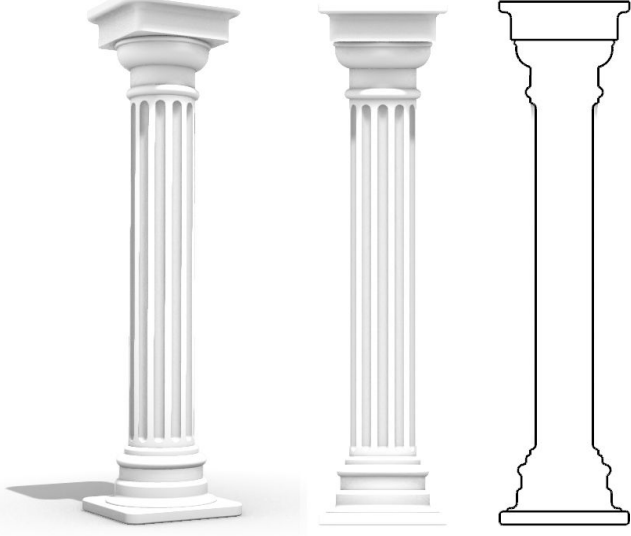
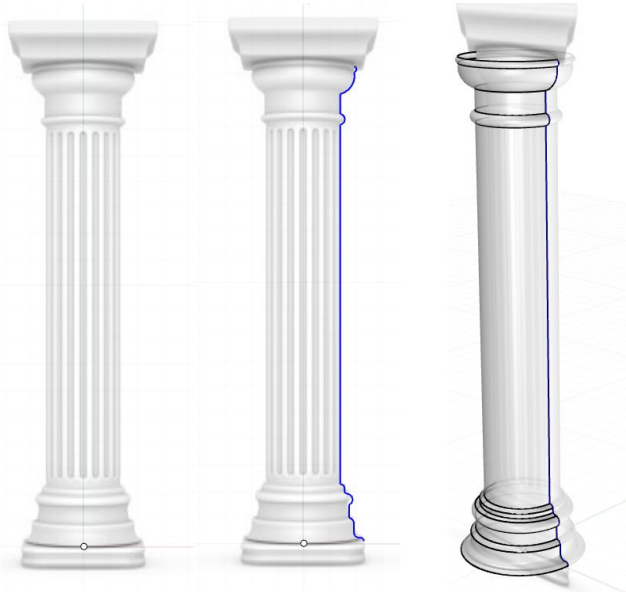
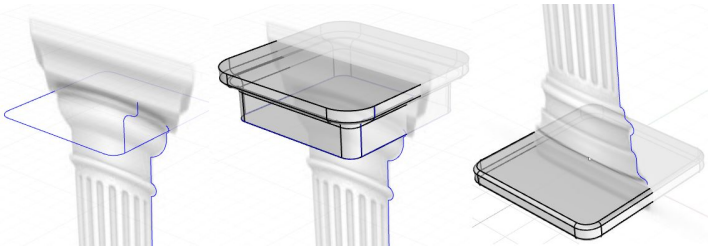


## 1.6.8 Geometry tutorial

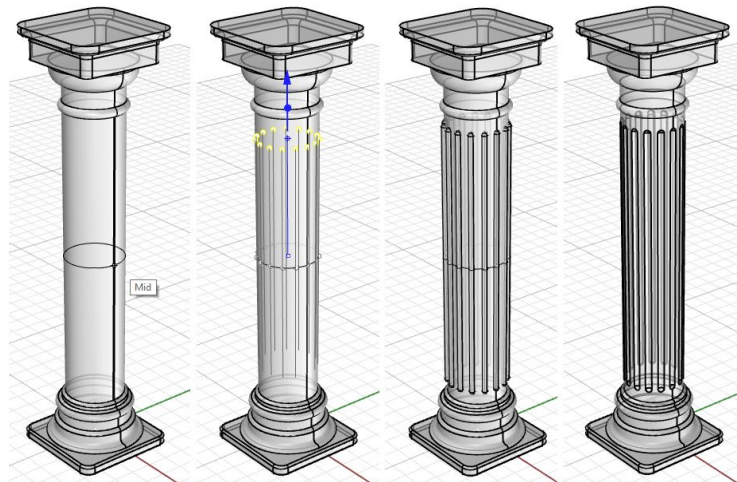
Model a Doric column, then use advanced transformation commands to modify.	
<p><b>Analysis;</b> The column has three parts: the base, body and top. The base and top are rectangular while the body is cylindrical.</p> <p><b>Modeling strategy:</b> <u>Base:</u> Create a rounded rectangle, extrude then fillet the edges to smooth.</p> <p><u>Body:</u> Create a profile curve from arcs and lines, join then revolve around the centerline. Array cylinders without spherical ends around the column then use to subtract from the main body</p> <p><u>Top:</u> Create profile curve, then sweep along a rectangular rail</p>	
<p>Import the column image using <b>Picture</b> command, Locate the center of the bottom at the World origin (0,0,0), and scale the image to the true height of your column.</p> <p>Draw the profile of the column body using <b>Line</b> and <b>Arc</b> with <b>StartPoint</b> option (tip: for productivity create Aliases for “<b>_Line</b>” and “<b>_Arc _StartPoint</b>” commands for speed) then <b>Join</b> body profile curves.</p> <p>Use <b>Revolve</b> command to create the body of the column revolving the profile around the world z-axis</p> <p><b>Cap</b> the revolved surface to create a solid (necessary for a Boolean operation later)</p>	
<p>Draw top rail using <b>Rectangle</b> with <b>Rounded</b> option. Use <b>Line</b> and <b>Arcs</b> for profile then <b>Join</b></p> <p>Use <b>Sweep1</b> command to sweep the profile along the rail then <b>Cap</b></p> <p>Draw rounded rectangle for the base, <b>ExtrudeCrv</b>, <b>Cap</b> then use <b>FilletEdge</b> to round the top and bottom edges.</p>	

**ExtractIsocurve** to get the circle at the midpoint of the body

**Divide** the circle to 15 segments (16 points) then extrude all points using the **Gumball** sphere handle and Shift key down (to extrude both directions). Alternatively, use **Line** with **BothSide** and **Vertical** options at the start of the circle, then **ArrayPolar** around the circle

**Pipe** with **Multiple** and **Cap=Round** to create all pipes around the body

Use **BooleanDifference** to cut out the pipes from the body and complete the body.



Use **Twist** transformation to create a twisted body of the column

Experiment with **Stretch**, **Bend** and **CageEdit** commands to sculpt the column.

