IRONRIDGE

TECHTIPS

PRE-ASSEMBLING MODULES AND RAILS FOR **GROUND MOUNT SYSTEMS**

Large ground-based installations require careful planning in order to meet deadlines. This document walks you through how to pre-assemble your Ground Mount System, in order to shorten timelines and keep up momentum.

WHY PRE-ASSEMBLE?

There are many construction activities involved with large ground-based solar installations, including auguring foundation holes, pouring concrete, building substructures, and installing modules.

The list goes on. But different scenarios can compromise and slow down the project timeline.

The work site could come with minimal extra workspace – making it impossible to perform multiple tasks at the same time. Poor weather could halt production. Or you could simply want to find a way to have multiple teams running in parallel so that the job gets done faster.

An option that you can take advantage of is pre-assembling modules to rails in an off-site warehouse or workshop. This saves time by enabling multiple workflows to occur at the same time. Part of your team can pre-assemble modules off-site, while the remainder prepares the job site and builds substructures.

Creating a jig off-site with rail and component locations measured out makes it easy to pre-assemble columns while ensuring that they will fit correctly onto the substructure. Once all columns are pre-assembled, simply transport them to the job site. At this point, a 3-4 man team can quickly lift and secure the columns onto the substructure.

This document provides step-by-step instructions on creating a jig out of lumber to facilitate off-site pre-assembly. It also includes diagrams that can be used as a reference when building your jig and marking out component locations.

STEP-BY-STEP INSTRUCTIONS

1. Build a jig out of lumber using the diagram on Page 3 as a guide.
2. Cut the XR100 or XR1000 rails to match the required rail length speci ied in Ground-based Design Assistant.
3. Hand tighten the rail connector brackets into the rails near the speci ied locations.
4. Place rails with rail connectors into the jig. Make inal adjustments and tighten rail connectors in marked locations.
5. Mount the microinverters or power optimizers to the rail if the system is using them.
6. Place a module onto the rails and perform any wiring as needed. Slide a module into the jig. Install a UFO and Stopper Sleeve to function as an end clamp.
7. Place the next pair of UFOs and place the next module into position. Tighten UFOs.
8. Repeat until all modules have been mounted to the rails. Install the last UFO and Stopper Sleeve, then remove the completed assembly from the jig.
9. Repeat above steps for all columns in the system.
10. Be sure to use a robust packing and transportation method to get the assembles to the job site. One example is to use heavy cardboard slips to stack assemblies, then transport them on a latbed truck or trailer.

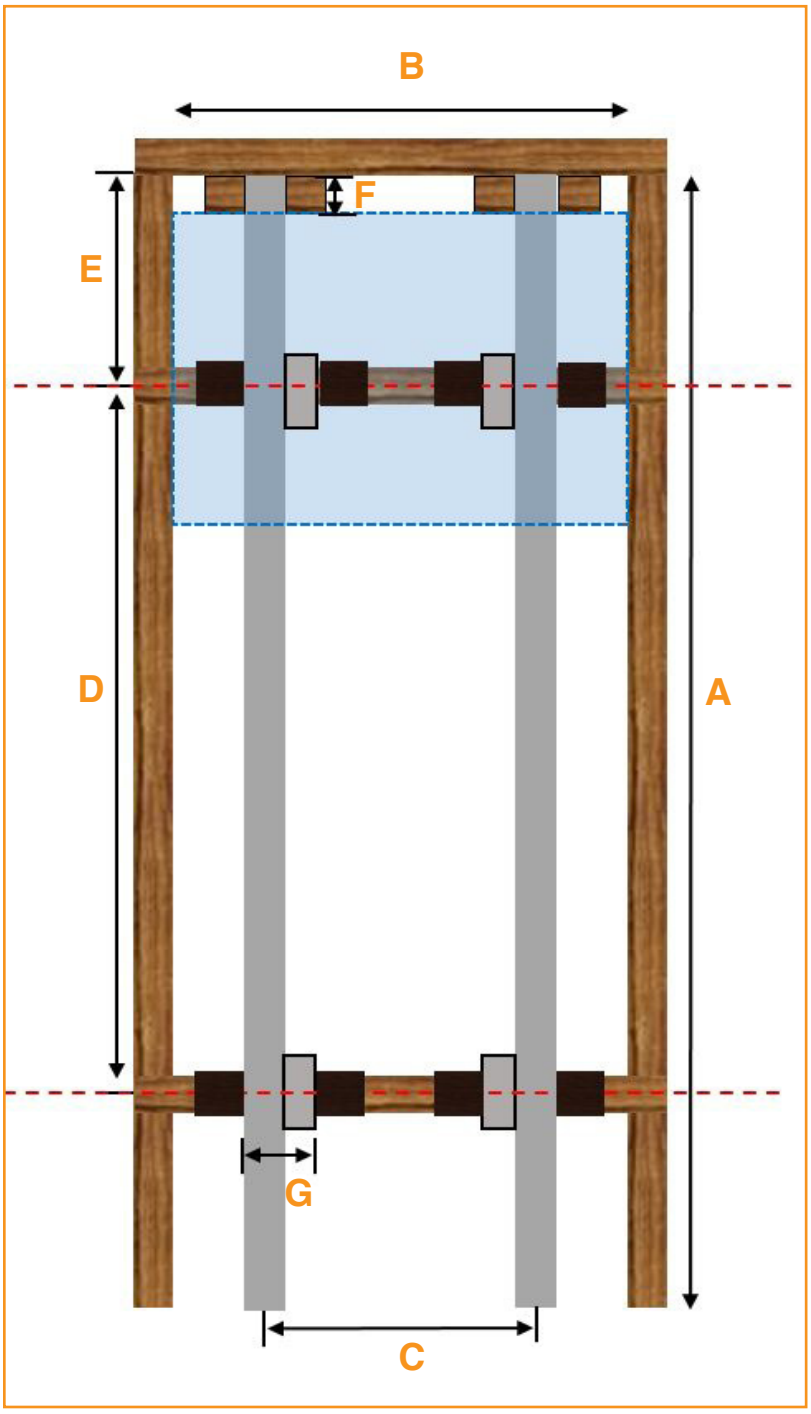
Tilt Angle	3, 4-up	5-up
0°	90”	108”
5°	90 ⅜”	108 ⅜”
10°	91 ⅜”	109 ⅝”
15°	93 ⅛”	111 ¾”
20°	95 ¾"	115”
25°	99 ¼”	119 ⅛”
30°	104”	124 ¾”
35°	109 ⅞”	131 ⅞”
40°	117 ½”	141”
45°	127 ¼”	152 ¾”

Table 1: Distance Between Rail Connectors

NOTE: The values above are calculated for 3-, 4-, and 5-up assemblies at different tilt angles. Verify the the distance center to center between the North and South piers once the substructure is set.

JIG DIAGRAM

Top-Down View



Side View

A	Length of Required Rail (From Design Assistant)
B	Module Length
C	Distance Between Module Mounting Holes
D	Distance Between Rail Connectors (See Table 1)
E	Rail Cantilever = (A - D)/2
F	1" for UFO and Stopper Sleeve
G	3 ¾" for Placement of XR1000 Rail and Rail Connector