3D Printing – Architecture, Fall 2020

Please follow these instructions to complete your 3D printing:

1. Download and fill out the 3D printing form located on the school website under 3D printing: https://arch.illinois.edu/degrees/fabrication#section-2

2. Once your 3D print form is filed out, please email it to arch-printing@illinois.edu

3. Download the 3D printer software from box: QIDI Slicer Software

4. Upload your 3D Rhino model (.stl or .obj) to the printer software.

5. Format your 3D print using the 3D printer software (instructions below)

6. Upload your formatted 3D print to the 3D printing box folder: Box upload

*Once our staff has received both your completed 3D print form and your 3D printing file, you will be entered into the printing queue. Name your file in the following format: netID_DateSubmitted

7. A Print Lab staff member will complete your print, label your print, and email you instructions and when and how to pick up your 3D print. Please follow the directions provided to you to keep you and our staff safe.

THANKS!

3D Printing Tools / Instructions:

Below are some links to tutorials and directions on how to set up 3D prints to our different printers. The types of printers available and their prices are also listed below.

Form 2 (Resin) – ($10.00 setup charge + $0.45/gram)

https://www.youtube.com/watch?v=sGnWf6OJZe4

- Make sure file is saved as a. STL or .OBJ format. This can be done in rhino by using > export selected
- Once the file is downloaded on the computer open the program *PreForm*
- When the program launches a Print Setup Dialog Box will automatically open: Make sure the printer "*DebonairKoala*" is connected then click apply
- Now click File > Open, then select the file your preparing to print or drag the file onto the build platform on the screen.
- Check to see if the file fits on the platform, if it doesn't it'll show in red. If there are several models on the platform and are intersecting it will show in orange.
- To move the object on the platform, click object (it'll be colored after selection) and move the arrows
- Orientation of model can be altered with this option, clicking the lines on the circle will allow you to rotate the model on each axis
- Objects can also be scaled on this option (the platform is 15cm x 15cm for reference)

- Once you fit the file to platform now you must add the supports and raft. This step is EXTREMELY important because the file will fail without the raft or supports and possibly damage the printer.
- Click the support icon located in the upper left corner > then select generate selected (the file must be selected in order to complete this task)
- The Settings should read:
    - Density: 1.00-This can be altered and should be tried with every model to get the quickest print time.
    - Touch point Size: .60 mm-This should be changed depending on the print. Please use the smallest size that is available for the model.
    - Internal Supports: checked
    - Raft Label: checked
    - On Build Platform: unchecked **This will automatically apply the raft and supports to the file
- Now you must check to see if you need to add custom supports to the file (if there is any red on the file you need to add supports to those spots) To do that click Edit All in the Supports Tab and then find all the red marks on the file and click those (it sometimes takes tampering with to find all the red, but be patient) Once you support the file correctly there should be no red displayed anywhere within the file. When the print has enough supports, there will be a checkmark located next to the printability label at the bottom of the screen.
- At the bottom of the screen you will now see how long the print will take
- SAVE THE FILE and upload this formatted print to the box folder.

Qidi X Plus & X-Max (filament) – ($3 set up charge, $0.25/gram, $1/hr after 4 hrs printing)

- **Make sure file is saved in mm not inches** and in .STL or .OBJ format. This can be done in rhino by using > export selected
- Once the file is downloaded on the computer open the program *QidiPrint*
- QIDI X-Plus filament printer (build volume 10.6”x7.9”x7.9” or 270mm x 200mm x 200mm)
- QIDI X-Max filament printer (build volume 9.8”x11.8”x11.8” or 250mm x 300mm x 300mm)
- Now click File > Open, then select the file you’re preparing to print or drag the file onto the build platform on the screen.
- If your 3D model is too big for the platform, your model will be grey with lines. If it fits on the platform, it will show up in red.
- To format the model, you must click on it first. You can use the toolbar on the left-hand side of the screen to scale, rotate, or mirror your model fit your needs.
- Once your model is formatted, you must add supports. This step is EXTREMELY important because the file will fail without the supports and possibly damage the printer.
- If you have your model formatted properly and your supports added, make sure the material in the upper right-hand corner is the material you wish to have the model printed in. Available materials are:
    - White PLA
    - Black PLA
    - White ABS
    - Black ABS
    - Other filaments available upon request there is a lead time of up to 2 weeks for ordering different materials. Contact arch-printing@illinois.edu with any questions.
- Click “prepare” at the bottom left corner of the screen.
- SAVE THE FILE and upload this formatted print to the box folder.

For issues with printing, please email arch-printing@illinois.edu (please allow 24 hours for a response) or visit https://arch.illinois.edu/degrees/fabrication#section-2