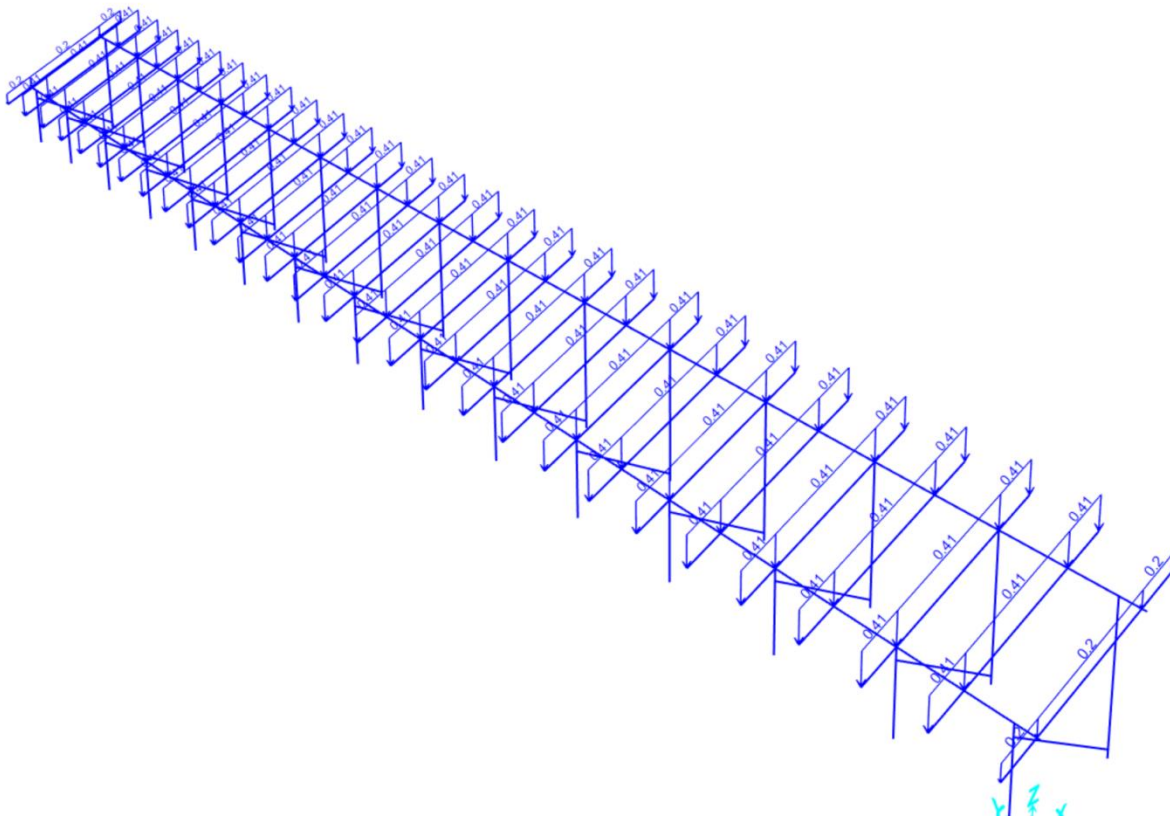
Wind Load : $W_{A(-)}$



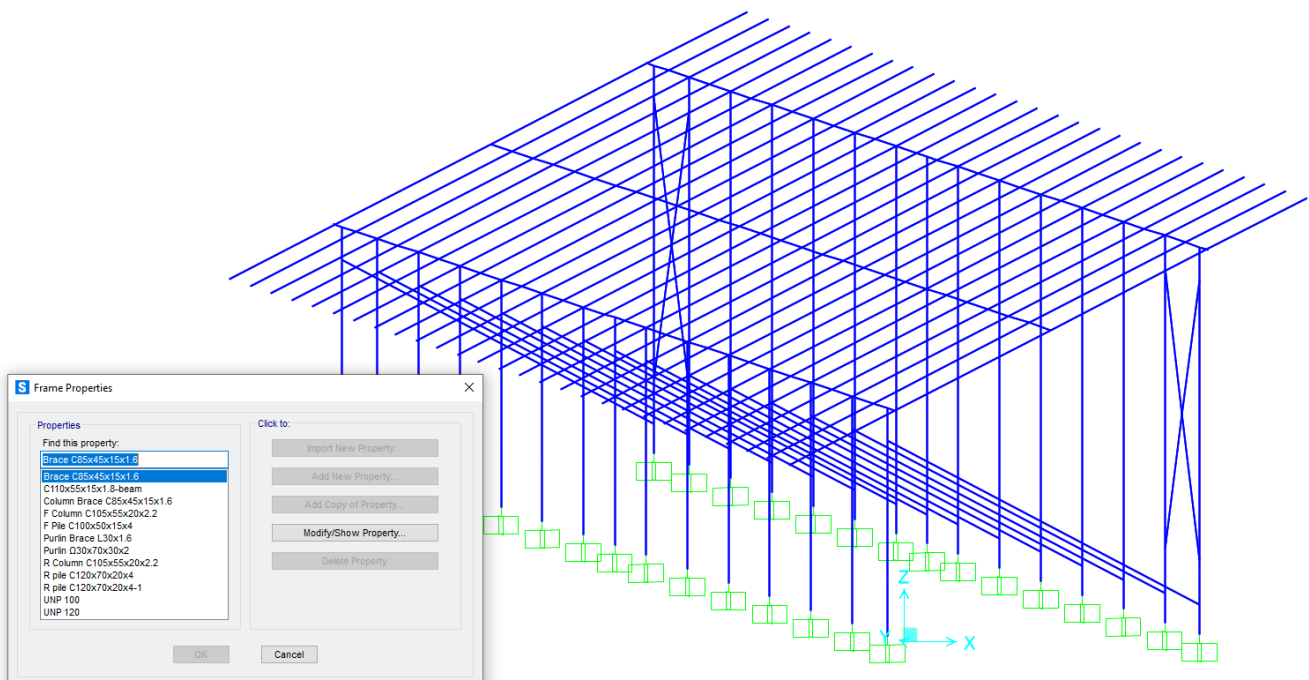
Wind Load : $W_{B(+)}$



Wind Load : $W_{B(-)}$



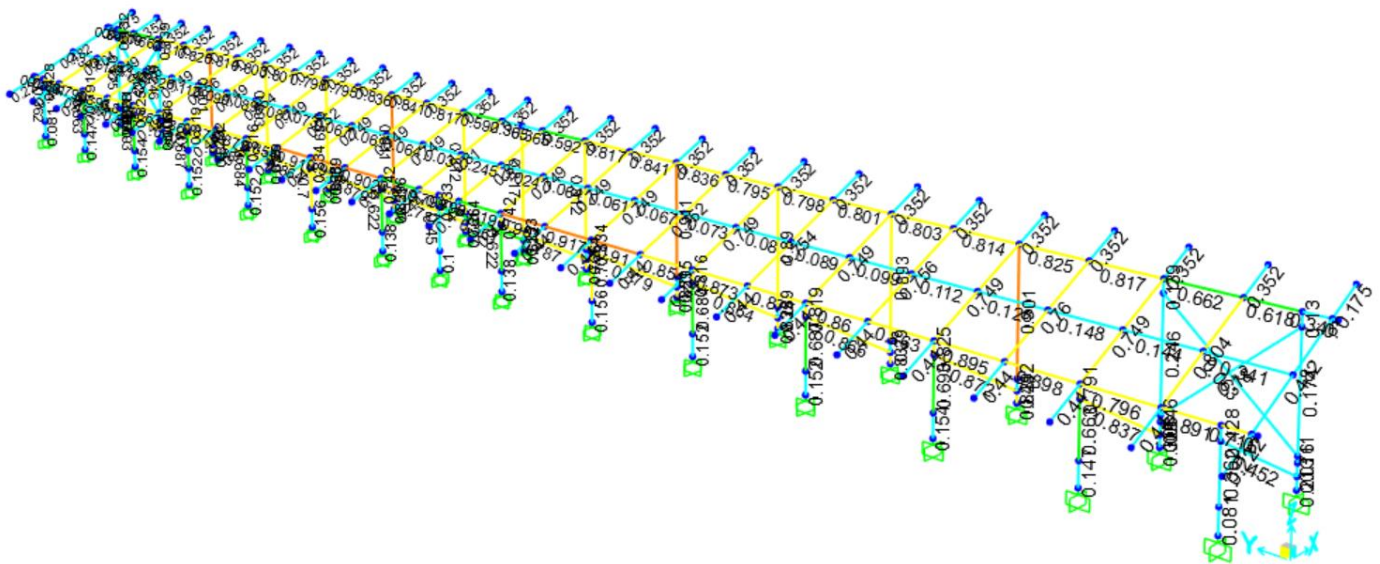
Snow Load : S_n



Sections

5.2 Calculation Output

5.2.1 P-M-M result



Stress Ratio Max = 0.962 Check design OK !

5.2.2 Cold Formed Design Result Table

TABLE: Cold Formed Design 1 - Summary Data - AISI-16					
Frame	DesignSect	DesignType	Combo	TotalRatio	WarnMsg
Text	Text	Text	Text	Unitless	Text
2	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.432371	No Messages
11	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.42849	No Messages
18	Purlin Ω30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.2219	No Messages
19	Purlin Ω30x70x30x2	Brace	0.9D+1.0Wb-	0.174854	No Messages
22	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.794676	No Messages
34	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.787408	No Messages
38	Purlin Ω30x70x30x2	Brace	0.9D+1.0Wb-	0.35208	No Messages
43	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.830788	No Messages
54	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.823695	No Messages
59	Purlin Ω30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
62	Purlin Ω30x70x30x2	Brace	0.9D+1.0Wb-	0.35208	No Messages
66	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.825054	No Messages
76	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.816977	No Messages
83	Purlin Ω30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
87	Purlin Ω30x70x30x2	Brace	0.9D+1.0Wb-	0.35208	No Messages
91	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.823684	No Messages
99	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.814784	No Messages
103	Purlin Ω30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
108	Purlin Ω30x70x30x2	Brace	0.9D+1.0Wb-	0.35208	No Messages
111	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.837132	No Messages
119	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.831744	No Messages
121	Purlin Ω30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
122	Purlin Ω30x70x30x2	Brace	0.9D+1.0Wb-	0.35208	No Messages
127	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.747859	No Messages
133	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.739308	No Messages
139	Purlin Ω30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
142	Purlin Ω30x70x30x2	Brace	0.9D+1.0Wb-	0.35208	No Messages
167	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.538821	No Messages
198	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.53407	No Messages
226	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.747859	No Messages
229	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.739303	No Messages
231	Purlin Ω30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
233	Purlin Ω30x70x30x2	Brace	0.9D+1.0Wb-	0.35208	No Messages
235	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.837132	No Messages
239	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.831742	No Messages
241	Purlin Ω30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
243	Purlin Ω30x70x30x2	Brace	0.9D+1.0Wb-	0.35208	No Messages
245	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.823684	No Messages
249	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.814783	No Messages
251	Purlin Ω30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages

253	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
255	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.825054	No Messages
259	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.816976	No Messages
261	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
262	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
264	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.830788	No Messages
279	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.823693	No Messages
353	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
354	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
355	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.794681	No Messages
357	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.787405	No Messages
358	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
359	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
360	Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.432361	No Messages
362	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.428465	No Messages
363	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.2219	No Messages
364	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.174854	No Messages
365	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
366	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
367	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
368	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
369	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
370	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
371	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
372	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
373	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
374	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
375	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
376	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
377	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
378	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
379	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
380	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
381	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
382	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
383	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
384	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
385	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
386	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
387	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
388	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
389	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
390	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
391	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	1.2D+0.3Sn+1.0Wb+	0.440238	No Messages
392	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	0.9D+1.0Wb-	0.35208	No Messages
393	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.792925	No Messages
394	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.898875	No Messages

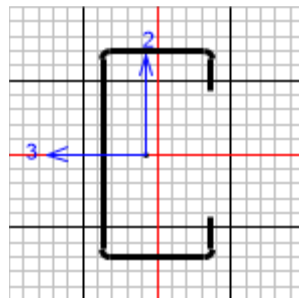
395	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.895788	No Messages
396	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.863004	No Messages
397	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.860403	No Messages
398	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.869572	No Messages
399	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.860742	No Messages
400	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.861546	No Messages
401	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.910188	No Messages
402	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.916952	No Messages
403	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.903725	No Messages
404	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.61552	No Messages
405	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.803692	No Messages
406	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.803692	No Messages
407	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.61552	No Messages
408	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.903725	No Messages
409	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.916952	No Messages
410	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.910188	No Messages
411	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.861546	No Messages
412	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.860742	No Messages
413	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.869571	No Messages
414	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.860404	No Messages
415	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.863004	No Messages
416	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.895789	No Messages
417	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.898875	No Messages
418	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.792922	No Messages
419	C110x55x15x1.8-beam	Beam	0.9D+1.0Wb-	0.65714	No Messages
420	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.817505	No Messages
421	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.825516	No Messages
422	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.793989	No Messages
423	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.797135	No Messages
424	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.800433	No Messages
425	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.797333	No Messages
426	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.794856	No Messages
427	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.835375	No Messages
428	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.839609	No Messages
429	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.817671	No Messages
430	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.587392	No Messages
431	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.358612	No Messages
432	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.358612	No Messages
433	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.587392	No Messages
434	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.817671	No Messages
435	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.839609	No Messages
436	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.835375	No Messages
437	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.794856	No Messages
438	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.797333	No Messages
439	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.800433	No Messages
440	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.797135	No Messages
441	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.793989	No Messages

442	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.825517	No Messages
443	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.817505	No Messages
444	C110x55x15x1.8-beam	Beam	0.9D+1.0Wb-	0.657139	No Messages
446	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.36592	No Messages
448	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.667548	No Messages
450	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.69851	No Messages
452	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.692359	No Messages
454	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.690099	No Messages
456	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.70618	No Messages
458	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.626036	No Messages
460	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.455613	No Messages
462	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.626031	No Messages
464	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.706179	No Messages
466	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.690099	No Messages
468	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.692361	No Messages
470	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.698511	No Messages
472	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.66755	No Messages
474	F Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wb+	0.365905	No Messages
475	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.893253	No Messages
476	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wb+	0.893248	No Messages
477	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.621261	No Messages
478	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.62127	No Messages
479	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.079006	No Messages
480	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.084775	No Messages
481	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.306138	No Messages
482	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.951759	No Messages
483	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.3034	No Messages
484	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.943274	No Messages
485	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.302355	No Messages
486	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.940059	No Messages
487	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.309498	No Messages
488	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.962157	No Messages
489	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.275873	No Messages
490	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.857453	No Messages
491	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.264592	No Messages
492	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.858645	No Messages
493	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.275877	No Messages
494	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.85749	No Messages
495	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.309504	No Messages
496	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.962206	No Messages
497	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.302363	No Messages
498	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.940125	No Messages
499	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.303409	No Messages
500	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.943346	No Messages
501	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.306146	No Messages
502	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.951824	No Messages
503	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.084777	No Messages

504	R pile C120x70x20x4	Column	1.2D+0.3Sn+1.0Wa+	0.079021	No Messages
505	C110x55x15x1.8-beam	Beam	1.2D+1.0EX+0.15Sn	0.000088	No Messages
506	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.717999	No Messages
507	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.717988	No Messages
508	C110x55x15x1.8-beam	Beam	1.2D+1.0EX+0.15Sn	0.000088	No Messages
509	C110x55x15x1.8-beam	Beam	1.2D+0.3Sn+1.0Wa+	0.000057	No Messages
510	C110x55x15x1.8-beam	Beam	0.9D+1.0Wb-	0.349543	No Messages
511	C110x55x15x1.8-beam	Beam	0.9D+1.0Wb-	0.349554	No Messages
512	C110x55x15x1.8-beam	Beam	1.2D+1.0EY+0.15Sn	0.000086	No Messages
513	R Column C105x55x20x2.2	Column	1.2D+1.0EY+0.15Sn	0.136722	No Messages
514	R Column C105x55x20x2.2	Column	1.2D+1.0EY+0.15Sn	0.138569	No Messages
515	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.15546	No Messages
516	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.155231	No Messages
517	Column Brace C85x45x15x1.6	Brace	1.2D+1.0EY+0.15Sn	0.189007	No Messages
518	Column Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.038909	No Messages
519	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.116263	No Messages
520	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.182644	No Messages
521	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.11642	No Messages
522	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.18307	No Messages
523	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.256407	No Messages
524	R Column C105x55x20x2.2	Column	1.2D+1.0EY+0.15Sn	0.145708	No Messages
525	R Column C105x55x20x2.2	Column	1.2D+0.3Sn+1.0Wa+	0.256456	No Messages
526	R Column C105x55x20x2.2	Column	1.2D+1.0EY+0.15Sn	0.145288	No Messages
527	Column Brace C85x45x15x1.6	Brace	1.2D+0.3Sn+1.0Wa+	0.058973	No Messages
528	Column Brace C85x45x15x1.6	Brace	1.2D+1.0EY+0.15Sn	0.191543	No Messages
529	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wb+	0.440224	No Messages
530	Purlin Q30x70x30x2	Brace	0.9D+1.0Wb-	0.486537	No Messages
531	Purlin Q30x70x30x2	Brace	0.9D+1.0Wb-	0.486528	No Messages
532	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.748972	No Messages
533	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.74895	No Messages
534	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.748938	No Messages
535	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.748937	No Messages
536	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.749237	No Messages
537	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.749237	No Messages
538	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.748937	No Messages
539	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.748938	No Messages
540	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.74895	No Messages
541	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.748972	No Messages
542	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.748953	No Messages
543	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.804126	No Messages
544	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.759688	No Messages
545	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.755654	No Messages
546	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.753565	No Messages
547	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.751984	No Messages
548	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.748928	No Messages
549	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.809616	No Messages
550	Purlin Q30x70x30x2	Brace	1.2D+0.3Sn+1.0Wa+	0.809616	No Messages

551	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	$1.2D + 0.3S_n + 1.0W_a +$	0.748928	No Messages
552	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	$1.2D + 0.3S_n + 1.0W_a +$	0.751984	No Messages
553	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	$1.2D + 0.3S_n + 1.0W_a +$	0.753565	No Messages
554	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	$1.2D + 0.3S_n + 1.0W_a +$	0.755653	No Messages
555	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	$1.2D + 0.3S_n + 1.0W_a +$	0.759687	No Messages
556	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	$1.2D + 0.3S_n + 1.0W_a +$	0.804122	No Messages
557	Purlin $\Omega 30 \times 70 \times 30 \times 2$	Brace	$1.2D + 0.3S_n + 1.0W_a +$	0.748963	No Messages
558	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.339615	No Messages
559	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.088615	No Messages
560	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.098999	No Messages
561	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.111616	No Messages
562	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.125725	No Messages
563	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.147776	No Messages
564	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.143312	No Messages
565	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.245177	No Messages
566	Purlin Brace L30x1.6	Beam	$1.2D + 1.0EY + 0.15S_n$	0.029804	No Messages
567	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.063601	No Messages
568	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.061036	No Messages
569	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.067033	No Messages
570	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.072699	No Messages
571	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.079936	No Messages
572	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.12573	No Messages
573	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.11162	No Messages
574	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.099003	No Messages
575	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.088618	No Messages
576	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.079938	No Messages
577	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.072701	No Messages
578	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.067035	No Messages
579	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.061037	No Messages
580	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.063602	No Messages
581	Purlin Brace L30x1.6	Beam	$1.2D + 1.0EX + 0.15S_n$	0.024132	No Messages
582	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.339632	No Messages
583	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.143318	No Messages
584	Purlin Brace L30x1.6	Beam	$1.2D + 0.3S_n + 1.0W_a +$	0.147782	No Messages

5.3 Design of Column



AISI-16 COLD-FORMED STEEL SECTION CHECK

Units : N, mm, C

Frame : 488	Design Sect : R Column C105x55x20x2.2	Through-Fastened To Deck: No
X Mid : 2100.	Design Type : Column	Fastener Eccentricity : N/A
Y Mid : 13891.5	Frame Type : Braced	Fastening R Value : N/A
Z Mid : 1496.987	2nd-Order Method: General 2nd-Order	Design Provision : LRFD
Length : 2193.974	LLRF : 1.	Consider Lateral Factor : No
Loc : 0.	Major Axis : 0. degrees	

MATERIAL PROPERTIES	E	Fy	Fu	G	U
	206000.	500.	530.	79230.769	0.3

ELEMENT/SEGMENT INFO	L	K	Lg	LNet	iBraceLoc	jBraceLoc	LhRatio	Lh
Major	2393.974	1.	2393.974	0.	N/A	N/A	0.	0.
Minor	2593.974	1.671	2593.974	0.	N/A	N/A	0.	0.
LTB	2593.974	1.671	2593.974	0.	N/A	N/A	0.	0.
Distortional	2393.974	1.	N/A	N/A	N/A	N/A	N/A	N/A

SECTION PROPERTIES	rx	ry	Sxx Top	Sxx Bot	Syy Left	Syy Right
GROSS	41.723	20.893	17321.313	17321.313	11247.736	6566.247

	Ax	Ay	Ixx	Iyy	J	x0	y0	Cw
GROSS	522.377	522.377	909368.915	228025.8	842.769	-47.539	0.	661840829.

RESISTANCE FACTORS	PhiTy	PhiTr	PhiC	PhiB	PhiBPipe	PhiV
	0.9	0.75	0.85	0.9	0.95	0.95

STRESS CHECK FORCES & MOMENTS

COMB. RATIO EQUATION - (H1.2-1)- GOVERNS THE DESIGN

P/Pa + Mx/Max + My/May

COMB. RATIO 0.962 = 0.843 + 0.119 + 0.

COMB. RATIO LIMIT 1.

	Combo	P	M33	M22	V2	V3
DEMANDS1.2D+0.	-15502.405	197634.679	66.848	90.081	0.03	
CAPACITIES	18384.063	1662450.97	2847572.58	58060.2	53420.4	
DEMAND/CAPACITY	0.843	0.119	0.	0.002	0.	

EFFECTIVE WIDTH METHOD Applicability Limits

All limits are satisfied

AXIAL - TENSION	Area Ag	Area An	PhiTy*Yielding Tn	PhiTr*Rupture Tn	Phi*Tension Tn
	522.377	522.377	235069.803	207644.992	207644.992

GLOBAL BUCKLING	Fcre	LambdaC	Fn	PhiC*Pne	Buckling Axes	Hole Effects
Flex	47.211	3.254	41.404	18384.063**	Geometric	Not Required
Flex-Tor	56.762	2.968	49.78	22103.472	Geometric	Not Required

	x0	y0	r0	beta	Sigma_ex	Sigma_ey	Sigma_t
	-47.539	0.	66.613	0.491	617.567	47.211	59.688

LOCAL BUCKLING	Web	TopFlange	BotFlange	Lip	Corner	Total
Stiffening Condition	S	P/S	P/S	U/S	N/A	N/A
Hole Diameter, dh	0.	N/A	N/A	N/A	N/A	N/A
Hole Length, Lh	0.	N/A	N/A	N/A	N/A	N/A
w/t <= 0.328S	N/A	Yes	Yes	N/A	N/A	N/A
S	N/A	N/A	N/A	N/A	N/A	N/A
n	N/A	N/A	N/A	N/A	N/A	N/A
Ia	N/A	N/A	N/A	N/A	N/A	N/A
Is	N/A	N/A	N/A	N/A	N/A	N/A
RI	N/A	N/A	N/A	N/A	N/A	N/A
k	4.	N/A	N/A	0.43	N/A	N/A
Fcr1	420.366	N/A	N/A	2034.698	N/A	N/A
Lambda	0.314	N/A	N/A	0.143	N/A	N/A
Rho	1.	N/A	N/A	1.	N/A	N/A
Flat Width, w	92.6	42.6	42.6	13.8	N/A	N/A
Effective Width, b	92.6	42.6	42.6	13.8	N/A	N/A
Effective Area, Ae	203.72	93.72	93.72	60.72	70.497	522.377
Global stress, Fn	41.404	41.404	41.404	41.404	41.404	41.404
PhiC*Pnl	7169.532	3298.295	3298.295	2136.923	2481.018	18384.063
	Hole at This Location			NO		

DISTORT. BUCKLING	Py	Pcrd	LambdaD	PhiC*Pnd	At hole				
	261188.67	320746.348	0.902	180112.507	NO				
	Fcrd	L	Lcrd	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg	kPhi_wg
	614.013	450.277	450.277	2393.974	4807.594	3826.074	0.	11.995	2.066

Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf	hyf (yof)
157.74	254.487	4018.989	48326.915	7638.973	0.	19.441	-33.359	-2.491

** FLEXURAL BUCKLING governs AXIAL COMPRESSION CAPACITY

FLEXURE									
YIELDING	Fy	Sfy	SfyNet	PhiB*My	PhiB*MyNet	At Hole			
Major	500.	17321.313	N/A	7794590.7	N/A	NO			
Minor	500.	6566.247	N/A	2954811.22	N/A	NO			
GLOBAL BUCKLING	Fcre	Fn	Sf	PhiB*Mne	Buckling Axes	Hole Effects			
Major	106.641	106.641	17321.313	1662450.97**	Geometric	Not Required			
Minor	3880.4	500.	11247.736	5061481.1	Geometric	Not Required			
	Cb	Cs	CTF	j	Lu	Sigma_ex	Sigma_ey	Sigma_t	
Major	1.	1.	1.	0.	N/A	617.567	47.211	59.688	
	Minor	1.	1.	1.	66.062	N/A			

LOCAL BUCKLING	Ie	Eff.	N.A.	Se	Set	PhiB*Mnl	PhiB*Set*Fy	At hole
Major	909369.	52.5	17321.313	17321.313	1662450.97	7794590.698		NO
Minor	205587.	22.511	9132.623	6327.939	4109680.3	2847572.577**		NO

EFFECTIVE WIDTH	Web	Top Web	Bot Web	TopFlange	BotFlange	Top Lip	Bot Lip
Stiffening Condition	S	N/A	N/A	P/S	P/S	U/S	U/S
Stress Condition	Grad	N/A	N/A	UniComp	Tension	Grad	Tension
Buckling stress, Fn	106.641	N/A	N/A	106.641	106.641	106.641	106.641
f1	-94.047	N/A	N/A	N/A	N/A	-94.047	66.016
f2	94.047	N/A	N/A	N/A	N/A	-66.016	94.047
f	-94.047	N/A	N/A	-106.641	106.641	-94.047	66.016
Psi	1.	N/A	N/A	N/A	N/A	0.702	1.425
w/t <= 0.328S	N/A	N/A	N/A	No	N/A	N/A	N/A
S	N/A	N/A	N/A	56.258	N/A	N/A	N/A
n	N/A	N/A	N/A	0.496	N/A	N/A	N/A
Ia	N/A	N/A	N/A	0.04	N/A	N/A	N/A
Is	N/A	N/A	N/A	481.813	N/A	N/A	N/A
RI	N/A	N/A	N/A	1.	N/A	N/A	N/A
k	24.	N/A	N/A	2.903	N/A	0.555	N/A
Fcr1	2522.197	N/A	N/A	1441.302	N/A	2624.914	N/A
Lambda	0.193	N/A	N/A	0.272	N/A	0.189	N/A
Rho	1.	N/A	N/A	1.	N/A	1.	N/A
Flat Width, w	92.6	N/A	N/A	42.6	42.6	13.8	13.8
Effective Width, b (be)	92.6	N/A	N/A	42.6	42.6	13.8	13.8
Effective Width, b1	23.15	N/A	N/A	N/A	N/A	N/A	N/A
Effective Width, b2	46.3	N/A	N/A	N/A	N/A	N/A	N/A
ho/bo	1.909	N/A	N/A	N/A	N/A	N/A	N/A

Minor							
Stiffening Condition	S	S	U/S	U/S			
Stress Condition	UniComp	Grad	Grad	Tension			
Buckling stress, Fn	500.	500.	500.	500.			
f1	N/A	-251.029	-251.029	N/A			
f2	N/A	404.582	404.582	N/A			
f	-500.	-251.029	-251.029	500.			
Psi	N/A	1.612	1.612	N/A			
k	4.	44.852	44.852	N/A			
Fcr1	420.366	22271.554	22271.554	N/A			
Lambda	1.091	0.106	0.106	N/A			
Rho	0.732	1.	1.	N/A			
Flat Width, w	92.6	42.6	42.6	13.8			
Effective Width, b (be)	67.779	42.6	42.6	13.8			
Effective Width, b1	N/A	9.237	9.237	N/A			
Effective Width, b2	N/A	21.3	21.3	N/A			
ho/bo	N/A	0.524	0.524	N/A			

DISTORT. BUCKLING	My	Mcrd	LambdaD	PhiB*Mnd
	8660656.331	16708124.2	0.72	7518133.8

Fcrd	L	Lcrd	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg	kPhi_wg
964.599	406.933	406.933	2393.974	6937.42	6140.622	0.	14.686	0.441

beta	XiWeb	At hole
1.116	2.	NO

Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf	hyf (yof)
157.74	254.487	4018.989	48326.915	7638.973	0.	19.441	-33.359	-2.491

** LATERAL-TORSIONAL BUCKLING governs MAJOR MOMENT CAPACITY
 ** INTERACTION between LOCAL BUCKLING and LTB (YIELDING) governs MINOR MOMENT CAPACITY

SHEAR	kv	Fcr	LambdaV	Vcr	Fy	Aw	Vy	PhiV*Vn	At Hole
Major	5.34	561.189	0.731	114325.376	500.	203.72	61116.	58060.2	NO
Minor	5.34	2651.623	0.336	497020.181	500.	187.44	56232.	53420.4	NO

S: Stiffened
 U/S: Unstiffened
 P/S: Partially Stiffened

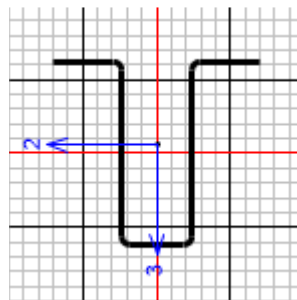
UniComp: Uniform Compression
 Grad: Stress Gradient
 None: No Stress

N/A: Not Applicable
 N/C: Not Calculated
 N/N: Not Needed

Stress Ratio Max = 0.962

Check design OK !

5.4 Design of Purlin



AISI-16 COLD-FORMED STEEL SECTION CHECK
 Units : N, mm, C

Frame : 543	Design Sect : Purlin Q30x70x30x2	Through-Fastened To Deck: No
X Mid : 1050.	Design Type : Brace	Fastener Eccentricity : N/A
Y Mid : 1984.5	Frame Type : Braced	Fastening R Value : N/A
Z Mid : 2058.979	2nd-Order Method: General 2nd-Order	Design Provision : LRFD
Length : 2356.879	LLRF : 1.	Consider Lateral Factor : No
Loc : 1178.439	Major Axis : 90. degrees	

MATERIAL PROPERTIES	E	Fy	Fu	G	U
	206000.	500.	530.	79230.769	0.3

ELEMENT/SEGMENT INFO	L	K	Lg	LNet	iBraceLoc	jBraceLoc	LhRatio	Lh
Major	1178.439	1.	1178.439	0.	0.	1178.439	0.	0.
Minor	2356.879	1.	2356.879	0.	0.	2356.879	0.	0.
LTB	2356.879	0.5	2356.879	0.	0.	2356.879	0.	0.
Distortional	1178.439	1.	N/A	N/A	0.	1178.439	N/A	N/A

SECTION PROPERTIES	rx	ry	Sxx Top	Sxx Bot	Syy Left	Syy Right
GROSS	19.116	25.296	3627.394	3627.394	6865.721	9037.354

	Ax	Ay	Ixx	Iyy	J	x0	y0	Cw
GROSS	426.832	426.832	155977.96	273114.264	569.109	-45.981	0.	111634087.

RESISTANCE FACTORS	PhiTy	PhiTr	PhiC	PhiB	PhiBPipe	PhiV
	0.9	0.75	0.85	0.9	0.95	0.95

STRESS CHECK FORCES & MOMENTS
 COMB. RATIO EQUATION - (H1.1-2)- GOVERNS THE DESIGN

$$\text{COMB. RATIO} = \frac{M_x}{M_{x, \max}} + \frac{M_y}{M_{y, \max}} - \frac{T}{T_a} = 0.804 + 0.062 - 0.007 = 0.855$$
 COMB. RATIO LIMIT 1.

Combo	P	M33	M22	V2	V3
DEMANDS1.2D+0.	1164.384	92889.012	-1360260.2	-261.351	64.824
CAPACITIES	41009.165	1496168.82	1816334.57	10260.	66120.
DEMAND/CAPACITY	0.007	0.062	0.749	0.025	0.

EFFECTIVE WIDTH METHOD Applicability Limits
All limits are satisfied

AXIAL - TENSION	Area Ag	Area An	PhiTy*Yielding Tn	PhiTr*Rupture Tn	Phi*Tension Tn
	426.832	426.832	192074.334	169665.662	169665.662

AXIAL - COMPRESSION

GLOBAL BUCKLING	Fcre	LambdaC	Fn	PhiC*Pne	Buckling Axes	Hole Effects
Flex 234.196	1.461	204.592	74227.536		Geometric	Not Required
Flex-Tor 128.886	1.97	113.033	41009.165		Geometric	Not Required

x0	y0	r0	beta	Sigma_ex	Sigma_ey	Sigma_t
-45.981	0.	55.853	0.322	535.006	234.196	156.608

LOCAL BUCKLING

Stiffening Condition	Web	TopFlange	BotFlange	Lip	Corner	Total
Hole Diameter, dh	S	P/S	P/S	U/S	N/A	
Hole Length, Lh	0.	N/A	N/A	N/A	N/A	
w/t <= 0.328S	0.	N/A	N/A	N/A	N/A	
S	N/A	No	No	N/A	N/A	
n	N/A	54.644	54.644	N/A	N/A	
Ia	N/A	0.449	0.449	N/A	N/A	
Is	N/A	53.176	53.176	N/A	N/A	
RI	N/A	2304.	2304.	N/A	N/A	
k	N/A	1.	1.	N/A	N/A	
Fcrl	4.	2.664	2.664	0.43	N/A	
Lambda	9194.313	589.724	589.724	555.969	N/A	
Rho	0.111	0.438	0.438	0.451	N/A	
Flat Width, w	1.	1.	1.	1.	N/A	
Effective Width, b	18.	58.	58.	24.	N/A	
Effective Area, Ae	18.	58.	58.	24.	N/A	
Global stress, Fn	36.	116.	116.	96.	62.832	426.832
PhiC*Pnl	113.033	113.033	113.033	113.033	113.033	113.033
Hole at This Location	3458.809	11145.052	11145.052	9223.491	6036.761	41009.165**

DISTORT. BUCKLING	Py	Pcrd	LambdaD	PhiC*Pnd	At hole
	213415.927	458136.911	0.683	173459.559	NO

Fcrd	L	Lcrd	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg	kPhi_wg
1073.343	530.942	530.942	1178.439	10778.579	10061.05	0.	19.384	0.032
Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf	hyf(yof)
194.	258.667	12658.888	99408.055	20045.278	0.	23.835	-44.165	-4.335

** INTERACTION BETWEEN MEMBER AND LOCAL BUCKLINGS governs AXIAL COMPRESSION CAPACITY

FLEXURE

YIELDING	Fy	Sfy	SfyNet	PhiB*My	PhiB*MyNet	At Hole
Major	500.	3627.394	N/A	1632327.49	N/A	NO
Minor	500.	6865.721	N/A	3089574.5	N/A	NO

GLOBAL BUCKLING	Fcre	Fn	Sf	PhiB*Mne	Buckling Axes	Hole Effects
Major	2983.64	500.	3627.394	1632327.49	Geometric	Not Required
Minor	223.312	223.312	9037.354	1816334.57**	Geometric	Not Required

	Cb	Cs	CTF	j	Lu	Sigma_ex	Sigma_ey	Sigma_t
Major	2.371	1.	1.	0.	N/A	535.006	234.196	156.608
Minor	1.739	-1.	1.	47.244	N/A			

LOCAL BUCKLING	Ie	Eff. N.A.	Se	Set	PhiB*Mnl	PhiB*Set*Fy	At hole
Major	145026.	43.619	3324.82	3421.954	1496168.82**	1539879.135	NO
Minor	273114.	39.779	9037.354	6865.721	1816334.57	3089574.503	NO

EFFECTIVE WIDTH	Web	Top Web	Bot Web	TopFlange	BotFlange	Top Lip	Bot Lip
Major							
Stiffening Condition	S	N/A	N/A	P/S	P/S	U/S	U/S
Stress Condition	Grad	N/A	N/A	UniComp	Tension	Grad	Tension
Buckling stress, Fn	500.	N/A	N/A	500.	500.	500.	500.
f1	-110.262	N/A	N/A	N/A	N/A	-500.	210.698
f2	96.069	N/A	N/A	N/A	N/A	-224.891	485.807
f	-110.262	N/A	N/A	-179.04	164.847	-463.778	210.698
Psi	0.871	N/A	N/A	N/A	N/A	0.45	2.306

w/t <= 0.328S	N/A	N/A	N/A	No	N/A	N/A	N/A
S	N/A	N/A	N/A	43.418	N/A	N/A	N/A
n	N/A	N/A	N/A	0.415	N/A	N/A	N/A
Ia	N/A	N/A	N/A	250.755	N/A	N/A	N/A
Is	N/A	N/A	N/A	2304.	N/A	N/A	N/A
RI	N/A	N/A	N/A	1.	N/A	N/A	N/A
k	20.848	N/A	N/A	2.664	N/A	0.49	N/A
Fcrl	47920.483	N/A	N/A	589.724	N/A	633.167	N/A
Lambda	0.048	N/A	N/A	0.551	N/A	0.856	N/A
Rho	1.	N/A	N/A	1.	N/A	0.868	N/A
Flat Width, w	18.	N/A	N/A	58.	58.	24.	24.
Effective Width, b (be)	18.	N/A	N/A	58.	58.	20.834	24.
Effective Width, b1	4.65	N/A	N/A	N/A	N/A	N/A	N/A
Effective Width, b2	9.	N/A	N/A	N/A	N/A	N/A	N/A
ho/bo	0.429	N/A	N/A	N/A	N/A	N/A	N/A

Minor							
Stiffening Condition	S		S		S	U/S	U/S
Stress Condition	Tension		Grad		Grad	UniComp	UniComp
Buckling stress, Fn	223.312		223.312		223.312	223.312	223.312
f1	N/A		-304.436		-304.436	N/A	N/A
f2	N/A		424.584		424.584	N/A	N/A
f	293.946		-304.436		-304.436	-223.312	-223.312
Psi	N/A		1.395		1.395	N/A	N/A
k	N/A		36.253		36.253	0.43	0.43
Fcrl	N/A		8025.879		8025.879	555.969	555.969
Lambda	N/A		0.195		0.195	0.634	0.634
Rho	N/A		1.		1.	1.	1.
Flat Width, w	18.		58.		58.	24.	24.
Effective Width, b (be)	18.		58.		58.	24.	24.
Effective Width, b1	N/A		13.198		13.198	N/A	N/A
Effective Width, b2	N/A		29.		29.	N/A	N/A
ho/bo	N/A		2.333		2.333	N/A	N/A

DISTORT. BUCKLING	My	Mcrd	LambdaD	PhiB*Mnd				
1813697.208		6057392.	0.547	1632327.49				
Fcrd	L	Lcrd	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg	kPhi_wg
1669.902	479.761	479.761	1178.439	15970.333	15153.083	0.	23.741	0.007
beta	XiWeb	At hole						
1.274	2.	NO						
Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf	hyf (yof)
194.	258.667	12658.888	99408.055	20045.278	0.	23.835	-44.165	-4.335

** INTERACTION between LOCAL BUCKLING and LTB governs MAJOR MOMENT CAPACITY

** LATERAL-TORSIONAL BUCKLING governs MINOR MOMENT CAPACITY

SHEAR	kv	Fcr	LambdaV	Vcr	Fy	Aw	Vy	PhiV*Vn	At Hole
Major	5.34	12274.408	0.156	441878.699	500.	36.	10800.	10260.	NO
Minor	5.34	1182.196	0.504	274269.537	500.	232.	69600.	66120.	NO

S: Stiffened
U/S: Unstiffened
P/S: Partially Stiffened

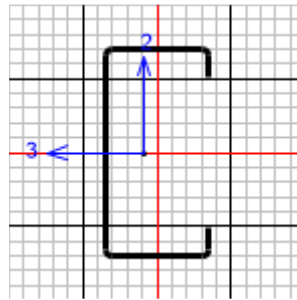
UniComp: Uniform Compression
Grad: Stress Gradient
None: No Stress

N/A: Not Applicable
N/C: Not Calculated
N/N: Not Needed

Stress Ratio Max = 0.804

Check design OK !

5.5 Design of Beam



AISI-16 COLD-FORMED STEEL SECTION CHECK

Units : N, mm, C

Frame : 402	Design Sect : C110x55x15x1.8-beam	Through-Fastened To Deck: No
X Mid : 0.	Design Type : Beam	Fastener Eccentricity : N/A
Y Mid : 14553.	Frame Type : Braced	Fastening R Value : N/A
Z Mid : 1523.984	2nd-Order Method: General 2nd-Order	Design Provision : LRFD
Length : 1323.	LLRF : 1.	Consider Lateral Factor : No
Loc : 0.	Major Axis : 0. degrees	

MATERIAL PROPERTIES	E	Fy	Fu	G	U
	206000.	500.	530.	79230.769	0.3

ELEMENT/SEGMENT INFO	L	K	Lg	Net	iBraceLoc	jBraceLoc	LhRatio	Lh
Major	1323.	1.	1323.	0.	0.	1323.	0.	0.
Minor	1323.	1.	1323.	0.	0.	1323.	0.	0.
LTB	1323.	1.	1323.	0.	0.	1323.	0.	0.
Distortional	1323.	1.	N/A	N/A	0.	1323.	N/A	N/A

SECTION PROPERTIES	rx	ry	Sxx Top	Sxx Bot	Syy Left	Syy Right
GROSS	44.078	20.27	14946.97	14946.97	9423.863	4756.1

	Ax	Ay	Ixx	Iyy	J	x0	y0	Cw
GROSS	423.134	423.134	822083.326	173847.128	456.985	-43.753	0.	475244206.

RESISTANCE FACTORS	PhiTy	PhiTr	PhiC	PhiB	PhiBPipe	PhiV
	0.9	0.75	0.85	0.9	0.95	0.95

STRESS CHECK FORCES & MOMENTS

COMB. RATIO EQUATION - (H1.2-1) - GOVERNS THE DESIGN

	P/Pa	+ Mx/Max	+ My/May
COMB. RATIO	0.917	=	0. + 0.464 + 0.452
COMB. RATIO LIMIT	1.		

	Combo	P	M33	M22	V2	V3
DEMANDS	1.2D+0.	-44.78	-2684626.8	907141.58	-4125.741	1382.864
CAPACITIES		80221.216	5780963.5	2006938.25	43324.109	45349.2
DEMAND/CAPACITY		0.	0.464	0.452	0.095	0.03

EFFECTIVE WIDTH METHOD Applicability Limits

All limits are satisfied

AXIAL - TENSION	Area Ag	Area An	PhiTy*Yielding Tn	PhiTr*Rupture Tn	Phi*Tension Tn
	423.134	423.134	190410.21	168195.686	168195.686

AXIAL - COMPRESSION

GLOBAL BUCKLING	Fcre	LambdaC	Fn	PhiC*Pne	Buckling Axes	Hole Effects
Flex	477.24	1.024	322.498	115990.836	Geometric	Not Required
Flex-Tor	304.432	1.282	251.434	90431.662	Geometric	Not Required

	x0	y0	r0	beta	Sigma_ex	Sigma_ey	Sigma_t
	-43.753	0.	65.33	0.551	2256.76	477.24	325.724

LOCAL BUCKLING	Web	TopFlange	BotFlange	Lip	Corner	Total
Stiffening Condition	S	P/S	P/S	U/S	N/A	
Hole Diameter, dh	0.	N/A	N/A	N/A	N/A	
Hole Length, Lh	0.	N/A	N/A	N/A	N/A	
w/t <= 0.328S	N/A	No	No	N/A	N/A	

S	N/A	36.638	36.638	N/A	N/A	
n	N/A	0.414	0.414	N/A	N/A	
Ia	N/A	167.874	167.874	N/A	N/A	
Is	N/A	132.71	132.71	N/A	N/A	
RI	N/A	0.791	0.791	N/A	N/A	
k	4.	3.263	3.263	0.43	N/A	
Fcrl	245.203	1007.625	1007.625	2814.591	N/A	
Lambda	1.013	0.5	0.5	0.299	N/A	
Rho	0.773	1.	1.	1.	N/A	
Flat Width, w	99.2	44.2	44.2	9.6	N/A	
Effective Width, b	76.68	44.2	44.2	7.589	N/A	
Effective Area, Ae	138.024	79.56	79.56	27.321	50.894	375.359
Global stress, Fn	251.434	251.434	251.434	251.434	251.434	251.434
PhiC*Pnl	29498.317	17003.47	17003.47	5838.995	10876.964	80221.216**
Hole at This Location	NO					

DISTORT. BUCKLING	Py	Pcrd	LambdaD	PhiC*Pnd				At hole
	211566.9	162993.117	1.139	120904.389				NO
Fcrd	L	Lcrd	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg	kPhi_wg
385.205	416.376	416.376	1323.	2590.431	2000.32	0.	9.645	2.273
Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf	hyf(yof)
121.14	130.831	1443.502	36780.84	3762.348	0.	21.027	-32.173	-1.477

** INTERACTION BETWEEN MEMBER AND LOCAL BUCKLINGS governs AXIAL COMPRESSION CAPACITY

FLEXURE

YIELDING	Fy	Sfy	SfyNet	PhiB*My	PhiB*MyNet	At Hole
Major	500.	14946.97	N/A	6726136.3	N/A	NO
Minor	500.	4756.1	N/A	2140244.91	N/A	NO

GLOBAL BUCKLING	Fcre	Fn	Sf	PhiB*Mne	Buckling Axes	Hole Effects
Major	1650.87	500.	14946.97	6726136.3	Geometric	Not Required
Minor	68748.	500.	9423.863	4240738.3	Geometric	Not Required

	Cb	Cs	CTF	j	Lu	Sigma_ex	Sigma_ey	Sigma_t
Major	2.264	1.	0.208	0.	N/A	2256.76	477.24	325.724
Minor	2.269	1.	0.207	67.892	N/A			

LOCAL BUCKLING	Ie	Eff. N.A.	Se	Set	PhiB*Mnl	PhiB*Set*Fy	At hole
Major	750599.	51.572	12846.586	14554.376	5780963.5**	6549469.126	NO
Minor	146762.	22.093	6642.959	4459.863	2989331.76	2006938.248**	NO

EFFECTIVE WIDTH	Web	Top Web	Bot Web	TopFlange	BotFlange	Top Lip	Bot Lip
Major							
Stiffening Condition	S	N/A	N/A	P/S	P/S	U/S	U/S
Stress Condition	Grad	N/A	N/A	Tension	UniComp	Tension	Grad
Buckling stress, Fn	500.	N/A	N/A	500.	500.	500.	500.
f1	-453.789	N/A	N/A	N/A	N/A	312.967	-453.789
f2	395.12	N/A	N/A	N/A	N/A	395.12	-371.637
f	-453.789	N/A	N/A	441.331	-500.	312.967	-453.789
Psi	0.871	N/A	N/A	N/A	N/A	1.262	0.819
w/t <= 0.328S	N/A	N/A	N/A	N/A	No	N/A	N/A
S	N/A	N/A	N/A	N/A	25.981	N/A	N/A
n	N/A	N/A	N/A	N/A	0.346	N/A	N/A
Ia	N/A	N/A	N/A	N/A	984.444	N/A	N/A
Is	N/A	N/A	N/A	N/A	132.71	N/A	N/A
RI	N/A	N/A	N/A	N/A	0.135	N/A	N/A
k	20.835	N/A	N/A	N/A	1.992	N/A	0.499
Fcrl	1277.189	N/A	N/A	N/A	615.129	N/A	3264.412
Lambda	0.596	N/A	N/A	N/A	0.902	N/A	0.373
Rho	1.	N/A	N/A	N/A	0.839	N/A	1.
Flat Width, w	99.2	N/A	N/A	44.2	44.2	9.6	9.6
Effective Width, b (be)	99.2	N/A	N/A	44.2	37.062	9.6	1.294
Effective Width, b1	25.628	N/A	N/A	N/A	N/A	N/A	N/A
Effective Width, b2	49.6	N/A	N/A	N/A	N/A	N/A	N/A
ho/bo	2.	N/A	N/A	N/A	N/A	N/A	N/A

Minor							
Stiffening Condition	S			S	S	U/S	U/S
Stress Condition	UniComp			Grad	Grad	Tension	Tension
Buckling stress, Fn	500.			500.	500.	500.	500.
f1	N/A			-253.635	-253.635	N/A	N/A
f2	N/A			417.951	417.951	N/A	N/A
f	-500.			-253.635	-253.635	500.	500.
Psi	N/A			1.648	1.648	N/A	N/A
k	4.			46.424	46.424	N/A	N/A

Fcr1	245.203	14334.763	14334.763	N/A	N/A
Lambda	1.428	0.133	0.133	N/A	N/A
Rho	0.592	1.	1.	N/A	N/A
Flat Width, w	99.2	44.2	44.2	9.6	9.6
Effective Width, b (be)	58.766	44.2	44.2	9.6	9.6
Effective Width, b1	N/A	9.51	9.51	N/A	N/A
Effective Width, b2	N/A	22.1	22.1	N/A	N/A
ho/bo	N/A	0.5	0.5	N/A	N/A

DISTORT. BUCKLING	My	Mcrd	LambdaD	PhiB*Mnd
	7473484.786	10779078.4	0.833	5943576.1

Fcrd	L	Lcrd	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg	kPhi_wg
721.155	376.331	376.331	1323.	3719.895	3270.508	0.	11.806	0.481

beta	XiWeb	At hole
1.268	2.	NO

Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf	hyf (yof)
121.14	130.831	1443.502	36780.84	3762.348	0.	21.027	-32.173	-1.477

** INTERACTION between LOCAL BUCKLING and LTB governs MAJOR MOMENT CAPACITY
** INTERACTION between LOCAL BUCKLING and LTB (YIELDING) governs MINOR MOMENT CAPACITY

SHEAR	kv	Fcr	LambdaV	Vcr	Fy	Aw	Vy	PhiV*Vn	At Hole
Major	5.34	327.346	0.957	58450.93	500.	178.56	53568.	43324.109	NO
Minor	5.34	1648.869	0.427	262367.977	500.	159.12	47736.	45349.2	NO

S: Stiffened
U/S: Unstiffened
P/S: Partially Stiffened

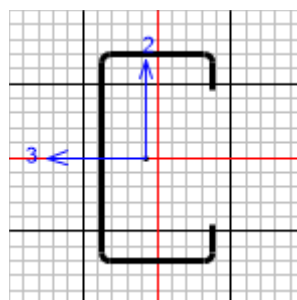
UniComp: Uniform Compression
Grad: Stress Gradient
None: No Stress

N/A: Not Applicable
N/C: Not Calculated
N/N: Not Needed

Stress Ratio Max = 0.917

Check design OK !

5.6 Design of Brace



AISI-16 COLD-FORMED STEEL SECTION CHECK
Units : N, mm, C

Frame	: 111	Design Sect	: Brace C85x45x15x1.6	Through-Fastened To Deck:	No
X Mid	: 1050.	Design Type	: Brace	Fastener Eccentricity	: N/A
Y Mid	: 13891.5	Frame Type	: Braced	Fastening R Value	: N/A
Z Mid	: 752.4	2nd-Order Method:	General 2nd-Order	Design Provision	: LRFD
Length	: 2372.885	LLRF	: 1.	Consider Lateral Factor	: No
Loc	: 1186.442	Major Axis	: 0. degrees		

MATERIAL PROPERTIES		E	Fy	Fu	G	U			
		206000.	500.	530.	79230.769	0.3			
ELEMENT/SEGMENT INFO		L	K	Lg	LNet	iBraceLoc	jBraceLoc	LhRatio	Lh
Major		2372.885	1.	2372.885	0.	0.	2372.885	0.	0.
Minor		2372.885	1.	2372.885	0.	0.	2372.885	0.	0.
LTB		2372.885	1.	2372.885	0.	0.	2372.885	0.	0.
Distortional		2372.885	1.	N/A	N/A	0.	2372.885	N/A	N/A
SECTION PROPERTIES		rx	ry	Sxx Top	Sxx Bot	Syy Left	Syy Right		
GROSS		33.987	17.001	8337.753	8337.753	5448.067	3086.82		
		Ax	Ay	Ixx	Iyy	J	x0	y0	Cw
GROSS		306.772	306.772	354354.488	88668.32	261.779	-38.302	0.	162014592.
RESISTANCE FACTORS		PhiTy	PhiTr	PhiC	PhiB	PhiBPipe	PhiV		
		0.9	0.75	0.85	0.9	0.95	0.95		
STRESS CHECK FORCES & MOMENTS									
COMB. RATIO EQUATION - (H1.2-1)- GOVERNS THE DESIGN									
			P/Pa +	Mx/Max +	My/May				
COMB. RATIO		0.837 =	0.828 +	0.009 +	0.				
COMB. RATIO LIMIT		1.							
		Combo	P	M33	M22	V2	V3		
DEMANDS		1.2D+0.	-15018.863	17649.856	0.	4.219E-15	0.		
CAPACITIES			18143.663	1886249.73	1323994.69	34231.395	32284.8		
DEMAND/CAPACITY			0.828	0.009	0.	0.	0.		
EFFECTIVE WIDTH METHOD Applicability Limits									
All limits are satisfied									
AXIAL - TENSION		Area Ag	Area An	PhiTy*Yielding Tn	PhiTr*Rupture Tn	Phi*Tension Tn			
		306.772	306.772	138047.574	121942.023	121942.023			
AXIAL - COMPRESSION									
GLOBAL BUCKLING		Fcre	LambdaC	Fn	PhiC*Pne	Buckling Axes		Hole Effects	
Flex		104.368	2.189	91.53	23867.151	Geometric		Not Required	
Flex-Tor		79.34	2.51	69.581	18143.663	Geometric		Not Required	
		x0	y0	r0	beta	Sigma_ex	Sigma_ey	Sigma_t	
		-38.302	0.	53.955	0.496	417.095	104.368	88.731	
LOCAL BUCKLING		Web	TopFlange	BotFlange	Lip	Corner	Total		
Stiffening Condition		S	P/S	P/S	U/S	N/A			
Hole Diameter, dh		0.	N/A	N/A	N/A	N/A			
Hole Length, Lh		0.	N/A	N/A	N/A	N/A			
w/t <= 0.328S		N/A	Yes	Yes	N/A	N/A			
S		N/A	N/A	N/A	N/A	N/A			
n		N/A	N/A	N/A	N/A	N/A			
Ia		N/A	N/A	N/A	N/A	N/A			
Is		N/A	N/A	N/A	N/A	N/A			
RI		N/A	N/A	N/A	N/A	N/A			
k		4.	N/A	N/A	0.43	N/A			
Fcrl		335.353	N/A	N/A	1969.937	N/A			
Lambda		0.456	N/A	N/A	0.188	N/A			
Rho		1.	N/A	N/A	1.	N/A			
Flat Width, w		75.4	35.4	35.4	10.2	N/A			
Effective Width, b		75.4	35.4	35.4	10.2	N/A			
Effective Area, Ae		120.64	56.64	56.64	32.64	40.212	306.772		
Global stress, Fn		69.581	69.581	69.581	69.581	69.581	69.581		
PhiC*Pnl		7135.1	3349.901	3349.901	1930.451	2378.31	18143.663**		
Hole at This Location		NO							
DISTORT. BUCKLING		Py	Pcrd	LambdaD	PhiC*Pnd	At hole			
		153386.193	157893.38	0.986	98916.353	NO			
		Fcrd	L	Lcrd	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg
		514.692	369.087	369.087	2372.885	2269.527	1818.091	0.	6.755
		Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf
		92.16	78.643	1259.549	18960.647	2637.507	0.	16.35	-27.05
		hyf(yof)							
		-1.75							
** INTERACTION BETWEEN MEMBER AND LOCAL BUCKLINGS governs AXIAL COMPRESSION CAPACITY									
FLEXURE									
YIELDING		Fy	Sfy	SfyNet	PhiB*My	PhiB*MyNet	At Hole		
Major		500.	8337.753	N/A	3751988.7	N/A	NO		

	Minor	500.	3086.82	N/A	1389069.	N/A		NO	
GLOBAL BUCKLING	Fcre	Fn	Sf	PhiB*Mne		Buckling Axes		Hole Effects	
Major	251.367	251.367	8337.753	1886249.73**		Geometric		Not Required	
Minor	2664.27	500.	5448.067	2451630.08		Geometric		Not Required	
	Cb	Cs	CTF	j	Lu	Sigma_ex	Sigma_ey	Sigma_t	
Major	1.316	1.	1.	0.	N/A	417.095	104.368	88.731	
Minor	1.	1.	1.	53.991	N/A				
LOCAL BUCKLING	Ie	Eff. N.A.	Se	Set	PhiB*Mnl		PhiB*Set*Fy	At hole	
Major	354354.	42.5	8337.753	8337.753	1886249.73		3751988.702	NO	
Minor	77758.	18.572	4186.913	2942.21	1884111.		1323994.692**	NO	
EFFECTIVE WIDTH		Web	Top Web	Bot Web	TopFlange	BotFlange	Top Lip	Bot Lip	
Major									
Stiffening Condition		S	N/A	N/A	P/S	P/S	U/S	U/S	
Stress Condition		Grad	N/A	N/A	UniComp	Tension	Grad	Tension	
Buckling stress, Fn		251.367	N/A	N/A	251.367	251.367	251.367	251.367	
f1		-222.977	N/A	N/A	N/A	N/A	-222.977	162.649	
f2		222.977	N/A	N/A	N/A	N/A	-162.649	222.977	
f		-222.977	N/A	N/A	-251.367	251.367	-222.977	162.649	
Psi		1.	N/A	N/A	N/A	N/A	0.729	1.371	
w/t <= 0.328S		N/A	N/A	N/A	No	N/A	N/A	N/A	
S		N/A	N/A	N/A	36.643	N/A	N/A	N/A	
n		N/A	N/A	N/A	0.431	N/A	N/A	N/A	
Ia		N/A	N/A	N/A	54.858	N/A	N/A	N/A	
Is		N/A	N/A	N/A	141.494	N/A	N/A	N/A	
RI		N/A	N/A	N/A	1.	N/A	N/A	N/A	
k		24.	N/A	N/A	3.131	N/A	0.54	N/A	
Fcrl		2012.115	N/A	N/A	1190.996	N/A	2476.02	N/A	
Lambda		0.333	N/A	N/A	0.459	N/A	0.3	N/A	
Rho		1.	N/A	N/A	1.	N/A	1.	N/A	
Flat Width, w		75.4	N/A	N/A	35.4	35.4	10.2	10.2	
Effective Width, b (be)		75.4	N/A	N/A	35.4	35.4	10.2	10.2	
Effective Width, b1		18.85	N/A	N/A	N/A	N/A	N/A	N/A	
Effective Width, b2		37.7	N/A	N/A	N/A	N/A	N/A	N/A	
ho/bo		1.889	N/A	N/A	N/A	N/A	N/A	N/A	
Minor									
Stiffening Condition		S			S	S	U/S	U/S	
Stress Condition		UniComp			Grad	Grad	Tension	Tension	
Buckling stress, Fn		500.			500.	500.	500.	500.	
f1		N/A			-260.546	-260.546	N/A	N/A	
f2		N/A			409.188	409.188	N/A	N/A	
f		-500.			-260.546	-260.546	500.	500.	
Psi		N/A			1.571	1.571	N/A	N/A	
k		4.			43.11	43.11	N/A	N/A	
Fcrl		335.353			16396.697	16396.697	N/A	N/A	
Lambda		1.221			0.126	0.126	N/A	N/A	
Rho		0.671			1.	1.	N/A	N/A	
Flat Width, w		75.4			35.4	35.4	10.2	10.2	
Effective Width, b (be)		50.624			35.4	35.4	10.2	10.2	
Effective Width, b1		N/A			7.745	7.745	N/A	N/A	
Effective Width, b2		N/A			17.7	17.7	N/A	N/A	
ho/bo		N/A			0.529	0.529	N/A	N/A	
DISTORT. BUCKLING	My	Mcrd	LambdaD	PhiB*Mnd					
4168876.335	6055973.5	0.83	3323057.2						
Fcrl	L	Lcrl	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg	kPhi_wg	
726.332	333.556	333.556	2372.885	3278.317	2913.189	0.	8.271	0.253	
beta	XiWeb	At hole							
1.	2.	NO							
Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf	hyf (yof)	
92.16	78.643	1259.549	18960.647	2637.507	0.	16.35	-27.05	-1.75	
** LATERAL-TORSIONAL BUCKLING governs MAJOR MOMENT CAPACITY									
** INTERACTION between LOCAL BUCKLING and LTB (YIELDING) governs MINOR MOMENT CAPACITY									
AR	kv	Fcr	LambdaV	Vcr	Fy	Aw	Vy	PhiV*Vn	At Hole
Major	5.34	447.696	0.819	54010.001	500.	120.64	36192.	34231.395	NO
Minor	5.34	2031.043	0.384	230076.502	500.	113.28	33984.	32284.8	NO

S: Stiffened

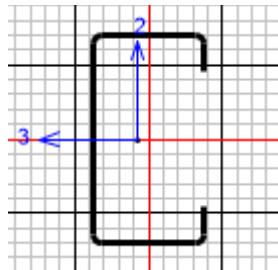
U/S: Unstiffened
P/S: Partially Stiffened

UniComp: Uniform Compression
Grad: Stress Gradient
None: No Stress

N/A: Not Applicable
N/C: Not Calculated
N/N: Not Needed

Stress Ratio Max = 0.837

Check design OK!



AISI-16 COLD-FORMED STEEL SECTION CHECK
Units : N, mm, C

Frame : 528	Design Sect : Column Brace C85x45x15x1.	Through-Fastened To Deck: No
X Mid : 2100.	Design Type : Brace	Fastener Eccentricity : N/A
Y Mid : 34859.5	Frame Type : Braced	Fastening R Value : N/A
Z Mid : 1437.	2nd-Order Method: General 2nd-Order	Design Provision : LRFD
Length : 2925.131	LLRF : 1.	Consider Lateral Factor : No
Loc : 0.	Major Axis : 0. degrees	

MATERIAL PROPERTIES	E	Fy	Fu	G	U
	206000.	350.	420.	79230.769	0.3

ELEMENT/SEGMENT INFO	L	K	Lg	LNet	iBraceLoc	jBraceLoc	LhRatio	Lh
Major	1462.566	1.	1462.566	0.	0.	1462.566	0.	0.
Minor	2925.131	1.	2925.131	0.	0.	2925.131	0.	0.
LTB	2925.131	1.	2925.131	0.	0.	2925.131	0.	0.
Distortional	1462.566	1.	N/A	N/A	0.	1462.566	N/A	N/A

SECTION PROPERTIES	rx	ry	Sxx Top	Sxx Bot	Syy Left	Syy Right
GROSS	33.987	17.001	8337.753	8337.753	5448.067	3086.82

	Ax	Ay	Ixx	Iyy	J	x0	y0	Cw
GROSS	306.772	306.772	354354.488	88668.32	261.779	-38.302	0.	162014592.

RESISTANCE FACTORS	PhiTy	PhiTr	PhiC	PhiB	PhiBPipe	PhiV
	0.9	0.75	0.85	0.9	0.95	0.95

STRESS CHECK FORCES & MOMENTS

COMB. RATIO EQUATION - (H1.2-1)- GOVERNS THE DESIGN

	P/Pa	Mx/Max	My/May
COMB. RATIO	0.192	0.	0.
COMB. RATIO LIMIT	1.		

Combo	P	M33	M22	V2	V3
DEMANDS1.2D+1.	-2817.173	0.	0.	-15.35	-0.255
CAPACITIES	14707.767	1498951.5	942379.041	24067.68	22599.36
DEMAND/CAPACITY	0.192	0.	0.	0.	0.

EFFECTIVE WIDTH METHOD Applicability Limits
All limits are satisfied

AXIAL - TENSION		Area Ag	Area An	PhiTy*Yielding Tn		PhiTr*Rupture Tn		Phi*Tension Tn		
		306.772	306.772	96633.302		96633.302		96633.302		
AXIAL - COMPRESSION										
GLOBAL BUCKLING		Fcre	LambdaC	Fn	PhiC*Pne	Buckling Axes		Hole Effects		
Flex		68.68	2.257	60.232	15705.917	Geometric		Not Required		
Flex-Tor		64.315	2.333	56.404	14707.767	Geometric		Not Required		
		x0	y0	r0	beta	Sigma_ex	Sigma_ey	Sigma_t		
		-38.302	0.	53.955	0.496	1097.888	68.68	66.332		
LOCAL BUCKLING			Web	TopFlange	BotFlange	Lip	Corner	Total		
Stiffening Condition			S	P/S	P/S	U/S	N/A			
Hole Diameter, dh			0.	N/A	N/A	N/A	N/A			
Hole Length, Lh			0.	N/A	N/A	N/A	N/A			
w/t <= 0.328S			N/A	Yes	Yes	N/A	N/A			
S			N/A	N/A	N/A	N/A	N/A			
n			N/A	N/A	N/A	N/A	N/A			
Ia			N/A	N/A	N/A	N/A	N/A			
Is			N/A	N/A	N/A	N/A	N/A			
RI			N/A	N/A	N/A	N/A	N/A			
k			4.	N/A	N/A	0.43	N/A			
Fcr1			335.353	N/A	N/A	1969.937	N/A			
Lambda			0.41	N/A	N/A	0.169	N/A			
Rho			1.	N/A	N/A	1.	N/A			
Flat Width, w			75.4	35.4	35.4	10.2	N/A			
Effective Width, b			75.4	35.4	35.4	10.2	N/A			
Effective Area, Ae			120.64	56.64	56.64	32.64	40.212	306.772		
Global stress, Fn			56.404	56.404	56.404	56.404	56.404	56.404		
PhiC*Pnl			5783.914	2715.524	2715.524	1564.879	1927.926	14707.767**		
Hole at This Location			NO							
DISTORT. BUCKLING		Py	Pcrd	LambdaD	PhiC*Pnd	At hole				
		107370.335	157893.38	0.825	78782.119	NO				
		Fcrd	L	Lcrd	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg	
		514.692	369.087	369.087	1462.566	2269.527	1818.091	0.	6.755	
		Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf	
		92.16	78.643	1259.549	18960.647	2637.507	0.	16.35	-27.05	
									hyf(yof)	
									-1.75	
** INTERACTION BETWEEN MEMBER AND LOCAL BUCKLINGS governs AXIAL COMPRESSION CAPACITY										
FLEXURE										
YIELDING		Fy	Sfy	SfyNet	PhiB*My	PhiB*MyNet		At Hole		
Major		350.	8337.753	N/A	2626392.09	N/A		NO		
Minor		350.	3086.82	N/A	972348.299	N/A		NO		
GLOBAL BUCKLING		Fcre	Fn	Sf	PhiB*Mne	Buckling Axes		Hole Effects		
Major		199.903	199.754	8337.753	1498951.5**	Geometric		Not Required		
Minor		6774.7	350.	5448.067	1716141.06	Geometric		Not Required		
		Cb	Cs	CTF	j	Lu	Sigma_ex	Sigma_ey	Sigma_t	
Major		1.492	1.	1.	0.	N/A	1097.888	68.68	66.332	
Minor		1.317	1.	1.	53.991	N/A				
LOCAL BUCKLING		Ie	Eff. N.A.	Se	Set	PhiB*Mnl	PhiB*Set*Fy		At hole	
Major		354354.	42.5	8337.753	8337.753	1498951.5	2626392.091		NO	
Minor		81289.	17.828	4559.512	2991.679	1436246.24	942379.041**		NO	
EFFECTIVE WIDTH			Web	Top Web	Bot Web	TopFlange	BotFlange	Top Lip	Bot Lip	
Major										
Stiffening Condition			S	N/A	N/A	P/S	P/S	U/S	U/S	
Stress Condition			Grad	N/A	N/A	UniComp	Tension	Grad	Tension	
Buckling stress, Fn			199.754	N/A	N/A	199.754	199.754	199.754	199.754	
f1			-177.194	N/A	N/A	N/A	N/A	-177.194	129.253	
f2			177.194	N/A	N/A	N/A	N/A	-129.253	177.194	
f			-177.194	N/A	N/A	-199.754	199.754	-177.194	129.253	
Psi			1.	N/A	N/A	N/A	N/A	0.729	1.371	
w/t <= 0.328S			N/A	N/A	N/A	No	N/A	N/A	N/A	
S			N/A	N/A	N/A	41.105	N/A	N/A	N/A	
n			N/A	N/A	N/A	0.447	N/A	N/A	N/A	

Ia	N/A	N/A	N/A	24.305	N/A	N/A	N/A
Is	N/A	N/A	N/A	141.494	N/A	N/A	N/A
RI	N/A	N/A	N/A	1.	N/A	N/A	N/A
k	24.	N/A	N/A	3.131	N/A	0.54	N/A
Fcrl	2012.115	N/A	N/A	1190.996	N/A	2476.02	N/A
Lambda	0.297	N/A	N/A	0.41	N/A	0.268	N/A
Rho	1.	N/A	N/A	1.	N/A	1.	N/A
Flat Width, w	75.4	N/A	N/A	35.4	35.4	10.2	10.2
Effective Width, b (be)	75.4	N/A	N/A	35.4	35.4	10.2	10.2
Effective Width, b1	18.85	N/A	N/A	N/A	N/A	N/A	N/A
Effective Width, b2	37.7	N/A	N/A	N/A	N/A	N/A	N/A
ho/bo	1.889	N/A	N/A	N/A	N/A	N/A	N/A

Minor							
Stiffening Condition	S			S	S	U/S	U/S
Stress Condition	UniComp			Grad	Grad	Tension	Tension
Buckling stress, Fn	350.			350.	350.	350.	350.
f1	N/A			-167.82	-167.82	N/A	N/A
f2	N/A			288.171	288.171	N/A	N/A
f	-350.			-167.82	-167.82	350.	350.
Psi	N/A			1.717	1.717	N/A	N/A
k	4.			49.555	49.555	N/A	N/A
Fcrl	335.353			18847.963	18847.963	N/A	N/A
Lambda	1.022			0.094	0.094	N/A	N/A
Rho	0.768			1.	1.	N/A	N/A
Flat Width, w	75.4			35.4	35.4	10.2	10.2
Effective Width, b (be)	57.912			35.4	35.4	10.2	10.2
Effective Width, b1	N/A			7.505	7.505	N/A	N/A
Effective Width, b2	N/A			17.7	17.7	N/A	N/A
ho/bo	N/A			0.529	0.529	N/A	N/A

DISTORT. BUCKLING	My	Mcrd	LambdaD	PhiB*Mnd
2918213.435	6916731.4		0.65	2626392.09

Fcrd	L	Lcrd	Lm	kPhi_fe	kPhi_we	kPhi	kPhi_fg	kPhi_wg
829.568	333.556	333.556	1462.566	3278.317	2913.189	0.	8.271	0.253

beta	XiWeb	At hole
1.142	2.	NO

Af	Jf	Ixf	Iyf	Ixyf	Cwf	xof	hxf	hyf(yof)
92.16	78.643	1259.549	18960.647	2637.507	0.	16.35	-27.05	-1.75

** LATERAL-TORSIONAL BUCKLING governs MAJOR MOMENT CAPACITY

** INTERACTION between LOCAL BUCKLING and LTB (YIELDING) governs MINOR MOMENT CAPACITY

SHEAR	kv	Fcr	LambdaV	Vcr	Fy	Aw	Vy	PhiV*Vn	At Hole
Major	5.34	447.696	0.685	54010.001	350.	120.64	25334.4	24067.68	NO
Minor	5.34	2031.043	0.322	230076.502	350.	113.28	23788.8	22599.36	NO

S: Stiffened
U/S: Unstiffened
P/S: Partially Stiffened

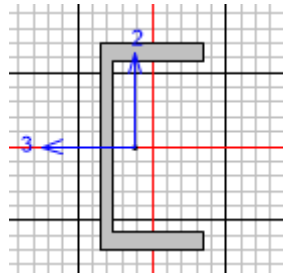
UniComp: Uniform Compression
Grad: Stress Gradient
None: No Stress

N/A: Not Applicable
N/C: Not Calculated
N/N: Not Needed

Stress Ratio Max = 0.192

Check design OK!

5.7 Design of Front Pile



ASCE 10-97 STEEL SECTION CHECK

Combo : 1.2D+0.3Sn+1.0Wa+
Units : N, mm, C

Frame : 50 Design Sect: UNP 120
X Mid : 2100. Design Type: Column
Y Mid : 5953.5 Frame Type : Braced Frame
Z Mid : 100. Sect Class : Non-Slender
Length : 200. Major Axis : 0. degrees counterclockwise from local 3
Loc : 0. RLLF : 1.

Area : 1744.5	SMajor : 62863.003	rMajor : 46.498	AVMajor: 818.79
IMajor : 3771780.19	SMinor : 13093.638	rMinor : 16.832	AVMinor: 934.705
IMinor : 494256.163	ZMajor : 75128.556	E : 205939.654	
Ixy : 0.	ZMinor : 23733.956	Fy : 235.36	

Frame : 469 Design Sect: UNP 100
X Mid : 0. Design Type: Column
Y Mid : 31090.5 Frame Type : Braced Frame
Z Mid : 200. Sect Class : Non-Slender
Length : 400. Major Axis : 0. degrees counterclockwise from local 3
Loc : 0. RLLF : 1.

Area : 1384.125	SMajor : 42527.705	rMajor : 39.195	AVMajor: 605.835
IMajor : 2126385.243	SMinor : 9994.988	rMinor : 15.52	AVMinor: 789.867
IMinor : 333405.093	ZMajor : 50645.259	E : 205939.654	
Ixy : 0.	ZMinor : 18019.685	Fy : 235.36	

STRESS CHECK FORCES & MOMENTS

Location	Pu	Mu33	Mu22	Vu2	Vu3	Tu
0.	-1593.107	-3363.192	268697.132	0.	0.	-81.285

PMM DEMAND/CAPACITY RATIO

Governing Equation	Total Ratio	P Ratio	MMajor Ratio	MMinor Ratio	Ratio Limit	Status Check
(3.12-1)	0.607	= 0.015	+ 0.	+ 0.592	1.	OK

AXIAL FORCE DESIGN

	Pu Force	Pac Capacity	Pat Capacity
Axial	1593.107	104436.987	325767.113

MOMENT DESIGN

	M Moment	Ma Capacity	Pe Capacity	Cm Factor	K Factor	L Factor	Cb Factor
Major Moment	3363.192	8335401.128	634823.398	1.	2.	3.262	1.
Minor Moment	268697.132	461112.05	104436.987	1.	1.671	3.81	

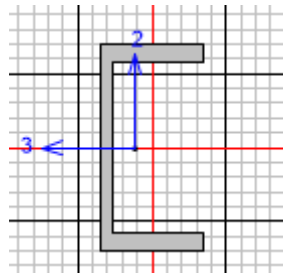
SHEAR DESIGN

	V Force	fv Stress	Fv Allowable	Stress Ratio	Status Check	T Torsion
Major Shear	-2.481	0.004	136.509	3.000E-05	OK	0.
Minor Shear	179.955	0.228	136.509	0.002	OK	0.

Stress Ratio Max = 0.607

Check design OK!

5.8 Design of Rear Pile



ASCE 10-97 STEEL SECTION CHECK

Combo : 1.2D+0.3Sn+1.0Wa+
Units : N, mm, C

Frame : 50 Design Sect: UNP 120
X Mid : 2100. Design Type: Column
Y Mid : 5953.5 Frame Type : Braced Frame
Z Mid : 100. Sect Class : Non-Slender
Length : 200. Major Axis : 0. degrees counterclockwise from local 3
Loc : 0. RLLF : 1.

Area : 1744.5	SMajor : 62863.003	rMajor : 46.498	AVMajor: 818.79
IMajor : 3771780.19	SMinor : 13093.638	rMinor : 16.832	AVMinor: 934.705
IMinor : 494256.163	ZMajor : 75128.556	E : 205939.654	
Ixy : 0.	ZMinor : 23733.956	Fy : 235.36	

STRESS CHECK FORCES & MOMENTS

Location	Pu	Mu33	Mu22	Vu2	Vu3	Tu
0.	-22352.388	2869892.787	104.665	0.	0.	449885.154

PMM DEMAND/CAPACITY RATIO

Governing Equation	Total Ratio	P Ratio	MMajor Ratio	MMinor Ratio	Ratio Limit	Status Check
(3.12-1)	0.693	= 0.418	+ 0.274	+ 0.	1.	OK

AXIAL FORCE DESIGN

	Pu Force	Pac Capacity	Pat Capacity
Axial	22352.388	53439.678	410584.831

MOMENT DESIGN

	M Moment	Ma Capacity	Pe Capacity	Cm Factor	K Factor	L Factor	Cb Factor
Major Moment	2869892.787	10493491.42	59169817.8	1.	2.	0.9	1.
Minor Moment	104.665	278625.554	53439.678	1.	1.671	12.97	

SHEAR DESIGN

	V Force	fv Stress	Fv Allowable	Stress Ratio	Status Check	T Torsion
Major Shear	13279.223	16.218	136.509	0.119	OK	0.
Minor Shear	0.04	4.317E-05	136.509	0.	OK	0.

Stress Ratio Max = 0.699

Check design OK!

5.9 Joint Reactions

TABLE: Joint Reactions

TABLE: Joint Reactions								
Joint	OutputCase	CaseType	F1	F2	F3	M1	M2	M3
Text	Text	Text	KN	KN	KN	KN-m	KN-m	KN-m
241	1.2D+0.3Sn	Combination	0.001288	0.00002258	1.085	-0.00003441	0.0022	9.941E-20
241	1.2D+1.0Sn+0.5Wa+	Combination	0.557	0.0002506	2.106	-0.0003819	0.1048	1.867E-17
241	1.2D+1.0Sn+0.5Wb+	Combination	0.477	0.0001509	3.243	-0.0002299	0.0934	2.368E-17
241	0.9D+1.0Wa-	Combination	-0.962	-0.0003471	-0.195	0.000529	-0.175	6.49E-18
241	0.9D+1.0Wb-	Combination	-0.903	-0.0004759	2.444	0.0007252	-0.1574	-1.292E-17
241	1.2D+0.3Sn+1.0Wa+	Combination	1.111	0.000442	1.89	-0.0006736	0.2049	3.725E-17
241	1.2D+0.3Sn+1.0Wb+	Combination	0.952	0.0002426	4.164	-0.0003697	0.1821	4.727E-17
241	1.2D+1.0EX+0.15Sn	Combination	0.077	0.00007822	0.558	-0.0001192	0.0134	-2.207E-19
241	1.2D+1.0EY+0.15Sn	Combination	-0.014	-0.18	1.042	0.2685	0.0002802	6.757E-20
241	0.6D+0.6Wa-	Combination	-0.577	-0.0002075	-0.076	0.0003163	-0.1049	3.899E-18
241	0.6D+0.6Wb-	Combination	-0.542	-0.0002848	1.507	0.000434	-0.0944	-7.744E-18
241	1.0D+0.6Wa+	Combination	0.667	0.0002639	1.166	-0.0004022	0.123	2.237E-17
241	1.0D+0.6Wb+	Combination	0.571	0.0001443	2.531	-0.0002199	0.1093	2.838E-17
242	1.2D+0.3Sn	Combination	0.001175	0.053	1.198	-0.022	0.0007814	-2.958E-09
242	1.2D+1.0Sn+0.5Wa+	Combination	-3.496	0.176	7.175	-0.0769	-0.9334	0.00008028
242	1.2D+1.0Sn+0.5Wb+	Combination	-2.969	0.127	5.134	-0.0546	-0.7709	0.00006911
242	0.9D+1.0Wa-	Combination	6.068	-0.148	-8.504	0.067	1.6201	-0.0001394
242	0.9D+1.0Wb-	Combination	5.748	-0.21	10.688	0.0954	1.582	-0.00013
242	1.2D+0.3Sn+1.0Wa+	Combination	-6.995	0.268	11.948	-0.1173	-1.8691	0.0001606
242	1.2D+0.3Sn+1.0Wb+	Combination	-5.942	0.169	7.867	-0.0728	-1.5439	0.0001383
242	1.2D+1.0EX+0.15Sn	Combination	-0.529	0.055	1.466	-0.0224	-0.1475	0.00001213
242	1.2D+1.0EY+0.15Sn	Combination	0.096	-1.729	-2.451	0.6308	0.0242	0.000002085
242	0.6D+0.6Wa-	Combination	3.641	-0.086	-5.055	0.0392	0.9721	-0.00008362
242	0.6D+0.6Wb-	Combination	3.449	-0.124	-6.366	0.0563	0.9492	-0.00007801
242	1.0D+0.6Wa+	Combination	-4.197	0.168	7.234	-0.0729	-1.1215	0.00009635
242	1.0D+0.6Wb+	Combination	-3.566	0.108	4.784	-0.0462	-0.9264	0.00008296
249	1.2D+0.3Sn	Combination	0.003267	0.00002213	1.758	-0.00003373	0.0038	4.102E-19
249	1.2D+1.0Sn+0.5Wa+	Combination	1.041	0.0001084	3.534	-0.0001652	0.2037	2.104E-17
249	1.2D+1.0Sn+0.5Wb+	Combination	0.887	0.00004567	5.656	-0.0000696	0.1792	6.456E-17
249	0.9D+1.0Wa-	Combination	-1.795	-0.0001041	-0.378	0.0001586	-0.3407	-7.806E-18
249	0.9D+1.0Wb-	Combination	-1.697	-0.0002116	4.502	0.0003224	-0.3114	-5.24E-17
249	1.2D+0.3Sn+1.0Wa+	Combination	2.075	0.0001596	3.06	-0.0002432	0.3985	4.103E-17
249	1.2D+0.3Sn+1.0Wb+	Combination	1.766	0.00003411	7.304	-0.00005198	0.3495	1.281E-16

249	1.2D+1.0EX+0.15Sn	Combination	0.132	0.00005255	0.862	-0.00008008	0.0252	1.598E-18
249	1.2D+1.0EY+0.15Sn	Combination	0.005661	-0.18	1.498	0.2686	0.0033	5.248E-19
249	0.6D+0.6Wa-	Combination	-1.077	-0.00006171	-0.163	0.00009404	-0.2043	-4.67E-18
249	0.6D+0.6Wb-	Combination	-1.018	-0.0001262	2.765	0.0001924	-0.1867	-3.143E-17
249	1.0D+0.6Wa+	Combination	1.245	0.00009466	1.844	-0.0001443	0.2391	2.46E-17
249	1.0D+0.6Wb+	Combination	1.06	0.00001936	4.391	-0.00002951	0.2096	7.682E-17
250	1.2D+0.3Sn	Combination	-0.005233	-0.043	1.835	0.0185	-	-1.344E-19
250	1.2D+1.0Sn+0.5Wa+	Combination	-6.351	-0.079	12.654	0.0436	-1.3714	-1.328E-16
250	1.2D+1.0Sn+0.5Wb+	Combination	-5.381	-0.06	8.964	0.0317	-1.1542	-2.478E-16
250	0.9D+1.0Wa-	Combination	10.994	0.018	-	-0.0226	2.3743	6.924E-16
250	0.9D+1.0Wb-	Combination	10.448	0.047	-	-0.0398	2.2729	5.141E-16
250	1.2D+0.3Sn+1.0Wa+	Combination	-12.688	-0.1	21.313	0.0598	-2.7405	-2.649E-16
250	1.2D+0.3Sn+1.0Wb+	Combination	-10.748	-0.063	13.931	0.036	-2.3061	-4.95E-16
250	1.2D+1.0EX+0.15Sn	Combination	-0.85	-0.041	2.254	0.0179	-0.1891	-1.167E-16
250	1.2D+1.0EY+0.15Sn	Combination	-0.025	-1.792	5.081	0.6554	-0.0075	8.028E-19
250	0.6D+0.6Wa-	Combination	6.596	0.009117	-9.324	-0.0127	1.4245	4.155E-16
250	0.6D+0.6Wb-	Combination	6.269	0.026	-	-0.023	1.3637	3.085E-16
250	1.0D+0.6Wa+	Combination	-7.613	-0.067	12.83	0.0386	-1.6443	-1.588E-16
250	1.0D+0.6Wb+	Combination	-6.449	-0.045	8.401	0.0243	-1.3836	-2.969E-16
255	1.2D+0.3Sn	Combination	0.00321	0.00001699	1.844	-0.00002589	0.004	4.278E-19
255	1.2D+1.0Sn+0.5Wa+	Combination	1.089	0.00005737	3.698	-0.00008743	0.2129	8.614E-17
255	1.2D+1.0Sn+0.5Wb+	Combination	0.929	0.00001462	5.909	-0.00002228	0.1875	4.889E-17
255	0.9D+1.0Wa-	Combination	-1.878	-0.00003498	-0.386	0.00005331	-0.3561	9.521E-18
255	0.9D+1.0Wb-	Combination	-1.773	-0.0001166	4.699	0.0001777	-0.325	-1.489E-17
255	1.2D+0.3Sn+1.0Wa+	Combination	2.17	0.00007048	3.198	-0.0001074	0.4165	1.709E-16
255	1.2D+0.3Sn+1.0Wb+	Combination	1.85	-0.00001503	7.621	0.0000229	0.3657	9.637E-17
255	1.2D+1.0EX+0.15Sn	Combination	0.138	0.00003753	0.913	-0.00005719	0.0267	6.714E-20
255	1.2D+1.0EY+0.15Sn	Combination	0.003035	-0.18	1.59	0.2687	0.0035	3.216E-19
255	0.6D+0.6Wa-	Combination	-1.127	-0.00002043	-0.164	0.00003113	-0.2135	5.724E-18
255	0.6D+0.6Wb-	Combination	-1.063	-0.00006942	2.887	0.0001058	-0.1949	-8.922E-18
255	1.0D+0.6Wa+	Combination	1.302	0.00004138	1.929	-0.00006306	0.2499	1.024E-16
255	1.0D+0.6Wb+	Combination	1.11	-	4.582	0.00001513	0.2194	5.775E-17
256	1.2D+0.3Sn	Combination	-0.004064	-0.00001897	1.844	0.00004922	-	-1.791E-19
256	1.2D+1.0Sn+0.5Wa+	Combination	-6.644	-0.00004448	13.235	0.0001154	-1.4356	-2.128E-16
256	1.2D+1.0Sn+0.5Wb+	Combination	-5.635	-0.00001712	9.351	0.0000444	-1.2094	1.072E-16
256	0.9D+1.0Wa-	Combination	11.509	0.000006739	-	-0.00001748	2.487	1.06E-15
256	0.9D+1.0Wb-	Combination	10.923	0.00006165	-	-0.0001599	2.3779	-5.637E-16
256	1.2D+0.3Sn+1.0Wa+	Combination	-13.279	-0.00004035	22.352	0.0001047	-2.8699	-4.256E-16
256	1.2D+0.3Sn+1.0Wb+	Combination	-11.261	0.00001438	14.585	-0.00003731	-2.4176	2.144E-16
256	1.2D+1.0EX+0.15Sn	Combination	-0.872	-0.00001094	2.28	0.00002837	-0.189	-1.686E-16
256	1.2D+1.0EY+0.15Sn	Combination	-0.005241	-0.023	1.606	0.0477	-	-3.509E-19

256	0.6D+0.6Wa-	Combination	6.905	0.000003413	-9.862	-	0.000008852	1.4921	6.359E-16
256	0.6D+0.6Wb-	Combination	6.554	0.00003636	-	12.348	-0.00009431	1.4267	-3.383E-16
256	1.0D+0.6Wa+	Combination	-7.968	-0.00002334	13.435	0.00006055	-1.7219	-2.554E-16	
256	1.0D+0.6Wb+	Combination	-6.757	0.000009495	8.775	-0.00002463	-1.4506	1.286E-16	
263	1.2D+0.3Sn	Combination	0.00298	0.00001258	1.826	-0.00001917	0.0039	2.736E-19	
263	1.2D+1.0Sn+0.5Wa+	Combination	1.081	0.00003124	3.646	-0.00004761	0.2113	-3.319E-17	
263	1.2D+1.0Sn+0.5Wb+	Combination	0.922	0.000001789	5.84	-	0.000002727	0.186	-3.225E-17
263	0.9D+1.0Wa-	Combination	-1.865	-0.00000633	-0.351	0.000009647	-0.3536	4.109E-17	
263	0.9D+1.0Wb-	Combination	-1.761	-0.00006675	4.687	0.0001017	-0.3229	-7.174E-17	
263	1.2D+0.3Sn+1.0Wa+	Combination	2.155	0.00002951	3.132	-0.00004497	0.4135	-6.722E-17	
263	1.2D+0.3Sn+1.0Wb+	Combination	1.836	-0.0000294	7.521	0.0000448	0.3629	-6.534E-17	
263	1.2D+1.0EX+0.15Sn	Combination	0.137	0.00002675	0.902	-0.00004077	0.0265	4.266E-18	
263	1.2D+1.0EY+0.15Sn	Combination	0.002979	-0.18	1.574	0.2687	0.0034	2.276E-19	
263	0.6D+0.6Wa-	Combination	-1.119	-	-0.144	0.000005163	-0.212	2.466E-17	
263	0.6D+0.6Wb-	Combination	-1.056	-0.00003964	2.878	0.00006041	-0.1936	-4.304E-17	
263	1.0D+0.6Wa+	Combination	1.293	0.000017	1.889	-0.00002591	0.2481	-4.037E-17	
263	1.0D+0.6Wb+	Combination	1.102	-0.00001835	4.522	0.00002796	0.2177	-3.924E-17	
264	1.2D+0.3Sn	Combination	-0.002808	-0.00001474	1.825	0.00003823	-	2.315E-19	
264	1.2D+1.0Sn+0.5Wa+	Combination	-6.597	-0.00004125	13.12	0.000107	-1.4253	2.984E-16	
264	1.2D+1.0Sn+0.5Wb+	Combination	-5.593	-0.0000184	9.27	0.00004773	-1.2005	-3.466E-16	
264	0.9D+1.0Wa-	Combination	11.43	0.00001678	-	-0.00004353	2.47	-9.108E-16	
264	0.9D+1.0Wb-	Combination	10.851	0.00006009	-	-0.0001559	2.3622	-1.221E-15	
264	1.2D+0.3Sn+1.0Wa+	Combination	-13.187	-0.00004471	22.163	0.000116	-2.8499	5.964E-16	
264	1.2D+0.3Sn+1.0Wb+	Combination	-11.18	9.826E-07	14.463	-	-2.4002	-6.937E-16	
264	1.2D+1.0EX+0.15Sn	Combination	-0.865	-	2.258	0.0000246	-0.1875	-6.848E-18	
264	1.2D+1.0EY+0.15Sn	Combination	-0.005028	-0.024	1.583	0.0494	-0.000813	1.258E-19	
264	0.6D+0.6Wa-	Combination	6.858	0.000009578	-9.781	-0.00002484	1.482	-5.465E-16	
264	0.6D+0.6Wb-	Combination	6.511	0.00003556	-	-0.00009225	1.4173	-7.324E-16	
264	1.0D+0.6Wa+	Combination	-7.912	-0.00002615	13.321	0.00006783	-1.7099	3.579E-16	
264	1.0D+0.6Wb+	Combination	-6.708	0.000001267	8.702	-	-1.4401	-4.162E-16	
271	1.2D+0.3Sn	Combination	0.00284	0.000008006	1.821	-0.0000122	0.0039	1.522E-19	
271	1.2D+1.0Sn+0.5Wa+	Combination	1.079	0.00002614	3.617	-0.00003984	0.2109	-4.096E-17	
271	1.2D+1.0Sn+0.5Wb+	Combination	0.92	0.00000494	5.805	-	0.1856	-1.647E-17	
271	0.9D+1.0Wa-	Combination	-1.862	-0.00001455	-0.321	0.00002218	-0.353	-6.43E-17	
271	0.9D+1.0Wb-	Combination	-1.758	-0.00005578	4.695	0.00008501	-0.3223	6.152E-17	
271	1.2D+0.3Sn+1.0Wa+	Combination	2.151	0.00003098	3.089	-0.00004722	0.4127	-8.231E-17	
271	1.2D+0.3Sn+1.0Wb+	Combination	1.833	-0.00001141	7.465	0.0000174	0.3622	-3.332E-17	
271	1.2D+1.0EX+0.15Sn	Combination	0.136	0.00001927	0.897	-0.00002936	0.0264	-6.88E-19	
271	1.2D+1.0EY+0.15Sn	Combination	0.002744	-0.18	1.57	0.2686	0.0034	1.261E-19	

271	0.6D+0.6Wa-	Combination	-1.117	-	0.000008473	-0.126	0.00001291	-0.2117	-3.857E-17
271	0.6D+0.6Wb-	Combination	-1.055	-0.00003321	2.883	0.00005061	-0.1933	3.692E-17	
271	1.0D+0.6Wa+	Combination	1.291	0.00001808	1.863	-0.00002756	0.2476	-4.939E-17	
271	1.0D+0.6Wb+	Combination	1.1	-	0.000007354	4.489	0.00001121	0.2173	-2E-17
272	1.2D+0.3Sn	Combination	-0.002001	-0.00001052	1.818	0.00002729	-	0.0001141	-4.23E-20
272	1.2D+1.0Sn+0.5Wa+	Combination	-6.584	-0.00003395	13.078	0.00008806	-1.4227	2.477E-16	
272	1.2D+1.0Sn+0.5Wb+	Combination	-5.583	-0.00001657	9.242	0.00004298	-1.1982	-1.628E-16	
272	0.9D+1.0Wa-	Combination	11.412	0.00001972	-	16.365	-0.00005116	2.4661	1.163E-15
272	0.9D+1.0Wb-	Combination	10.834	0.00005109	-	20.453	-0.0001325	2.3586	1.257E-15
272	1.2D+0.3Sn+1.0Wa+	Combination	-13.164	-0.00004088	22.096	0.000106	-2.8451	4.951E-16	
272	1.2D+0.3Sn+1.0Wb+	Combination	-11.161	-	0.000006117	14.424	0.00001587	-2.3961	-3.258E-16
272	1.2D+1.0EX+0.15Sn	Combination	-0.863	-	0.000007398	2.252	0.00001919	-0.1872	1.075E-16
272	1.2D+1.0EY+0.15Sn	Combination	-0.003623	-0.024	1.579	0.0507	-	0.0005129	2.272E-19
272	0.6D+0.6Wa-	Combination	6.847	0.00001148	-9.752	-0.00002979	1.4796	6.977E-16	
272	0.6D+0.6Wb-	Combination	6.501	0.0000303	-	12.205	-0.00007861	1.4151	7.541E-16
272	1.0D+0.6Wa+	Combination	-7.899	-0.00002403	13.281	0.00006235	-1.7071	2.97E-16	
272	1.0D+0.6Wb+	Combination	-6.696	-	0.000003179	8.678	0.000008245	-1.4376	-1.955E-16
279	1.2D+0.3Sn	Combination	0.003396	0.000003748	1.863	-	0.000005712	0.004	-1.789E-19
279	1.2D+1.0Sn+0.5Wa+	Combination	1.098	0.00003371	3.773	-0.00005137	0.2147	-1.552E-16	
279	1.2D+1.0Sn+0.5Wb+	Combination	0.936	0.00001749	6.006	-0.00002665	0.1891	-1.085E-16	
279	0.9D+1.0Wa-	Combination	-1.892	-0.00004354	-0.45	0.00006636	-0.359	2.086E-16	
279	0.9D+1.0Wb-	Combination	-1.786	-0.00006762	4.7	0.0001031	-0.3275	8.726E-17	
279	1.2D+0.3Sn+1.0Wa+	Combination	2.187	0.00005706	3.3	-0.00008696	0.4199	-3.098E-16	
279	1.2D+0.3Sn+1.0Wb+	Combination	1.864	0.00002461	7.767	-0.00003751	0.3688	-2.165E-16	
279	1.2D+1.0EX+0.15Sn	Combination	0.139	0.00001391	0.926	-0.0000212	0.027	-2.167E-17	
279	1.2D+1.0EY+0.15Sn	Combination	0.003106	-0.18	1.607	0.2686	0.0035	-1.53E-19	
279	0.6D+0.6Wa-	Combination	-1.135	-0.00002601	-0.202	0.00003964	-0.2152	1.252E-16	
279	0.6D+0.6Wb-	Combination	-1.071	-0.00004046	2.888	0.00006166	-0.1964	5.235E-17	
279	1.0D+0.6Wa+	Combination	1.312	0.00003393	1.989	-0.00005171	0.2519	-1.858E-16	
279	1.0D+0.6Wb+	Combination	1.119	0.00001446	4.67	-0.00002204	0.2213	-1.299E-16	
280	1.2D+0.3Sn	Combination	-0.005037	-	0.000006409	1.864	0.00001663	-0.000763	0
280	1.2D+1.0Sn+0.5Wa+	Combination	-6.697	-0.00002349	13.375	0.00006094	-1.4469	3.541E-16	
280	1.2D+1.0Sn+0.5Wb+	Combination	-5.681	-0.00001228	9.446	0.00003186	-1.2193	1.946E-16	
280	0.9D+1.0Wa-	Combination	11.596	0.00001683	-	16.718	-0.00004366	2.5059	-2.136E-15
280	0.9D+1.0Wb-	Combination	11.004	0.00003612	-	20.914	-0.00009369	2.3954	-6.21E-16
280	1.2D+0.3Sn+1.0Wa+	Combination	-13.382	-0.00003047	22.581	0.00007904	-2.892	7.076E-16	
280	1.2D+0.3Sn+1.0Wb+	Combination	-11.351	-	0.000008055	14.725	0.00002089	-2.4367	3.887E-16
280	1.2D+1.0EX+0.15Sn	Combination	-0.878	-	0.000004862	2.3	0.00001261	-0.1903	1.177E-16

280	1.2D+1.0EY+0.15Sn	Combination	-0.005522	-0.025	1.617	0.0517	-	0.0009157	-1.371E-19
280	0.6D+0.6Wa-	Combination	6.958	0.000009887	-9.962	-0.00002565	1.5035		-1.282E-15
280	0.6D+0.6Wb-	Combination	6.602	0.00002146	-12.48	-0.00005567	1.4372		-3.726E-16
280	1.0D+0.6Wa+	Combination	-8.029	-0.00001797	13.572	0.00004662	-1.7352		4.245E-16
280	1.0D+0.6Wb+	Combination	-6.81	-	8.858	0.00001173	-1.462		2.331E-16
287	1.2D+0.3Sn	Combination	0.003957	-	1.659	0.000003335	0.0038		3.498E-19
287	1.2D+1.0Sn+0.5Wa+	Combination	0.98	0.00005938	3.296	-0.00009049	0.1916		7.332E-17
287	1.2D+1.0Sn+0.5Wb+	Combination	0.834	0.00004493	5.294	-0.00006847	0.1683		5.735E-18
287	0.9D+1.0Wa-	Combination	-1.686	-0.0001097	-0.305	0.0001672	-0.3198		-2.745E-17
287	0.9D+1.0Wb-	Combination	-1.597	-0.0001148	4.28	0.000175	-0.2927		-2.02E-17
287	1.2D+0.3Sn+1.0Wa+	Combination	1.951	0.0001233	2.831	-0.0001879	0.3744		1.459E-16
287	1.2D+0.3Sn+1.0Wb+	Combination	1.659	0.00009442	6.828	-0.0001439	0.3279		1.072E-17
287	1.2D+1.0EX+0.15Sn	Combination	0.124	0.00001063	0.822	-0.0000162	0.024		7.761E-18
287	1.2D+1.0EY+0.15Sn	Combination	0.003475	-0.18	1.433	0.2685	0.0032		3.041E-19
287	0.6D+0.6Wa-	Combination	-1.012	-0.00006591	-0.122	0.0001004	-0.1917		-1.646E-17
287	0.6D+0.6Wb-	Combination	-0.958	-0.00006899	2.628	0.0001051	-0.1755		-1.211E-17
287	1.0D+0.6Wa+	Combination	1.171	0.00007391	1.71	-0.0001126	0.2246		8.754E-17
287	1.0D+0.6Wb+	Combination	0.995	0.00005656	4.109	-0.0000862	0.1967		6.439E-18
288	1.2D+0.3Sn	Combination	-0.01	-	1.673	0.000005074	-0.0019		-5.935E-19
288	1.2D+1.0Sn+0.5Wa+	Combination	-5.981	-0.00001385	11.93	0.00003592	-1.2919		-6.582E-16
288	1.2D+1.0Sn+0.5Wb+	Combination	-5.061	-	8.432	0.00002282	-1.0858		1.845E-17
288	0.9D+1.0Wa-	Combination	10.336	0.00001655	14.896	-0.00004294	2.2328		-3.22E-16
288	0.9D+1.0Wb-	Combination	9.839	0.00002322	18.628	-0.00006022	2.1412		-3.359E-17
288	1.2D+0.3Sn+1.0Wa+	Combination	-11.938	-0.0000225	20.146	0.00005836	-2.5793		-1.315E-15
288	1.2D+0.3Sn+1.0Wb+	Combination	-10.099	-0.0000124	13.149	0.00003216	-2.1671		3.842E-17
288	1.2D+1.0EX+0.15Sn	Combination	-0.79	-0.00000229	2.071	0.000005939	-0.1713		2.722E-17
288	1.2D+1.0EY+0.15Sn	Combination	-0.009309	-0.025	1.454	0.0522	-0.0018		-5.08E-19
288	0.6D+0.6Wa-	Combination	6.201	0.000009868	-8.876	-0.0000256	1.3396		-1.932E-16
288	0.6D+0.6Wb-	Combination	5.903	0.00001387	11.115	-0.00003597	1.2847		-2.017E-17
288	1.0D+0.6Wa+	Combination	-7.163	-0.00001338	12.113	0.0000347	-1.5475		-7.889E-16
288	1.0D+0.6Wb+	Combination	-6.059	-	7.915	0.00001898	-1.3003		2.308E-17
295	1.2D+0.3Sn	Combination	-	-4.776E-10	1.265	7.278E-10	0.0022		-8.951E-20
295	1.2D+1.0Sn+0.5Wa+	Combination	0.695	1.833E-07	2.527	-2.793E-07	0.1307		-5.839E-18
295	1.2D+1.0Sn+0.5Wb+	Combination	0.597	1.479E-07	3.931	-2.254E-07	0.1167		-4.223E-17
295	0.9D+1.0Wa-	Combination	-1.208	-	-0.277	4.861E-07	-0.2198		-2.514E-17
295	0.9D+1.0Wb-	Combination	-1.128	-3.188E-07	2.975	4.859E-07	-0.1969		1.193E-17
295	1.2D+0.3Sn+1.0Wa+	Combination	1.391	3.678E-07	2.232	-5.606E-07	0.2564		-1.184E-17
295	1.2D+0.3Sn+1.0Wb+	Combination	1.196	0.000000297	5.041	-4.527E-07	0.2285		-8.462E-17
295	1.2D+1.0EX+0.15Sn	Combination	0.087	2.774E-08	0.648	-4.227E-08	0.0159		1.942E-18
295	1.2D+1.0EY+0.15Sn	Combination	-0.000565	-0.18	1.099	0.2685	0.0019		-1.161E-19

295	0.6D+0.6Wa-	Combination	-0.725	-1.914E-07	-0.12	2.917E-07	-0.1318	-1.509E-17
295	0.6D+0.6Wb-	Combination	-0.677	-1.913E-07	1.831	2.915E-07	-0.1181	7.149E-18
295	1.0D+0.6Wa+	Combination	0.835	2.207E-07	1.357	-3.364E-07	0.1538	-7.167E-18
295	1.0D+0.6Wb+	Combination	0.718	1.782E-07	3.042	-2.716E-07	0.1371	-5.084E-17
296	1.2D+0.3Sn	Combination	0.015	-7.995E-11	1.26	2.074E-10	0.0047	1.099E-18
296	1.2D+1.0Sn+0.5Wa+	Combination	-4.355	-4.757E-09	8.561	1.234E-08	-1.1629	-2.08E-16
296	1.2D+1.0Sn+0.5Wb+	Combination	-3.711	-3.992E-09	6.073	1.036E-08	-0.9629	-4.23E-17
296	0.9D+1.0Wa-	Combination	7.608	7.964E-09	-10.539	-2.066E-08	2.0308	9.27E-16
296	0.9D+1.0Wb-	Combination	7.174	7.693E-09	13.194	-1.996E-08	1.9752	-6.608E-16
296	1.2D+0.3Sn+1.0Wa+	Combination	-8.747	-9.317E-09	14.39	2.417E-08	-2.3369	-4.182E-16
296	1.2D+0.3Sn+1.0Wb+	Combination	-7.459	-7.788E-09	9.415	2.02E-08	-1.937	-8.689E-17
296	1.2D+1.0EX+0.15Sn	Combination	-0.581	-7.19E-10	1.542	1.865E-09	-0.1565	9.113E-18
296	1.2D+1.0EY+0.15Sn	Combination	0.013	-0.025	1.102	0.0522	0.004	9.714E-19
296	0.6D+0.6Wa-	Combination	4.565	4.776E-09	-6.276	-1.239E-08	1.2186	5.563E-16
296	0.6D+0.6Wb-	Combination	4.305	4.613E-09	-7.869	-1.197E-08	1.1853	-3.964E-16
296	1.0D+0.6Wa+	Combination	-5.248	-5.588E-09	8.665	1.45E-08	-1.4022	-2.509E-16
296	1.0D+0.6Wb+	Combination	-4.476	-4.67E-09	5.68	1.211E-08	-1.1622	-5.209E-17
301	1.2D+0.3Sn	Combination	0.003957	0.000002188	1.659	-0.000003334	0.0038	1.095E-19
301	1.2D+1.0Sn+0.5Wa+	Combination	0.98	-0.00005901	3.296	0.00008993	0.1916	-4.765E-18
301	1.2D+1.0Sn+0.5Wb+	Combination	0.834	-0.00004463	5.294	0.00006801	0.1683	2.556E-17
301	0.9D+1.0Wa-	Combination	-1.686	0.0001091	-0.305	-0.0001662	-0.3198	-1.622E-17
301	0.9D+1.0Wb-	Combination	-1.597	0.0001142	4.28	-0.000174	-0.2927	3.293E-17
301	1.2D+0.3Sn+1.0Wa+	Combination	1.951	-0.0001226	2.831	0.0001868	0.3744	-9.495E-18
301	1.2D+0.3Sn+1.0Wb+	Combination	1.659	-0.00009382	6.828	0.000143	0.3279	5.115E-17
301	1.2D+1.0EX+0.15Sn	Combination	0.124	-0.00001057	0.822	0.00001611	0.024	-2.419E-18
301	1.2D+1.0EY+0.15Sn	Combination	0.003305	-0.18	1.434	0.2685	0.0032	1.119E-19
301	0.6D+0.6Wa-	Combination	-1.012	0.00006553	-0.122	-0.00009987	-0.1917	-9.726E-18
301	0.6D+0.6Wb-	Combination	-0.958	0.00006861	2.628	-0.0001046	-0.1755	1.977E-17
301	1.0D+0.6Wa+	Combination	1.171	-0.00007346	1.71	0.000112	0.2246	-5.646E-18
301	1.0D+0.6Wb+	Combination	0.995	-0.00005621	4.109	0.00008566	0.1967	3.074E-17
302	1.2D+0.3Sn	Combination	-0.01	0.000001956	1.673	-0.000005073	-0.0019	1.435E-19
302	1.2D+1.0Sn+0.5Wa+	Combination	-5.981	0.00001384	11.93	-0.0000359	-1.2919	-6.8E-16
302	1.2D+1.0Sn+0.5Wb+	Combination	-5.061	0.000008791	8.432	-0.0000228	-1.0858	-4.905E-17
302	0.9D+1.0Wa-	Combination	10.336	-0.00001654	-14.896	0.00004289	2.2328	-6.62E-16
302	0.9D+1.0Wb-	Combination	9.839	-0.0000232	18.628	0.00006018	2.1412	1.365E-15
302	1.2D+0.3Sn+1.0Wa+	Combination	-11.938	0.00002248	20.146	-0.00005831	-2.5793	-1.359E-15
302	1.2D+0.3Sn+1.0Wb+	Combination	-10.099	0.00001238	13.149	-0.00003212	-2.1671	-9.662E-17
302	1.2D+1.0EX+0.15Sn	Combination	-0.79	0.000002288	2.071	-0.000005936	-0.1713	-1.227E-17
302	1.2D+1.0EY+0.15Sn	Combination	-0.008258	-0.025	1.454	0.0521	-0.0015	3.252E-19
302	0.6D+0.6Wa-	Combination	6.201	-0.000009859	-8.876	0.00002557	1.3396	-3.972E-16
302	0.6D+0.6Wb-	Combination	5.903	-0.00001386	11.115	0.00003594	1.2847	8.191E-16

302	1.0D+0.6Wa+	Combination	-7.163	0.00001336	12.113	-0.00003467	-1.5475	-8.148E-16
302	1.0D+0.6Wb+	Combination	-6.059	0.000007306	7.915	-0.00001895	-1.3003	-5.765E-17
309	1.2D+0.3Sn	Combination	0.003396	-	1.863	0.000005714	0.004	4.964E-19
309	1.2D+1.0Sn+0.5Wa+	Combination	1.098	-0.00003334	3.773	0.00005081	0.2147	-5.713E-17
309	1.2D+1.0Sn+0.5Wb+	Combination	0.936	-0.00001719	6.006	0.00002619	0.1891	2.197E-17
309	0.9D+1.0Wa-	Combination	-1.892	0.0000429	-0.45	-0.00006538	-0.359	3.056E-17
309	0.9D+1.0Wb-	Combination	-1.786	0.00006698	4.7	-0.0001021	-0.3275	6.23E-17
309	1.2D+0.3Sn+1.0Wa+	Combination	2.187	-0.00005632	3.3	0.00008583	0.4199	-1.152E-16
309	1.2D+0.3Sn+1.0Wb+	Combination	1.864	-0.00002402	7.767	0.0000366	0.3688	4.297E-17
309	1.2D+1.0EX+0.15Sn	Combination	0.139	-0.00001385	0.926	0.00002111	0.027	-3.276E-18
309	1.2D+1.0EY+0.15Sn	Combination	0.002714	-0.18	1.609	0.2686	0.0034	4.438E-19
309	0.6D+0.6Wa-	Combination	-1.135	0.00002562	-0.202	-0.00003905	-0.2152	1.836E-17
309	0.6D+0.6Wb-	Combination	-1.071	0.00004007	2.888	-0.00006107	-0.1964	3.74E-17
309	1.0D+0.6Wa+	Combination	1.312	-0.00003349	1.989	0.00005103	0.2519	-6.912E-17
309	1.0D+0.6Wb+	Combination	1.119	-0.0000141	4.67	0.00002149	0.2213	2.581E-17
310	1.2D+0.3Sn	Combination	-0.005037	0.000006409	1.864	-0.00001662	-0.000763	-4.927E-20
310	1.2D+1.0Sn+0.5Wa+	Combination	-6.697	0.00002348	13.375	-0.00006091	-1.4469	1.138E-16
310	1.2D+1.0Sn+0.5Wb+	Combination	-5.681	0.00001228	9.446	-0.00003184	-1.2193	3.389E-16
310	0.9D+1.0Wa-	Combination	11.596	-0.00001682	-	0.00004362	2.5059	1.021E-15
310	0.9D+1.0Wb-	Combination	11.004	-0.0000361	-	0.00009365	2.3954	-9.733E-16
310	1.2D+0.3Sn+1.0Wa+	Combination	-13.382	0.00003045	22.581	-0.00007899	-2.892	2.28E-16
310	1.2D+0.3Sn+1.0Wb+	Combination	-11.351	0.000008039	14.725	-0.00002085	-2.4367	6.781E-16
310	1.2D+1.0EX+0.15Sn	Combination	-0.878	0.00000486	2.3	-0.00001261	-0.1903	-1.52E-16
310	1.2D+1.0EY+0.15Sn	Combination	-0.003094	-0.025	1.616	0.0516	-	-1.375E-19
310	0.6D+0.6Wa-	Combination	6.958	-	-9.962	0.00002562	1.5035	6.129E-16
310	0.6D+0.6Wb-	Combination	6.602	-0.00002145	-12.48	0.00005564	1.4372	-5.84E-16
310	1.0D+0.6Wa+	Combination	-8.029	0.00001796	13.572	-0.00004659	-1.7352	1.368E-16
310	1.0D+0.6Wb+	Combination	-6.81	0.000004515	8.858	-0.00001171	-1.462	4.069E-16
317	1.2D+0.3Sn	Combination	0.00284	-	1.821	0.0000122	0.0039	-1.354E-19
317	1.2D+1.0Sn+0.5Wa+	Combination	1.079	-0.00002577	3.617	0.00003927	0.2109	3.465E-17
317	1.2D+1.0Sn+0.5Wb+	Combination	0.92	-	5.805	0.000007069	0.1856	-3.959E-17
317	0.9D+1.0Wa-	Combination	-1.862	0.0000139	-0.321	-0.00002119	-0.353	1.932E-17
317	0.9D+1.0Wb-	Combination	-1.758	0.00005513	4.695	-0.00008402	-0.3223	6.527E-17
317	1.2D+0.3Sn+1.0Wa+	Combination	2.151	-0.00003023	3.089	0.00004607	0.4127	6.966E-17
317	1.2D+0.3Sn+1.0Wb+	Combination	1.833	0.00001202	7.465	-0.00001832	0.3622	-7.881E-17
317	1.2D+1.0EX+0.15Sn	Combination	0.136	-0.00001921	0.897	0.00002928	0.0264	-5.124E-18
317	1.2D+1.0EY+0.15Sn	Combination	0.00213	-0.18	1.573	0.2687	0.0033	-1.099E-19
317	0.6D+0.6Wa-	Combination	-1.117	0.000008083	-0.126	-0.00001232	-0.2117	1.159E-17
317	0.6D+0.6Wb-	Combination	-1.055	0.00003282	2.883	-0.00005002	-0.1933	3.916E-17
317	1.0D+0.6Wa+	Combination	1.291	-0.00001763	1.863	0.00002687	0.2476	4.181E-17
317	1.0D+0.6Wb+	Combination	1.1	0.000007717	4.489	-0.00001176	0.2173	-4.728E-17

318	1.2D+0.3Sn	Combination	-0.002001	0.00001052	1.818	-0.00002729	-	7.484E-20
318	1.2D+1.0Sn+0.5Wa+	Combination	-6.584	0.00003394	13.078	-0.00008804	0.0001141	-8.414E-16
318	1.2D+1.0Sn+0.5Wb+	Combination	-5.583	0.00001656	9.242	-0.00004296	-1.1982	-1.475E-16
318	0.9D+1.0Wa-	Combination	11.412	-0.00001971	-	0.00005112	2.4661	-7.387E-16
318	0.9D+1.0Wb-	Combination	10.834	-0.00005107	16.365	0.0001325	2.3586	-4.132E-16
318	1.2D+0.3Sn+1.0Wa+	Combination	-13.164	0.00004086	20.453	-0.000106	-2.8451	-1.683E-15
318	1.2D+0.3Sn+1.0Wb+	Combination	-11.161	0.000006102	22.096	-0.00001583	-2.3961	-2.951E-16
318	1.2D+1.0EX+0.15Sn	Combination	-0.863	0.000007397	14.424	-0.00001919	-0.1872	-1.193E-16
318	1.2D+1.0EY+0.15Sn	Combination	0.000173	-0.024	2.252	0.0507	0.0003123	3.021E-19
318	0.6D+0.6Wa-	Combination	6.847	-0.00001147	1.576	0.00002976	1.4796	-4.432E-16
318	0.6D+0.6Wb-	Combination	6.501	-0.00003029	-9.752	0.00007858	1.4151	-2.479E-16
318	1.0D+0.6Wa+	Combination	-7.899	0.00002402	12.205	-0.00006232	-1.7071	-1.01E-15
318	1.0D+0.6Wb+	Combination	-6.696	0.000003169	13.281	-	-1.4376	-1.77E-16
325	1.2D+0.3Sn	Combination	0.00298	-0.00001258	8.678	0.000008221	0.0039	1.543E-19
325	1.2D+1.0Sn+0.5Wa+	Combination	1.081	-0.00003086	1.826	0.00001917	0.2113	6.047E-17
325	1.2D+1.0Sn+0.5Wb+	Combination	0.922	-	3.646	0.00004704	0.186	4.119E-17
325	0.9D+1.0Wa-	Combination	-1.865	0.000001482	5.84	0.000002259	-	-5.033E-17
325	0.9D+1.0Wb-	Combination	-1.761	0.000005668	-0.351	0.000008639	-0.3536	-1.119E-16
325	1.2D+0.3Sn+1.0Wa+	Combination	2.155	-0.00006609	4.687	-0.0001007	0.4135	1.206E-16
325	1.2D+0.3Sn+1.0Wb+	Combination	1.836	-0.00002875	3.132	0.00004381	0.3629	8.199E-17
325	1.2D+1.0EX+0.15Sn	Combination	0.137	0.00003001	7.521	0.00004574	0.0265	-8.078E-18
325	1.2D+1.0EY+0.15Sn	Combination	0.002128	-0.0000267	0.902	0.00004068	0.0033	1.392E-19
325	0.6D+0.6Wa-	Combination	-1.119	-0.18	1.579	0.2687	-0.212	-3.019E-17
325	0.6D+0.6Wb-	Combination	-1.056	0.000002991	-0.144	0.000004558	-0.1936	-6.716E-17
325	1.0D+0.6Wa+	Combination	1.293	0.00003924	2.878	0.0000598	0.2481	7.233E-17
325	1.0D+0.6Wb+	Combination	1.102	-0.00001654	1.889	0.00002521	0.2177	4.919E-17
326	1.2D+0.3Sn	Combination	-0.002808	0.00001872	4.522	-0.00002852	-	-7.216E-20
326	1.2D+1.0Sn+0.5Wa+	Combination	-6.597	0.00001474	1.825	-0.00003823	0.0002874	-3.245E-16
326	1.2D+1.0Sn+0.5Wb+	Combination	-5.593	0.00004124	13.12	-0.00004771	-1.2005	-3.379E-16
326	0.9D+1.0Wa-	Combination	11.43	-0.00001839	9.27	0.00004348	2.47	-6.697E-16
326	0.9D+1.0Wb-	Combination	10.851	-0.00001676	16.414	0.0001558	2.3622	-9.837E-17
326	1.2D+0.3Sn+1.0Wa+	Combination	-13.187	-0.00006007	20.519	-0.0001159	-2.8499	-6.487E-16
326	1.2D+0.3Sn+1.0Wb+	Combination	-11.18	0.00004469	22.163	0.000002588	-2.4002	-6.754E-16
326	1.2D+1.0EX+0.15Sn	Combination	-0.865	-9.978E-07	14.463	-0.00002459	-0.1875	-6.461E-17
326	1.2D+1.0EY+0.15Sn	Combination	0.0002338	0.000009481	2.258	0.0494	0.0003238	-1.471E-19
326	0.6D+0.6Wa-	Combination	6.858	-0.024	1.584	0.00002482	1.482	-4.018E-16
326	0.6D+0.6Wb-	Combination	6.511	0.000009568	-9.781	0.00009222	1.4173	-5.902E-17
326	1.0D+0.6Wa+	Combination	-7.912	-0.00003555	12.244	-0.0000678	-1.7099	-3.892E-16
326	1.0D+0.6Wb+	Combination	-6.708	0.00002614	13.321	0.00000331	-1.4401	-4.052E-16

333	1.2D+0.3Sn	Combination	0.00321	-0.00001699	1.844	0.00002589	0.004	-6.057E-20
333	1.2D+1.0Sn+0.5Wa+	Combination	1.089	-0.00005698	3.698	0.00008684	0.2129	-2.965E-17
333	1.2D+1.0Sn+0.5Wb+	Combination	0.929	-0.0000143	5.909	0.0000218	0.1875	-1.349E-17
333	0.9D+1.0Wa-	Combination	-1.878	0.0000343	-0.386	-0.00005227	-0.3561	-3.18E-17
333	0.9D+1.0Wb-	Combination	-1.773	0.000116	4.699	-0.0001767	-0.325	2.625E-17
333	1.2D+0.3Sn+1.0Wa+	Combination	2.17	-0.0000697	3.198	0.0001062	0.4165	-5.908E-17
333	1.2D+0.3Sn+1.0Wb+	Combination	1.85	0.00001566	7.621	-0.00002387	0.3657	-2.676E-17
333	1.2D+1.0EX+0.15Sn	Combination	0.138	-0.00003747	0.913	0.0000571	0.0267	-5.093E-18
333	1.2D+1.0EY+0.15Sn	Combination	0.002481	-0.18	1.593	0.2687	0.0034	-3.918E-20
333	0.6D+0.6Wa-	Combination	-1.127	0.00002002	-0.164	-0.00003052	-0.2135	-1.908E-17
333	0.6D+0.6Wb-	Combination	-1.063	0.00006902	2.887	-0.0001052	-0.1949	1.575E-17
333	1.0D+0.6Wa+	Combination	1.302	-0.00004091	1.929	0.00006234	0.2499	-3.543E-17
333	1.0D+0.6Wb+	Combination	1.11	0.0000103	4.582	-0.0000157	0.2194	-1.604E-17
334	1.2D+0.3Sn	Combination	-0.004064	0.00001897	1.844	-0.00004921	-	-1.502E-19
334	1.2D+1.0Sn+0.5Wa+	Combination	-6.644	0.00004447	13.235	-0.0001154	-1.4356	-6.885E-16
334	1.2D+1.0Sn+0.5Wb+	Combination	-5.635	0.00001711	9.351	-0.00004438	-1.2094	2.87E-16
334	0.9D+1.0Wa-	Combination	11.509	-	-	0.00001744	2.487	-7.158E-16
334	0.9D+1.0Wb-	Combination	10.923	-0.00006163	-	0.0001599	2.3779	-1.023E-16
334	1.2D+0.3Sn+1.0Wa+	Combination	-13.279	0.00004033	22.352	-0.0001046	-2.8699	-1.376E-15
334	1.2D+0.3Sn+1.0Wb+	Combination	-11.261	-0.0000144	14.585	0.00003734	-2.4176	5.747E-16
334	1.2D+1.0EX+0.15Sn	Combination	-0.872	0.00001093	2.28	-0.00002836	-0.189	1.14E-16
334	1.2D+1.0EY+0.15Sn	Combination	-0.001799	-0.023	1.594	0.0476	-	-1.134E-19
334	0.6D+0.6Wa-	Combination	6.905	-	-	0.000008829	1.4922	-4.295E-16
334	0.6D+0.6Wb-	Combination	6.554	0.000003404	-9.862	0.00009429	1.4267	-6.136E-17
334	1.0D+0.6Wa+	Combination	-7.968	-0.00003635	12.348	-0.00006052	-1.7219	-8.258E-16
334	1.0D+0.6Wb+	Combination	-6.757	0.00002333	13.435	0.00002465	-1.4506	3.449E-16
341	1.2D+0.3Sn	Combination	0.003267	-0.00002213	1.758	0.00003373	0.0038	2.933E-19
341	1.2D+1.0Sn+0.5Wa+	Combination	1.041	-0.000108	3.534	0.0001646	0.2037	-2.399E-17
341	1.2D+1.0Sn+0.5Wb+	Combination	0.887	-0.00004535	5.656	0.00006911	0.1792	1.564E-17
341	0.9D+1.0Wa-	Combination	-1.795	0.0001034	-0.378	-0.0001575	-0.3407	-5.256E-17
341	0.9D+1.0Wb-	Combination	-1.697	0.0002109	4.502	-0.0003214	-0.3114	-5.978E-17
341	1.2D+0.3Sn+1.0Wa+	Combination	2.075	-0.0001588	3.06	0.000242	0.3985	-4.881E-17
341	1.2D+0.3Sn+1.0Wb+	Combination	1.766	-0.00003345	7.304	0.00005098	0.3495	3.046E-17
341	1.2D+1.0EX+0.15Sn	Combination	0.132	-0.00005248	0.862	0.00007999	0.0252	8.649E-19
341	1.2D+1.0EY+0.15Sn	Combination	-	-0.18	1.537	0.2687	0.0032	1.629E-19
341	0.6D+0.6Wa-	Combination	0.0001104	-1.077	0.00006129	-0.163	-0.0000934	-3.153E-17
341	0.6D+0.6Wb-	Combination	-1.018	0.0001258	2.765	-0.0001917	-0.1867	-3.586E-17
341	1.0D+0.6Wa+	Combination	1.245	-0.00009418	1.844	0.0001435	0.2391	-2.931E-17
341	1.0D+0.6Wb+	Combination	1.06	-0.00001897	4.391	0.00002891	0.2096	1.825E-17
342	1.2D+0.3Sn	Combination	-0.005233	0.043	1.835	-0.0185	-	-1.193E-19
342	1.2D+1.0Sn+0.5Wa+	Combination	-6.351	0.079	12.654	-0.0436	0.0008538	8.705E-16

342	1.2D+1.0Sn+0.5Wb+	Combination	-5.381	0.06	8.964	-0.0317	-1.1542	-4.778E-16
342	0.9D+1.0Wa-	Combination	10.994	-0.018	-	0.0226	2.3743	1.126E-15
342	0.9D+1.0Wb-	Combination	10.448	-0.047	-	0.0398	2.273	3.782E-16
342	1.2D+0.3Sn+1.0Wa+	Combination	-12.689	0.1	21.313	-0.0598	-2.7406	1.74E-15
342	1.2D+0.3Sn+1.0Wb+	Combination	-10.748	0.063	13.931	-0.036	-2.3062	-9.561E-16
342	1.2D+1.0EX+0.15Sn	Combination	-0.85	0.041	2.254	-0.0179	-0.1891	-3.915E-17
342	1.2D+1.0EY+0.15Sn	Combination	0.017	-1.71	-1.874	0.6203	0.0061	2.374E-18
342	0.6D+0.6Wa-	Combination	6.597	-0.009115	-9.324	0.0127	1.4246	6.756E-16
342	0.6D+0.6Wb-	Combination	6.269	-0.026	-	0.023	1.3637	2.269E-16
342	1.0D+0.6Wa+	Combination	-7.613	0.067	12.83	-0.0386	-1.6443	1.044E-15
342	1.0D+0.6Wb+	Combination	-6.449	0.045	8.401	-0.0243	-1.3837	-5.738E-16
349	1.2D+0.3Sn	Combination	0.001288	-0.00002258	1.085	0.00003441	0.0022	7.906E-20
349	1.2D+1.0Sn+0.5Wa+	Combination	0.557	-0.0002502	2.106	0.0003812	0.1049	-2.804E-18
349	1.2D+1.0Sn+0.5Wb+	Combination	0.477	-0.0001505	3.243	0.0002294	0.0934	-7.683E-18
349	0.9D+1.0Wa-	Combination	-0.962	0.0003464	-0.196	-0.0005279	-0.175	7.262E-18
349	0.9D+1.0Wb-	Combination	-0.903	0.0004752	2.443	-0.0007242	-0.1574	-1.63E-17
349	1.2D+0.3Sn+1.0Wa+	Combination	1.111	-0.0004411	1.89	0.0006723	0.2049	-5.729E-18
349	1.2D+0.3Sn+1.0Wb+	Combination	0.952	-0.0002419	4.164	0.0003687	0.1821	-1.549E-17
349	1.2D+1.0EX+0.15Sn	Combination	0.077	-0.00007816	0.559	0.0001191	0.0134	1.619E-18
349	1.2D+1.0EY+0.15Sn	Combination	0.016	-0.18	0.863	0.2686	0.0041	-1.239E-19
349	0.6D+0.6Wa-	Combination	-0.577	0.0002071	-0.076	-0.0003156	-0.1049	4.361E-18
349	0.6D+0.6Wb-	Combination	-0.542	0.0002844	1.507	-0.0004334	-0.0944	-9.777E-18
349	1.0D+0.6Wa+	Combination	0.667	-0.0002634	1.166	0.0004015	0.123	-3.426E-18
349	1.0D+0.6Wb+	Combination	0.571	-0.0001439	2.531	0.0002193	0.1093	-9.281E-18
350	1.2D+0.3Sn	Combination	0.001175	-0.053	1.198	0.022	0.0007814	-5.646E-08
350	1.2D+1.0Sn+0.5Wa+	Combination	-3.495	-0.176	7.175	0.0769	-0.9335	0.00009644
350	1.2D+1.0Sn+0.5Wb+	Combination	-2.969	-0.127	5.134	0.0546	-0.7709	0.00008099
350	0.9D+1.0Wa-	Combination	6.068	0.148	-8.504	-0.067	1.6202	-0.0001674
350	0.9D+1.0Wb-	Combination	5.748	0.21	-	-0.0954	1.5822	-0.0001606
350	1.2D+0.3Sn+1.0Wa+	Combination	-6.995	-0.268	11.948	0.1173	-1.8693	0.0001931
350	1.2D+0.3Sn+1.0Wb+	Combination	-5.942	-0.169	7.866	0.0728	-1.544	0.0001622
350	1.2D+1.0EX+0.15Sn	Combination	-0.529	-0.055	1.466	0.0224	-0.1476	0.0000146
350	1.2D+1.0EY+0.15Sn	Combination	-0.095	-1.829	4.588	0.6718	-0.023	0.000002697
350	0.6D+0.6Wa-	Combination	3.641	0.086	-5.055	-0.0392	0.9722	-0.0001005
350	0.6D+0.6Wb-	Combination	3.449	0.124	-6.366	-0.0563	0.9493	-0.00009635
350	1.0D+0.6Wa+	Combination	-4.197	-0.168	7.233	0.0729	-1.1216	0.0001158
350	1.0D+0.6Wb+	Combination	-3.565	-0.108	4.784	0.0462	-0.9265	0.0000973

ASD(SLS)				
Combination	Compression/kN	Tension/KN	Lateral/KN	Moment/KN • m
1.0D+0.6Wa(+)	13.57		-8.03	-1.74
0.6D+0.6Wb(-)		-12.48	6.60	1.44