

Cosmic Ray Telescope Construction

Instructions for 2017 Eclipse

For **FIXED** (non-tracking) experiment

Parts

One -- 8' 2 X 4 wood beam

Two -- 6 X 1-1/8" Corner braces

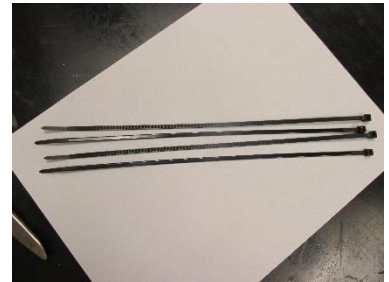
Two 15/32" plywood, 15" X 18"

¼ X 1¼" washers (fender washers)

14 X 20 X 1" machine screws with nuts

Number 12 X 1¼ " wood screws

Plastic zip ties



Protective Box for Electronics

15 Liter plastic box with lid

2" PVC 90° street elbow (45° will also work)

2" PVC Coupling OR Male adapter

Painter's plastic drop cloth in case of rain.

Two large opaque plastic bags to cover each end. (Light leak prevention)



Tools

Large pliers for conduit lock washers

Screw drivers

Drill

2 3/8" hole saw

White glue

Assembly of Telescope

The spine of the telescope is an 8 foot 2 X 4. This is attached to the counter boards by a 6 inch, 1 1/8" corner bracket. The counter boards should be placed 6 feet apart, leaving a 2 foot stub allowing for clearance for the counters and a way of propping the assembly, if needed. This stub is at the bottom of the assembly. Use 14 X 20 X 1" machine screws with nuts and the 1/4 X 1 1/4" washers (fender washers) to attach the corner bracket to the plywood board. The side of the bracket attaching to the 2 X 4 beam should be number 12 X 1 1/4" wood screws.



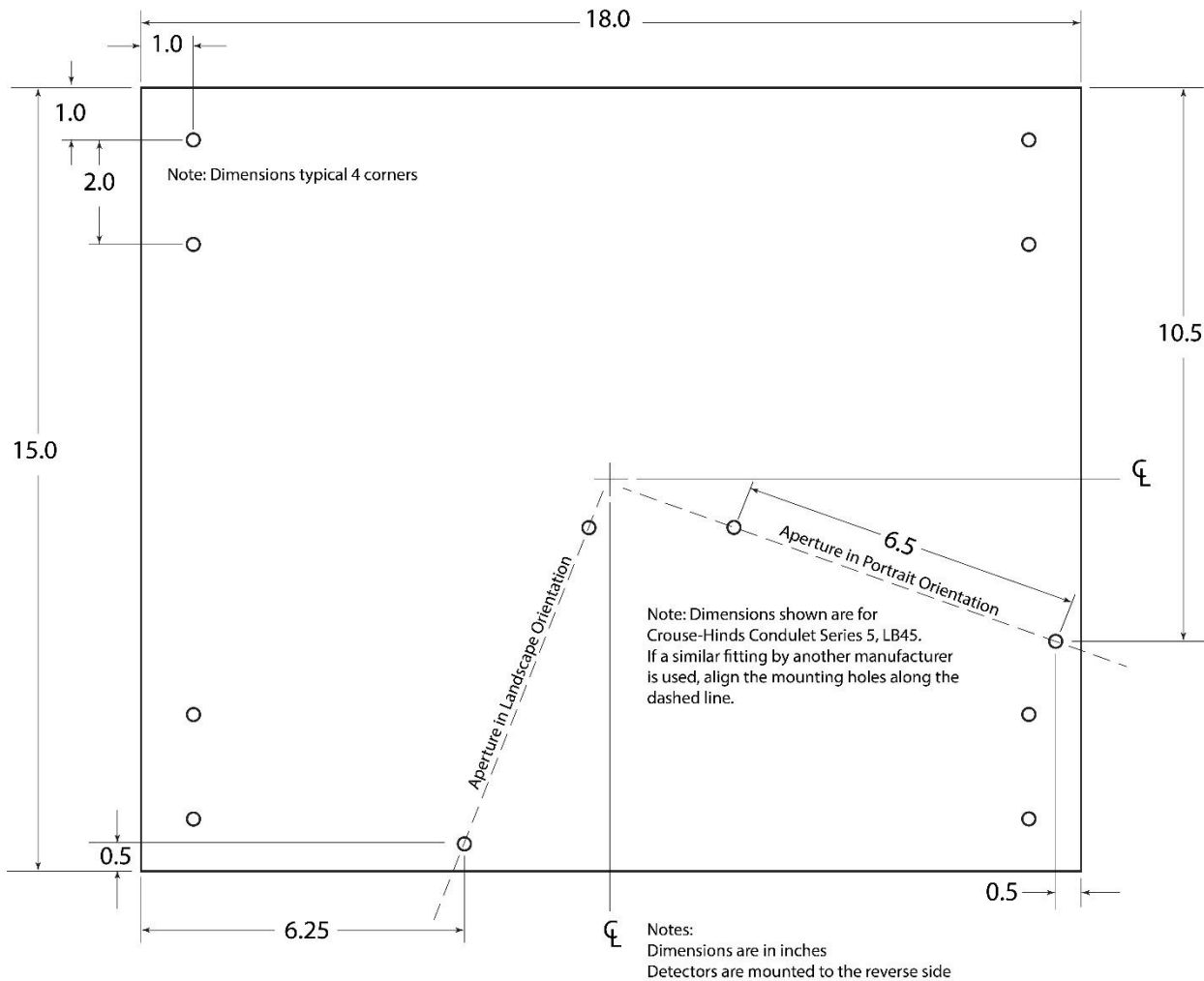
Attach the angle brackets to opposite ends of the 8 foot 2 X 4, 6 feet apart. The template for the plywood will need to reflect the hole spacing on this bracket instead of the cover to the LB electrical conduit body.



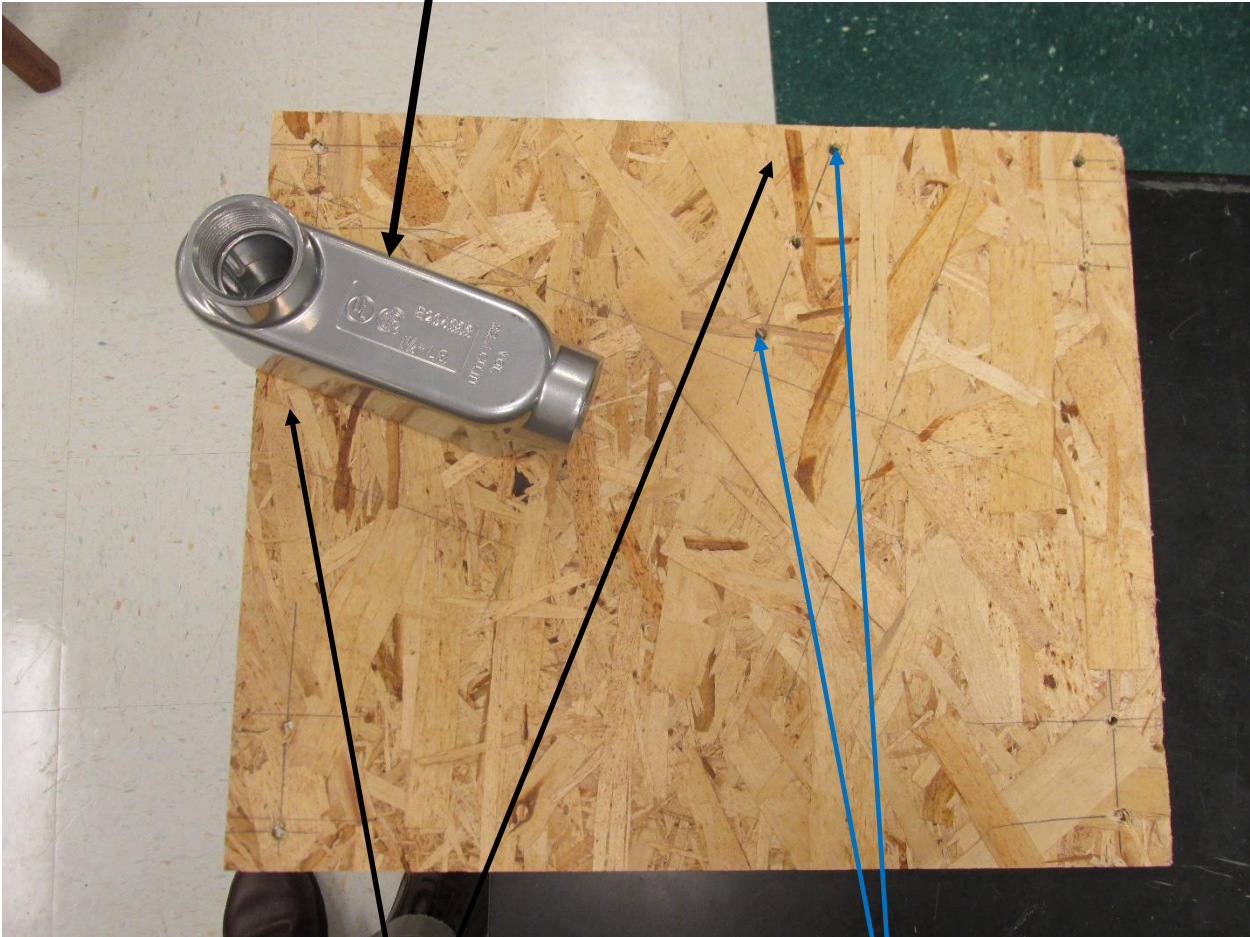
The template for the plywood will need to reflect the hole spacing on this bracket instead of the cover to the LB electrical conduit body.

You will need two pieces of 3/8" or 15/32" plywood, cut 15" X 18".

The hole pattern on both boards are identical. There are two sets, in the event you want to rotate the board 90°. Only one set will be used at a given time. This is diagrammed below:



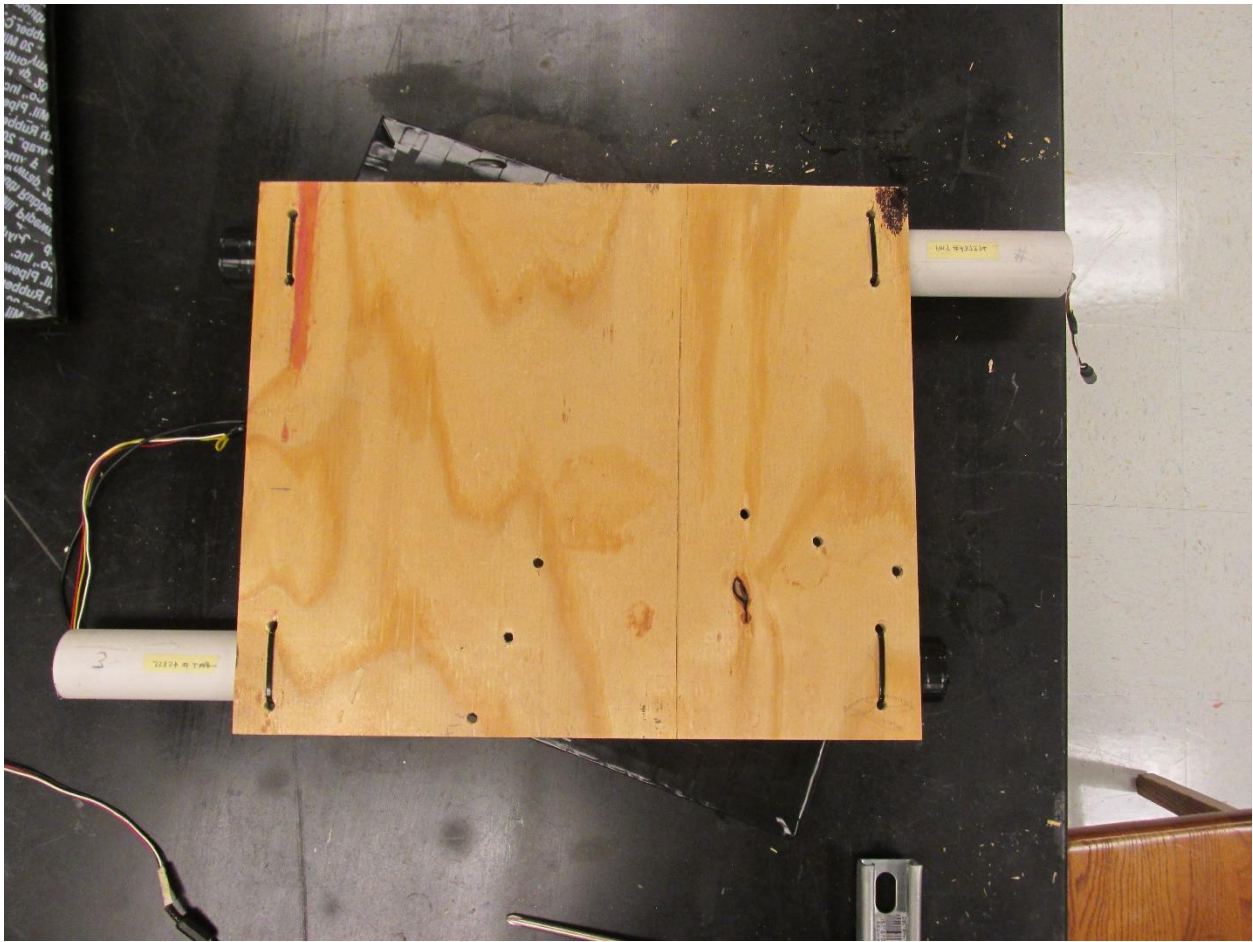
With the 2 X 4 spine, the LB conduit body box is not used, but the hole pattern shown is for the 90° corner bracket.



About 68° to the edge.

Second set of holes are perpendicular in direction to the other corner bracket.

The counter directly over the 14 X 20 X 1" machine screws with nuts should be the top counter in the stack, giving clearance for the cover.



Convenient spacers (From tape dispenser cores.) These are used with the counters.



Final Assembly



Counters are mounted corner over center.

A large, opaque plastic garbage bag should be wrapped around each end to reduce the possibility of light leaks.

Assembly of Box to Protect Electronics

Take a 15L plastic box with lid. On one narrow end of the box, close to the top, make a 2" hole.



Cut a 2 3/8" hole in the flat end of the plastic box, high enough so that there is clearance of the bottom of the 2" 90° PVC (or 45°) street elbow. Place a 2" 90° PVC (or 45°) street elbow at the hole, and anchor it with a 2" coupling or male adapter or coupling on the inside of the box. White glue is sufficient.



The PDU and DAQ can rest in the 15 L plastic box. It may help to raise the DAQ on a small board.