

The background of the slide is a grayscale, high-resolution image of a ZCorp Powder Printer. The machine is a large, industrial-grade 3D printer with a complex, multi-layered structure. It features a prominent vertical column and a horizontal base, with various mechanical components and a large, open chamber. The lighting is dramatic, highlighting the metallic surfaces and the intricate details of the machine's design. The overall aesthetic is technical and modern.

ZCorp Powder Printer

The U-SoA Fabrication Lab will foster a culture of learning through making. Its principal purpose is to serve students and faculty in existing and future research pursuits, by providing robust training and broad access to a host of digital and analog tools. The Lab aims to continually improve, incorporating new technologies and expanding its capacities, growing into a resource equal to the substantial ambitions of a top-tier architecture program.



U_SoA_PowderPrinter

Initial consult
1 hour



July 07 with Powder Printer

< > July 2020

Select staff (optional)

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25

Powder Printer

12:00 pm 12:30 pm 1:00 pm
1:30 pm 2:00 pm

Add your details

Name

Email

Phone number (optional)

Address (optional)

Please let us know if you have any special requests.
Thank you.

Notes (optional)

Book



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Usage

The ZCorp Powder printer is available to all within the School of Architecture. To use the equipment, users must create their own 3d models and pay for the materials. Fabrication lab staff will send the materials and handle the machines. The printing process requires the handling of toxic chemicals and should only be handled by trained Fabrication Lab staff. Since this printer typically will be sent with multiple prints and software is unavailable, the Fabrication Lab staff will handle file set up for this machine.

To use the equipment, users should submit an appointment for an initial consultation with the trained staff members. To do this follow the steps below:

-Access the University of Miami School of Architecture website.

-Access the page for powder printing.

-Fill out the form and click the link to “Booking”

-Click initial Consultation.

-Select a trained staff member from the dropdown “Select Staff List”

-Select an appointment date and time based upon availability.

-Fill out all additional information and click “Book”. Users should get an immediate confirmation when clicking book. If they did not, the appointment was not successfully created.

The user should show up to the appointment with the model they would like to print complete. The Fabrication Lab will decide based on current demand if the print will be sent during the appointment or if they will wait for a few more prints to be grouped together and sent in one print.

The Fabrication Lab staff will provide excavation services to retrieve and remove the print from the machine. Any damages to the model during this process will result in the Fabrication Lab resending the print for the user. Once the print has been removed, the user will be responsible for applying any type of adhesive or protective coating to the model. Any damages to the model during this stage will result in the user needing to pay for an additional print.

As a general note, the powder printer cannot handle thicknesses under 1/8” and for long span surfaces 1/4”. Any damages to prints that are sent with any dimensions lower than this will not be covered by the Fabrication Lab.

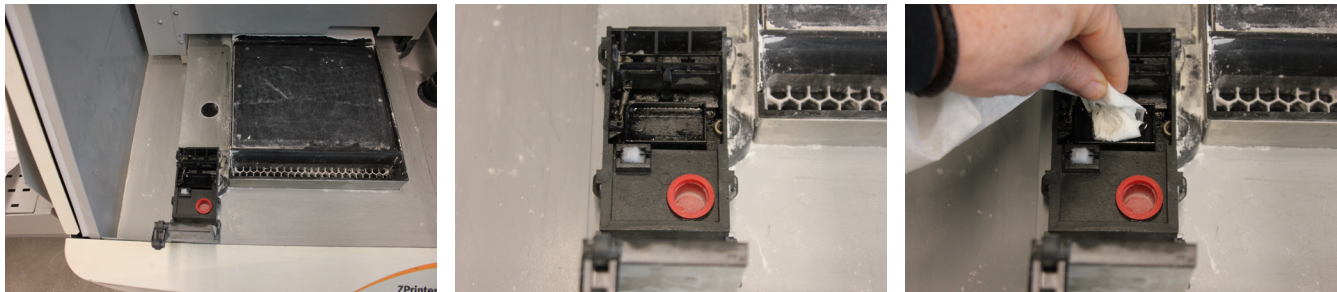
Physical Set-Up

Preparing the Z Corp Powder Printer for Use:

1. Open the door to the printer. Inspect the build tray and carriage. Make sure there is nothing blocking the carriage from moving.



2. Open and empty the resevoir to the left that looks like it has a liquid in it. This liquid is the glue the machine uses to glue the powder in the correct shape. Use a paper towel and soak up the liquid as much as possible. **DO NOT** allow any liquid or powder to get on the piece of cotton on the lower left, this cotton cleans the print head after each layer of glue.

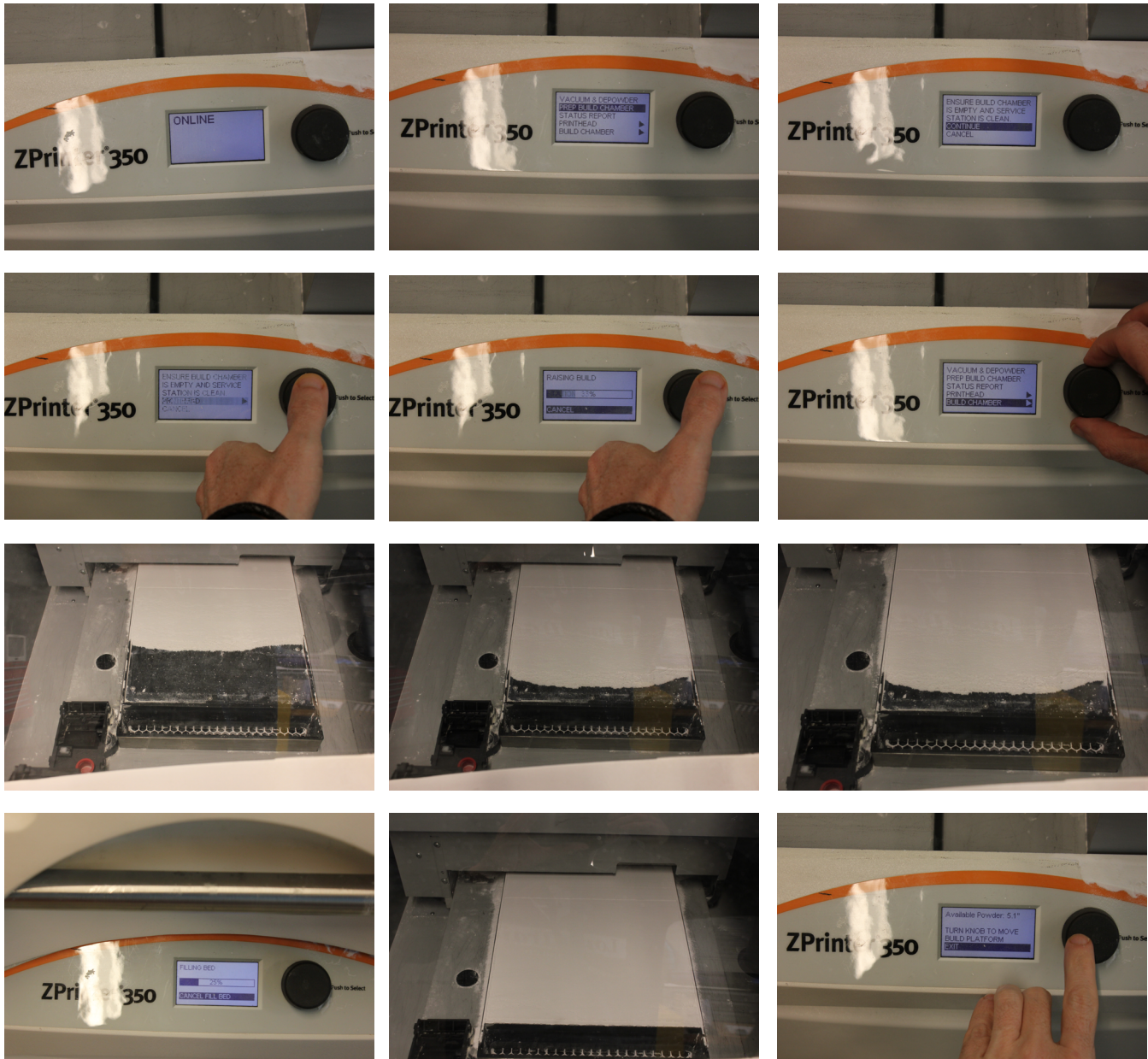


3. Vacuum out any powder that might still be in the chamber. If there is anything on the build tray (dust, hair, etc) it will become part of the print.



Physical Set-Up

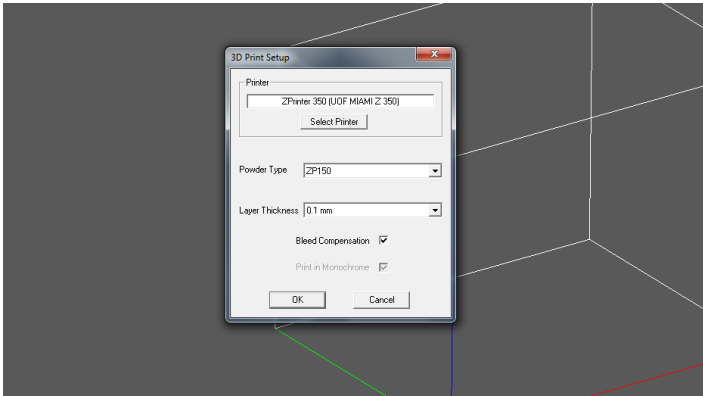
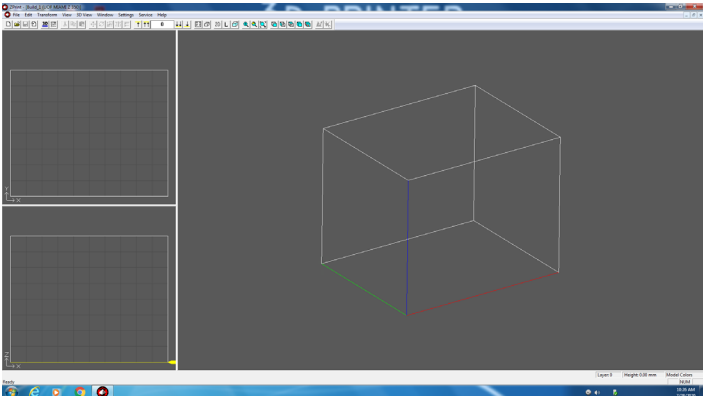
4. Close the door. Press the circular black button on the front of the machine to get into the menu. Scroll down using the black wheel (button) until you see “Prep Build Tray”. Select that menu item by highlighting it and pressing the black wheel and it will raise the build tray to the highest point it can go. Next, select fill bed. This will spread out powder, in multiple layers, over the build area. It is important to do this step before the print is sent so that the machine does not print directly onto the build tray. If that occurs, the model will be glued to the tray. Now, the machine is ready for use, the next steps will be done on the computer.



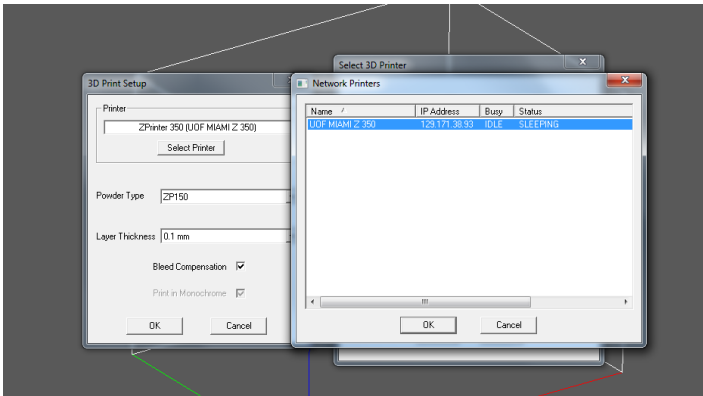
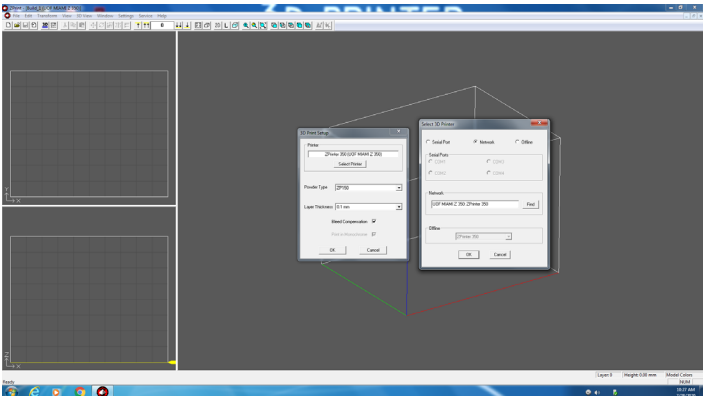
Procedures

SETTING UP PRINTS IN Z-Edit

Set up Printer: When opening the program it will ask you to select the printer and powder type. Select ZCorp 150 for powder.



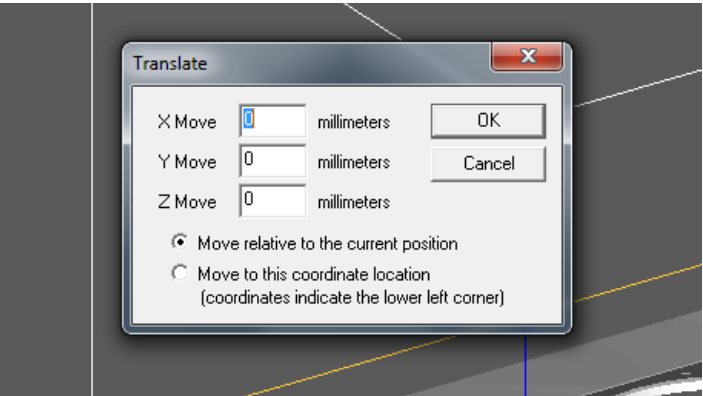
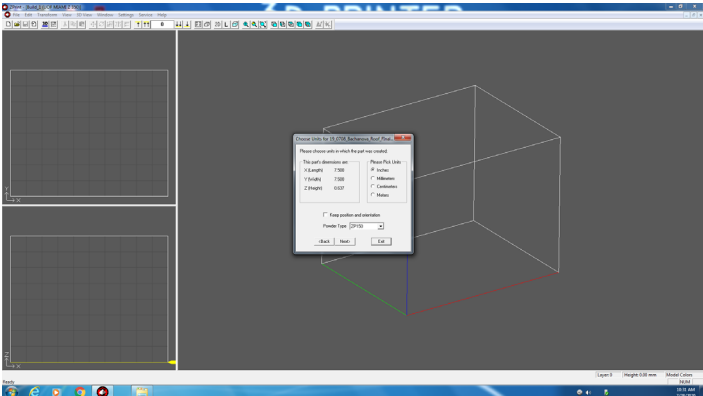
Finding the Printer: Click Select Printer, on the next box select find by network. The printer shown below should be automatically configured to the network and show up. Select the printer and click okay. Navigate back and click okay to complete set-up.



Procedures (cont.)

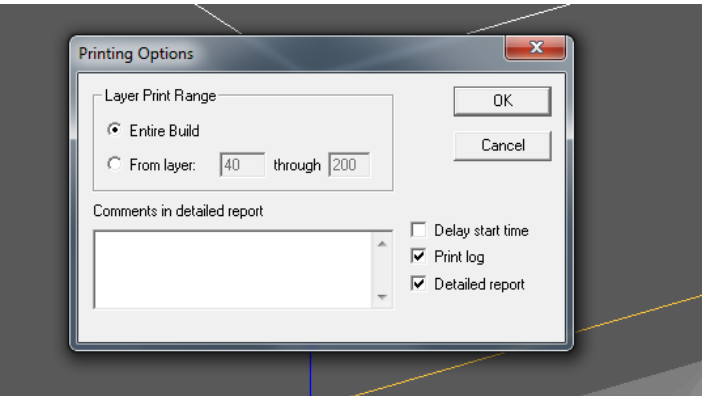
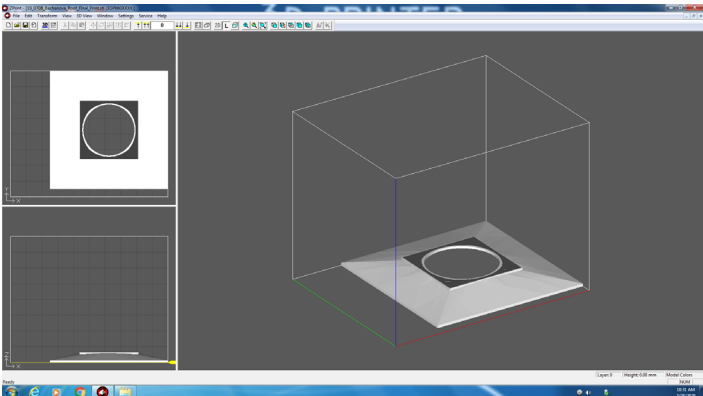
SENDING PRINTS TO THE PRINTER:

Translate: You can click to move the file around or you can click translate to move specific increments in each axis.



Multiple Models: You can import multiple stls into the program by clicking - import - 3d model - navigating to your file location. Arrange all models with space between so that they can be safely excavated after they have been printed.

Print: Navigate to File - 3D Print.

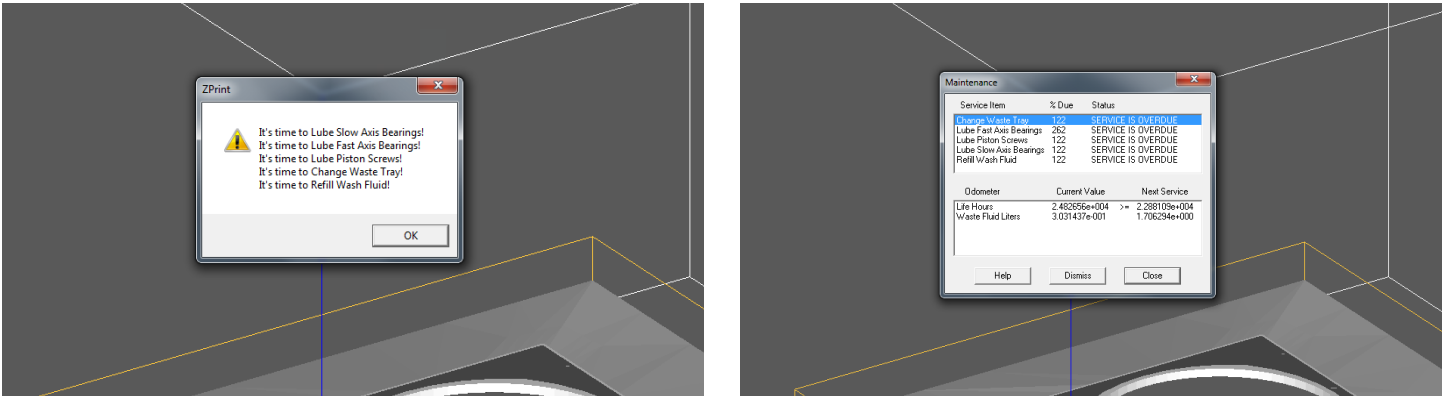


Print Options: A menu will pop up and let you select specific layers you would like to print or if you would like to send the entire build. Select entire build.

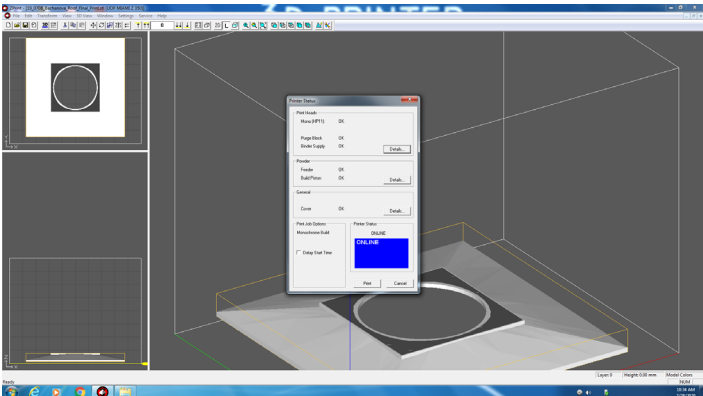
Procedures

Maintenance

Maintenance: Once “Print” has been clicked the machine will check if there is any maintenance needed.



Click OK: Notify the fabrication lab manager or a trained monitor and let them know that the machine needs to be maintained. If no maintenance needs to be done click “Okay”.

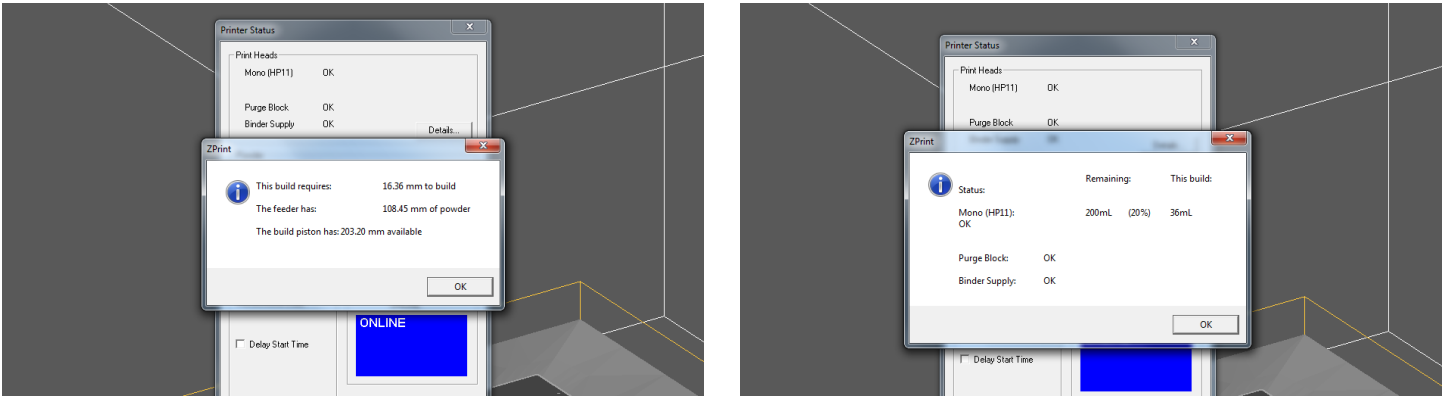


Machine Status: A menu will pop-up showing the status of the consumables. Consumables must meet the minimum needed to ensure the entire print will print. Notify the **fabrication lab manager or a trained monitor and let them know that the consumables need to be replaced.**

Safety

SENDING PRINTS TO THE PRINTER:

Consumables: Clicking through the next to pop-ups will show the amount of powder and binder used in the printer.



Record these values as they are used in calculating the cost of the printer. Once these values are recorded, use the estimator on the Fabrication Lab Google Drive to calculate the cost of the print. Charge the student in the fabrication lab prior to printing.

UM_FabLab_3D
Printing Cost
Estimator

FormLabs Resin Printer	Volume (MLs) from PreForm (Including Supports)					Price Per ML	Print Cost
Standard Resin	16					0.2	\$3.20
Advanced Resin	9					0.4	\$3.60
ZCorp Powder Printer	Model Volume (In^3) from ZEdit	Binder ML from Z-Edit		Price Per Cubic Inch	Price Per ML Binder	Price Per ML Print Head	Print Cost
Powder	1	3		\$2.00	\$0.30	\$0.07	\$3.11

Coating: Students are responsible for coating their model, employees should safely and delicately excavate the models and set them on the finishing platform next to the machine. Students should then come to the lab with their choice of coating and coat the model. If the model is broken during excavation the Fabrication Lab will reprint free of charge, if it is damaged during the coating process the students must pay for another print.

Do not print anything with a thinness of 1/8” or under. If a portion of the model under 1/8” thickness breaks the Fabrication Lab will not be responsible for reprints.