TRISON
Engineering Group, Inc.

Structural Analysis Report

10' x 10'
E-Series Frame Tent Assembly

Project: **10' x 10' Frame Tent Assembly**

Client: TentCraft

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2662 Cass Rd.
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(800) 950-4553 Phone

Provide By: **Trison Engineering Group, INC.**
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Trison Job # G21008

August 9, 2021

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State of Michigan # 6201030495

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8-9-2021

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Sheet Index

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Scope

The Structural analysis was performed by Trison Engineering Group, Inc. as requested by TentCraft to determine the conformance of the E-Series 10' x 10' tent structural support frame and 8' head clearance with the governing building codes and the industry standards. The tent structural support frame is the tent's Main Wind-Force Resisting System (MWFRS) and therefore shall be designed to resist the wind loads. This structural analysis is also to determine the adequacy of the structural support frame of the tent to determine the maximum allowed wind speed for the installation. This analysis considers the structural properties of the support frame members, ballast weights and the applied wind loading. Different enclosure and exposure categories will also be considered in this analysis to determine the maximum allowable wind speed for use of the tent installation.

Analysis Criteria

The structural analysis was performed using the following design criteria:

Codes:	2015 International Building Code
	ASCE 7-10 Minimum Design Loads for Buildings & Other Structures
Wind Criteria:	Allowable design three-second gust wind speed to be determined, refer to conclusion for each tent structural support frame.
	Occupancy Category I
	Exposure Category B & C
	No Topographic Effects Kzt = 1.0
Frame Tent Assembly:	E-Series
	Width = 10'-0"
	Length = 10'-0"
	Eave Height = 8'-0"

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Tent Materials / Components

Pipe Beams & Poles: Anodized Aluminum 6105
2.25" Outside diameter
0.1875" Wall thickness
Cross-sectional Area A = 1.22 in^2
Moment of Inertia I = 0.653 in^4
Section Modulus S = 0.579 in^3
Ultimate Tensile Strength = 38.0 ksi
Yield Tensile Strength = 35.0 ksi

Pipe Connectors: Cast Aluminum
Yield Tensile Strength = 24.0 ksi

Guy Strap Assembly: 1" Strap with Ratchet
Allowable Working Load Limit = 750. #

Steel Cable Assembly: 5/16" diameter galvanized steel cable
Turnbuckle and shackles
Allowable Working Load Limit = 1960. #

Ballast: 75 Gallon water barrel = 625.8 #
Ballast and guy strap set at 3'-6" from poles.

Tent Stake: 36" long tent stake as provided by TentCraft
Pullout capacity equal to ballast weight.
Tent stake pullout capacity is dependent on the strength of the soil and shall be verified by a Soils Engineer at the time of installation.

Tent Fabric: 18 oz. Vinyl-Coated -Polyester

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Assumptions

This structural analysis is based on the theoretical capacity of the members. The structural analysis is based solely on the information supplied, and in turn the results are only as accurate as the data extracted from that information. Trison Engineering Group, Inc. has been instructed by TentCraft to assume the information supplied is accurate, and Trison Engineering Group. Inc. has made no independent determination of its accuracy.

- The tent structure is assumed to have been properly maintained, to be in good condition with no structural defects and with no deterioration to its member capacities.
- The tent configuration is as supplied by the construction drawings and information supplied by TentCraft. It is assumed to be complete and accurate. All components are assumed to be properly installed and supported as per the manufacturer's requirements.
- If the actual configuration is different than above, then this analysis is invalid.
- All connections are assumed to develop at least the member capacity, unless explicitly stated in this report.
- It is assumed that there have been no structural modifications to the tent assembly, if any, then this analysis is invalid.
- Tent installation was in accordance with the manufacturer's requirements. Responsibility of proper installations is with the installation contractor. The cables and straps are always held taut. The fabric is stretched tight enough to prevent development of pockets and maintain roof slope.

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Conclusion

A 3-Dimensional structural frame computer analysis was used for this analysis. Different load combinations were considered to identify the critical design factors. Member and detail checks were performed to derive the conclusions for the report. The calculations used an iteration process to determine the maximum allowable wind speed for each different exposure category and enclosure configuration. The noted maximum wind speed, exposure category and enclosure for the structure satisfies the requirements of the "American Society of Civil Engineering Minimum Design Loads for Buildings and Other Structures" (Asce 7-10), as well as the "2015 International Building Code" (1BC 2015). As such, the following conclusions and recommendations were developed:

Tent: 10' x 10' with 8' Head Clearance
Ballasting weight at each leg of 625 lbs. minimum, with 1" guy strap assembly.

Enclosure	**Exposure 'B'** Maximum Wind Speed	**Exposure 'C'** Maximum Wind Speed
Open Tent (Roof and Valance)	100 MPH	85 MPH
Partially Enclosed Tent (Roof and Open Walls)	80 MPH	60 MPH
Enclosed Tent (Roof and Walls)	80 MPH	65 MPH
	Urban and suburban areas, wooded areas or terrain with numerous closely spaced obstructions of single- family buildings or larger.	Open terrain with scattered obstructions with heights less than 30 feet and grasslands.

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Limitations

The engineering services rendered by Trison Engineering Group, Inc. in connection with this structural analysis are limited to an analysis of the tent structural support frame.

The information and conclusions contained in this report were determined by application of the current engineering standards and analysis procedures and formulae, and Trison Engineering Group, Inc. assumes no obligation to revise any of the information or conclusions contained in this report in the event such engineering and analysis procedures and formulae are hereafter modified or revised.

Trison Engineering Group, Inc. make no warranties, expressed or implied in connection with this report and disclaims any liability arising from original design, material, fabrication and erection deficiencies or the "as-built" condition of this structure. Trison Engineering Group, Inc. will not be responsible whatsoever for or on account of consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report.

Installation procedures and loading are not within the scope of this report and should be performed and evaluated by a competent contractor.

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Load Combinations and Loading

Load combinations using Allowable Stress Design (ASD)

LC1 = D

LC5 = D + (0.6)W

LC7 = (0.6)D + (0.6)W

The tent structural support frame is designed to support the dead load of the tent and support frame and the wind loading as noted in these calculations. The tent structural support frame may, or may not, be structurally capable of supporting additional loads. Additional loads applied to the tent structural support frame such as live load, snow load, hanging dead loads, or wind speed up subject to escarpment effects caused by hills will exert additional loads to the tent support frame. Prior to adding additional loading to the tent structural support frame, the structural support frame shall be reviewed by a qualified structural engineer to determine if the frame is structurally acceptable for the additional loading. The owner of the tent structure shall get written certification from a qualified structural engineer as to the magnitude and location for additional loads being applied and any restrictions to the tent structure which they assumed.

D = Dead loads consist of the self-weight of all materials incorporated into the tent fabric material, supporting frame and ballast weight. Hanging dead loads are auxiliary additional loads that typically are hanging from the structure, and are not part of the tent structural support frame. In this analysis of the tent structural support frame there are no hanging dead loads considered.

W = Wind Loads have been included in this analysis of the tent structural support frame.

L = Live loads are loads produced by the use and occupancy of the structure that does not include construction or environment loads. In this analysis of the tent structural support frame there are no live loads considered.

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S = Snow loads have not been included in this analysis of the tent structural support frame. This tent structure is assumed to be erected on a temporary basis, in locations, and during seasons, where snow loading is not expected. If snow is expected or is likely to occur while the tent fabric is still in place, then measures shall be provided to ensure snow removal. In addition, the roof fabric slope shall be maintained to allow for a smooth drainage and to prevent the potential for ponding of melt water.

E = Seismic / earthquake loading does not control over the wind loading. Due to the low mass of the tent structural support frame the seismic base shear does not control the structural design of the support structure and therefore has not been included in this analysis.

R = Rain water loading shall drain off the sloped roof surface and shall not be allowed to pond on the tent fabric.

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Wind Loading Criteria

The tent structural support frame is the tent's Main Wind-Force Resisting System (MWFRS) and therefore designed to resist the wind loads. Basic Wind Speed per ASCE 7-10 = 105 MPH three-second gust wind speed is the building code required design wind speed. However, this structural analysis is to determine the adequacy of the tent structural support frame and to determine the maximum allowed wind speed for the tent installation.

V = Maximum allowable three-second gust wind speed for the tent structural support frame.

Occupancy Category = I

Surface Roughness = B & C

Surface Roughness B: Urban and suburban areas, wooded areas or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger.

Surface Roughness C: Open terrain with scattered obstructions having heights generally less than 30 feet. This category includes flat open country, grasslands, and all water surfaces in hurricane-prone regions.

Surface Roughness D: Flat, unobstructed areas and water surfaces outside hurricane-prone regions. This category includes smooth mud flats, salt flats and unbroken ice.

Exposure Category = B & C

Exposure B shall apply where the ground surface roughness condition category B prevails in the upwind direction for a distance of at least 1500 feet or 20 times the height of the structure height, whichever is greater.

Exposure C shall apply for all cases where Exposures B or D do not apply.

Exposure D shall apply where the ground surface roughness condition category D prevails in the upwind direction for a distance of at least 5000 feet or 20 times the structure height, whichever is greater. In addition, Exposure D shall extend inland from the shoreline for a distance of 600 feet or 20 times the structure height, whichever is greater.

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Enclosure Classification = Open, Partially Enclosed & Enclosed

Open: A structure having each wall at least 80 percent open. GCpi = 0.00

Partially Enclosed: A structure that the total area of openings in a wall that receives positive wind pressure exceeds the sum of the areas of openings in the balance of the remaining walls & roof by more than 10 percent. In addition, the total area of openings in a wall that receives positive wind pressure exceeds 4 square feet or 1 percent of the area of that wall, whichever is smaller and the percentage of openings in the balance of the remaining walls & roof does not exceed 20 percent. GCpi = +/-0.55

Enclosed: A structure that does not comply with the requirements for open or partially enclosed structures. GCpi = +/-0.18

Topographic Factor Kzt = 1.0 (no wind speed-up effects)

Wind speed-up effects at isolated hills, ridges, and escarpments constituting abrupt changes in the general topography have not been included in this analysis of the tent structural support frame.

Importance Factor I = 1.0

Wind Direction Factor Kd = 0.85

Gust Effect Factor G = 0.85

Height above ground = z

Mean roof height above ground = h

Velocity pressure exposure coefficients = Kh & Kz

Velocity Pressure $qz = (0.00256)(Kz)(Kzt)(Kd)(V)^2$

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Enclosure: Open (roof and valance only)

Mean Roof Height h = 11.15 feet

Roof Angle = 39.7 degrees

External Pressure Coefficients:

ASCE 7-10 Figure 27.4-5 Pitched Roof, Open Building

Clear Wind Flow

Load Case 'A': Cnw = 1.3 Cnl = 0.6

Load Case 'B': Cnw = -0.2 Cnl = -0.6

MWFRS Net Design Roof Pressure p = (qz) (G) (Cn)

ASCE 7-10 Section 27.4.5 Valance

GCpn = +1.5 Windward

GCpn = -1.0 Leeward

MWFRS Net Design Valance Pressure p = (qz) (GCpn)

Velocity Pressure Coefficient Kh & Kz = 0.57 Exposure 'B'
(ASCE 7-10 Table 27.3-1)

Velocity Pressure Coefficient Kh & Kz = 0.85 Exposure 'C'
(ASCE 7-10 Table 27.3-1)

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Enclosure: Enclosed & Partially Enclosed: (roof and walls)

Mean Roof Height h = 11.15feet

Roof Angle = 39.7 degrees

External Pressure Coefficients:

ASCE 7-10 Figure 27.4-1 Enclosed, Partially Enclosed Buildings

Horizontal building dimension parallel to the wind direction = L

Horizontal building dimension perpendicular to the wind direction = B

L/B = (10'-0") / (10'-0") = 1.0

h/L = (11.15') / (10'-0") = 1.12

Windward wall Cp = 0.8

Leeward wall Cp = -0.5

Side wall Cp = -0.7

Windward Roof: Load Case 'A' Cp = -0.2

Load Case 'B' Cp = 0.3

Leeward Roof: Cp = -0.6

MWFRS Design Roof Pressure p = (qz) (G) (Cp) – (qz) (GCpi)

Velocity Pressure Coefficient Kh & Kz = 0.57 Exposure 'B'
(ASCE 7-10 Table 27.3-1)

Velocity Pressure Coefficient Kh & Kz = 0.85 Exposure 'C'
(ASCE 7-10 Table 27.3-1)

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Main Wind Force Resisting System – Part 1	All Heights
Velocity Pressure Exposure Coefficients, K_h and K_z	
Table 27.3-1	

Height above ground level, z		Exposure		
		B	C	D
ft	(m)			
0-15	(0-4.6)	0.57	0.85	1.03
20	(6.1)	0.62	0.90	1.08
25	(7.6)	0.66	0.94	1.12
30	(9.1)	0.70	0.98	1.16
40	(12.2)	0.76	1.04	1.22
50	(15.2)	0.81	1.09	1.27
60	(18)	0.85	1.13	1.31
70	(21.3)	0.89	1.17	1.34
80	(24.4)	0.93	1.21	1.38
90	(27.4)	0.96	1.24	1.40
100	(30.5)	0.99	1.26	1.43
120	(36.6)	1.04	1.31	1.48
140	(42.7)	1.09	1.36	1.52
160	(48.8)	1.13	1.39	1.55
180	(54.9)	1.17	1.43	1.58
200	(61.0)	1.20	1.46	1.61
250	(76.2)	1.28	1.53	1.68
300	(91.4)	1.35	1.59	1.73
350	(106.7)	1.41	1.64	1.78
400	(121.9)	1.47	1.69	1.82
450	(137.2)	1.52	1.73	1.86
500	(152.4)	1.56	1.77	1.89

Notes:

1. The velocity pressure exposure coefficient K_z may be determined from the following formula:

   For 15 ft. $\leq z \leq z_g$ $\quad K_z = 2.01\ (z/z_g)^{2/\alpha}$

   For $z < 15$ ft. $\quad K_z = 2.01\ (15/z_g)^{2/\alpha}$

2. α and z_g are tabulated in Table 26.9.1.
3. Linear interpolation for intermediate values of height z is acceptable.
4. Exposure categories are defined in Section 26.7.

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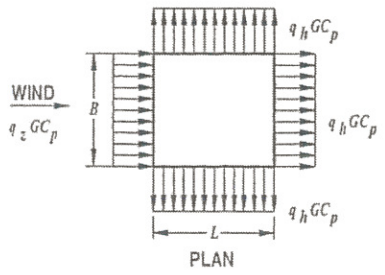
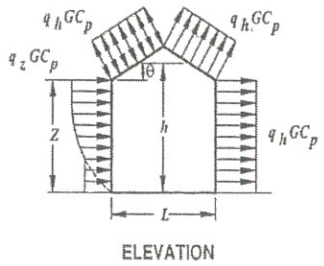
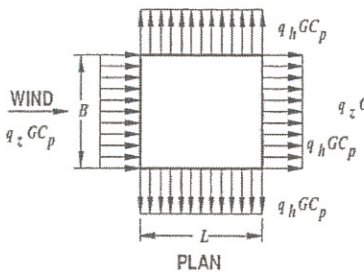
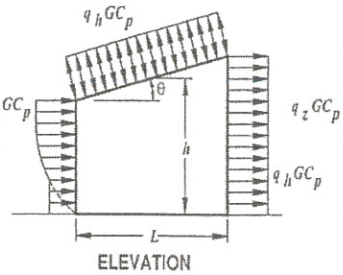
Main Wind Force Resisting System – Part 1		All Heights
Figure 27.4-1	External Pressure Coefficients, C_p	Walls & Roofs
Enclosed, Partially Enclosed Buildings		

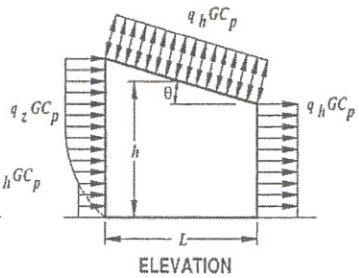




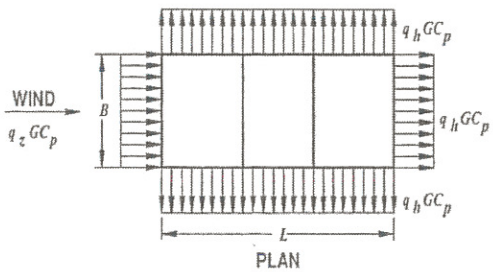
GABLE, HIP ROOF

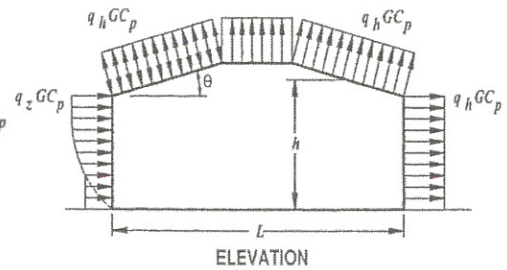






MONOSLOPE ROOF (NOTE 4)





MANSARD ROOF (NOTE 8)

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Main Wind Force Resisting System – Part 1		All Heights
Figure 27.4-1 (cont.)	External Pressure Coefficients, C_p	Walls & Roofs
Enclosed, Partially Enclosed Buildings		

Wall Pressure Coefficients, C_p			
Surface	L/B	C_p	Use With
Windward Wall	All values	0.8	q_z
Leeward Wall	0-1	-0.5	q_h
	2	-0.3	
	≥4	-0.2	
Side Wall	All values	-0.7	q_h

Roof Pressure Coefficients, C_p, for use with q_h

Wind Direction	Windward									Leeward		
	Angle, θ (degrees)									Angle, θ (degrees)		
	h/L	10	15	20	25	30	35	45	≥60#	10	15	≥20
Normal to ridge for θ ≥ 10°	≤0.25	-0.7 -0.18	-0.5 0.0*	-0.3 0.2	-0.2 0.3	-0.2 0.3	0.0* 0.4	0.4	0.01 θ	-0.3	-0.5	-0.6
	0.5	-0.9 -0.18	-0.7 -0.18	-0.4 0.0*	-0.3 0.2	-0.2 0.2	-0.2 0.3	0.0* 0.4	0.01 θ	-0.5	-0.5	-0.6
	≥1.0	-1.3** -0.18	-1.0 -0.18	-0.7 -0.18	-0.5 0.0*	-0.3 0.2	-0.2 0.2	0.0* 0.3	0.01 θ	-0.7	-0.6	-0.6

Normal to ridge for θ < 10 and Parallel to ridge for all θ		Horiz distance from windward edge	C_p
	≤ 0.5	0 to h/2	-0.9, -0.18
		h/2 to h	-0.9, -0.18
		h to 2 h	-0.5, -0.18
		> 2h	-0.3, -0.18
	≥ 1.0	0 to h/2	-1.3**, -0.18
		> h/2	-0.7, -0.18

*Value is provided for interpolation purposes.

**Value can be reduced linearly with area over which it is applicable as follows

Area (sq ft)	Reduction Factor
≤ 100 (9.3 sq m)	1.0
250 (23.2 sq m)	0.9
≥ 1000 (92.9 sq m)	0.8

Notes:

1. Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
2. Linear interpolation is permitted for values of *L/B*, *h/L* and θ other than shown. Interpolation shall only be carried out between values of the same sign. Where no value of the same sign is given, assume 0.0 for interpolation purposes.
3. Where two values of C_p are listed, this indicates that the windward roof slope is subjected to either positive or negative pressures and the roof structure shall be designed for both conditions. Interpolation for intermediate ratios of h/L in this case shall only be carried out between C_p values of like sign.
4. For monoslope roofs, entire roof surface is either a windward or leeward surface.
5. For flexible buildings use appropriate G_f as determined by Section 26.9.4.
6. Refer to Figure 27.4-2 for domes and Figure 27.4-3 for arched roofs.
7. Notation:
   B: Horizontal dimension of building, in feet (meter), measured normal to wind direction.
   L: Horizontal dimension of building, in feet (meter), measured parallel to wind direction.
   h: Mean roof height in feet (meters), except that eave height shall be used for θ ≤ 10 degrees.
   z: Height above ground, in feet (meters).
   G: Gust effect factor.
   q_z,q_h: Velocity pressure, in pounds per square foot (N/m^2), evaluated at respective height.
   θ: Angle of plane of roof from horizontal, in degrees.
8. For mansard roofs, the top horizontal surface and leeward inclined surface shall be treated as leeward surfaces from the table.
9. Except for MWFRS's at the roof consisting of moment resisting frames, the total horizontal shear shall not be less than that determined by neglecting wind forces on roof surfaces.

#For roof slopes greater than 80°, use $C_p = 0.8$

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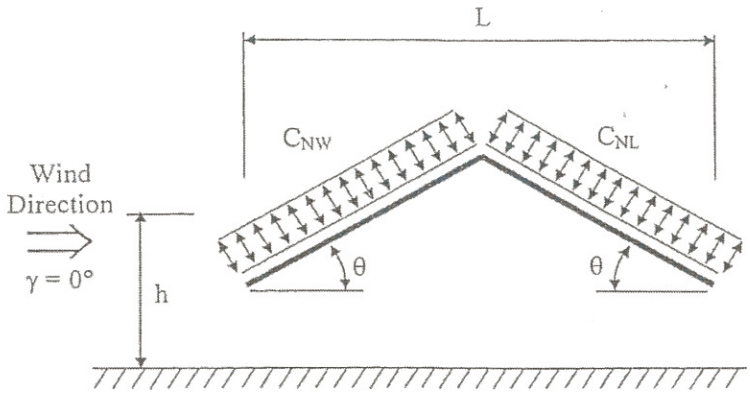
Main Wind Force Resisting System – Part 1		$0.25 \le h/L \le 1.0$
Figure 27.4-5	Net Pressure Coefficient, C_N	**Pitched Free Roofs** $\theta \le 45°, \gamma = 0°, 180°$
Open Buildings		



Roof Angle, θ	Load Case	Wind Direction, $\gamma = 0°, 180°$			
		Clear Wind Flow		Obstructed Wind Flow	
		C_{NW}	C_{NL}	C_{NW}	C_{NL}
7.5°	A	1.1	-0.3	-1.6	-1
	B	0.2	-1.2	-0.9	-1.7
15°	A	1.1	-0.4	-1.2	-1
	B	0.1	-1.1	-0.6	-1.6
22.5°	A	1.1	0.1	-1.2	-1.2
	B	-0.1	-0.8	-0.8	-1.7
30°	A	1.3	0.3	-0.7	-0.7
	B	-0.1	-0.9	-0.2	-1.1
37.5°	A	1.3	0.6	-0.6	-0.6
	B	-0.2	-0.6	-0.3	-0.9
45°	A	1.1	0.9	-0.5	-0.5
	B	-0.3	-0.5	-0.3	-0.7

Notes:
1. C_{NW} and C_{NL} denote net pressures (contributions from top and bottom surfaces) for windward and leeward half of roof surfaces, respectively.
2. Clear wind flow denotes relatively unobstructed wind flow with blockage less than or equal to 50%. Obstructed wind flow denotes objects below roof inhibiting wind flow (>50% blockage).
3. For values of θ between 7.5° and 45°, linear interpolation is permitted. For values of θ less than 7.5°, use monoslope roof load coefficients.
4. Plus and minus signs signify pressures acting towards and away from the top roof surface, respectively.
5. All load cases shown for each roof angle shall be investigated.
6. Notation:
   - L : horizontal dimension of roof, measured in the along wind direction, ft. (m)
   - h : mean roof height, ft. (m)
   - γ : direction of wind, degrees
   - θ : angle of plane of roof from horizontal, degrees

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Base Reactions

The tent structural support frame post base reactions are given in the table below for each enclosure and exposure category. The tent support post base should be set on firm and unyielding ground. The ground should be structurally adequate for the required bearing pressures of the post base as well as the required forces of the tent stakes. A Soils Engineer shall verify the ground condition on a site-by-site basis and provide appropriate bearing plate sizes to accommodate the post loading.

Tent: 10' x 10' with 8' Head Clearance
Ballasting weight at each leg of 625 lbs. minimum, with 1" guy strap assembly.

Enclosure	Exposure	Maximum Wind Speed	Post #	Vertical Reaction Down	Post Uplift Reaction	Ballast Weight
Open Tent	B	100 MPH	P1	680.0#	-16.0#	575.0#
Open Tent	C	85 MPH	P1	731.0#	-18.0#	619.0#
Partially Enclosed Tent	B	80 MPH	P1	626.0#	-37.0#	564.0#
Partially Enclosed Tent	C	60 MPH	P1	610.0#	-29.0#	554.0#
Enclosed Tent	B	80 MPH	P1	602.0#	-16.0#	561.0#
Enclosed Tent	C	65 MPH	P1	592.0#	-13.0#	552.0#

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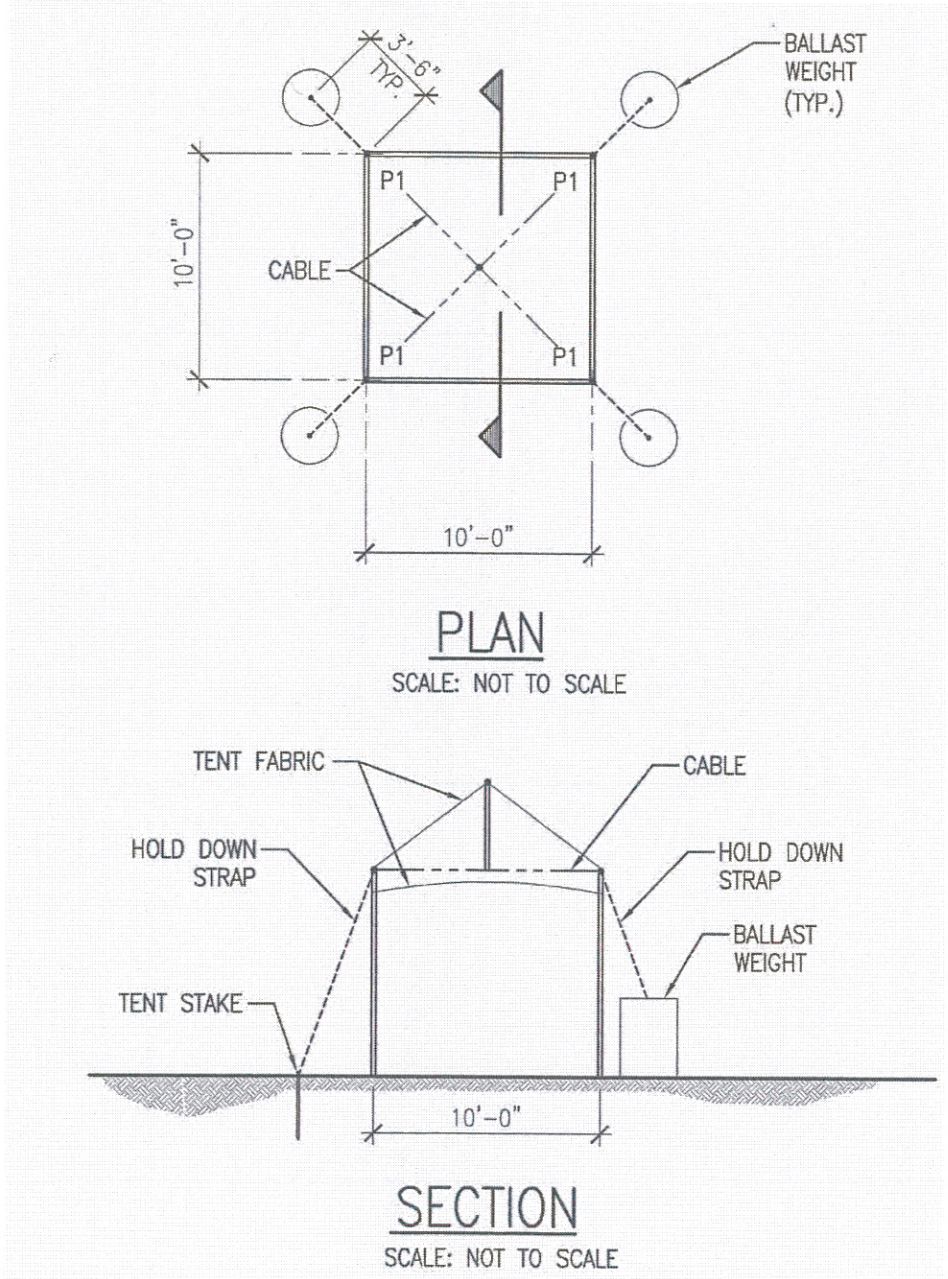
Computer Model of Tent Support Frame

The tent structural support frame analysis utilized a 3-dimensional structural computer analysis program. The computer program aided in determining the deflection and stresses of the tent frame members based on the several load combinations. The tent support frame is modeled in the program based on the actual size and configuration of the tent and members used. Loads are applied to the members in accordance to the code required load combinations. Then based on the member capacities the maximum allowable wind speed was determined.



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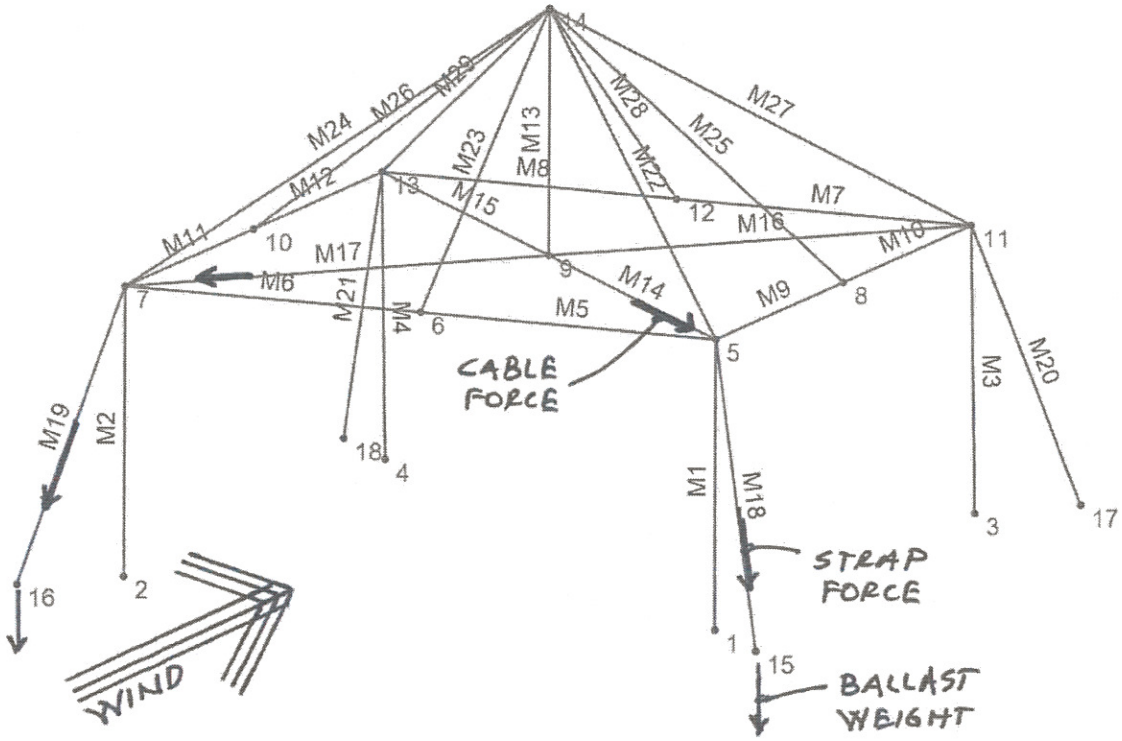
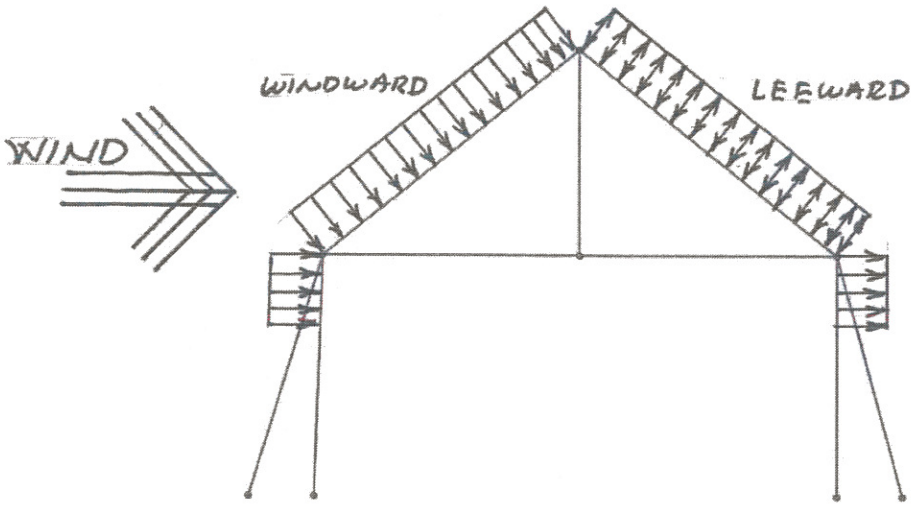
TentCraft

10' x 10' x 8' OPEN TENT with VALANCE





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JOB TENT CRAFT
SHEET NO. 21 OF
CALCULATED BY MSB DATE
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SCALE

10' x 10'x8' OPEN STRUCTURE WITH VALANCE

EXPOSURE = B

V = ALLOWABLE DESIGN WIND SPEED = 100 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.57)(0.85)(100)^2 = 12.40 PSF$

LOAD CASE 'A'
WINDWARD ROOF $p = (12.4 PSF)(0.85)(1.3) = 13.7 PSF$
LEEWARD ROOF $p = (12.4 PSF)(0.85)(0.6) = 6.32 PSF$
WINDWARD VALANCE $p = (12.4 PSF)(1.5) = 18.6 PSF$
LEEWARD VALANCE $p = (12.4 PSF)(-1.0) = -12.40 PSF$

LOAD CASE 'B'
WINDWARD ROOF $p = (12.4 PSF)(0.85)(-0.2) = -2.108 PSF$
LEEWARD ROOF $p = (12.4 PSF)(0.85)(-0.6) = -6.32 PSF$
WINDWARD VALANCE $p = (12.4 PSF)(1.5) = 18.6 PSF$
LEEWARD VALANCE $p = (12.4 PSF)(-1.0) = -12.40 PSF$

V = 100 MPH

	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 569.6#	#16 574.2#	#15 470.0#	#16 469.1#
STRAP FORCE	M18 610.2#	M19 615.2#	M18 503.6#	M19 502.6#
CABLE FORCE	M14 82.6#	M17 83.6#	M14 84.2#	M17 83.6#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.221"$		NODE # 12 $\Delta V = 0.101"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.347"$		NODE # 12 $\Delta H = 0.202"$	

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JOB TENT CRAFT
SHEET NO. 22 OF
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10' x 10' x 8' OPEN STRUCTURE WITH VALANCE

EXPOSURE = C

V = ALLOWABLE DESIGN WIND SPEED = 85 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.85)(0.85)(85)^2 = 13.36$ PSF

LOAD CASE 'A'
- WINDWARD ROOF $p = (13.36\ PSF)(0.85)(1.3) = 14.76\ PSF$
- LEEWARD ROOF $p = (13.36\ PSF)(0.85)(0.6) = 6.81\ PSF$
- WINDWARD VALANCE $p = (13.36\ PSF)(1.5) = 20.04\ PSF$
- LEEWARD VALANCE $p = (13.36\ PSF)(-1.0) = -13.36\ PSF$

LOAD CASE 'B'
- WINDWARD ROOF $p = (13.36\ PSF)(0.85)(-0.2) = -2.27\ PSF$
- LEEWARD ROOF $p = (13.36\ PSF)(0.85)(-0.6) = -6.81\ PSF$
- WINDWARD VALANCE $p = (13.36\ PSF)(1.5) = 20.04\ PSF$
- LEEWARD VALANCE $p = (13.36\ PSF)(-1.0) = -13.36\ PSF$

V = 85 MPH

	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 613.7#	#16 618.7#	#15 506.5#	#16 505.5#
STRAP FORCE	M18 657.5#	M19 662.8#	M18 542.6#	M19 541.5#
CABLE FORCE	M14 83.8#	M17 84.9#	M14 85.5#	M17 84.8#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.238"$		NODE # 12 $\Delta V = 0.11"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.373"$		NODE # 12 $\Delta H = 0.217"$	

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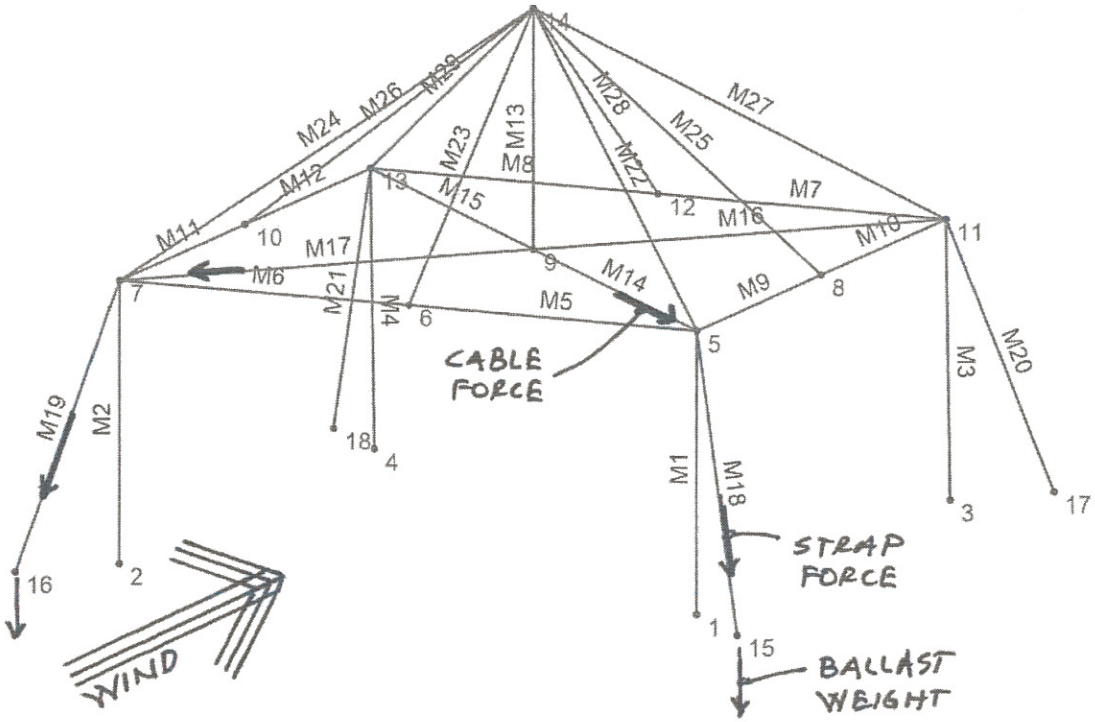
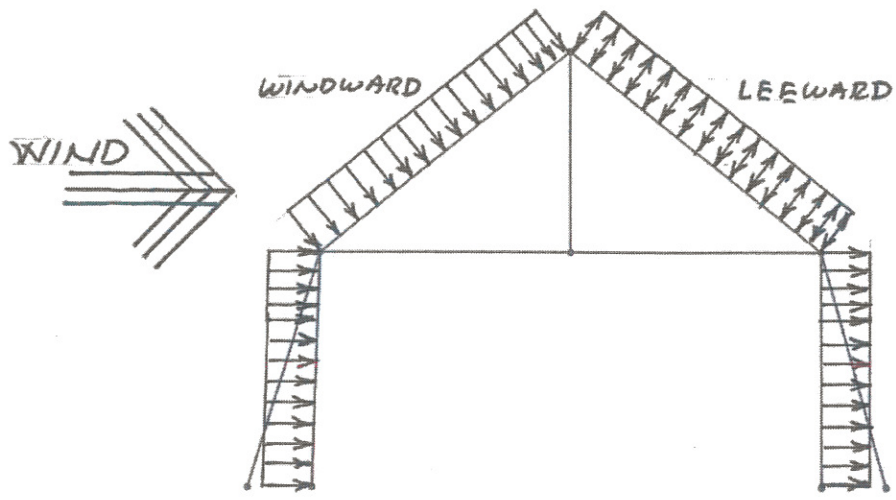
TentCraft

10' x 10' x 8' PARTIALLY ENCLOSED TENT with WALLS





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JOB TENT CRAFT
SHEET NO. 24 OF
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10' x 10' x 8' PARTIALLY ENCLOSED TENT

EXPOSURE = B

V = ALLOWABLE DESIGN WIND SPEED = 80 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.57)(0.85)(80)^2 = 7.94$ PSF

LOAD CASE 'A' $GC_{pi} = +0.55$

WINDWARD WALL $p = (7.94\text{PSF})(0.85)(0.8) - (7.94\text{ PSF})(0.55) = 1.032$ PSF

LEEWARD WALL $p = (7.94\text{PSF})(0.85)(-0.5) - (7.94\text{ PSF})(0.55) = -7.74$ PSF

WINDWARD ROOF $p = (7.94\text{PSF})(0.85)(-0.2) - (7.94\text{ PSF})(0.55) = -5.72$ PSF

LEEWARD ROOF $p = (7.94\text{ PSF})(0.85)(-0.6) - (7.94\text{ PSF})(0.55) = -8.42$ PSF

LOAD CASE 'B' $GC_{pi} = +0.55$

WINDWARD WALL $p = (7.94\text{ PSF})(0.85)(0.8) - (7.94\text{ PSF})(0.55) = 1.032$ PSF

LEEWARD WALL $p = (7.94\text{ PSF})(0.85)(-0.5) - (7.94\text{ PSF})(0.55) = -7.74$ PSF

WINDWARD ROOF $p = (7.94\text{ PSF})(0.85)(0.3) - (7.94\text{ PSF})(0.55) = -2.34$ PSF

LEEWARD ROOF $p = (7.94\text{ PSF})(0.85)(-0.6) - (7.94\text{ PSF})(0.55) = -8.42$ PSF

LOAD CASE 'A' $GC_{pi} = -0.55$

WINDWARD WALL $p = (7.94\text{ PSF})(0.85)(0.8) - (7.94\text{ PSF})(-0.55) = 9.77$ PSF

LEEWARD WALL $p = (7.94\text{ PSF})(0.85)(-0.5) - (7.94\text{ PSF})(-0.55) = 0.993$ PSF

WINDWARD ROOF $p = (7.94\text{ PSF})(0.85)(-0.2) - (7.94\text{ PSF})(-0.55) = 3.02$ PSF

LEEWARD ROOF $p = (7.94\text{ PSF})(0.85)(-0.6) - (7.94\text{ PSF})(-0.55) = 0.318$ PSF

LOAD CASE 'B' $GC_{pi} = -0.55$

WINDWARD WALL $p = (7.94\text{ PSF})(0.85)(0.8) - (7.94\text{ PSF})(-0.55) = 9.77$ PSF

LEEWARD WALL $p = (7.94\text{ PSF})(0.85)(-0.5) - (7.94\text{ PSF})(-0.55) = 0.993$ PSF

WINDWARD ROOF $p = (7.94\text{ PSF})(0.85)(0.3) - (7.94\text{ PSF})(-0.55) = 6.39$ PSF

LEEWARD ROOF $p = (7.94\text{ PSF})(0.85)(-0.6) - (7.94\text{ PSF})(-0.55) = 0.318$ PSF

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SHEET NO. 25 OF
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V = 80 MPH EXPOSURE 'B' PARTIALLY ENCLOSED

GCpi = +0.55	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 489.9#	#16 484.1#	#15 562.6#	#16 557.7#
STRAP FORCE	M18 524.8#	M19 518.6#	M18 602.7#	M19 597.4#
CABLE FORCE	M14 91.8#	M17 87.5#	M14 94.8#	M17 91.1#
VERTICAL DEFLECTION	NODE # 12 $\Delta V = 0.194"$		NODE # 12 $\Delta V = 0.189"$	
HORIZONTAL DEFLECTION	NODE # 12 $\Delta H = 0.244"$		NODE # 12 $\Delta H = 0.259"$	

GCpi = -0.55	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 484.1#	#16 490.0#	#15 556.7#	#16 563.4#
STRAP FORCE	M18 518.6#	M19 524.9#	M18 596.4#	M19 603.6#
CABLE FORCE	M14 76.8#	M17 81.1#	M14 79.7#	M17 84.6#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.185"$		NODE # 6 $\Delta V = -0.219"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.254"$		NODE # 6 $\Delta H = 0.291"$	

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JOB TENT CRAFT
SHEET NO. 26 OF
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SCALE

10' x 10' x 8' PARTIALLY ENCLOSED TENT

EXPOSURE = C

V: ALLOWABLE DESIGN WIND SPEED = 60 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.85)(0.85)(60)^2 = 6.66$ PSF

LOAD CASE 'A' $GC_{pi} = +0.55$

WINDWARD WALL $p = (6.66\ PSF)(0.85)(0.8) - (6.66\ PSF)(0.55) = 0.866\ PSF$

LEEWARD WALL $p = (6.66\ PSF)(0.85)(-0.5) - (6.66\ PSF)(0.55) = -6.49\ PSF$

WINDWARD ROOF $p = (6.66\ PSF)(0.85)(-0.2) - (6.66\ PSF)(0.55) = -4.80\ PSF$

LEEWARD ROOF $p = (6.66\ PSF)(0.85)(-0.6) - (6.66\ PSF)(0.55) = -7.06\ PSF$

LOAD CASE 'B' $GC_{pi} = +0.55$

WINDWARD WALL $p = (6.66\ PSF)(0.85)(0.8) - (6.66\ PSF)(0.55) = 0.866\ PSF$

LEEWARD WALL $p = (6.66\ PSF)(0.85)(-0.5) - (6.66\ PSF)(0.55) = -6.49\ PSF$

WINDWARD ROOF $p = (6.66\ PSF)(0.85)(0.3) - (6.66\ PSF)(0.55) = -1.965\ PSF$

LEEWARD ROOF $p = (6.66\ PSF)(0.85)(-0.6) - (6.66\ PSF)(0.55) = -7.06\ PSF$

LOAD CASE 'A' $GC_{pi} = -0.55$

WINDWARD WALL $p = (6.66\ PSF)(0.85)(0.8) - (6.66\ PSF)(-0.55) = 8.19\ PSF$

LEEWARD WALL $p = (6.66\ PSF)(0.85)(-0.5) - (6.66\ PSF)(-0.55) = 0.833\ PSF$

WINDWARD ROOF $p = (6.66\ PSF)(0.85)(-0.2) - (6.66\ PSF)(-0.55) = 2.53\ PSF$

LEEWARD ROOF $p = (6.66\ PSF)(0.85)(-0.6) - (6.66\ PSF)(-0.55) = 0.266\ PSF$

LOAD CASE 'B' $GC_{pi} = -0.55$

WINDWARD WALL $p = (6.66\ PSF)(0.85)(0.8) - (6.66\ PSF)(-0.55) = 8.19\ PSF$

LEEWARD WALL $p = (6.66\ PSF)(0.85)(-0.5) - (6.66\ PSF)(-0.55) = 0.833\ PSF$

WINDWARD ROOF $p = (6.66\ PSF)(0.85)(0.3) - (6.66\ PSF)(-0.55) = 5.36\ PSF$

LEEWARD ROOF $p = (6.66\ PSF)(0.85)(-0.6) - (6.66\ PSF)(-0.55) = 0.266\ PSF$

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JOB TENT CRAFT
SHEET NO. 27 OF
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V = 60 MPH EXPOSURE 'C' PARTIALLY ENCLOSED

GCpi = +0.55	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 410.7#	#16 405.9#	#15 471.7#	#16 467.6#
STRAP FORCE	M18 440.0#	M19 434.9#	M18 505.3#	M19 500.9#
CABLE FORCE	M14 87.8#	M17 84.3#	M14 90.3#	M17 87.3#
VERTICAL DEFLECTION	NODE # 12 $\Delta V = 0.162"$		NODE # 12 $\Delta V = 0.158"$	
HORIZONTAL DEFLECTION	NODE # 12 $\Delta H = 0.204"$		NODE # 12 $\Delta H = 0.217"$	

GCpi = -0.55	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 487.5#	#16 491.8#	#15 548.5#	#16 553.4#
STRAP FORCE	M18 522.3#	M19 526.9#	M18 587.6#	M19 592.9#
CABLE FORCE	M14 79.8#	M17 83.0#	M14 82.3#	M17 86.0#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.158"$		NODE # 6 $\Delta V = -0.186"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.225"$		NODE # 6 $\Delta H = 0.257"$	

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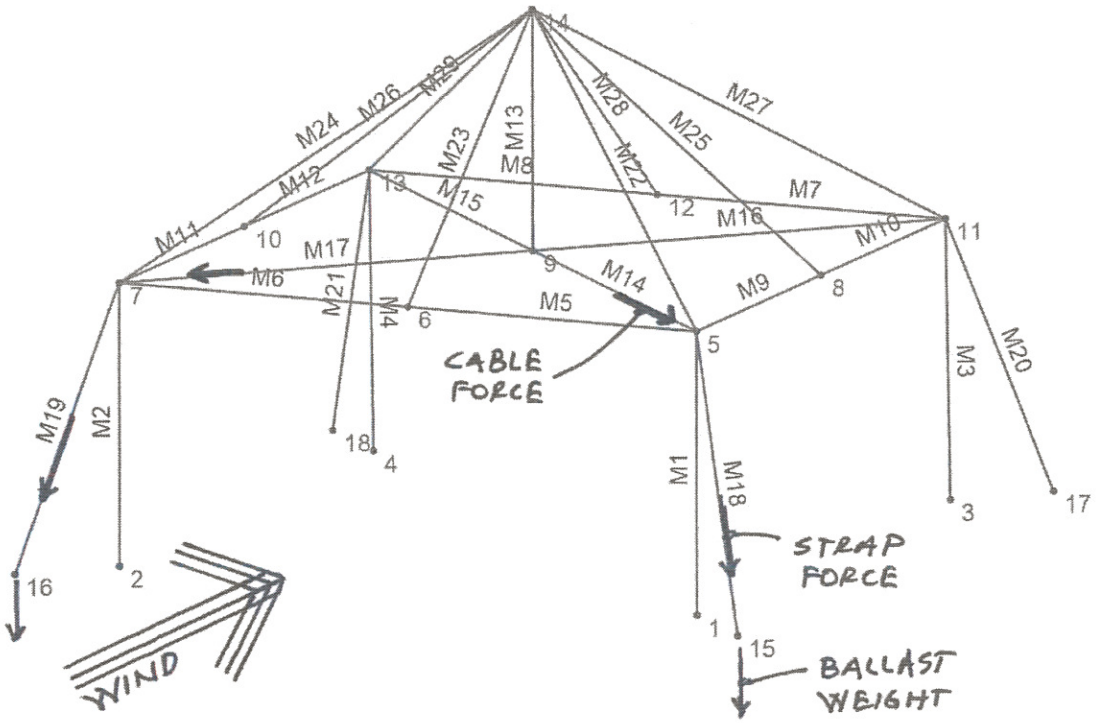
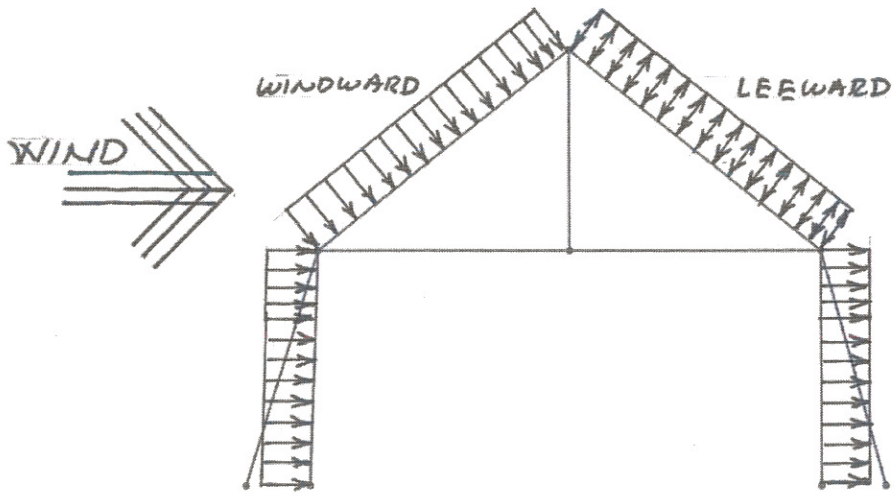
TentCraft

10' x 10' x 8' ENCLOSED TENT with WALLS





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JOB TENT CRAFT
SHEET NO. 29 OF
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10' x 10' x 8' ENCLOSED TENT

EXPOSURE = B

V: ALLOWABLE DESIGN WIND SPEED = 80 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.57)(0.85)(80)^2 = 7.94$ PSF

LOAD CASE 'A' $GC_{pi} = +0.18$

WINDWARD WALL $p = (7.94\ PSF)(0.85)(0.8) - (7.94\ PSF)(0.18) = 3.97\ PSF$

LEEWARD WALL $p = (7.94\ PSF)(0.85)(-0.5) - (7.94\ PSF)(0.18) = -4.80\ PSF$

WINDWARD ROOF $p = (7.94\ PSF)(0.85)(-0.2) - (7.94\ PSF)(0.18) = -2.78\ PSF$

LEEWARD ROOF $p = (7.94\ PSF)(0.85)(-0.6) - (7.94\ PSF)(0.18) = -5.48\ PSF$

LOAD CASE 'B' $GC_{pi} = +0.18$

WINDWARD WALL $p = (7.94\ PSF)(0.85)(0.8) - (7.94\ PSF)(0.18) = 3.97\ PSF$

LEEWARD WALL $p = (7.94\ PSF)(0.85)(-0.5) - (7.94\ PSF)(0.18) = -4.80\ PSF$

WINDWARD ROOF $p = (7.94\ PSF)(0.85)(0.3) - (7.94\ PSF)(0.18) = 0.596\ PSF$

LEEWARD ROOF $p = (7.94\ PSF)(0.85)(-0.6) - (7.94\ PSF)(0.18) = -5.48\ PSF$

LOAD CASE 'A' $GC_{pi} = -0.18$

WINDWARD WALL $p = (7.94\ PSF)(0.85)(0.8) - (7.94\ PSF)(-0.18) = 6.83\ PSF$

LEEWARD WALL $p = (7.94\ PSF)(0.85)(-0.5) - (7.94\ PSF)(-0.18) = -1.945\ PSF$

WINDWARD ROOF $p = (7.94\ PSF)(0.85)(-0.2) - (7.94\ PSF)(-0.18) = 0.079\ PSF$

LEEWARD ROOF $p = (7.94\ PSF)(0.85)(-0.6) - (7.94\ PSF)(-0.18) = -2.62\ PSF$

LOAD CASE 'B' $GC_{pi} = -0.18$

WINDWARD WALL $p = (7.94\ PSF)(0.85)(0.8) - (7.94\ PSF)(-0.18) = 6.83\ PSF$

LEEWARD WALL $p = (7.94\ PSF)(0.85)(-0.5) - (7.94\ PSF)(-0.18) = -1.945\ PSF$

WINDWARD ROOF $p = (7.94\ PSF)(0.85)(0.3) - (7.94\ PSF)(-0.18) = 3.45\ PSF$

LEEWARD ROOF $p = (7.94\ PSF)(0.85)(-0.6) - (7.94\ PSF)(-0.18) = -2.62\ PSF$

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SHEET NO. 30 OF
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V = 80 MPH EXPOSURE 'B' ENCLOSED

GCpi = +0.18	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 487.2#	#16 485.2#	#15 559.8#	#16 558.7#
STRAP FORCE	M18 522.0#	M19 519.9#	M18 599.8#	M19 598.6#
CABLE FORCE	M14 87.0#	M17 85.7#	M14 90.0#	M17 89.3#
VERTICAL DEFLECTION	NODE # 12 $\Delta V = 0.119"$		NODE # 12 $\Delta V = 0.114"$	
HORIZONTAL DEFLECTION	NODE # 12 $\Delta H = 0.197"$		NODE # 12 $\Delta H = 0.215"$	

GCpi = -0.18	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 485.5#	#16 487.4#	#15 558.0#	#16 560.7#
STRAP FORCE	M18 520.1#	M19 522.2#	M18 597.9#	M19 600.8#
CABLE FORCE	M14 82.1#	M17 83.6#	M14 85.1#	M17 87.2#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.113"$		NODE # 6 $\Delta V = -0.146"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.199"$		NODE # 6 $\Delta H = 0.239"$	

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JOB TENT CRAFT
SHEET NO. 31 OF
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10' x 10' x 8' ENCLOSED TENT

EXPOSURE = C

V = ALLOWABLE DESIGN WIND SPEED = 65 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.85)(0.85)(65)^2 = 7.81$ PSF

LOAD CASE 'A' $GC_{pi} = +0.18$

WINDWARD WALL $p = (7.81\ PSF)(0.85)(0.8) - (7.81\ PSF)(0.18) = 3.91\ PSF$

LEEWARD WALL $p = (7.81\ PSF)(0.85)(-0.5) - (7.81\ PSF)(0.18) = -4.73\ PSF$

WINDWARD ROOF $p = (7.81\ PSF)(0.85)(-0.2) - (7.81\ PSF)(0.18) = -1.328\ PSF$

LEEWARD ROOF $p = (7.81\ PSF)(0.85)(-0.6) - (7.81\ PSF)(0.18) = -5.39\ PSF$

LOAD CASE 'B' $GC_{pi} = +0.18$

WINDWARD WALL $p = (7.81\ PSF)(0.85)(0.8) - (7.81\ PSF)(0.18) = 3.91\ PSF$

LEEWARD WALL $p = (7.81\ PSF)(0.85)(-0.5) - (7.81\ PSF)(0.18) = -4.73\ PSF$

WINDWARD ROOF $p = (7.81\ PSF)(0.85)(0.3) - (7.81\ PSF)(0.18) = 0.586\ PSF$

LEEWARD ROOF $p = (7.81\ PSF)(0.85)(-0.6) - (7.81\ PSF)(0.18) = -5.39\ PSF$

LOAD CASE 'A' $GC_{pi} = -0.18$

WINDWARD WALL $p = (7.81\ PSF)(0.85)(0.8) - (7.81\ PSF)(-0.18) = 6.72\ PSF$

LEEWARD WALL $p = (7.81\ PSF)(0.85)(-0.5) - (7.81\ PSF)(-0.18) = -1.914\ PSF$

WINDWARD ROOF $p = (7.81\ PSF)(0.85)(-0.2) - (7.81\ PSF)(-0.18) = 0.078\ PSF$

LEEWARD ROOF $p = (7.81\ PSF)(0.85)(-0.6) - (7.81\ PSF)(-0.18) = -2.577\ PSF$

LOAD CASE 'B' $GC_{pi} = -0.18$

WINDWARD WALL $p = (7.81\ PSF)(0.85)(0.8) - (7.81\ PSF)(-0.18) = 6.72\ PSF$

LEEWARD WALL $p = (7.81\ PSF)(0.85)(-0.5) - (7.81\ PSF)(-0.18) = -1.914\ PSF$

WINDWARD ROOF $p = (7.81\ PSF)(0.85)(0.3) - (7.81\ PSF)(-0.18) = 3.40\ PSF$

LEEWARD ROOF $p = (7.81\ PSF)(0.85)(-0.6) - (7.81\ PSF)(-0.18) = -2.577\ PSF$

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JOB TENT CRAFT
SHEET NO. 32 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

V = 65 MPH EXPOSURE 'C' ENCLOSED

GCpi = +0.18	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 510.2#	#16 508.6#	#15 551.3#	#16 550.2#
STRAP FORCE	M18 546.6#	M19 544.9#	M18 590.7#	M19 589.5#
CABLE FORCE	M14 88.0#	M17 87.0#	M14 89.7#	M17 89.0#
VERTICAL DEFLECTION	NODE # 12 $\Delta V = 0.115"$		NODE # 12 $\Delta V = 0.112"$	
HORIZONTAL DEFLECTION	NODE # 12 $\Delta H = 0.201"$		NODE # 12 $\Delta H = 0.211"$	

GCpi = -0.18	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 477.7#	#16 479.6#	#15 549.2#	#16 551.9#
STRAP FORCE	M18 511.8#	M19 513.8#	M18 588.4#	M19 591.3#
CABLE FORCE	M14 81.9#	M17 83.4#	M14 84.8#	M17 86.9#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.112"$		NODE # 6 $\Delta V = -0.144"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.196"$		NODE # 6 $\Delta H = 0.235"$	

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TentCraft

Appendix: Alternate 2" Guy Strap Assembly

An alternate 2" guy strap assembly was used with the tent structural support frame. The table below provides post base reactions and ballast weights for each enclosure and exposure category. The ground should be structurally adequate for the required bearing pressures of the post base as well as the required forces of the tent stakes. A Soils Engineer shall verify the ground condition on a site-by-site basis and provide appropriate bearing plate sizes to accommodate the post loading.

Tent: 10' x 10' with 8' Head Clearance
2" guy strap assembly with an allowable working load limit = 3333. #
Ballasting weight as noted in table

Enclosure	Exposure	Maximum Wind Speed	Post #	Vertical Reaction Down	Post Uplift Reaction	Ballast Weight
Open Tent	B	105 MPH	P1	747.0#	-19.0#	634.0#
Open Tent	C	105 MPH	P1	1100.0#	-37.0#	945.0#
Partially Enclosed Tent	B	105 MPH	P1	1330.0#	-73.0#	1252.0#
Partially Enclosed Tent	C	85 MPH	P1	1195.0#	-74.0#	1111.0#
Enclosed Tent	B	105 MPH	P1	1015.0#	-40.0#	966.0#
Enclosed Tent	C	100 MPH	P1	1363.0#	-59.0#	1307.0#

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JOB TENT CRAFT
SHEET NO. 34 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

10' x 10' x 8' OPEN STRUCTURE WITH VALANCE

EXPOSURE = B

V = ALLOWABLE DESIGN WIND SPEED = 105 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.57)(0.85)(105)^2 = 13.67$ PSF

LOAD CASE 'A'
- WINDWARD ROOF $p = (13.67\ PSF)(0.85)(1.3) = 15.11$ PSF
- LEEWARD ROOF $p = (13.67\ PSF)(0.85)(0.6) = 6.97$ PSF
- WINDWARD VALANCE $p = (13.67\ PSF)(1.5) = 20.51$ PSF
- LEEWARD VALANCE $p = (13.67\ PSF)(-1.0) = -13.67$ PSF

LOAD CASE 'B'
- WINDWARD ROOF $p = (13.67\ PSF)(0.85)(-0.2) = -2.323$ PSF
- LEEWARD ROOF $p = (13.67\ PSF)(0.85)(-0.6) = -6.97$ PSF
- WINDWARD VALANCE $p = (13.67\ PSF)(1.5) = 20.51$ PSF
- LEEWARD VALANCE $p = (13.67\ PSF)(-1.0) = -13.67$ PSF

V = 105 MPH

	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 628.2#	#16 633.3#	#15 518.4#	#16 517.4#
STRAP FORCE	M18 673.0#	M19 678.5#	M18 555.4#	M19 554.3#
CABLE FORCE	M14 84.2#	M17 85.3#	M14 85.9#	M17 85.2#
VERTICAL DEFLECTION	NODE #6 $\Delta V = -0.243$"		NODE #12 $\Delta V = 0.112$"	
HORIZONTAL DEFLECTION	NODE #6 $\Delta H = 0.382$"		NODE #12 $\Delta H = 0.222$"	

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JOB TENT CRAFT
SHEET NO. 35 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

10' x 10' x 8' OPEN STRUCTURE WITH VALANCE

EXPOSURE = C

V = ALLOWABLE DESIGN WIND SPEED = 105 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.85)(0.85)(105)^2 = 20.39$ PSF

LOAD CASE 'A'
- WINDWARD ROOF $p = (20.39\ PSF)(0.85)(1.3) = 22.53\ PSF$
- LEEWARD ROOF $p = (20.39\ PSF)(0.85)(0.6) = 10.40\ PSF$
- WINDWARD VALANCE $p = (20.39\ PSF)(1.5) = 30.59\ PSF$
- LEEWARD VALANCE $p = (20.39\ PSF)(-1.0) = -20.39\ PSF$

LOAD CASE 'B'
- WINDWARD ROOF $p = (20.39\ PSF)(0.85)(-0.2) = -3.46\ PSF$
- LEEWARD ROOF $p = (20.39\ PSF)(0.85)(-0.6) = -10.40\ PSF$
- WINDWARD VALANCE $p = (20.39\ PSF)(1.5) = 30.59\ PSF$
- LEEWARD VALANCE $p = (20.39\ PSF)(-1.0) = -20.39\ PSF$

V = 105 MPH

	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 937.2#	#16 944.6#	#15 773.1#	#16 771.4#
STRAP FORCE	M18 1004.2#	M19 1012.2#	M18 828.3#	M19 826.6#
CABLE FORCE	M14 92.6#	M17 94.2#	M14 95.1#	M17 94.0#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.356"$		NODE # 12 $\Delta V = 0.169"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.564"$		NODE # 12 $\Delta H = 0.333"$	

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JOB TENT CRAFT
SHEET NO. 36 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

10' x 10' x 8' PARTIALLY ENCLOSED TENT

EXPOSURE = B

V = ALLOWABLE DESIGN WIND SPEED = 105 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.57)(0.85)(105)^2 = 13.67$ PSF

LOAD CASE 'A' GCpi = +0.55

WINDWARD WALL $p = (13.67\ PSF)(0.85)(0.8) - (13.67\ PSF)(0.55) = 1.77\ PSF$

LEEWARD WALL $p = (13.67\ PSF)(0.85)(-0.5) - (13.67\ PSF)(0.55) = -13.33\ PSF$

WINDWARD ROOF $p = (13.67\ PSF)(0.85)(-0.2) - (13.67\ PSF)(0.55) = -9.84\ PSF$

LEEWARD ROOF $p = (13.67\ PSF)(0.85)(-0.6) - (13.67\ PSF)(0.55) = -14.49\ PSF$

LOAD CASE 'B' GCpi = +0.55

WINDWARD WALL $p = (13.67\ PSF)(0.85)(0.8) - (13.67\ PSF)(0.55) = 1.77\ PSF$

LEEWARD WALL $p = (13.67\ PSF)(0.85)(-0.5) - (13.67\ PSF)(0.55) = -13.33\ PSF$

WINDWARD ROOF $p = (13.67\ PSF)(0.85)(0.3) - (13.67\ PSF)(0.55) = -4.03\ PSF$

LEEWARD ROOF $p = (13.67\ PSF)(0.85)(-0.6) - (13.67\ PSF)(0.55) = -14.49\ PSF$

LOAD CASE 'A' GCpi = -0.55

WINDWARD WALL $p = (13.67\ PSF)(0.85)(0.8) - (13.67\ PSF)(-0.55) = 16.81\ PSF$

LEEWARD WALL $p = (13.67\ PSF)(0.85)(-0.5) - (13.67\ PSF)(-0.55) = 1.71\ PSF$

WINDWARD ROOF $p = (13.67\ PSF)(0.85)(-0.2) - (13.67\ PSF)(-0.55) = 5.19\ PSF$

LEEWARD ROOF $p = (13.67\ PSF)(0.85)(-0.6) - (13.67\ PSF)(-0.55) = 0.547\ PSF$

LOAD CASE 'B' GCpi = -0.55

WINDWARD WALL $p = (13.67\ PSF)(0.85)(0.8) - (13.67\ PSF)(-0.55) = 16.81\ PSF$

LEEWARD WALL $p = (13.67\ PSF)(0.85)(-0.5) - (13.67\ PSF)(-0.55) = 1.71\ PSF$

WINDWARD ROOF $p = (13.67\ PSF)(0.85)(0.3) - (13.67\ PSF)(-0.55) = 11.00\ PSF$

LEEWARD ROOF $p = (13.67\ PSF)(0.85)(-0.6) - (13.67\ PSF)(-0.55) = 0.547\ PSF$

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JOB TENT CRAFT
SHEET NO. 37 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

V = 105 MPH EXPOSURE 'B' PARTIALLY ENCLOSED

GCpi = ±0.55	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 896.5#	#16 887.9#	#15 1082.6#	#16 1075.2#
STRAP FORCE	M18 960.6#	M19 951.4#	M18 1160.1#	M19 1152.2#
CABLE FORCE	M14 112.5#	M17 108.1#	M14 118.0#	M17 114.0#
VERTICAL DEFLECTION	NODE # 12 $\Delta V = 0.356"$		NODE # 12 $\Delta V = 0.346"$	
HORIZONTAL DEFLECTION	NODE # 12 $\Delta H = 0.589"$		NODE # 12 $\Delta H = 0.623"$	

GCpi = -0.55	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 1057.2#	#16 1063.9#	#15 1243.7#	#16 1251.5#
STRAP FORCE	M18 1132.9#	M19 1140.1#	M18 1332.9#	M19 1341.3#
CABLE FORCE	M14 92.2#	M17 94.9#	M14 97.7#	M17 100.8#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.323"$		NODE # 6 $\Delta V = -0.382"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.594"$		NODE # 6 $\Delta H = 0.691"$	

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JOB TENT CRAFT
SHEET NO. 38 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

10' x 10' x 8' PARTIALLY ENCLOSED TENT

EXPOSURE = C

V: ALLOWABLE DESIGN WIND SPEED = 85 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.85)(0.85)(85)^2 = 13.36$ PSF

LOAD CASE 'A' $GC_{pi} = +0.55$

WINDWARD WALL $p = (13.36\text{PSF})(0.85)(0.8) - (13.36\text{PSF})(0.55) = 1.737$ PSF
LEEWARD WALL $p = (13.36\text{PSF})(0.85)(-0.5) - (13.36\text{PSF})(0.55) = -13.03$ PSF
WINDWARD ROOF $p = (13.36\text{PSF})(0.85)(-0.2) - (13.36\text{PSF})(0.55) = -9.62$ PSF
LEEWARD ROOF $p = (13.36\text{PSF})(0.85)(-0.6) - (13.36\text{PSF})(0.55) = -14.16$ PSF

LOAD CASE 'B' $GC_{pi} = +0.55$

WINDWARD WALL $p = (13.36\text{PSF})(0.85)(0.8) - (13.36\text{PSF})(0.55) = 1.737$ PSF
LEEWARD WALL $p = (13.36\text{PSF})(0.85)(-0.5) - (13.36\text{PSF})(0.55) = -13.03$ PSF
WINDWARD ROOF $p = (13.36\text{PSF})(0.85)(0.3) - (13.36\text{PSF})(0.55) = -3.941$ PSF
LEEWARD ROOF $p = (13.36\text{PSF})(0.85)(-0.6) - (13.36\text{PSF})(0.55) = -14.16$ PSF

LOAD CASE 'A' $GC_{pi} = -0.55$

WINDWARD WALL $p = (13.36\text{PSF})(0.85)(0.8) - (13.36\text{PSF})(-0.55) = 16.43$ PSF
LEEWARD WALL $p = (13.36\text{PSF})(0.85)(-0.5) - (13.36\text{PSF})(-0.55) = 1.670$ PSF
WINDWARD ROOF $p = (13.36\text{PSF})(0.85)(-0.2) - (13.36\text{PSF})(-0.55) = 5.077$ PSF
LEEWARD ROOF $p = (13.36\text{PSF})(0.85)(-0.6) - (13.36\text{PSF})(-0.55) = 0.534$ PSF

LOAD CASE 'B' $GC_{pi} = -0.55$

WINDWARD WALL $p = (13.36\text{PSF})(0.85)(0.8) - (13.36\text{PSF})(-0.55) = 16.43$ PSF
LEEWARD WALL $p = (13.36\text{PSF})(0.85)(-0.5) - (13.36\text{PSF})(-0.55) = 1.670$ PSF
WINDWARD ROOF $p = (13.36\text{PSF})(0.85)(0.3) - (13.36\text{PSF})(-0.55) = 10.75$ PSF
LEEWARD ROOF $p = (13.36\text{PSF})(0.85)(-0.6) - (13.36\text{PSF})(-0.55) = 0.534$ PSF

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JOB TENT CRAFT
SHEET NO. 39 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

V = 85 MPH EXPOSURE 'C' PARTIALLY ENCLOSED

GCpi = ±0.55	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 824.4#	#16 814.5#	#15 946.6#	#16 938.1#
STRAP FORCE	M18 883.3#	M19 872.7#	M18 1014.3#	M19 1005.2#
CABLE FORCE	M14 108.6#	M17 101.2#	M14 113.6#	M17 107.1#
VERTICAL DEFLECTION	NODE # 12 $\Delta V = 0.33"$		NODE # 12 $\Delta V = 0.322"$	
HORIZONTAL DEFLECTION	NODE # 12 $\Delta H = 0.41"$		NODE # 12 $\Delta H = 0.436"$	

GCpi = -0.55	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 978.3#	#16 986.6#	#15 1100.7#	#16 1110.2#
STRAP FORCE	M18 1048.4#	M19 1057.2#	M18 1179.6#	M19 1189.8#
CABLE FORCE	M14 92.6#	M17 98.5#	M14 97.5#	M17 104.4#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.304"$		NODE # 6 $\Delta V = -0.359"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.444"$		NODE # 6 $\Delta H = 0.507"$	

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JOB TENT CRAFT
SHEET NO. 40 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

10' x 10' x 8' ENCLOSED TENT

EXPOSURE = B

V: ALLOWABLE DESIGN WIND SPEED = 105 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.57)(0.85)(105)^2 = 13.67$ PSF

LOAD CASE 'A' $GC_{pi} = +0.18$

WINDWARD WALL $p = (13.67\text{PSF})(0.85)(0.8) - (13.67\text{PSF})(0.18) = 6.835$ PSF

LEEWARD WALL $p = (13.67\text{PSF})(0.85)(-0.5) - (13.67\text{PSF})(0.18) = -8.27$ PSF

WINDWARD ROOF $p = (13.67\text{PSF})(0.85)(-0.2) - (13.67\text{PSF})(0.18) = -4.785$ PSF

LEEWARD ROOF $p = (13.67\text{PSF})(0.85)(-0.6) - (13.67\text{PSF})(0.18) = -9.43$ PSF

LOAD CASE 'B' $GC_{pi} = +0.18$

WINDWARD WALL $p = (13.67\text{PSF})(0.85)(0.8) - (13.67\text{PSF})(0.18) = 6.835$ PSF

LEEWARD WALL $p = (13.67\text{PSF})(0.85)(-0.5) - (13.67\text{PSF})(0.18) = -8.27$ PSF

WINDWARD ROOF $p = (13.67\text{PSF})(0.85)(0.3) - (13.67\text{PSF})(0.18) = 1.025$ PSF

LEEWARD ROOF $p = (13.67\text{PSF})(0.85)(-0.6) - (13.67\text{PSF})(0.18) = -9.43$ PSF

LOAD CASE 'A' $GC_{pi} = -0.18$

WINDWARD WALL $p = (13.67\text{PSF})(0.85)(0.8) - (13.67\text{PSF})(-0.18) = 11.76$ PSF

LEEWARD WALL $p = (13.67\text{PSF})(0.85)(-0.5) - (13.67\text{PSF})(-0.18) = -3.349$ PSF

WINDWARD ROOF $p = (13.67\text{PSF})(0.85)(-0.2) - (13.67\text{PSF})(-0.18) = 0.137$ PSF

LEEWARD ROOF $p = (13.67\text{PSF})(0.85)(-0.6) - (13.67\text{PSF})(-0.18) = -4.51$ PSF

LOAD CASE 'B' $GC_{pi} = -0.18$

WINDWARD WALL $p = (13.67\text{PSF})(0.85)(0.8) - (13.67\text{PSF})(-0.18) = 11.76$ PSF

LEEWARD WALL $p = (13.67\text{PSF})(0.85)(-0.5) - (13.67\text{PSF})(-0.18) = -3.349$ PSF

WINDWARD ROOF $p = (13.67\text{PSF})(0.85)(0.3) - (13.67\text{PSF})(-0.18) = 5.947$ PSF

LEEWARD ROOF $p = (13.67\text{PSF})(0.85)(-0.6) - (13.67\text{PSF})(-0.18) = -4.51$ PSF

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JOB TENT CRAFT
SHEET NO. 41 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

V = 105 MPH EXPOSURE 'B' ENCLOSED

GCpi = ±0.18	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 838.8#	#16 835.2#	#15 963.9#	#16 961.7#
STRAP FORCE	M18 898.8#	M19 895.0#	M18 1033.0#	M19 1030.6#
CABLE FORCE	M14 101.3#	M17 98.8#	M14 106.5#	M17 105.0#
VERTICAL DEFLECTION	NODE #12 $\Delta V = 0.208"$		NODE #12 $\Delta V = 0.20"$	
HORIZONTAL DEFLECTION	NODE #12 $\Delta H = 0.34"$		NODE #12 $\Delta H = 0.371"$	

GCpi = -0.18	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 836.1#	#16 839.2#	#15 961.3#	#16 965.7#
STRAP FORCE	M18 896.0#	M19 899.2#	M18 1030.2#	M19 1034.9#
CABLE FORCE	M14 92.9#	M17 95.2#	M14 98.1#	M17 101.3#
VERTICAL DEFLECTION	NODE #6 $\Delta V = -0.187"$		NODE #6 $\Delta V = -0.243"$	
HORIZONTAL DEFLECTION	NODE #6 $\Delta H = 0.338"$		NODE #6 $\Delta H = 0.406"$	

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JOB TENT CRAFT
SHEET NO. 42 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

10' x 10' x 8' ENCLOSED TENT

EXPOSURE = C

V: ALLOWABLE DESIGN WIND SPEED = 100 MPH

VELOCITY PRESSURE $q_z = (0.00256)(0.85)(0.85)(100)^2 = 18.5$ PSF

LOAD CASE 'A' $GC_{pi} = +0.18$

WINDWARD WALL $p = (18.5\ PSF)(0.85)(0.8) - (18.5\ PSF)(0.18) = 9.25\ PSF$

LEEWARD WALL $p = (18.5\ PSF)(0.85)(-0.5) - (18.5\ PSF)(0.18) = -11.19\ PSF$

WINDWARD ROOF $p = (18.5\ PSF)(0.85)(-0.2) - (18.5\ PSF)(0.18) = -6.48\ PSF$

LEEWARD ROOF $p = (18.5\ PSF)(0.85)(-0.6) - (18.5\ PSF)(0.18) = -12.77\ PSF$

LOAD CASE 'B' $GC_{pi} = +0.18$

WINDWARD WALL $p = (18.5\ PSF)(0.85)(0.8) - (18.5\ PSF)(0.18) = 9.25\ PSF$

LEEWARD WALL $p = (18.5\ PSF)(0.85)(-0.5) - (18.5\ PSF)(0.18) = -11.19\ PSF$

WINDWARD ROOF $p = (18.5\ PSF)(0.85)(0.3) - (18.5\ PSF)(0.18) = 1.388\ PSF$

LEEWARD ROOF $p = (18.5\ PSF)(0.85)(-0.6) - (18.5\ PSF)(0.18) = -12.77\ PSF$

LOAD CASE 'A' $GC_{pi} = -0.18$

WINDWARD WALL $p = (18.5\ PSF)(0.85)(0.8) - (18.5\ PSF)(-0.18) = 15.91\ PSF$

LEEWARD WALL $p = (18.5\ PSF)(0.85)(-0.5) - (18.5\ PSF)(-0.18) = -4.53\ PSF$

WINDWARD ROOF $p = (18.5\ PSF)(0.85)(-0.2) - (18.5\ PSF)(-0.18) = 0.185\ PSF$

LEEWARD ROOF $p = (18.5\ PSF)(0.85)(-0.6) - (18.5\ PSF)(-0.18) = -6.11\ PSF$

LOAD CASE 'B' $GC_{pi} = -0.18$

WINDWARD WALL $p = (18.5\ PSF)(0.85)(0.8) - (18.5\ PSF)(-0.18) = 15.91\ PSF$

LEEWARD WALL $p = (18.5\ PSF)(0.85)(-0.5) - (18.5\ PSF)(-0.18) = -4.53\ PSF$

WINDWARD ROOF $p = (18.5\ PSF)(0.85)(0.3) - (18.5\ PSF)(-0.18) = 8.05\ PSF$

LEEWARD ROOF $p = (18.5\ PSF)(0.85)(-0.6) - (18.5\ PSF)(-0.18) = -6.11\ PSF$

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JOB TENT CRAFT
SHEET NO. 43 OF
CALCULATED BY MSB DATE
CHECKED BY DATE
SCALE

V = 100 MPH EXPOSURE 'C' ENCLOSED

GCpi = +0.18	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 1134.8#	#16 1129.9#	#15 1304.4#	#16 1301.2#
STRAP FORCE	M18 1216.3#	M19 1211.0#	M18 1398.2#	M19 1394.8#
CABLE FORCE	M14 113.3#	M17 109.9#	M14 120.3#	M17 118.1#
VERTICAL DEFLECTION	NODE # 12 $\Delta V = 0.284"$		NODE # 12 $\Delta V = 0.273"$	
HORIZONTAL DEFLECTION	NODE # 12 $\Delta H = 0.461"$		NODE # 12 $\Delta H = 0.502"$	

GCpi = -0.18	WIND CASE 'A'		WIND CASE 'B'	
BALLAST WEIGHT	#15 1131.2#	#16 1135.2#	#15 1300.9#	#16 1306.6#
STRAP FORCE	M18 1212.4#	M19 1216.7#	M18 1394.4#	M19 1400.6#
CABLE FORCE	M14 102.0#	M17 104.9#	M14 108.9#	M17 113.1#
VERTICAL DEFLECTION	NODE # 6 $\Delta V = -0.248"$		NODE # 6 $\Delta V = -0.324"$	
HORIZONTAL DEFLECTION	NODE # 6 $\Delta H = 0.454"$		NODE # 6 $\Delta H = 0.546$	