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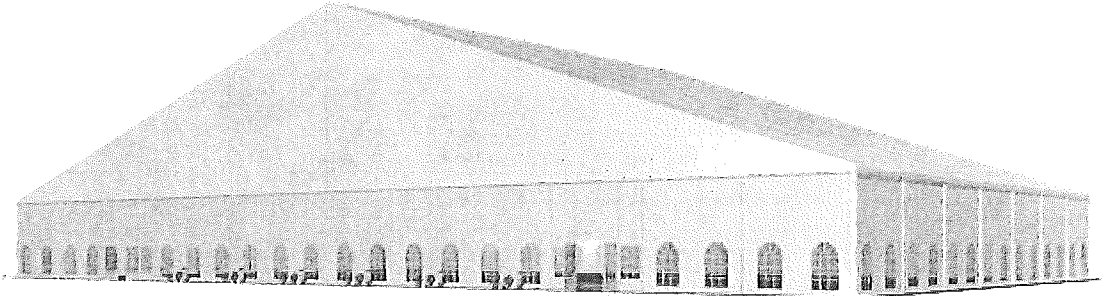
JOB: Anchor 334 F Series

30/40/50m Aluminum Tent NO. 19252

SHEET NO. 1 OF 231

CALC. BY: DWM DATE: 7/29/2011

## Structural Calculations for: Anchor Industries 334 F Series Aluminum Tent



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JOB: Anchor 334 F Series30/40/50m Aluminum Tent NO. 19252SHEET NO. 2 OF 231CALC. BY: DWM DATE: 7/29/2011**Design Summary:**

The design of this tent structure is based upon the *Minimum Design Loads for Buildings and Other Structures* (ASCE 7-05). The Occupancy Category according to Table 1-1 of the ASCE 7-05 is I - Certain Temporary Facilities / Minor Storage Facilities.

The tent resists gravity and transverse lateral loads through a rigid frame. The vertical posts are considered pinned at the base with moment connections at the eave and ridge. The rigid frame consists of vertical column members and sloped beam members.

The tent resists longitudinal lateral loads through a cross bracing system. The gable ends transfer the longitudinal load through bending into the cross bracing cables at the top and baseplates at the base.

Load combinations are per ASCE 7-05 Section 2.4 - Combining Nominal Loads Using Allowable Stress Design.

The load combinations used for design of the rigid frame members include:

D + Lr (Load Case 1)

D + S (Load Case 2) - Controlling Case

D + Wind 1 (Load Case 3)

D + 0.75 Wind 1 + 0.75 Lr (Load Case 4)

D + 0.75 Wind 1 + 0.75 S (Load Case 5)

0.6 D + Wind 1 (Load Case 6) - Controlling Case

D + Wind 2 (Load Case 7)

D + 0.75 Wind 2 + 0.75 Lr (Load Case 8)

D + 0.75 Wind 2 + 0.75 S (Load Case 9)

0.6 D + Wind 2 (Load Case 10)

Wind 1 and Wind 2 refer to the worst case transverse wind loadings. The design of the rigid frame members is controlled by Load Cases 2 & 6.

The load combination that governs the design of the cross bracing is Load Case 3 using longitudinal wind pressures.

The design wind speed, importance factors, exposure categories and snow load data is summarized in the design load summary table.

Design of the aluminum elements is per Aluminum Design Manual 2005 and the design of the steel elements is per AISC 360-05 ASD. For design of minor storage facilities the a 1.3 safety factor has been applied to the yield strength for the design of aluminum members per Section 1.3.3 of the Aluminum Design Manual 2005.

**DESIGN LOAD SUMMARY TABLE**

Tent Size	Dead Load	Live Load	Snow Loads	Wind Loads
30x4	1.5 PSF	500 LBS @ 1/4 POINT 500 LBS @ MID-POINT	Pg=20 psf, Is=0.8, Cs=0.8, Ce=0.9, Ct=0.85, ps=6.85 psf	90mph, I=0.87, Exp. C
30X5			Pg=20 psf, Is=0.8, Cs=0.8, Ce=0.9, Ct=0.85, ps=6.85 psf	90mph, I=0.87, Exp. C
40X4			Pg=20 psf, Is=0.8, Cs=0.8, Ce=0.9, Ct=0.85, ps=6.85 psf	90mph, I=0.87, Exp. C
40X5			Pg=20 psf, Is=0.8, Cs=0.8, Ce=0.9, Ct=0.85, ps=6.85 psf	90mph, I=0.87, Exp. C
50X4			Pg=15 psf, Is=0.8, Cs=0.8, Ce=0.9, Ct=0.85, ps=5.14 psf	90mph, I=0.87, Exp. C
50X5			Pg=10 psf, Is=0.8, Cs=0.8, Ce=0.9, Ct=0.85, ps=3.43 psf	90mph, I=0.70, Exp. C