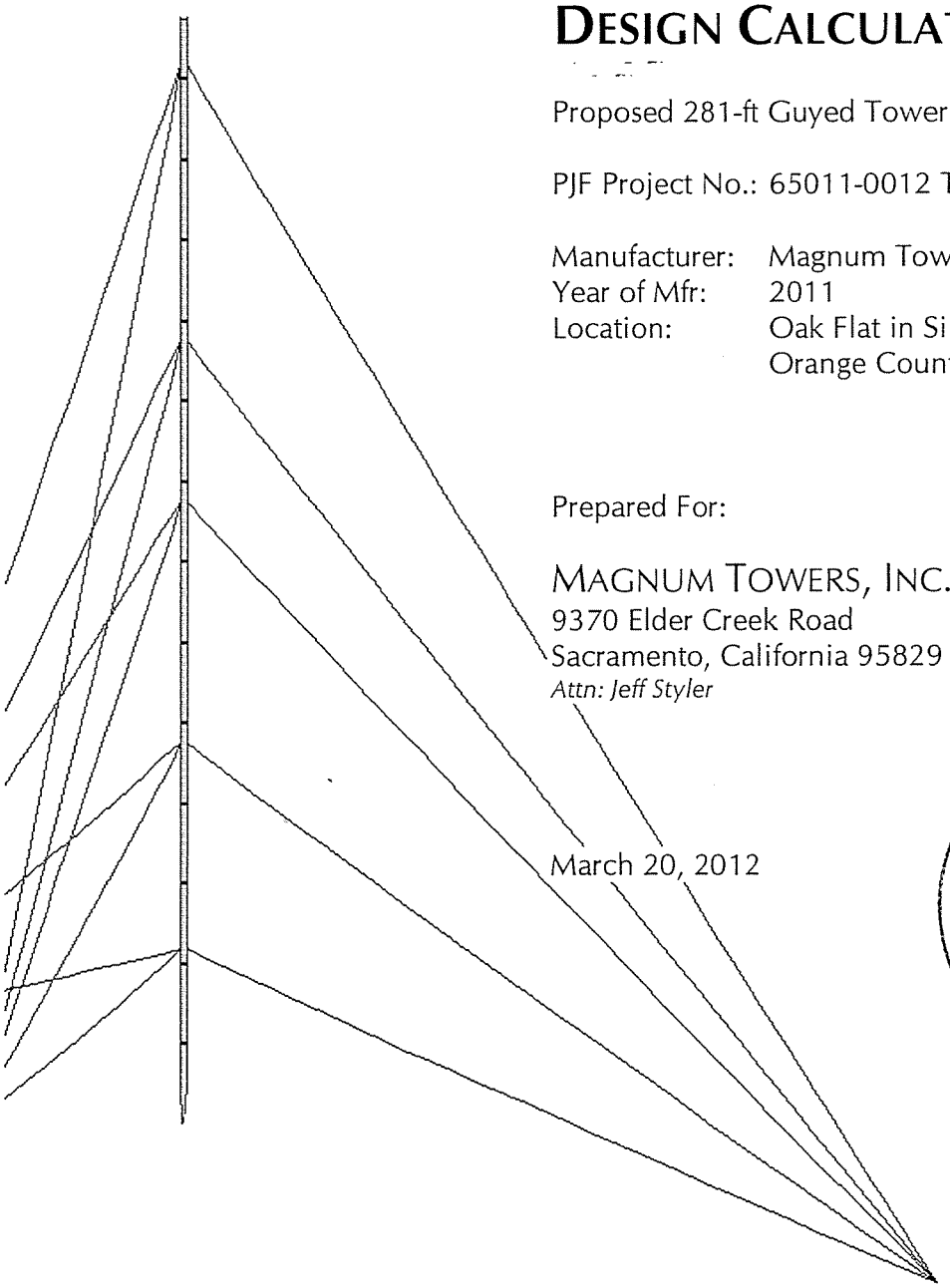
PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street · Suite 1500 · Columbus, Ohio 43215



DESIGN CALCULATIONS

Proposed 281-ft Guyed Tower AM Array

PJF Project No.: 65011-0012 Tower #4

Manufacturer: Magnum Towers, Inc.
Year of Mfr: 2011
Location: Oak Flat in Silverado Canyon
Orange County, California

Prepared For:

MAGNUM TOWERS, INC.
9370 Elder Creek Road
Sacramento, California 95829
Attn: Jeff Styler

March 20, 2012

Designed by:
Larry A. Paxton, E.I.
Designer
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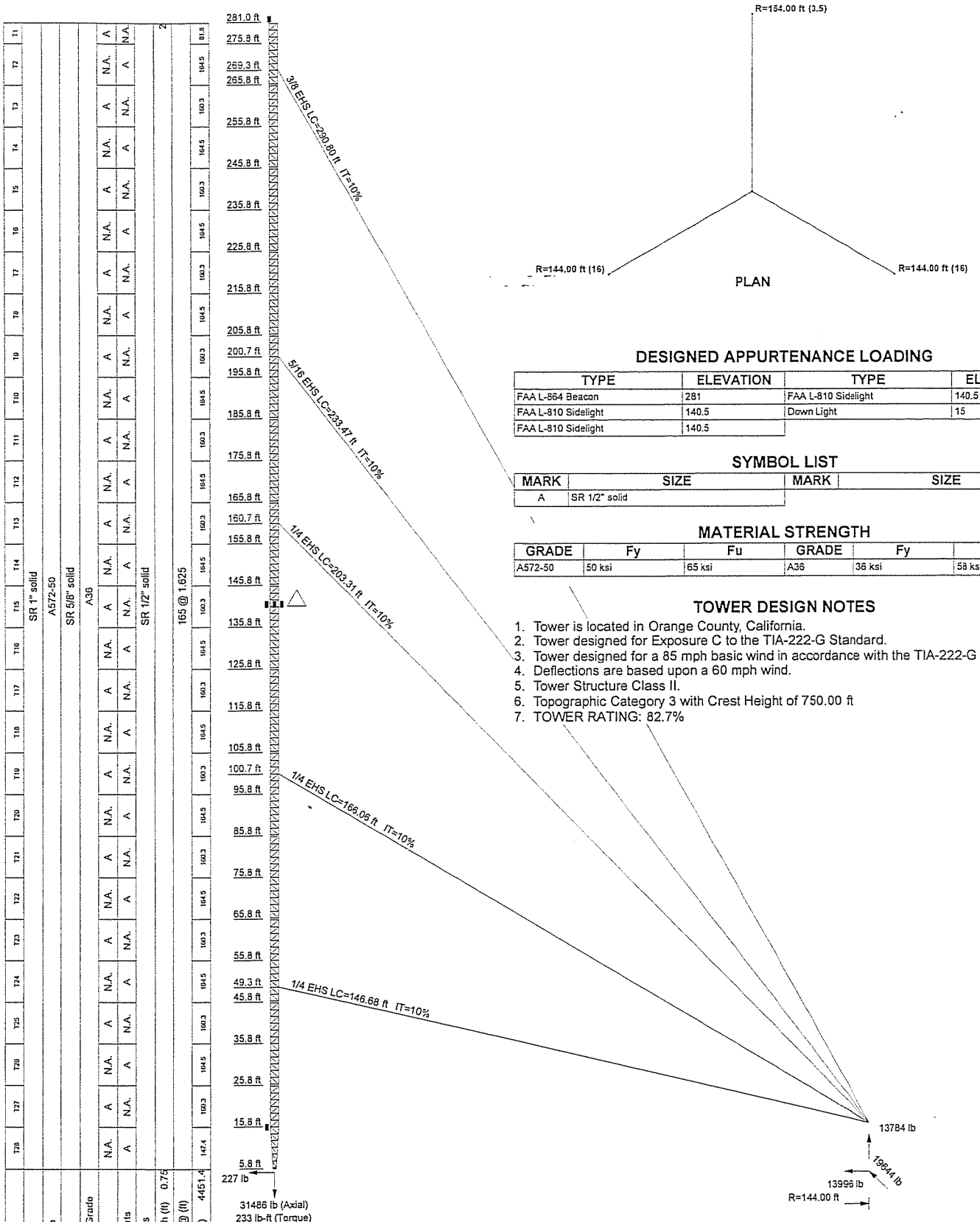
Reviewed by:
David Hawkins, P.E.
Department Manager
dhawkins@pjfweb.com



Section	T28	T27	T26	T25	T24	T23	T22	T21	T20	T19	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	SR 1" solid																											
Leg Grade	A572-50																											
Diagonals	SR 5/8" solid																											
Diagonal Grade	A36																											
Top Girts	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A
Bottom Girts	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.	A	N.A.
Horizontals	SR 1/2" solid																											
Face Width (ft)	2																											
# Panels @ (ft)	165 @ 1.625																											
Weight (lb)	4451.4	147.4	1603	1645	1603	1645	1603	1645	1603	1645	1603	1645	1603	1645	1603	1645	1603	1645	1603	1645	1603	1645	1603	1645	1603	1645	1603	1618

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
FAA L-864 Beacon	281	FAA L-810 Sidelight	140.5
FAA L-810 Sidelight	140.5	Down Light	15
FAA L-810 Sidelight	140.5		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 1/2" solid		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

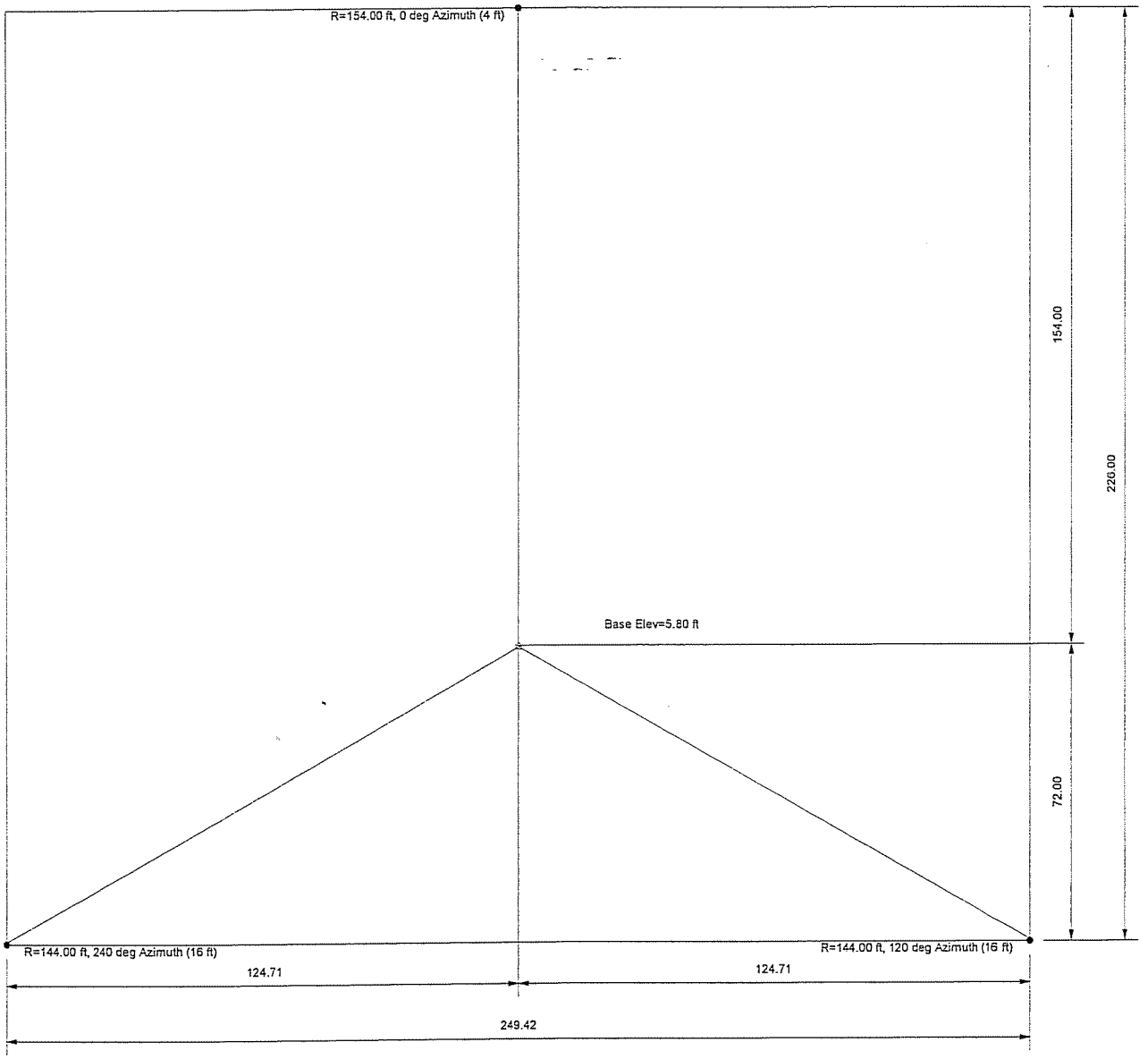
1. Tower is located in Orange County, California.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 85 mph basic wind in accordance with the TIA-222-G Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 3 with Crest Height of 750.00 ft
7. TOWER RATING: 82.7%

ALL REACTIONS ARE FACTORED

Paul J. Ford and Company
250 E. Broad Street Suite 1500
Columbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job:	*281-ft Guyed Tower; Orange County, CA*		
Project:	*Oak Flat in Silverado Canyon Twr#4 (PJF# 65011-0012*		
Client:	Magnum Towers, Inc.	Drawn by: Larry A. Paxton	App'd:
Code:	TIA-222-G	Date: 12/02/11	Scale: NTS
Path:	T:\650 Magnum Towers\2011\65011-0012 Orange Co., CA\65011-0012 Tower 4.en		Dwg No. E-1

Plot Plan



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Project: *Oak Flat in Silverado Canyon Twr#4 (PJF# 65011-0012*			
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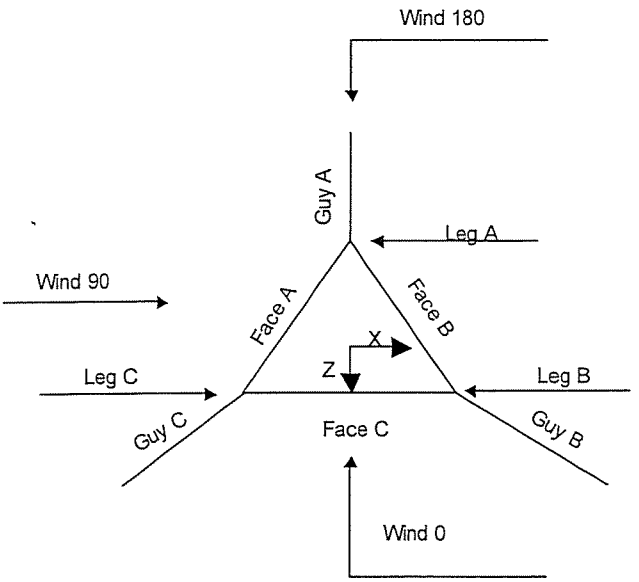
Code: TIA-222-G	Date: 12/02/11	Scale: NTS	
Path: T:\650 Magnum Towers\2011\65011-0012 Orange Co, CA\65011-0012 Tower 4.en		Dwg No. E-2	

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 281.00 ft above the ground line.
The base of the tower is set at an elevation of 5.80 ft above the ground line.
The face width of the tower is 2.00 ft at the top and 0.75 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Orange County, California.
Basic wind speed of 85 mph.
Structure Class II.
Exposure Category C.
Topographic Category 3.
Crest Height 750.00 ft.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.



Corner & Starmount Guyed Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	281.00-275.80			2.00	1	5.20
T2	275.80-265.80			2.00	1	10.00
T3	265.80-255.80			2.00	1	10.00
T4	255.80-245.80			2.00	1	10.00

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T5	245.80-235.80			2.00	1	10.00
T6	235.80-225.80			2.00	1	10.00
T7	225.80-215.80			2.00	1	10.00
T8	215.80-205.80			2.00	1	10.00
T9	205.80-195.80			2.00	1	10.00
T10	195.80-185.80			2.00	1	10.00
T11	185.80-175.80			2.00	1	10.00
T12	175.80-165.80			2.00	1	10.00
T13	165.80-155.80			2.00	1	10.00
T14	155.80-145.80			2.00	1	10.00
T15	145.80-135.80			2.00	1	10.00
T16	135.80-125.80			2.00	1	10.00
T17	125.80-115.80			2.00	1	10.00
T18	115.80-105.80			2.00	1	10.00
T19	105.80-95.80			2.00	1	10.00
T20	95.80-85.80			2.00	1	10.00
T21	85.80-75.80			2.00	1	10.00
T22	75.80-65.80			2.00	1	10.00
T23	65.80-55.80			2.00	1	10.00
T24	55.80-45.80			2.00	1	10.00
T25	45.80-35.80			2.00	1	10.00
T26	35.80-25.80			2.00	1	10.00
T27	25.80-15.80			2.00	1	10.00
T28	15.80-5.80			2.00	1	10.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	281.00-275.80	1.63	Diag Up	No	Yes	3.900	0.000
T2	275.80-265.80	1.63	Diag Down	No	Yes	0.000	3.000
T3	265.80-255.80	1.63	Diag Up	No	Yes	3.000	0.000
T4	255.80-245.80	1.63	Diag Down	No	Yes	0.000	3.000
T5	245.80-235.80	1.63	Diag Up	No	Yes	3.000	0.000
T6	235.80-225.80	1.63	Diag Down	No	Yes	0.000	3.000
T7	225.80-215.80	1.63	Diag Up	No	Yes	3.000	0.000
T8	215.80-205.80	1.63	Diag Down	No	Yes	0.000	3.000
T9	205.80-195.80	1.63	Diag Up	No	Yes	3.000	0.000
T10	195.80-185.80	1.63	Diag Down	No	Yes	0.000	3.000
T11	185.80-175.80	1.63	Diag Up	No	Yes	3.000	0.000
T12	175.80-165.80	1.63	Diag Down	No	Yes	0.000	3.000
T13	165.80-155.80	1.63	Diag Up	No	Yes	3.000	0.000
T14	155.80-145.80	1.63	Diag Down	No	Yes	0.000	3.000
T15	145.80-135.80	1.63	Diag Up	No	Yes	3.000	0.000
T16	135.80-125.80	1.63	Diag Down	No	Yes	0.000	3.000
T17	125.80-115.80	1.63	Diag Up	No	Yes	3.000	0.000
T18	115.80-105.80	1.63	Diag Down	No	Yes	0.000	3.000
T19	105.80-95.80	1.63	Diag Up	No	Yes	3.000	0.000
T20	95.80-85.80	1.63	Diag Down	No	Yes	0.000	3.000
T21	85.80-75.80	1.63	Diag Up	No	Yes	3.000	0.000
T22	75.80-65.80	1.63	Diag Down	No	Yes	0.000	3.000
T23	65.80-55.80	1.63	Diag Up	No	Yes	3.000	0.000
T24	55.80-45.80	1.63	Diag Down	No	Yes	0.000	3.000
T25	45.80-35.80	1.63	Diag Up	No	Yes	3.000	0.000
T26	35.80-25.80	1.63	Diag Down	No	Yes	0.000	3.000
T27	25.80-15.80	1.63	Diag Up	No	Yes	3.000	0.000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T28	15.80-5.80	1.63	Diag Down	No	Yes	0.000	3.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 281.00-275.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T2 275.80-265.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T3 265.80-255.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T4 255.80-245.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T5 245.80-235.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T6 235.80-225.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T7 225.80-215.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T8 215.80-205.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T9 205.80-195.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T10 195.80-185.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T11 185.80-175.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T12 175.80-165.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T13 165.80-155.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T14 155.80-145.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T15 145.80-135.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T16 135.80-125.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T17 125.80-115.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T18 115.80-105.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T19 105.80-95.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T20 95.80-85.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T21 85.80-75.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T22 75.80-65.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T23 65.80-55.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T24 55.80-45.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T25 45.80-35.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T26 35.80-25.80	Solid Round	1" solid	A572-50	Solid Round	5/8" solid	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T27 25.80-15.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)
T28 15.80-5.80	Solid Round	1" solid	A572-50 (50 ksi)	Solid Round	5/8" solid	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 281.00-275.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 275.80-265.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T3 265.80-255.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T4 255.80-245.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T5 245.80-235.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T6 235.80-225.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T7 225.80-215.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T8 215.80-205.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T9 205.80-195.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T10 195.80-185.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T11 185.80-175.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T12 175.80-165.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T13 165.80-155.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T14 155.80-145.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T15 145.80-135.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T16 135.80-125.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T17 125.80-115.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T18 115.80-105.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T19 105.80-95.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T20 95.80-85.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T21 85.80-75.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T22 75.80-65.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T23 65.80-55.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T24 55.80-45.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T25 45.80-35.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T26 35.80-25.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T27 25.80-15.80	Solid Round	1/2" solid	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T28 15.80-5.80	Solid Round		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 281.00-275.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T2 275.80-265.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T3 265.80-255.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T4 255.80-245.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T5 245.80-235.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T6 235.80-225.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T7 225.80-215.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T8 215.80-205.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T9 205.80-195.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T10 195.80-185.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T11 185.80-175.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T12 175.80-165.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T13 165.80-155.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T14 155.80-145.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T15 145.80-135.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T16 135.80-125.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T17 125.80-115.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T18 115.80-105.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T19 105.80-95.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T20 95.80-85.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T21 85.80-75.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T22 75.80-65.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T23 65.80-55.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T24 55.80-45.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T25 45.80-35.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T26 35.80-25.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T27 25.80-15.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)
T28 15.80-5.80	None	Flat Bar		A36 (36 ksi)	Solid Round	1/2" solid	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 281.00-275.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T2 275.80-265.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T3 265.80-255.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T4 255.80-245.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T5 245.80-235.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T6 235.80-225.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T7 225.80-215.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T8 215.80-205.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T9 205.80-195.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T10 195.80-185.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T11 185.80-175.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T12 175.80-165.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T13 165.80-155.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T14 155.80-145.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T15 145.80-135.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T16 135.80-125.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T17 125.80-115.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T18 115.80-105.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T19 105.80-95.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T20 95.80-85.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T21 85.80-75.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T22 75.80-65.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T23 65.80-55.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T24 55.80-45.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T25 45.80-35.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T26 35.80-25.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T27 25.80-15.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000
T28 15.80-5.80	0.00	0.000	A36 (36 ksi)	1	1	1.05	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 281.00-275.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T2 275.80-265.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T3 265.80-255.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T4 255.80-245.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T5 245.80-235.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T6 235.80-225.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T7 225.80-215.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T8 215.80-205.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T9 205.80-195.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T10 195.80-185.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T11 185.80-175.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T12 175.80-165.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T13 165.80-155.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T14 155.80-145.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1
T15 145.80-135.80	No	No	1	1	0.7	0.7	0.7	0.7	1	1
				1	0.7	0.7	0.7	0.7	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T16	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
135.80-125.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T17	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
125.80-115.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T18	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
115.80-105.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T19	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
105.80-95.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T20	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
95.80-85.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T21	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
85.80-75.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T22	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
75.80-65.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T23	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
65.80-55.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T24	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
55.80-45.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T25	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
45.80-35.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T26	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
35.80-25.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T27	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
25.80-15.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
T28	No	No	1	1	1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1
15.80-5.80					1	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
281.00-275.80														
T2	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
275.80-265.80														
T3	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
265.80-255.80														
T4	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
255.80-245.80														
T5	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
245.80-235.80														
T6	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
235.80-225.80														
T7	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
225.80-215.80														
T8	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
215.80-205.80														
T9	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
205.80-195.80														

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T10 195.80-185.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T11 185.80-175.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T12 175.80-165.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T13 165.80-155.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T14 155.80-145.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T15 145.80-135.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T16 135.80-125.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T17 125.80-115.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T18 115.80-105.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T19 105.80-95.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T20 95.80-85.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T21 85.80-75.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T22 75.80-65.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T23 65.80-55.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T24 55.80-45.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T25 45.80-35.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T26 35.80-25.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T27 25.80-15.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T28 15.80-5.80	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 281.00-275.80	Flange	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T2 275.80-265.80	Flange	0.625 A325N	2	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T3 265.80-255.80	Flange	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T4 255.80-245.80	Flange	0.625 A325N	2	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T5 245.80-235.80	Flange	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T6	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
235.80-225.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
225.80-215.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
215.80-205.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
205.80-195.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
195.80-185.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
185.80-175.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T12	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
175.80-165.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T13	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
165.80-155.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T14	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
155.80-145.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T15	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
145.80-135.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T16	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
135.80-125.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T17	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
125.80-115.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T18	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
115.80-105.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T19	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
105.80-95.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T20	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
95.80-85.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T21	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
85.80-75.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T22	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
75.80-65.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T23	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
65.80-55.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T24	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
55.80-45.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T25	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
45.80-35.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T26	Flange	0.625	2	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
35.80-25.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T27	Flange	0.000	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
25.80-15.80		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T28 15.80-5.80	Flange	0.625	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
269.3	EHS	A	3/8	1540	10%	21000	0.27	306.33	154.00	0.000	4	100%
		B	3/8	1540	10%	21000	0.27	290.54	144.00	0.000	16	100%
		C	3/8	1540	10%	21000	0.27	290.54	144.00	0.000	16	100%

200.675	EHS	A	5/16	1120	10%	21000	0.20	249.26	154.00	0.000	4	100%
		B	5/16	1120	10%	21000	0.20	233.27	144.00	0.000	16	100%
		C	5/16	1120	10%	21000	0.20	233.27	144.00	0.000	16	100%
160.675	EHS	A	1/4	665	10%	21000	0.12	219.05	154.00	0.000	4	100%
		B	1/4	665	10%	21000	0.12	203.14	144.00	0.000	16	100%
		C	1/4	665	10%	21000	0.12	203.14	144.00	0.000	16	100%
100.675	EHS	A	1/4	665	10%	21000	0.12	180.97	154.00	0.000	4	100%
		B	1/4	665	10%	21000	0.12	165.91	144.00	0.000	16	100%
		C	1/4	665	10%	21000	0.12	165.91	144.00	0.000	16	100%
49.3	EHS	A	1/4	665	10%	21000	0.12	159.43	154.00	0.000	4	100%
		B	1/4	665	10%	21000	0.12	146.55	144.00	0.000	16	100%
		C	1/4	665	10%	21000	0.12	146.55	144.00	0.000	16	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
269.3	Corner						
200.675	Corner						
160.675	Corner						
100.675	Corner						
49.3	Corner						

Guy Insulator Data

Guy Elevation ft	#	Length in	Diameter in	Weight lb		Equivalent Unit Weight plf	Equivalent Diameter in	Equivalent Diameter w/Ice in
269.3	4	6.000	4.000	3	A	0.31	0.390	
					B	0.31	0.391	
					C	0.31	0.391	
200.675	3	6.000	4.000	3	A	0.24	0.327	
					B	0.24	0.328	
					C	0.24	0.328	
160.675	3	6.000	4.000	3	A	0.16	0.267	
					B	0.16	0.268	
					C	0.16	0.268	
100.675	3	6.000	4.000	3	A	0.17	0.270	
					B	0.17	0.272	
					C	0.17	0.272	
49.3	3	6.000	4.000	3	A	0.18	0.273	
					B	0.18	0.275	
					C	0.18	0.275	

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
269.3	A	136	39.77		
	B	143	39.79		
	C	143	39.79		
200.675	A	102	39.38		
	B	108	39.49		
	C	108	39.49		
160.675	A	82	38.80		

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
	B	88	39.02		
	C	88	39.02		
100.675	A	52	37.04		
	B	58	37.54		
	C	58	37.54		
49.3	A	26	33.55		
	B	33	34.70		
	C	33	34.70		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
3/4" lighting conduit	B	No	Ar (CaAa)	281.00 - 5.80	1.000	0	1	1	0.750	0.750		1.00
3/8 CABLE	B	No	Ar (CaAa)	15.00 - 5.80	1.000	0	1	1	0.375	0.375		1.00

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
FAA L-864 Beacon	C	From Leg	0.00 0 0	0.000	281.00	No Ice	1.20	1.20	46
FAA L-810 Sidelight	A	From Leg	1.00 0 0	0.000	140.50	No Ice	0.20	0.20	3
FAA L-810 Sidelight	B	From Leg	1.00 0 0	0.000	140.50	No Ice	0.20	0.20	3
FAA L-810 Sidelight	C	From Leg	1.00 0 0	0.000	140.50	No Ice	0.20	0.20	3
Down Light	C	From Leg	1.00 0 0	0.000	15.00	No Ice	1.50	1.50	50

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy

Comb. No.	Description
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	Dead+Wind 0 deg - Service+Guy
15	Dead+Wind 30 deg - Service+Guy
16	Dead+Wind 60 deg - Service+Guy
17	Dead+Wind 90 deg - Service+Guy
18	Dead+Wind 120 deg - Service+Guy
19	Dead+Wind 150 deg - Service+Guy
20	Dead+Wind 180 deg - Service+Guy
21	Dead+Wind 210 deg - Service+Guy
22	Dead+Wind 240 deg - Service+Guy
23	Dead+Wind 270 deg - Service+Guy
24	Dead+Wind 300 deg - Service+Guy
25	Dead+Wind 330 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy C @ 144 ft Elev 16 ft Azimuth 240 deg	Max. Vert	22	-1994	-1521	878
	Max. H_x	10	-2239	-996	575
	Max. H_z	3	-13247	-11292	7006
	Min. Vert	4	-13785	-12115	7003
	Min. H_x	4	-13785	-12115	7003
	Min. H_z	10	-2239	-996	575
Guy B @ 144 ft Elev 16 ft Azimuth 120 deg	Max. Vert	18	-1994	1522	879
	Max. H_x	12	-13784	12117	7003
	Max. H_z	13	-13246	11295	7007
	Min. Vert	12	-13784	12117	7003
	Min. H_x	6	-2239	997	575
	Min. H_z	6	-2239	997	575
Guy A @ 154 ft Elev 3.5 ft Azimuth 0 deg	Max. Vert	14	-2047	0	-1787
	Max. H_x	11	-8094	977	-7552
	Max. H_z	2	-2402	0	-1248
	Min. Vert	8	-13719	-1	-13807
	Min. H_x	5	-8095	-977	-7552
	Min. H_z	8	-13719	-1	-13807
Mast	Max. Vert	2	31486	-1	171
	Max. H_x	11	30657	197	18
	Max. H_z	2	31486	-1	171
	Max. M_x	1	0	-2	0
	Max. M_z	1	0	-2	0
	Max. Torsion	13	7	115	155
	Min. Vert	1	15024	-2	0
	Min. H_x	5	30658	-202	21
	Min. H_z	8	29630	-7	-217
	Min. M_x	1	0	-2	0
	Min. M_z	1	0	-2	0
	Min. Torsion	7	-233	-80	-154

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear$_x$ lb	Shear$_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	15024	2	0	0	0	37
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	31486	1	-171	0	0	82
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	30969	116	-155	0	0	178
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	30067	185	-132	0	0	113
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	30658	202	-21	0	0	21
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	31241	151	67	0	0	129
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	30550	80	154	0	0	233
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	29630	7	217	0	0	144
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	30549	-75	157	0	0	49
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	31240	-146	70	0	0	133
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	30657	-197	-18	0	0	205
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	30067	-182	-132	0	0	78
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	30969	-115	-155	0	0	-7
Dead+Wind 0 deg - Service+Guy	17185	1	-120	0	0	40
Dead+Wind 30 deg - Service+Guy	17545	54	-95	0	0	73
Dead+Wind 60 deg - Service+Guy	17854	91	-51	0	0	44
Dead+Wind 90 deg - Service+Guy	17553	112	4	0	0	11
Dead+Wind 120 deg - Service+Guy	17154	106	60	0	0	46
Dead+Wind 150 deg - Service+Guy	17420	59	91	0	0	85
Dead+Wind 180 deg - Service+Guy	17685	2	100	0	0	56
Dead+Wind 210 deg - Service+Guy	17420	-56	91	0	0	23
Dead+Wind 240 deg - Service+Guy	17154	-103	60	0	0	54
Dead+Wind 270 deg - Service+Guy	17552	-109	4	0	0	86
Dead+Wind 300 deg - Service+Guy	17854	-88	-51	0	0	49
Dead+Wind 330 deg - Service+Guy	17544	-51	-94	0	0	11

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	281 - 275.8	27.39	2	0.109	0.573

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T2	275.8 - 265.8	27.41	2	0.111	0.582
T3	265.8 - 255.8	27.48	2	0.111	0.591
T4	255.8 - 245.8	27.47	2	0.077	0.730
T5	245.8 - 235.8	27.17	2	0.233	0.614
T6	235.8 - 225.8	26.50	2	0.409	0.756
T7	225.8 - 215.8	25.45	2	0.566	0.632
T8	215.8 - 205.8	24.12	2	0.665	0.774
T9	205.8 - 195.8	22.65	2	0.669	0.644
T10	195.8 - 185.8	21.31	2	0.589	0.796
T11	185.8 - 175.8	20.15	6	0.559	0.583
T12	175.8 - 165.8	19.09	6	0.550	0.821
T13	165.8 - 155.8	18.01	6	0.529	0.600
T14	155.8 - 145.8	17.02	6	0.491	0.839
T15	145.8 - 135.8	16.05	6	0.530	0.567
T16	135.8 - 125.8	14.92	6	0.614	0.861
T17	125.8 - 115.8	13.57	10	0.702	0.580
T18	115.8 - 105.8	12.04	10	0.752	0.876
T19	105.8 - 95.8	10.46	10	0.726	0.587
T20	95.8 - 85.8	9.03	10	0.623	0.874
T21	85.8 - 75.8	7.82	10	0.570	0.550
T22	75.8 - 65.8	6.78	9	0.557	0.882
T23	65.8 - 55.8	5.91	8	0.548	0.551
T24	55.8 - 45.8	4.98	8	0.508	0.886
T25	45.8 - 35.8	4.09	8	0.424	0.564
T26	35.8 - 25.8	3.24	8	0.431	0.907
T27	25.8 - 15.8	2.29	8	0.486	0.545
T28	15.8 - 5.8	1.21	8	0.545	0.921

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T2	275.8	Leg	A325N	0.625	2	988	20709	0.048 ✓	1	Bolt Tension
T4	255.8	Leg	A325N	0.625	2	2101	20709	0.101 ✓	1	Bolt Tension
T6	235.8	Leg	A325N	0.625	2	1469	20709	0.071 ✓	1	Bolt Tension
T8	215.8	Leg	A325N	0.625	2	1113	20709	0.054 ✓	1	Bolt Tension
T10	195.8	Leg	A325N	0.625	2	1251	20709	0.060 ✓	1	Bolt Tension
T12	175.8	Leg	A325N	0.625	2	1453	20709	0.070 ✓	1	Bolt Tension
T14	155.8	Leg	A325N	0.625	2	1796	20709	0.087 ✓	1	Bolt Tension
T16	135.8	Leg	A325N	0.625	2	1916	20709	0.093 ✓	1	Bolt Tension
T18	115.8	Leg	A325N	0.625	2	2030	20709	0.098 ✓	1	Bolt Tension
T20	95.8	Leg	A325N	0.625	2	1852	20709	0.089 ✓	1	Bolt Tension
T22	75.8	Leg	A325N	0.625	2	1833	20709	0.089 ✓	1	Bolt Tension
T24	55.8	Leg	A325N	0.625	2	2329	20709	0.112 ✓	1	Bolt Tension
T26	35.8	Leg	A325N	0.625	2	2117	20709	0.102 ✓	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
T2	269.30 (A) (1119)	3/8 EHS	1540	15400	6291	9240	1.000	1.469 ✓
	269.30 (B) (1118)	3/8 EHS	1540	15400	6461	9240	1.000	1.430 ✓
	269.30 (C) (1117)	3/8 EHS	1540	15400	6461	9240	1.000	1.430 ✓
T9	200.68 (A) (1122)	5/16 EHS	1120	11200	5243	6720	1.000	1.282 ✓
	200.68 (B) (1121)	5/16 EHS	1120	11200	5338	6720	1.000	1.259 ✓
	200.68 (C) (1120)	5/16 EHS	1120	11200	5340	6720	1.000	1.258 ✓
T13	160.68 (A) (1125)	1/4 EHS	665	6650	3272	3990	1.000	1.219 ✓
	160.68 (B) (1124)	1/4 EHS	665	6650	3298	3990	1.000	1.210 ✓
	160.68 (C) (1123)	1/4 EHS	665	6650	3299	3990	1.000	1.210 ✓
T19	100.68 (A) (1128)	1/4 EHS	665	6650	3114	3990	1.000	1.281 ✓
	100.68 (B) (1127)	1/4 EHS	665	6650	3112	3990	1.000	1.282 ✓
	100.68 (C) (1126)	1/4 EHS	665	6650	3112	3990	1.000	1.282 ✓
T24	49.30 (A) (1131)	1/4 EHS	665	6650	2251	3990	1.000	1.772 ✓
	49.30 (B) (1130)	1/4 EHS	665	6650	2242	3990	1.000	1.780 ✓
	49.30 (C) (1129)	1/4 EHS	665	6650	2238	3990	1.000	1.783 ✓

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	281 - 275.8	1" solid	5.20	1.63	78.0 K=1.00	0.785	1.00	-389	22652	0.017 [1] ✓
T2	275.8 - 265.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-5930	22652	0.262 [1] ✓
T3	265.8 - 255.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-9057	22164	0.409 [1] ✓
T4	255.8 - 245.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-10867	22231	0.489 [1] ✓
T5	245.8 - 235.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-11030	22230	0.496 [1] ✓
T6	235.8 - 225.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-10625	22208	0.478 [1] ✓
T7	225.8 - 215.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-8818	22107	0.399 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	215.8 - 205.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.97	-6675	21886	0.305 [1] ✓
T9	205.8 - 195.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.97	-10265	21894	0.469 [1] ✓
T10	195.8 - 185.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-8903	22652	0.393 [1] ✓
T11	185.8 - 175.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-7576	22652	0.334 [1] ✓
T12	175.8 - 165.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-8717	22652	0.385 [1] ✓
T13	165.8 - 155.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-9990	22652	0.441 [1] ✓
T14	155.8 - 145.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-10778	22652	0.476 [1] ✓
T15	145.8 - 135.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-12052	22652	0.532 [1] ✓
T16	135.8 - 125.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-12097	22652	0.534 [1] ✓
T17	125.8 - 115.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-11497	22652	0.508 [1] ✓
T18	115.8 - 105.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-12181	22652	0.538 [1] ✓
T19	105.8 - 95.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-14844	22652	0.655 [1] ✓
T20	95.8 - 85.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-13137	22652	0.580 [1] ✓
T21	85.8 - 75.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-11114	22652	0.491 [1] ✓
T22	75.8 - 65.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-11026	22652	0.487 [1] ✓
T23	65.8 - 55.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-13023	22652	0.575 [1] ✓
T24	55.8 - 45.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-14974	22652	0.661 [1] ✓
T25	45.8 - 35.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-13975	22652	0.617 [1] ✓
T26	35.8 - 25.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-12703	22652	0.561 [1] ✓
T27	25.8 - 15.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-12838	22652	0.567 [1] ✓
T28	15.8 - 5.8	1" solid	10.03	1.63	78.2 K=1.00	0.785	1.00	-12212	22600	0.540 [1] ✓

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	281 - 275.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-182	3930	0.046 [1] ✓

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T2	275.8 - 265.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-877	3930	0.223 [1] ✓
T3	265.8 - 255.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-791	3930	0.201 [1] ✓
T4	255.8 - 245.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-435	3930	0.111 [1] ✓
T5	245.8 - 235.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-157	3930	0.040 [1] ✓
T6	235.8 - 225.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-490	3930	0.125 [1] ✓
T7	225.8 - 215.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-646	3930	0.164 [1] ✓
T8	215.8 - 205.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-1083	3930	0.275 [1] ✓
T9	205.8 - 195.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-1101	3930	0.280 [1] ✓
T10	195.8 - 185.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-442	3930	0.112 [1] ✓
T11	185.8 - 175.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-163	3930	0.041 [1] ✓
T12	175.8 - 165.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-394	3930	0.100 [1] ✓
T13	165.8 - 155.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-642	3930	0.163 [1] ✓
T14	155.8 - 145.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-637	3930	0.162 [1] ✓
T15	145.8 - 135.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-352	3930	0.089 [1] ✓
T16	135.8 - 125.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-340	3930	0.087 [1] ✓
T17	125.8 - 115.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-473	3930	0.120 [1] ✓
T18	115.8 - 105.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-964	3930	0.245 [1] ✓
T19	105.8 - 95.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-907	3930	0.231 [1] ✓
T20	95.8 - 85.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-630	3930	0.160 [1] ✓
T21	85.8 - 75.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-335	3930	0.085 [1] ✓
T22	75.8 - 65.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-332	3930	0.084 [1] ✓
T23	65.8 - 55.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-368	3930	0.094 [1] ✓
T24	55.8 - 45.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-897	3930	0.228 [1] ✓
T25	45.8 - 35.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-645	3930	0.164 [1] ✓
T26	35.8 - 25.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-499	3930	0.127 [1] ✓
T27	25.8 - 15.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-172	3930	0.044 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T28	15.8 - 5.8	5/8" solid	1.85	1.68	90.1 K=0.70	0.307	-1011	6483	0.156 [1] ✓

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	281 - 275.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-128	2656	0.048 [1] ✓
T2	275.8 - 265.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-587	2656	0.221 [1] ✓
T3	265.8 - 255.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-556	2656	0.209 [1] ✓
T4	255.8 - 245.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-290	2656	0.109 [1] ✓
T5	245.8 - 235.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-191	2656	0.072 [1] ✓
T6	235.8 - 225.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-308	2656	0.116 [1] ✓
T7	225.8 - 215.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-489	2656	0.184 [1] ✓
T8	215.8 - 205.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-719	2656	0.271 [1] ✓
T9	205.8 - 195.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-797	2656	0.300 [1] ✓
T10	195.8 - 185.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-269	2656	0.101 [1] ✓
T11	185.8 - 175.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-145	2656	0.055 [1] ✓
T12	175.8 - 165.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-207	2656	0.078 [1] ✓
T13	165.8 - 155.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-566	2656	0.213 [1] ✓
T14	155.8 - 145.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-404	2656	0.152 [1] ✓
T15	145.8 - 135.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-297	2656	0.112 [1] ✓
T16	135.8 - 125.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-210	2656	0.079 [1] ✓
T17	125.8 - 115.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-405	2656	0.152 [1] ✓
T18	115.8 - 105.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-588	2656	0.221 [1] ✓
T19	105.8 - 95.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-712	2656	0.268 [1] ✓
T20	95.8 - 85.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-372	2656	0.140 [1] ✓
T21	85.8 - 75.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-325	2656	0.122 [1] ✓

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T22	75.8 - 65.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-192	2656	0.072 [1]
T23	65.8 - 55.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-355	2656	0.134 [1]
T24	55.8 - 45.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-484	2656	0.182 [1]
T25	45.8 - 35.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-589	2656	0.222 [1]
T26	35.8 - 25.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-242	2656	0.091 [1]
T27	25.8 - 15.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-234	2656	0.088 [1]
T28	15.8 - 5.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-222	2656	0.084 [1]

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	281 - 275.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-63	2656	0.024 [1]
T3	265.8 - 255.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-325	2656	0.122 [1]
T5	245.8 - 235.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-71	2656	0.027 [1]
T7	225.8 - 215.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-213	2656	0.080 [1]
T9	205.8 - 195.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-472	2656	0.178 [1]
T11	185.8 - 175.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-97	2656	0.037 [1]
T13	165.8 - 155.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-194	2656	0.073 [1]
T15	145.8 - 135.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-187	2656	0.070 [1]
T17	125.8 - 115.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-168	2656	0.063 [1]
T19	105.8 - 95.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-435	2656	0.164 [1]
T21	85.8 - 75.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-215	2656	0.081 [1]
T23	65.8 - 55.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-165	2656	0.062 [1]
T25	45.8 - 35.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-306	2656	0.115 [1]
T27	25.8 - 15.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-126	2656	0.048 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	275.8 - 265.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-347	2656	0.130 [1] ✓
T4	255.8 - 245.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-87	2656	0.033 [1] ✓
T6	235.8 - 225.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-213	2656	0.080 [1] ✓
T8	215.8 - 205.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-438	2656	0.165 [1] ✓
T10	195.8 - 185.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-76	2656	0.029 [1] ✓
T12	175.8 - 165.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-122	2656	0.046 [1] ✓
T14	155.8 - 145.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-156	2656	0.059 [1] ✓
T16	135.8 - 125.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-94	2656	0.036 [1] ✓
T18	115.8 - 105.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-348	2656	0.131 [1] ✓
T20	95.8 - 85.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-126	2656	0.048 [1] ✓
T22	75.8 - 65.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-59	2656	0.022 [1] ✓
T24	55.8 - 45.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-284	2656	0.107 [1] ✓
T26	35.8 - 25.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-76	2656	0.029 [1] ✓
T28	15.8 - 5.8	1/2" solid	0.78	0.70	46.9 K=0.70	0.196	-117	5666	0.021 [1] ✓

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	281 - 275.8	1" solid	5.20	1.63	78.0	0.785	305	35343	0.009 [1] ✓
T2	275.8 - 265.8	1" solid	10.00	1.63	78.0	0.785	1252	35343	0.035 [1] ✓
T3	265.8 - 255.8	1" solid	10.00	1.63	78.0	0.785	2177	35343	0.062 [1] ✓
T4	255.8 - 245.8	1" solid	10.00	1.63	78.0	0.785	4202	35343	0.119 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T5	245.8 - 235.8	1" solid	10.00	1.63	78.0	0.785	4398	35343	0.124 [1] ✓
T6	235.8 - 225.8	1" solid	10.00	1.63	78.0	0.785	4163	35343	0.118 [1] ✓
T7	225.8 - 215.8	1" solid	10.00	1.63	78.0	0.785	2411	35343	0.068 [1] ✓
T8	215.8 - 205.8	1" solid	10.00	1.63	78.0	0.785	140	35343	0.004 [1] ✓
T9	205.8 - 195.8	1" solid	10.00	1.63	78.0	0.785	2879	35343	0.081 [1] ✓

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	281 - 275.8	5/8" solid	2.58	2.47	189.7	0.307	181	9940	0.018 [1] ✓
T2	275.8 - 265.8	5/8" solid	2.58	2.47	189.7	0.307	825	9940	0.083 [1] ✓
T3	265.8 - 255.8	5/8" solid	2.58	2.47	189.7	0.307	819	9940	0.082 [1] ✓
T4	255.8 - 245.8	5/8" solid	2.58	2.47	189.7	0.307	390	9940	0.039 [1] ✓
T5	245.8 - 235.8	5/8" solid	2.58	2.47	189.7	0.307	190	9940	0.019 [1] ✓
T6	235.8 - 225.8	5/8" solid	2.58	2.47	189.7	0.307	465	9940	0.047 [1] ✓
T7	225.8 - 215.8	5/8" solid	2.58	2.47	189.7	0.307	647	9940	0.065 [1] ✓
T8	215.8 - 205.8	5/8" solid	2.58	2.47	189.7	0.307	1053	9940	0.106 [1] ✓
T9	205.8 - 195.8	5/8" solid	2.58	2.47	189.7	0.307	1117	9940	0.112 [1] ✓
T10	195.8 - 185.8	5/8" solid	2.58	2.47	189.7	0.307	355	9940	0.036 [1] ✓
T11	185.8 - 175.8	5/8" solid	2.58	2.47	189.7	0.307	228	9940	0.023 [1] ✓
T12	175.8 - 165.8	5/8" solid	2.58	2.47	189.7	0.307	311	9940	0.031 [1] ✓
T13	165.8 - 155.8	5/8" solid	2.58	2.47	189.7	0.307	746	9940	0.075 [1] ✓
T14	155.8 - 145.8	5/8" solid	2.58	2.47	189.7	0.307	528	9940	0.053 [1] ✓
T15	145.8 - 135.8	5/8" solid	2.58	2.47	189.7	0.307	449	9940	0.045 [1] ✓
T16	135.8 - 125.8	5/8" solid	2.58	2.47	189.7	0.307	234	9940	0.024 [1] ✓
T17	125.8 - 115.8	5/8" solid	2.58	2.47	189.7	0.307	530	9940	0.053 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T18	115.8 - 105.8	5/8" solid	2.58	2.47	189.7	0.307	863	9940	0.087 [1]
T19	105.8 - 95.8	5/8" solid	2.58	2.47	189.7	0.307	999	9940	0.101 [1]
T20	95.8 - 85.8	5/8" solid	2.58	2.47	189.7	0.307	480	9940	0.048 [1]
T21	85.8 - 75.8	5/8" solid	2.58	2.47	189.7	0.307	489	9940	0.049 [1]
T22	75.8 - 65.8	5/8" solid	2.58	2.47	189.7	0.307	185	9940	0.019 [1]
T23	65.8 - 55.8	5/8" solid	2.58	2.47	189.7	0.307	460	9940	0.046 [1]
T24	55.8 - 45.8	5/8" solid	2.58	2.47	189.7	0.307	680	9940	0.068 [1]
T25	45.8 - 35.8	5/8" solid	2.58	2.47	189.7	0.307	860	9940	0.087 [1]
T26	35.8 - 25.8	5/8" solid	2.58	2.47	189.7	0.307	308	9940	0.031 [1]
T27	25.8 - 15.8	5/8" solid	2.58	2.47	189.7	0.307	330	9940	0.033 [1]
T28	15.8 - 5.8	5/8" solid	1.85	1.68	128.7	0.307	302	9940	0.030 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	281 - 275.8	1/2" solid	2.00	1.92	184.0	0.196	128	6362	0.020 [1]
T2	275.8 - 265.8	1/2" solid	2.00	1.92	184.0	0.196	1712	6362	0.269 [1]
T3	265.8 - 255.8	1/2" solid	2.00	1.92	184.0	0.196	526	6362	0.083 [1]
T4	255.8 - 245.8	1/2" solid	2.00	1.92	184.0	0.196	310	6362	0.049 [1]
T5	245.8 - 235.8	1/2" solid	2.00	1.92	184.0	0.196	191	6362	0.030 [1]
T6	235.8 - 225.8	1/2" solid	2.00	1.92	184.0	0.196	317	6362	0.050 [1]
T7	225.8 - 215.8	1/2" solid	2.00	1.92	184.0	0.196	478	6362	0.075 [1]
T8	215.8 - 205.8	1/2" solid	2.00	1.92	184.0	0.196	735	6362	0.116 [1]
T9	205.8 - 195.8	1/2" solid	2.00	1.92	184.0	0.196	1660	6362	0.261 [1]
T10	195.8 - 185.8	1/2" solid	2.00	1.92	184.0	0.196	318	6362	0.050 [1]
T11	185.8 - 175.8	1/2" solid	2.00	1.92	184.0	0.196	131	6362	0.021 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T12	175.8 - 165.8	1/2" solid	2.00	1.92	184.0	0.196	249	6362	0.039 [1]
T13	165.8 - 155.8	1/2" solid	2.00	1.92	184.0	0.196	1156	6362	0.182 [1]
T14	155.8 - 145.8	1/2" solid	2.00	1.92	184.0	0.196	465	6362	0.073 [1]
T15	145.8 - 135.8	1/2" solid	2.00	1.92	184.0	0.196	216	6362	0.034 [1]
T16	135.8 - 125.8	1/2" solid	2.00	1.92	184.0	0.196	210	6362	0.033 [1]
T17	125.8 - 115.8	1/2" solid	2.00	1.92	184.0	0.196	337	6362	0.053 [1]
T18	115.8 - 105.8	1/2" solid	2.00	1.92	184.0	0.196	640	6362	0.101 [1]
T19	105.8 - 95.8	1/2" solid	2.00	1.92	184.0	0.196	1186	6362	0.186 [1]
T20	95.8 - 85.8	1/2" solid	2.00	1.92	184.0	0.196	460	6362	0.072 [1]
T21	85.8 - 75.8	1/2" solid	2.00	1.92	184.0	0.196	210	6362	0.033 [1]
T22	75.8 - 65.8	1/2" solid	2.00	1.92	184.0	0.196	194	6362	0.030 [1]
T23	65.8 - 55.8	1/2" solid	2.00	1.92	184.0	0.196	256	6362	0.040 [1]
T24	55.8 - 45.8	1/2" solid	2.00	1.92	184.0	0.196	1080	6362	0.170 [1]
T25	45.8 - 35.8	1/2" solid	2.00	1.92	184.0	0.196	417	6362	0.066 [1]
T26	35.8 - 25.8	1/2" solid	2.00	1.92	184.0	0.196	357	6362	0.056 [1]
T27	25.8 - 15.8	1/2" solid	2.00	1.92	184.0	0.196	222	6362	0.035 [1]
T28	15.8 - 5.8	1/2" solid	2.00	1.92	184.0	0.196	527	6362	0.083 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	281 - 275.8	1/2" solid	2.00	1.92	184.0	0.196	63	6362	0.010 [1]
T3	265.8 - 255.8	1/2" solid	2.00	1.92	184.0	0.196	329	6362	0.052 [1]
T5	245.8 - 235.8	1/2" solid	2.00	1.92	184.0	0.196	62	6362	0.010 [1]
T7	225.8 - 215.8	1/2" solid	2.00	1.92	184.0	0.196	238	6362	0.037 [1]
T9	205.8 - 195.8	1/2" solid	2.00	1.92	184.0	0.196	457	6362	0.072 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T11	185.8 - 175.8	1/2" solid	2.00	1.92	184.0	0.196	60	6362	0.009 [1] ✓
T13	165.8 - 155.8	1/2" solid	2.00	1.92	184.0	0.196	142	6362	0.022 [1] ✓
T15	145.8 - 135.8	1/2" solid	2.00	1.92	184.0	0.196	134	6362	0.021 [1] ✓
T17	125.8 - 115.8	1/2" solid	2.00	1.92	184.0	0.196	122	6362	0.019 [1] ✓
T19	105.8 - 95.8	1/2" solid	2.00	1.92	184.0	0.196	367	6362	0.058 [1] ✓
T21	85.8 - 75.8	1/2" solid	2.00	1.92	184.0	0.196	110	6362	0.017 [1] ✓
T23	65.8 - 55.8	1/2" solid	2.00	1.92	184.0	0.196	83	6362	0.013 [1] ✓
T25	45.8 - 35.8	1/2" solid	2.00	1.92	184.0	0.196	272	6362	0.043 [1] ✓
T27	25.8 - 15.8	1/2" solid	2.00	1.92	184.0	0.196	58	6362	0.009 [1] ✓

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	275.8 - 265.8	1/2" solid	2.00	1.92	184.0	0.196	350	6362	0.055 [1] ✓
T4	255.8 - 245.8	1/2" solid	2.00	1.92	184.0	0.196	91	6362	0.014 [1] ✓
T6	235.8 - 225.8	1/2" solid	2.00	1.92	184.0	0.196	191	6362	0.030 [1] ✓
T8	215.8 - 205.8	1/2" solid	2.00	1.92	184.0	0.196	458	6362	0.072 [1] ✓
T10	195.8 - 185.8	1/2" solid	2.00	1.92	184.0	0.196	120	6362	0.019 [1] ✓
T12	175.8 - 165.8	1/2" solid	2.00	1.92	184.0	0.196	179	6362	0.028 [1] ✓
T14	155.8 - 145.8	1/2" solid	2.00	1.92	184.0	0.196	212	6362	0.033 [1] ✓
T16	135.8 - 125.8	1/2" solid	2.00	1.92	184.0	0.196	144	6362	0.023 [1] ✓
T18	115.8 - 105.8	1/2" solid	2.00	1.92	184.0	0.196	421	6362	0.066 [1] ✓
T20	95.8 - 85.8	1/2" solid	2.00	1.92	184.0	0.196	236	6362	0.037 [1] ✓
T22	75.8 - 65.8	1/2" solid	2.00	1.92	184.0	0.196	148	6362	0.023 [1] ✓
T24	55.8 - 45.8	1/2" solid	2.00	1.92	184.0	0.196	325	6362	0.051 [1] ✓
T26	35.8 - 25.8	1/2" solid	2.00	1.92	184.0	0.196	124	6362	0.019 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T28	15.8 - 5.8	1/2" solid	0.78	0.70	67.0	0.196	250	6362	0.039 [1]

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	281 - 275.8	Leg	1" solid	1	-389	22652	1.7	Pass
T2	275.8 - 265.8	Leg	1" solid	22	-5930	22652	26.2	Pass
T3	265.8 - 255.8	Leg	1" solid	64	-9057	22164	40.9	Pass
T4	255.8 - 245.8	Leg	1" solid	103	-10867	22231	48.9	Pass
T5	245.8 - 235.8	Leg	1" solid	145	-11030	22230	49.6	Pass
T6	235.8 - 225.8	Leg	1" solid	184	-10625	22208	47.8	Pass
T7	225.8 - 215.8	Leg	1" solid	228	-8818	22107	39.9	Pass
T8	215.8 - 205.8	Leg	1" solid	267	-6675	21886	30.5	Pass
T9	205.8 - 195.8	Leg	1" solid	309	-10265	21894	46.9	Pass
T10	195.8 - 185.8	Leg	1" solid	348	-8903	22652	39.3	Pass
T11	185.8 - 175.8	Leg	1" solid	390	-7576	22652	33.4	Pass
T12	175.8 - 165.8	Leg	1" solid	429	-8717	22652	38.5	Pass
T13	165.8 - 155.8	Leg	1" solid	471	-9990	22652	44.1	Pass
T14	155.8 - 145.8	Leg	1" solid	510	-10778	22652	47.6	Pass
T15	145.8 - 135.8	Leg	1" solid	552	-12052	22652	53.2	Pass
T16	135.8 - 125.8	Leg	1" solid	591	-12097	22652	53.4	Pass
T17	125.8 - 115.8	Leg	1" solid	633	-11497	22652	50.8	Pass
T18	115.8 - 105.8	Leg	1" solid	672	-12181	22652	53.8	Pass
T19	105.8 - 95.8	Leg	1" solid	714	-14844	22652	65.5	Pass
T20	95.8 - 85.8	Leg	1" solid	753	-13137	22652	58.0	Pass
T21	85.8 - 75.8	Leg	1" solid	795	-11114	22652	49.1	Pass
T22	75.8 - 65.8	Leg	1" solid	834	-11026	22652	48.7	Pass
T23	65.8 - 55.8	Leg	1" solid	876	-13023	22652	57.5	Pass
T24	55.8 - 45.8	Leg	1" solid	915	-14974	22652	66.1	Pass
T25	45.8 - 35.8	Leg	1" solid	957	-13975	22652	61.7	Pass
T26	35.8 - 25.8	Leg	1" solid	995	-12703	22652	56.1	Pass
T27	25.8 - 15.8	Leg	1" solid	1037	-12838	22652	56.7	Pass
T28	15.8 - 5.8	Leg	1" solid	1075	-12212	22600	54.0	Pass
T1	281 - 275.8	Diagonal	5/8" solid	9	-182	3930	4.6	Pass
T2	275.8 - 265.8	Diagonal	5/8" solid	32	-877	3930	22.3	Pass
T3	265.8 - 255.8	Diagonal	5/8" solid	101	-791	3930	20.1	Pass
T4	255.8 - 245.8	Diagonal	5/8" solid	143	-435	3930	11.1	Pass
T5	245.8 - 235.8	Diagonal	5/8" solid	182	-157	3930	4.0	Pass
T6	235.8 - 225.8	Diagonal	5/8" solid	195	-490	3930	12.5	Pass
T7	225.8 - 215.8	Diagonal	5/8" solid	234	-646	3930	16.4	Pass
T8	215.8 - 205.8	Diagonal	5/8" solid	276	-1083	3930	27.5	Pass
T9	205.8 - 195.8	Diagonal	5/8" solid	345	-1101	3930	28.0	Pass
T10	195.8 - 185.8	Diagonal	5/8" solid	386	-442	3930	11.2	Pass
T11	185.8 - 175.8	Diagonal	5/8" solid	425	-163	3930	4.1	Pass
T12	175.8 - 165.8	Diagonal	5/8" solid	438	-394	3930	10.0	Pass
T13	165.8 - 155.8	Diagonal	5/8" solid	487	-642	3930	16.3	Pass
T14	155.8 - 145.8	Diagonal	5/8" solid	547	-637	3930	16.2	Pass
T15	145.8 - 135.8	Diagonal	5/8" solid	586	-352	3930	8.9	Pass
T16	135.8 - 125.8	Diagonal	5/8" solid	599	-340	3930	8.7	Pass
T17	125.8 - 115.8	Diagonal	5/8" solid	638	-473	3930	12.0	Pass
T18	115.8 - 105.8	Diagonal	5/8" solid	680	-964	3930	24.5	Pass
T19	105.8 - 95.8	Diagonal	5/8" solid	749	-907	3930	23.1	Pass
T20	95.8 - 85.8	Diagonal	5/8" solid	790	-630	3930	16.0	Pass
T21	85.8 - 75.8	Diagonal	5/8" solid	829	-335	3930	8.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T22	75.8 - 65.8	Diagonal	5/8" solid	842	-332	3930	8.4	Pass
T23	65.8 - 55.8	Diagonal	5/8" solid	881	-368	3930	9.4	Pass
T24	55.8 - 45.8	Diagonal	5/8" solid	922	-897	3930	22.8	Pass
T25	45.8 - 35.8	Diagonal	5/8" solid	991	-645	3930	16.4	Pass
T26	35.8 - 25.8	Diagonal	5/8" solid	1033	-499	3930	12.7	Pass
T27	25.8 - 15.8	Diagonal	5/8" solid	1044	-172	3930	4.4	Pass
T28	15.8 - 5.8	Diagonal	5/8" solid	1086	-1011	6483	15.6	Pass
T1	281 - 275.8	Horizontal	1/2" solid	10	-128	2656	4.8	Pass
T2	275.8 - 265.8	Horizontal	1/2" solid	42	1712	6362	26.9	Pass
T3	265.8 - 255.8	Horizontal	1/2" solid	98	-556	2656	20.9	Pass
T4	255.8 - 245.8	Horizontal	1/2" solid	140	-290	2656	10.9	Pass
T5	245.8 - 235.8	Horizontal	1/2" solid	160	-191	2656	7.2	Pass
T6	235.8 - 225.8	Horizontal	1/2" solid	198	-308	2656	11.6	Pass
T7	225.8 - 215.8	Horizontal	1/2" solid	237	-489	2656	18.4	Pass
T8	215.8 - 205.8	Horizontal	1/2" solid	279	-719	2656	27.1	Pass
T9	205.8 - 195.8	Horizontal	1/2" solid	342	-797	2656	30.0	Pass
T10	195.8 - 185.8	Horizontal	1/2" solid	383	-269	2656	10.1	Pass
T11	185.8 - 175.8	Horizontal	1/2" solid	422	-145	2656	5.5	Pass
T12	175.8 - 165.8	Horizontal	1/2" solid	440	-207	2656	7.8	Pass
T13	165.8 - 155.8	Horizontal	1/2" solid	485	-566	2656	21.3	Pass
T14	155.8 - 145.8	Horizontal	1/2" solid	544	-404	2656	15.2	Pass
T15	145.8 - 135.8	Horizontal	1/2" solid	583	-297	2656	11.2	Pass
T16	135.8 - 125.8	Horizontal	1/2" solid	593	-210	2656	7.9	Pass
T17	125.8 - 115.8	Horizontal	1/2" solid	641	-405	2656	15.2	Pass
T18	115.8 - 105.8	Horizontal	1/2" solid	683	-588	2656	22.1	Pass
T19	105.8 - 95.8	Horizontal	1/2" solid	746	-712	2656	26.8	Pass
T20	95.8 - 85.8	Horizontal	1/2" solid	787	-372	2656	14.0	Pass
T21	85.8 - 75.8	Horizontal	1/2" solid	826	-325	2656	12.2	Pass
T22	75.8 - 65.8	Horizontal	1/2" solid	837	-192	2656	7.2	Pass
T23	65.8 - 55.8	Horizontal	1/2" solid	884	-355	2656	13.4	Pass
T24	55.8 - 45.8	Horizontal	1/2" solid	925	-484	2656	18.2	Pass
T25	45.8 - 35.8	Horizontal	1/2" solid	988	-589	2656	22.2	Pass
T26	35.8 - 25.8	Horizontal	1/2" solid	998	-242	2656	9.1	Pass
T27	25.8 - 15.8	Horizontal	1/2" solid	1052	-234	2656	8.8	Pass
T28	15.8 - 5.8	Horizontal	1/2" solid	1078	-222	2656	8.4	Pass
T1	281 - 275.8	Top Girt	1/2" solid	4	-63	2656	2.4	Pass
T3	265.8 - 255.8	Top Girt	1/2" solid	68	-325	2656	12.2	Pass
T5	245.8 - 235.8	Top Girt	1/2" solid	149	-71	2656	2.7	Pass
T7	225.8 - 215.8	Top Girt	1/2" solid	229	-213	2656	8.0	Pass
T9	205.8 - 195.8	Top Girt	1/2" solid	310	-472	2656	17.8	Pass
T11	185.8 - 175.8	Top Girt	1/2" solid	392	-97	2656	3.7	Pass
T13	165.8 - 155.8	Top Girt	1/2" solid	474	-194	2656	7.3	Pass
T15	145.8 - 135.8	Top Girt	1/2" solid	553	-187	2656	7.0	Pass
T17	125.8 - 115.8	Top Girt	1/2" solid	636	-168	2656	6.3	Pass
T19	105.8 - 95.8	Top Girt	1/2" solid	716	-435	2656	16.4	Pass
T21	85.8 - 75.8	Top Girt	1/2" solid	796	-215	2656	8.1	Pass
T23	65.8 - 55.8	Top Girt	1/2" solid	878	-165	2656	6.2	Pass
T25	45.8 - 35.8	Top Girt	1/2" solid	958	-306	2656	11.5	Pass
T27	25.8 - 15.8	Top Girt	1/2" solid	1040	-126	2656	4.8	Pass
T2	275.8 - 265.8	Bottom Girt	1/2" solid	29	-347	2656	13.0	Pass
T4	255.8 - 245.8	Bottom Girt	1/2" solid	110	-87	2656	3.3	Pass
T6	235.8 - 225.8	Bottom Girt	1/2" solid	190	-213	2656	8.0	Pass
T8	215.8 - 205.8	Bottom Girt	1/2" solid	271	-438	2656	16.5	Pass
T10	195.8 - 185.8	Bottom Girt	1/2" solid	353	-76	2656	2.9	Pass
T12	175.8 - 165.8	Bottom Girt	1/2" solid	435	-122	2656	4.6	Pass
T14	155.8 - 145.8	Bottom Girt	1/2" solid	514	-156	2656	5.9	Pass
T16	135.8 - 125.8	Bottom Girt	1/2" solid	596	-94	2656	3.6	Pass
T18	115.8 - 105.8	Bottom Girt	1/2" solid	677	-348	2656	13.1	Pass
T20	95.8 - 85.8	Bottom Girt	1/2" solid	757	-126	2656	4.8	Pass
T22	75.8 - 65.8	Bottom Girt	1/2" solid	839	148	6362	2.3	Pass
T24	55.8 - 45.8	Bottom Girt	1/2" solid	919	-284	2656	10.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T26	35.8 - 25.8	Bottom Girt	1/2" solid	1000	-76	2656	2.9	Pass
T28	15.8 - 5.8	Bottom Girt	1/2" solid	1081	250	6362	3.9	Pass
T2	275.8 - 265.8	Guy A@269.3	3/8	1119	6291	9240	68.1	Pass
T9	205.8 - 195.8	Guy A@200.675	5/16	1122	5243	6720	78.0	Pass
T13	165.8 - 155.8	Guy A@160.675	1/4	1125	3272	3990	82.0	Pass
T19	105.8 - 95.8	Guy A@100.675	1/4	1128	3114	3990	78.0	Pass
T24	55.8 - 45.8	Guy A@49.3	1/4	1131	2251	3990	56.4	Pass
T2	275.8 - 265.8	Guy B@269.3	3/8	1118	6461	9240	69.9	Pass
T9	205.8 - 195.8	Guy B@200.675	5/16	1121	5338	6720	79.4	Pass
T13	165.8 - 155.8	Guy B@160.675	1/4	1124	3298	3990	82.7	Pass
T19	105.8 - 95.8	Guy B@100.675	1/4	1127	3112	3990	78.0	Pass
T24	55.8 - 45.8	Guy B@49.3	1/4	1130	2242	3990	56.2	Pass
T2	275.8 - 265.8	Guy C@269.3	3/8	1117	6461	9240	69.9	Pass
T9	205.8 - 195.8	Guy C@200.675	5/16	1120	5340	6720	79.5	Pass
T13	165.8 - 155.8	Guy C@160.675	1/4	1123	3299	3990	82.7	Pass
T19	105.8 - 95.8	Guy C@100.675	1/4	1126	3112	3990	78.0	Pass
T24	55.8 - 45.8	Guy C@49.3	1/4	1129	2238	3990	56.1	Pass
							Summary	
						Leg (T24)	66.1	Pass
						Diagonal (T9)	28.0	Pass
						Horizontal (T9)	30.0	Pass
						Top Girt (T9)	17.8	Pass
						Bottom Girt (T8)	16.5	Pass
						Guy A (T13)	82.0	Pass
						Guy B (T13)	82.7	Pass
						Guy C (T13)	82.7	Pass
						Bolt Checks	11.2	Pass
						RATING =	82.7	Pass

tnxTower	Job	Page
	281-ft Guyed Tower; Orange County, CA	1 of 4
Paul J. Ford and Company 250 E. Broad Street Suite 1500 Columbus, OH 43215 Phone: 614.221.6679 FAX: 614.448.4105	Project Oak Flat in Silverado Canyon (PJF# 65011-0012)	Date 08:49:19 03/20/12
	Client Magnum Towers, Inc.	Designed by Larry A. Paxton

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	278.40	1.57	38.71	10.833	A	0.000	1.492	0.867	58.08	0.000	0.000
281.00-275.80					B	0.000	1.492		58.08	0.390	0.000
					C	0.000	1.492		58.08	0.000	0.000
T2	270.80	1.561	38.80	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
275.80-265.80					B	0.000	2.997		55.60	1.095	0.000
					C	0.000	2.997		55.60	0.000	0.000
T3	260.80	1.549	38.92	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
265.80-255.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T4	250.80	1.536	39.04	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
255.80-245.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T5	240.80	1.523	39.16	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
245.80-235.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T6	230.80	1.509	39.27	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
235.80-225.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T7	220.80	1.495	39.37	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
225.80-215.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T8	210.80	1.481	39.47	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
215.80-205.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T9	200.80	1.466	39.56	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
205.80-195.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T10	190.80	1.45	39.64	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
195.80-185.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T11	180.80	1.434	39.71	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
185.80-175.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T12	170.80	1.417	39.76	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
175.80-165.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T13	160.80	1.399	39.79	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
165.80-155.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T14	150.80	1.38	39.80	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
155.80-145.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T15	140.80	1.36	39.79	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
145.80-135.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T16	130.80	1.339	39.74	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
135.80-125.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T17	120.80	1.317	39.66	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
125.80-115.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T18	110.80	1.293	39.53	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
115.80-105.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T19	100.80	1.268	39.35	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
105.80-95.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T20	90.80	1.24	39.09	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
95.80-85.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T21	80.80	1.21	38.75	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
85.80-75.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T22	70.80	1.177	38.30	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
75.80-65.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T23	60.80	1.14	37.71	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
65.80-55.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T24	50.80	1.097	36.92	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
55.80-45.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T25	40.80	1.048	35.86	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
45.80-35.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T26	30.80	0.988	34.39	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
35.80-25.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T27	20.80	0.909	32.23	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
25.80-15.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T28 15.80-5.80	10.80	0.85	30.67	14.585	A	0.000	2.684	1.671	62.26	0.000	0.000
					B	0.000	2.684		62.26	1.470	0.000
					C	0.000	2.684		62.26	0.000	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	278.40	1.57	19.29	10.833	A	0.000	1.492	0.867	58.08	0.000	0.000
281.00-275.80					B	0.000	1.492		58.08	0.390	0.000
					C	0.000	1.492		58.08	0.000	0.000
T2	270.80	1.561	19.33	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
275.80-265.80					B	0.000	2.997		55.60	1.095	0.000
					C	0.000	2.997		55.60	0.000	0.000
T3	260.80	1.549	19.39	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
265.80-255.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T4	250.80	1.536	19.45	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
255.80-245.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T5	240.80	1.523	19.51	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
245.80-235.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T6	230.80	1.509	19.57	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
235.80-225.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T7	220.80	1.495	19.62	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
225.80-215.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T8	210.80	1.481	19.67	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
215.80-205.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T9	200.80	1.466	19.71	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
205.80-195.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T10	190.80	1.45	19.75	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
195.80-185.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T11	180.80	1.434	19.78	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
185.80-175.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T12	170.80	1.417	19.81	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
175.80-165.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T13	160.80	1.399	19.83	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
165.80-155.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T14	150.80	1.38	19.83	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
155.80-145.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T15	140.80	1.36	19.83	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
145.80-135.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T16	130.80	1.339	19.80	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
135.80-125.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T17	120.80	1.317	19.76	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
125.80-115.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T18	110.80	1.293	19.70	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
115.80-105.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T19	100.80	1.268	19.61	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
105.80-95.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T20	90.80	1.24	19.48	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
95.80-85.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T21	80.80	1.21	19.31	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
85.80-75.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T22	70.80	1.177	19.09	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
75.80-65.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T23	60.80	1.14	18.79	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
65.80-55.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T24	50.80	1.097	18.40	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
55.80-45.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T25	40.80	1.048	17.87	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
45.80-35.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft^2		ft^2	ft^2	ft^2		ft^2	ft^2
T26	30.80	0.988	17.14	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
35.80-25.80					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T27	20.80	0.909	16.06	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
25.80-15.80					B	0.000	2.918		57.13	1.125	0.000
					C	0.000	2.918		57.13	0.000	0.000
T28 15.80-5.80	10.80	0.85	15.28	14.585	A	0.000	2.684	1.671	62.26	0.000	0.000
					B	0.000	2.684		62.26	1.470	0.000
					C	0.000	2.684		62.26	0.000	0.000

Paul J. Ford and Company
250 East Broad Street, Suite 1500
Columbus, Ohio 43215

By LAP Date 12/2/11
Project 281-ft Guyed Tower Oak Flat
Project # 65011-0012

Seismic Analysis: Equivalent Lateral Force Procedure per TIA-G Sect. 2.7.7

Total Weight of Structure including appurtenances (W): 4.5 (kips)

Earthquake Spectral Response Acceleration at Short Periods (S_{DS}): 1.2133 (per USGS or Geo Report)

Importance Factor (I): 1.0 (per Table 2-3 TIA-G)

Response Modification Coefficient (R): 2.5 (per Sect. 2.7.7.1 TIA-G)

Total Seismic Shear (V_s): S_{DS} x W x I / R (per Sect. 2.7.7.1 TIA-G)

1.2133 x 4.5 x 1 / 2.5 = 2.18 (kips)

Total Wind Shear: 15 (kips) (per PJF Analysis)

Ratio: 2.18 / 15 = 0.15

Per section 2.7.3 of the TIA-G standard, since the seismic shear is less than 50% of the the wind shear, the effects of seismic loading can be ignored

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PAGE 1 OF 1
BY LAP DATE
PROJECT OAK FLAT
CLIENT MAGNUM TOWERS PROJ # G5011-0012

GUY ANCHOR BOLTS

MAX UPLIFT = 21.3 K

MAX SHEAR = 15.4 K

USE (4) 7/8"Ø F1554-36 BOLTS

(AISC 13TH J3-2)

$$\phi R_n = \phi F'_{nt} A_b$$

$$= 0.75\left(1.3F_{nt} - \frac{F_{nt}}{\phi F_{nv}} f_v\right)(0.601)(4)$$

$$= 0.75\left(1.3\times0.75\times58 - \frac{0.75\times58}{0.75\times0.4\times58}\times 15.4\right)(0.601)(4)$$

$$= 32.5 \text{ KIPS}$$

$$\text{RATIO} = \frac{21.3}{32.5} = 0.655$$

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ACI 318-08 APPENDIX D FOR GUY ANCHOR ROD

D.4.1

(a) D.5.1 $\phi N_{sa} = \phi\, n\, A_{se,N}\, F_{uta} = 0.75 \times 4 \times 0.462 \times 68400 \div 1000 = 94.8\ K$

$\phi = 0.75$

$n = 4$

$A_{se,N} = 0.462\ IN^2$

$F_{uta} = 1.9 \times 36000 = 68400\ PSI$

$RATIO = \frac{21.3}{94.8} = 0.22$ ✓

(b) D.6.1 $\phi V_{sa} = \phi\, n\, 0.6\, A_{se,V}\, F_{uta} = 0.65 \times 4 \times 0.6 \times 0.462 \times 68400 \div 1000 = 49.3K$

$\phi = 0.65$

$n = 4$

$A_{se,V} = 0.462\ IN^2$

$F_{uta} = 68400\ PSI$

$RATIO = \frac{15.7}{49.3} = 0.32$ ✓

(c) D.5.2 $\phi N_{cb} = \phi \frac{A_{Nc}}{A_{Nco}} \psi_{ec,N}\, \psi_{ed,N}\, \psi_{c,N}\, \psi_{cp,N}\, N_b$

$= 0.75\left(\frac{398.2}{398.2}\right) 0.97 \times 0.75 \times 1.25 \times 1.0 \times 189736 \div 1000 = 129.4K$

$\phi = 0.75$

$A_{Nc} = 24.4 \times 20 = 488\ IN^2 > 398.2 \therefore = 398.2\ IN^2$

$A_{Nco} = 22 \times 18.1 = 398.2\ IN^2$

$\psi_{ec,N} = \frac{1}{\left(1 + \frac{2 \times 1}{3 \times 25}\right)} = 0.97$

$\psi_{ed,N} = 0.7 + 0.3\left(\frac{6.8}{1.5 \times 25}\right) = 0.75$

$\psi_{c,N} = 1.25$

$\psi_{cp,N} = 1.0$

$N_b = K_c\, \lambda \sqrt{f'_c}\, h_{ef}^{1.5} = 24 \times 1.0 \times \sqrt{4000} \times 25^{1.5} = 189736$

$RATIO = \frac{21.3}{129.4} = 0.16$ ✓

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(d) D.6.2 $\phi V_{cbg} = \phi \frac{A_{vc}}{A_{vco}} \psi_{ec,V} \psi_{ed,V} \psi_{c,V} \psi_{h,V} V_b$

$= 0.65 \times \left(\frac{323}{332.4}\right) \times 1 \times 0.985 \times 1.4 \times 0.88 \times 16601 \div 1000 = 12.72$

$\phi = 0.65$

$A_{vc} = 13.23 \times 24.41 = 323 \text{ IN}^2$

$A_{vco} = \frac{16.99 + 13.23}{2} \times 22 = 332.4 \text{ IN}^2$

$\psi_{ec,V} = 1.0$

$\psi_{ed,V} = 0.985$

$\psi_{c,V} = 1.4$

$\psi_{h,V} = \sqrt{\frac{1.5 \times 6.8}{13.23}} = 0.88$

$V_b = \left(8\left(\frac{26.5}{0.875}\right)^{0.2}\sqrt{0.875}\right) 1.0 \sqrt{4000} \ (6.8)^{1.5} = 16601$

RATIO = $\frac{15.4 \div 2}{12.72} = 0.61$ ✓

(e) D.5.3 $\phi N_{pn} = \phi \psi_{c,P} N_p = 0.75 \times 1.4 \times 38080 \div 1000 = 39.9 \text{ K}$

$\phi = 0.75$

$\psi_{c,P} = 1.4$

$N_p = 8 \times 1.19 \times 4000 = 38080$

RATIO = $\frac{21.3}{39.9} = 0.53$ ✓

(f) D.5.4 $\phi N_{sb} = \phi (160 \, c_{a1} \sqrt{A_{brg}}) \lambda \sqrt{f'_c} = 0.75 \times (160 \times 9.7 \sqrt{1.19}) \times 1.0 \times \sqrt{4000} \div 1000 = 80.3 \text{K}$

$\phi = 0.75$

$c_{a1} = 9.7 \text{ IN}$

$A_{brg} = 1.19$

$\lambda = 1.0$

RATIO = $\frac{21.3}{80.3} = 0.27$ ✓

(g) D.6.3 $\phi V_{cpg} = \phi K_{cp} N_{cbg} = 0.65 \times 2 \times 45.5 = 59.15 \text{ K}$

$\phi = 0.65$

$K_{cp} = 2.0$

$N_{cbg} = 45.5$

RATIO = $\frac{15.4}{59.15} = 0.26$ ✓

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By LAP Date 2/28/2012
Project 80-ft S/S Tower Portland, OR
Project # 65012-0011

Guy Anchor Plate Calculations

Cable Number	Total Height (ft)	Dist. To Anchor (ft)	Chord Length (ft)	Cable Load (k)	Cable Vert (k)	Cable Horz (k)
1	289.3	180	340.73	8.07	6.852	4.263
2	220.8	180	284.87	7.44	5.767	4.701
3	180.8	180	255.12	5.37	3.806	3.789
4	120.7	180	216.72	3.43	1.91	2.849
5	69.33	180	192.89	2.74	0.985	2.557

Cable Number	Cable Vert (k)	M arm Vert (in)	M (k-in)	Cable Horz (k)	M arm Horz (in)	M (k-in)	M (k-in)
1	6.852	8	54.816	4.263	9	38.367	93.183
2	5.767	6.25	36.044	4.701	7.25	34.082	70.126
3	3.806	4.5	17.127	3.789	5.5	20.84	37.967
4	1.91	2.75	5.253	2.849	3.75	10.684	15.937
5	0.985	1	0.985	2.557	2	5.114	6.099
						Total	223.3

Applied Moment: 223.3 k-in
Resultant Vertical Load: 223.3 / 5 = 44.66 kips
Moment on Plate: 44.66 x 5 x 7 / 12 = 130.3 k-in
Plate Capacity: 0.9 x 50 x 3.4 = 153 k-in
Ratio: 130.3 / 153 = 0.852

Assume Centroid of Fan Plate is 5" above base plate
Applied Moment: 223.3 k-in
Resultant Horizontal Load: 223.3 / 5 = 44.66 kips
Per Table 8-4
a = 5 / 10 = 0.5
Dmin = 44.66 / (0.75 x 2.29 x 1 x 10) = 2.60 16ths of an inch
Ratio: 2.6 / 5 = 0.52

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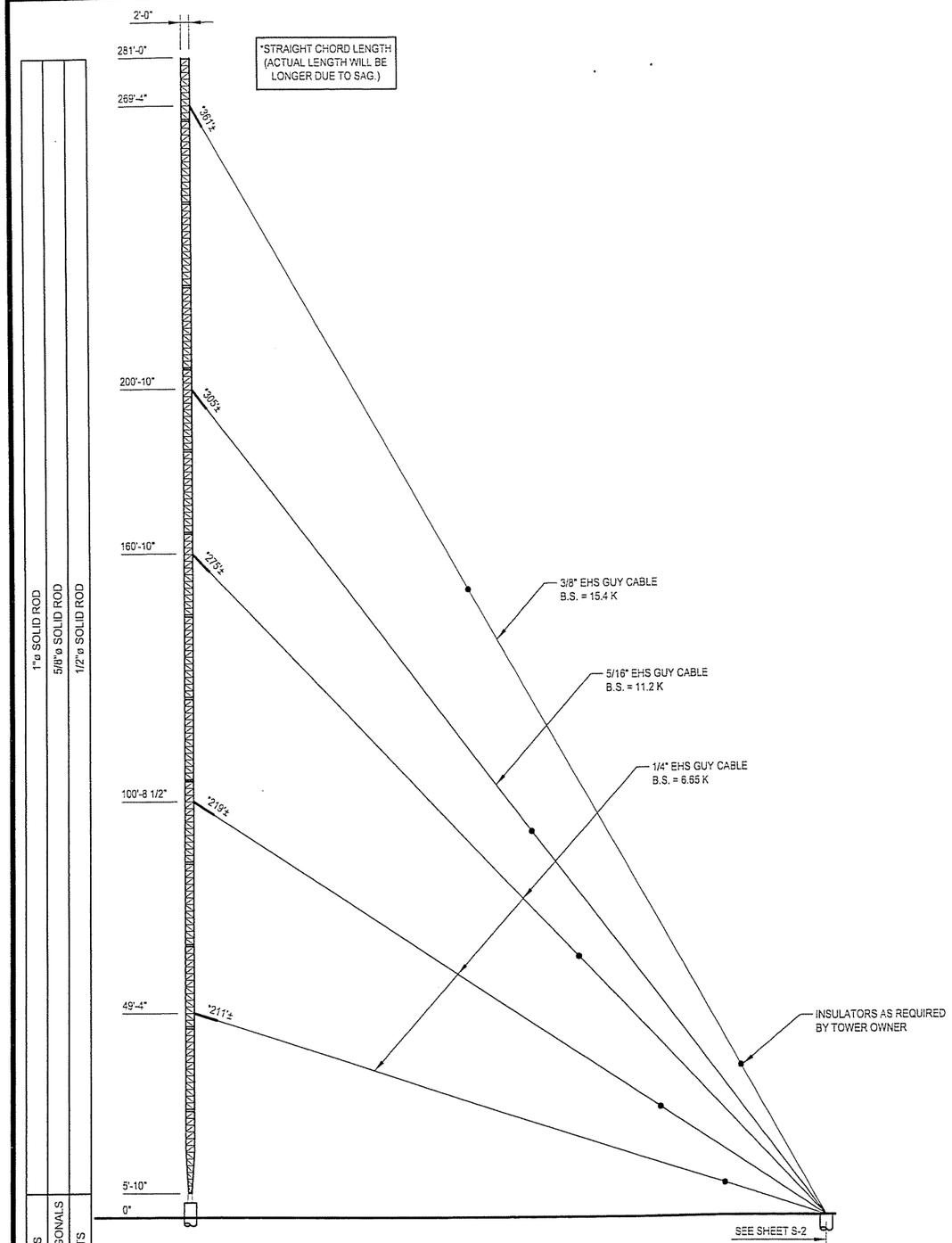
Columbus, Ohio 43215

By LAP Date 11/14/2011
Project # 65011-0012

Fan Plate Calculations

Plate Yield Strength (ksi):	50
Plate Ultimate Strength (ksi):	65
Plate Thickness (in):	1/2

Guy Cable ø (in):	1/4		5/16		3/8		7/16	
Breaking Strength (k):	6.65		11.2		15.4		20.8	
Turnbuckle Size:	1/2		5/8		5/8		3/4	
Turnbuckle Cap (k):	11	☑	17.5	☑	17.5	☑	26	☑
Pin Diameter (in):	3/8		1/2		1/2		5/8	
Jaw Width (in):	0.64	☑	0.79	☑	0.79	☑	0.97	☑
Jaw Depth (in):	1.07		1.32		1.32		1.52	
Min Edge Dist (in):	3/4		3/4		3/4		7/8	
Max Edge Dist (in):	1.26		1.57		1.57		1.83	
Actual Edge Dist (in):	0.75	☑	1	☑	1	☑	1	☑
Min Hole ø (in):	1/2		5/8		5/8		3/4	
Actual Hole ø (in):	1/2	☑	3/4	☑	3/4	☑	3/4	☑
Clear Distance (in):	0.5	☑	0.625	☑	0.625	☑	0.625	☑
Pin to Pin Spacing (in):	2 1/2		2 1/2		2 1/2		2 1/2	
Plate Bearing (k):	18.53	☑	23.40	☑	23.40	☑	24.38	☑
Plate Bearing (k):	12.66	☑	16.88	☑	16.88	☑	21.09	☑
Tensile Yielding (k):	56.25	☑	56.25	☑	56.25	☑	56.25	☑
Tensile Rupture (k):	48.75	☑	42.66	☑	42.66	☑	42.66	☑
Shear Yielding (k):	40.50	☑	54.00	☑	54.00	☑	54.00	☑
Shear Rupture (k):	29.25	☑	36.56	☑	36.56	☑	36.56	☑
Block Shear (k):	20.63	☑	26.48	☑	26.48	☑	26.48	☑



TOWER ELEVATION 1/S-1

ANTENNA LIST			
ELEVATION	EQUIPMENT		FEEDLINE
281'	(1)	BEACON	(1) 3/4"
140'-6"	(3)	OBSTRUCTION LIGHT	
15'	(1)	DOWN LIGHT	(1) 3/8"

FOUNDATION REACTIONS

BASE AXIAL: 31.5 K
BASE SHEAR: 0.23 K

GUY ANCHOR VERTICAL: 13.8 K
GUY ANCHOR HORIZONTAL: 14.0 K

GENERAL NOTES:

1. THIS TOWER WAS DESIGNED IN ACCORDANCE WITH THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION STANDARD "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES" ANSI/TIA-222-G.2 FOR THE FOLLOWING DESIGN CRITERIA:
   - 90 MPH 3-SECOND WIND GUST
   - WIND EXPOSURE CATEGORY "C"
   - STRUCTURE CLASS II (IMPORTANCE FACTOR = 1.0)
   - TOPOGRAPHIC CATEGORY 3 WITH A CREST HEIGHT OF 750 FT
2. ERECTION TOLERANCES SHALL BE AS SPECIFIED BY THE TIA STANDARD.
3. BOLTS SHALL BE TORQUED TO THE SNUG-TIGHT CONDITION AS DEFINED BY AISC.
4. TOWER LIGHTING AND GROUNDING BY OTHERS.
5. THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THE WORK.
7. ALL LIGHTS NOT REQUIRED BY THE FAA SHALL BE DESIGNED AND LOCATED SO THAT THE DIRECT LIGHT RAYS ARE KEPT ON THE PROPERTY.
8. CONSTRUCTION ACTIVITIES SHALL OCCUR BETWEEN 7 AM AND 8 PM MONDAY THROUGH SATURDAY, EXCLUDING FEDERAL HOLIDAYS.
9. TRUCKS, BUSES, MOTOR HOMES AND OTHER LARGE VEHICLES SHALL TAKE SITE ACCESS FROM SKYLINE DRIVE. SITE ACCESS FROM BLACK STAR CANYON ROAD SHALL BE LIMITED TO PASSENGER VEHICLES, INCLUDING PICK UP TRUCKS, ONLY.
10. SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH SHEET S-5 OF THESE DRAWINGS.
11. SPECIAL INSPECTIONS ARE NOT REQUIRED FOR WORK PERFORMED ON THE PREMISES OF A FABRICATOR APPROVED IN ACCORDANCE WITH SECTION 1704.2.2 OF THE CBC.

1 3-20-2012: PLAN COMMENTS

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EP-0001048

MAGNUM TOWERS, INC.
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PH: (916) 381-5053 FAX: (916) 381-2144

OAK FLAT-SILVERADO CANYON
ORANGE CO., CALIFORNIA
281' GUYED AM TOWER #4

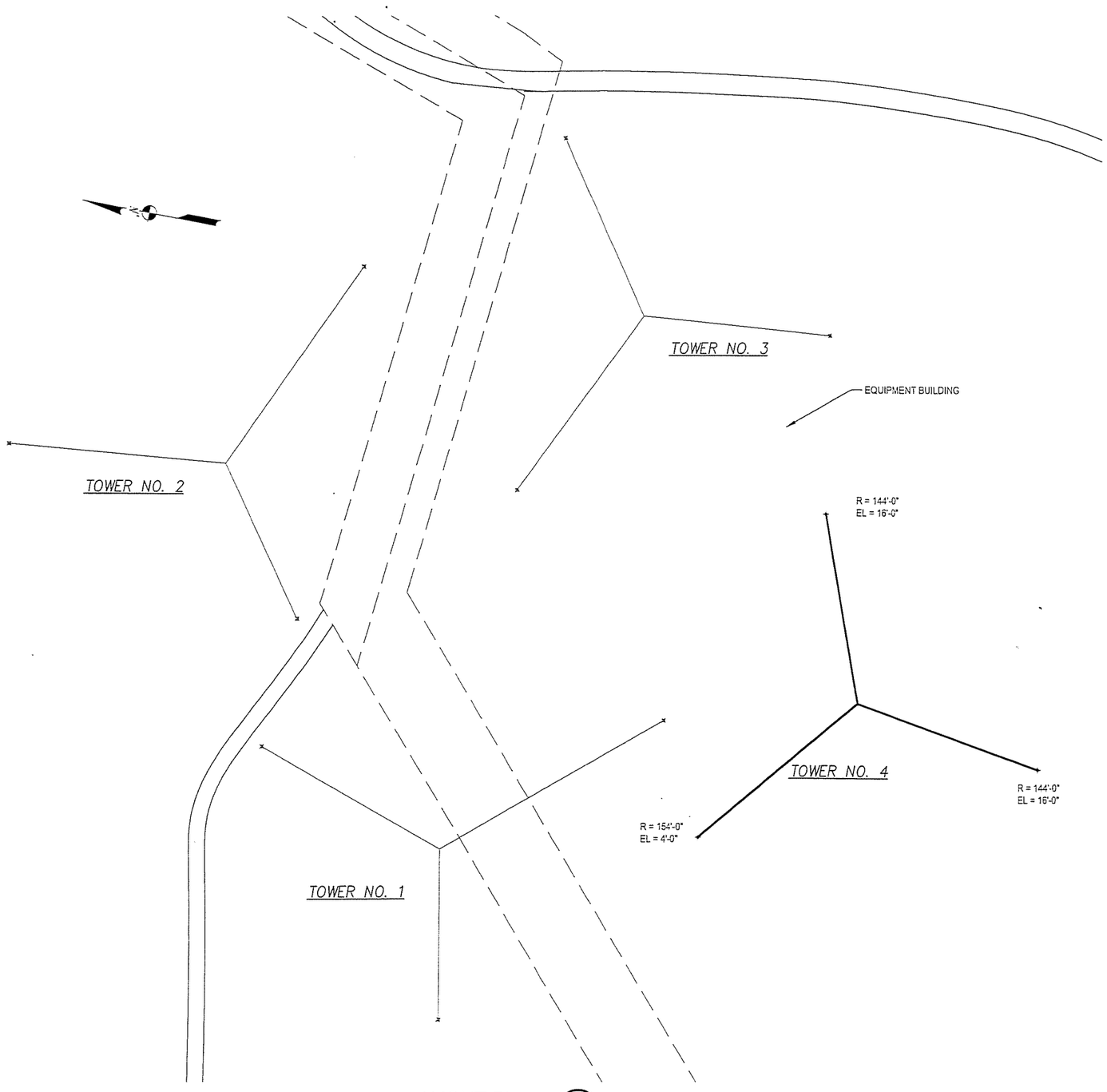
PROJECT No:	65011-0012
DRAWN BY:	T.A.N.
CHECKED BY:	L.A.P.
APPROVED BY:	K.P.B.
DATE:	12-2-2011

TOWER ELEVATION AND NOTES

S-1
SHEET 1 OF 6

REGISTERED PROFESSIONAL ENGINEER
DAVID W. HAWKINS
No. C-60500
Expires 12-31-12
CIVIL
STATE OF CALIFORNIA
3/20/12

65011-0012D R1.DWG



SITE LAYOUT PLAN (1 / S-2)

1 3-20-2012

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OAK FLAT-SILVERADO CANYON
ORANGE CO., CALIFORNIA
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PROJECT No:	65011-0012
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CHECKED BY:	L.A.P.
APPROVED BY:	K.P.B.
DATE:	12-2-2011

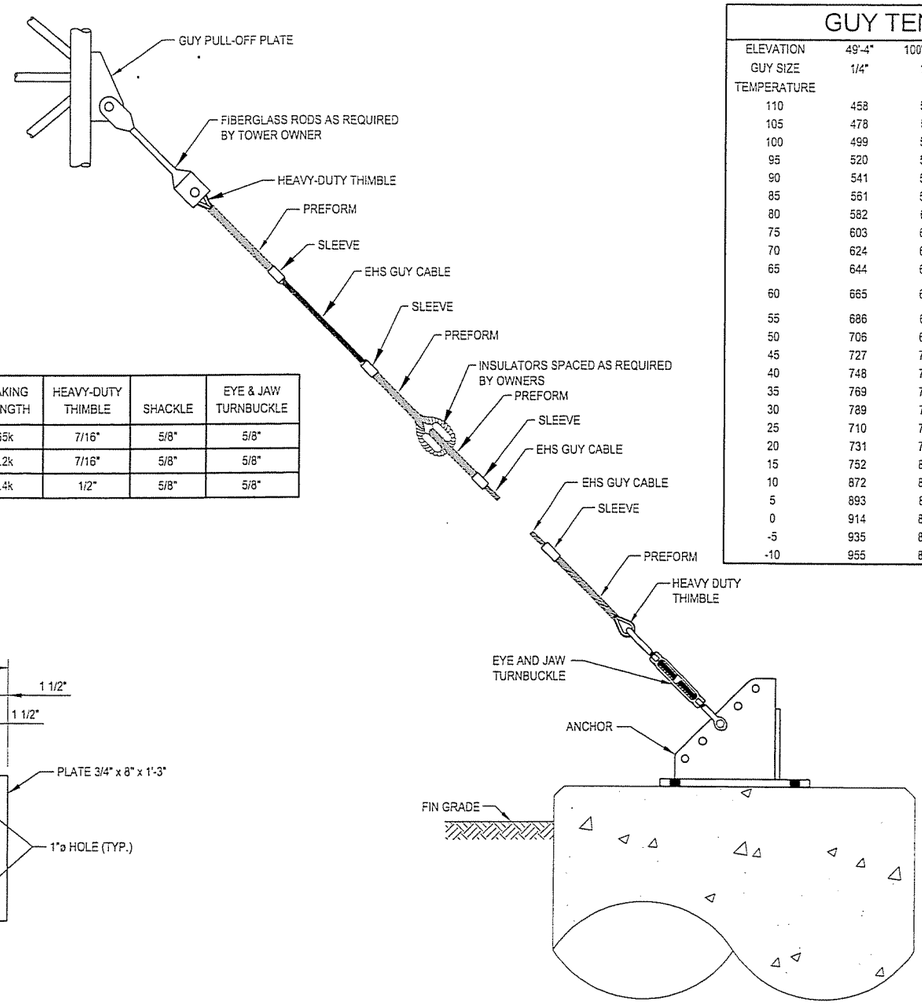
GUY TOWER
SITE PLAN

S-2

SHEET 2 OF 6

REGISTERED PROFESSIONAL ENGINEER
DAVID W. HAWKINS
No. C-60800
Expires 12-31-12
STATE OF CALIFORNIA
3/20/12

65011-0012D R1.DWG



GUY CABLE	BREAKING STRENGTH	HEAVY-DUTY THIMBLE	SHACKLE	EYE & JAW TURNBUCKLE
1/4"	6.65k	7/16"	5/8"	5/8"
5/16"	11.2k	7/16"	5/8"	5/8"
3/8"	15.4k	1/2"	5/8"	5/8"

GUY TENSION CHART

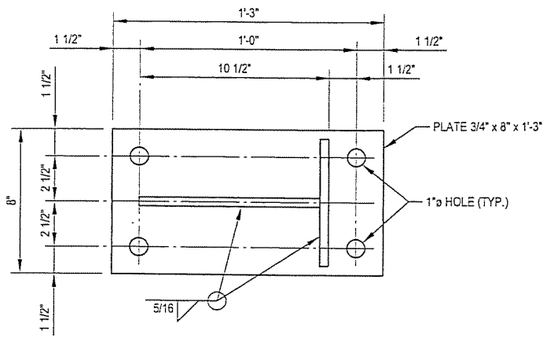
ELEVATION	49'-4"	100'-8 1/2"	160'-10"	200'-10"	269'4"
GUY SIZE	1/4"	1/4"	1/4"	5/16"	3/8"
TEMPERATURE					
110	458	505	556	977	1413
105	478	521	567	991	1426
100	499	537	577	1006	1439
95	520	553	588	1020	1451
90	541	569	599	1034	1464
85	561	585	610	1048	1477
80	582	601	621	1063	1489
75	603	617	632	1077	1502
70	624	633	643	1091	1515
65	644	649	654	1106	1527
60	665	665	665	1120	1540
55	686	681	676	1134	1553
50	706	697	687	1149	1565
45	727	713	698	1163	1578
40	748	729	709	1177	1591
35	769	745	720	1192	1603
30	789	761	731	1206	1616
25	710	777	742	1220	1629
20	731	793	753	1234	1641
15	752	809	763	1249	1654
10	872	825	774	1263	1667
5	893	841	785	1277	1679
0	914	857	796	1292	1692
-5	935	873	807	1306	1705
-10	955	869	818	1320	1718

GUY CABLE NOTES:

1. GALVANIZED STEEL GUY CABLES SHALL BE EXTRA-HIGH STRENGTH (EHS) WIRE ROPE CONFORMING TO THE REQUIREMENTS OF THE ASTM A475. THE DEAD END GRIPPING STRENGTH SHALL EQUAL OR EXCEED THE LOAD RATING OF THE CABLE TO WHICH IT IS ATTACHED.
2. ALL TENSIONS SHOWN IN THE CHART BELOW ARE IN POUNDS.
3. FIELD TOLERANCE IS PLUS 10% AND MINUS 5% OF THE INITIAL TENSIONS SHOWN BELOW.
4. INITIAL TENSIONS SHOULD BE ESTABLISHED IN ONE DIRECTION ONLY (THE DIRECTION THAT IS MOST LEVEL) AND ALL OTHER GUY TENSIONS SHOULD BE AS REQUIRED TO PLUMB THE TOWER.
5. INITIAL TENSIONS SHOULD BE READ ON CALM DAYS WITH WIND VELOCITIES OF 10 MPH OR LESS

STEEL NOTES:

1. ALL STEEL SHALL CONFORM TO ASTM A572-50 (50 KSI YIELD POINT MATERIAL)
2. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY AWS D1.1 USING E70XX ELECTRODES.
3. ALL NEW STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.



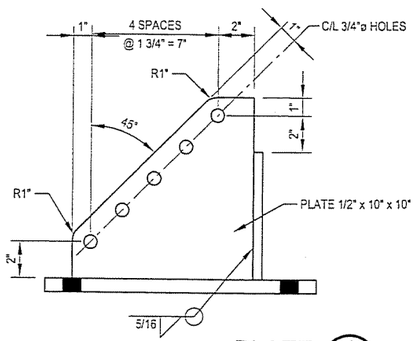
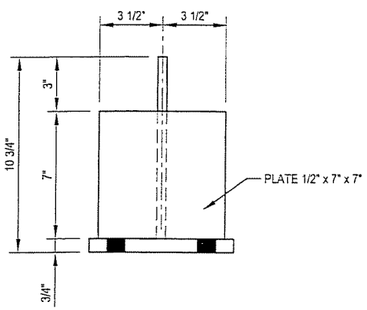


PLATE 1 S-3



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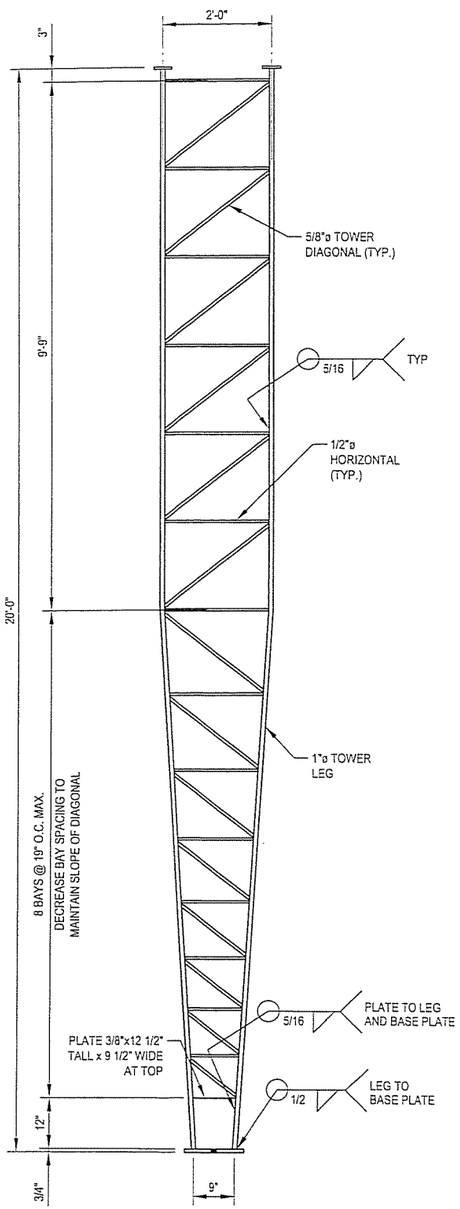
PLOT PLAN
GUY CABLE
TENSION CHART

S-3

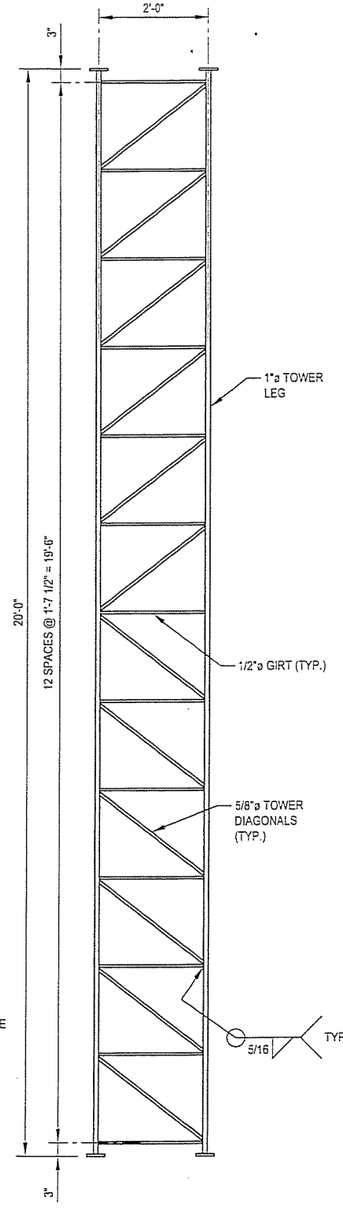
SHEET 3 OF 6

REGISTERED PROFESSIONAL ENGINEER
DAVID W. HAWKINS
No. C-69800
Exires 12-31-12
STATE OF CALIFORNIA

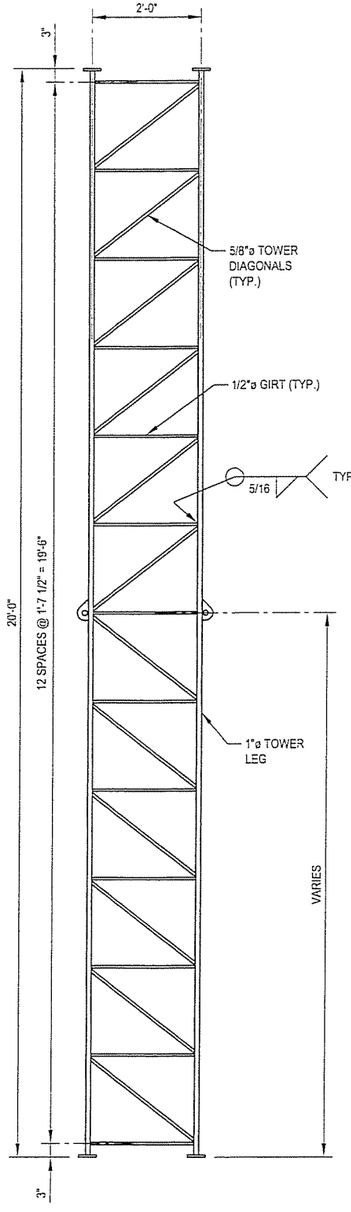
65011-0012D R1.DWG



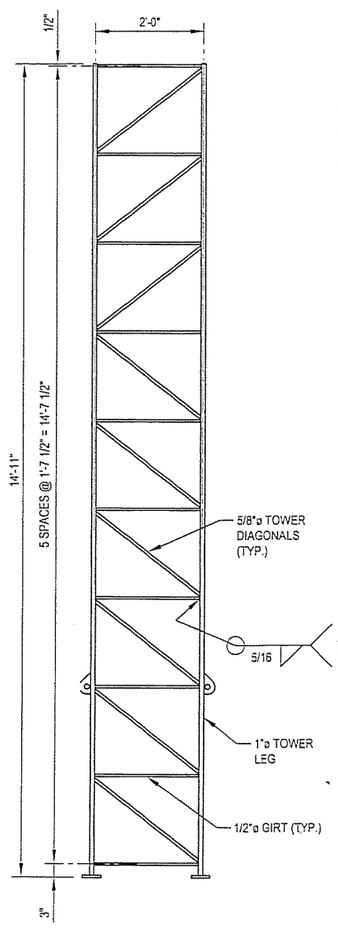
BASE SECTION



TYPICAL SECTION



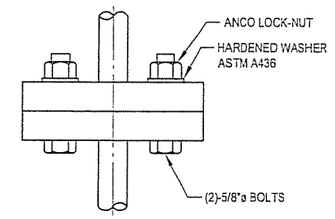
TYPICAL SECTION
(AT GUY PULLOFF)



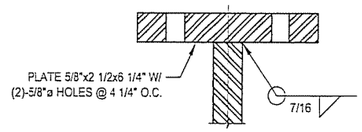
TOP SECTION

STEEL NOTES:

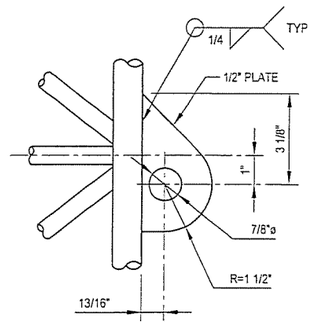
1. ALL STEEL SHALL CONFORM TO THE FOLLOWING:
   a. SOLID ROD LEGS: ASTM A572 GR 50 (50 KSI YIELD POINT MATERIAL)
   b. FLANGE PLATES: ASTM A572 GR 50 (50 KSI YIELD POINT MATERIAL)
   c. STRUCTURAL BOLTS: ASTM A325
   d. ANCHOR RODS: ASTM A36
   e. ALL OTHER STEEL SHAPES: ASTM A36 (36 KSI YIELD POINT MATERIAL)
2. ALL BOLTS SHALL BE PROVIDED WITH LOCKING HARDWARE.
3. BOLTS SHALL BE GALVANIZED ACCORDING TO ASTM A153.
4. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY AWS D1.1 USING E70XX ELECTRODES.
5. ALL NEW STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.



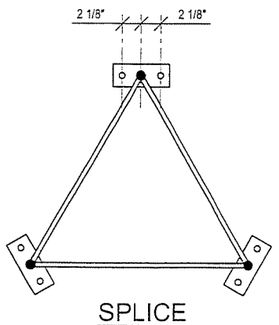
CONNECTION DETAIL



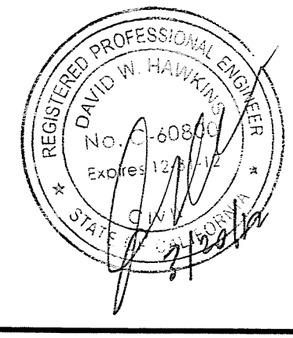
SECTION



GUY PULLOFF DETAIL



SPLICE



1 3-20-2012

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281' GUYED AM TOWER #4

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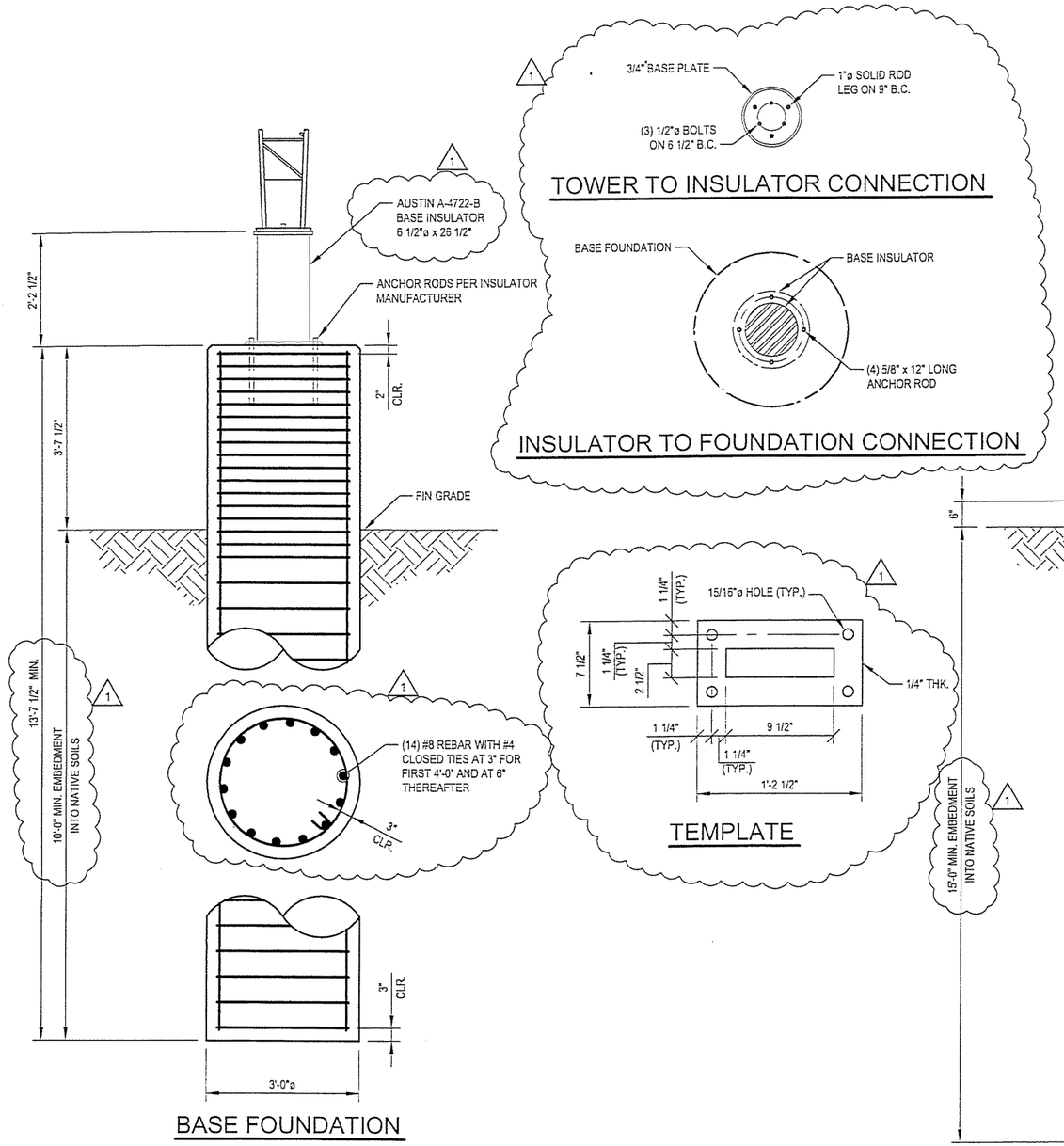
CHECKED BY:	L.A.P.
APPROVED BY:	K.P.B.
DATE:	12-2-2011

TOWER SECTION DETAILS

S-4
SHEET 4 OF 6

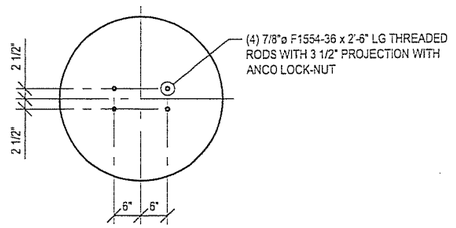
65011-0012D R1.DWG



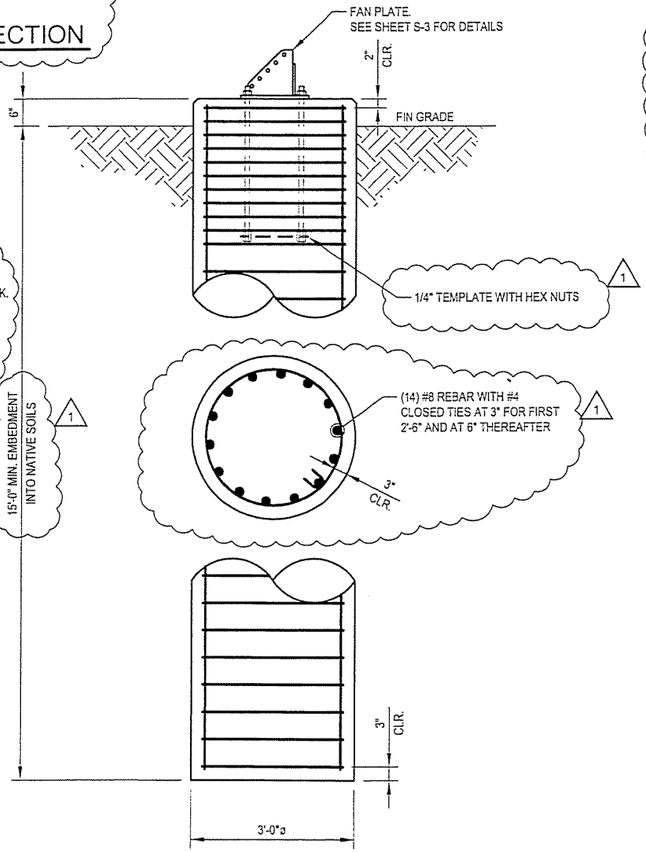
BASE FOUNDATION

TOWER TO INSULATOR CONNECTION

INSULATOR TO FOUNDATION CONNECTION



TEMPLATE



GUY ANCHOR

FOUNDATION NOTES:

1. THIS FOUNDATION DESIGN WAS BASED ON CAPACITIES FOR 36"ø DRILLED PIERS PROVIDED BY ALBUS-KEEFE & ASSOCIATES, INC. IN A LETTER DATED MARCH 20, 2012.
2. THE FOUNDATION DESIGN HAS BEEN DEVELOPED IN ACCORDANCE WITH GENERALLY ACCEPTED PROFESSIONAL ENGINEERING PRINCIPLES AND PRACTICES .
3. IF THE CONTRACTOR DISCOVERS ANY SUBSURFACE CONDITIONS THAT ARE NOT AS REPRESENTED, THE GEOTECHNICAL ENGINEER SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
4. TOTAL CONCRETE = 15.8 CUBIC YARDS
5. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF AT LEAST 4,000 PSI AT 28 DAYS.
6. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A 615 GRADE 60.
7. WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND SAFETY REGULATIONS. THE FOUNDATION CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE LOCAL BUILDING OFFICIALS FOR ANY INSPECTIONS THAT MAY BE REQUIRED.
8. CONCRETE SHALL HAVE AIR ENTRAINMENT BETWEEN 4 AND 8 PERCENT.
9. CONCRETE SHALL BE PROPORTIONED AND PRODUCED TO HAVE A SLUMP OF NOT MORE THAN 6" PLUS OR MINUS 1/2" FOR ALL CONCRETE.
10. WATER CEMENT RATIO = 0.52 MAXIMUM.
11. FLY ASH CONTENT SHALL NOT EXCEED A MAXIMUM OF 25% OF THE CEMENT WEIGHT.
12. THE TOP OF THE CONCRETE SHALL BE SLOPED (APPROXIMATELY 1/8" PER FOOT) TO DRAIN. THE EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4 INCH BY 3/4 INCH MINIMUM.

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APPROVED BY:	K.P.B.
DATE:	12-2-2011

TOWER FOUNDATIONS

S-5

SHEET 5 OF 6

REGISTERED PROFESSIONAL ENGINEER
DAVID W. HAWKINS
No. C-60800
Expires 12-31-12
STATE OF CALIFORNIA
12/20/12

1 3-20-2012: PLAN COMMENTS

65011-0012D R1.DWG

TABLE 1704.3
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLT, NUTS AND WASHERS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	AISC 360, SECTION A3.3 AND APPLICABLE ASTM MATERIAL STANDARDS	-
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	-	X	-	-
2. INSPECTION OF HIGH-STRENGTH BOLTING:				
a. SNUG-TIGHT JOINTS	-	X	AISC 360, SECTION M2.5	1704.3.3
b. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION	-	-		
c. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION	-	-		
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
a. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360	-	X	AISC 360, SECTION M5.5	
b. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	-	X	APPLICABLE ASTM MATERIAL STANDARDS	
c. MANUFACTURER'S CERTIFIED TEST REPORTS	-	X		
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS	-	X	AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS	-
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	-	X	-	-
5. INSPECTION OF WELDING:				
a. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
1. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS	-	-	AWS D1.1	1704.3.1
2. MULTIPASS FILLET WELDS	X	-		
3. SINGLE-PASS FILLET WELDS > 5/16"	X	-		
4. PLUG AND SLOT WELDS	-	-		
5. SINGLE-PASS FILLET WELDS ≤ 5/16"	-	X		
6. FLOOR AND ROOF DECK WELDS	-	-	AWS D1.3	
b. REINFORCING STEEL:				-
1. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706	-	X	AWS D1.4 ACI 318: SECTION 3.5.2	
2. REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT	-	-		
3. SHEAR REINFORCEMENT	X	-		
4. OTHER REINFORCING STEEL	-	X		
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:				
a. DETAILS SUCH AS BRACING AND STIFFENING	-	-	-	1704.3.2
b. MEMBER LOCATIONS	-	-		
c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION	-	-		

TABLE 1704.4
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

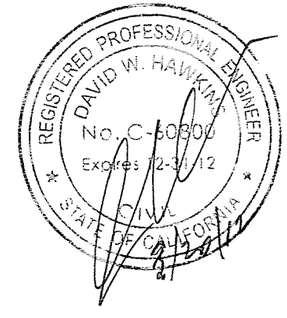
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT	-	X	ACI 318: 3.5, 7.1 - 7.7	1913.4
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1704.3, ITEM 5B	-	-	AWS D1.4 ACI 318: 3.5.2	-
3. INSPECTION OF BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED	X	-	ACI 318: 8.1.3, 21.2.8	1911.5, 1912.1
4. INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE	-	-	ACI 318: 3.8.6, 8.1.3, 21.2.8	1912.1
5. VERIFYING USE OF REQUIRED DESIGN MIX	-	X	ACI 318: CH. 4, 5.2 - 5.4	1904.3, 1913.2, 1913.3
6. AT THE TIME FRESH CONCRTE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	-	ASTM C172 ASTM C31 ACI 318: 5.6, 5.8	1913.10
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 5.9, 5.10	1913.6, 1913.7, 1913.8
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 5.11 - 5.13	1913.9
9. INSPECTION OF PRESTRESSED CONCRETE: a. APPLICATION OF PRESTRESSING FORCES b. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC-FORCE-RESISTING SYSTEM	-	-	ACI 318: 18.20 ACI 318: 18.18.4	-
10. ERECTION OF PRECAST CONCRETE MEMBERS	-	-	ACI 318: CH. 16	-
11. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	-	-	ACI 318: 6.2	-
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	-	X	ACI 318: 6.1.1	-

TABLE 1704.7
REQUIRED VERIFICATION AND INSPECTION OF SOILS

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	-
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	-	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	-	-
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	-	-
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	-	-

TABLE 1704.9
REQUIRED VERIFICATION AND INSPECTION OF PIER FOUNDATION

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH PIER.	X	-
2. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM PIER DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO ROCK (IF APPLICABLE) AND ADEQUATE END BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.	X	-
3. FOR CONCRETE PIERS, PERFORM ADDITIONAL INSPECTIONS IN ACCORDANCE WITH SECTION 1704.4.	-	-



1 3-20-2012: ADDED SHEET

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OAK FLAT-SILVERADO CANYON
ORANGE CO., CALIFORNIA
281' GUYED AM TOWER #4

PROJECT No:	65011-0012
DRAWN BY:	T.A.N.
CHECKED BY:	L.A.P.
APPROVED BY:	K.P.S.
DATE:	12-2-2011

SPECIAL INSPECTION

S-6
SHEET 6 OF 6

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