

Arched Windows in a Curved Wall

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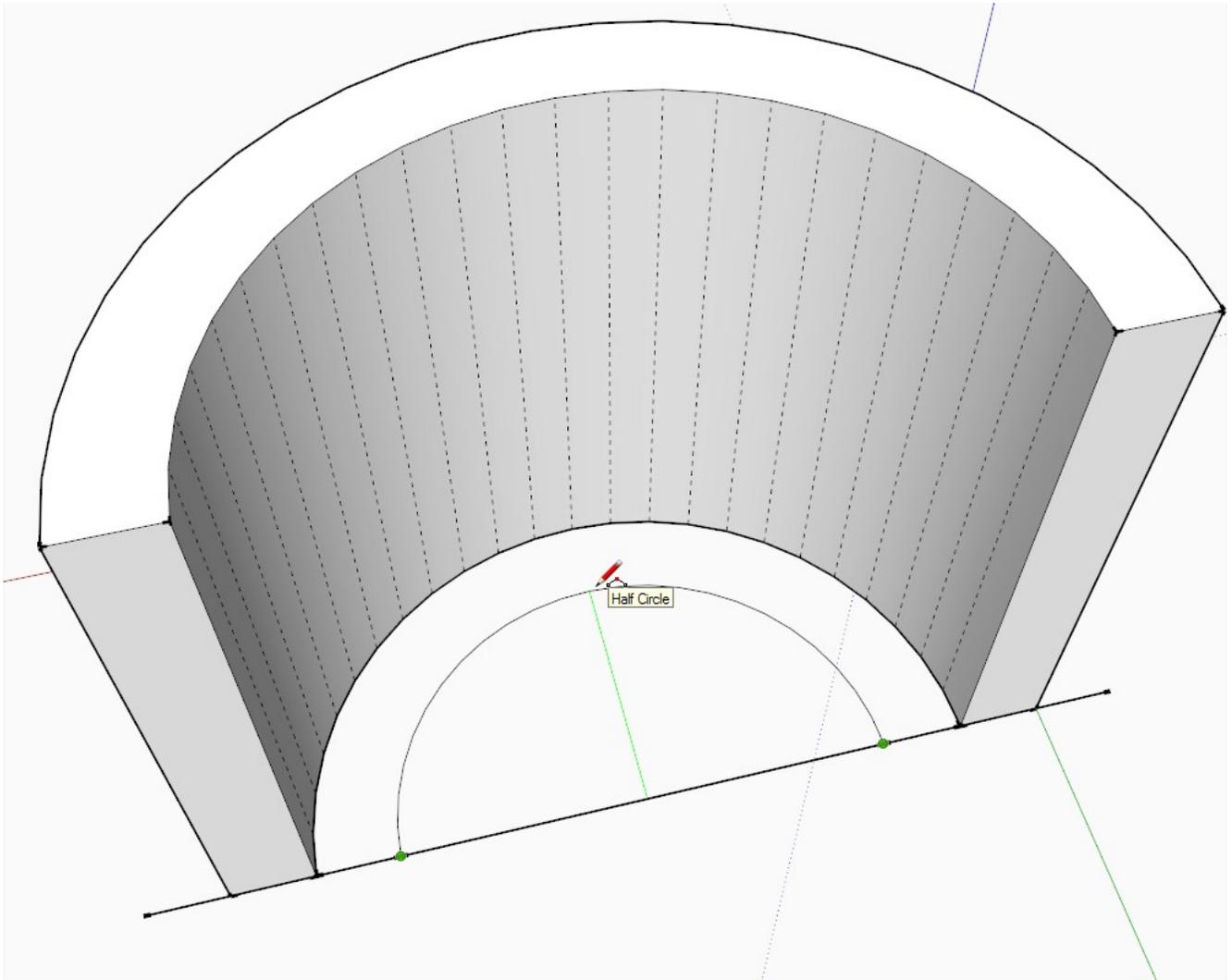


In this tutorial, we shall demonstrate, how to add larger windows that "respect" the radial nature of a cylindrical wall in SketchUp - i.e. their sides and even the top will have a certain, widening shape. To make it more interesting, we'll add three windows at a time and they are arched.

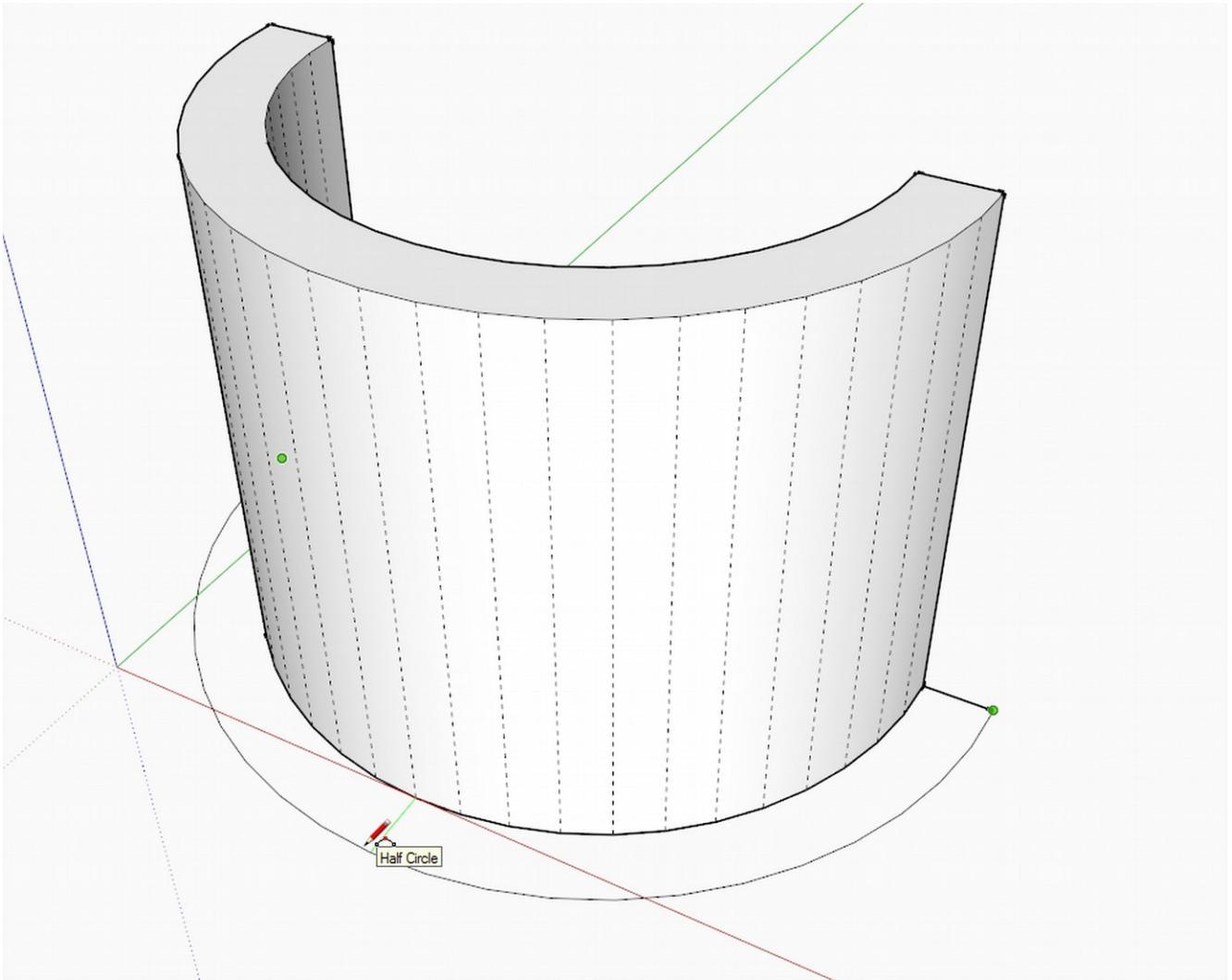
Note that the boolean operations (either with the solid tools or the intersect method) are exactly the same as in tutorial *Sketchup Window in a Curved Wall* so I will not get into the details of intersecting and cleaning the model up.

Setting up the Scene

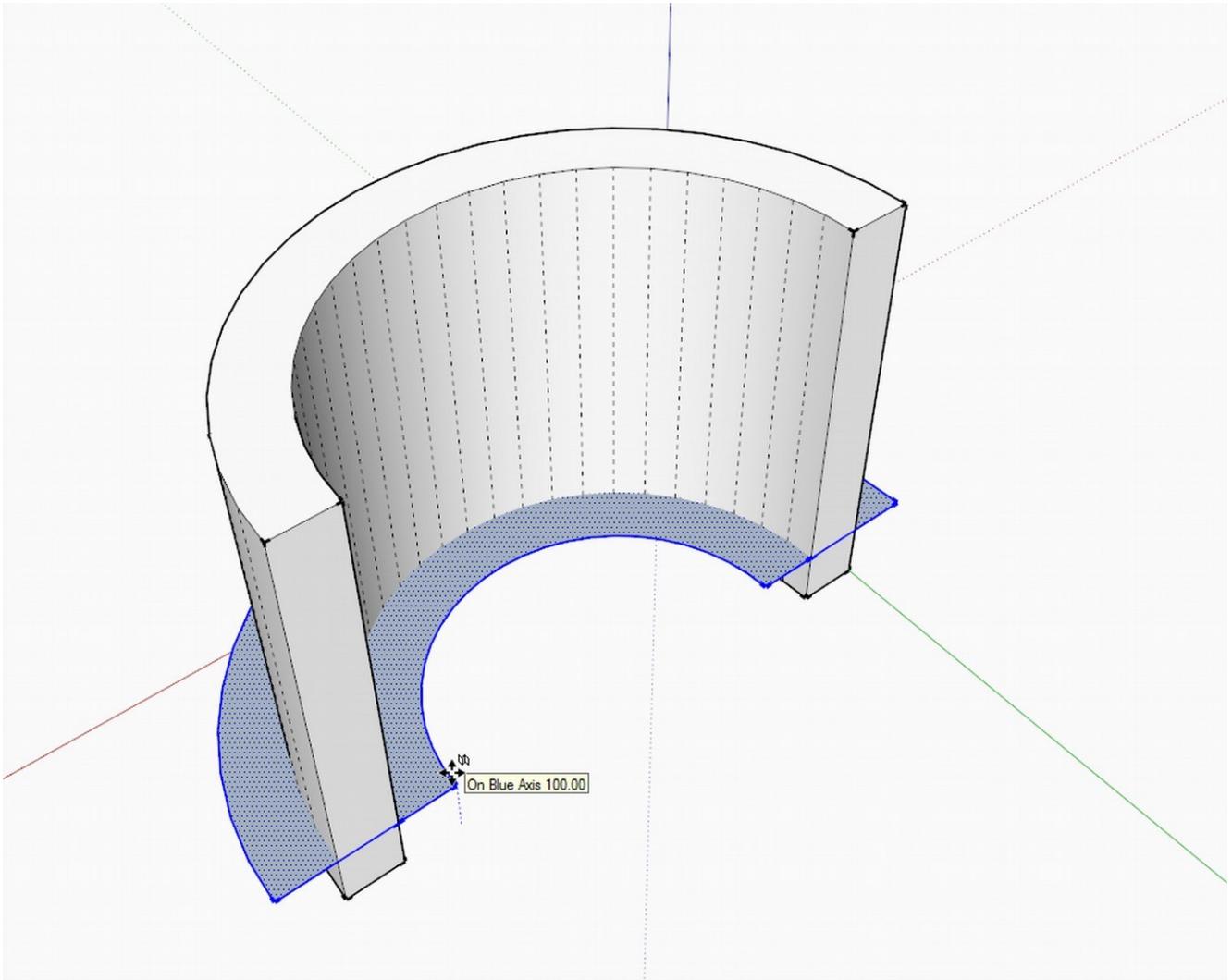
We start with the same, semi-cylindrical wall as in tutorial *Sketchup Window in a Curved Wall*, Draw arches (and closing edges) on both the inner side...



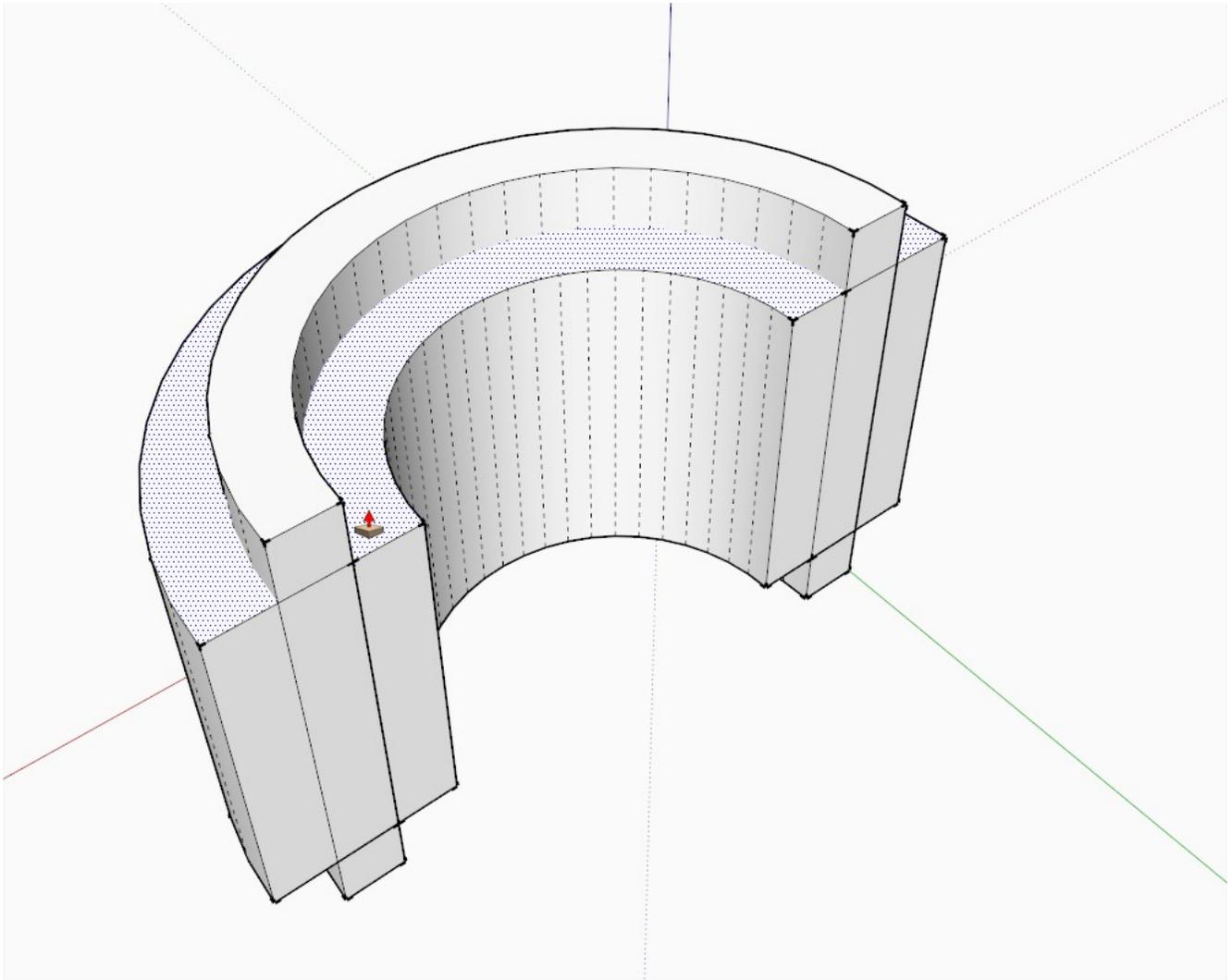
...and the outer side. Draw them at any distance but bear in mind that if you draw them too close to the original wall, when setting up the arcs inside (below), you may get merged into the original cylindrical wall and your boolean operation will not be successful at the end.



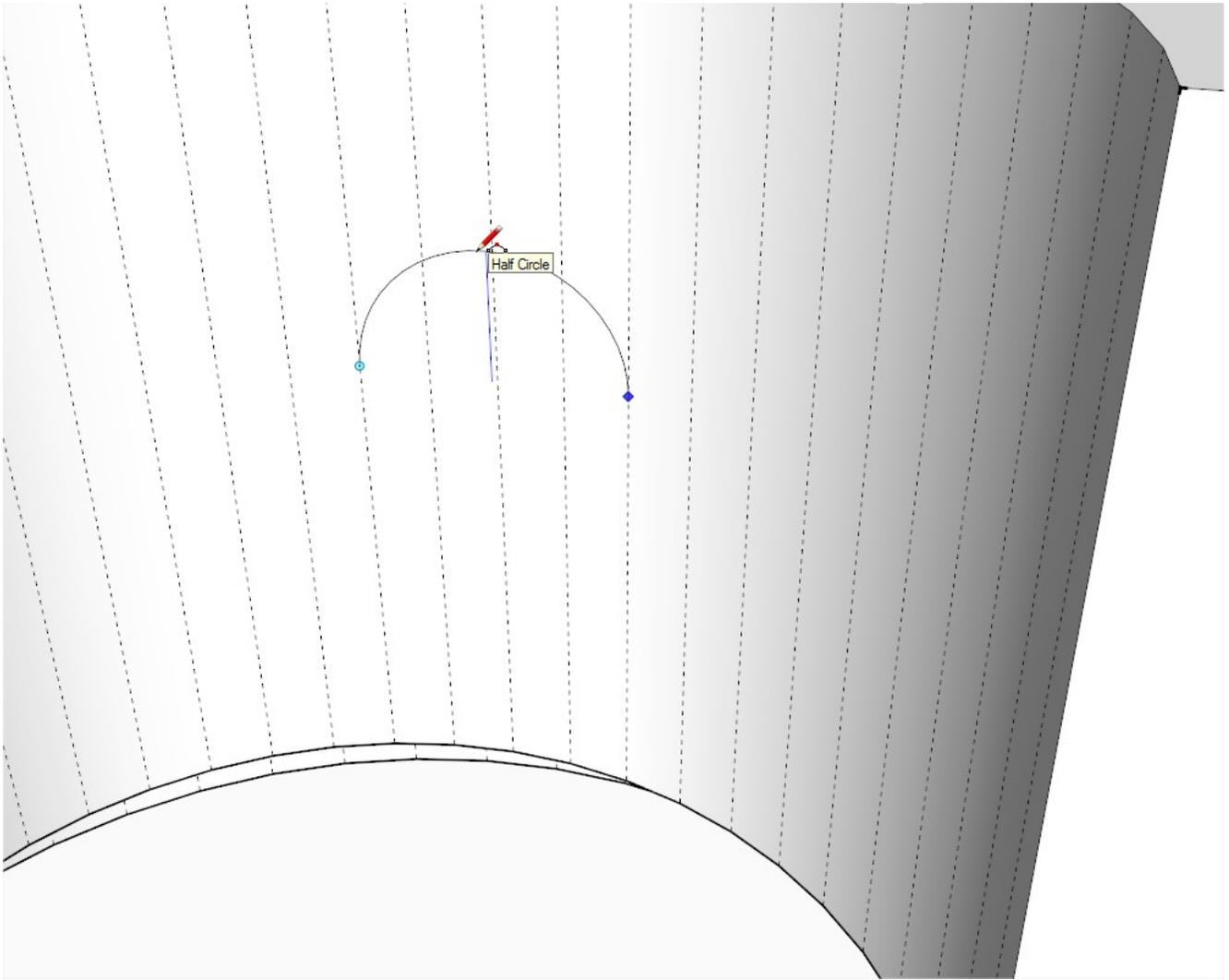
If it is a window, move the newly created face to the proper height - otherwise you can leave it on the ground for a door.



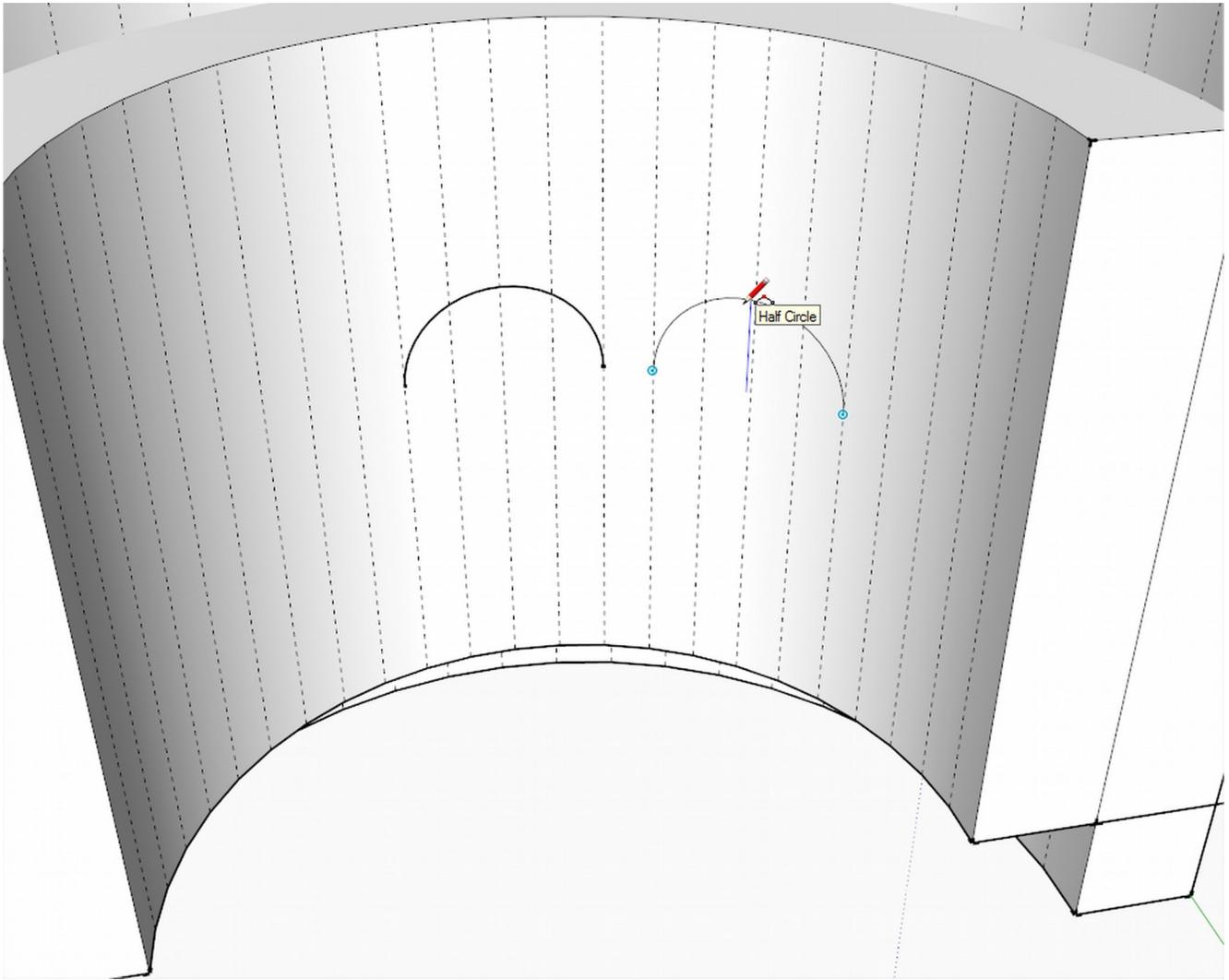
PushPull the face up to a proper height. Note that we'll use the midpoints of the verticals to establish out arcs so PushPull double as high as you need the arches to start.



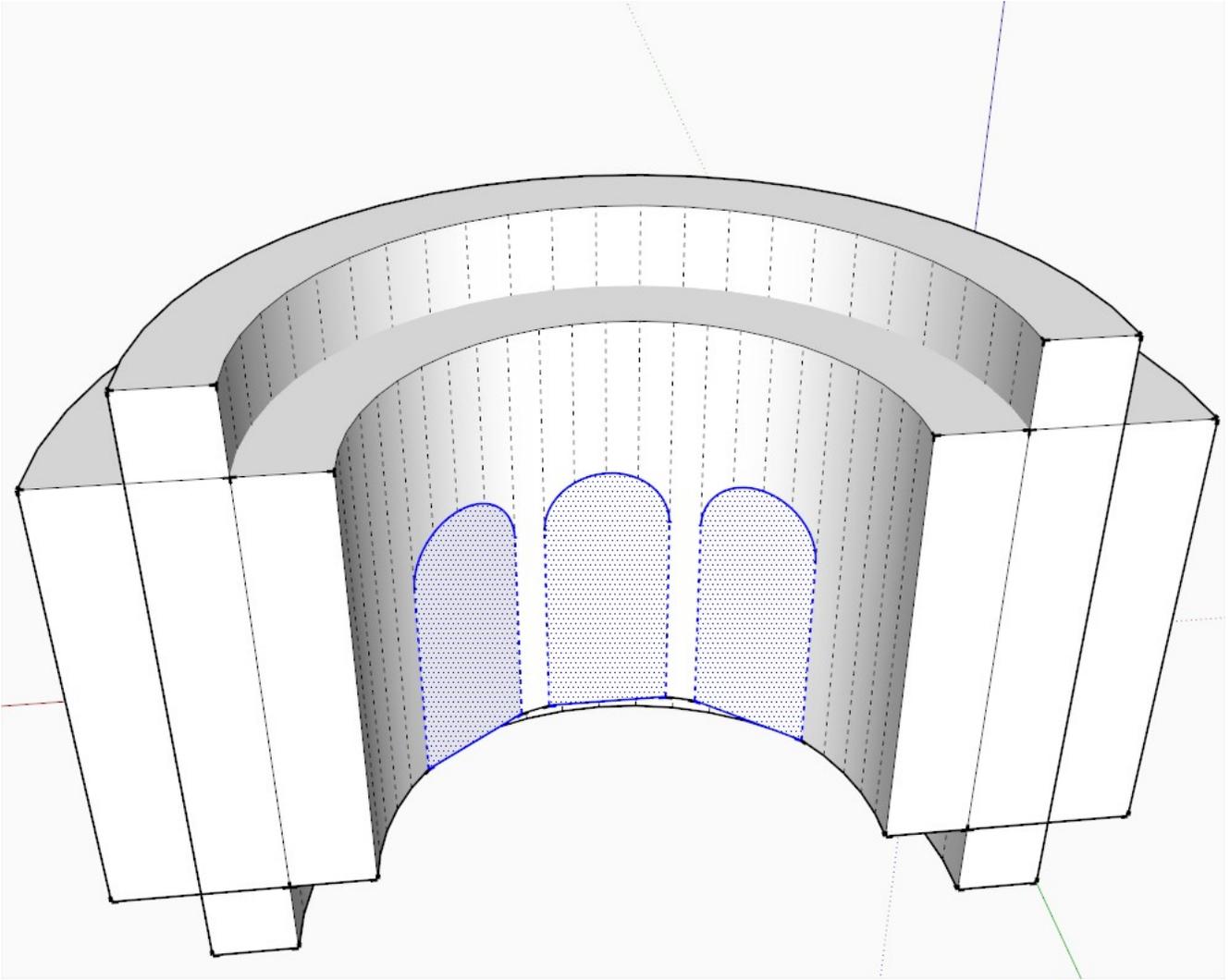
Start drawing arcs from the proper midpoints. Be very careful to always pull them up along the blue axis (see my blue inference). This can be tedious and you may need to change viewing angles a couple of times as the arc tool will love to snap to anything (geometry behind) but the blue axis.



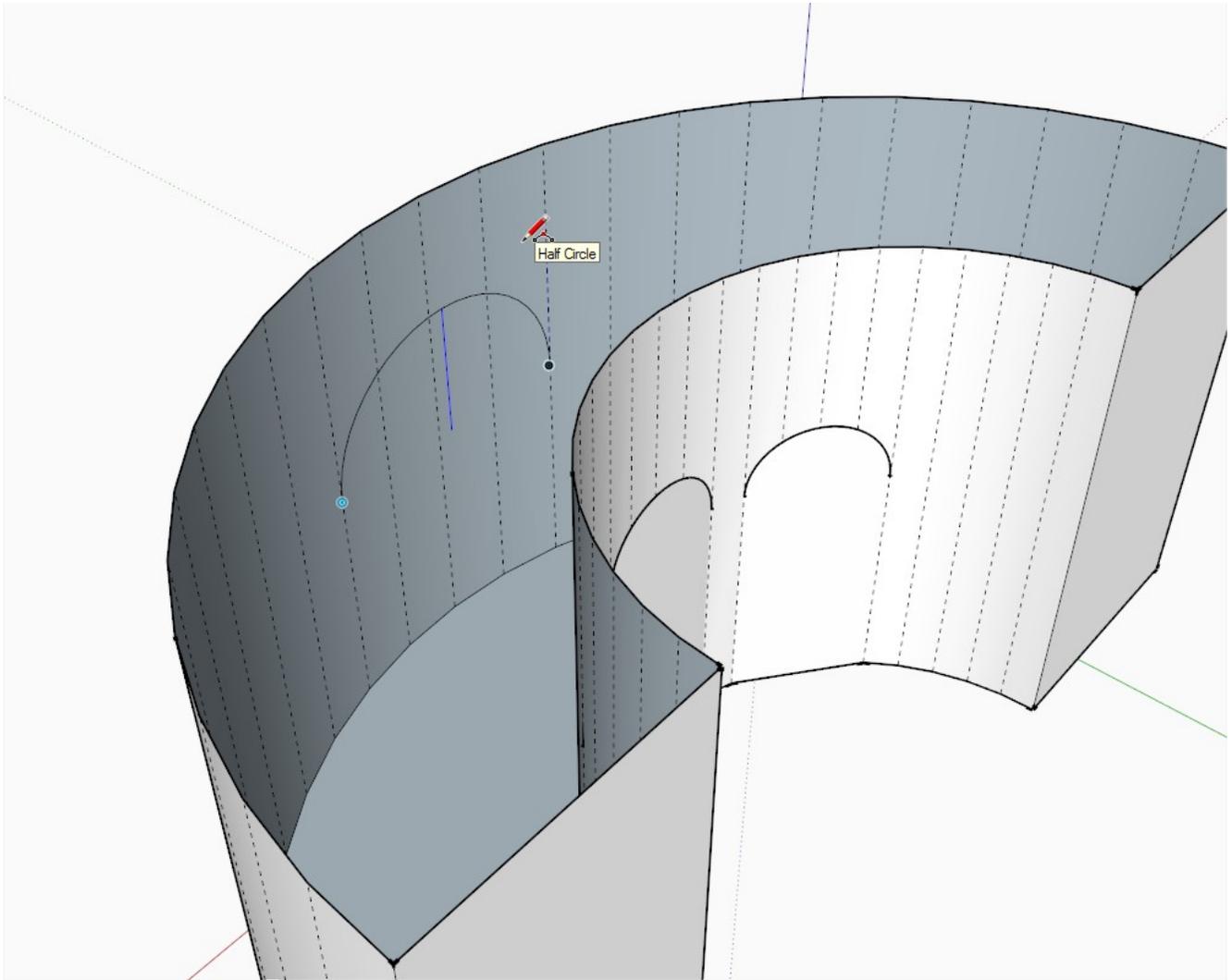
When done, draw the next arc...



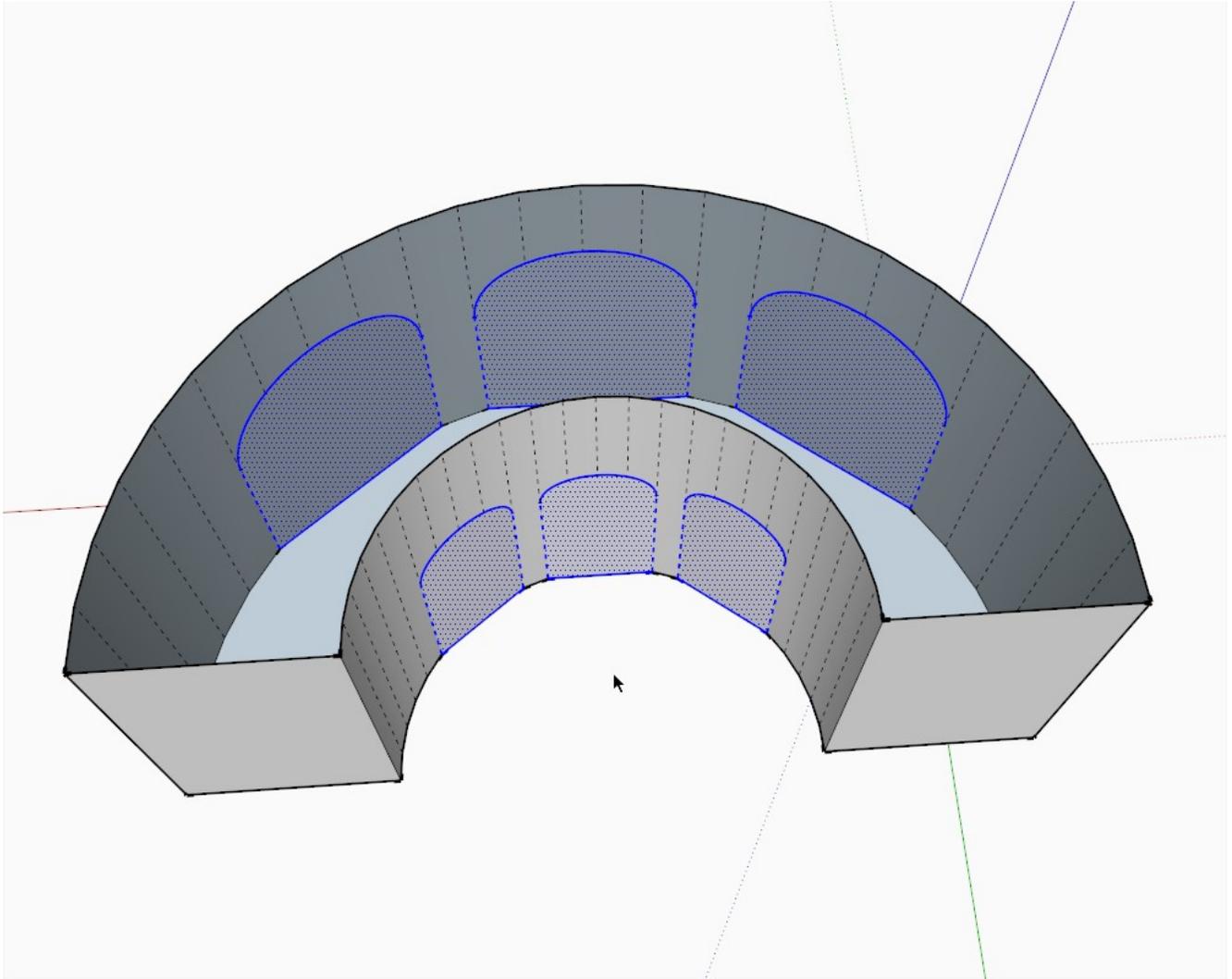
When finished with all three, connect the bottom edges with the line tool to get a proper face.



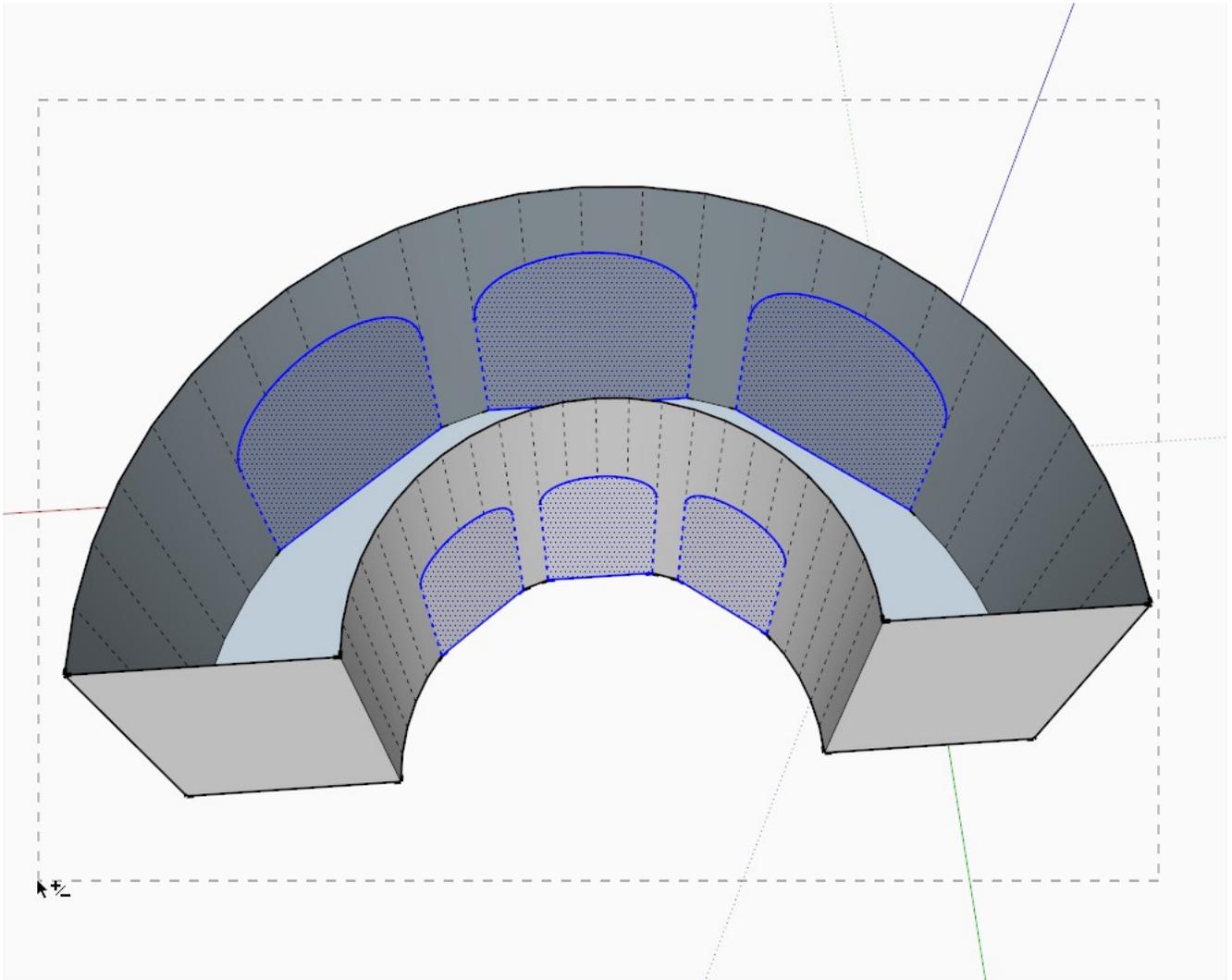
Now do the same thing inside the thicker wall (I have moved the original wall onto a hidden layer and simply deleted the top face of this one in order to access the inside).



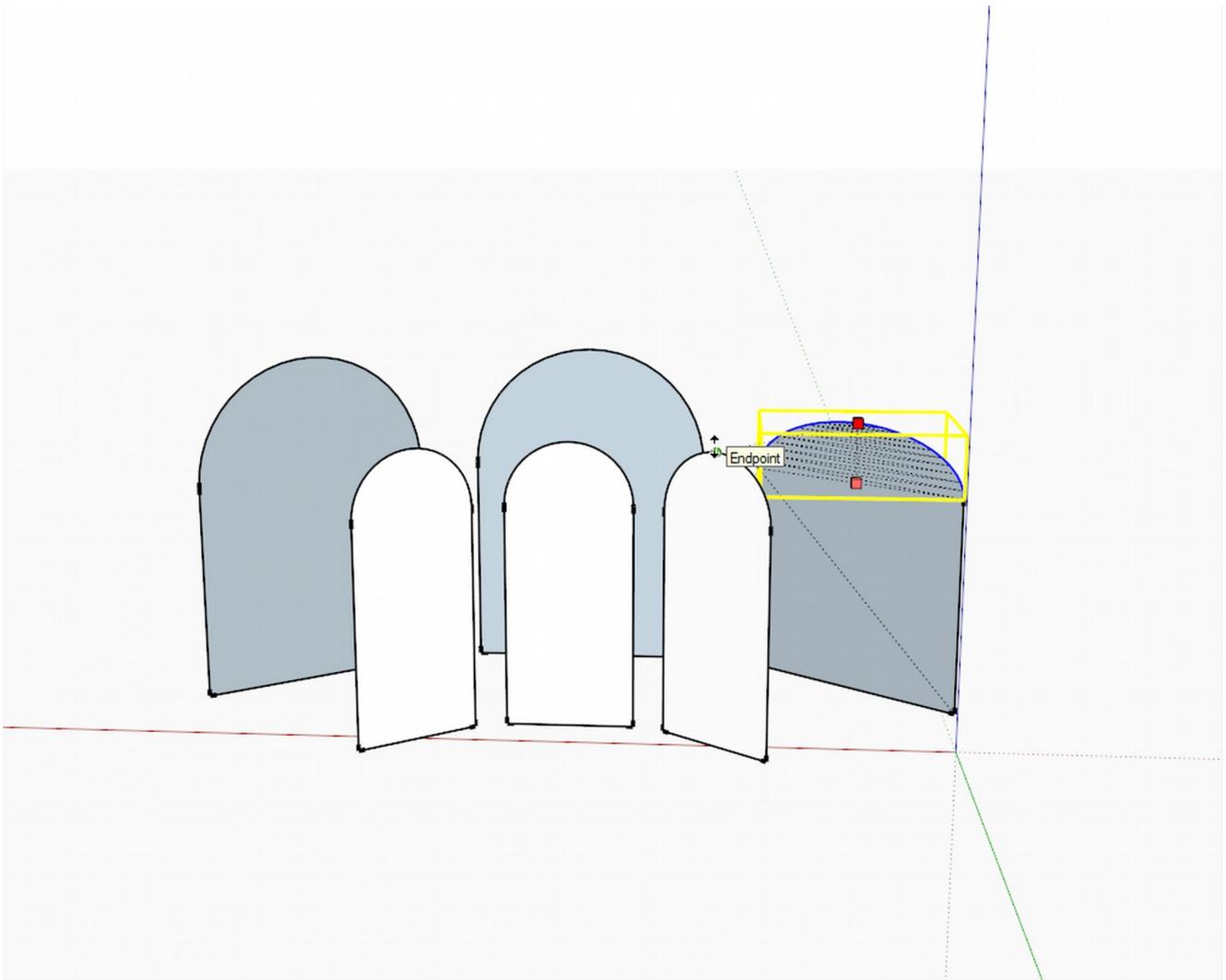
When done, all six faces can easily be selected by holding down the Shift key and double clicking on every face.



Now while still holding the Shift key, draw a selection rectangle around the whole model - this will reverse your selection. Delete everything but these faces (which are now deselected).

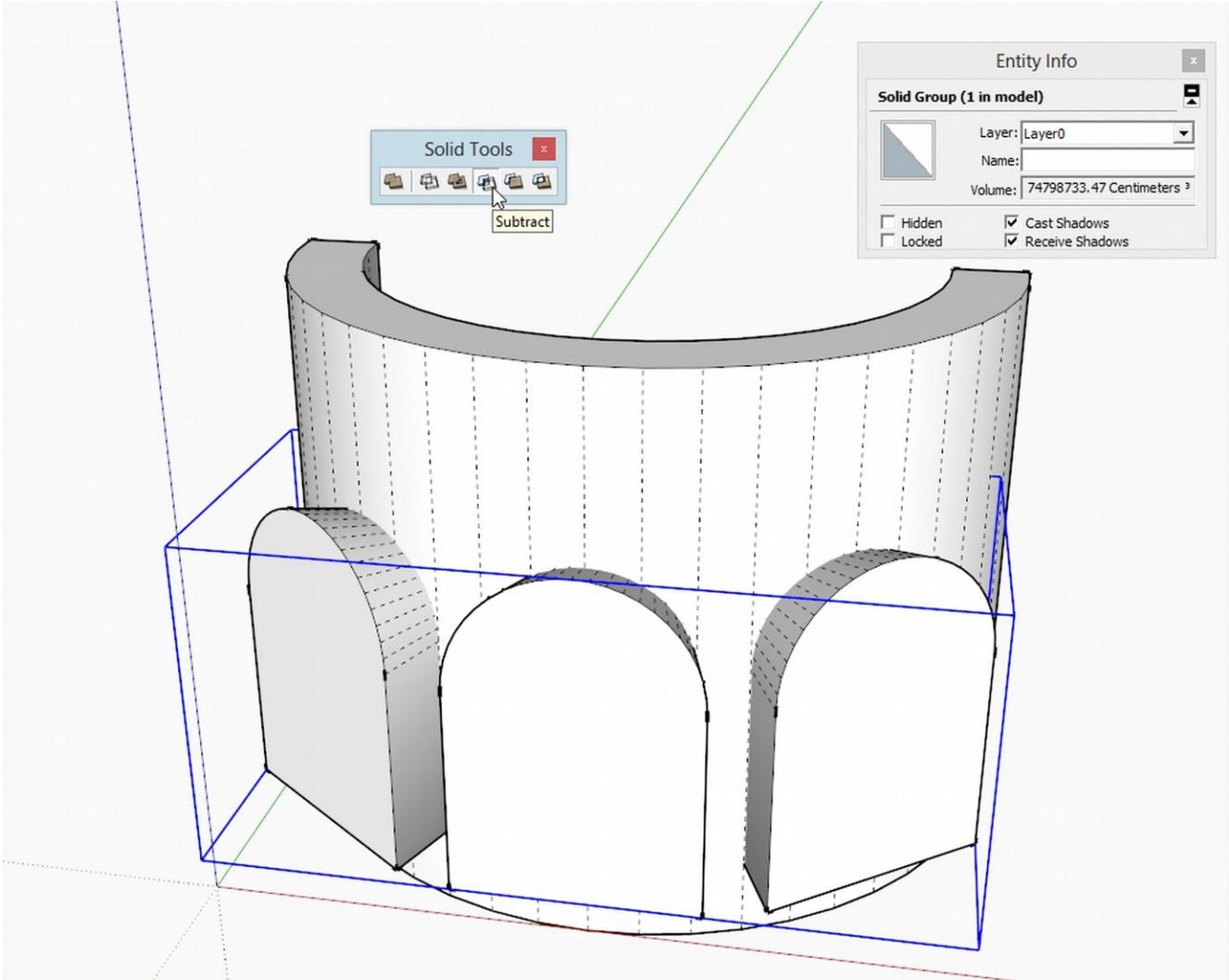


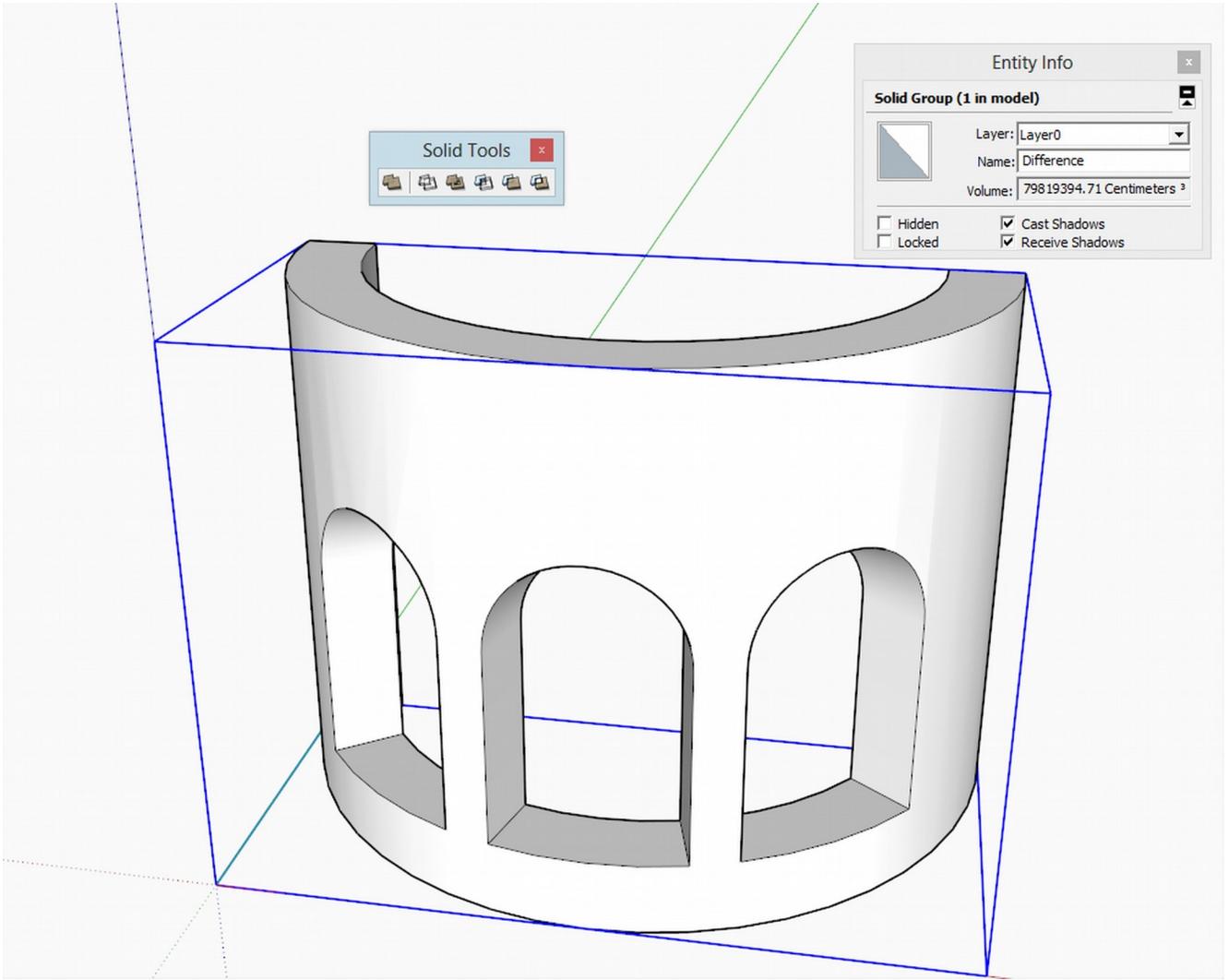
If you need the top edge of the arches to be at the same height, you can now select the closing arcs and use the Scale tool to snap to the top of the inner - and obviously smaller - arcs. When going on with this tutorial, I will not do this but keep the original heights.



Stitch the corresponding faces together by hand (drawing edges between their endpoint - tedious way) . Select all of the created geometry and make a group (it should be a single solid group even if there are three sets of geometry inside - but you can group them separately too and perform the boolean operation thrice). I have also turned on my hidden layer with the round wall of course.

Again (like in *Sketchup Window on a Curved Wall*), use the Intersect Method described.





The final result.