[fab studio]

physical representation of information

DESIGN FABRICATION

Department of Architecture MIT

[rapid prototyping] = *[cad cam]*

fabrication

[design] = *[construction]*

[process transfer]

cad cam – rapid prototyping

non euclidian geometry

variation in shape and geometry

parts as assemblies

[fab studio]

design & devices

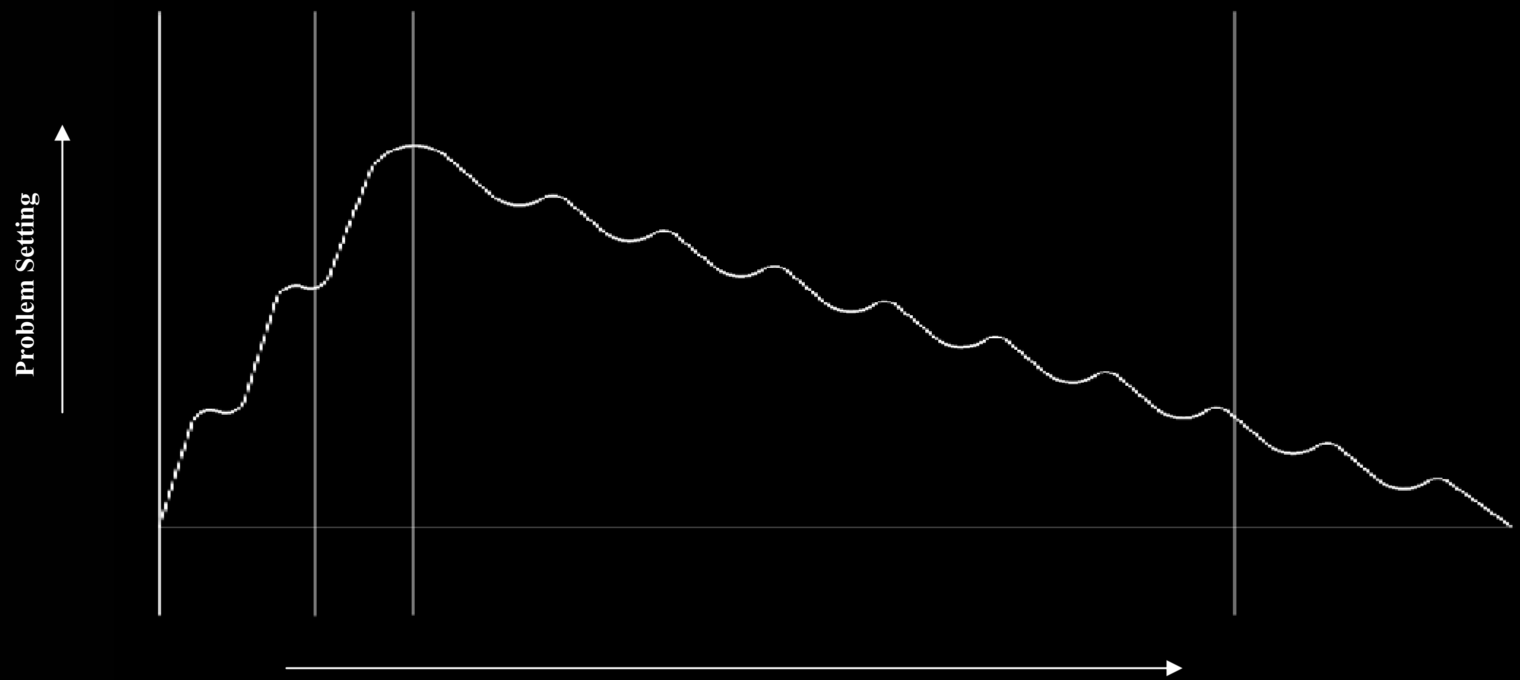
research work

[design]

[design]

[problem setting]

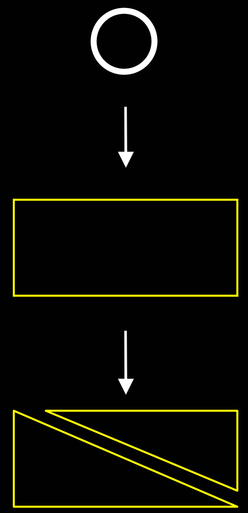
[problem solving]

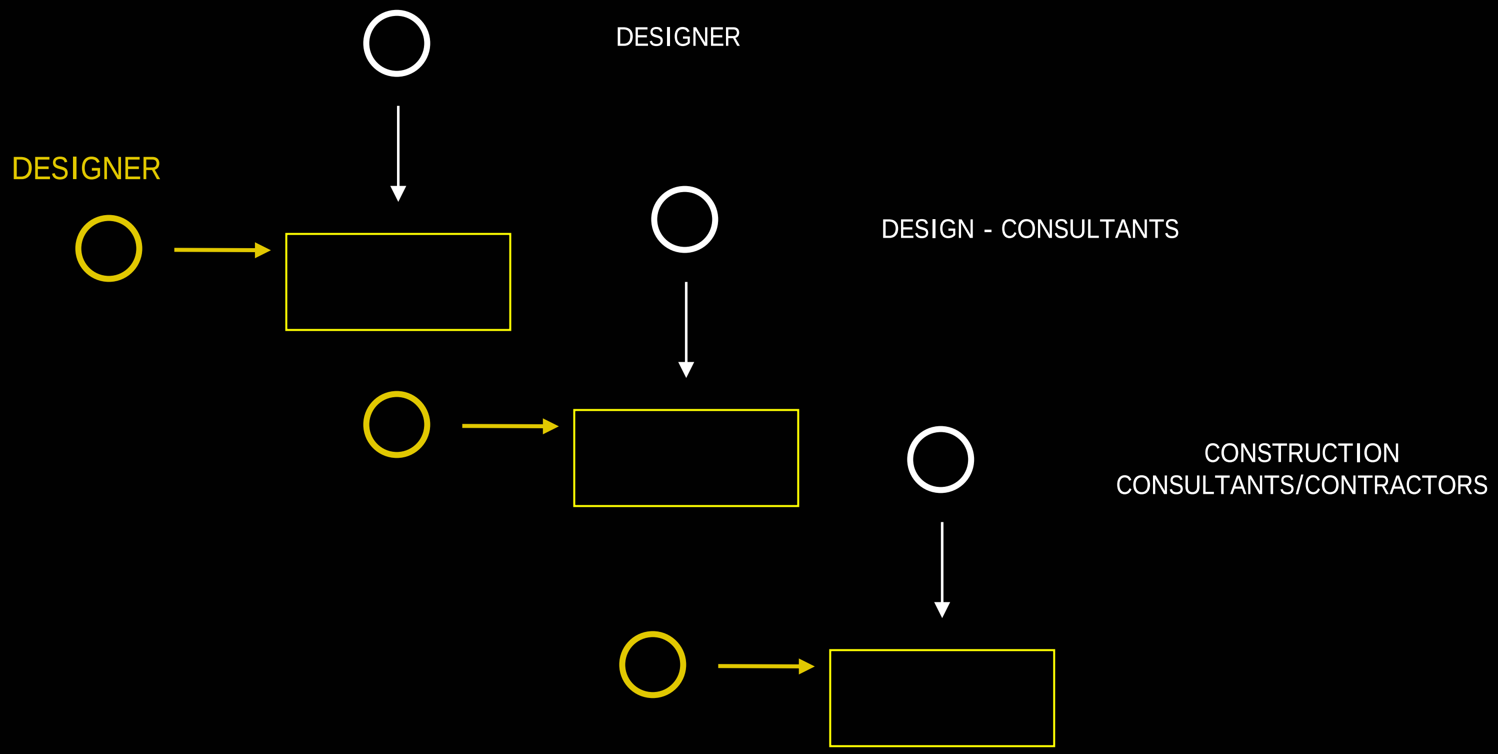

Problem Setting

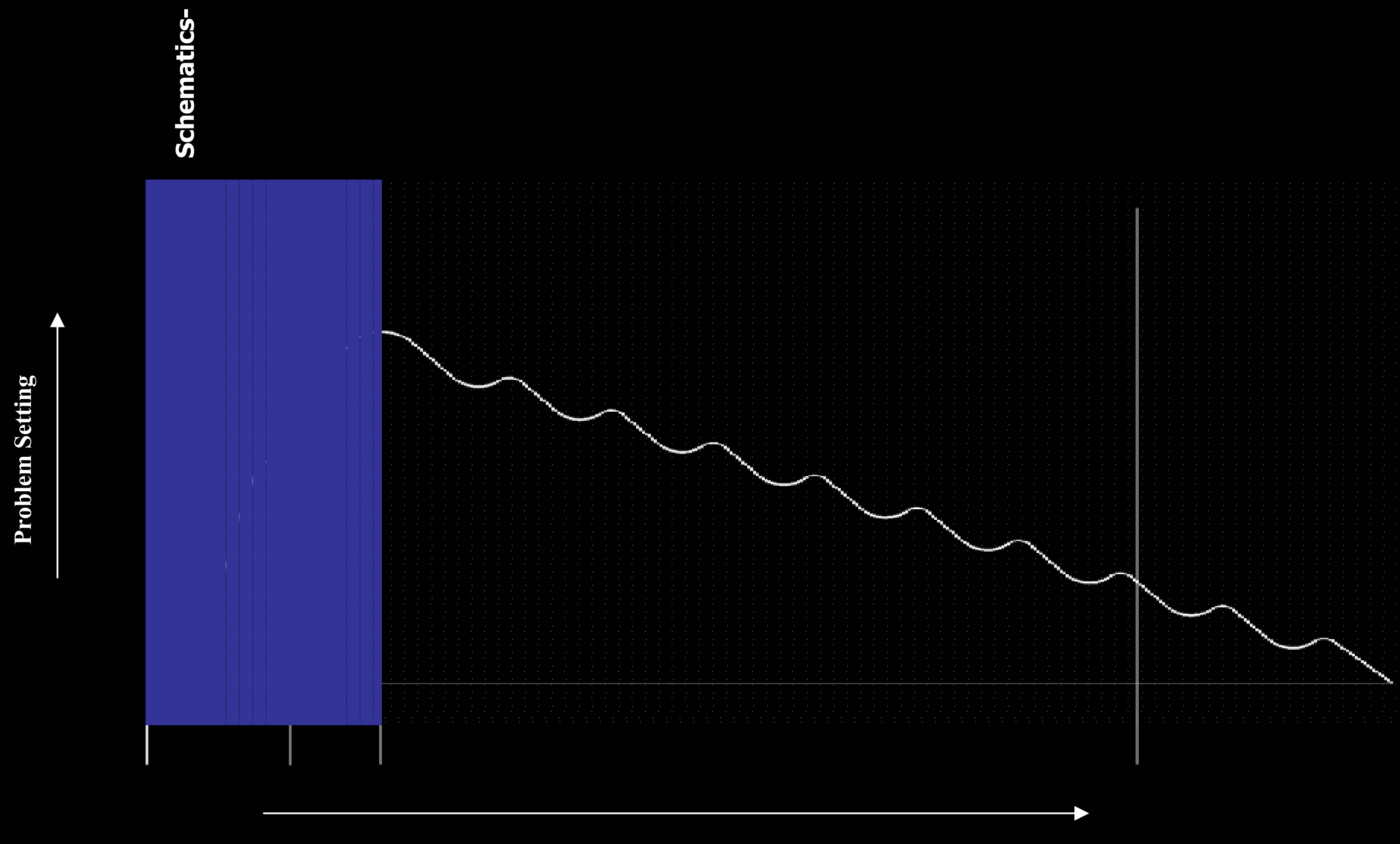
object creation

reflection

manipulation




DESIGNER
DESIGNER
DESIGN - CONSULTANTS
CONSTRUCTION
CONSULTANTS/CONTRACTORS


Schematics-
Problem Setting

[designers]

[problem setting]

physical
representation

[problem solving]

[sharing information]

[fab studio]

physical representation of information

[rapid prototyping devices]

3D Scanning

3D Digitizing

Modeling

Parametric Modeling

Scripting

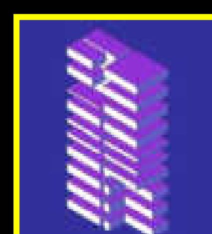
Computer Program

Fabrication

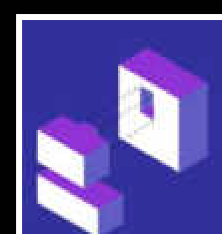
1 D - Text

2D Cutting

3 D Printing



Assembly



COMPUTER NUMBERICALLY CONTROLLED DEVICES

[building devices]

[subtraction devices]

[studio devices]

[solid forms]

[cutters]

a

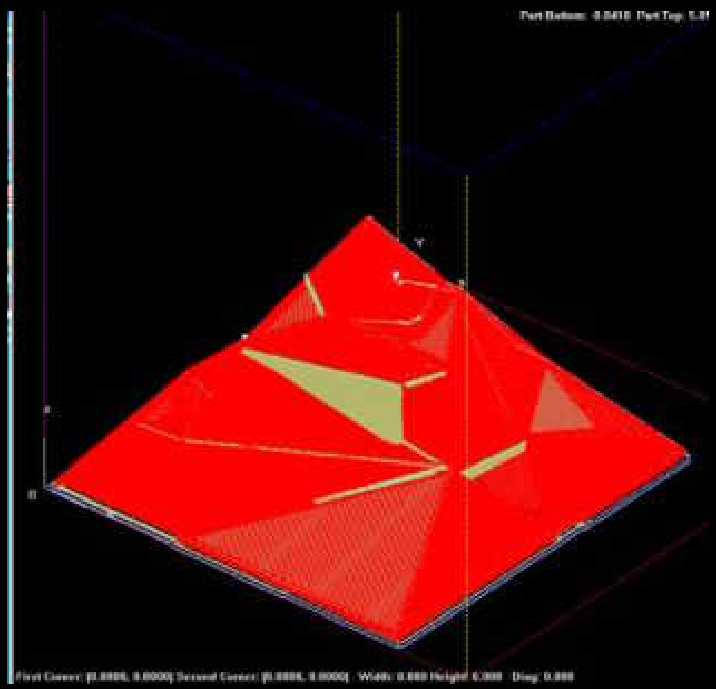
b

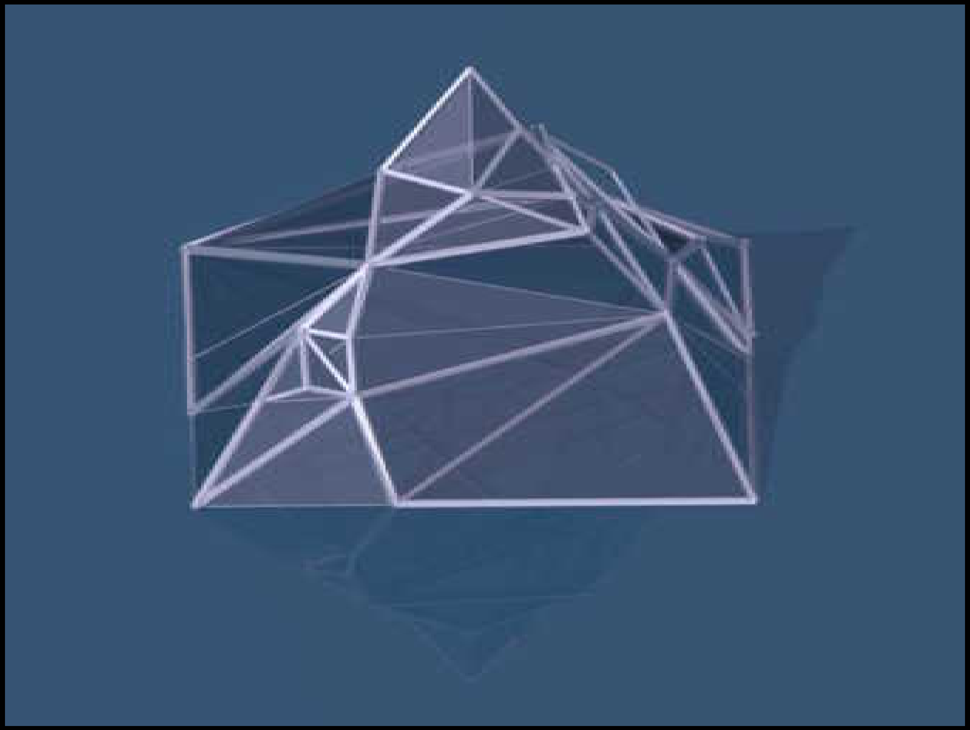
c

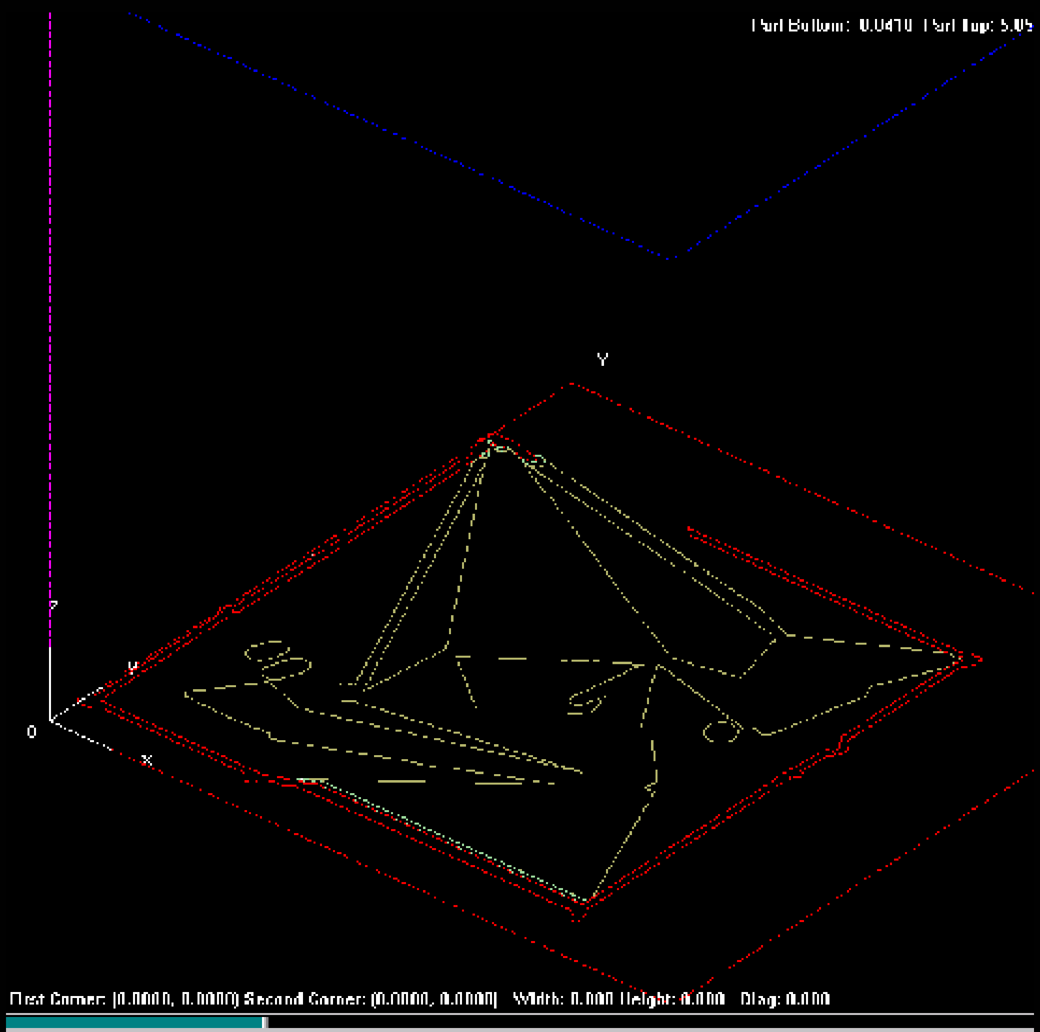
[stereo lithography]

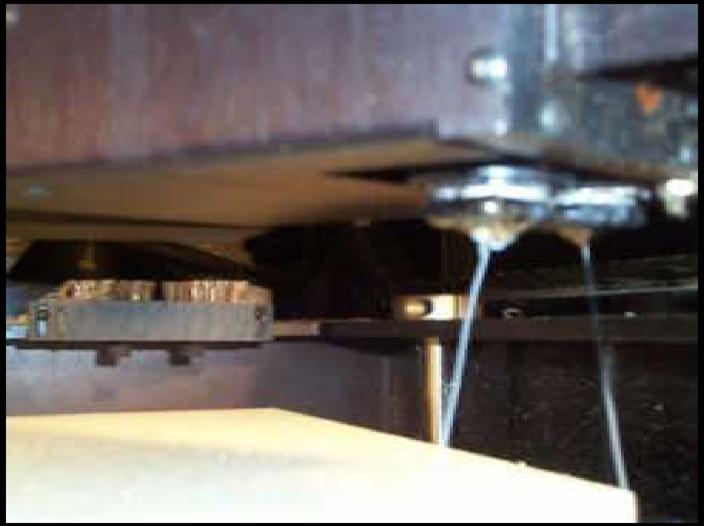
[3D printing]

[fuse deposition modeling]






Part Bottom: 0.0470 Part Top: 5.05
Y
Z
0
X
First Corner: (0.0000, 0.0000) Second Corner: (0.0000, 0.0000) Width: 0.000 Height: 0.000 Diag: 0.000



[3d building devices]

Stereo Lithography

Fuse Deposition Modeling

3D Printing

Solid ground curing

Selective laser sintering

Laminated object manufacturing

[2d subtraction devices]

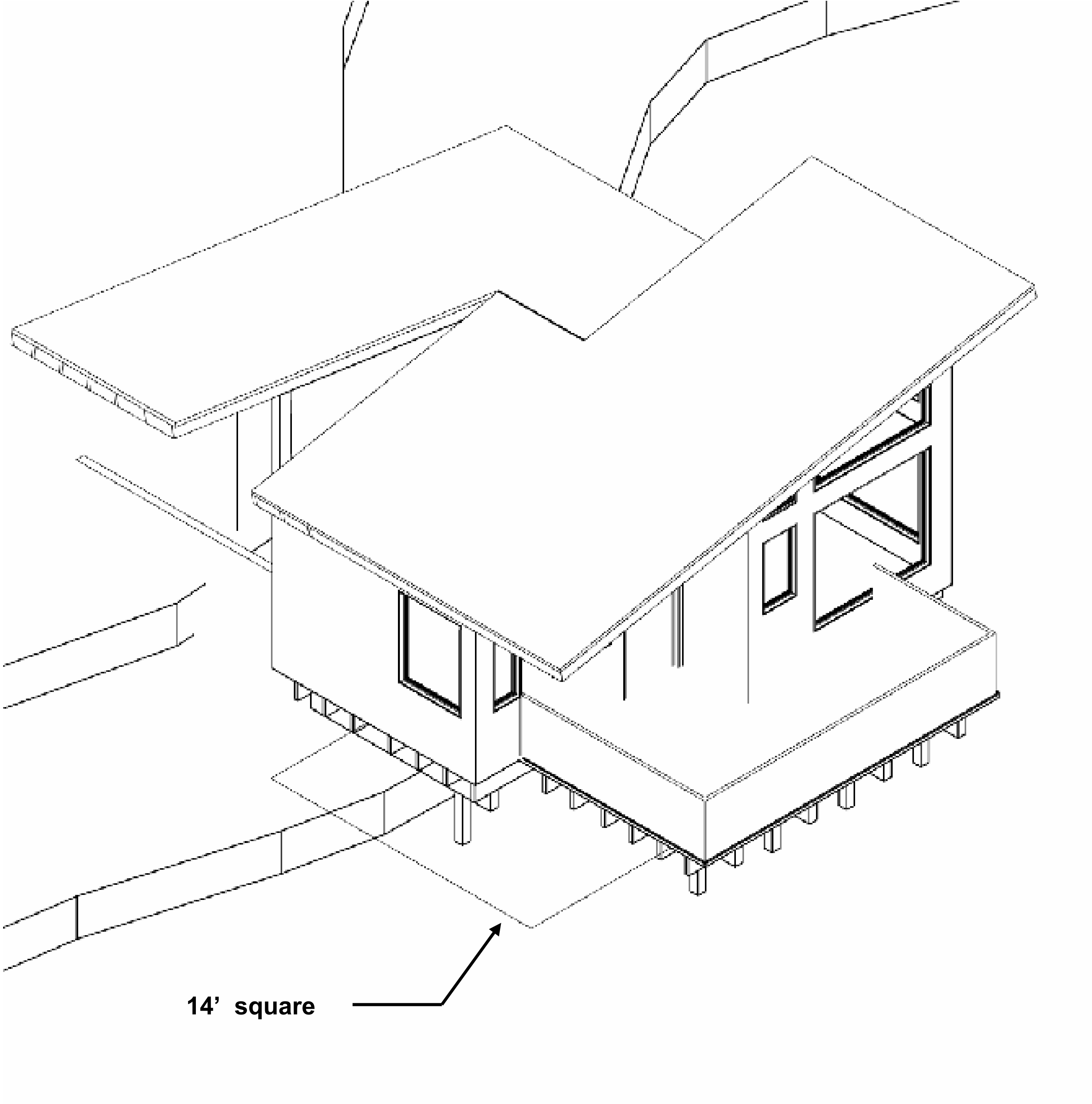
Paper cutter

Laser cutter

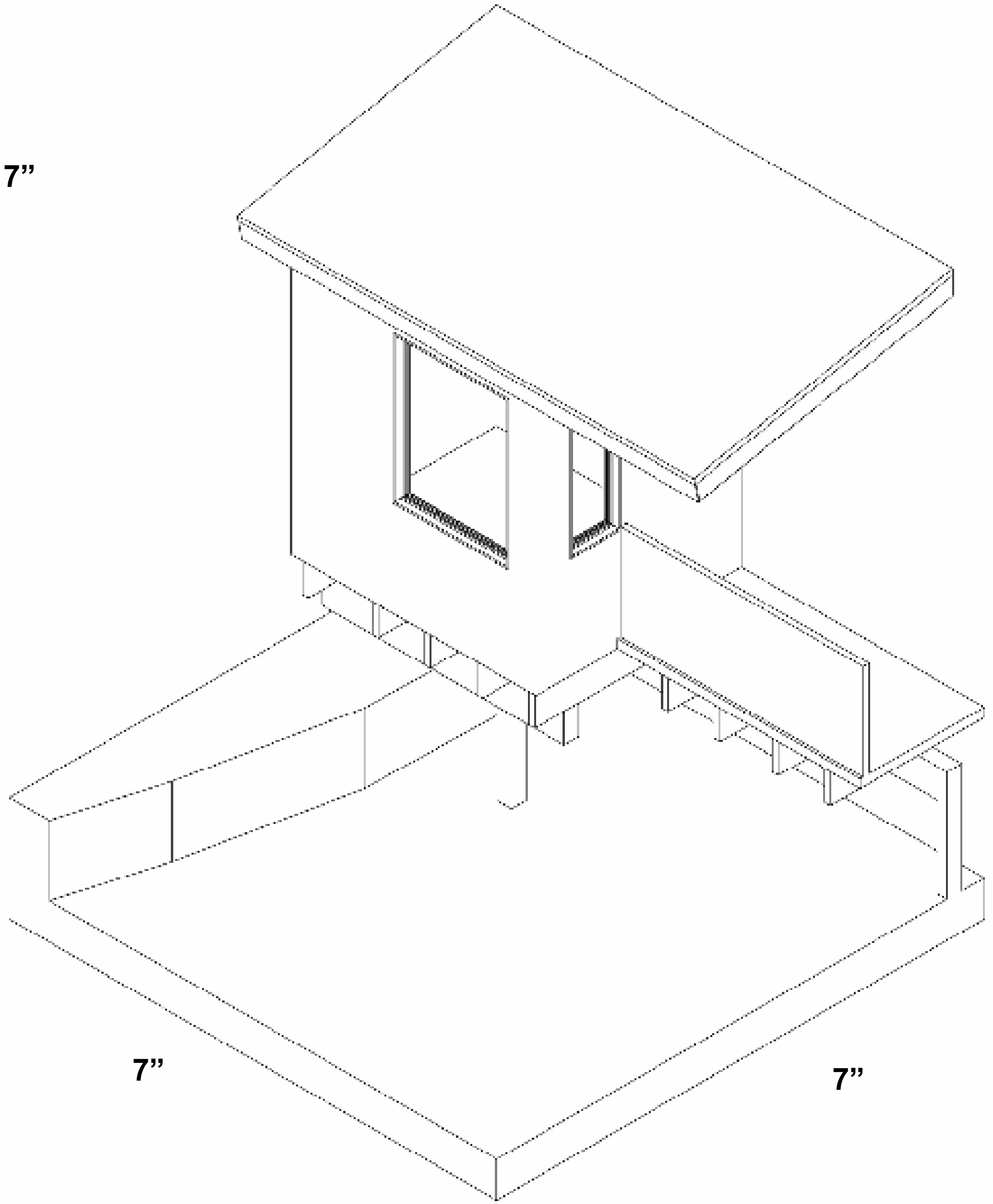
Milling Machine

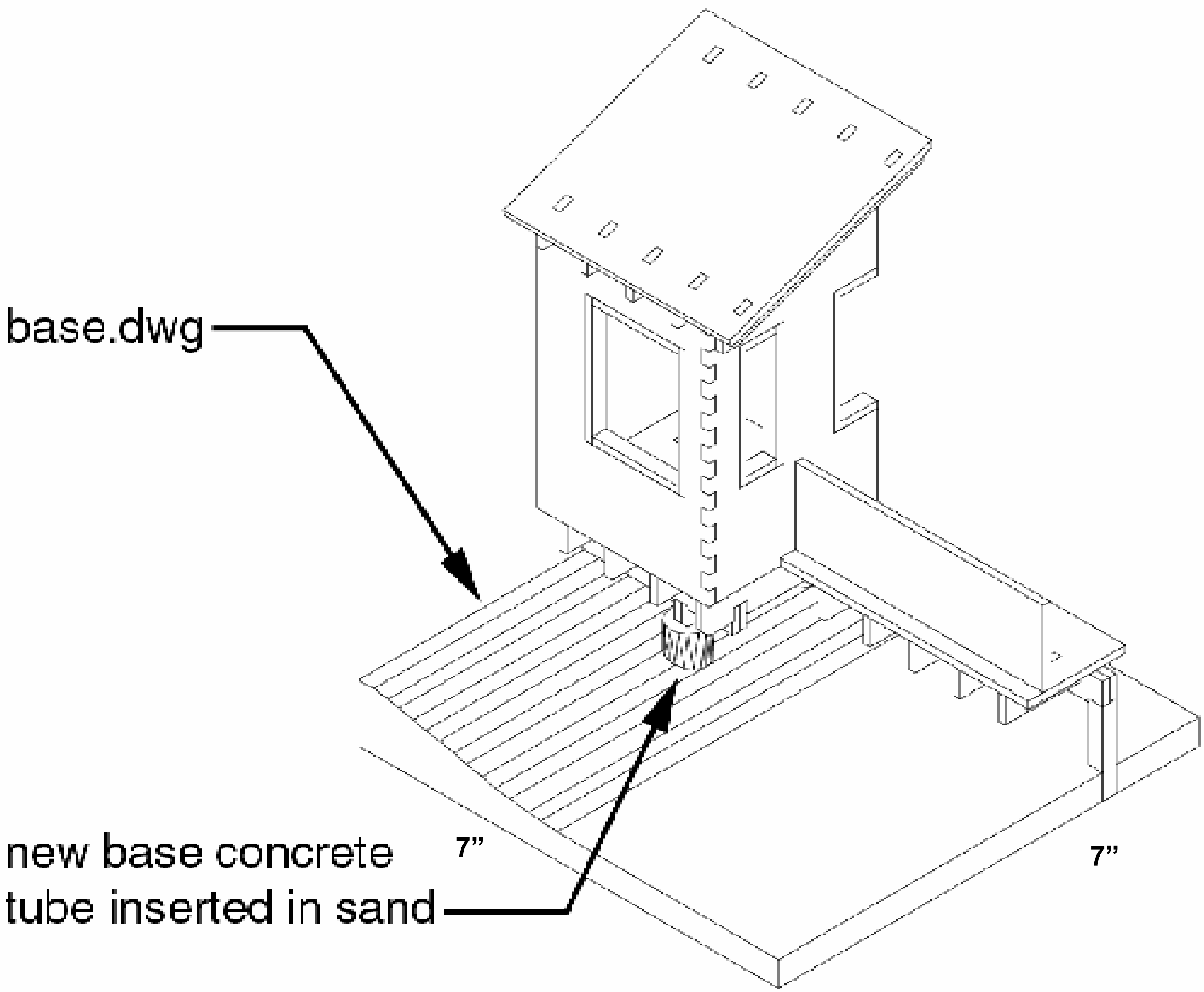
Water jet cutter

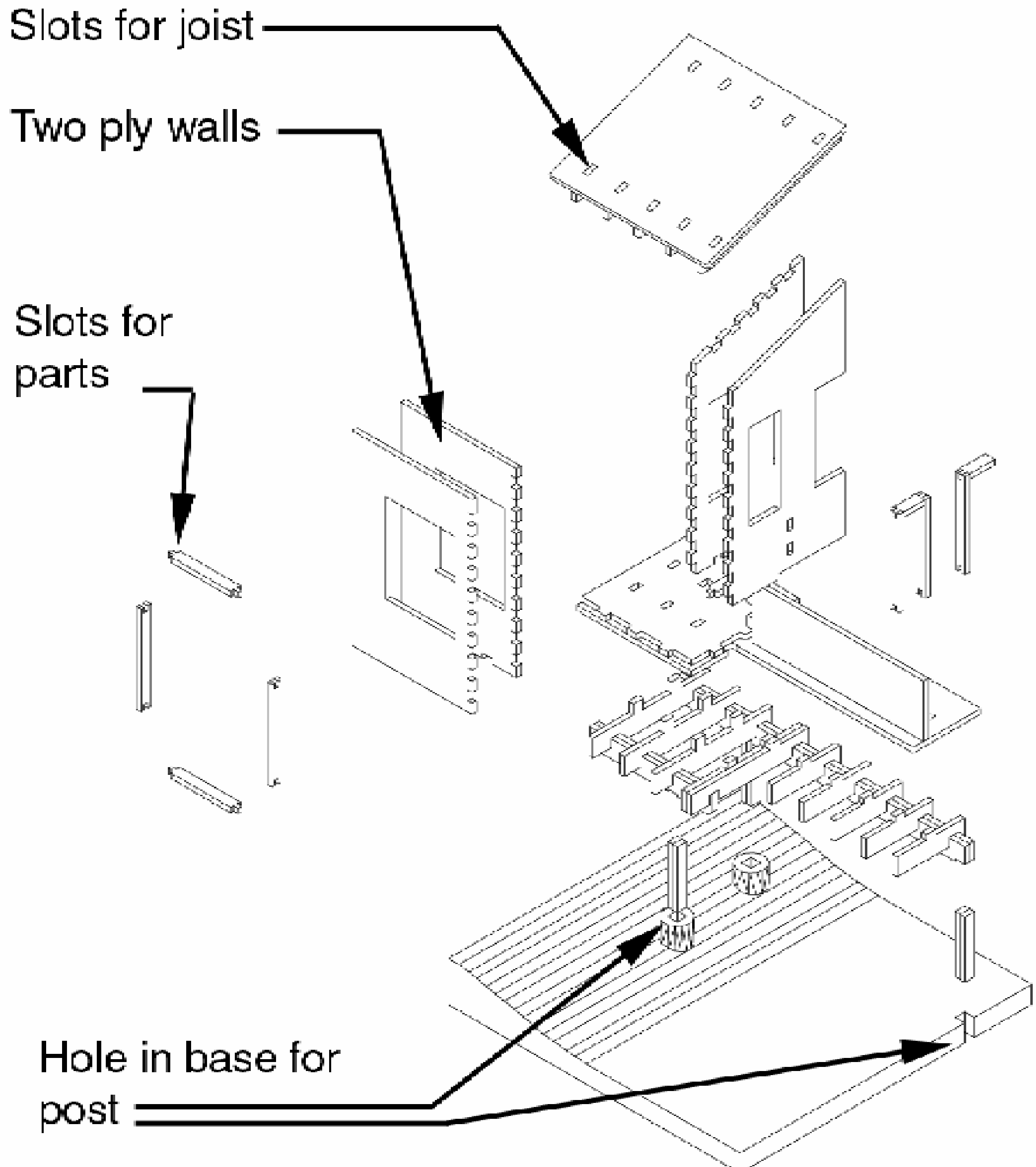
3D Routing Machine

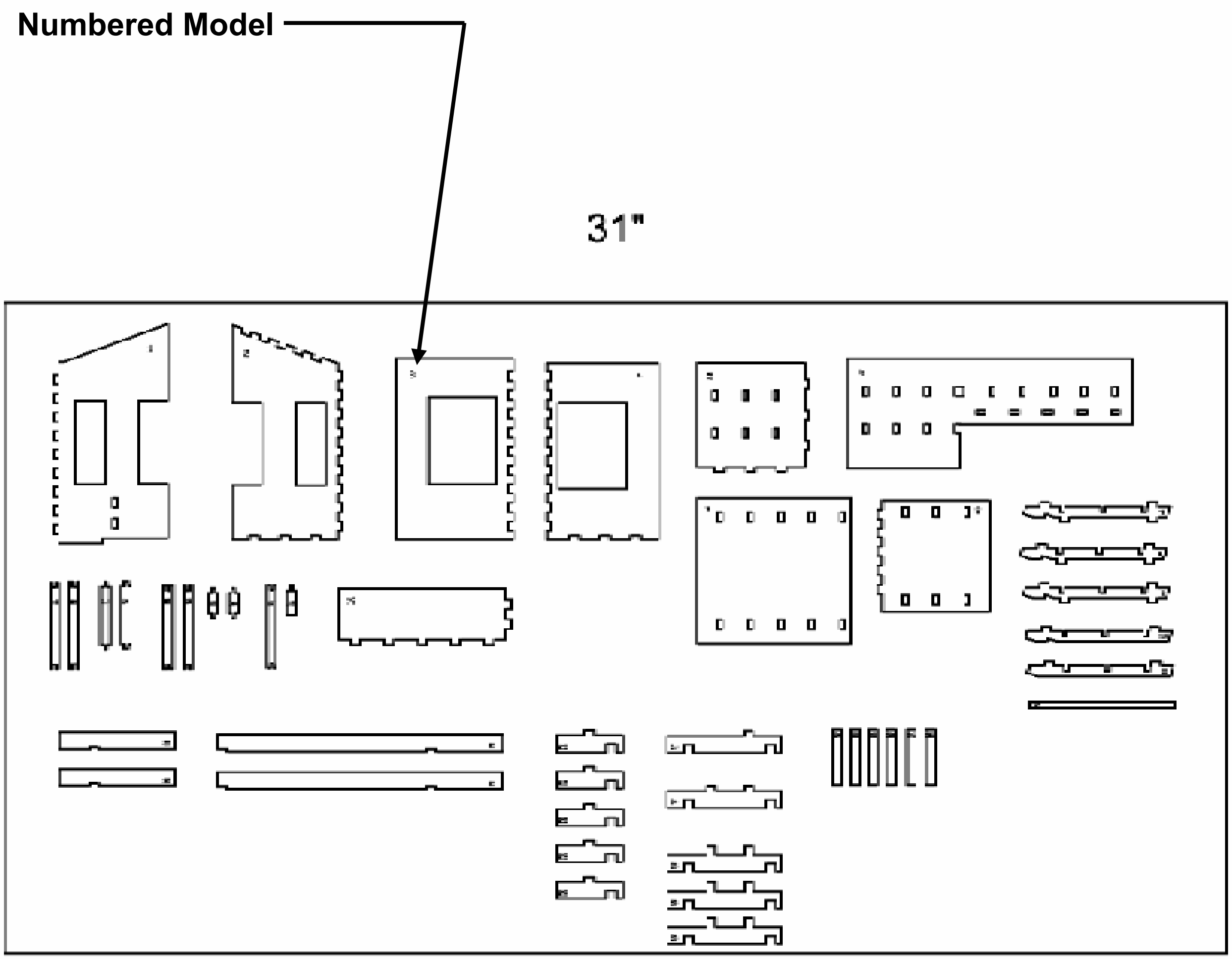

14’ square

14’ scaled to 7”




base.dwg
new base concrete
tube inserted in sand
7"
7"


Slots for joist
Two ply walls
Slots for parts
Hole in base for post

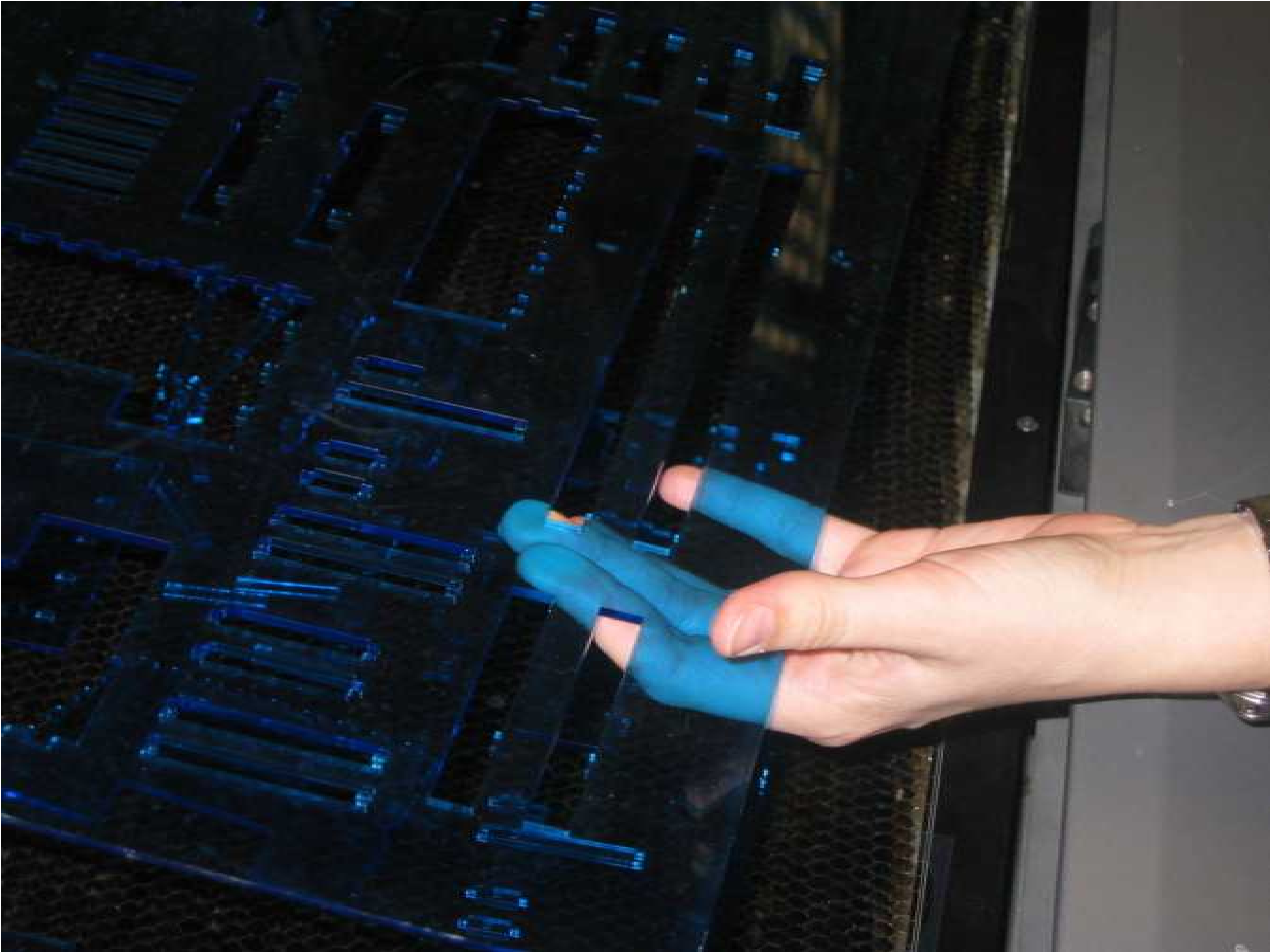


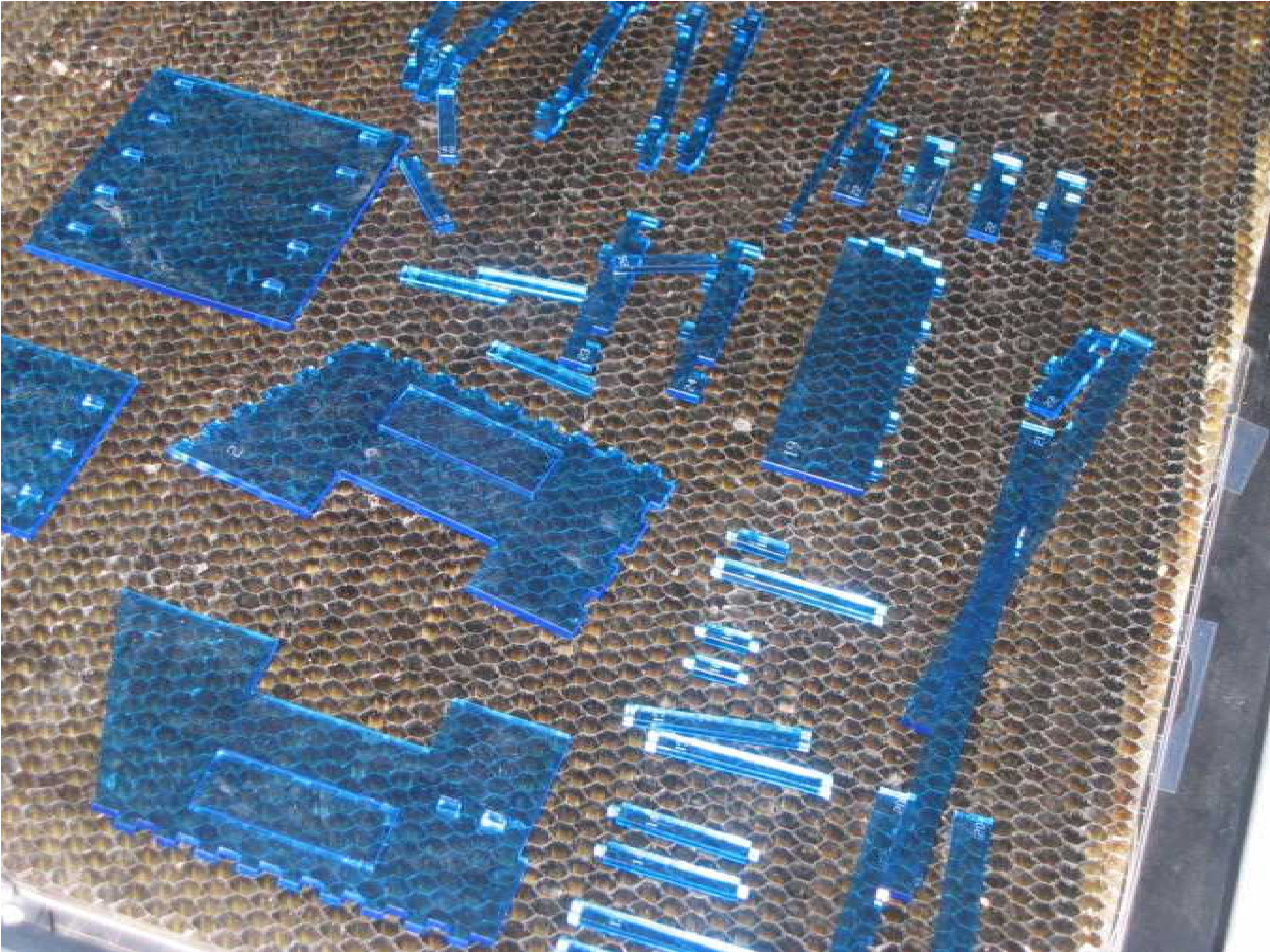
1 - outer front wall
2 - inner front wall
3 - outer side wall
4 - inner side wall
5 - upper floor
6 - lower floor
7 - outer roof plane
8 - inner ceiling plane
9 - roof beam w/ bottom tabs on wall (3)
10 - roof beam w/o bottom tabs on wall
11 - roof beam w/o bottom tabs off wall
12 - roof joist (3)
13 - side wall vertical mullion (2)
14 - side wall horizontal mullion (2)
15 - front wall vertical mullion whole window (2)
16 - front wall horizontal mullion whole window (2)
17 - front wall vertical mullion half window
18 - front wall horizontal mullion half window (2)
19 - porch wall
20 - short longitudinal floor beam (2)
21 - long longitudinal floor beam (2)
22 - short transverse floor joist (5)
23 - long transverse floor joist no tab
24 - long transverse floor joist low tab
25 - long transverse floor joist high tab (3)
26 - vertical floor support (3)

1/8" Chipboard
CUT = 95 Power / 2 Speed
SCORE = 40 Power / 50 Spe

1/6" Chipboard
CUT = 95 Power / 2 Speed
SCORE = 40 Power / 50 Spe

1/8" PlexiGlass:
CUT = 95 Power / 3 Speed
SCORE = 40 Power / 50 Spe





[rapid prototyping devices]

Remove Materials

Build Materials

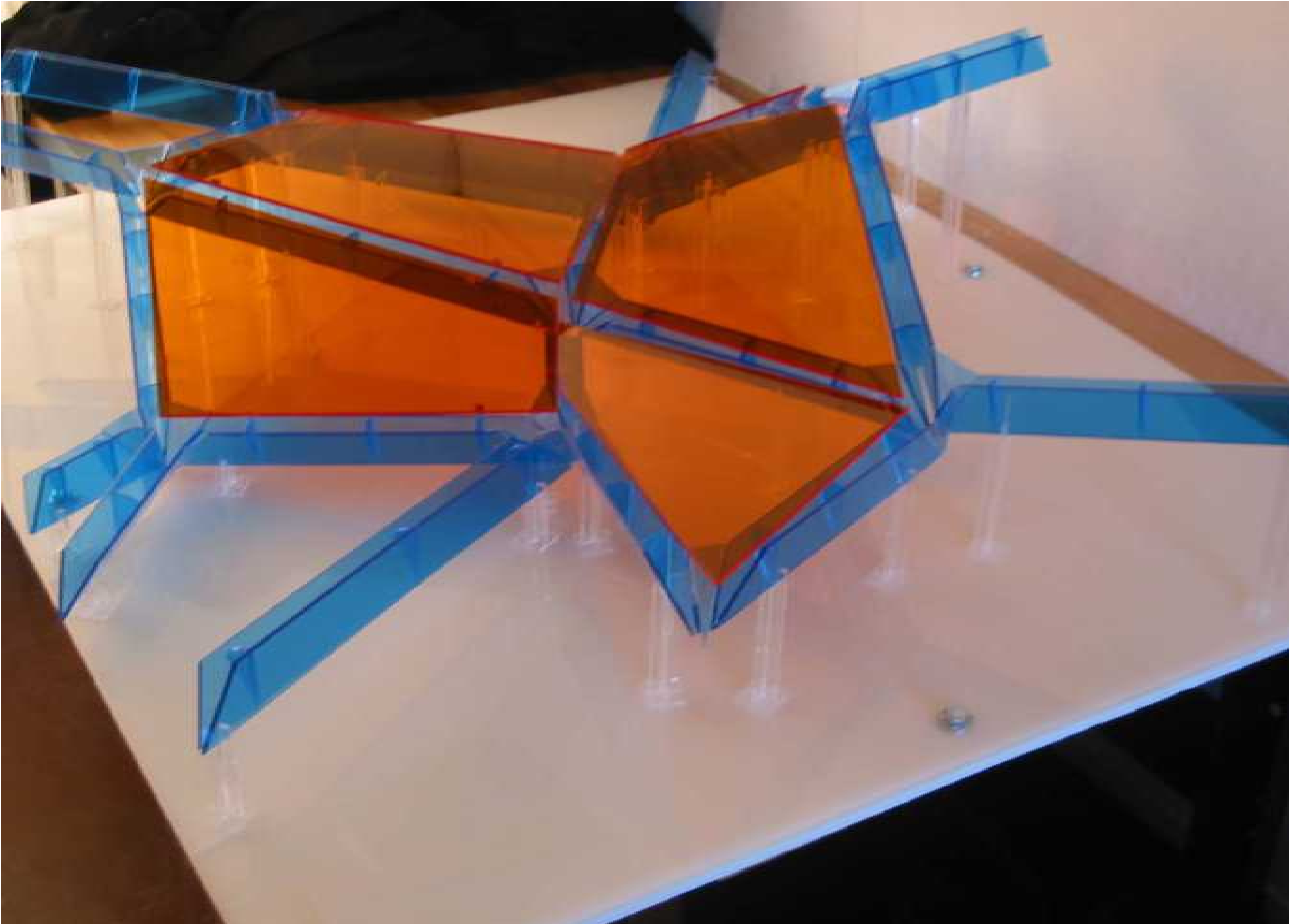
Future - Assembly of Parts - CAD

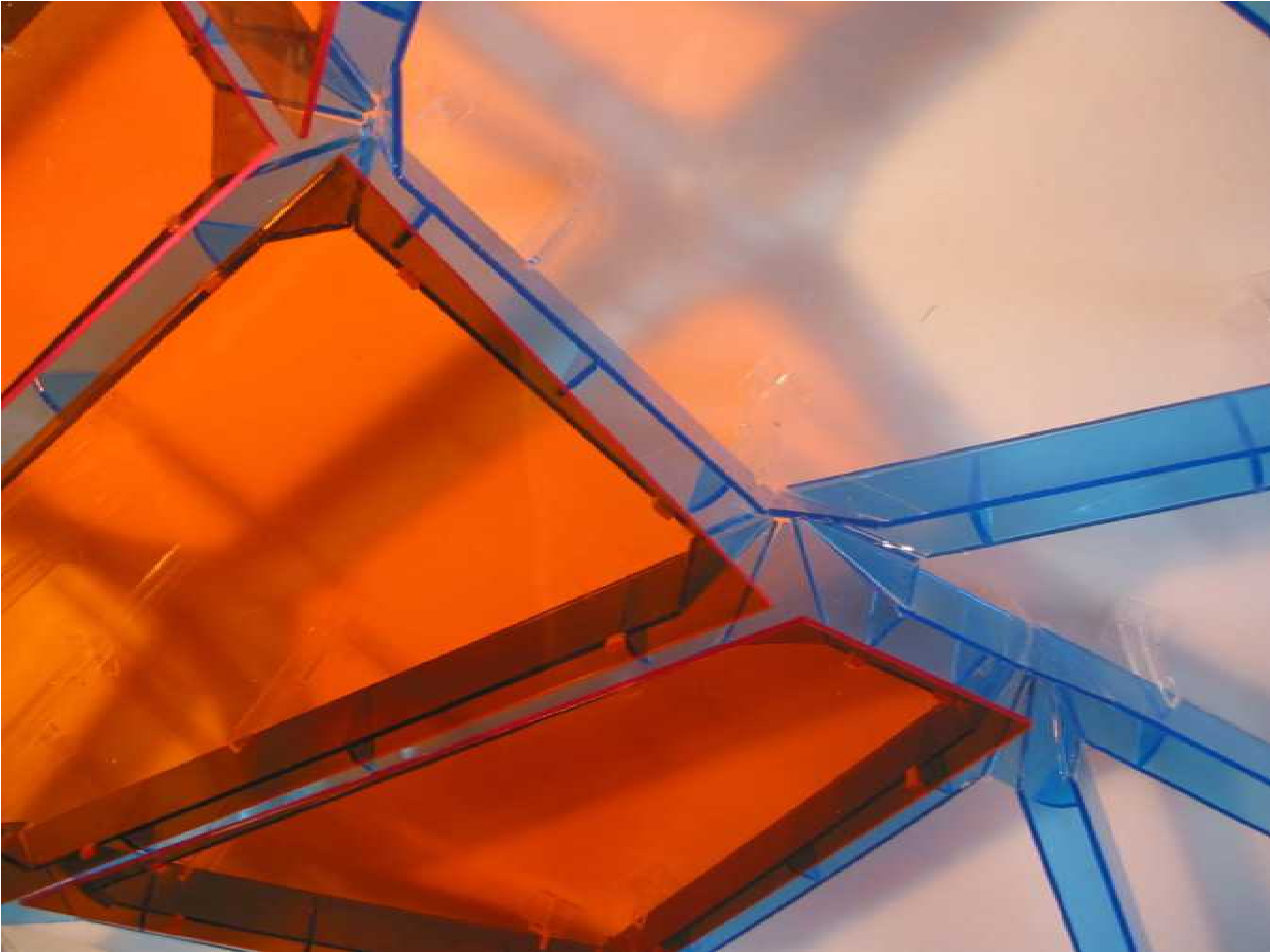
Future - Post Processing

[research work]

complex curved surface fabrication

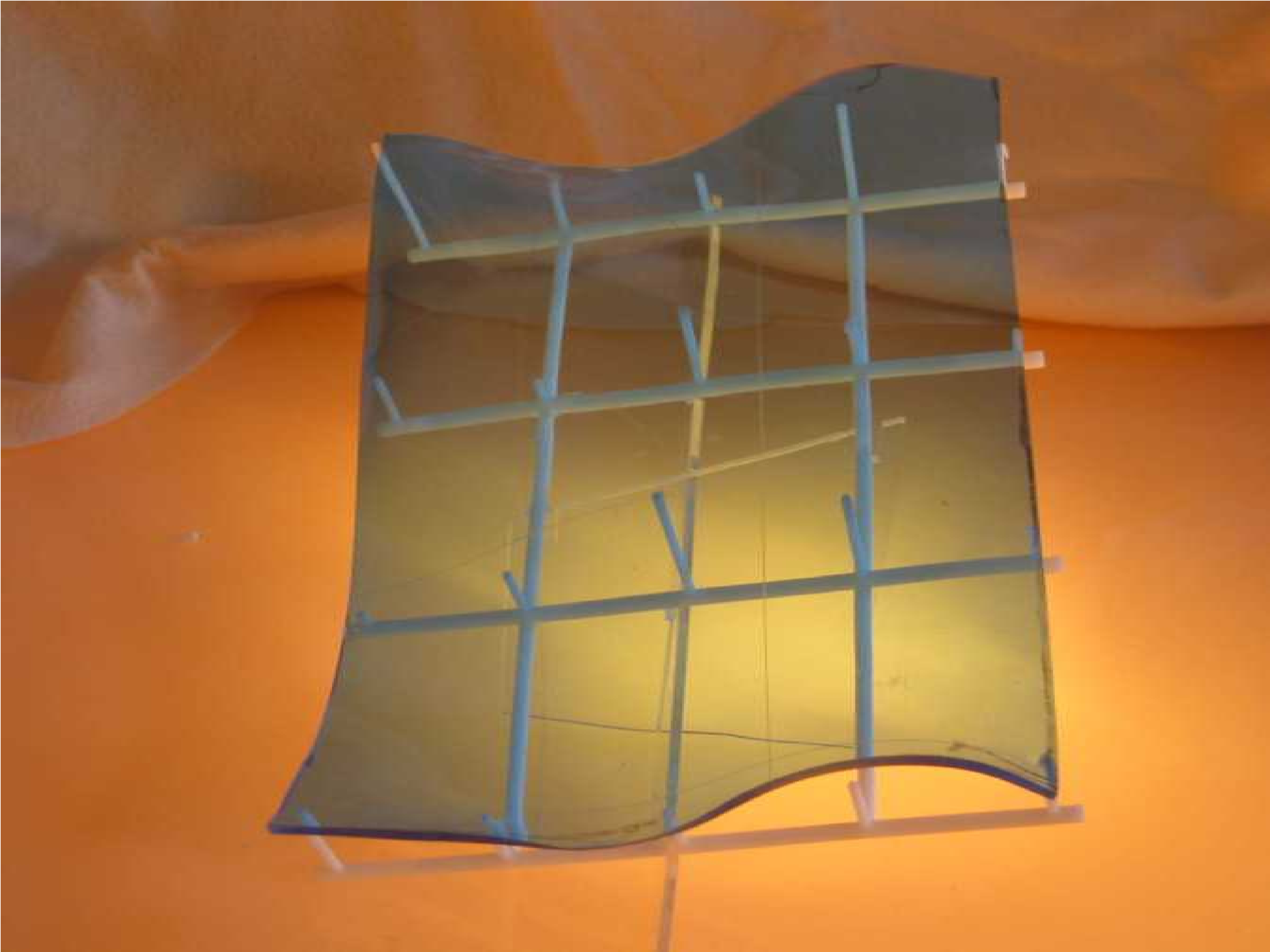
[non-euclidian geometry]



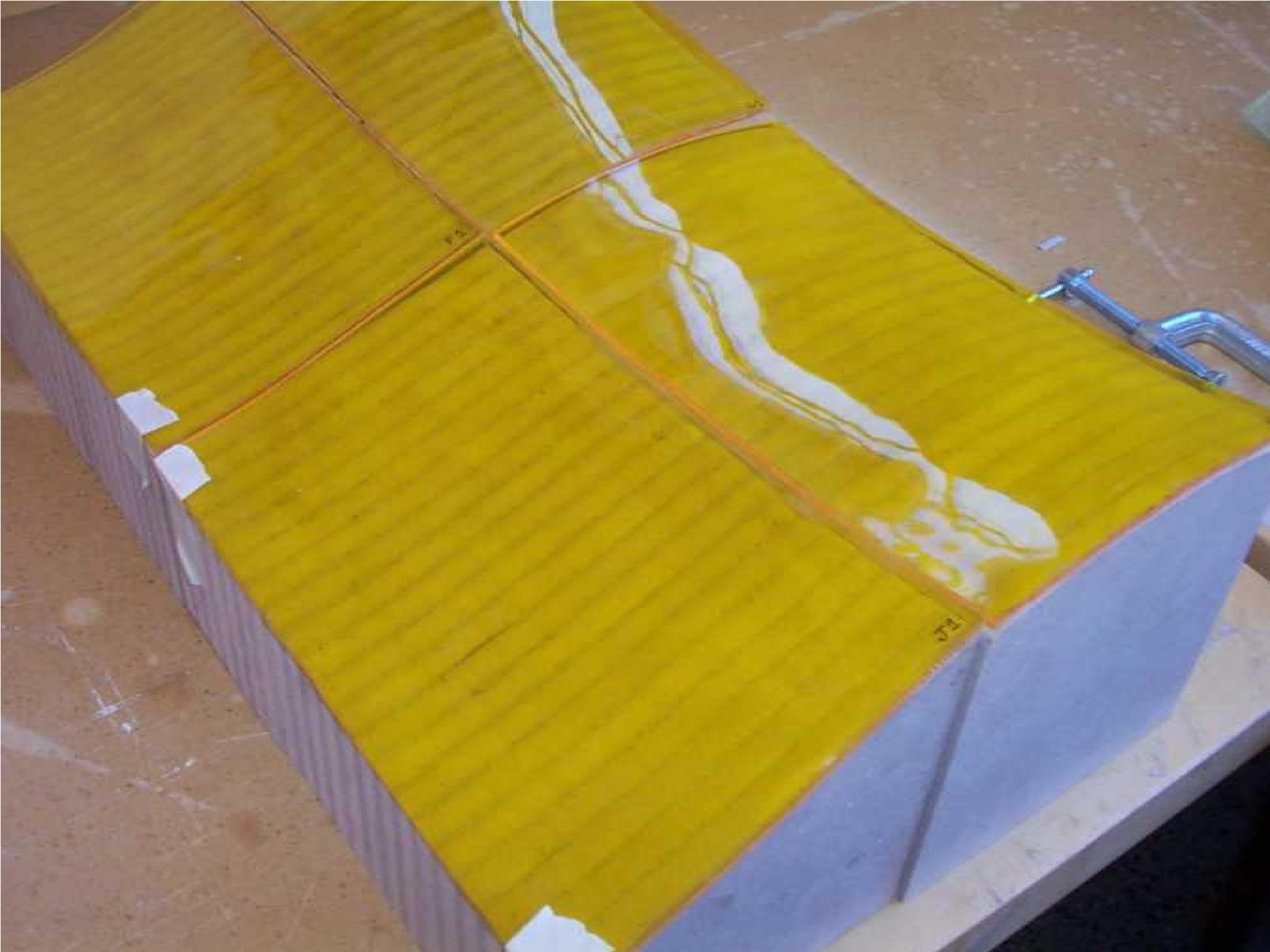


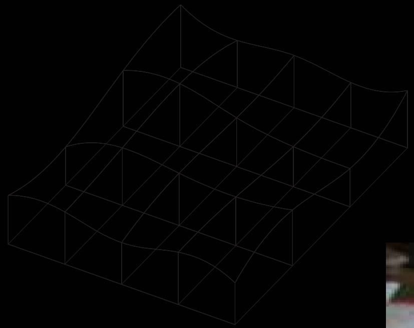
complex curved surface

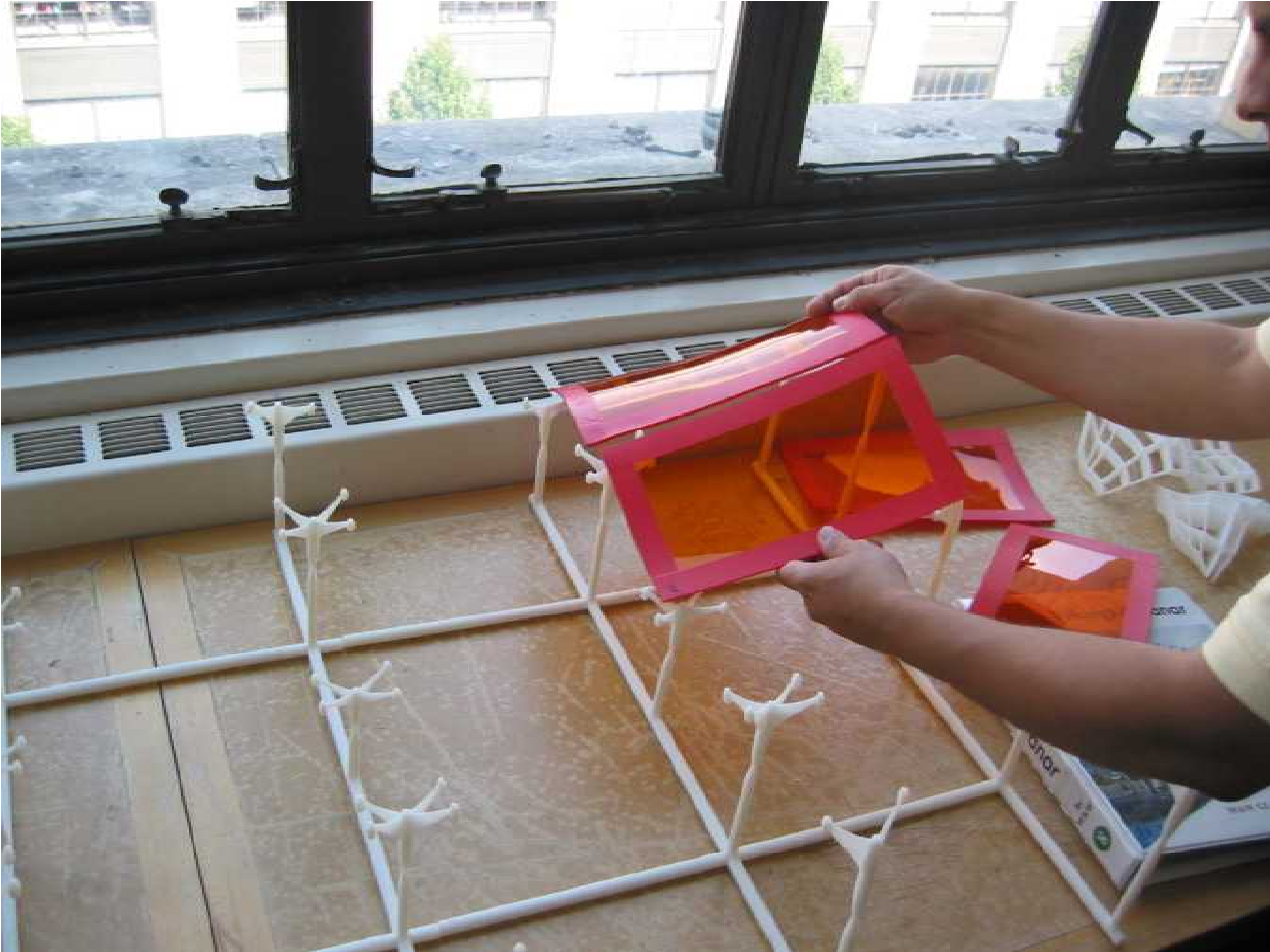
[cast curve surfaces]

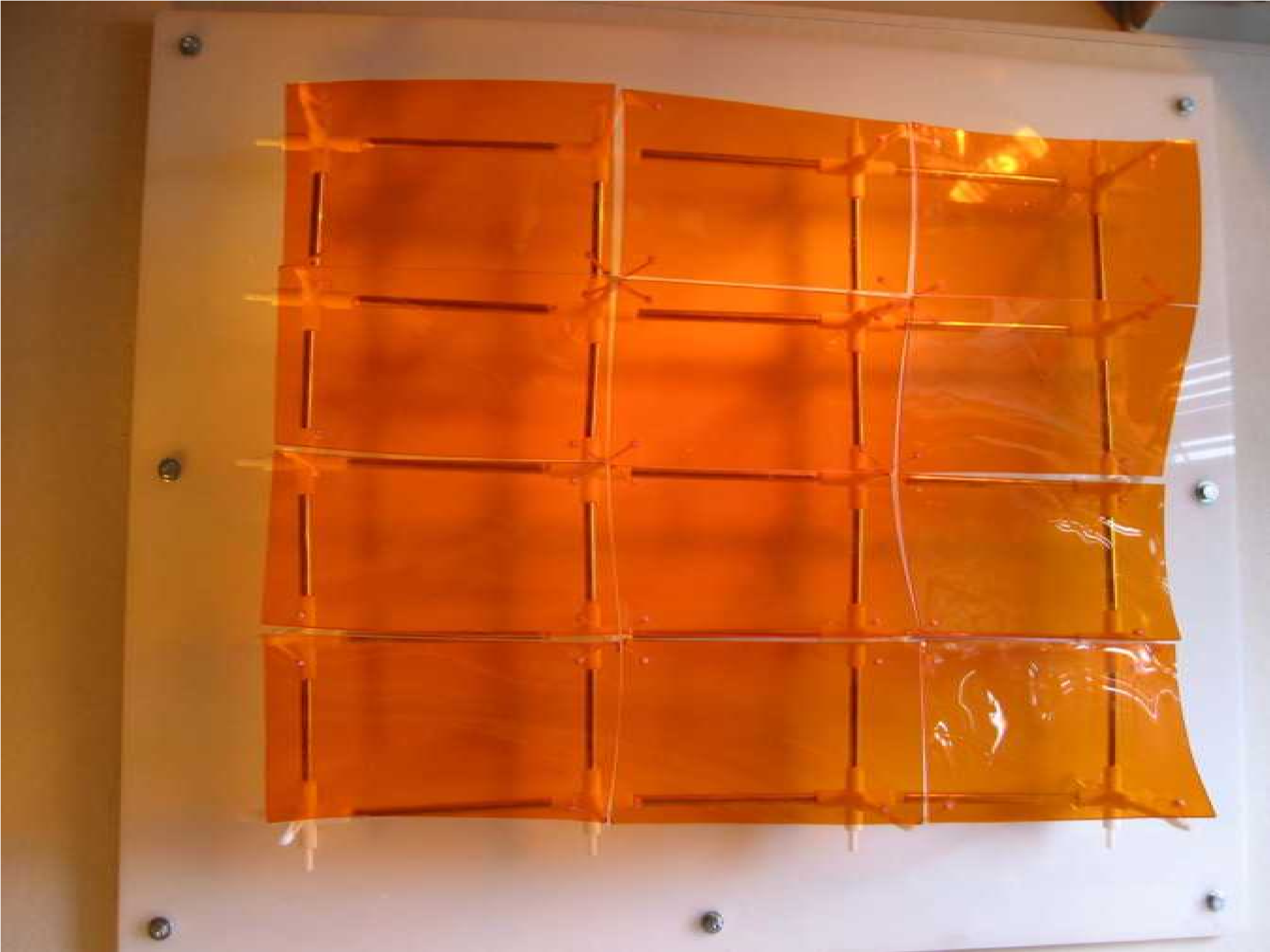


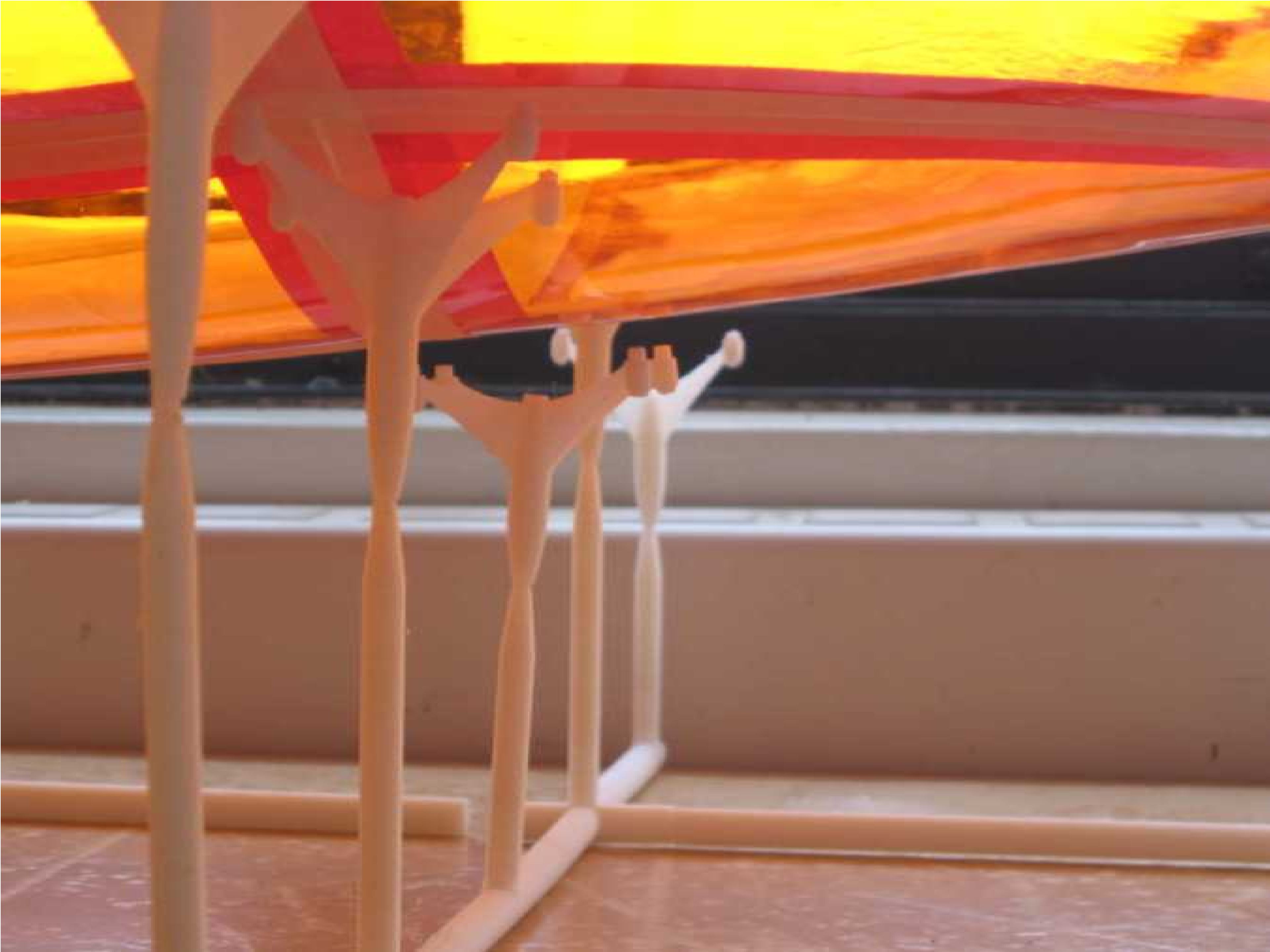


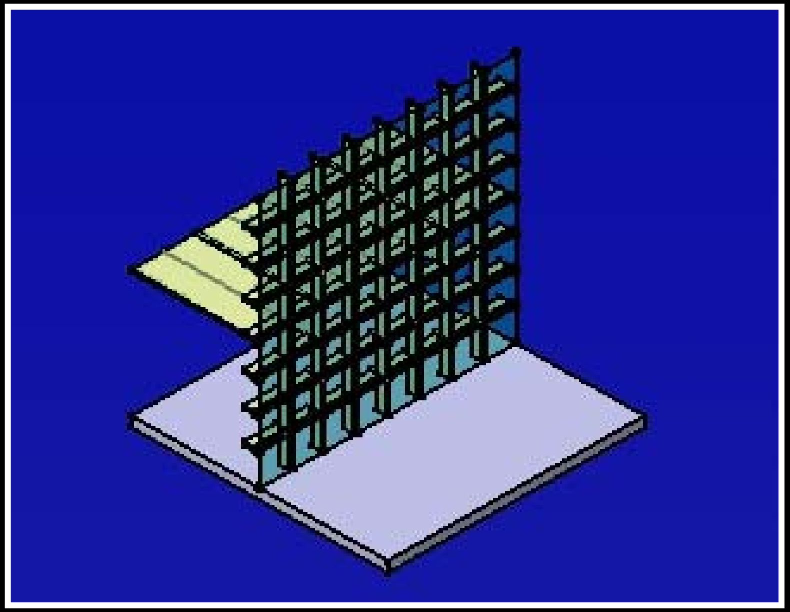


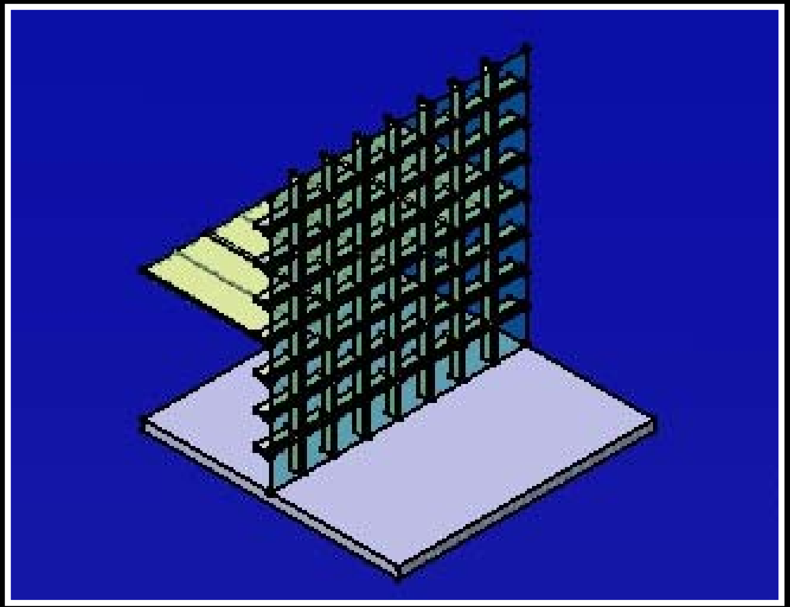


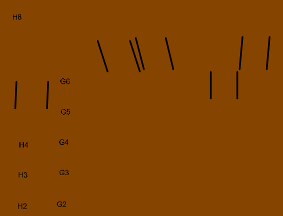




wall surface of flat panels
[generative fabrication]






H8
G6
G5
H4
G4
H3
G3
H2
G2


C6
B6
D5
C5
E4
D4
B5
F3
C4
E3
D3
B4
G2
F2
E2
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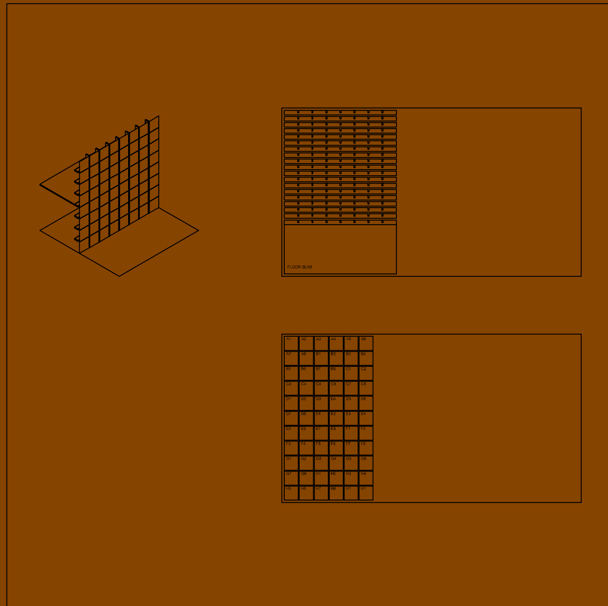
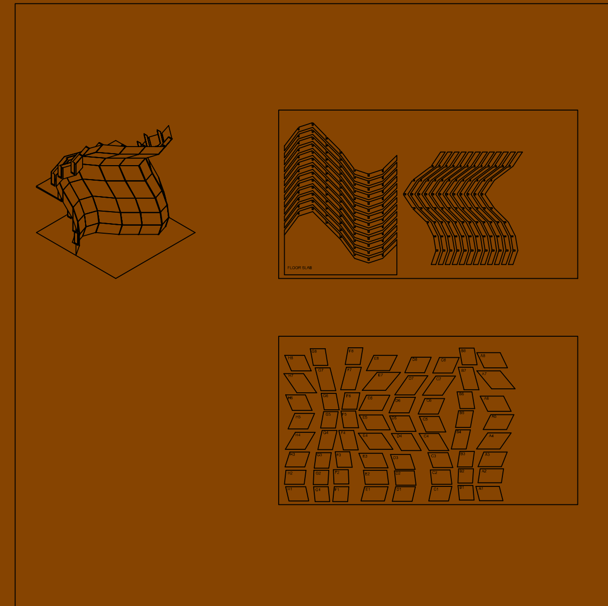
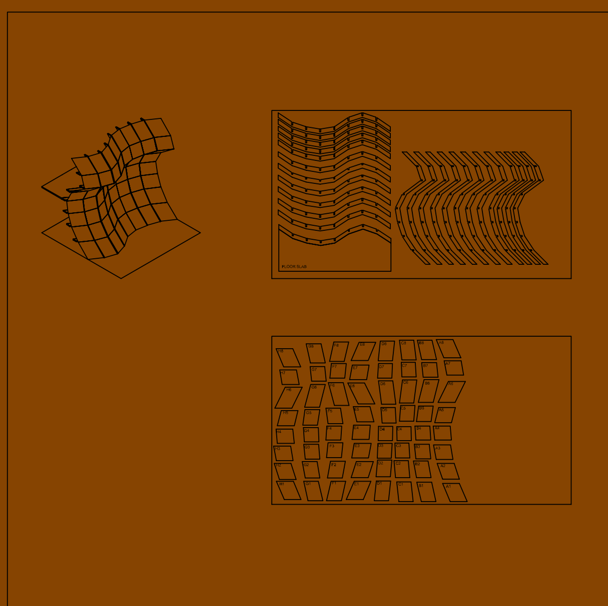
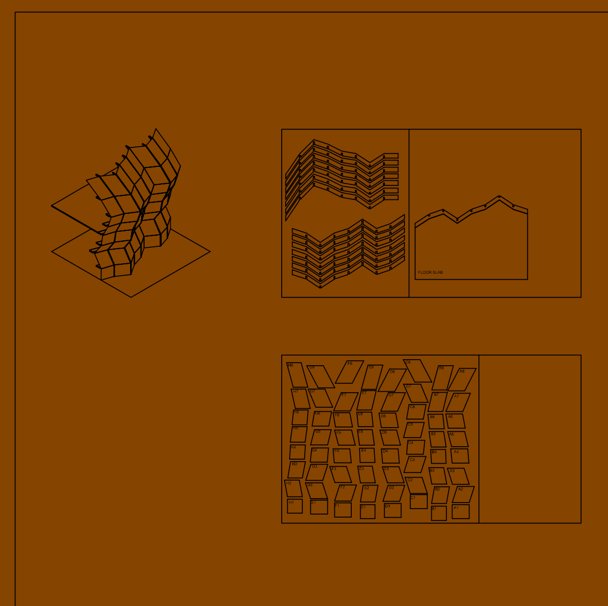
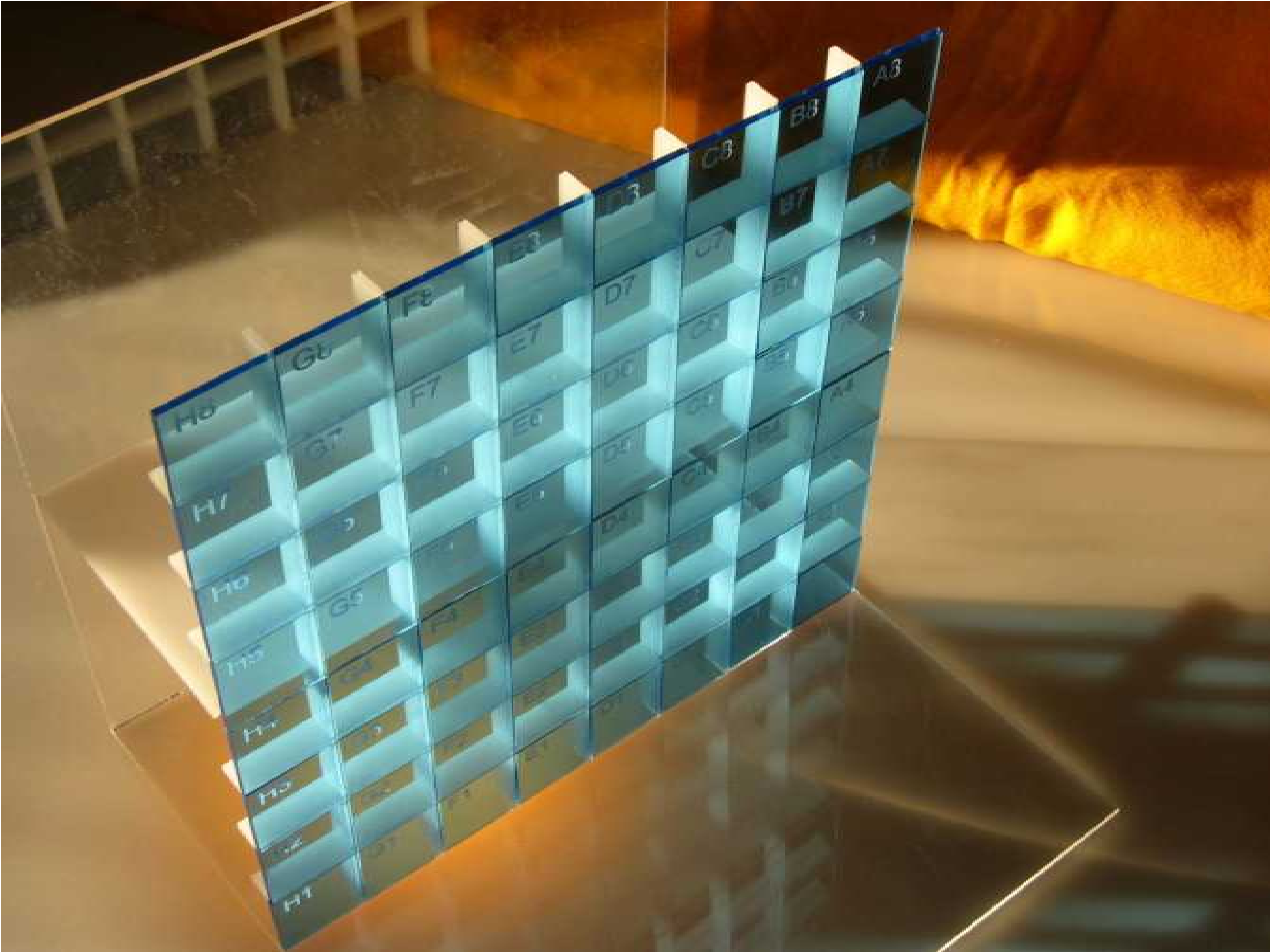
B1
H2
F8
H3

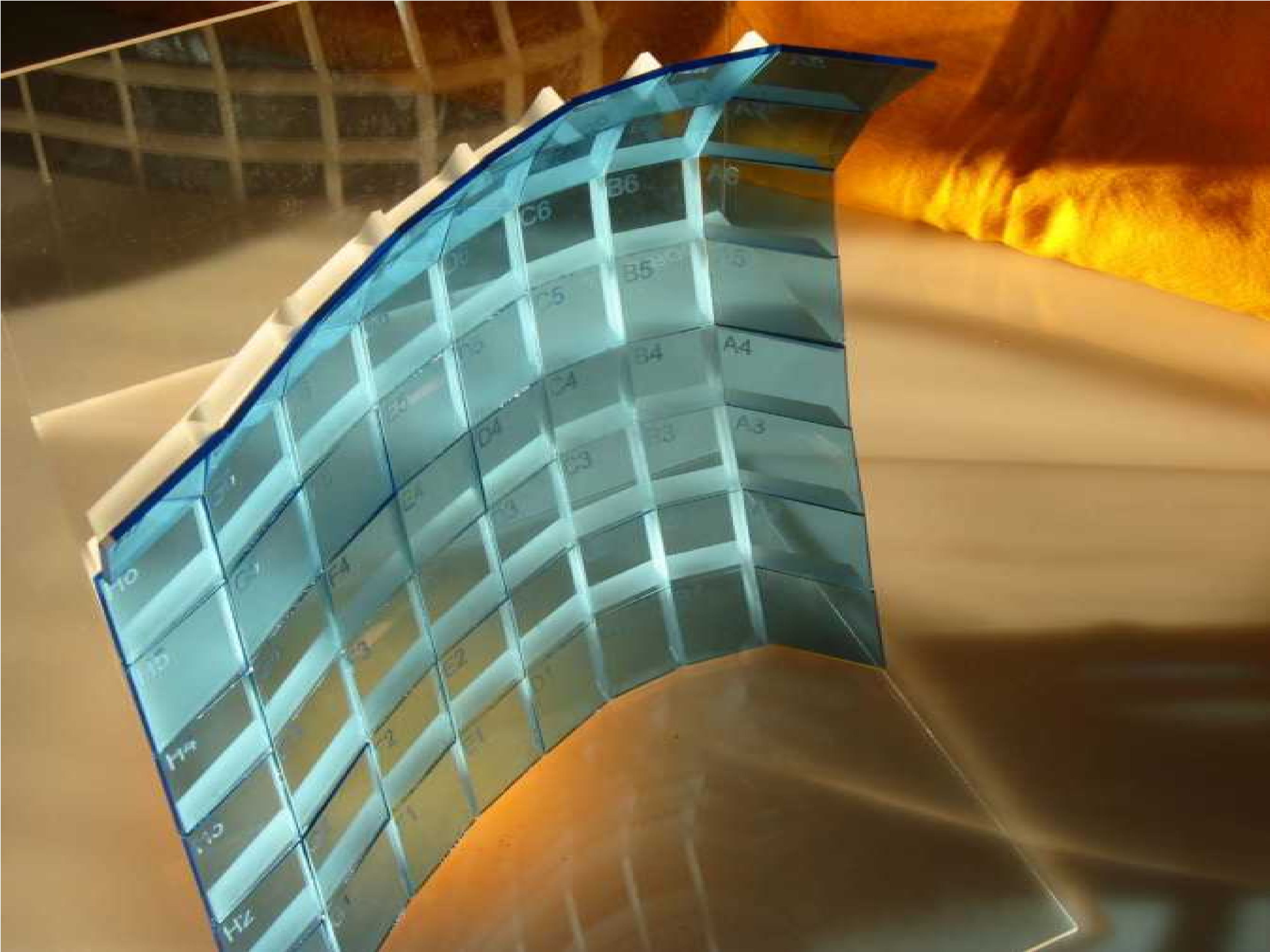




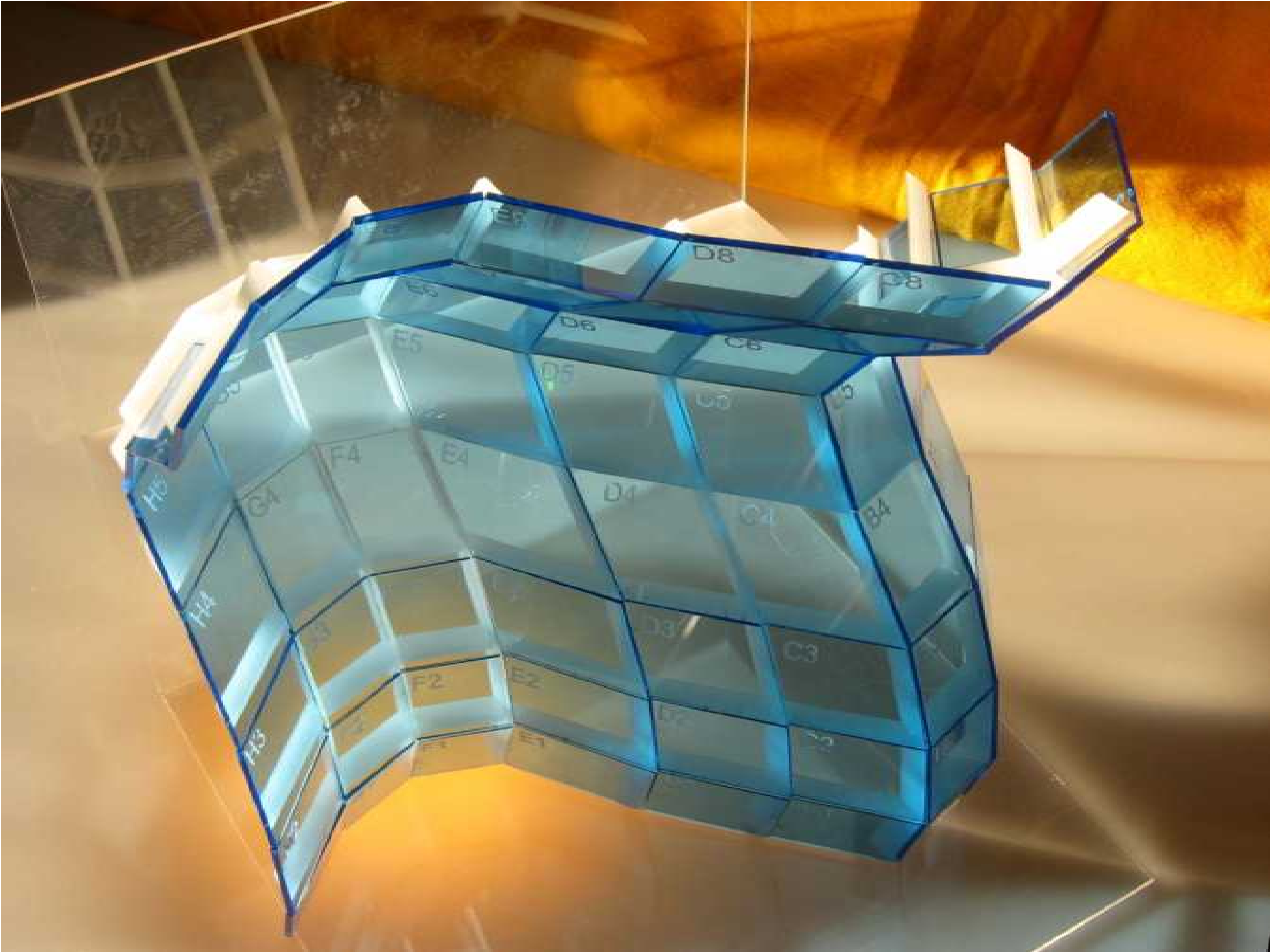


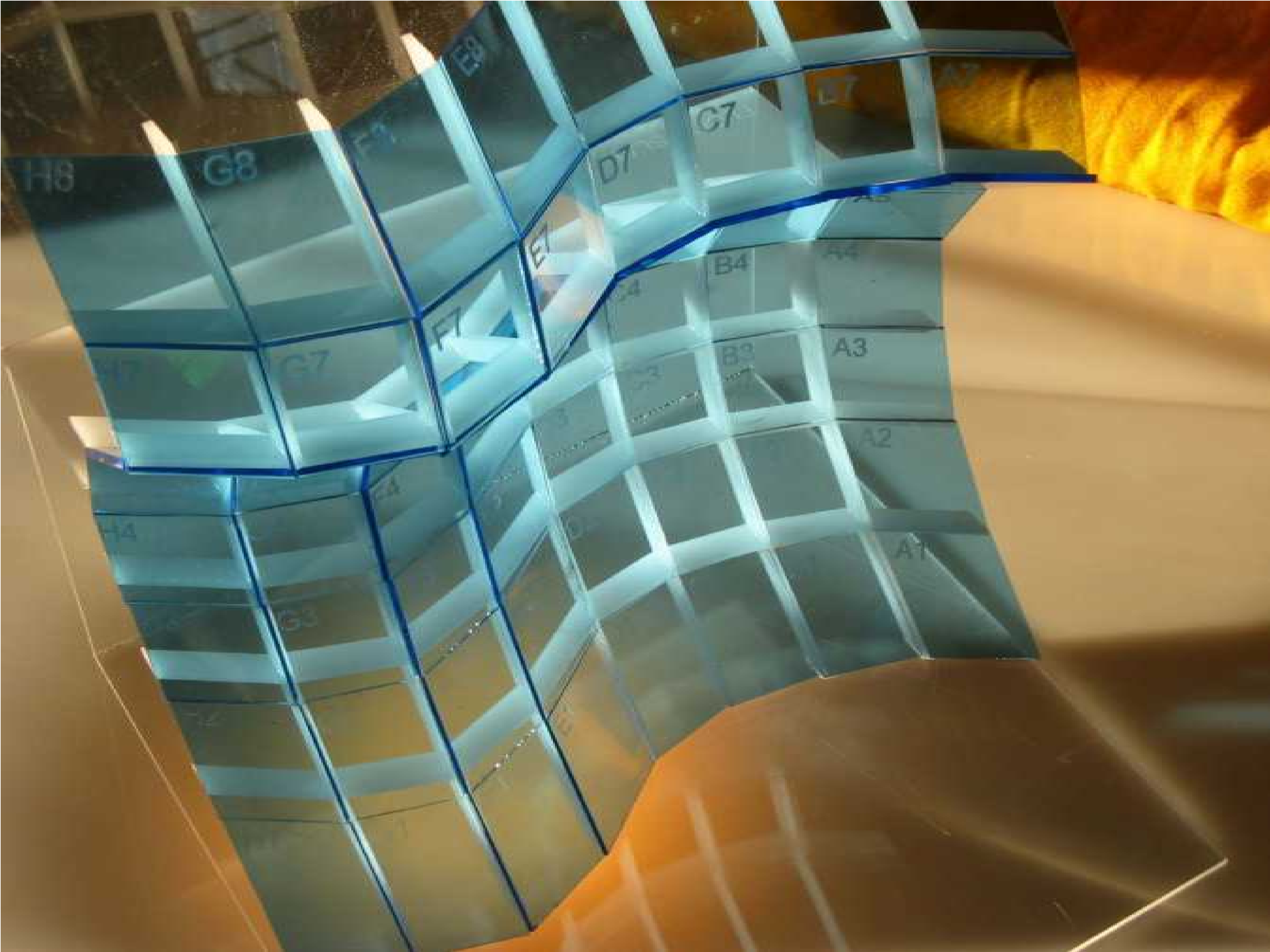


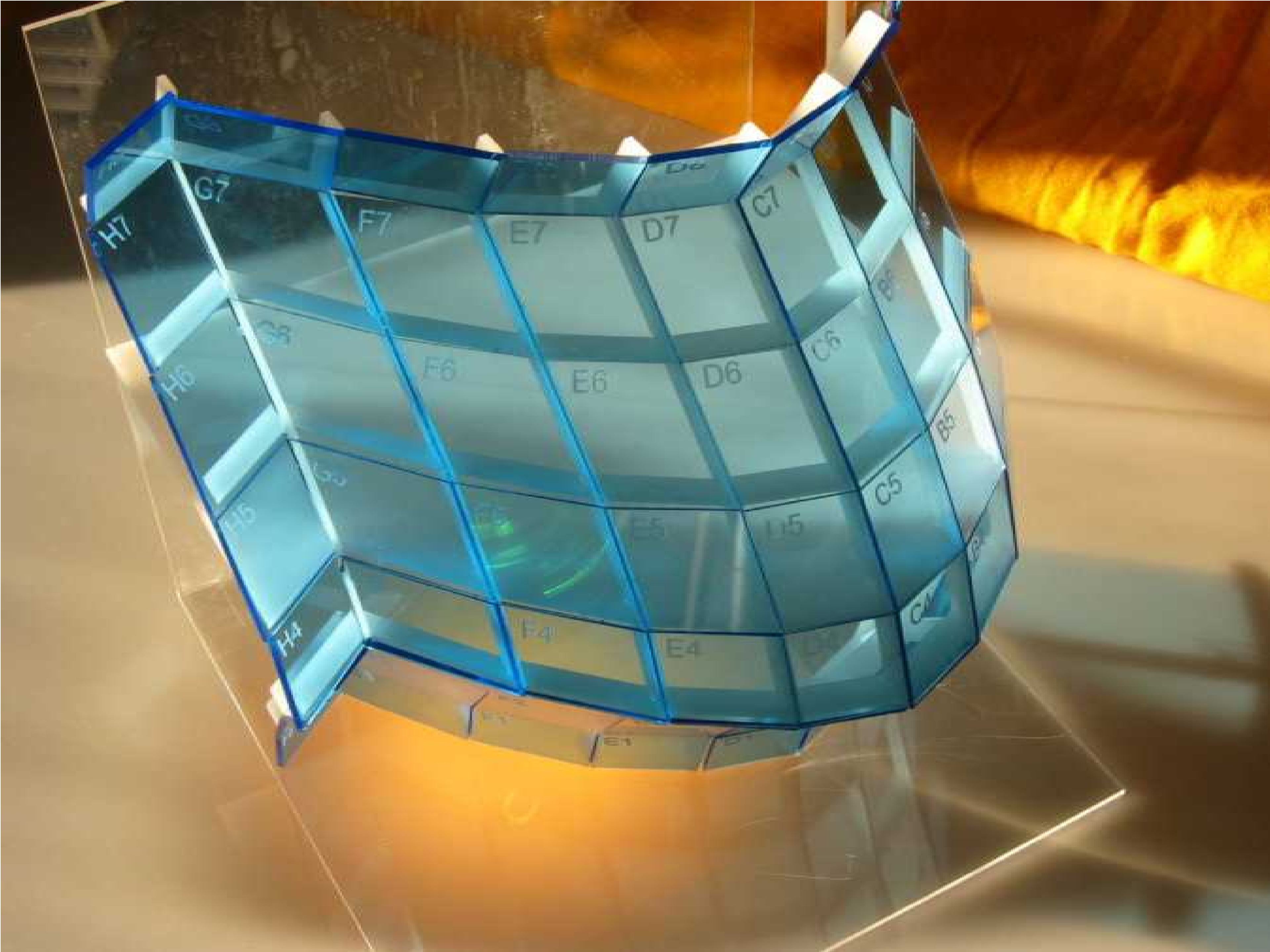

A8
B8
C8
B7
D7
E7
F7
H7
H1



C6
B6
B5
C5
A4
B4
C4
D4
A3
E2

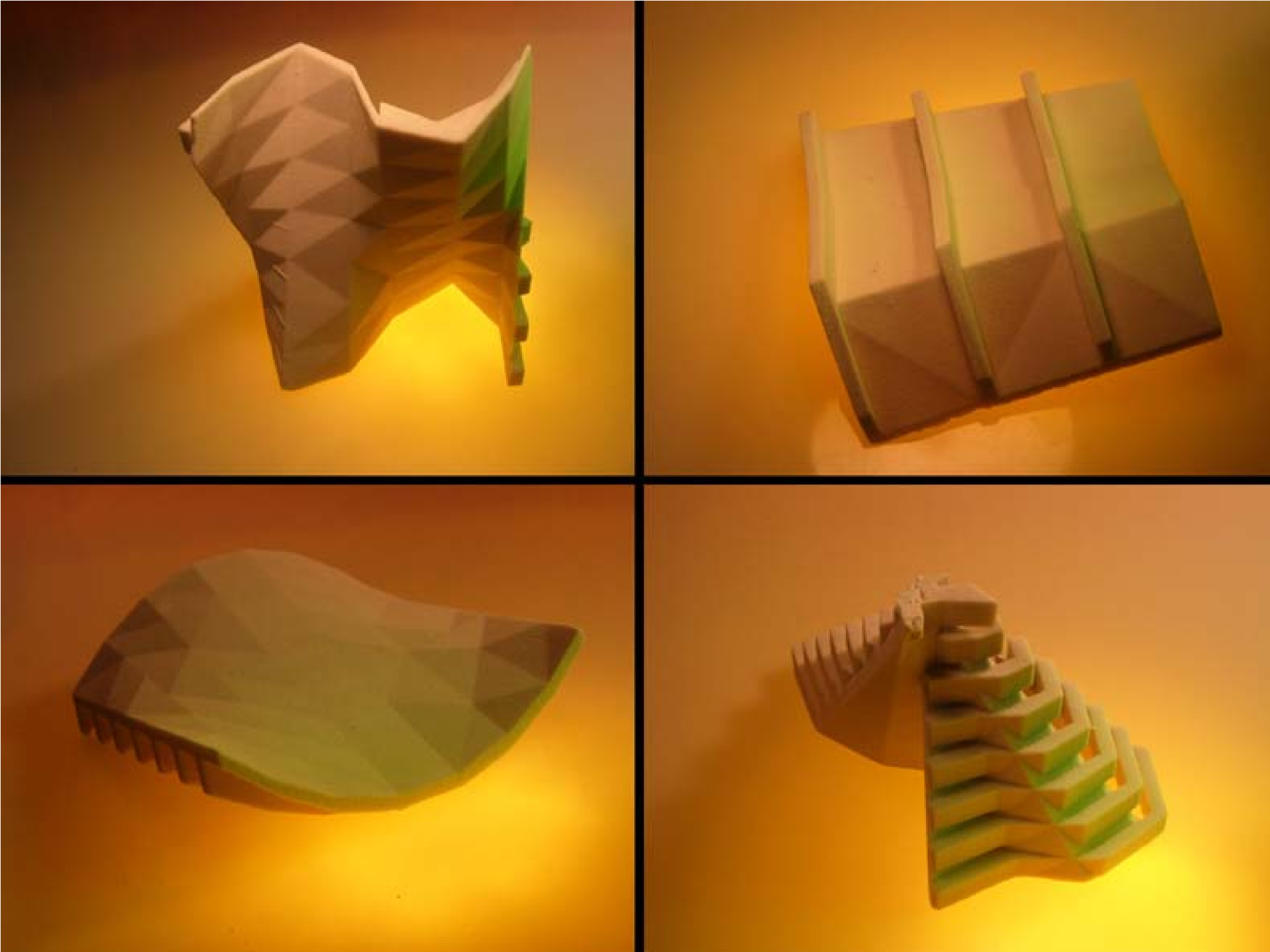

D8
E5
D5
F4
E4
D4
G4
B4
C3
F2
E2
H4
H3


H8
G8
E8
D7
C7
E7
F7
G7
B4
A4
A3
A2
A1



G7
H7
F7
E7
D7
C7
H6
F6
E6
D6
C6
B5
C5
H5
H4
F4
E4

surfaces
[generative fabrication]



rods
[generative fabrication]

3D Scanning

3D Digitizing

Modeling

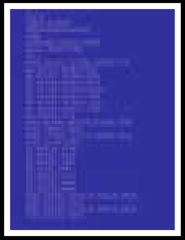
Parametric Modeling

Scripting

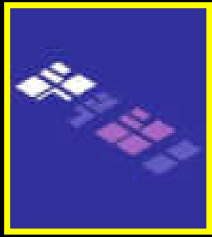
Computer Program

Fabrication

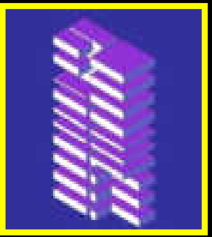
1 D - Text



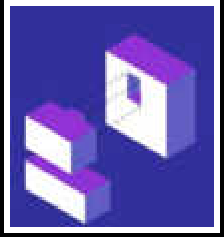
2D Cutting



3 D Printing



Assembly



[research issues]

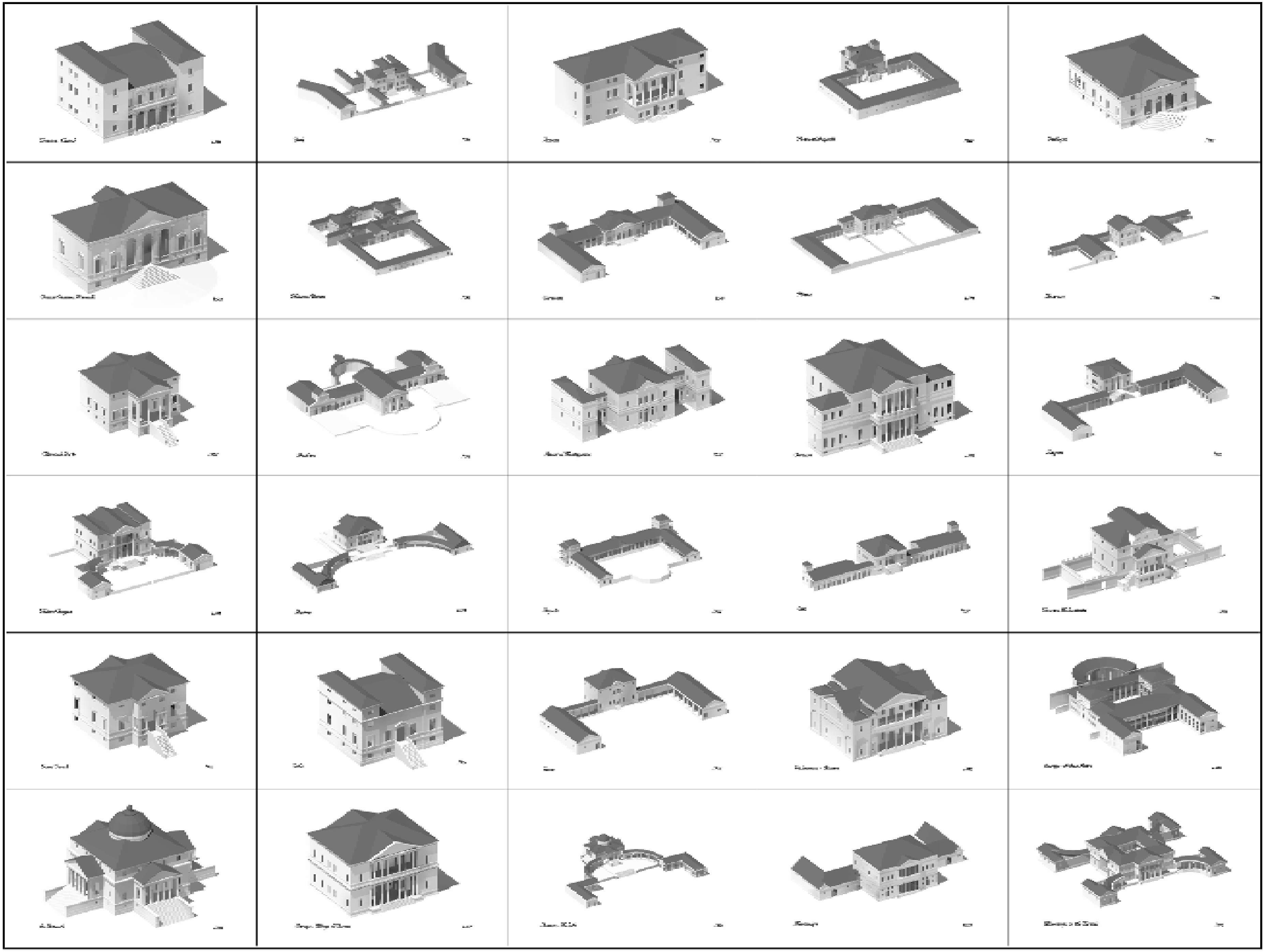
Scaling

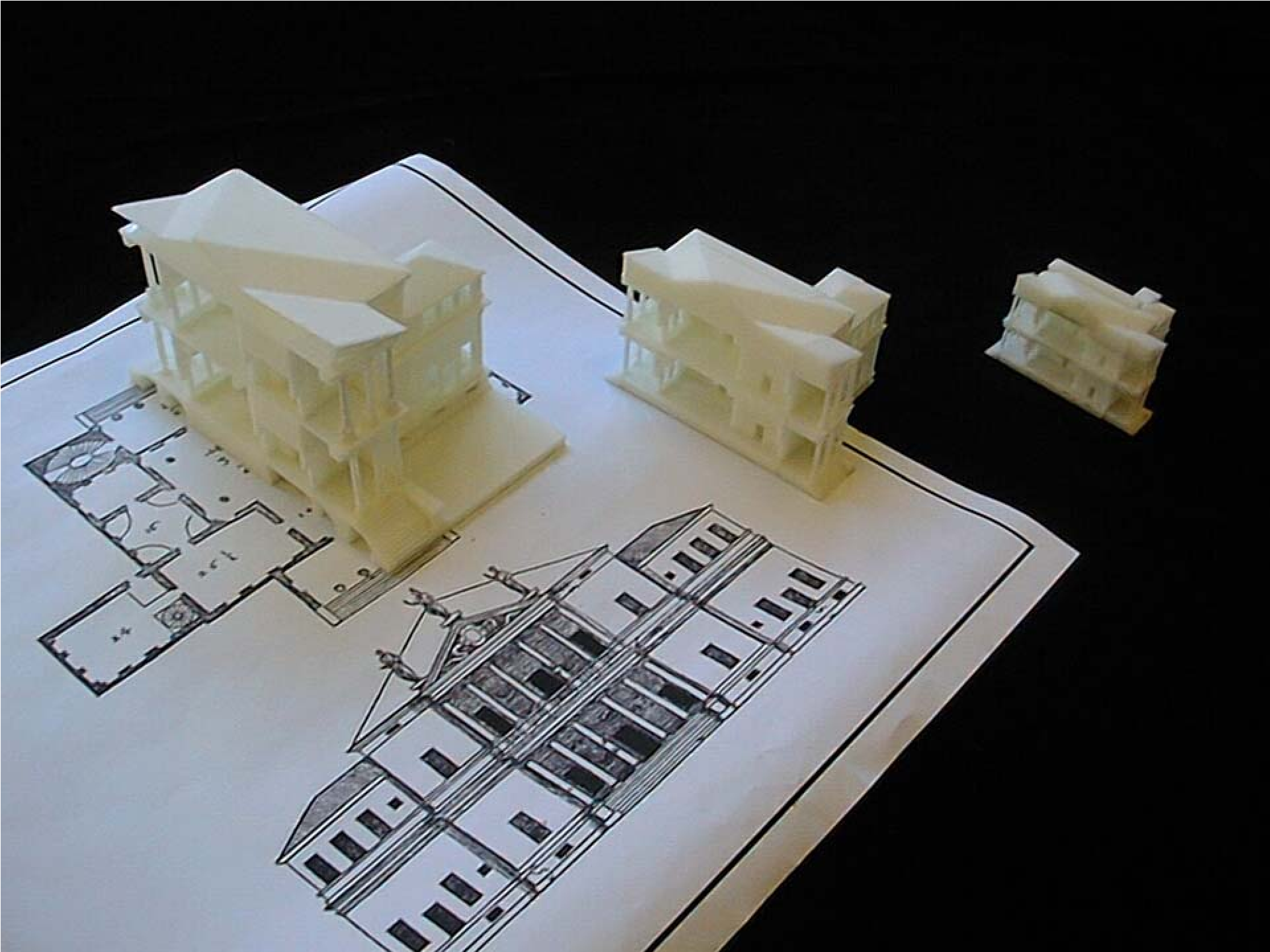
Materials Modeling

Machine Cycles

Low Level Precision

Assembly Methods





[research issues]

Scaling

Materials Modeling

Machine Cycles – Generative Methods

Low Level Precision – Legal Issue

Assembly Methods

[design]   [fabrication]