**MakerBot Replicator 2
3D Printer**

Quick Start Guide

1. Turn on computer connected to the MakerBot Replicator 2.


2. Locate power switch in the bottom rear of the MakerBot Replicator 2 and turn on.

LOADING MAKERBOT PLA FILAMENT

1   Detach the Filament Guide Tube

Locate where the filament guide tube attaches to the top of the extruder. You must remove the filament guide tube from the extruder. To remove the tube, gently pull it out of the hole in the top of the extruder.

Pull here

```
I'm heating up my
extruder so we can
load some filament
Be careful, the...
```
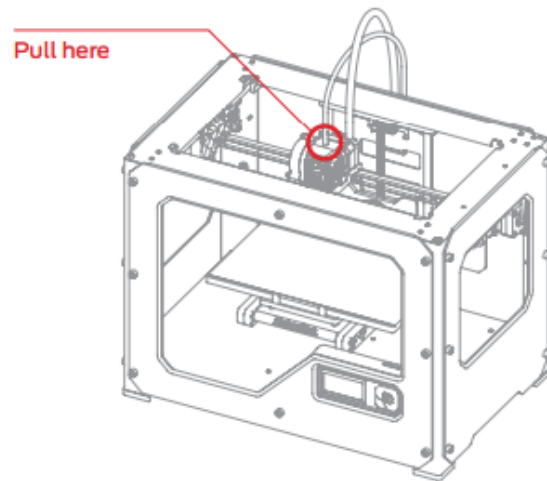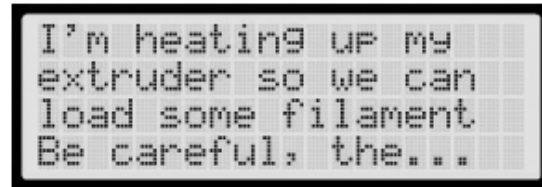
2   Feed the Filament Through the Filament Guide Tube

Free the end of the MakerBot PLA Filament from the filament spool. With a pair of scissors, cut a clean edge. Feed the end of the MakerBot PLA Filament into the end of the guide tube where it attaches to the back of the MakerBot Replicator 2. Feed the MakerBot PLA Filament through the guide tube until it emerges from the other end of the tube.

NOTE: To avoid filament jams, ensure that the MakerBot PLA Filament feeds from the bottom of the spool toward the top of the spool.
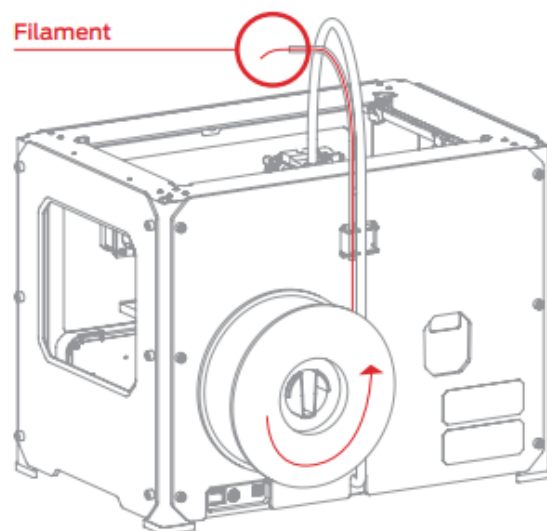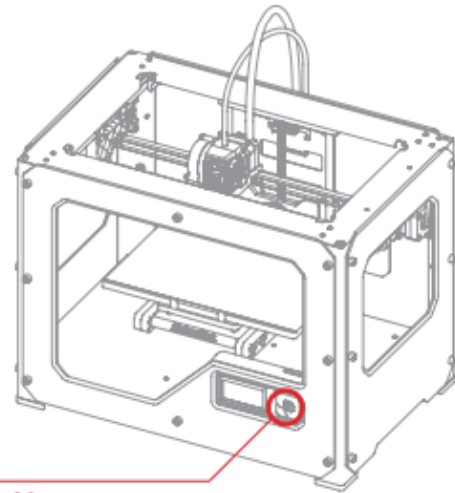
Filament

3 | Press the M to Begin Heating the Extruder

After you've fed the MakerBot PLA Filament all the way through the guide tube, press the M button on the LCD menu. The MakerBot Replicator 2 will start to heat your extruder.

WARNING: Do not touch the extruder while it is heating — it heats to 230º C.

Press the M

4 | Press the M to Continue

After the extruder reaches 230º C, the LCD panel will prompt you to load the MakerBot PLA Filament into the extruder. Click through the message until your MakerBot Replicator 2 asks you to press the M when you see plastic extruding.

```
I'm heating up my
extruder!
Please wait!
▓
```

```
OK I'm ready!
Pop the guide tube
off and push the
filament through...
```

```
the extruder block
until you feel the
motor tugging the
plastic in...
```

```
When filament is
extruding out of the
nozzle, Press 'M'
to stop extruding.
```
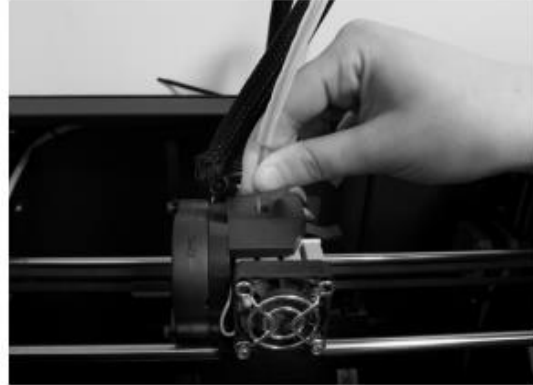
5   Push the Filament into the Extruder

Push down on the Extruder Arm.

Continue to hold it down as you insert the free end of the filament into the hole in the top of the extruder. Push the filament in as far as it will go. You will see plastic start to emerge from the extruder nozzle.

Release the extruder arm.

6   Stop Extrusion

The extruder motor will grab onto the filament and continue to draw it in. Watch to make sure plastic is still extruding from the nozzle after you release the extruder arm. Then press the M button to stop extrusion.

NOTE: Don't be surprised if the filament that initially comes out of the nozzle is not the color you expected. There's probably some filament inside the extruder left over from our testing process at the MakerBot BotCave. Wait until you see the color that you loaded come out of the nozzle before you press the M button.

7   Return the Filament Guide Tube

Push the guide tube back into the opening on the top of the extruder.

NOTE: If you have problems or need to load the MakerBot PLA Filament again, you can use the up and down arrows to scroll through the top-level menu on the LCD panel and use the M button to select Utilities. Scroll to Change Filament and select it. Then select Load. You can use these menus to return to the load script at any time.
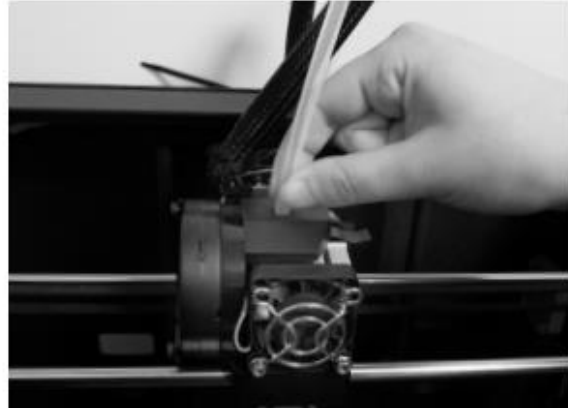
8   Remove the Extruded PLA

Wait a few minutes for the extruded PLA to cool, then pull it off the nozzle. You can discard this extra filament. Don't touch the nozzle; it may still be hot.

Don't leave plastic clinging to the extruder nozzle. This can cause newly extruded plastic to stick to the nozzle instead of the build platform.

⚙   Unloading MakerBot PLA Filament

To unload MakerBot PLA Filament, go to the LCD panel and select Preheat > Start Preheat. Wait for the extruder to heat to the set temperature. Then push down on the Extruder Arm and continue to hold it down as you gently pull the filament out of the extruder. Release the extruder arm.

LOADING AND PRINTING A FILE

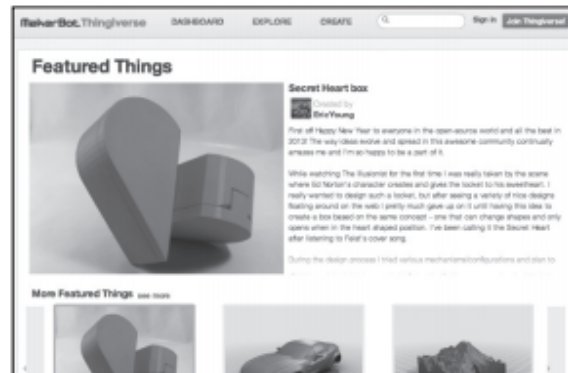1. Open a web browser on the computer and visit: **http://www.thingiverse.com**

2   Download an Object From MakerBot Thingiverse

Thingiverse is a website where MakerBot users and others can share design files.

2a. Open a browser session and go to www.thingiverse.com. Use the search field at the upper right to search for "Minimalist NYC buildings." Your search results should include "Minimalist NYC buildings by JonMonaghan." Click on the link.
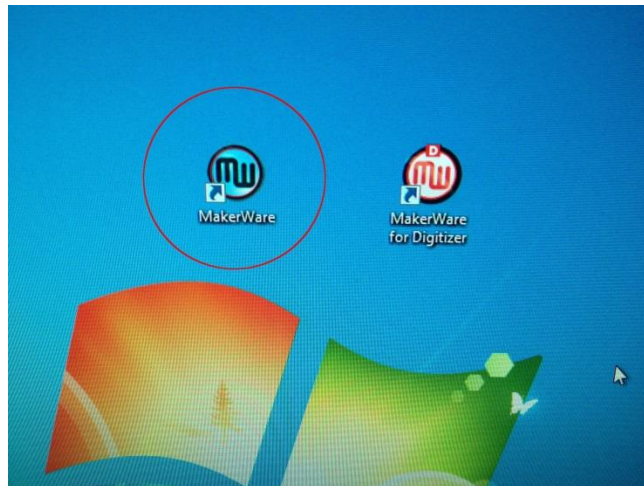
2b. At the right of the page you will see a button that says "Download This Thing!" Click this button to open the Downloads window.

2c. For this example we chose the Flatiron Building and the Woolworth Building. Find "FlatIron.stl" and "Woolworth.stl" in the list of available downloads and click the file names to save them to your computer.
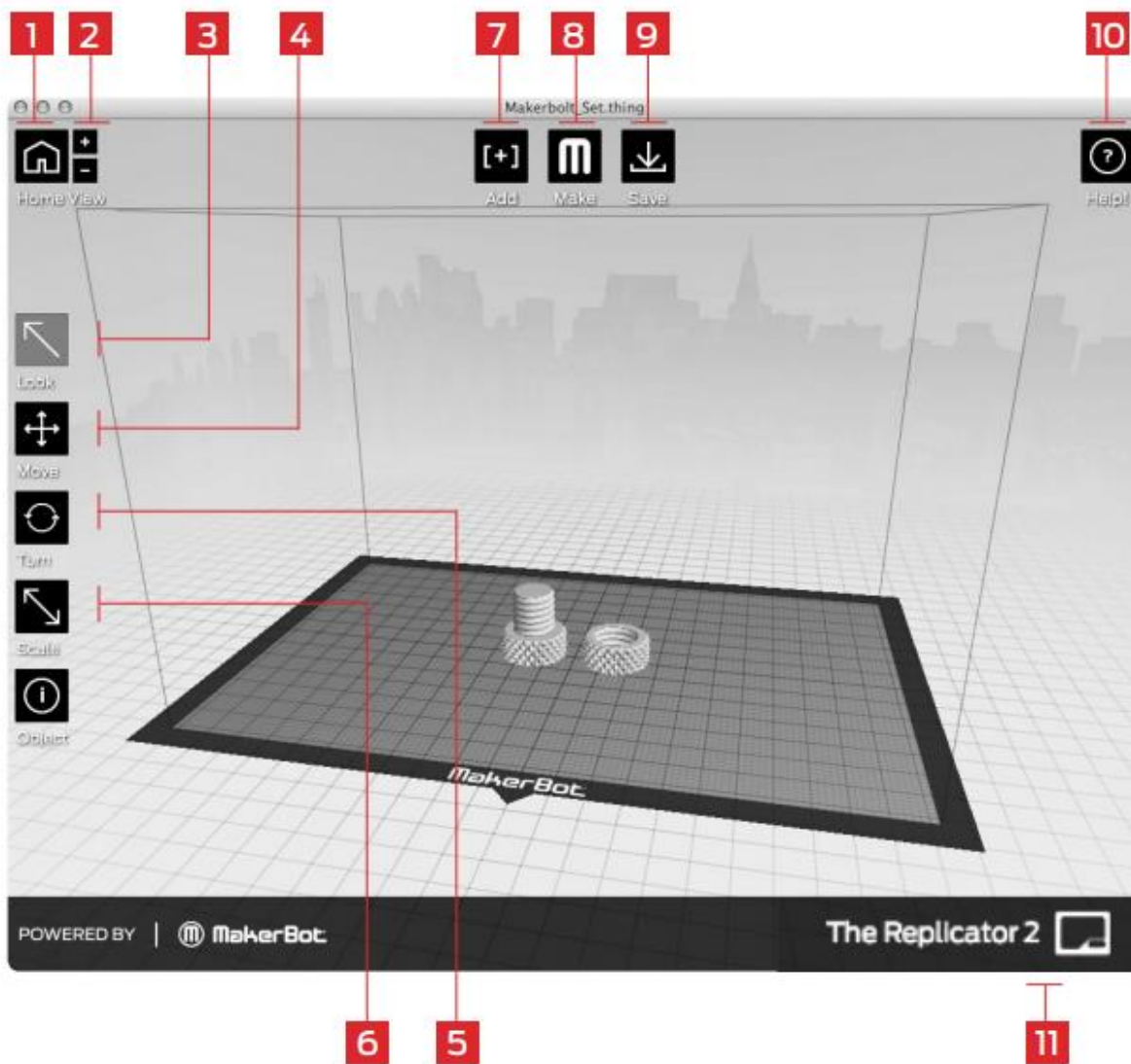
3. Open **MakerWare** located on the desktop of the computer.

3 Open MakerBot MakerWare | Continued

3   Open MakerBot MakerWare

[1] CAMERA HOME: Resets MakerWare to the default view of the object.

[2] +/-: Zoom in and out. You can also use the scroll wheel on your mouse to zoom in and out.

[3] LOOK: Click the Look button or hit the L key to go into Look mode. In this mode, click and drag with your mouse to rotate the plate and the object. Use the arrow at the side of the selected Look button to open the Change View submenu for Top, Side and Front views.

[4] MOVE: Click the Move button or hit the M key to go into Move mode. In this mode, click and drag with your mouse to move an object around the plate. Use the arrow at the side of the selected Move button to open the Change Position submenu and move an object by a specific distance and direction.

[5] TURN: Click the Turn button or hit the T key to go into Turn mode. In this mode, click and drag with your mouse to to rotate the object. Use the arrow at the side of the selected Turn button to open the Change Rotation submenu and rotate an object by a specified angle and direction.

[6] SCALE: Click the Scale button or hit the S key to go into Scale mode. In this mode, click and drag with your mouse to to enlarge or shrink your object. Use the arrow at the side of the selected Scale button to open the Change Dimensions submenu and scale by a percentage or to a specific measurement.

[7] ADD: Click this button to add an object to your build plate. You can add as many objects as you can fit on the plate.

[8] MAKE IT: Click this button to open the Make dialog, where you can specify print resolution and other options and send your object to your MakerBot Replicator 2 for building.

[9] SAVE: Allows you to save the current plate as a file for later use.

[10] HELP: Opens a guide to MakerWare's basic functions.

[11] STATUS BAR: Displays the status of your connection to your MakerBot Replicator 2.

4 Open the .stl files in MakerBot MakerWare

4a. Click on the Add button. Navigate to the location of the file FlatIron.stl and select it. The file will open at the center of the build plate.

4b. Select the Move button and click and drag the Flatiron Building to the left.

4c. Click on the Add button again. Navigate to the location of the file Woolworth.stl and select it. Now you should see both the Flatiron Building and the Woolworth Building models in your virtual build space.

4d. With both models open, you can manipulate them separately or together. Select one of the models, then click the Turn button or use the T key and rotate it.
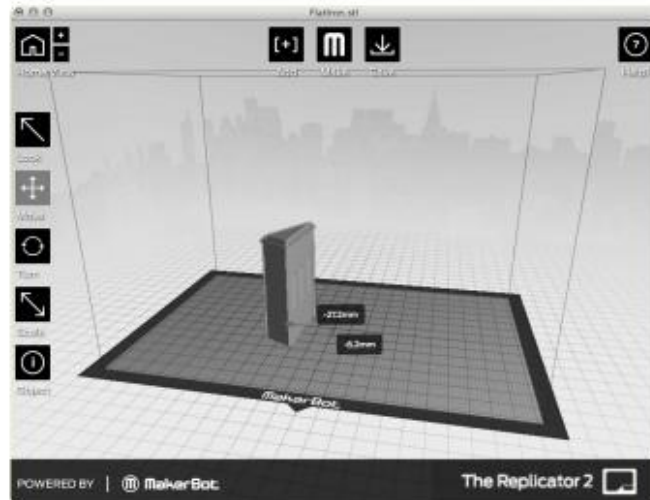
Minimalist NYC buildings
Design By: JonMonaghan
Thingiverse: 12762

TIP: You can also duplicate objects by using the Add button. Select the object and use Ctrl/Command+C to copy and Ctrl/Command+V to paste.

4   Open the .stl files in MakerBot MakerWare | Continued

4e. Click on the Flatiron Building to select it. Hold down the shift key and click on the Woolworth Building. Then release the shift key. Both models should be selected.

4f. Select the Scale button. Click and drag to change the size of both models together.
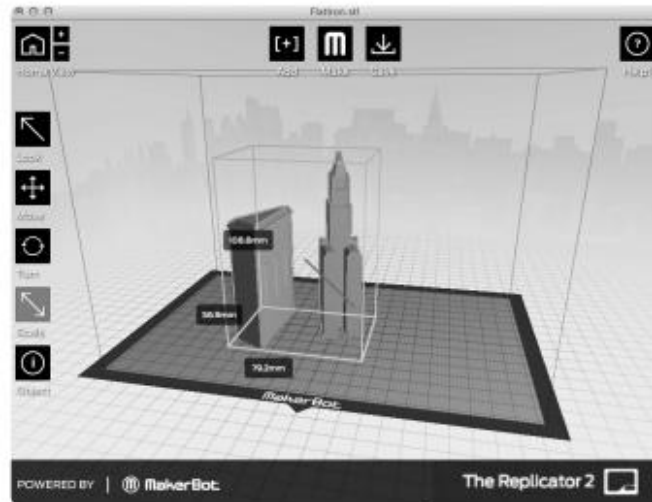

5   Save and Make Your file

5a. Select the Save button. The save dialog gives you the option to save your plate as an STL or a .thing file. STLs can be opened by a wide range of programs, but .thing files allow you to continue to edit the components of a plate separately.

Specify a name and location for the file. For example, you could name the file flatiron_woolworth.thing.
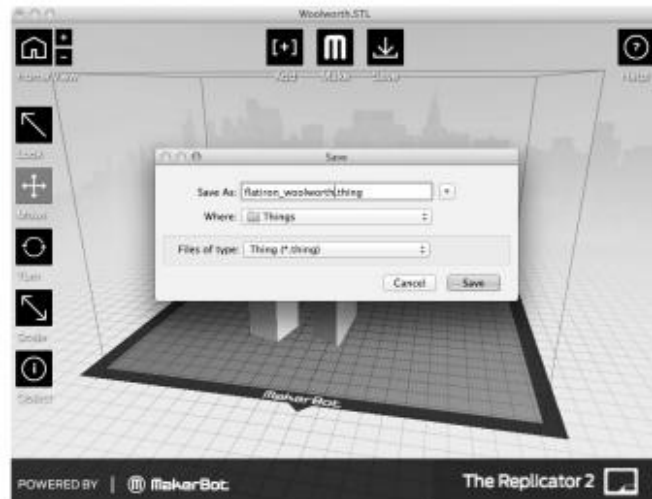
When you are ready to print, select the big "m" **Make** button at top center of screen and be sure to check off "Preview before printing" at the bottom of the window that opens. This will enable you to get an estimated time of how long the print will take (see next page).

Select Raft and/or Supports if needed.
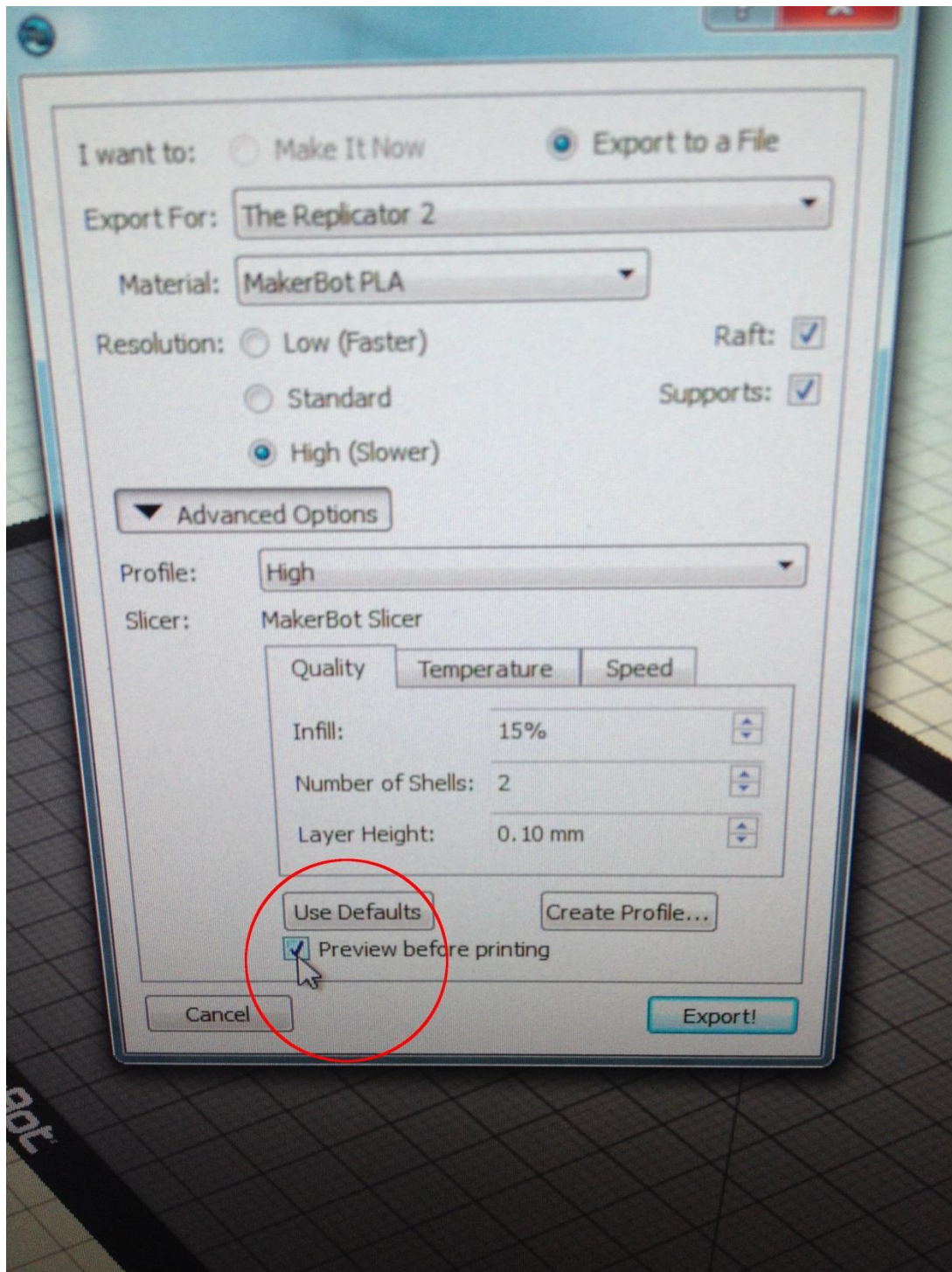
Take note of print time shown at top right of window. You will only be permitted to continue with your print job if you have enough time considering MakerStudio closing time and/or your reservation. The 3D printer must be shut down at closing time regardless of time remaining in print job. Please talk with the MakerStudio staff if your print job requires a longer time than is available.

If you have enough time and wish to initiate your print, select the **Make It!** button at the bottom of the window.
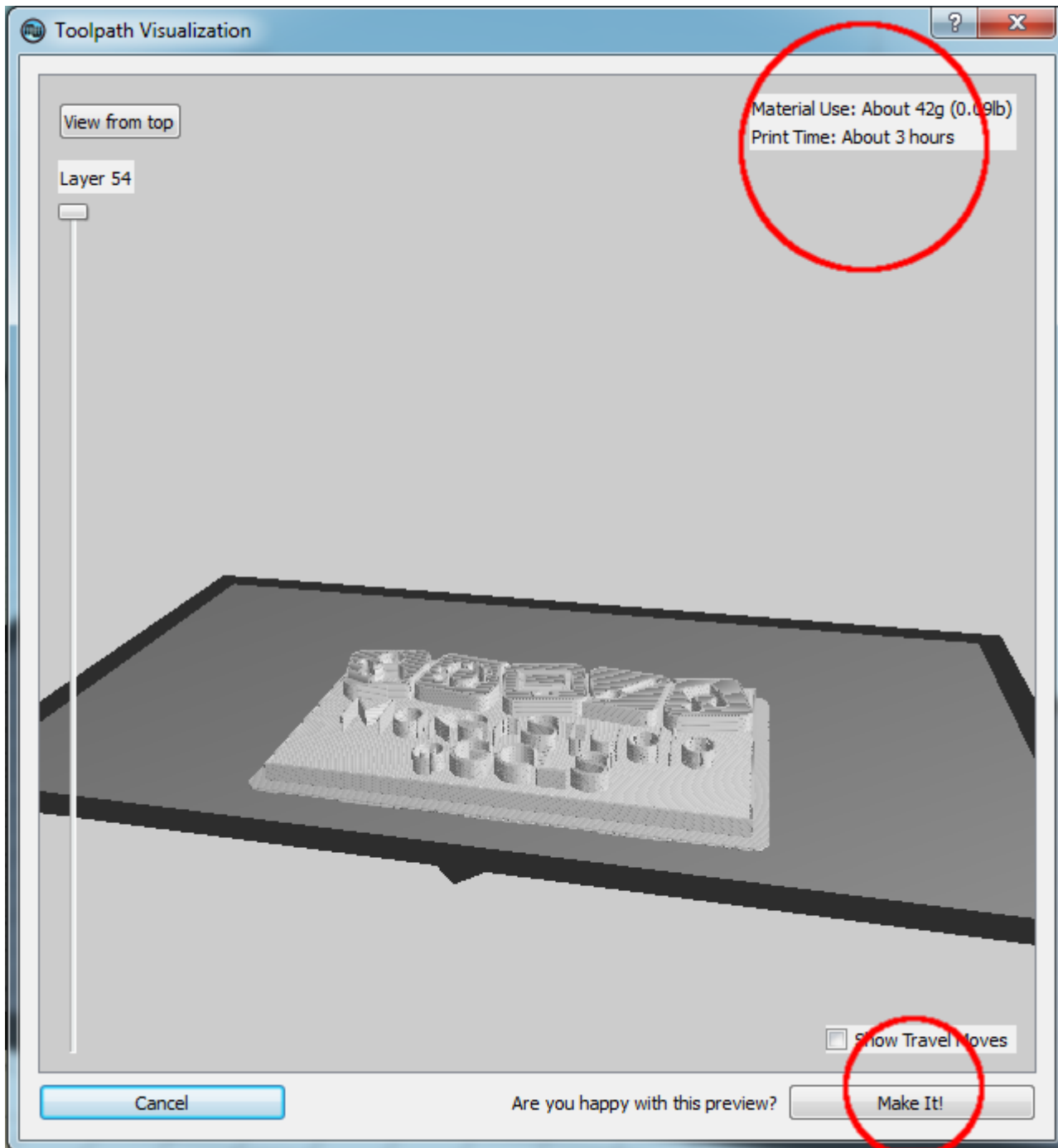
5 **Save and Make Your File | Continued**

5b. Select the Make It button. The Make dialog appears, with the following options:

[1] MAKE WITH: Select The Replicator 2, if not already selected.

[2] MATERIAL: Choose the type of plastic your are building with.

[3] QUALITY: Specify the quality of your build. Smaller layer heights result in more detailed models and longer build times.

[4] RAFT: Select this to have your object built on a raft. Rafts provide a base for supports and help your object stick to the build plate.

[5] SUPPORTS: Select this to have your object include easily removable support structures under overhanging parts of the object.

[6] ADVANCED OPTIONS: Click here to open a menu with more options. For information on how to use these options, go to http://www.makerbot.com/support/makerware/documentation/advanced.

[7] CANCEL: Click here to cancel this process.

[8] MAKE IT!: Send the file to the MakerBot Replicator 2 for building.

I want to: ● Make It Now   ○ Export to a File

Make With: The Replicator (Dual) ⬍

Material: PLA ⬍

Resolution: ○ Low (Faster)   ☐ Raft (New and Improved)
○ Standard   ☐ Supports
● High (Slower) *

▶ Advanced Options   Extruder: Right

Cancel   Make It!

TIP: If you plan to build from an SD card instead of directly from MakerWare, select "Export to a File" at the top of the Make dialog instead of "Make It Now." If your Replicator 2 is not connected to your computer, "Export to File" will be selected automatically.