

INSTALLATION INSTRUCTIONS: ETP-MT/R OPT SOLAR

Before beginning installation, make sure that you have all the necessary pieces and that you have read the instructions in their entirety. Each Solar Tower consists of the following components:

- 9.5 foot tower including large lower access door with shelf and smaller, louvered upper door
- Tower cap with pole for mounting solar panel
- ETP-EL12/24 Blue light/strobe
- LED board for lighting faceplate with mounting plate and plastic cover
- mounting screws
- J-bolts and nuts
- footprint template
- Instructions

Shipped separately are the following components:

- Battery
- Solar Panel(s)
- Solar Controller
- Cables and Mounting Brackets for solar equipment
- Cellular Interface or RF Transmitter
- Emergency/Information Phone



1. Install the four (4) 3/4" - 10 x 24 long anchor bolts below grade **with five inches (5") projecting above grade**. Use the template provided to properly position the bolts within the concrete foundation. See Figure 1.
2. Remove both the upper and lower access doors and the shelf. Set aside for later use.
3. After removing its protective shipping wrap, install the blue light/strobe assembly atop the tower. Fasten the blue light/strobe to the tower with three (3) 10 x 24 pan head/spanner screws (provided).
4. Using the four (4) bolts provided, fasten the tower cap and pole to the tower. One of the two supports is a channel for running your wiring into the tower. Be sure to note which side has this channel.
5. Install one 3/4" nut and one washer on each anchor bolt (2" to 2.5" above grade to top of nut) and verify that the nuts are level (0° pitch).

NOTE: To insure proper grounding of all electrical components, a grounding strap is required by the National Electrical Code. We recommend the use of an insulated, 6 AWG stranded wire connected between the electrical conduit (within the concrete base) and the tower. The best place to connect the ground wire to the tower is via one of the four anchor bolts. It is necessary to remove the paint from the inside edge of one of the anchor bolt holes and the inside surface around the bolt hole to ensure the grounding wire makes a good electrical connection to the tower. This must be done before installing the tower.

Install the tower onto the bolts with the Emergency Phone opening oriented in the desired direction. Install second set of nuts and washers. Wrap the 6 AWG grounding wire around

All Prices and Specification Subject to Change Without Notice

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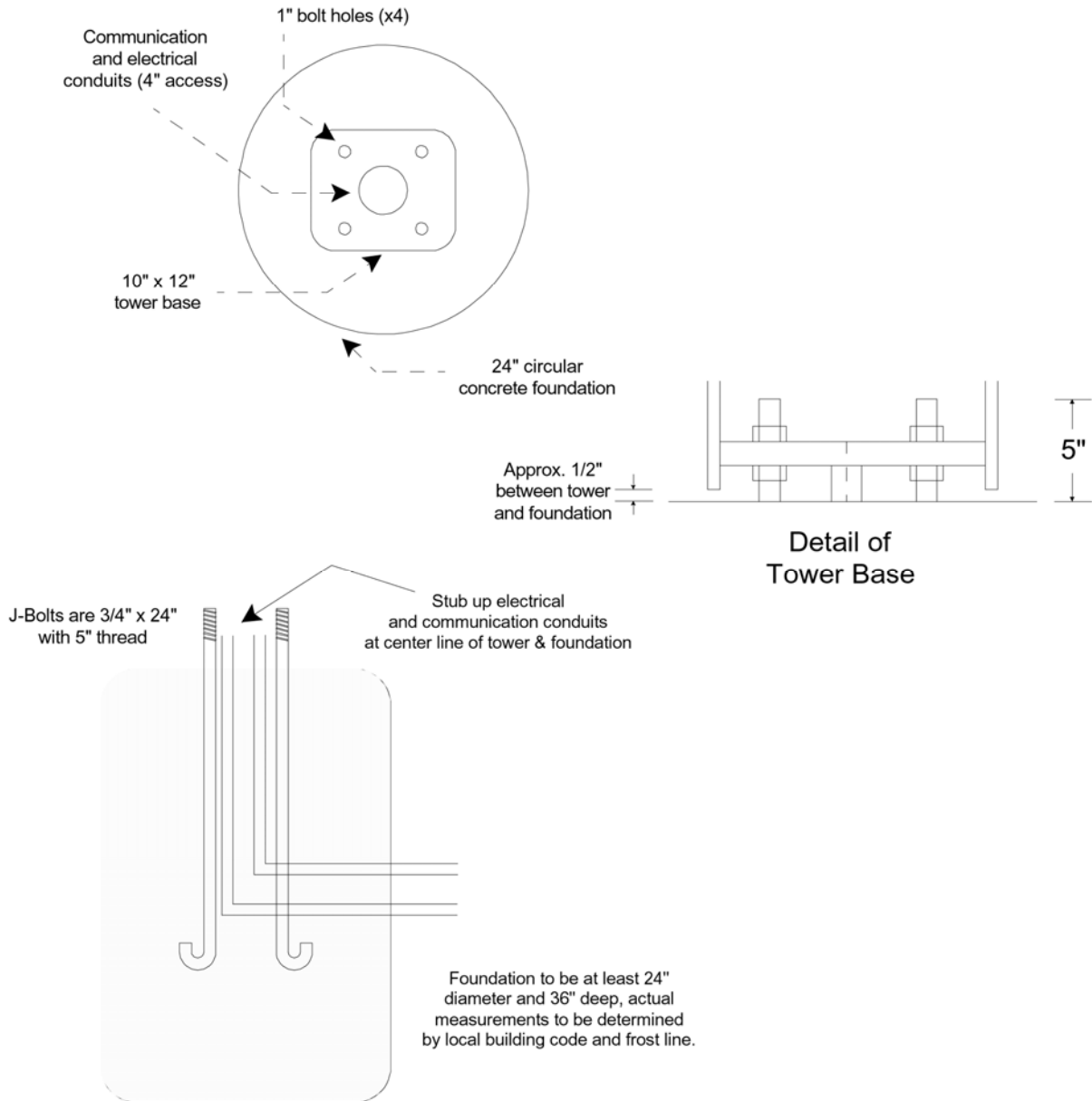
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the mounting bolt where the paint has been removed. Tighten the upper nuts; the bottom set is only for leveling. The possibility of corrosion where paint has been removed can be reduced by painting the nut assembly where the grounding wire has been attached. See below.



Installation must comply with all National, State and Local Construction and Electrical Codes.

Figure 1: Tower Foundation Drawing

6. On the ground, assemble the Mounting Structure that will support the Solar Panel atop the tower as follows:
 - i. Lay the modules face down on a protected surface in an orientation as pictured (Figure 2).

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- ii. Lay the Panel Supports on the back of the modules and attach using the 1/4" hardware supplied in the "Standard Module Kit(s)." Do not tighten until the modules are aligned properly.
- iii. Position, center then attach the Cross Rails to the Panel Supports using 5/16 x 3/4" hardware supplied.
- iv. Assemble the Pole Brackets loosely using the Threaded Rods and 3/8" hardware as shown.

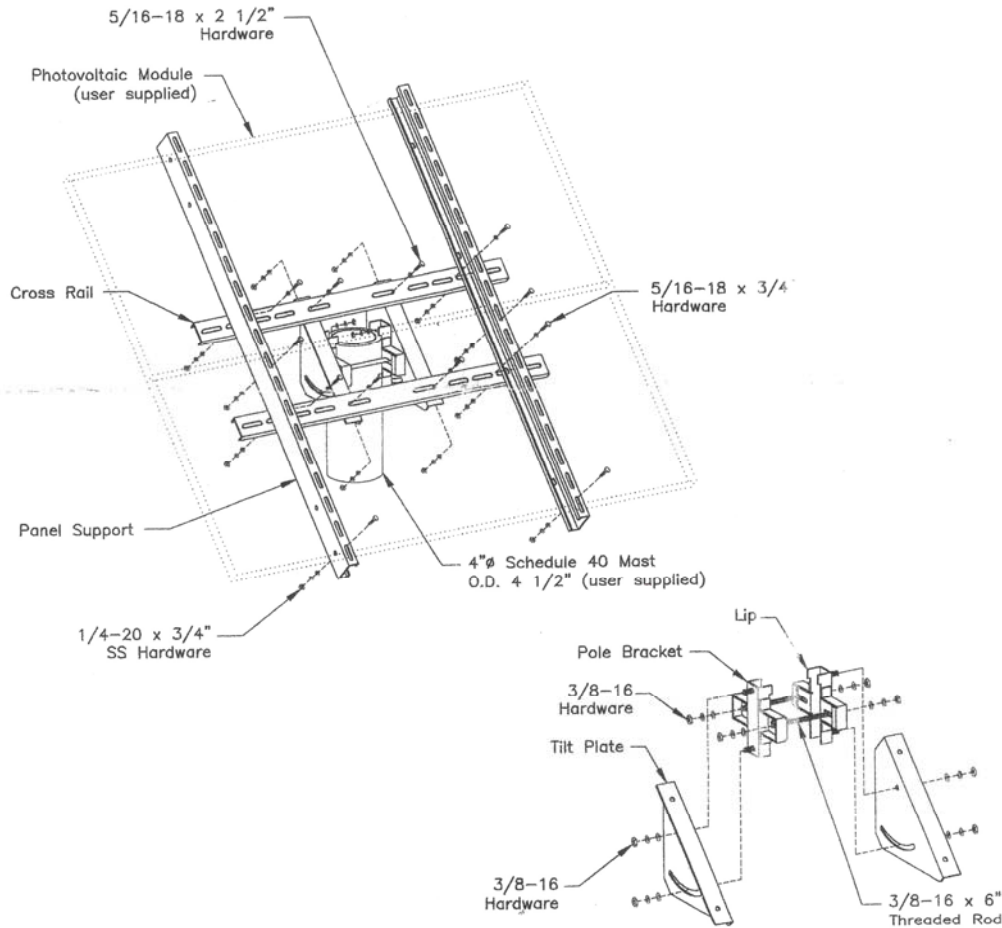
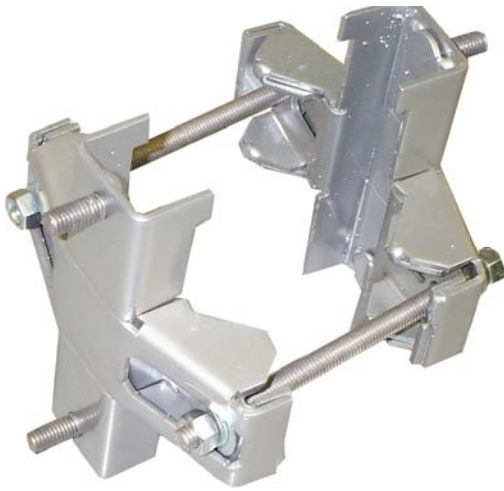


Figure 2: **Mounting Structure**

7. Place this assembly atop the tower as follows:
Note—This portion of the installation requires two people and the use of a lift apparatus.
 - i. Slide the assembled mounting unit down onto the Pole until the "lip" catches the top of the pole, rotate into position and tighten until there is visible deflection in the Pole Brackets. *The lips should not bear the weight of the mounting unit.*
 - ii. Attach the tilt plates to the Pole Brackets using 3/8" hardware supplied. Finger tighten only and rotate into horizontal position.
 - iii. Lift the solar array assembly onto the Tilt Plates. Attach using 5/16 and 2 1/2" hardware supplied.
 - iv. Adjust tilt angle to correct orientation as per the specifications of the Solar Panel manufacturer.
 - v. Tighten hardware as follows:
 - 1/4" hardware to 7 ft. lbs. torque
 - 5/16" hardware to 12 ft. lbs. torque
 - 3/8" hardware to 18 ft. lbs. torque

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8. With the panels mounted onto the poll, run the wires from the Solar Panel into the “electrical box” near the top of the poll and then through the channel and into the tower.
9. This is also the time, before you’re back on the ground, to mount the cellular antenna or RF interface.

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The precise orientation of your antenna must depend on the specifications of your project for best reception in each individual case. Generally, the antenna is mounted either on the back of the Solar Panel Mount or directly upon the tower. The first case uses the 5/16" hole to draw the antenna cable. The second places the antenna directly on that hole, with the wire running similarly.

If you are using an RF interface, mount the transmitter to the poll, as close to the top as possible, and run the cable through the box along with the solar cable.

9. Mount the shelf on the bracket near the bottom of the lower access opening. Place the battery, solar controller, and cellular interface on this shelf. The battery can be safely placed on any side *except upside down*, based on the manufacturer's warning.
10. Mount the green LED board above the Emergency Phone with the security screws, spacers, and nuts provided. The acrylic window and frame mount on the outside of the lighting opening. Using the screws protruding on the inside of the tower, reach through the Emergency Phone opening and fasten the spacers, then the LED board, and finally the nuts *inside the tower*. (The rubber spacers prevent the LED board from contacting the inside of the tower.)
11. Mount the Emergency Phone into the tower using the six (6) included security screws.
12. Connect the strobe to the Emergency Phone.



Warnings:

- A. Do not connect the power until strobe is installed.
- B. The strobe must be set for 12V.

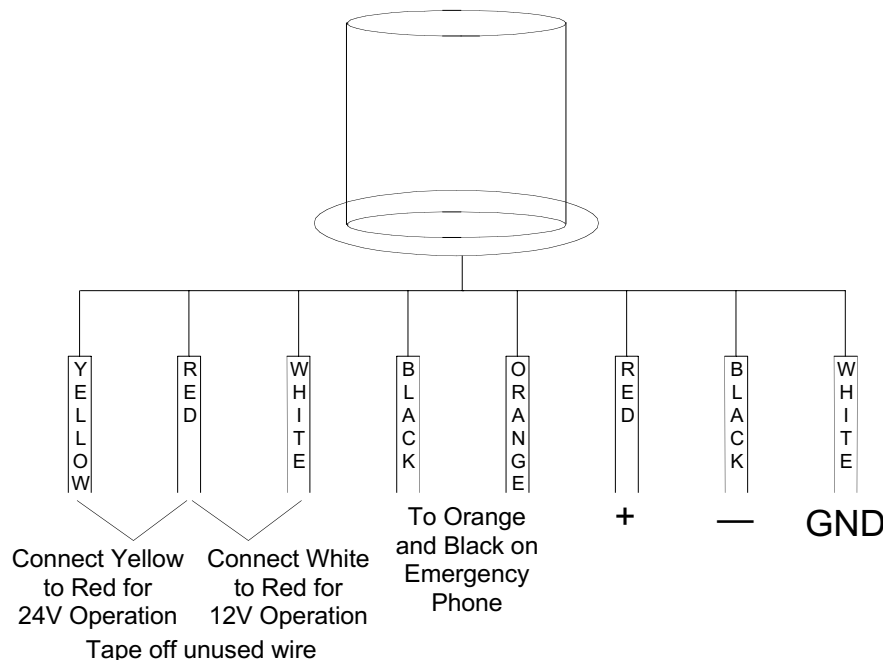


Figure 3: **Connecting the Blue Light / Strobe**

13. Plug the RJ11 connector from the Emergency Phone into the Cellular Interface. If using an RF Interface, cut off the connector and connect the Red and Green wires directly to the transmitter.
14. Connect the battery and solar cables to the labeled terminals on the controller. Then connect the cables from the blue light/strobe and LED board to the LOAD terminals of the controller. **DO NOT** connect the power for the Cellular or RF Interface to the LOAD terminals. Instead, make your connections directly to the battery terminals.

Note: The controller will automatically disconnect the power to the LOAD terminals in the event that the battery runs low. By making your connections as described above, if the battery runs low, the blue light and faceplate light will shut off before the Emergency Phone stops working, giving you an advance warning that you must check the battery.

15. With all connections made and all equipment stored in the tower, re-attach the upper and lower access panels with the two (2) tamper resistant 1/4" screws provided. You may discard the two regular screws which held the cover plate in place during shipment.
16. Program your Emergency Phone (and Cellular Interface) according to the appropriate manuals.

Make sure all connections meet National, Regional, and Local Electric Codes.