

# Tips for User's of VectorWorks® for Creating Models for 3D Printing

## Good Design Practices

### *Tools for Creating Models for Exporting to .stl*

When joining walls together it is important to choose Butt Join mode to intersect the walls without breaking the outside lines of the walls, trimming the intersection.

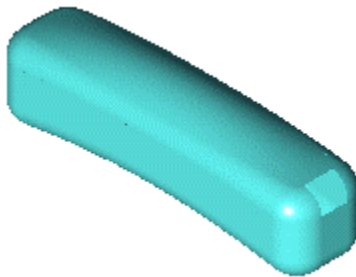


The join walls tool on the Walls palette

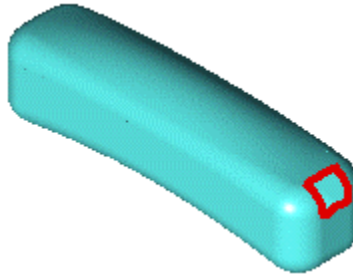
For better .stl export use the Uncapped Join Mode

### *Tools for Fixing Gaps and Filling Holes*

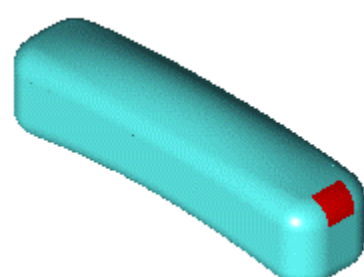
You can create a surface to fill a gap in a solid object or a number of adjacent surfaces using Create Surface from Curves. Extract the edges of the surface/solid that constitutes the gap. Select the extracted curves and create a surface using Create Surface from Curves command. This command can create surfaces from  $n$  boundary curves or from a network of intersecting curves.



Gap

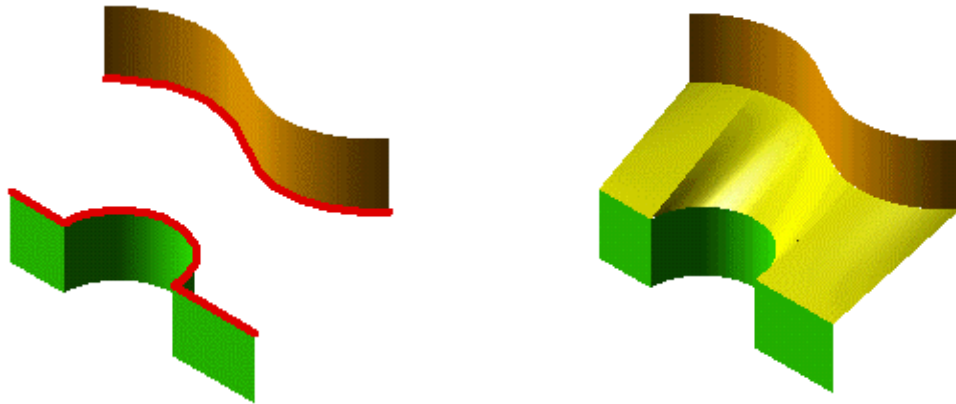


Extract Curve



Create Surface from Curves

Extract a surface from the edges of existing surfaces and use these curves to create a lofted surface. You may need to compose the extracted curves into a single curve before loft operation.

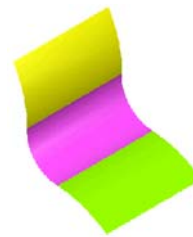


Adjacent fillet surfaces can be trimmed in several ways. The following example shows two different ways in achieving this:

- Extract fillet surface curves and use these curves to trim the adjacent surfaces using Project and Trim tool.
- Add all three surface using Add Solids command, convert the resulting solid to a NURBS surfaces, and delete the unwanted pieces of the surfaces adjacent to the fillet surface.



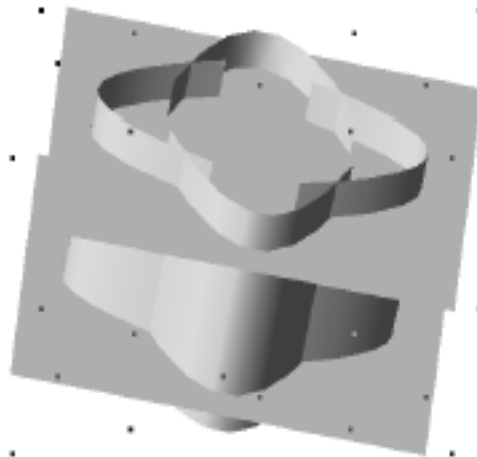
**Extract Curves from the Fillet Surface Edges Using Extract Curve Tool**



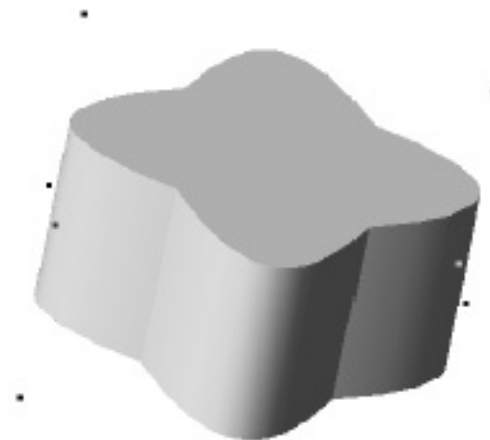
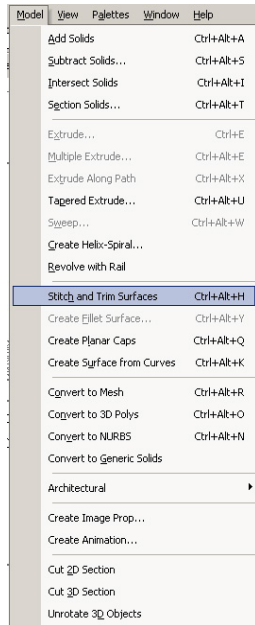
**Surfaces After Trimming Using Project and Trim Tool**

The Stitch and Trim Surfaces command creates a group of trimmed NURBS surfaces from several intersecting surfaces (including NURBS surfaces or solids such as extrudes or sweeps). To stitch and trim intersecting surfaces:

- Select the intersecting surfaces.



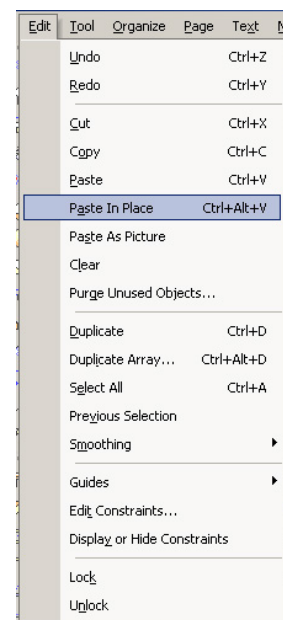
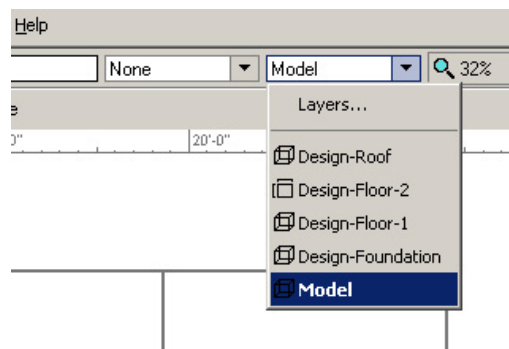
- Select Model > Stitch and Trim Surfaces. The surfaces enclosing the volume are stitched together and then trimmed, resulting in a group of trimmed NURBS surfaces.



## Exporting to .stl

When you create an architectural model in VectorWorks each level (floor) or change in elevation is drawn on a separate layer. To view the model, you link the layers together.

For a successful .stl output users must "compress" the file by copying each "design" layer into a single "model" layer. Users can easily accomplish this by using the Copy command in the Edit menu to copy the information from one layer and then use the Paste In Place command, also under the Edit menu, paste it in place which will assure that it is pasted at the correct X / Y locations.



The user must use the Move 3D command under the Tools menu, to move the information into position (or the correct Z location). For best results when exporting to .stl, select the ASCII radio button, and put the “Export Quality” slider toward the middle range.

