



**Prime Consulting Engineers Pty. Ltd.**

**Design Report:**

**8m Dome Structure (enclosed)**

**For**



Ref: R-22-211-2

Date: 10/05/2022

Amendment: -

Prepared by: KZ

Checked by: SD

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## 1 Introduction and Scope:

The report and certification are the sole property of Prime Consulting Engineers Pty. Ltd.

Prime Consulting Engineers have been engaged by Extreme Marquees Pty. Ltd. to carry out a structural analysis of 8m dome structure for wind loads region A (non-cyclonic) and snow loads for sub-alpine regions. It should be noted that the outcome of our analysis is limited to the selected items as outlined in this report.

This report shall be read in conjunction with the documents listed in the references (Section 1.2)

### 1.1 Project Description

The report examines the effect of 3s gust wind of **(refer to summary)** and snow loads of sub-alpine region positioned for the worst effect on the 8m dome structure. The result of this report is also applicable to the smaller dome structure with identical member sizes. The relevant Australian Standards AS1170.0:2002 General principles, AS1170.1:2002 Permanent, imposed and other actions, AS1170.2:2021 Wind actions and AS1170.3 Snow actions are used. The design check is in accordance with AS4100:1998 steel structures.

### 1.2 References

- The documents referred to in this report are as follows:
  - Report of results produced through SAP2000 V24 software & excel spreadsheets.
  - Detail drawing provided by manufacturer. Refer to appendix 'A'.
- The basic standards used in this report are as follows:
  - AS 1170.0:2002 – Structural Design Actions (Part 0: General principles)
  - AS 1170.1:2002 – Structural Design Actions (Part 1: Permanent, imposed, and other actions)
  - AS 1170.2:2021 – Structural Design Actions (Part 2: Wind Actions)
  - AS 1170.3:2003 – Snow and ice actions.
  - AS4100:1998 – Steel Structures.
- Section Properties of Steel (Q235) Section provided by the client.
- The program(s) used for this analysis are as follows:
  - SAP2000 V24
  - Microsoft Excel

### 1.3 Notation

AS/NZS	Australian Standard/New Zealand Standard
FEM/FEA	Finite Element Method/Finite Element Analysis

SLS Serviceability Limit State

ULS Ultimate Limit State

## 2 Design Overview

### 2.1 Geometry Data

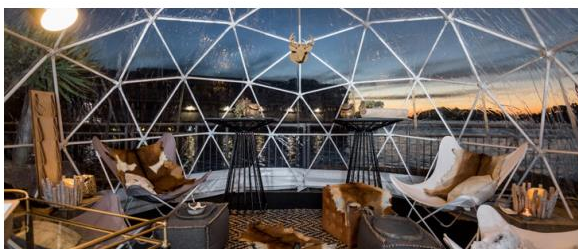
**EXTREME MARQUEES**

WE CAN CUSTOM PRINT  
ANY COLOUR

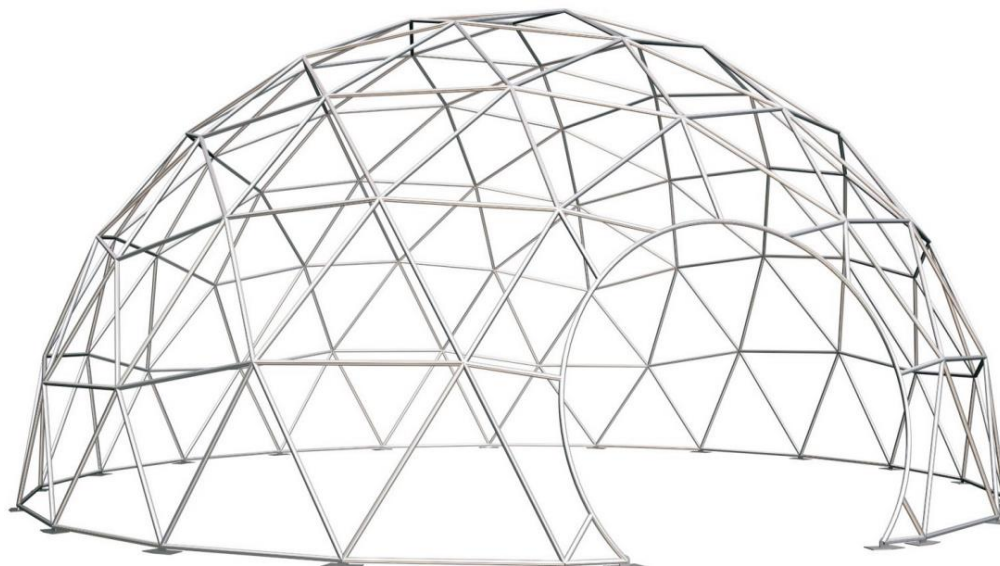
#### DOMES RANGE

4m / 5m / 6m / 7m / 8m / 9m / 10m / 11m / 12m

EVENT TENT



ITEM	SPECIFICATION								
Size	4m	5m	6m	7m	8m	9m	10m	11m	12m
Ceiling Height	2.4m	2.5m	3m	3.5m	4m	4.5m	5m	5.5m	6m
Door Size	1200mm W x 1800mm H			1500mm W x 2100mm H			1500mm W x 2400mm H		
Dome Style	Lapela								
Floor Space	12.5 sq.m	17.8 sq.m	28 sq.m	38 sq.m	50 sq.m	63 sq.m	78 sq.m	95 sq.m	113 sq.m
Stand up Capacity	15	24	34	46	60	76	94	114	136
Sit down Capacity	10	16	23	31	40	51	63	76	90
Frame Material	Steel								
Frame Size	20mm diameter x 1.5mm thickness				25mm diameter x 2mm thickness				



Isometric view of structures

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## 2.2 Assumptions & Limitations

- The erected structure is for temporary use only.
- For forecast winds in excess of **(refer to summary)** the dome structure should be completely dismantled.
- The structure may only be used in regions with wind and snow classifications no greater than the limits specified in cl. 5 & 6 of this report.
- Parameters used for wind & snow calculations:
  - TC 2
  - Wind Region A
  - Sub-alpine region (Orange, NSW)
- Topographical factors such as erecting the structure on the crest of a hill or on the top of an escarpment may result in a higher wind speed classification. Thus, special considerations should be taken to the topographical location of the installation site.
- Shall the site conditions, wind or snow parameters exceed prescribed design actions (refer to cl.7), Prime Consulting Engineers Pty. Ltd. should be informed to determine appropriate wind/snow classifications and amend computations accordingly.
- It is assumed that the structure is fully enclosed with equally permeable side walls to calculate Wind Internal Forces.

## 2.3 Exclusions

- Design of fabric
- Wind actions due to tropical or severe tropical cyclonic areas.
- Snow actions due to snow loads other than Orange, NSW.
- Super imposed loads such as live load.

## 2.4 Design Parameters and Inputs

### 2.4.1 Load Cases

1.	G	Permanent actions (Dead load)
3.	Wu	Ultimate wind action (ULS)
4.	Ws	Serviceability wind action (SLS)
5.	S	Snow action (SLS)

## 2.4.2 Load Combinations

### Strength (ULS):

1. 1.35G Permanent action only
3. 0.9G+W<sub>u</sub> Permanent and wind actions
4. 1.2G+W<sub>u</sub> Permanent and wind actions
5. 1.2G+S Permanent and snow actions

### Serviceability (SLS):

2. G+W<sub>s</sub> Wind service actions

## 3 Specifications

### 3.1 Material Properties

Material Properties 03a - Steel Data								
Material	F <sub>y</sub>	F <sub>u</sub>	EffF <sub>y</sub>	EffF <sub>u</sub>	S <sub>Hard</sub>	S <sub>Max</sub>	S <sub>Rup</sub>	FinalSlope
Text	KN/m <sup>2</sup>	KN/m <sup>2</sup>	KN/m <sup>2</sup>	KN/m <sup>2</sup>	Unitless	Unitless	Unitless	Unitless
Q235	235000	390000	260000	430000	0.015	0.11	0.17	-0.1

### 3.2 Member Sizes & Section Properties

TABLE: Frame Section Properties 01 - General												
SectionName	t <sub>3</sub>	t <sub>2</sub>	t <sub>f</sub>	t <sub>w</sub>	Area	TorsConst	I <sub>33</sub>	I <sub>22</sub>	Z <sub>33</sub>	Z <sub>22</sub>	R <sub>33</sub>	R <sub>22</sub>
Text	mm	mm	mm	mm	mm <sup>2</sup>	mm <sup>4</sup>	mm <sup>4</sup>	mm <sup>4</sup>	mm <sup>3</sup>	mm <sup>3</sup>	mm	mm
20x1.5CHS	20			1.5	87.18	7508.31	3754.15	3754.15	514.5	514.5	6.562	6.562
40x40x2	40	40	2	2	304	109744	73365.33	73365.33	4336	4336	15.535	15.535

## 4 Design Loads

Self weight	G	self weight
3s 100km/hr gust	W <sub>u</sub>	0.383 C <sub>fig</sub> (kPa)
Sub-alpine snow load	W <sub>s</sub>	0.33 - 0.64 (kPa)

## 5 Wind Analysis

### 5.1 Ultimate



Project: 8m Dome Structure

Jon no. 22-211-2

Designer: KZ

Date: 4/05/2022

Amendment: -

Name	Symbol	Value	Unit	Notes	Ref.
General					
Importance level		3			Table 3.1 - Table 3.2 (AS1170.0)
Annual probability of exceedance		Temporary			Table 3.3
Regional gust wind speed		100.00	Km/hr		
Regional gust wind speed	$V_R$	27.777	m/s		
Wind Direction Multipliers	$M_d$	1			Table 3.2 (AS1170.2)
Terrain Category	TC	2			
Terrain Category Multiplier	$M_{Z,Cat}$	0.91			
Shield Multiplier	$M_S$	1			4.3 (AS1170.2)
Topographic Multiplier	$M_t$	1			4.4 (AS1170.2)
Site Wind Speed	$V_{Site,\beta}$	25.28	m/s	$V_{Site,\beta} = V_R * M_d * M_{Z,Cat} * M_S * M_t$	
Pitch	$\alpha$	0	Deg		
Pitch	$\alpha$	0.000	rad		
Width	B	8	m		
Width Span	$S_w$	-	m		
Length	D	8	m		
Height	Z	2	m		
Bay Span		-	m		
	h/d	0.25			
	h/b	0.25			
Wind Pressure					
$\rho_{air}$	$\rho$	1.2	Kg/m <sup>3</sup>		



dynamic response factor	$C_{dyn}$	1			
Wind Pressure	$\rho * C_{fig}$	<b>0.383</b>	Kg/m <sup>2</sup>	$\rho = 0.5 \rho_{air} * (V_{des,\beta})^2 * C_{fig} * C_{dyn}$	2.4 (AS1170.2)
<b>WIND DIRECTION 1 (Perpendicular to Length)</b>					
<b>Internal Pressure</b>					
Opening Assumption	<b>Without Dominant Opening</b>				
Internal Pressure Coefficient (Without Dominant) <b>MIN</b>		-0.3			
Internal Pressure Coefficient (Without Dominant) <b>MAX</b>		0.2			
Internal Pressure Coefficient (With Dominant) <b>MIN</b>					
Internal Pressure Coefficient (With Dominant) <b>MAX</b>					
N				$C_{pi} = N * C_{pe}$	
Combination Factor	$K_{C,i}$	1			
Internal Pressure Coefficient <b>MIN</b>	$C_{p,i}$	-0.30			
Internal Pressure Coefficient <b>MAX</b>	$C_{p,i}$	0.20			
<b>External Pressure</b>					
<b>1. Windward Wall</b>					
External Pressure Coefficient	$C_{P,e}$	0.7			
Area Reduction Factor	$K_a$	1			
combination factor applied to internal pressures	$K_{C,e}$	0.8			
local pressure factor	$K_l$	1			
porous cladding reduction factor	$K_p$	1			
aerodynamic shape factor	$C_{fig,e}$	0.56			
Wind Wall Pressure	P	<b>0.21</b>	<b>kPa</b>		
<b>2. Leeward Wall</b>					
External Pressure Coefficient	$C_{P,e}$	-0.5			
Area Reduction Factor	$K_a$	1			
combination factor applied to internal pressures	$K_{C,e}$	0.8			
local pressure factor	$K_l$	1			
porous cladding reduction factor	$K_p$	1			

aerodynamic shape factor	$C_{fig,e}$	-0.4			
Leeward Wall Pressure	P	-0.15	kPa		
<b>3. Side Wall</b>					
Area Reduction Factor	$K_a$	1			Table 5.4
combination factor applied to internal pressures	$K_{C,e}$	0.8			
local pressure factor	$K_l$	1			
porous cladding reduction factor	$K_p$	1			
External Pressure Coefficient	$C_{P,e}$	-0.65		0 to 1h	
External Pressure Coefficient	$C_{P,e}$	-0.5		1h to 2h	
External Pressure Coefficient	$C_{P,e}$	-0.3		2h to 3h	
External Pressure Coefficient	$C_{P,e}$	-0.2		>3h	
aerodynamic shape factor	$C_{fig,e}$	-0.52		0 to 1h	
aerodynamic shape factor	$C_{fig,e}$	-0.4		1h to 2h	
aerodynamic shape factor	$C_{fig,e}$	-0.24		2h to 3h	
aerodynamic shape factor	$C_{fig,e}$	-0.16		>3h	
Side Wall Pressure	P	-0.20	kPa	0 to 1h	
Side Wall Pressure	P	-0.15	kPa	1h to 2h	
Side Wall Pressure	P	-0.09	kPa	2h to 3h	
Side Wall Pressure	P	-0.06	kPa	>3h	
<b>4. Roof</b>					
r (rise)	r	4	m		
h/r	h/r	0.50			
Breadth Effect		1.00		$(b/d)^{0.25} > 1$	
Rise-to-span ratio	r/d	0.50			
<b>4.1 Roof Windward Quarter</b>					
U	U	2	m		Table C3
Area Reduction Factor	$K_a$	1			
combination factor applied to internal pressures	$K_{C,e}$	0.8			
local pressure factor	$K_l$	1			
porous cladding reduction factor	$K_p$	1			
External Pressure Coefficient	$C_{P,e}$	0.3			
Factored External Pressure Coefficient	$C_{P,e}$	0.30			
aerodynamic shape factor	$C_{fig,e}$	0.24			
Pressure	P	0.09	kPa		

<b>4.2 Roof Centre Half</b>				Table C3
<b>T</b>	<b>T</b>	<b>4</b>	<b>m</b>	
Area Reduction Factor	$K_a$	1		
combination factor applied to internal pressures	$K_{C,e}$	0.8		
local pressure factor	$K_l$	1		
porous cladding reduction factor	$K_p$	1		
External Pressure Coefficient	$C_{P,e}$	-0.65		
Factored External Pressure Coefficient	$C_{P,e}$	-0.65		
aerodynamic shape factor	$C_{fig,e}$	-0.52		
Pressure	<b>P</b>	<b>-0.20</b>	<b>kPa</b>	
<b>4.2 Roof Centre Half</b>				Table C3
<b>D</b>	<b>D</b>	<b>2</b>	<b>m</b>	
Area Reduction Factor	$K_a$	1		
combination factor applied to internal pressures	$K_{C,e}$	0.8		
local pressure factor	$K_l$	1		
porous cladding reduction factor	$K_p$	1		
External Pressure Coefficient	$C_{P,e}$	-0.2		
Factored External Pressure Coefficient	$C_{P,e}$	-0.20		
aerodynamic shape factor	$C_{fig,e}$	-0.16		
Pressure	<b>P</b>	<b>-0.06</b>	<b>kPa</b>	

### 5.1.1 Summary Forces

WIND EXTERNAL PRESSURE (kPa)				
			Wind Direction	
Windward			0.21	
Leeward			-0.15	
Sidewall	0m - 2m		-0.20	
	2m - 4m		-0.15	
	4m - 6m		-0.09	
	> 6m		-0.06	
Roof				
	Windward Quarter (U)	2m	0.09	
	Centre Half (T)	4m	-0.20	
	Leeward Quarter (D)	2m	-0.06	
Wind Internal Pressure (kPa)				
			-0.12	0.08

## 6 Snow Load

### 6.1 Sub-Alpine

$$S = S_g \times C_e \times \mu_i$$

Annual probability of exceedance: 1/20

Snow region: Orange, NSW

$S_g = 0.9 \text{ kPa}$

$$C_e = 1$$

Average slope:

Segment 1:  $9^\circ \rightarrow \mu = 0.71$

Segment 2:  $36^\circ \rightarrow \mu = 0.37$

Segment 3:  $72^\circ \rightarrow \mu = 0$

Snow loads:

Segment 1: 0.64 kPa

Segment 2: 0.33 kPa

Segment 3: 0.0 kPa

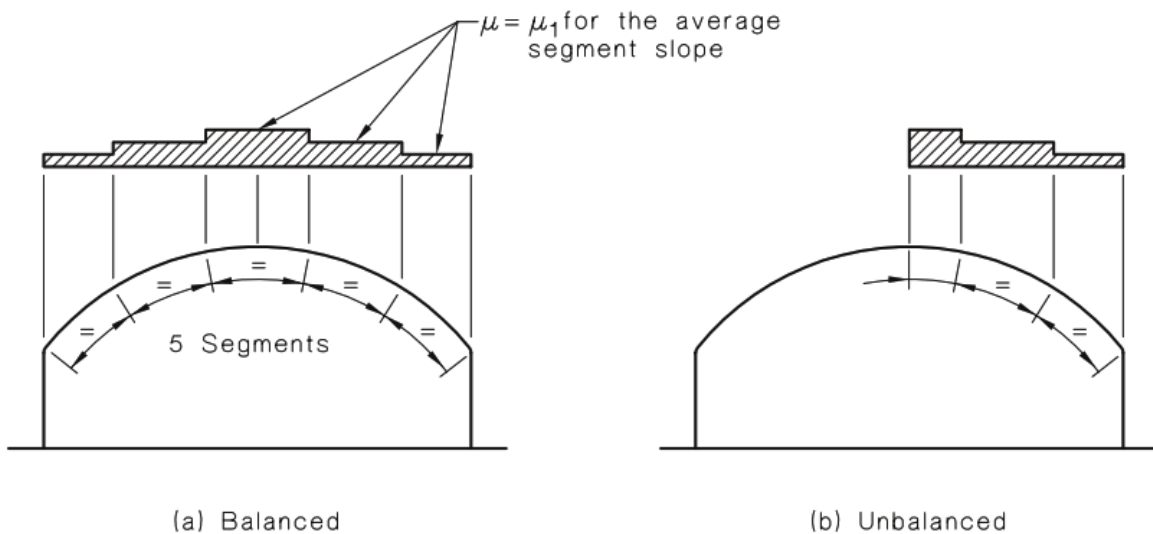
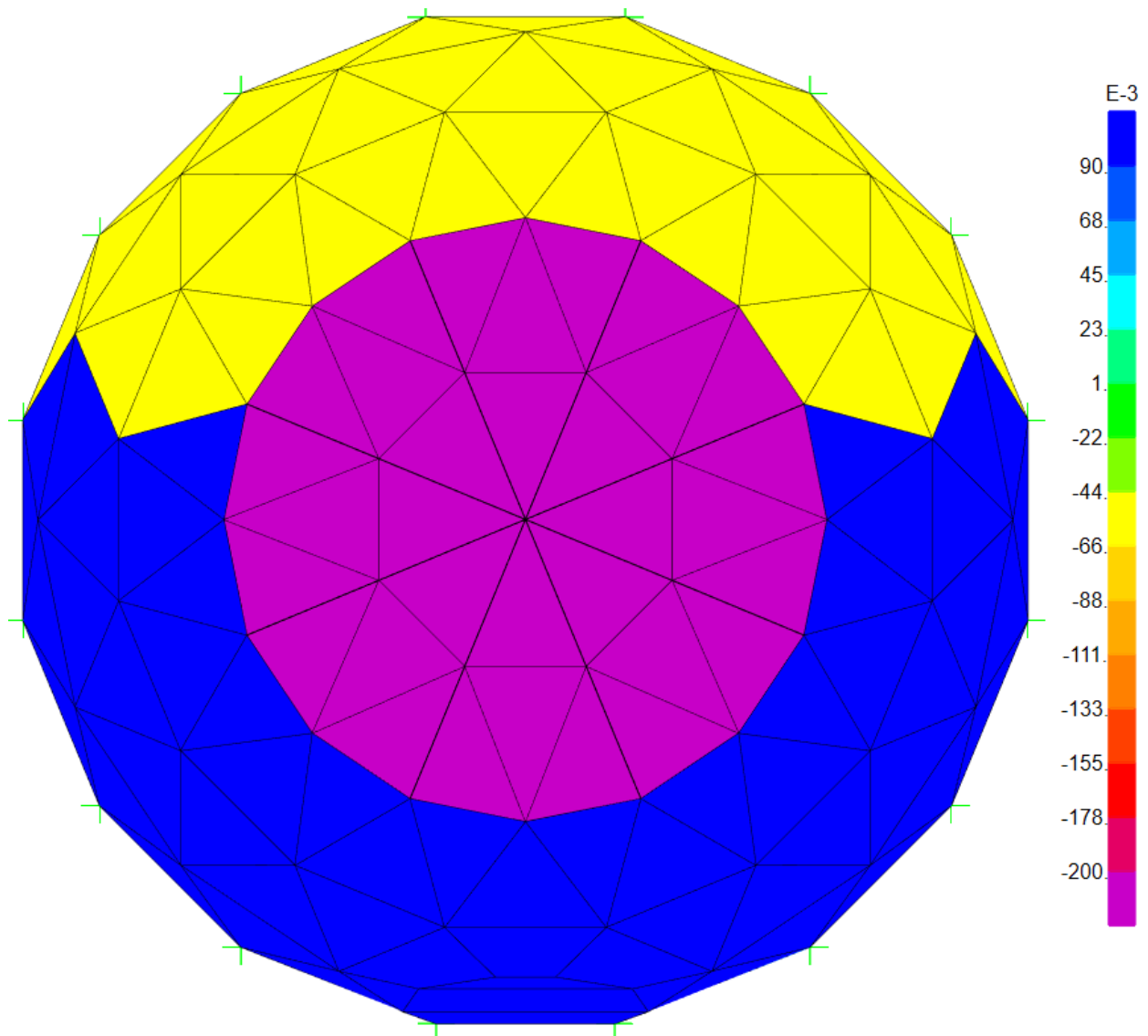


FIGURE 7.4 TYPES OF SNOW LOAD ON CURVED ROOFS (SUB-ALPINE)

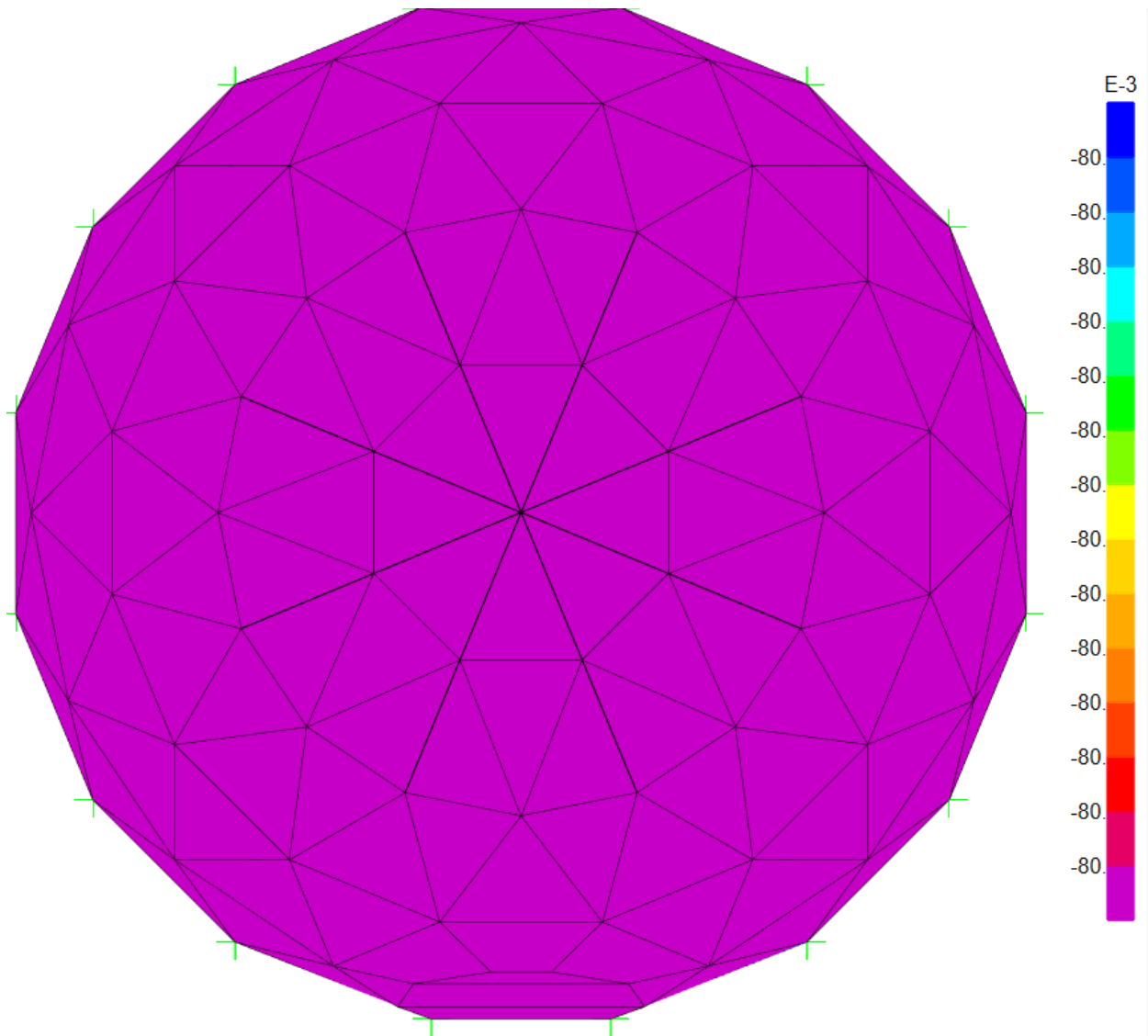
## 7 Load Diagrams

### 7.1 Wind Load

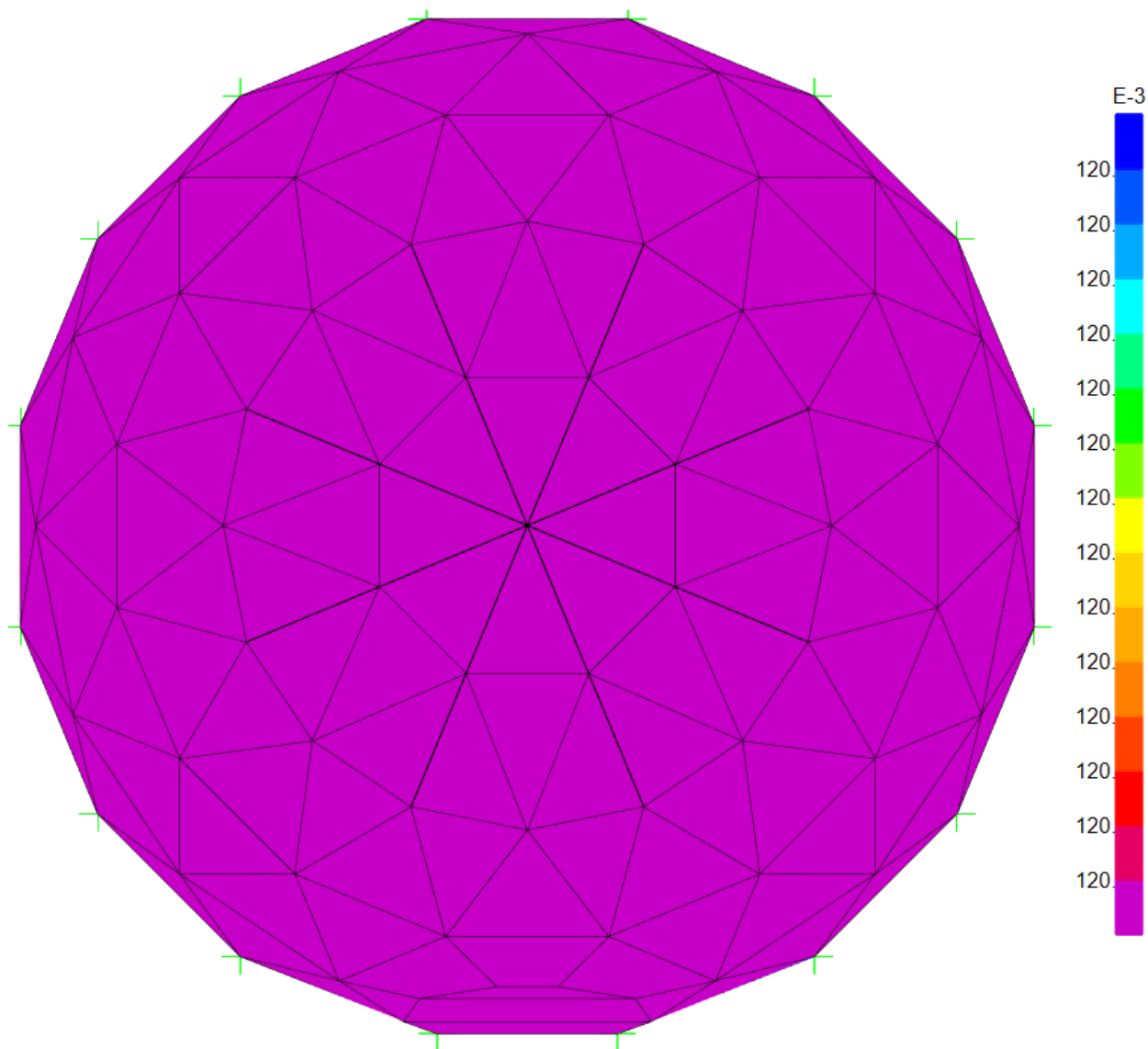
#### 7.1.1 Wind Load Ultimate ( $W_U$ )



### 7.1.2 Wind Load Internal Pressure ( $W_{i,pressure}$ )

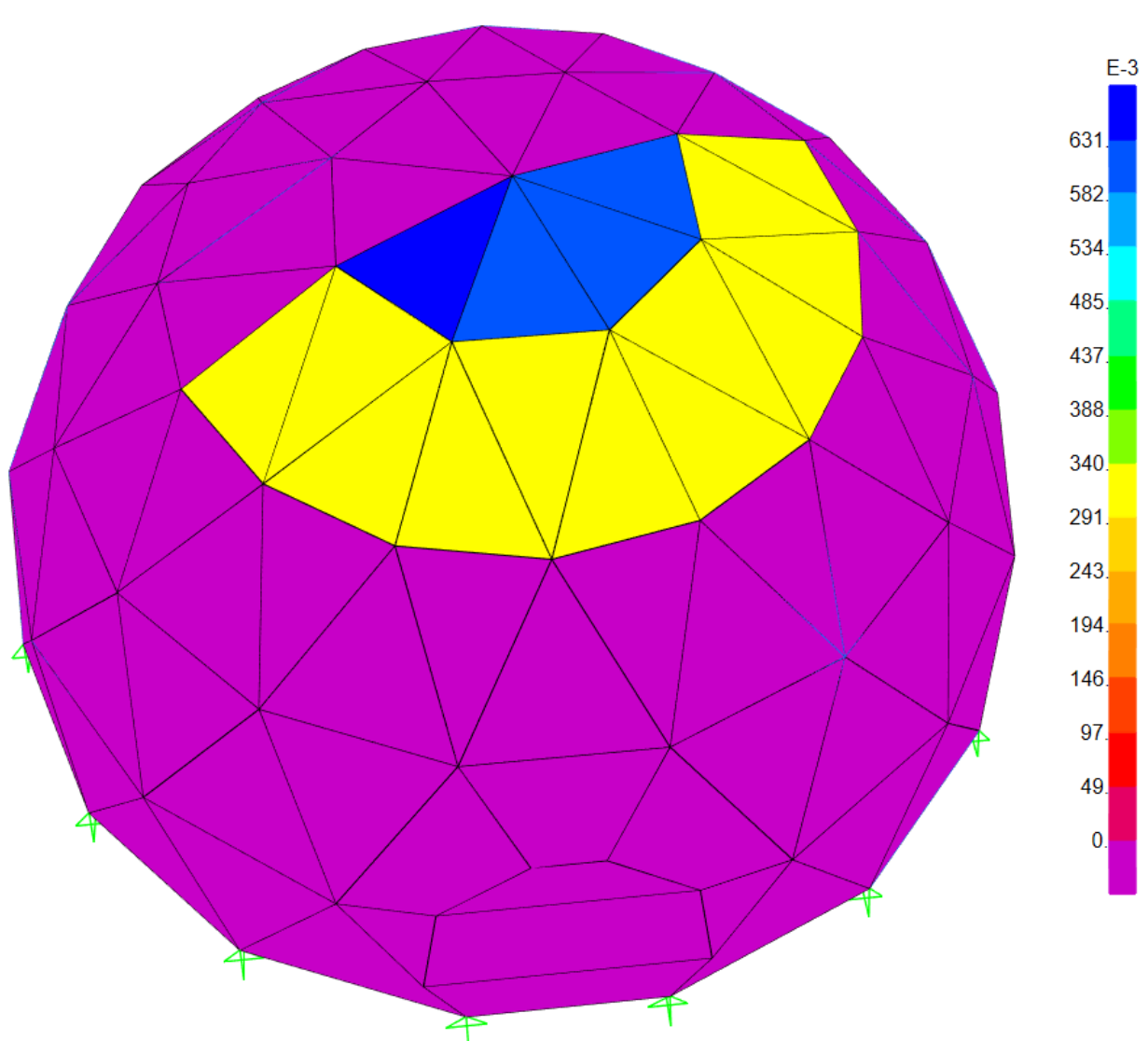


### 7.1.3 Wind Load Internal Suction ( $W_{I,suction}$ )



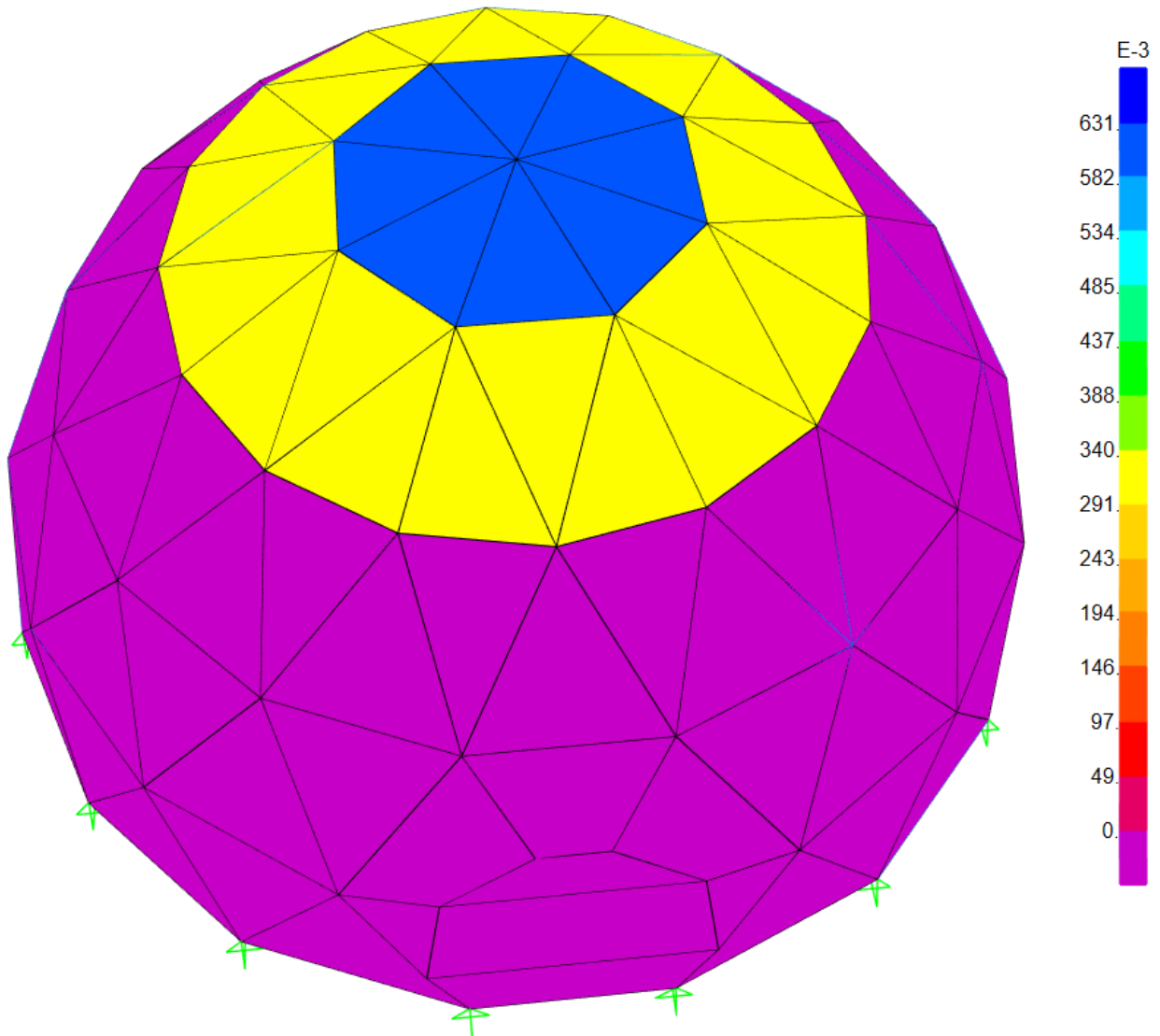
## 7.2 Snow Load

### 7.2.1 Snow Load (Case1)



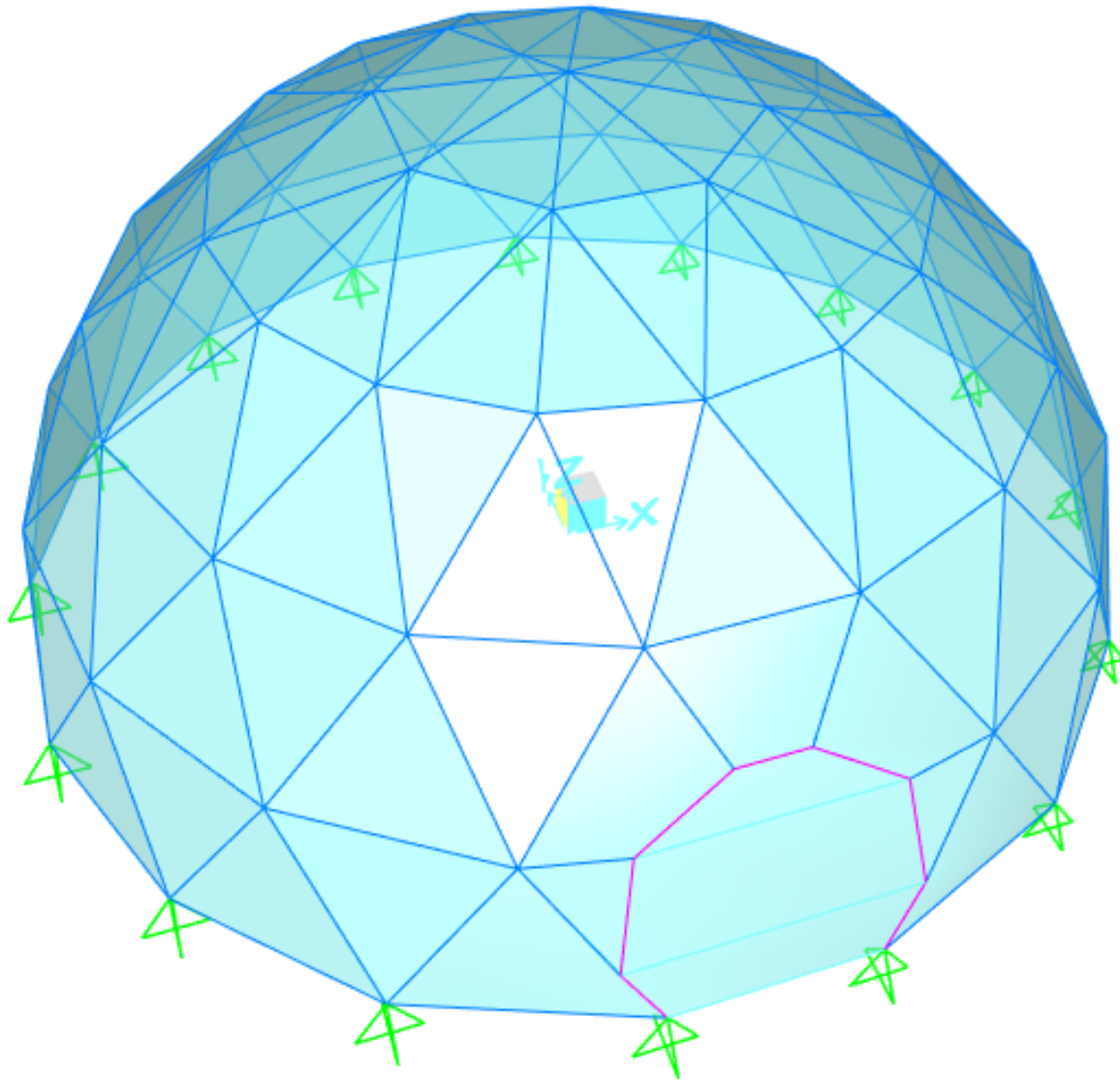


## 7.2.2 Snow Load (Case2)



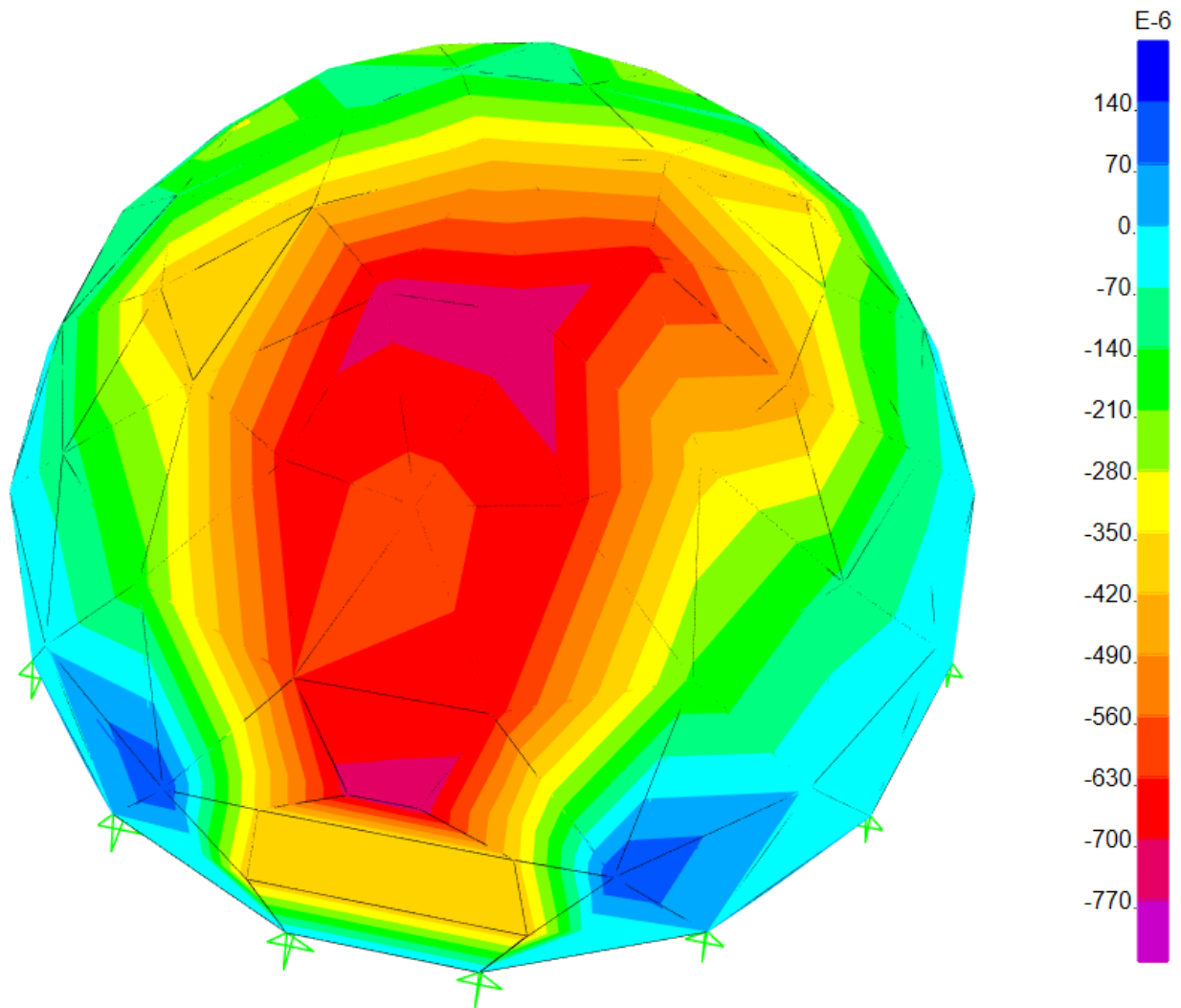
## 8 Analysis

### 8.1 3D model

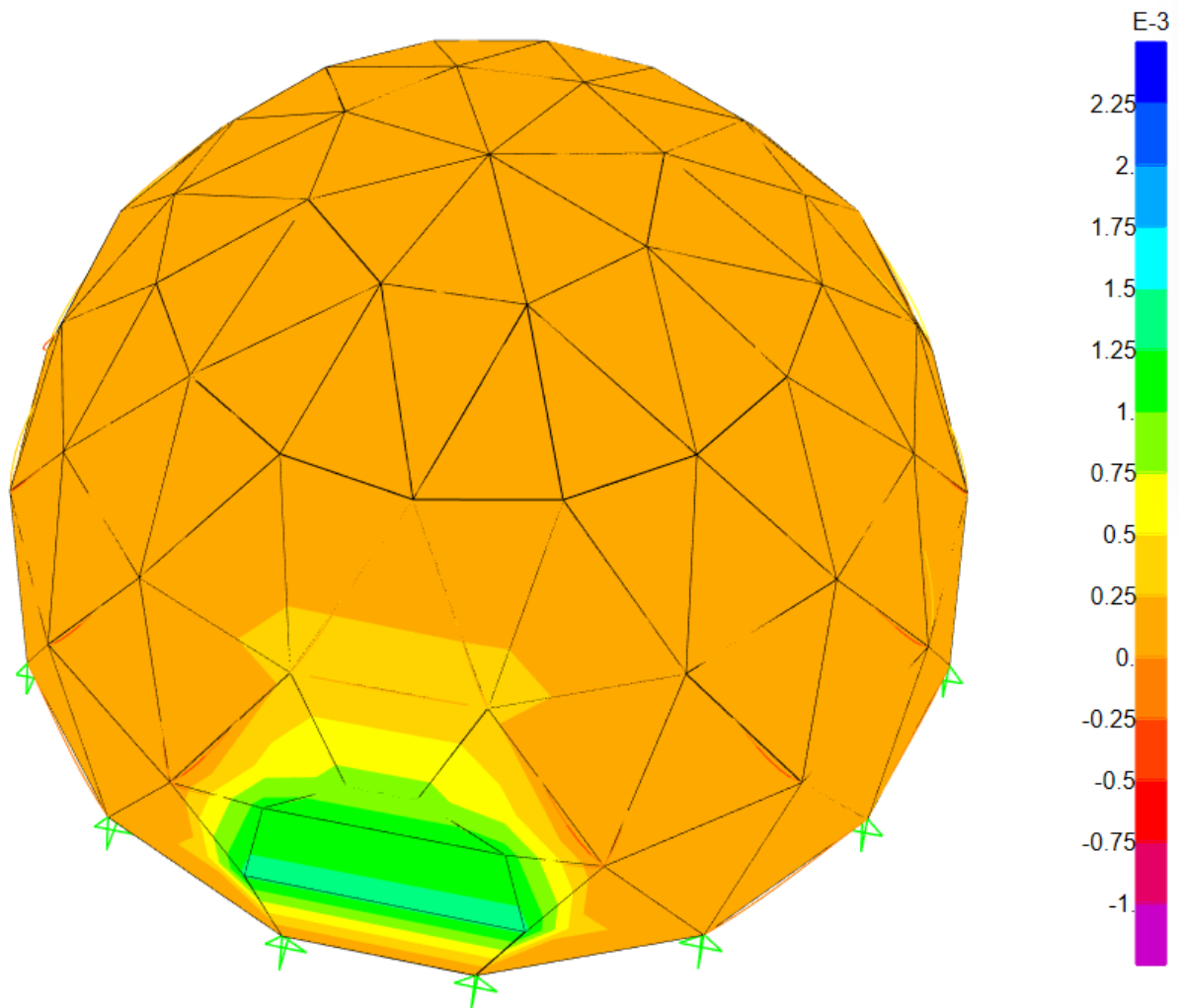


## 8.2 Results

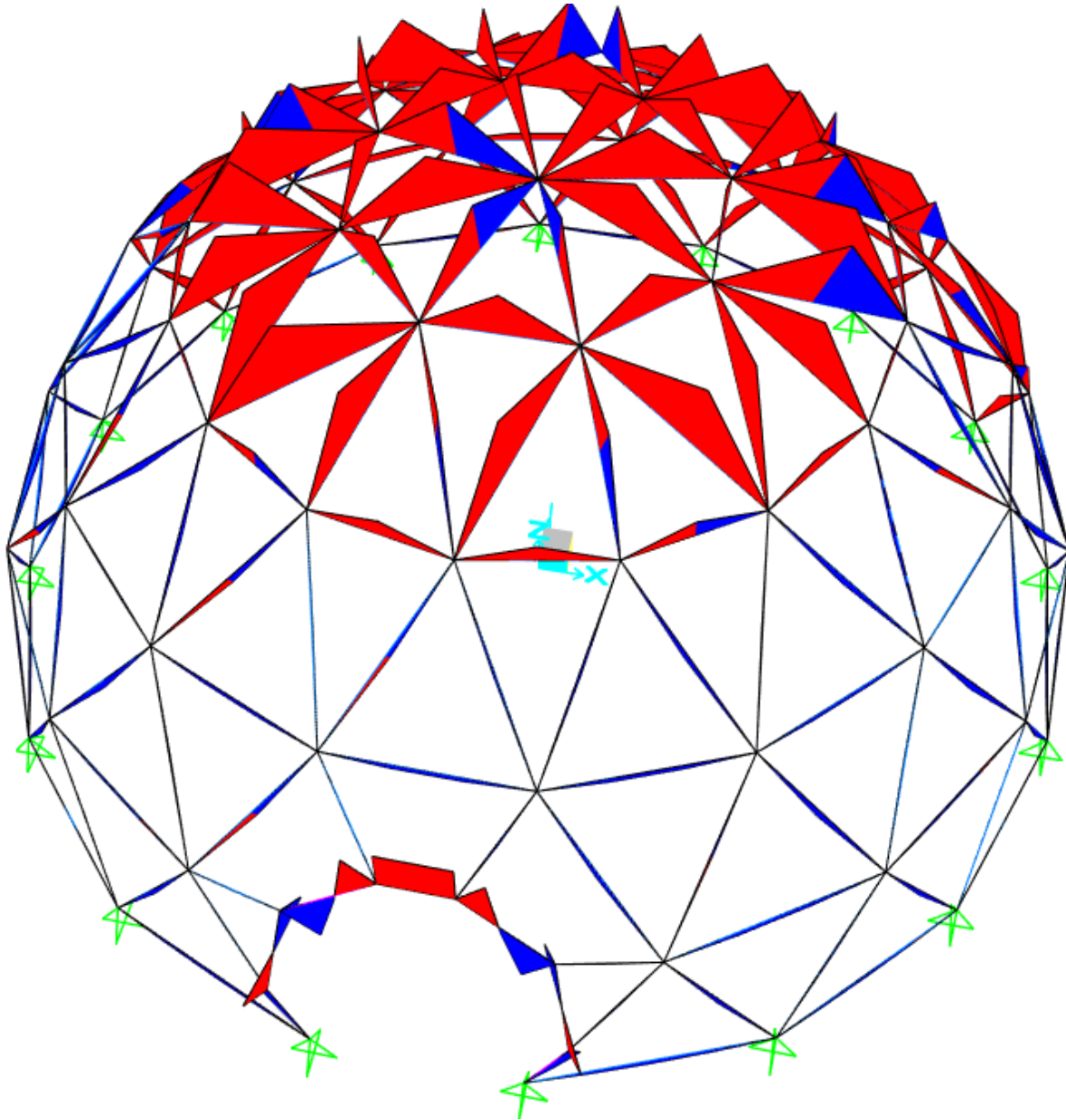
### 8.2.1 Maximum vertical deflection (serviceability)



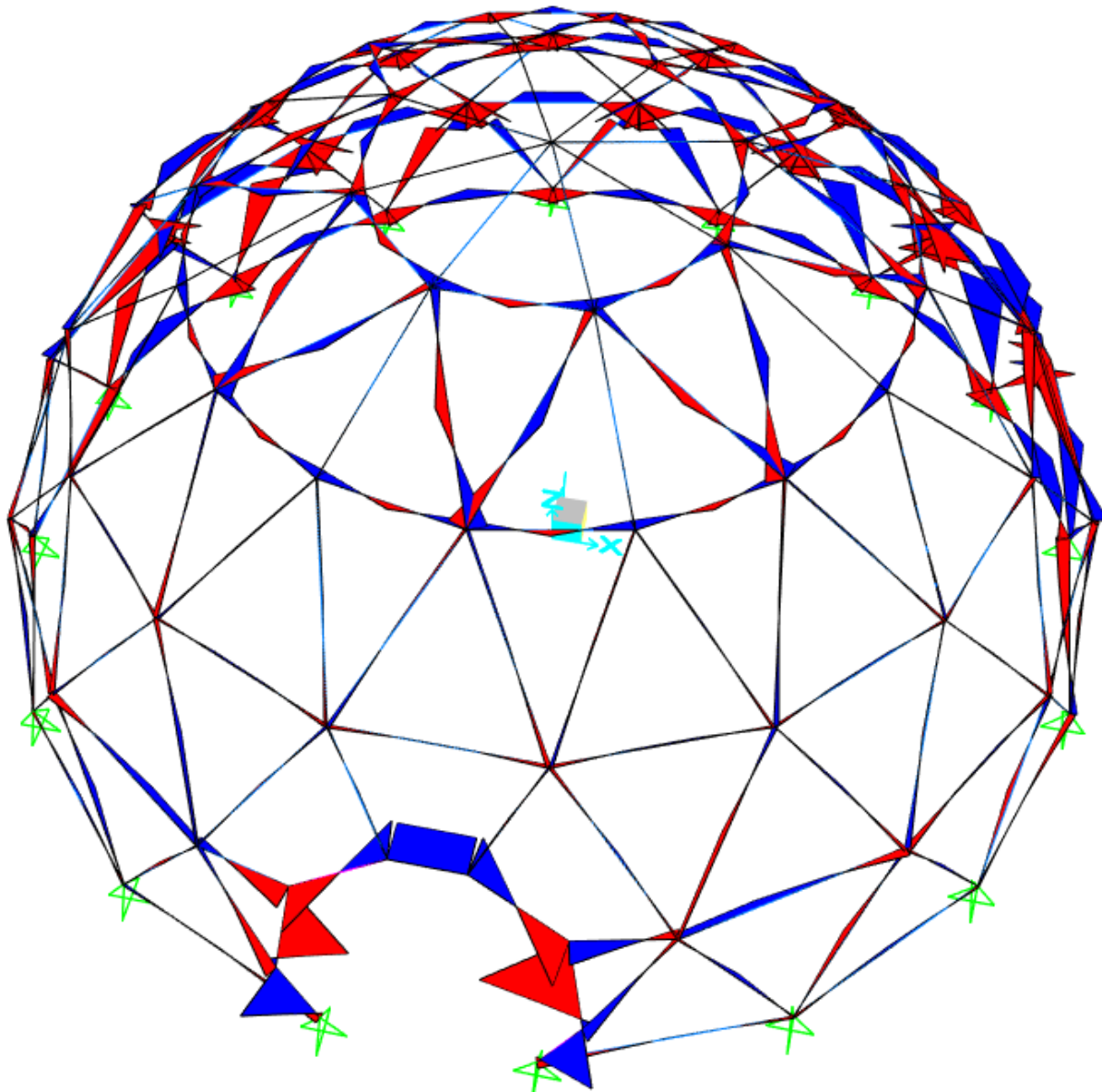
### 8.2.2 Maximum horizontal deflection (serviceability)



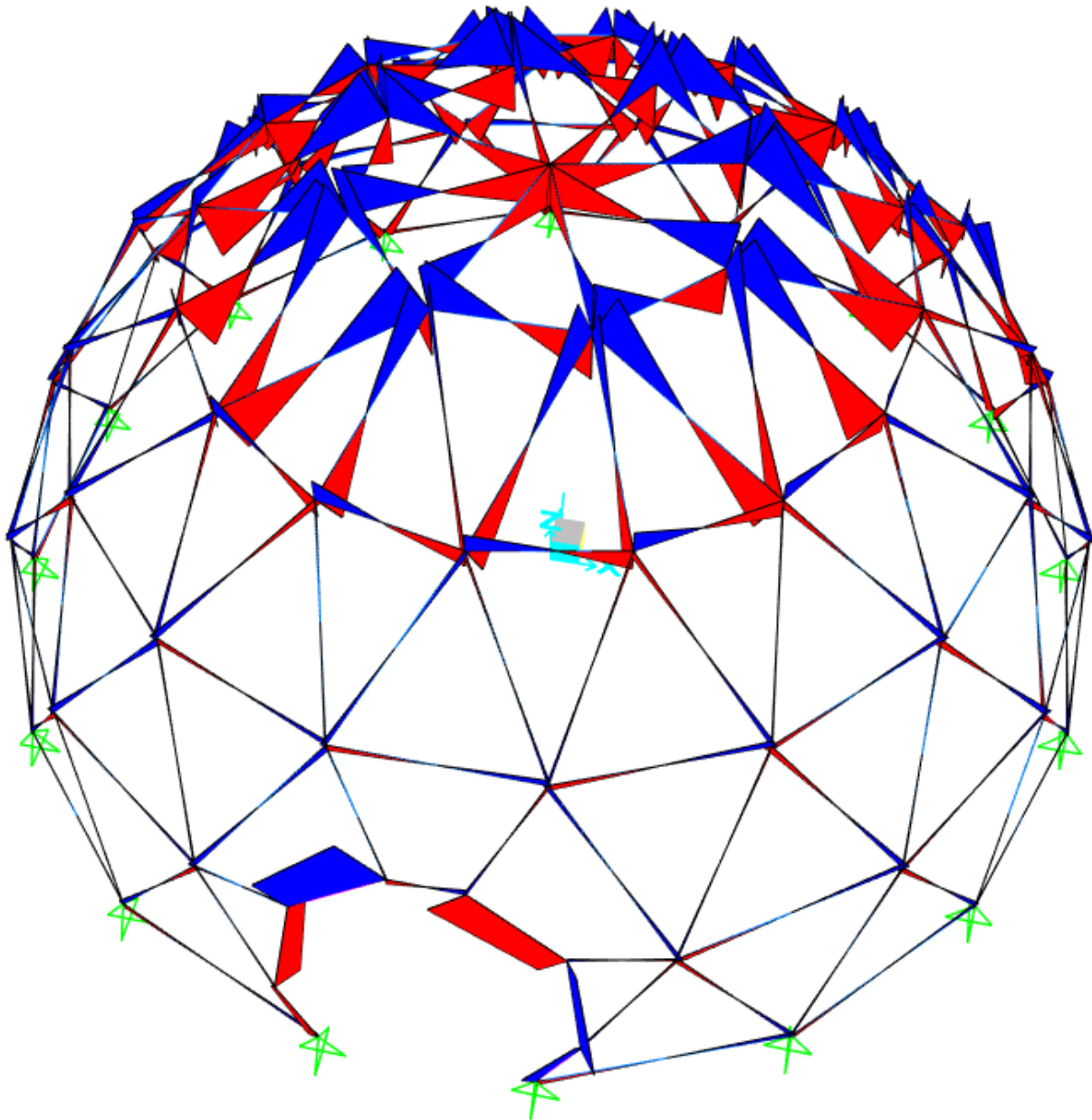
### 8.2.3 Maximum Bending Moment in Major Axis



### 8.2.4 Maximum Bending Moment in Minor Axis

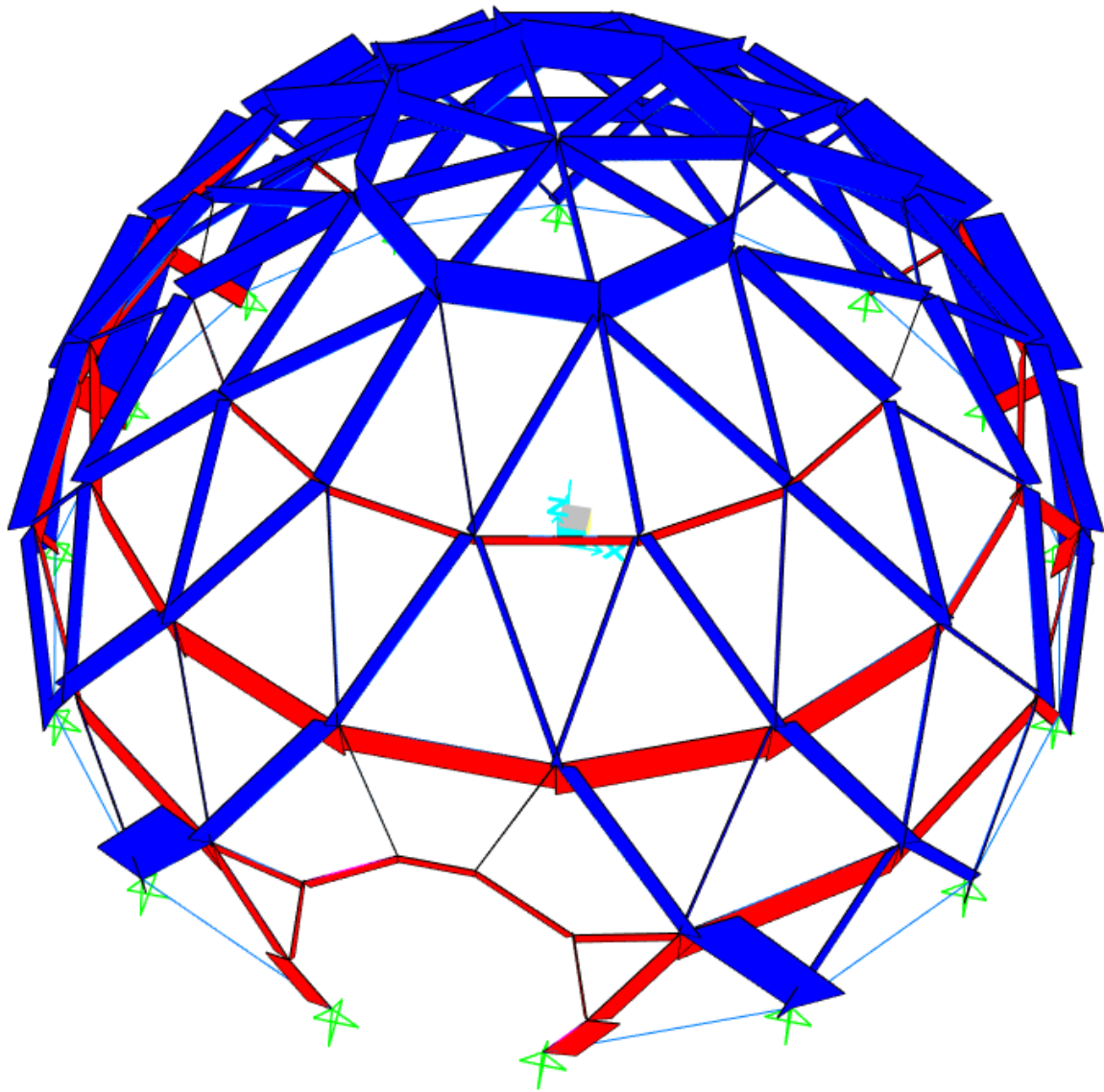


### 8.2.5 Maximum Shear



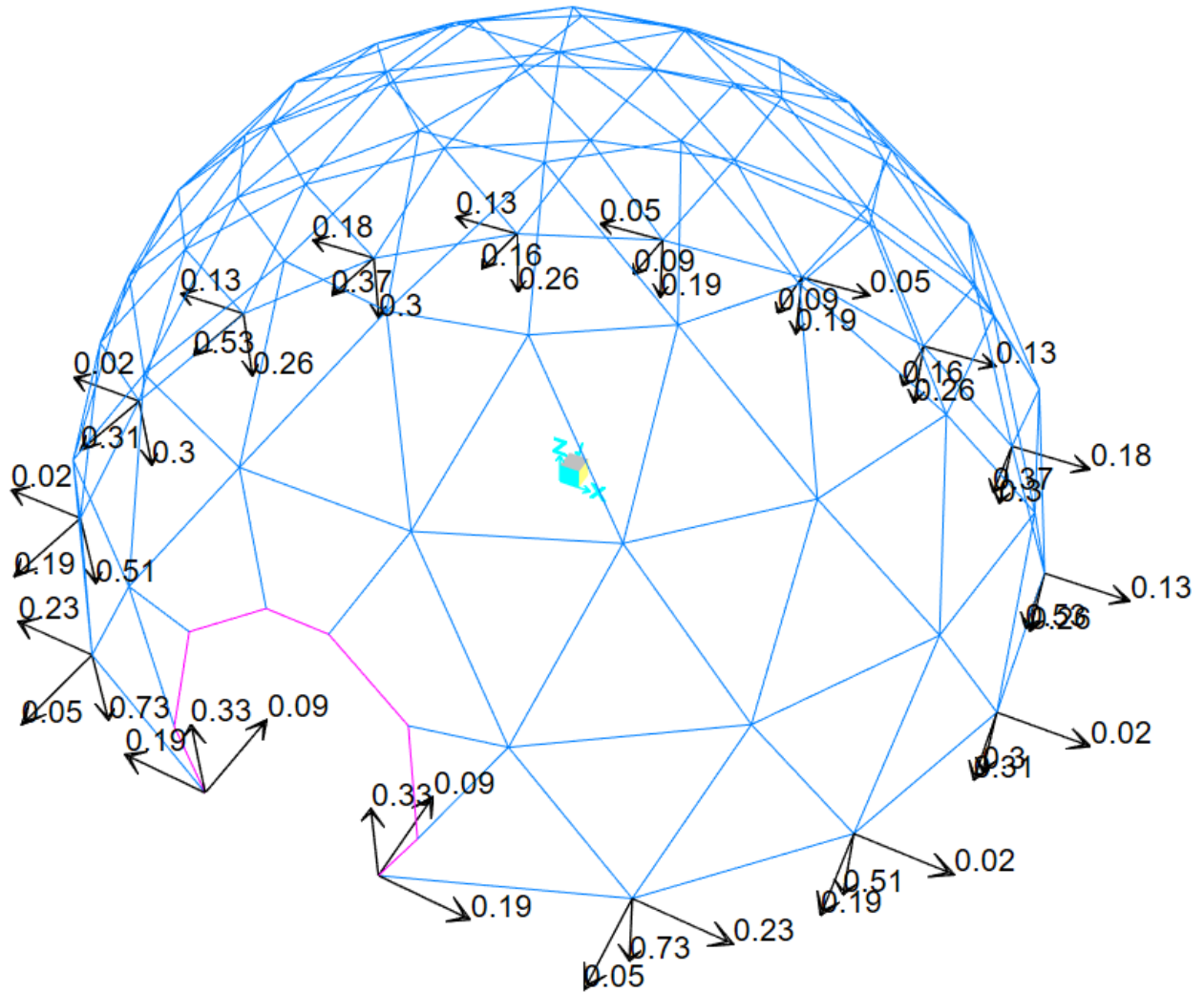


### 8.2.6 Maximum Axial Force





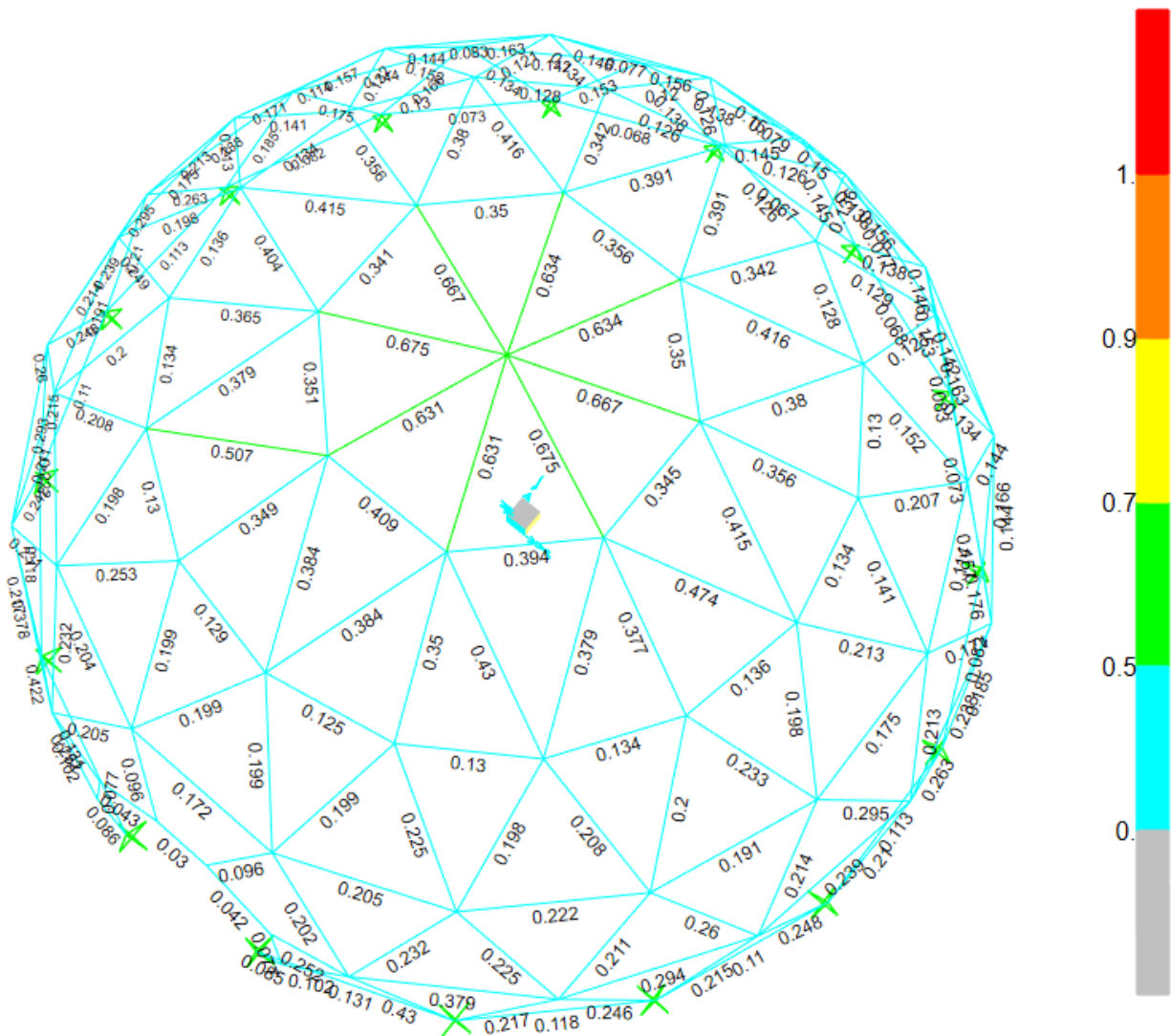
### 8.2.7 Maximum Reactions



Max.  $F_x = 0.6$  kN  
 Max.  $F_y = 0.64$  kN  
 Max.  $F_{z, \text{Bearing}} = 1.35$  kN  
 Max.  $F_{z, \text{uplift}} = 0.8$  kN

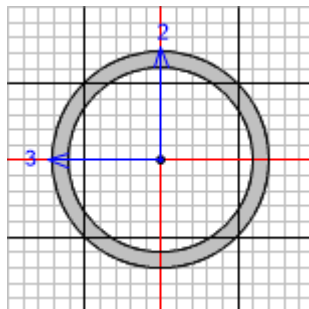
## 9 Steel Member Design

All members pass for the defined design wind actions. Refer to Appendix 'B' for section capacities and factor of safeties.



All members Pass

## 9.1 20x1.5 CHS



AS 4100-1998 STEEL SECTION CHECK (Summary for Combo and Station)  
Units : KN, m, C

Frame : 209 X Mid: 0.571 Combo: COMB5 Design Type: Brace  
Length: 1.251 Y Mid: -0.236 Shape: 20x1.5CHS Frame Type: Braced Frame  
Loc : 0.626 Z Mid: 3.902 Class: Compact Princpl Rot: 0. degrees

PhiB=0.9 PhiC=0.9 PhiTY=0.9 PhiTF=0.9 PhiS=0.9

A=8.718E-05 I33=3.754E-09 r33=0.007 Z33=3.754E-07 Av3=4.378E-05  
J=7.508E-09 I22=3.754E-09 r22=0.007 Z22=3.754E-07 Av2=4.378E-05  
E=206000000. Fy=235000. Ry=1.106 S33=5.145E-07 Iw=0.  
RLLF=1. Fu=370000. SteelType=HR S22=5.145E-07

### STRESS CHECK FORCES & MOMENTS (Combo COMB5)

Location	N*	M33*	M22*	V2*	V3*	T*
0.626	-0.812	0.049	1.307E-06	0.009	1.880E-05	7.952E-07

### PMM DEMAND/CAPACITY RATIO (8.4.4.1)

D/C Ratio: 0.675 = 0.675 < 0.95 OK  
= M33\*/(phi\*Mo33)

### BASIC FACTORS

Buckling Mode	K Factor	L Factor	KL/r
Major Flexure	1.	1.	190.705
Minor Flexure	1.	1.	190.705
Major Braced	1.	1.	190.705
Minor Braced	1.	1.	190.705
LTB	1.4	1.	266.987

### AXIAL FORCE & BIAXIAL MOMENT DESIGN (8.4.4.1)

Factor	L	Braced	ke	Sway	ke	Delta_b	Delta_s	Cm	Betam
Major Bending	1.	1.	1.	1.	1.	1.2	1.	1.	-1.
Minor Bending	1.	1.	1.	1.	1.	1.	1.	0.28	0.8

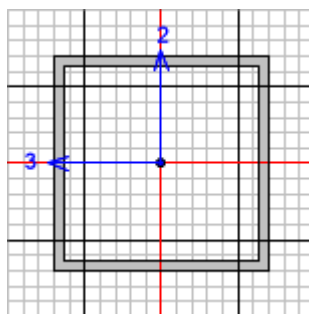
LTB Factors	Lltb	Kt	Kl	Kr	Alpha_m	Alpha_s
	1.	1.	1.4	1.	1.388	0.981

Axial Factors	Steel Type	Kf	Kt	Alpha_a	Alpha_b	Alpha_c
	HR	1.	1.	10.774	-1.	0.226

	Element	Lambda_e	Lambda_ep	Lambda_ey	Lambda_ew	Compactness
Bending	Any	12.533	50.	120.	1.000E+14	Compact
Axial	Any	12.533		82.		Compact

Effective Pro	ZeMajor 5.145E-07	ZeMinor 5.145E-07	de 0.02	Aeff 8.718E-05	
	M*	Ms	Mr	Mi	Nc
Major Moment	0.059	0.121	0.116	0.097	4.635
Minor Moment	1.307E-06	0.121	0.116	0.097	4.635
	Mo,cr	Mb	Mo	Mc	Mt
Major Moment	1.216	0.121	0.097	0.097	0.097
	N*	Ns	Nc	Nt	Noz
Axial	-0.812	20.487	4.635	20.487	6907.275
SHEAR CHECK					
	V*	Vv	Stress	Status	
	Force	Capacity	Ratio	Check	
Major Shear	0.009	6.638	0.001	OK	
Minor Shear	1.880E-05	6.638	2.832E-06	OK	

## 9.2 30x2 SHS



AS 4100-1998 STEEL SECTION CHECK (Summary for Combo and Station)  
Units : KN, m, C

Frame : 288 X Mid: -0.829 Combo: COMB8 Design Type: Brace  
Length: 0.513 Y Mid: -3.876 Shape: 40x40x2 Frame Type: Braced Frame  
Loc : 0.513 Z Mid: 0.215 Class: Compact Princpl Rot: 0. degrees

PhiB=0.9 PhiC=0.9 PhiTY=0.9 PhiTF=0.9 PhiS=0.9  
A=3.040E-04 I33=7.337E-08 r33=0.016 Z33=3.668E-06 Av3=1.600E-04  
J=1.097E-07 I22=7.337E-08 r22=0.016 Z22=3.668E-06 Av2=1.600E-04  
E=206000000. Fy=235000. Ry=1.106 S33=4.336E-06 Iw=0.  
RLLF=1. Fu=370000. SteelType=HR S22=4.336E-06

STRESS CHECK FORCES & MOMENTS (Combo COMB8)

Location	N*	M33*	M22*	V2*	V3*	T*
0.513	-0.973	0.078	-0.007	-0.145	-0.014	0.004

PMM DEMAND/CAPACITY RATIO (8.4.4.1)

D/C Ratio: 0.086 = 0.086 < 0.95 OK  
= M33\*/(phi\*M033)

BASIC FACTORS

Buckling Mode	K Factor	L Factor	KL/r
---------------	----------	----------	------



Major Flexure	1.	1.	33.044
Minor Flexure	1.	1.	33.044
Major Braced	1.	1.	33.044
Minor Braced	1.	1.	33.044
LTB	1.4	1.	46.261

AXIAL FORCE & BIAXIAL MOMENT DESIGN (8.4.4.1)

Factor	L	Braced	ke	Sway	ke	Delta_b	Delta_s	Cm	Betam
Major Bending	1.	1.	1.	1.	1.	1.001	1.	0.999	-0.997
Minor Bending	1.	1.	1.	1.	1.	1.002	1.	1.	-1.

LTB Factors	Lltb	Kt	Kl	Kr	Alpha_m	Alpha_s
	1.	1.	1.4	1.	1.796	1.027

Axial Factors	Steel Type	Kf	Kt	Alpha_a	Alpha_b	Alpha_c
	HR	1.	1.	15.052	-1.	0.988

Slenderness	Lambda_e	Lambda_ep	Lambda_ey	Lambda_ew	Lambda_e/ey	Compactness
Major/Flange	17.452	30.	45.	180.	0.388	Compact
/Web	17.452	82.	115.	180.	0.152	Compact
Minor/Flange	17.452	82.	115.	180.	0.152	Compact
/Web	17.452	30.	45.	180.	0.388	Compact
Axial/Flange	17.452		45.		0.388	Compact
/Web	17.452		45.		0.388	Compact

Effective Pro	ZeMajor	ZeMinor	b-be	d-de	Aeff
	4.336E-06	4.336E-06	0.	0.	3.040E-04

Major Moment	M*	Ms	Mr	Mi	Nc
	0.078	1.019	1.019	1.003	70.609
Minor Moment	-0.007	1.019	1.019	1.003	70.609

Major Moment	Mo,cr	Mb	Mo	Mc	Mt
	50.112	1.019	1.003	1.003	1.003

Axial	N*	Ns	Nc	Nt	Noz
	-0.973	71.44	70.609	71.44	18014.713

SHEAR CHECK

	V*	Vv	Stress	Status
	Force	Capacity	Ratio	Check
Major Shear	0.145	20.304	0.007	OK
Minor Shear	0.014	20.304	0.001	OK

## 10 Pegging Design


Project: **8m Dome**

Jon no. **22-211-2**

Date: **4/05/2022**

Name	Value	Unit	Notes
<b><u>minimum embedment depth for lateral bearing:</u></b>			
Max. Horizontal Force	0.64	kN	
Max. Vertical Force	0.8	kN	
Number of Pegs	1		
Horizontal Load per peg	0.6	kN	
Vertical Load per peg	0.8	kN	
Sticking out of Ground	0	m	
S (bearing capacity)	150	kPa	To be confirmed by the Geotechnical engineer
$\varphi$	0.02	m	
H	213	mm	
M	0.00	kNm	
$\gamma$	19	kN/m <sup>3</sup>	To be confirmed by the Geotechnical engineer
min required Embedment:	213	mm	
F.S	5.63		
	OK		
<b><u>Bending:</u></b>			
Profile	$\varphi$ 20mm Peg		
Fy	350	mPa	
Ze	785.4	mm <sup>3</sup>	
phi	0.9		
phi Ms	0.25	kNm	
	OK		
<b><u>Pull out Checking:</u></b>			
Clay:			
Cu	25	kPa	To be confirmed by the Geotechnical engineer



$\alpha$ (reduction factor)	1	
Provided Embedment	1200	mm
L/d	60	
Rs	0.96	
Perimeter	63	mm
Total Surface Area	0.075	m <sup>2</sup>
min required Embedment:	0.53	m
F.S	2.26	
	OK	
Coefficient of Friction	0.6	
Equivalent Ballast	0.11	tonne
Reference: Foundations of Structures - Dunham, Mc Graw-Hill		

## 11 Summary and Recommendations

- The 8m Dome Structure as specified is capable of withstanding 3s gust wind speed up to **100km/hr** in region A, TC2.
- The dome structure is required to be dismantled for forecast winds in excess of **100km/hr**.
- The dome structure is designed to withstand snow loads of sub-alpine region (Orange, NSW) with maximum ground snow (Sg) 0.9kPa.
- For uplift due to 100km/hr, 1 kN (100kg) holding down weight/per support is required. (16 anchor points in total). Alternatively, pegging system described in Cl. 10 can be used.

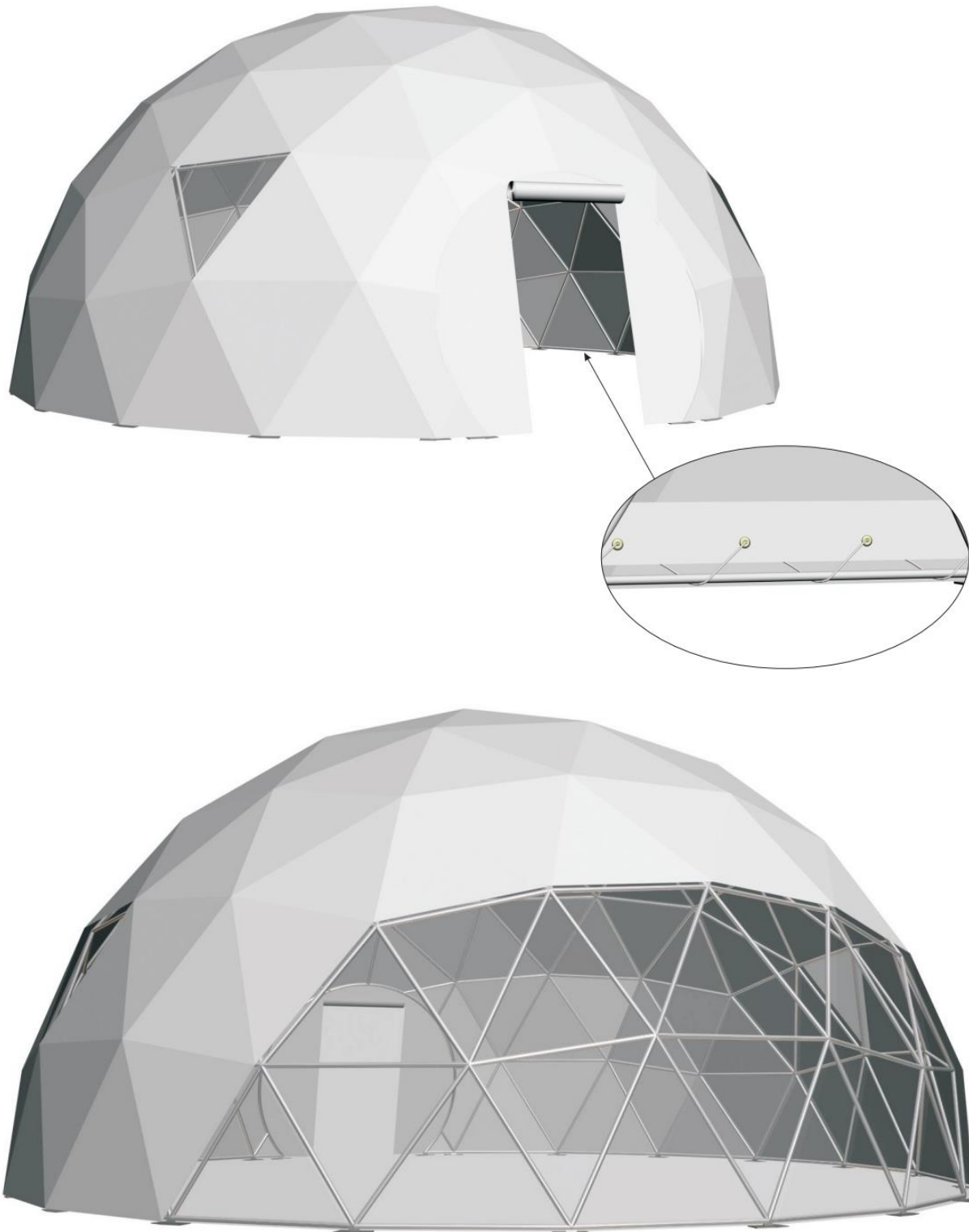
Yours faithfully,

Prime Consulting Engineers Pty. Ltd.

Kevin Zia, BEng, Meng, MIEAust, CPENG NER



## 12 Appendix A – Detail Drawings



# EXTREME MARQUEES



## DOMES RANGE

4m / 5m / 6m / 7m / 8m / 9m / 10m / 11m / 12m

### EVENT TENT



ITEM	SPECIFICATION								
Size	4m	5m	6m	7m	8m	9m	10m	11m	12m
Ceiling Height	2.4m	2.5m	3m	3.5m	4m	4.5m	5m	5.5m	6m
Door Size	1200mm W x 1800mm H			1500mm W x 2100mm H			1500mm W x 2400mm H		
Dome Style	Lapela								
Floor Space	12.5 sq.m	17.8 sq.m	28 sq.m	38 sq.m	50 sq.m	63 sq.m	78 sq.m	95 sq.m	113 sq.m
Stand up Capacity	15	24	34	46	60	76	94	114	136
Sit down Capacity	10	16	23	31	40	51	63	76	90
Frame Material	Steel								
Frame Size	20mm diameter x 1.5mm thickness				25mm diameter x 2mm thickness				
Frame Weight	118kg	141kg	186kg	220kg	321kg	397kg	498kg	534kg	736kg
Roof Weight	41kg	64kg	77kg	105kg	137kg	155kg	191kg	231kg	308kg
Bearing Bar Weight	11kg	14kg	17kg	19kg	22kg	25kg	27kg	30kg	33kg
Total Weight	170kg	218kg	279kg	344kg	479kg	576kg	716kg	795kg	1076kg
Installation Time (Hours)	4	4	4	5	5	5	6	7	8
Labourers (QTY)	3	3	4	4	5	5	6	6	6
Equipment	Scaffold	2.5m	2.5m	2.5m	2.5m	2.5m	3m	3.5m	4m
	Crane	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
									20 Ton Crane
Roof Fabrics	580GSM PVC & Clear PVC								
Roof Type	Solid PVC Roof, Clear PVC Roof or 1/3 Clear 2/3 Solid PVC Roof								
PVC Standard Colours	White, Clear PVC, Red, Yellow, Blue, Green and Black								
Printing	Full Roof Digital Printing								
Package Includes	Steel Pins								
Manufacturer's Warranty	Frame 5 Year Plain PVC 5 Year / Printed PVC 2 Year / Clear PVC 1 Year								

### ADDITIONAL INFORMATION

The Extreme Marquee Dome Tent is a visually striking outdoor gazebo with an innovative space age design. The frame is made from strong tubular powder coated steel. Connectors join the tubular bars to form triangular cross sections, which join together to give this structure both its enormous strength and futuristic outer appearance.



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At Extreme Marquees we design & manufacture all of our products & deliver Australia wide.

17/07/2019

