

STRUCTURAL CALCULATIONS

FOR

27' Full Snow and Wind Yurt

11150 Pine Meadows Road
Colorado Springs, CO 80908

September 9, 2020

PROJECT ENGINEER: Sawyer Zimmerman, E.I.
REVIEW ENGINEER: Samuel H. Schneiders, P.E.
PROJECT NUMBER: 200040



Digitally signed by SAMUEL H. SCHNEIDERS
DN: c=US,
E=sam.schneiders@anchoreng.com,
O=ANCHOR ENGINEERING, INC.,
CN=SAMUEL H. SCHNEIDERS
Reason: I am the author of this document
Date: 2020.09.09 16:11:52-0600



September 9, 2020

Colorado Yurt Company
28 W. South 4th St.
Montrose, CO 81401

Attn: Mike Miller, President

Project Reference: 27' Full Snow and Wind Yurt
11150 Pine Meadows Road
Colorado Springs, CO 80908

Dear Mr. Miller:

As per your request, we are providing this letter to summarize the results of our analysis of the 27' Full Snow and Wind Yurt to be located in Colorado Springs, CO.

Referring to the structural calculations, appended with this letter, the yurt has been found to be capable of supporting the following design loads while meeting the requirements of the Pike Peak Regional Building Code, 2015 International Building Code (IBC 2015), and the 2010 American Society of Civil Engineers – Minimum Design Loads for Buildings and Other Structures (ASCE 7-10):

Design Loads:

- Occupancy or Risk Category = II
- Maximum Sloped Roof Snow Load, p_s , = 40 psf
 - Per ASCE 7, "snow loads acting on a sloping surface shall be assumed to act on the horizontal projection of that surface."
 - Equivalent ground snow loads may be reverse calculated from the equations given in ASCE 7.
- Design Wind Speed, V_{ult} , = 130 mph, Exposure C
 - Using Simplified or Directional Design Method (ASD):
 - Maximum Roof Suction = -8.7 psf (acting away from surface)
 - Maximum Roof Pressure = 13.4 psf (acting towards surface)
 - Maximum Wall Suction = -6.5 psf (acting away from surface)
 - Maximum Wall Pressure = 24.4 psf (acting towards surface)

If you have any questions or need additional information, please notify our office.

Sincerely,
Anchor Engineering, Inc.



A handwritten signature in blue ink, appearing to read "Sawyer Zimmerman".

Sawyer Zimmerman, E.I.
Design Engineer

Samuel H. Schneiders, P.E.
Project Engineer

Structural Design Assumptions

Company

Address
 City, State
 Phone

JOB TITLE 11150 Pine Meadows

Colorado Springs, CO

JOB NO. 200040

SHEET NO. _____

CALCULATED BY SHS

DATE _____

CHECKED BY _____

DATE _____

www.struware.com

Code Search**Code:** International Building Code 2015**Occupancy:**

Occupancy Group = R Residential

Risk Category & Importance Factors:

Risk Category = II

Wind factor = 1.00

Snow factor = 1.00

Seismic factor = 1.00

Type of Construction:

Fire Rating:

Roof = 0.0 hr

Floor = 0.0 hr

Building Geometry:Roof angle (θ) 7.00 / 12 30.3 deg

Building length (L) 30.0 ft

Least width (B) 30.0 ft

Mean Roof Ht (h) 11.5 ft

Parapet ht above grd 0.0 ft

Minimum parapet ht 0.0 ft

Live Loads:**Roof** 0 to 200 sf: 17 psf

200 to 600 sf: 20.4 - 0.017Area, but not less than 12 psf

over 600 sf: 12 psf

Floor:

Typical Floor N/A

Partitions N/A

Partitions N/A

Partitions N/A

Partitions N/A

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Colorado Springs, CO

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DATE

Wind Loads :

ASCE 7- 10

Ultimate Wind Speed 130 mph
Nominal Wind Speed 100.7 mph
Risk Category II
Exposure Category C
Enclosure Classif. Enclosed Building
Internal pressure +/-0.18
Directionality (Kd) 0.85
Kh case 1 0.849
Kh case 2 0.849

Type of roof Hip
Code doesn't provide data for hip roofs with angles
≤7 deg or >27 deg. Gable values will be shown.

Topographic Factor (Kzt)

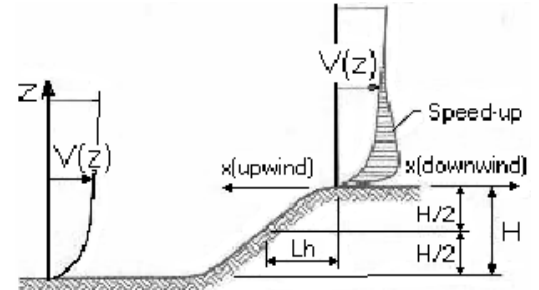
Topography Flat
Hill Height (H) 0.0 ft
Half Hill Length (Lh) 0.0 ft
Actual H/Lh = 0.00
Use H/Lh = 0.00
Modified Lh = 0.0 ft
From top of crest: x = 0.0 ft
Bldg up/down wind? downwind

H/Lh = 0.00 K₁ = 0.000
x/Lh = 0.00 K₂ = 0.000
z/Lh = 0.00 K₃ = 1.000

At Mean Roof Ht:

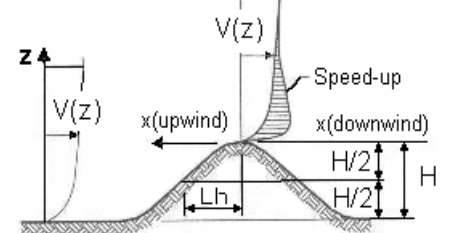
$K_{zt} = (1+K_1K_2K_3)^2 = 1.00$

use 1.10



H < 15ft; exp C
∴ Kzt=1.0

ESCARPMENT



2D RIDGE or 3D AXISYMMETRICAL HILL

Gust Effect Factor

h = 11.5 ft
B = 30.0 ft
/z (0.6h) = 15.0 ft

Flexible structure if natural frequency < 1 Hz (T > 1 second).

However, if building h/B < 4 then probably rigid structure (rule of thumb).

h/B = 0.38 Rigid structure

G = 0.85 Using rigid structure default

Rigid Structure

$\bar{e} = 0.20$
 $\ell = 500$ ft
 $Z_{min} = 15$ ft
c = 0.20
 $g_Q, g_v = 3.4$
 $L_z = 427.1$ ft
Q = 0.93
 $I_z = 0.23$
G = 0.89 use G = 0.85

Flexible or Dynamically Sensitive Structure

Natural Frequency (η_1) = 0.0 Hz
Damping ratio (β) = 0
/b = 0.65
/α = 0.15
 $V_z = 109.8$
 $N_1 = 0.00$
 $R_n = 0.000$
 $R_n = 28.282$ η = 0.000 h = 11.5 ft
 $R_B = 28.282$ η = 0.000
 $R_L = 28.282$ η = 0.000
 $g_R = 0.000$
R = 0.000
G = 0.000

Company

Address
City, State
Phone

JOB TITLE 11150 Pine Meadows

Colorado Springs, CO

JOB NO. 200040

SHEET NO.

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Enclosure Classification

Test for Enclosed Building: A building that does not qualify as open or partially enclosed.

Test for Open Building: All walls are at least 80% open.
 $A_o \geq 0.8A_g$

Test for Partially Enclosed Building:

	Input		Test	
Ao	<input type="text"/>	sf	$A_o \geq 1.1A_{oi}$	NO
Ag	0.0	sf	$A_o > 4'$ or $0.01A_g$	
Aoi	0.0	sf	$A_{oi} / A_{gi} \leq 0.20$	
Agi	0.0	sf		
ERROR: Must enter value in all cells				

Building is NOT Partially Enclosed

Conditions to qualify as Partially Enclosed Building. Must satisfy all of the following:

- $A_o \geq 1.1A_{oi}$
- $A_o >$ smaller of 4' or $0.01 A_g$
- $A_{oi} / A_{gi} \leq 0.20$

Where:

- A_o = the total area of openings in a wall that receives positive external pressure.
- A_g = the gross area of that wall in which A_o is identified.
- A_{oi} = the sum of the areas of openings in the building envelope (walls and roof) not including A_o .
- A_{gi} = the sum of the gross surface areas of the building envelope (walls and roof) not including A_g .

Reduction Factor for large volume partially enclosed buildings (Ri) :

If the partially enclosed building contains a single room that is unpartitioned , the internal pressure coefficient may be multiplied by the reduction factor Ri.

Total area of all wall & roof openings (Aog):	0 sf
Unpartitioned internal volume (Vi) :	0 cf
Ri =	1.00

Altitude adjustment to constant 0.00256 (caution - see code) :

Altitude =	0 feet	Average Air Density =	0.0765 lbm/ft ³
Constant =	0.00256		

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Wind Loads - MWFRS $h \leq 60'$ (Low-rise Buildings) Enclosed/partially enclosed only

$K_z = K_h$ (case 1) = 0.85
Base pressure (qh) = **34.3 psf**
GCpi = +/-0.18

Edge Strip (a) = 3.0 ft
End Zone (2a) = 6.0 ft
Zone 2 length = 15.0 ft

Wind Pressure Coefficients

Surface	CASE A			CASE B		
	GCpf	$\theta = 30.3 \text{ deg}$ w/-GCpi	w/+GCpi	GCpf	w/-GCpi	w/+GCpi
1	0.56	0.74	0.38	-0.45	-0.27	-0.63
2	0.21	0.39	0.03	-0.69	-0.51	-0.87
3	-0.43	-0.25	-0.61	-0.37	-0.19	-0.55
4	-0.37	-0.19	-0.55	-0.45	-0.27	-0.63
5				0.40	0.58	0.22
6				-0.29	-0.11	-0.47
1E	0.69	0.87	0.51	-0.48	-0.30	-0.66
2E	0.27	0.45	0.09	-1.07	-0.89	-1.25
3E	-0.53	-0.35	-0.71	-0.53	-0.35	-0.71
4E	-0.48	-0.30	-0.66	-0.48	-0.30	-0.66
5E				0.61	0.79	0.43
6E				-0.43	-0.25	-0.61

Ultimate Wind Surface Pressures (psf)

1		25.4	13.0		-9.3	-21.6
2		13.4	1.0		-17.5	-29.9
3		-8.6	-20.9		-6.5	-18.9
4		-6.5	-18.9		-9.3	-21.6
5					19.9	7.6
6					-3.8	-16.1
1E		29.9	17.5		-10.3	-22.7
2E		15.5	3.1		-30.6	-42.9
3E		-12.0	-24.4		-12.0	-24.4
4E		-10.3	-22.7		-10.3	-22.7
5E					27.1	14.8
6E					-8.6	-20.9

Parapet

Windward parapet = 0.0 psf (GCpn = +1.5)
Leeward parapet = 0.0 psf (GCpn = -1.0)

Windward roof overhangs = 24.0 psf (upward) add to windward roof pressure

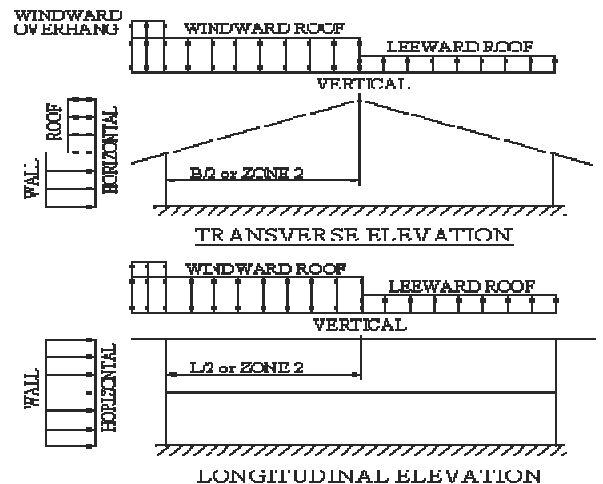
Horizontal MWFRS Simple Diaphragm Pressures (psf)

Transverse direction (normal to L)

Interior Zone: Wall 31.9 psf
Roof 22.0 psf
End Zone: Wall 40.2 psf
Roof 27.5 psf

Longitudinal direction (parallel to L)

Interior Zone: Wall 23.7 psf
End Zone: Wall 35.7 psf



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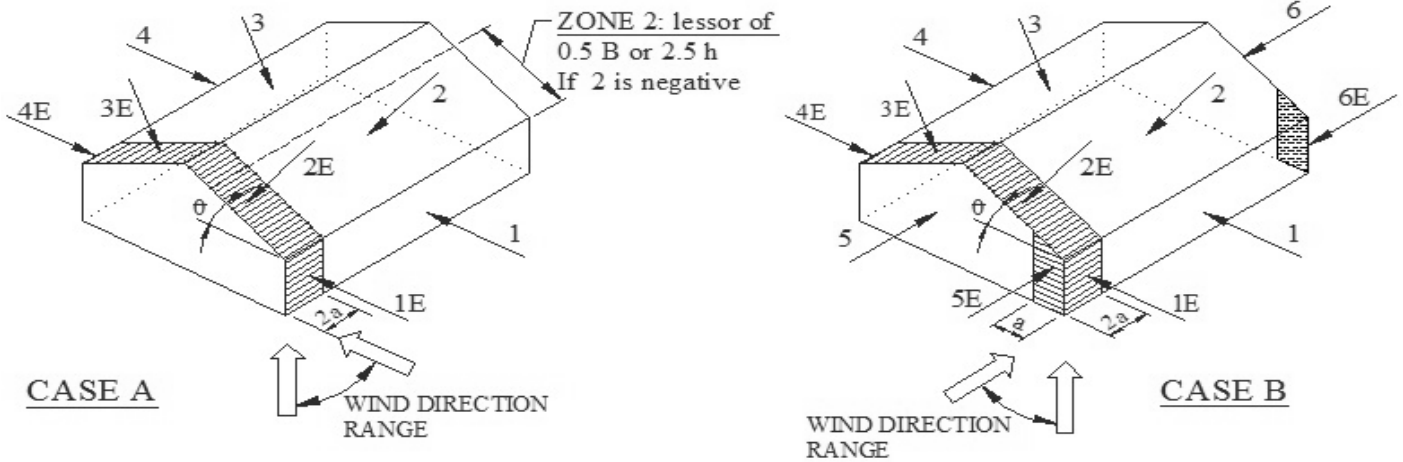
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DATE _____

CHECKED BY _____

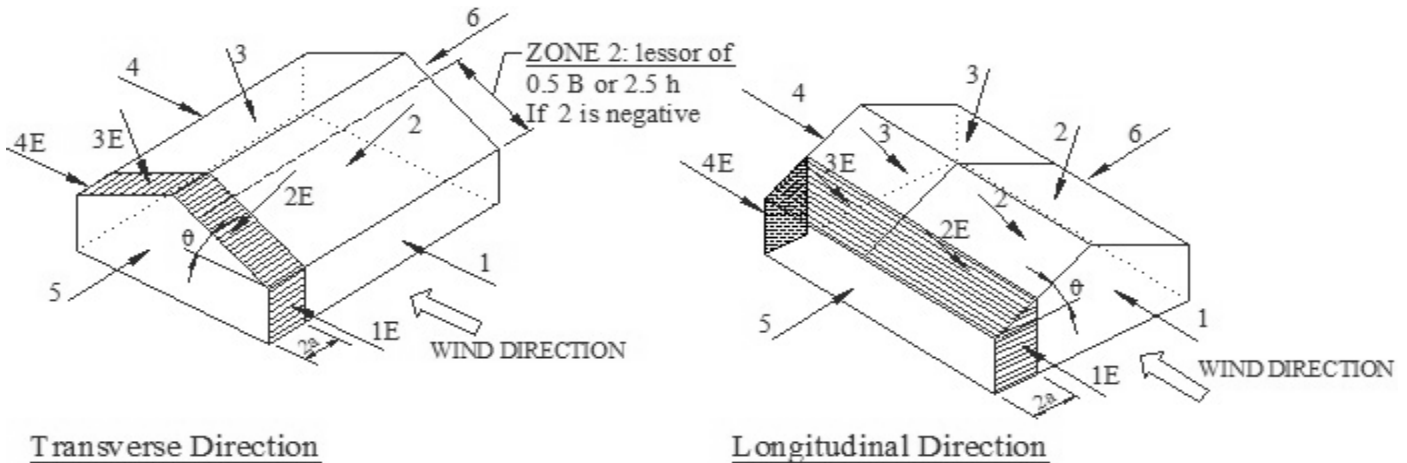
DATE _____

Location of MWFRS Wind Pressure Zones



NOTE: Torsional loads are 25% of zones 1 - 6. See code for loading diagram.

ASCE 7 -99 and ASCE 7-10 (& later)

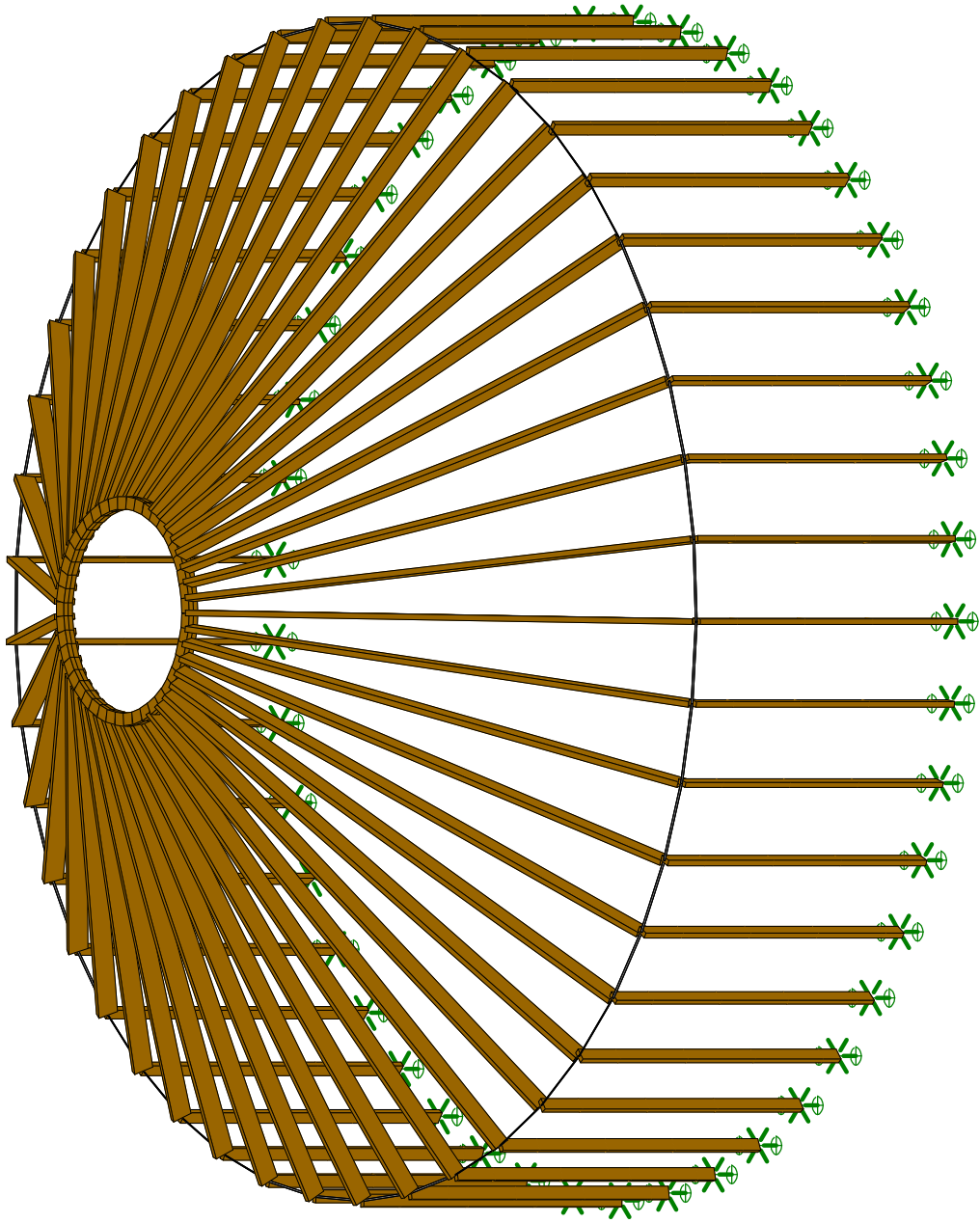
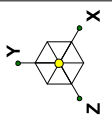


NOTE: Torsional loads are 25% of zones 1 - 4. See code for loading diagram.

ASCE 7 -02 and ASCE 7-05

Yurt Calculations

27' Diameter Yurt

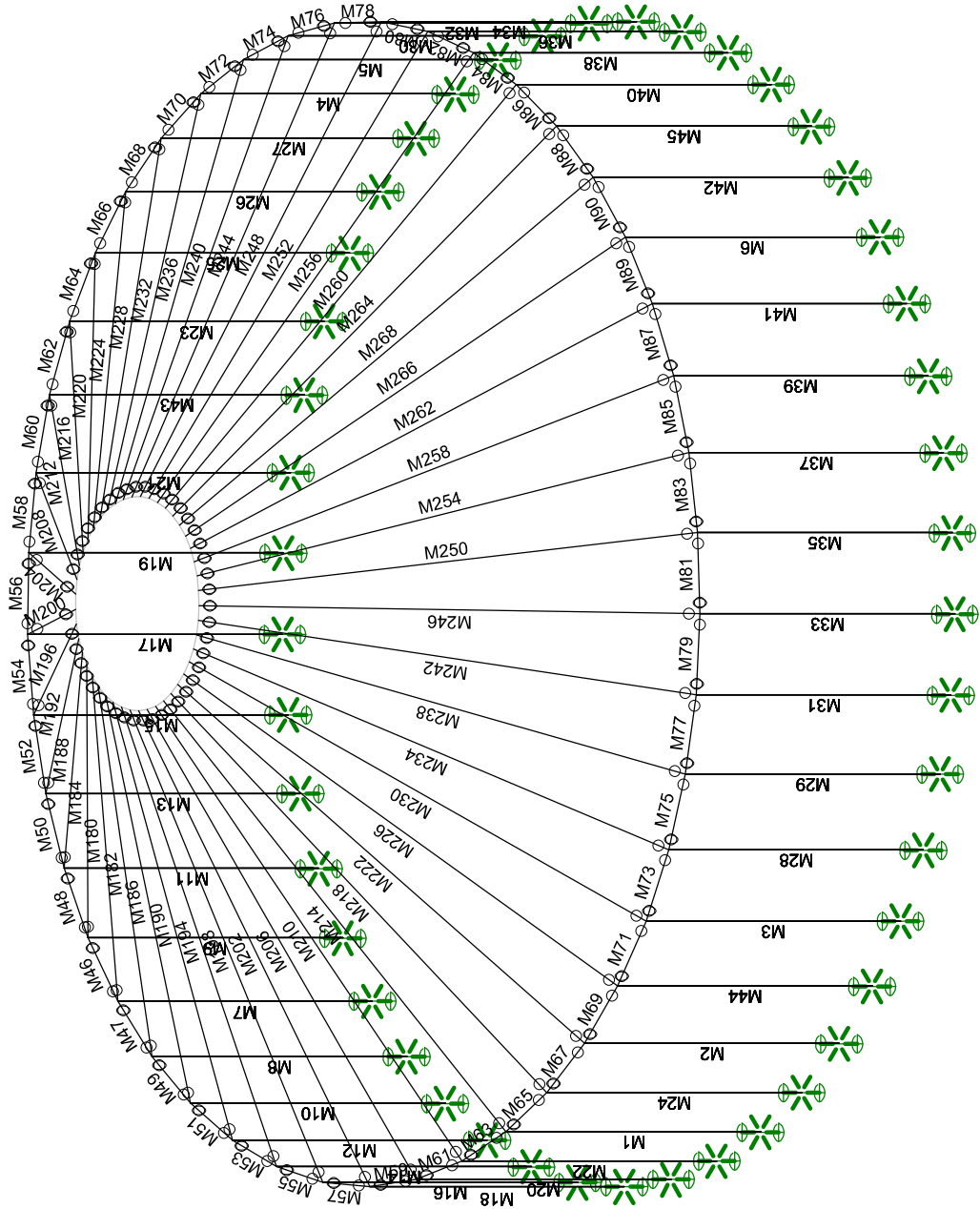
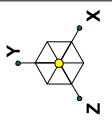


Envelope Only Solution

27' FULL SNOW & WIND
BASIC MODEL

CO YURT COMPANY

27' FULL SNOW & WIND.R3D

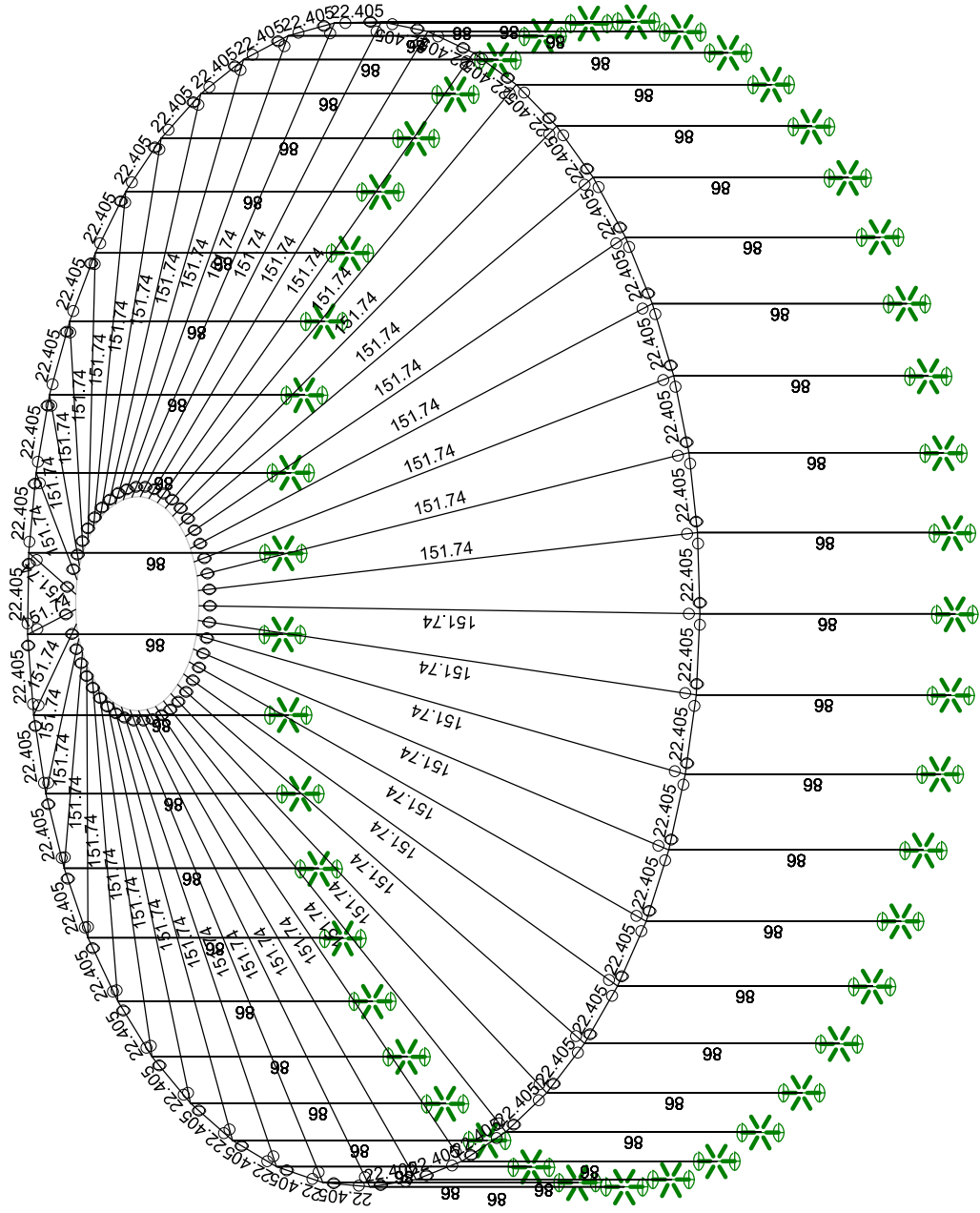
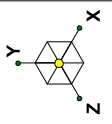


Envelope Only Solution

27' FULL SNOW & WIND MEMBER LABELS

CO YURT COMPANY

27' FULL SNOW & WIND.R3D



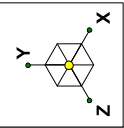
Member Length (in) Displayed
Envelope Only Solution

27' FULL SNOW & WIND

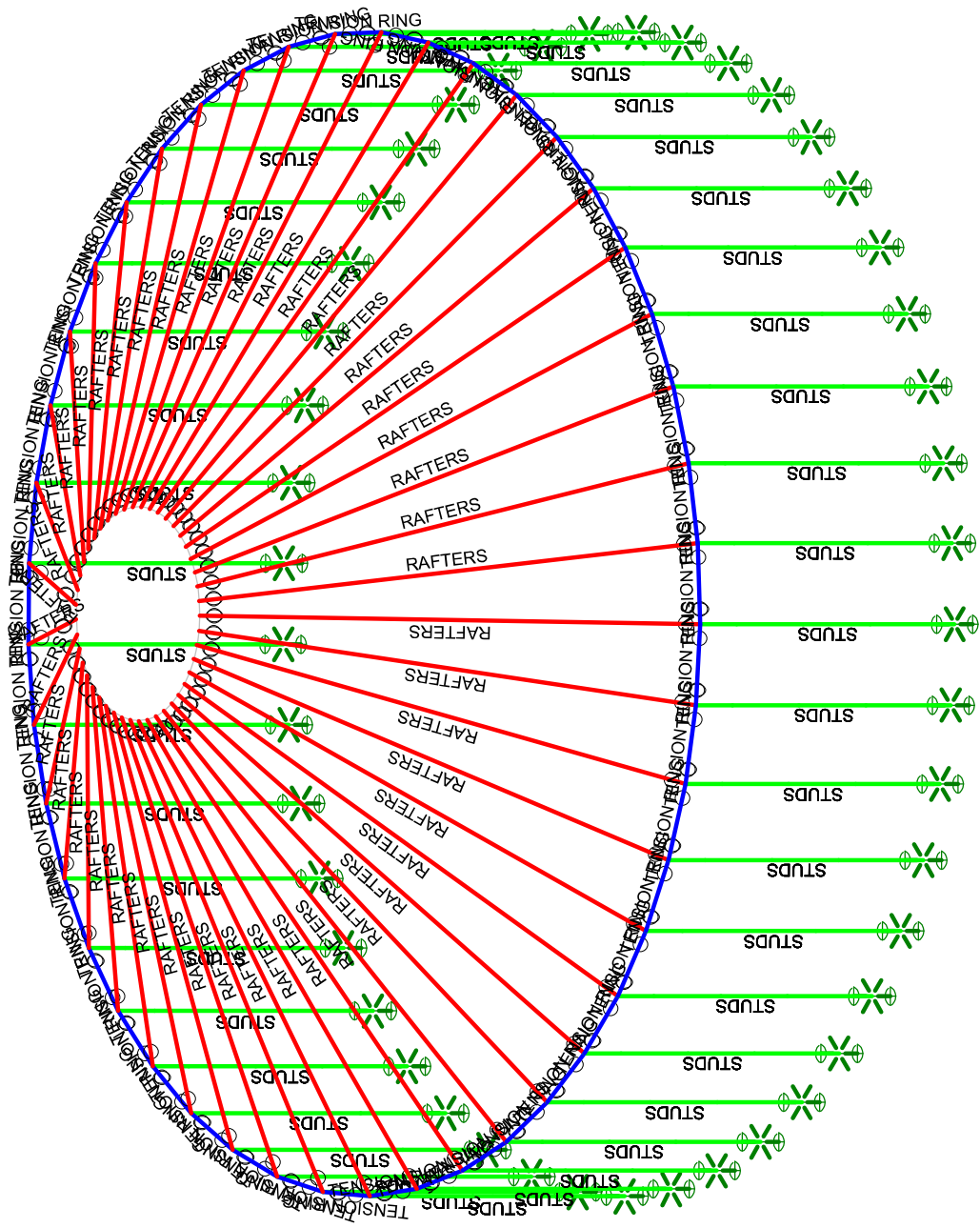
MEMBER LENGTHS (INCHES)

CO YURT COMPANY

27' FULL SNOW & WIND.R3D



- Section Sets
- TENSION RING
 - STUDS
 - RAFTERS
 - WD. COMP. RING
 - 40 MIL. MEMBRANE



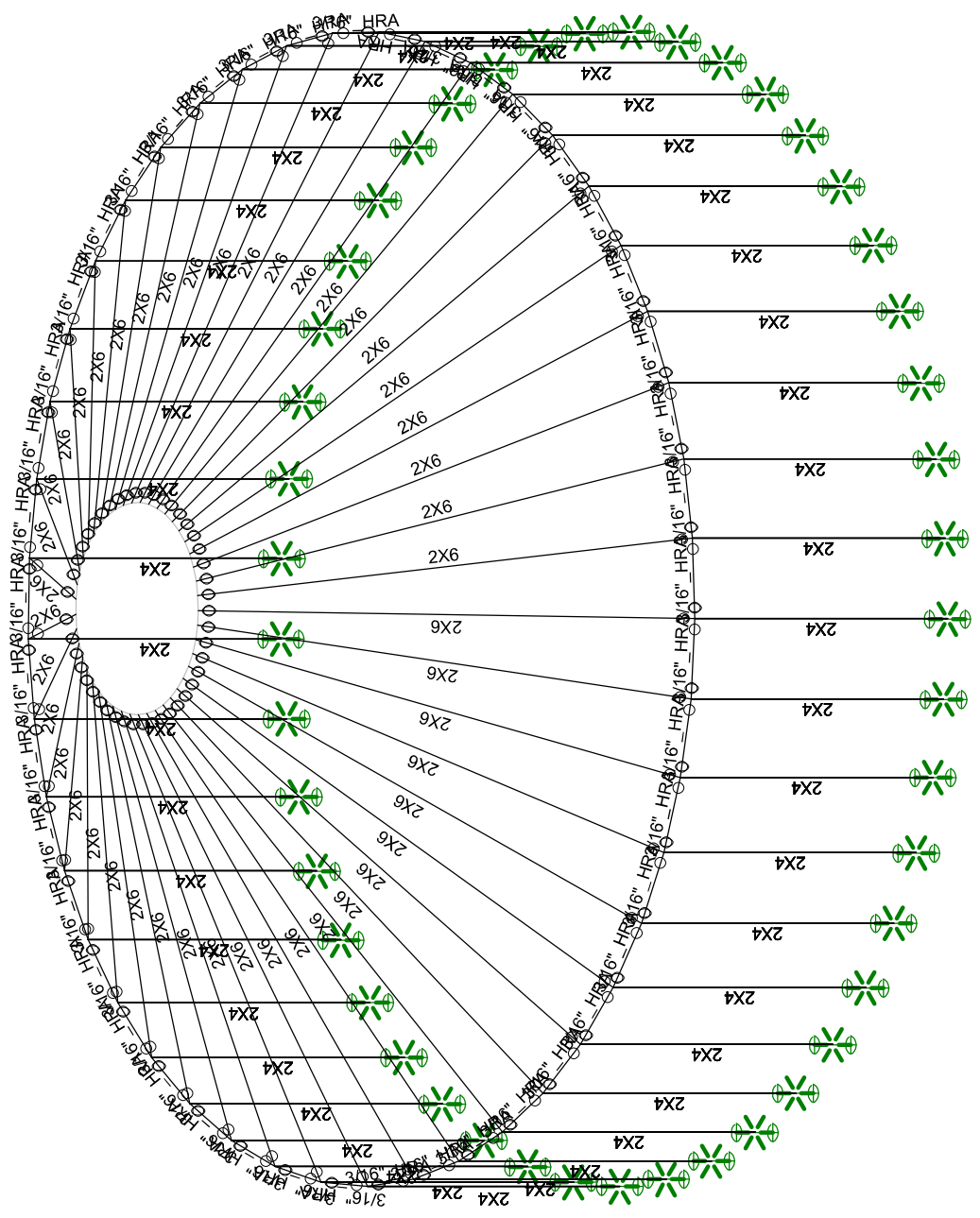
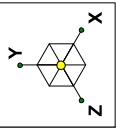
Envelope Only Solution

27' FULL SNOW & WIND

SECTION SET

CO YURT COMPANY

27' FULL SNOW & WIND.R3D

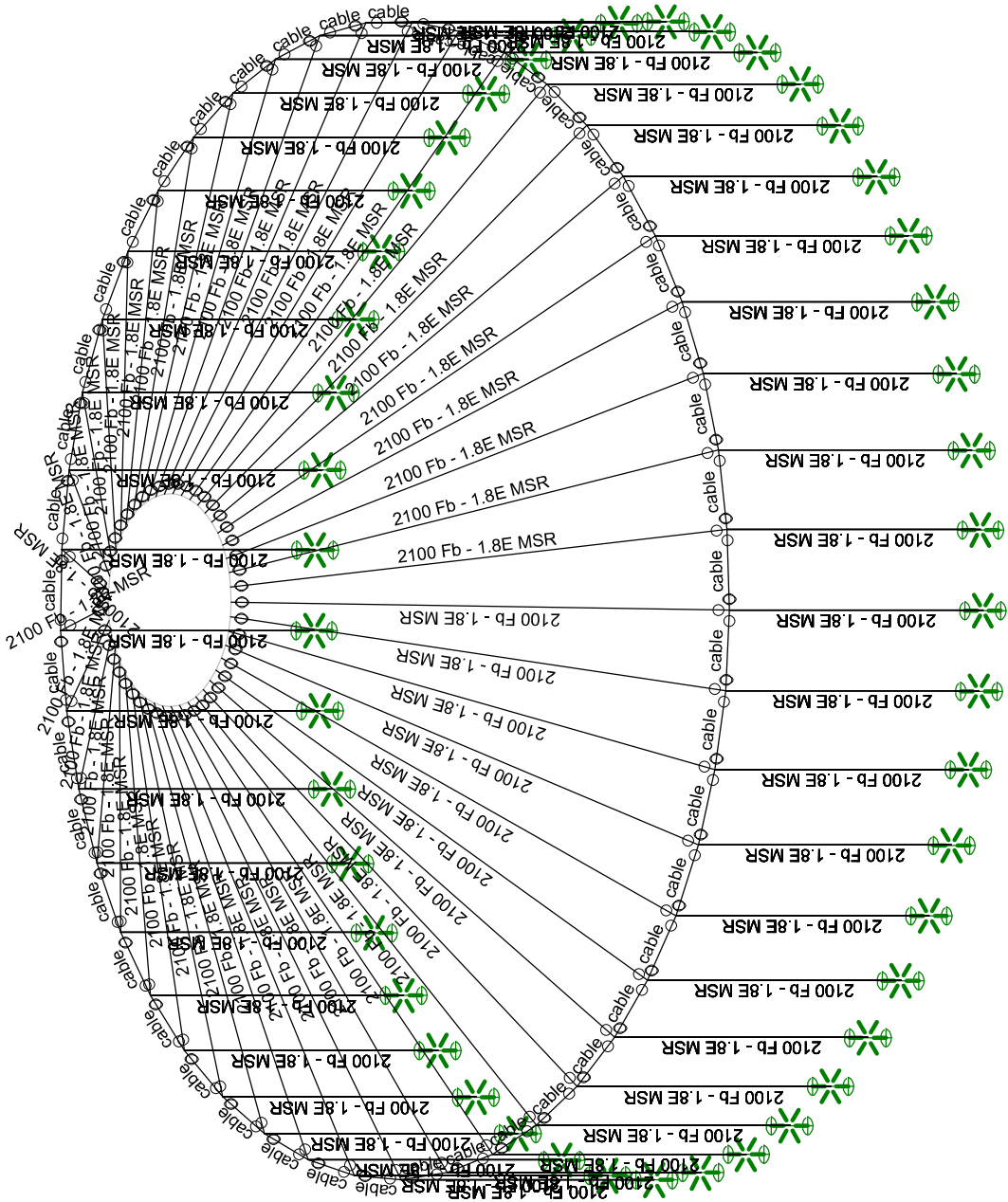
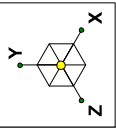


Envelope Only Solution

27' FULL SNOW & WIND
MEMBER SHAPES

CO YURT COMPANY

27' FULL SNOW & WIND.R3D

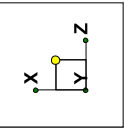
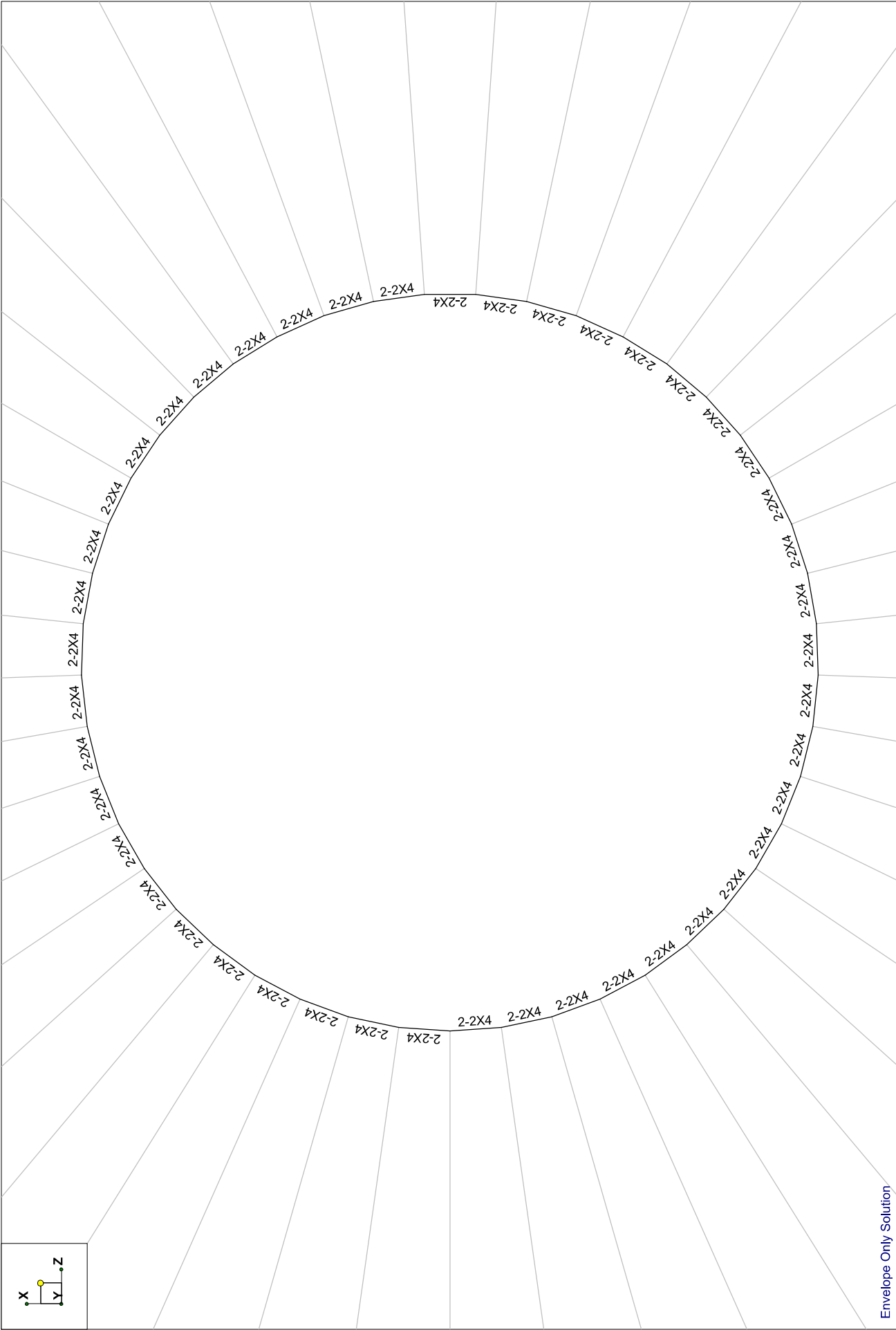


Envelope Only Solution

27' FULL SNOW & WIND
MEMBER MATERIALS

CO YURT COMPANY

27' FULL SNOW & WIND.R3D



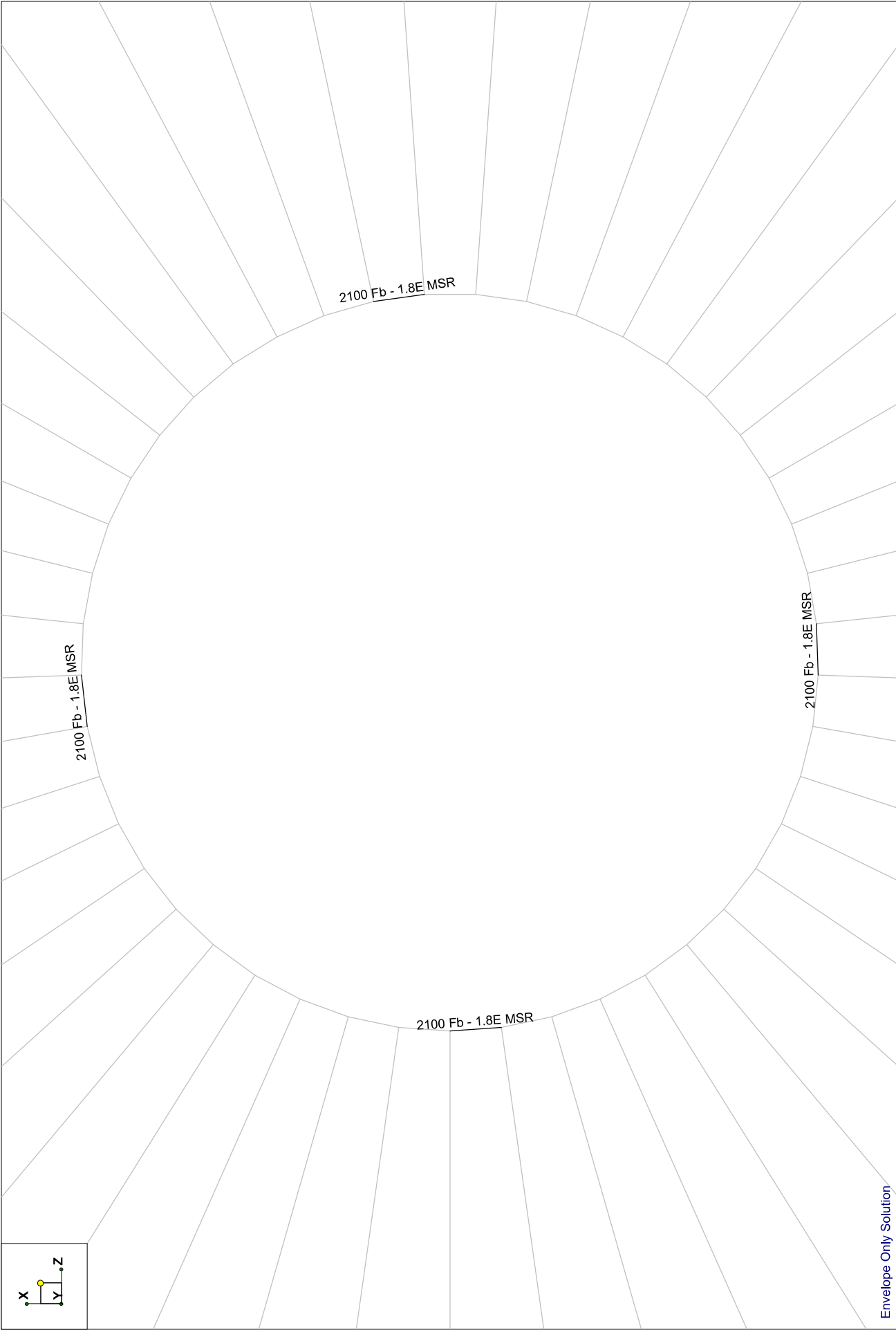
Envelope Only Solution

27' FULL SNOW & WIND

COMPRESSION RING MEMBER SHAPES

CO YURT COMPANY

27' FULL SNOW & WIND.R3D



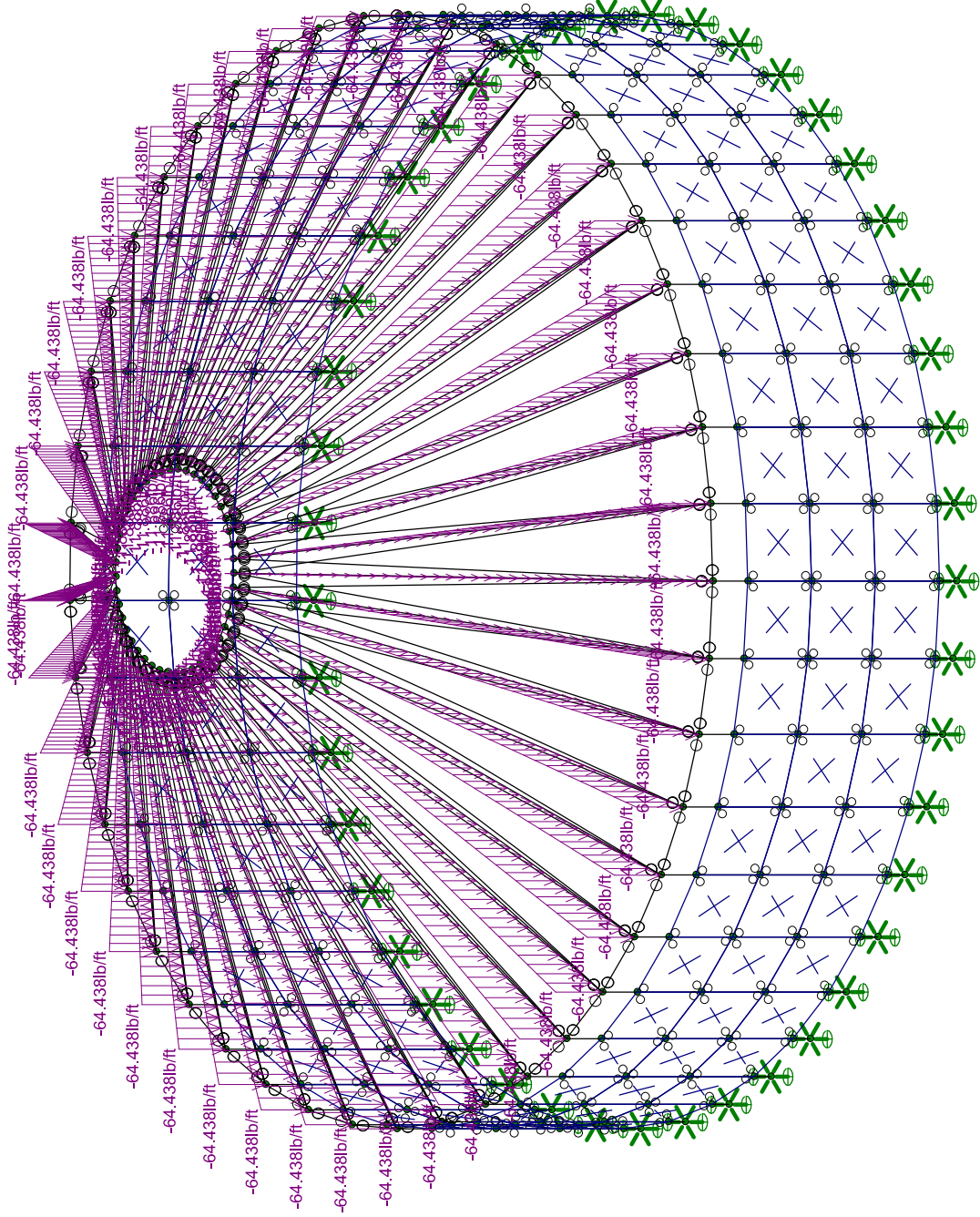
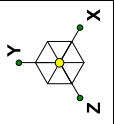
Envelope Only Solution

27' FULL SNOW & WIND

COMPRESSION RING MEMBER MATERIALS

CO YURT COMPANY

27' FULL SNOW & WIND.R3D

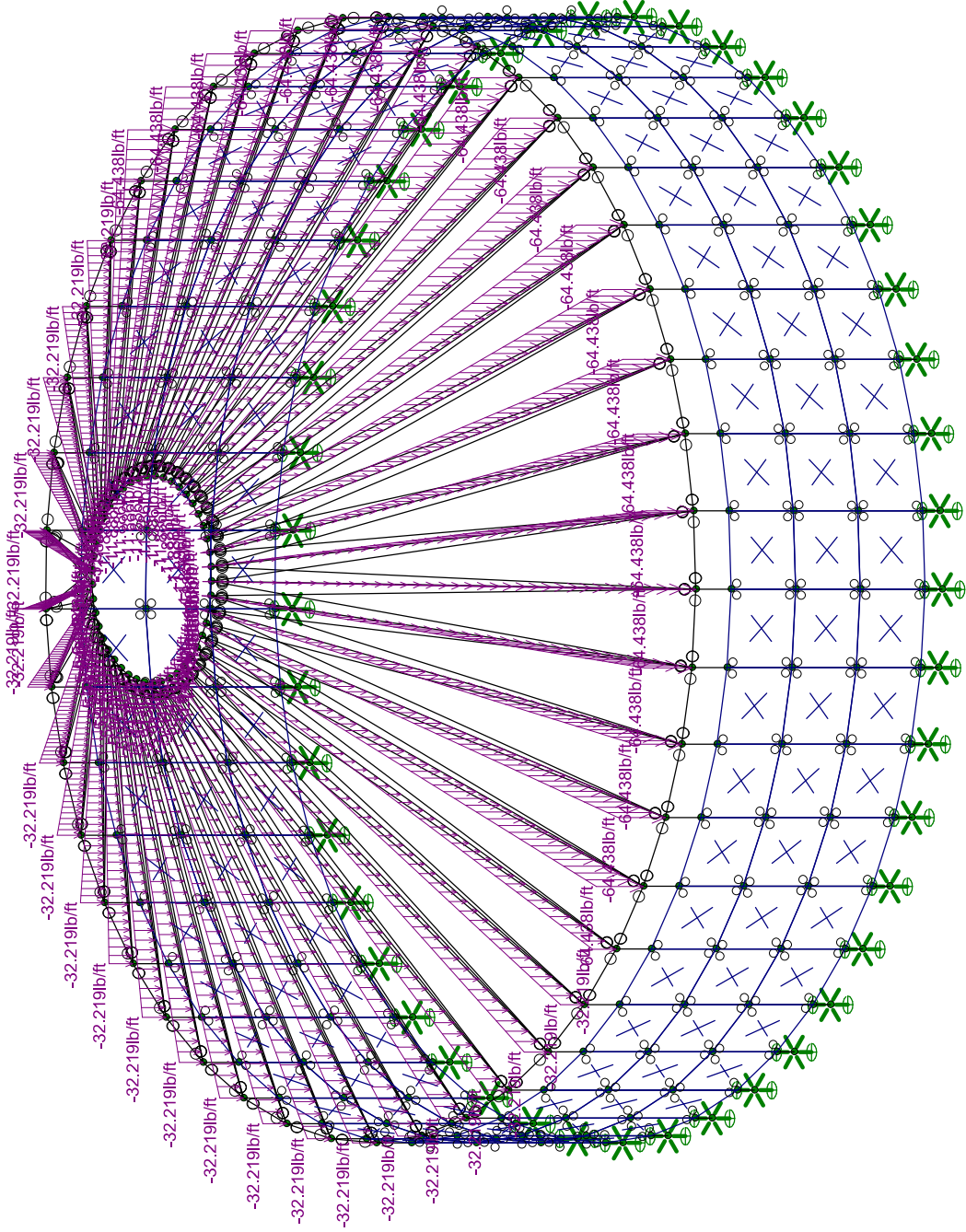
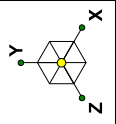


Loads: LC 1, SL BAL

27' FULL SNOW & WIND
SLOPED ROOF SNOW LOAD

CO YURT COMPANY

27' FULL SNOW & WIND.R3D



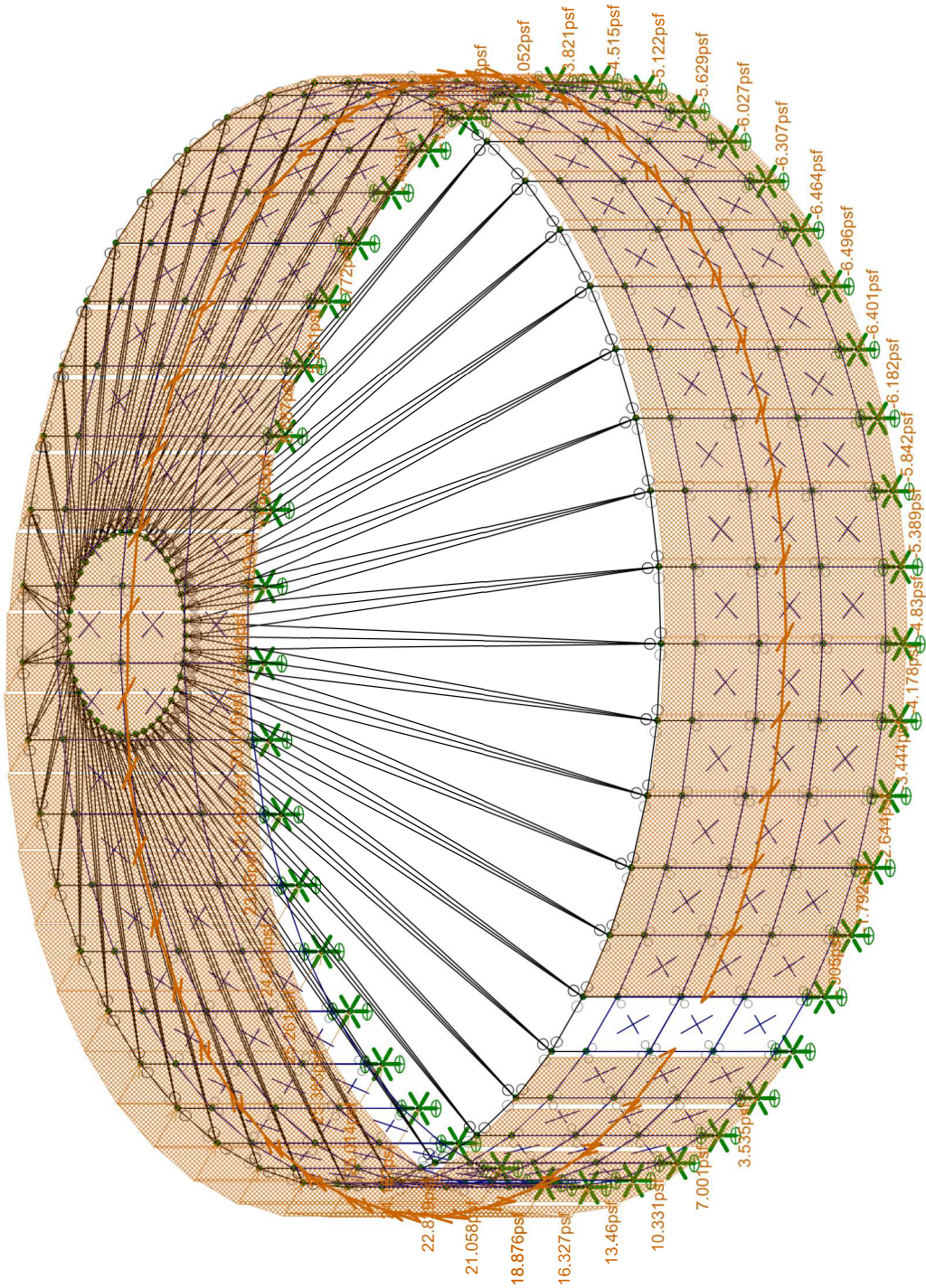
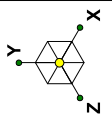
Loads: LC 2, SL UNBAL

27' FULL SNOW & WIND

UNBALANCED SLOPED ROOF SNOW LOAD

CO YURT COMPANY

27' FULL SNOW & WIND.R3D

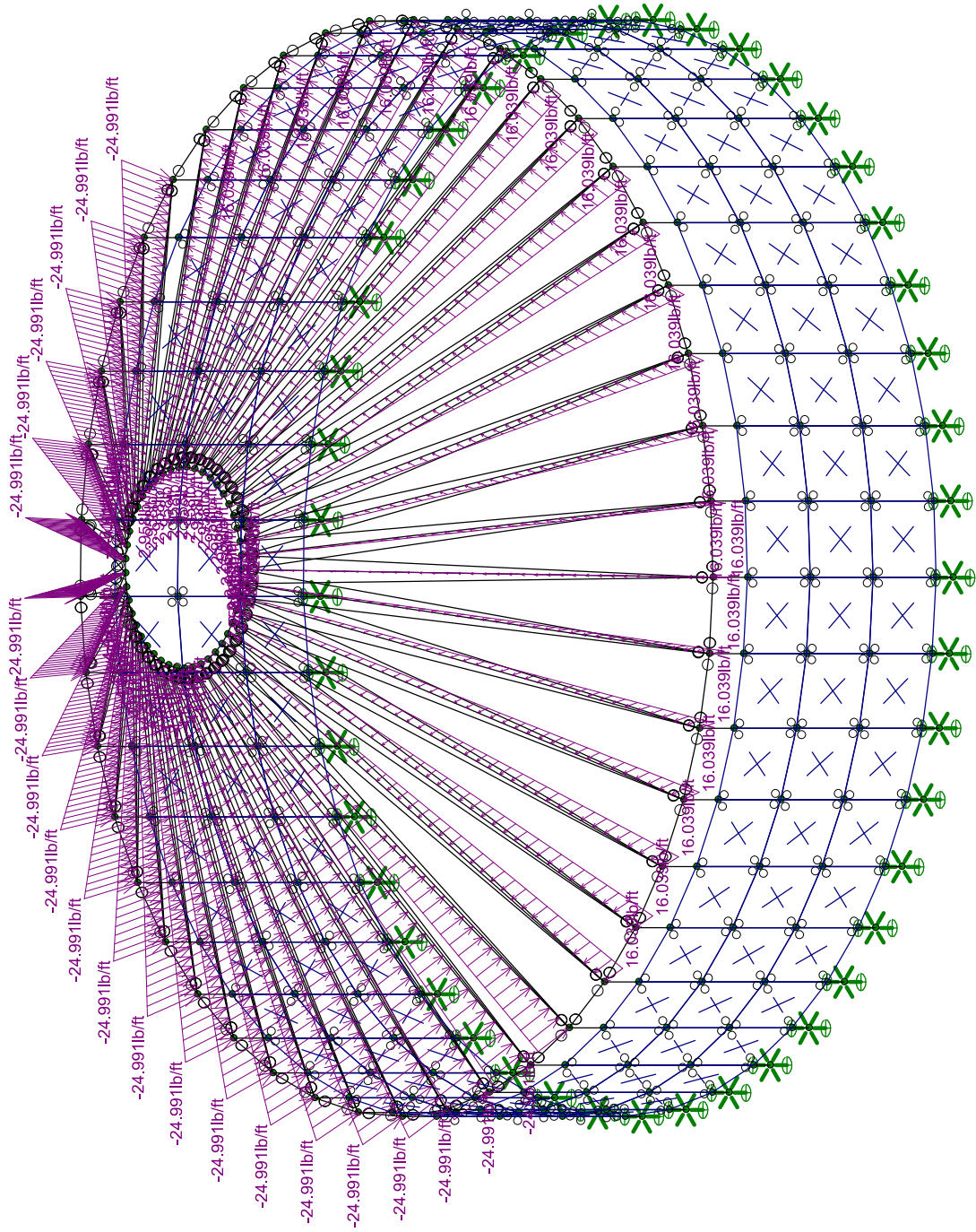
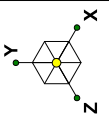


Loads: LC 3, WALL WL

27' FULL SNOW & WIND
WALL WIND LOADS

CO YURT COMPANY

27' FULL SNOW & WIND.R3D

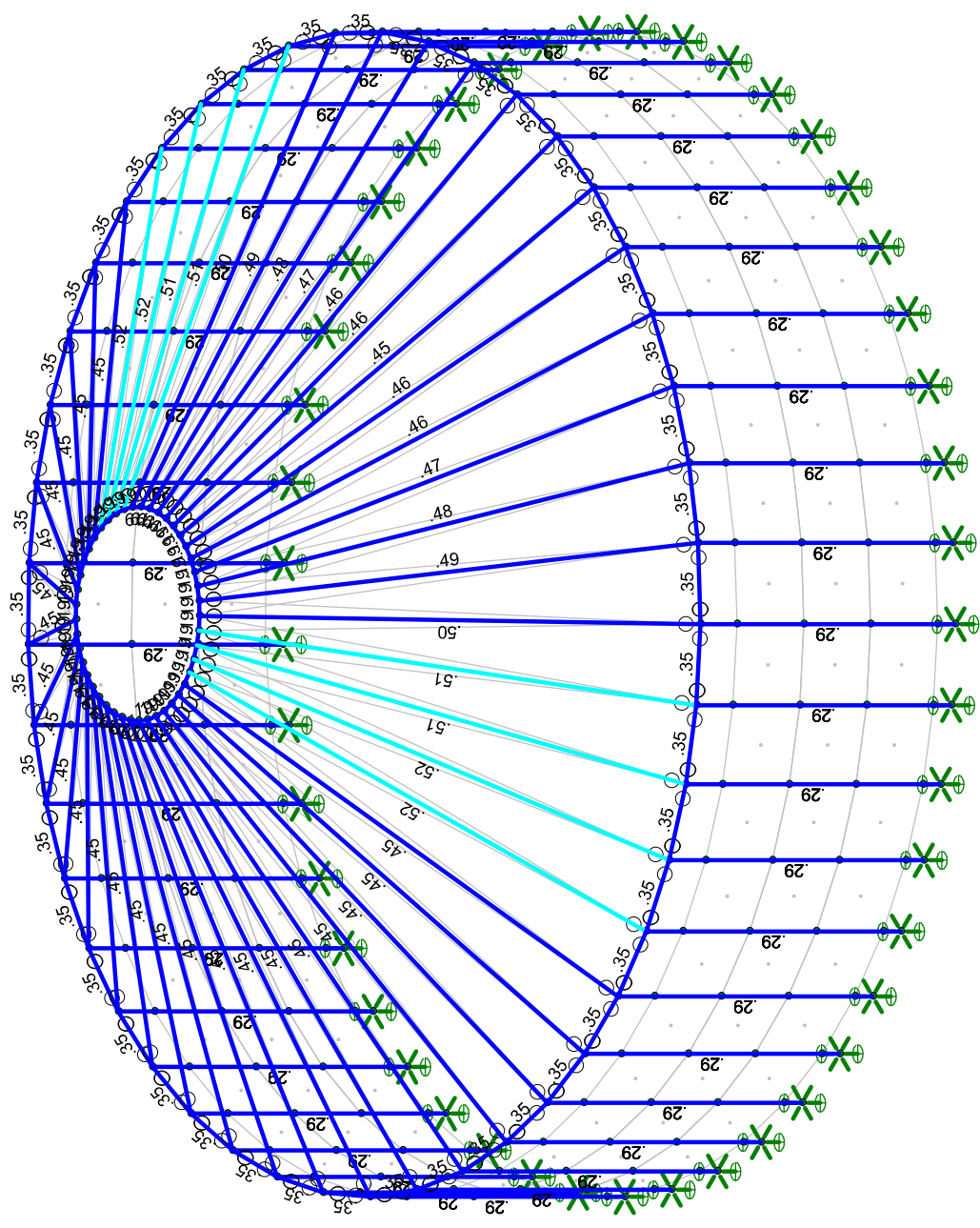
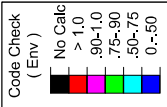
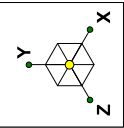


Loads: LC 4, ROOF WL

27' FULL SNOW & WIND
ROOF WIND LOADS

CO YURT COMPANY

27' FULL SNOW & WIND.R3D

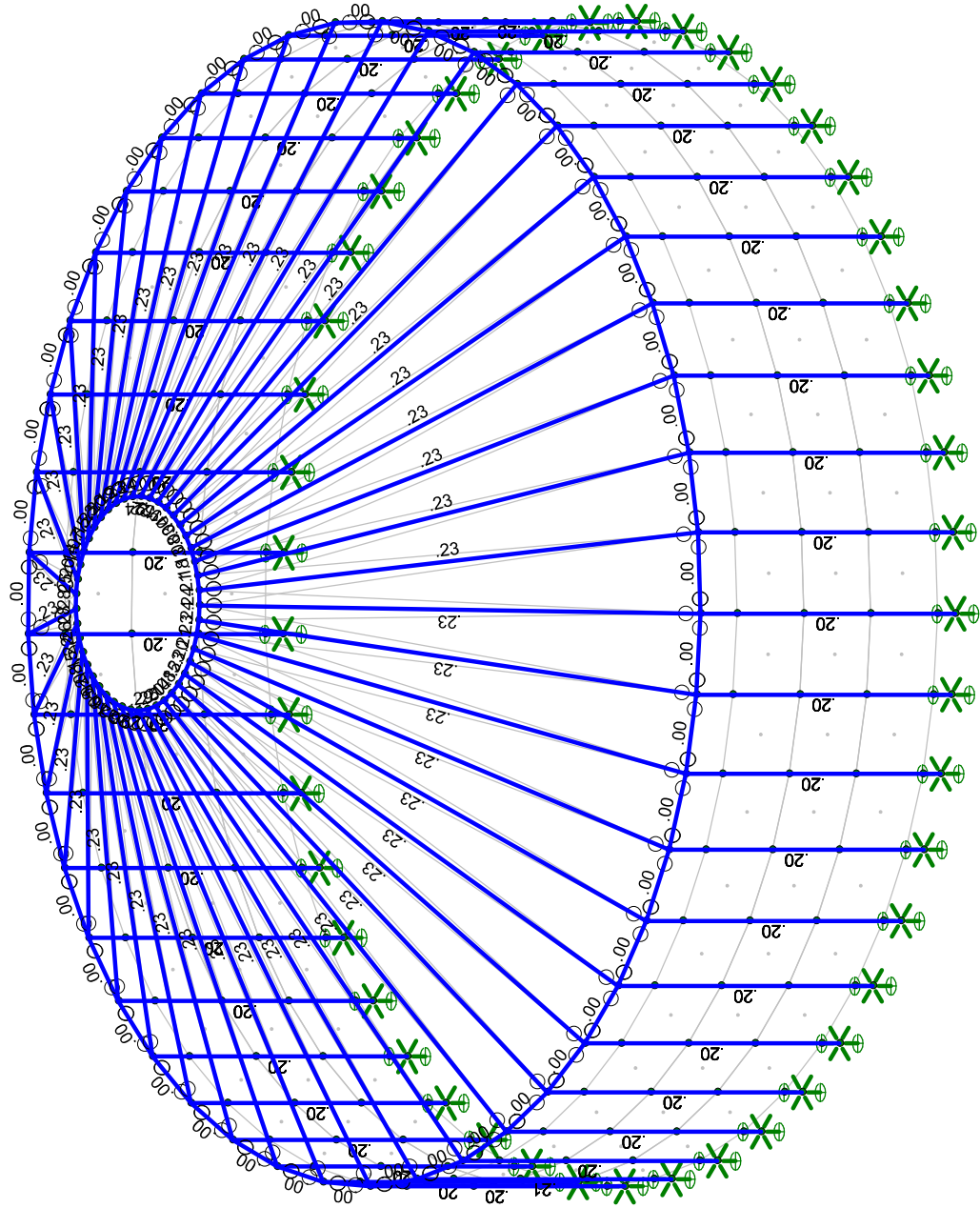
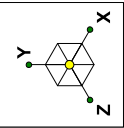
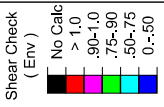


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

27' FULL SNOW & WIND Envelope Code Check (Bending)

CO YURT COMPANY

27'.FULL SNOW & WIND.R3D



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

27' FULL SNOW & WIND
Envelope Code Check (Shear)

CO YURT COMPANY

27-FULL SNOW & WIND.R3D

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	197
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	36
Merge Tolerance (in)	.01
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	No
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Parabolic
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	None
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	No
Ct X	0
Ct Z	0
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	1
R Z	1

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me... Surface(...	
1	SELF WEIGHT	DL		-1					
2	SELF WEIGHT	SL						45	
3	BALANCED SNOW LOAD	OL1						21	
4	UNBALANCED SNOW LO...	OL2						24	
5	UNBALANCED SNOW LO...	OL3							23
6	WINDWARD WALL WL	OL4							22
7	LEEWARD WALL WL	OL5						22	
8	LEEWARD ROOF WL	OL6						23	
9	WINDWARD ROOF WL	OL7						45	
10	ROOF DL	None							
11	BLC 5 Transient Area Loads	None						44	
12		None						12	
13	BLC 6 Transient Area Loads	None						44	

Load Combinations

Description	Sol...PDelta	SR...	BLC	Fac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...
1	SL BAL		SL	40										
2	SL UNBAL		OL1	40	OL2	20								
3	WALL WL		OL3	25.4	OL4	-6.5								
4	ROOF WL		OL5	13.4	OL6	-8.6								
5	TOTAL DL	Yes	DL	1	OL7	1								
6	LC_01 (DL+SL)	Yes	L5	1	L1	1								
7	LC_02 (DL+SL..	Yes	L5	1	L2	1								
8	LC_03 (DL+0....	Yes	L5	1	L3	.6	L4	.6						
9	LC_04 (DL+0....	Yes	L5	1	L3	.45	L4	.45	L1	.75				
10	LC_05 (DL+0....	Yes	L5	1	L3	.45	L4	.45	L2	.75				
11	LC_06 (0.6DL...	Yes	L5	.6	L3	.6	L4	.6						

Member Primary Data

Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N333		250	STUDS	None	2100 Fb...	Typical
2	M2	N2	N337		266	STUDS	None	2100 Fb...	Typical
3	M3	N3	N341		282	STUDS	None	2100 Fb...	Typical
4	M4	N4	N342		74	STUDS	None	2100 Fb...	Typical
5	M5	N5	N344		66	STUDS	None	2100 Fb...	Typical
6	M6	N6	N359		354	STUDS	None	2100 Fb...	Typical



Company :
 Designer :
 Job Number : CO YURT COMPANY
 Model Name : 27' FULL SNOW & WIND

Sept 9, 2020
 12:53 PM
 Checked By: _____

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
7	M7	N7	N316		178	STUDS	None	None	2100 Fb ...	Typical
8	M8	N8	N317		186	STUDS	None	None	2100 Fb ...	Typical
9	M9	N9	N318		170	STUDS	None	None	2100 Fb ...	Typical
10	M10	N10	N319		194	STUDS	None	None	2100 Fb ...	Typical
11	M11	N11	N320		162	STUDS	None	None	2100 Fb ...	Typical
12	M12	N12	N321		202	STUDS	None	None	2100 Fb ...	Typical
13	M13	N13	N322		154	STUDS	None	None	2100 Fb ...	Typical
14	M14	N14	N323		210	STUDS	None	None	2100 Fb ...	Typical
15	M15	N15	N324		146	STUDS	None	None	2100 Fb ...	Typical
16	M16	N16	N325		218	STUDS	None	None	2100 Fb ...	Typical
17	M17	N17	N326		138	STUDS	None	None	2100 Fb ...	Typical
18	M18	N18	N327		226	STUDS	None	None	2100 Fb ...	Typical
19	M19	N19	N328		130	STUDS	None	None	2100 Fb ...	Typical
20	M20	N20	N329		234	STUDS	None	None	2100 Fb ...	Typical
21	M21	N21	N330		122	STUDS	None	None	2100 Fb ...	Typical
22	M22	N22	N331		242	STUDS	None	None	2100 Fb ...	Typical
23	M23	N23	N334		106	STUDS	None	None	2100 Fb ...	Typical
24	M24	N24	N335		258	STUDS	None	None	2100 Fb ...	Typical
25	M25	N25	N336		98	STUDS	None	None	2100 Fb ...	Typical
26	M26	N26	N338		90	STUDS	None	None	2100 Fb ...	Typical
27	M27	N27	N340		82	STUDS	None	None	2100 Fb ...	Typical
28	M28	N28	N343		290	STUDS	None	None	2100 Fb ...	Typical
29	M29	N29	N345		298	STUDS	None	None	2100 Fb ...	Typical
30	M30	N30	N346		58	STUDS	None	None	2100 Fb ...	Typical
31	M31	N31	N347		306	STUDS	None	None	2100 Fb ...	Typical
32	M32	N32	N348		50	STUDS	None	None	2100 Fb ...	Typical
33	M33	N33	N349		314	STUDS	None	None	2100 Fb ...	Typical
34	M34	N34	N350		42	STUDS	None	None	2100 Fb ...	Typical
35	M35	N35	N351		322	STUDS	None	None	2100 Fb ...	Typical
36	M36	N36	N352		34	STUDS	None	None	2100 Fb ...	Typical
37	M37	N37	N353		330	STUDS	None	None	2100 Fb ...	Typical
38	M38	N38	N354		26	STUDS	None	None	2100 Fb ...	Typical
39	M39	N39	N355		338	STUDS	None	None	2100 Fb ...	Typical
40	M40	N40	N356		18	STUDS	None	None	2100 Fb ...	Typical
41	M41	N41	N357		346	STUDS	None	None	2100 Fb ...	Typical
42	M42	N42	N360		2	STUDS	None	None	2100 Fb ...	Typical
43	M43	N43	N332		114	STUDS	None	None	2100 Fb ...	Typical
44	M44	N44	N339		274	STUDS	None	None	2100 Fb ...	Typical
45	M45	N45	N358		10	STUDS	None	None	2100 Fb ...	Typical
46	M46	N316	N318			TENSION RI...	None	None	cable	Typical
47	M47	N317	N316			TENSION RI...	None	None	cable	Typical
48	M48	N318	N320			TENSION RI...	None	None	cable	Typical
49	M49	N319	N317			TENSION RI...	None	None	cable	Typical
50	M50	N320	N322			TENSION RI...	None	None	cable	Typical
51	M51	N321	N319			TENSION RI...	None	None	cable	Typical
52	M52	N322	N324			TENSION RI...	None	None	cable	Typical
53	M53	N323	N321			TENSION RI...	None	None	cable	Typical
54	M54	N324	N326			TENSION RI...	None	None	cable	Typical
55	M55	N325	N323			TENSION RI...	None	None	cable	Typical
56	M56	N326	N328			TENSION RI...	None	None	cable	Typical
57	M57	N327	N325			TENSION RI...	None	None	cable	Typical
58	M58	N328	N330			TENSION RI...	None	None	cable	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
59	M59	N329	N327			TENSION RI...	None	None	cable	Typical
60	M60	N330	N332			TENSION RI...	None	None	cable	Typical
61	M61	N331	N329			TENSION RI...	None	None	cable	Typical
62	M62	N332	N334			TENSION RI...	None	None	cable	Typical
63	M63	N333	N331			TENSION RI...	None	None	cable	Typical
64	M64	N334	N336			TENSION RI...	None	None	cable	Typical
65	M65	N335	N333			TENSION RI...	None	None	cable	Typical
66	M66	N336	N338			TENSION RI...	None	None	cable	Typical
67	M67	N337	N335			TENSION RI...	None	None	cable	Typical
68	M68	N338	N340			TENSION RI...	None	None	cable	Typical
69	M69	N339	N337			TENSION RI...	None	None	cable	Typical
70	M70	N340	N342			TENSION RI...	None	None	cable	Typical
71	M71	N341	N339			TENSION RI...	None	None	cable	Typical
72	M72	N342	N344			TENSION RI...	None	None	cable	Typical
73	M73	N343	N341			TENSION RI...	None	None	cable	Typical
74	M74	N344	N346			TENSION RI...	None	None	cable	Typical
75	M75	N345	N343			TENSION RI...	None	None	cable	Typical
76	M76	N346	N348			TENSION RI...	None	None	cable	Typical
77	M77	N347	N345			TENSION RI...	None	None	cable	Typical
78	M78	N348	N350			TENSION RI...	None	None	cable	Typical
79	M79	N349	N347			TENSION RI...	None	None	cable	Typical
80	M80	N350	N352			TENSION RI...	None	None	cable	Typical
81	M81	N351	N349			TENSION RI...	None	None	cable	Typical
82	M82	N352	N354			TENSION RI...	None	None	cable	Typical
83	M83	N353	N351			TENSION RI...	None	None	cable	Typical
84	M84	N354	N356			TENSION RI...	None	None	cable	Typical
85	M85	N355	N353			TENSION RI...	None	None	cable	Typical
86	M86	N356	N358			TENSION RI...	None	None	cable	Typical
87	M87	N357	N355			TENSION RI...	None	None	cable	Typical
88	M88	N358	N360			TENSION RI...	None	None	cable	Typical
89	M89	N359	N357			TENSION RI...	None	None	cable	Typical
90	M90	N360	N359			TENSION RI...	None	None	cable	Typical
91	M180	N451	N316			RAFTERS	None	None	2100 Fb ...	Typical
92	M181	N451	N453		90	WD COMP ...	None	None	2100 Fb ...	Typical
93	M182	N452	N317			RAFTERS	None	None	2100 Fb ...	Typical
94	M183	N452	N451		90	WD COMP ...	None	None	2100 Fb ...	Typical
95	M184	N453	N318			RAFTERS	None	None	2100 Fb ...	Typical
96	M185	N453	N455		90	WD COMP ...	None	None	2100 Fb ...	Typical
97	M186	N454	N319			RAFTERS	None	None	2100 Fb ...	Typical
98	M187	N454	N452		90	WD COMP ...	None	None	2100 Fb ...	Typical
99	M188	N455	N320			RAFTERS	None	None	2100 Fb ...	Typical
100	M189	N455	N457		90	WD COMP ...	None	None	2100 Fb ...	Typical
101	M190	N456	N321			RAFTERS	None	None	2100 Fb ...	Typical
102	M191	N456	N454		90	WD COMP ...	None	None	2100 Fb ...	Typical
103	M192	N457	N322			RAFTERS	None	None	2100 Fb ...	Typical
104	M193	N457	N459		90	WD COMP ...	None	None	2100 Fb ...	Typical
105	M194	N458	N323			RAFTERS	None	None	2100 Fb ...	Typical
106	M195	N458	N456		90	WD COMP ...	None	None	2100 Fb ...	Typical
107	M196	N459	N324			RAFTERS	None	None	2100 Fb ...	Typical
108	M197	N459	N461		90	WD COMP ...	None	None	2100 Fb ...	Typical
109	M198	N460	N325			RAFTERS	None	None	2100 Fb ...	Typical
110	M199	N460	N458		90	WD COMP ...	None	None	2100 Fb ...	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
111	M200	N461	N326			RAFTERS	None	None	2100 Fb ...	Typical
112	M201	N461	N463		90	WD COMP ...	None	None	2100 Fb ...	Typical
113	M202	N462	N327			RAFTERS	None	None	2100 Fb ...	Typical
114	M203	N462	N460		90	WD COMP ...	None	None	2100 Fb ...	Typical
115	M204	N463	N328			RAFTERS	None	None	2100 Fb ...	Typical
116	M205	N463	N465		90	WD COMP ...	None	None	2100 Fb ...	Typical
117	M206	N464	N329			RAFTERS	None	None	2100 Fb ...	Typical
118	M207	N464	N462		90	WD COMP ...	None	None	2100 Fb ...	Typical
119	M208	N465	N330			RAFTERS	None	None	2100 Fb ...	Typical
120	M209	N465	N467		90	WD COMP ...	None	None	2100 Fb ...	Typical
121	M210	N466	N331			RAFTERS	None	None	2100 Fb ...	Typical
122	M211	N466	N464		90	WD COMP ...	None	None	2100 Fb ...	Typical
123	M212	N467	N332			RAFTERS	None	None	2100 Fb ...	Typical
124	M213	N467	N469		90	WD COMP ...	None	None	2100 Fb ...	Typical
125	M214	N468	N333			RAFTERS	None	None	2100 Fb ...	Typical
126	M215	N468	N466		90	WD COMP ...	None	None	2100 Fb ...	Typical
127	M216	N469	N334			RAFTERS	None	None	2100 Fb ...	Typical
128	M217	N469	N471		90	WD COMP ...	None	None	2100 Fb ...	Typical
129	M218	N470	N335			RAFTERS	None	None	2100 Fb ...	Typical
130	M219	N470	N468		90	WD COMP ...	None	None	2100 Fb ...	Typical
131	M220	N471	N336			RAFTERS	None	None	2100 Fb ...	Typical
132	M221	N471	N473		90	WD COMP ...	None	None	2100 Fb ...	Typical
133	M222	N472	N337			RAFTERS	None	None	2100 Fb ...	Typical
134	M223	N472	N470		90	WD COMP ...	None	None	2100 Fb ...	Typical
135	M224	N473	N338			RAFTERS	None	None	2100 Fb ...	Typical
136	M225	N473	N475		90	WD COMP ...	None	None	2100 Fb ...	Typical
137	M226	N474	N339			RAFTERS	None	None	2100 Fb ...	Typical
138	M227	N474	N472		90	WD COMP ...	None	None	2100 Fb ...	Typical
139	M228	N475	N340			RAFTERS	None	None	2100 Fb ...	Typical
140	M229	N475	N477		90	WD COMP ...	None	None	2100 Fb ...	Typical
141	M230	N476	N341			RAFTERS	None	None	2100 Fb ...	Typical
142	M231	N476	N474		90	WD COMP ...	None	None	2100 Fb ...	Typical
143	M232	N477	N342			RAFTERS	None	None	2100 Fb ...	Typical
144	M233	N477	N479		90	WD COMP ...	None	None	2100 Fb ...	Typical
145	M234	N478	N343			RAFTERS	None	None	2100 Fb ...	Typical
146	M235	N478	N476		90	WD COMP ...	None	None	2100 Fb ...	Typical
147	M236	N479	N344			RAFTERS	None	None	2100 Fb ...	Typical
148	M237	N479	N481		90	WD COMP ...	None	None	2100 Fb ...	Typical
149	M238	N480	N345			RAFTERS	None	None	2100 Fb ...	Typical
150	M239	N480	N478		90	WD COMP ...	None	None	2100 Fb ...	Typical
151	M240	N481	N346			RAFTERS	None	None	2100 Fb ...	Typical
152	M241	N481	N483		90	WD COMP ...	None	None	2100 Fb ...	Typical
153	M242	N482	N347			RAFTERS	None	None	2100 Fb ...	Typical
154	M243	N482	N480		90	WD COMP ...	None	None	2100 Fb ...	Typical
155	M244	N483	N348			RAFTERS	None	None	2100 Fb ...	Typical
156	M245	N483	N485		90	WD COMP ...	None	None	2100 Fb ...	Typical
157	M246	N484	N349			RAFTERS	None	None	2100 Fb ...	Typical
158	M247	N484	N482		90	WD COMP ...	None	None	2100 Fb ...	Typical
159	M248	N485	N350			RAFTERS	None	None	2100 Fb ...	Typical
160	M249	N485	N487		90	WD COMP ...	None	None	2100 Fb ...	Typical
161	M250	N486	N351			RAFTERS	None	None	2100 Fb ...	Typical
162	M251	N486	N484		90	WD COMP ...	None	None	2100 Fb ...	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
163	M252	N487	N352			RAFTERS	None	None	2100 Fb...	Typical
164	M253	N487	N489		90	WD COMP ...	None	None	2100 Fb...	Typical
165	M254	N488	N353			RAFTERS	None	None	2100 Fb...	Typical
166	M255	N488	N486		90	WD COMP ...	None	None	2100 Fb...	Typical
167	M256	N489	N354			RAFTERS	None	None	2100 Fb...	Typical
168	M257	N489	N491		90	WD COMP ...	None	None	2100 Fb...	Typical
169	M258	N490	N355			RAFTERS	None	None	2100 Fb...	Typical
170	M259	N490	N488		90	WD COMP ...	None	None	2100 Fb...	Typical
171	M260	N491	N356			RAFTERS	None	None	2100 Fb...	Typical
172	M261	N491	N493		90	WD COMP ...	None	None	2100 Fb...	Typical
173	M262	N492	N357			RAFTERS	None	None	2100 Fb...	Typical
174	M263	N492	N490		90	WD COMP ...	None	None	2100 Fb...	Typical
175	M264	N493	N358			RAFTERS	None	None	2100 Fb...	Typical
176	M265	N493	N495		90	WD COMP ...	None	None	2100 Fb...	Typical
177	M266	N494	N359			RAFTERS	None	None	2100 Fb...	Typical
178	M267	N494	N492		90	WD COMP ...	None	None	2100 Fb...	Typical
179	M268	N495	N360			RAFTERS	None	None	2100 Fb...	Typical
180	M269	N495	N494		90	WD COMP ...	None	None	2100 Fb...	Typical
181	M181A	N338	N475		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
182	M182A	N475	N342		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
183	M183A	N342	N479		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
184	M184A	N479	N346		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
185	M185A	N346	N483		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
186	M186A	N483	N350		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
187	M187A	N350	N487		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
188	M188A	N487	N354		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
189	M189A	N354	N491		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
190	M190A	N491	N358		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
191	M191A	N358	N495		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
192	M192A	N495	N359		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
193	M193A	N359	N492		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
194	M194A	N492	N355		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
195	M195A	N355	N488		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
196	M196A	N488	N351		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
197	M197A	N351	N484		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
198	M198A	N484	N347		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
199	M199A	N347	N480		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
200	M200A	N480	N343		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
201	M201A	N343	N476		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
202	M202A	N476	N339		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
203	M203A	N339	N472		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
204	M204A	N472	N335		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
205	M205A	N335	N468		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
206	M206A	N468	N331		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
207	M207A	N331	N464		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
208	M208A	N464	N327		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
209	M209A	N327	N460		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
210	M210A	N460	N323		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
211	M211A	N323	N456		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
212	M212A	N456	N319		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
213	M213A	N319	N452		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
214	M214A	N452	N316		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
215	M215A	N316	N453		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
216	M216A	N453	N320		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
217	M217A	N320	N457		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
218	M218A	N457	N324		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
219	M219A	N324	N461		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
220	M220A	N461	N328		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
221	M221A	N328	N465		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
222	M222A	N465	N332		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
223	M223A	N332	N469		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
224	M224A	N469	N336		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
225	M225A	N336	N473		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
226	M226A	N473	N340		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
227	M227A	N471	N338		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
228	M229A	N340	N477		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
229	M230A	N477	N344		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
230	M231A	N344	N481		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
231	M232A	N481	N348		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
232	M233A	N348	N485		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
233	M234A	N485	N352		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
234	M235A	N352	N489		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
235	M236A	N489	N356		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
236	M237A	N356	N493		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
237	M238A	N493	N360		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
238	M239A	N360	N494		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
239	M240A	N494	N357		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
240	M241A	N357	N490		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
241	M242A	N490	N353		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
242	M243A	N353	N486		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
243	M244A	N486	N349		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
244	M245A	N349	N482		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
245	M246A	N482	N345		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
246	M247A	N345	N478		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
247	M248A	N478	N341		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
248	M249A	N341	N474		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
249	M250A	N474	N337		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
250	M251A	N337	N470		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
251	M252A	N470	N333		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
252	M253A	N333	N466		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
253	M254A	N466	N329		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
254	M255A	N329	N462		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
255	M256A	N462	N325		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
256	M257A	N325	N458		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
257	M258A	N458	N321		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
258	M259A	N321	N454		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
259	M260A	N454	N317		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
260	M261A	N317	N451		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
261	M262A	N451	N318		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
262	M263A	N318	N455		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
263	M264A	N455	N322		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
264	M265A	N322	N459		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
265	M266A	N459	N326		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
266	M267A	N326	N463		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3



Company :
 Designer :
 Job Number : CO YURT COMPANY
 Model Name : 27' FULL SNOW & WIND

Sept 9, 2020
 12:53 PM
 Checked By: _____

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...)	Section/Shape	Type	Design List	Material	Design Rul...
267	M268A	N463	N330		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
268	M269A	N330	N467		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
269	M270	N467	N334		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3
270	M271	N334	N471		90	40 MIL MEM...	HBrace	None	DURO-L...	DR1 3

Wood Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	STUDS	2X4	None	None	2100 Fb - 1...	Typical	5.25	.984	5.359	2.877
2	RAFTERS	2X6	None	None	2100 Fb - 1...	Typical	8.25	1.547	20.797	5.125
3	WD COMP ...	2-2X4	None	None	2100 Fb - 1...	Typical	10.5	7.875	10.719	15.255
4	RAFTER B...	2X4	None	None	HF	Typical	5.25	.984	5.359	2.877
5	WOOD1	2X6	Beam	Rectangular	DF/SPine	Typical	8.25	1.547	20.797	5.125

Wood Design Parameters

	Label	Shape	Length...	le2[in]	le1[in]	le-bend top[in]	le-bend bot[in]	Kyy	Kzz	CV	Cr	y sway	z sway
1	M1	STUDS	86	22.5		43	22.6	1	1		Yes		
2	M2	STUDS	86	22.5		43	22.6	1	1		Yes		
3	M3	STUDS	86	22.5		43	22.6	1	1		Yes		
4	M4	STUDS	86	22.5		43	22.6	1	1		Yes		
5	M5	STUDS	86	22.5		43	22.6	1	1		Yes		
6	M6	STUDS	86	22.5		43	22.6	1	1		Yes		
7	M7	STUDS	86	22.5		43	22.6	1	1		Yes		
8	M8	STUDS	86	22.5		43	22.6	1	1		Yes		
9	M9	STUDS	86	22.5		43	22.6	1	1		Yes		
10	M10	STUDS	86	22.5		43	22.6	1	1		Yes		
11	M11	STUDS	86	22.5		43	22.6	1	1		Yes		
12	M12	STUDS	86	22.5		43	22.6	1	1		Yes		
13	M13	STUDS	86	22.5		43	22.6	1	1		Yes		
14	M14	STUDS	86	22.5		43	22.6	1	1		Yes		
15	M15	STUDS	86	22.5		43	22.6	1	1		Yes		
16	M16	STUDS	86	22.5		43	22.6	1	1		Yes		
17	M17	STUDS	86	22.5		43	22.6	1	1		Yes		
18	M18	STUDS	86	22.5		43	22.6	1	1		Yes		
19	M19	STUDS	86	22.5		43	22.6	1	1		Yes		
20	M20	STUDS	86	22.5		43	22.6	1	1		Yes		
21	M21	STUDS	86	22.5		43	22.6	1	1		Yes		
22	M22	STUDS	86	22.5		43	22.6	1	1		Yes		
23	M23	STUDS	86	22.5		43	22.6	1	1		Yes		
24	M24	STUDS	86	22.5		43	22.6	1	1		Yes		
25	M25	STUDS	86	22.5		43	22.6	1	1		Yes		
26	M26	STUDS	86	22.5		43	22.6	1	1		Yes		
27	M27	STUDS	86	22.5		43	22.6	1	1		Yes		
28	M28	STUDS	86	22.5		43	22.6	1	1		Yes		
29	M29	STUDS	86	22.5		43	22.6	1	1		Yes		
30	M30	STUDS	86	22.5		43	22.6	1	1		Yes		
31	M31	STUDS	86	22.5		43	22.6	1	1		Yes		
32	M32	STUDS	86	22.5		43	22.6	1	1		Yes		
33	M33	STUDS	86	22.5		43	22.6	1	1		Yes		
34	M34	STUDS	86	22.5		43	22.6	1	1		Yes		

Wood Design Parameters (Continued)

Label	Shape	Length...	le2[in]	le1[in]	le-bend top[in]	le-bend bot[in]	Kyy	Kzz	CV	Cr	y sway	z sway
35	M35	STUDS	86	22.5		43	22.6	1	1		Yes	
36	M36	STUDS	86	22.5		43	22.6	1	1		Yes	
37	M37	STUDS	86	22.5		43	22.6	1	1		Yes	
38	M38	STUDS	86	22.5		43	22.6	1	1		Yes	
39	M39	STUDS	86	22.5		43	22.6	1	1		Yes	
40	M40	STUDS	86	22.5		43	22.6	1	1		Yes	
41	M41	STUDS	86	22.5		43	22.6	1	1		Yes	
42	M42	STUDS	86	22.5		43	22.6	1	1		Yes	
43	M43	STUDS	86	22.5		43	22.6	1	1		Yes	
44	M44	STUDS	86	22.5		43	22.6	1	1		Yes	
45	M45	STUDS	86	22.5		43	22.6	1	1		Yes	
46	M180	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
47	M181	WD CO...	4.119			Lbyy						
48	M182	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
49	M183	WD CO...	4.119			Lbyy						
50	M184	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
51	M185	WD CO...	4.119			Lbyy						
52	M186	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
53	M187	WD CO...	4.119			Lbyy						
54	M188	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
55	M189	WD CO...	4.119			Lbyy						
56	M190	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
57	M191	WD CO...	4.119			Lbyy						
58	M192	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
59	M193	WD CO...	4.119			Lbyy						
60	M194	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
61	M195	WD CO...	4.119			Lbyy						
62	M196	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
63	M197	WD CO...	4.119			Lbyy						
64	M198	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
65	M199	WD CO...	4.119			Lbyy						
66	M200	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
67	M201	WD CO...	4.119			Lbyy						
68	M202	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
69	M203	WD CO...	4.119			Lbyy						
70	M204	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
71	M205	WD CO...	4.119			Lbyy						
72	M206	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
73	M207	WD CO...	4.119			Lbyy						
74	M208	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
75	M209	WD CO...	4.119			Lbyy						
76	M210	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
77	M211	WD CO...	4.119			Lbyy						
78	M212	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
79	M213	WD CO...	4.119			Lbyy						
80	M214	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
81	M215	WD CO...	4.119			Lbyy						
82	M216	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
83	M217	WD CO...	4.119			Lbyy						
84	M218	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	
85	M219	WD CO...	4.119			Lbyy						
86	M220	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes	

Wood Design Parameters (Continued)

	Label	Shape	Length...	le2[in]	le1[in]	le-bend top[in]	le-bend bot[in]	Kyy	Kzz	CV	Cr	y sway	z sway
87	M221	WD CO...	4.119			Lbyy							
88	M222	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
89	M223	WD CO...	4.119			Lbyy							
90	M224	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
91	M225	WD CO...	4.119			Lbyy							
92	M226	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
93	M227	WD CO...	4.119			Lbyy							
94	M228	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
95	M229	WD CO...	4.119			Lbyy							
96	M230	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
97	M231	WD CO...	4.119			Lbyy							
98	M232	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
99	M233	WD CO...	4.119			Lbyy							
100	M234	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
101	M235	WD CO...	4.119			Lbyy							
102	M236	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
103	M237	WD CO...	4.119			Lbyy							
104	M238	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
105	M239	WD CO...	4.119			Lbyy							
106	M240	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
107	M241	WD CO...	4.119			Lbyy							
108	M242	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
109	M243	WD CO...	4.119			Lbyy							
110	M244	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
111	M245	WD CO...	4.119			Lbyy							
112	M246	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
113	M247	WD CO...	4.119			Lbyy							
114	M248	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
115	M249	WD CO...	4.119			Lbyy							
116	M250	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
117	M251	WD CO...	4.119			Lbyy							
118	M252	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
119	M253	WD CO...	4.119			Lbyy							
120	M254	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
121	M255	WD CO...	4.119			Lbyy							
122	M256	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
123	M257	WD CO...	4.119			Lbyy							
124	M258	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
125	M259	WD CO...	4.119			Lbyy							
126	M260	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
127	M261	WD CO...	4.119			Lbyy							
128	M262	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
129	M263	WD CO...	4.119			Lbyy							
130	M264	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
131	M265	WD CO...	4.119			Lbyy							
132	M266	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
133	M267	WD CO...	4.119			Lbyy							
134	M268	RAFTERS	151.74	50.58		50.58	50.58	1	1		Yes		
135	M269	WD CO...	4.119			Lbyy							

Wood Material Properties

Label	Type	Database	Species	Grade	Cm	Emod	Nu	Therm ...	Dens[lb/ft^3]	
1	DF/SPine	Solid Sawn	Visually Gr...	Com Species Grou...	No.1		1	.3	.3	35
2	HF/Spruce Fir	Solid Sawn	Visually Gr...	Com Species Grou...	No.1		1	.3	.3	35
3	DF	Solid Sawn	Visually Gr...	Douglas Fir-Larch	No.1		1	.3	.3	35
4	SP	Solid Sawn	Visually Gr...	Southern Pine	No.1		1	.3	.3	35
5	HF	Solid Sawn	Visually Gr...	Hem-Fir	Stud		1	.3	.3	35
6	SPF	Solid Sawn	Visually Gr...	Spruce-Pine-fir	No.1		1	.3	.3	35
7	24F-1.8E DF B...	Glulam	NDS Table...	24F-1.8E_DF_BAL	na		1	.3	.3	35
8	24F-1.8E DF U...	Glulam	NDS Table...	24F-1.8E_DF_UNB...	na		1	.3	.3	35
9	24F-1.8E SP B...	Glulam	NDS Table...	24F-1.8E_SP_BAL	na		1	.3	.3	35
10	24F-1.8E SP U...	Glulam	NDS Table...	24F-1.8E_SP_UNB...	na		1	.3	.3	35
11	LVL-PRL Com...	Custom	N/A	LVL_PRL_1.5E_22...	na		1	.3	.3	35
12	LVL-PRL Com...	Custom	N/A	LVL_PRL_2.0E_29...	na		1	.3	.3	35
13	2400 Fb - 2.0E..	Custom	N/A	2400 Fb - 2.0E MSR	na		1	.3	.3	35
14	2100 Fb - 1.8E..	Custom	N/A	2100 Fb - 1.8E MSR	na		1	.3	.3	35
15	HF_1	Solid Sawn	Visually Gr...	Hem-Fir	No.1		1	.3	.3	35

Custom Wood Properties

Label	Fb [ksi]	Ft [ksi]	Fv [ksi]	Fc [ksi]	E [ksi]	E05 [ksi]	Type	CF
1	LVL_PRL_1.5...	2.25	1.5	.22	1.95	1500	SCL	
2	LVL_PRL_2.0...	2.9	1.9	.285	2.75	2000	SCL	
3	LVL_Microllam...	2.6	1.555	.285	2.51	1900	SCL	
4	PSL_Parallam...	2.9	2.025	.29	2.9	2000	SCL	
5	PSL_Parallam...	2.4	1.755	.18	2.5	1800	SCL	
6	LSL_TimberStr...	2.325	1.07	.31	2.05	1550	SCL	
7	LSL_TimberStr...	1.7	1.075	.4	1.4	1300	SCL	
8	2400 Fb - 2.0E..	2.4	1.925	.185	1.975	2000	MSR	1
9	2100 Fb - 1.8E..	2.1	1.575	.185	1.875	1800	MSR	1

Hot Rolled Steel Section Sets

Label	Shape	Type	Design List	Material	Design Rul...	A [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]	
1	CENTER ...	PIPE 3.0	None	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	TIE RODS	1/4"	None	None	cable	Typical	.049	.000192	.000192	.000383
3	TENSION ...	3/16" _HRA	None	None	cable	Typical	.028	6.1e-5	6.1e-5	.000121
4	HR1	W4X13	Beam	Wide Flange	A36 Gr.36	Typical	3.83	3.86	11.3	.151
5	HR1A	W4X13	Beam	Wide Flange	A36 Gr.36	Typical	3.83	3.86	11.3	.151

Hot Rolled Steel Design Parameters

Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp b...	L-torque[in]	Kyy	Kzz	Cb	Function
1	M46	TENSION R...	22.405				Lbyy				Lateral
2	M47	TENSION R...	22.405				Lbyy				Lateral
3	M48	TENSION R...	22.405				Lbyy				Lateral
4	M49	TENSION R...	22.405				Lbyy				Lateral
5	M50	TENSION R...	22.405				Lbyy				Lateral
6	M51	TENSION R...	22.405				Lbyy				Lateral
7	M52	TENSION R...	22.405				Lbyy				Lateral
8	M53	TENSION R...	22.405				Lbyy				Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp b...	L-torque[in]	Kyy	Kzz	Cb	Function
9	M54	TENSION R...	22.405			Lbyy						Lateral
10	M55	TENSION R...	22.405			Lbyy						Lateral
11	M56	TENSION R...	22.405			Lbyy						Lateral
12	M57	TENSION R...	22.405			Lbyy						Lateral
13	M58	TENSION R...	22.405			Lbyy						Lateral
14	M59	TENSION R...	22.405			Lbyy						Lateral
15	M60	TENSION R...	22.405			Lbyy						Lateral
16	M61	TENSION R...	22.405			Lbyy						Lateral
17	M62	TENSION R...	22.405			Lbyy						Lateral
18	M63	TENSION R...	22.405			Lbyy						Lateral
19	M64	TENSION R...	22.405			Lbyy						Lateral
20	M65	TENSION R...	22.405			Lbyy						Lateral
21	M66	TENSION R...	22.405			Lbyy						Lateral
22	M67	TENSION R...	22.405			Lbyy						Lateral
23	M68	TENSION R...	22.405			Lbyy						Lateral
24	M69	TENSION R...	22.405			Lbyy						Lateral
25	M70	TENSION R...	22.405			Lbyy						Lateral
26	M71	TENSION R...	22.405			Lbyy						Lateral
27	M72	TENSION R...	22.405			Lbyy						Lateral
28	M73	TENSION R...	22.405			Lbyy						Lateral
29	M74	TENSION R...	22.405			Lbyy						Lateral
30	M75	TENSION R...	22.405			Lbyy						Lateral
31	M76	TENSION R...	22.405			Lbyy						Lateral
32	M77	TENSION R...	22.405			Lbyy						Lateral
33	M78	TENSION R...	22.405			Lbyy						Lateral
34	M79	TENSION R...	22.405			Lbyy						Lateral
35	M80	TENSION R...	22.405			Lbyy						Lateral
36	M81	TENSION R...	22.405			Lbyy						Lateral
37	M82	TENSION R...	22.405			Lbyy						Lateral
38	M83	TENSION R...	22.405			Lbyy						Lateral
39	M84	TENSION R...	22.405			Lbyy						Lateral
40	M85	TENSION R...	22.405			Lbyy						Lateral
41	M86	TENSION R...	22.405			Lbyy						Lateral
42	M87	TENSION R...	22.405			Lbyy						Lateral
43	M88	TENSION R...	22.405			Lbyy						Lateral
44	M89	TENSION R...	22.405			Lbyy						Lateral
45	M90	TENSION R...	22.405			Lbyy						Lateral

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...Density[lb/f...	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
2	A36 WEIGHTLESS	29000	11154	.3	.65	0	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.1
4	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
5	A500 Gr.42	29000	11154	.3	.65	490	42	1.4	58	1.3
6	A500 Gr.46	29000	11154	.3	.65	490	46	1.4	58	1.3
7	cable	29000	11154	.3	.65	0	254	1.5	58	1.2
8	A53 Gr.B	29000	11154	.3	.65	490	35	1.5	60	1.2



Company :
 Designer :
 Job Number : CO YURT COMPANY
 Model Name : 27' FULL SNOW & WIND

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Envelope Wood Code Checks

Member	Shape	Code Check	Loc[in]	LC	Shear C...	Loc.....	LC	Fc' [k..Ft' [ksi]	Fb1' [...Fb2' [...Fv' [k...	RB	CL	CP	Eqn
1	M1	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
2	M2	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
3	M3	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
4	M4	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
5	M5	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
6	M6	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
7	M7	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
8	M8	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
9	M9	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
10	M10	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
11	M11	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
12	M12	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
13	M13	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
14	M14	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
15	M15	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
16	M16	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
17	M17	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
18	M18	2X4	.288	51.3...	6	.197	0	z 11	1.048 1.811 2.764 3.055 .296 5.929	.995	.486	3.9-3	
19	M19	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
20	M20	2X4	.288	51.3...	6	.205	0	z 8	1.048 1.811 2.764 3.055 .296 5.929	.995	.486	3.9-3	
21	M21	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
22	M22	2X4	.288	51.3...	6	.198	0	z 8	1.048 1.811 2.764 3.055 .296 5.929	.995	.486	3.9-3	
23	M23	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
24	M24	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
25	M25	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
26	M26	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
27	M27	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
28	M28	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
29	M29	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
30	M30	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
31	M31	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
32	M32	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
33	M33	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
34	M34	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
35	M35	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
36	M36	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
37	M37	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
38	M38	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
39	M39	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
40	M40	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
41	M41	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
42	M42	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
43	M43	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
44	M44	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
45	M45	2X4	.288	51.3...	6	.196	73....	y 6	1.048 1.811 2.764 3.055 .213 5.929	.995	.486	3.9-3	
46	M180	2X6	.450	85.16	6	.235	151...	y 6	.613 1.811 2.717 3.194 .213 11.119	.978	.284	3.9-3	
47	M181	2-2X4	.185	0	6	.075	0	y 11	1.292 1.811 2.415 2.657 .296 1.266	1	.599	3.6.3	
48	M182	2X6	.450	85.16	6	.235	151...	y 6	.613 1.811 2.717 3.194 .213 11.119	.978	.284	3.9-3	
49	M183	2-2X4	.185	0	6	.017	0	y 11	1.292 1.811 2.415 2.657 .296 1.266	1	.599	3.6.3	
50	M184	2X6	.450	85.16	6	.235	151...	y 6	.613 1.811 2.717 3.194 .213 11.119	.978	.284	3.9-3	
51	M185	2-2X4	.185	0	6	.152	0	y 11	1.292 1.811 2.415 2.657 .296 1.266	1	.599	3.6.3	



Company :
 Designer :
 Job Number : CO YURT COMPANY
 Model Name : 27' FULL SNOW & WIND

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Envelope Wood Code Checks (Continued)

Member	Shape	Code Check	Loc[in]	LC	Shear C...	Loc.....	LC	Fc' [k...	Ft' [ksj]	Fb1' [...]	Fb2' [...]	Fv' [k...	RB	CL	CP	Egn		
104	M238	2X6	.512	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
105	M239	2-2X4	.185	0	6	.208	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
106	M240	2X6	.507	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
107	M241	2-2X4	.185	0	6	.244	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
108	M242	2X6	.507	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
109	M243	2-2X4	.185	0	6	.234	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
110	M244	2X6	.500	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
111	M245	2-2X4	.185	0	6	.241	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
112	M246	2X6	.500	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
113	M247	2-2X4	.185	0	6	.243	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
114	M248	2X6	.492	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
115	M249	2-2X4	.186	0	7	.223	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
116	M250	2X6	.492	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
117	M251	2-2X4	.185	0	6	.236	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
118	M252	2X6	.483	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
119	M253	2-2X4	.189	0	7	.190	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
120	M254	2X6	.483	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
121	M255	2-2X4	.186	0	7	.213	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
122	M256	2X6	.474	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
123	M257	2-2X4	.191	0	7	.146	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
124	M258	2X6	.474	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
125	M259	2-2X4	.189	0	7	.178	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
126	M260	2X6	.465	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
127	M261	2-2X4	.193	0	7	.094	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
128	M262	2X6	.465	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
129	M263	2-2X4	.191	0	7	.133	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
130	M264	2X6	.456	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
131	M265	2-2X4	.193	0	7	.036	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
132	M266	2X6	.456	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
133	M267	2-2X4	.193	0	7	.080	0	y	11	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3
134	M268	2X6	.451	85.16	7	.235	151...	y	7	.613	1.811	2.717	3.194	.213	11.119	.978	.284	3.9-3
135	M269	2-2X4	.193	0	7	.027	0	z	10	1.292	1.811	2.415	2.657	.296	1.266	1	.599	3.6.3

Envelope AISC 14th(360-10): ASD Steel Code Checks

Member	Shape	Code Check	Loc[...]	LC	She...	Lo.....	Pnc/...	Pnt/o...	Mnyy/om	[..Mnzz/o...	Egn	
1	M46	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
2	M47	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
3	M48	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
4	M49	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
5	M50	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
6	M51	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
7	M52	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
8	M53	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
9	M54	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
10	M55	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
11	M56	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
12	M57	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
13	M58	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
14	M59	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...
15	M60	3/16" _...	.351	0	6	.000	0	...	18.2654199...	13.195	13.195	1 H1-...



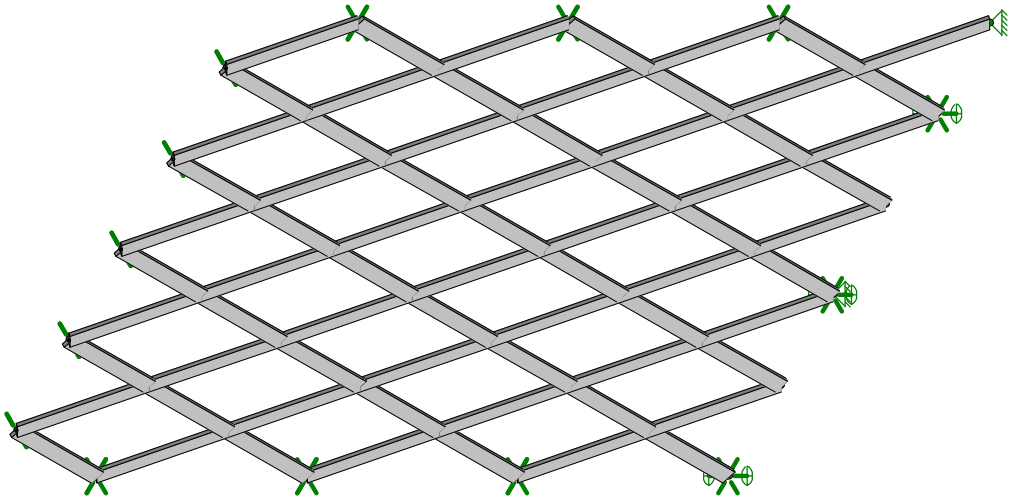
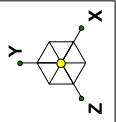
Company :
 Designer :
 Job Number : CO YURT COMPANY
 Model Name : 27' FULL SNOW & WIND

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Envelope AISC 14th(360-10): ASD Steel Code Checks (Continued)

Member	Shape	Code Check	Loc[...LC	She..Lo.....	Pnc/...	Pnt/o..	Mnyy/om [...Mnzz/o...	Eqn
16	M61 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
17	M62 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
18	M63 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
19	M64 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
20	M65 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
21	M66 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
22	M67 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
23	M68 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
24	M69 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
25	M70 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
26	M71 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
27	M72 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
28	M73 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
29	M74 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
30	M75 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
31	M76 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
32	M77 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
33	M78 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
34	M79 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
35	M80 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
36	M81 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
37	M82 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
38	M83 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
39	M84 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
40	M85 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
41	M86 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
42	M87 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
43	M88 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
44	M89 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...
45	M90 3/16" _...	.351	0	6 .000 0	...	18.2654199...	13.195 13.195 1	H1-...

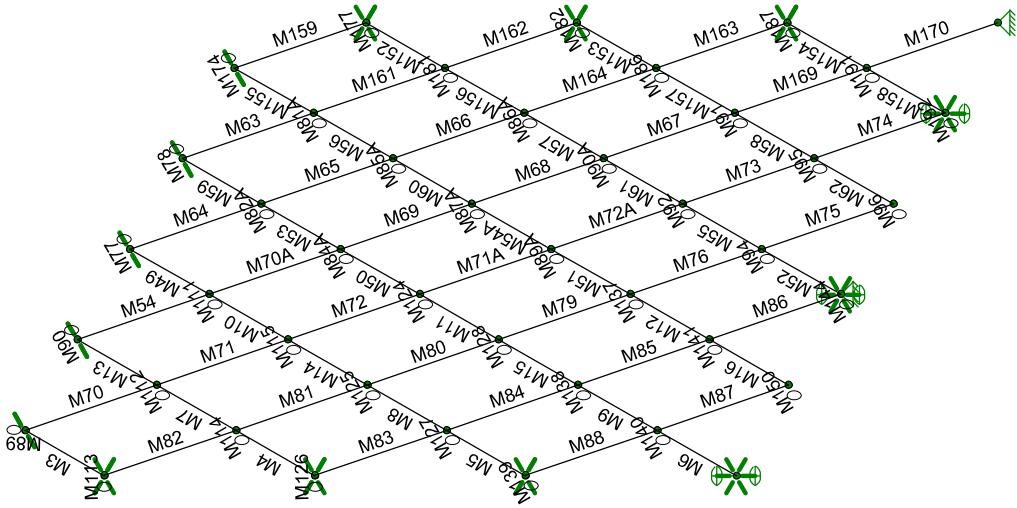
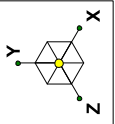
Miscellaneous Calculations



LATERAL LATTICE
BASIC MODEL

CO. YURT COMPANY

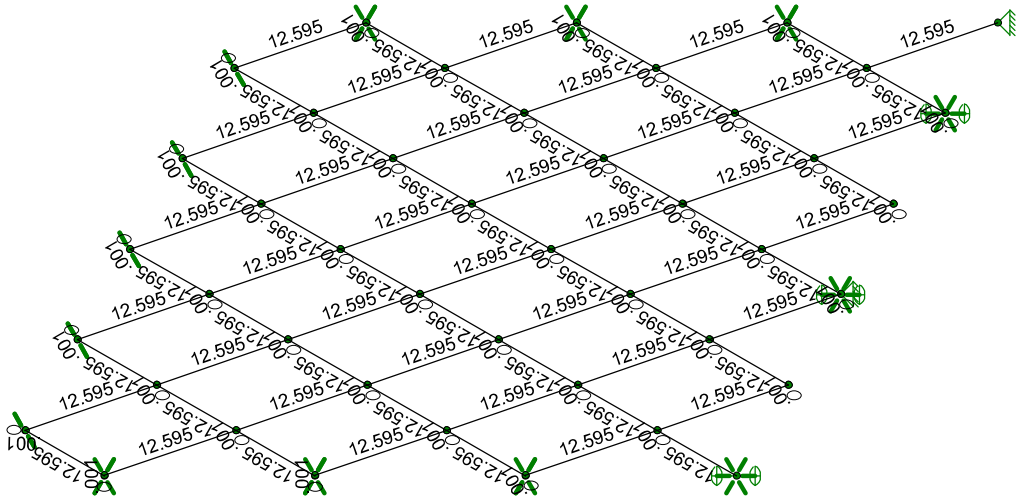
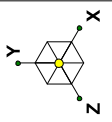
Lattice Yurt Lateral.r3d



LATERAL LATTICE
MEMBER LABELS

CO. YURT COMPANY

Lattice Yurt Lateral.r3d

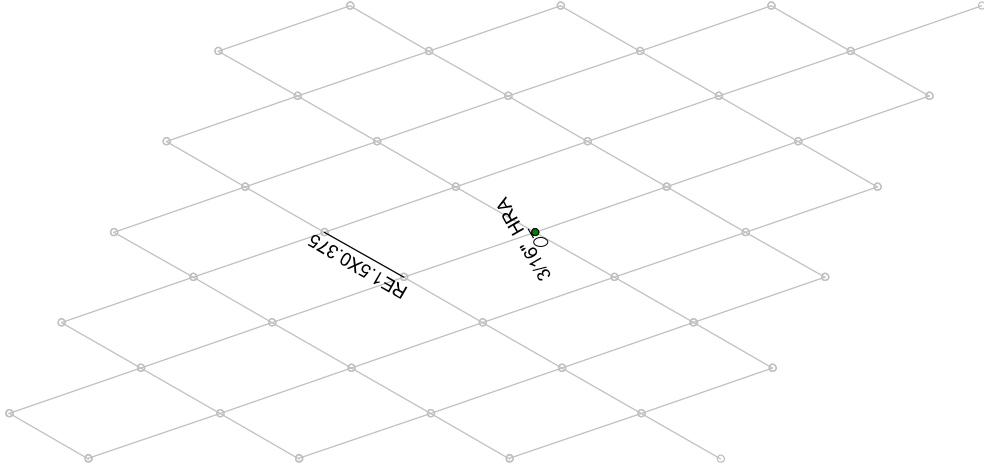
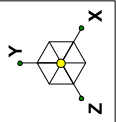


Member Length (in) Displayed

LATERAL LATTICE
MEMBER LENGTHS (INCHES)

CO. YURT COMPANY

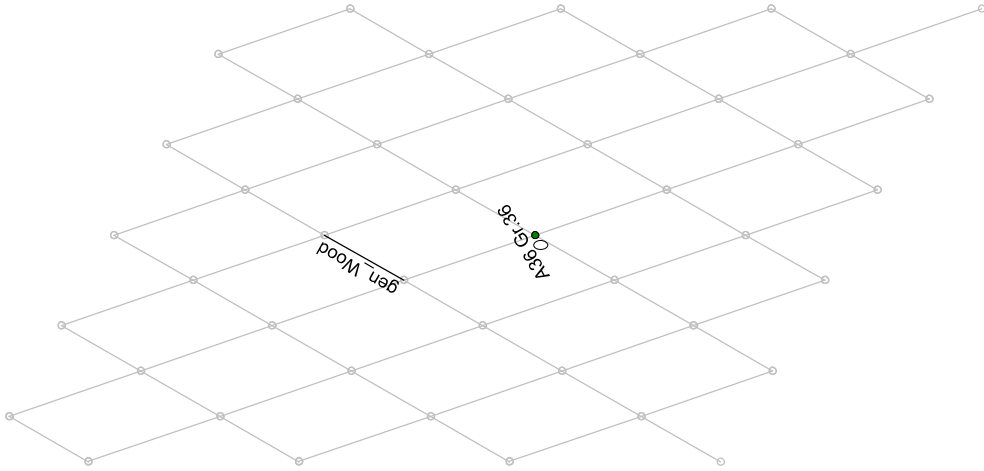
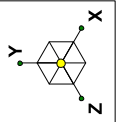
Lattice Yurt Lateral.r3d



LATERAL LATTICE
MEMBER SHAPES

CO. YURT COMPANY

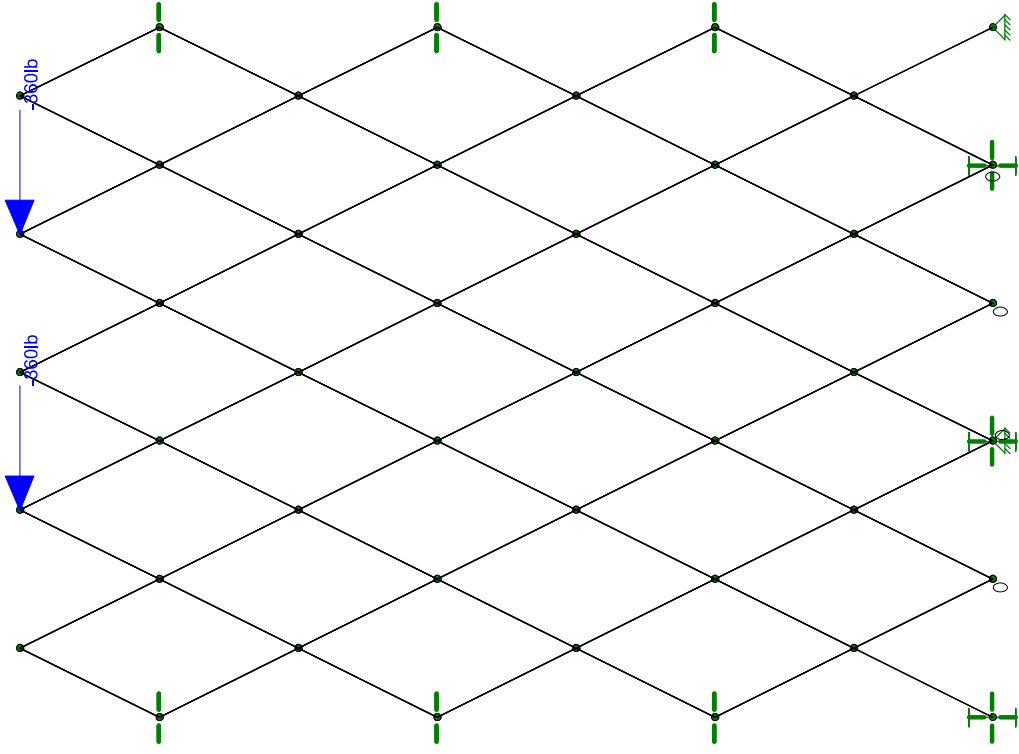
Lattice Yurt Lateral.r3d



LATERAL LATTICE
MEMBER MATERIALS

CO. YURT COMPANY

Lattice Yurt Lateral.r3d

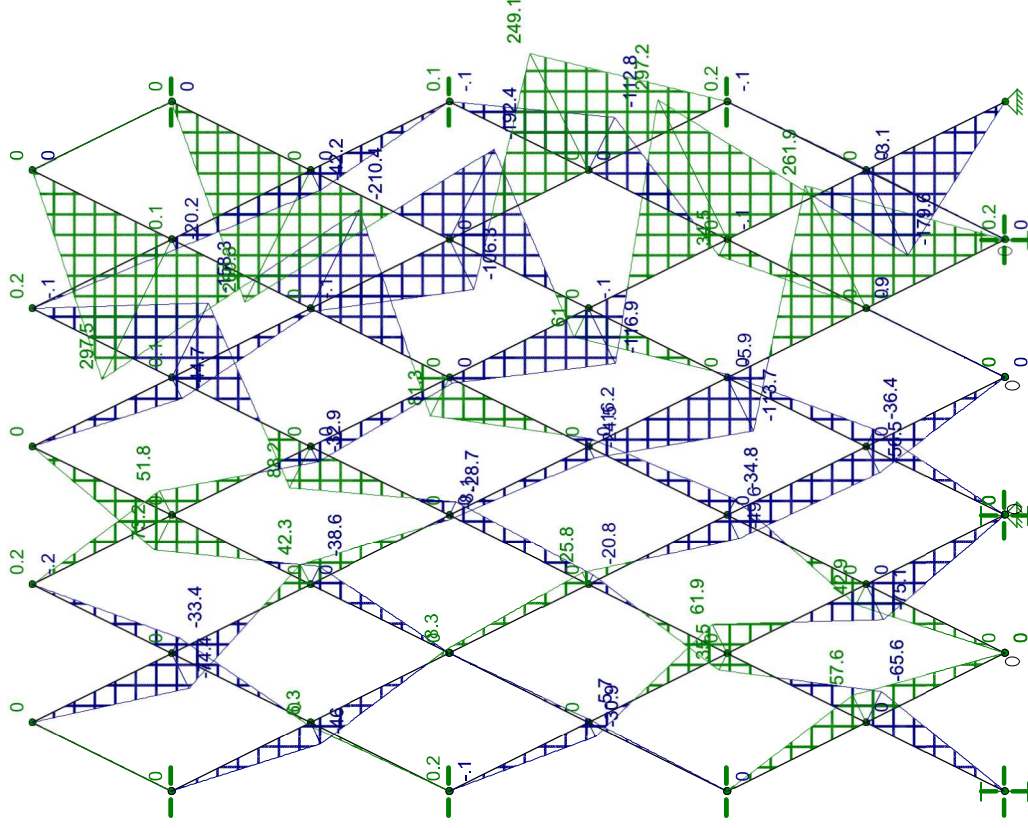


Loads: BLC 1, Lateral

LATERAL LATTICE
WALL WIND LOADS

CO. YURT COMPANY

Lattice Yurt Lateral.r3d

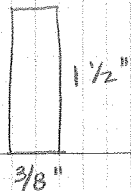


Results for LC 1, Load Case 1
Member z Bending Moments (lb-in)

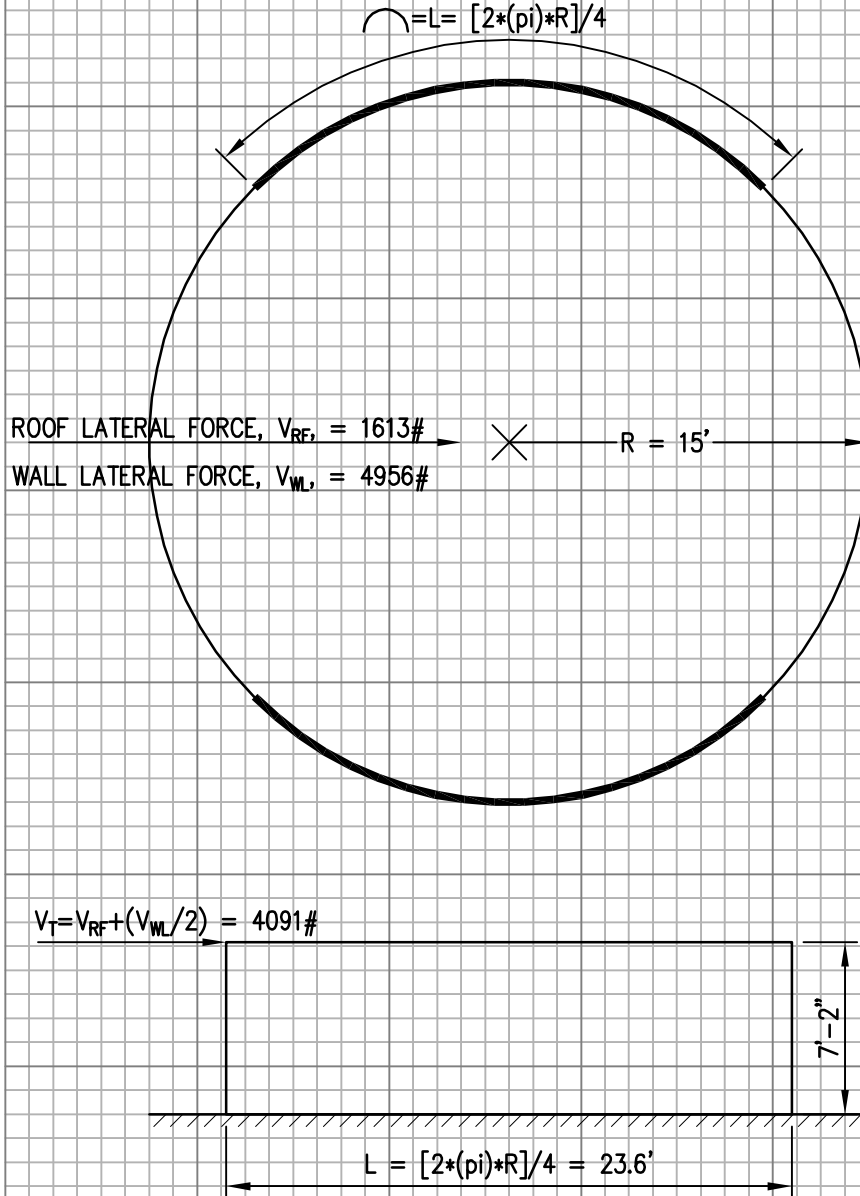
LATERAL LATTICE

CO. YURT COMPANY

Lattice Yurt Lateral.r3d

<u>LATTICE : CHECK BENDING</u>		MODELED AS	1.5" x 3/8"	GEN-WOOD
MSR	1350f-1.3E	$F_b = 1350 \text{ psi}$		
$F'_b = C_D C_M C_L C_C C_F C_{RU} C_i C_r F_b$				
$C_D = 1.0$ (NDS TBL 2.3.2)				
$C_C = 1.0$ (NDS TBL 2.3.3)				
$C_M = 1.0$ (NDS TBL 4B ADJ. FACTOR)				
$C_F = 1.0$				
$C_L = 1.0$	$\frac{d}{b} = 1$	$2 \leq d/b \leq 4$	$S = \frac{bh^2}{6}$	
$C_i = 1.0$			$S = \frac{(3/8") (1.5")^2}{6} = 0.141 \text{ in}^3$	
$C_r = 1.0$				
$C_{Fu} = 1.0$				
$F'_b = 1350 \text{ psi} (1.0) = 1350 \text{ psi} = 1.35 \text{ ksi}$				
MAX MOMENT: $F_b = \frac{M}{S}$			$M_{MAX} = F_b S = 1350 \frac{\text{lb}}{\text{in}^2} (0.141 \text{ in}^3) = 190 \text{ lb-in}$	
<u>RIVETS</u>			NOTE: FOR YURTS WITH STUDS LATTICE IS REQ'D TO RESIST LATERAL LOADS ONLY. ADD THE LOAD DURATIONAL FACTOR, C_D , MAY BE INCREASED TO 1.6.	
3/16" ϕ ALUMINIUM			$M_{MAX WIND} = 190 (1.6) = 303 \text{ lb-in}$	
$R_n = \frac{\pi D_n^2 F_{Su}}{4}$		$C R_n = \frac{\pi (0.1875 \text{ in})^2 F_{Su}}{4}$	$F_{Su} = 46 \text{ ksi}$	
$D_n = 0.1875"$		$R_n = 1270 \text{ lbs}$		
		$\frac{R_n}{\Omega} = \frac{1270 \text{ lbs}}{2.34} = 543 \text{ lbs}$		

DETERMINE LATERAL CAPACITY OF LATTICE (30' YURT):



NOTES:

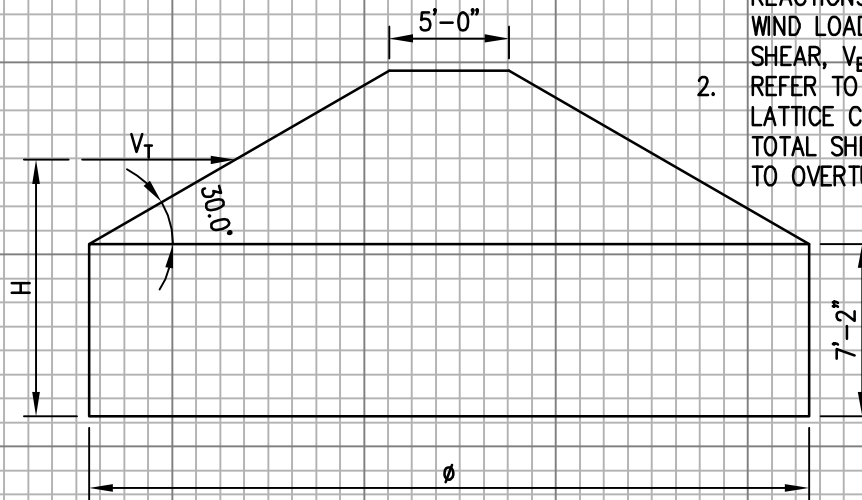
1. LENGTH OF MWFRS SYSTEM, LATTICE SHEAR WALL, ON EACH SIDE OF THE YURT IS ASSUMED TO BE APPROXIMATELY EQUAL TO $\frac{1}{4}$ th OF THE TOTAL CIRCUMFERENCE. REFER TO SKETCH FOR LENGTH DETERMINATION.
2. REFER TO RISA OUTPUT, JOINT REACTIONS, FOR ROOF LATERAL FORCE, V_{RF} .
3. REFER TO RISA OUTPUT JOINT REACTIONS, FOR WALL LATERAL FORCE. NOTE THAT THE PANEL SHEAR FORCE NEED ONLY BE TAKEN AS HALF THE WALL LATERAL FORCE.
4. UPLIFT & OVERTURNING FORCES ARE TO BE RESISTED VIA BRACKET CONNECTIONS OF THE STUDS AND/OR LATTICE, WHERE APPLICABLE, & LATTICE TO THE SUPPORTING SUBSTRATE. REFER TO RISA OUTPUT, JOINT REACTIONS, FOR MAXIMUM UPLIFT FORCES. ENGINEER IN RESPONSIBLE CHARGE FOR THE DESIGN OF THE SUPPORTING SUBSTRATE, i.e. CONCRETE SLAB, WOOD DECK, ETC., TO DESIGN ANCHORAGE FOR SUCH LOADS.

PANEL SHEAR FORCE = $(V_T/2)/P = 341\#$

REFERRING TO "LATERAL ANALYSIS OF LATTICE" RISA OUTPUT, MAXIMUM ALLOWABLE PANEL SHEAR FORCE = 720# WHICH IS GREATER THAN THE APPLIED SHEAR FORCE. THEREFORE, THE LATTICE IS CAPABLE OF RESISTING THE DESIGN LOADS.

YURT SCHEDULE			
TYPE	No. OF RAFTERS	SHEAR WALL LENGTH, L	No. OF PANELS/SHEARWALL, P
30'	48	23.6'	12
27'	45	21.2'	11
24'	42	18.85'	10
20'	36	15.71'	9
16'	28	12.57'	7

DETERMINE BASE SHEAR AND OVERTURNING MOMENT (30' YURT):



NOTES:

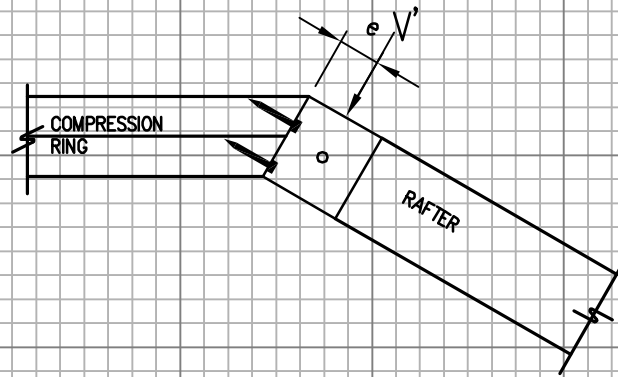
1. REFER TO RISA OUTPUT, SUM OF REACTIONS FOR WALL AND ROOF WIND LOADS, FOR TOTAL BASE SHEAR, V_{BASE} .
2. REFER TO LATERAL CAPACITY OF LATTICE CALCULATION SHEET FOR TOTAL SHEAR, V_T , CONTRIBUTING TO OVERTURNING FORCES

TOTAL BASE SHEAR, $V_{BASE} = 6596\#$

OVERTURNING MOMENT, $OTM = V_T(H) = 43639\#'$

YURT SCHEDULE	
DIAMETER, ϕ	HEIGHT, H
30'	10'-8"
27'	10'-3"
24'	9'-11"
20'	9'-4"
16'	8'-9"

DETERMINE MAXIMUM SHEAR AND TENSION FOR COMPRESSION RING CONNECTION:



NOTES:

1. U-BRACKET IS TO BE MADE UP OF 14 GA. STL
2. (2) 2x4 DF (F_b 2100-1.8 MSR) IS TO BE USED FOR COMPRESSION RING
3. (2) #12x2" WOOD SCREWS. TOP SCREW TO BE DESIGNED TO RESIST FULL TENSION AND HALF THE SHEAR VALUE. BOTTOM SCREW TO BE DESIGNED TO RESIST HALF THE SHEAR VALUE.
4. REFER TO FOLLOWING AWC PRINT OUT FOR LATERAL (Z') AND WITHDRAWAL (W'_p) CAPACITIES FOR WOOD SCREWS.

14 GA. U-BRACKET

MAXIMUM ALLOWABLE TENSION, W'_p = 205#

MAXIMUM ALLOWABLE SHEAR, Z' = 147#

$$2*Z' = 2*147# = 294#$$

CALCULATE MAXIMUM RAFTER SHEAR AND TENSION:

ASSUME COMPRESSION BLOCK LENGTH, a, IS EQUAL TO 1/4".

$$T' = (2V' * 1.5") / 1.875"$$

SOLVING FOR V',

$$V' = T'(1.875") / (2 * 1.5") = T'(0.625)$$

$$\alpha = \tan^{-1}(V'/T') = \tan^{-1}(0.625/T') = \tan^{-1}(0.625) = 32'$$

CHECK COMBINED SHEAR AND TENSION:

$$Z'_a = [W'_p(Z')] / (W'_p \cos^2 \alpha + Z' \sin^2 \alpha) = 171# \quad (\text{CONTROLS})$$

$$z' = w'_p(1.875") / (2 * 1.5") = w'_p(0.625)$$

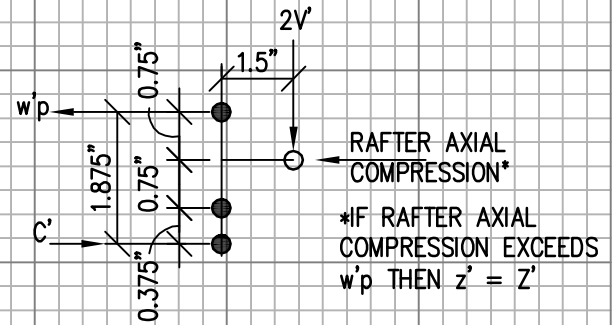
$$Z'_a = [w'_p(z')] / (w'_p \cos^2 \alpha + z' \sin^2 \alpha)$$

SOLVING FOR w'_p,

$$w'_p = 145#$$

$$z' = 145#(0.625) = 90.625#$$

$$(2)z' = (2)90.625# = 181#$$



Design Method	Allowable Stress Design (ASD) ▼
Connection Type	Lateral loading ▼
Fastener Type	Wood Screw ▼
Loading Scenario	Single Shear ▼

Main Member Type	Douglas Fir-Larch ▼
Main Member Thickness	3.5 in. ▼
Main Member: Angle of Load to Grain	90
Side Member Type	Steel ▼
Side Member Thickness	14 gage ▼
Side Member: Angle of Load to Grain	0
Wood Screw Number	12 (D = 0.216 in.) ▼
Length	2 in. ▼
Load Duration Factor	C _D = 1.0 ▼
Wet Service Factor	C _M = 1.0 ▼
End Grain Factor	C _{eg} = 1.0 ▼
Temperature Factor	C _t = 1.0 ▼

Connection Yield Modes

Im	537 lbs.
Is	359 lbs.
II	219 lbs.
III _m	245 lbs.
III _s	147 lbs.
IV	201 lbs.

Adjusted ASD Capacity	147 lbs. = Z'
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- Wood Screw bending yield strength of 80000 psi is assumed.
- Dowel bearing strengths for wood screws with nominal diameter greater than 1/4 in. are calculated and rounded to the nearest 50 psi in accordance with NDS Table 11.3.2.
- Length of tapered tip is assumed to be two times the nominal wood screw diameter for calculating dowel bearing length in the main member.
- ASTM A36 Steel is assumed for steel side members 1/4 in. thick, and ASTM A653 Grade 33 Steel is assumed for steel side members less than 1/4 in. thick.

While every effort has been made to insure the accuracy of the information presented, and special effort has been made to assure that the information reflects the state-of-the-art, neither the American Wood Council nor its members assume any responsibility for any particular design prepared from this on-line Connection Calculator. Those using this on-line Connection Calculator assume all liability from its use.

Design Method	Allowable Stress Design (ASD) ▼
Connection Type	Withdrawal loading ▼
Fastener Type	Wood Screw ▼
Loading Scenario	N/A ▼

Main Member Type	Douglas Fir-Larch ▼
Main Member Thickness	3.5 in. ▼
Side Member Type	Steel ▼
Side Member Thickness	14 gage ▼
Wood Screw Number	12 (D = 0.216 in.) ▼
Length	2 in. ▼
Load Duration Factor	C _D = 1.0 ▼
Wet Service Factor	C _M = 1.0 ▼
Temperature Factor	C _t = 1.0 ▼

Adjusted ASD Capacity	205 lbs.	= W' _p
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- The Adjusted ASD Capacity does not apply for wood screws installed in the end grain of wood members.
- The Adjusted ASD Capacity only applies to withdrawal of the fastener from the main member. It does not address head pull-through capacity of the fastener in the side member.

While every effort has been made to insure the accuracy of the information presented, and special effort has been made to assure that the information reflects the state-of-the-art, neither the American Wood Council nor its members assume any responsibility for any particular design prepared from this on-line Connection Calculator. Those using this on-line Connection Calculator assume all liability from its use.

The Connection Calculator was designed and created by Cameron Knudson, Michael Dodson and David Pollock at Washington State University. Support for development of the Connection Calculator was provided by [American Wood Council](#).