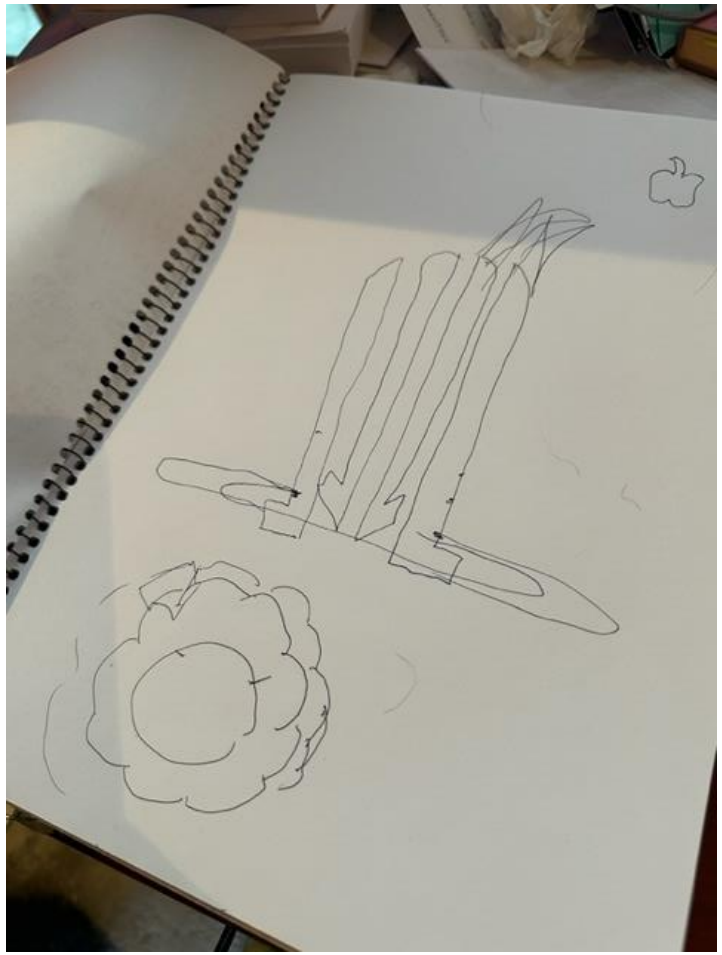
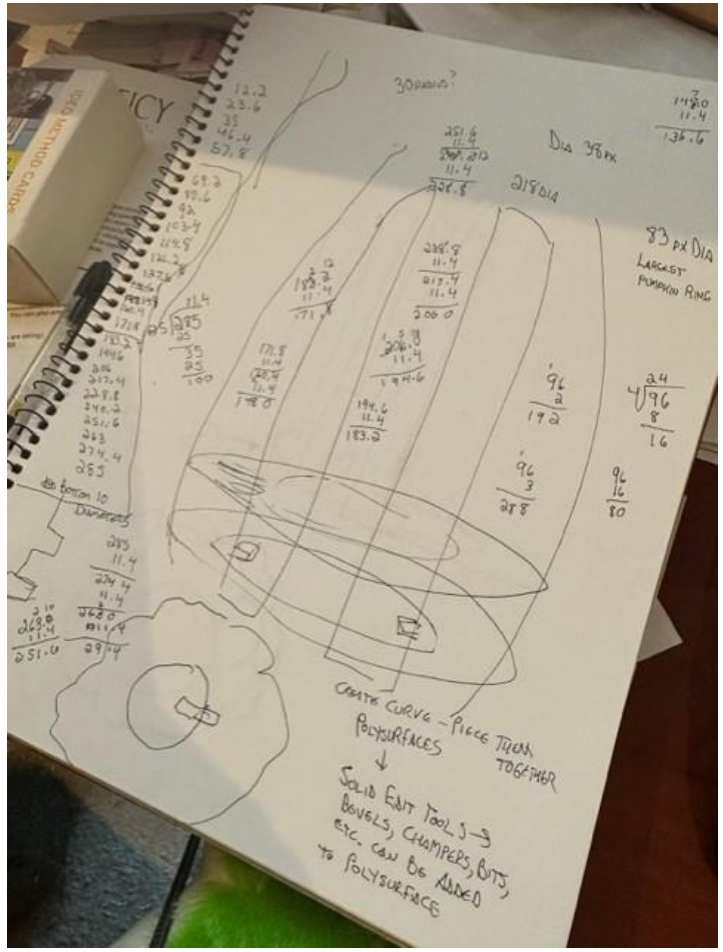
# HCDE 533 • Assignment 1 Documentation

Jody Laflen

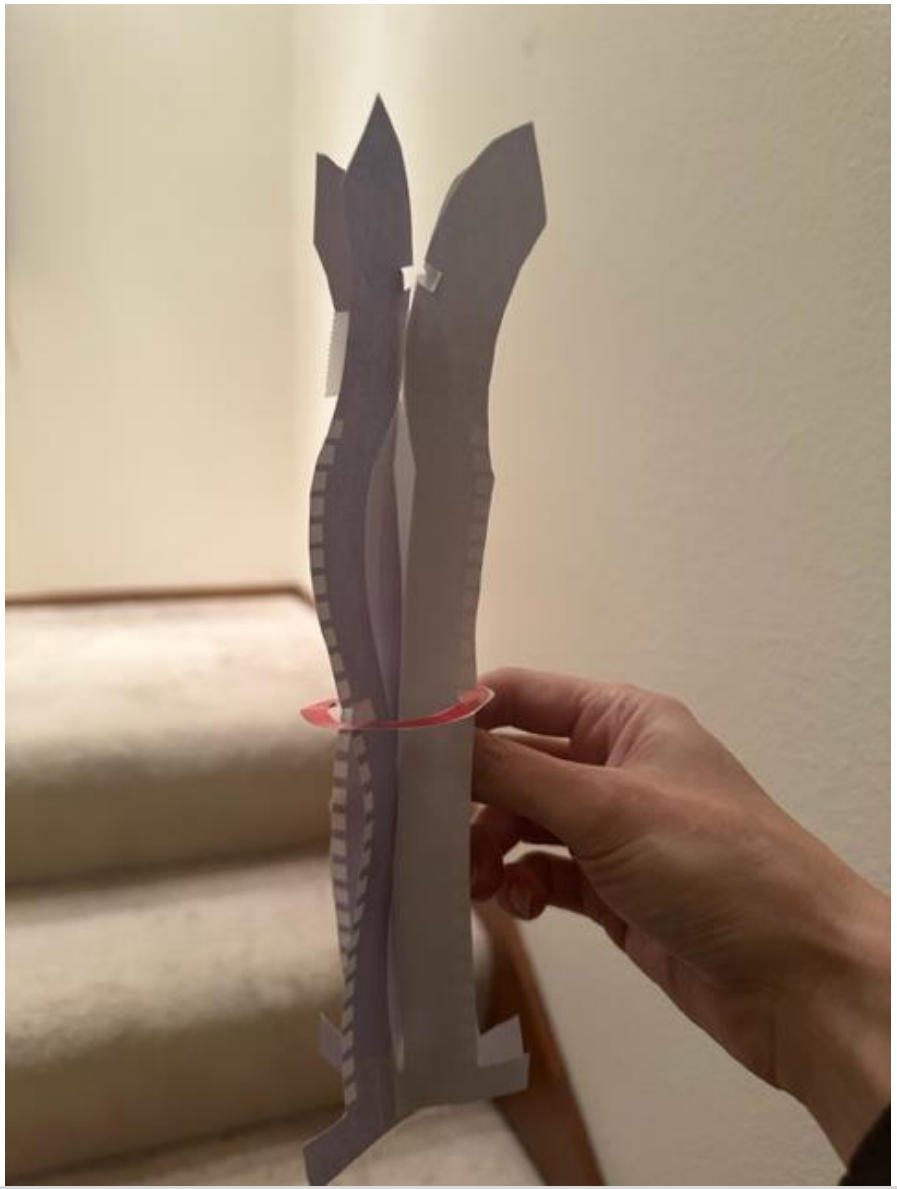
October 11, 2022

# Preliminary sketches and calculations

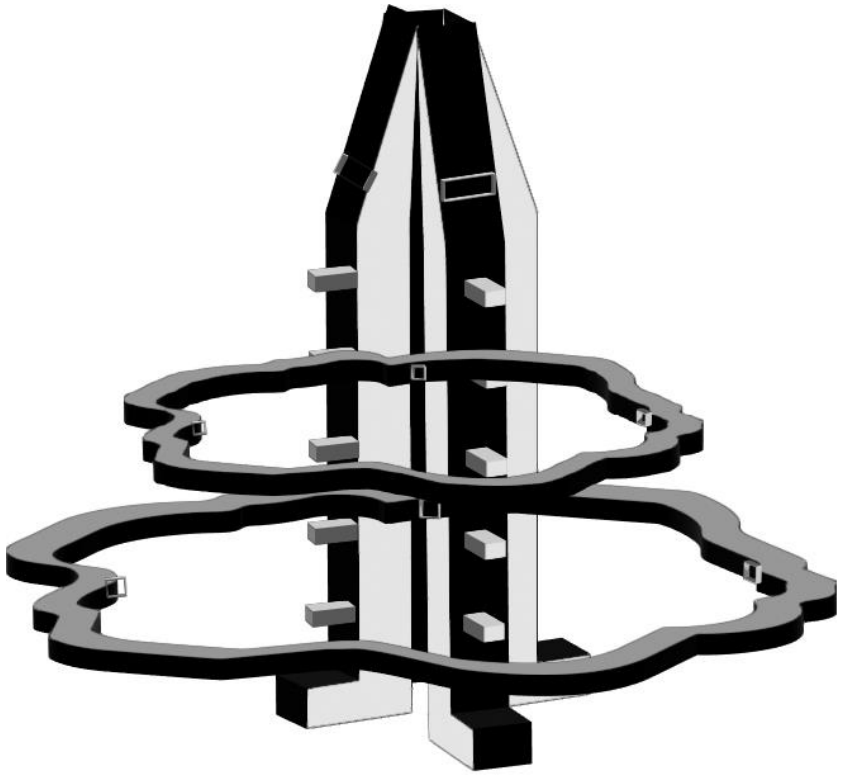


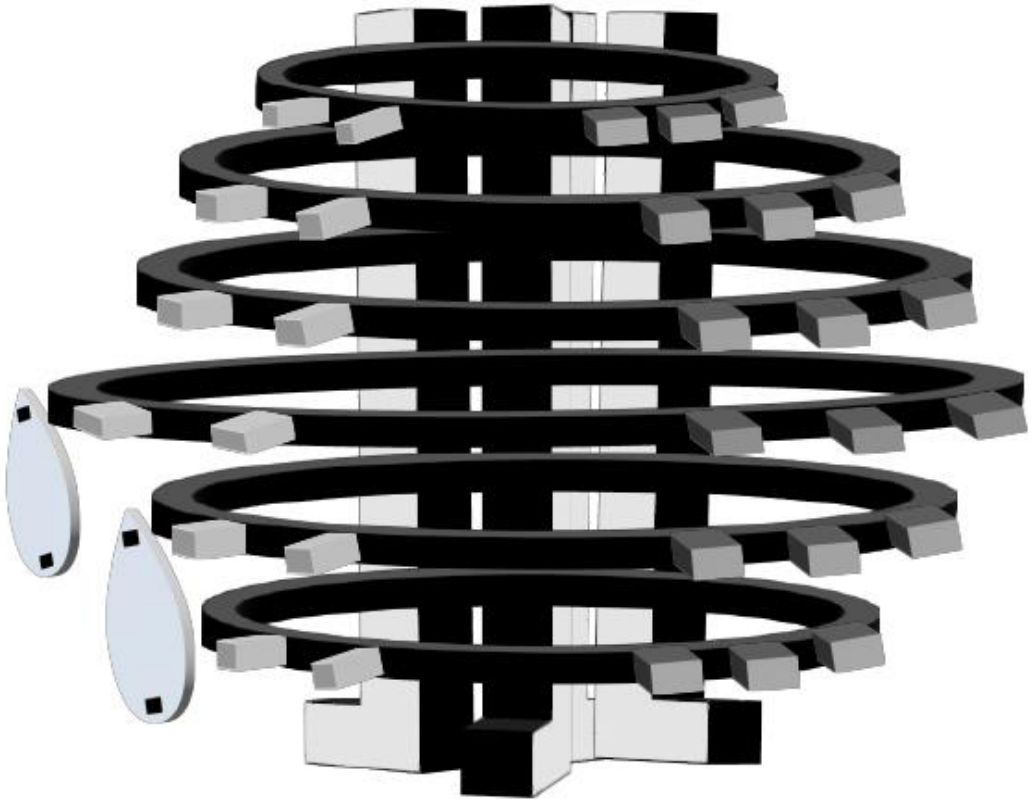


# Preliminary paper model

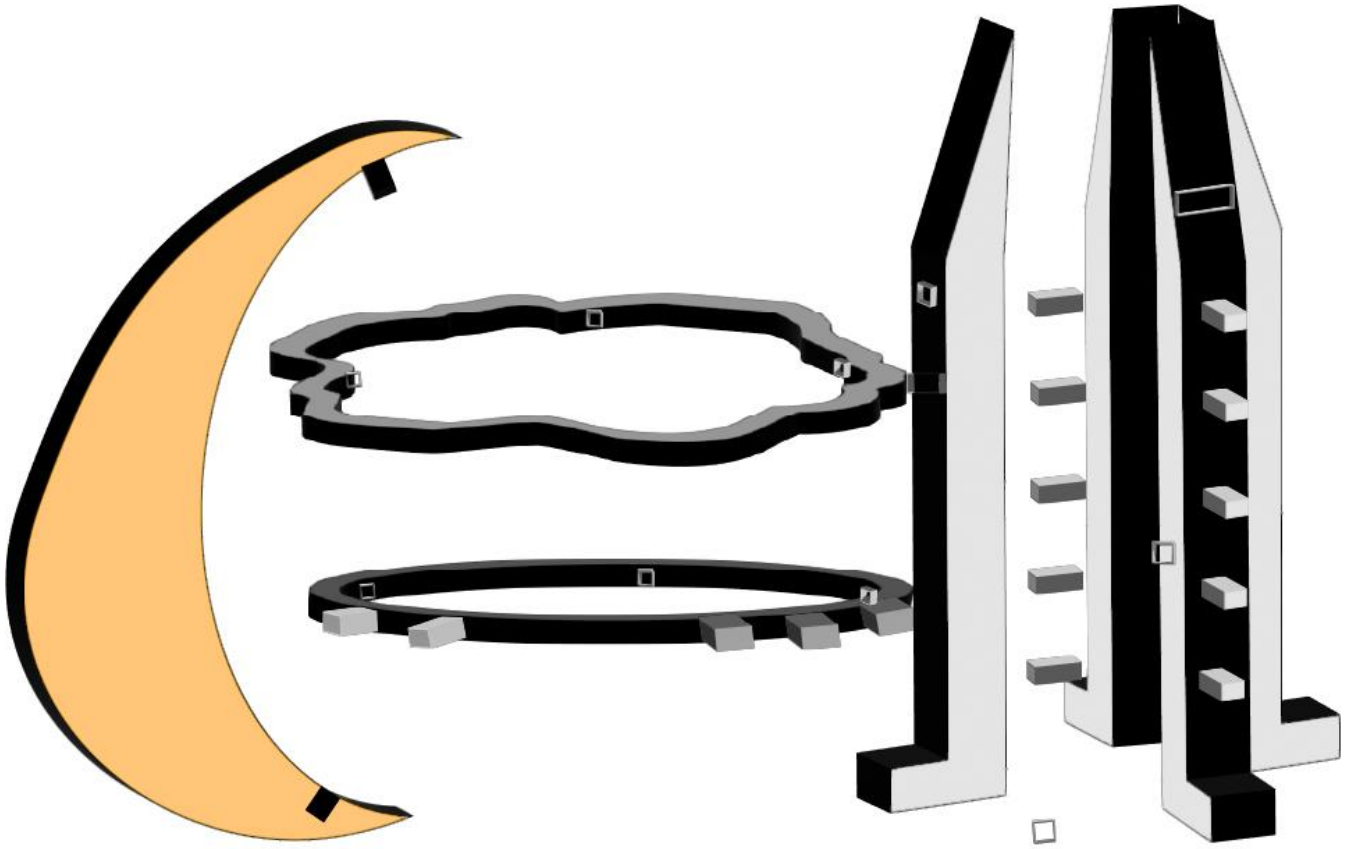


# 3D Sketching - Brainstorms



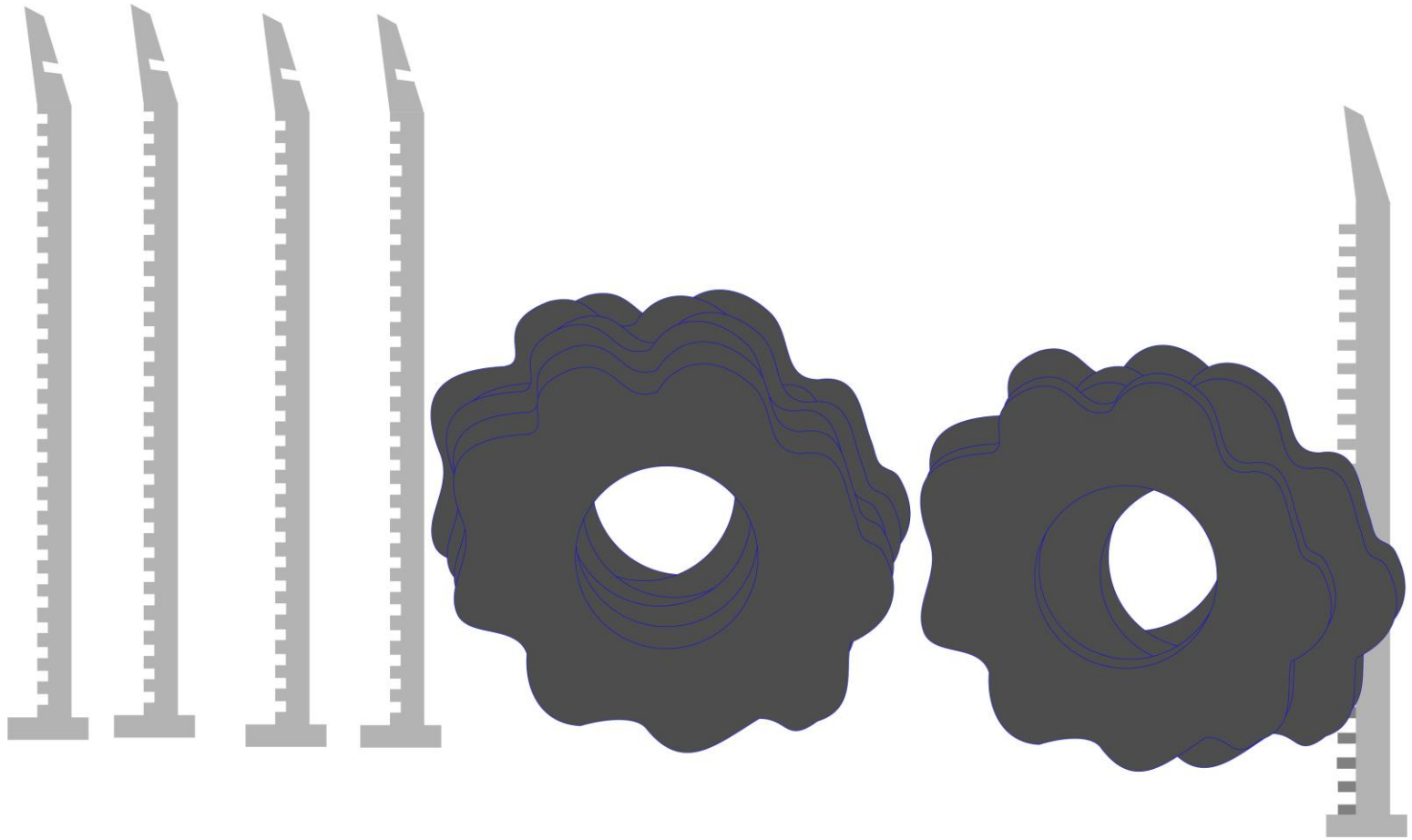


# 3D Sketching - Brainstorms

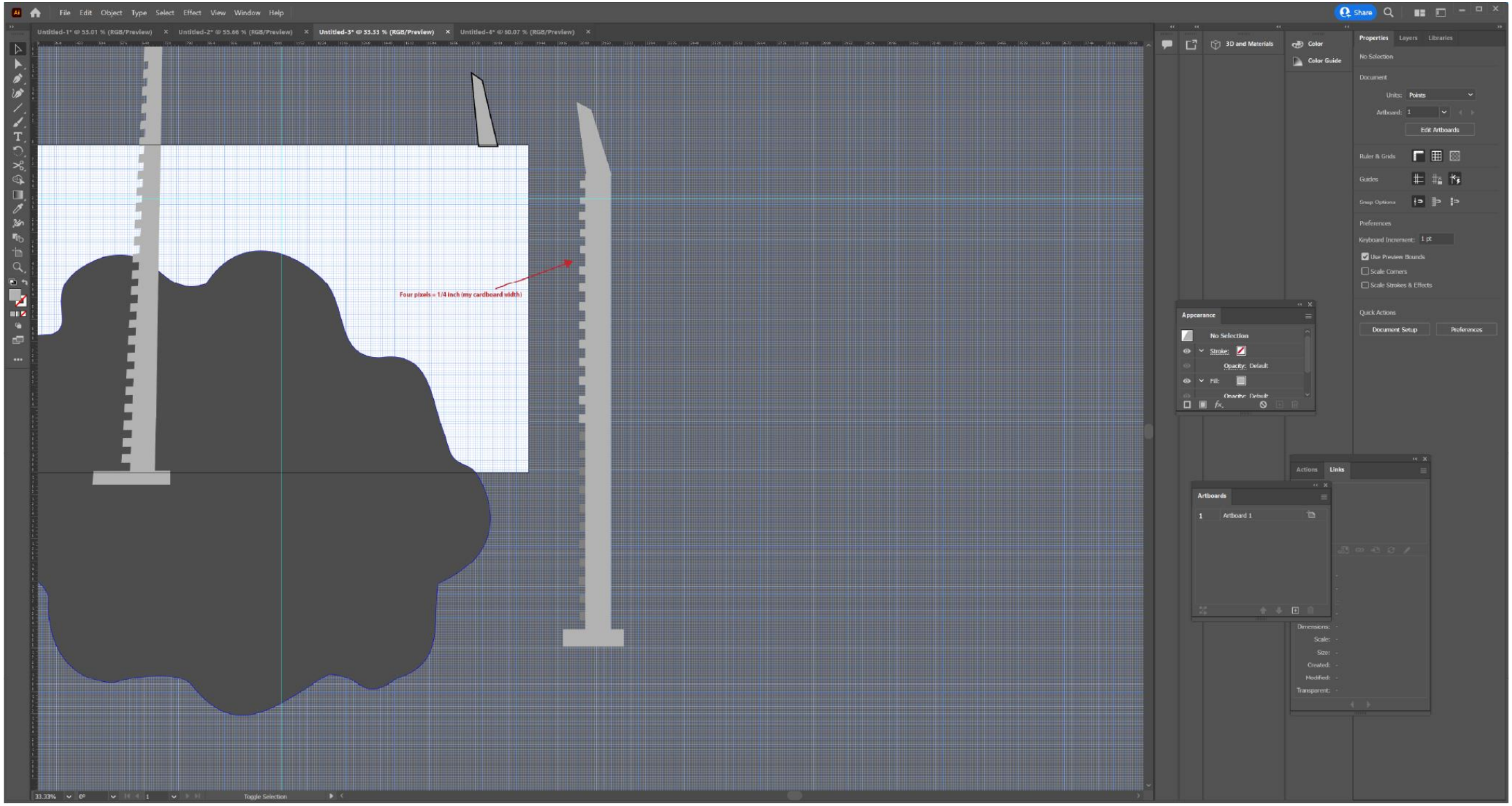


Brainstorm: Another pumpkin concept. Seemed too much work, found easier way (I hope).

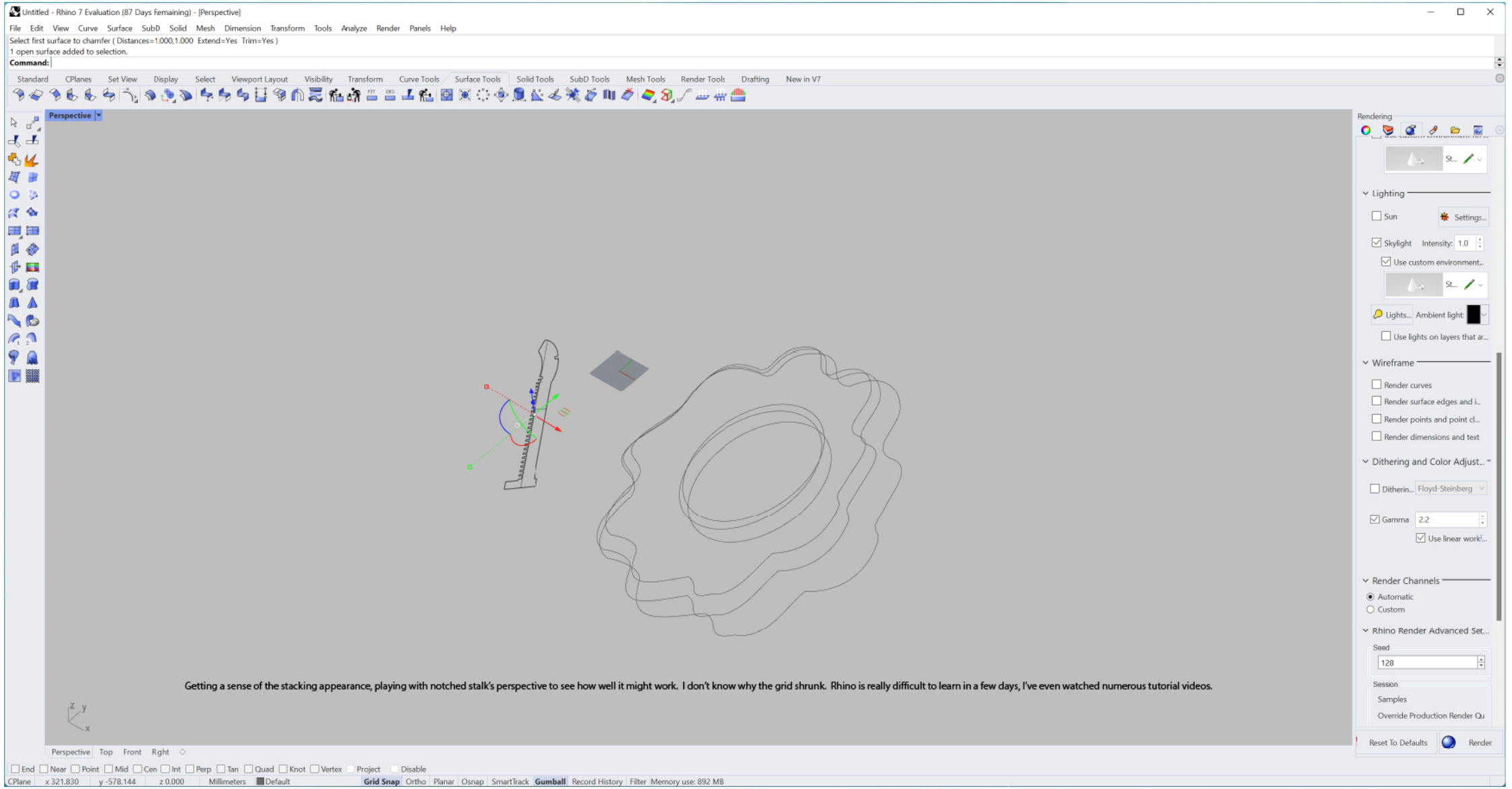
# Designing - Failures



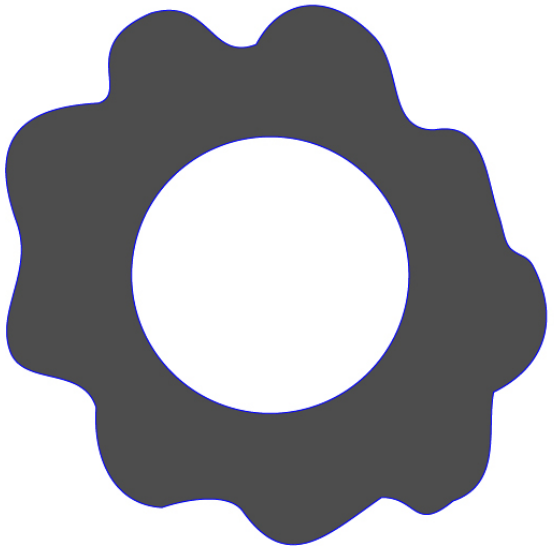
# Experiments in AI



# Experiments in Rhino



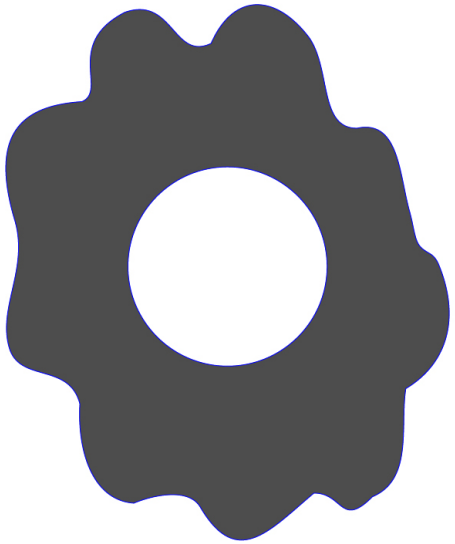
# Final Component Specs



2 qty. 7 in diameter plates, inner circle **cutout** 3.6 in. diameter.

Final cutting should look like a doughnut (with a hole in the middle of 3.6 inches and blobby plate around it of 7 inch diameter.

Laser cut 2.

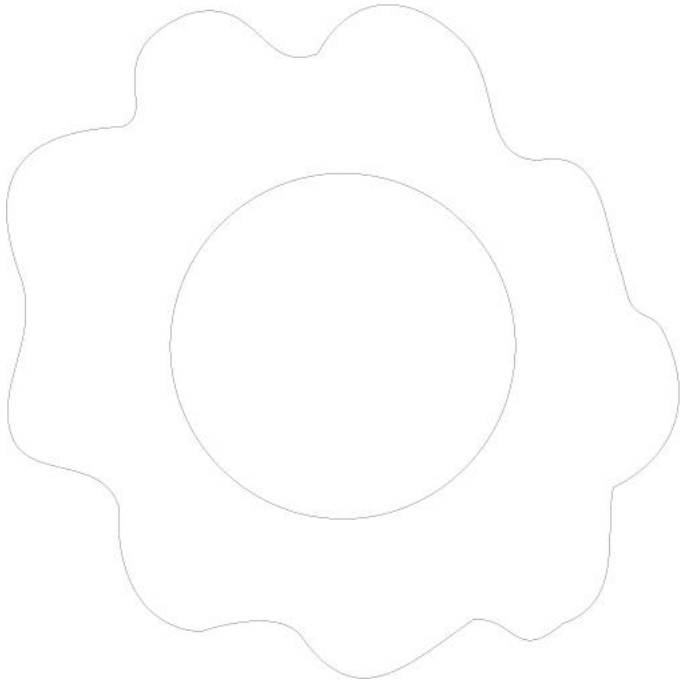


2 qty. 8 in diameter plates, inner circle **cutout** 3.6 in. diameter.

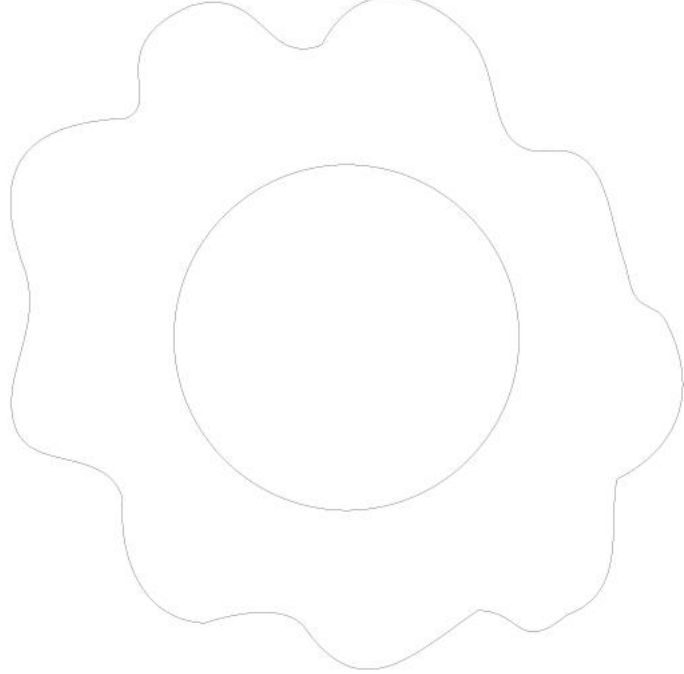
Final cutting should look like a doughnut (with a hole in the middle of 3.6 inches and blobby plate around it of 8 inch diameter.

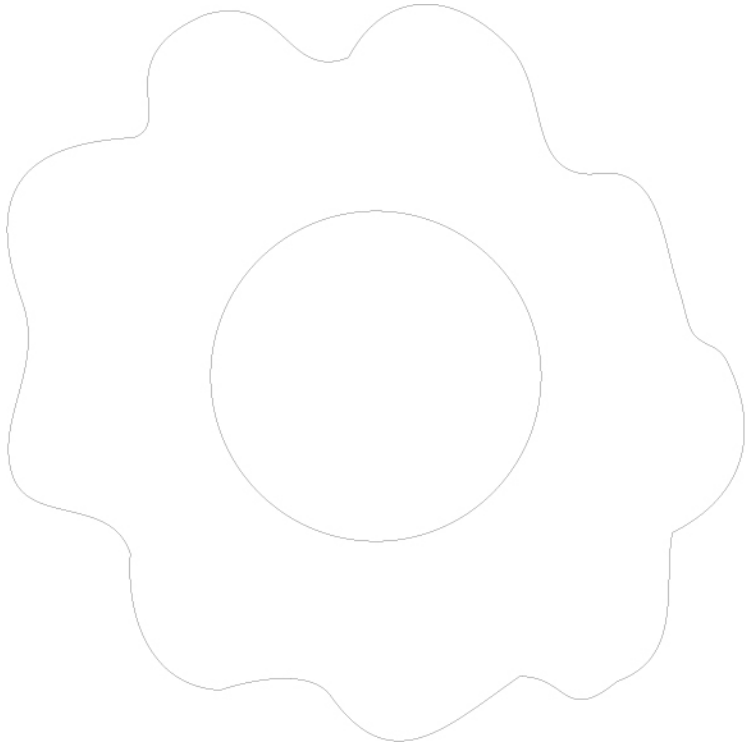
Laser cut 2.

# Final Components for Laser Cutter

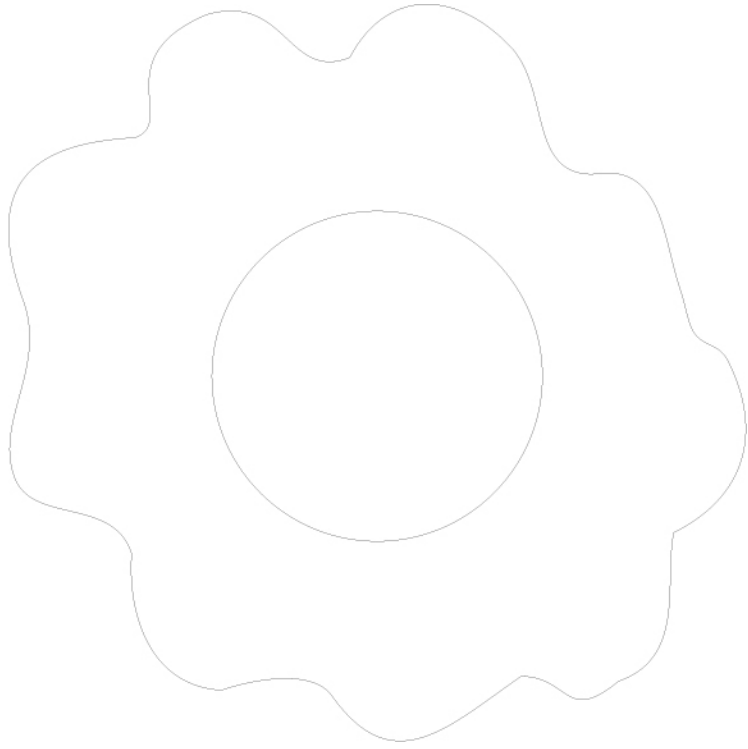


7 in.

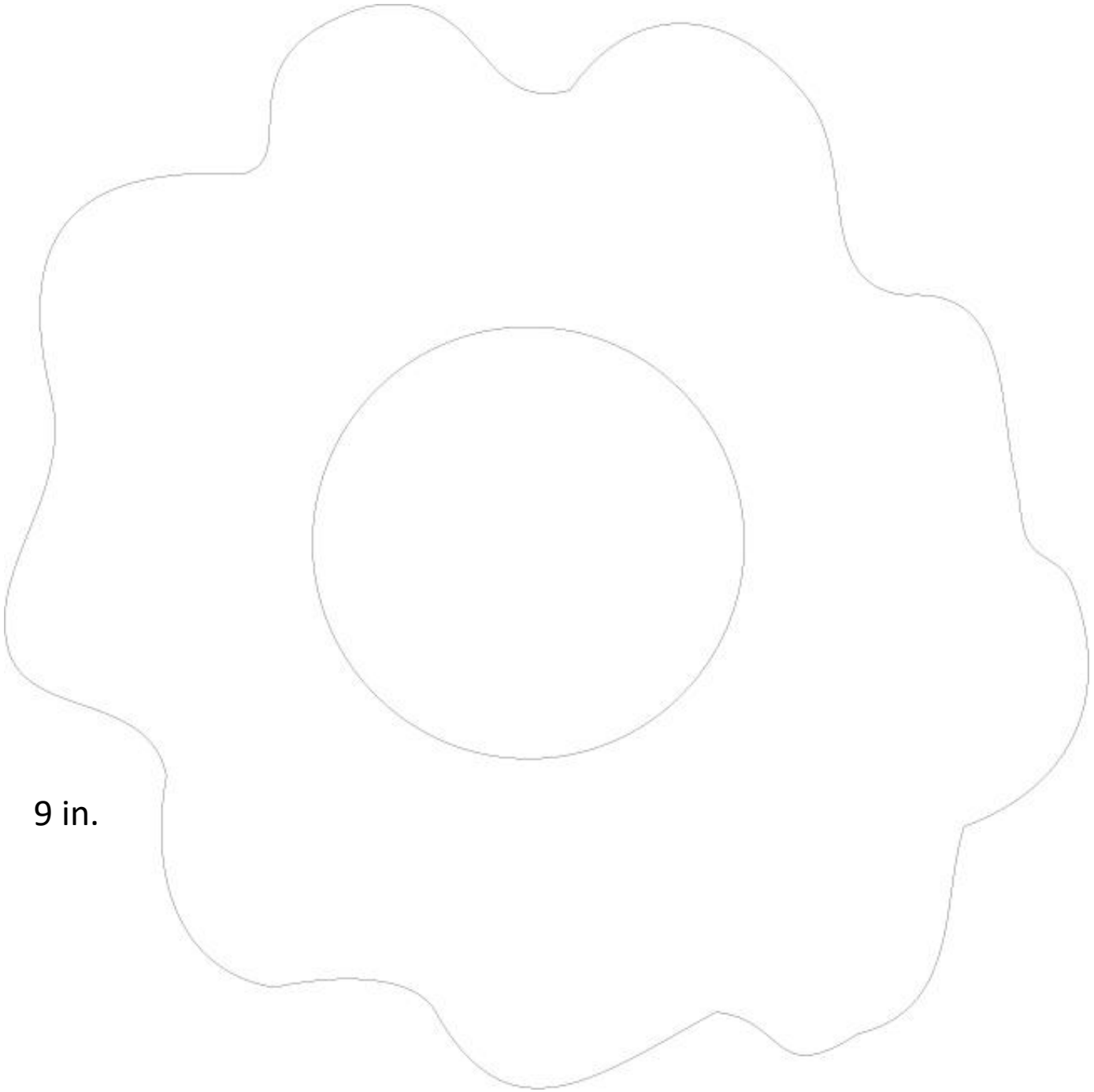




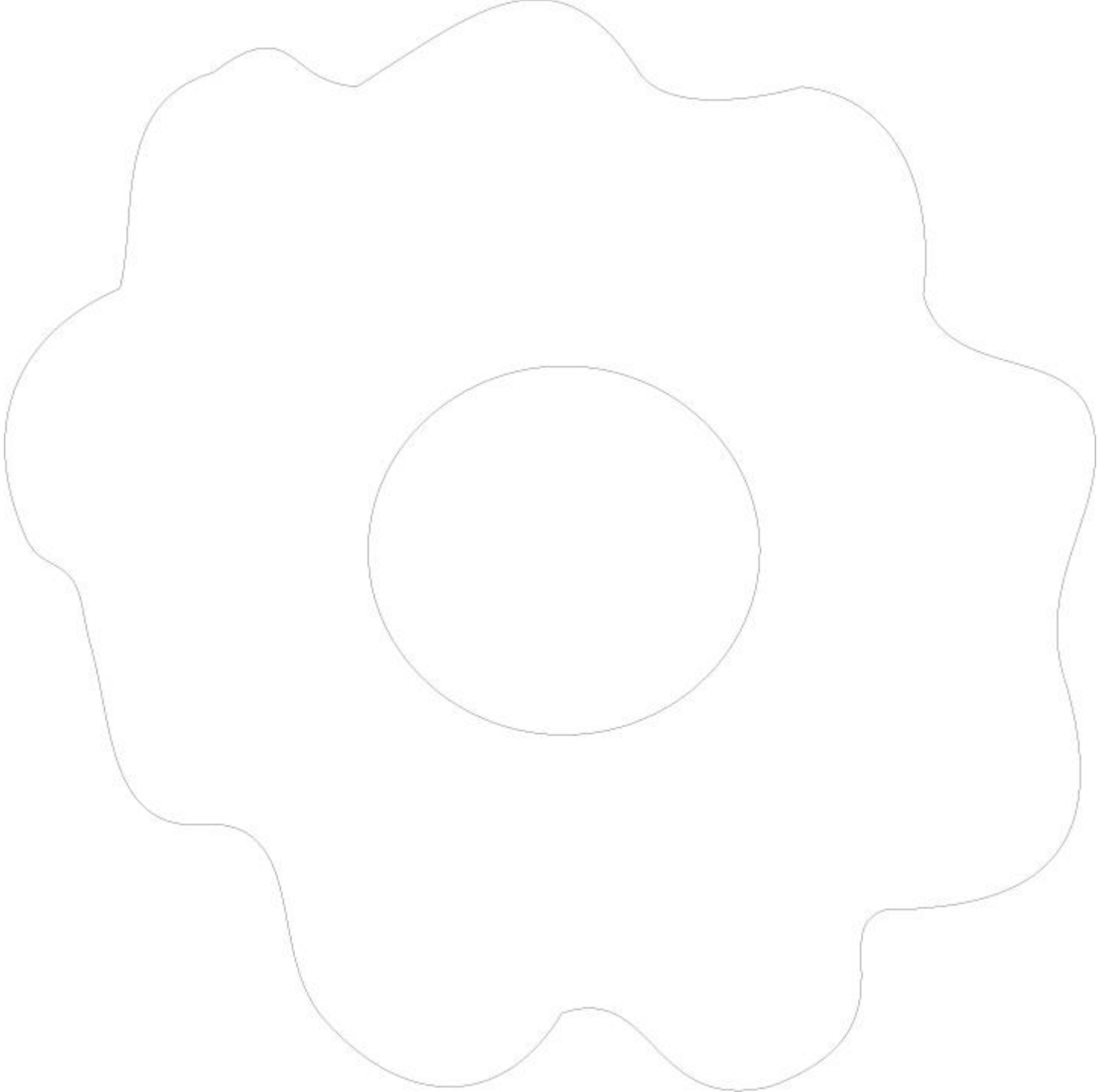
8 in.



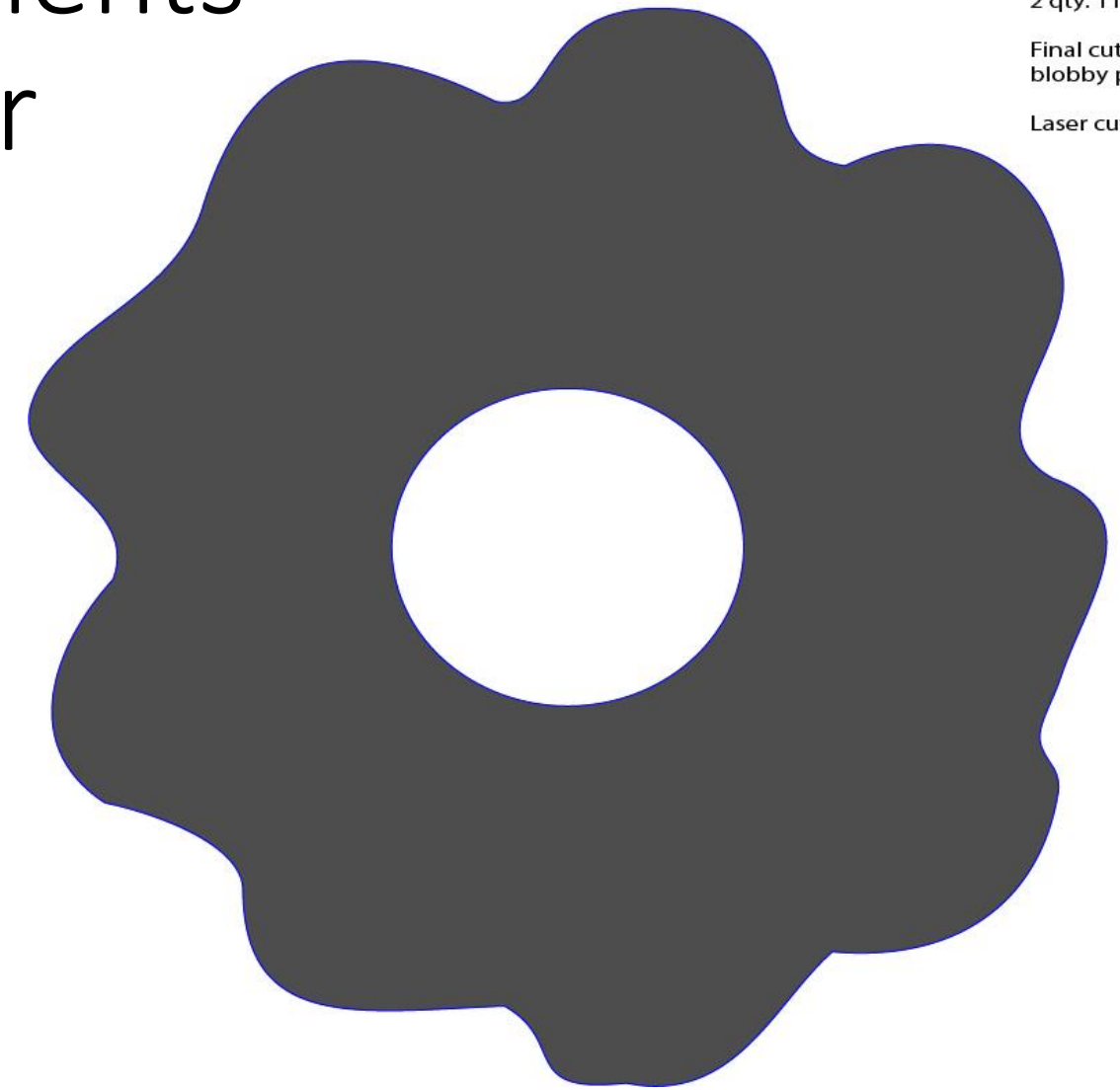
# Final Components for Laser Cutter



# Final Components for Laser Cutter



# Final Components for Laser Cutter

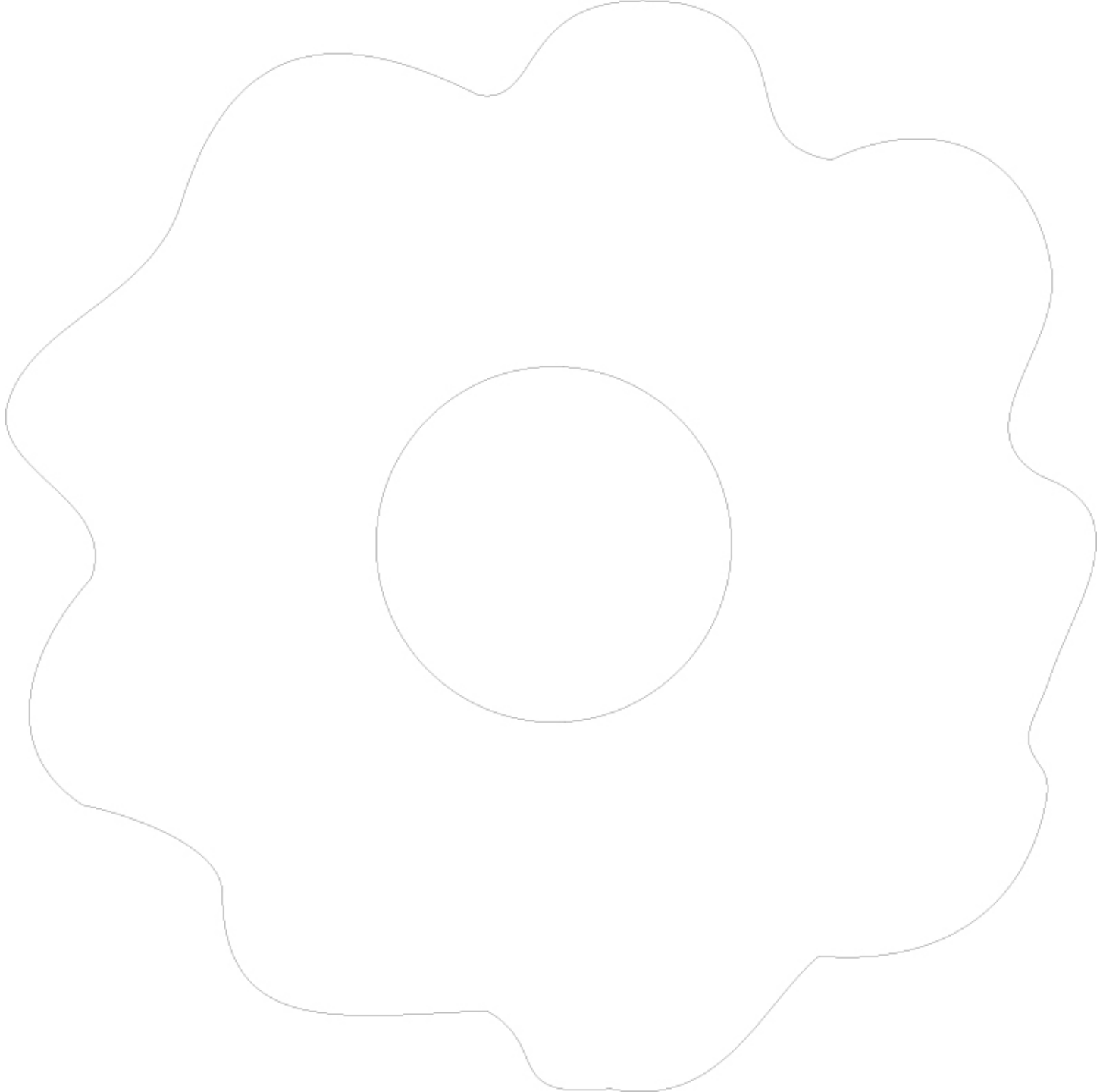


2 qty. 11 in diameter plates, inner circle **cutout** 3.6 in. diameter.

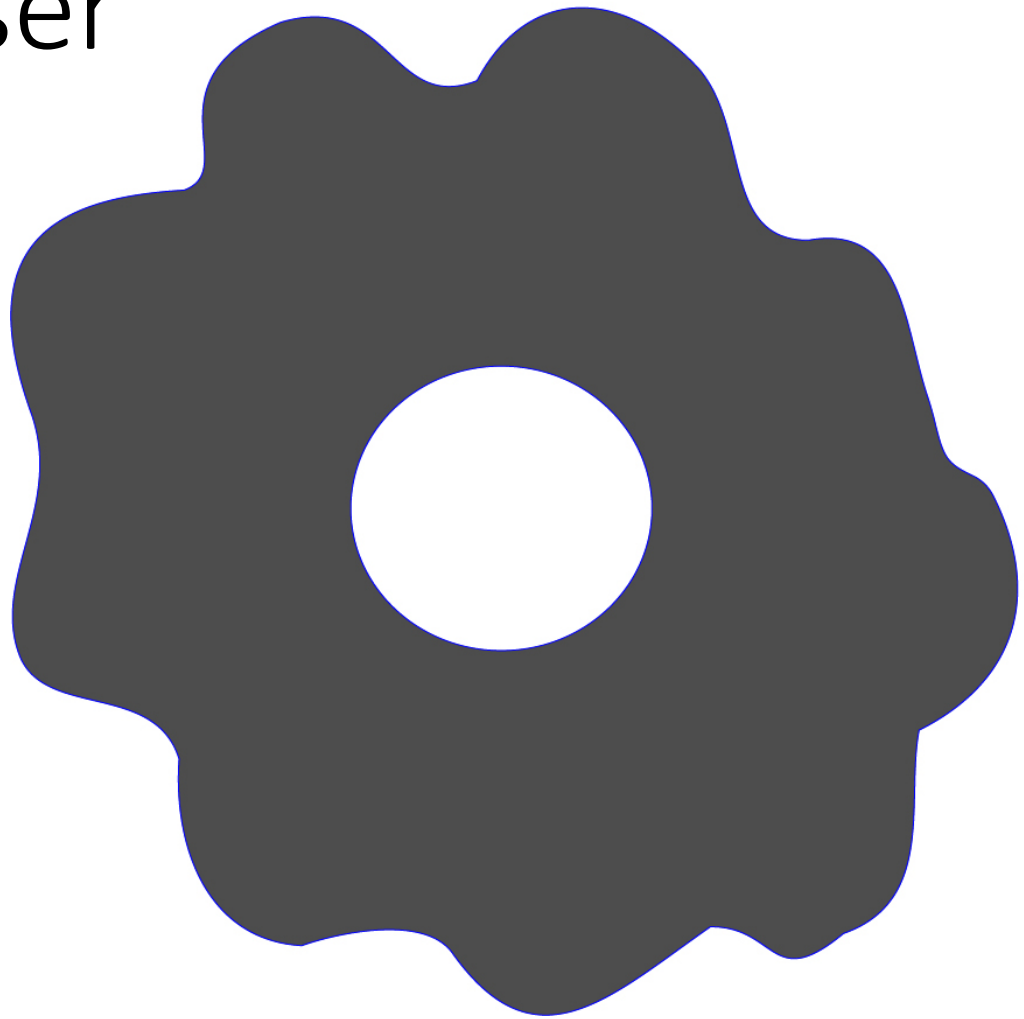
Final cutting should look like a doughnut (with a hole in the middle of 3.6 inches and blobby plate around it of 11 inch diameter.

Laser cut 2.

# Final Components for Laser Cutter



# Final Components for Laser Cutter

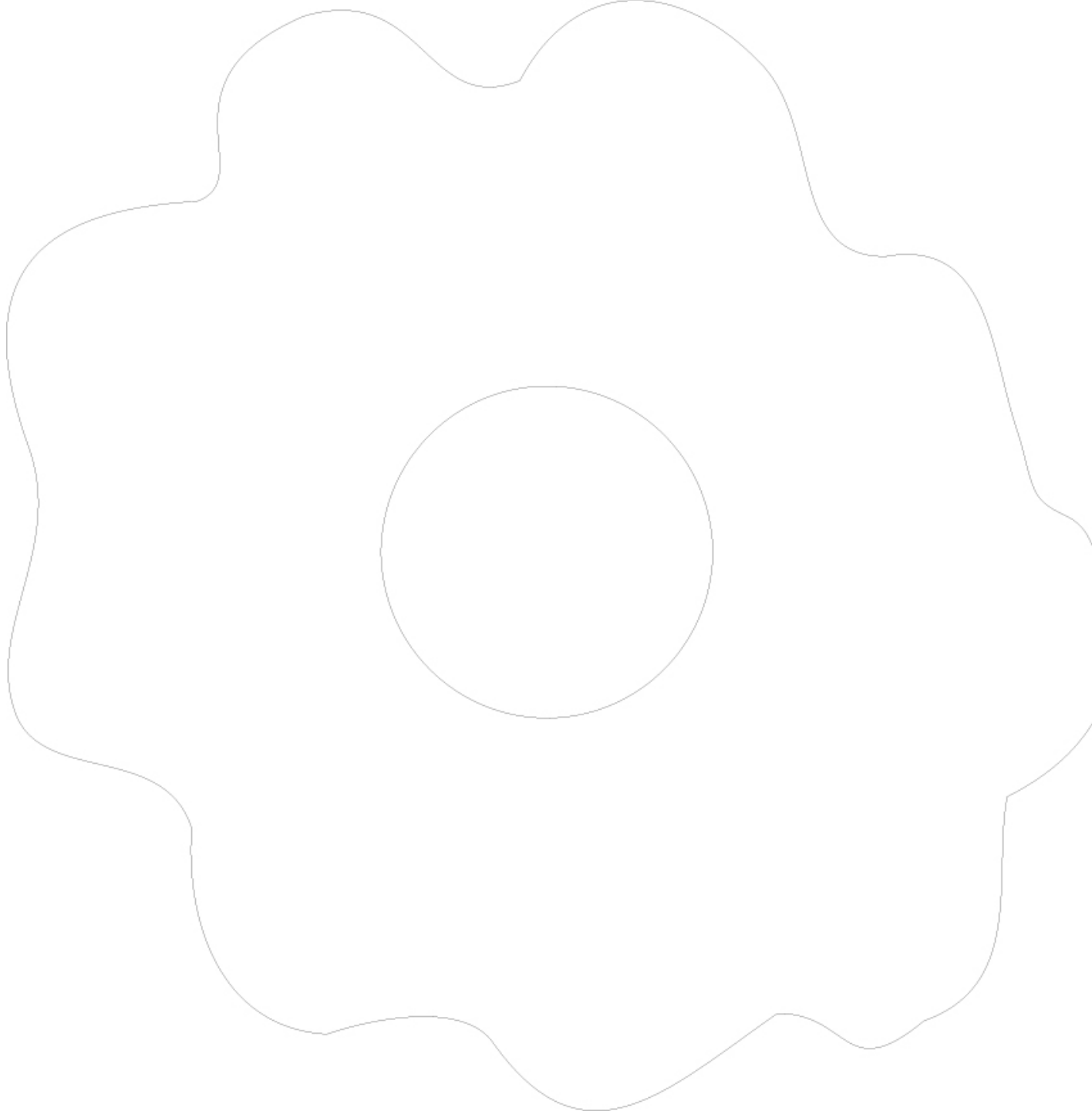


4 qty. 12 in diameter plates, inner circle **cutout** 3.6 in. diameter.

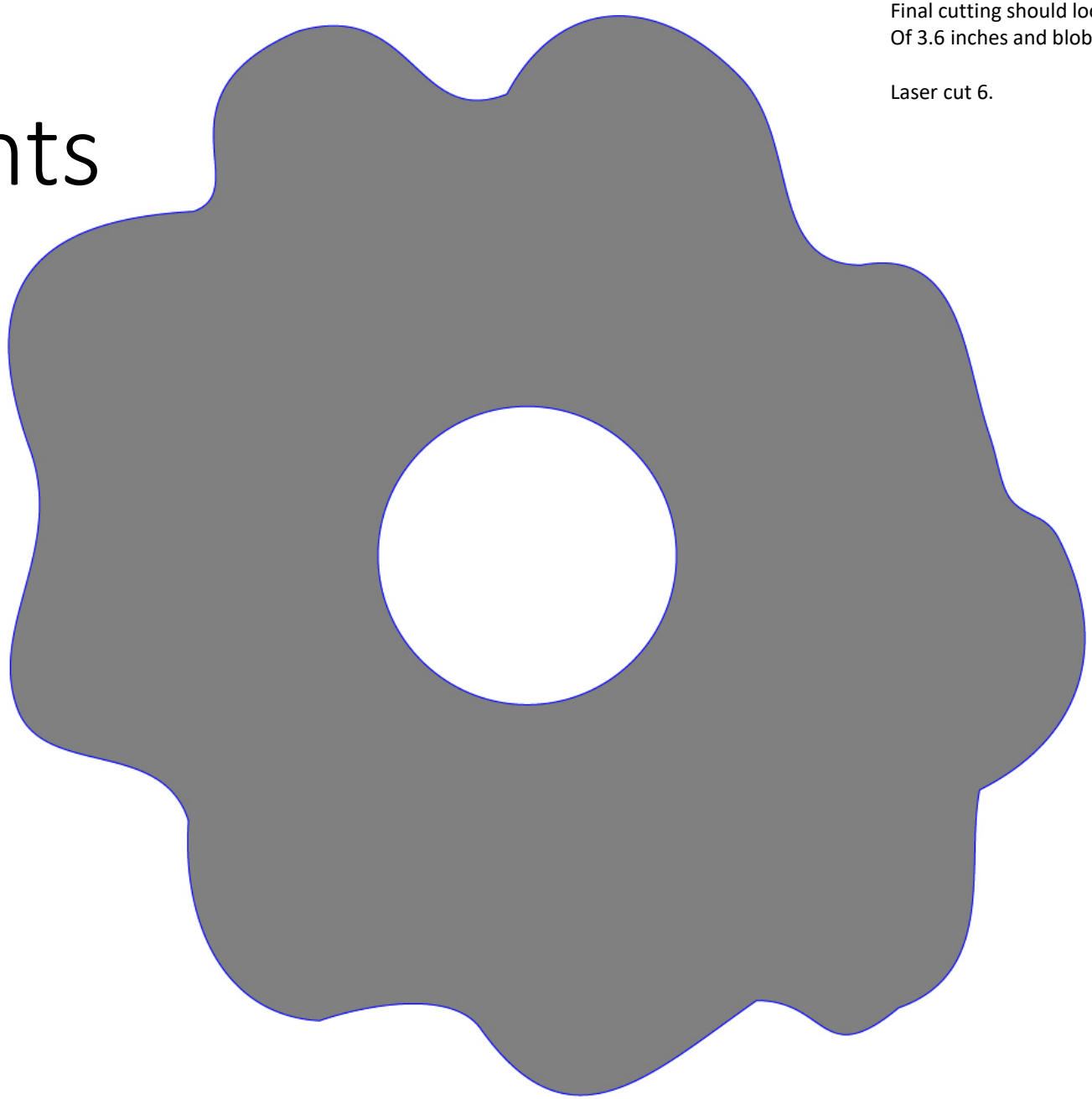
Final cutting should look like a doughnut (with a hole in the middle of 3.6 inches and blobby plate around it of 12 inch diameter.

Laser cut 4.

# Final Components for Laser Cutter



# Final Components for Laser Cutter

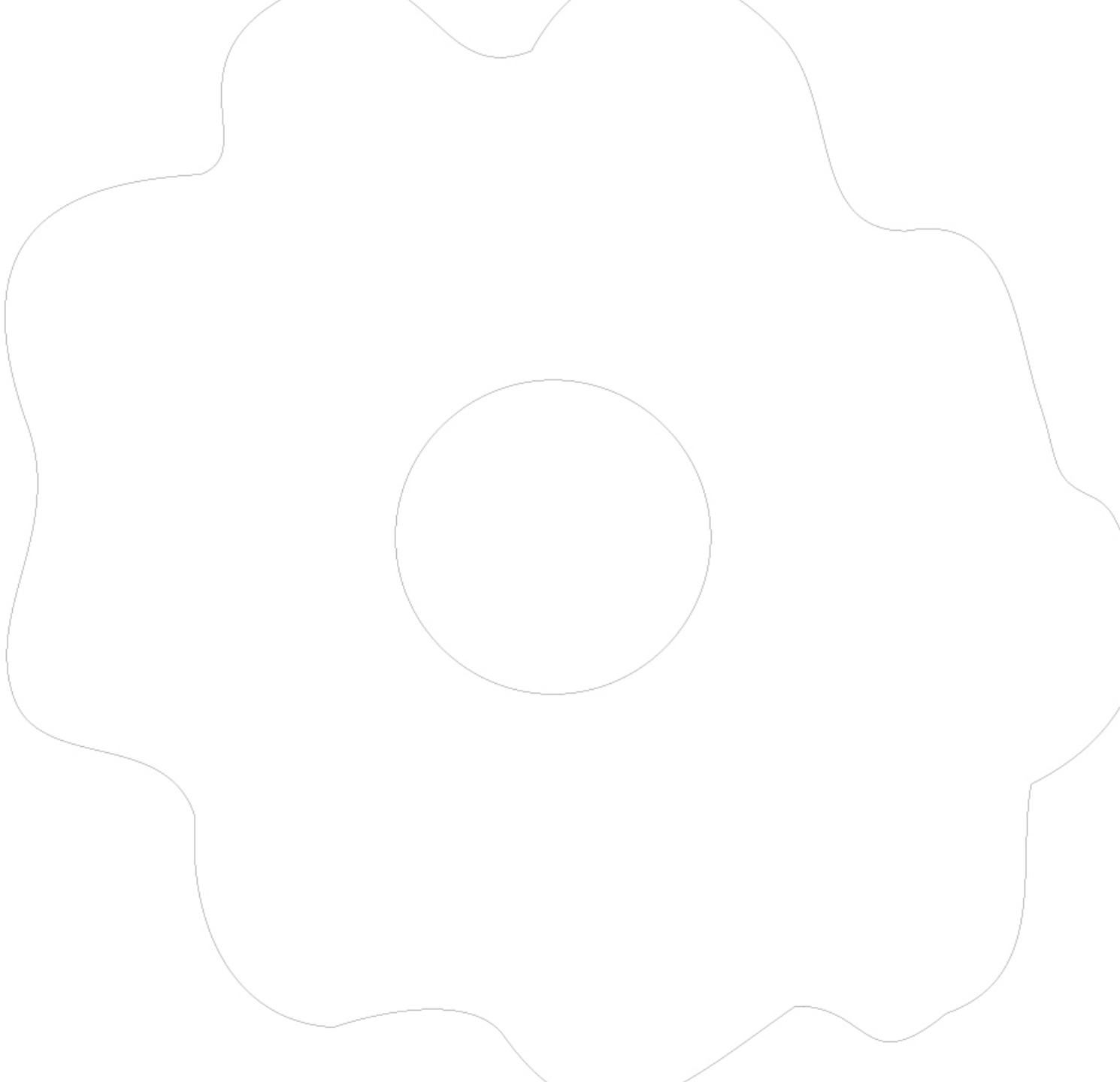


6 qty. 13 in. diameter platers, inner circle **cutout** 3.6 in. diameter.

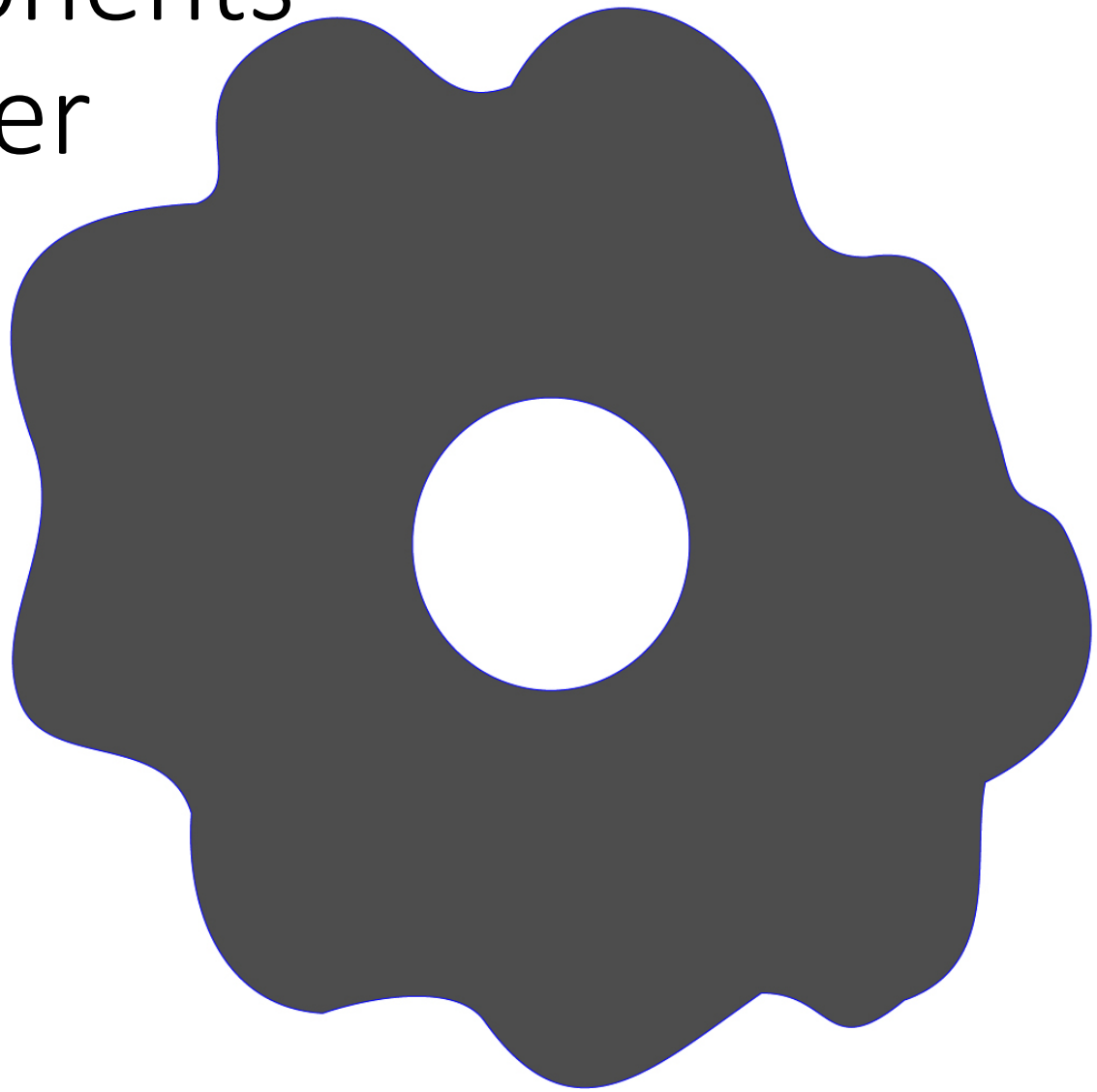
Final cutting should look like a doughnut (with a hole in the middle Of 3.6 inches and blobby plate around it of 13 inch diameter.

Laser cut 6.

# Final Components for Laser Cutter



# Final Components for Laser Cutter

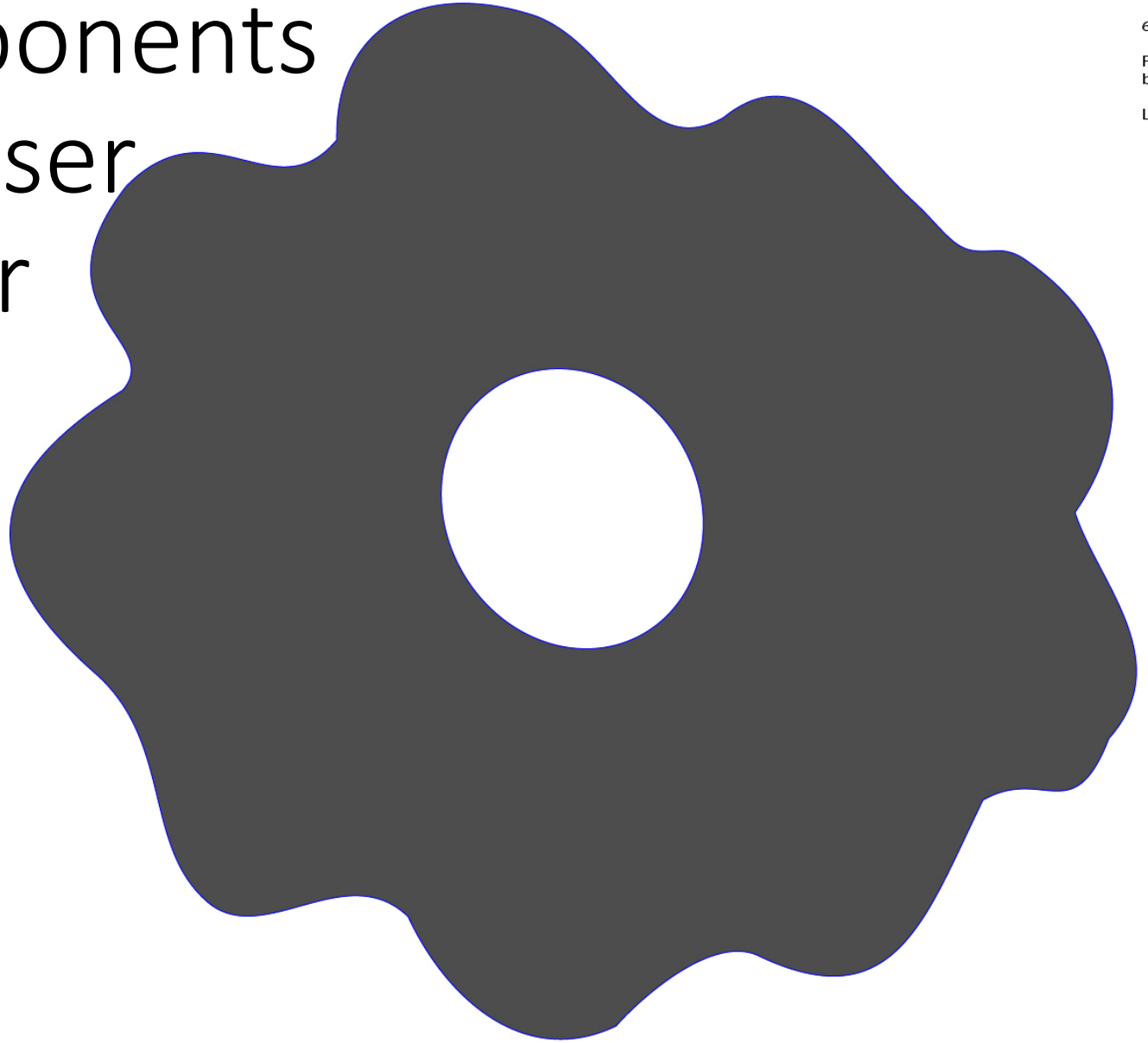


6 qty. 14 in diameter plates, inner circle **cutout** 3.6 in. diameter.

Final cutting should look like a doughnut (with a hole in the middle of 3.6 inches and blobby plate around it of 14 inch diameter.

Laser cut 6.

# Final Components for Laser Cutter

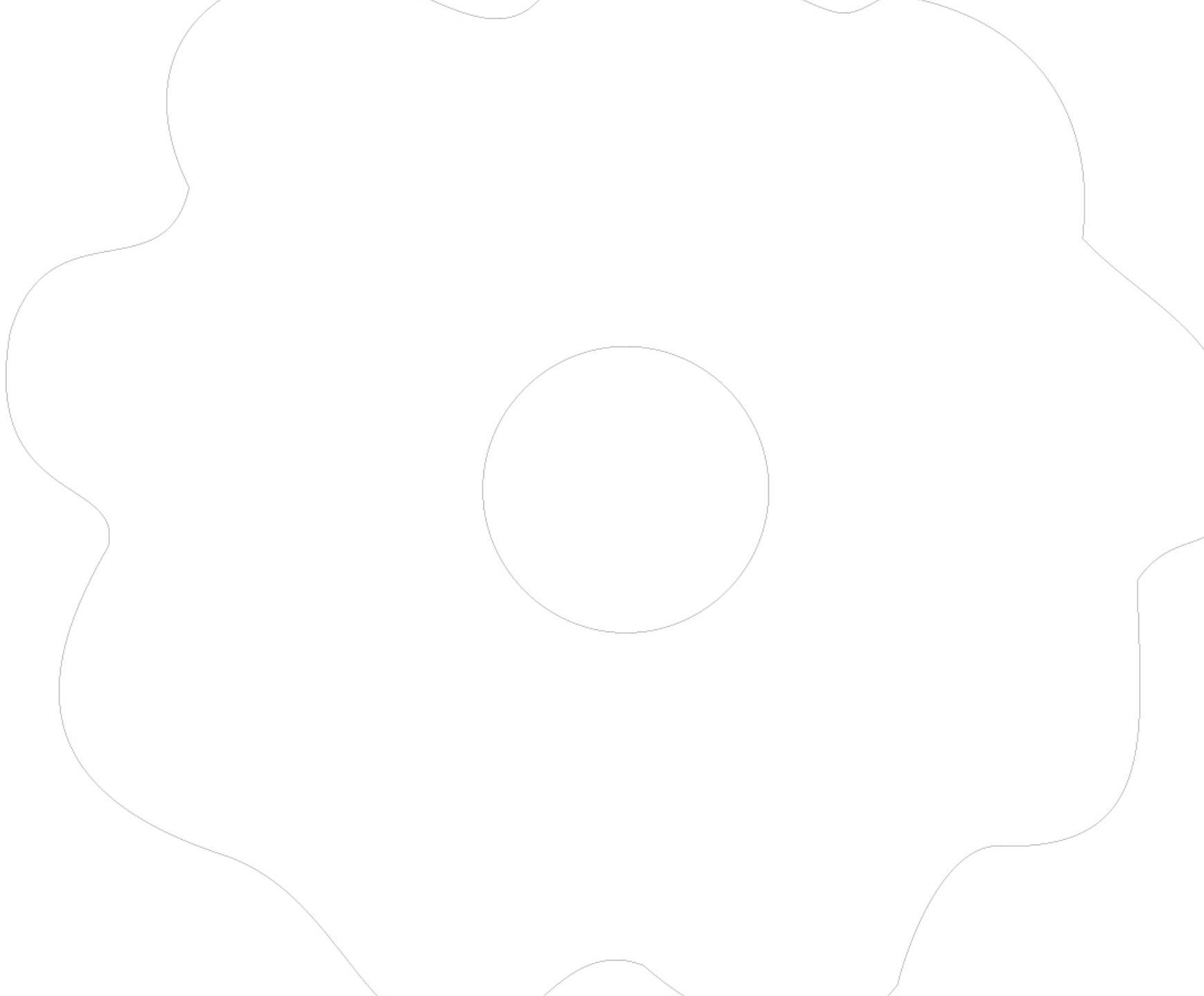


6 qty. 15 in diameter plates, inner circle **cutout** 3.6 in. diameter.

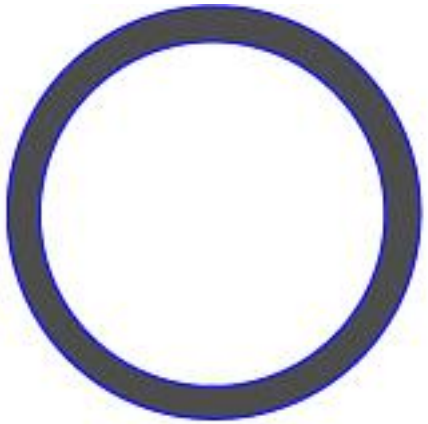
Final cutting should look like a doughnut (with a hole in the middle of 3.6 inches and blobby plate around it of 15 inch diameter.

Laser cut 6.

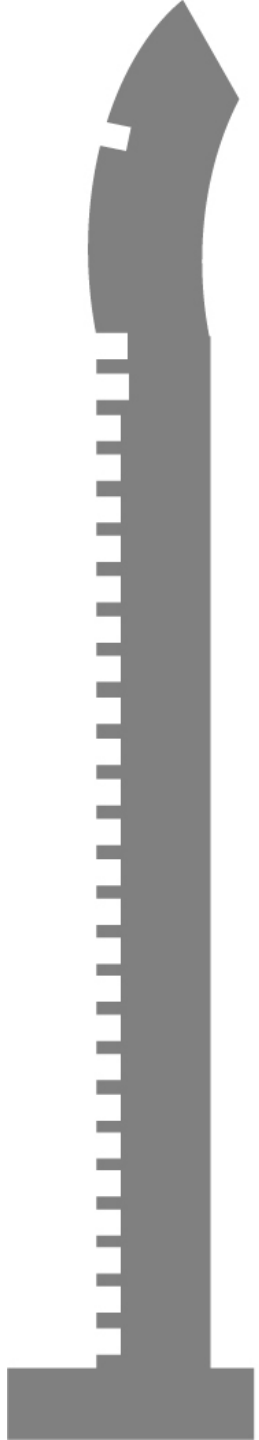
# Final Components for Laser Cutter



# Final Components for Laser Cutter

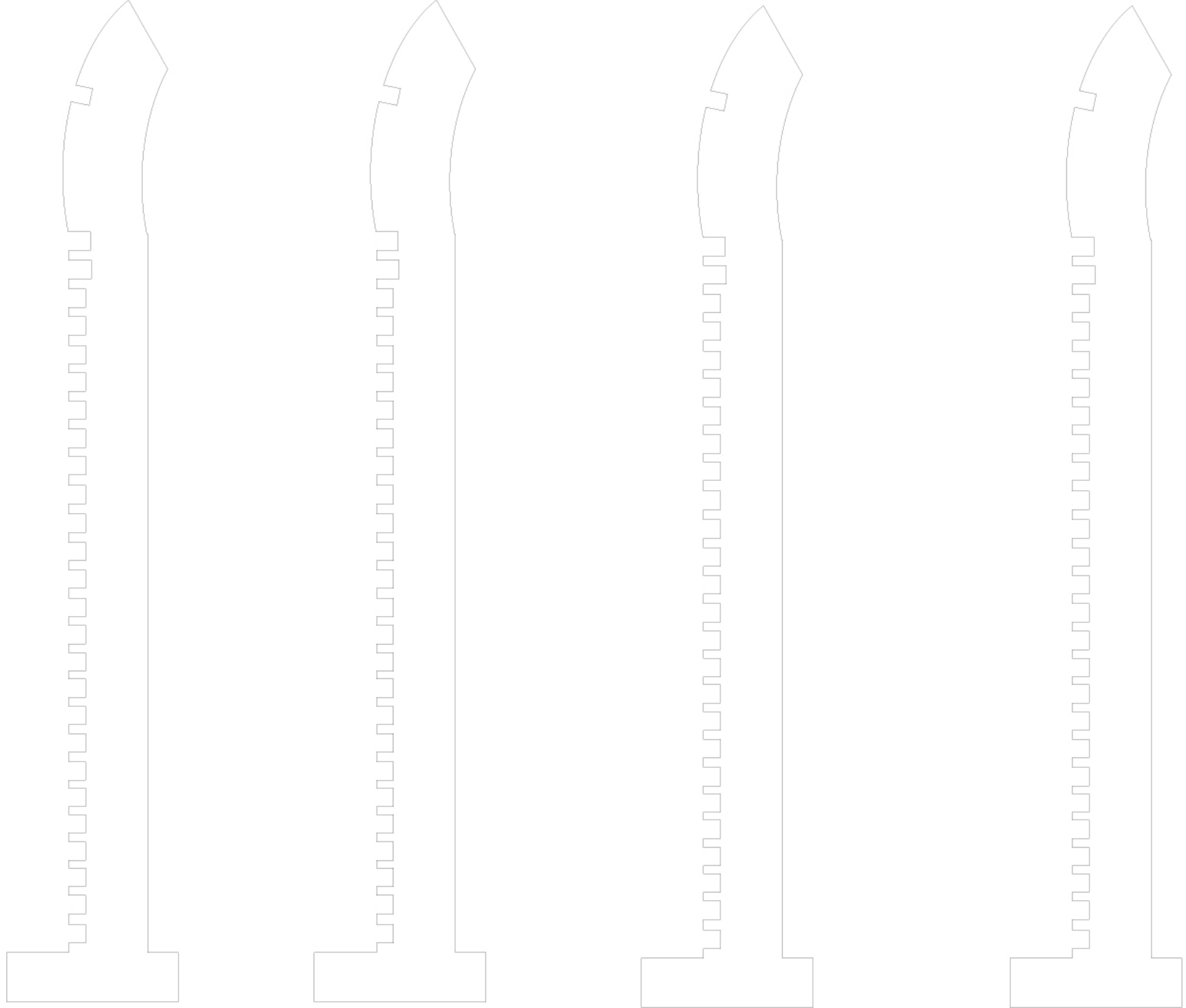


Small ring, inner space 1.79 in. inner **cutout** diameter, 2.6 in. full diameter for stem.

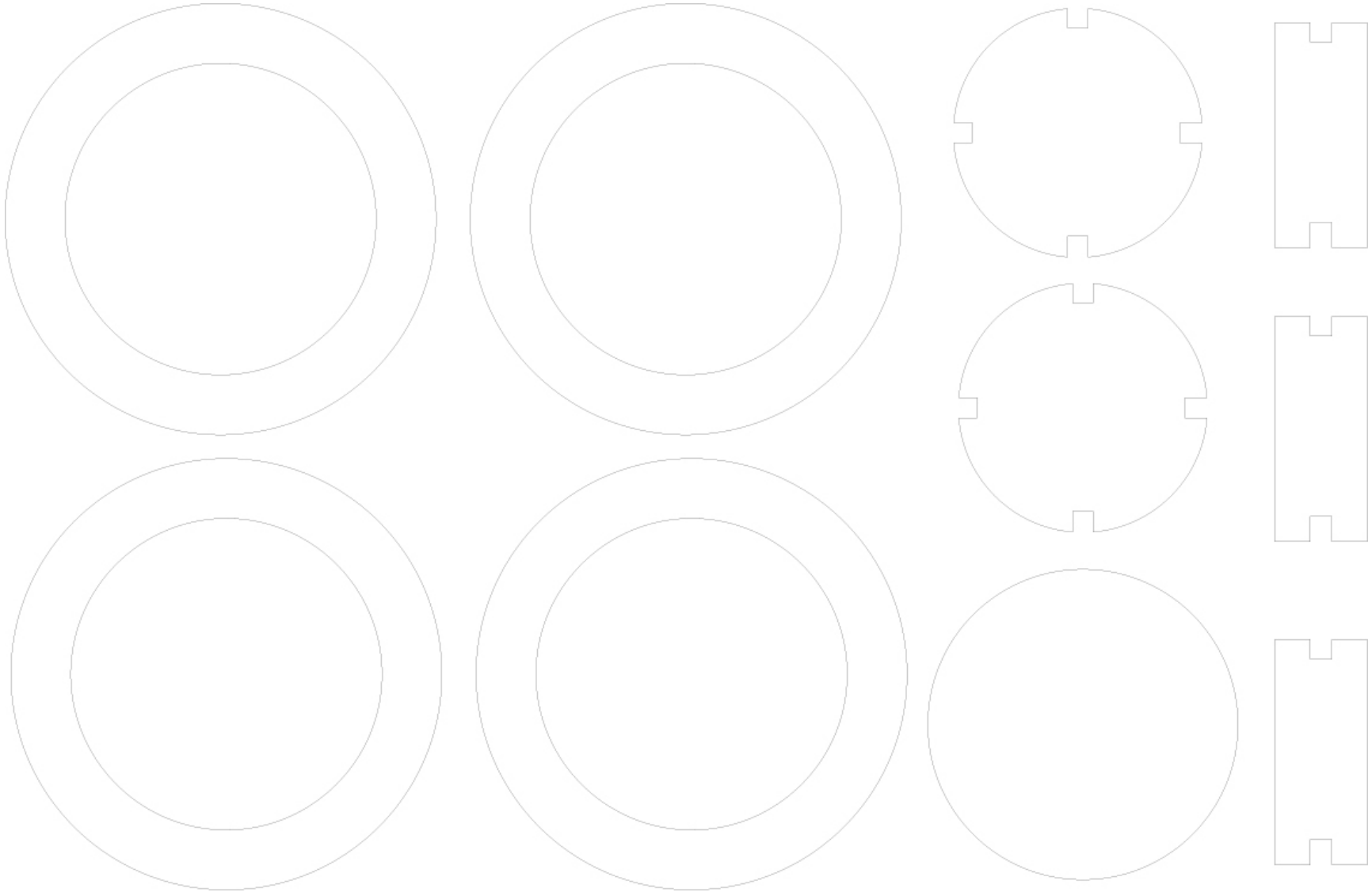


4 notched stands 14.7 in. H, 2.5 in. max. W. Notches = 0.27 inch. ea. with approx. 0.15 in. in between.

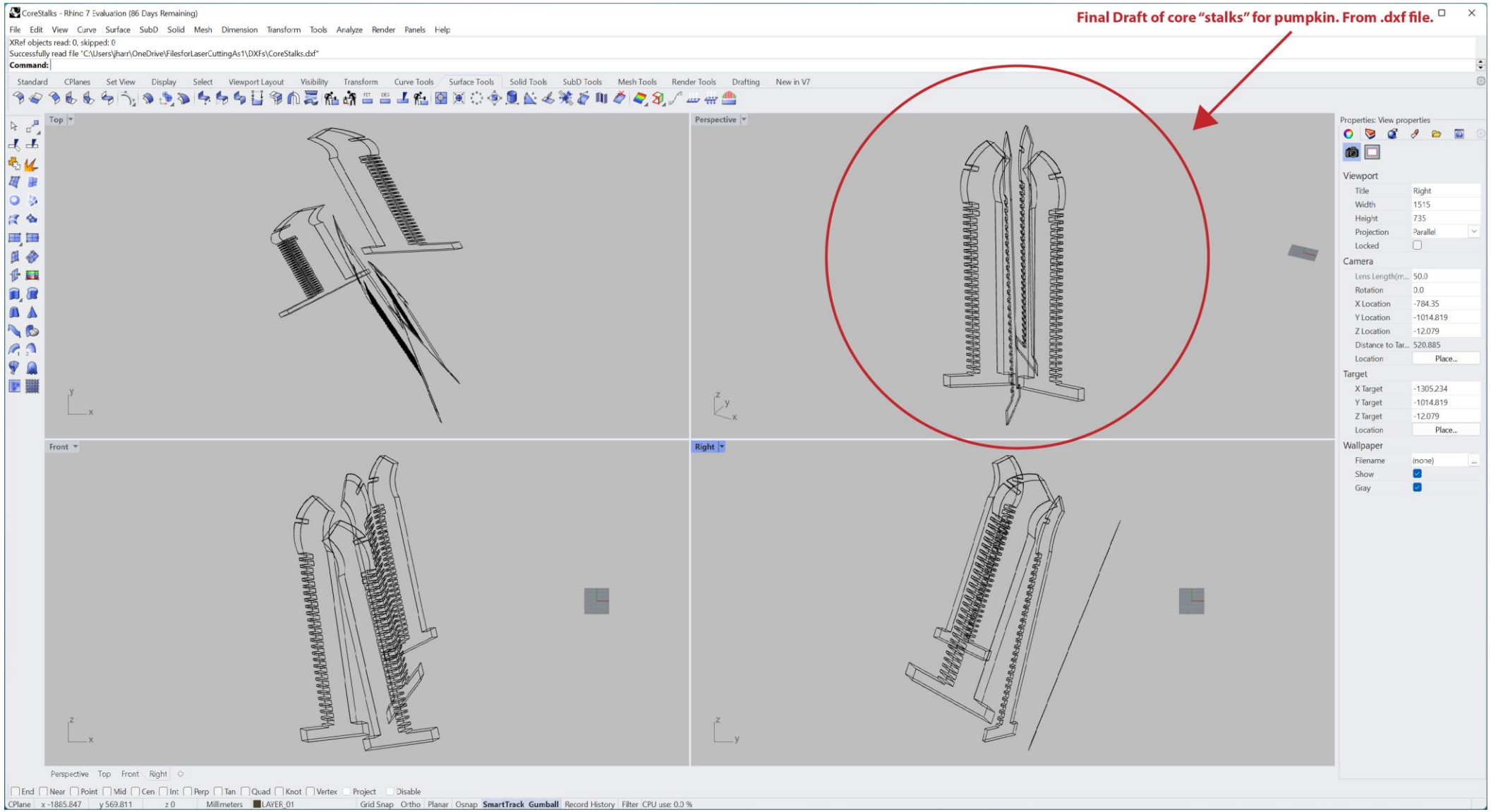
# Final Components for Laser Cutter



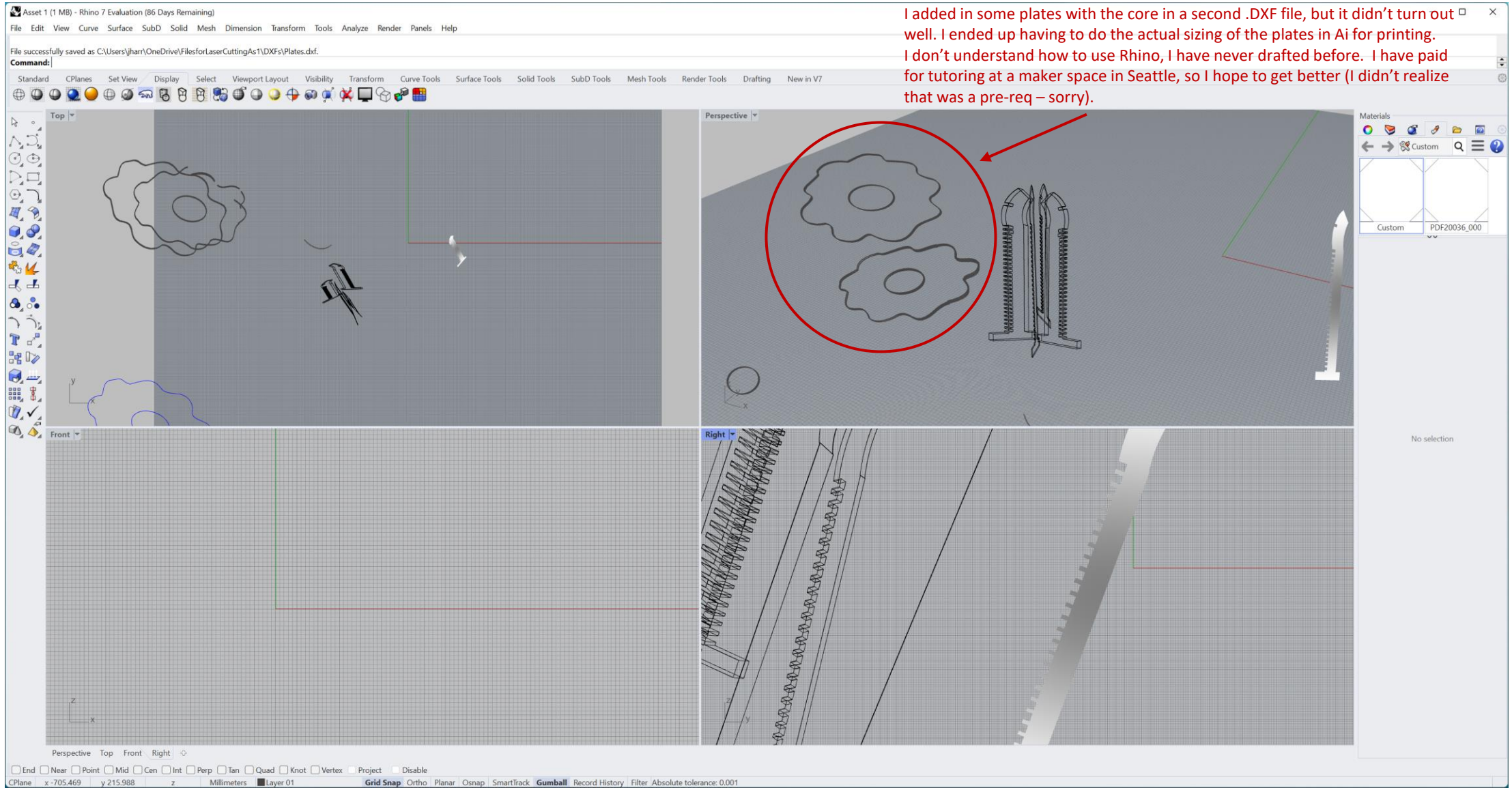
# Final Components for Laser Cutter



# Final .DXF drafts from Rhino



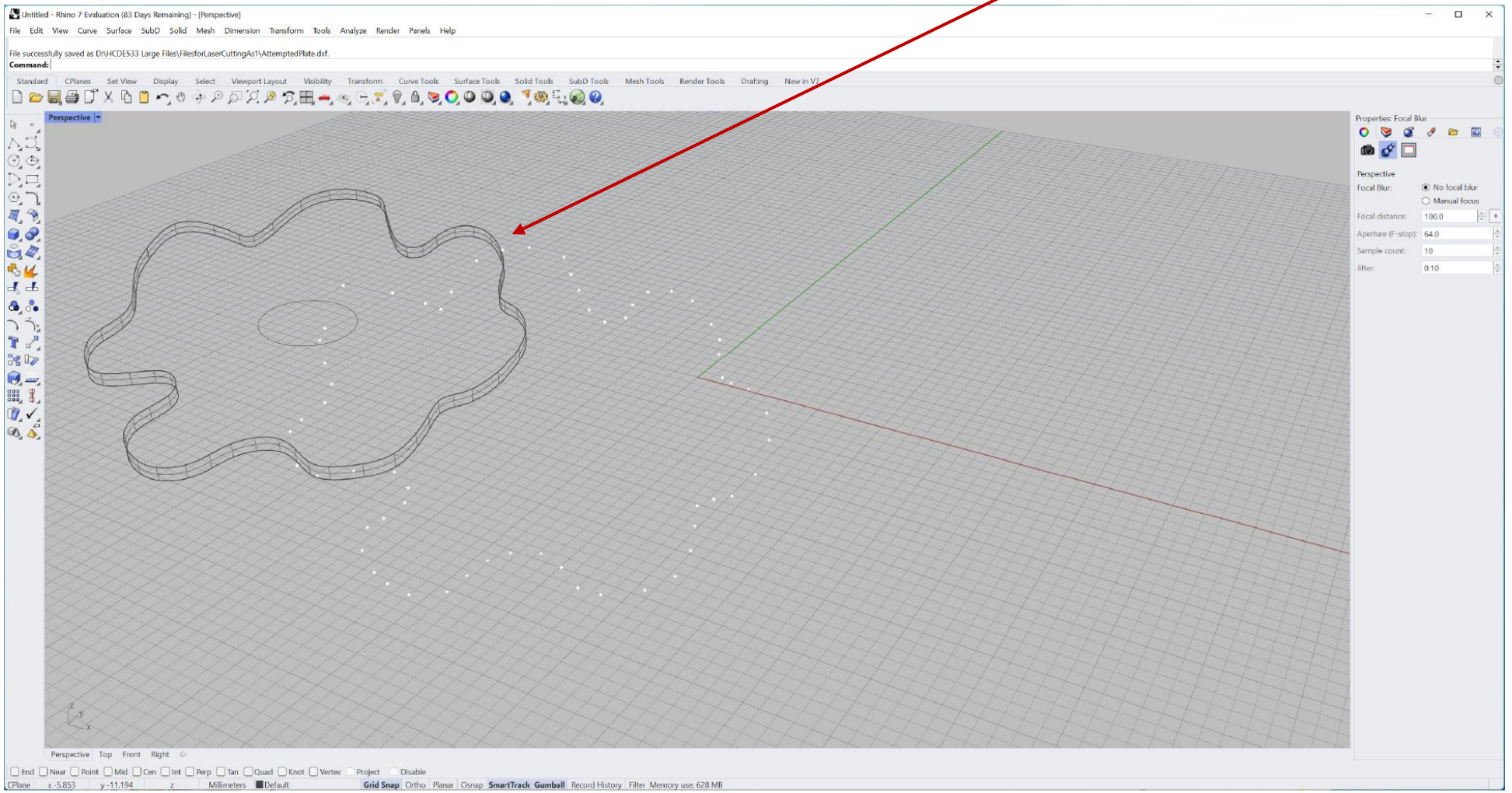
# Final .DXF drafts from Rhino




I added in some plates with the core in a second .DXF file, but it didn't turn out well. I ended up having to do the actual sizing of the plates in Ai for printing.
I don't understand how to use Rhino, I have never drafted before. I have paid for tutoring at a maker space in Seattle, so I hope to get better (I didn't realize that was a pre-req – sorry).

# Final .DXF drafts from Rhino

This was another attempt to draft one of the plates in Rhino. Despite reading all the slides, watching numerous tutorials, and trying anything that might seem intuitive, I could not make this a surface and could not therefore make the center hole an object. I just don't know how to use Rhino. I spent hours trying, but nothing in the tutorials seemed to work for me when I tried it.



# Assembly of Laser-Cut Pieces

I found numerous flaws in my design upon assembly. For the “stalks” I had printed, I had used cardboard that was too thin. The prongs between the notches could not stand up to the repeated pressure of the rings coming over them. The difficulty in seeing notch fits as the prongs degraded caused some plates to hang at angles, and the stalks to push away from each other, making the circles in the centers of the rings too big. I had to hastily design some inner pieces to try and keep tension between the stalks so they’d press their notches into the rings. This was only a bit successful. Plates have revolved, so they aren’t in line, and the pumpkin looks messy. I should have done a much simpler design. We also did not realize the Laser Cutter had gotten stuck on the 7 in. plate print job, so it didn’t print the 8 and 9-inch plates, leading to a columnar effect on The pumpkin. I did not have enough cardboard to correct this, but staff assured me the problem with the print jam was not my fault.