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4.500 Introduction to Design Computing
Fall 2008

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4.500

Digital Fabrication



Design Tools

Design by Physical Reasoning

Description

Rapid Prototyping



Generative
Methods
(Design Tools)

Description

CNC Fabrication

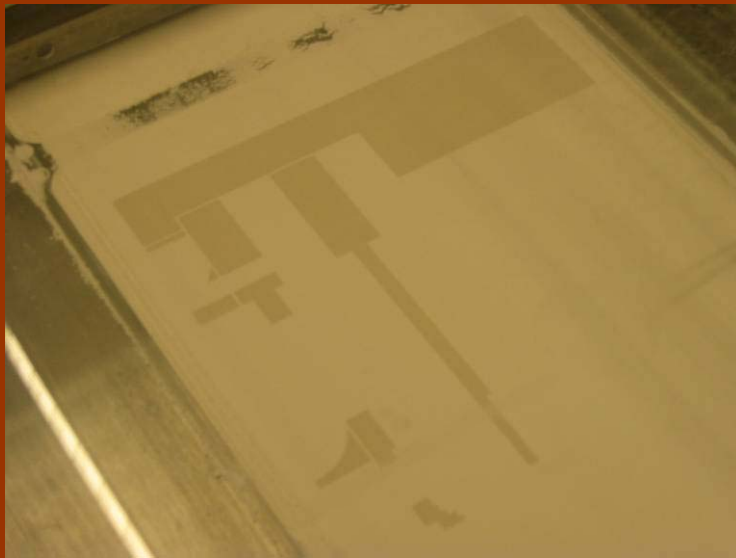
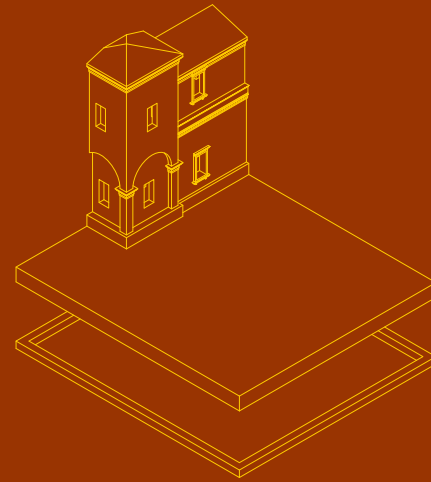


Digital Printing = Digital Fabrication

- Flexibility
- Precision
- Repetition

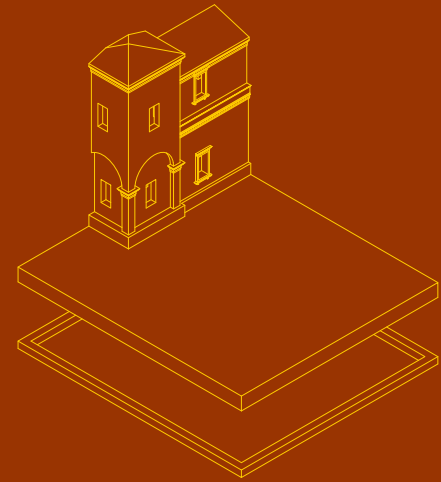
Rapid Prototyping

3D Printing



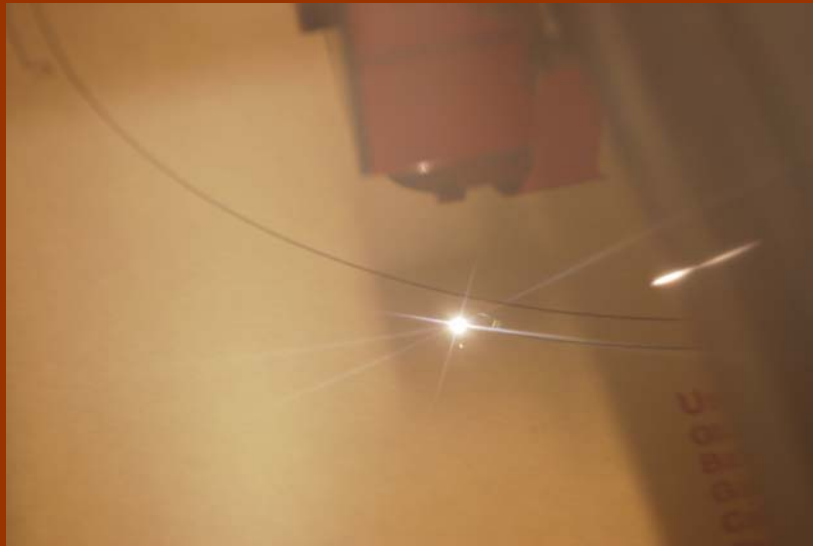
Rapid Prototyping

3D Printing



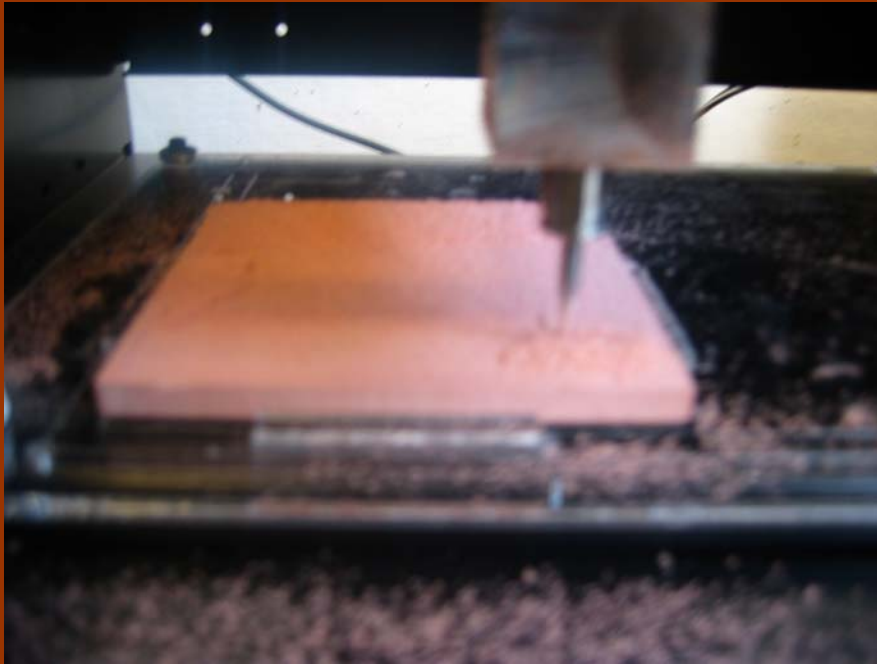
Rapid Prototyping

Laser Cutting



Milling

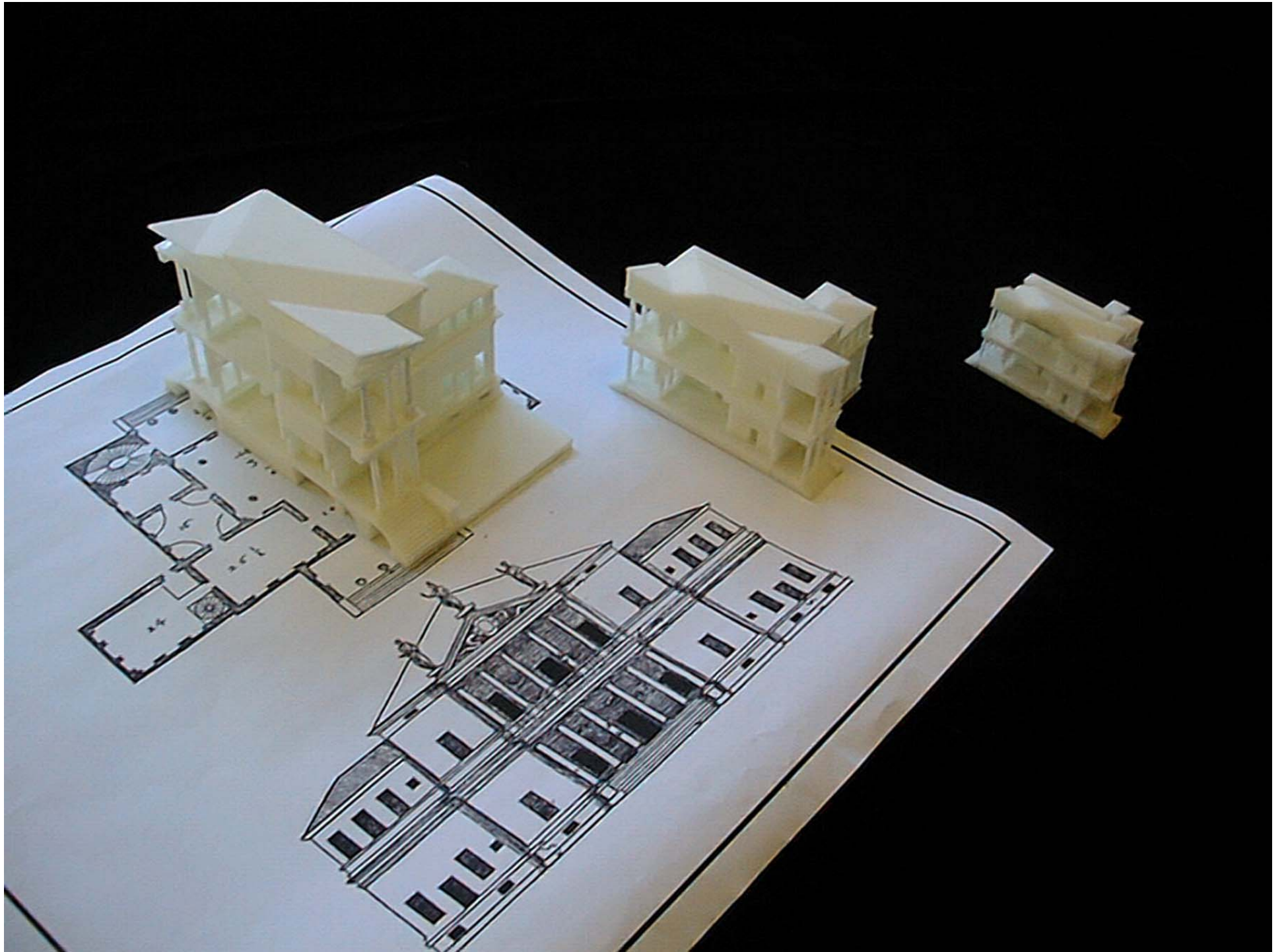
Dense Foam Routing

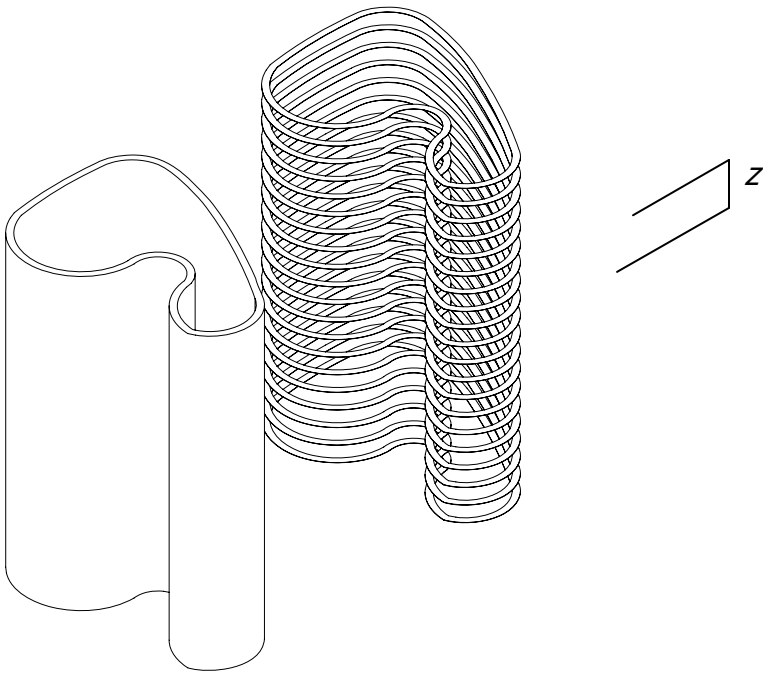


CNC Fabrication

Wood Routing







A) 3D Printer

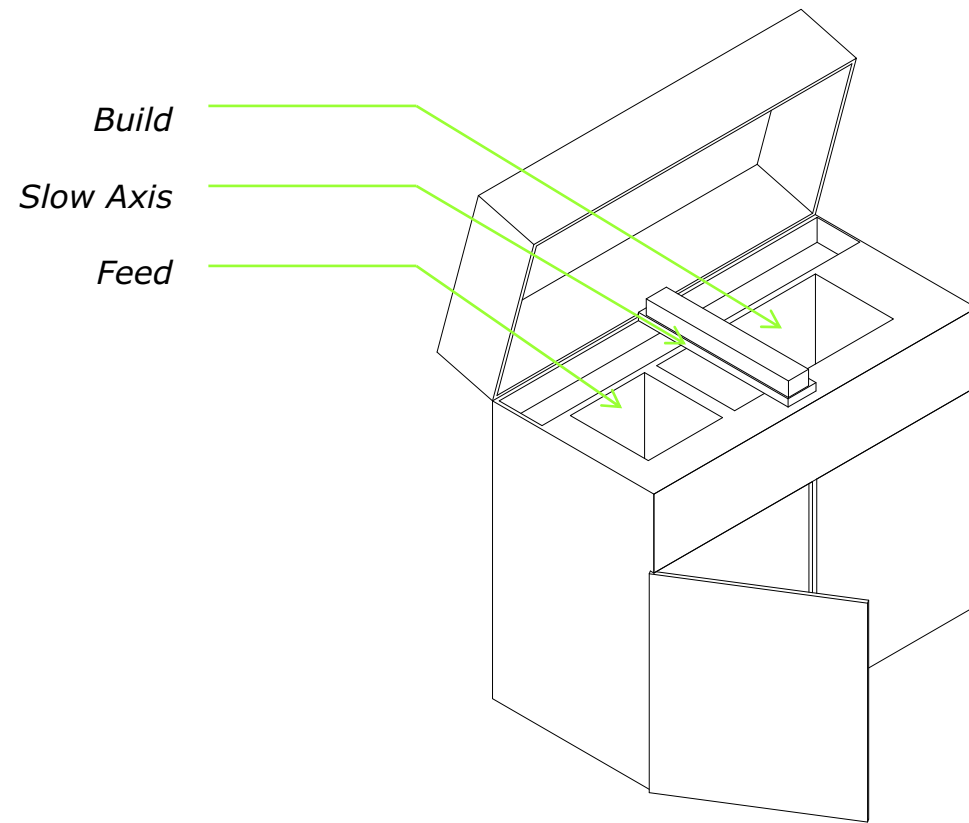
- Metal
- Plaster
- Cornstarch
- Ceramics

B) FDM

- ABS Plastic
- Rubber
- Wax

C) Stereo Lithography

- Resin



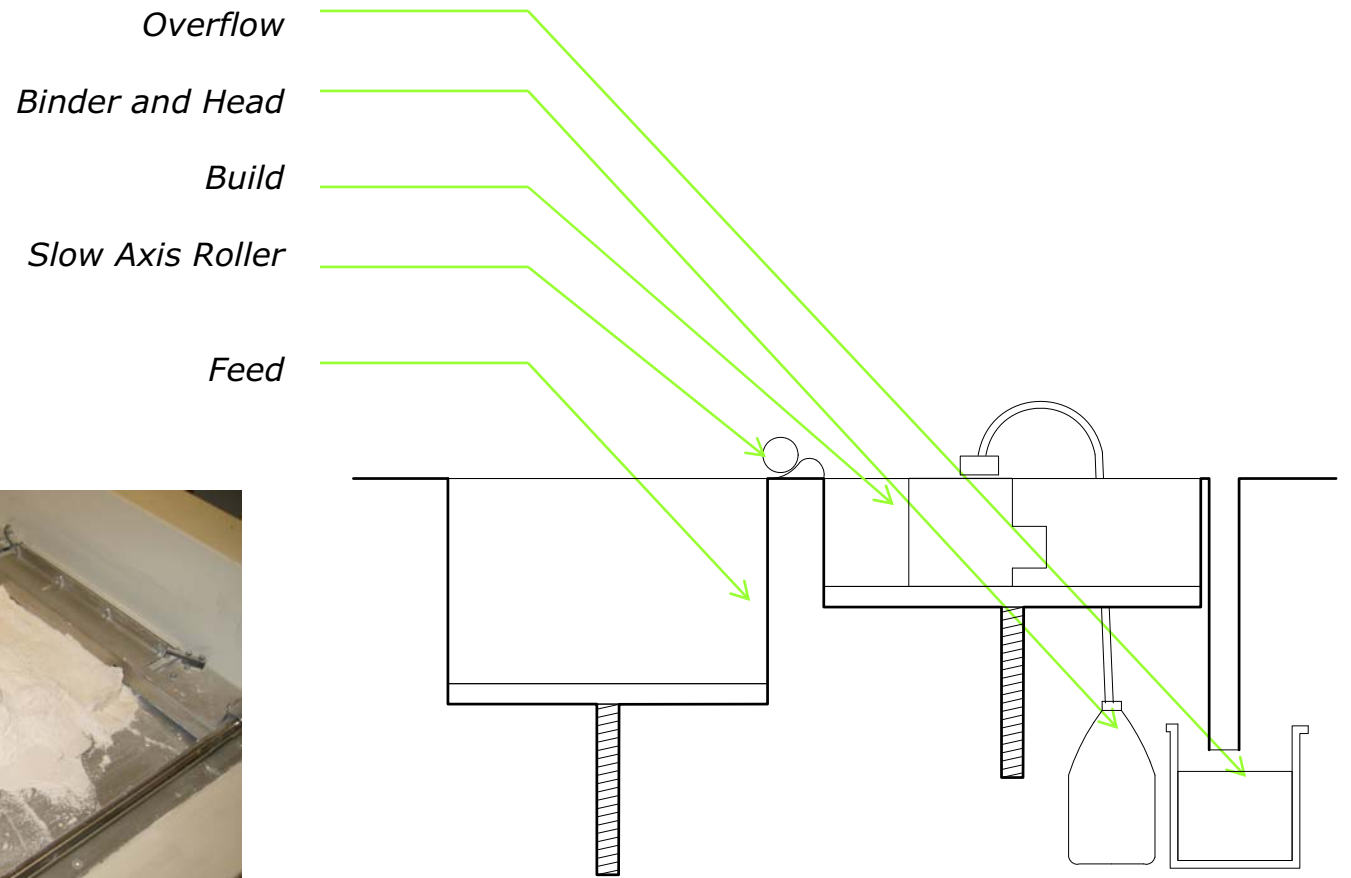
-3D Printer

- Metal
- Cornstarch

-Plaster

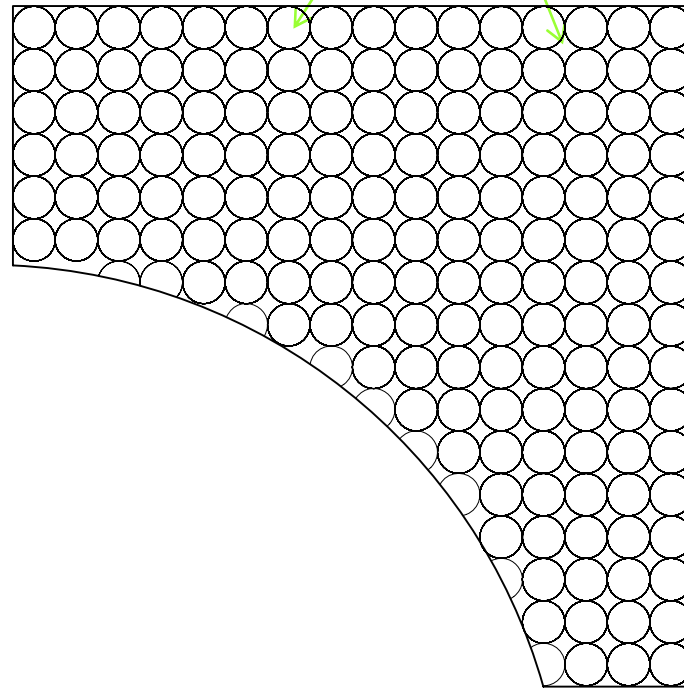
- Ceramics



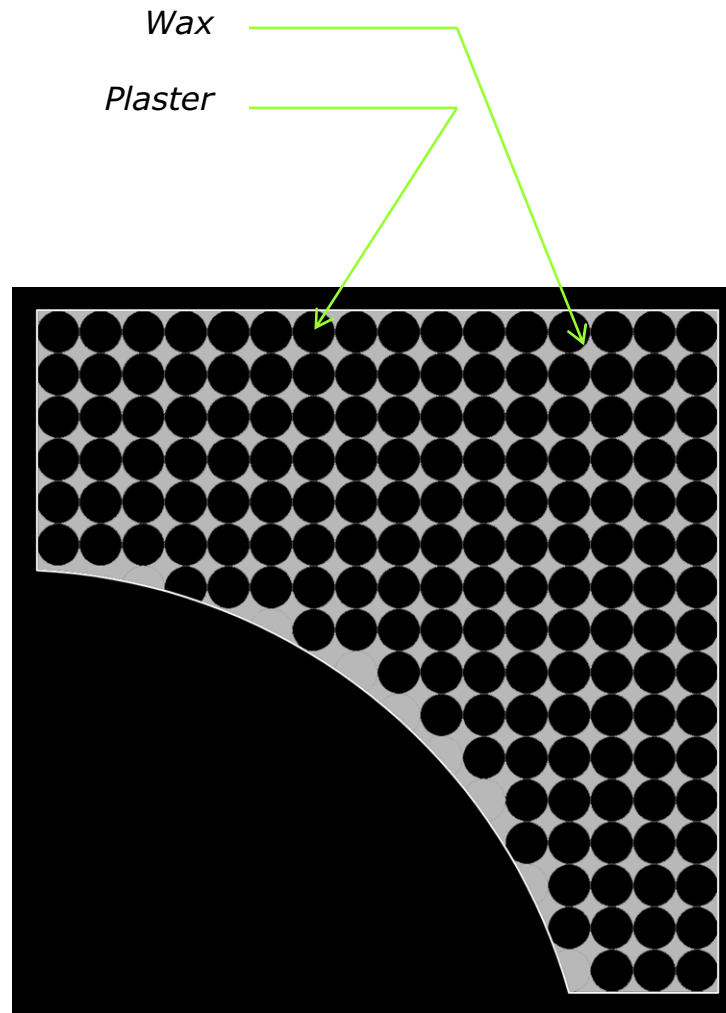


Open Spaces

Plaster



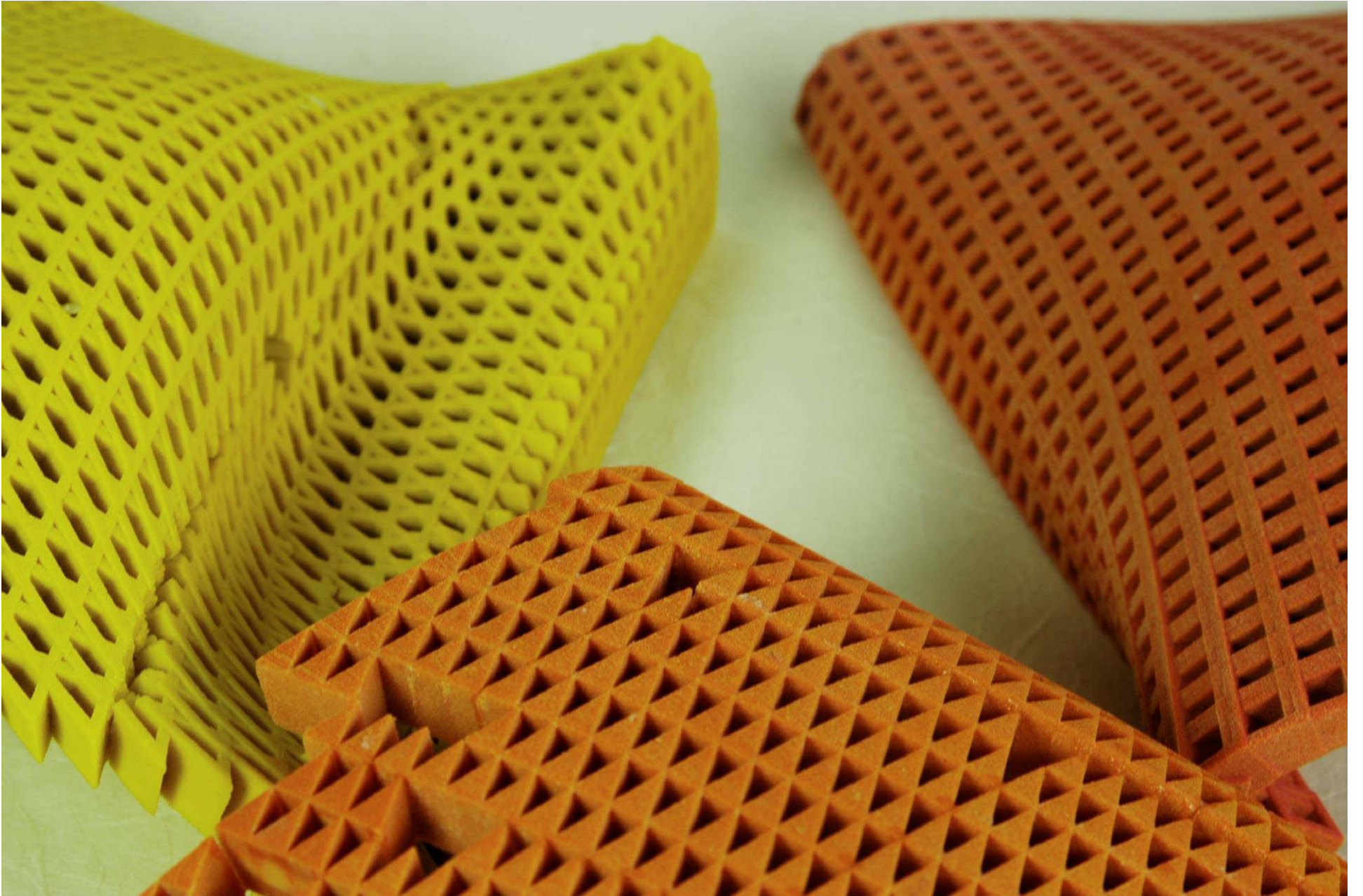
- *Advantages*
 - *Speed*
 - *Self Supporting*
 - *Low Cost*
- *Disadvantages*
 - *Low Strength*
 - *Required Post Processing*

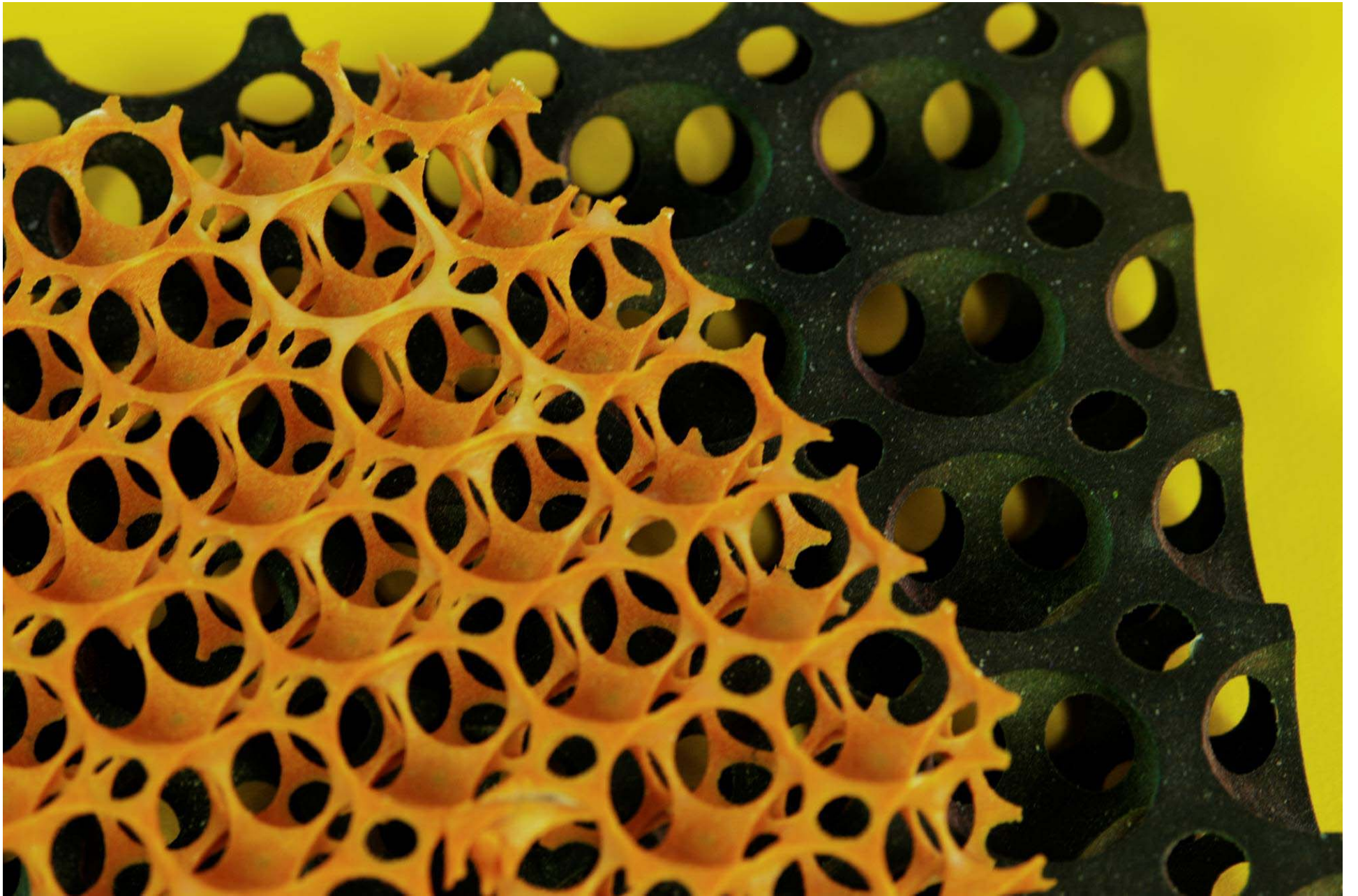


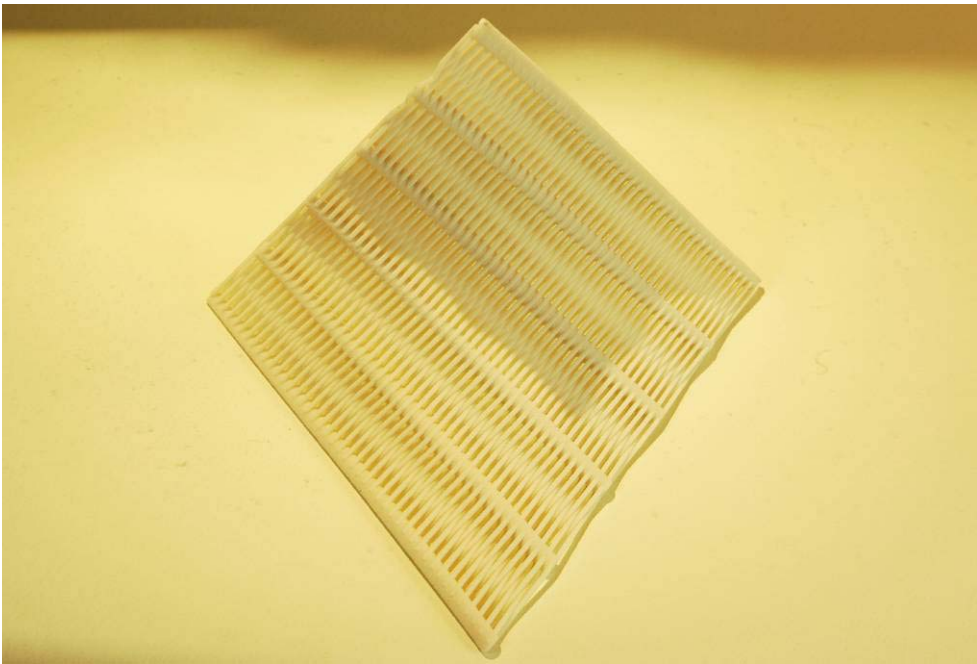
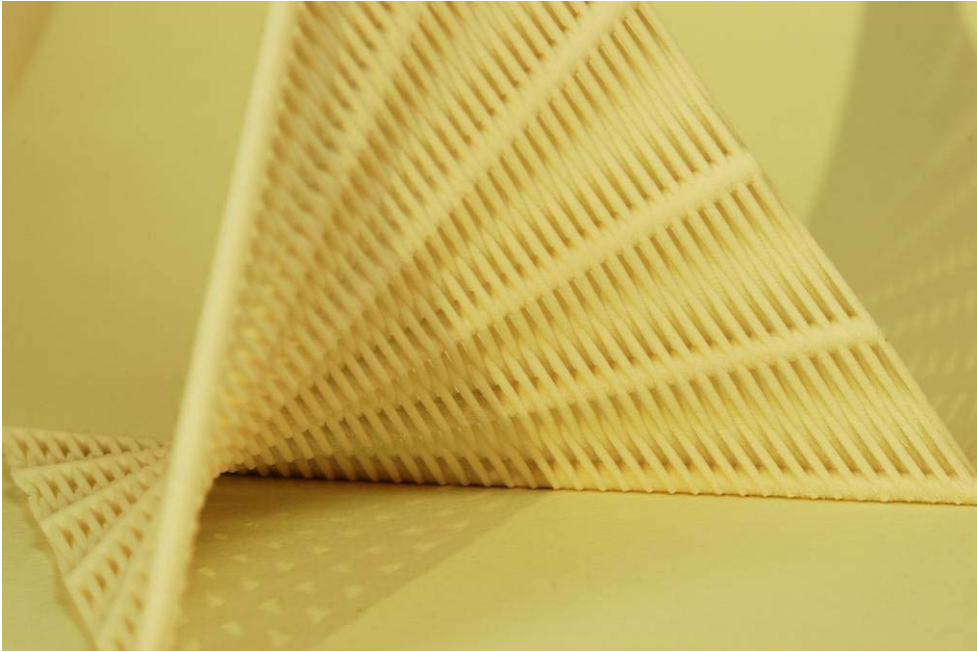


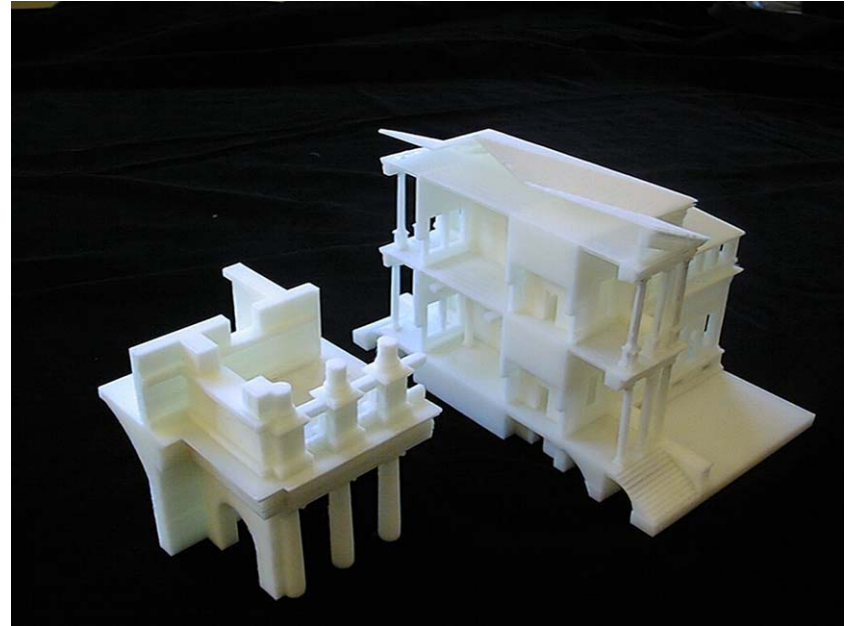






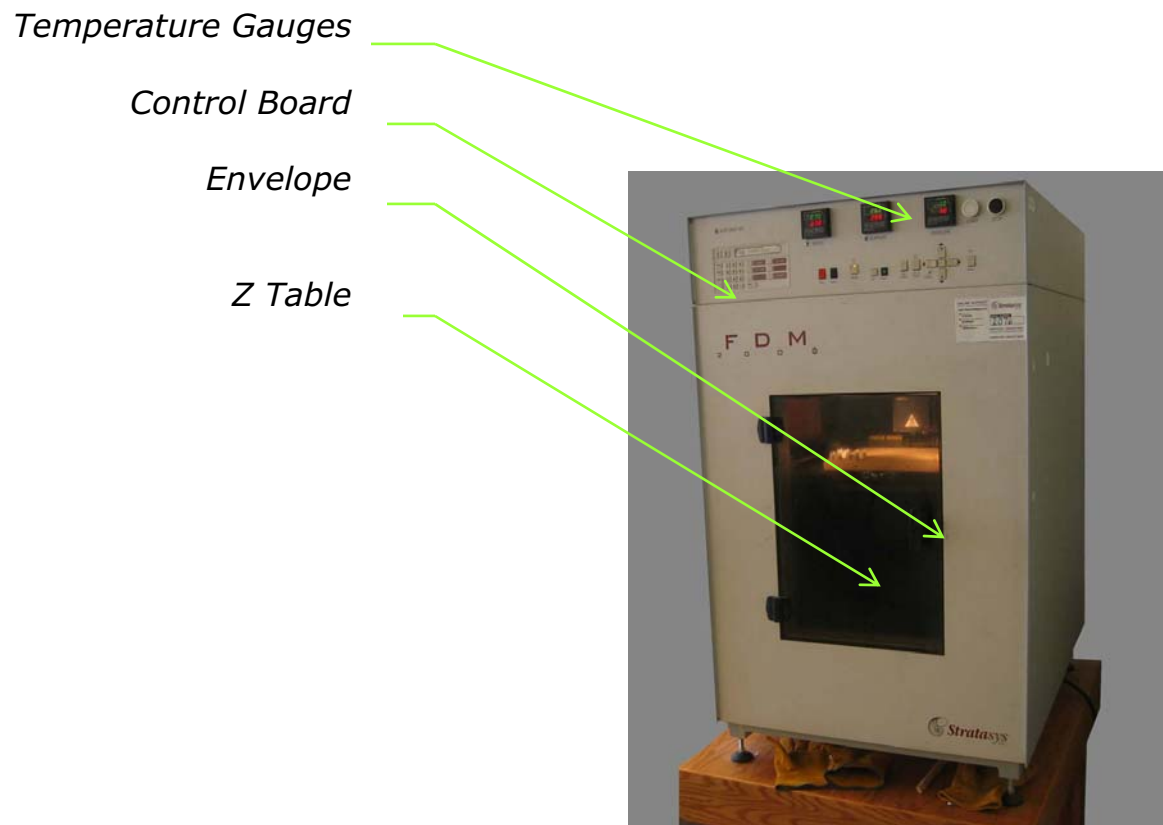
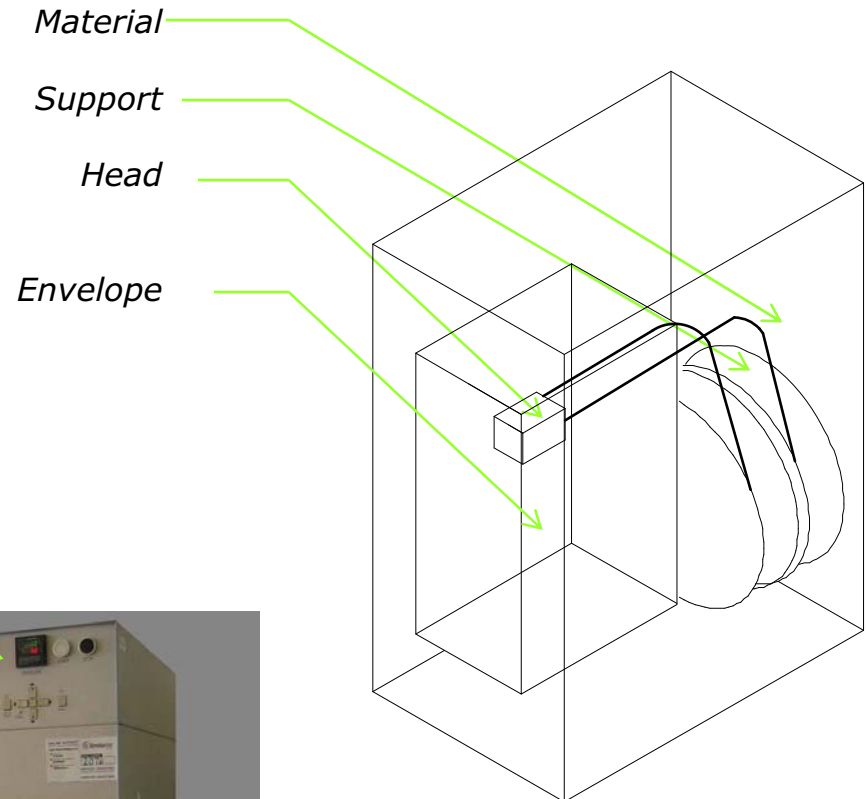


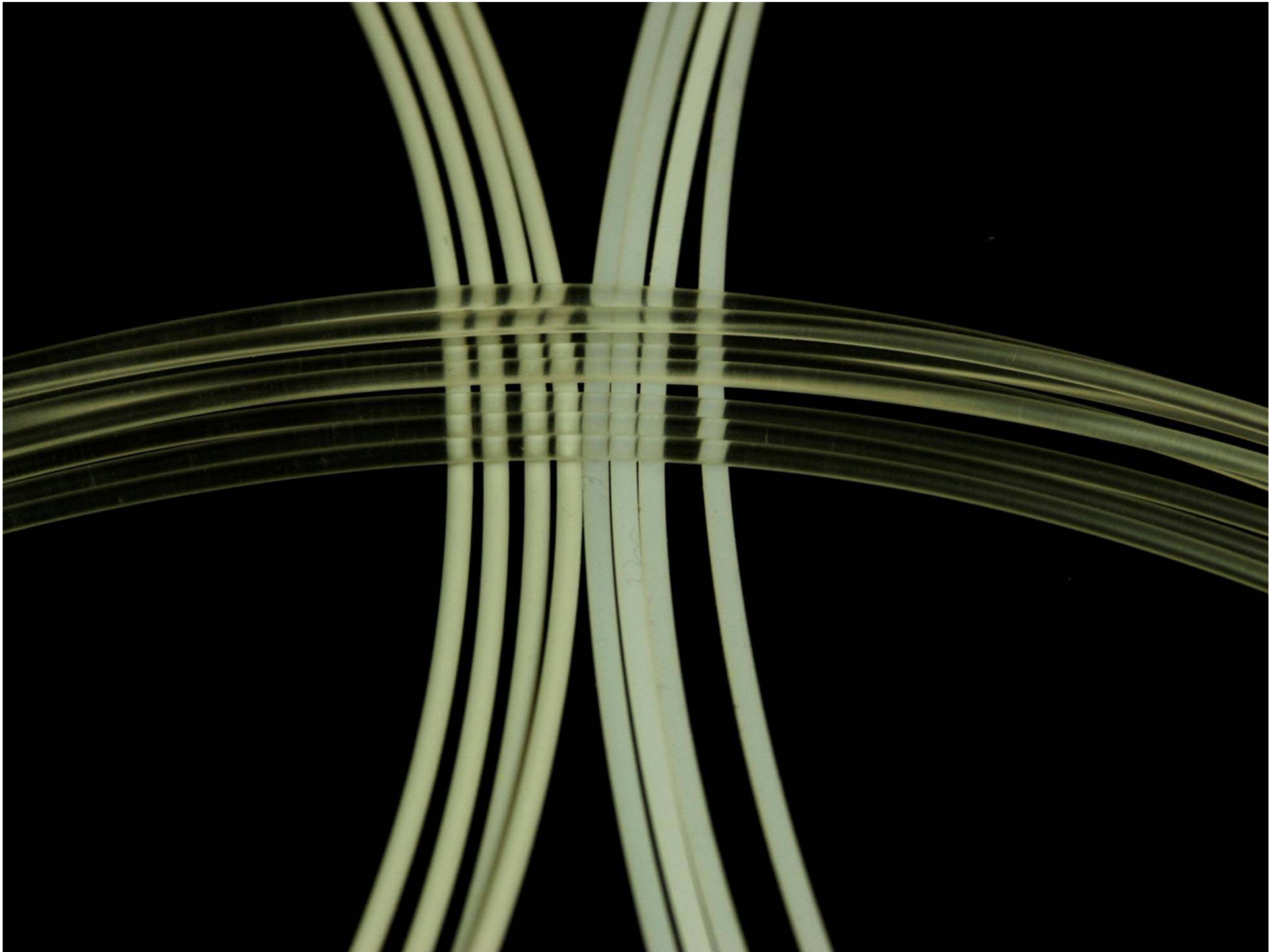




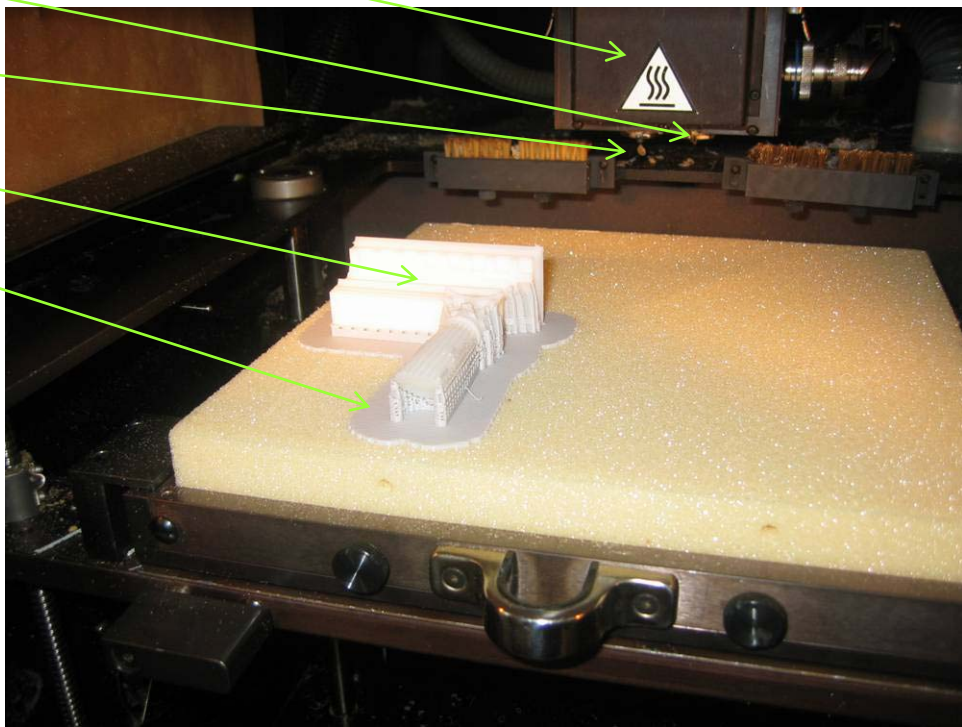
[b]

Strata Sys





Head
Support
Material
Material
Support Base

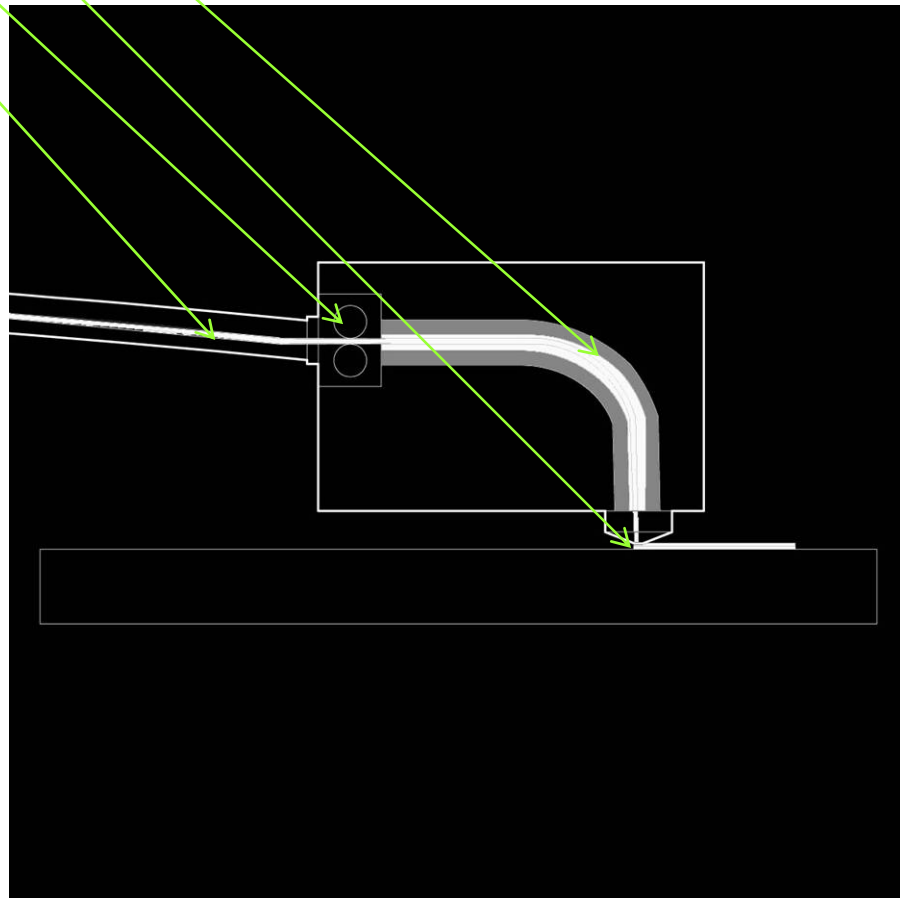


Heating Elements

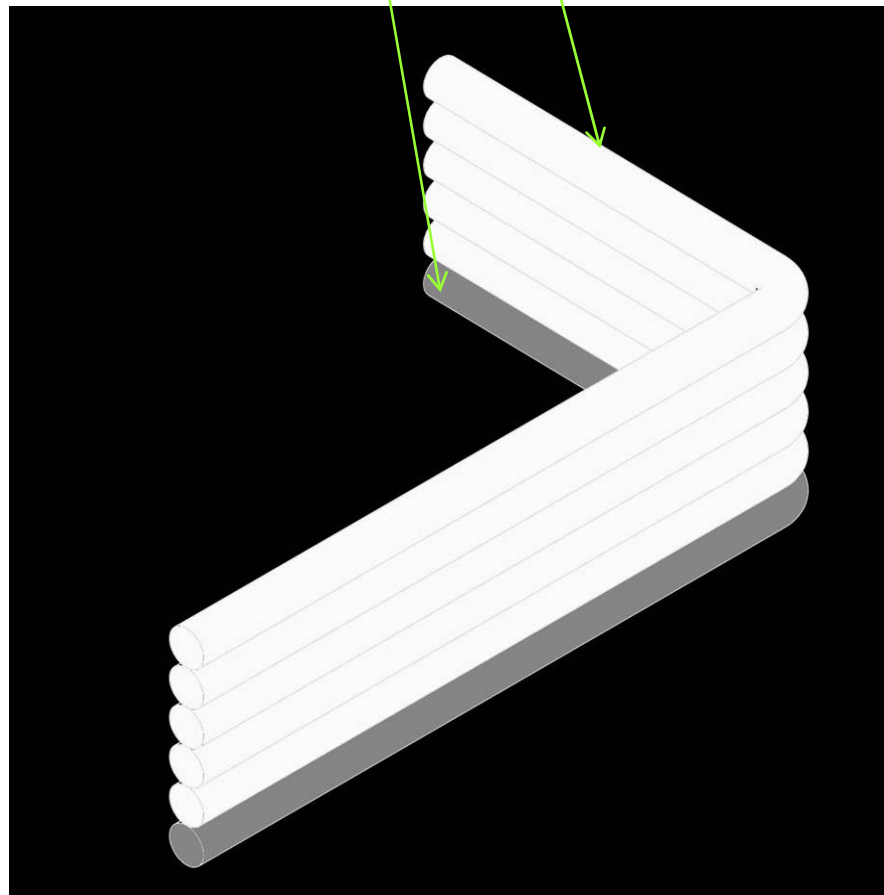
Tips

Drive Wheels

Filament



ABS Material .010
ABS Support Base .010

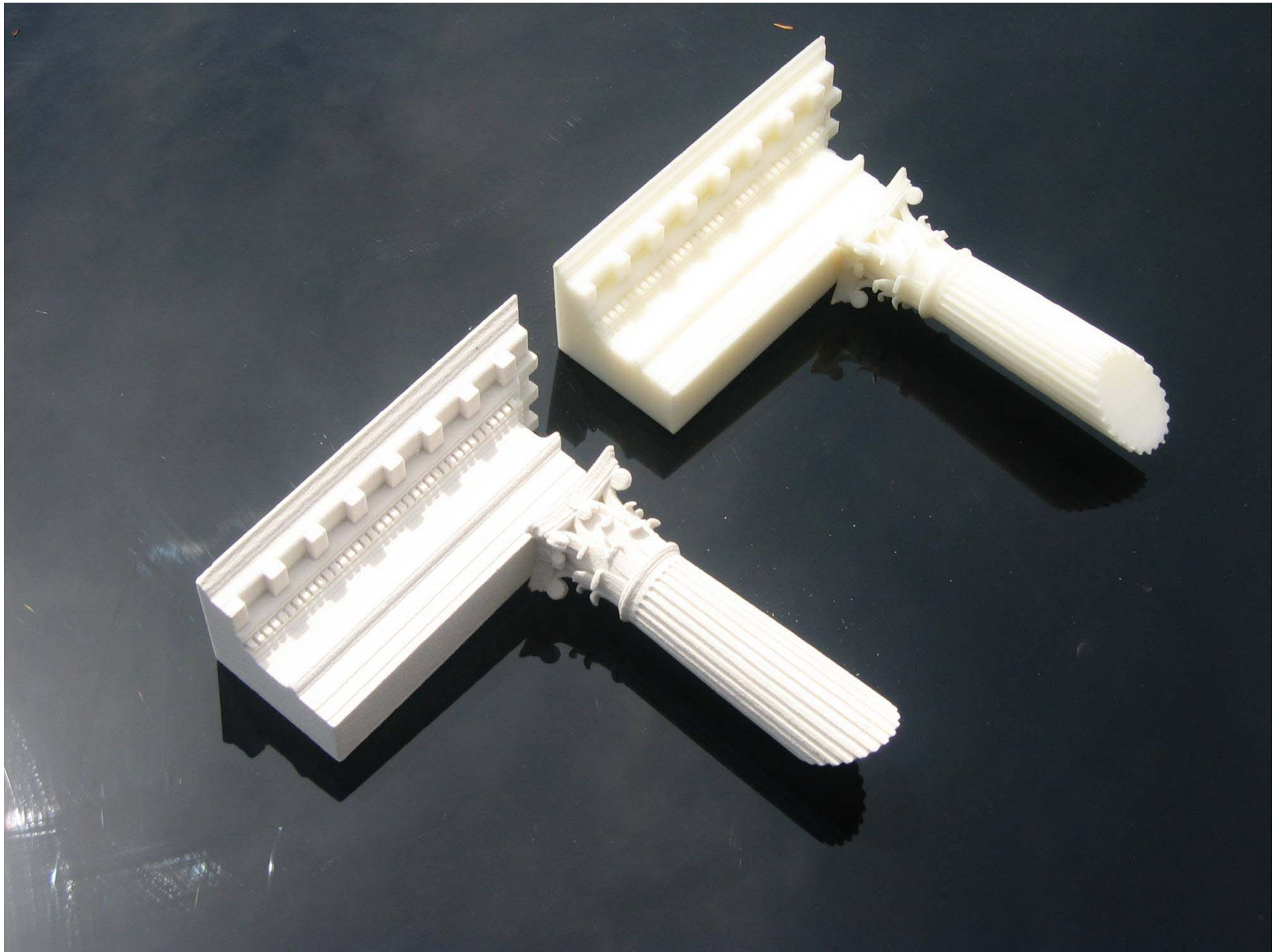


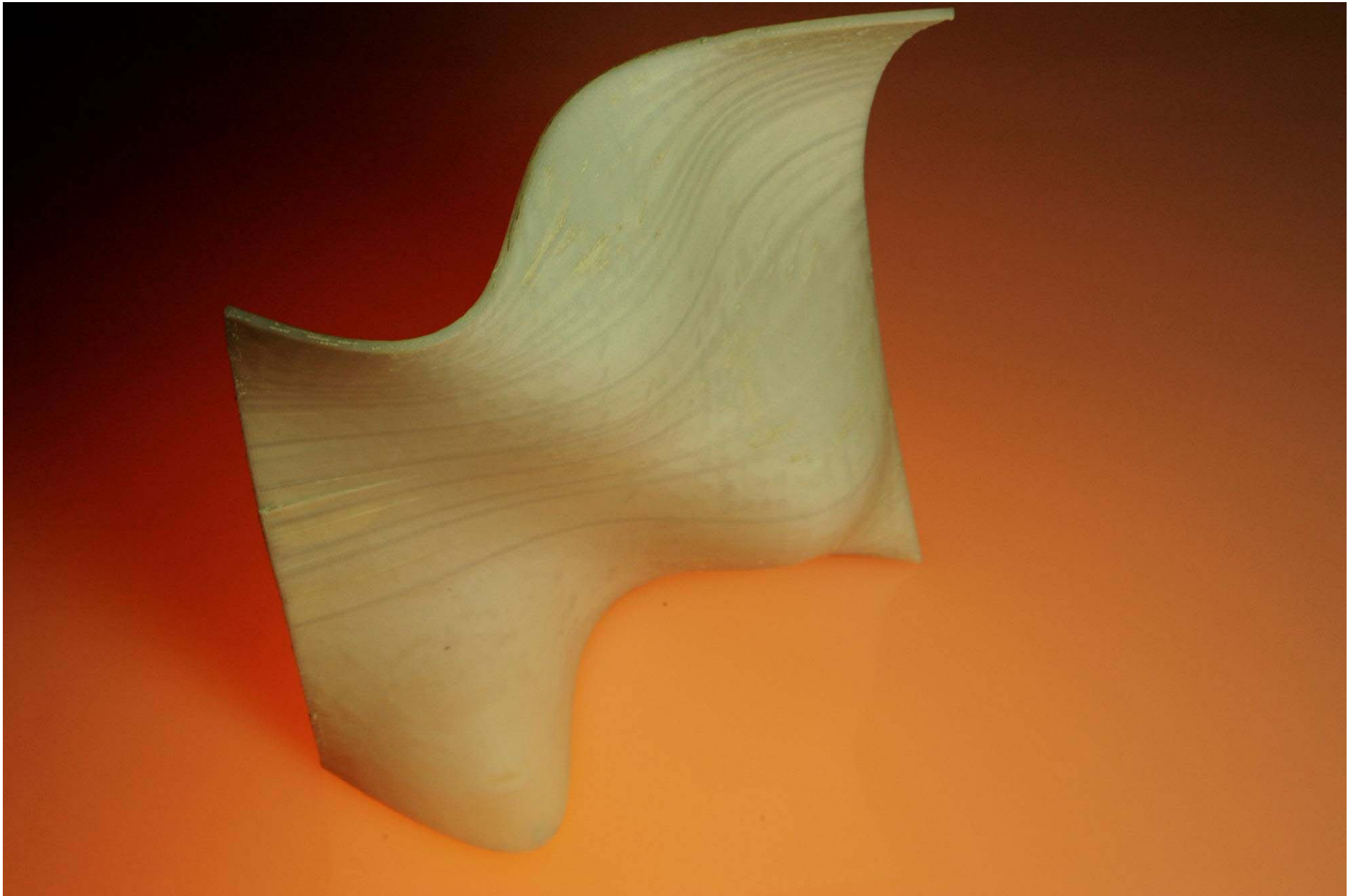
-Advantages

- *Strong*
- *Minimal Post Processing*

-Disadvantages

- *Slow*
- *Porous*
- *Hates Voids*
- *High Cost to Operate*



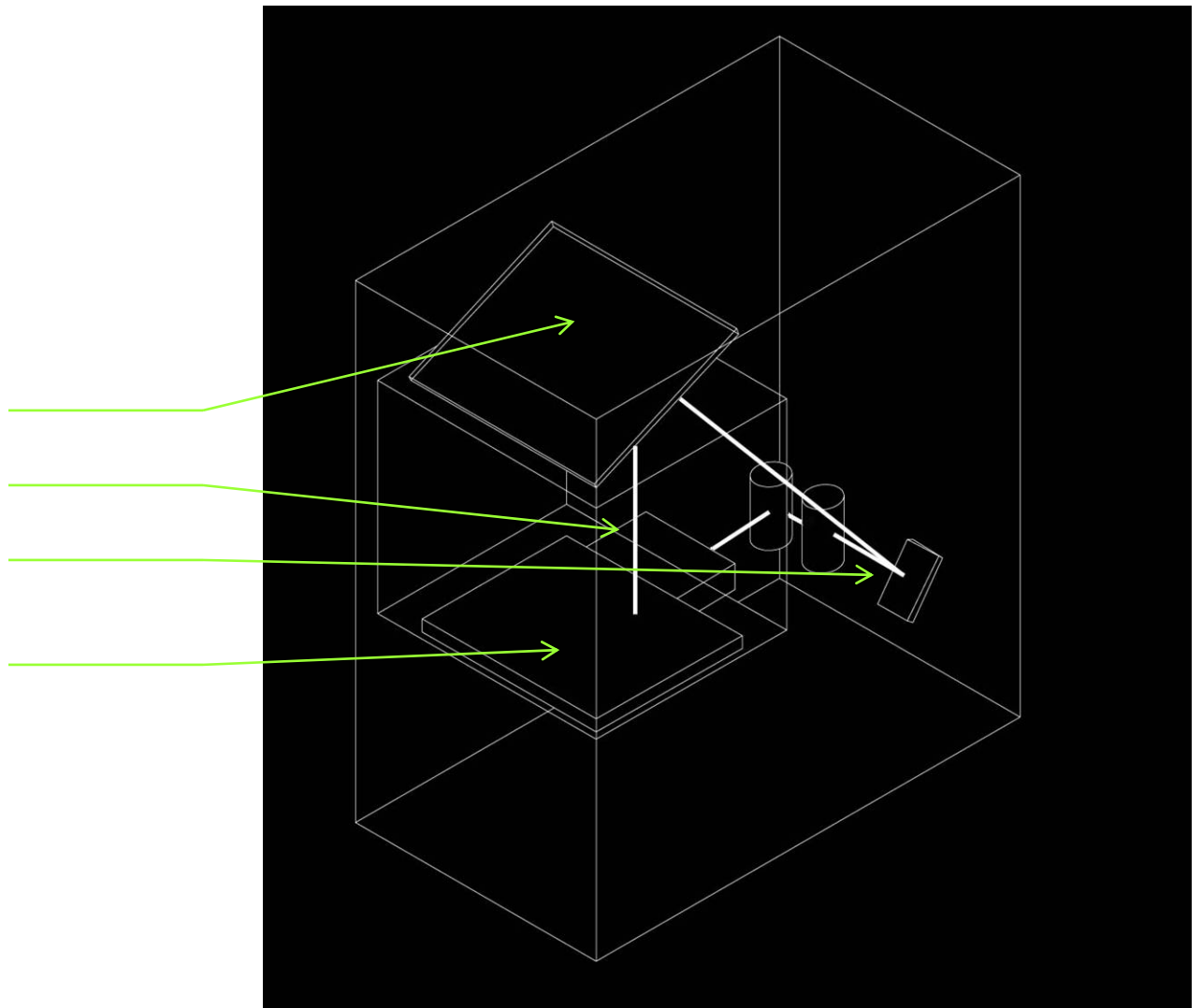






[c]

Stereolithography



Laser Source

Models

Table

Vat

