How to model high heel shoes in Rhino

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Tools Needed
- Rhino OBJto3DM

Introduction

A woman can never have too many shoes. With this tutorial you will learn how to make enough high heels to keep all of your poser women in shoe heaven.

Step 1 -

Decide which character you want to be making high heeled shoes for. In this tutorial I'm using V3. Bend the character's feet to the appropriate angles for the finished shoes. I used 45 degrees for the foot and negative 45 degrees for the toes. Its best to save the foot pose so it is easy to use the finished shoes later.

Step 2 -

Then export as an OBJ both right and left shin, foot and toe. Uncheck everything while exporting. Use the OBJto3DM application to convert the obj file to Rhino format. Open the converted Rhino file and it should look something like this.

Step 3 -

OK now for the fun part - the modeling of the shoes!!! Next you need to trace a line around the outside edge of the foot from the bottom viewpoint. Now switch to the right viewpoint and copy the outline you just down below the foot. Then loft the 2 outlines and click the rebuild with 100 control points.
Step 4 -

Next draw a line outlining the bottom of the foot from the right viewpoint. Make sure it dips into the arch of the foot a little so that there aren't any odd gaps in the sole of the shoe later. Extrude the line through the solid heel. Perform a boolean difference selecting the heel first then the extruded foot curve. Use the Filet Solid command on the top edge to make it all nice and round. I used a .03 setting.

Then draw the profile of the shape of the heel in the right viewpoint and extrude it across the heel. Perform a boolean difference selecting the heel first then the extruded heel profile curve. Use the Filet Solid command on the edge to make it all nice and rounded. For the bottom I used a setting of .05.

Step 5 -

OK you should now have something that looks like the picture above.

Starting to look like a shoe isn't it? Time to add an ankle strap. Now unhide the right shin and keep the left foot hidden. Select curve - > from objects - > Section and draw some lines through the figure's shin where you want the ankle strap to be. Then lock the foot, toes and shin so that they don't get in the way. Loft the cross sections you made across the ankle area and rebuild with 100 control points. Slightly scale the strap and make sure its in the correct position around the ankle. Smooth it using the default settings 2 - 3 times to get rid of wrinkles.

Step 6 -

Time to work on toe straps! Unlock the left foot (still your right) and select curve - > from objects - > Section and draw some lines through the figure's foot where you want the toe strap to be. Then lock the foot, toes and shin again and loft the curves while making sure to rebuild with 100 control points. Then smooth the toe strap a couple of times to make sure its nice and smooth. Make sure it fits over the foot and scale it a little if needed. It's looking pretty good so far, but if you take a look at it in the perspective view you'll notice that the strap doesn't connect to the sole of the shoe. We will have to
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Step 7 -

OK. Fixing the strap is fairly simple. Turn the control points on for the toe strap and in the perspective view select the part of the strap that needs to be shifted down to meet the sole of the shoe. Then in front view use the stretch command to pull it down to where it goes. This might take some practice but keep trying till you get something that looks acceptable. Alternatively, you can do this step in the right viewpoint, but instead of pulling down you would want to pull in the direction that the straps meet the sole so in this case it would be diagonally to the right.

It looks much better now... and now it really looks like a shoe 😊

Step 8 -

Now it needs some side straps to keep the shoes on the model's feet. Unlock the foot and shin, select both and join them. Then select curve - > from objects - > Section and draw some lines through the figure's foot and shin where the side straps will go. Then lock the foot, toes and shin again and loft the curves while making sure to rebuild with 100 control points. Smooth and adjust over foot.

Then select Surface - > Rectangle - > Cutting Plane and draw where you want the side straps to be. You should now have something that looks similar to this.

Now use the split command to split the surface with the cutting planes you created and delete all of the extra stuff. The shoe looks about done but when you spin it around in the perspective view you will notice that it doesn't line up quite right. Go ahead and fix it the same way you did with the toe strap. Turn the control points on, select the relevant ones and push and pull the points around till it looks how you want it to.

Step 9 -

Now unhide everything and lock all of the figures foot parts to avoid confusion. Select all of the shoe
parts and mirror them over to the other foot using the mirror command. You can add little frilly things to the toe straps if you wish or other little decorations but that’s all there is to it. Congratulations! You now have a pair of high heel props ready to import into poser.