



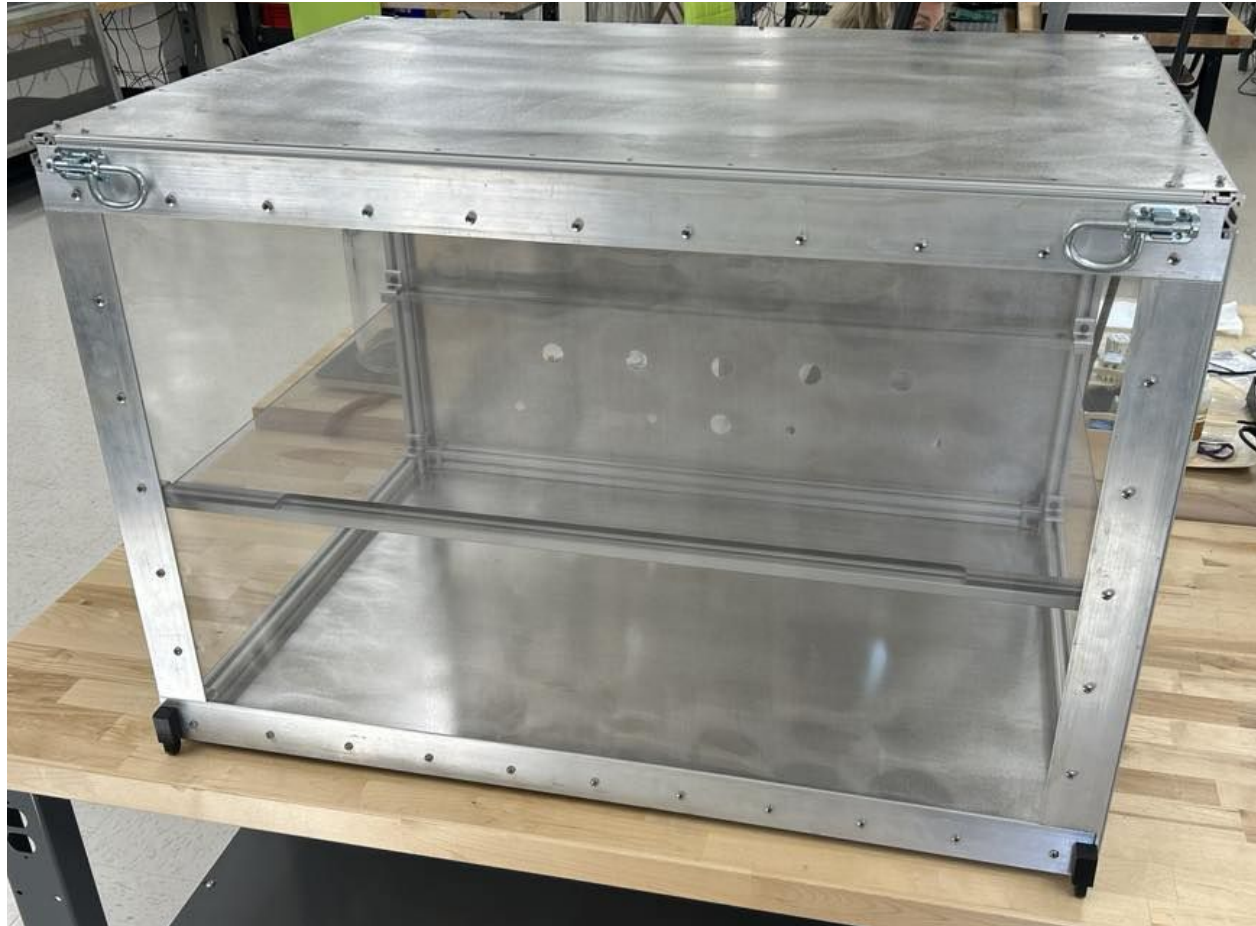
FE3BS Assembly Guide

Open Source Instruments, Inc.

Sam Orphanos 12/1/23

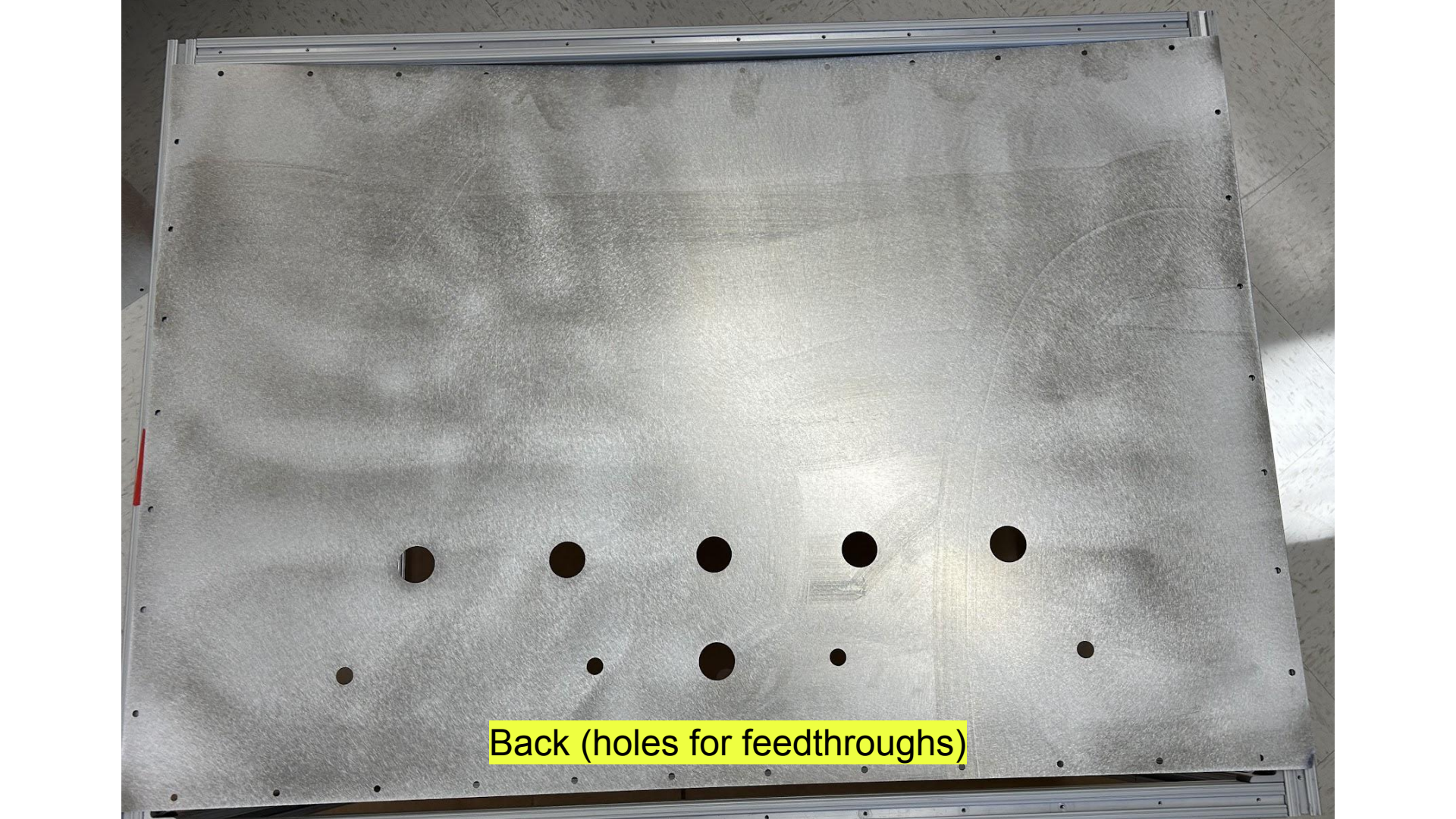
orphanos@opensourceinstruments.com

Assembled enclosure without handles and feedthrough

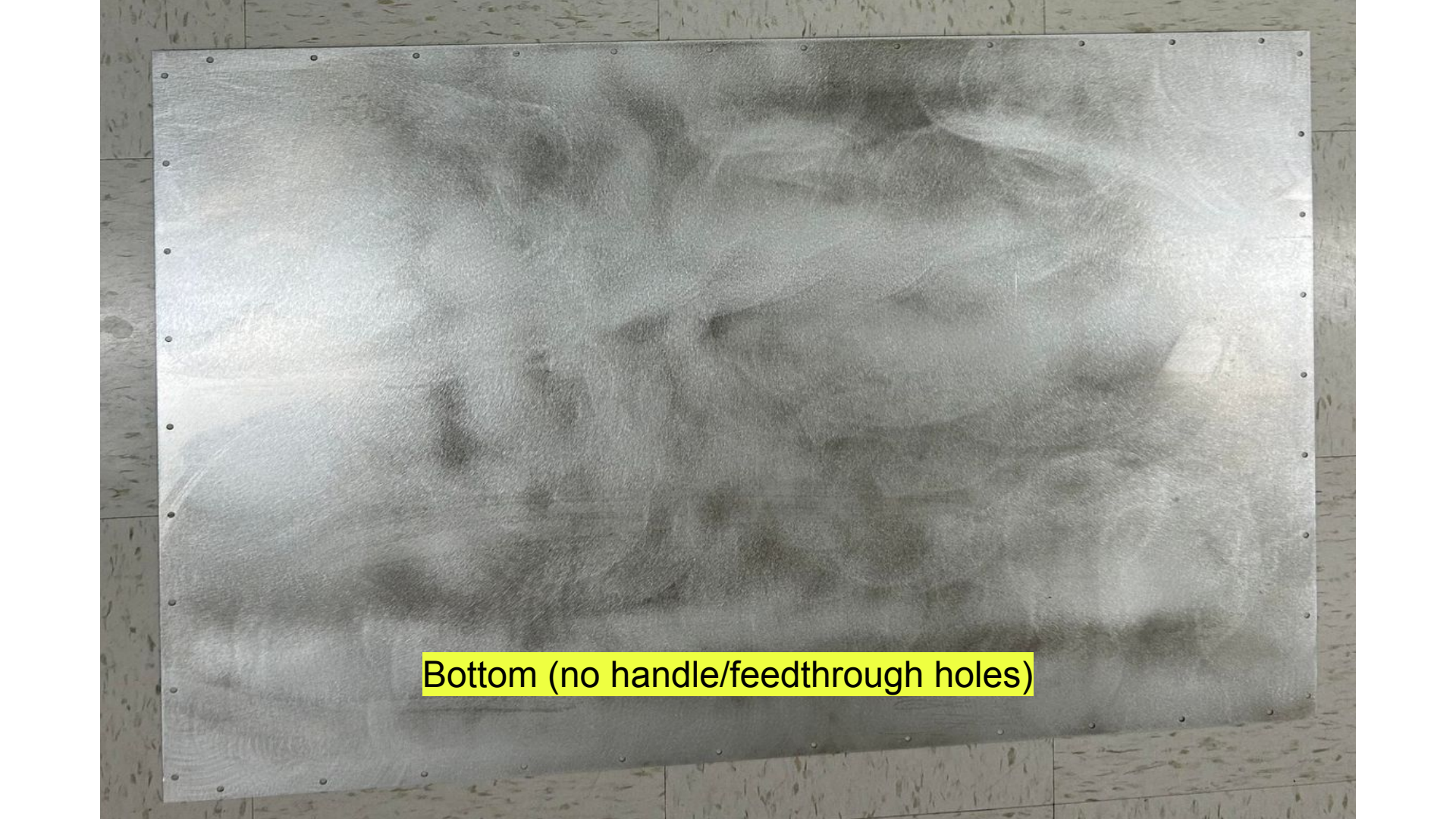




Top (mounting holes for handles on either side)



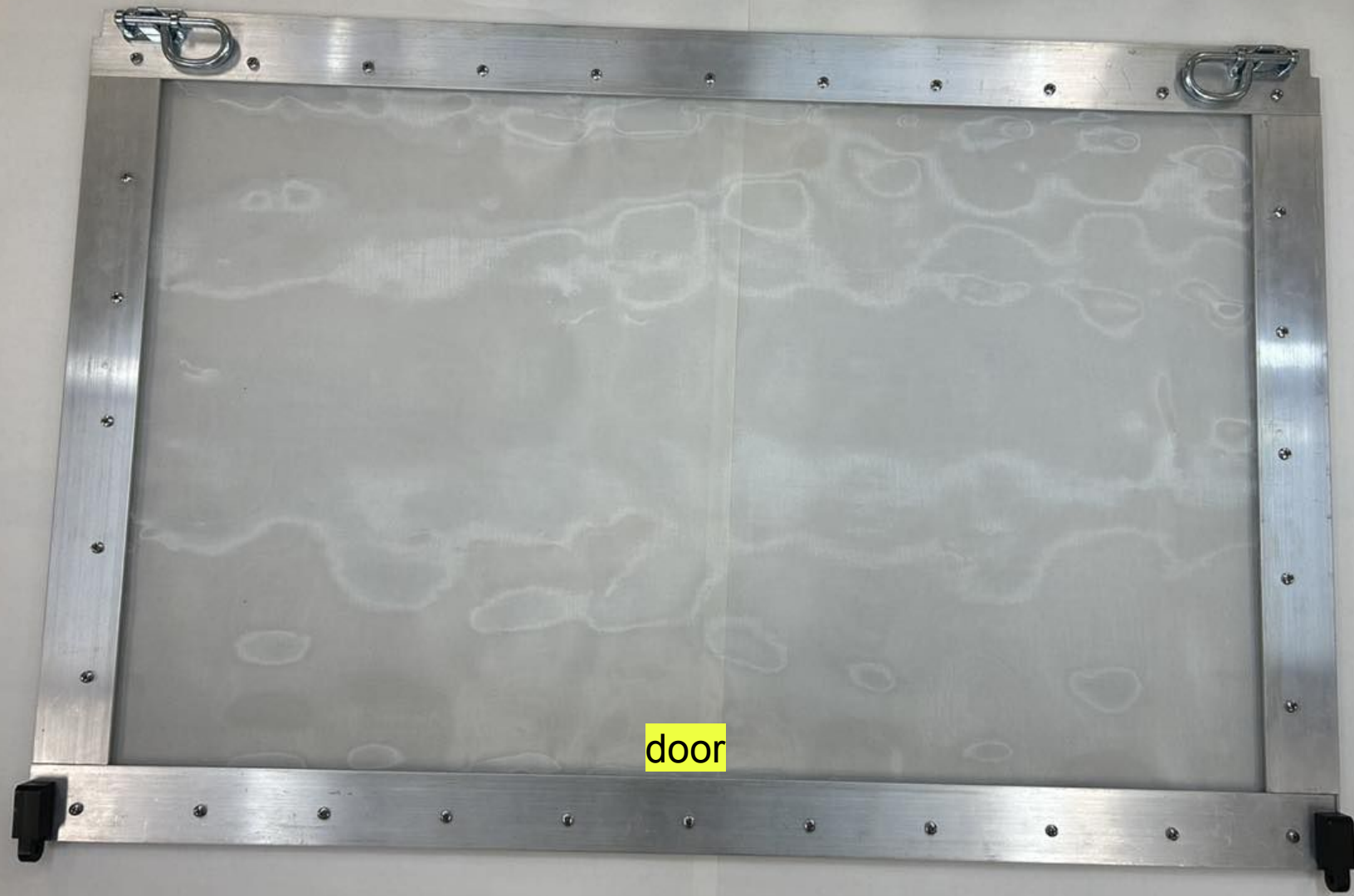
Back (holes for feedthroughs)



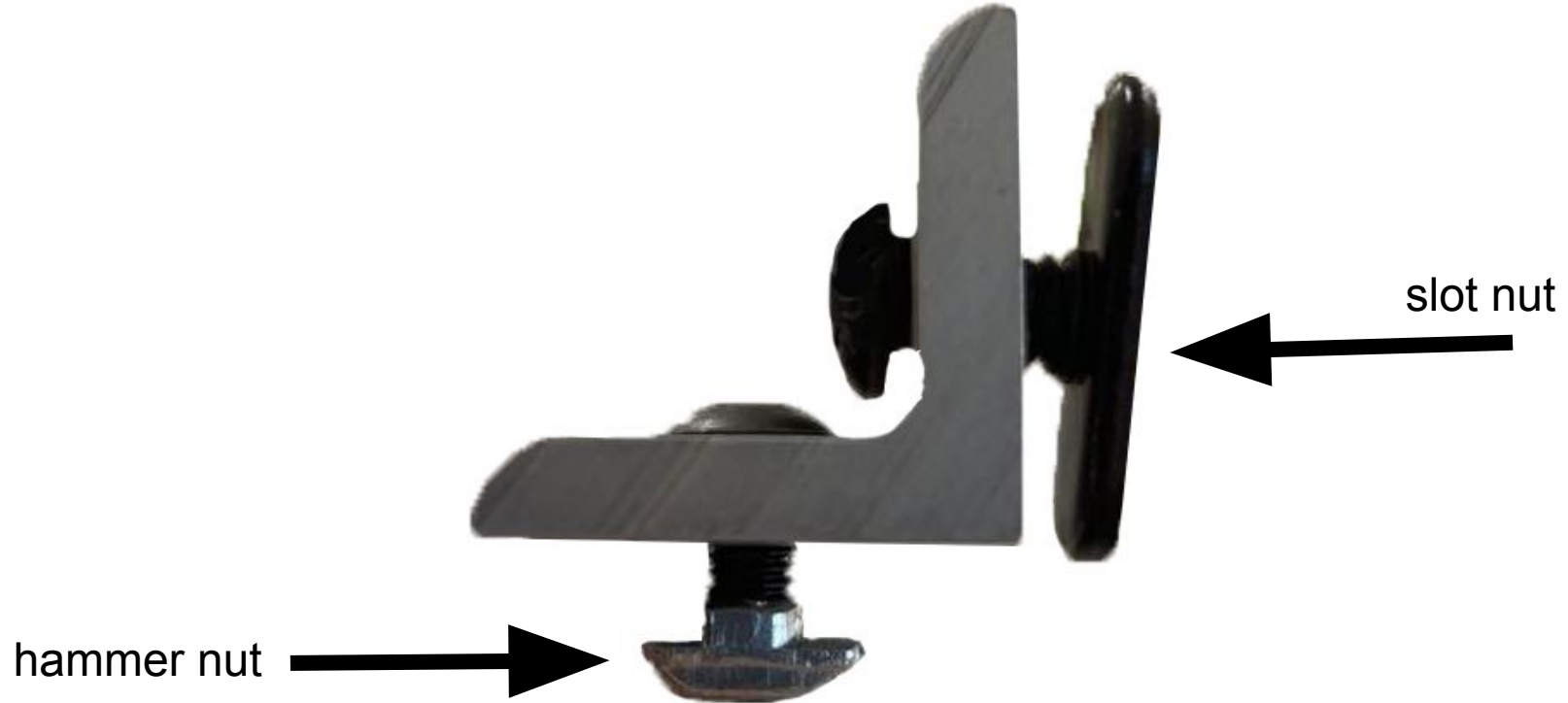
Bottom (no handle/feedthrough holes)



side walls



door



hammer nut

slot nut

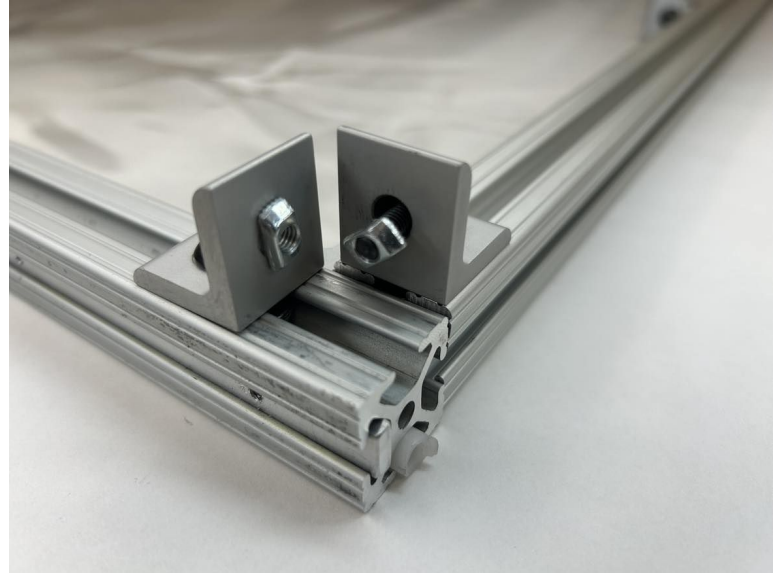
brackets/nuts/screws



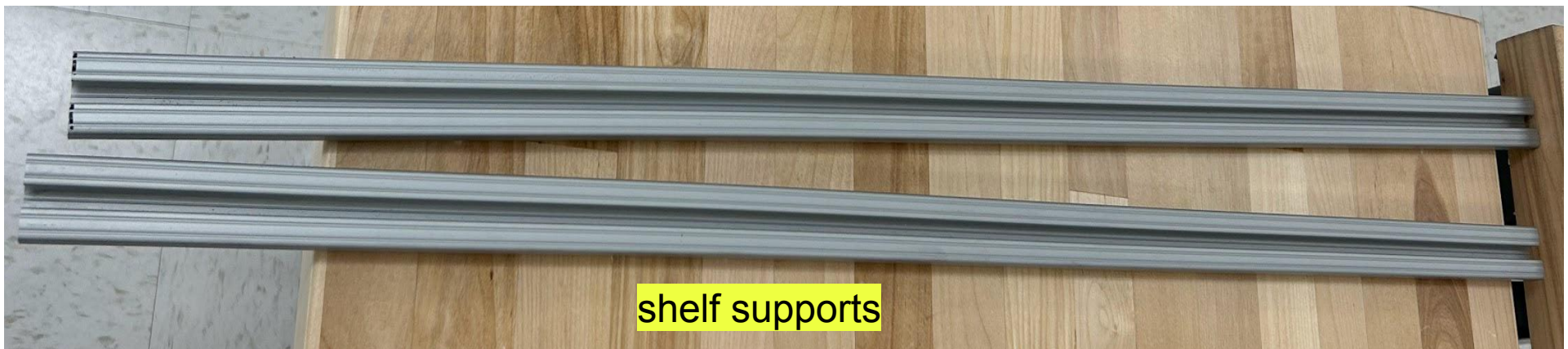
shelf



frame struts



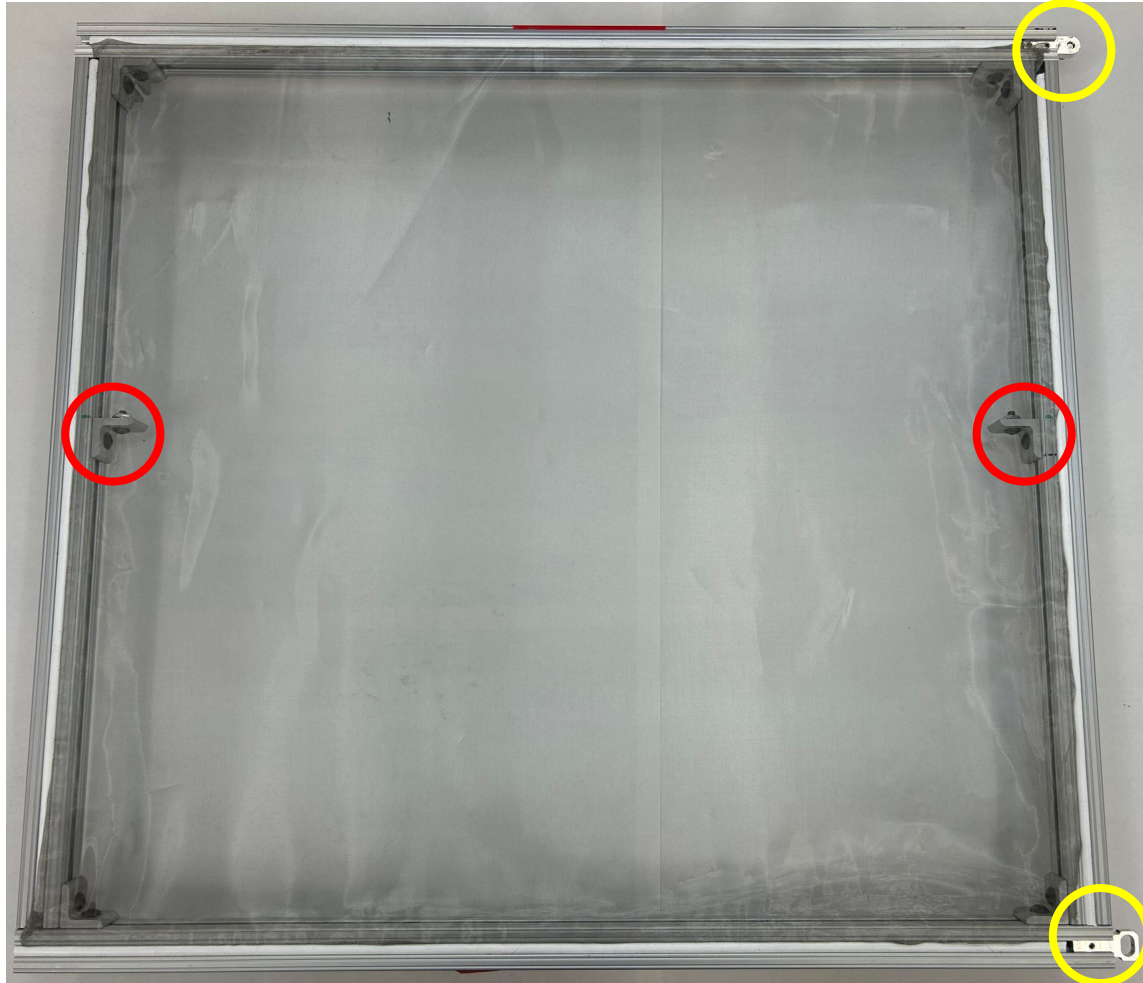
Four frame struts slide onto the hammer nuts attached to corners of side walls



shelf supports

Side wall assembly

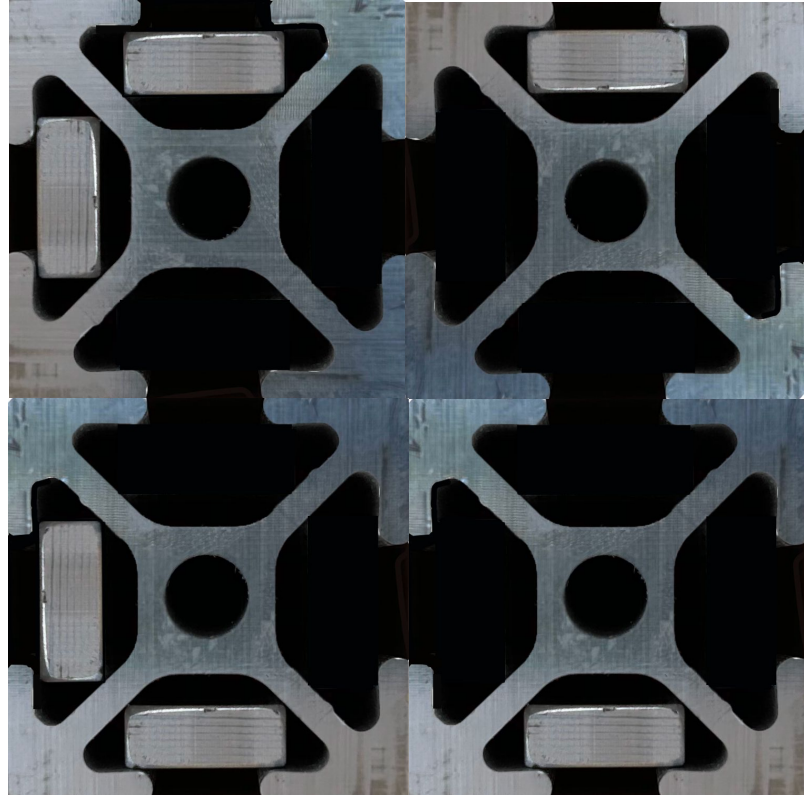
The side walls of the FE3BS come pre-assembled. Four tubes secure the mesh on the outside of the wall panel, while the inside of the panel attaches to brackets that secure the 4 frame struts to both side walls. The brackets are held in place by screws and a sliding nut/hammer nut mechanism. The screws may need to be loosened to align the frame without stressing joints. One top corner has a door latch attached with a set screw, one bottom corner has a door hinge attached with a set screw (circled yellow). Each side wall has 3 panel attachment rods pre-loaded in their frames. The brackets in the middle of the wall (circled red) will later be used to attach the shelf to the enclosure.



Frame strut assembly

Before attaching the frame struts to the first side wall assembly, ensure that the panel attachment rods are properly oriented in their slots as shown in this image. These slots will be inaccessible once the side walls are attached. In this image, the door mounts on the faraday enclosure on the right side and the struts must be placed accordingly to allow the panels to be screwed on later.

top rear



top front

bottom rear

bottom front

Nut/slot mechanics

Every joint on the FE3B uses a system consisting of a screw, bracket, and a slot or drop-in hammer nut. The slot nuts are inserted into the slots on the sides of the frame struts, then they can be screwed into place with an allen key. The hammer nuts drop in from the top, then fastened with an allen key.



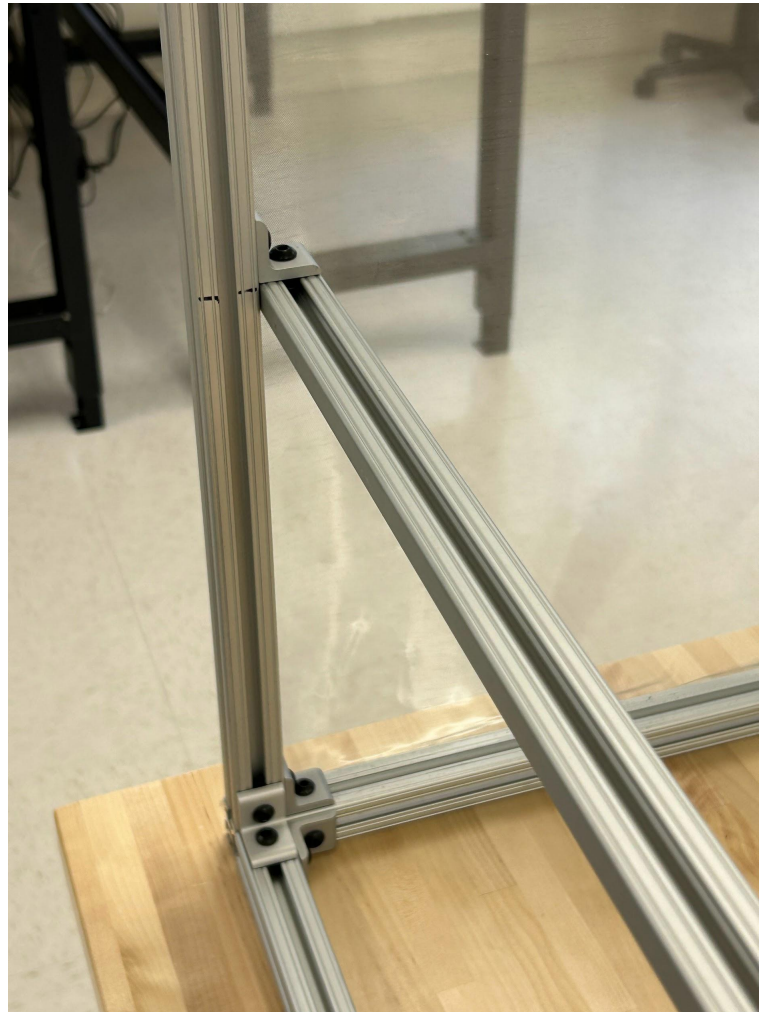
Attaching frame struts to side walls

Upon completion of frame assembly, there will be 8 corner joints. Each corner is held together by 3 brackets that attach like so. You may need to loosen some of the screws to get all 3 brackets lined up correctly on each corner, so leave all of the screws finger-tight until the frame is completely assembled. In total you will attach two brackets to each frame strut using hammer nuts. Holding the side wall in place, slide the hammer nuts into the frame and tighten them. Slide the frame strut into the joint, making sure both nuts are secured in the slots on the frame. Repeat for each of the four frame struts.



Shelf support struts

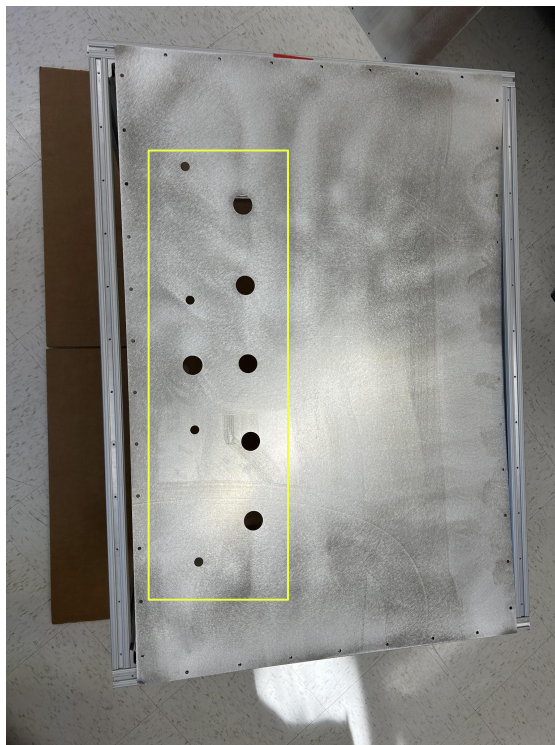
Two struts run along the length of the frame, supporting the shelf that will rest on top of them. These struts are secured on either side of the frame with a bracket, screw, and nut. These brackets will come pre-attached to each side wall, approximately 9.5" from the bottom of the frame, but they can be adjusted. Slide the nut into the slot on either side and secure the strut to these brackets. After securing all 4 brackets, loosen the other screw on the bracket to adjust the height of the strut. Place the shelf on the supports and fine tune the height using a level.



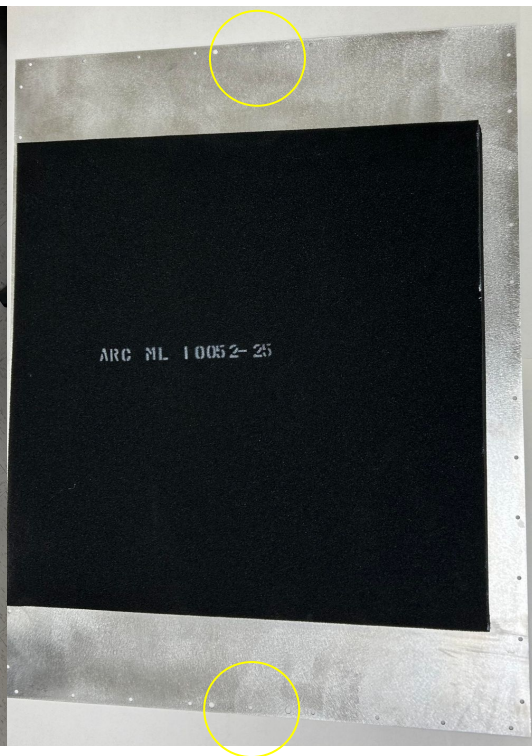
Your FE3BS should now look like this:



Attach top, back, bottom panels using M3x8mm screws



Back: has holes for feedthru



Top: has holes for handles,
absorber faces inwards



Bottom: attach rubber feet

Install RJ45/BNC feedthroughs in back wall



Attaching door

There are two hinge plates (with two set screws) that are slid into either side of the bottom of the frame where the door attaches. Hang the door's hinges from them, tighten the set screws. On the top of the frame, a latch plate (with one set screw) will be slid into the frame for the door to mate to on either side of the door. Align both, sliding the door into place. When the door is fully flush with the frame, close both latches and tighten a total of 6 set screws to secure the door/hinges in place.



Attach handles (optional)



Appendix 1: replace side walls

The mesh is held in place by a silicone tube on each of the 4 sides. A sheet of mesh is layed on top of the side wall, and secured on each side by first tucking them into the slots that the tubes sit in.

Here you can see the pinch/push technique, first pinching the tube and then pushing it into the slot on top of the mesh.

After laying a piece of mesh over the side wall frame, begin on one corner.

We recommend cutting a 26" x 25" of mesh, this will give you a few inches to spare that you can cut off later.



One hand: pinch/push tube

Other hand: holding mesh and pulling it taut as you go

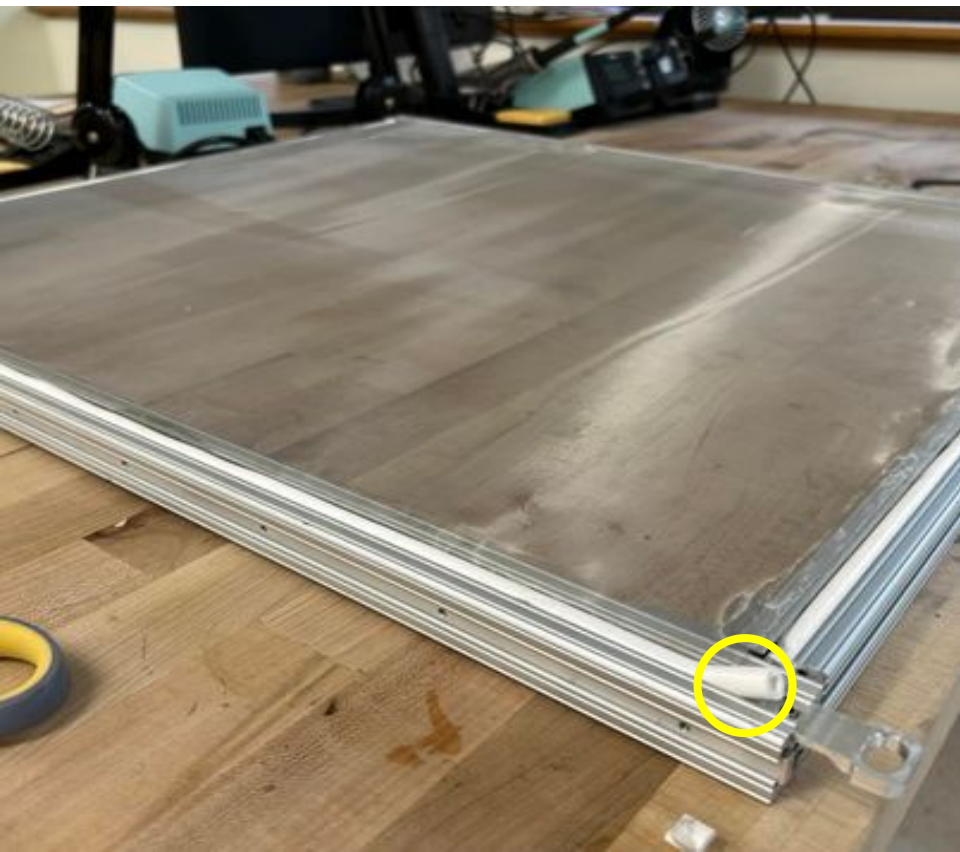


Once one tube is installed, begin to fit the tube on an adjacent side, continuing this until all four sides are secured. It is important to continue to pull the mesh taut on all sides. When finished, touch up any loose areas by pulling more mesh into the slot and resetting the tubes, especially at the 4 corners.





Cut off extra length of tubing, extra mesh



Appendix 2: replace door mesh

Replacing the door mesh is slightly simpler than replacing the wall mesh. There are four pieces of metal securing the mesh. Unscrew each side, revealing the mesh, and replace the mesh sheet. You will need to poke holes in the mesh where the screws will attach the two pieces.

We recommend cutting a 33.5" x 22 " piece of mesh, this will give you a few inches to spare on each side.

