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## Tower Requirements for the BWC Excel Wind Turbine

Customer supplied towers for the BWC Excel wind turbine should meet the following requirements:

**Tower Height:** 80 ft (24m) minimum recommended

**Design Wind speed:** 120 mph (54 m/s)

**Turbine Weight:** 1,150 lbs (525 kgs)

**Maximum Turbine Thrust Load:** 2,000 lbs (910 kgs) at 120 mph (54 m/s)

**Blade Clearance:** Top 12 ft (3.7m) of the tower must not extend beyond an 18" (460mm) radius from the tower center line. The top mounting plate may be larger.

**Dynamic Loads:** Not considered due to variable speed rotor

**Stiffness:** Tower top should not deflect more than 2.5% of the tower height at 120 mph (54 m/s) or 1.5% of the tower height at 50 mph (22.4 m/s)

**Turbine Mounting:** See attached drawing, which shows the bottom plate for the wind turbine tower adapter. The preferred attachment is the 6 equally spaced 0.88" diameter holes on a 15" bolt circle.

**Furling Winch:** Provisions must be made to mount a Dutton-Lainson DL1602 hand winch, which is supplied with the wind turbine, approximately 55" (1.4m) above the base with a 3/16" (0.5mm) steel cable running up the center of the tower.

**Wiring Strain Relief:** On tubular towers over 80 ft (24m) provisions must be made to add a cable grip assembly (e.g., Kelle Grip) to support the down tower wiring.

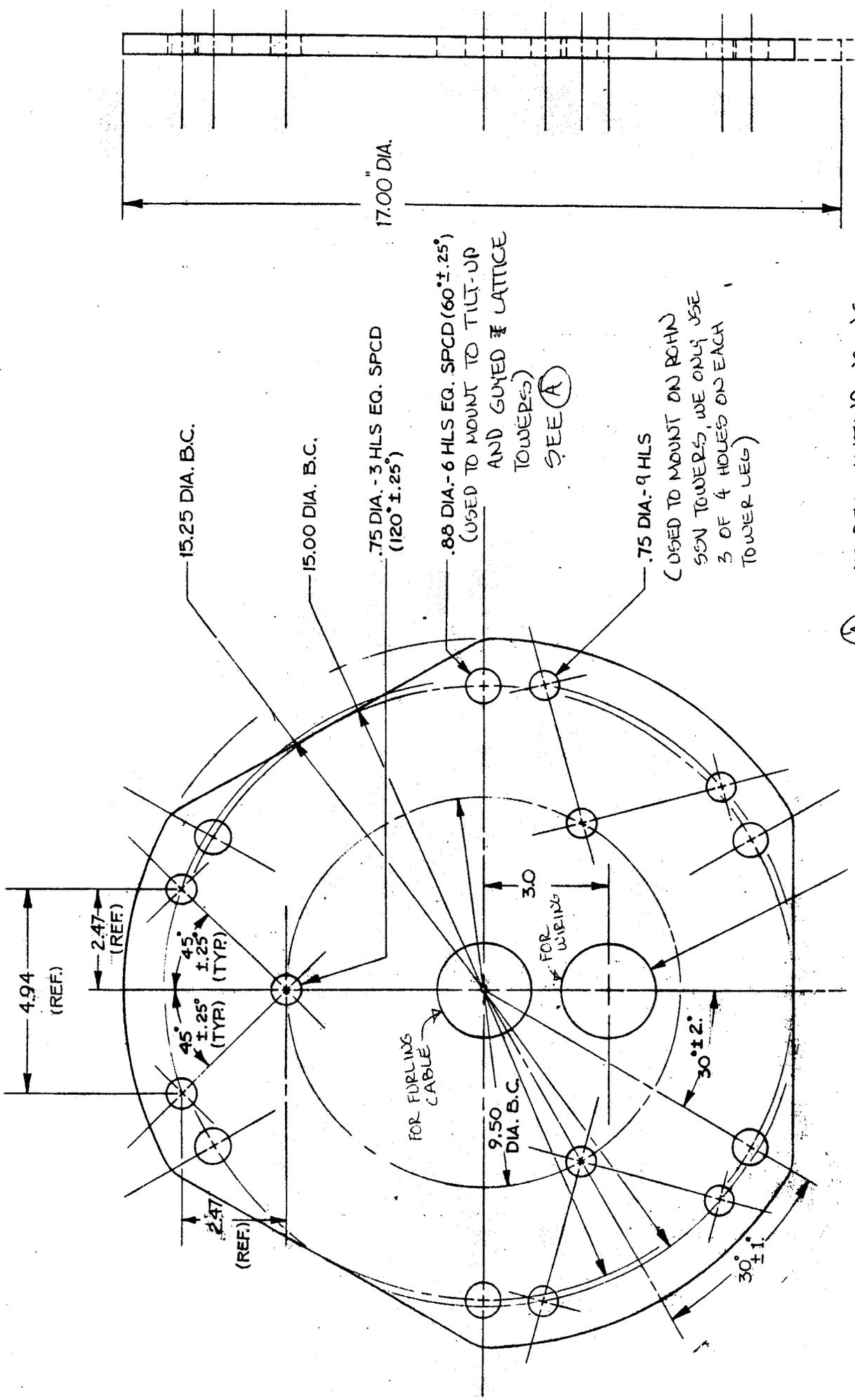
**Access Hole:** On tubular towers it is recommended that a 5" (60mm) diameter access hole be provided approximately 5" (60mm) below the top of the tower to allow access to the tower wiring and furling cable connections.

**Tower Climbing:** On non-tilting towers, provisions must be made to allow the tower to be climbed for inspections and maintenance. Climbing pegs should be removable if they do not meet the blade clearance requirement. On lattice towers we recommend the use of horizontal laterals (girts) to facilitate climbing.

**Materials:** We recommend low-carbon steel, with careful attention given to weld quality. Stress risers and brittle materials must be avoided because of the possibility of fatigue cracking. We do not recommend aluminum be used. Fasteners should be Grade 5; Grade 8 is too brittle.

**Finish:** We recommend hot-dip galvanizing after fabrication.

If you have questions concerning the suitability of a particular tower or any of the requirements listed here, please contact Bergey Windpower at T: 405-364-4212 or [sales@bergey.com](mailto:sales@bergey.com)



(A) - WE RECOMMEND USING THESE HOLES