



Amateur Radio Antenna Support Tower at 2750 University Street

Contact Robert Albano 541-344-6108

Proposal for amateur radio antenna support tower mounted on the roof lower than 18' from the roof peak. The tower will allow experimentation with various types of antennas in the future as is typical of amateur radio usage.

Permitted Support Tower Parts	Weights	Permit	Cost
ROHN 25G section	41.1 lbs.	On permit application	\$181.99
Bearing shelf at top - BPL25G	11.5 lbs	On permit application	\$295.99
Rotator shelf in the middle - DXE-AS25G	4 lbs.	On permit application	\$79.99
ROHN tilting base plate - BPH-25G	22.25 lbs.	On permit application	\$445.99

Typical usage info below for a possible antenna setup. Not part of permit. Just used to show the tower will work according to manufacturers instructions		
Antenna typ. DX Engineering XB-5	25 lbs. (11.34kg)	A typical usage
Rotator typ. Yaesu G-1000DXA	8 lbs.	A typical usage
Mast typ. 2" OD 1.5" ID, 10' long	16.5 lbs. (7.484kg)	A typical usage
Antenna DX Engineering XB-5 radius typ.	11-15 ft	A typical usage
Rotator Yaesu G-1000DXA K factor	230	A typical usage
Rotator Yaesu G-1000DXA max wind area	21.53 SF (2 SM)	A typical usage
Antenna wind area DX Engineering XB-5	5.0 SF (0.46 SM)	A typical usage

The typical antenna would be less than 15' radius (see sheet 03) keeping it within the property boundaries. The antenna tower is composed of off the shelf components used according to manufacturers instructions (see sheets 05-07).

A bracketed ROHN 25G tower may be up to 100' high composed of 10 sections. This tower will only use 1 section, 10' high plus a 3-4 ft mast which is well within the 100' limit. See sheet 11 for the tower height specs.

Calculations on sheet 12 show a typical antenna type that might be used is well within rotator specifications. K for the antenna (typical hex beam) = $3.35m$ radius \times (11.34kg antenna + 7.484kg mast) = 63.06. This is less than the 180 max for the smallest rotator on sheet 11. The wind load area is 0.4645 square meters which is less than the max area of 2 square meters for the smallest rotator on sheet 12. (See sheets 08&09 for a typical rotator and antenna setup)

The weight of the Antenna Tower and a typical antenna is about 130-150 lbs. This weight is distributed over two roof Glulams (see sheet 03) and is well within the bearing capacity of the roof.

What follows is a cost estimate. I and my amateur radio buddies will be doing much of the work as is typical for antenna projects. Ian Whitelaw CCB# 122102 will be doing most of the carpentry.

Parts	Cost
ROHN 25G section	\$181.99
Bearing shelf at top - BPL25G	\$295.99
Rotator shelf in the middle - DXE-AS25G	\$79.99
ROHN tilting base plate at bottom - BPH-25G	\$445.99
Unistrut channels and parts estimates	\$150.00
Simpson SDS screws estimates	\$40.00
2x wood will be from previous project scraps	\$0.00
Flashing - will modify recycled flashing from Bring Recycling.	\$50.00
Labor 20 hours	\$800.00
Estimate total cost	\$2043.96