

FORM 3B

Quick Guide 1

* Before first print on Form 3B contact Drew Robertson drew@beam.unc.edu *

Required Materials:

Unlike our FDM printers, materials are not included free for use with the Form 3B. In order to use BeAM's Form 3B, you must purchase your own resin and resin tank.

a. Links to purchase Formlabs resins:

- i. Black Standard Resin: <https://formlabs.com/store/materials/black-resin/>
- ii. Grey Standard Resin: <https://formlabs.com/store/materials/grey-resin/>
- iii. Clear Standard Resin: <https://formlabs.com/store/materials/clear-resin/>
- iv. Grey Draft Resin: <https://formlabs.com/store/materials/draft-v2-resin/>
- v. Additional general engineering resins can be found here: <https://formlabs.com/store/materials/>
- vi. Biomedical Resin for long-term skin or mucosal membrane contact: <https://formlabs.com/store/materials/biomed-clear-resin/>
- vii. Biomedical Resin for short-term skin or mucosal membrane contact: <https://formlabs.com/store/materials/biomed-amber-resin/>
- viii. Surgical/Implant guide Resin: <https://formlabs.com/store/materials/surgical-guide-resin/>

b. Link to purchase Formlabs resin tank:

- i. <https://formlabs.com/store/accessories/form-3-resin-tank/>

One resin tank is required for each type of resin used. Resin types vary but most parts are recommended to be printed with one of Formlab's standard resins. Only official FormLabs resins and materials can be used in this machine. The resin tank not only holds the resin during printing but has a flexible film at the bottom that light shines through allowing for a dynamic and precise printing process.

The basic cost to start is approximately \$300

Set Up:

Watch Formlabs' series of onboarding videos:

Introduction: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=dtpienc1zq>

Resin Tank Handling: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=n96f2ghn2j>

Printer Setup: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=tcglp31c1j>

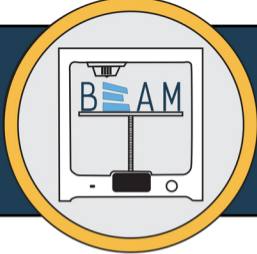
Print Preparation: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=46ugejn8uj>

Preform Slicing Intro I: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=tahvq9tcrn>

Preform Slicing Intro II: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=65go5qobhx>

Using the Form Wash: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=z7Kh15b3hy>

Using the Form Cure: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=ofh4c8ruff>



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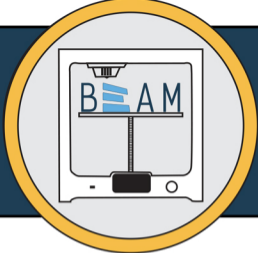
Slicing:

1. Formlabs has their own slicing software called **PreForm** that you will use to slice your model and send to the printer. Visit <https://formlabs.com/software> to download Preform and then install on your computer.
2. Follow the tutorial in the PreForm application. Go to Help Menu->View Onboarding Tutorial. This walks you through PreForm interface and sets up the butterfly clip model which is their version of a basic print.
3. Using what you just learned slice your part to be ready to print

If you have not already watched the PreForm Slicing videos from FormLabs do so now (Refer to quick guide 1 if confused)

PreForm Slicing Intro I: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=tahvq9trcn>

PreForm Slicing Intro II: <https://formlabs.com/learning-pathways/form3-onboarding/?wchannelid=dz66vqfwtq&wmediaid=65go5qobhx>



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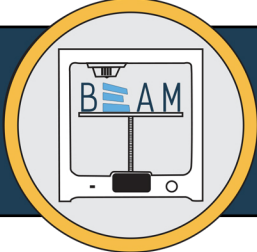
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Safety:

The following safety rules apply to using the Form 3B.

1. Always wearing nitrile gloves when handling resins and cleaning materials.
2. Wear eye protection when working with Form 3B materials, cleaning alcohol, as well as when removing support material.
3. Keep work within the fume hood for proper exhaust.
4. Wear close-toed shoes



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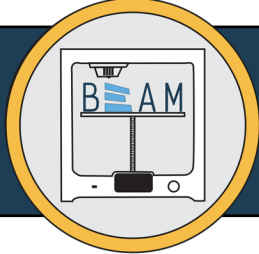
Load Consumables:

The first time you load you will need to do it in front of a technical supervisor or digital fabrication specialist

1. Load the resin tank
 - a. Must wear nitrile gloves.
 - b. Ensure mixer is in the tank.
 - c. Make sure it locks in place.
 - d. Do not touch film bottom of resin tank.
 - e. Confirm the printer sees the resin tank.
2. Load the Print Bed
 - a. Lift lever at top then slide on. Lock in place by pushing lever down.
 - b. Confirm printer sees the Print bed
3. Loading Resin Cartridge
 - a. Check the bite valve by squeezing it.
 - b. Shake well.
 - c. Insert cartridge into back of printer.
 - d. Open Valve Cap when printing.
 - e. Confirm Printer sees the Resin Cartridge.

Connecting Computer To Form 3B:

1. Plug USB cable from the back of the Form 3B into your computer.
2. Using PreForm, load in your design with appropriate adjustments (as outlined in quick guide 1) and send part to printer by clicking on the print icon located on the left hand sidebar
3. Follow instructions and upload print job to Form 3B



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Taking Print Out:

1. Unlatch build plate from front (with care, resin will drip).
2. Take print off with scraper and put it in the wash basket (Form Wash).
 - 2.1 Use IPA to clean the build plate (and make sure it is completely dry before placing back in Form 3B).
3. Clean trays if any resin fell on them.
4. Clean scrapers with IPA.

Washing:

1. Wash your part for 10 minutes (use scroll wheel to select)
2. Once done washing leave in basket to drip dry for around 10 minutes
 - 2.1 After 10 mins flip upside down and let any excess IPA drip off
3. Once done remove your print and hit sleep

Curing:

1. Put part into Form Cure.
2. Custom Profile -> Select used resin -> Hit start.
3. Times will vary but generally 10 minutes to warm up + 15 minutes to cure.
4. Once done take out print and close door. Precede to remove supports like normal print.

Entire finishing process takes 30-45 minutes