General 3D printing on fabric instructions

Since December, 2022, I've fallen in love with 3D printers, especially the 3D textiles and fashion aspect. If you're reading this guide, it means you've begun on the fabulous journey that is 3D printed textiles. I have all of my models on my Thangs profile at Kaizen 3D Prints - Thangs. In all of my uploaded models, there will be a .3mf version with settings saved, in addition to labeled stl files for individual importing if you'd prefer. If you have any questions, email me at Contact@kaizen3dprints.com

There are many types of fabric that can be used with 3D printing. At first, I was hesitant that the fabric would melt. I have found that nearly every mesh I've tried (with the exception of a horse hair blend) has worked well. As long as you can see through the fabric, you should be able to print on it. My preferred printing materials for projects are power mesh and illusion mesh if i'm trying to hide the fabric on skin or blend with other fabrics.

Here are some links to products I use-
19 GSM Illusion Mesh - DFW Fabric Mart
23 GSM Illusion Mesh - DFW Fabric Mart
Power Mesh - DFW Fabric Mart
Superfine Power Mesh - Amazon
60mm x 10mm x 3mm bar magnets

I offer a fabric sample pack with 20 precut 12"x12" squares
Fabric Sample Pack
Holographic Magnetic P-FLAT sheets can be found here
Magnetic P-FLAT Sheets

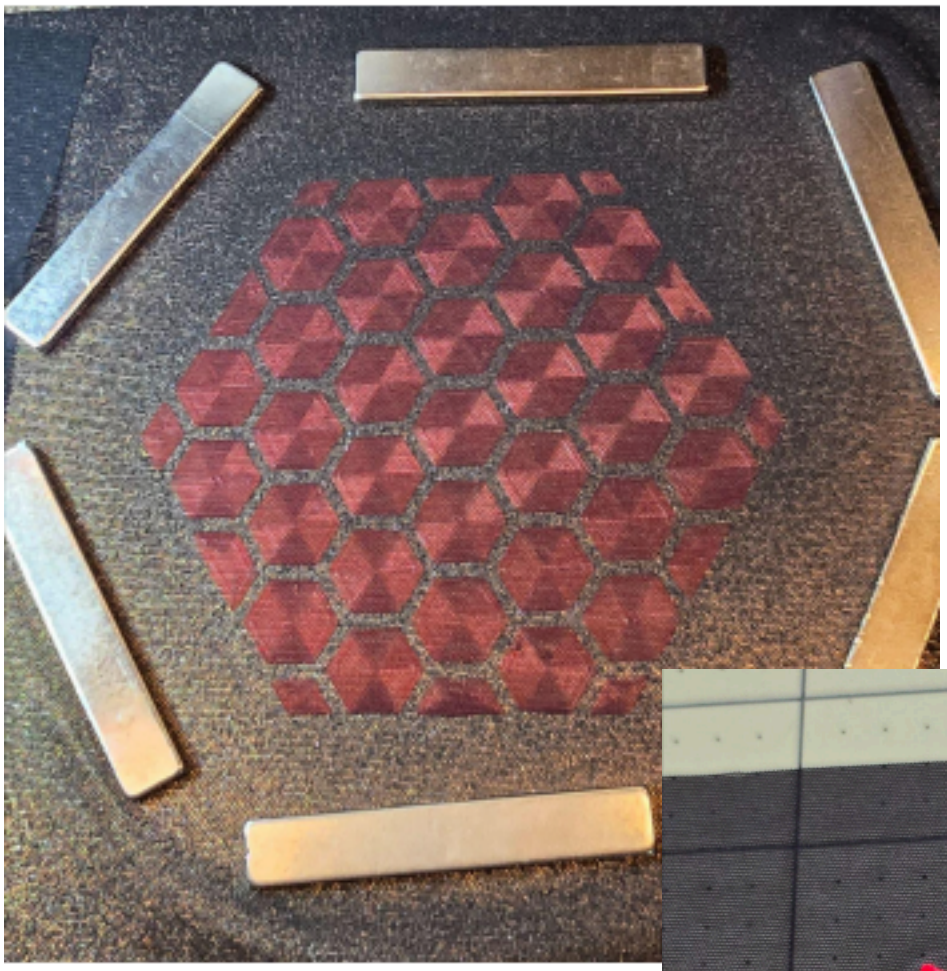
I print with a .4mm nozzle. I use .24mm layer height due to the average thickness of the mesh fabric that I print on. If you find that your fabric is snagging, increase the layer height to .28. If you are using very thin fabric, you can drop the layer height down to .2mm.

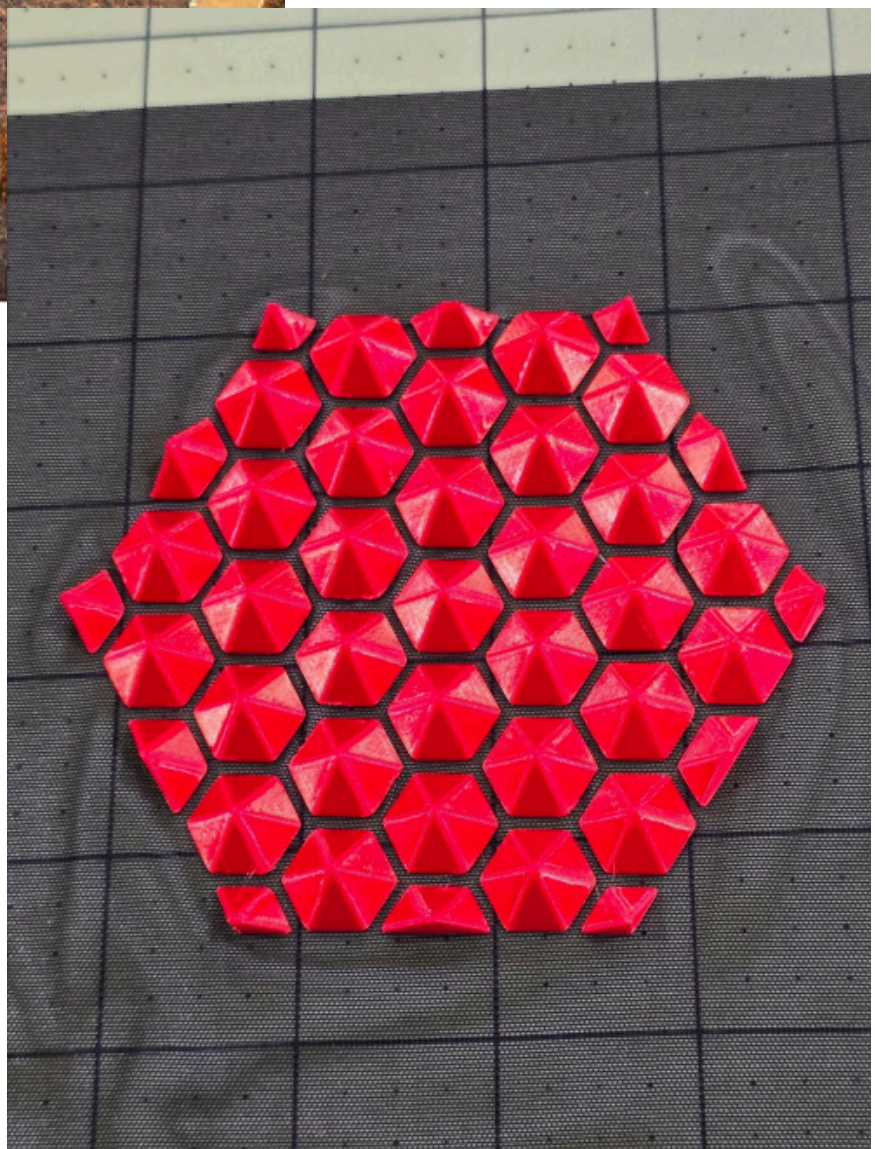
I set my first layer speed to 35-50mm/s, especially if using a holographic build sheet. There will always be a pause command that is necessary when printing on fabrics. The 3MF files that I upload will have all settings and pauses built in. If you download the individual STL, you will need to manually add the pause at the layer the file recommends. Add the mesh fabric on top of the paused layer followed by magnets if using a magnetic build plate. Tape can be used if printing on a glass/non-magnetic surface. Resume the print. The filament will be extruded in between the mesh grid, adhering to the layer below it. Another layer is printed on top to seal it all in.

Here are two longform videos that are great to watch!

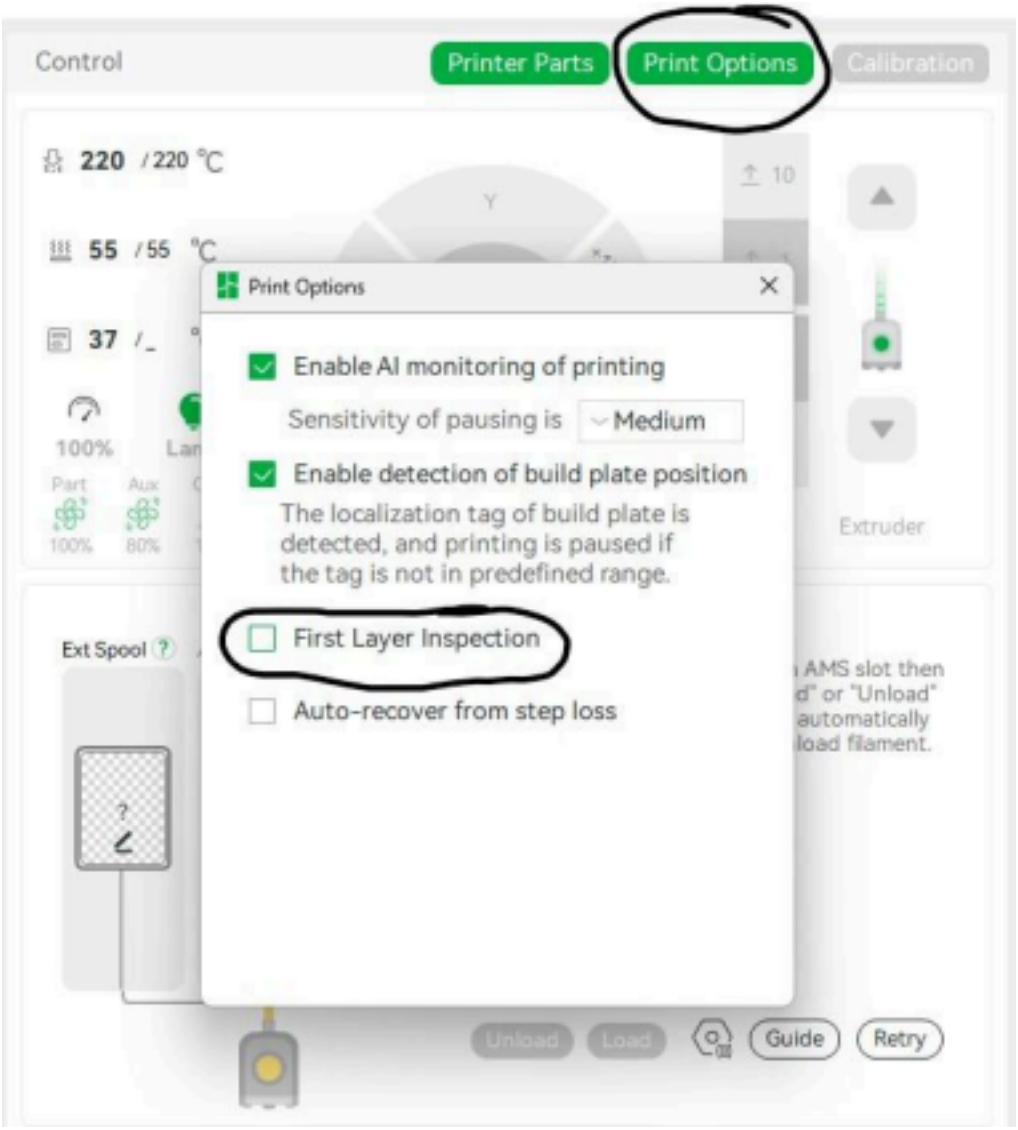
3D Printing on Fabric Part 1

3D Printing on Fabric Part 2

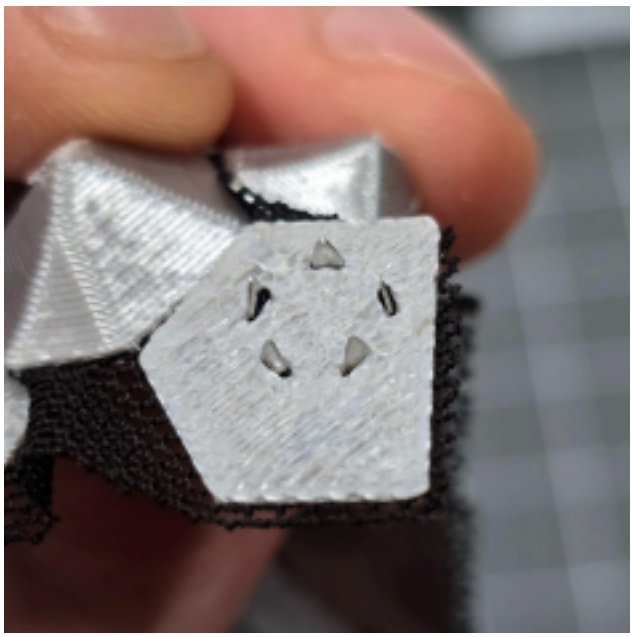


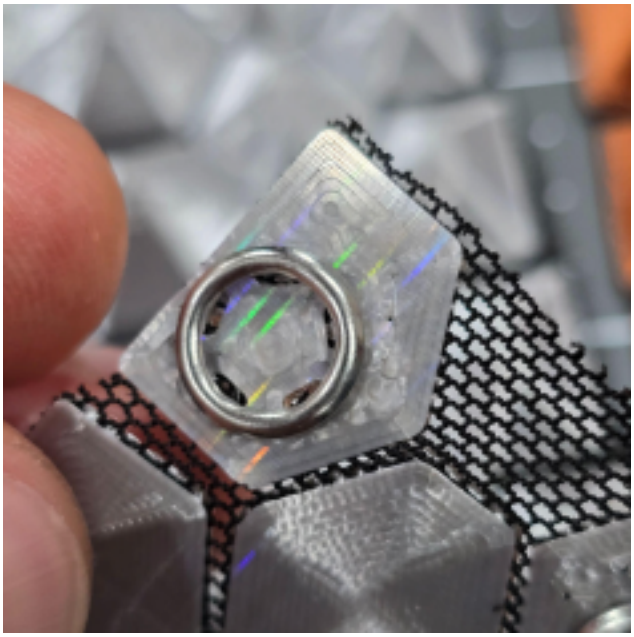


If you are using a Bambulab X1C, you must turn off the first layer inspection in the Bambu slicer. If you place the mesh at layer two. The AI will think the mesh is an error and will not resume the print.



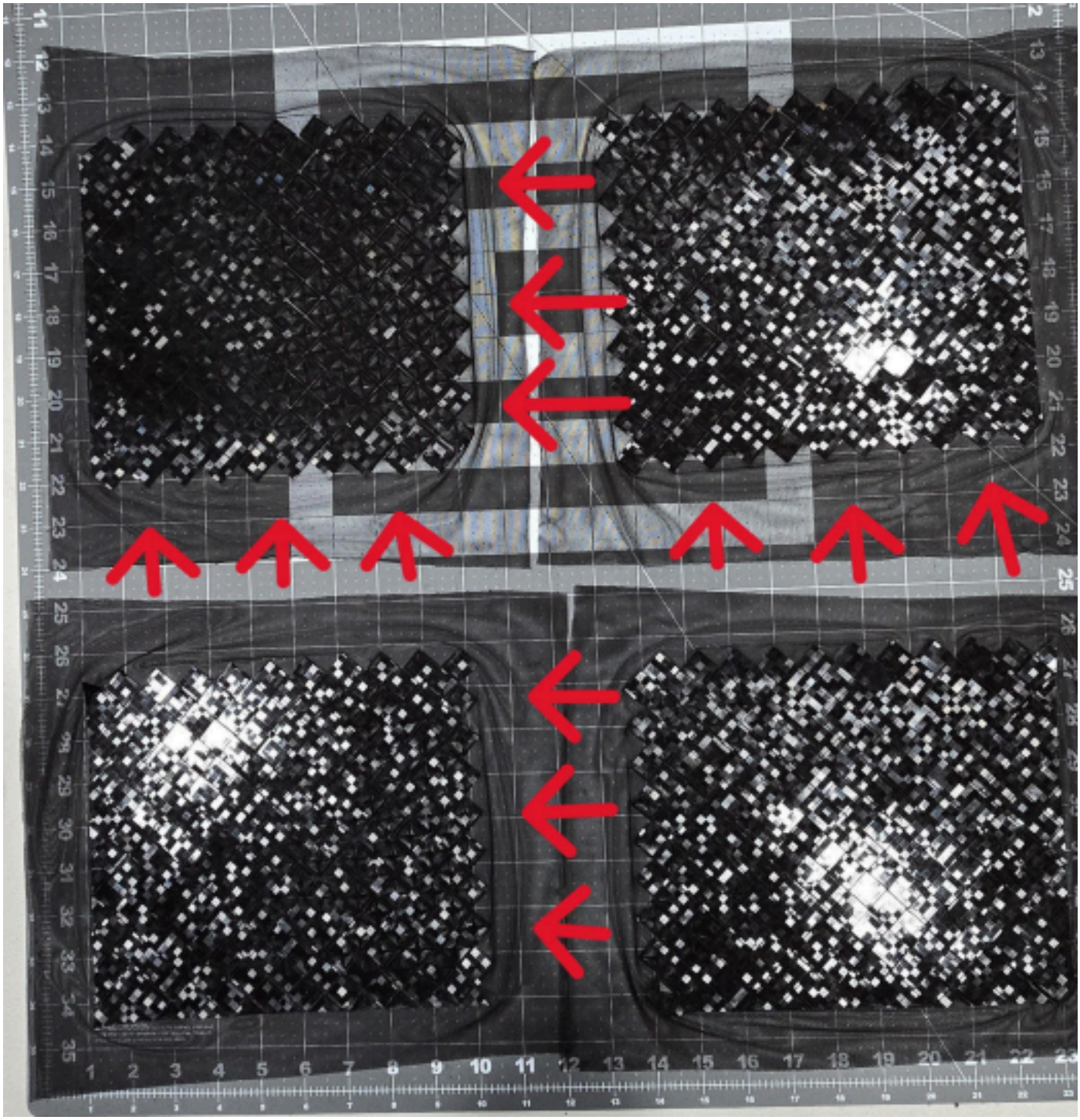
If the pattern calls for snap fasteners, I use almost exclusively size 15 or ⅜”, unless otherwise noted in the pattern. There will be designated spots on the pattern where the snap fastener will go. See photos for reference. The snap fasteners I use can be found here - https://a.co/d/itqXy3q or https://a.co/d/5vuVDYJ





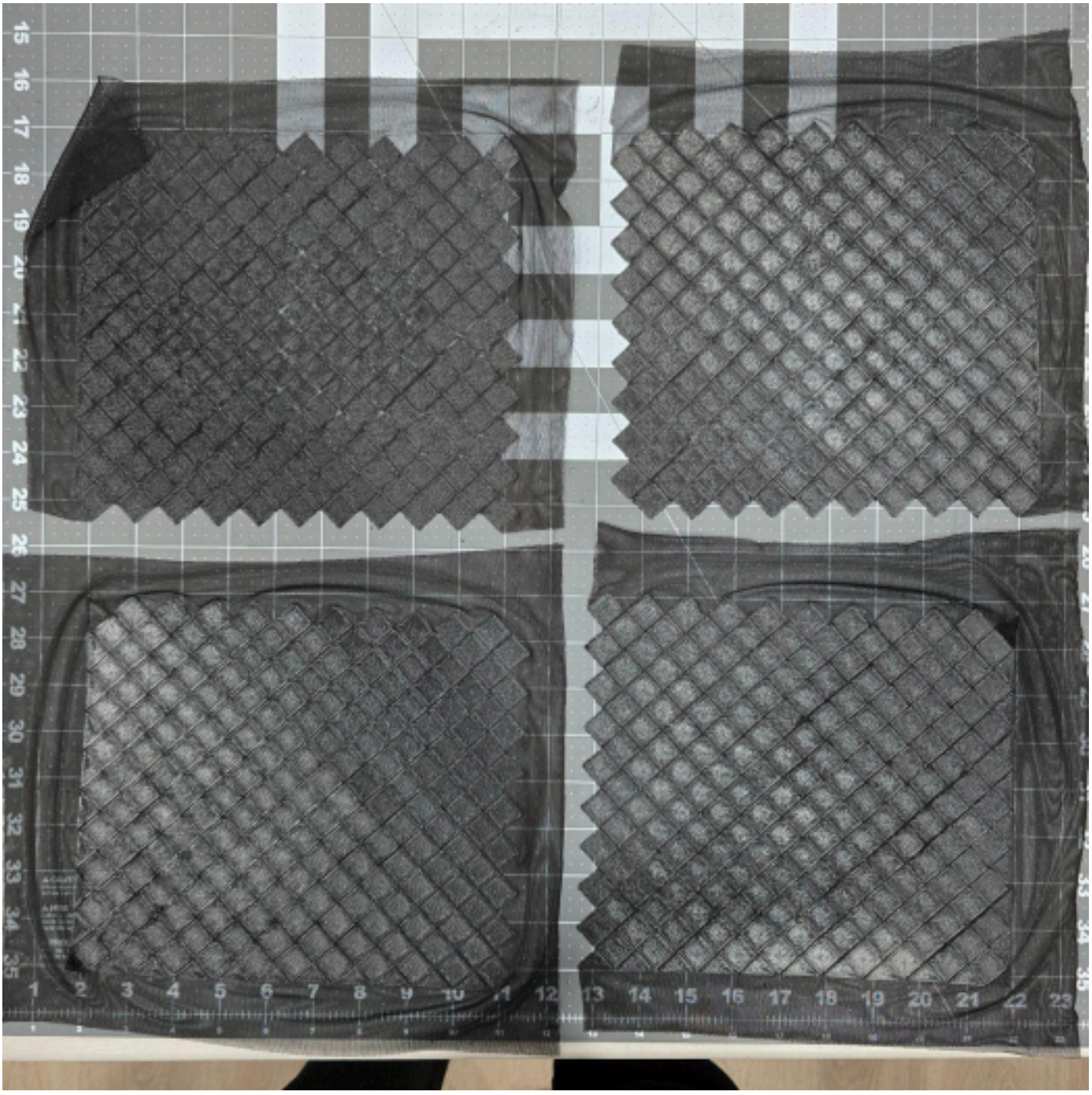
If the pattern calls for joining multiple segments of prints, I either sew them or use UV curable resin (my preferred route).Once the prints are finished, you'll have to trim away the excess fabric on one end and fold over the opposite side's fabric to attach with UV resin. I use a needle or toothpick to apply a small amount of resin onto the mesh before making sure it’s aligned and cure it with a UV light. After the prints are connected, cut out a base layer of fabric and sew them together. Each print has a different pattern. The following photos are an example of the trimming of the excess fabric and using UV curable resin. Here is an Amazon alternative - https://a.co/d/bu8j8Af

To connect panels, align them and cut off the bottom section of the top panel, and one of the sides, as shown in the photo below. I use a small pair of scissors or a small rotary blade to trim the fabric.



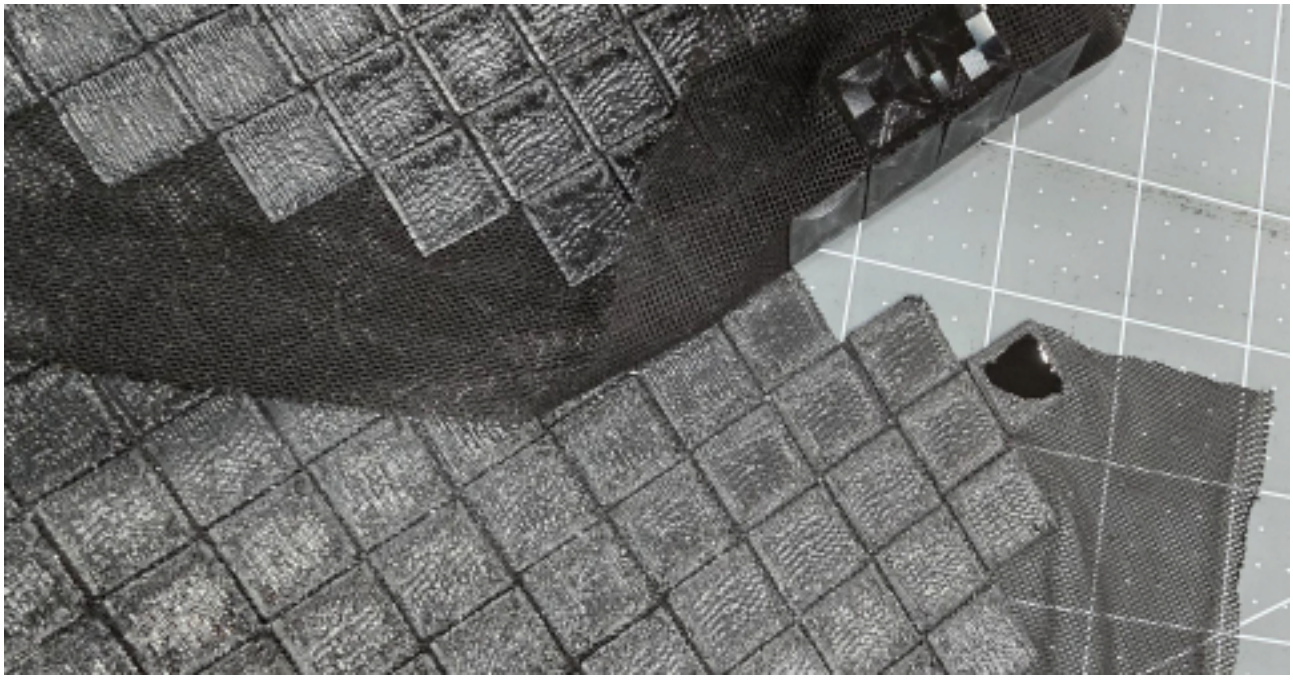
This is what it should look like after you trimmed everything. You may need to trim a little extra on the seam allowance while assembling.

Flip over your panels, mirroring the orientation. The panel that was on your left is now on your right and vise versa.



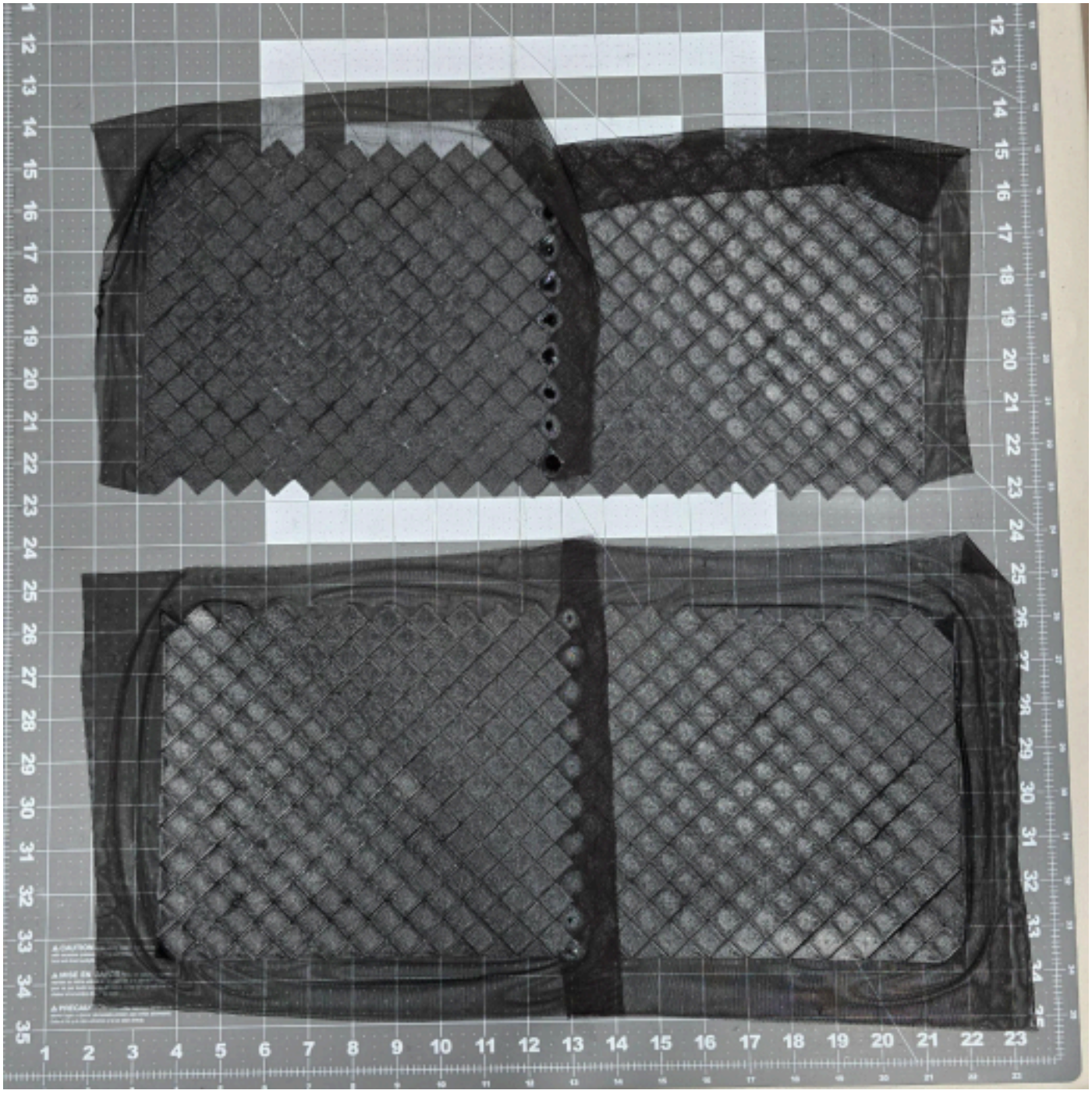
I use an adjustable soldering iron with a fine tip to clean up all of the trimmed edges. Any bit of fabric gets slightly melted away. I've found around 400 degrees F works quite nicely.

After the edges are cleaned up, start with the edge and place a small amount of the UV curable resin, before gently placing the other piece on top of the resin. Allow the resin to soak through the mesh, and zap it for a couple of seconds with the UV light. I generally will line up and attach every 5th or so shape, and come back after to attach the rest.

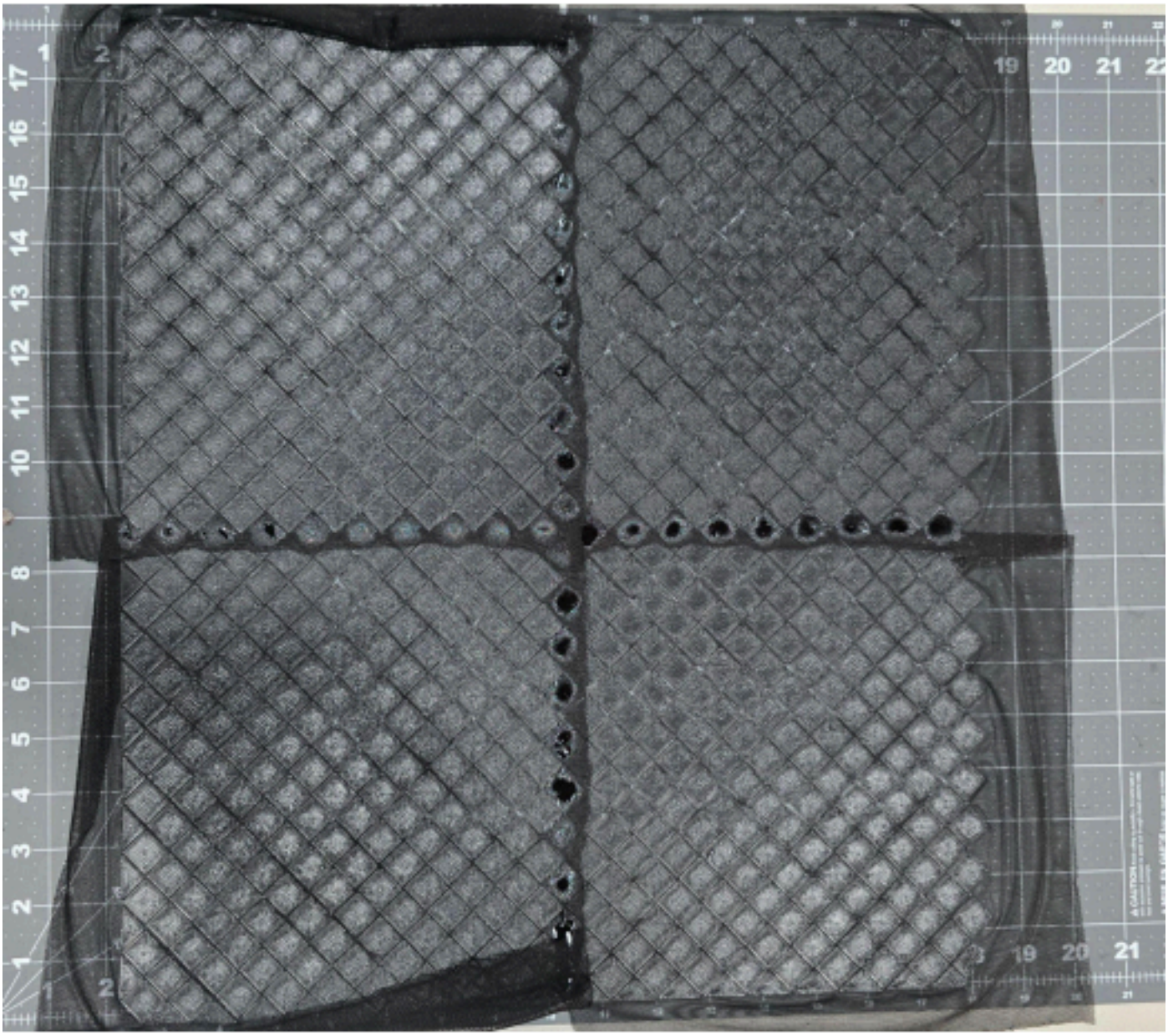


After the first is cured (all it takes is around 10-15 seconds), continue connecting two ¼ panels at a time.

After the two ¼ panels are connected, repeat the process connecting the now two ½ panels.



This is what the finished product should look like, before flipping it over. As a general practice, i'll go over each spot with the UV light just to make sure I didn't accidentally miss one. You'll know if you used too much resin as there may be some uncured resin on the front side. You can wipe this away with a cloth and Isopropyl Alcohol.



And Voila! Here is the finished product. If the pattern calls for multiple pieces, you'll just have to repeat this process for each seam.