CONTOURING
VAULTED CORK PAVILION
AZAMBUJA VARELA, DE OLIVEIRA, NOVO.

Agustina Pascotto

Source: http://www.archdaily.com/455127/vaulted-cork-pavillion-pedro-de-azambujavrelamaria-joao-de-oliveira-emmanuelnovo/

Vaulted Cork Pavilion

Project OUTLINE

Project Architect / Artist: Azambuja Varela, Oliveira, Novo.
Location: Porto, Portugal.

Investor: Amorim Isolamentos S.A.

Function: Pavilion

Construction Year: 2013

Dimmensions: 12 m x 6 m area.

Construction Team: -

Materials Used: Expanded cork agglomerate, MDF board, Strips of grass, Liquid polyester resin and Bottle glass powder.

Budget: sponsored by Amorim Isolamentos.

Major Fabrication Method Used: Contouring

Secondary Fabrication Methods: -

Fabricated By: CNC 3 Axis Milling Machine

Type Of Construction: -

Modelling Software: Rhino + Grasshopper

Vaulted Cork Pavilion

Project DESCRIPTION

With an available area of 12x6m, the program required an interior space to pro-vide an acoustic insulation experience, a bench area for sitting and showcase of material samples, a visual display area, and, like in the Pavilions of past editions, it had to be extensively made out of cork.
The intention of the project was to explore the polyvalent structural and material possibilities of cork:
1) The possibility to span vaults with cork alone.
2) A compound translucent cork material
3) A system for radiation and acoustic optimization.
• inter-relation between inner and outer space
• promoting dynamic fluxes and circulation all around the construction.
• Outside circulation and rest areas.
• Inside a tunnel like space that has a continuous bench and an exhibition space.

All this was formalized as a monolitic shape that grows from the floor creating a smooth transition between the floor and vaulted roof.

Source: F. Madeo and M. A. Schnabel (eds.), Across: Architectural Research through to Practice: 48th International Conference of the Architectural Science Association 2014, pp. 395–404. © 2014, The Architectural Science Association & Genova University Press.

Source: http://www.archdaily.com/455127/vaulted-cork-pavillion-pedro-de-azambuja-vrelamaria-joao-de-oliveira-emmanuelnovo/

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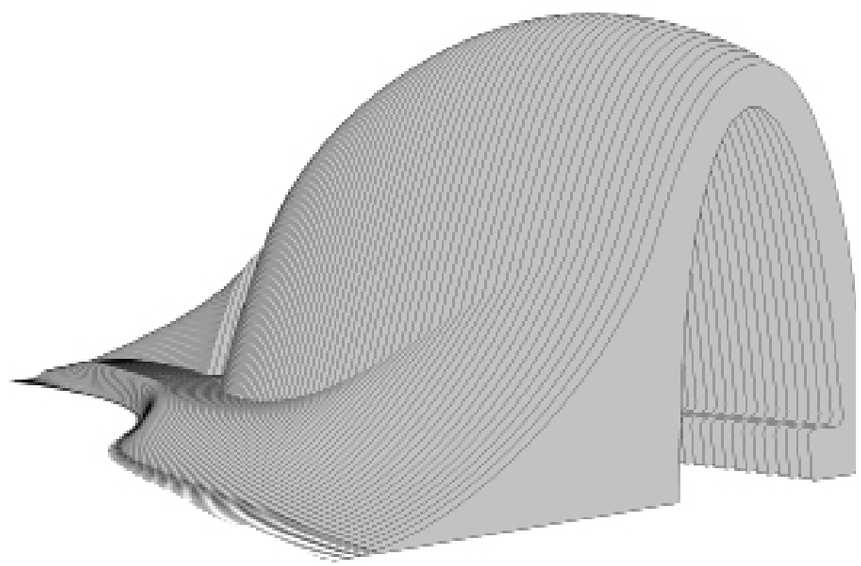
Vaulted Cork Pavilion

Project FABRICATION

1.ALGORITHMIC DESIGN
Platform: Rhinoceros/Grasshopper
Modelling:
A) SHAPE - Each section curve was programmed individually after a catenary. Thus, 120 catenary curves were parametrically generated from anchor points and curve length parameters.
B) SITTING AREA - It solves the smooth transition between the exterior floor space and the shell rising structure. Its depth and angle varies along the structure while getting blended with the floor and arch lines guaranteeing the tangential continuity along the pavilion.
C) TUNNEL - the (inner) thickness of the vault was designed by creating a second set of catenary curves with different parametrically variable assets such as an inner bench or a ramp.

2. FABRICATION
• CorkVault
Machine: CNC 3 Axis Milling Machine The 100mm thick (X axis) arches were subdivided (YZ plane) in a stereotomic fashion, following the normal direction to the catenary (YZ plane) in each joint.
The fabrication consisted of five passes for the contour cutting, and one pass for the labelling.
OPTIMIZING TIME
“given that milling 3D surfaces take much more time than cutting contours, of liquid polyester resin and bottle glass powder. After filling the mould with this mixture, the cork granules were poured with the

Source: F. Madeo and M. A. Schnabel (eds.), Across: Architectural Research through to Practice: 48th International Conference of the Architectural Science



Source: http://www.archdaily.com/455127/vaulted-cork-pavillion-pedro-de -azambujavrelamaria-joao-de-oliveira-emmanuelnovo/

Vaulted Cork Pavilion

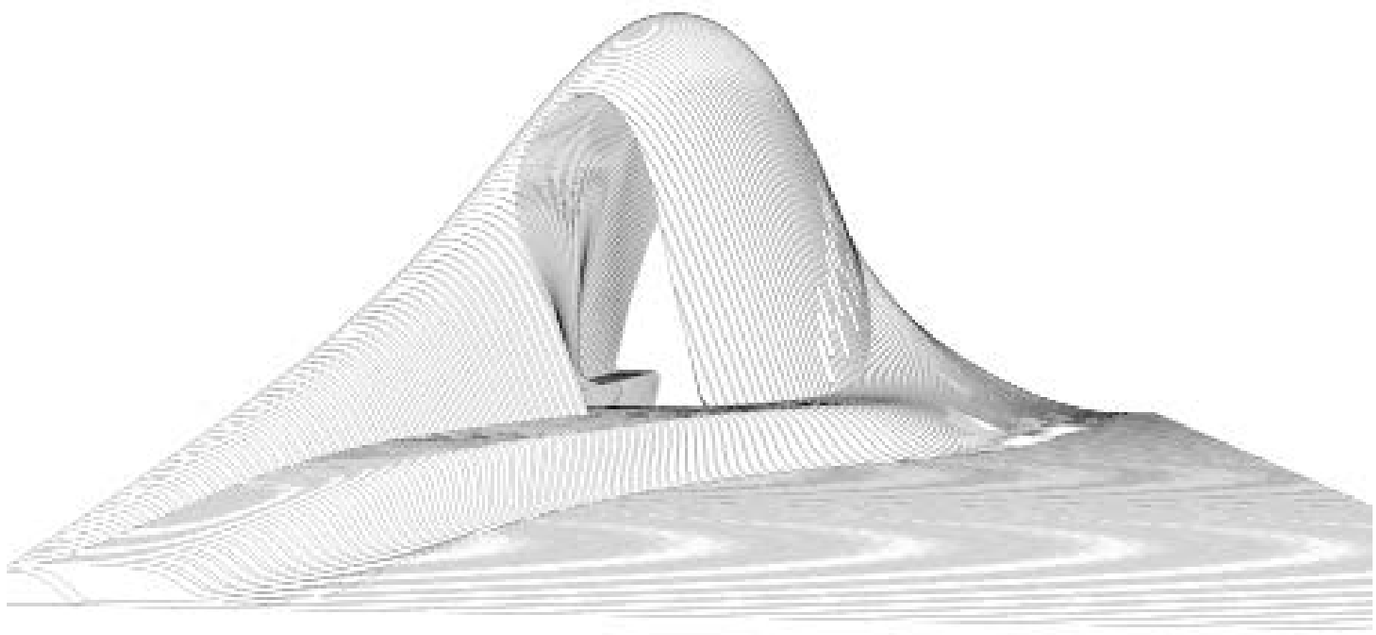
Project FABRICATION

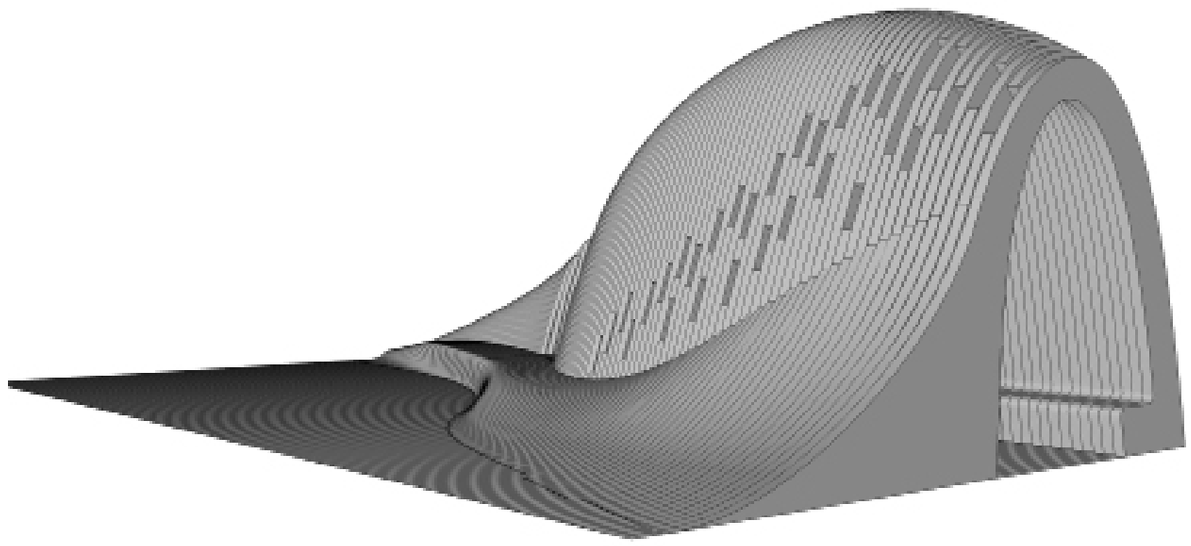
TransCork Printer Plugin.
• Cork’EWS
Fabricated separately from the main structure as the axis movement directions were not compatible.
10cm thick.

3. PRE ASSEMBLY
In the factory. Modules of three arches were fixed together so that construction time could fit in the three days in the fair. Two trucks transported these preassembled modules.

4.IN-SITE FINAL ASSEMBLY
In the site, a base structure in MDF was built to serve as a base.
ARCHES Once laid out, the construction of the Pavilion proceeded, quickly giving rise to the full cork vault.
FLOOR
The floor pavement was laid on site by employing pre-cut floor boards with 1000x100x20mm size.
Some empty spaces were left to be filled with the strips of grass.

TIME OF FABRICATION
FABRICATION PROCESS:
About 125 cutting hours, during 8 days.
ASSEMBLY PROCESS:
3 days.





Source: http://www.archdaily.com/455127/vaulted-cork-pavillion-pedro-de -azambujavrelamaria-joao-de-oliveira-emmanuelnovo/

Vaulted Cork Pavilion

Project MATERIALS

3 TYPES
• CorkVault - the possibility to span vaults with cork alone;
• TransCork - a compound translucent cork material;
• Cork'EWS - a system for radiation and acoustic optimisation

What is an Expanded Cork Agglomerate?
Better known as insulation cork board..Cork is the bark of the cork oak, which means that it is 100% natural plant tissue.
Results from an agglomeration process through heated vapour, where the granules are bond together inside an autoclave.

KEY CHARACTERISTICS
- Very Light
- Elastic and Compressible
- Impermeable to liquids and gases
- Thermal and acoustic insulator
- Fire retardant
- Highly abrasion resistant
- Hypolergenic
- Natural soft texture
- This product is produced in a big block format

General Thickness: 10cm

Source: http://www.archdaily.com/455127/vaulted-cork-pavillion-pedro-de-azambujavrelamaria-joao-de-oliveira-emmanuelnovo/

Vaulted Cork Pavilion

Project MATERIALS

Vaulted Cork Pavilion

Project MACHINE / SOFTWARE

The machine used for the fabrication is a CNC (Computer Numerical Control) Milling machine, 3 axis.

Milling is a cutting process that uses a milling cutter to remove material from the surface of a workpiece. The milling cutter is a rotarycutting tool, often with multiple cutting points. As opposed to drilling, where the tool is advanced along its rotation axis, the cutter in milling is usually moved perpendicular to its axis so that cutting occurs on the circumference of the cutter.

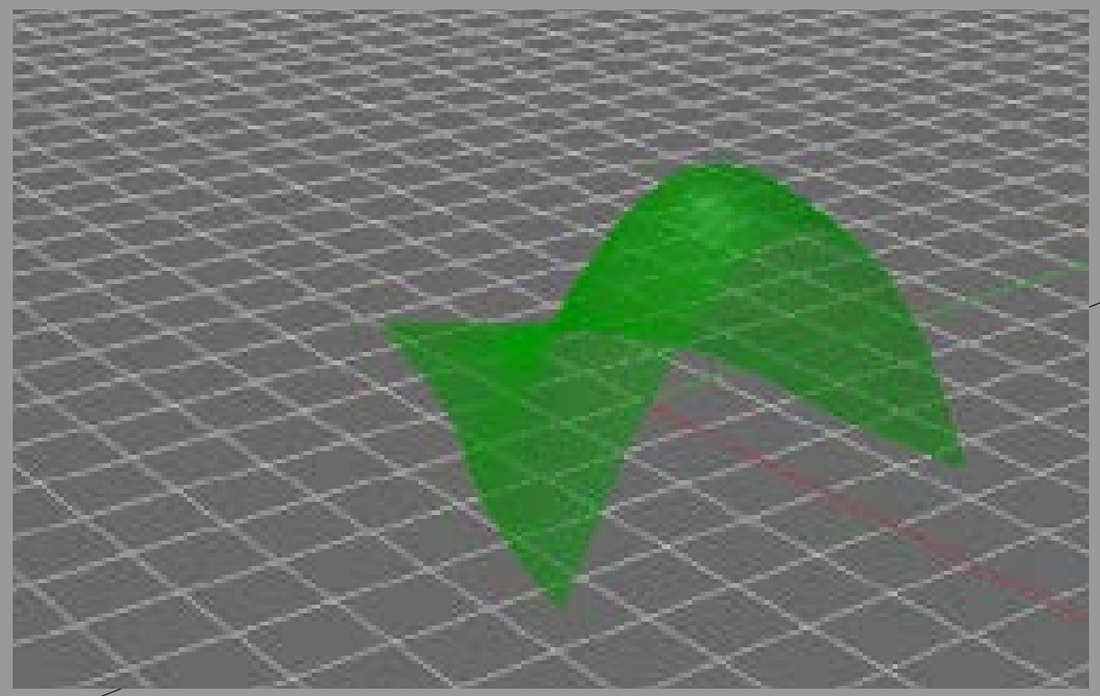
When someone uses the term “3-axis” they are typically referring to the ability of a CNC machine to move a part or a tool on three different axes at the same time. 3-axis machining centers move a part in two directions (X and Y), and the tool moves up and down (Z). 3 Axis finishing operations include parallel slice cut, constant stepover, Z-level, curve project, and others.

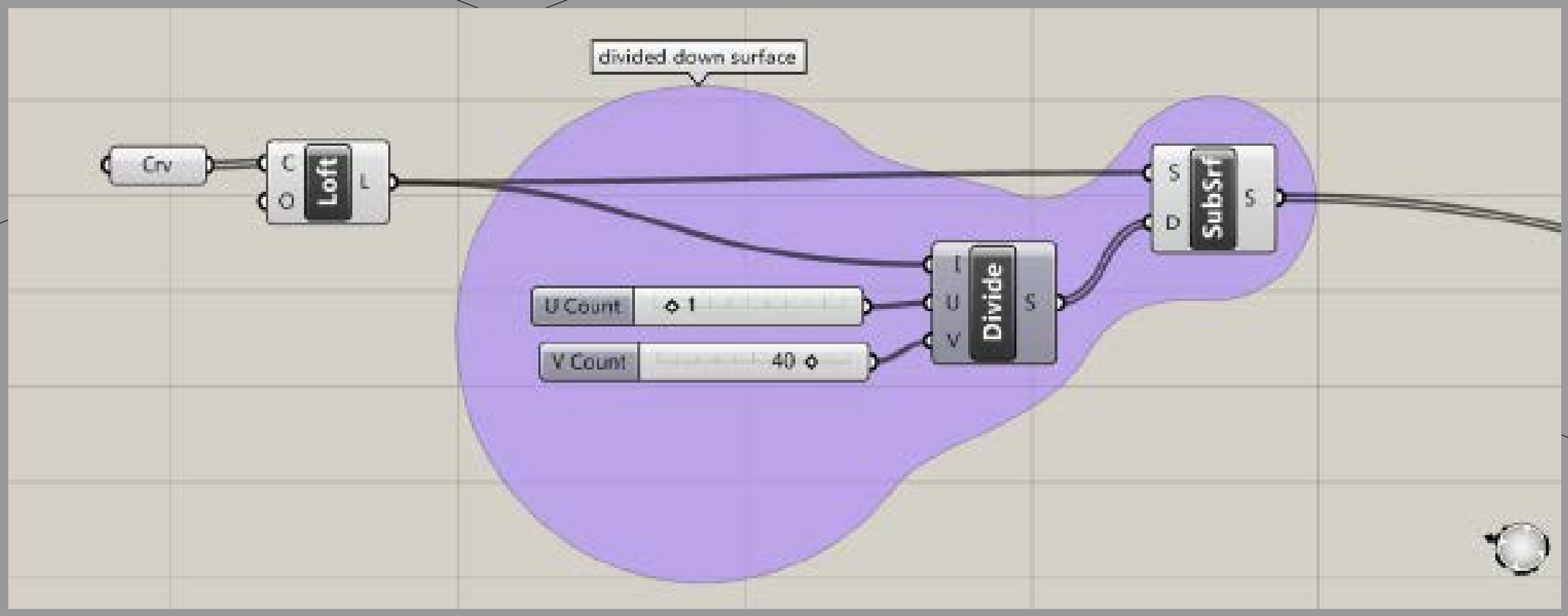
The algorithmic design was produced using Rhinoceros and Grasshopper.

3 Axis CNC milling machine

Vaulted Cork Pavilion

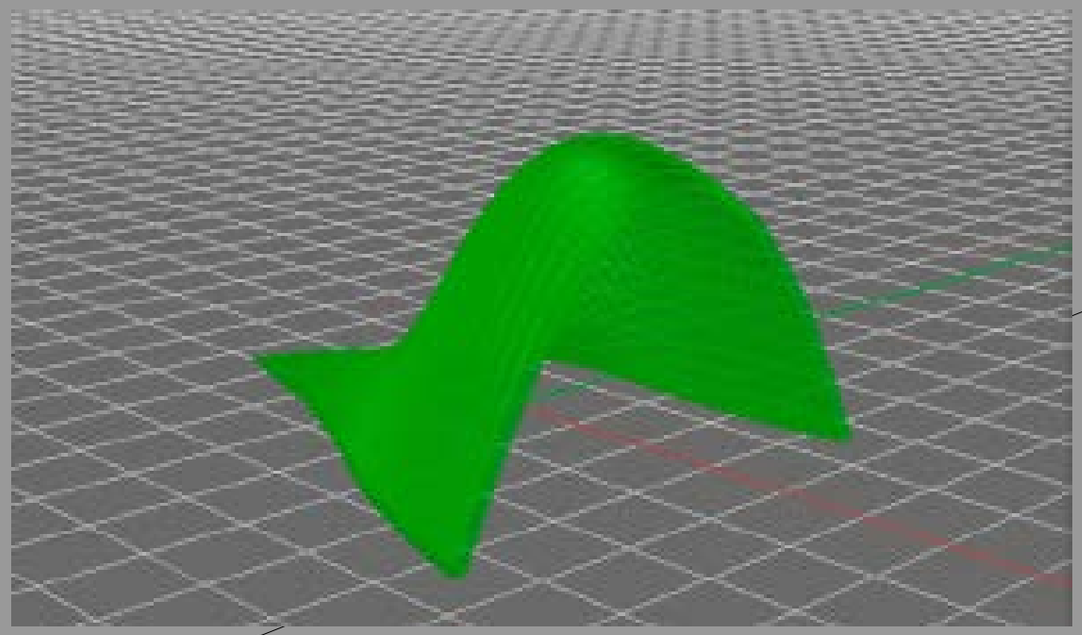
GRASSHOPPER
Modelling

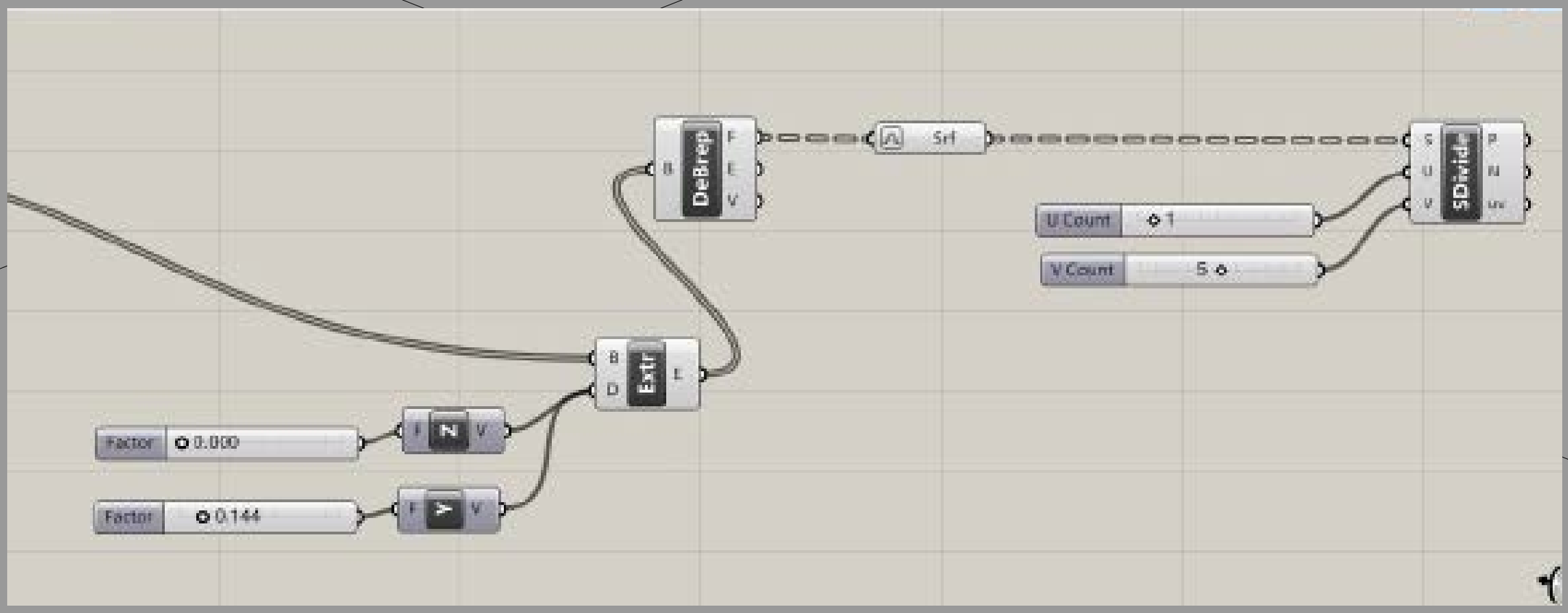




Vaulted Cork Pavilion

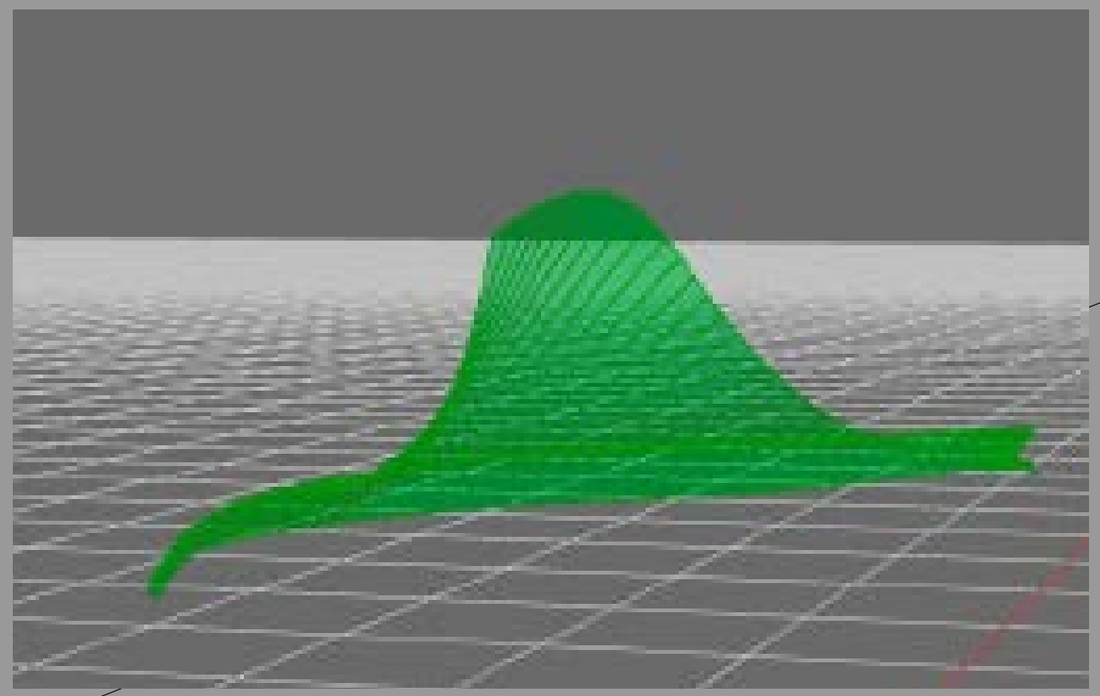
GRASSHOPPER
Modelling

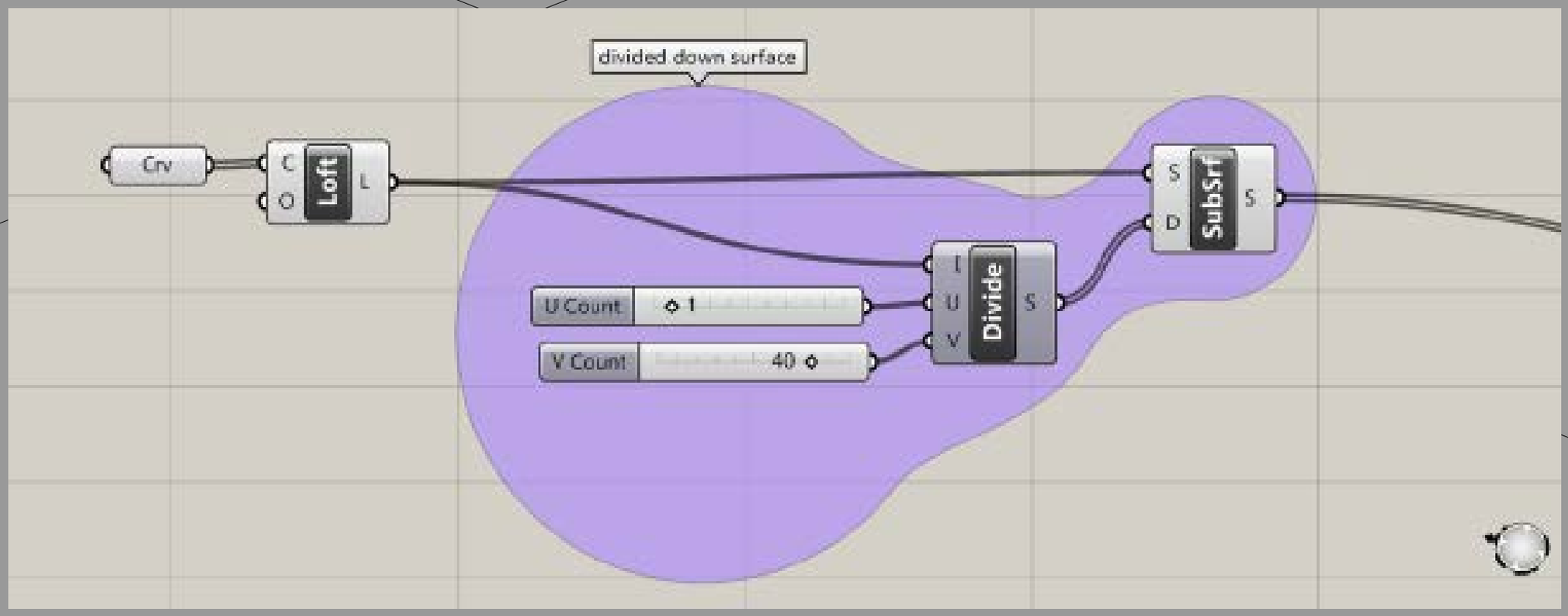




Vaulted Cork Pavilion

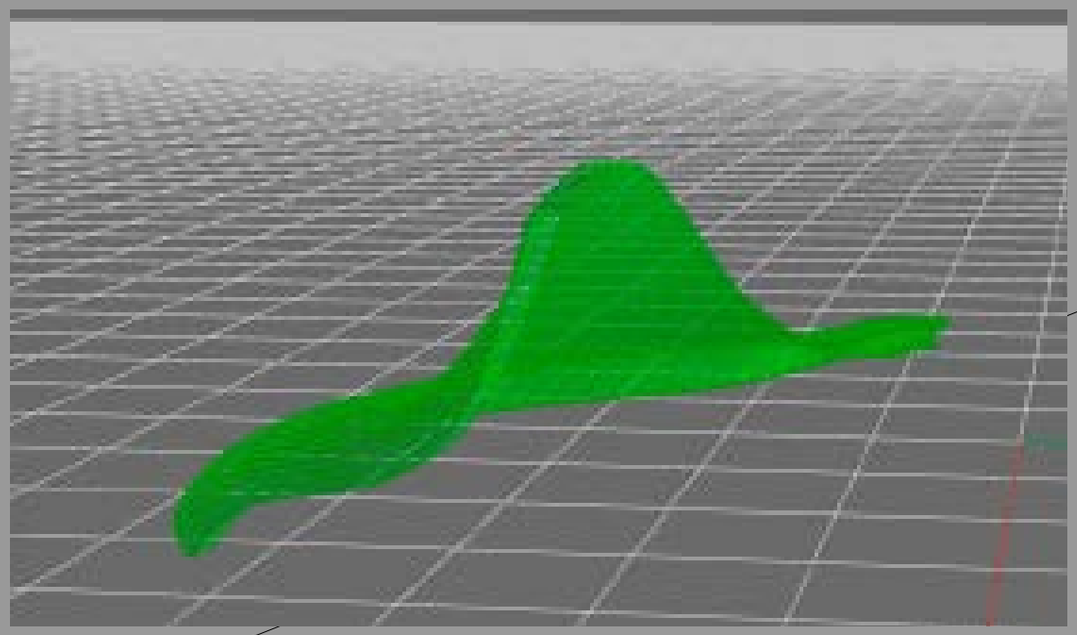
GRASSHOPPER
Modelling

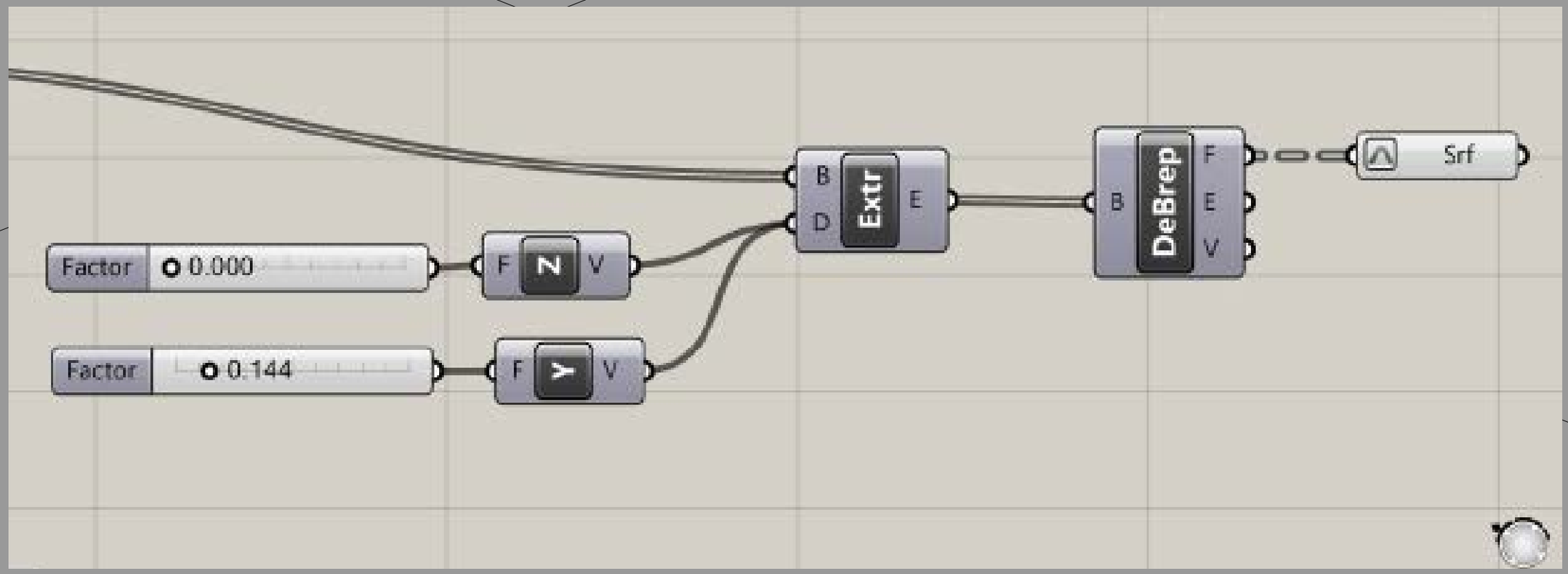




Vaulted Cork Pavilion

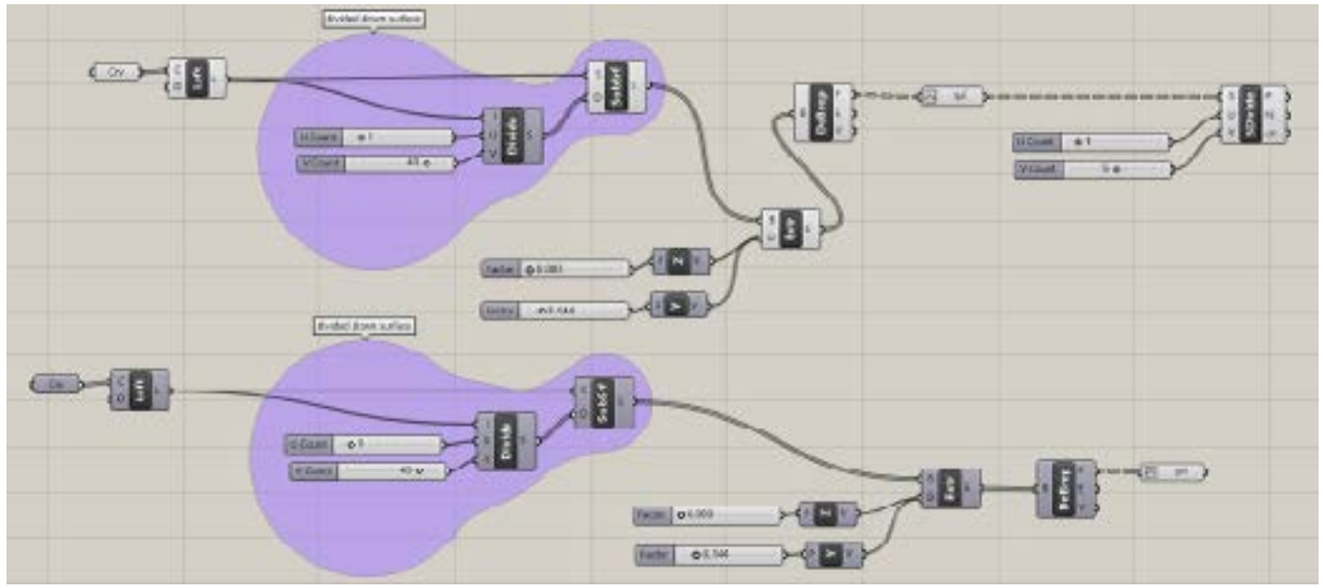
GRASSHOPPER
Modelling

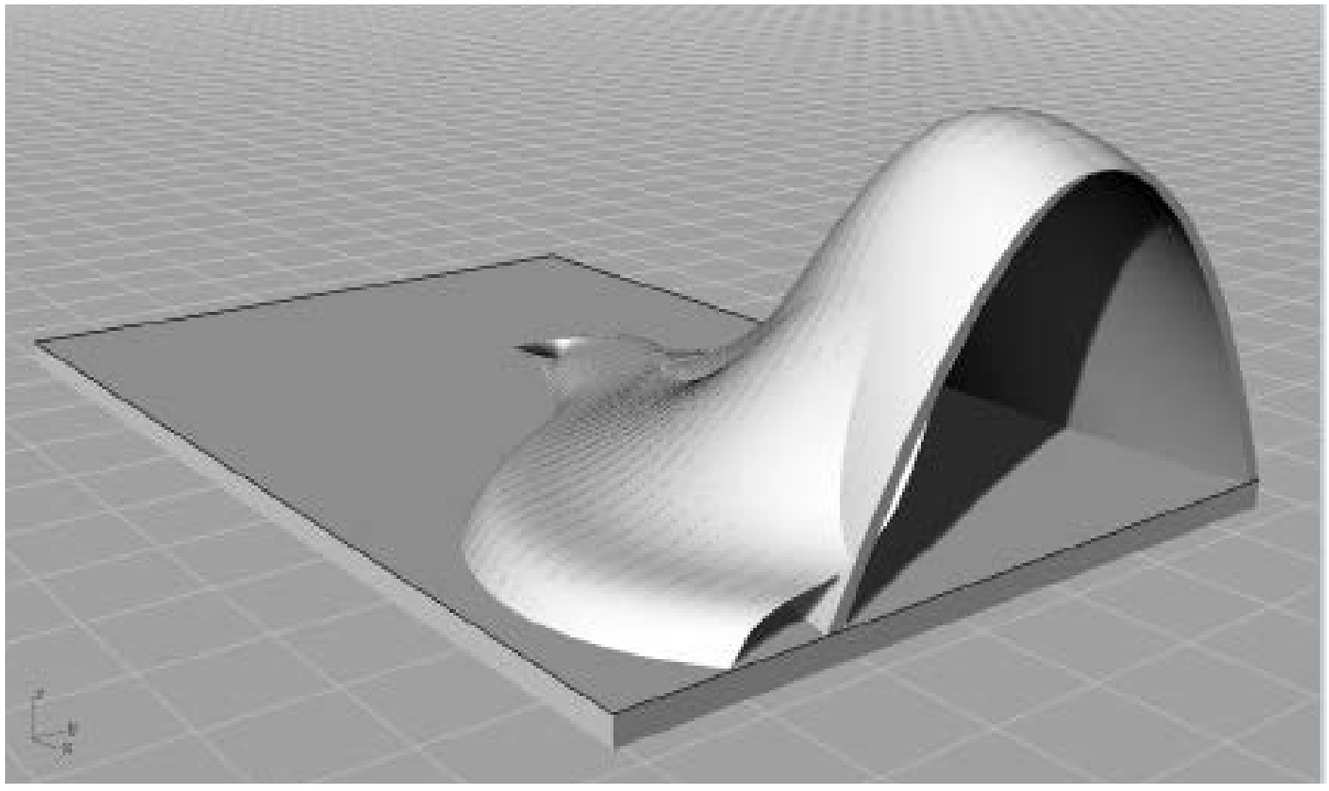




Vaulted Cork Pavilion

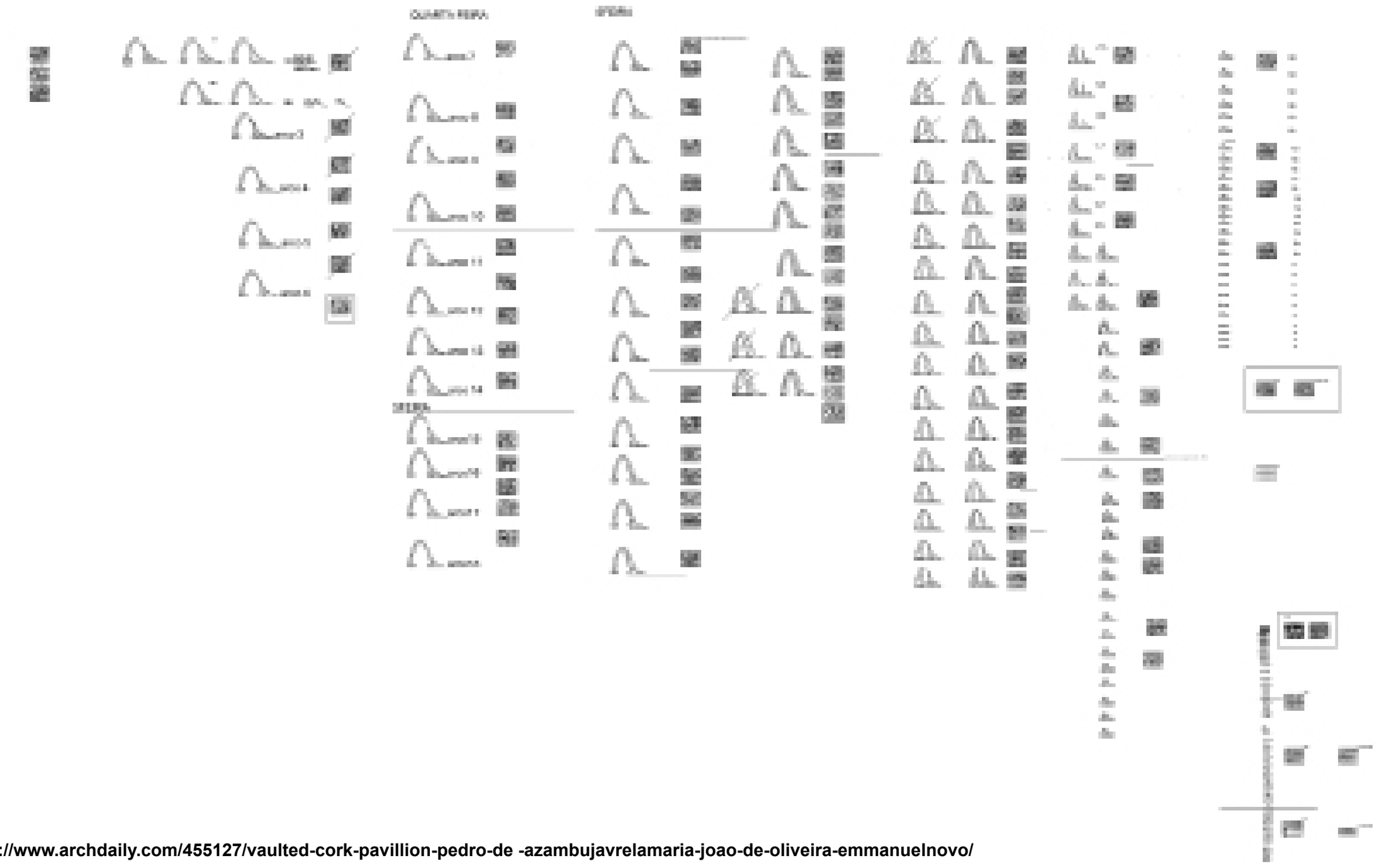
GRASSHOPPER
Fabrication Definition





Vaulted Cork Pavilion

FABRICATION
Individual elements



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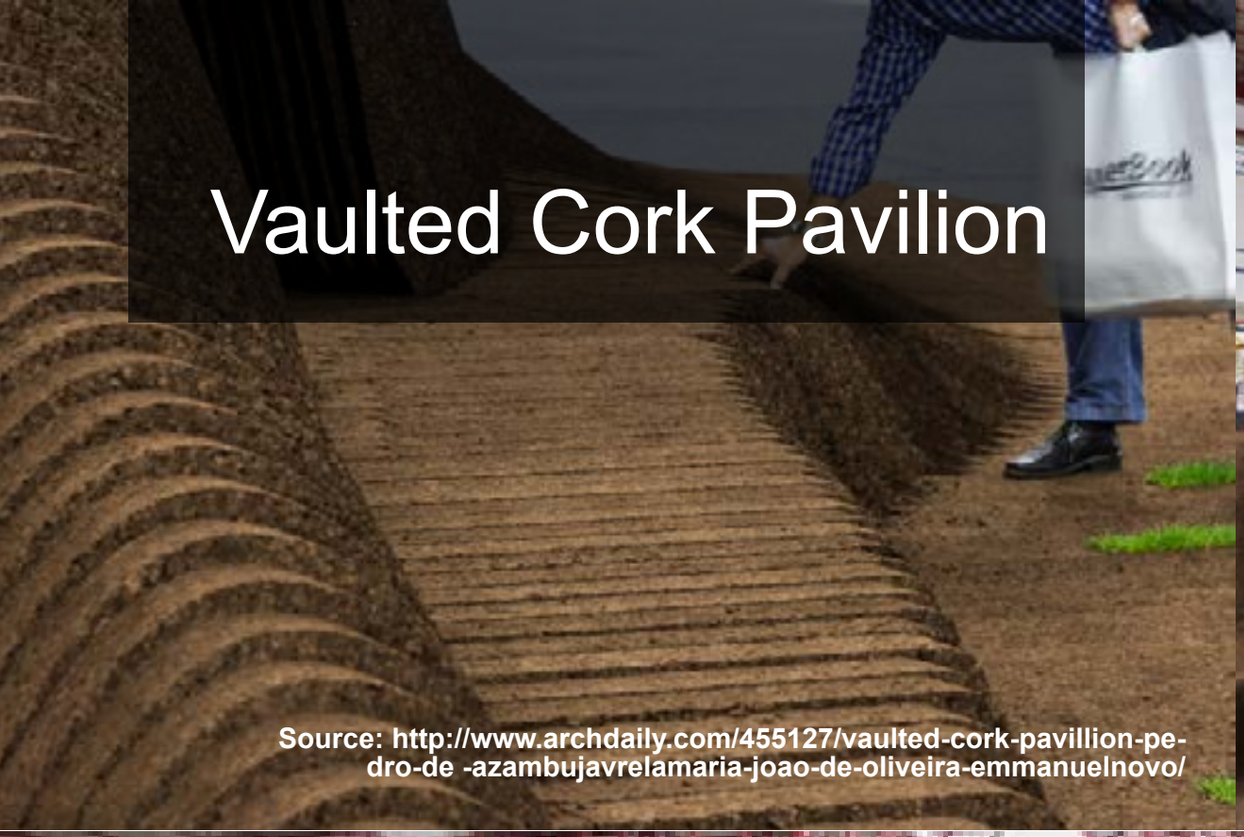
Vaulted Cork Pavilion



Source: http://www.archdaily.com/455127/vaulted-cork-pavillion-pe-dro-de -azambujavrelamaria-joao-de-oliveira-emmanuelnovo/

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Source: http://www.archdaily.com/455127/vaulted-cork-pavillion-pedro-de -azambujavrelamaria-joao-de-oliveira-emmanuelnovo/

CONTOURING
RADIOLARIA PAVILION
SHIRO STUDIO

Amir Faraz Firooz Abadi

URING

Source: http://www.shiro-studio.com/radiolaria.php

RadioLria

Project OUTLINE

Project Architect / Artist: Shiro Studio

Location: Pontedera, Italy

Investor: D-shape

Function: Pavilion

Construction Year: 2012

Dimmensions: 3m*3m*3m

Construction Team: -

Materials Used: Artificial sand stone
inorganic binder + mineral dust + sand

Budget: -

Major Fabrication Method Used: Additive contouring

Secondary Fabrication Methods: -

Fabricated By: mega 3d printer (D-shape company)

Type Of Construction: 3d printing

Modelling Software: Rhino

Source: http://www.shiro-studio.com/radiolaria.php

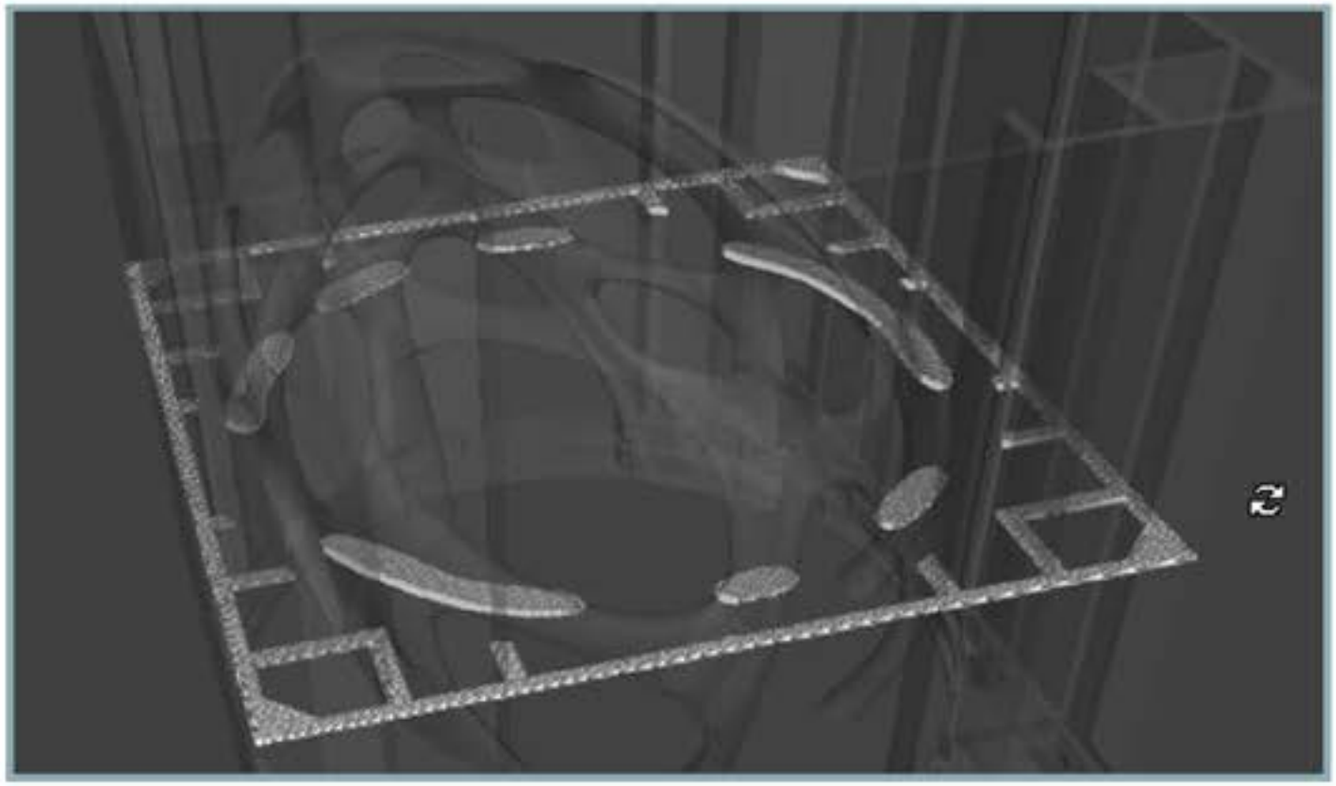
Radiolaria

Project DESCRIPTION

“Radiolarias” are unicellular microorganisms widely distributed in the oceans. Their siliceous skeletons consists of connected arrays of tubular struts forming a great variety of shells, often with a hexagonal structuring on their surfaces. These microoraganisms have inspired Shiro studio architects toward realisation of Radiolaria pavilion.

Radiolaria pavilion, by Shiro studio in collabiration with D-shape is a pavilion in Pontedera, Italy. The pavilion is a created through 3d printing process and it comes out as a self supporting structure. This quality is achived through the unique material used in the process. This distinctive material uses an inorganic binder which has high structural qualities.

“



Radiolaria

Project FABRICATION

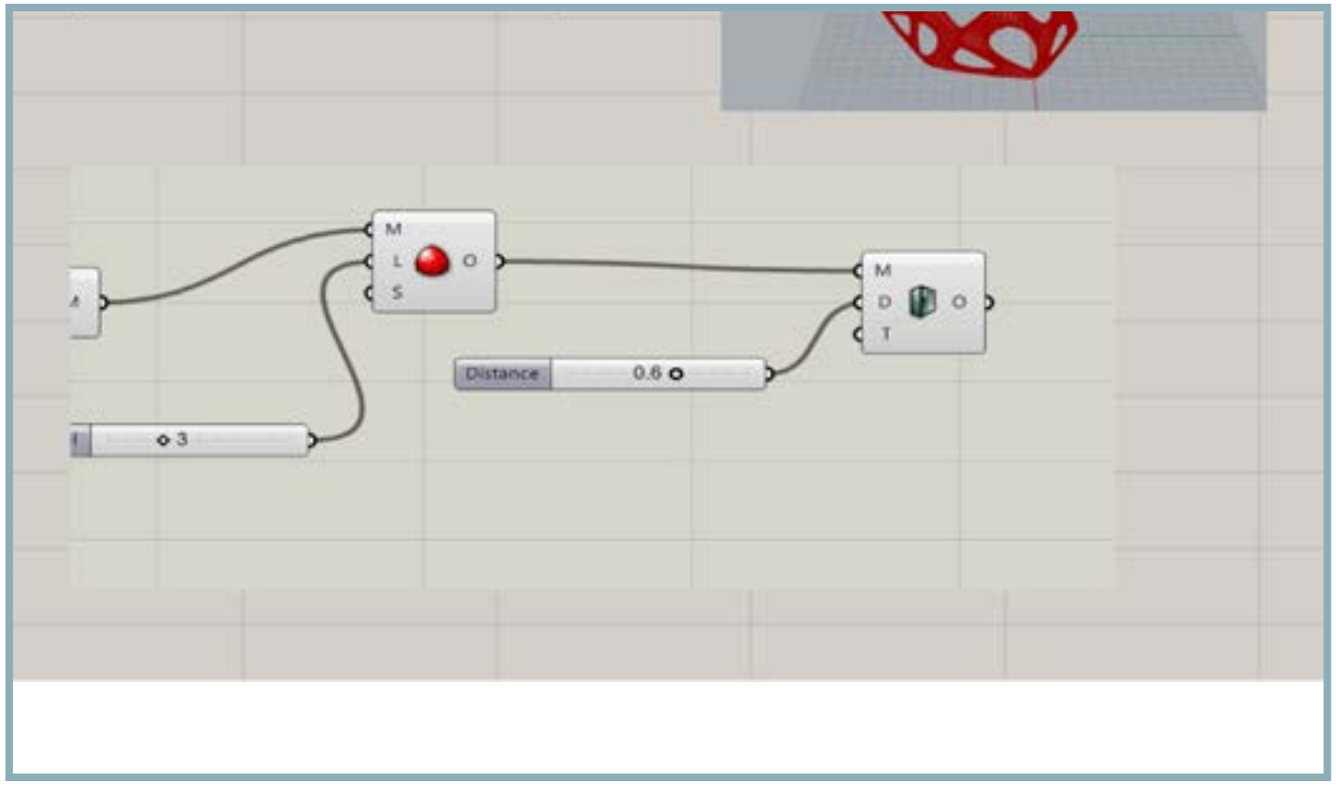
Source: http://www.google.de/imgres?imgurl=http%3A%2F%2Fblog.bellostes.com%2Fmedia%2Fradiolaria-pavilion-011.png&imgrefurl=http%3A%2F%2Fblog.bellostes.com%2F%-

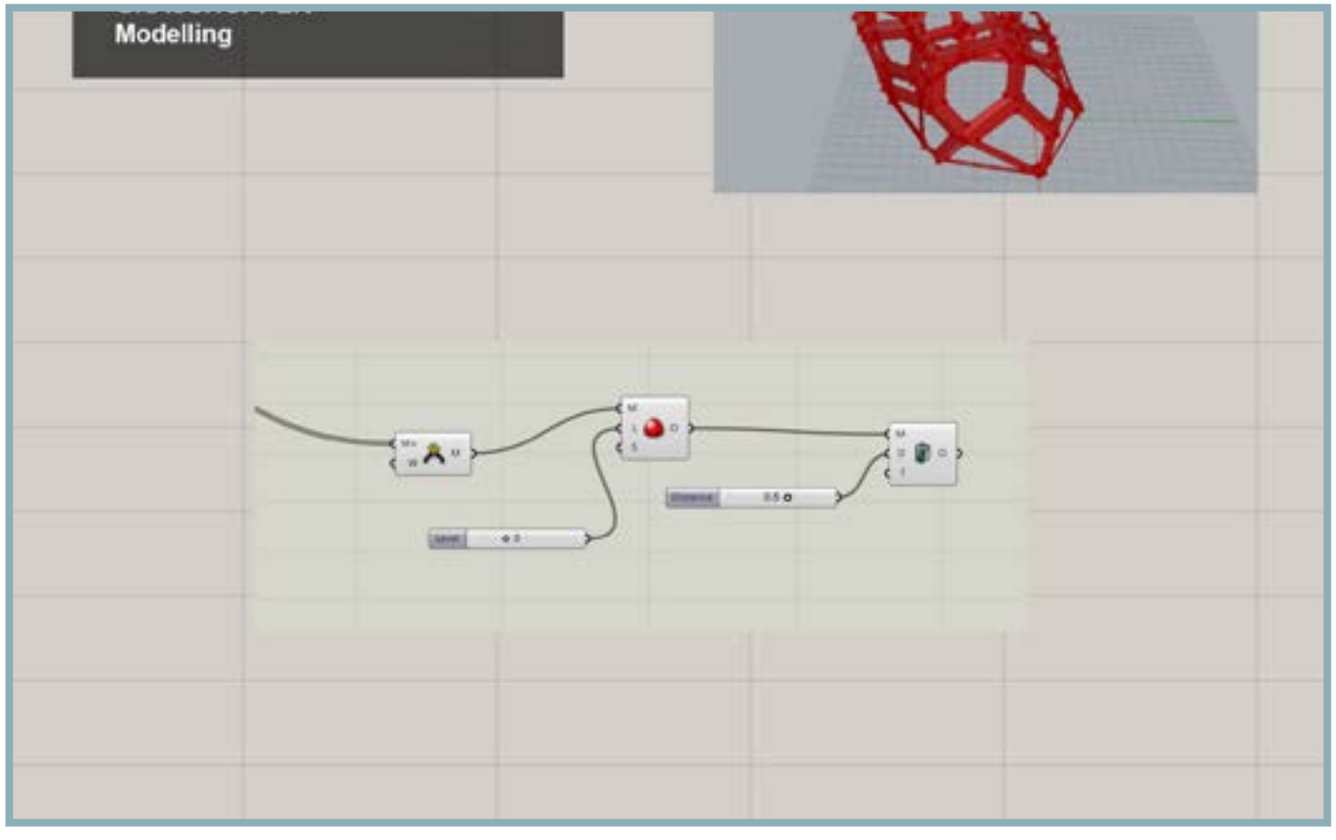
Radiolaria

Project FABRICATION

Radiolaria Pavilion is the first large-scale structure fully 3d printed by mega 3d printer. CAD-CAM softwares are used to design the shape on computer and it will be saved as STL. file and is imported into the Computer program that controls D-Shape's printer head. The process takes place in a non-stop work session, starting from the foundation level and ending on the top. The printing starts from the bottom of the construction and rises up in sections of 5-10mm. The solidification process takes 24 hours to complete.

The giant 3d printer can be erected on the site. Construction process takes 4times less time compared to manual construction methodes. Furthermore, the required operating time is known in advance allowing accurate planning for the machinery and for resources.



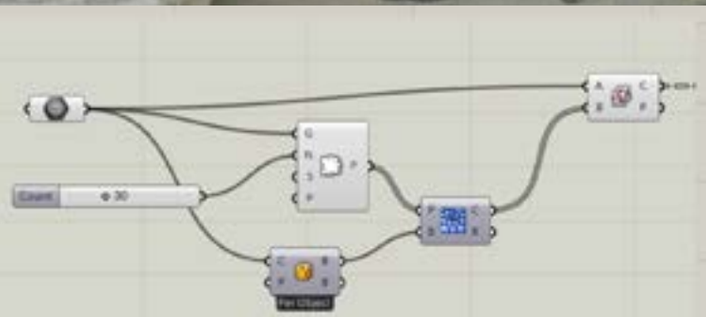


Radiolaria

Project FABRICATION

Source: http://www.dezeen.com/2009/06/22/radiolaria-pavi-

Source: http://press.d-shape.com/index.php?flag=2.1&id=84



Source: http://www.solidsmack.com/fabrication/enrico-dino-3d-printed-structures-hou-

Radiolaria

Project MATERIALS

Source: http://www.shiro-studio.com/radiolaria.php

Source: http://www.shiro-studio.com/radiolaria.php

Source: http://www.shiro-studio.com/radiolaria.php

Radiolaria

Project MACHINE / SOFTWARE

As mentioned above Radiolaria was constructed by first large-scale 3d printer owned by D-shape.

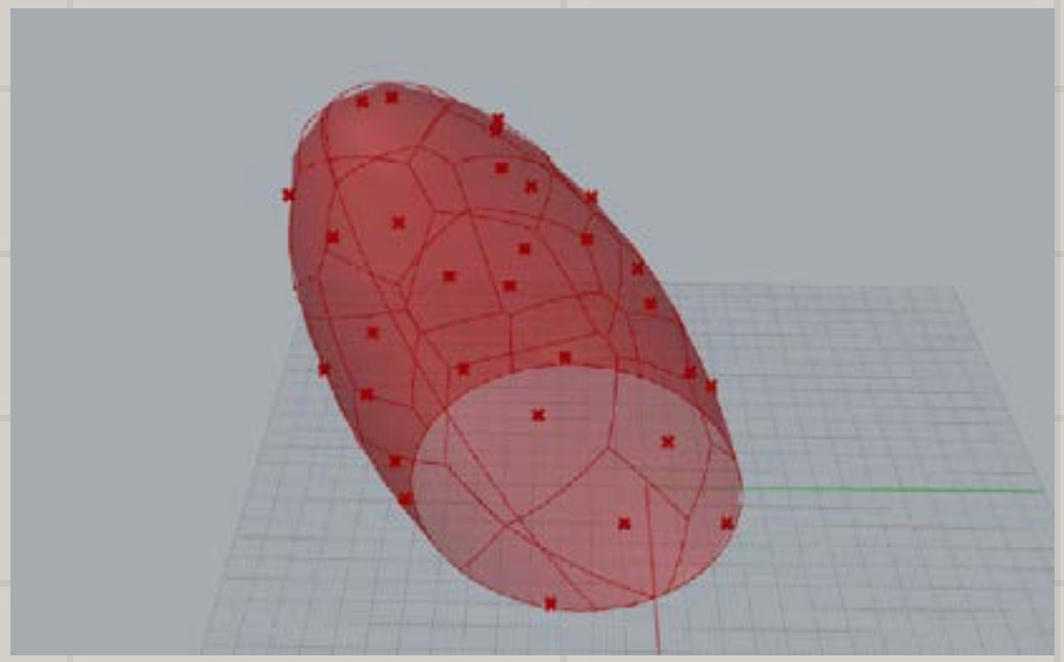
It includes 4 tall aluminium coloumns, that help nozzel to grow higher and construct taller structures.

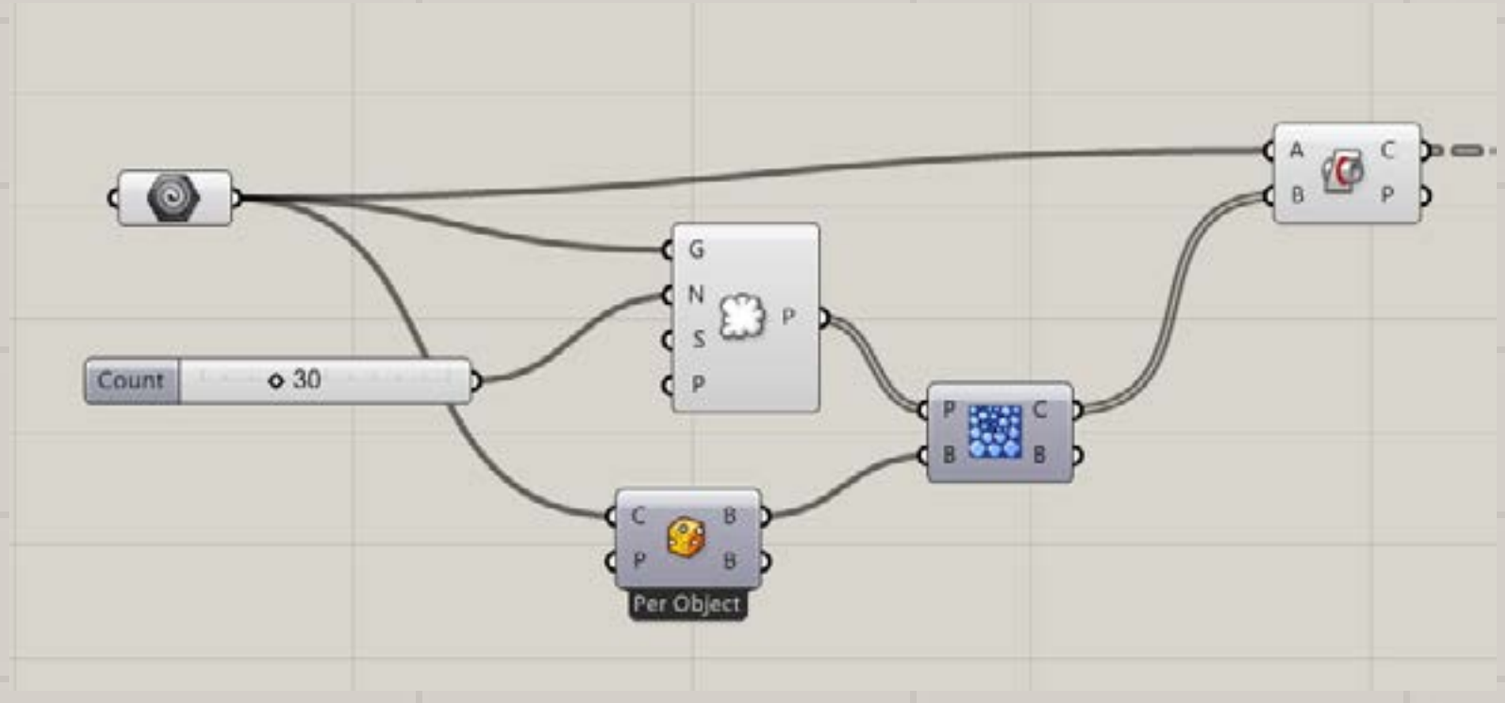
Source: http://moohii.com/en/user_files/articles/d-shape%25203dprint/radiolaria3.JPG

Source: http://3dprint.com/wp-content/uploads/2014/11/dshape7.jpg

Radiolaria

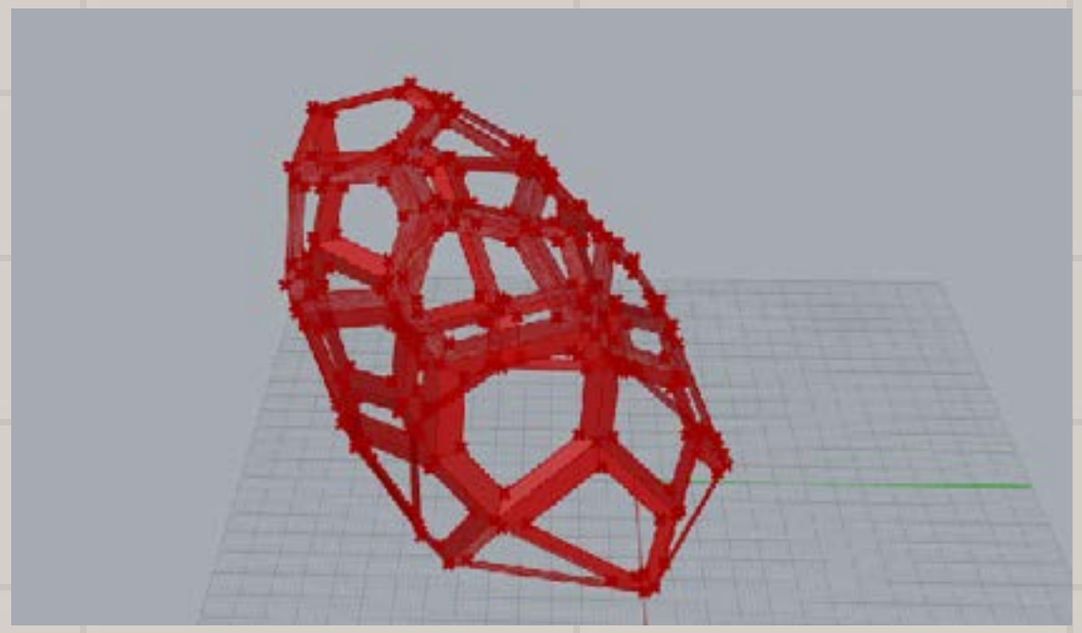
GRASSHOPPER
Modelling

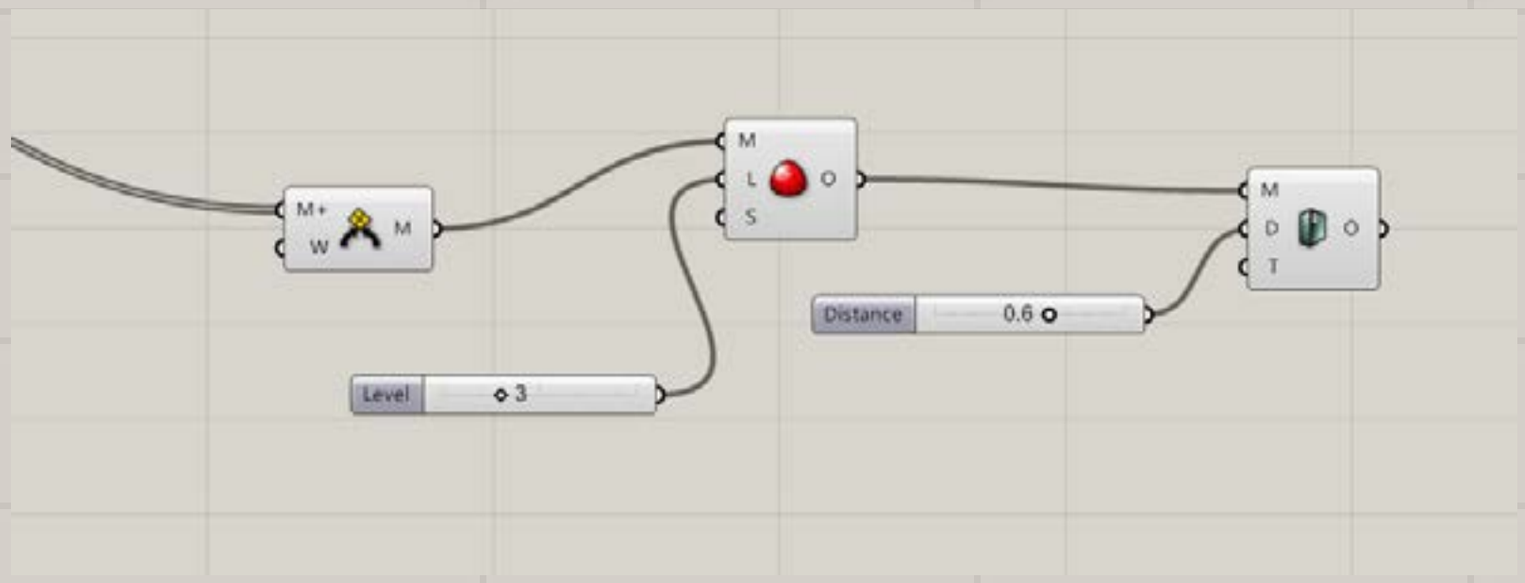




Radiolaria

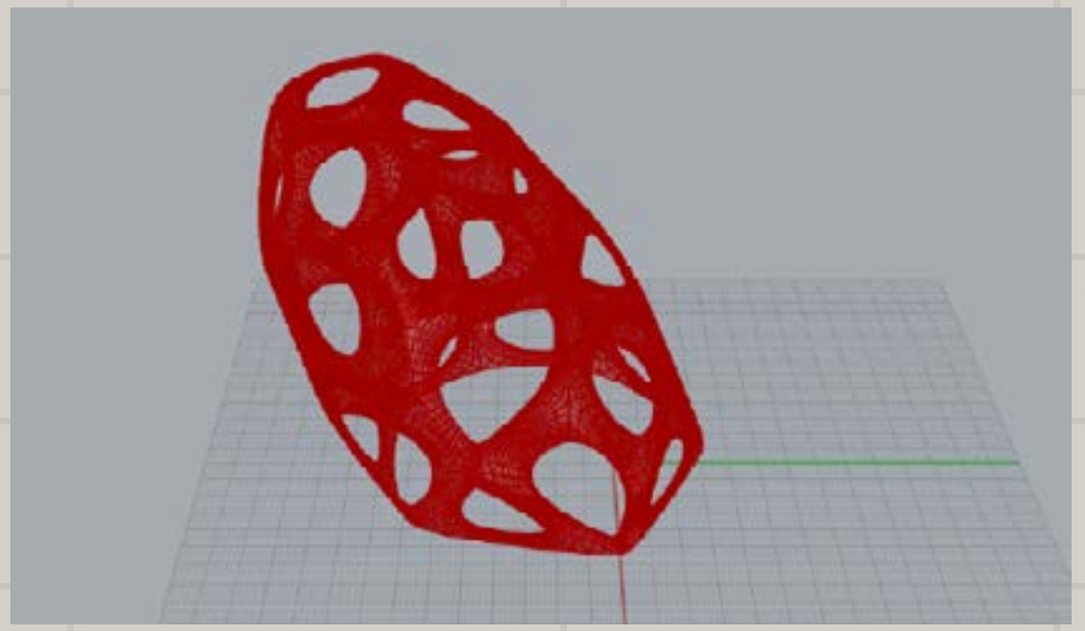
GRASSHOPPER
Modelling

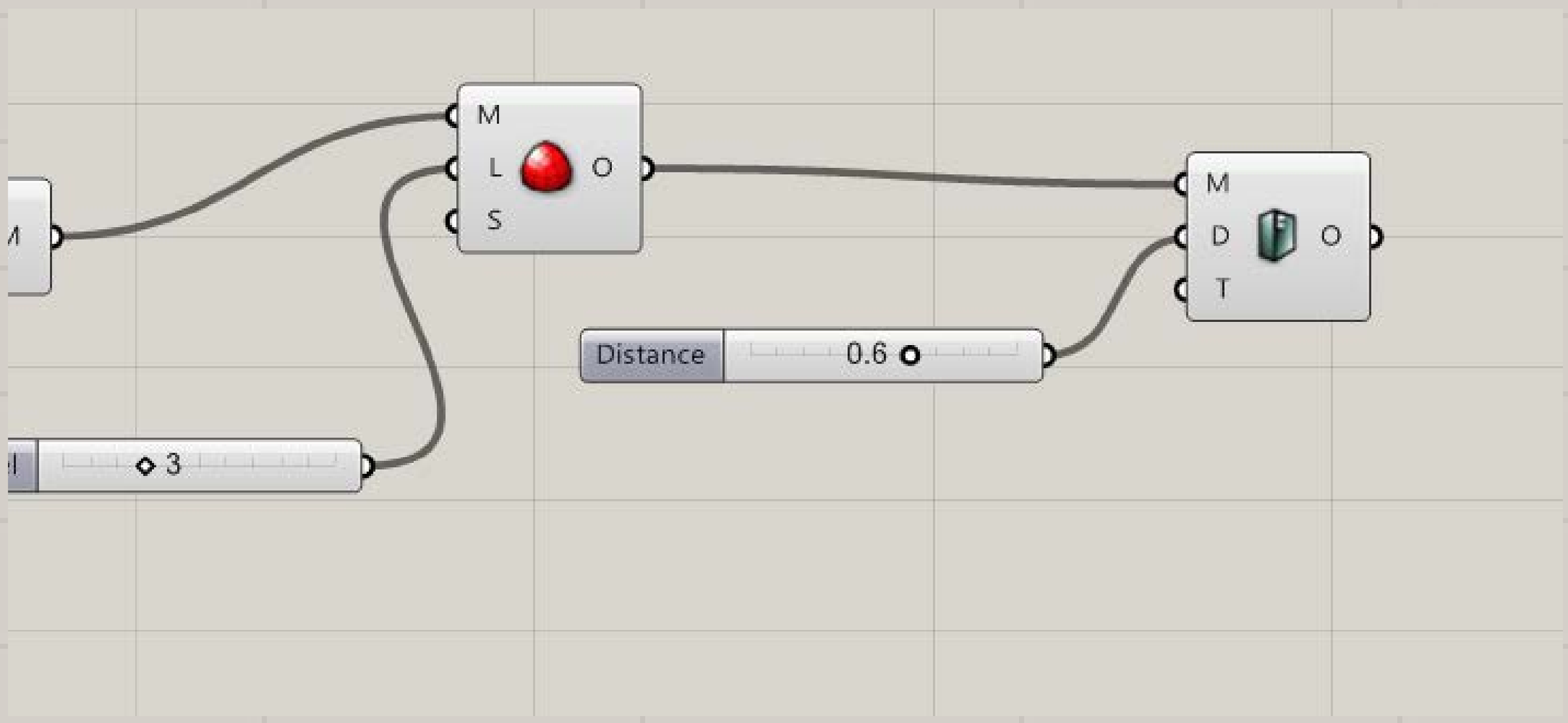




Radiolaria

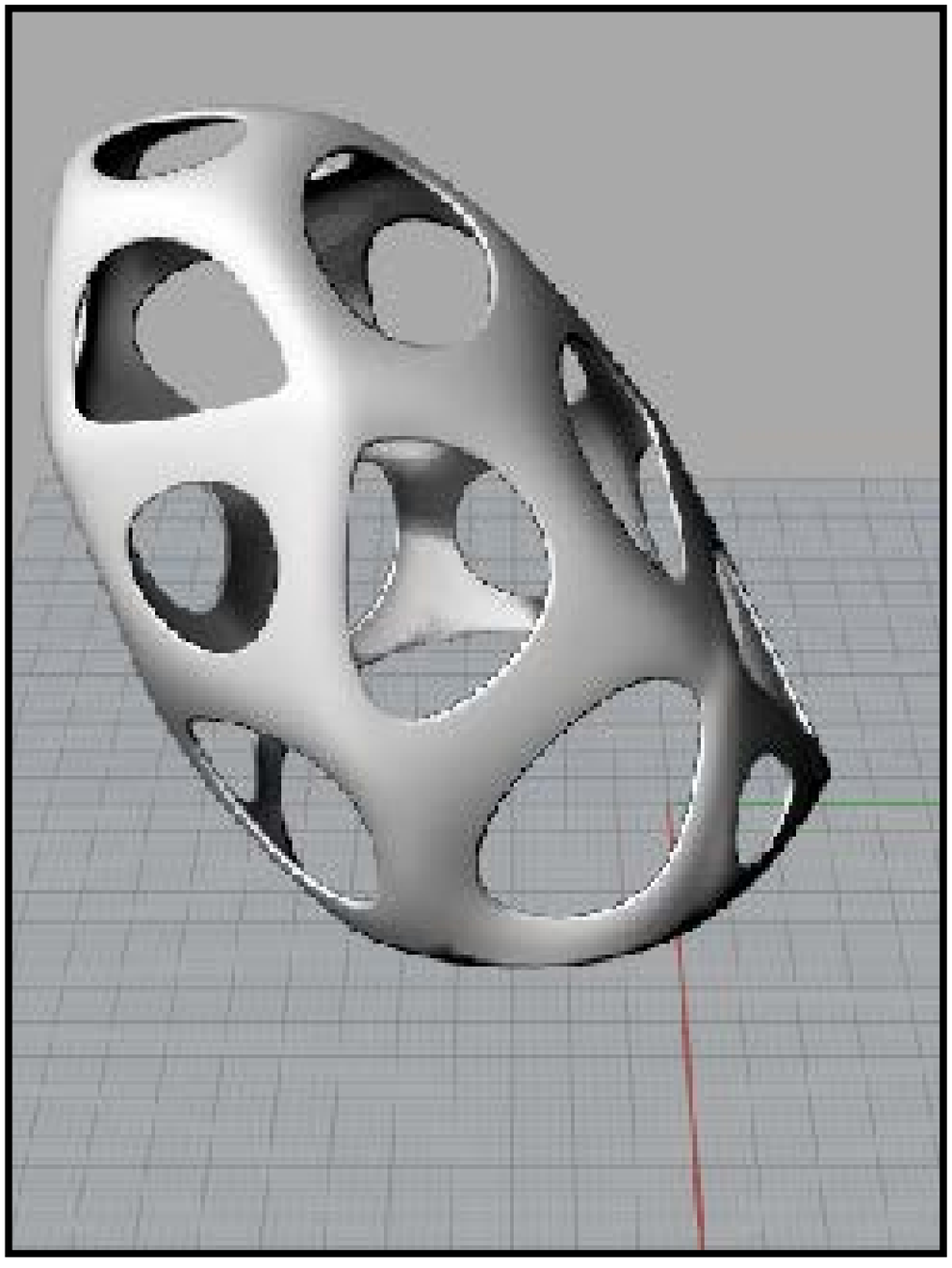
GRASSHOPPER
Modelling

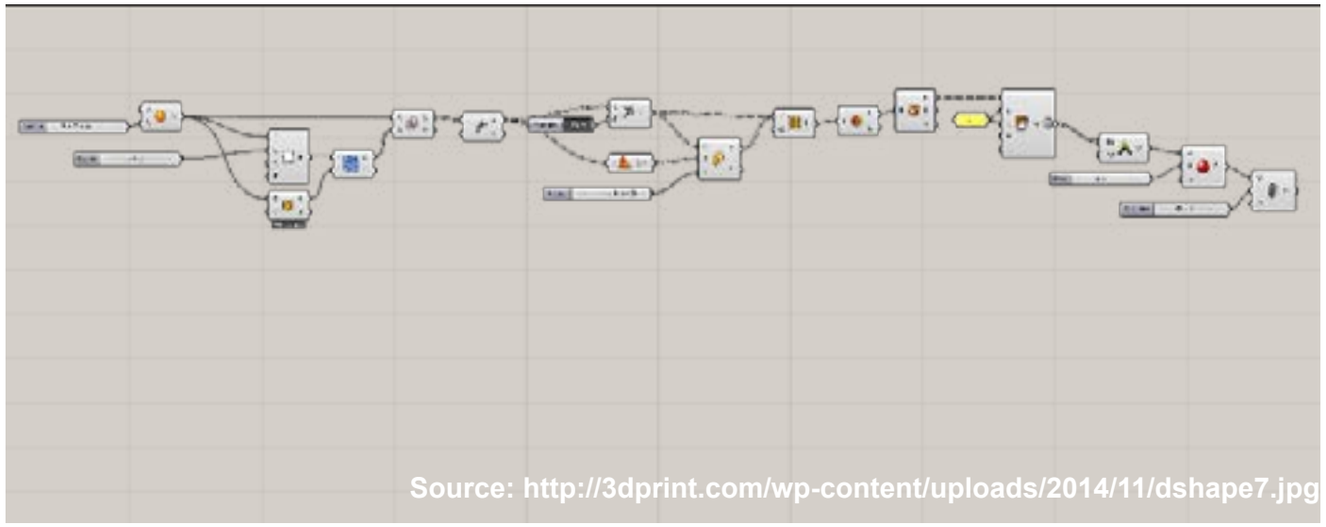




Radiolaria

GRASSHOPPER
Fabrication Definition

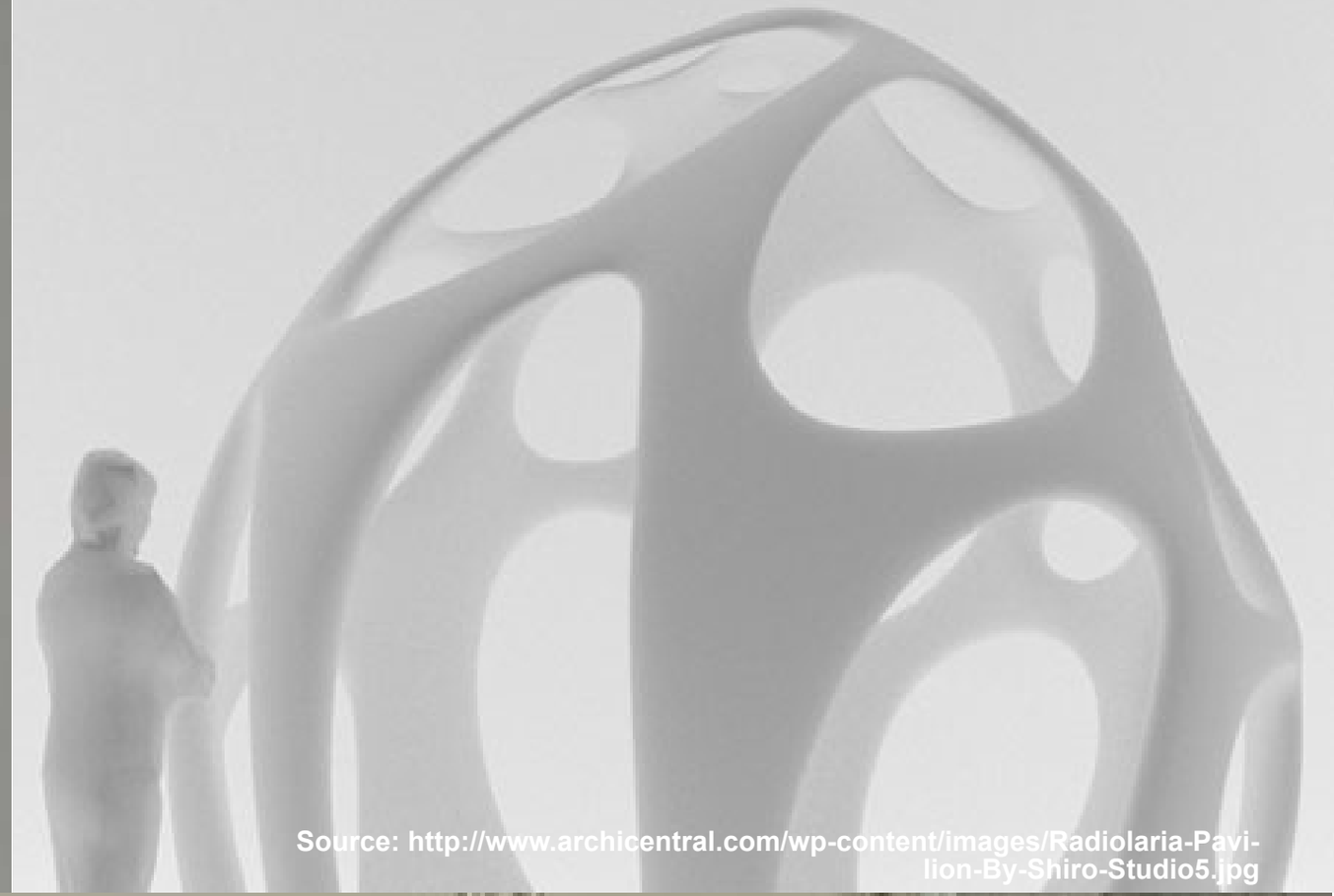




Source: http://3dprint.com/wp-content/uploads/2014/11/dshape7.jpg

Radiolaria

Source: http://inhabitat.com/ekko-pavilion-records-visitors-voices-and-footsteps-while-filtering-sunlight-in-denmark/



Source: http://www.archicentral.com/wp-content/images/Radiolaria-Pavilion-By-Shiro-Studio5.jpg

Source: http://inhabitat.com/6-inspiring-examples-of-groundbreaking-green-technology/

SECTIONING RICCHEZZE

Juan Barrios + Mercedes

Anzhela Bogdanova

Source: http://barriosescudero.com/portfolio/pabellon-ricchezze/

RICHEZZE

Project OUTLINE

Project Architect / Artist: Juan Barrios + Mercedes Escudero

Location: Cordoba, Argentina

Investor: Private

Function: Pavilion

Construction Year: 2014

Dimmensions: 3m High, 5m Width, 78 sq.m

Construction Team: XXXXX

Materials Used: MDF

Budget: XXXXX

Major Fabrication Method Used: Sectioning

Secondary Fabrication Methods: XXXXX

Fabricated By: (type of machine ie. CNC, etc)

Type Of Construction: Wood Frame

Modelling Software: Rhino + Grasshopper

Source: http://barriosescudero.com/portfolio/pabellon-ricchezze/

RICCHEZZE

Project DESCRIPTION

The Pavilion is created as a differentiated space in its surroundings for the exhibition of furniture, in relation to the sculptural and visual senses that arise from complementary curves created from the ergonomy of a seat and emulation to the wood grain.

To promote the ingress, obdervation, comfort and privacy necessary for the public attention were the premisses of interior design.

The geometry and arrangement of trimming curves were designed to achieve zero waste.

Source: http://barriosescudero.com/portfolio/pabellon-ricchezze/

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Source: http://barriosescudero.com/portfolio/pabellon-ricchezze/

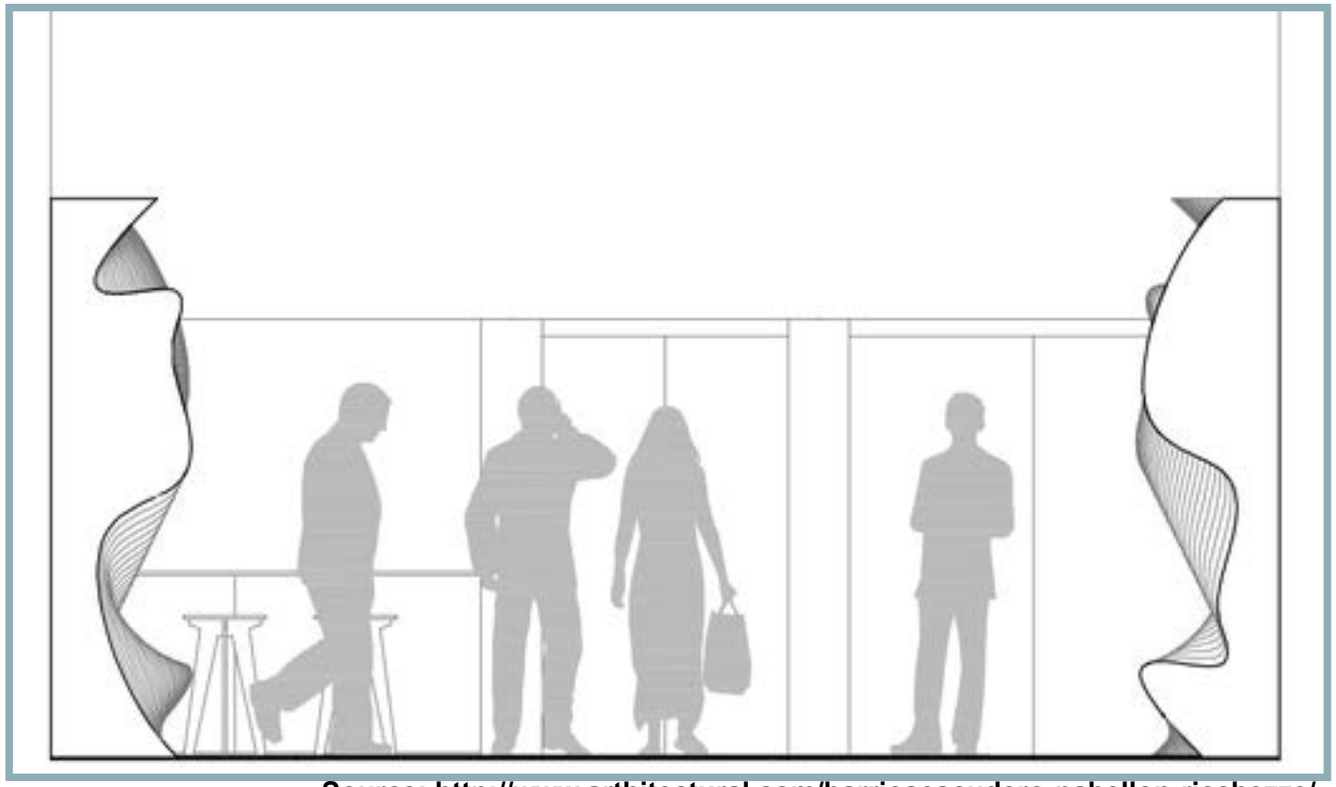
RICCHEZZE

Project FABRICATION

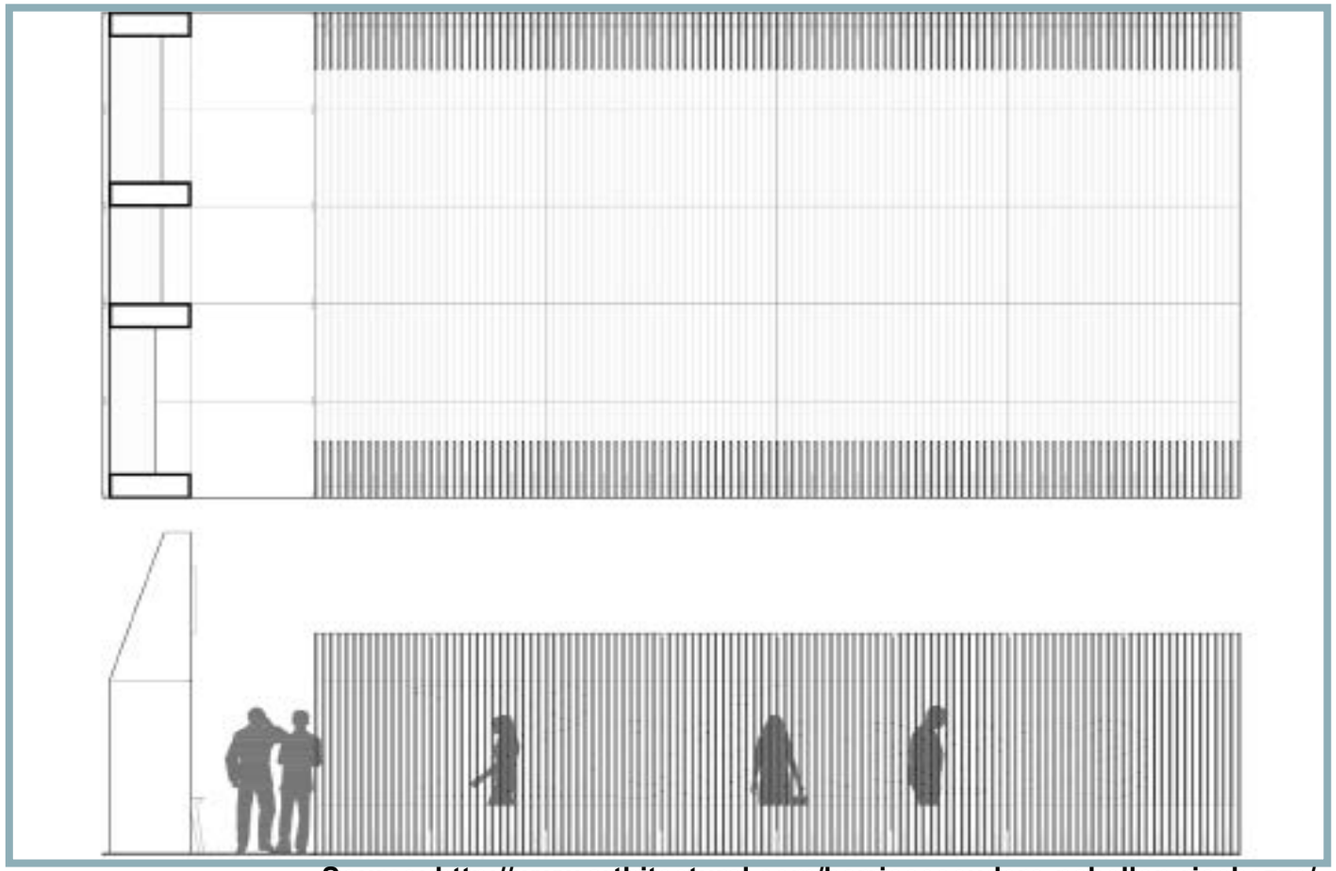
Pavillion exposes MDF, the same material used to the fabrication of the displayed furniture, showing its potential as material for design.

The pieces were mounted through a set of inserts without the need for subjection.

The pavillion is modulated from standard dimension boards of MDF.



Source: http://www.arthitectural.com/barriosescudero-pabellon-ricchezze/



Source: http://www.arthitectural.com/barriosescudero-pabellon-ricchezze/

RICCHEZZE

Project FABRICATION

Source: http://www.archello.com/en/project/pabellon-ricchezze#

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Source:http://www.archello.com/en/project/pabellon-ricchezze#

RICCHEZZE

Project MATERIALS

Source:http://ifabstudio.com/wp-content/uploads/2014/03/MDF_

Compressive (Crushing) Strength	10 MPa (1.5 x 10^3 psi)
Density	0.75 g/cm³ (47 lb/ft³)
Dielectric Strength (Breakdown Potential)	0.6 kV/mm (0.02 V/mil)
Elastic (Young's, Tensile) Modulus	4 GPa (0.6 x 10^6 psi)
Elongation at Break	0.5 %
Shear Modulus	2.5 GPa (0.36 10^6 psi)
Specific Heat Capacity	1700 J/kg-K
Strength to Weight Ratio	24 kN-m/kg
Tensile Strength: Ultimate (UTS)	18 MPa (2.6 x 10^3 psi)
Thermal Conductivity	0.3 W/m-K
Thermal Expansion	12 µm/m-K

Source:http://www.makeitfrom.com/material-properties/

Thickness	Length x width mm
3mm	900 x 600 1200 x 450 / 600 / 900 1830 x 915 / 1220 2440 x 1220 2745 x 1220 3660 x 1220
4mm	2440 x 1220
4.75mm	2440 x 932/1220 2745 x 1220 3660 x 1220
6mm	900 x 600 1200 x 450 / 600 / 900 1830 x 915/1220 2440 x 1220 2745 x 1220 3660 x 1220 / 1830
9mm	900 x 600 1200 x 600 / 900 2400 x 1200 2700 x 1200 3600 x 1200 / 1800
12mm	900 x 450 / 600 1200 x 450 / 600 / 900 1800 x 450 / 600 / 900 / 1200 2400 x 900 / 1200 2700 x 1200 3600 x 600 / 1200 / 1800
16mm	900 x 450 / 600 1200 x 450 / 600 / 900 1800 x 450 / 600 / 900 / 1200 2400 x 300 / 450 / 600 / 900 / 1200 / 1800 2700 x 1200 3600 x 450 / 600 / 1200 / 1800
18mm	900 x 450 / 600 1200 x 450 / 600 / 900 1800 x 900 / 1200 2400 x 450 / 600 / 1200 / 1800 2700 x 1200 3600 x 450 / 600 / 1200 / 1800
25mm	2400 x 1200 2700 x 900 / 1200 3600 x 1200 / 1800
32mm	2400 x 1200 3600 x 1200

Source:http://www.gunnersens.com.au/products/building-pro-

RICCHEZZE

Project MACHINE / SOFTWARE

CNC Machining is a process used in the manufacturing sector that involves the use of computers to control machine tools. Tools that can be controlled in this manner include lathes, mills, routers and grinders. The CNC in CNC Machining stands for Computer Numerical Control.

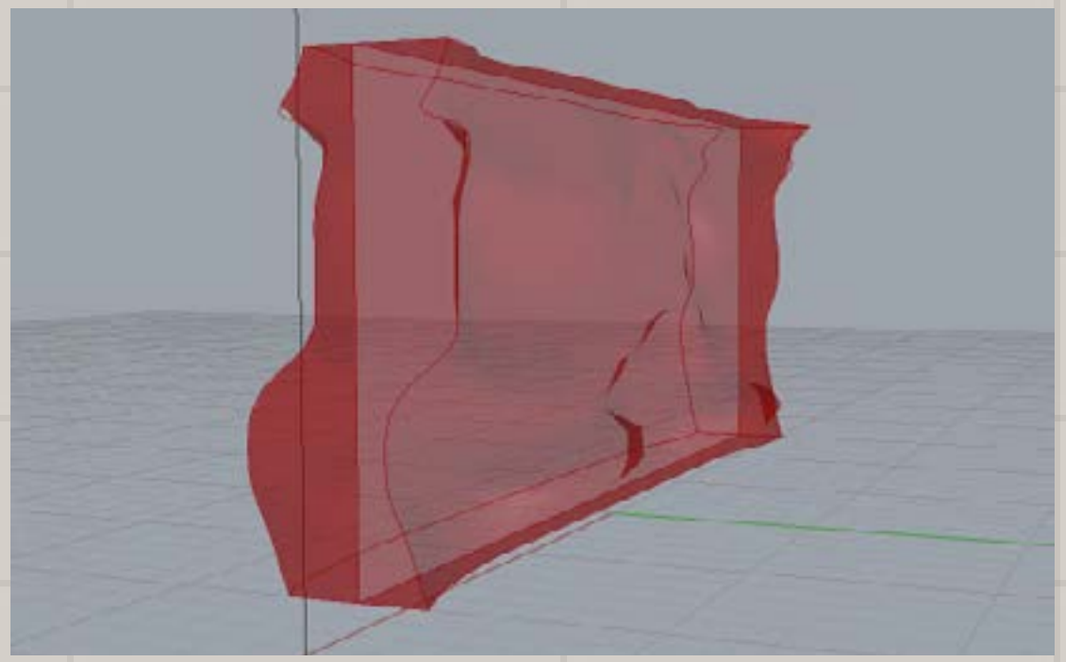
On the surface, it may look like a normal PC controls the machines, but the computer's unique software and control console are what really sets the system apart for use in CNC machining.

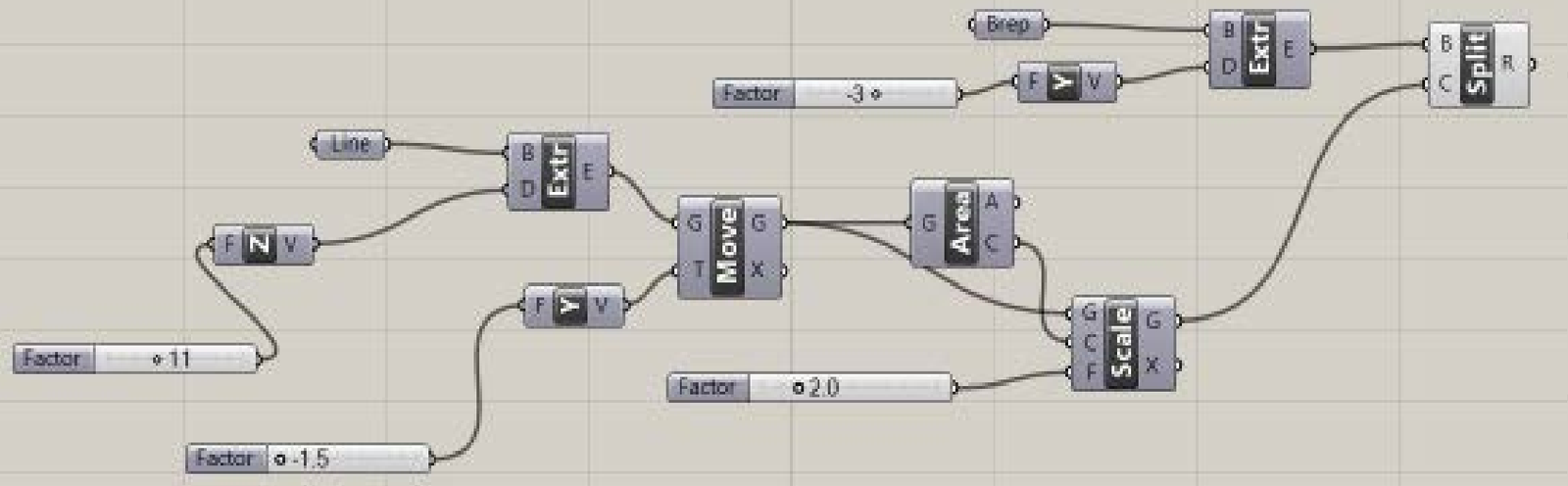
Source:http://qualiturn-cnc.com/wp-content/uploads/2013/10/

Source:http://qualiturn-cnc.com/wp-content/uploads/2013/10/

RICCHEZZE

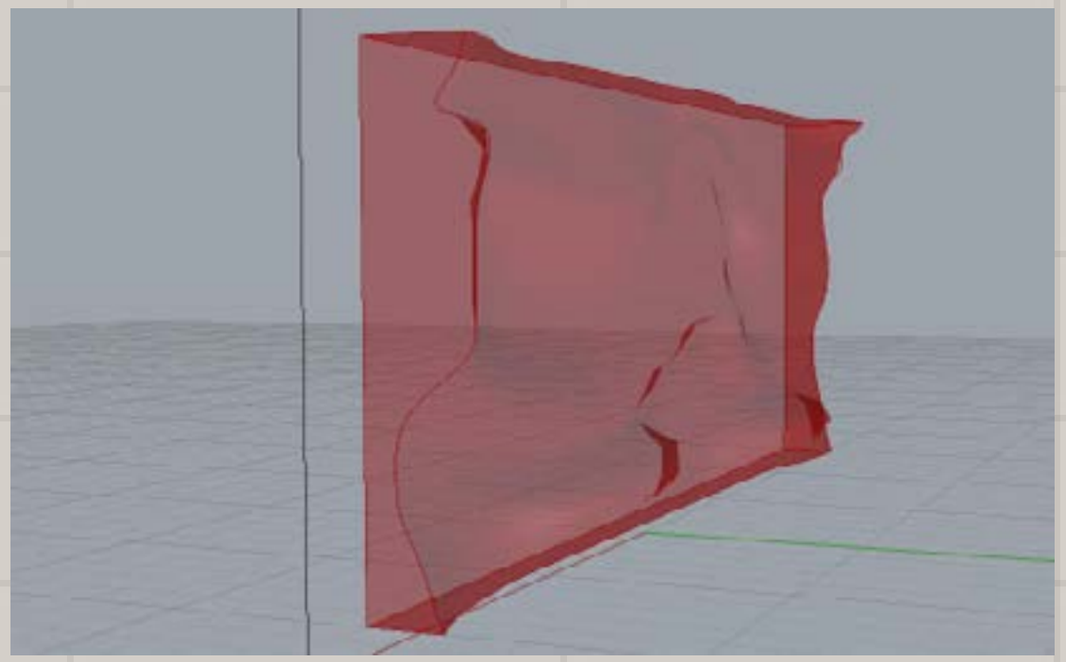
GRASSHOPPER
Modelling

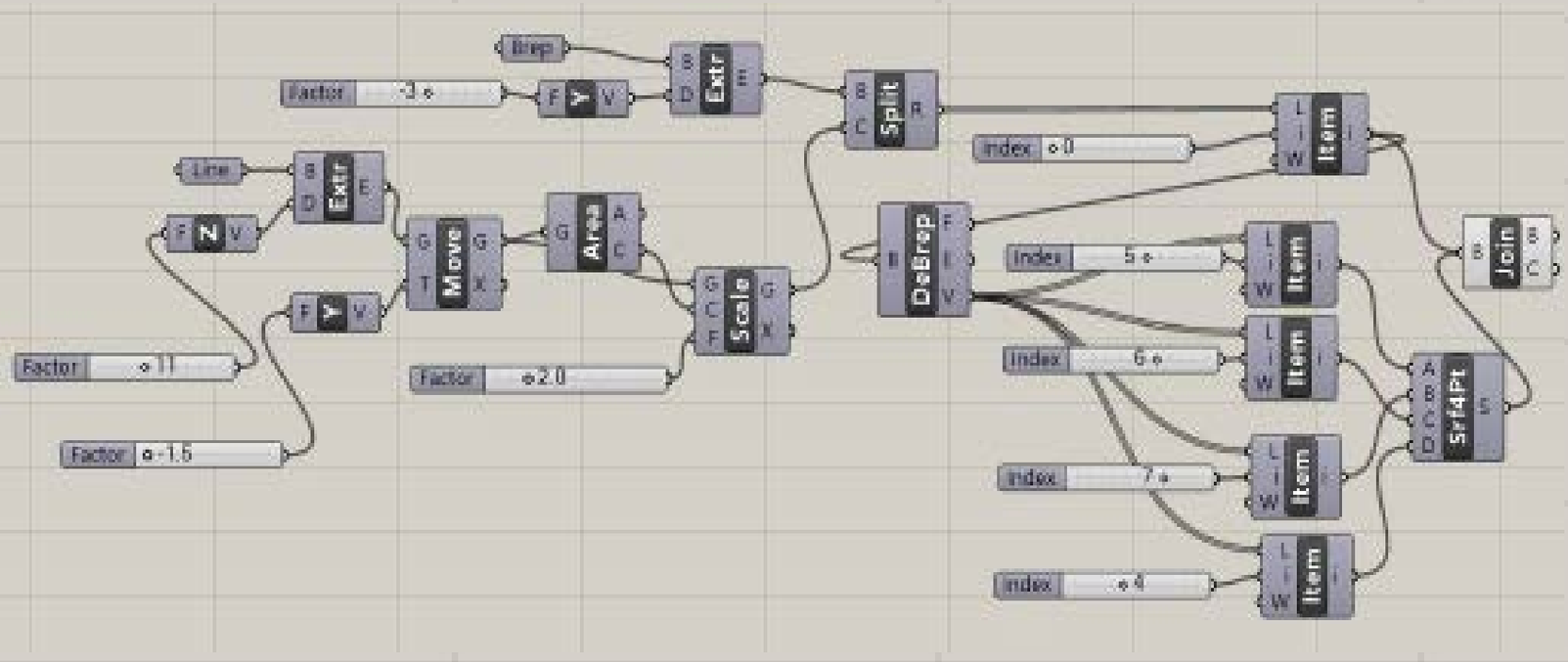




RICCHEZZE

GRASSHOPPER
Modelling





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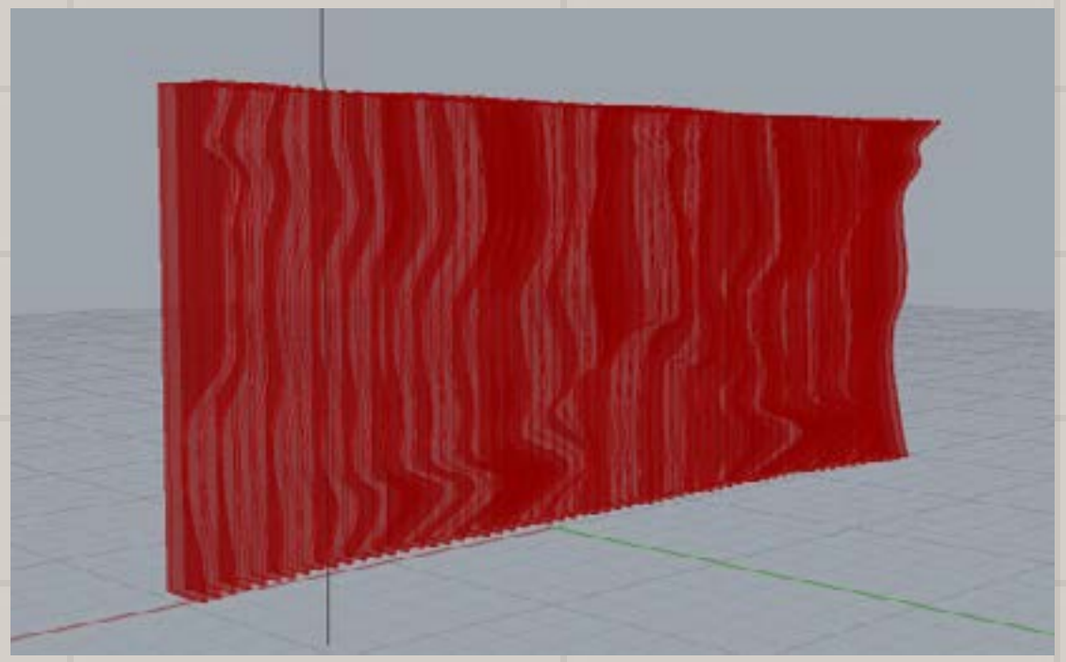
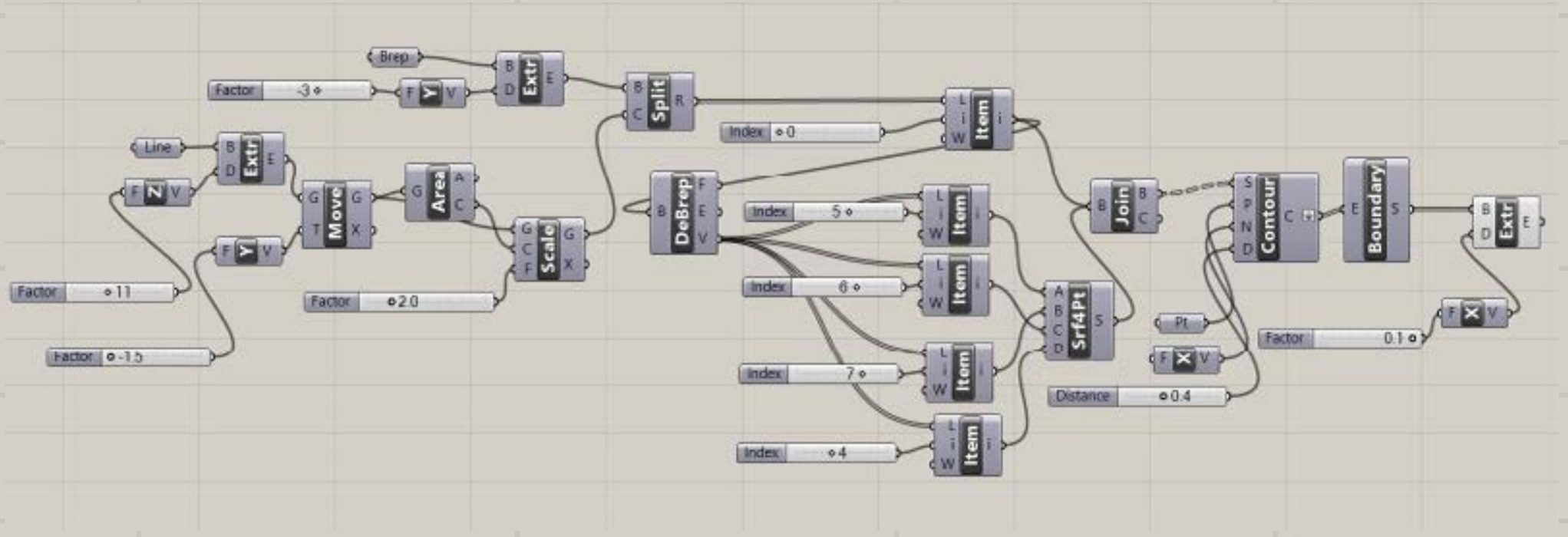
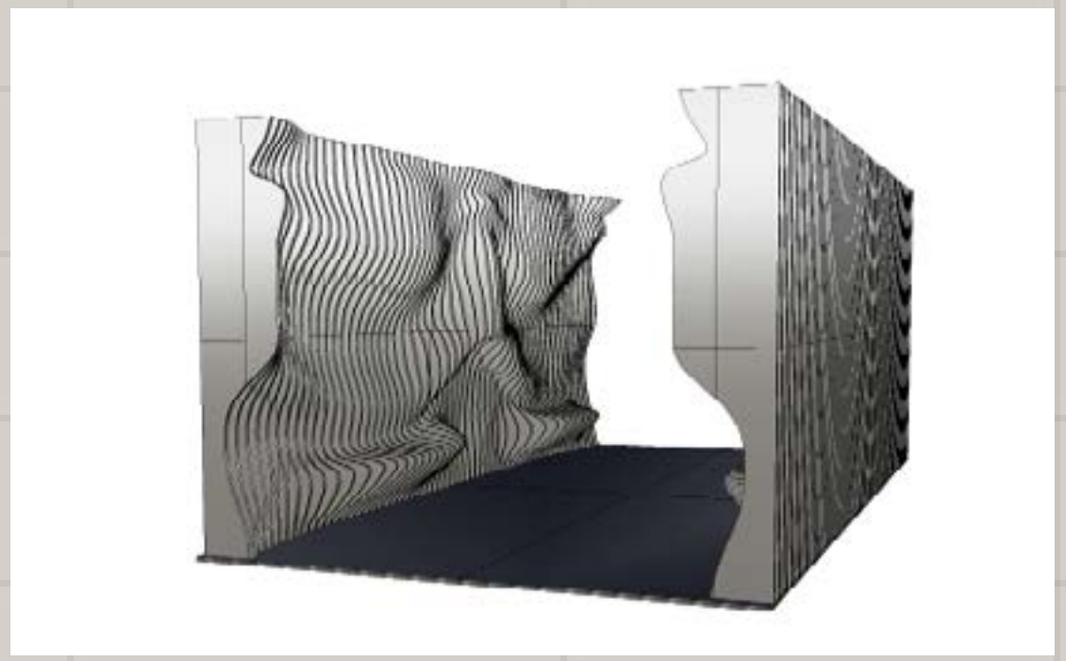
GRASSHOPPER
Modelling

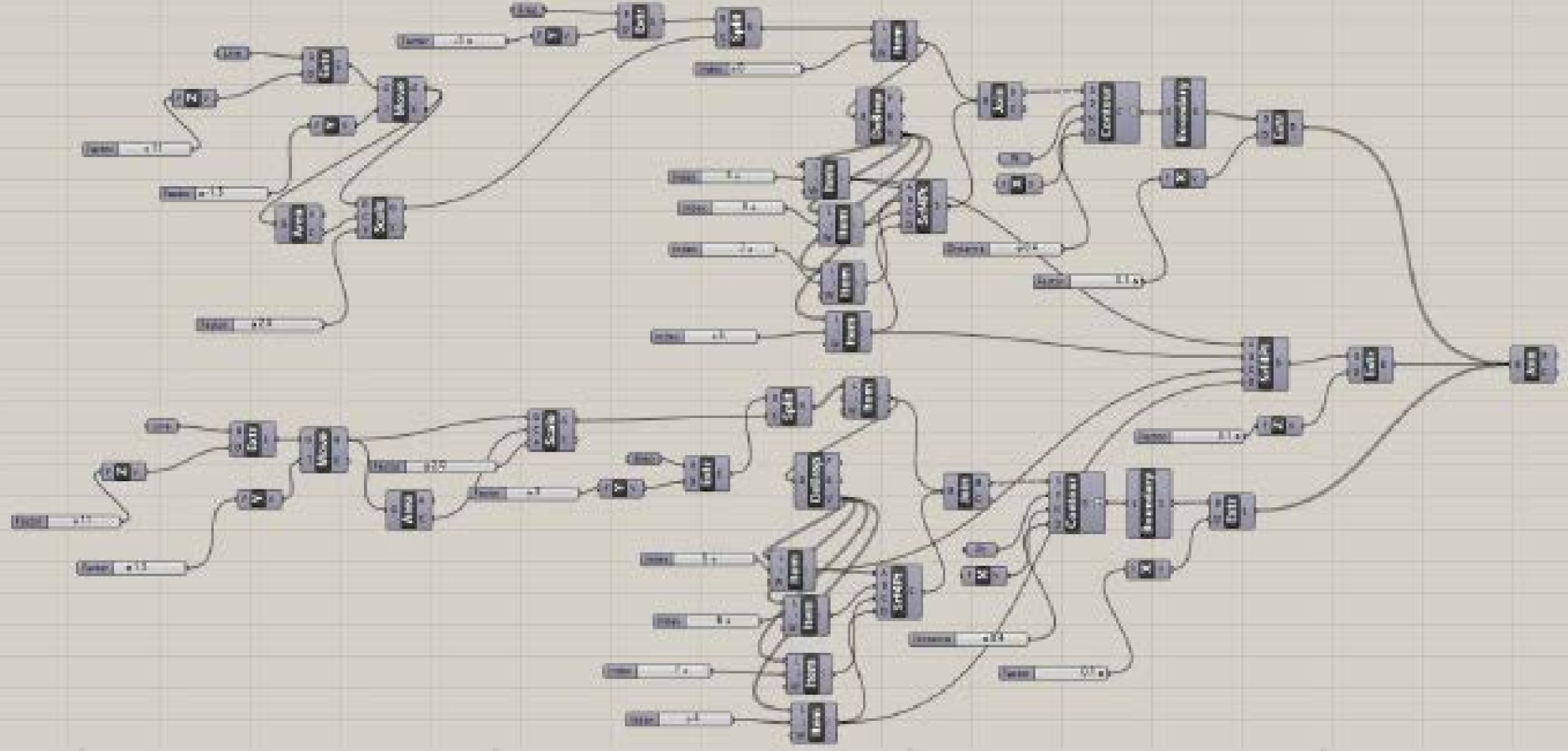




RICCHEZZE

GRASSHOPPER
Modelling





CONTOURING

Norwegian Wild Reindeer Pavilion Tverrfelhytta

Snohetta Oslo AS

Djamila Pietzner

http://www.archdaily.com/180932/tverrfjellhytta-snohetta/

Norwegian wild Reindeer Pavilion

tverrvjellhytta

Project Architect / Artist: Snohetta Oslo AS

Location: Hjerkinn, Dovre, Norway

Investor: Norwegian Wild Reindeer Foundation

Function: Pavilion

Construction Year: 2011

Size: 90 m²

Construction Team: Knut Bjørgum landscape architect (Design Team Leader), Kjetil T. Thorsen (Partner in charge, Principal architect), Erik Brett Jacobsen, Margit Tidemand Ruud, Rune Grasdal, Martin Brunner (Architects) Heidi Pettersvold.(Interior Architect)

Materials Used: wood, raw steel, glass

Budget: 4,0 mill. NOK (Total construction cost pavilion)
(471011,44 Euro)

Major Fabrication Method Used: Contouring

Secondary Fabrication Methods: /

Fabricated By: milling machines

Type Of Construction: /

Modelling Software: /

http://www.archdaily.com/180932/tverrfjellhytta-snohettal

Norwegian wild Reindeer Pavilion

Project DESCRIPTION

Architectural idea

This unique natural, cultural and mythical landscape has formed the basis of the architectural idea. The building design is based on a rigid outer shell and an organic inner core. The south facing exterior wall and the interior create a protected and warm gathering place, while still preserving the visitor's view of the spectacular panorama.
The wooden core is shaped like rock or ice that has been eroded by natural forces like wind and running water, and is placed within a rectangular frame of raw steel and glass.
Using digital 3D-models to drive the milling machines, Norwegian shipbuilders in Hardangerfjord created the organic shape from 10 inch square pine timber beams. The wood was then assembled in a traditional way using only wood pegs as fasteners. The exterior wall has been treated with pine tar while the interior wood has been oiled. The pavilion is a robust yet nuanced building that gives visitors an opportunity to reflect and contemplate this vast and rich landscape.

http://www.archdaily.com/180932/tverrfjellhytta-snohetta

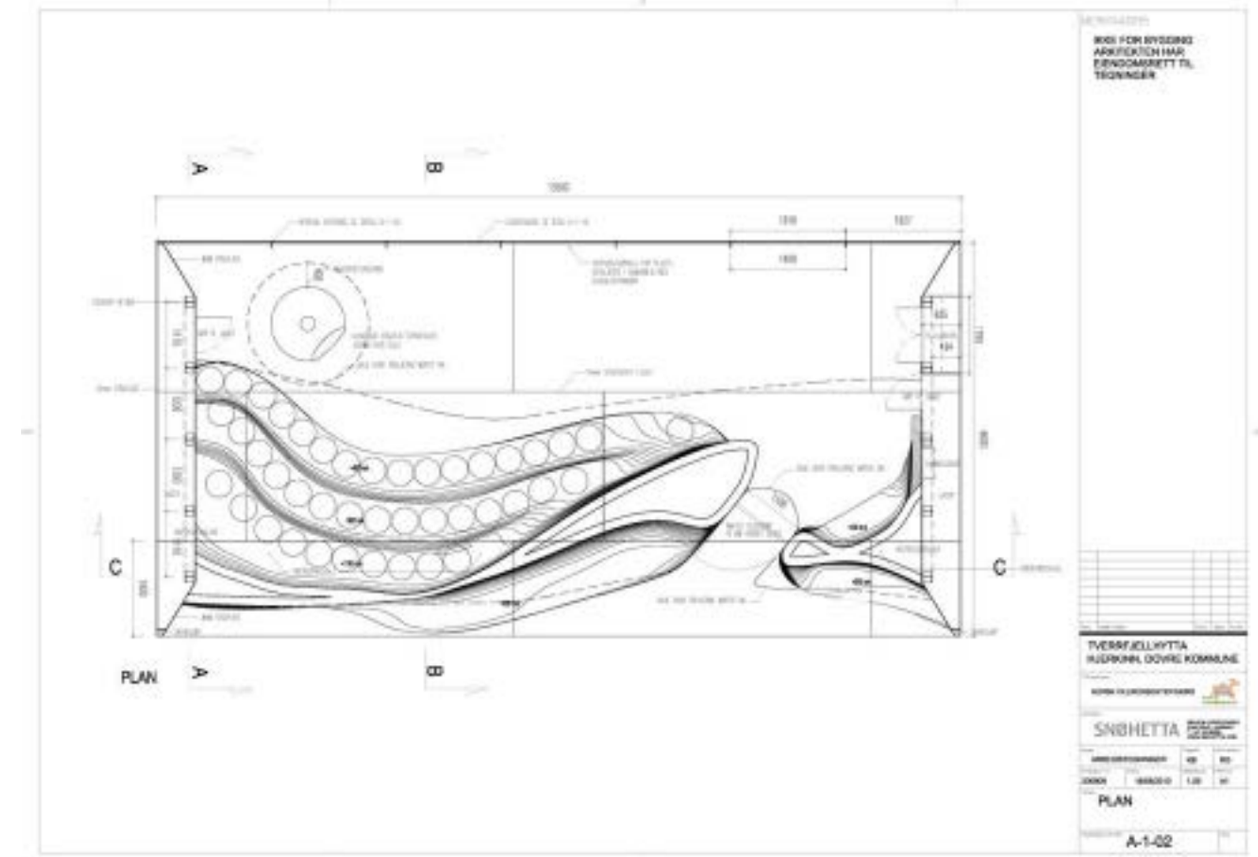
Norwegian wild Reindeer Pavilion

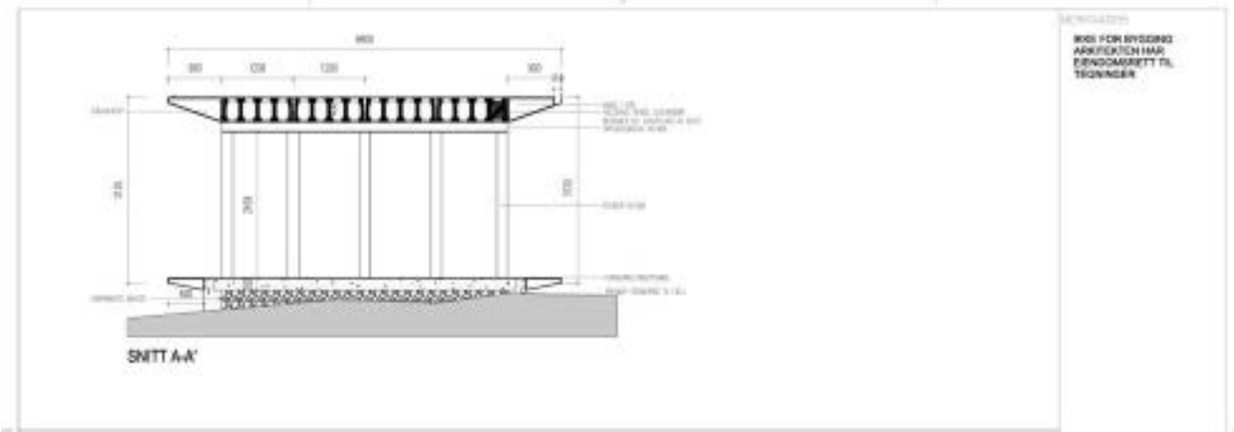
Project FABRICATION

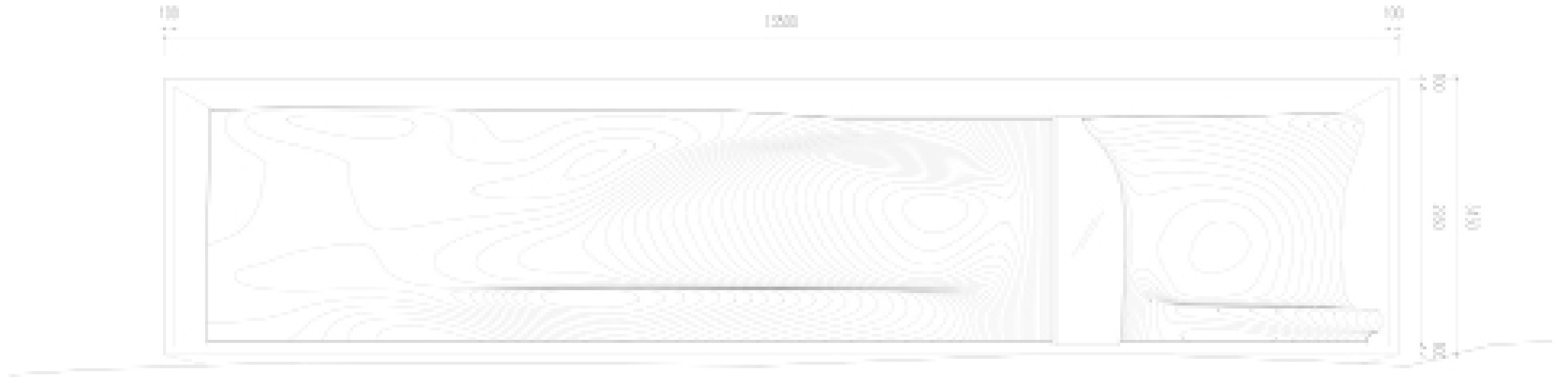
Digital 3d models where used to drive the milling machines, creating the organic shape of the interior of the pavilion. This method offabrication is also known as substractive fabrication which is the removal of a specific material from solids using electro- , chemical or mechanically reductive process in this case 10 inch² pine timber beans where cut down into their require shapes as specified by the digital models of it. Which was then assembled in a traditional way using wooden pegs as fasteners to create the final form.

Norwegian wild Reindeer Pavilion

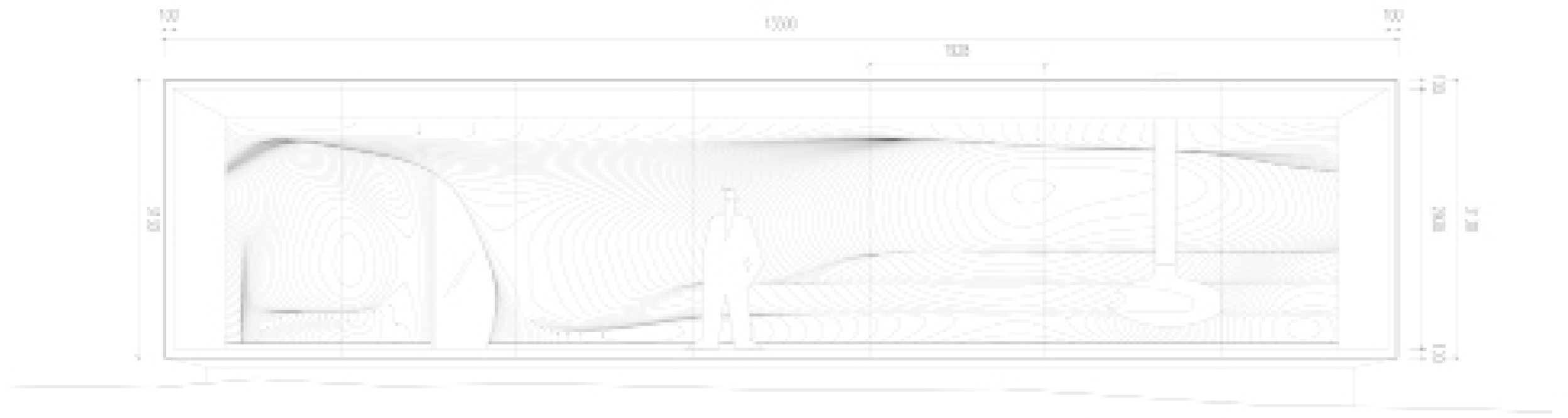
Project FABRICATION





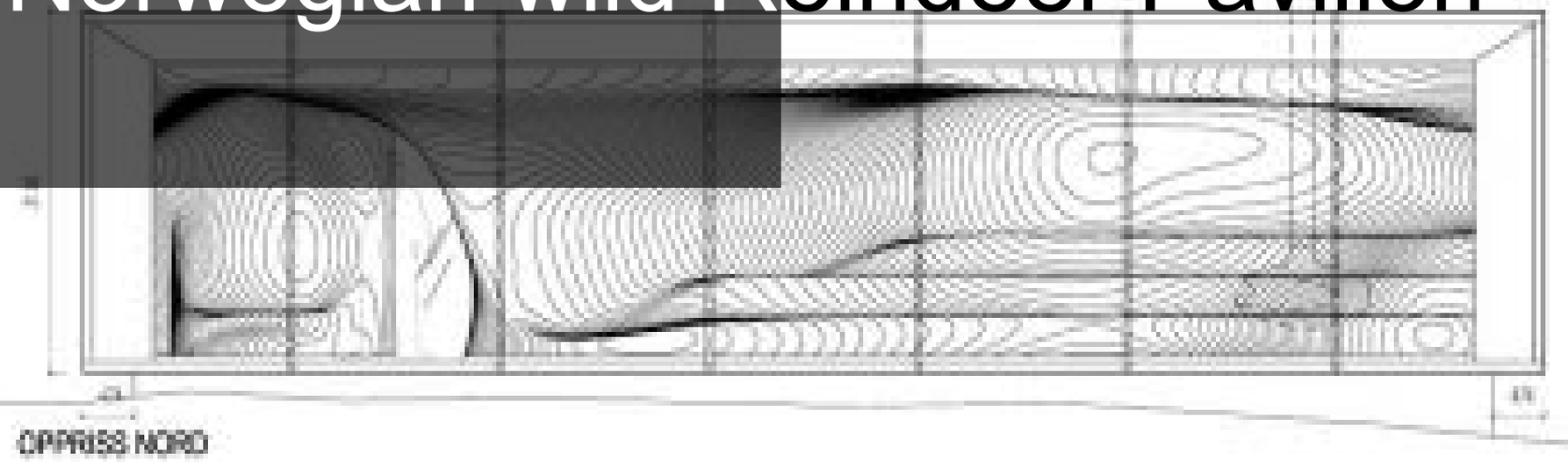


SOUTH ELEVATION

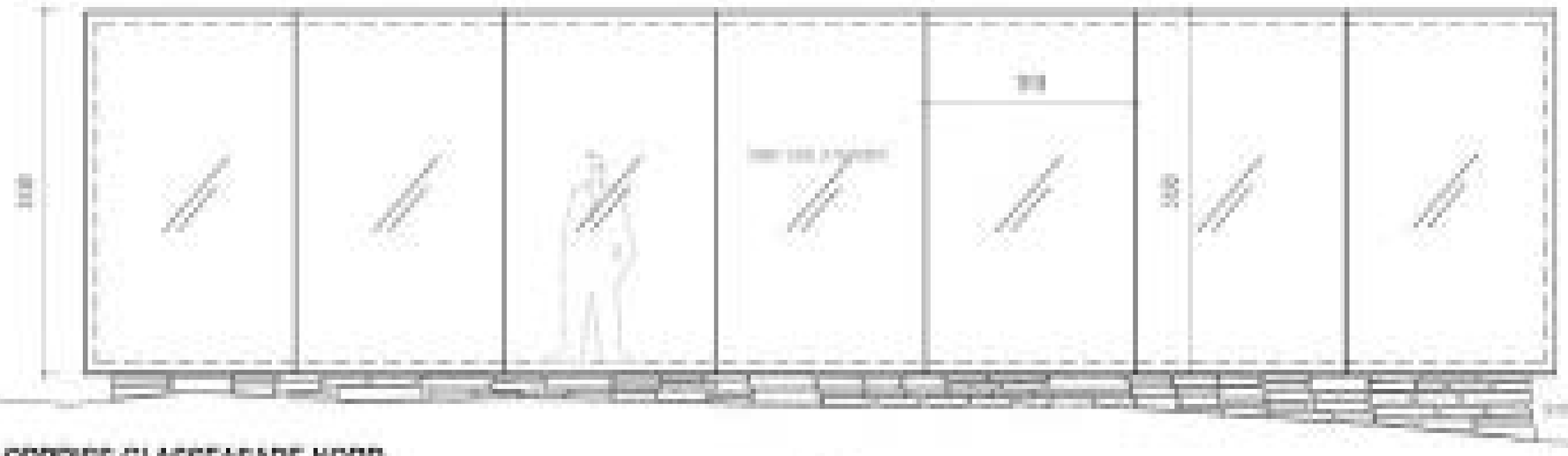


NORTH ELEVATION

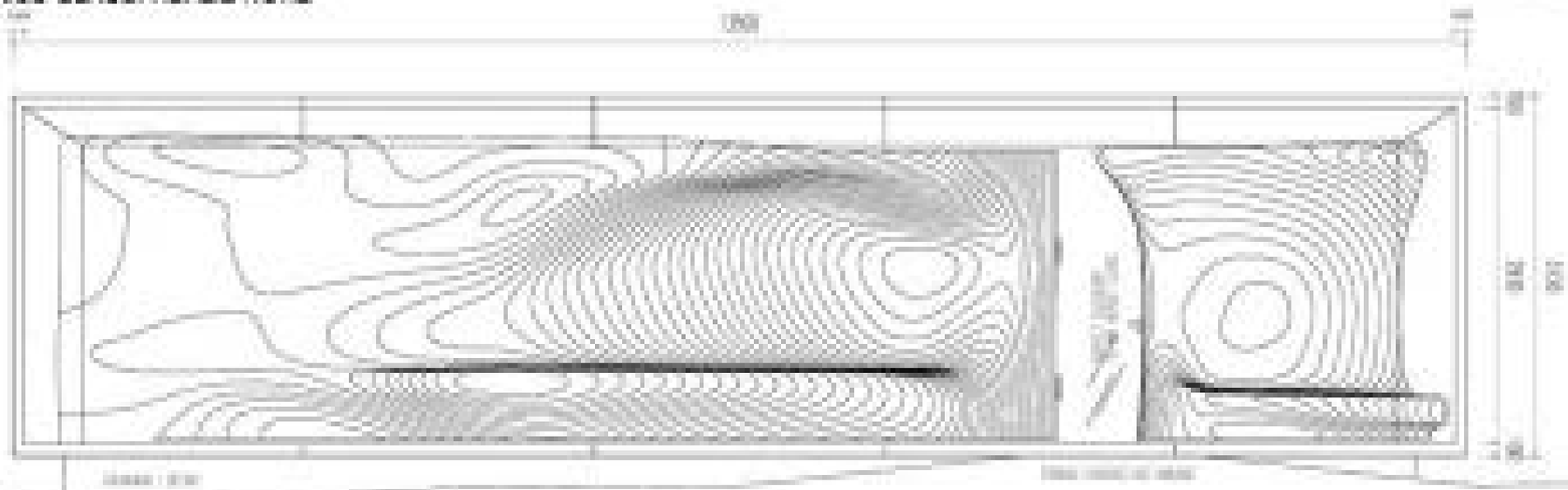
Norwegian wild Reindeer Pavilion



OPPRISS NORD



OPPRISS GLASSFASADE NORD



SNØHETTA

OPPRISS NORD OG SØR
GLASSFASADE NORD

Norwegian wild Reindeer Pavilion

Project MACHINE / SOFTWARE

A CNC wood router is a CNC router tool that creates objects from wood. CNC stands for computer numerical control. The CNC works on the Cartesian coordinate system (X, Y, Z) for 3D motion control. Parts of a project can be designed in the computer with a CAD/CAM program, and then cut automatically using a router or other cutters to produce a finished part.

Operation

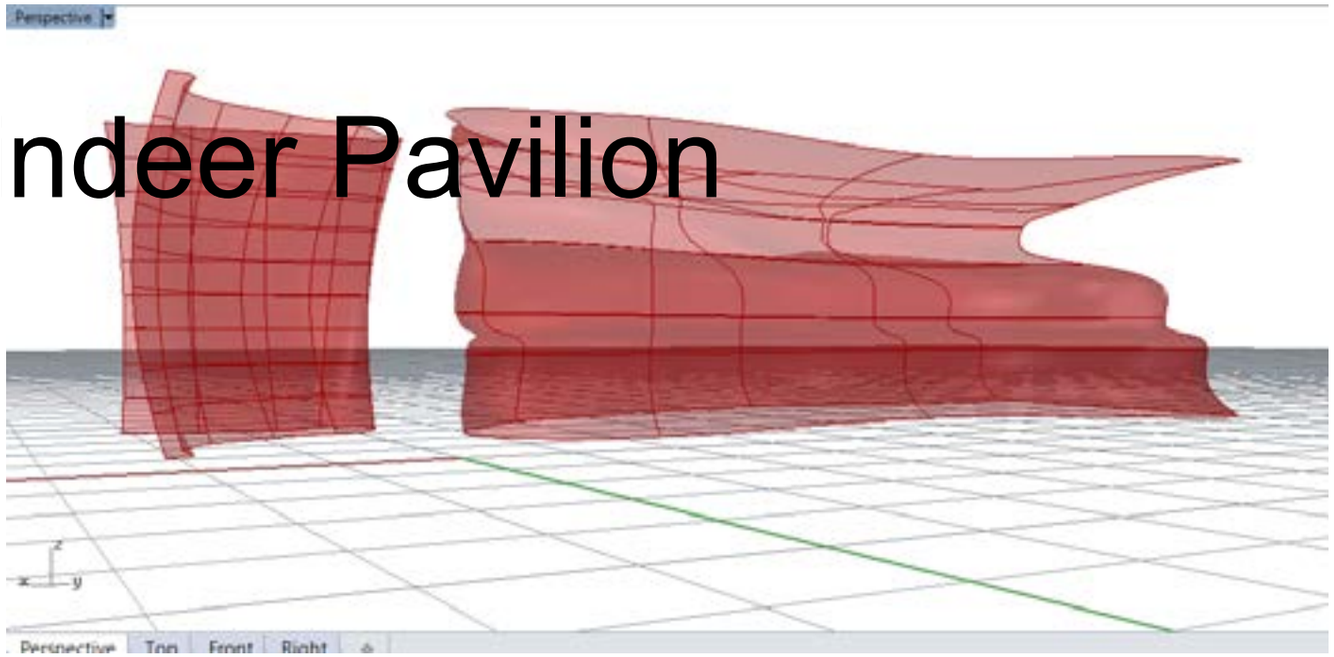
A CNC wood router uses CNC (computer numerical control) and is similar to a metal CNC mill with the following differences:

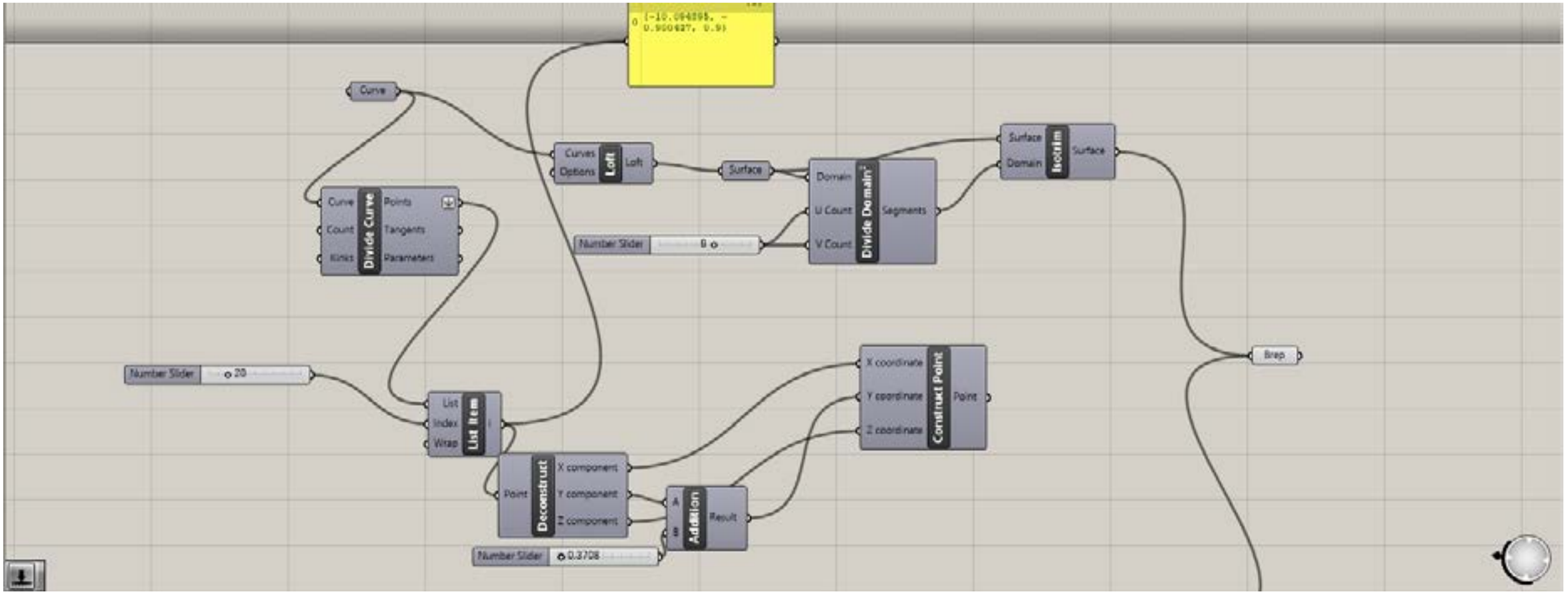
The wood router typically spins faster — with a range of 13,000 to 24,000 RPM
Professional quality machines frequently use surface facing tools up to 3” in diameter or more, and spindle power from 5 to 15 horsepower. Machines capable of routing heavy material at over a thousand inches per minute are common.
Some machines use smaller toolholders MK2 (Morse taper #2 - on older machines), ISO-30, HSK-63 or the tools just get held in a collet tool holder affixed directly to the spindle nose. ISO-30 and HSK-63 are rapid-change toolholding systems. HSK-63 has begun to supplant the ISO-30 as the rapid change standard in recent years.

Pictures from fabrication could not be found

Norwegian wild Reindeer Pavilion

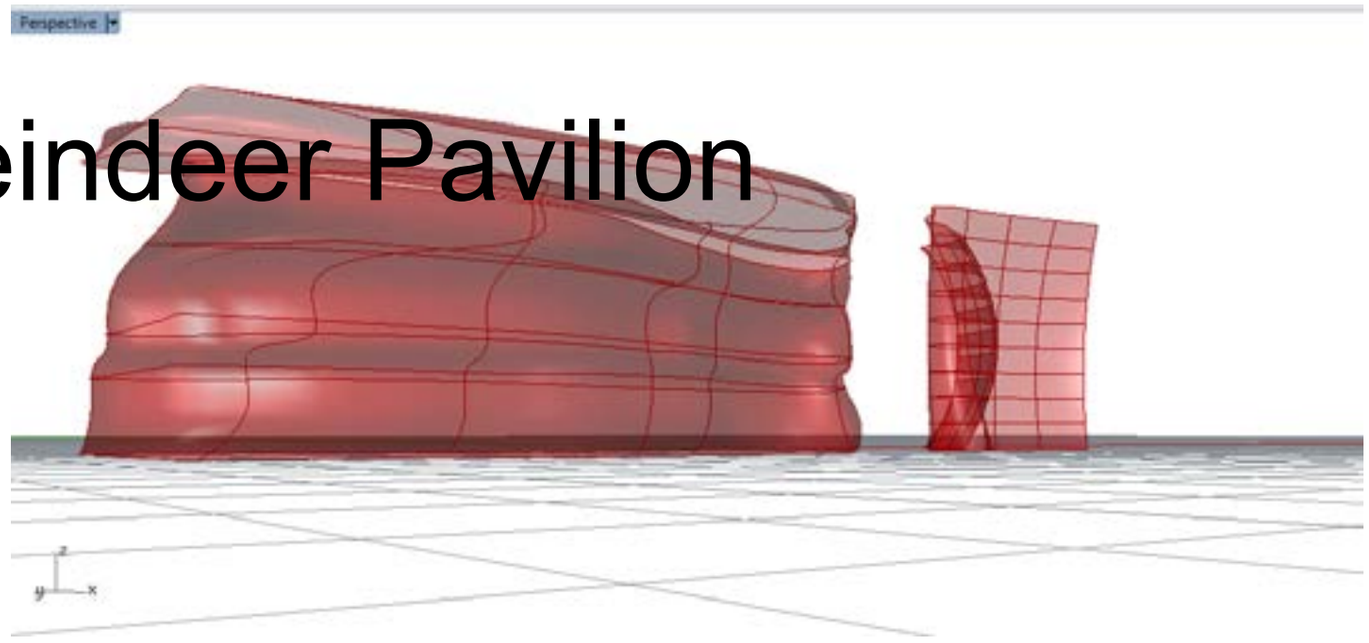
GRASSHOPPER
Modelling

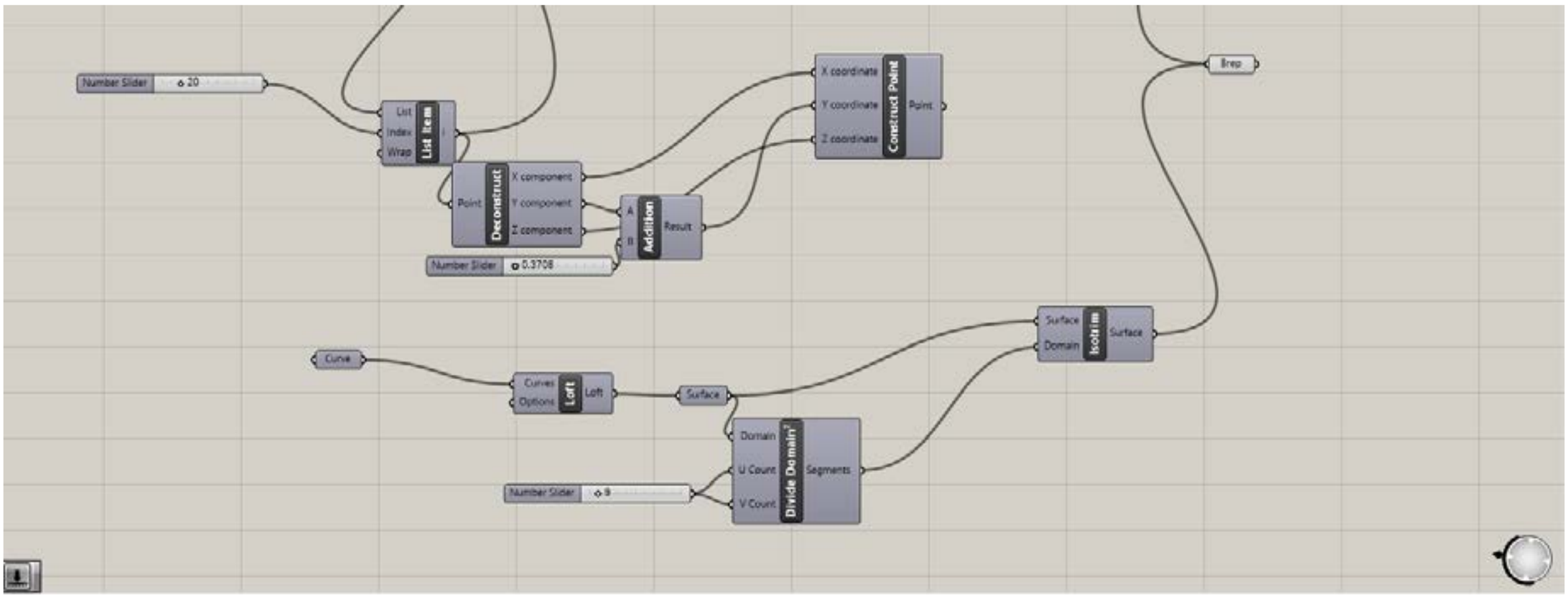




Norwegian wild Reindeer Pavilion

GRASSHOPPER
Modelling





Norwegian wild Reindeer Pavilion

Rendering

CONTOURING
ARTIFICIAL TOPOGRAPHY

FUJIKI RYUMEI

IKENNA OBINNA

Photographs: Courtesy of Ryumei Fujiki, Masahiro Hoshida

Artificial Topography

Project OUTLINE

Project Architect / Artist: **Ryumei Fujiki**

Location: **Kobe city, Japan**

Project team: **Fujiki Studio, KOU::ARC, Kensuke Kawamura, Yoshiki Tachi, Shun Simoya, Kohaku Furihata, Yuki Sakurada, Toshihiko Hatori, Yoshito Fukaya, Yuji Uemura, Yuki Ishigami**

Function: **Pavilion / Street Furniture**

Construction Year: **2011**

Dimmensions: **W 2400mm X D 6000mm X H 2400mm**

Construction Team: **XXXX**

Materials Used: **Polyofelin Firing Resin soft plastic boards**

Budget: **xxxx**

Major Fabrication Method Used: **Lamination**

Secondary Fabrication Methods: **XXXXXXXXXX**

Fabricated By: **CNC**

Type Of Construction: **Metal Frame**

Modelling Software: **xxxx**

Photographs: Courtesy of Ryumei Fujiki, Masahiro Hoshida

Artificial Topography

Project DESCRIPTION

- The idea of the design is to hollow out the volume inside a container in order to build amorphous space like a cave,
- It is made of only soft plastic material,
- About 1000 sheets of the soft plas-tic materi al of 10-mm thickness were cut down in contour line form,
- Each piece were laminated together like a stratum,It is made of only soft plastic material,
- Provides comfortable relaxing sit-ting for visitors
- It functions as a furniture but seen as an art.
- Design inspiration from nature.

Photographs: Courtesy of Ryumei Fujiki, Masahiro Hoshida

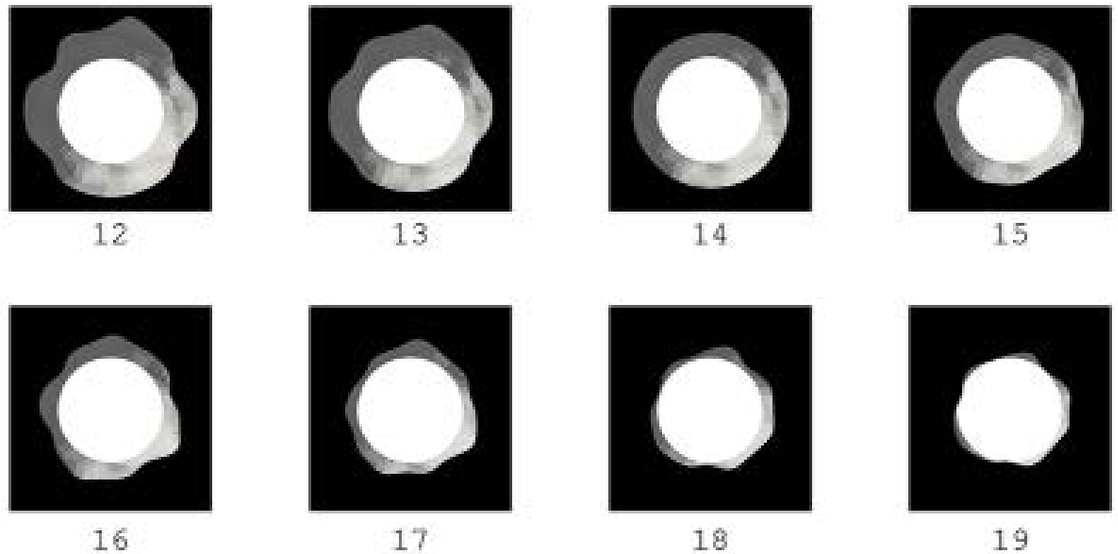
Artificial Topography

Photographs: Courtesy of Ryumei Fujiki, Masahiro Hoshida

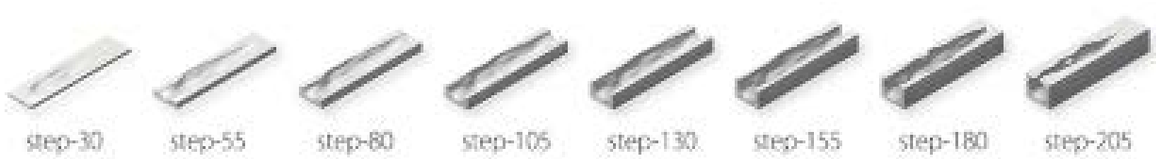
Artificial Topography

Project FABRICATION

About 1000 sheets of the soft plastic material of 10-mm thickness were cut down in contour line form and were laminated like stratum



CT-Scan Sections



Lamination Process like a Stratum

Artificial Topography

Project MATERIALS

Polyofelin Firing Resin soft plastic boards

are characterized by;

- Light weight
- Lower cost
- Impact resistant
- Low co-efficient of friction
- Excellent chemical resistance
- Good insulation
- Near zero moisture absorption
- Lower heat transmission
- Easy to work

Raw Material Sizes :

Thickness - 1 mm to 30 mm
Width - up to 2,050 mm
Length - up to 3,050 mm

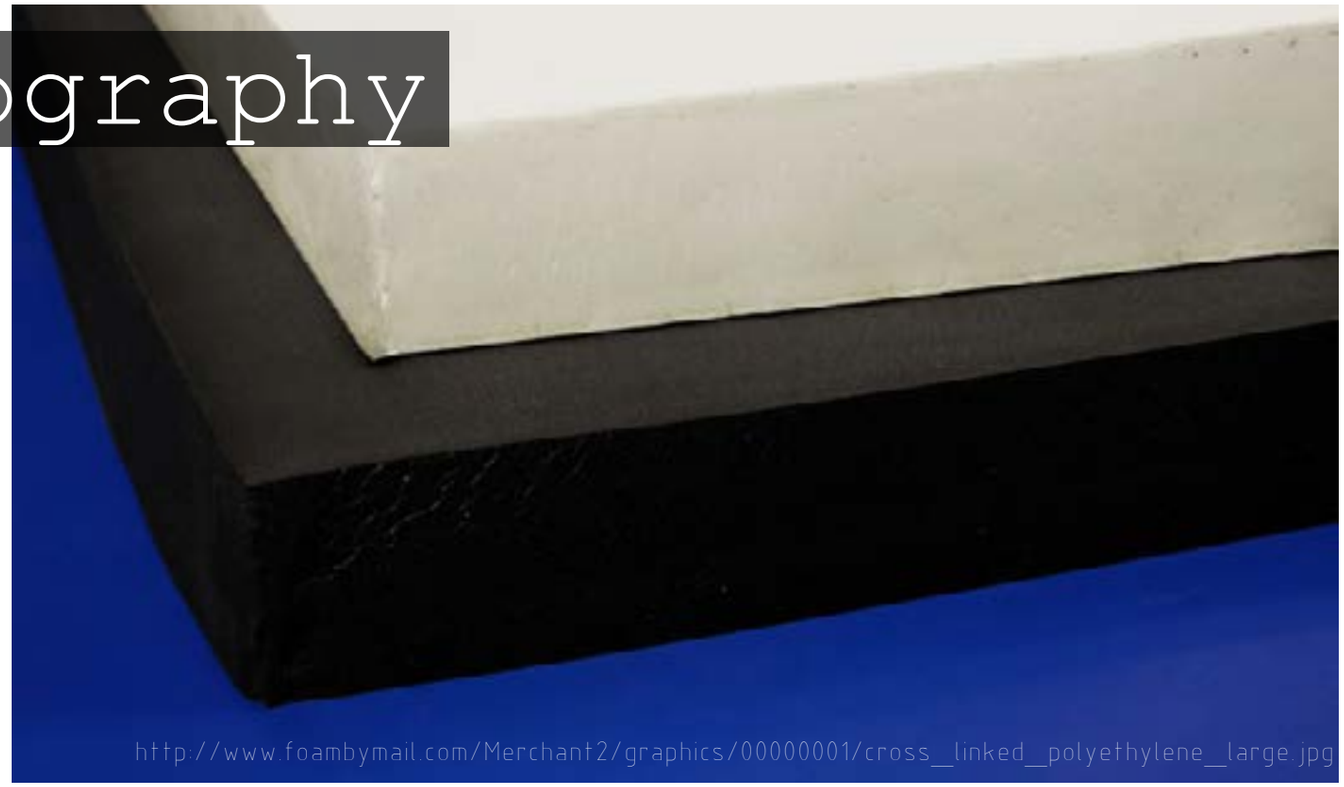
Photographs Courtesy of Ryumei Fujiki, Masahiro Hoshida

Artificial Topography

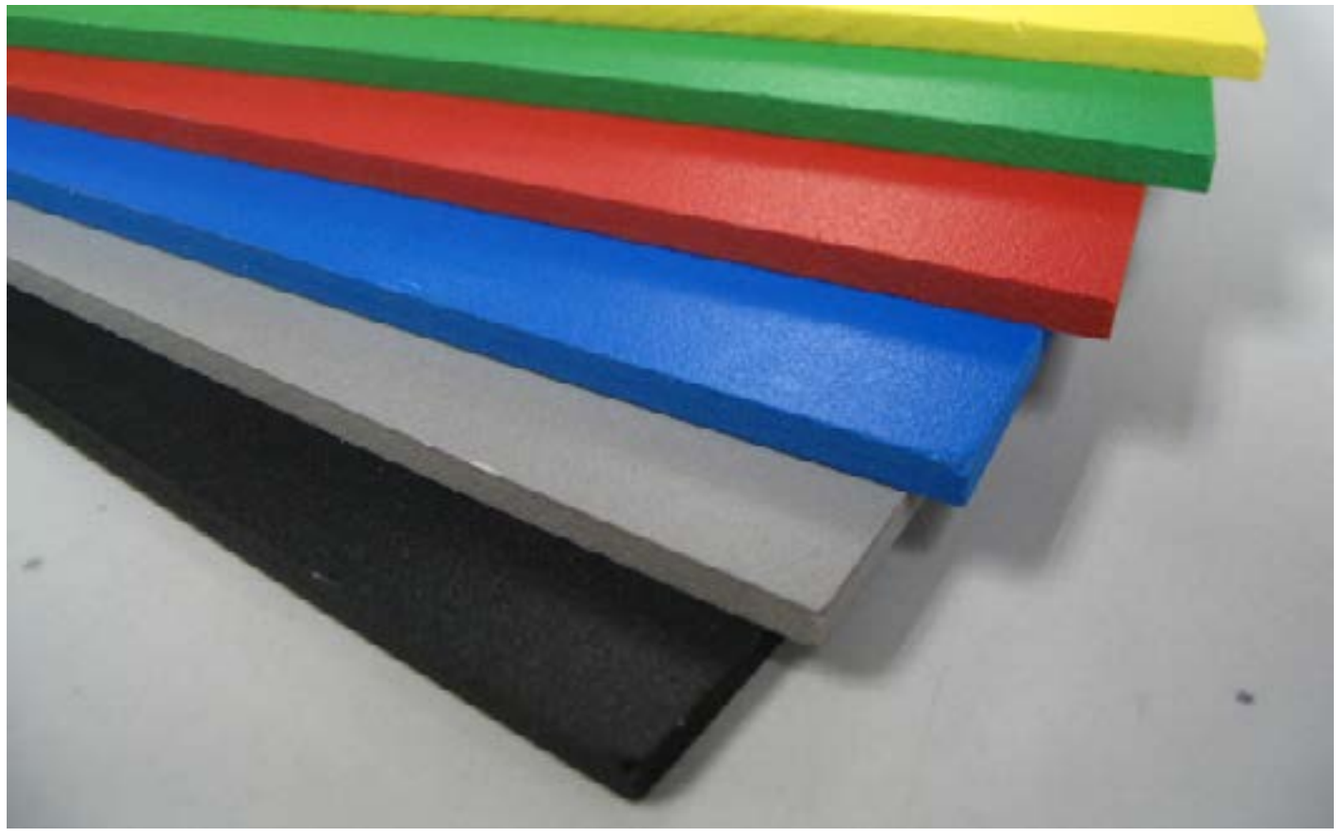
Project MATERIALS

Polyofelin Firing Resin soft plastic boards

http://www.proaudiostash.com.au/product_images/_orig/7184.jpg



http://www.foambymail.com/Merchant2/graphics/00000001/cross_linked_polyethylene_large.jpg

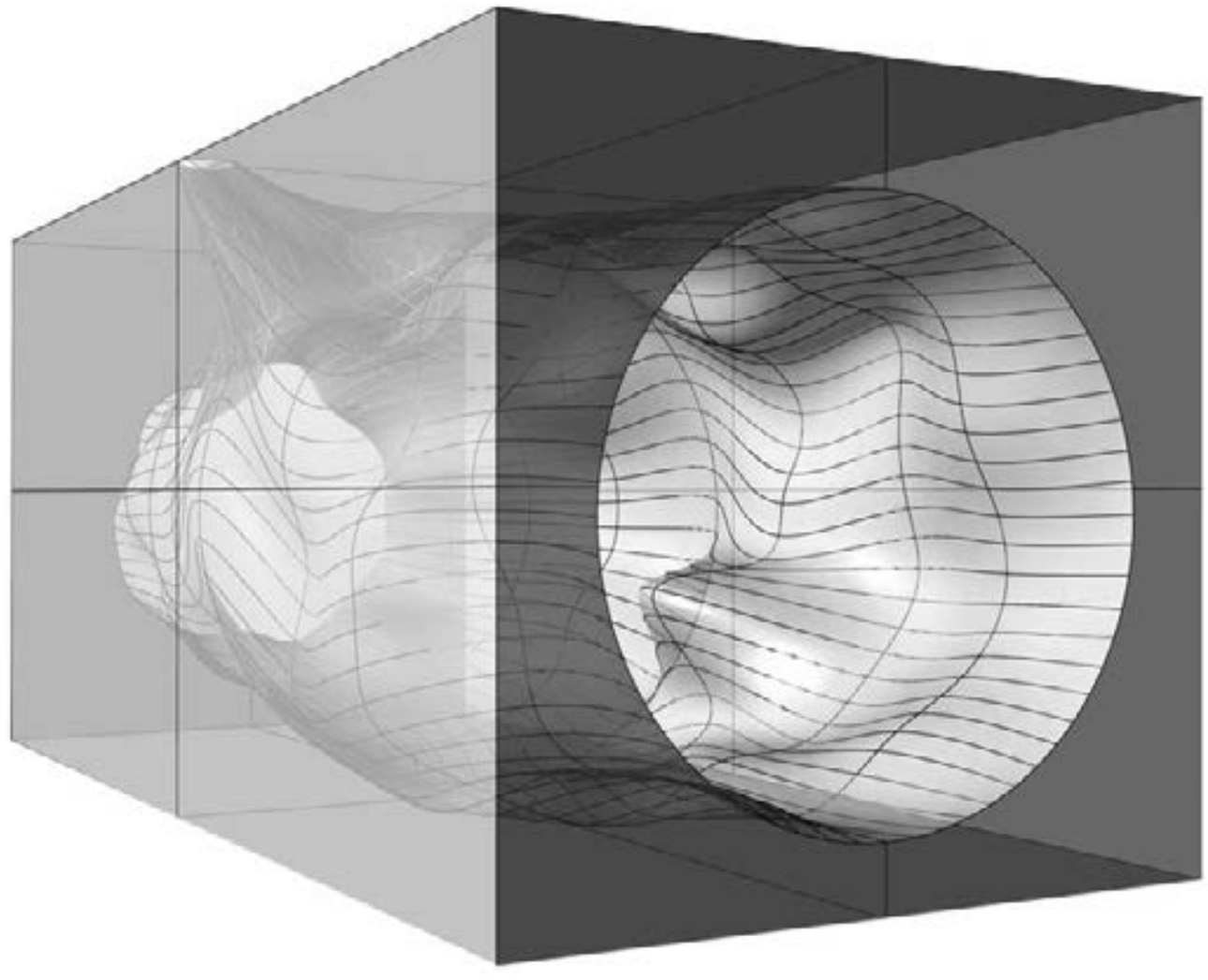


Artificial Topography

Project MACHINE / SOFTWARE

Not Stated

3d Rendering



Artificial Topography

GRASSHOPPER
Modelling

PROCESS

1. Creat a boxdimension 6 X 2.4 X 2.4 m

2. Draw a crossection of the interior pattern

3. Loft the cross section

4. Cap the result of the Loft,

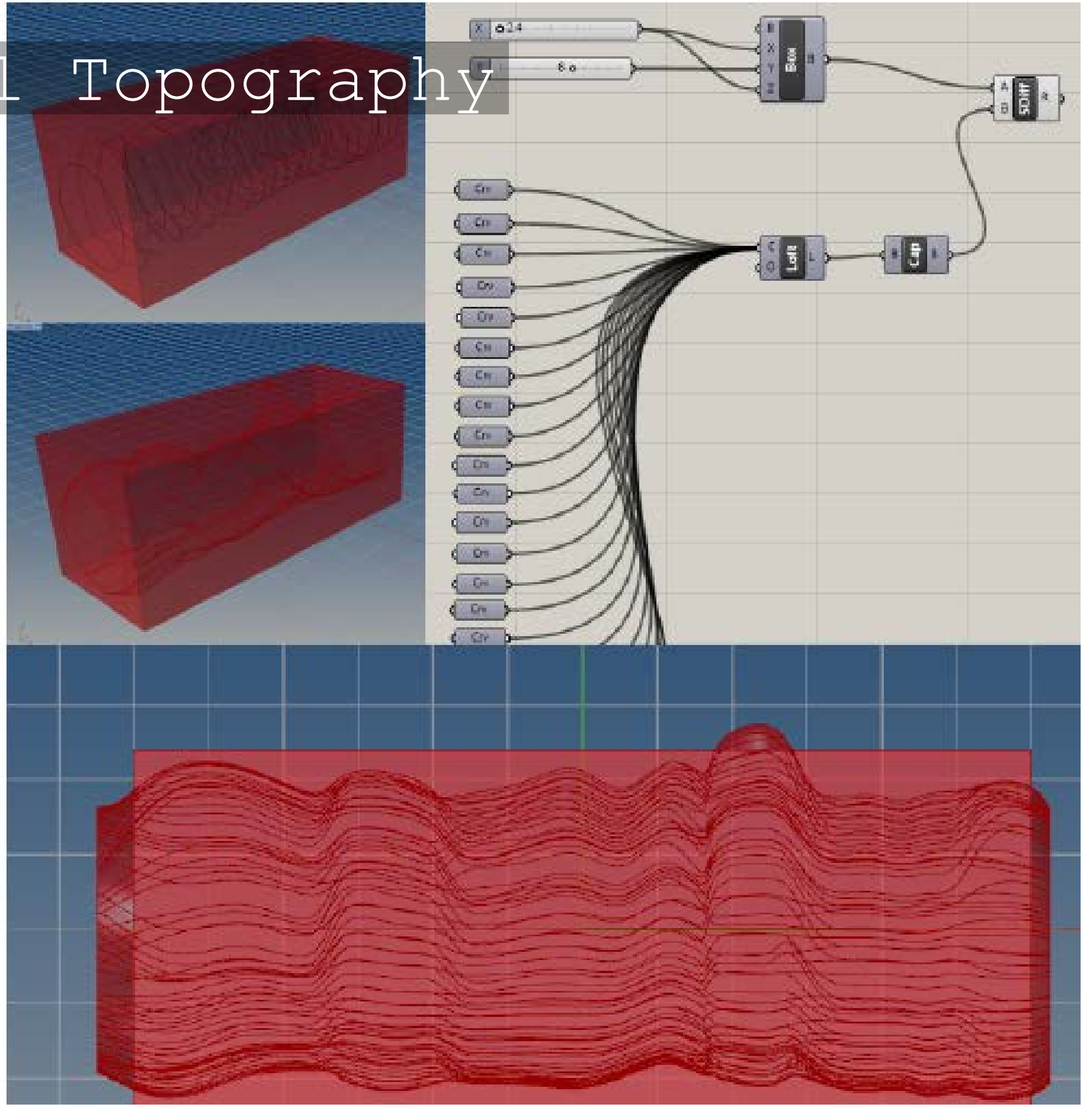
5. Cap the result of the Loft,

6. Extract the Form using SOLID DIFFERENCE

7. Creat a set of Mesh contours

8. Creat planer surfaces from a collection of boundary edge curve,

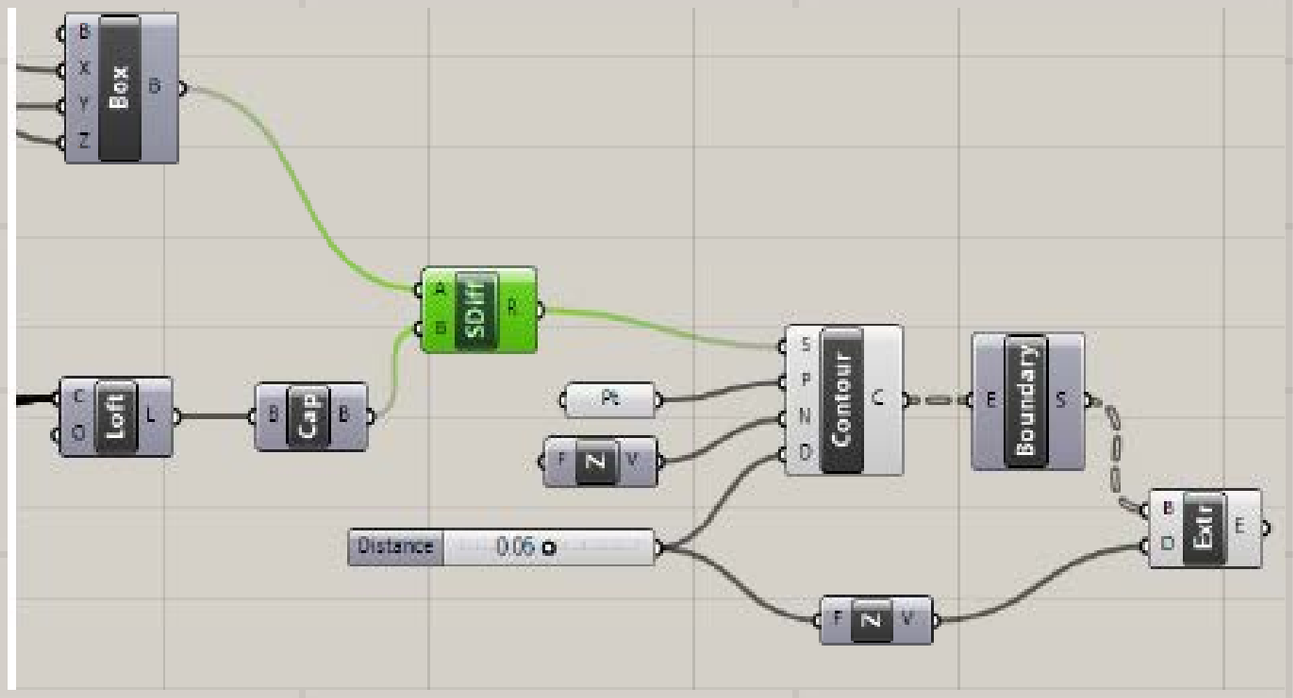
9. Extrude curves and surfaces along vector,

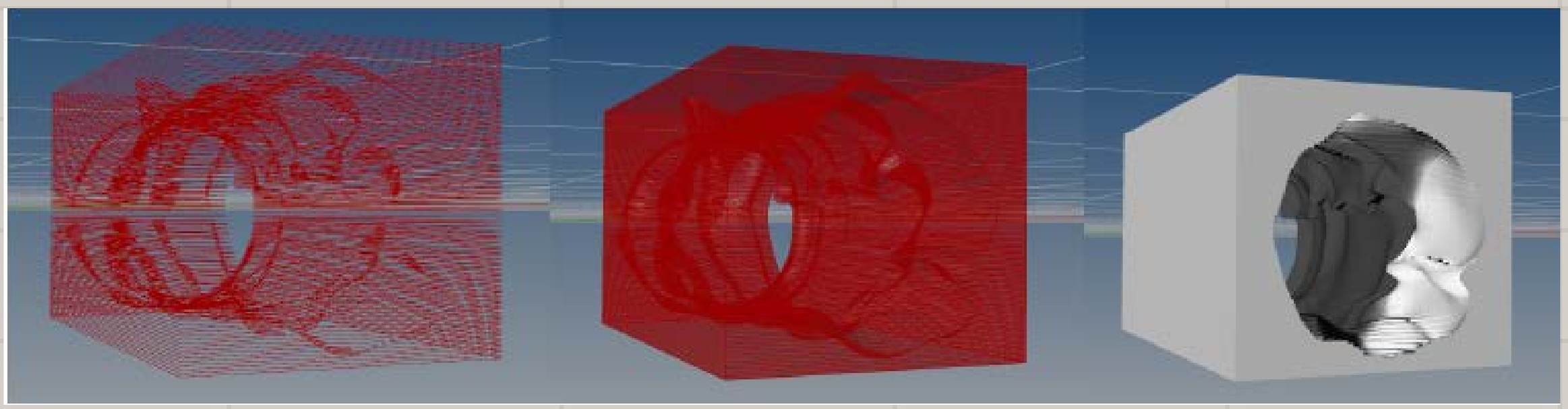


Artificial Topography

GRASSHOPPER

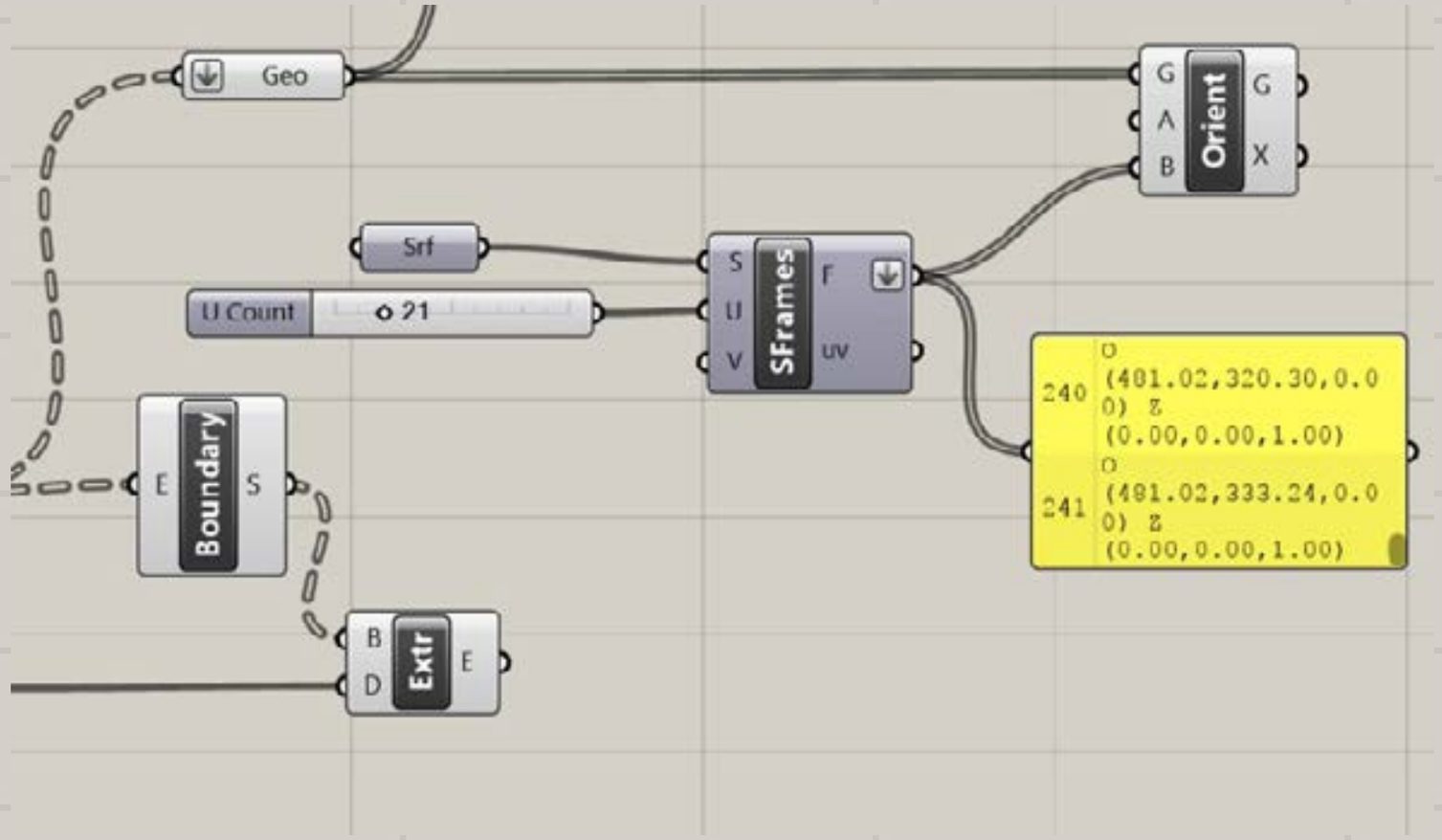
Modelling





Artificial Topography

FABRICATION Definition



CONTOURING

Shun Shoko Lounge

Kengo Kuma

Louis Magny

Shun Shoko

Project OUTLINE

Project Architect / Artist: Kengo Kuma

Location: Osaka, Japon

Investor: Shun Shoko lounge by Guruvani

Function: Café

Construction Year: 2014

Construction Team: XXXX

Materials Used: Pressure treated wood, Stainless steel wire, Zinc coated steel, glass.

Budget: XXXX

Major Fabrication Method Used: Additionnal Contouring

Secondary Fabrication Methods: XXXXXXXXXX

Fabricated By: (type of machine ie. CNC, Milling, etc)

Type Of Construction: Wood Frame

Modelling Software: Rhino + Grasshopper

Shun Shoko

Project DESCRIPTION

From the architect. We piled up pieces of wooden panels to build the interior like topography. Various kinds of food-related items are laid out on this wooden ground. We expected that the chemistry would be just right for eating and the wooden stratum.
Layered configuration has also been designed for V&A at Dundee. This lounge is in a way like a nesting inside V&A.

www.archdaily.com/guruvani-kengo-kuma

Shun Shoko

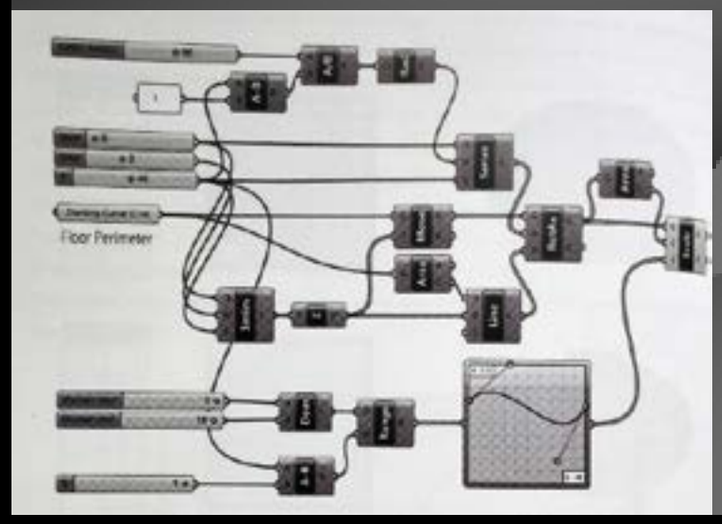
CNC MACHINE / Rhino + Grasshopper

Numerical control (NC) is the automation of machine tools that are operated by precisely programmed commands encoded on a storage medium, as opposed to controlled manually via hand wheels or levers, or mechanically automated via cams alone. Most NC today is computer (or computerized) numerical control (CNC),[1] in which computers play an integral part of the control.

Shun Shoko

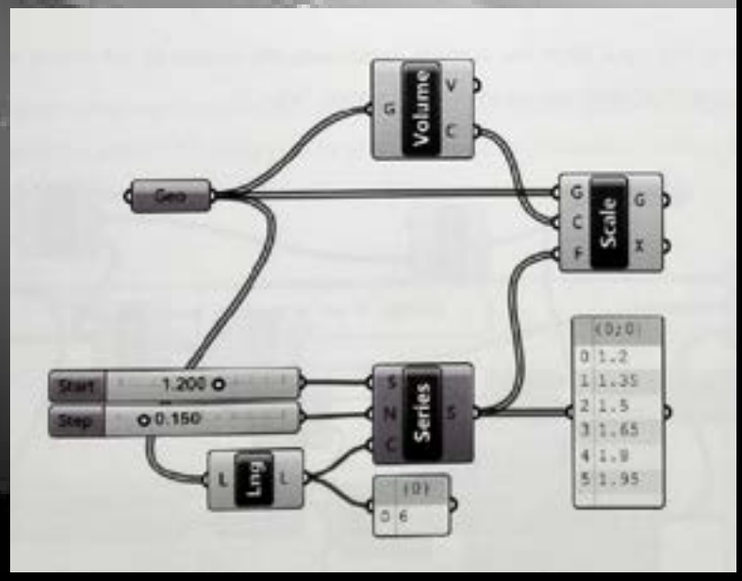
GRASSHOPPER

Modelling



Shun Shoko

GRASSHOPPER
Modelling



Shun Shoko

www.archdaily.com/guruvani-kengo-kuma

CONTOURING
KAMPPI CHAPEL OF SILENCE
K2S ARCHITECTS

Sohail Dalili

Source: http://www.archdaily.com/252040/kamppi-chapel-k2s-architects/

KAMPPI CHAPEL OF SILENCE

Project OUTLINE

Project Architect / Artist: K2S Architectst

Location: Helsinki, Finlandt

Investor: Helsinki Parish Union and the City of Helsinki

Function: Pavilion

Construction Year: 2012

Dimmensions: 20m High, 352sqm Area

Construction Team: Ulla Harju

Materials Used: Curved wood

-

Budget: 250.000 Euro

Major Fabrication Method Used: Contouring

Secondary Fabrication Methods: -

Fabricated By: -

Type Of Construction: Wood Frame

Modelling Software: Rhino + Grasshopper

Source: http://www.archdaily.com/252040/kamppi-chapel-k2s-architects/

KAMPPI CHAPEL OF SILENCE

Project DESCRIPTION

The Kamppi Chapel of Silence is located on the south side of the busy Narinkka square in central Helsinki. It offers a place to quiet down and compose oneself in one of Finland's most lively urban spaces. With its curved wood facade, the small sacral building flows into the city scape. Simultaneously, the chapel's gently shaped interior space embraces visitors and shields them from the bustling city life outside.

-

Source: http://www.archdaily.com/252040/kamppi-chapel-k2s-architects/

Source: http:https://plus.google.com/photos/112232328540484104536/albums/6073387276891715889

Source: http://www.lsnglobal.com/seed/article/5715/quiet-please-chapel-of-silence-is-a-city-haven

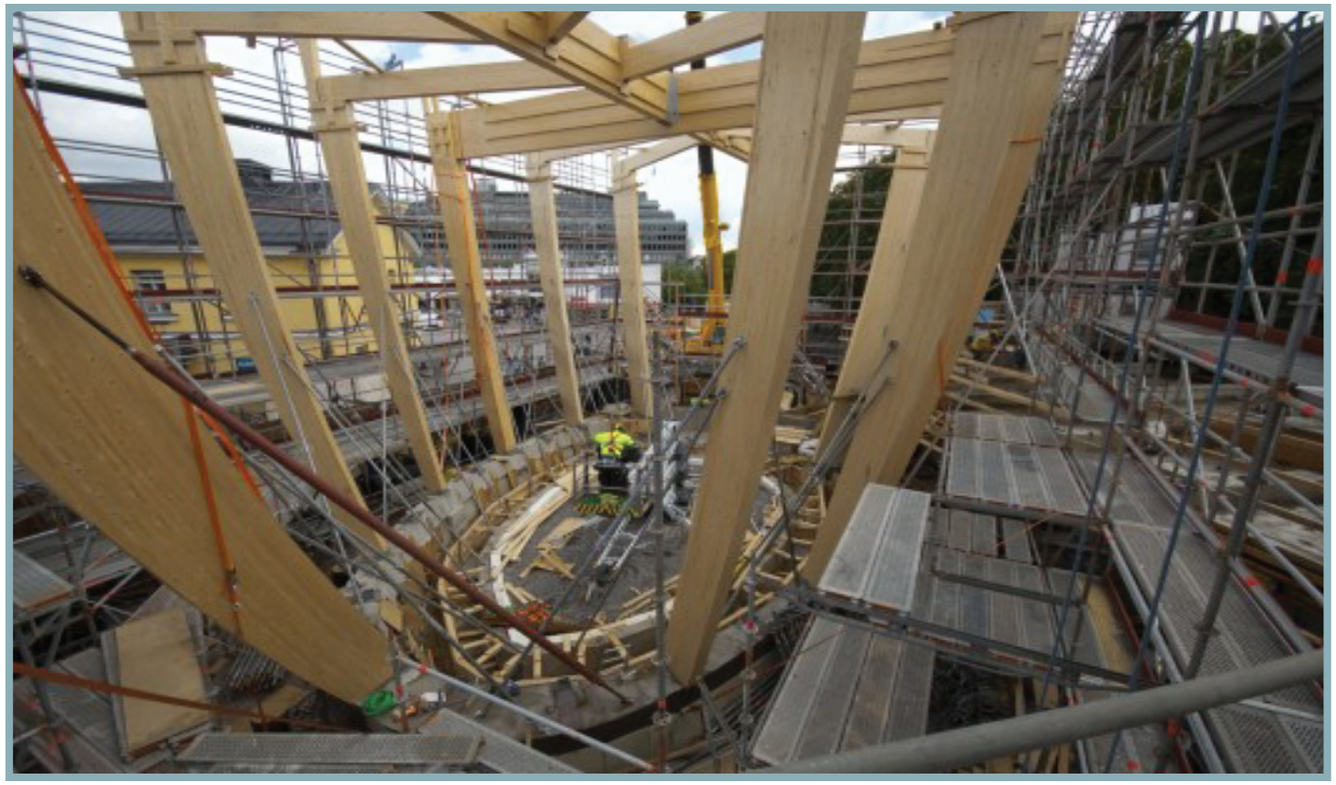
Source: http://www.lsnglobal.com/seed/article/5715/quiet-please-chapel-of-silence-is-a-city-haven

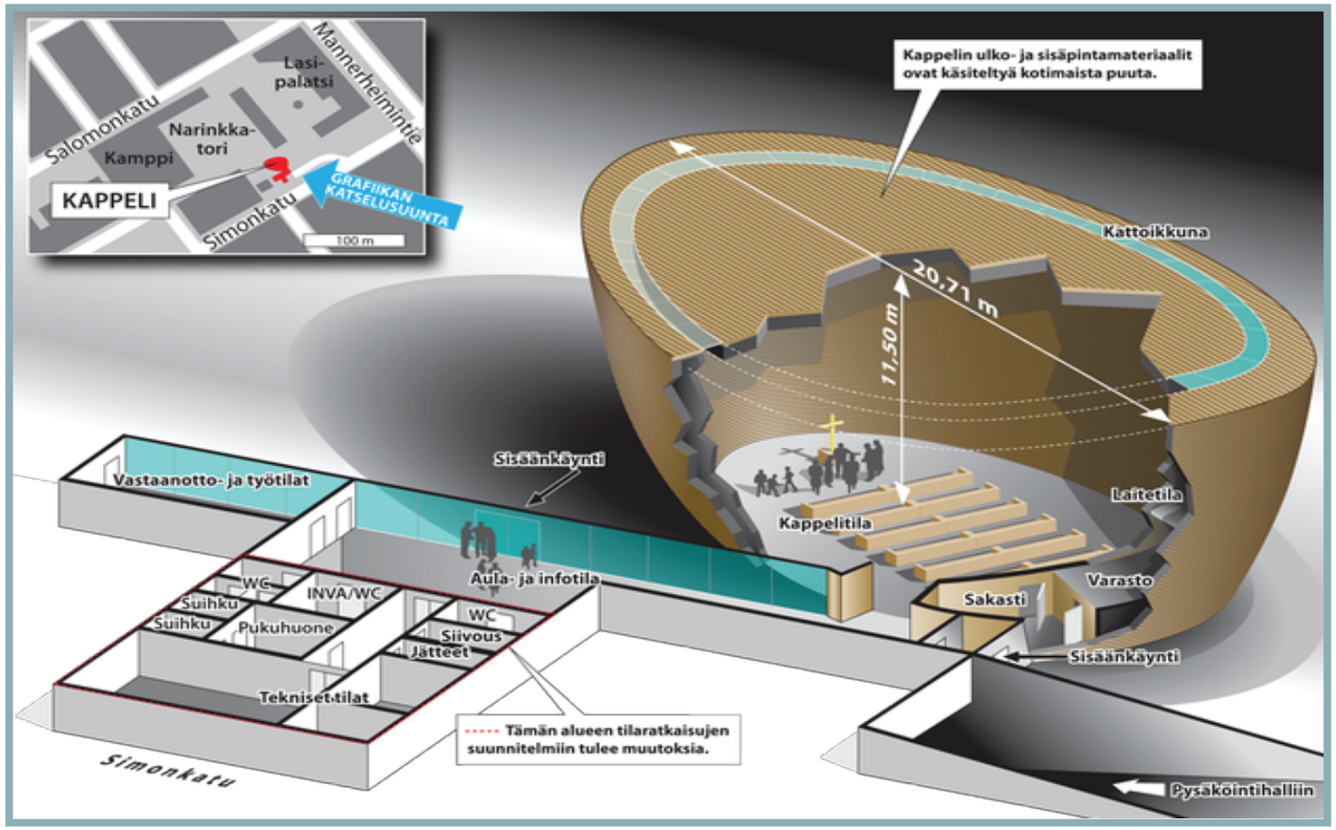
KAMPPI CHAPEL OF SILENCE

Project FABRICATION

The Chapel was designed by architects Kimmo Lintula, Niko Sirola and Mikko Summanen of K2S Architects Ltd. The Chapel is a sample of innovative wood architecture, and it received a lot of attention even before it was completed. For example, it was granted the International Architecture Award 2010 by The Chicago Athenaeum. The Kamppi Chapel was part of the World Design Capital Helsinki 2012 program.

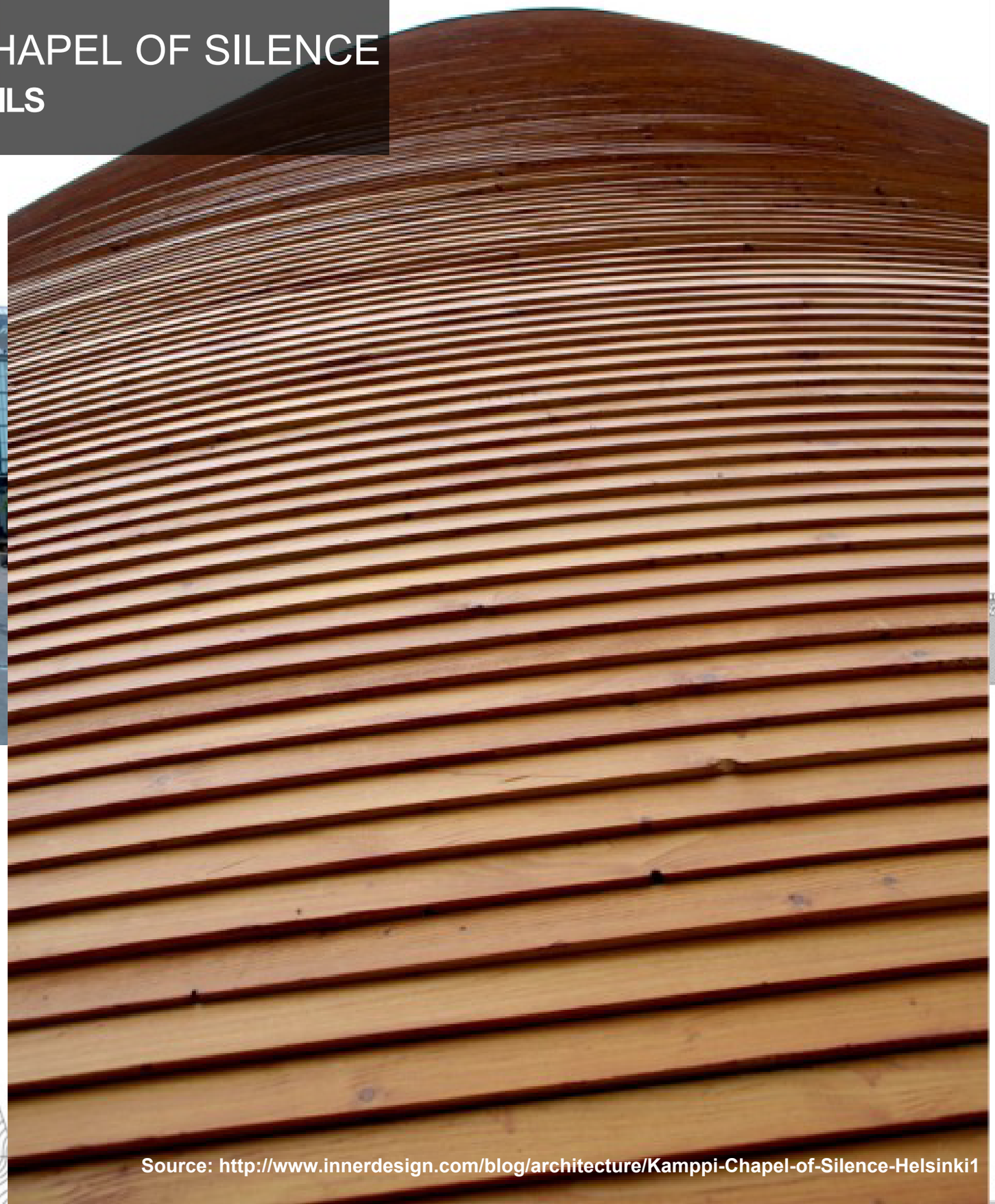
The most imposing space in the Chapel is the main hall with its height of 11.5 meters. In the quiet chapel area, the busy surroundings have been consciously blocked out. Present are the light coming indirectly from above and the warm feel of the materials.
The inner walls of the chapel area are lined with common alder planks cut to shape. The simple furnishing of the hall are made of massive ash tree.
The silver cross at the altar was sculpted by artist blacksmith Antti Nieminen. Liturgical textiles in the Chapel were designed by textile artist Tiina Uimonen.
The facades are constructed of horizontal spruce strips, bent at different radiuses. The wood is glazed with a special wax utilizing nanotechnology.
The frame is prepared of massive gluelam beams, which were cut to shape.

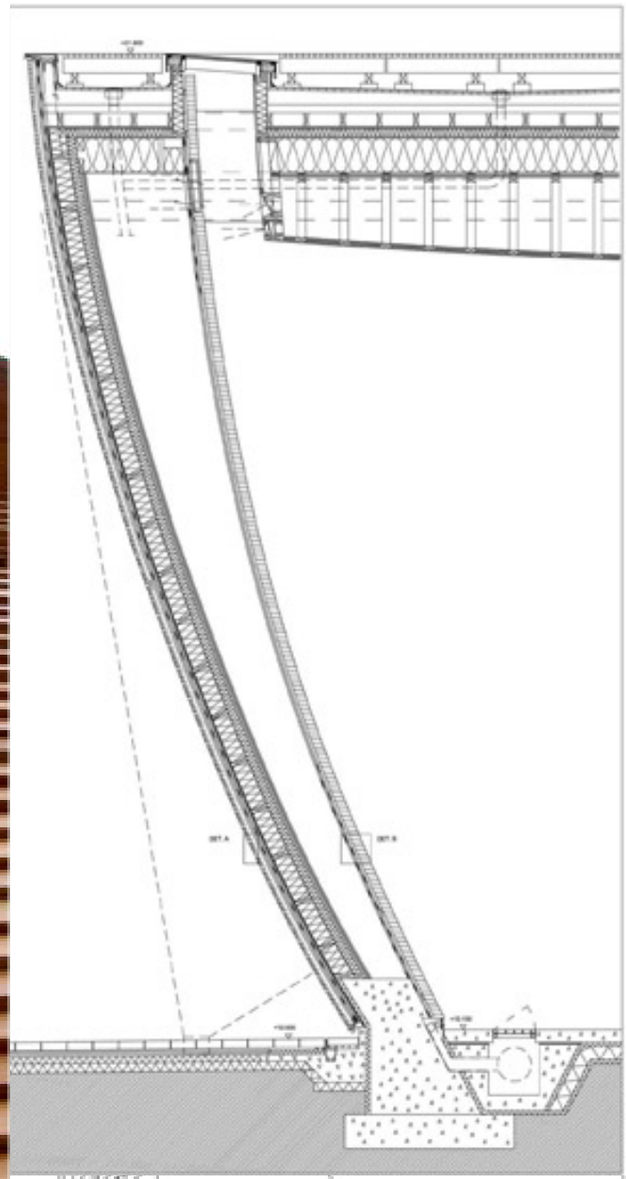


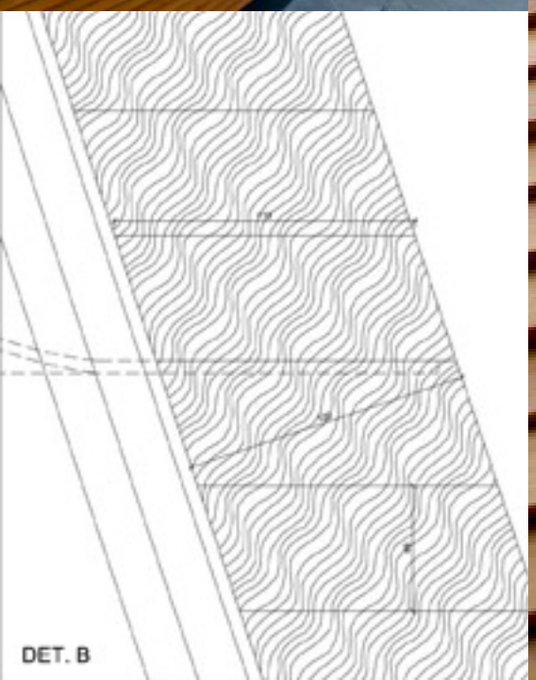


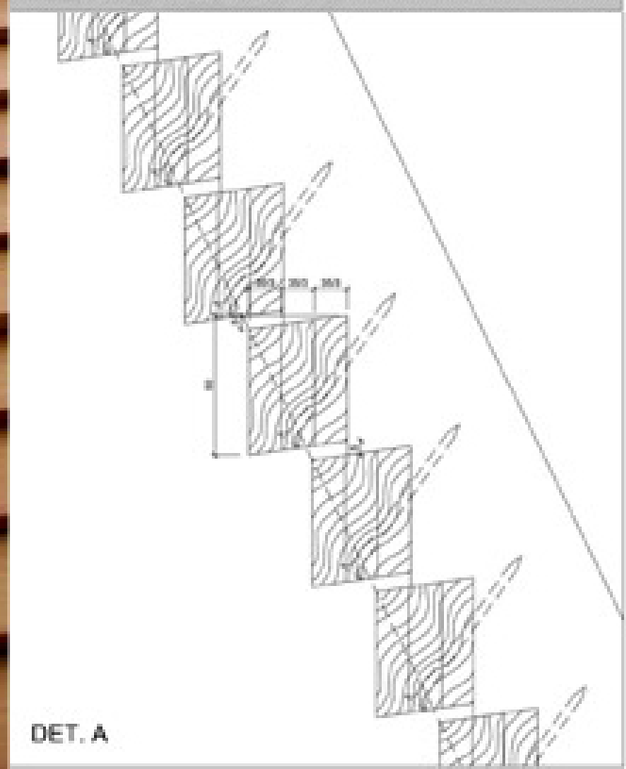
KAMPPI CHAPEL OF SILENCE

Project DETAILS









Source: http://www.innerdesign.com/blog/architecture/Kamppi-Chapel-of-Silence-Helsinki1

KAMPPI CHAPEL OF SILENCE

Project MATERIALS

KAMPPI CHAPEL OF SILENCE Wood Lath		
	Material	**Quantity**
Exterior(spruce planks)	-	-
Interior(thick oiled alder planks)	-	-
Concrete		
Main Structure		-
Metal		
Horizontal Finger Joints		-
Nanotech Wax		
Pigment Transparent (exterior)		

Source: http://inhabitat.com/curved-wooden-kamppi-chapel-of-silence-provides-quiet-sanctuary-in-helsinki/kamppi-chapel-by-k2s-architects-6/

KAMPPI CHAPEL OF SILENCE

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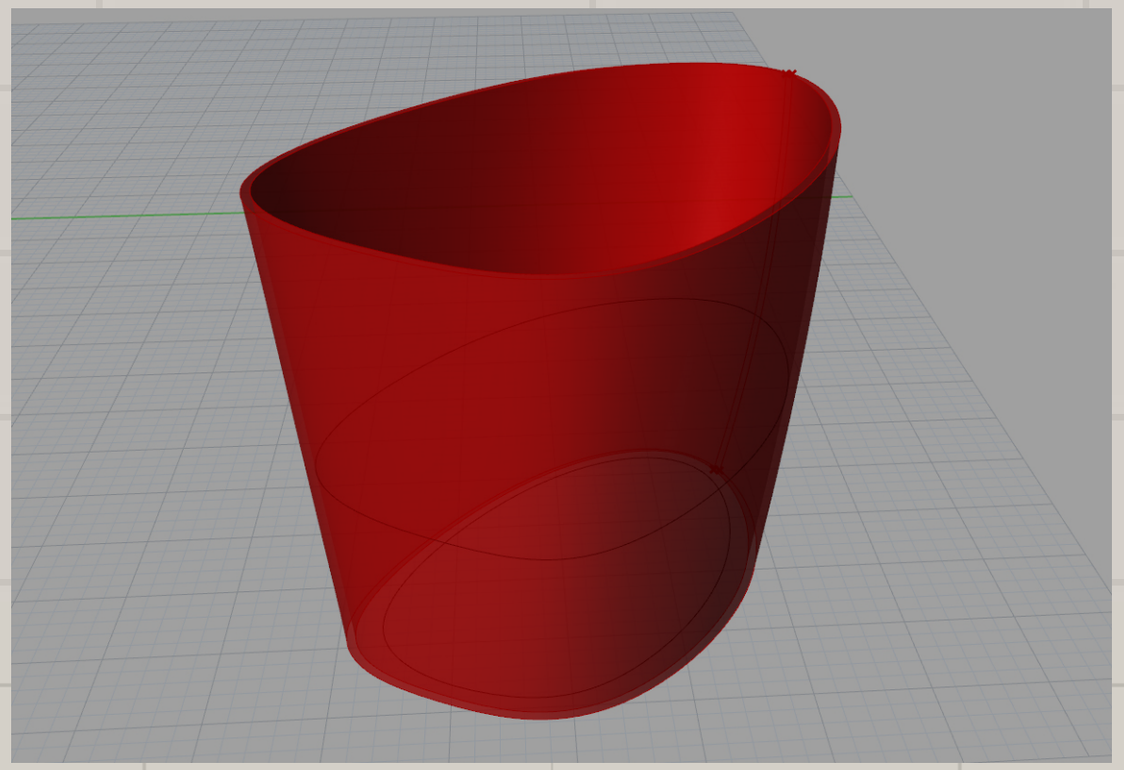
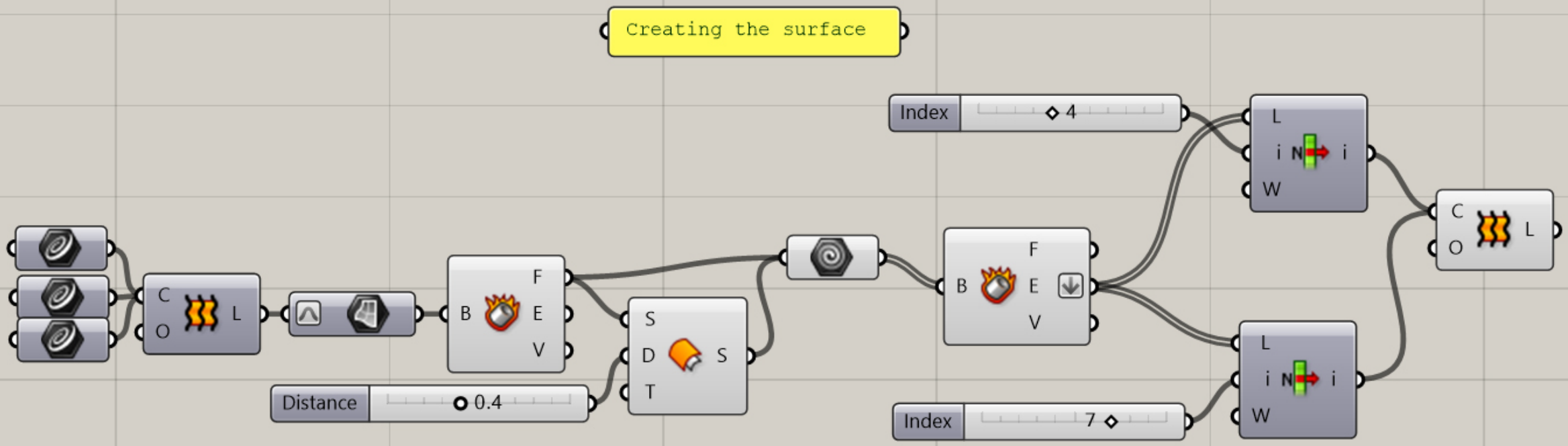
Modelling





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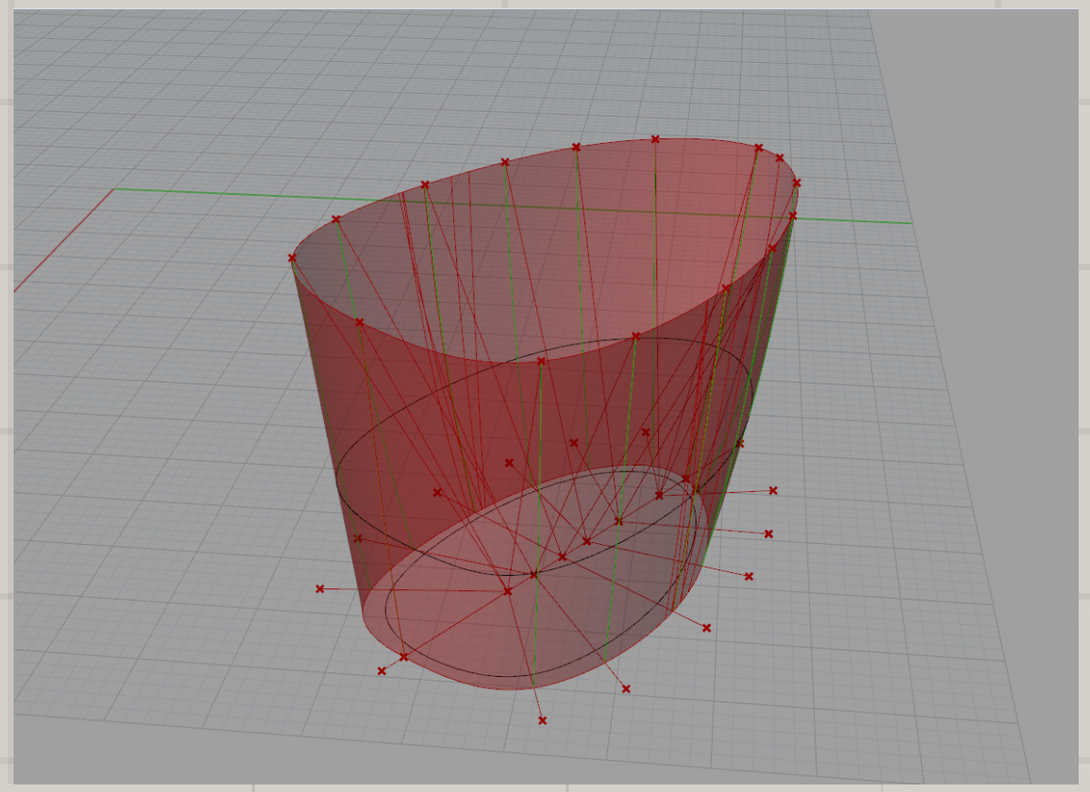

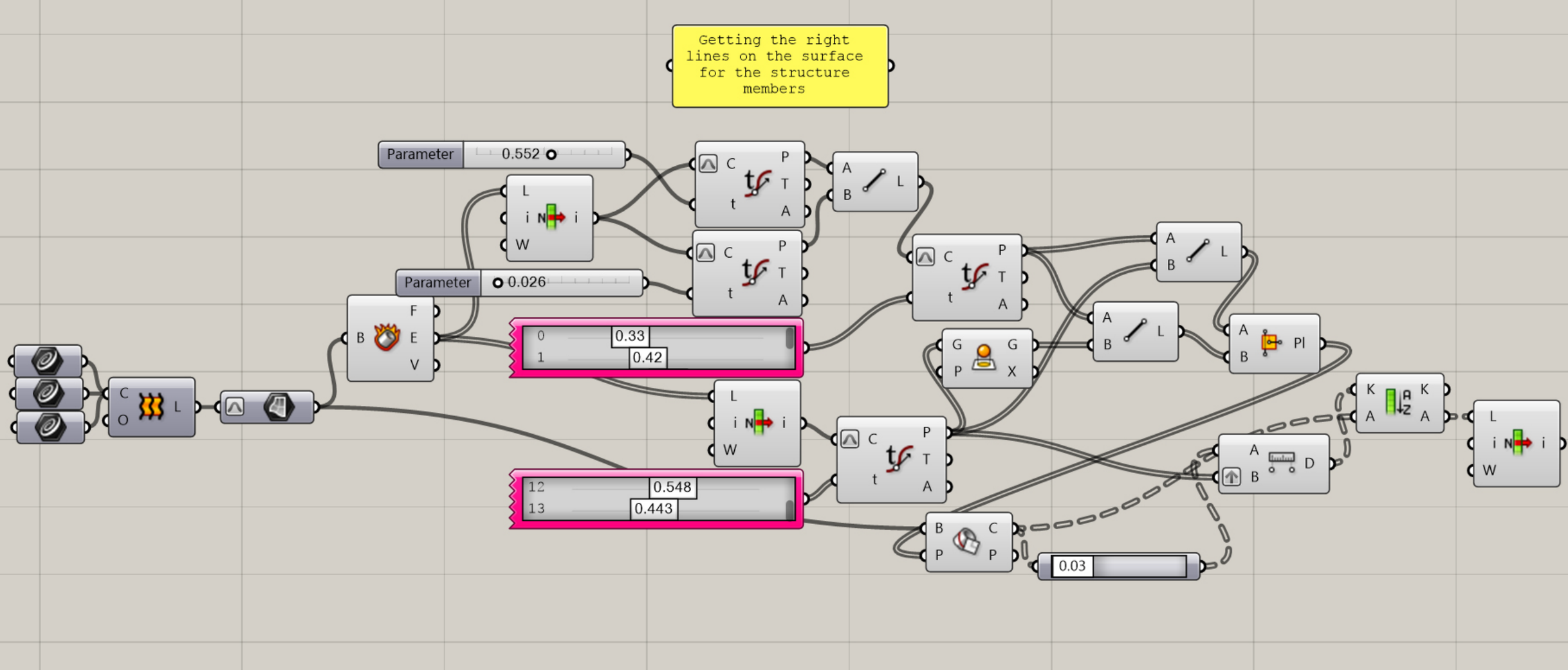

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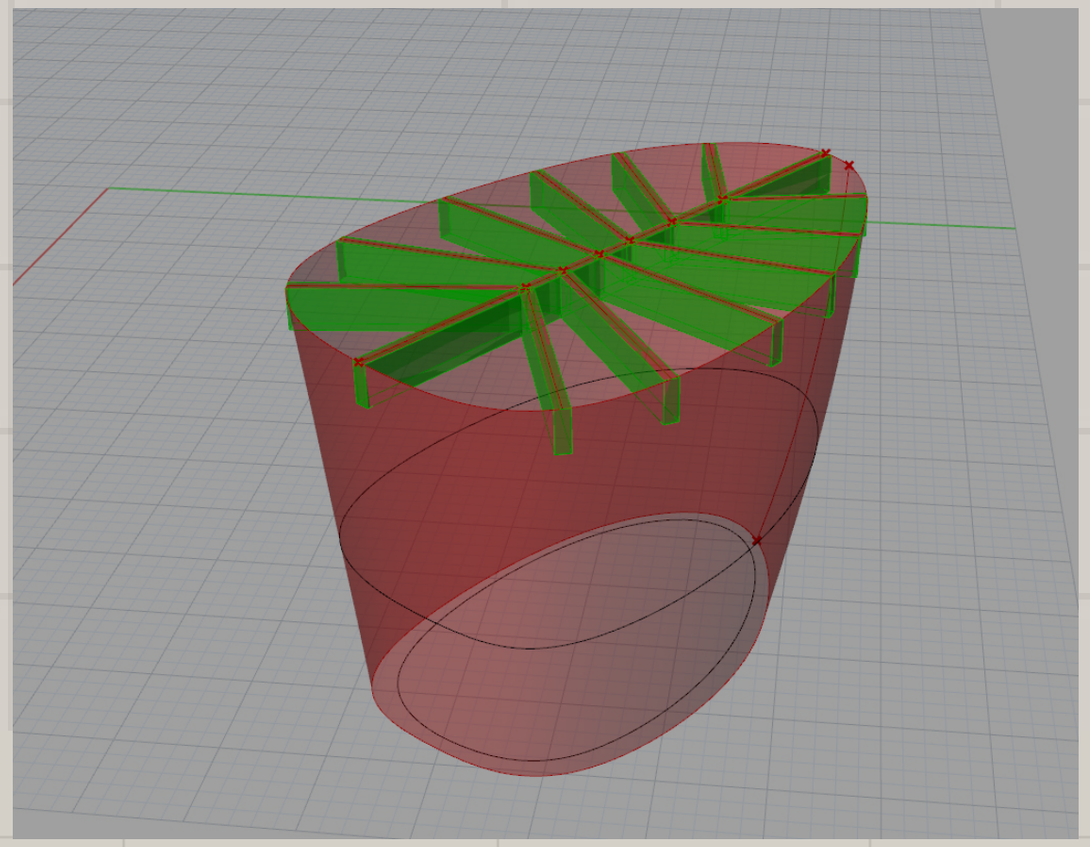

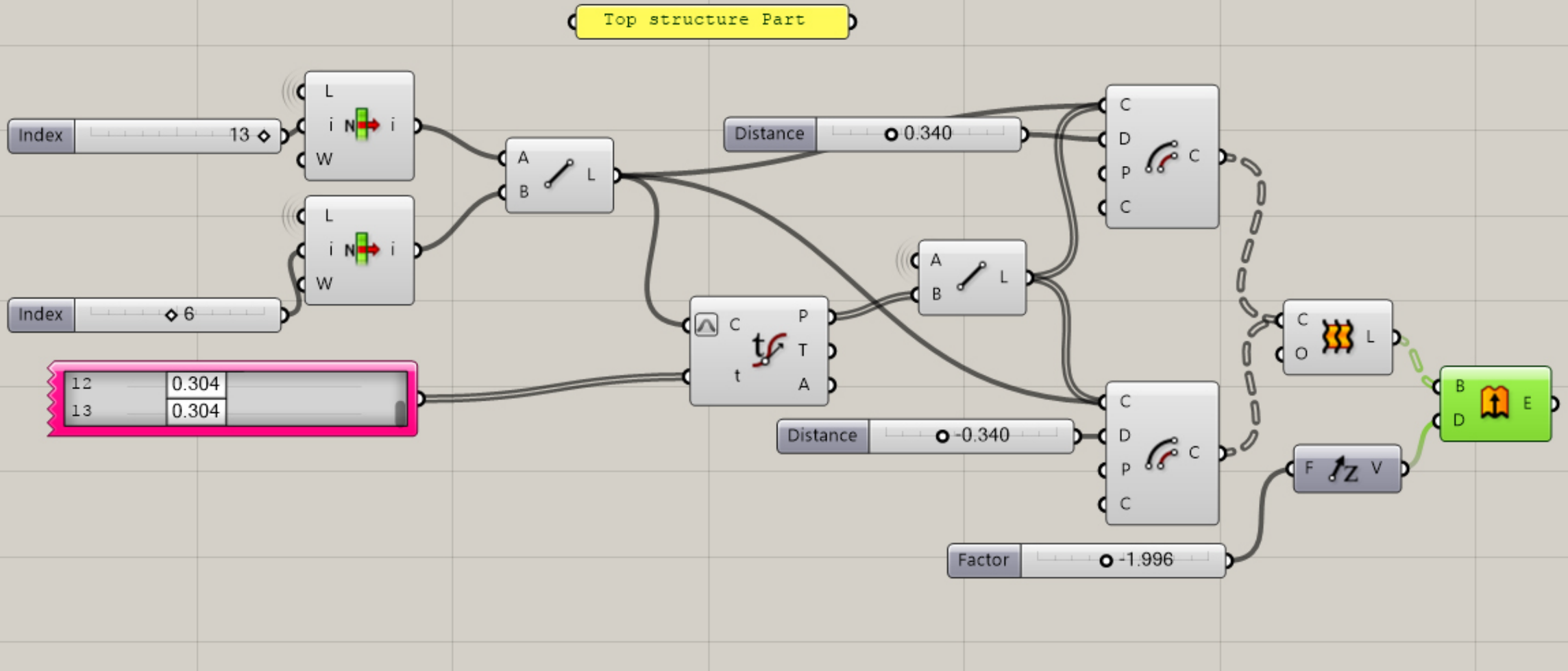

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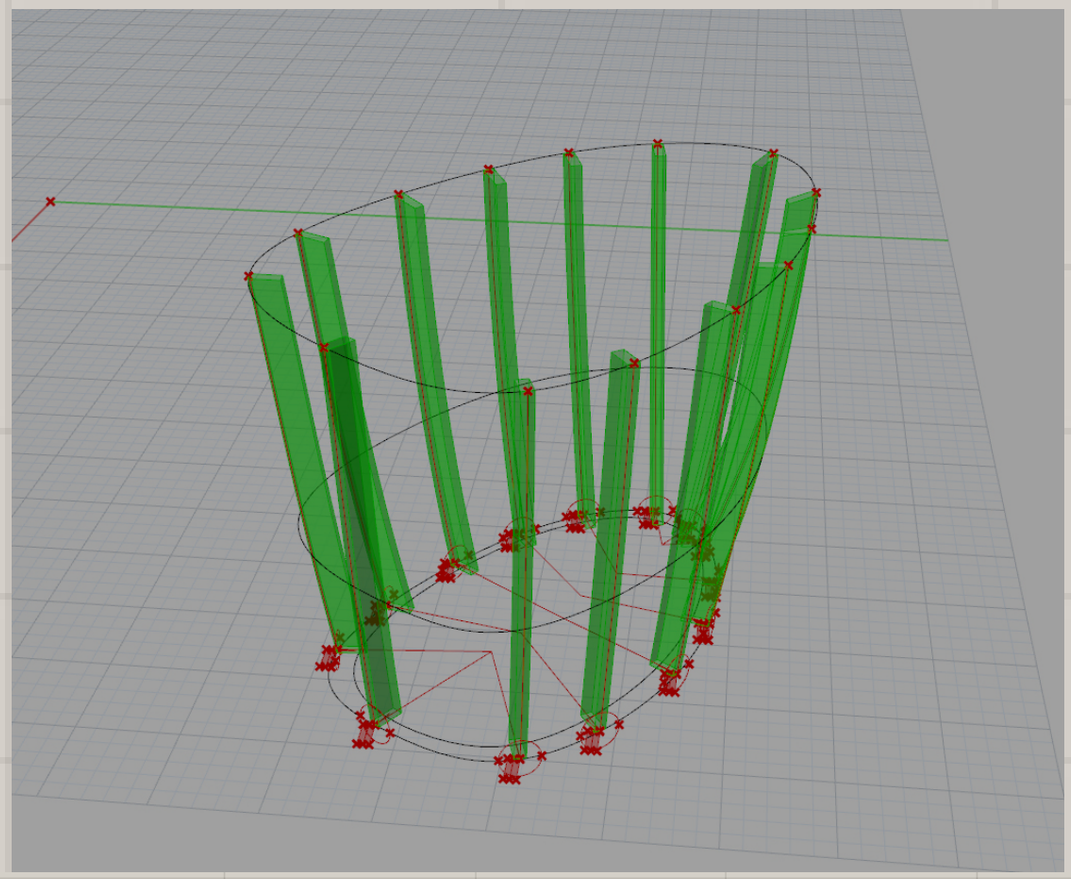

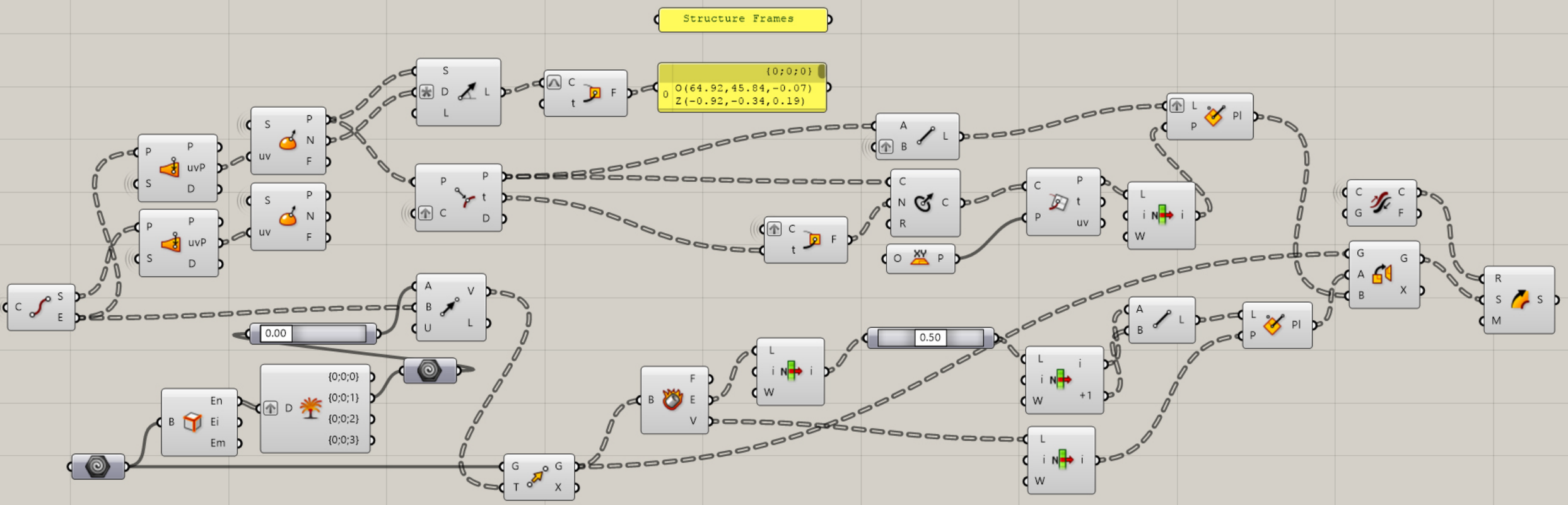

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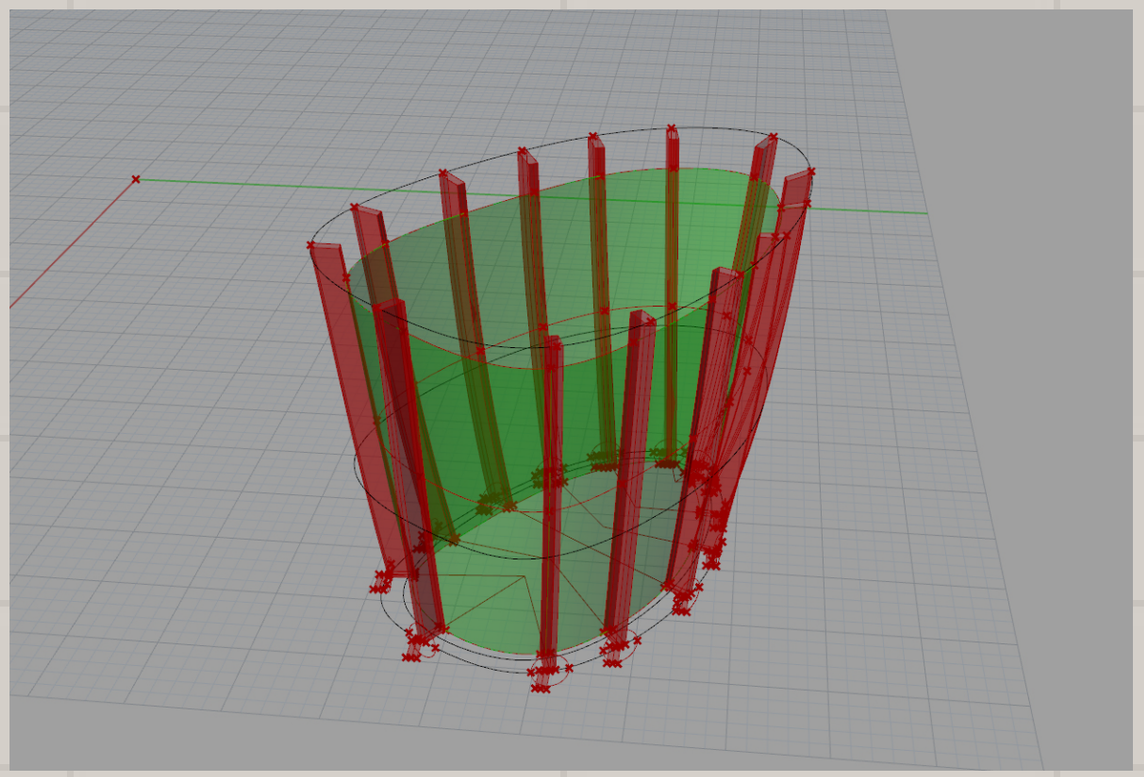

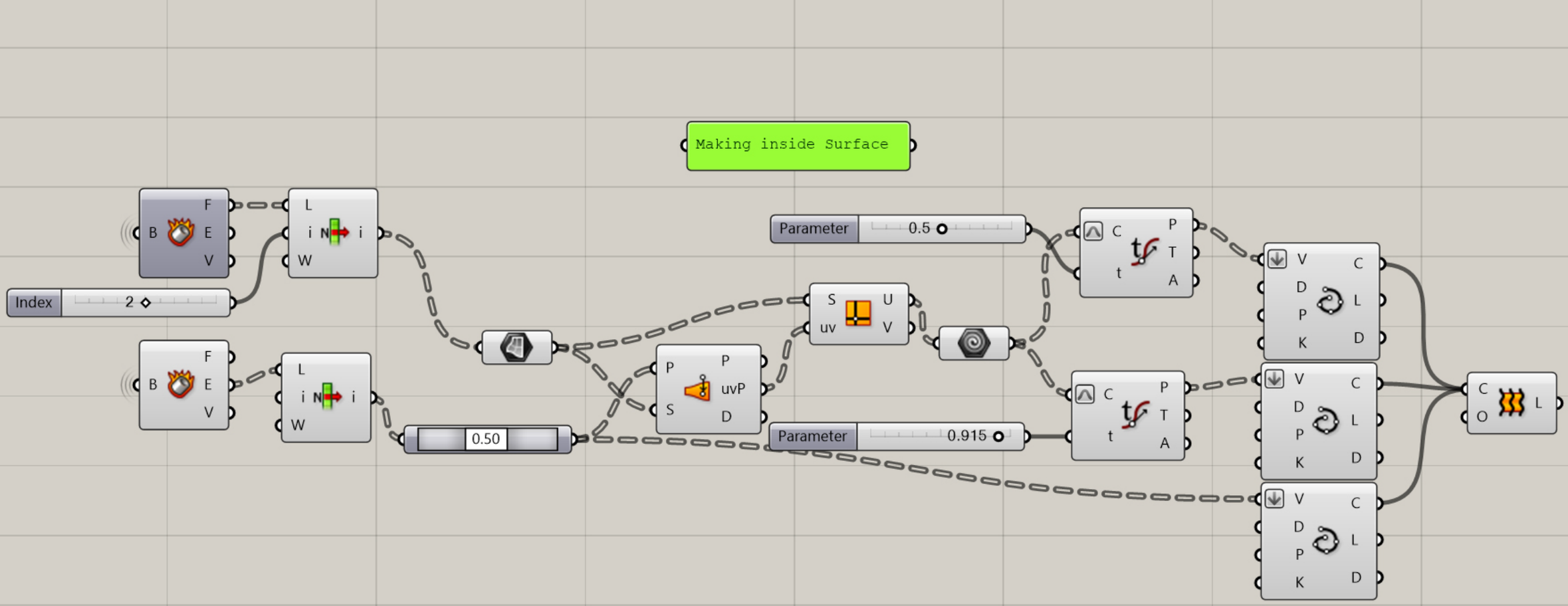

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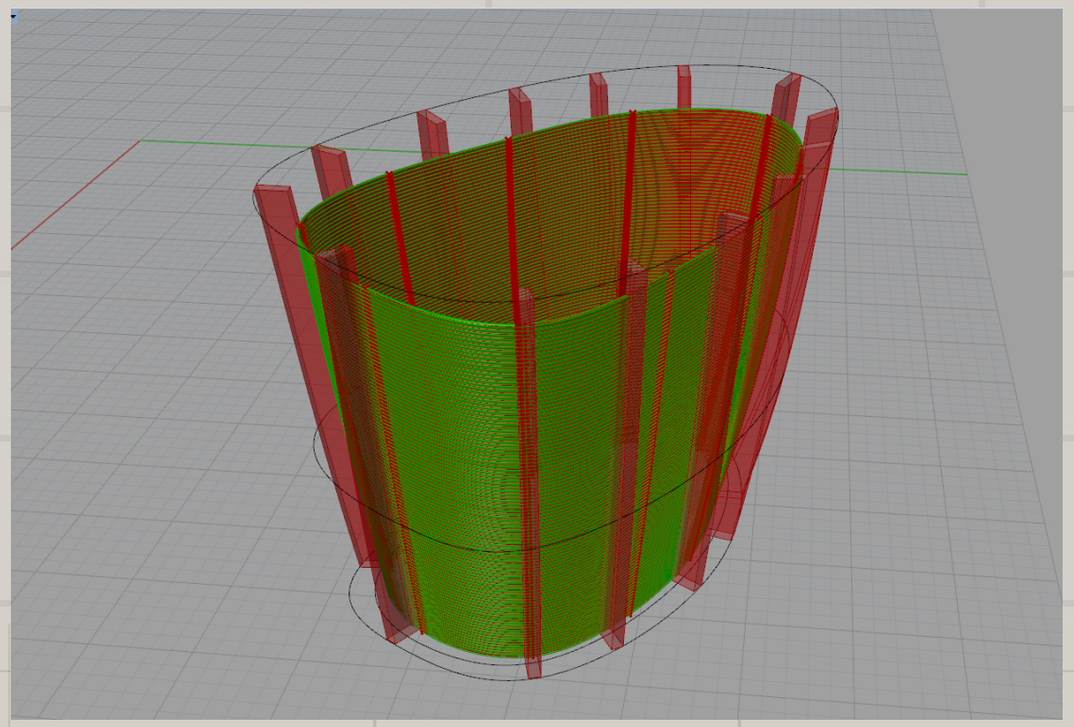

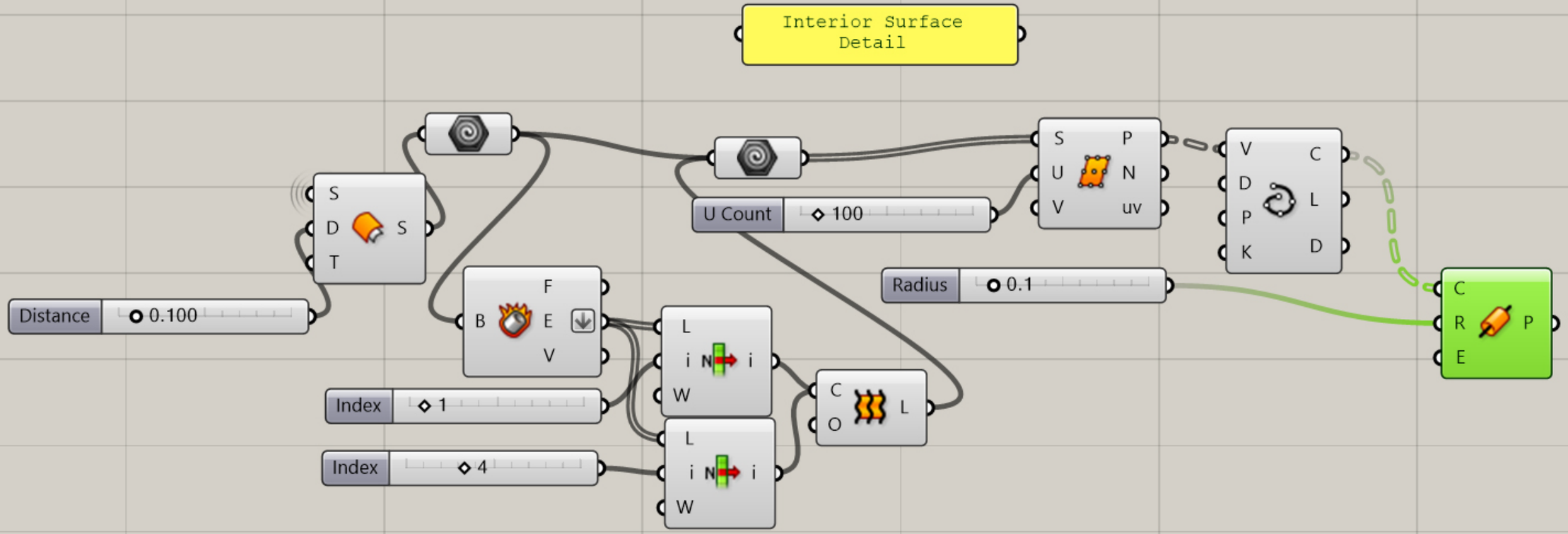

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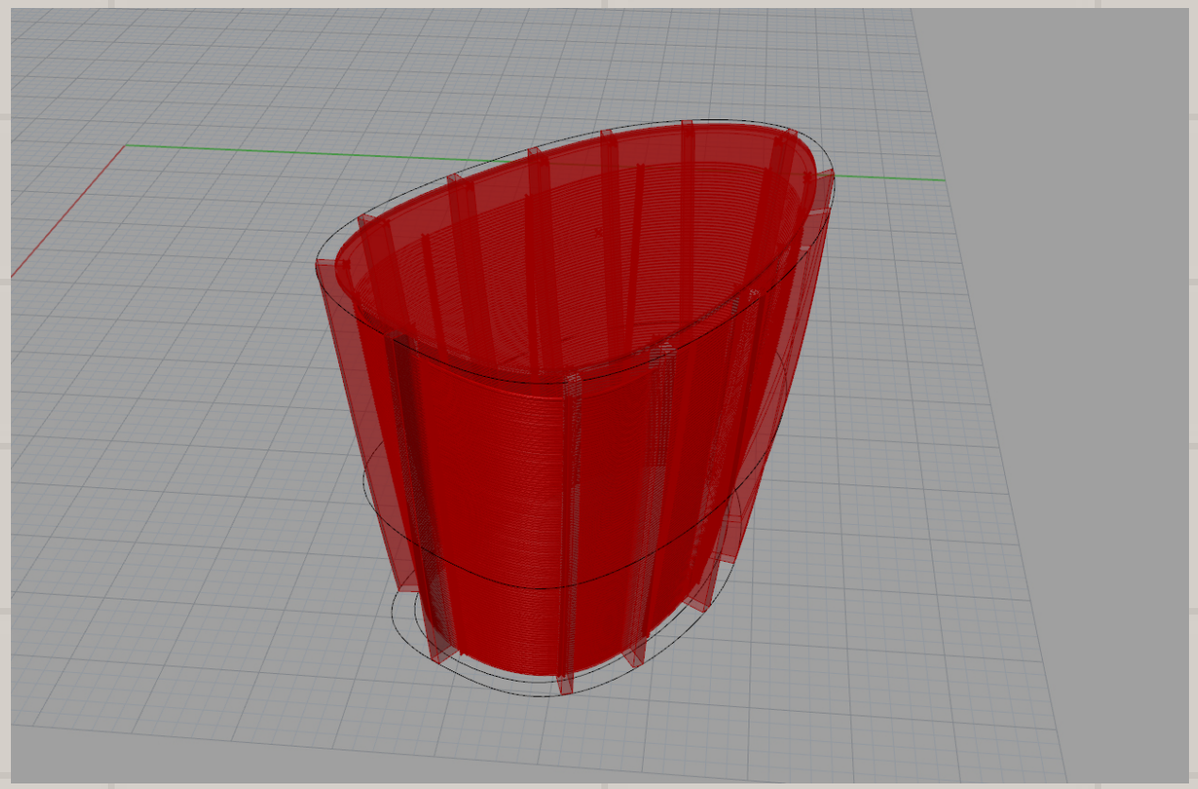

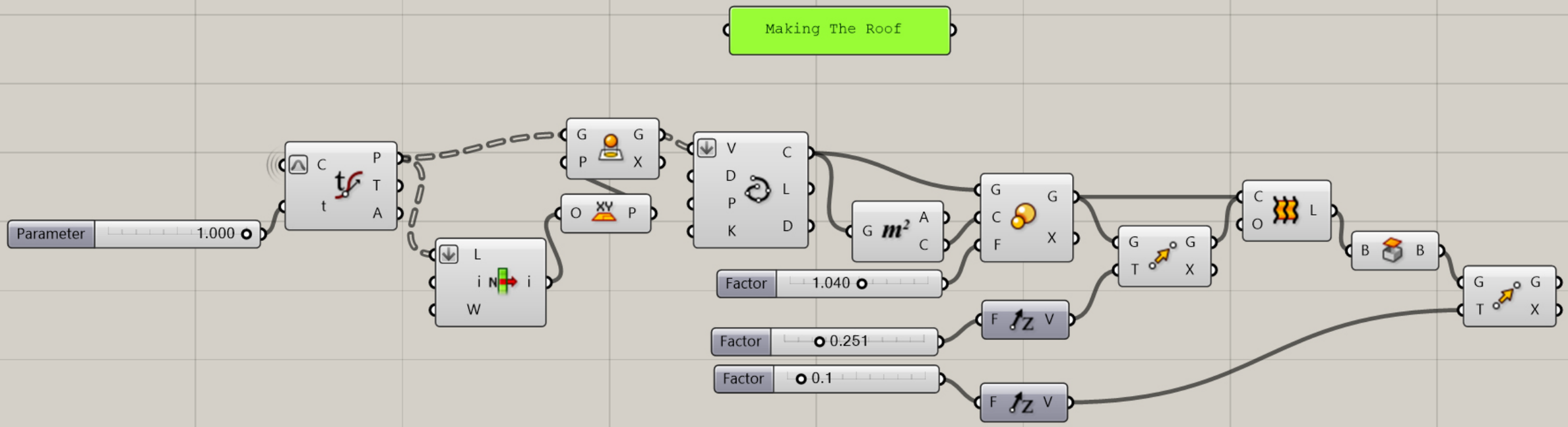

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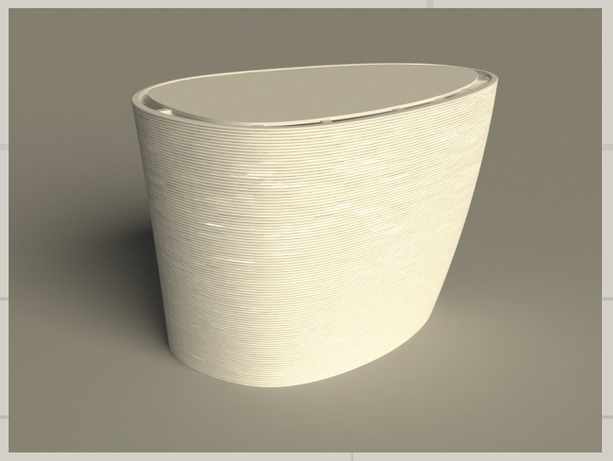

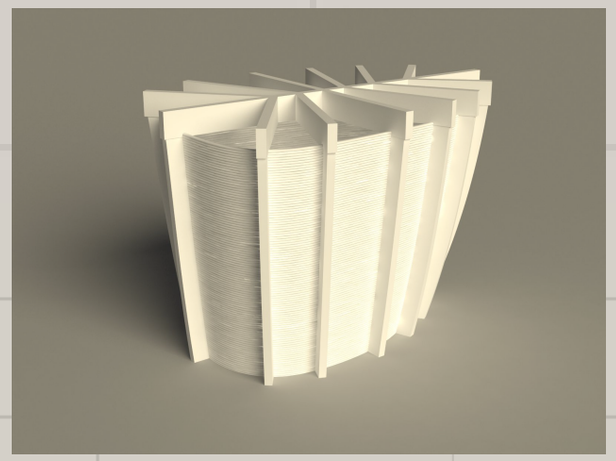

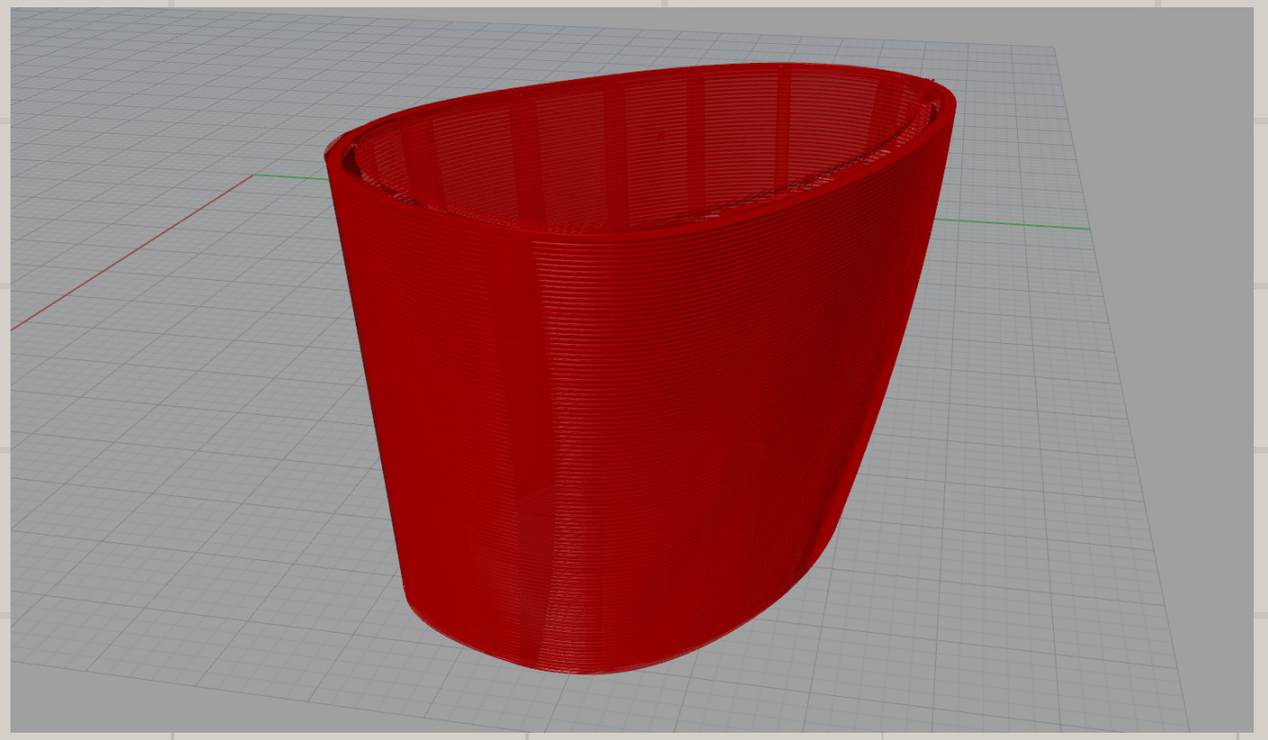

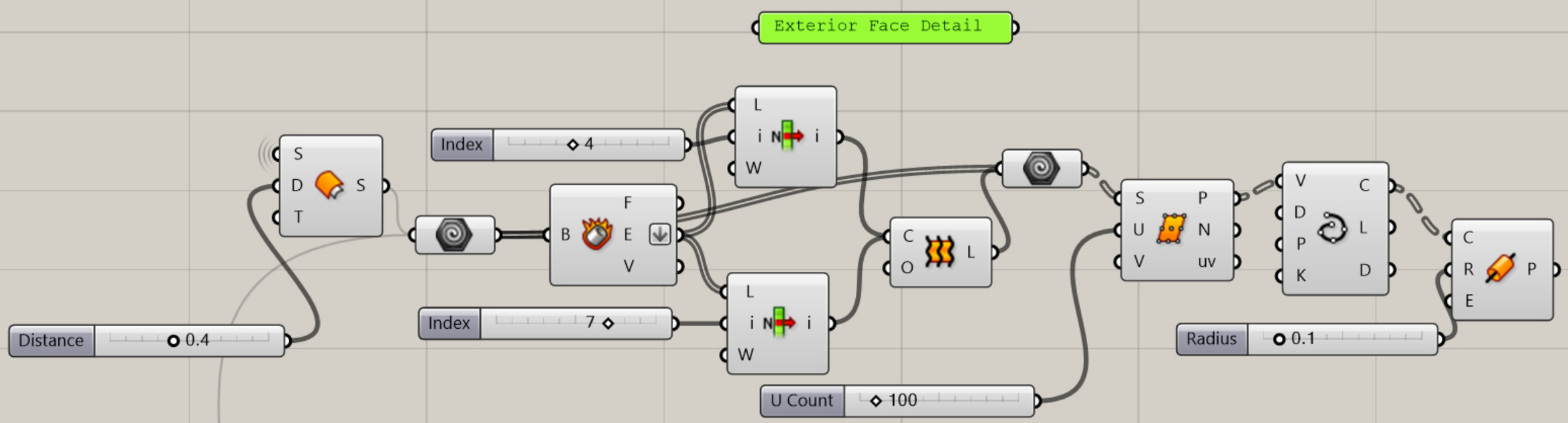

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