Orland Park APPS Site

180’ Monopole Tower

Ultra - Multi Usage design

July 2012

Introduction

- APPS Tower Site is locally Owned.
- Principle is a local businessman with vast experience in the wireless Industry.
- APPS development team has Built over 1000 Sites in 35 years - most for Andrew Corporation.
- Mega Multi-Use Site.
- Local Maintenance Program after build.

Why This Helps Orland Park?

- Wireless Radio Towers Are a Must.
- The future forecast of wireless communications is only going to require more sites.
- ONLY properly designed sites will eliminate Tower Proliferation.
- We understand what it takes to design a site that is best for the community.

Why This Helps Orland Park?

- Widespread access to broadband enables local businesses to expand, promotes job development, allows for more efficient public services. Improves emergency services and disaster recovery.
- This sites technologies will provide high-speed connections which Business & Residents rely greatly on.

Why This Helps Orland Park?

- Mega – Multi Use sites are not normally designed by wireless carriers due to cost restrictions. Typical Wireless Cell Companies are more concerned with building multiple Sites and limit costs per Site by building sites that they say are multi use, but become just the opposite within a few years due to technology & Structural Standards Changes.

Design Criteria

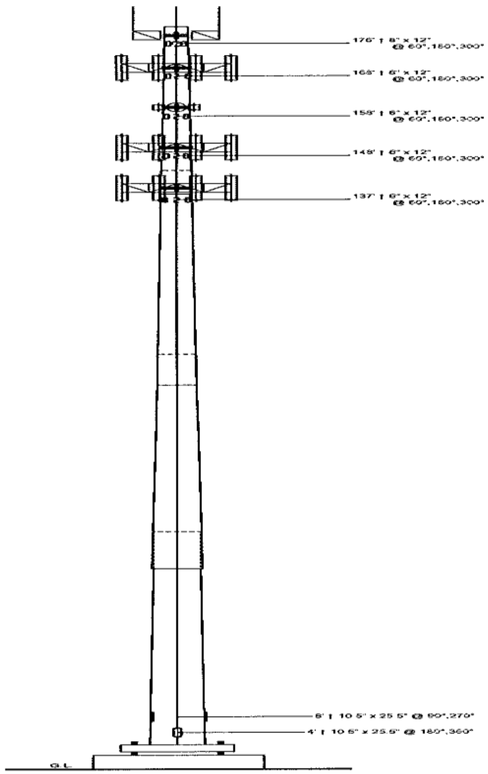
- Our planned structure would be a design for more capacity as normally dictated by demographics and radio propagation studies. This does NOT mean a fatter and bigger mass of a site, monopoles are formed plate steel.
- Our stronger pole design is thicker Plate steel not wider structures.

Projected Coverage

Sabre Monopole

SIZES ARE PRELIMINARY AND MAY CHANGE UPON FINAL DESIGN

Section	4	3	2	1
Length (ft)	53'-3"	53'-6"	53'-6"	41'-9"
Number Of Sides	18			
Lap Splice (ft)	9'-3"	7'-9"	6'-0"	
Top Diameter (in)	62.89"	52.36"	41.54"	33"
Bottom Diameter (in)	78.15"	65.9"	55.08"	43.56"
Taper (in/ft)	0.253			
Grade	A572-65			
Weight (lbs)	23086	15746	11093	4832



Designed Appurtenance Loading

Elev	Description	Tx-Line
185.29	(3) DB222s	(3) 1 5/8"
180	(3) Dish Mount (Monopole Only) - Pipe Mount (up to 6' Dish)	
180	(3) 3ft Sidearms	
180	(3) 6' H.P. Dishes	(3) EW52
170	3T-Boom - 12ft Face - 3ft Standoff	
170	(12) 6' x 1' x 3in Panel Antennas	(12) 1 5/8"
160	(2) Dish Mount (Monopole Only) - Pipe Mount (8'-10' Dish)	
160	Flush Mount (Monopole Only)	
160	(2) 2' H.P. Dishes	(2) 7/8"
160	(2) 1' x 1' x 3in Panel Antennas	(2) 7/8"
150	3T-Boom - 12ft Face - 3ft Standoff	
150	(12) 6' x 1' x 3in Panel Antennas	(12) 1 5/8"
140	3T-Boom - 12ft Face - 3ft Standoff	
140	(12) 6' x 1' x 3in Panel Antennas	(12) 1 5/8"

Load Case Reactions

Description	Axial (kips)	Shear (kips)	Moment (ft-k)	Deflection (ft)	Sway (deg)
3s Gusted Wind	78.1	44.1	5559	5.6	3.26
3s Gusted Wind 0.9 Dead	58.7	44	5521	5.5	3.23
3s Gusted Wind&Ice	108.1	9.4	1147	1.1	0.64
Service Loads	64.6	11	1377	1.4	0.81

Base Plate Dimensions

Shape	Diameter	Thickness	Bolt Circle	Bolt Qty	Bolt Diameter
Round	89.5"	2"	83.5"	16	2.25"

Notes

1) Antenna Feed Lines Run Inside Pole
2) All dimensions are above ground level, unless otherwise specified.
3) Weights shown are estimates. Final weights may vary.
4) The Monopole was designed for a basic wind speed of 90 mph with 0" of radial ice, and 40 mph with 3/4" of radial ice, in accordance with ANSI/TIA-222-G-2 (2009), Structure Class II, Exposure Category C, Topographic Category 1.
5) Full Height Step Bolts

Sabre Towers & Poles
A Division of Sabre Industries, Inc.

Sabre Communications Corporation
2101 Murray Street
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 258-8250

Quote:	13-3700-TJH-R2
Customer:	MIDAMERICA TOWERS INC
Site Name:	Orland Park, IL
Description:	180' Monopole
Date:	11/6/2012 By: JN Page: 1

Pole Design Criteria

- EIA 222-G Design
- Sabre or Valmont Pole (USA Made)
- Galvanized Monopole Design
- Antenna Design (over design) :

1. 3 wireless carriers
2. 8 each 3’ wireless Microwave dishes
3. 3 Each two way (stick) antennas (911)
4. 2 each Wi-Fi providers

Improved Coverage / Capacitv

- Busy Rt 45 Corridor.
- Shopping.
- Residents.
- Emergency Radio.
- During Severe Weather.
- Designed to outlive LTE and the Future of Wireless technologies.

Government Approvals Needed

- Federal Aviation Administration.
- Federal Communications Commission.
- NEPA (National Environmental Policy Act).
- Local Zoning.
- Local Permitting.

Typical Submittals for Permit

- FAA Determination of No Hazard.
- Survey (per village specs).
- Site Plans (per Village specs).
- Pole Design and Analysis (Stamped by Structural Engineer).
- Foundation Design (Stamped by Structural Engineer).
- NEPA SHPO Environmental Study.


Monopole