

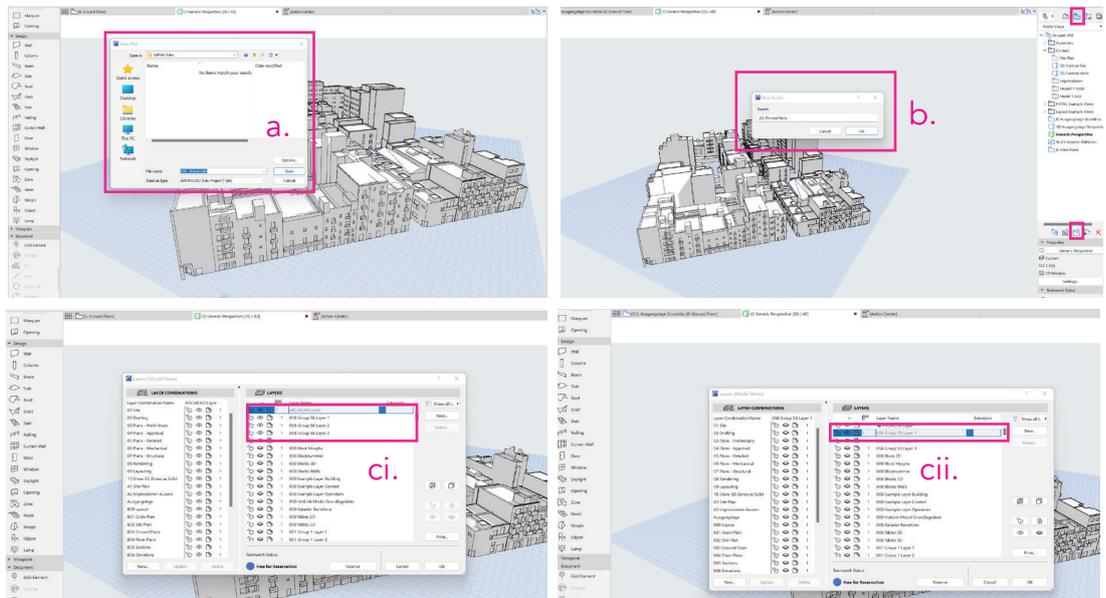
Before this Workflow take the
3DJony Course
W1-1d: 3D Printing for
Architecture Design &



HYTAC Basics SS 23 _ Workflows

03_3D Printing

1



a. Once the modeling part is finished, save a copy of the file as xxx_3Dprint(yyy=Block No).

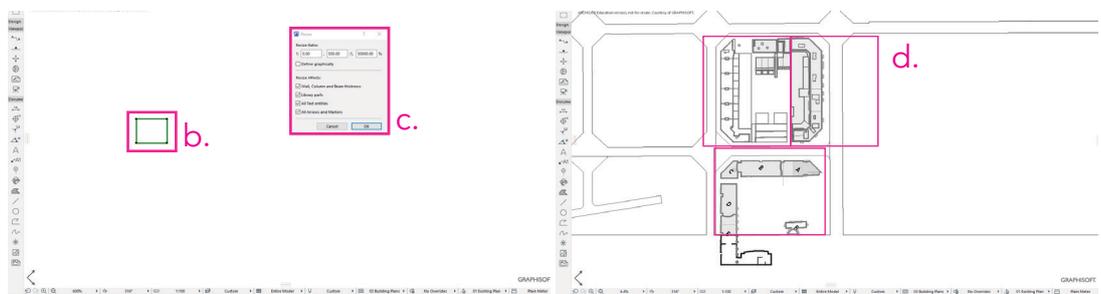
b. Open the new file. In the **View Map** at the right of your screen, create a new folder named "**3D_Printed Parts**". In this folder you can save and collect all the 3D views of the building parts you are going to print.

c. Depending on which scale you want to print, you should adjust the **LAYERS** visibility:

i. If you want to print your model in **1:200**, all the 3 main Layers of your Block should be visible (**0XX Group XX Layer 1/2/3**), since the detail level in this architectural scale is high.

ii. To 3D-print your model in **1:1000**, which is a low-detail architectural scale, the model should be a volumetric representation of the Block. For this reason you should hide the Layers 2 & 3 and keep only the "**0XX Group XX Layer 1**" visible. You can do this using the **Layout Window (Ctrl/Cmd + L)**.

2



a. Draw the 3D Printing plate using the polyline tool, with dimensions **0,24 x 0,19 m**.

b. To match the printing scale, select the polyline, press **Ctrl + K**, uncheck the "**Define Graphically**" checkbox and set the scale to 20,000% for 1:200 or to 100,000% for 1:1000.

c. Place copies of your rectangle on your block to fit your elements on the printing mat.

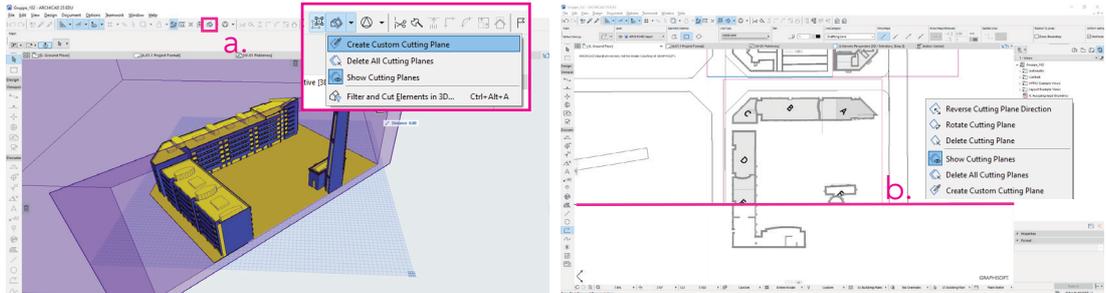
Feel free to rotate and align the rectangles according to the building arrangements of your Block.



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03_3D Printing

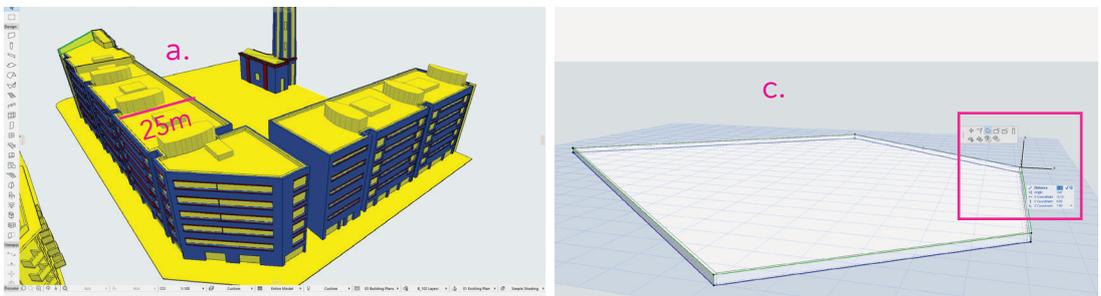
3



a. To divide the parts of the buildings that are going to be printed separately, you can either i) isolate the parts by selecting them and pressing F5 or ii) use the **3D Cutaway Tool**. To use the **3D Cutaway Tool**, click on the dropdown menu and select **"Create Custom Cutting Plane"**. Draw as many cutting planes as needed according to the rectangles you placed before.

b. On the FloorPlan, you can adjust the position of the cutting plane. Select the plane and right-Click to adjust the rotation and direction. Go to the Perspective View to check if the parts are shown correctly.

4



a. To print in 1:200, **all the roofs must be printed separately.**

Exception: You can print the roofs together with the walls only if you print in 1:1000 or if the distance between the walls is less than 10m (5cm in 1:200).

b. For the roofs that don't meet the criteria of the exception above:

For each printed part (that you divided earlier), select all the roofs together with the roof elements and move them to the side. If the roofs/slabs are designed on different height-levels, move them in Zdirection to align them on the same ground plane and arrange them in a new rectangle for printing.

c. Offset each slab/roof **0.06m for 1:200** inwards in order to achive 0.3 mm of tolerance in the 3D-printed parts.

d. The Base-Slab of your Block, should be printed only in 1:1000 and NOT in 1:200.

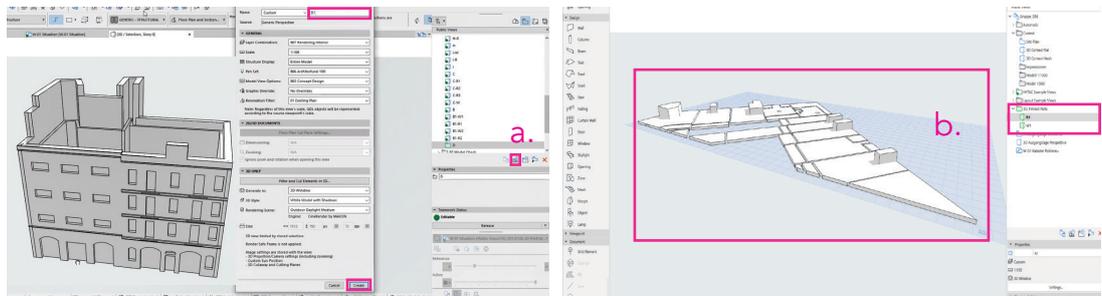
If your scale is 1:200, select the ground-slab, right-click and hide the element.



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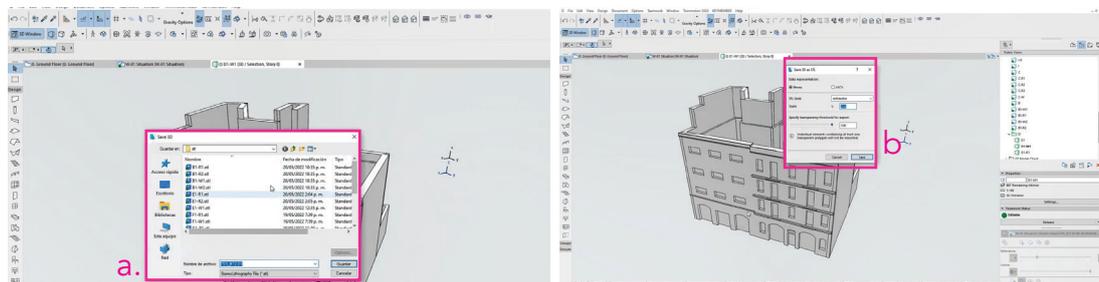
03_3D Printing

5



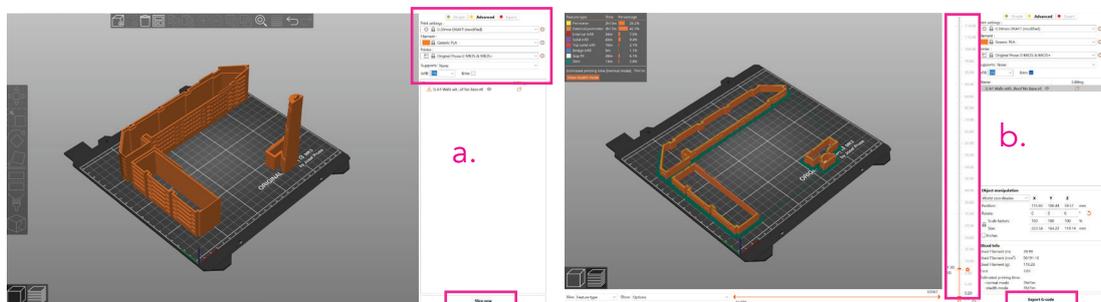
- a.** To **create and save the views** for the different 3DPrint files of each part, after the previous step and while in the Perspective View, save the View **TWICE** by clicking on the icon shown on the screenshot above. Name the first view as W1(for wall-set 1) and the second one as R1(for roof-set 1). For the rest of the parts, you can name the files as W2,R2,W3,R3 etc. Move both of the views in the folder **"3D_Printed Parts"** (step 1).
- b.** Open the View W1, select all the wall and press **F5** to isolate them. Open the View R1, select all the roofs and press **F5** to isolate them.

6



- a.** To export one of the views for 3D-printing, open the view, go to **"File>Save as"** and save your model as a Stereo Lithography file **(.stl)**. Name the exported files in an arranged manner according to the name of the view.. (e.g. W1 , R1 etc)
- b.** In the **STL Settings**, set the STL unit to millimeter and the scale to 1:200 or 1:1000.

7



- a.** Run PrusaSlicer and Drag&Drop your STL file on the mat. Correct the position and rotation of your model and set the parameters below:
Printing Settings: 0.3mm Draft , **Material :** Generic PLA, **Printer:** i3 MK3S or MK3S+, **Infill:** 5% , **Brim :** 3mm . Click on **"Slice now"**
- b.** Check for errors and make sure that **all the layers** are correct using the scrolling wheel. Export the **G-code** and send it to your Printer.