

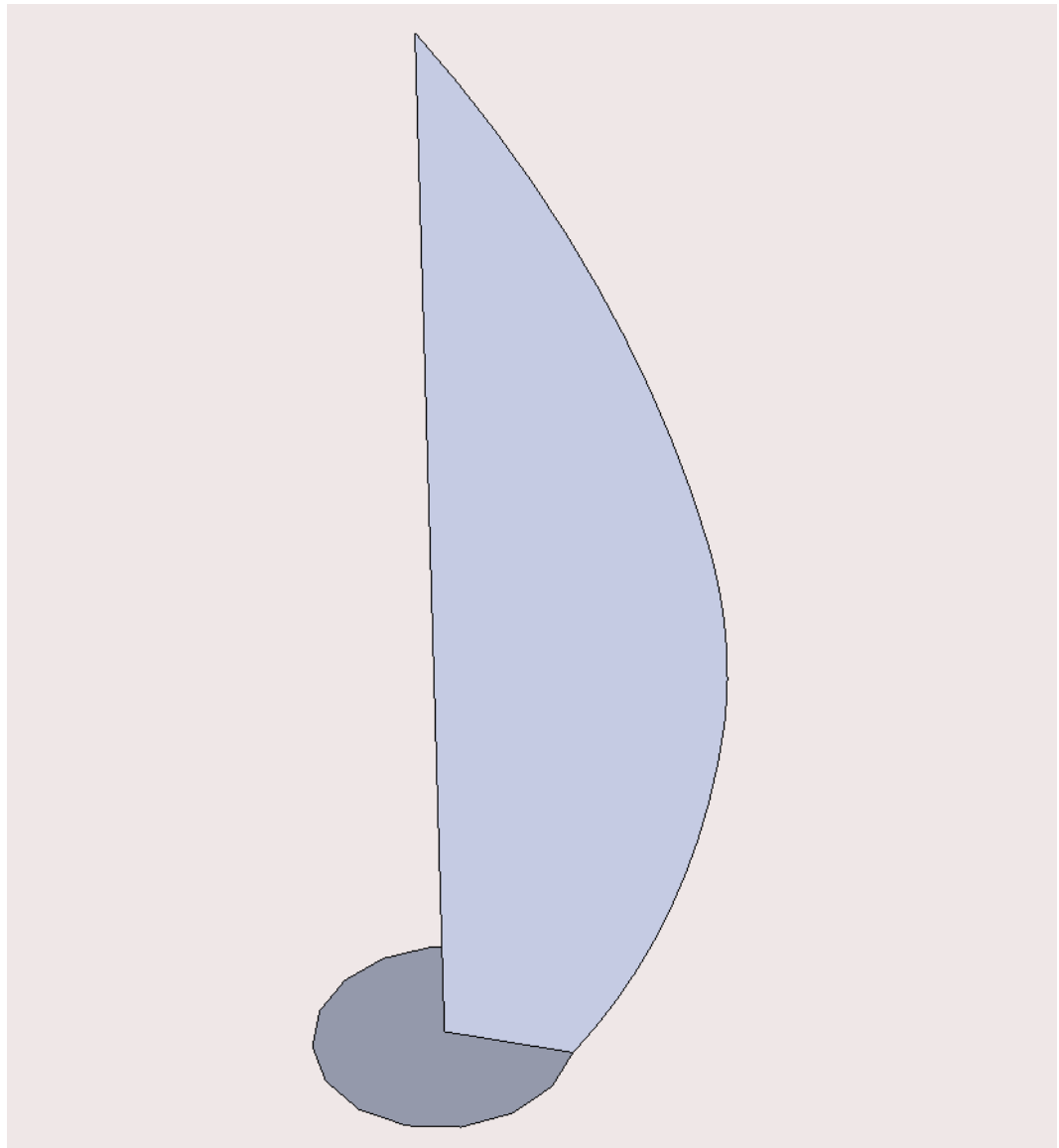
ONE WAY TO MAKE A FLAME FINIAL

I adapted this method from a tutorial showing how to make a helical dome, by 'Iglesias,' on the SketchUcation forum. You can see his tutorial by following this link:

<http://forums.sketchucation.com/viewtopic.php?f=18&t=9479>

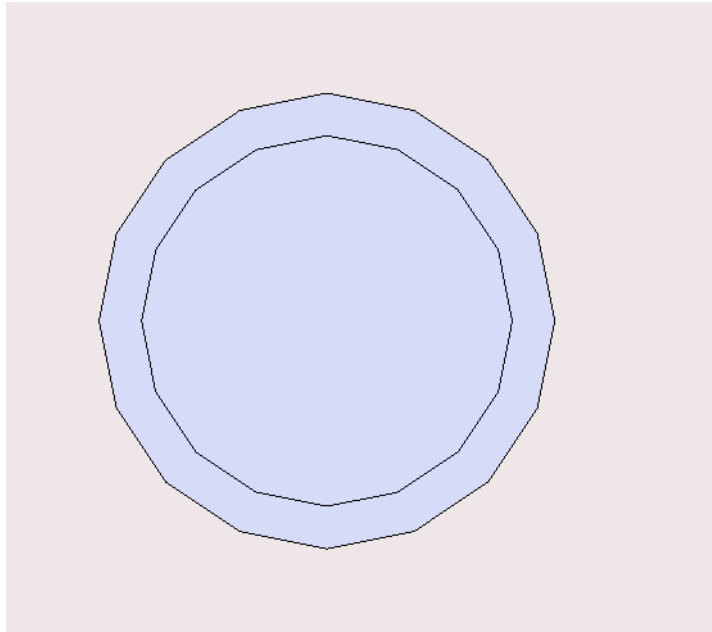
Step One

Draw the profile of the basic flame shape. Make the shape a component. At its base, draw a 16-sided circle whose radius equals the base of the flame shape. Scale up the model 100X.



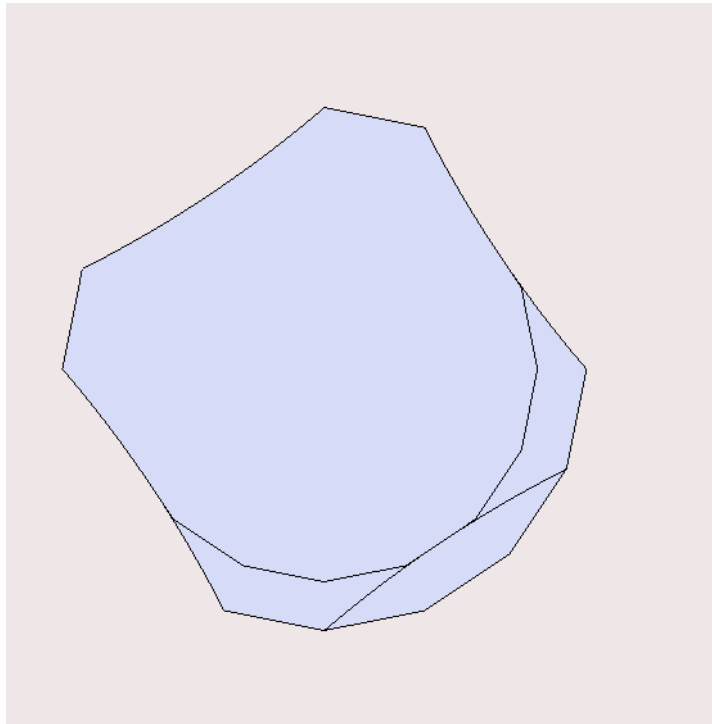
Step Two

Hide the flame profile temporarily. Use the Offset Tool to copy the circle inside the original. The greater the offset, the deeper the flutes in the flame carving.



Step Three

Beginning at the endpoint where the flame profile touches the circle, draw an arc spanning three faces of the circle. The top of the arc should touch the midpoint of the center facet of the inner circle. Skip a face and draw a second arc like the first. Repeat twice more. Erase the unwanted lines to create a four-lobed shape.

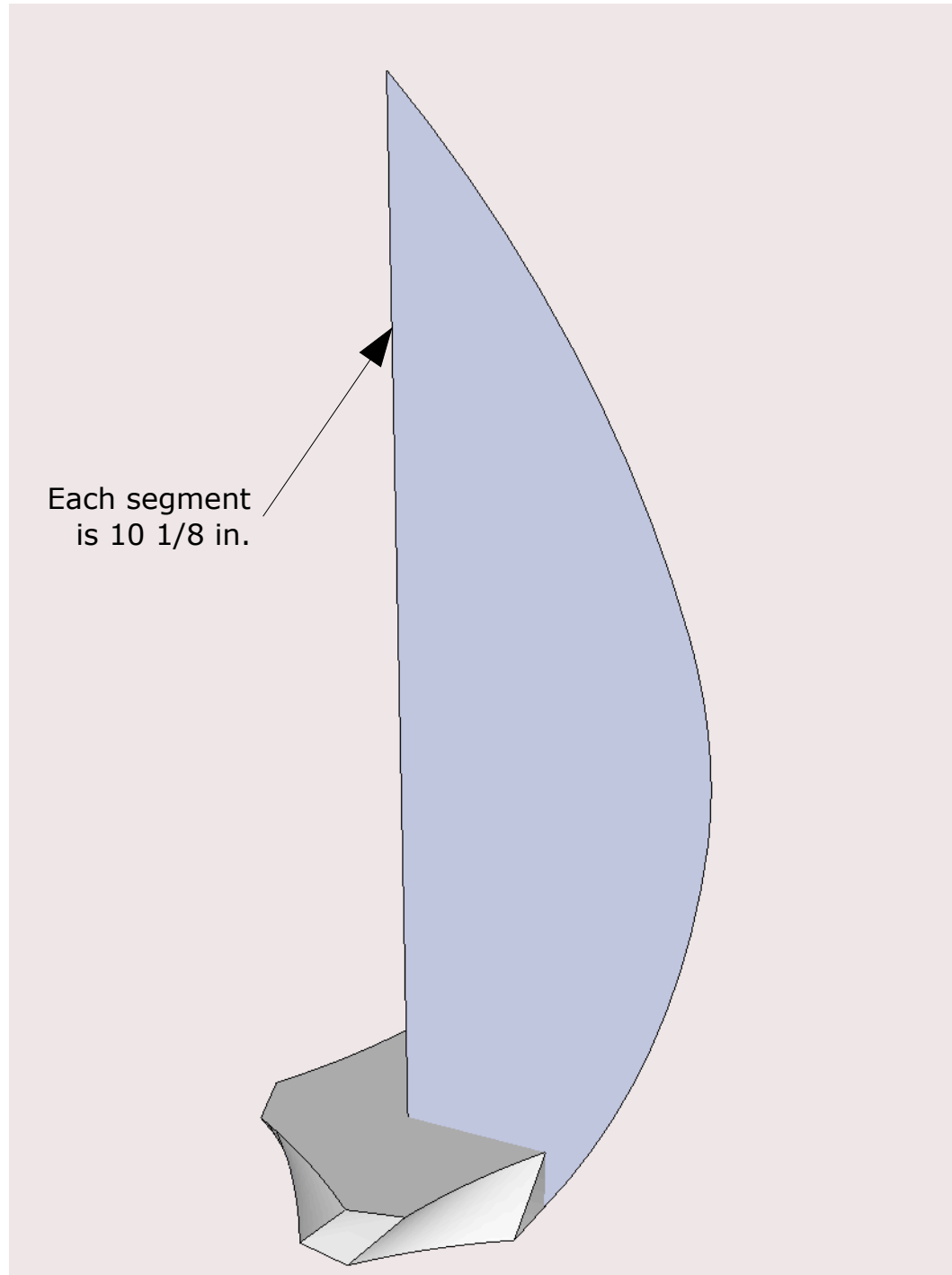


Step Four

Unhide the flame profile. Divide its vertical edge into 16 segments and make note of the length of each segment.

Step Five

Use the Push/Pull Tool to pull the lobed shape up along the blue axis by the length of the first segment in the flame profile, in this case $10 \frac{1}{8}$ in. Then, with the top face selected, use the Rotate Tool to rotate the face counter-clockwise by 22.5 degrees (360 divided by 16).

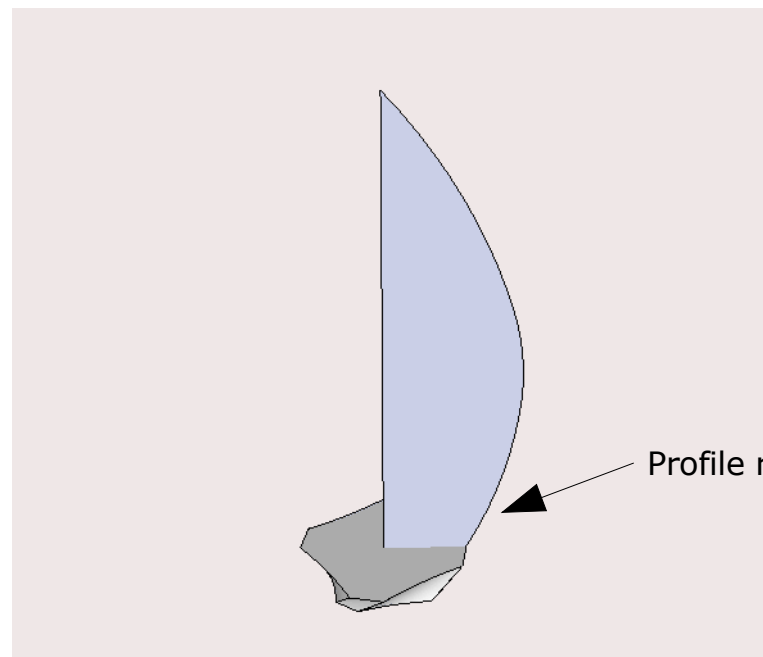
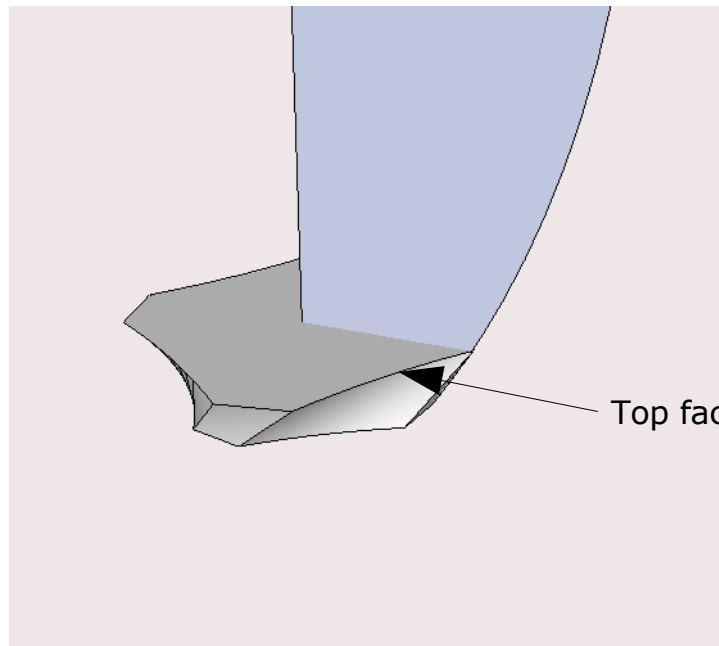


Step Six

With the top face still selected, scale it until it intersects the flame profile. Hold down the Option key so that the scaling is uniform from the center.

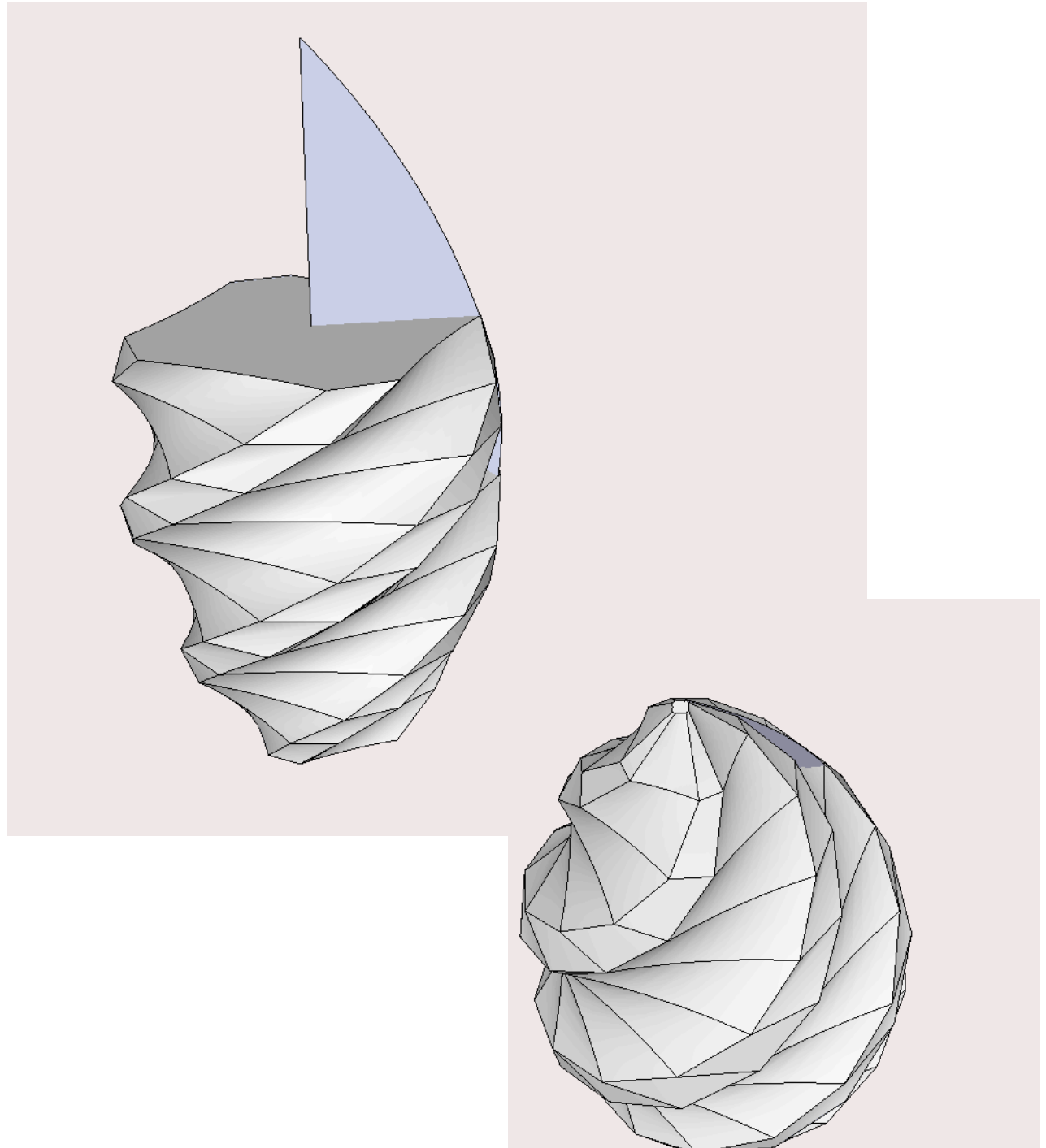
Step Seven

Select the flame profile and rotate it 22.5 degrees. Then select the top face of the lobed shape and repeat steps 4, 5, and 6 to pull it up, rotate it, and scale it to intersect the flame profile. After each rotation and scaling, be sure to rotate the flame shape counter-clockwise 22.5 degrees. Doing this is critical--it ensures that a flat face on the lobed shape always intersects the profile.



As you repeat the steps, you can see the helical shape develop.

When you come to the top, scale the lobed shape inward as much as you can without having it fold over on itself. It probably won't make a sharp point, but that won't matter.



Step Eight

Delete the flame profile component. Select all the geometry and execute a soften/smooth edges command. Don't overdo the smoothing. You want the edges of the flats to remain sharply defined.

Make the finial a component and scale it down by a factor of 100. Hide any unwanted lines on the flats and in the coves. The model show here still needs a bit of cleanup.

