

THE ANORRA

ASSEMBLY AND INSTALLATION



WWW.BORRUMENERGYSOLUTIONS.CA

1 PREREQUISITES



CONSTRUCT TOWER BASE

Once, the tower base location has been established from the previous step, it is time to construct the base of the tower. Depending on the ground conditions at the location, the base will be constructed differently. There are multiple choices to ensure the best fit for each location.

SELECT LOCATION FOR TOWER AND ITS BASE

Before you begin assembly and installation of the Anorra, it is important to identify a location for the tower and its anchors. Make sure you have 70ft of space to assemble the tower horizontally before it is raised. See the diagram to the left for the footprint of the tower. More resources for location selection can be found on the last page.



MARK ANCHOR LOCATION

Depending on the soil conditions at the anchor points, there are different anchoring options. Given the location, it may be necessary to have a combination of the various anchor types.

Earth Anchors

Depending on the soil type at each anchor point, the type of earth anchor may differ.

Bedrock Anchors

These anchors are used to anchor into bedrock at the location of the anchors.

Concrete Anchors

For locations where earth or bedrock anchors cannot be used, concrete anchors are a good choice.

Gabions

In locations where the other anchors cannot be used, gabions may be a good option. These are especially useful in northern regions where the ground cannot be penetrated and concrete is too costly to import.



Earth Anchors



Concrete Anchors



Bedrock Anchors



Gabions



ASSEMBLE AND ATTACH PIVOT BASE

Place the tripod base in the middle of the tower base and mark, drill, and attach to the base. The round tube of the tower base should point away from Anchor Point 1. Finish assembling the pivot base, and insert the gin pole into the square tube.







BUILD TOWER HORIZONTALLY

Starting from the tower base, begin putting together the tower sections to reach the proper height. This is done horizontally and raised once the turbine is attached. While assembling the tower pieces, electrical cables are run through to connect to the turbine later on.

ATTACHING GUY WIRES

Once guy wires are measured and cut to the appropriate length, they are attached to the couplers of the tower. The wires are attached to Anchor Points 2 and 3 while the wires for Anchor Point 1 are fed through the gin pole, anchor, and into a winch or vehicle hitch.





COMPLETE A TEST RAISE

Using a winch and the guy wires from Anchor Point 1, complete a test raise of the tower before attaching the turbine. This is to ensure the proper configuration of anchors and wires while confirming stability. Once complete, lower the tower with the winch or vehicle to attach the turbine and complete installation.



ATTACH TURBINE TO TOWER

Once the tower is built to the proper height, attach the turbine. In doing so, the electrical wire connection is also made.

COMPLETE TURBINE ASSEMBLY

The Anorra comes almost completely assembled, you just need to add the final touches. Attach the blades to the turbine hub, and the furling system to the turbine frame. The turbine is now ready to be lifted by the tower.





RAISING THE TOWER

Using a winch or vehicle hitch and the guy wires from Anchor Point 1, the tower is raised. Once secure, the gin pole and winch are removed. Connections to batteries and or heaters can now be made!

> See more raising options here: <u>Raising and Lowering of the Anorra.</u>

MORE RESOURCES:

<u>Selecting the Perfect Location</u> <u>Anorra Tower Footprint</u> <u>Selecting the Right Tower Height</u> <u>Connecting the Anorra Turbine to Heaters and Batteries</u> <u>Connecting the Anorra Turbine to Heaters Only</u> <u>The Benefits of Distributed Energy Resources</u> <u>Turbine Noise Explained</u> <u>Microgeneration 101</u> <u>Electrical Grids 101: Micro, Nano, and Utility</u> Wind Power 101

<u>The Anorra Infographic</u> <u>Anorra Product Specifications and Features</u> <u>Meetings Canadian Standards</u> <u>Warranty Information for the Anorra</u>



inquiries@borrumenergysolutions.ca 519.743.9463 (WIND) borrumenergysolutions.ca @borrum_energy_solutions

