MakerBot Thing-O-Matic Safety/Policies

Policies

- **NEVER** leave the MakerBot unattended while it is operating
- **NEVER** reach near the build platform or print head when it is in motion
- **BEWARE** of loose clothing and jewelry near the cutting carriage while it is in motion
- **BEWARE** of hot surfaces, both the print head and build platform are heated

Emergency Actions

1. Press Pause in Software
2. This should stop the MakerBot. If it does not...
3. Switch the power switch to OFF (left side of machine)
4. Unplug unit from wall if problem still exists.
5. Notify Fab Lab staff

Policies

- You can only reserve 4-hours of MakerBot machine time per day
- Do not start a MakerBot job that will exceed your reservation period

MakerBot Design

Thoroughly check over your design before reserving machine time to reduce the need for troubleshooting

Recommended Design Software

- ReplicatorG: Lab-supported; Installed on MakerBot computers; Operates the Makerbot
- Any 3D Software (Sketchup, 123D etc,)

File Format

The following formats are required to import into ReplicatorG: STL

3D Design Rules:

Instructions below are generalized for all 3D graphics softwares

Object Size

Rule: Your model should be no larger than 3.77in L x 4.25in W x 4.52in H
Solution: Verify in ReplicatorG that your design fits in the box.

Object Shape (Overhangs)

Rule: Design with 45˚ or less of overhangs
Solution: Because each layer must adhere to the layer below be sure designs do not incorporate overhangs over 45˚.

Object Shape (Avoid Tall and skinny objects)

Rule: Avoid objects that are tall relative to their footprint
Solution: To avoid objects tipping over or deflecting during printing, use the raft feature or position object on its side.

3D Design Tips:

Prototype Your Designs

It is unlikely that you will create a perfect product on your first try. It usually takes a couple of tries to perfect your design. If possible prefect each design element separately then combine them into your final design. After a couple of tries, you will become familiar with the design process.

Make Your Design MakerBot Friendly

Keep all of the design rules in mind. Use advanced features in Replicator G to create a functional part using minimal plastic material (Replicator G will infill your solid objects with a honeycomb pattern of plastic, the density of the fill and thickness of the outer shell can be adjusted).

MakerBot Operation

Step 1:

- Power on computer if not already on
- Turn on MakerBot (Power switch located on left side)

Step 2: Open Replicator G software on desktop

Step 3: Verify Plastic filament is loaded into the extruder head

Step 4:

- Verify proper Driver is selected (Machine-Driver-Thingomatic w/ABP and extruder MK6)
- If driver changes are made close and restart software

Step 5:

- Verify machine is connected and displays “Machine thingomatic w/ABP and Extruder MK6 ready”

Step 6:

- Select (Machine-Control Panel)
- Use jog controls to verify proper functioning and and communication ofmachine

Step 7: Load .STL model (File-Open)

Step 8:

- Position model on build platform (if needed) and verify model fits within build Volume

Step 9:

- Generate Gcode (click generate Gcode)
- Select SF35-thingomatic-ABP-MK6
- Check the box to use Print-o-matic
- Adjust settings to requirements (use default if unsure)
- Click generate Gcode (this may take a few minutes)

Step 10:

- When Gcode is done generating click the Gcode tab to display the Gcode
- To estimate the Build time Click (Gcode-Estimate)

Step 11:

- Click the Build button. The MakerBot should zero the axis and then begin warmup cycle
- The build status can be monitored in the upper bar

Step 12:

- Wait for your part to finish printing
- Your part will be automatically ejected from the machine after it has cooled

Step 13:

- Clean up and place everything back in their proper places
- Leave the workstation better than you found it!

MakerBot Materials

Fab Lab Tulsa will have limited quantities of the “Lab Materials” listed below. You are welcome to use these materials at no cost as long as you use them within reason.

Lab Materials:

3mm off white ABS

Other Acceptable Materials:

The current extruder accepts 3mm Materials

- ABS (Many colors available)
- PLA (poly lactic acid)