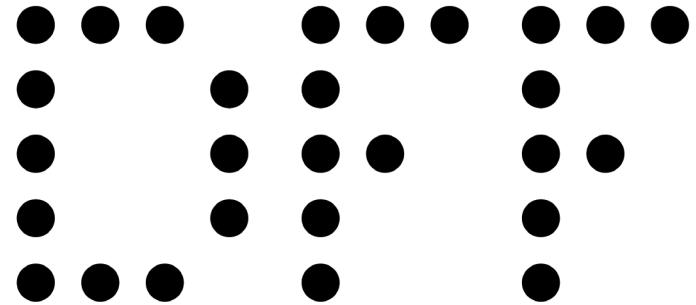


1.5
3D

print
quick fix

Use Rhino 8 feature for quick repair



Digital Fabrication Facilities
for Architecture



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Q: What does this do?

A:

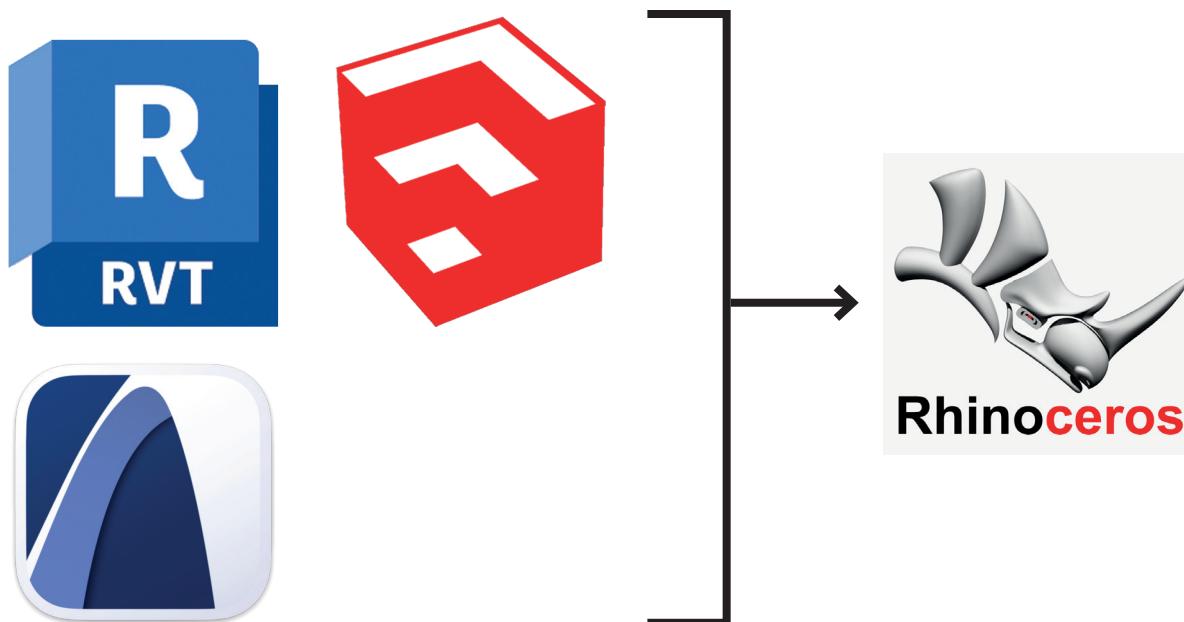
This guide helps you apply some quick fixes to 3D model that are not made to the specification for 3D additive manufacturing and make the model suitable for 3D printing. However, it is likely you lose significant details and design tolerances and should be used as a last resort.

Please note the document shows you the principle and in practice details may vary.

Prerequisite

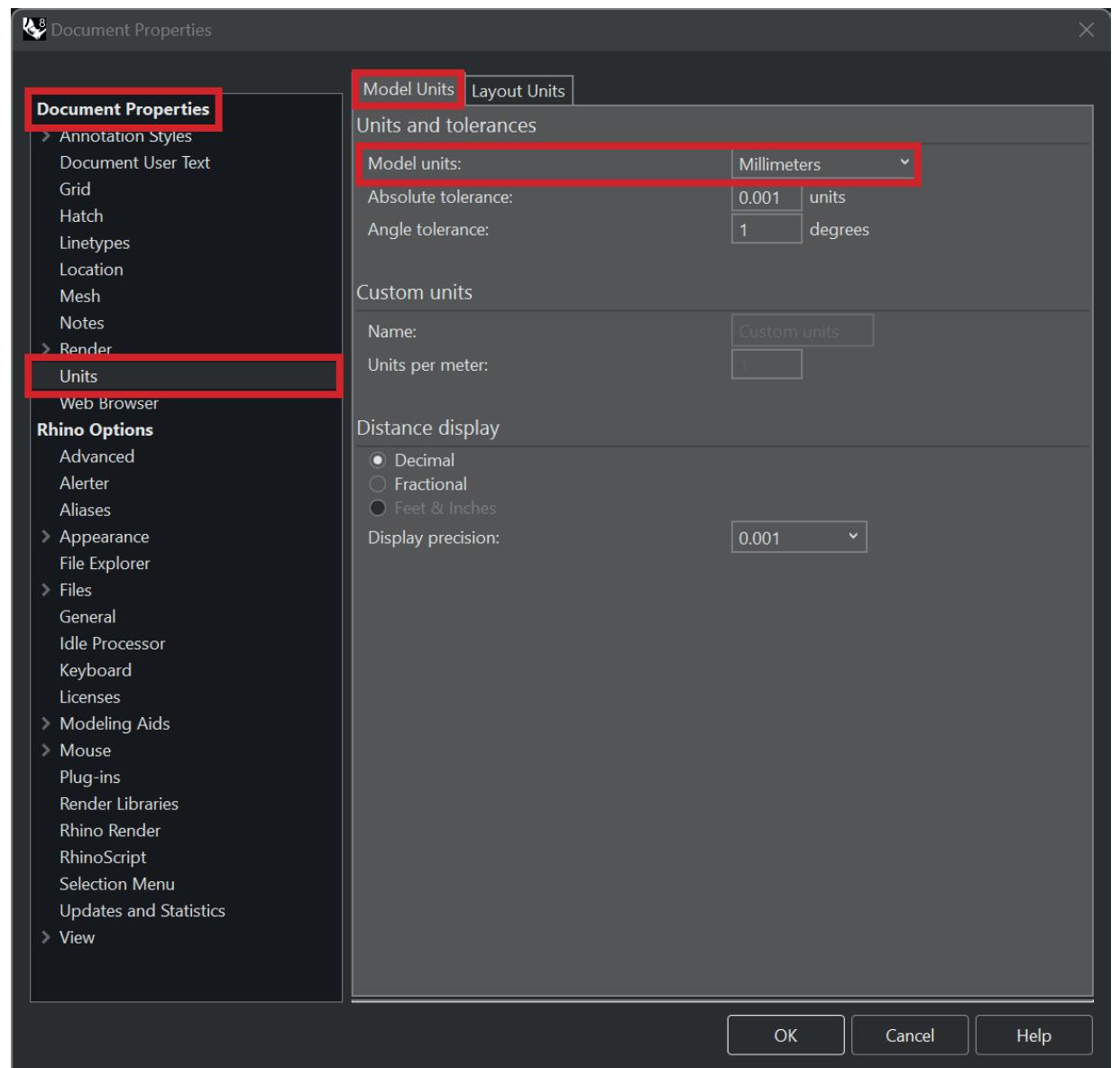
The goal of the quick fix is to create a solid object without any internal geometry. You can import models from BIM software such as Archicad and Revit. It is likely you need to use this quick fix function as those models are not usually suited to 3d print unless they are highly precise. To do this, turn off details and leave just floor slabs, walls, roof and window then export them as STL. Please note if you export windows then the quick fix will remove all internal geometry. So if you want to print model floor by floor then you should turn off the window before exporting to STL, then export each floor at a time.

The quick fix can work also for Rhino or Sketchup model. But they have to be model of solid objects and not as surfaces or lines.



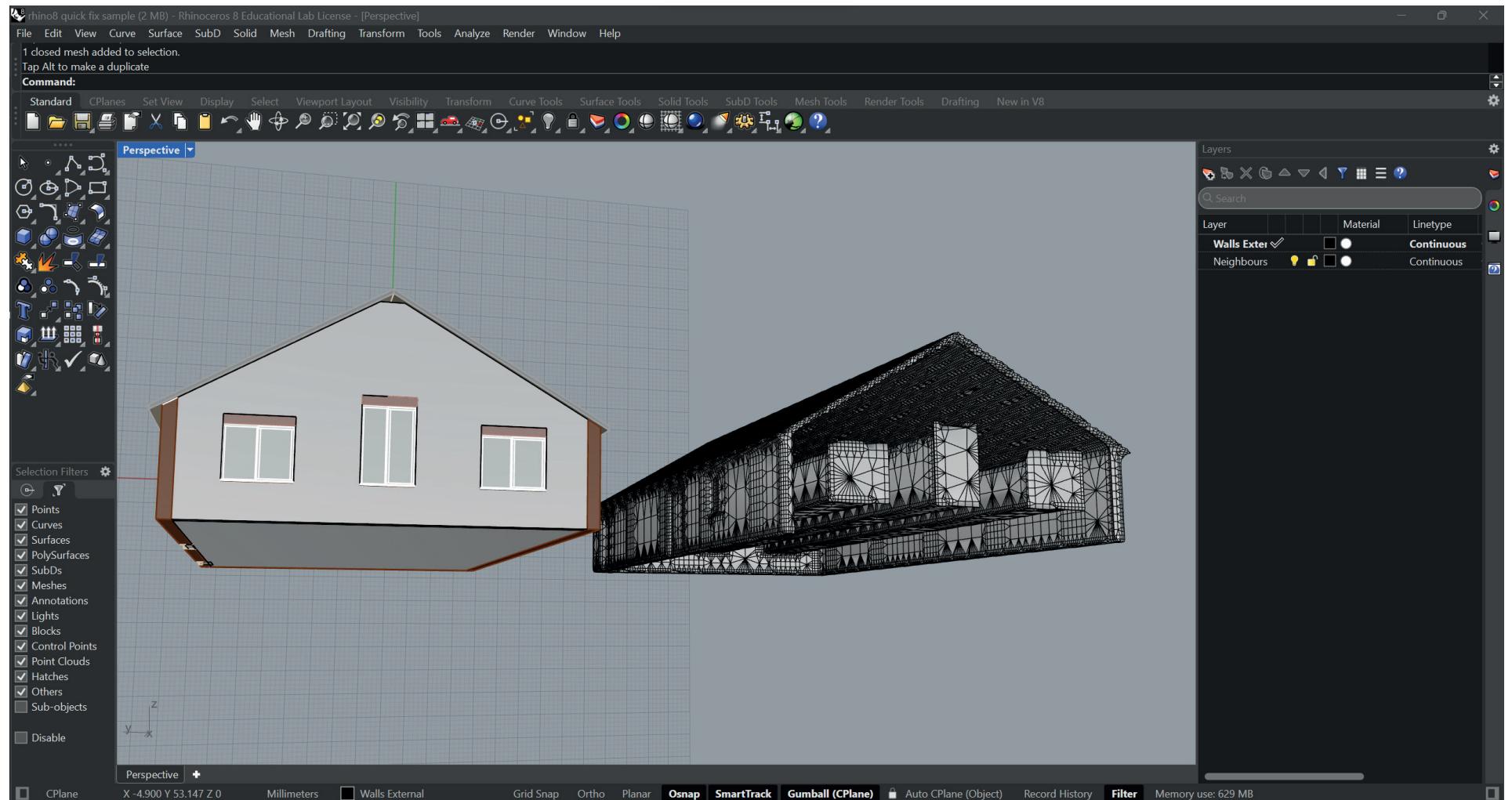
Import / Setup

Please note the quick fix will work best if you set the documents unit in millimeters and then scale the model from 1:1 to a scale for manufacturing. In this case this model is 1:100 where the model is around 100mm in length. The unit settings can be found in Rhino document properties.



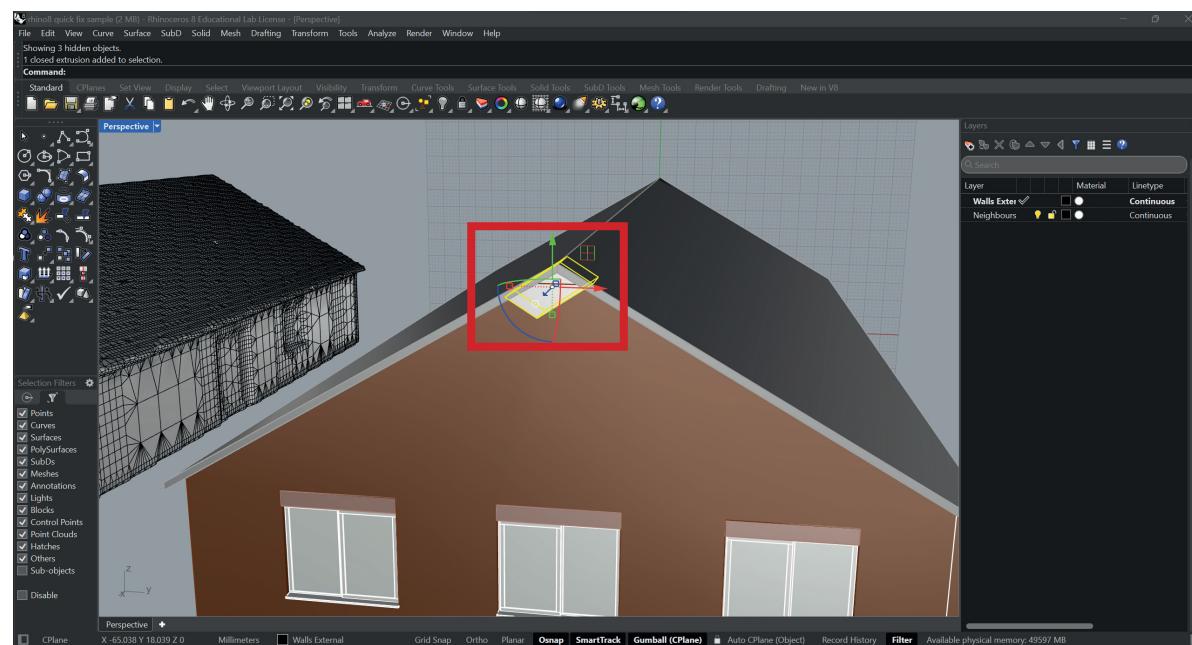
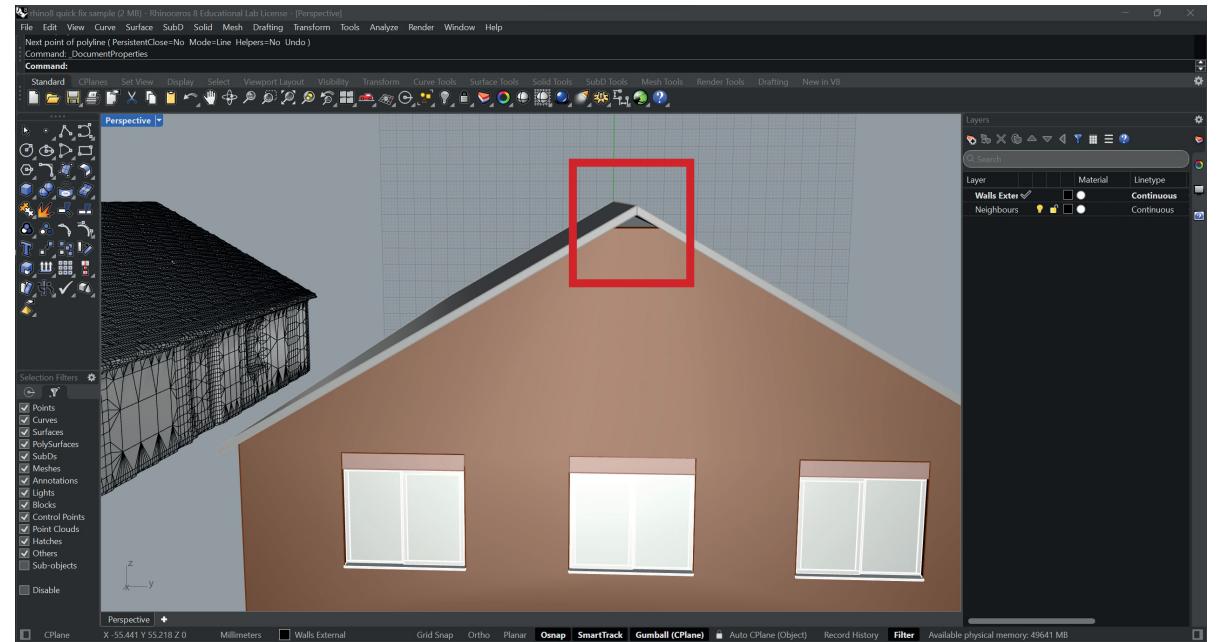
Patch / unedited

Once you imported the model into rhino, it is likely you have many holes and gaps in the model. You need to patch up the most obvious ones otherwise the quick fixes will not work. You can see in the example below.



Patch /Patching

Extrude some primary shapes to patch up holes roughly.



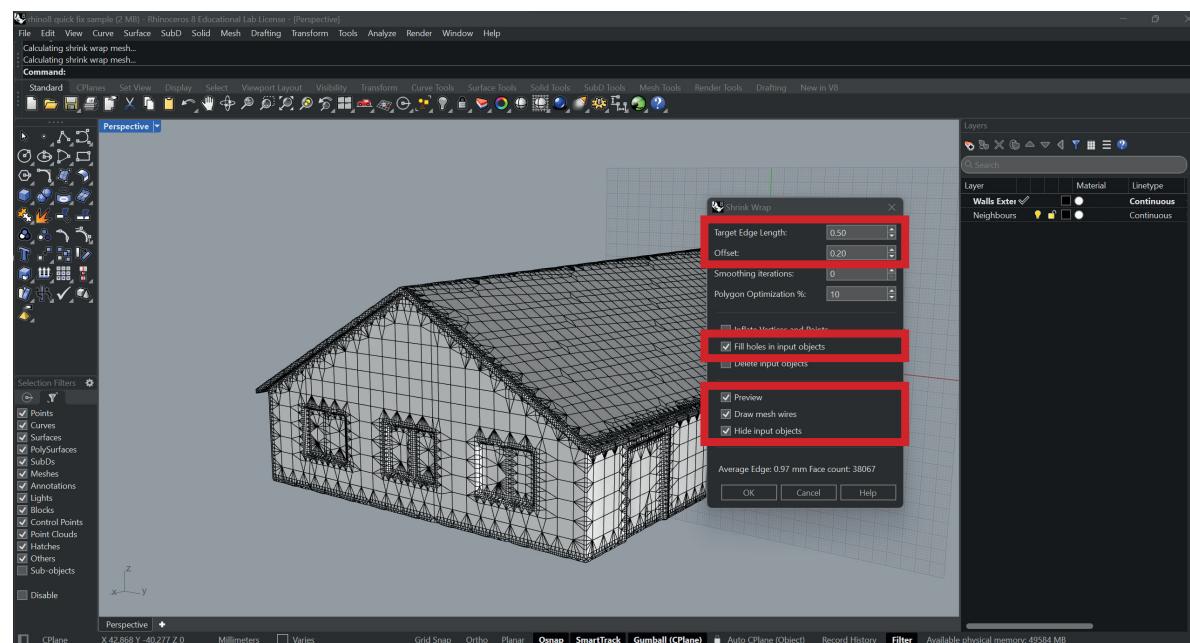
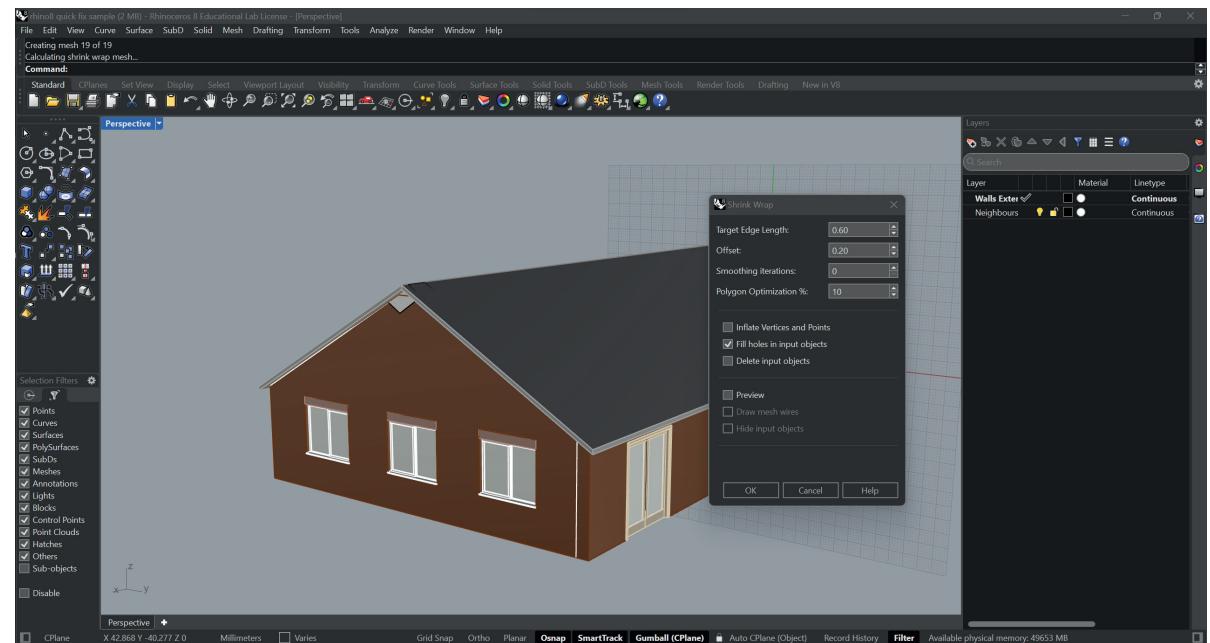
ShrinkWrap / Patching

Now select all objects and type in ShrinkWrap command. Then you need to tick the boxes as shown:

- Fill holes in input objects
- Preview
- Draw mesh wires
- Hide input objects

If your model is scale properly the setting should work fine between 0.1 to 1 for the total edge length setting.

You can bump up offset to smooth over small holes problems but do it gradually as it will make the model more bloated and lose original form.



ShrinkWrap / Checking

Use clipping plane to check if the model is fixed for 3d print. A successful quick fix will show the section as a solid object with no internal geometries.

Then you can select and export this model as STL. keep in mind to select just the single model that is repaired as it will be appeared in the shape location. So make sure you move it away and export the only single fixed objects.

