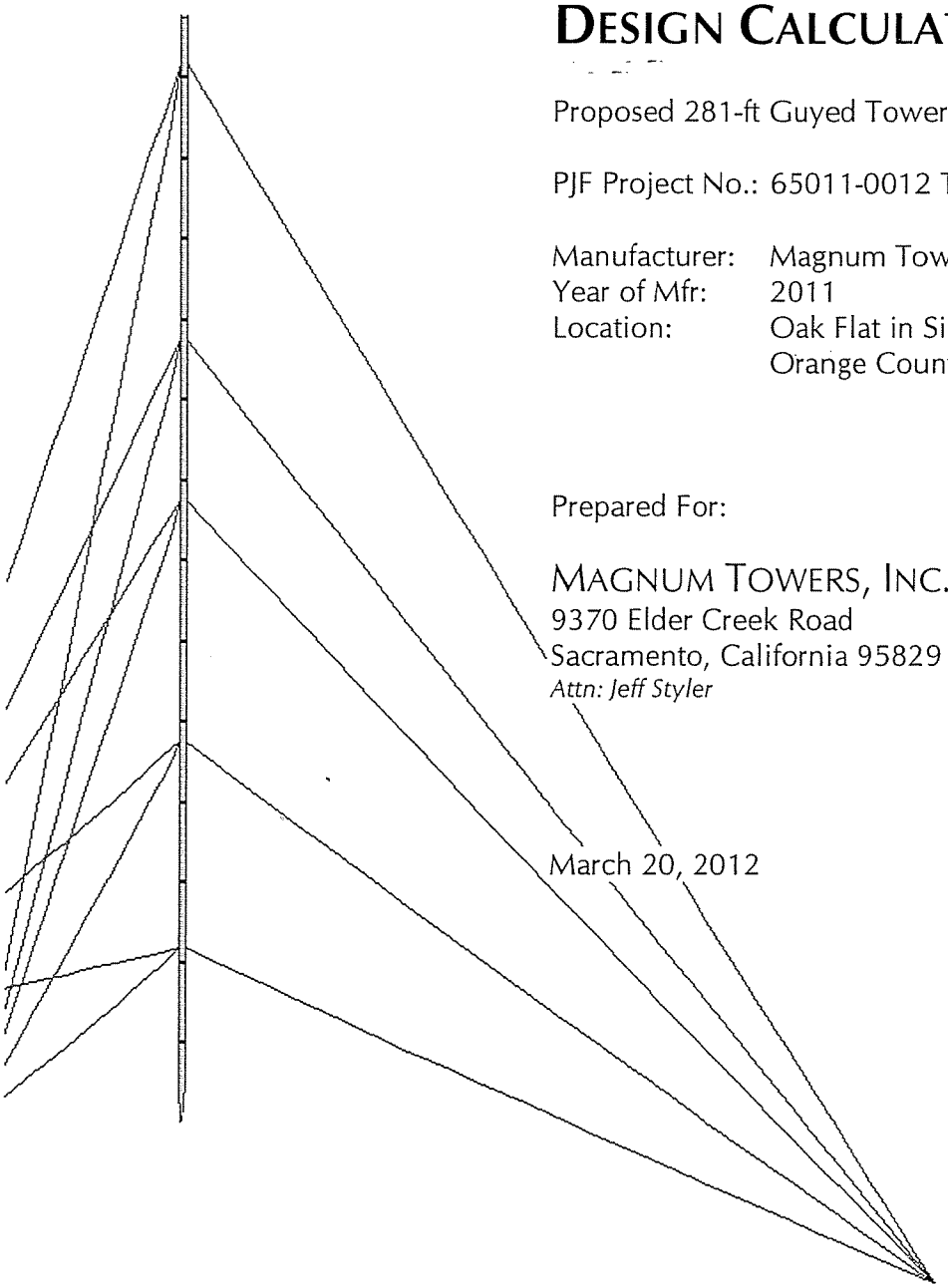
PAUL J. FORD AND COMPANY
STRUCTURAL ENGINEERS
250 East Broad Street · Suite 1500 · Columbus, Ohio 43215



DESIGN CALCULATIONS

Proposed 281-ft Guyed Tower AM Array

PJF Project No.: 65011-0012 Tower #1

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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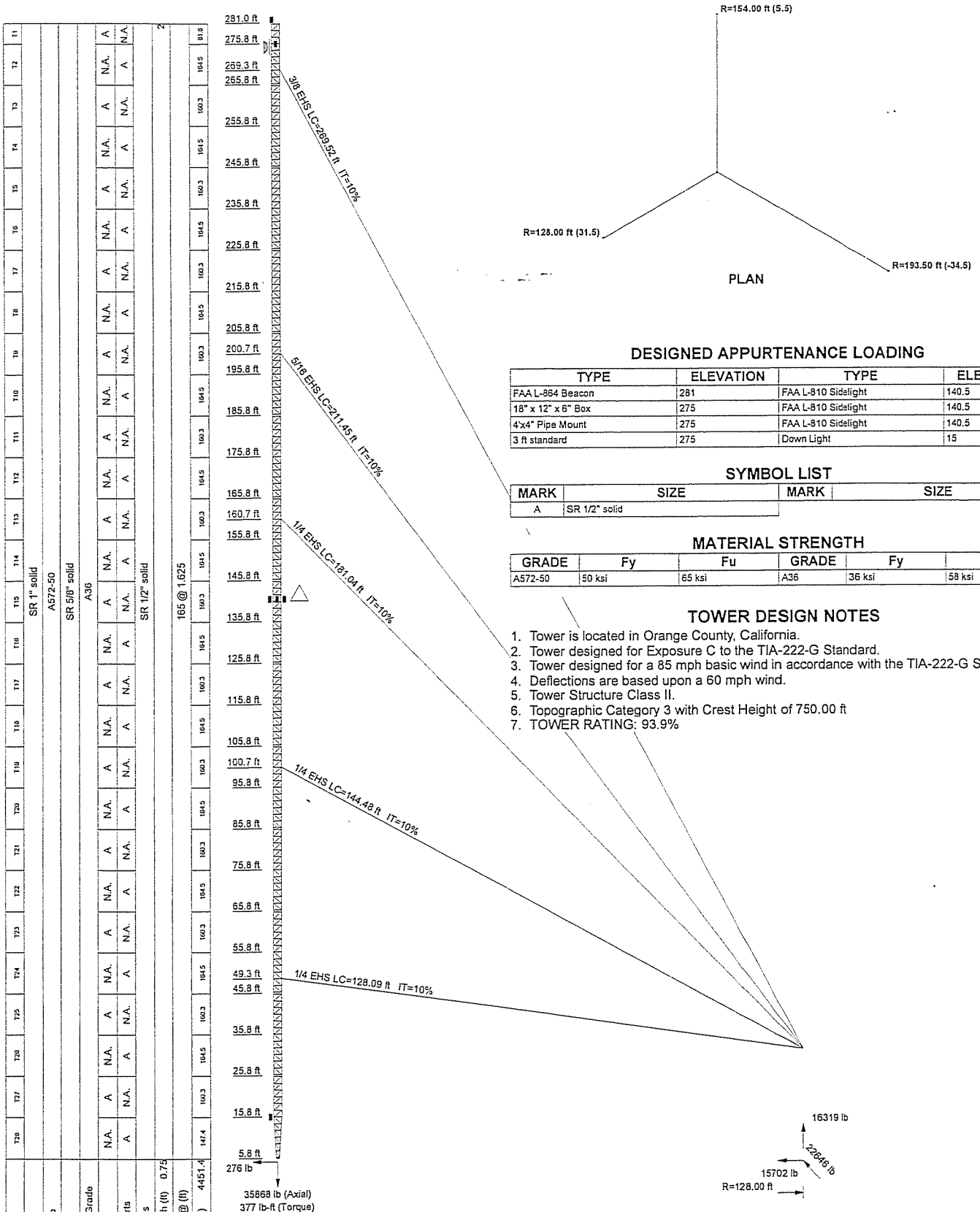
Reviewed by:
David Hawkins, P.E.
Department Manager
dhawkins@pjfweb.com



Section	T26	T27	T28	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)	0.75	2																										
# Panels @ (ft)	165 @ 1.625																											
Weight (lb)	4451.4	147.4	160.3	1645	160.3	1645	160.3	1645	160.3	1645	160.3	1645	160.3	1645	160.3	1645	160.3	1645	160.3	1645	160.3	1645	160.3	1645	160.3	1645	160.3	81.9

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
FAA L-864 Beacon	281	FAA L-810 Sidelight	140.5
18" x 12" x 6" Box	275	FAA L-810 Sidelight	140.5
4'x4" Pipe Mount	275	FAA L-810 Sidelight	140.5
3 ft standard	275	Down Light	15

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

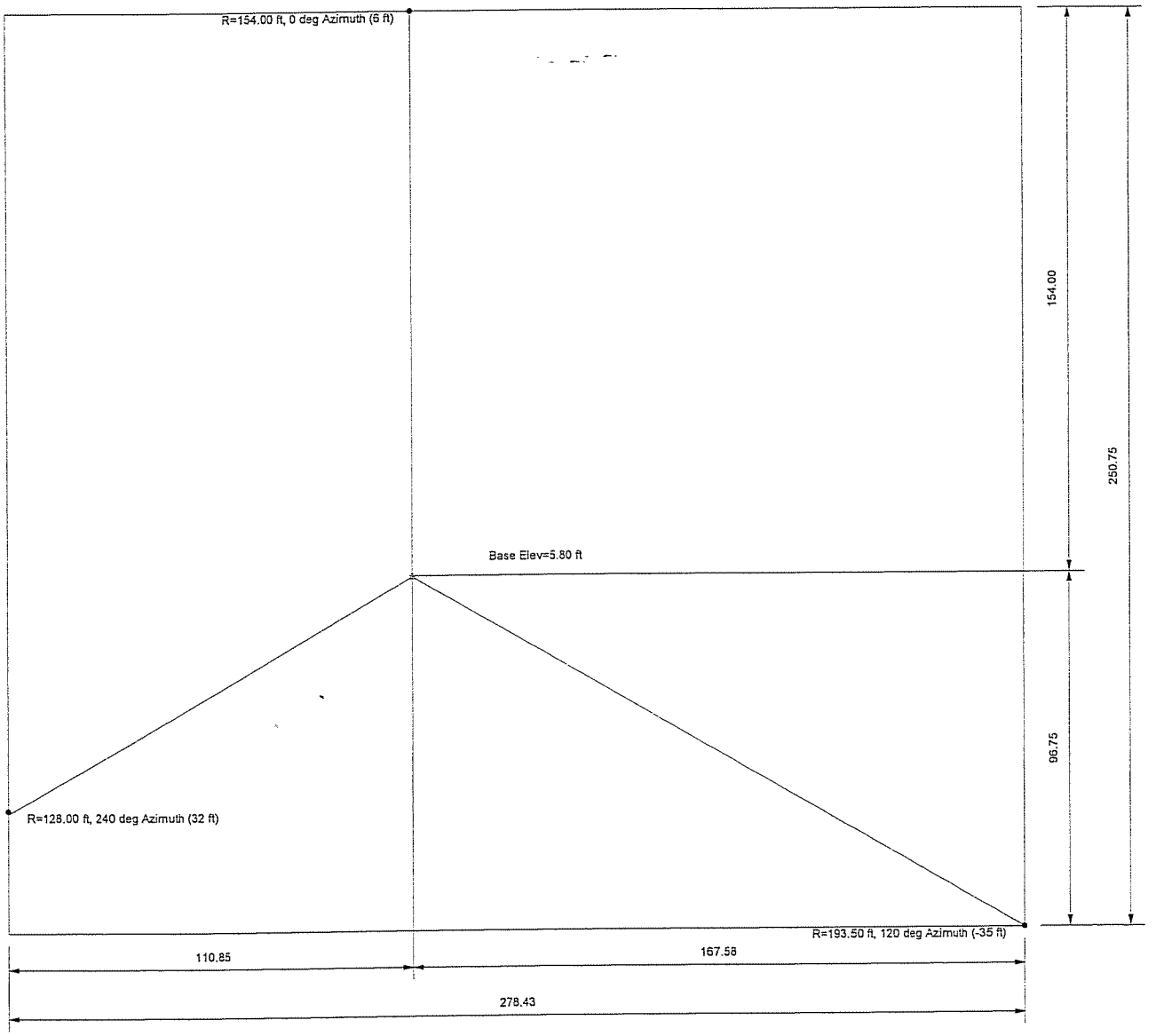
1. Tower is located in Orange County, California.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 85 mph basic wind in accordance with the TIA-222-G Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 3 with Crest Height of 750.00 ft
7. TOWER RATING: 93.9%

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#1(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 1.en		Dwg No. E-1	

Plot Plan



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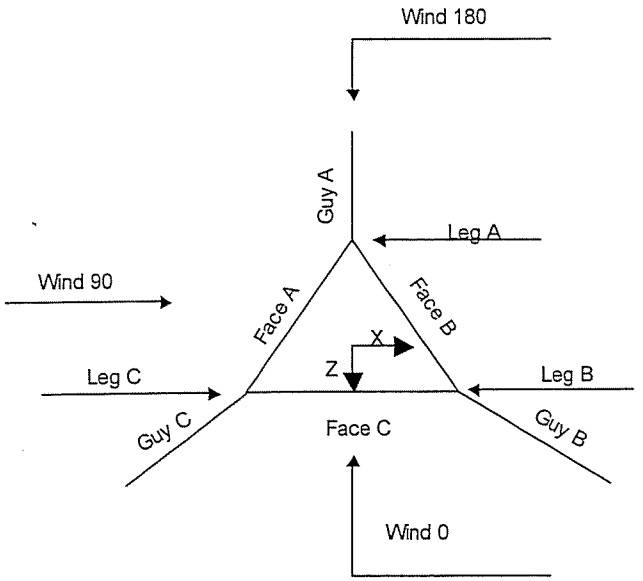
Project:	*Oak Flat in Silverado Canyon Twr#1(PJF# 65011-0012*
Client: Magnum Towers, Inc.	Drawn by: Larry A. Paxton / App'd:
Code: TIA-222-G	Date: 12/02/11 / Scale: NTS
Path: T:\650_Magnum Towers\2011\65011-0012 Orange Co., CA\65011-0012 Tower 1.eri	Dwg No. E-2

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*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*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) ft²	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	304.60	154.00	0.000	6	100%
		B	3/8	1540	10%	21000	0.27	359.25	193.50	0.000	-35	100%
		C	3/8	1540	10%	21000	0.27	269.27	128.00	0.000	32	100%

200.675	EHS	A	5/16	1120	10%	21000	0.20	247.69	154.00	0.000	6	100%
		B	5/16	1120	10%	21000	0.20	303.56	193.50	0.000	-35	100%
		C	5/16	1120	10%	21000	0.20	211.26	128.00	0.000	32	100%
160.675	EHS	A	1/4	665	10%	21000	0.12	217.62	154.00	0.000	6	100%
		B	1/4	665	10%	21000	0.12	273.80	193.50	0.000	-35	100%
		C	1/4	665	10%	21000	0.12	180.88	128.00	0.000	32	100%
100.675	EHS	A	1/4	665	10%	21000	0.12	179.90	154.00	0.000	6	100%
		B	1/4	665	10%	21000	0.12	234.90	193.50	0.000	-35	100%
		C	1/4	665	10%	21000	0.12	144.36	128.00	0.000	32	100%
49.3	EHS	A	1/4	665	10%	21000	0.12	158.86	154.00	0.000	6	100%
		B	1/4	665	10%	21000	0.12	209.64	193.50	0.000	-35	100%
		C	1/4	665	10%	21000	0.12	127.98	128.00	0.000	32	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	0.30	0.388	
					C	0.32	0.392	
200.675	3	6.000	4.000	3	A	0.24	0.327	
					B	0.23	0.324	
					C	0.25	0.329	
160.675	3	6.000	4.000	3	A	0.16	0.267	
					B	0.15	0.263	
					C	0.17	0.270	
100.675	3	6.000	4.000	3	A	0.17	0.270	
					B	0.16	0.265	
					C	0.18	0.275	
49.3	3	6.000	4.000	3	A	0.18	0.273	
					B	0.16	0.267	
					C	0.19	0.278	

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
269.3	A	137	39.78		
	B	117	39.62		
	C	150	39.80		
200.675	A	103	39.40		
	B	83	38.84		
	C	116	39.61		

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
160.675	A	83	38.84		
	B	63	37.86		
	C	96	39.24		
100.675	A	53	37.12		
	B	33	34.78		
	C	66	38.04		
49.3	A	27	33.76		
	B	7	30.86		
	C	40	35.81		

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)	275.00 - 15.00	1.000	0	1	1	0.375	0.375		1.00
3/8 CABLE	B	No	Ar (CaAa)	15.00 - 5.80	1.000	0	2	2	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
18" x 12" x 6" Box	C	From Face	0.50 0 0	0.000	275.00	No Ice	2.10	1.05	20
4'x4" Pipe Mount	C	From Leg	0.50 0 0	0.000	275.00	No Ice	1.32	1.32	44
Down Light	C	From Leg	1.00 0 0	0.000	15.00	No Ice	1.50	1.50	50

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight lb
3 ft standard	C	Paraboloid w/o Radome	From Leg	1.00 0 0	Worst		275.00	3.00	No Ice	7.06	100

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
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 @ 128 ft Elev 31.5 ft Azimuth 240 deg	Max. Vert	22	-1748	-1351	779
	Max. H_x	10	-1804	-721	417
	Max. H_z	4	-16319	-13613	7824
	Min. Vert	4	-16319	-13613	7824
	Min. H_x	4	-16319	-13613	7824
	Min. H_z	10	-1804	-721	417
Guy B @ 193.5 ft Elev -34.5 ft Azimuth 120 deg	Max. Vert	18	-1850	1460	843
	Max. H_x	12	-14551	12656	7322
	Max. H_z	13	-14416	12125	7605

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. Vert	12	-14551	12656	7322
	Min. H_x	6	-2482	1195	690
	Min. H_z	6	-2482	1195	690
Guy A @ 154 ft Elev 5.5 ft Azimuth 0 deg	Max. Vert	14	-1774	-1	-1610
	Max. H_x	11	-8411	996	-7665
	Max. H_z	2	-2051	0	-1031
	Min. Vert	8	-15704	-43	-15397
	Min. H_x	5	-9362	-1008	-8622
	Min. H_z	8	-15704	-43	-15397
Mast	Max. Vert	6	35868	-164	-51
	Max. H_x	9	32818	179	-171
	Max. H_z	3	34231	-108	254
	Max. M_x	1	0	2	1
	Max. M_z	1	0	2	1
	Max. Torsion	13	138	13	107
	Min. Vert	1	15548	2	1
	Min. H_x	5	35391	-226	27
	Min. H_z	8	32752	22	-186
	Min. M_x	1	0	2	1
	Min. M_z	1	0	2	1
	Min. Torsion	7	-377	-67	-132

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	15548	-2	-1	0	0	39
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	34766	100	-200	0	0	35
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	34231	108	-254	0	0	201
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	33821	205	-118	0	0	168
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	35391	226	-27	0	0	170
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	35868	164	51	0	0	290
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	35046	67	132	0	0	377
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	32752	-22	186	0	0	272
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	32818	-179	171	0	0	52
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	33825	-113	126	0	0	55
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	32126	-124	36	0	0	60
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	30466	-110	-99	0	0	-123
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	33185	-13	-107	0	0	-138
Dead+Wind 0 deg - Service+Guy	18029	-2	-127	0	0	-39
Dead+Wind 30 deg - Service+Guy	18833	50	-105	0	0	56

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+Wind 60 deg - Service+Guy	19279	89	-59	0	0	83
Dead+Wind 90 deg - Service+Guy	18836	109	-2	0	0	101
Dead+Wind 120 deg - Service+Guy	18195	103	59	0	0	166
Dead+Wind 150 deg - Service+Guy	18545	49	90	0	0	200
Dead+Wind 180 deg - Service+Guy	18877	-12	101	0	0	137
Dead+Wind 210 deg - Service+Guy	18481	-71	93	0	0	50
Dead+Wind 240 deg - Service+Guy	17859	-113	62	0	0	17
Dead+Wind 270 deg - Service+Guy	17865	-115	9	0	0	-4
Dead+Wind 300 deg - Service+Guy	18054	-91	-47	0	0	-68
Dead+Wind 330 deg - Service+Guy	17935	-53	-95	0	0	-105

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
281.00	FAA L-864 Beacon	16	8.26	0.185	2.312	62683
275.00	3 ft standard	16	8.06	0.184	2.302	55111
269.30	Guy	16	7.87	0.179	2.214	36995
200.68	Guy	20	4.64	0.236	1.486	9304
160.68	Guy	24	3.71	0.101	1.158	16640
140.50	FAA L-810 Sidelight	24	3.64	0.095	1.031	17350
100.68	Guy	24	2.86	0.115	0.817	15969
49.30	Guy	24	1.57	0.146	0.575	37337
15.00	Down Light	24	0.40	0.196	0.656	27875

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	281 - 275.8	48.96	6	1.225	4.689
T2	275.8 - 265.8	47.62	6	1.223	4.679
T3	265.8 - 255.8	45.09	6	1.199	4.254
T4	255.8 - 245.8	42.56	6	1.257	4.092
T5	245.8 - 235.8	39.83	6	1.359	3.641
T6	235.8 - 225.8	36.87	6	1.465	3.492
T7	225.8 - 215.8	33.70	6	1.534	3.044
T8	215.8 - 205.8	30.44	6	1.528	2.908
T9	205.8 - 195.8	27.29	6	1.409	2.464
T10	195.8 - 185.8	24.53	6	1.197	2.392
T11	185.8 - 175.8	22.22	6	1.039	1.974
T12	175.8 - 165.8	20.74	13	0.912	2.060
T13	165.8 - 155.8	19.63	13	0.786	1.646
T14	155.8 - 145.8	18.74	13	0.661	1.764
T15	145.8 - 135.8	17.99	13	0.624	1.359
T16	135.8 - 125.8	17.14	13	0.649	1.572

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T17	125.8 - 115.8	16.09	13	0.693	1.171
T18	115.8 - 105.8	14.86	13	0.716	1.398
T19	105.8 - 95.8	13.53	13	0.680	1.001
T20	95.8 - 85.8	12.30	13	0.580	1.244
T21	85.8 - 75.8	11.18	13	0.560	0.850
T22	75.8 - 65.8	10.00	13	0.605	1.168
T23	65.8 - 55.8	8.68	13	0.655	0.778
T24	55.8 - 45.8	7.32	12	0.673	1.111
T25	45.8 - 35.8	6.04	12	0.637	0.748
T26	35.8 - 25.8	4.75	12	0.649	1.121
T27	25.8 - 15.8	3.33	12	0.721	0.737
T28	15.8 - 5.8	1.73	12	0.792	1.115

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	989	20709	0.048 ✓	1	Bolt Tension
T4	255.8	Leg	A325N	0.625	2	1646	20709	0.079 ✓	1	Bolt Tension
T6	235.8	Leg	A325N	0.625	2	1142	20709	0.055 ✓	1	Bolt Tension
T8	215.8	Leg	A325N	0.625	2	2284	20709	0.110 ✓	1	Bolt Tension
T10	195.8	Leg	A325N	0.625	2	2403	20709	0.116 ✓	1	Bolt Tension
T12	175.8	Leg	A325N	0.625	2	2412	20709	0.116 ✓	1	Bolt Tension
T14	155.8	Leg	A325N	0.625	2	1876	20709	0.091 ✓	1	Bolt Tension
T16	135.8	Leg	A325N	0.625	2	2149	20709	0.104 ✓	1	Bolt Tension
T18	115.8	Leg	A325N	0.625	2	2289	20709	0.111 ✓	1	Bolt Tension
T20	95.8	Leg	A325N	0.625	2	2013	20709	0.097 ✓	1	Bolt Tension
T22	75.8	Leg	A325N	0.625	2	2092	20709	0.101 ✓	1	Bolt Tension
T24	55.8	Leg	A325N	0.625	2	2514	20709	0.121 ✓	1	Bolt Tension
T26	35.8	Leg	A325N	0.625	2	2348	20709	0.113 ✓	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	8111	9240	1.000	1.139 ✓
	269.30 (B) (1118)	3/8 EHS	1540	15400	7313	9240	1.000	1.264 ✓
	269.30 (C) (1117)	3/8 EHS	1540	15400	8679	9240	1.000	1.065 ✓
T9	200.68 (A) (1122)	5/16 EHS	1120	11200	5667	6720	1.000	1.186 ✓
	200.68 (B) (1121)	5/16 EHS	1120	11200	5208	6720	1.000	1.290 ✓

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.
	200.68 (C) (1120)	5/16 EHS	1120	11200	6002	6720	1.000	1.120 ✓
T13	160.68 (A) (1125)	1/4 EHS	665	6650	3365	3990	1.000	1.186 ✓
	160.68 (B) (1124)	1/4 EHS	665	6650	3202	3990	1.000	1.246 ✓
	160.68 (C) (1123)	1/4 EHS	665	6650	3454	3990	1.000	1.155 ✓
T19	100.68 (A) (1128)	1/4 EHS	665	6650	3252	3990	1.000	1.227 ✓
	100.68 (B) (1127)	1/4 EHS	665	6650	3180	3990	1.000	1.255 ✓
	100.68 (C) (1126)	1/4 EHS	665	6650	3244	3990	1.000	1.230 ✓
T24	49.30 (A) (1131)	1/4 EHS	665	6650	2392	3990	1.000	1.668 ✓
	49.30 (B) (1130)	1/4 EHS	665	6650	2364	3990	1.000	1.688 ✓
	49.30 (C) (1129)	1/4 EHS	665	6650	2365	3990	1.000	1.687 ✓

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	-374	22652	0.016 [1] ✓
T2	275.8 - 265.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-5936	22652	0.262 [1] ✓
T3	265.8 - 255.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.97	-8512	22049	0.386 [1] ✓
T4	255.8 - 245.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-9873	22130	0.446 [1] ✓
T5	245.8 - 235.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-9926	22130	0.449 [1] ✓
T6	235.8 - 225.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-9118	22088	0.413 [1] ✓
T7	225.8 - 215.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.97	-7612	21969	0.347 [1] ✓
T8	215.8 - 205.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-13701	22246	0.616 [1] ✓
T9	205.8 - 195.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	0.98	-17893	22193	0.806 [1] ✓
T10	195.8 - 185.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-15989	22652	0.706 [1] ✓
T11	185.8 - 175.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-14582	22652	0.644 [1] ✓
T12	175.8 - 165.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-14474	22652	0.639 [1] ✓
T13	165.8 - 155.8	1" solid	10.00	1.63	78.0	0.785	1.00	-15487	22652	0.684 [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 $\frac{P_u}{\phi P_n}$
					K=1.00					✓
T14	155.8 - 145.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-12878	22652	0.569 [1] ✓
T15	145.8 - 135.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-12778	22652	0.564 [1] ✓
T16	135.8 - 125.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-13314	22652	0.588 [1] ✓
T17	125.8 - 115.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-12894	22652	0.569 [1] ✓
T18	115.8 - 105.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-13731	22652	0.606 [1] ✓
T19	105.8 - 95.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-16148	22652	0.713 [1] ✓
T20	95.8 - 85.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-14198	22652	0.627 [1] ✓
T21	85.8 - 75.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-12907	22652	0.570 [1] ✓
T22	75.8 - 65.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-13092	22652	0.578 [1] ✓
T23	65.8 - 55.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-14075	22652	0.621 [1] ✓
T24	55.8 - 45.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-16093	22652	0.710 [1] ✓
T25	45.8 - 35.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-15084	22652	0.666 [1] ✓
T26	35.8 - 25.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-14086	22652	0.622 [1] ✓
T27	25.8 - 15.8	1" solid	10.00	1.63	78.0 K=1.00	0.785	1.00	-14280	22652	0.630 [1] ✓
T28	15.8 - 5.8	1" solid	10.03	1.63	78.2 K=1.00	0.785	1.00	-13725	22600	0.607 [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	-180	3930	0.046 [1] ✓
T2	275.8 - 265.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-1945	3930	0.495 [1] ✓
T3	265.8 - 255.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-1467	3930	0.373 [1] ✓
T4	255.8 - 245.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-963	3930	0.245 [1] ✓
T5	245.8 - 235.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-817	3930	0.208 [1] ✓
T6	235.8 - 225.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-1209	3930	0.308 [1] ✓
T7	225.8 - 215.8	5/8" solid	2.58	2.47	132.8	0.307	-1181	3930	0.301 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
					K=0.70				✓
T8	215.8 - 205.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-1699	3930	0.432 [1] ✓
T9	205.8 - 195.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-1668	3930	0.424 [1] ✓
T10	195.8 - 185.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-843	3930	0.215 [1] ✓
T11	185.8 - 175.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-709	3930	0.180 [1] ✓
T12	175.8 - 165.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-627	3930	0.160 [1] ✓
T13	165.8 - 155.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-991	3930	0.252 [1] ✓
T14	155.8 - 145.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-951	3930	0.242 [1] ✓
T15	145.8 - 135.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-762	3930	0.194 [1] ✓
T16	135.8 - 125.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-475	3930	0.121 [1] ✓
T17	125.8 - 115.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-589	3930	0.150 [1] ✓
T18	115.8 - 105.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-1013	3930	0.258 [1] ✓
T19	105.8 - 95.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-1012	3930	0.258 [1] ✓
T20	95.8 - 85.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-781	3930	0.199 [1] ✓
T21	85.8 - 75.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-448	3930	0.114 [1] ✓
T22	75.8 - 65.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-418	3930	0.106 [1] ✓
T23	65.8 - 55.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-474	3930	0.121 [1] ✓
T24	55.8 - 45.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-932	3930	0.237 [1] ✓
T25	45.8 - 35.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-642	3930	0.163 [1] ✓
T26	35.8 - 25.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-491	3930	0.125 [1] ✓
T27	25.8 - 15.8	5/8" solid	2.58	2.47	132.8 K=0.70	0.307	-202	3930	0.051 [1] ✓
T28	15.8 - 5.8	5/8" solid	1.85	1.68	90.1 K=0.70	0.307	-1428	6483	0.220 [1] ✓

[1] P_u / ϕP_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	0.196	-121	2656	0.046 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
					K=0.70				✓
T2	275.8 - 265.8	1/2" solid	2.00	1.92	128.8	0.196	-1463	2656	0.551 [1]
					K=0.70				✓
T3	265.8 - 255.8	1/2" solid	2.00	1.92	128.8	0.196	-1002	2656	0.377 [1]
					K=0.70				✓
T4	255.8 - 245.8	1/2" solid	2.00	1.92	128.8	0.196	-717	2656	0.270 [1]
					K=0.70				✓
T5	245.8 - 235.8	1/2" solid	2.00	1.92	128.8	0.196	-595	2656	0.224 [1]
					K=0.70				✓
T6	235.8 - 225.8	1/2" solid	2.00	1.92	128.8	0.196	-788	2656	0.297 [1]
					K=0.70				✓
T7	225.8 - 215.8	1/2" solid	2.00	1.92	128.8	0.196	-925	2656	0.348 [1]
					K=0.70				✓
T8	215.8 - 205.8	1/2" solid	2.00	1.92	128.8	0.196	-1141	2656	0.430 [1]
					K=0.70				✓
T9	205.8 - 195.8	1/2" solid	2.00	1.92	128.8	0.196	-1198	2656	0.451 [1]
					K=0.70				✓
T10	195.8 - 185.8	1/2" solid	2.00	1.92	128.8	0.196	-611	2656	0.230 [1]
					K=0.70				✓
T11	185.8 - 175.8	1/2" solid	2.00	1.92	128.8	0.196	-510	2656	0.192 [1]
					K=0.70				✓
T12	175.8 - 165.8	1/2" solid	2.00	1.92	128.8	0.196	-391	2656	0.147 [1]
					K=0.70				✓
T13	165.8 - 155.8	1/2" solid	2.00	1.92	128.8	0.196	-814	2656	0.307 [1]
					K=0.70				✓
T14	155.8 - 145.8	1/2" solid	2.00	1.92	128.8	0.196	-676	2656	0.254 [1]
					K=0.70				✓
T15	145.8 - 135.8	1/2" solid	2.00	1.92	128.8	0.196	-566	2656	0.213 [1]
					K=0.70				✓
T16	135.8 - 125.8	1/2" solid	2.00	1.92	128.8	0.196	-268	2656	0.101 [1]
					K=0.70				✓
T17	125.8 - 115.8	1/2" solid	2.00	1.92	128.8	0.196	-460	2656	0.173 [1]
					K=0.70				✓
T18	115.8 - 105.8	1/2" solid	2.00	1.92	128.8	0.196	-643	2656	0.242 [1]
					K=0.70				✓
T19	105.8 - 95.8	1/2" solid	2.00	1.92	128.8	0.196	-755	2656	0.284 [1]
					K=0.70				✓
T20	95.8 - 85.8	1/2" solid	2.00	1.92	128.8	0.196	-475	2656	0.179 [1]
					K=0.70				✓
T21	85.8 - 75.8	1/2" solid	2.00	1.92	128.8	0.196	-434	2656	0.163 [1]
					K=0.70				✓
T22	75.8 - 65.8	1/2" solid	2.00	1.92	128.8	0.196	-227	2656	0.085 [1]
					K=0.70				✓
T23	65.8 - 55.8	1/2" solid	2.00	1.92	128.8	0.196	-411	2656	0.155 [1]
					K=0.70				✓
T24	55.8 - 45.8	1/2" solid	2.00	1.92	128.8	0.196	-492	2656	0.185 [1]
					K=0.70				✓
T25	45.8 - 35.8	1/2" solid	2.00	1.92	128.8	0.196	-610	2656	0.229 [1]
					K=0.70				✓
T26	35.8 - 25.8	1/2" solid	2.00	1.92	128.8	0.196	-261	2656	0.098 [1]
					K=0.70				✓
T27	25.8 - 15.8	1/2" solid	2.00	1.92	128.8	0.196	-247	2656	0.093 [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	2.00	1.92	K=0.70 128.8 K=0.70	0.196	-247	2656	0.093 [1]

[1] $P_u / \phi P_n$ controls

Top 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 $\frac{P_u}{\phi P_n}$
T1	281 - 275.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-61	2656	0.023 [1]
T3	265.8 - 255.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-565	2656	0.213 [1]
T5	245.8 - 235.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-325	2656	0.122 [1]
T7	225.8 - 215.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-523	2656	0.197 [1]
T9	205.8 - 195.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-804	2656	0.303 [1]
T11	185.8 - 175.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-279	2656	0.105 [1]
T13	165.8 - 155.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-281	2656	0.106 [1]
T15	145.8 - 135.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-311	2656	0.117 [1]
T17	125.8 - 115.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-198	2656	0.075 [1]
T19	105.8 - 95.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-458	2656	0.172 [1]
T21	85.8 - 75.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-252	2656	0.095 [1]
T23	65.8 - 55.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-206	2656	0.078 [1]
T25	45.8 - 35.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-321	2656	0.121 [1]
T27	25.8 - 15.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-113	2656	0.043 [1]

[1] $P_u / \phi P_n$ 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	-539	2656	0.203 [1]
T4	255.8 - 245.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-310	2656	0.117 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T6	235.8 - 225.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-479	2656	0.180 [1] ✓
T8	215.8 - 205.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-685	2656	0.258 [1] ✓
T10	195.8 - 185.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-280	2656	0.105 [1] ✓
T12	175.8 - 165.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-237	2656	0.089 [1] ✓
T14	155.8 - 145.8	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	-176	2656	0.066 [1] ✓
T18	115.8 - 105.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-438	2656	0.165 [1] ✓
T20	95.8 - 85.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-172	2656	0.065 [1] ✓
T22	75.8 - 65.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-130	2656	0.049 [1] ✓
T24	55.8 - 45.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-273	2656	0.103 [1] ✓
T26	35.8 - 25.8	1/2" solid	2.00	1.92	128.8 K=0.70	0.196	-48	2656	0.018 [1] ✓
T28	15.8 - 5.8	1/2" solid	0.78	0.70	46.9 K=0.70	0.196	-247	5666	0.044 [1] ✓

[1] $P_u / \phi P_n$ 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	279	35343	0.008 [1] ✓
T2	275.8 - 265.8	1" solid	10.00	1.63	78.0	0.785	4183	35343	0.118 [1] ✓
T4	255.8 - 245.8	1" solid	10.00	1.63	78.0	0.785	616	35343	0.017 [1] ✓
T5	245.8 - 235.8	1" solid	10.00	1.63	78.0	0.785	670	35343	0.019 [1] ✓
T8	215.8 - 205.8	1" solid	10.00	1.63	78.0	0.785	3140	35343	0.089 [1] ✓
T9	205.8 - 195.8	1" solid	10.00	1.63	78.0	0.785	6065	35343	0.172 [1] ✓
T10	195.8 - 185.8	1" solid	10.00	1.63	78.0	0.785	4	35343	0.000 [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	179	9940	0.018 [1] ✓
T2	275.8 - 265.8	5/8" solid	2.58	2.47	189.7	0.307	1954	9940	0.197 [1] ✓
T3	265.8 - 255.8	5/8" solid	2.58	2.47	189.7	0.307	1470	9940	0.148 [1] ✓
T4	255.8 - 245.8	5/8" solid	2.58	2.47	189.7	0.307	944	9940	0.095 [1] ✓
T5	245.8 - 235.8	5/8" solid	2.58	2.47	189.7	0.307	814	9940	0.082 [1] ✓
T6	235.8 - 225.8	5/8" solid	2.58	2.47	189.7	0.307	1134	9940	0.114 [1] ✓
T7	225.8 - 215.8	5/8" solid	2.58	2.47	189.7	0.307	1242	9940	0.125 [1] ✓
T8	215.8 - 205.8	5/8" solid	2.58	2.47	189.7	0.307	1631	9940	0.164 [1] ✓
T9	205.8 - 195.8	5/8" solid	2.58	2.47	189.7	0.307	1731	9940	0.174 [1] ✓
T10	195.8 - 185.8	5/8" solid	2.58	2.47	189.7	0.307	788	9940	0.079 [1] ✓
T11	185.8 - 175.8	5/8" solid	2.58	2.47	189.7	0.307	753	9940	0.076 [1] ✓
T12	175.8 - 165.8	5/8" solid	2.58	2.47	189.7	0.307	591	9940	0.059 [1] ✓
T13	165.8 - 155.8	5/8" solid	2.58	2.47	189.7	0.307	1062	9940	0.107 [1] ✓
T14	155.8 - 145.8	5/8" solid	2.58	2.47	189.7	0.307	878	9940	0.088 [1] ✓
T15	145.8 - 135.8	5/8" solid	2.58	2.47	189.7	0.307	839	9940	0.084 [1] ✓
T16	135.8 - 125.8	5/8" solid	2.58	2.47	189.7	0.307	417	9940	0.042 [1] ✓
T17	125.8 - 115.8	5/8" solid	2.58	2.47	189.7	0.307	603	9940	0.061 [1] ✓
T18	115.8 - 105.8	5/8" solid	2.58	2.47	189.7	0.307	970	9940	0.098 [1] ✓
T19	105.8 - 95.8	5/8" solid	2.58	2.47	189.7	0.307	1042	9940	0.105 [1] ✓
T20	95.8 - 85.8	5/8" solid	2.58	2.47	189.7	0.307	616	9940	0.062 [1] ✓
T21	85.8 - 75.8	5/8" solid	2.58	2.47	189.7	0.307	648	9940	0.065 [1] ✓
T22	75.8 - 65.8	5/8" solid	2.58	2.47	189.7	0.307	287	9940	0.029 [1] ✓
T23	65.8 - 55.8	5/8" solid	2.58	2.47	189.7	0.307	532	9940	0.054 [1] ✓
T24	55.8 - 45.8	5/8" solid	2.58	2.47	189.7	0.307	686	9940	0.069 [1] ✓
T25	45.8 - 35.8	5/8" solid	2.58	2.47	189.7	0.307	895	9940	0.090 [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	
T26	35.8 - 25.8	5/8" solid	2.58	2.47	189.7	0.307	268	9940	0.027 [1] ✓
T27	25.8 - 15.8	5/8" solid	2.58	2.47	189.7	0.307	323	9940	0.032 [1] ✓
T28	15.8 - 5.8	5/8" solid	1.85	1.68	128.7	0.307	840	9940	0.085 [1] ✓

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

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	184.0	0.196	125	6362	0.020 [1] ✓
T2	275.8 - 265.8	1/2" solid	2.00	1.92	184.0	0.196	2847	6362	0.448 [1] ✓
T3	265.8 - 255.8	1/2" solid	2.00	1.92	184.0	0.196	1003	6362	0.158 [1] ✓
T4	255.8 - 245.8	1/2" solid	2.00	1.92	184.0	0.196	720	6362	0.113 [1] ✓
T5	245.8 - 235.8	1/2" solid	2.00	1.92	184.0	0.196	556	6362	0.087 [1] ✓
T6	235.8 - 225.8	1/2" solid	2.00	1.92	184.0	0.196	800	6362	0.126 [1] ✓
T7	225.8 - 215.8	1/2" solid	2.00	1.92	184.0	0.196	886	6362	0.139 [1] ✓
T8	215.8 - 205.8	1/2" solid	2.00	1.92	184.0	0.196	1154	6362	0.181 [1] ✓
T9	205.8 - 195.8	1/2" solid	2.00	1.92	184.0	0.196	2091	6362	0.329 [1] ✓
T10	195.8 - 185.8	1/2" solid	2.00	1.92	184.0	0.196	627	6362	0.099 [1] ✓
T11	185.8 - 175.8	1/2" solid	2.00	1.92	184.0	0.196	468	6362	0.074 [1] ✓
T12	175.8 - 165.8	1/2" solid	2.00	1.92	184.0	0.196	417	6362	0.066 [1] ✓
T13	165.8 - 155.8	1/2" solid	2.00	1.92	184.0	0.196	1317	6362	0.207 [1] ✓
T14	155.8 - 145.8	1/2" solid	2.00	1.92	184.0	0.196	708	6362	0.111 [1] ✓
T15	145.8 - 135.8	1/2" solid	2.00	1.92	184.0	0.196	495	6362	0.078 [1] ✓
T16	135.8 - 125.8	1/2" solid	2.00	1.92	184.0	0.196	311	6362	0.049 [1] ✓
T17	125.8 - 115.8	1/2" solid	2.00	1.92	184.0	0.196	433	6362	0.068 [1] ✓
T18	115.8 - 105.8	1/2" solid	2.00	1.92	184.0	0.196	702	6362	0.110 [1] ✓
T19	105.8 - 95.8	1/2" solid	2.00	1.92	184.0	0.196	1270	6362	0.200 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T20	95.8 - 85.8	1/2" solid	2.00	1.92	184.0	0.196	575	6362	0.090 [1]
T21	85.8 - 75.8	1/2" solid	2.00	1.92	184.0	0.196	297	6362	0.047 [1]
T22	75.8 - 65.8	1/2" solid	2.00	1.92	184.0	0.196	248	6362	0.039 [1]
T23	65.8 - 55.8	1/2" solid	2.00	1.92	184.0	0.196	337	6362	0.053 [1]
T24	55.8 - 45.8	1/2" solid	2.00	1.92	184.0	0.196	1167	6362	0.184 [1]
T25	45.8 - 35.8	1/2" solid	2.00	1.92	184.0	0.196	412	6362	0.065 [1]
T26	35.8 - 25.8	1/2" solid	2.00	1.92	184.0	0.196	347	6362	0.055 [1]
T27	25.8 - 15.8	1/2" solid	2.00	1.92	184.0	0.196	247	6362	0.039 [1]
T28	15.8 - 5.8	1/2" solid	2.00	1.92	184.0	0.196	599	6362	0.094 [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	61	6362	0.010 [1]
T3	265.8 - 255.8	1/2" solid	2.00	1.92	184.0	0.196	525	6362	0.083 [1]
T5	245.8 - 235.8	1/2" solid	2.00	1.92	184.0	0.196	311	6362	0.049 [1]
T7	225.8 - 215.8	1/2" solid	2.00	1.92	184.0	0.196	503	6362	0.079 [1]
T9	205.8 - 195.8	1/2" solid	2.00	1.92	184.0	0.196	701	6362	0.110 [1]
T11	185.8 - 175.8	1/2" solid	2.00	1.92	184.0	0.196	269	6362	0.042 [1]
T13	165.8 - 155.8	1/2" solid	2.00	1.92	184.0	0.196	257	6362	0.040 [1]
T15	145.8 - 135.8	1/2" solid	2.00	1.92	184.0	0.196	276	6362	0.043 [1]
T17	125.8 - 115.8	1/2" solid	2.00	1.92	184.0	0.196	204	6362	0.032 [1]
T19	105.8 - 95.8	1/2" solid	2.00	1.92	184.0	0.196	458	6362	0.072 [1]
T21	85.8 - 75.8	1/2" solid	2.00	1.92	184.0	0.196	151	6362	0.024 [1]
T23	65.8 - 55.8	1/2" solid	2.00	1.92	184.0	0.196	156	6362	0.024 [1]
T25	45.8 - 35.8	1/2" solid	2.00	1.92	184.0	0.196	256	6362	0.040 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $P_u / \phi P_n$
T27	25.8 - 15.8	1/2" solid	2.00	1.92	184.0	0.196	27	6362	0.004 [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 $P_u / \phi P_n$
T2	275.8 - 265.8	1/2" solid	2.00	1.92	184.0	0.196	588	6362	0.092 [1] ✓
T4	255.8 - 245.8	1/2" solid	2.00	1.92	184.0	0.196	348	6362	0.055 [1] ✓
T6	235.8 - 225.8	1/2" solid	2.00	1.92	184.0	0.196	504	6362	0.079 [1] ✓
T8	215.8 - 205.8	1/2" solid	2.00	1.92	184.0	0.196	790	6362	0.124 [1] ✓
T10	195.8 - 185.8	1/2" solid	2.00	1.92	184.0	0.196	296	6362	0.046 [1] ✓
T12	175.8 - 165.8	1/2" solid	2.00	1.92	184.0	0.196	269	6362	0.042 [1] ✓
T14	155.8 - 145.8	1/2" solid	2.00	1.92	184.0	0.196	334	6362	0.053 [1] ✓
T16	135.8 - 125.8	1/2" solid	2.00	1.92	184.0	0.196	180	6362	0.028 [1] ✓
T18	115.8 - 105.8	1/2" solid	2.00	1.92	184.0	0.196	444	6362	0.070 [1] ✓
T20	95.8 - 85.8	1/2" solid	2.00	1.92	184.0	0.196	275	6362	0.043 [1] ✓
T22	75.8 - 65.8	1/2" solid	2.00	1.92	184.0	0.196	186	6362	0.029 [1] ✓
T24	55.8 - 45.8	1/2" solid	2.00	1.92	184.0	0.196	339	6362	0.053 [1] ✓
T26	35.8 - 25.8	1/2" solid	2.00	1.92	184.0	0.196	117	6362	0.018 [1] ✓
T28	15.8 - 5.8	1/2" solid	0.78	0.70	67.0	0.196	373	6362	0.059 [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	-374	22652	1.6	Pass
T2	275.8 - 265.8	Leg	1" solid	22	-5936	22652	26.2	Pass
T3	265.8 - 255.8	Leg	1" solid	64	-8512	22049	38.6	Pass
T4	255.8 - 245.8	Leg	1" solid	103	-9873	22130	44.6	Pass
T5	245.8 - 235.8	Leg	1" solid	145	-9926	22130	44.9	Pass
T6	235.8 - 225.8	Leg	1" solid	184	-9118	22088	41.3	Pass
T7	225.8 - 215.8	Leg	1" solid	227	-7612	21969	34.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T8	215.8 - 205.8	Leg	1" solid	266	-13701	22246	61.6	Pass
T9	205.8 - 195.8	Leg	1" solid	308	-17893	22193	80.6	Pass
T10	195.8 - 185.8	Leg	1" solid	347	-15989	22652	70.6	Pass
T11	185.8 - 175.8	Leg	1" solid	389	-14582	22652	64.4	Pass
T12	175.8 - 165.8	Leg	1" solid	428	-14474	22652	63.9	Pass
T13	165.8 - 155.8	Leg	1" solid	470	-15487	22652	68.4	Pass
T14	155.8 - 145.8	Leg	1" solid	509	-12878	22652	56.9	Pass
T15	145.8 - 135.8	Leg	1" solid	551	-12778	22652	56.4	Pass
T16	135.8 - 125.8	Leg	1" solid	590	-13314	22652	58.8	Pass
T17	125.8 - 115.8	Leg	1" solid	632	-12894	22652	56.9	Pass
T18	115.8 - 105.8	Leg	1" solid	671	-13731	22652	60.6	Pass
T19	105.8 - 95.8	Leg	1" solid	713	-16148	22652	71.3	Pass
T20	95.8 - 85.8	Leg	1" solid	752	-14198	22652	62.7	Pass
T21	85.8 - 75.8	Leg	1" solid	794	-12907	22652	57.0	Pass
T22	75.8 - 65.8	Leg	1" solid	833	-13092	22652	57.8	Pass
T23	65.8 - 55.8	Leg	1" solid	875	-14075	22652	62.1	Pass
T24	55.8 - 45.8	Leg	1" solid	914	-16093	22652	71.0	Pass
T25	45.8 - 35.8	Leg	1" solid	956	-15084	22652	66.6	Pass
T26	35.8 - 25.8	Leg	1" solid	996	-14086	22652	62.2	Pass
T27	25.8 - 15.8	Leg	1" solid	1038	-14280	22652	63.0	Pass
T28	15.8 - 5.8	Leg	1" solid	1075	-13725	22600	60.7	Pass
T1	281 - 275.8	Diagonal	5/8" solid	13	-180	3930	4.6	Pass
T2	275.8 - 265.8	Diagonal	5/8" solid	57	-1945	3930	49.5	Pass
T3	265.8 - 255.8	Diagonal	5/8" solid	101	-1467	3930	37.3	Pass
T4	255.8 - 245.8	Diagonal	5/8" solid	143	-963	3930	24.5	Pass
T5	245.8 - 235.8	Diagonal	5/8" solid	182	-817	3930	20.8	Pass
T6	235.8 - 225.8	Diagonal	5/8" solid	193	-1209	3930	30.8	Pass
T7	225.8 - 215.8	Diagonal	5/8" solid	262	-1181	3930	30.1	Pass
T8	215.8 - 205.8	Diagonal	5/8" solid	274	-1699	3930	43.2	Pass
T9	205.8 - 195.8	Diagonal	5/8" solid	343	-1668	3930	42.4	Pass
T10	195.8 - 185.8	Diagonal	5/8" solid	386	-843	3930	21.5	Pass
T11	185.8 - 175.8	Diagonal	5/8" solid	425	-709	3930	18.0	Pass
T12	175.8 - 165.8	Diagonal	5/8" solid	436	-627	3930	16.0	Pass
T13	165.8 - 155.8	Diagonal	5/8" solid	488	-991	3930	25.2	Pass
T14	155.8 - 145.8	Diagonal	5/8" solid	548	-951	3930	24.2	Pass
T15	145.8 - 135.8	Diagonal	5/8" solid	587	-762	3930	19.4	Pass
T16	135.8 - 125.8	Diagonal	5/8" solid	600	-475	3930	12.1	Pass
T17	125.8 - 115.8	Diagonal	5/8" solid	637	-589	3930	15.0	Pass
T18	115.8 - 105.8	Diagonal	5/8" solid	681	-1013	3930	25.8	Pass
T19	105.8 - 95.8	Diagonal	5/8" solid	748	-1012	3930	25.8	Pass
T20	95.8 - 85.8	Diagonal	5/8" solid	791	-781	3930	19.9	Pass
T21	85.8 - 75.8	Diagonal	5/8" solid	830	-448	3930	11.4	Pass
T22	75.8 - 65.8	Diagonal	5/8" solid	841	-418	3930	10.6	Pass
T23	65.8 - 55.8	Diagonal	5/8" solid	880	-474	3930	12.1	Pass
T24	55.8 - 45.8	Diagonal	5/8" solid	923	-932	3930	23.7	Pass
T25	45.8 - 35.8	Diagonal	5/8" solid	992	-642	3930	16.3	Pass
T26	35.8 - 25.8	Diagonal	5/8" solid	1034	-491	3930	12.5	Pass
T27	25.8 - 15.8	Diagonal	5/8" solid	1042	-202	3930	5.1	Pass
T28	15.8 - 5.8	Diagonal	5/8" solid	1086	-1428	6483	22.0	Pass
T1	281 - 275.8	Horizontal	1/2" solid	16	-121	2656	4.6	Pass
T2	275.8 - 265.8	Horizontal	1/2" solid	52	-1463	2656	55.1	Pass
T3	265.8 - 255.8	Horizontal	1/2" solid	98	-1002	2656	37.7	Pass
T4	255.8 - 245.8	Horizontal	1/2" solid	140	-717	2656	27.0	Pass
T5	245.8 - 235.8	Horizontal	1/2" solid	154	-595	2656	22.4	Pass
T6	235.8 - 225.8	Horizontal	1/2" solid	198	-788	2656	29.7	Pass
T7	225.8 - 215.8	Horizontal	1/2" solid	235	-925	2656	34.8	Pass
T8	215.8 - 205.8	Horizontal	1/2" solid	279	-1141	2656	43.0	Pass
T9	205.8 - 195.8	Horizontal	1/2" solid	342	-1198	2656	45.1	Pass
T10	195.8 - 185.8	Horizontal	1/2" solid	383	-611	2656	23.0	Pass
T11	185.8 - 175.8	Horizontal	1/2" solid	422	-510	2656	19.2	Pass
T12	175.8 - 165.8	Horizontal	1/2" solid	439	-391	2656	14.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T13	165.8 - 155.8	Horizontal	1/2" solid	485	-814	2656	30.7	Pass
T14	155.8 - 145.8	Horizontal	1/2" solid	545	-676	2656	25.4	Pass
T15	145.8 - 135.8	Horizontal	1/2" solid	584	-566	2656	21.3	Pass
T16	135.8 - 125.8	Horizontal	1/2" solid	601	-268	2656	10.1	Pass
T17	125.8 - 115.8	Horizontal	1/2" solid	642	-460	2656	17.3	Pass
T18	115.8 - 105.8	Horizontal	1/2" solid	682	-643	2656	24.2	Pass
T19	105.8 - 95.8	Horizontal	1/2" solid	747	-755	2656	28.4	Pass
T20	95.8 - 85.8	Horizontal	1/2" solid	788	-475	2656	17.9	Pass
T21	85.8 - 75.8	Horizontal	1/2" solid	827	-434	2656	16.3	Pass
T22	75.8 - 65.8	Horizontal	1/2" solid	835	-227	2656	8.5	Pass
T23	65.8 - 55.8	Horizontal	1/2" solid	883	-411	2656	15.5	Pass
T24	55.8 - 45.8	Horizontal	1/2" solid	926	-492	2656	18.5	Pass
T25	45.8 - 35.8	Horizontal	1/2" solid	989	-610	2656	22.9	Pass
T26	35.8 - 25.8	Horizontal	1/2" solid	998	-261	2656	9.8	Pass
T27	25.8 - 15.8	Horizontal	1/2" solid	1047	-247	2656	9.3	Pass
T28	15.8 - 5.8	Horizontal	1/2" solid	1080	599	6362	9.4	Pass
T1	281 - 275.8	Top Girt	1/2" solid	4	-61	2656	2.3	Pass
T3	265.8 - 255.8	Top Girt	1/2" solid	68	-565	2656	21.3	Pass
T5	245.8 - 235.8	Top Girt	1/2" solid	149	-325	2656	12.2	Pass
T7	225.8 - 215.8	Top Girt	1/2" solid	229	-523	2656	19.7	Pass
T9	205.8 - 195.8	Top Girt	1/2" solid	310	-804	2656	30.3	Pass
T11	185.8 - 175.8	Top Girt	1/2" solid	392	-279	2656	10.5	Pass
T13	165.8 - 155.8	Top Girt	1/2" solid	472	-281	2656	10.6	Pass
T15	145.8 - 135.8	Top Girt	1/2" solid	554	-311	2656	11.7	Pass
T17	125.8 - 115.8	Top Girt	1/2" solid	634	-198	2656	7.5	Pass
T19	105.8 - 95.8	Top Girt	1/2" solid	715	-458	2656	17.2	Pass
T21	85.8 - 75.8	Top Girt	1/2" solid	797	-252	2656	9.5	Pass
T23	65.8 - 55.8	Top Girt	1/2" solid	877	-206	2656	7.8	Pass
T25	45.8 - 35.8	Top Girt	1/2" solid	960	-321	2656	12.1	Pass
T27	25.8 - 15.8	Top Girt	1/2" solid	1041	-113	2656	4.3	Pass
T2	275.8 - 265.8	Bottom Girt	1/2" solid	29	-539	2656	20.3	Pass
T4	255.8 - 245.8	Bottom Girt	1/2" solid	111	-310	2656	11.7	Pass
T6	235.8 - 225.8	Bottom Girt	1/2" solid	190	-479	2656	18.0	Pass
T8	215.8 - 205.8	Bottom Girt	1/2" solid	271	-685	2656	25.8	Pass
T10	195.8 - 185.8	Bottom Girt	1/2" solid	353	-280	2656	10.5	Pass
T12	175.8 - 165.8	Bottom Girt	1/2" solid	433	-237	2656	8.9	Pass
T14	155.8 - 145.8	Bottom Girt	1/2" solid	515	-297	2656	11.2	Pass
T16	135.8 - 125.8	Bottom Girt	1/2" solid	595	-176	2656	6.6	Pass
T18	115.8 - 105.8	Bottom Girt	1/2" solid	676	-438	2656	16.5	Pass
T20	95.8 - 85.8	Bottom Girt	1/2" solid	758	-172	2656	6.5	Pass
T22	75.8 - 65.8	Bottom Girt	1/2" solid	838	-130	2656	4.9	Pass
T24	55.8 - 45.8	Bottom Girt	1/2" solid	921	-273	2656	10.3	Pass
T26	35.8 - 25.8	Bottom Girt	1/2" solid	1001	117	6362	1.8	Pass
T28	15.8 - 5.8	Bottom Girt	1/2" solid	1081	373	6362	5.9	Pass
T2	275.8 - 265.8	Guy A@269.3	3/8	1119	8111	9240	87.8	Pass
T9	205.8 - 195.8	Guy A@200.675	5/16	1122	5667	6720	84.3	Pass
T13	165.8 - 155.8	Guy A@160.675	1/4	1125	3365	3990	84.3	Pass
T19	105.8 - 95.8	Guy A@100.675	1/4	1128	3252	3990	81.5	Pass
T24	55.8 - 45.8	Guy A@49.3	1/4	1131	2392	3990	60.0	Pass
T2	275.8 - 265.8	Guy B@269.3	3/8	1118	7313	9240	79.1	Pass
T9	205.8 - 195.8	Guy B@200.675	5/16	1121	5208	6720	77.5	Pass
T13	165.8 - 155.8	Guy B@160.675	1/4	1124	3202	3990	80.2	Pass
T19	105.8 - 95.8	Guy B@100.675	1/4	1127	3180	3990	79.7	Pass
T24	55.8 - 45.8	Guy B@49.3	1/4	1130	2364	3990	59.2	Pass
T2	275.8 - 265.8	Guy C@269.3	3/8	1117	8679	9240	93.9	Pass
T9	205.8 - 195.8	Guy C@200.675	5/16	1120	6002	6720	89.3	Pass
T13	165.8 - 155.8	Guy C@160.675	1/4	1123	3454	3990	86.6	Pass
T19	105.8 - 95.8	Guy C@100.675	1/4	1126	3244	3990	81.3	Pass
T24	55.8 - 45.8	Guy C@49.3	1/4	1129	2365	3990	59.3	Pass
							Summary	
						Leg (T9)	80.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						Diagonal (T2)	49.5	Pass
						Horizontal (T2)	55.1	Pass
						Top Girt (T9)	30.3	Pass
						Bottom Girt (T8)	25.8	Pass
						Guy A (T2)	87.8	Pass
						Guy B (T13)	80.2	Pass
						Guy C (T2)	93.9	Pass
						Bolt Checks	12.1	Pass
						RATING =	**93.9**	**Pass**

tnxTower	Job: 281-ft Guyed Tower; Orange County, CA	Page: 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	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
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	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
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	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
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 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
T26 35.80-25.80	30.80	0.988	17.14	20.833	A	0.000	2.997	1.667	55.60	0.000	0.000
					B	0.000	2.997		55.60	1.125	0.000
					C	0.000	2.997		55.60	0.000	0.000
T27 25.80-15.80	20.80	0.909	16.06	20.833	A	0.000	2.918	1.667	57.13	0.000	0.000
					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

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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

$\phi R_n = \phi F'_{nt} A_b$ (AISC 13TH J3-2)

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

$= 0.75\left(1.3 \times 0.75 \times 58 - \frac{0.75 \times 58}{0.75 \times 0.4 \times 58} \times 15.4\right)(0.601)(4)$

$= 32.5$ KIPS

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

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

$\phi = 0.75$

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

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

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

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

$\psi_{c,N} = 1.25$

$\psi_{cp,N} = 1.0$

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

$RATIO = \frac{21.3}{129.4} = 0.16$ ✓

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

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

$\phi = 0.65$

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

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

$\psi_{ec,V} = 1.0$

$\psi_{ed,V} = 0.985$

$\psi_{c,V} = 1.4$

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

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

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

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

$\phi = 0.75$

$\psi_{c,P} = 1.4$

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

RATIO = $\frac{21.3}{39.9} = 0.53$ ✓

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

$\phi = 0.75$

$C_{a1} = 9.7\ IN$

$A_{brg} = 1.19$

$\lambda = 1.0$

RATIO = $\frac{21.3}{80.3} = 0.27$ ✓

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

$\phi = 0.65$

$K_{cp} = 2.0$

$N_{cbg} = 45.5$

RATIO = $\frac{15.4}{59.15} = 0.26$ ✓

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Page	1	of	1
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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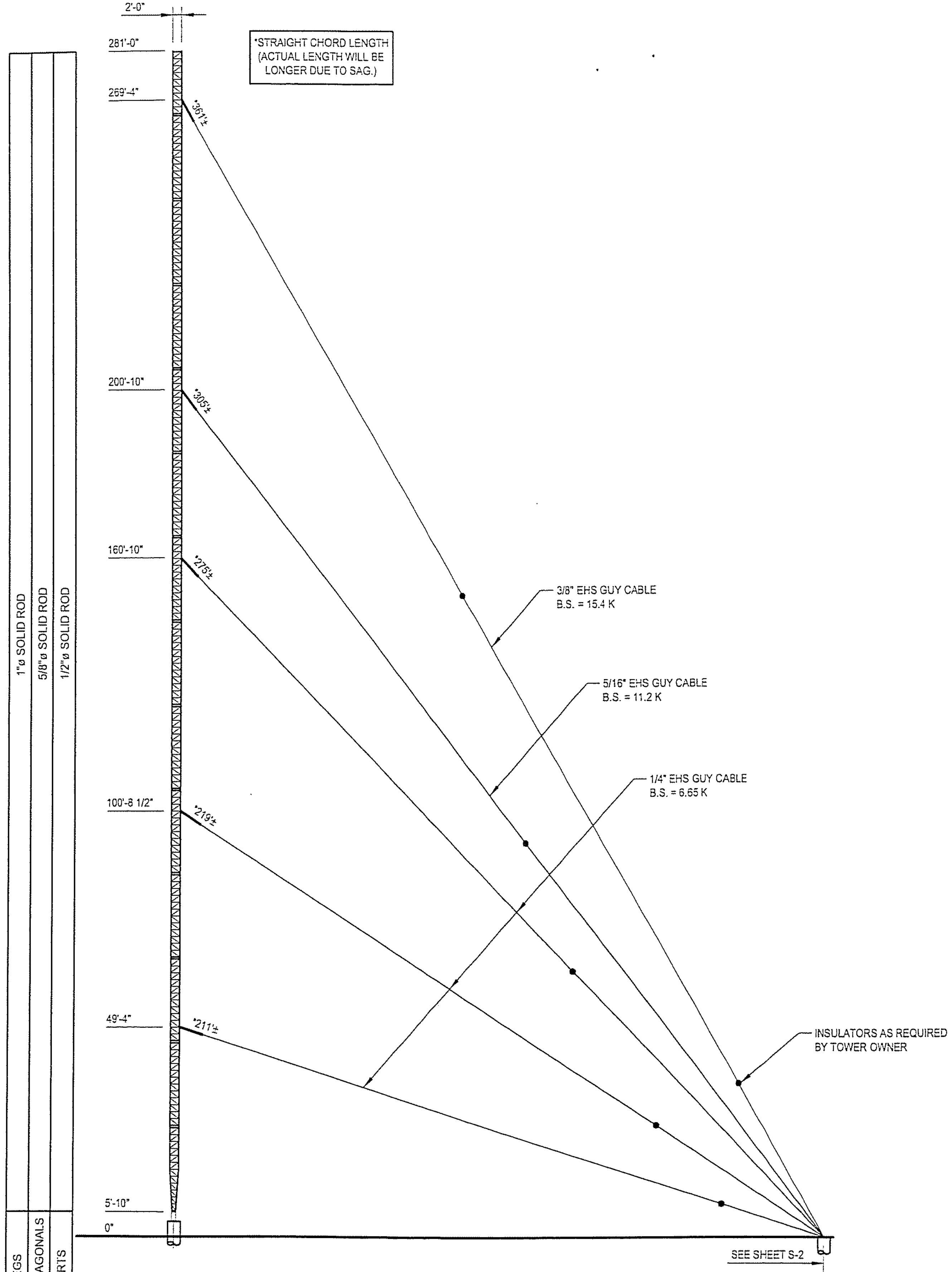
By LAP Date 11/14/2011
Project # 65011-0012

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"
275'	(1)	3' DISH	(1) 3/8"
140'-6"	(3)	OBSTRUCTION LIGHT	(1) 3/4"
15'	(1)	DOWN LIGHT	(1) 3/8"

FOUNDATION REACTIONS

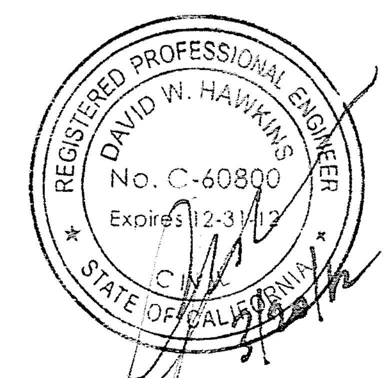
BASE AXIAL: 35.7 K
BASE SHEAR: 0.28 K

GUY ANCHOR VERTICAL: 16.3 K
GUY ANCHOR HORIZONTAL: 15.7 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-6 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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EB-0002848

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PH: (916) 381-5053 FAX: (916) 381-2144

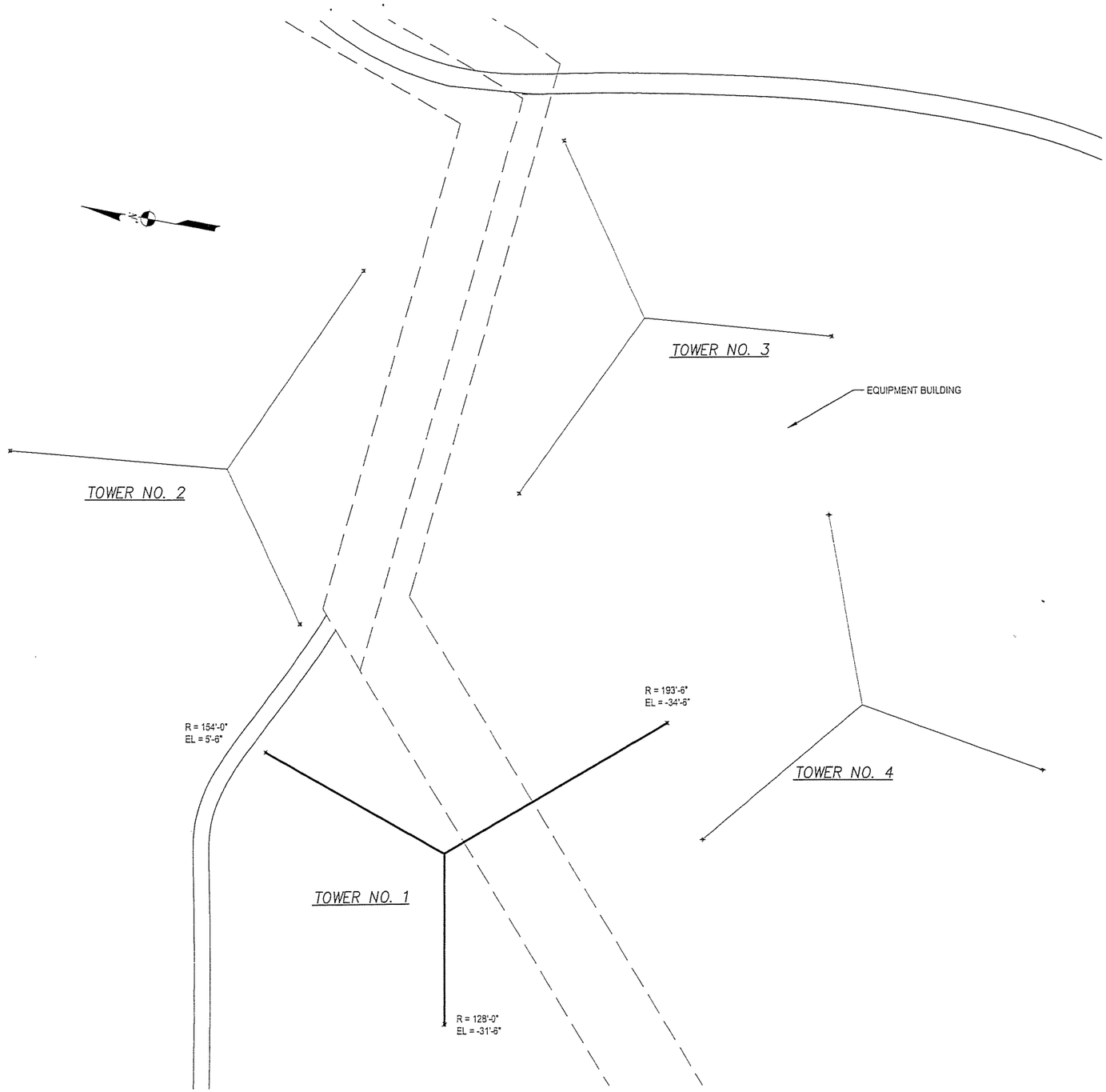
OAK FLAT-SILVERADO CANYON ORANGE CO., CALIFORNIA 281' GUYED AM TOWER #1

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

65011-0012A R1.DWG



SITE LAYOUT PLAN (1 / S-2)

1 3-20-2012

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ORANGE CO., CALIFORNIA
281' GUYED AM TOWER #1

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

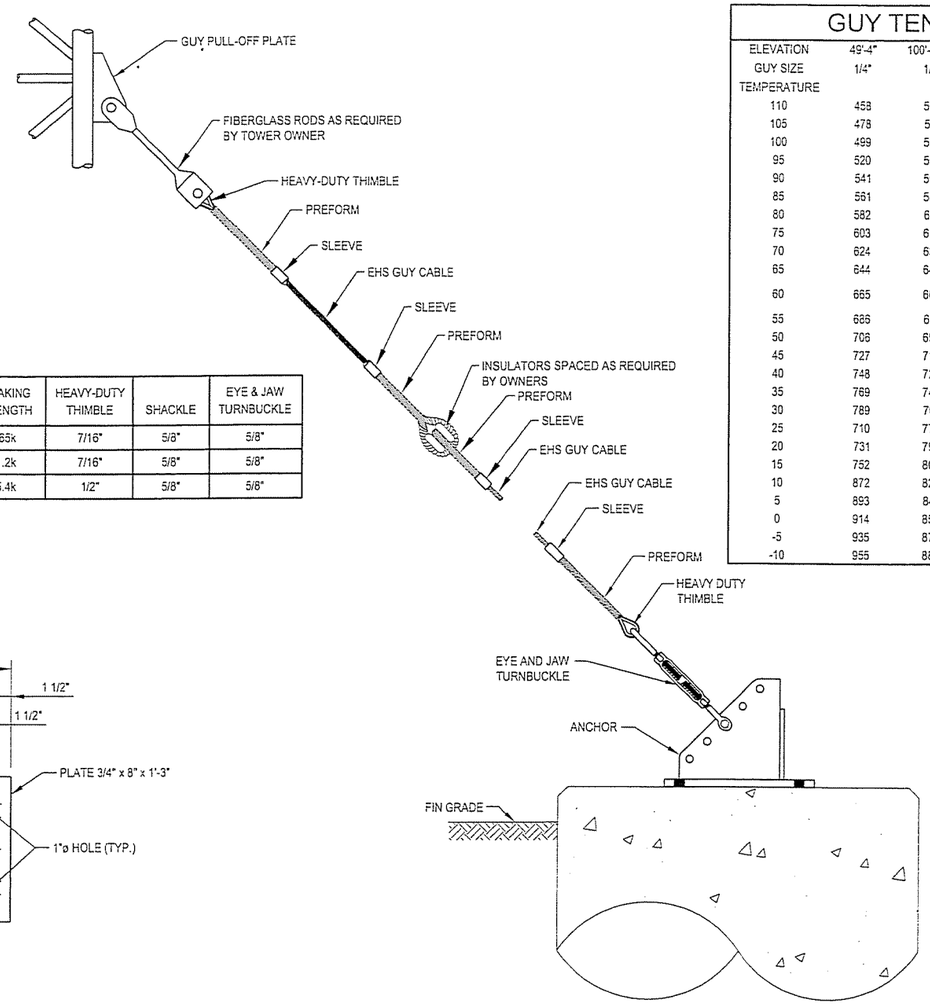
GUY TOWER
SITE PLAN

S-2

SHEET 2 OF 6

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

65011-0012A 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

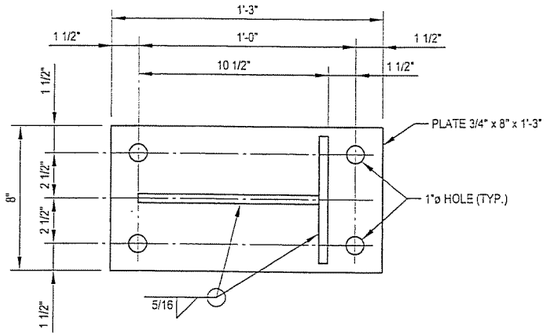
ELEVATION	49'-4"	100'-8 1/2"	160'-10"	200'-10"	269'4"
GUY SIZE	1/4"	1/4"	1/4"	5/16"	3/8"
TEMPERATURE					
110	458	505	556	977	1413
105	478	521	567	991	1426
100	499	537	577	1006	1439
95	520	553	588	1020	1451
90	541	569	599	1034	1464
85	561	585	610	1048	1477
80	582	601	621	1063	1489
75	603	617	632	1077	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	889	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.



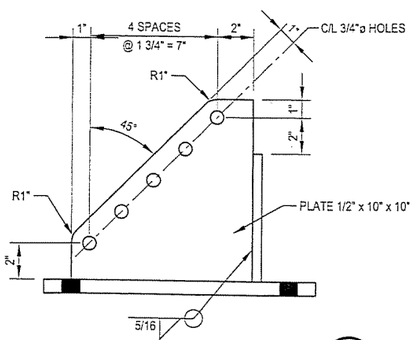
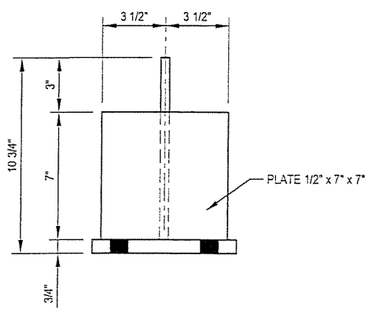


PLATE 1 / S-3



1 3-20-2012

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OAK FLAT-SILVERADO CANYON
ORANGE CO., CALIFORNIA
281' GUYED AM TOWER #1

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

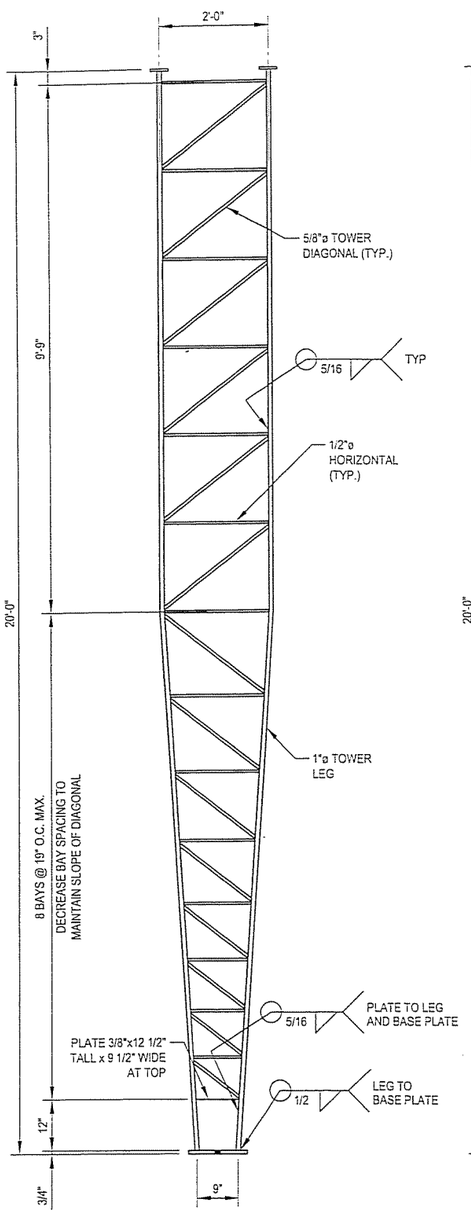
PLOT PLAN
GUY CABLE
TENSION CHART

S-3

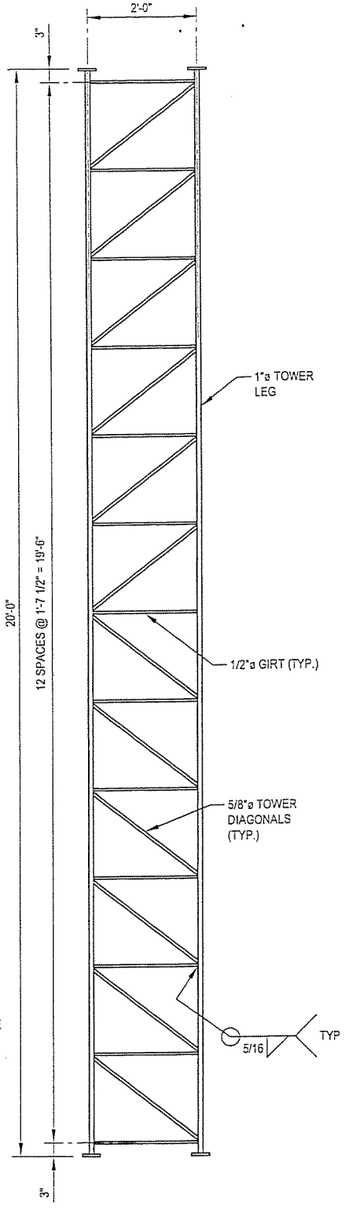
SHEET 3 OF 6

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

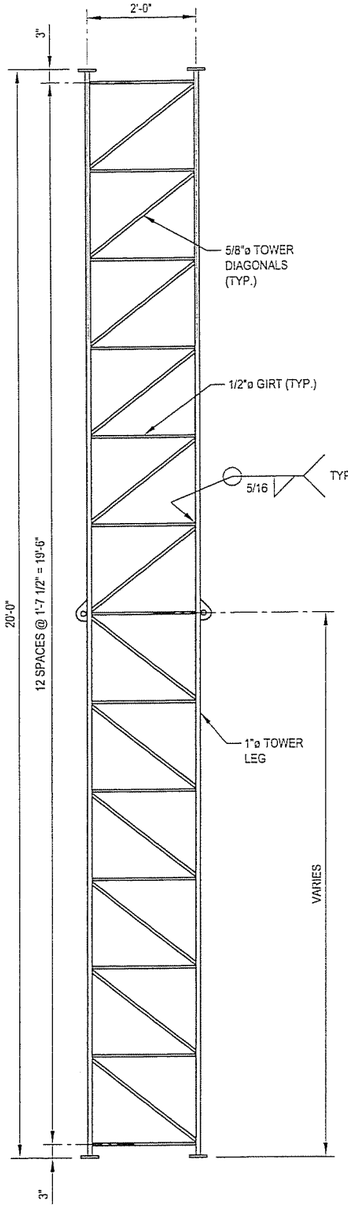
65011-0012A R1.DWG



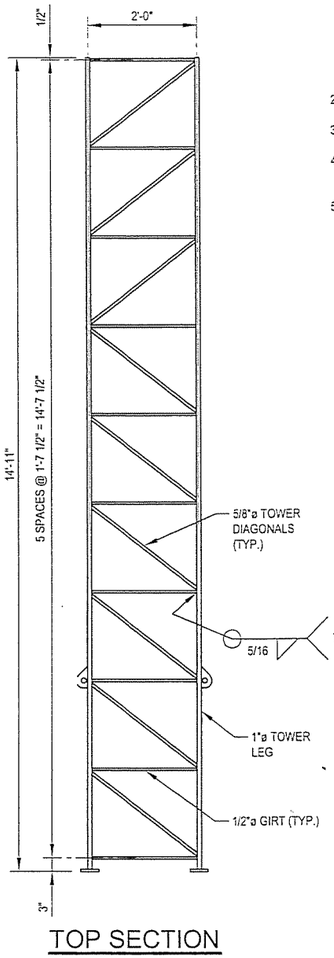
BASE SECTION



TYPICAL SECTION



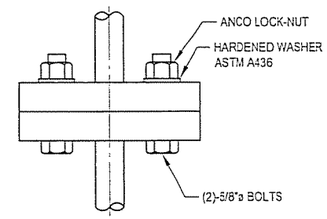
TYPICAL SECTION
(AT GUY PULLOFF)



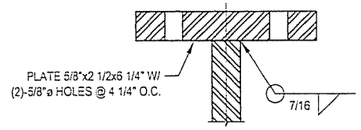
TOP SECTION

STEEL NOTES:

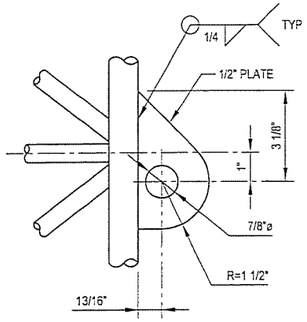
1. ALL STEEL SHALL CONFORM TO THE FOLLOWING:
   a. SOLID ROD LEGS: ASTM A572 GR 50 (50 KSI YIELD POINT MATERIAL)
   b. FLANGE PLATES: ASTM A572 GR 50 (50 KSI YIELD POINT MATERIAL)
   c. STRUCTURAL BOLTS: ASTM A325
   d. ANCHOR RODS: ASTM A36
   e. ALL OTHER STEEL SHAPES: ASTM A36 (36 KSI YIELD POINT 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.



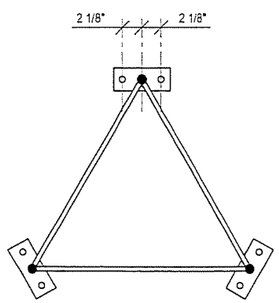
CONNECTION DETAIL



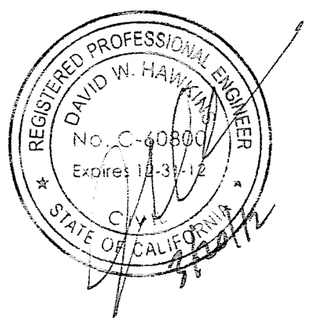
SECTION



GUY PULLOFF DETAIL



SPLICE



1 3-20-2012

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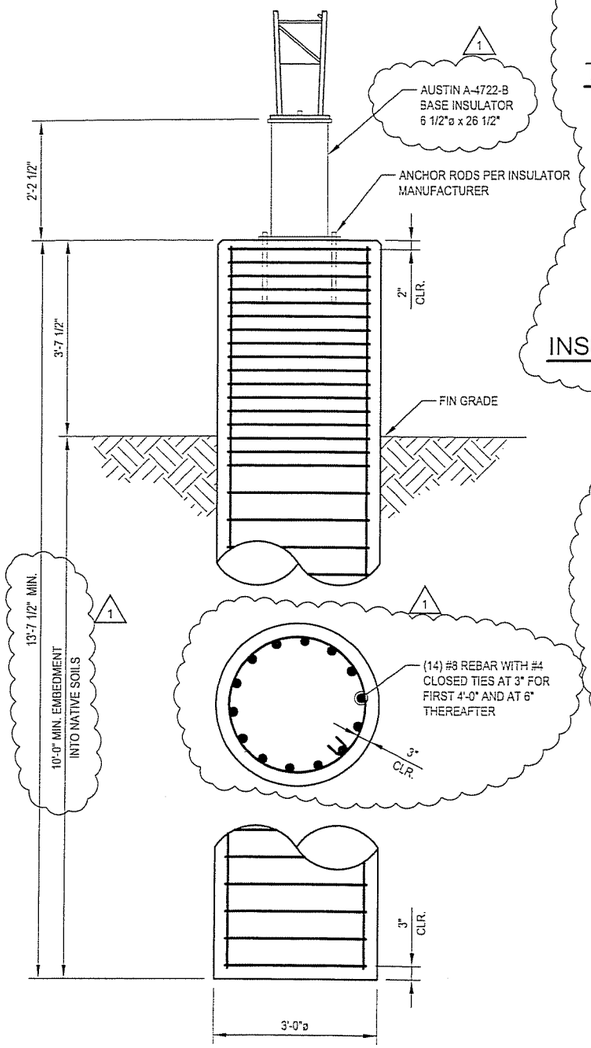
OAK FLAT-SILVERADO CANYON
ORANGE CO., CALIFORNIA
281' GUYED AM TOWER #1

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

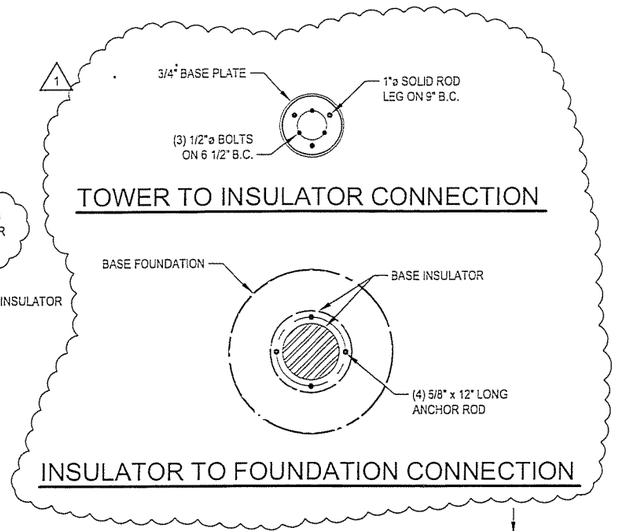
TOWER SECTION DETAILS

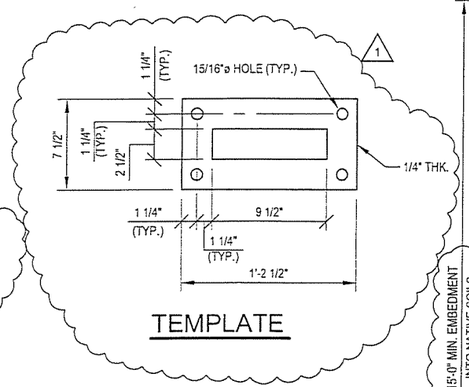
S-4
SHEET 4 OF 6

65011-0012A R1.DWG

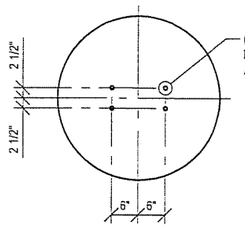


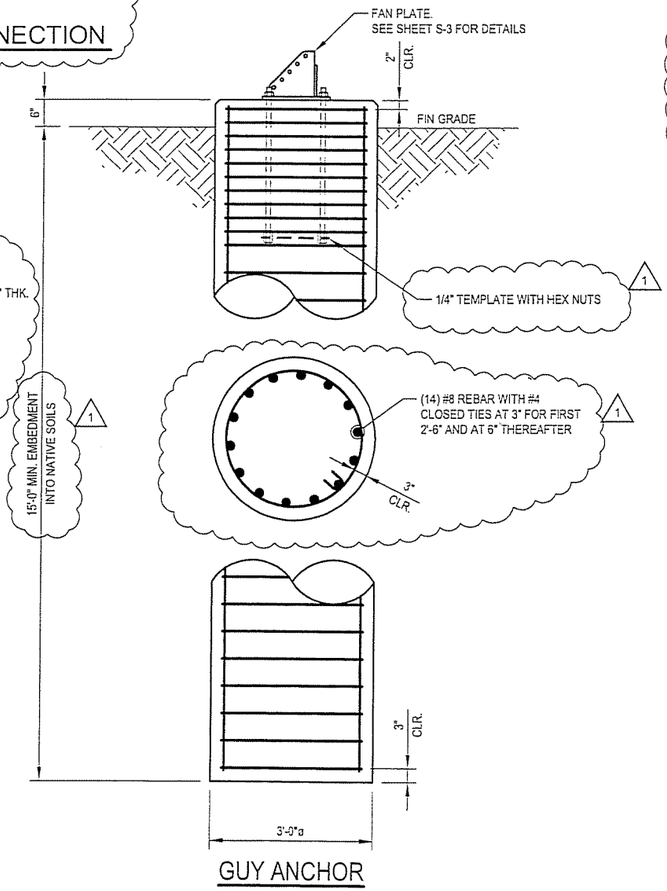
BASE FOUNDATION





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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OAK FLAT-SILVERADO CANYON
ORANGE CO., CALIFORNIA
281' GUYED AM TOWER #1

PROJECT No:	65011-0012
DRAWN BY:	T.A.N.
CHECKED BY:	L.A.P.
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
CIVIL
STATE OF CALIFORNIA

1 3-20-2012: PLAN COMMENTS

65011-0012A 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.	-	-

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

1 3-20-2012: ADDED SHEET

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OAK FLAT-SILVERADO CANYON
ORANGE CO., CALIFORNIA
281' GUYED AM TOWER #1

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

SPECIAL INSPECTION

S-6
SHEET 6 OF 6

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