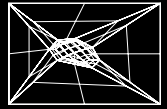
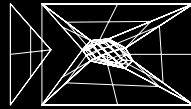
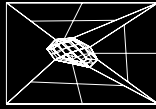
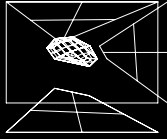


- generative rule for nesting- use seven edges of primitive object to dictate numeration of lofted surfaces

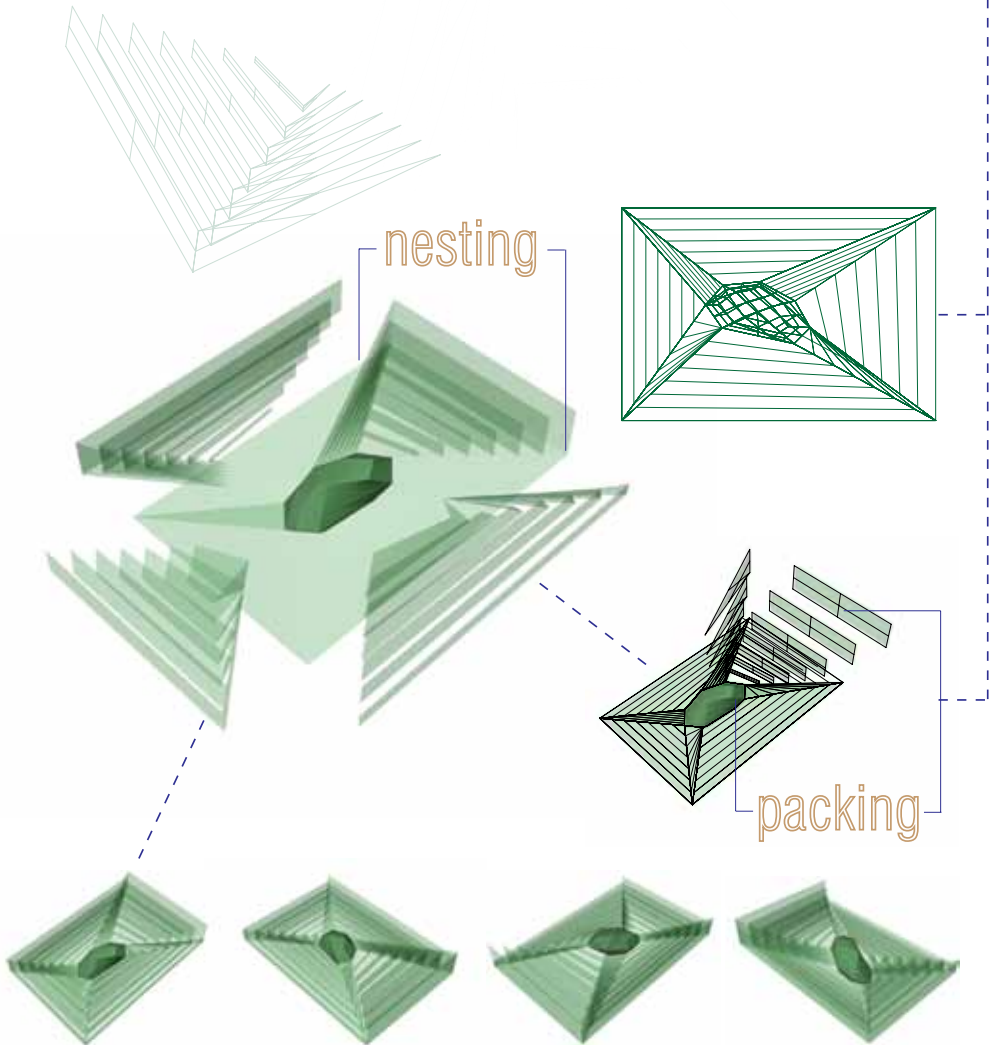
primitive



loft initiation

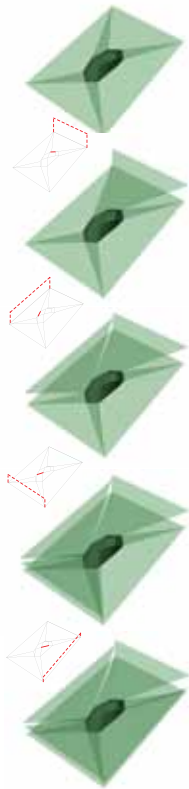
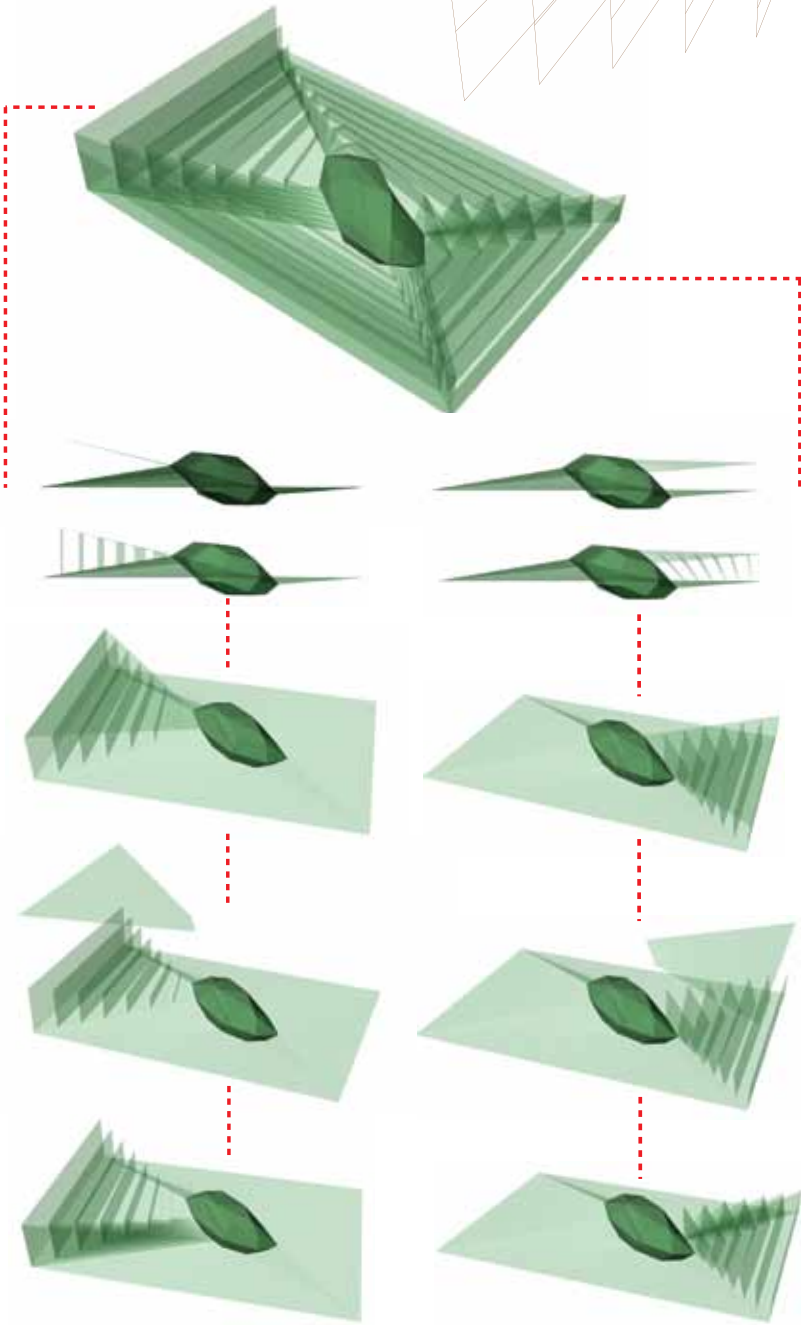
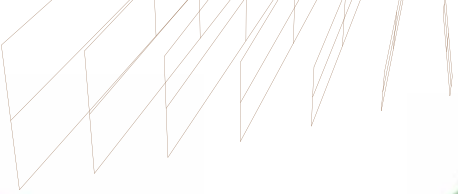


■ deployment of nesting on macro scale

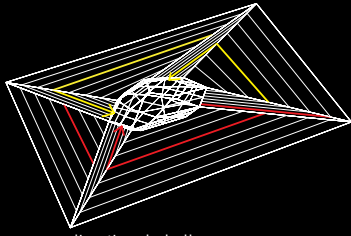


nesting/packing

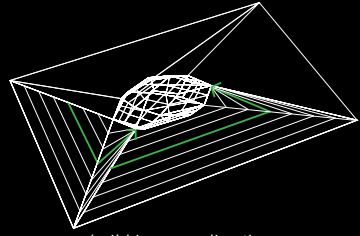
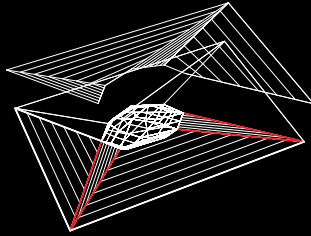
- repeat loft to boundaries from above primitive edge
- rebuild isoperms to seven on surface
- loft between isoperms on top and bottom surfaces



localized constructs



directional challenge

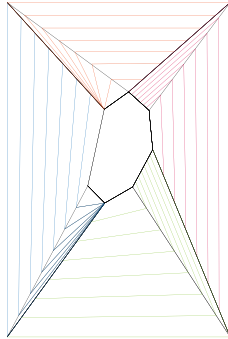
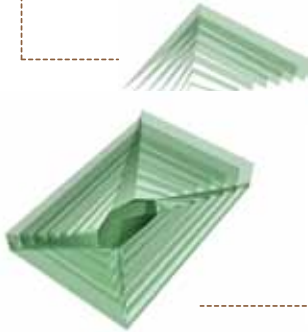


rebuild isoperm direction

7 surfaces

7 isoperms

7 sides

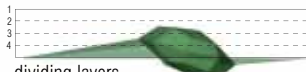
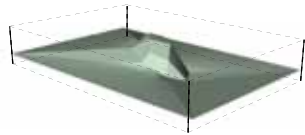


primary surfaces

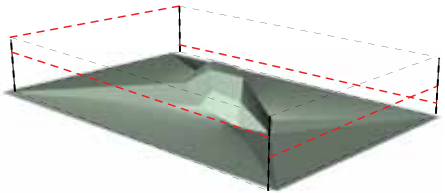
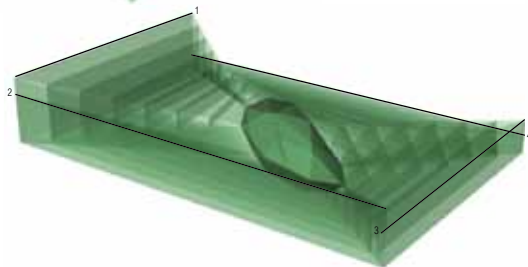
primary surfaces



bounding space



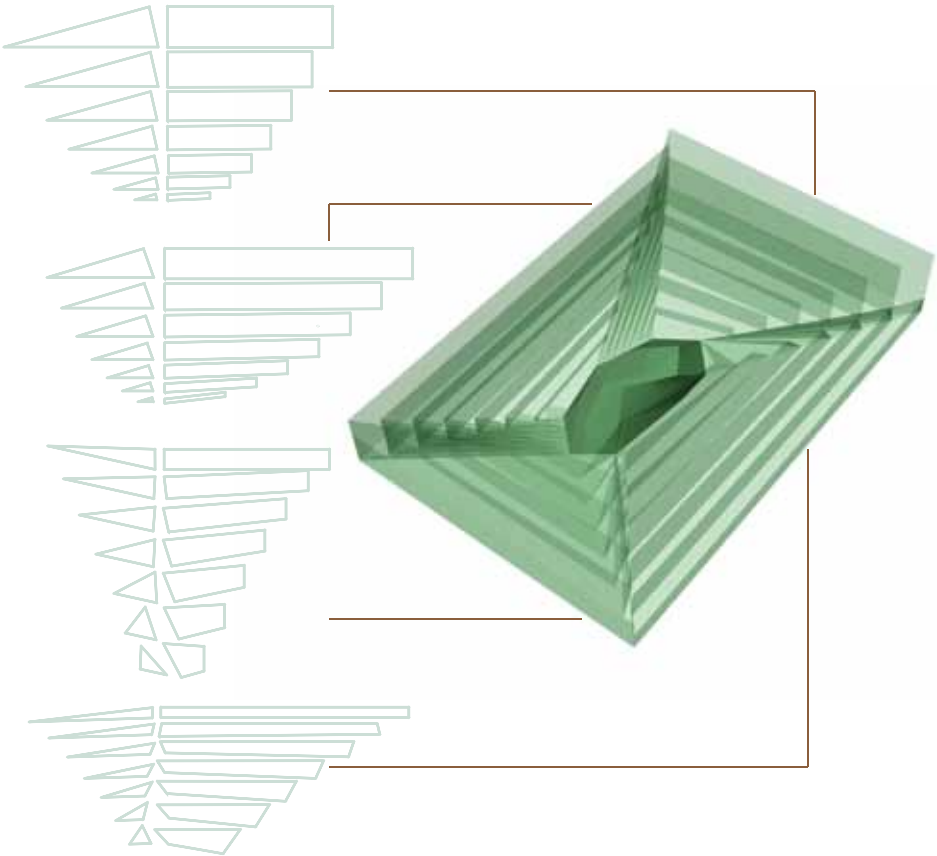
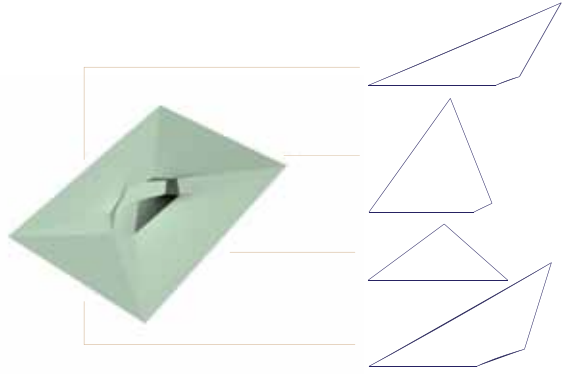
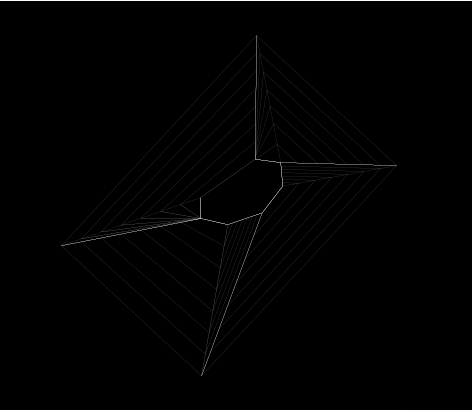
dividing layers

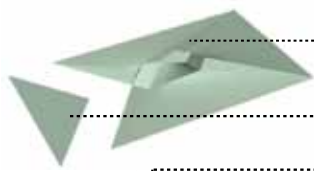


secondary surfaces

secondary surfaces

means of control



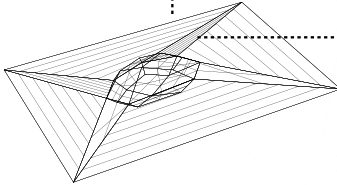


Select primitive surfaces to loft

Loft bottom **edge** of 3 primitive surfaces to facing boundary

Loft between large surfaces to create small surfaces

Loft 4th large surface

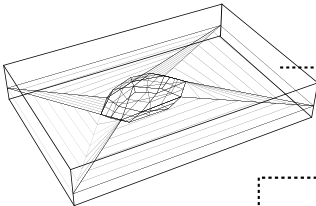


Rebuild large surfaces with 7 **isoperms** horizontally

Rebuild small surfaces with 7 isoperms

The isoperms on large surfaces must connect with the isoperms on small surface edges at least on surface edge.

If not, rebuild isoperm orientation so that they connect with adjacent isoperms



Create a **box** with the dimensions of the height of the primitive and length and width of the boundary

Move base of **box** with boundary edges

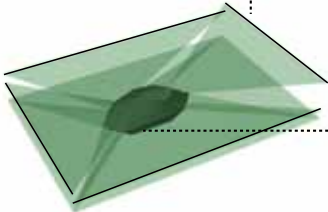
Divide **box** into 4 horizontally

In counter-clockwise direction <starting from highest primitive side> **loft** top **edge** of primitive surface to layer 1

Loft second primitive **edge** to layer 2

Loft third primitive **edge** to layer 3

Loft fourth primitive **edge** to layer 4



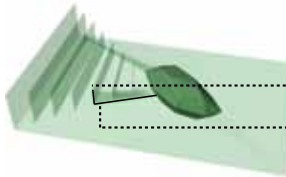
Rebuild new lofts with 7 **isoperms** horizontally

Make a vertical **loft** between equidistant isoperms of lower and higher large **surfaces**

Delete top lofted **surfaces**

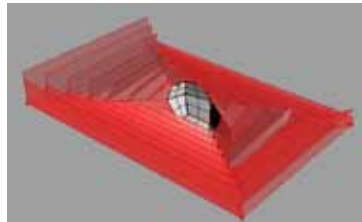
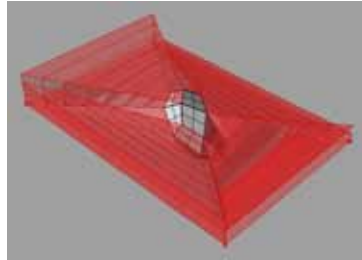
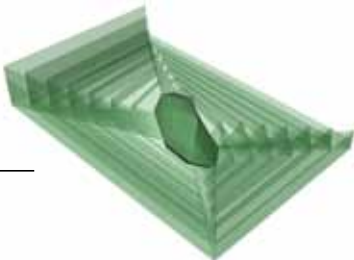
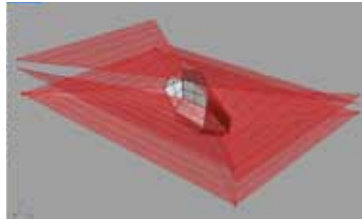
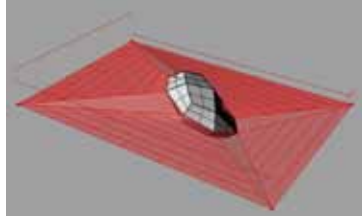
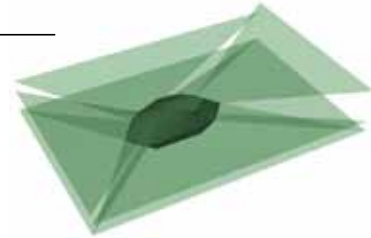
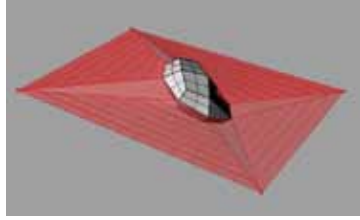
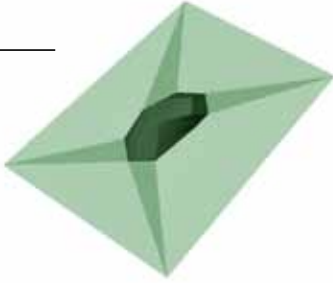
Loft one side of vertical surface edge to adjacent isoperm on small surfaces

Repeat **loft** of vertical surface edges to adjacent **isoperms** on base surface



Maya

Grasshopper



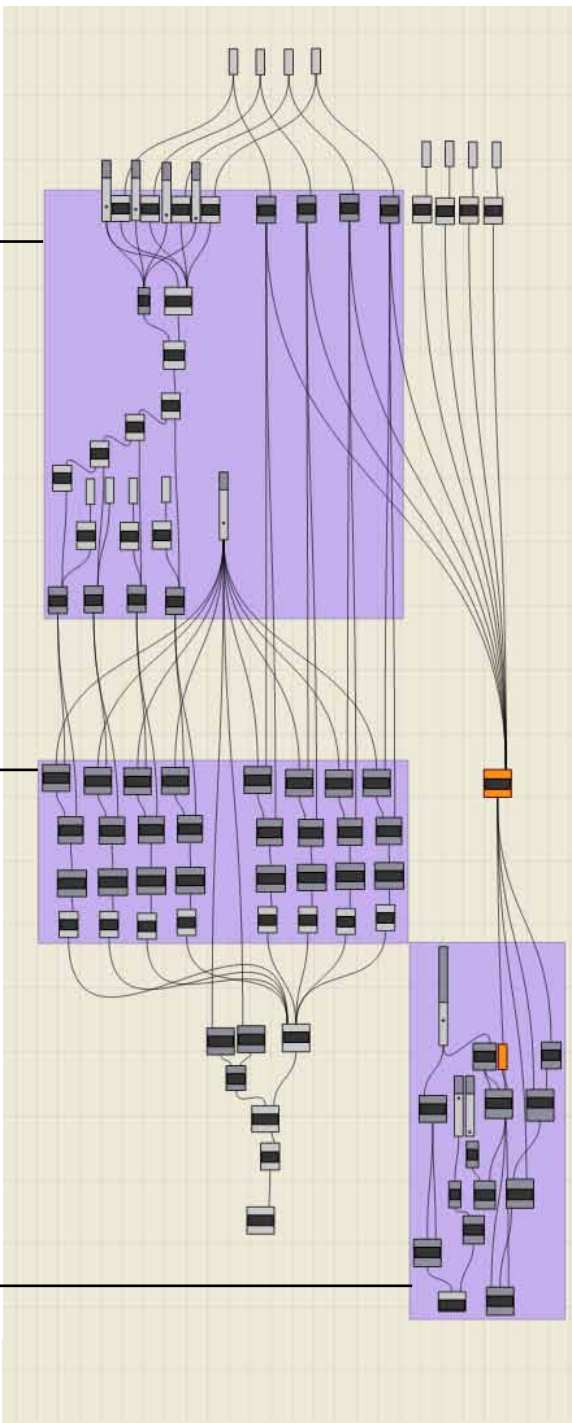
- comparison between maya digital construct and grasshopper digital construct
- maya - have to repeat commands and motion set off only after key framing
- grasshopper - ability to set off process with one slider and one move

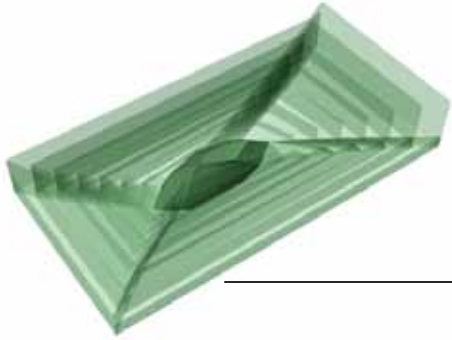
grasshopper coding

LOFT

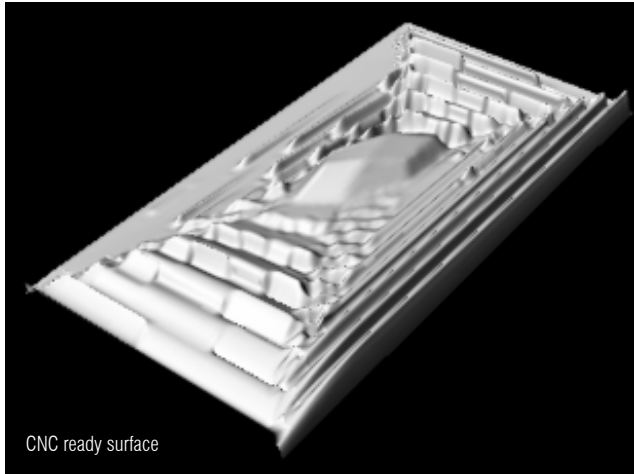
DIVIDE

UNROLL



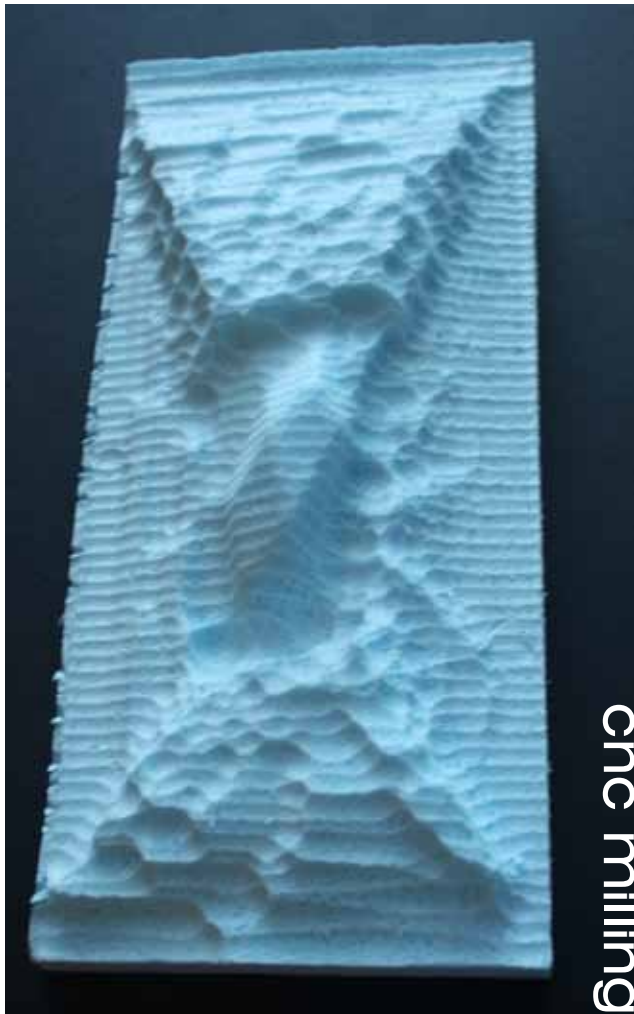


initial rhino model



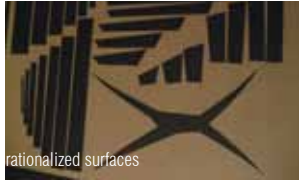
CNC ready surface

- material texture study
- rough and porous surface texture



cnc milling

- process
- rationalised surfaces



laser cutting

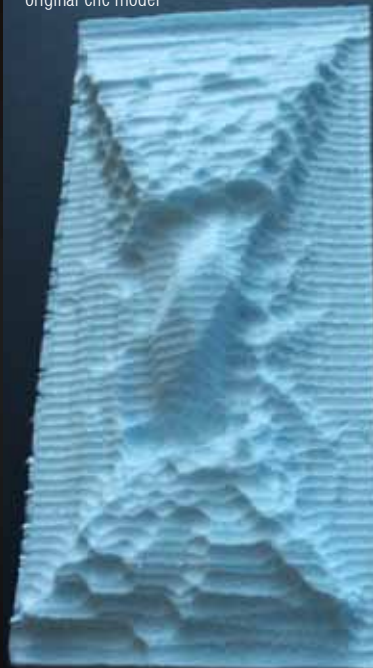


■ cnc modification using embedded textures as guides for cutting

vaccum formed model
smooth texture from acrylic material

modified and primed cnc model

original cnc model



Vacuum forming

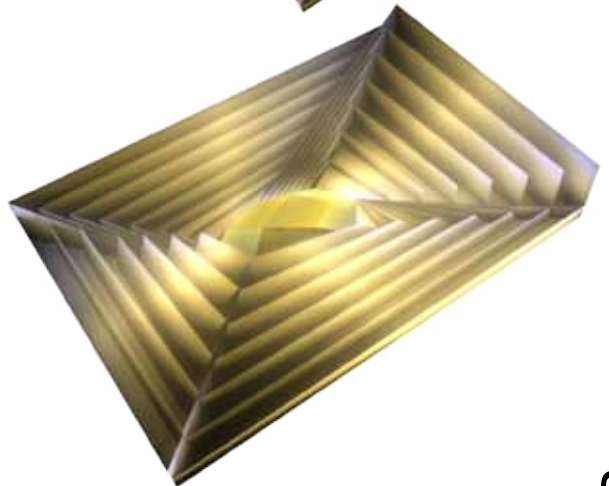
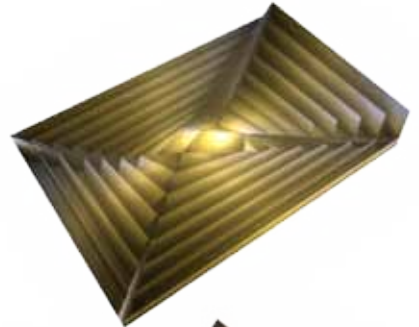
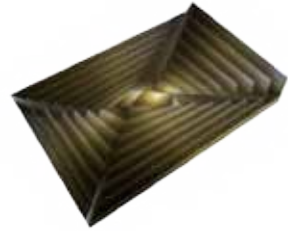
■ original models



■ no material image based lighting



■ with material image based lighting



ibl rendering



photo composite 1

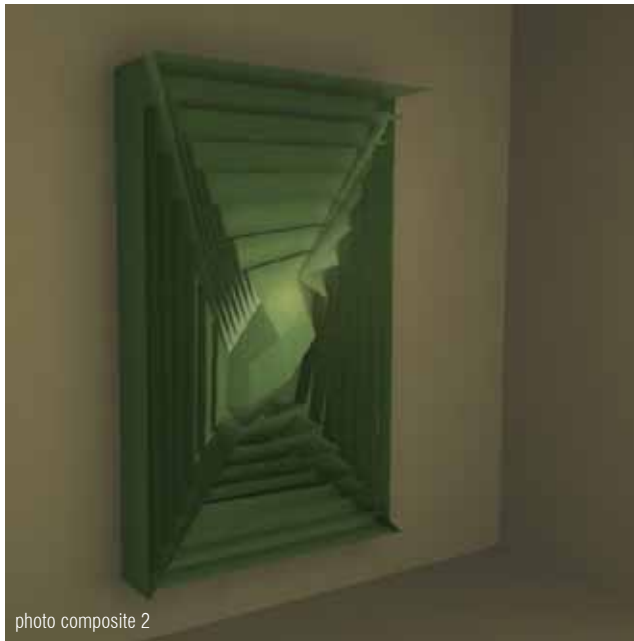
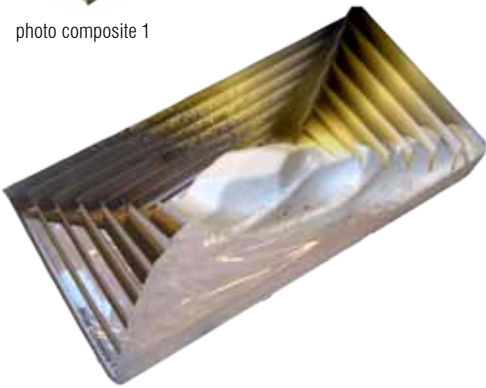


photo composite 2

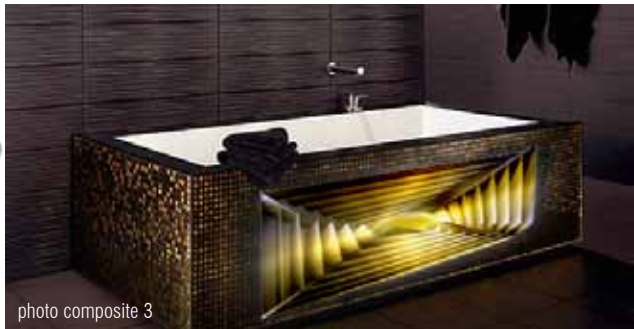


photo composite 3



photo composite 5



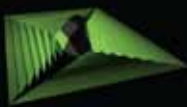
photo composite 4

photo composite

GENERATIVE PROCESS

folding and creasing.....
layering.....
outward movement.....

a. inspirational model



b. thought process



.....shatter generation



.....surface deployment

c. generating points

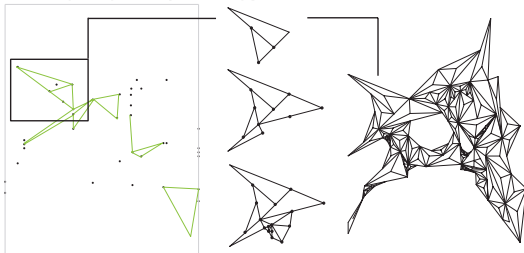
vertical and horizontal elements.....



start and end points of vertical
and horizontal lines.....



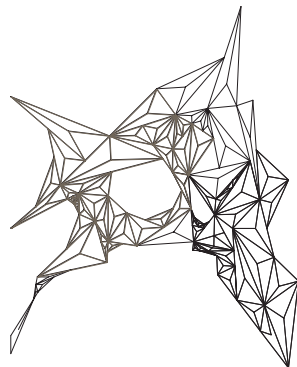
d. creating triangulated spaces using points



connecting one dot to the two closest
dots to generate triangular shapes

populated and connected between shapes
using midpoints and endpoints of surfaces

e. layering and zoning of triangulated spaces

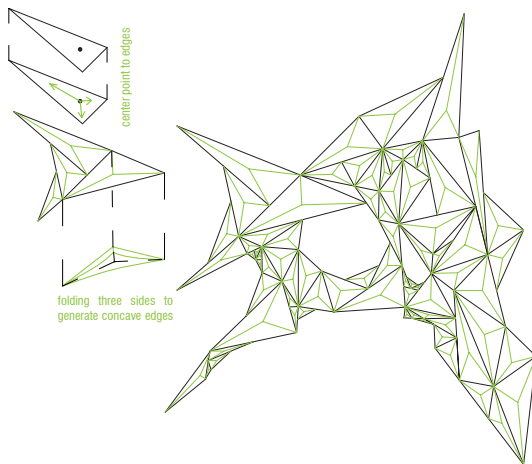


acylic top layer.....

nylar middle layer.....

black bottom layer.....

g. generating folds



center point to edges

folding three sides to
generate concave edges

generative process

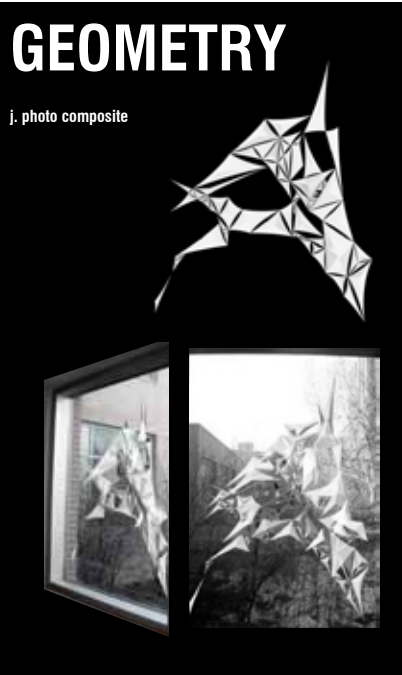
RATIONALIZED GEOMETRY

PHYSICAL CONSTRUCT

h. phylogram and assembly logic



j. photo composite



k. model to material



i. material folding

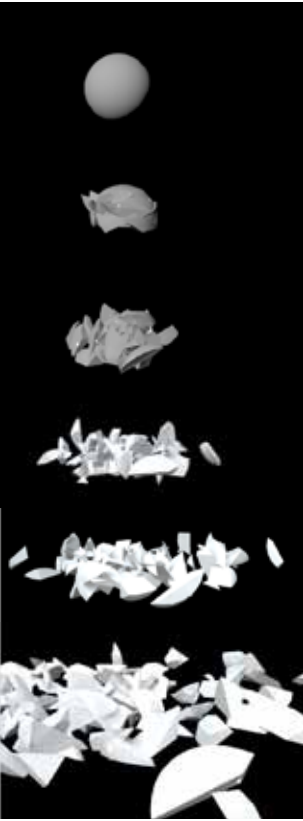


l. animation

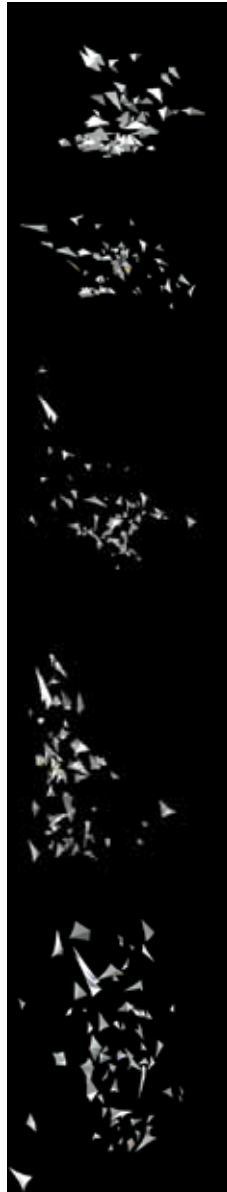
ball shattering on floor
 pieces moving onto window surface
 population of smaller pieces



rationalized geometry



stage 1
shatter generation



stage 2
pieces on window



stage 3
populating on surface



stage 4
breathing effect on touch