INCONSPICUOUS FURNITURE

Project – II

Submitted by

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Guide

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I would also like to thank all my friends and especially the faculty at the Industrial Design Center.

Finally I would like to thank the staff in the IDC workshops for their help during the project.

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Esplanade, view south toward South Cove,Battery Park City, New *York City, by Hanna/Olin and Cooper Eckstut, 1979*

1.0 ABSTRACT

Seating in public space is best represented by the common bench. This project was aimed at looking at the common bench from a point of view of making the everyday act of sitting an aesthetic experience.

Landscape artists, environmental artists have used art to make our public spaces more active and meaningful. But public art is usually monolithic and custom made and is often seen as a confronting presence in our urban spaces.

Our public seating could be our public art. This project is an attempt at using outdoor furniture as a means to achieve what public art aspires to do.

2.0 INTRODUCTION

The out outdoors are charactarised by intermediate postures and short time span seating.

Gardens, streets, bus stops, places of waiting, hang out areas like shopping malls, beaches facing sea, outdoor food joints.

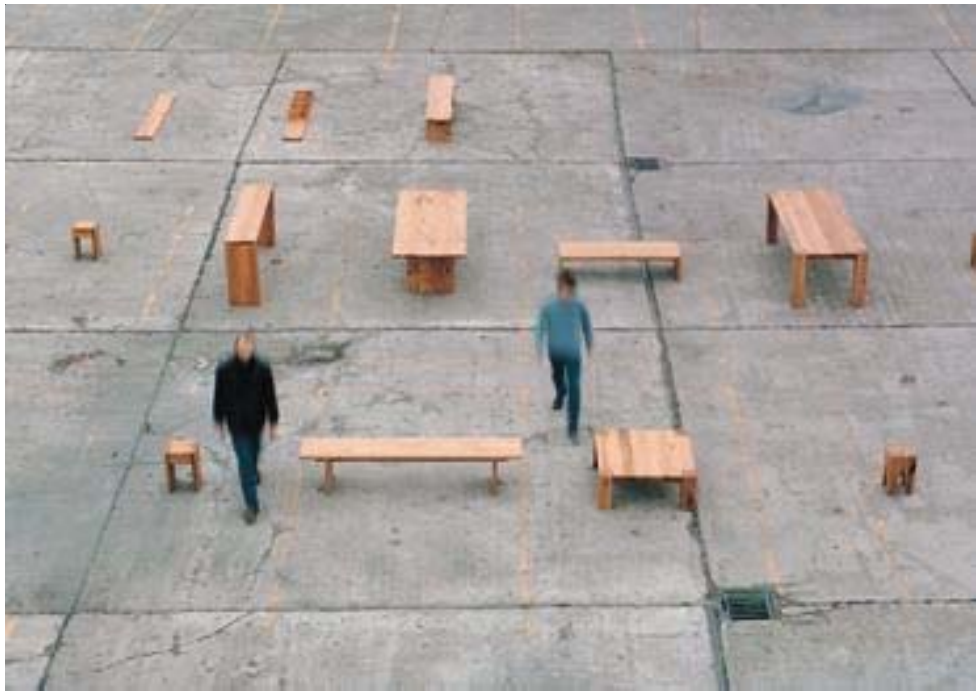
2.1 THE TRADITIONAL GARDEN BENCH

Garden benches pertain to passive and silent spaces where it caters to normal comfortable seating. They have a more private and silent attitude to it. It is usually seen facing the sea or in large green garden. The benches were usually made out of wood, metal and stone

2.2 THE URBAN BENCH

The benches in the urban scenario cater to more active and interactive spaces.

It is subjected to constant use and miss-use. This requires product that was study and durable. The benches catered to some basic functional requirements. It was easy to set up, portable, fixable, vandal resistant, steady, well oriented, visible, repairable, replaceable, safe, suitable for a wide variety of users, and weather resistant.



3.0 CURRENT MATERIAL TRENDS

Current market is flooded with benches of various types. The outdoor spaces vary from Gardens, Streets, pavements Outdoor food joints, short waiting-bus stops, beaches facing sea.

3.1 WOOD AND METAL

Benches made fully of wood where used in gardens, they used wood slats or bent wood to create necessary shapes. But most of the garden benches use wooden slats on a metal stand. The metal stand was made of cast iron, bent metal plate or bent hollow pipes.

3.2 STONE AND CONCRETE

Concrete benches are usually casted into solid blocks with steel reinforcement or in the form of slabs.

Stone benches were carved either into solid blocks or slabs.

3.3 PLASTIC

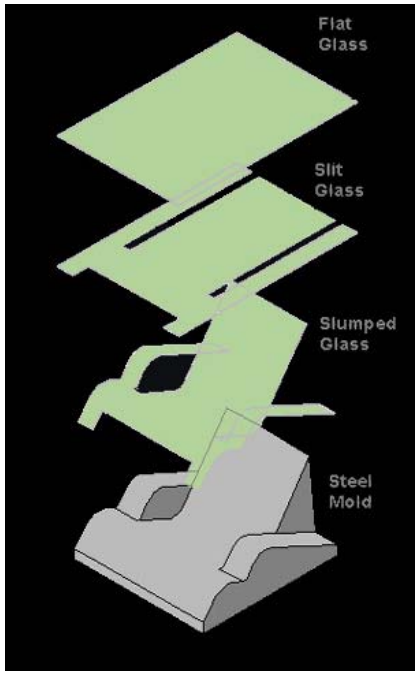
With the use of plastics more organic forms where possible to be achieved which where unthinkable using metal or wood. The benches were light in weight and had better surface qualities. But generally benches made of plastic were not used for outdoor purposes due to scratch problems and rough use.

Roto moulded polyurethane, moulded fibre glass are some of the plastics used.

3.4 METAL

Cast iron was used in plenty for making the bench structure traditionaly. Nowadays majority of the urban benches are made of diecast aluminium which is powder coated. The fixing details, the hand rails, the legs are extruded sections or die cast in aluminium.

The seat options over the metal stand seen are
Powder coated aluminium die cast
Moulded wood with teak or veneer
Bent wood
Structural stainless steel mesh



3.5 GLASS AND POLYCARBONATE

Glass chairs are usually made by heating and forming over a mould. Adhessives like Photobond 100 are used to sticking glass. Polycarbonate chairs are moulded.

4.0 ENGAGEMENT AS AN EXPERIENCE

Creating an experience, visual or a physical. An Experience to Engage. Engagement could be defined simply as stopping and spending time or something that can enable contemplation. Like those rails curving inland denoting the wind and coaxing us to stop and lean on it. Here we are dealing with the creation of an experience using an object. The aesthetics is of experience rather than of objects.

The Scale

Objects of smaller scale like a sculpture are engaging if they are beautiful to look at. But they are static stand-alone objects, which confront the person who looks at it. Objects could be made to affect the very space it's kept in. Doing this with an object of a smaller scale would be a difficult task. But if the scale is of the object is increased, it begins gain prominence in the space it's kept in. There is more unification of the object and the surrounding space. Objects of the human scale are engaging as it's all around him. The scale could be used effectively as it enables motion. Motion could simulate change. And change could be engaging. So the scale of the object could used to create an aesthetic experience in space that celebrates motion or movement of body.

Play or activity

A child fully engages with the toy when he plays with it. Making the user a participant. A part of the whole experience to create engagement.

Nature

Nature engages us, as it is ever dynamic. Nature's processes could be shown in form. Form as erosion. Form as wave. Dynamics of change in nature, growth, movement of the sun, seasons could be adapted into the design for engaging the user. The natural phenomena like the rain or wind could also be made use.

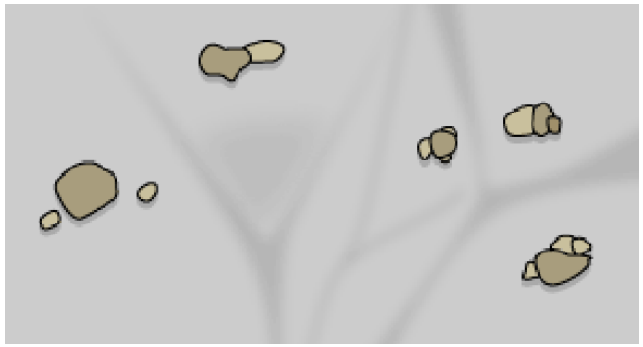
Group of objects

A series of objects in space. The experience of the user when he moves in that space, confronting one object after the other, using contrast or continuity to engage.

Time

Aesthetics that recognizes the flow of passing time as well as the singularity of the moment in time.

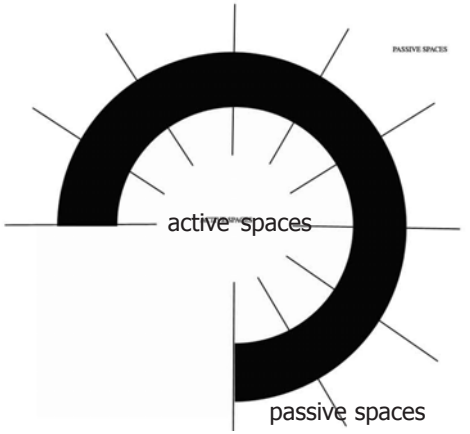
Engagement in Ruins.Its about imaginative reconstruction. Aesthetics of historical or social content. It keeps ruining and it adds to the mystery. Perfect example of using time history or social content as a factor of engagement.



Zen gardens

Zen gardens are perfect examples of engaging people using a built environment. Not only was the viewing intended to aid in meditation but the entire creation of the garden was also intended to trigger contemplation. The two main elements of a zen or a "dry style" garden are rocks to form mountains and sand to form flowing water.Viewed from the right position, this empty space created the image of a tree in the subconscious mind. Imagery or meaning is used to create the experience.

Engagement is stopping and spending time. A pathway that says the real goal is the path itself.



5.0 USER STUDY

People occupy spaces in variety of ways. Humans have a semi resting posture. To adopt that semi resting posture they need an object or at least a step of some sort. People tend to use the commonly available objects like steps, stones or railings which were never meant for seating, in variety of innovative ways to make them comfortable seats.

Therefore it was found that what was required was not fully ergonomic chair but objects that could be occupied by people in many different ways. So the chair necessarily need not be a chair. It could be any other object. It could be inconspicuous. It could be an object that could engage.

People group and interact in public spaces. They use spaces in two typical manners. One is passive (reading, people-watching, solitary contemplation etc.) and the other as active (socializing) spaces. Urban seating must cater to both these requirements.

Back to back seating in curve create both active and passive spaces.

6.0 AIM

Understanding the act of engagement.
Understanding furniture design process.
Understanding materials on form.

PRODUCT BRIEF

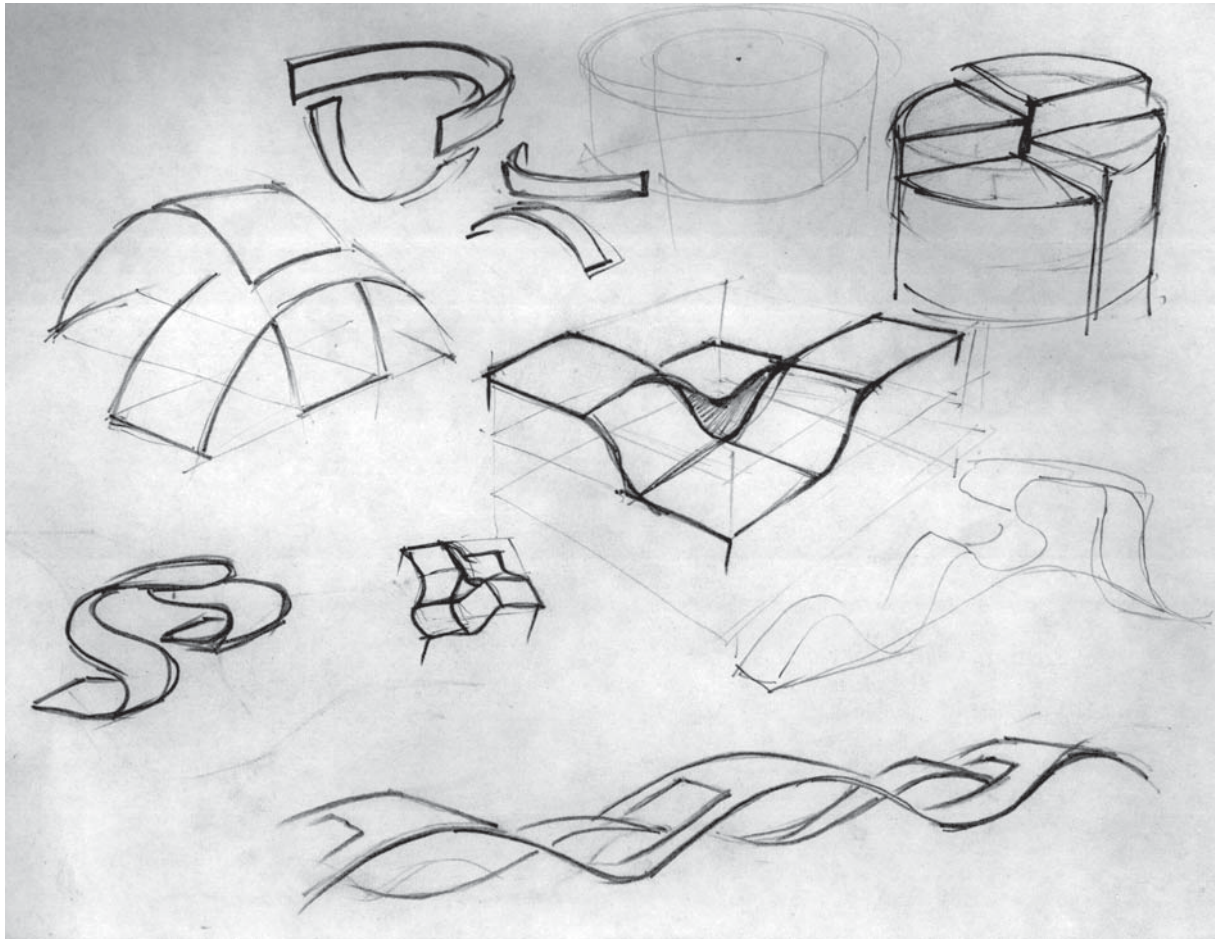
Outdoor furniture that could be used by human beings for Rest, Enjoying surroundings, Interaction with others.

Modular product that could be mass produced and reconfigured according to different space requirements.

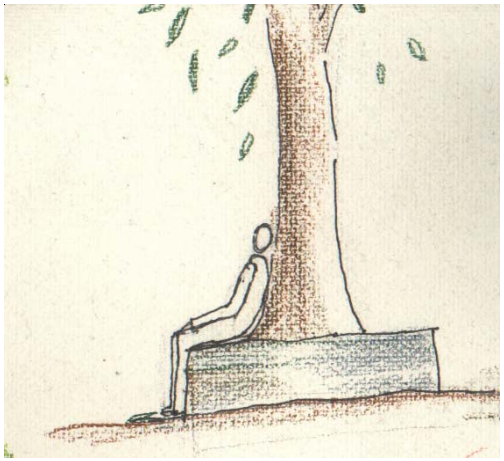
To construct an Experience to **Engage**.

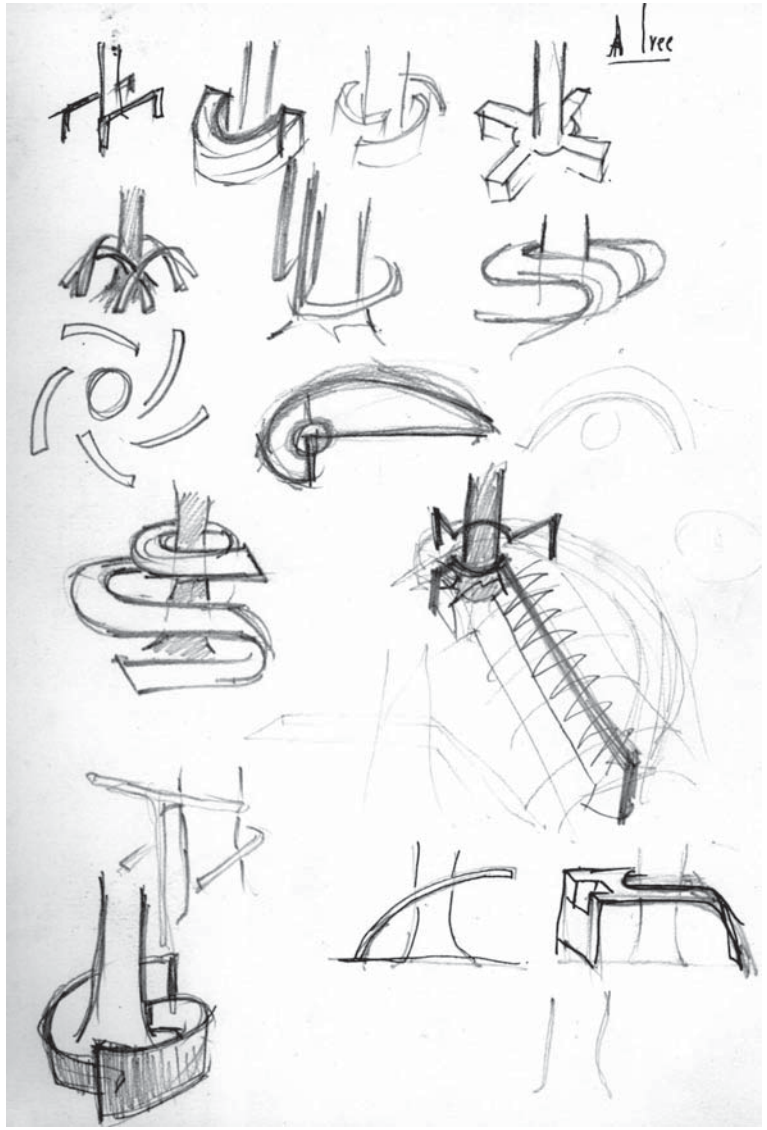
7.0 CONCEPTS

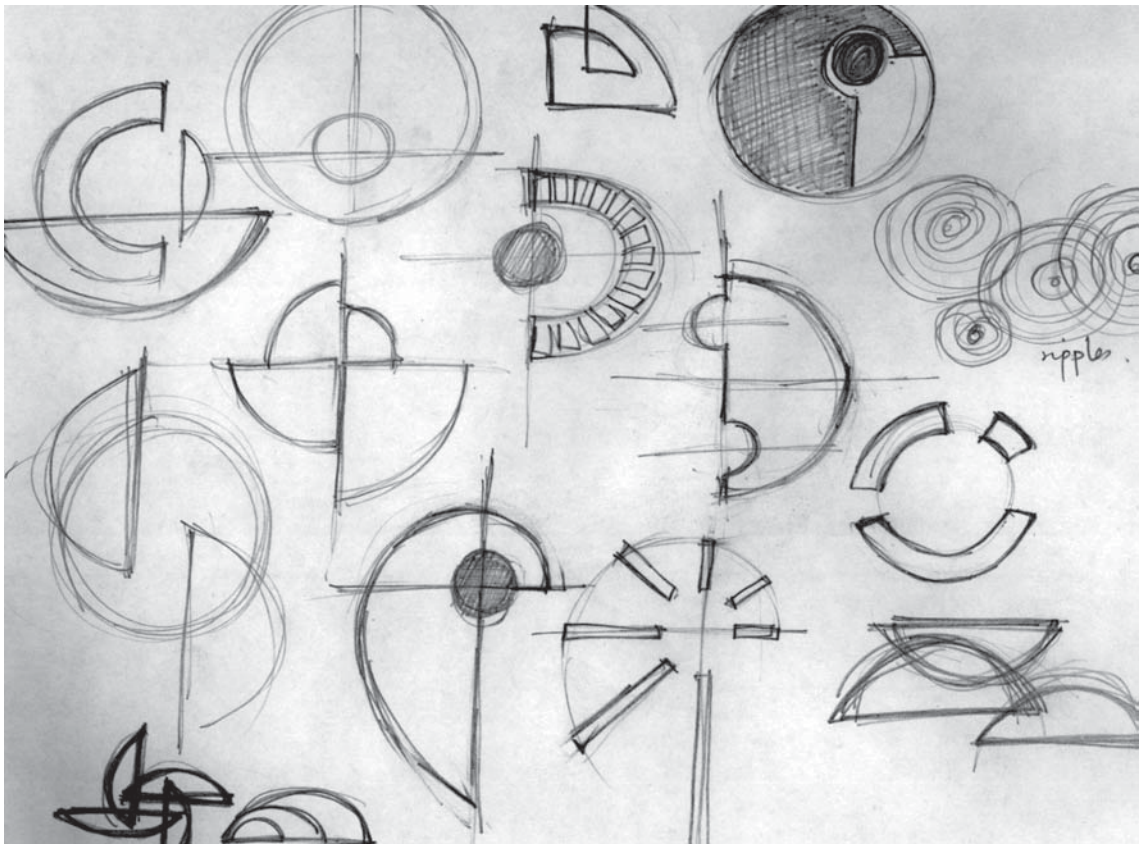
7.1 INITIAL SKETCHES



Around a tree







7.2 APPROACH 1

There is a lot of social aspect to the circle. People group in circles. The circle is gradual and non storage.

The first approach was to look at composition as a source of engagement. This exploration began by taking the basic circle and creating a compositional arrangement.

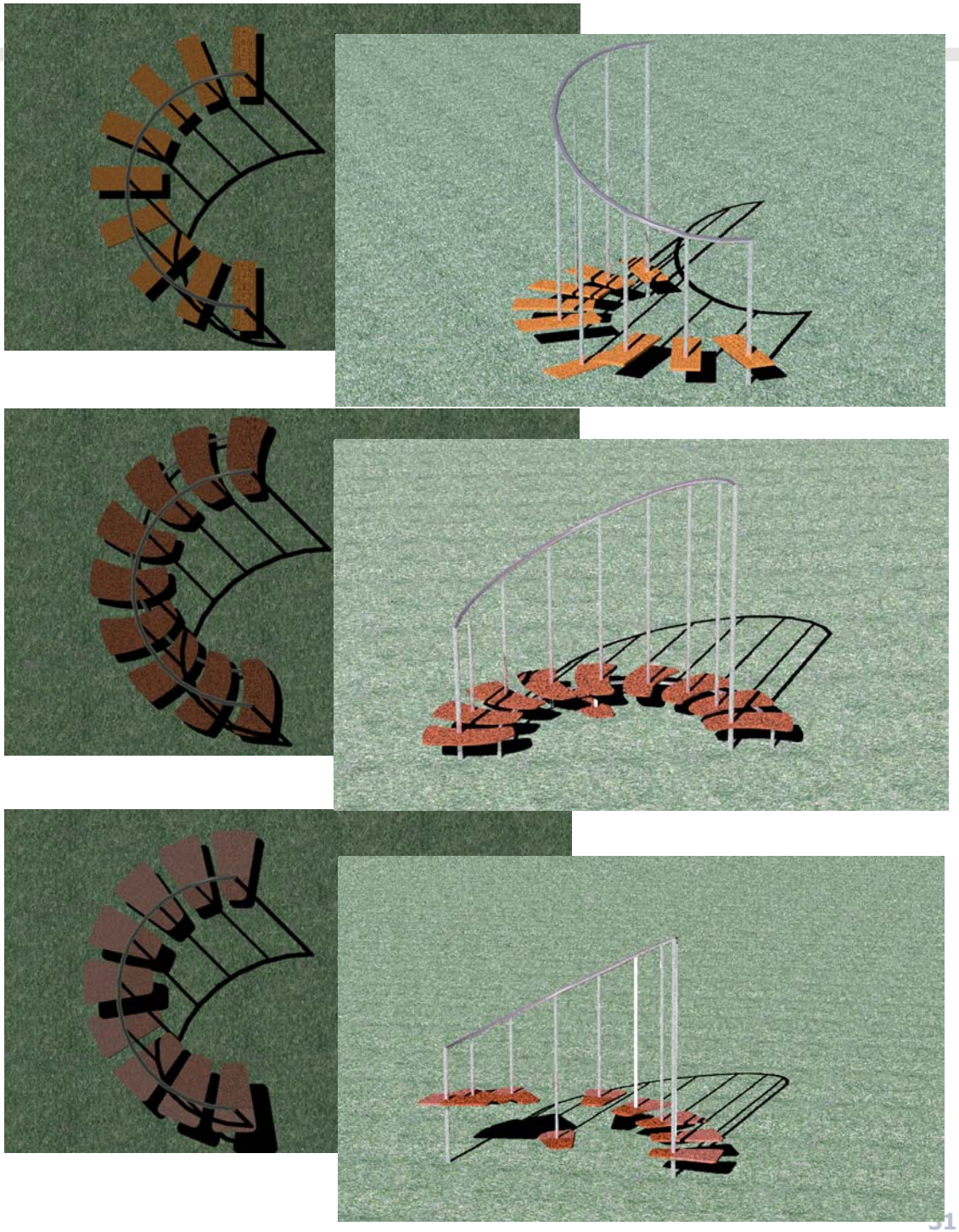
7.2.1 CONCEPT ALTERNATIVE 1

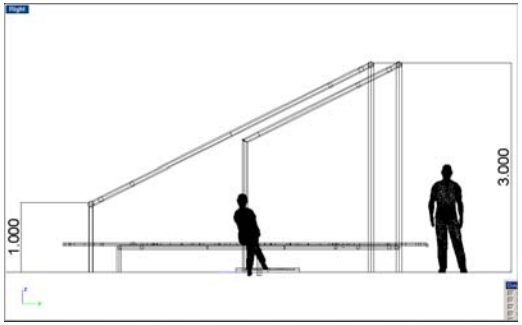
This exploration began with creating elements that would affect the space it's kept in. Elements that could in some way unify the object and space. The steel rod stands up into the space. The hanging seat elements from the curved steel emphasizing the whole space.

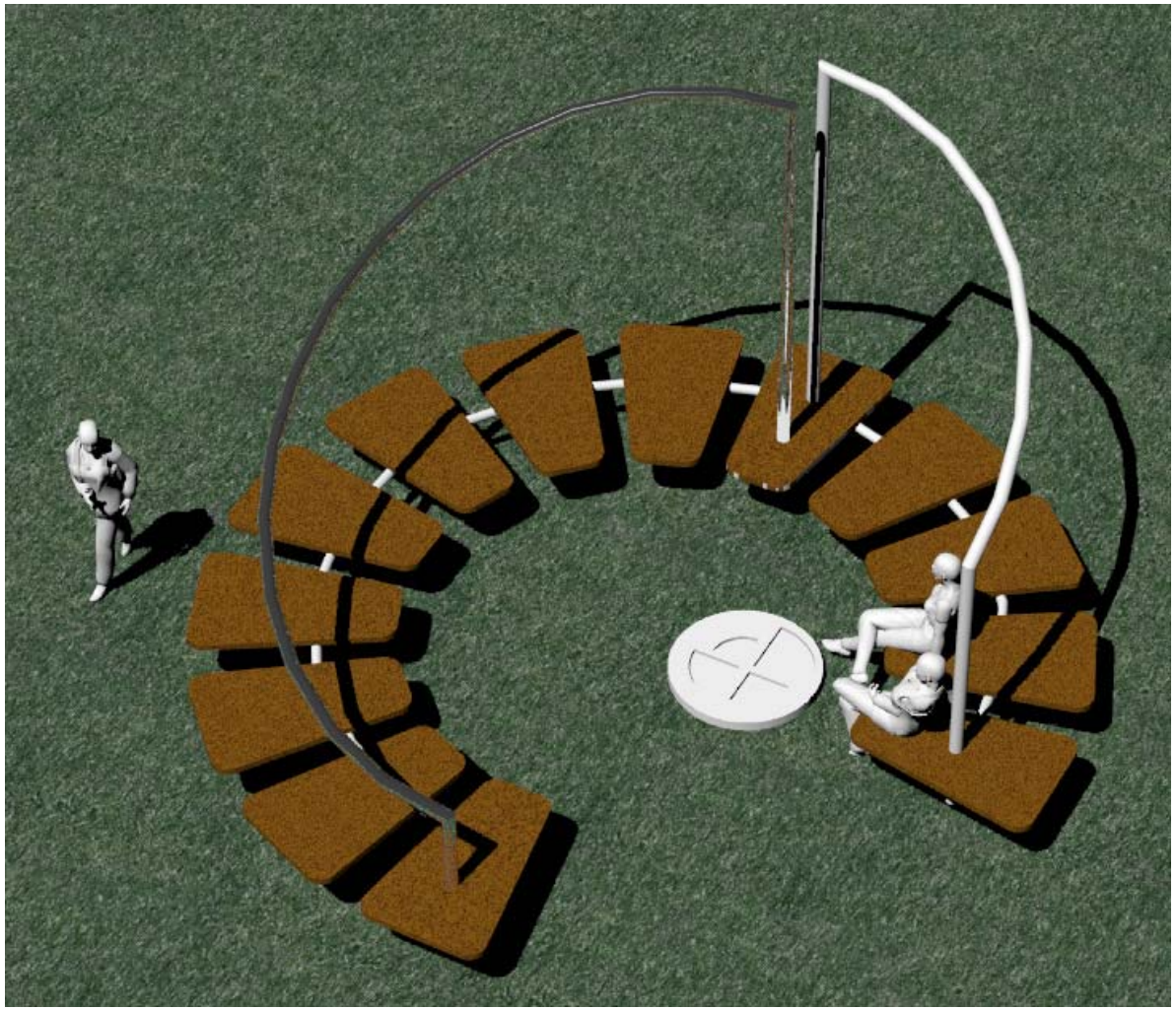
The shadow created by the vertical elements when the sun moves across could also be a factor for engagement.

The curved seats giving it a sense of movement

The variation in seat heights. The seats moving in an opposing curve to that of the steel rod.

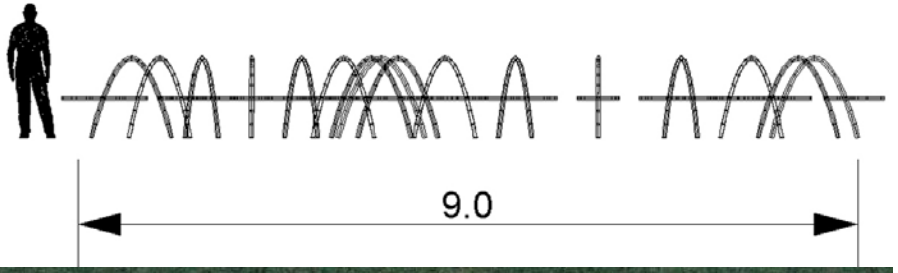


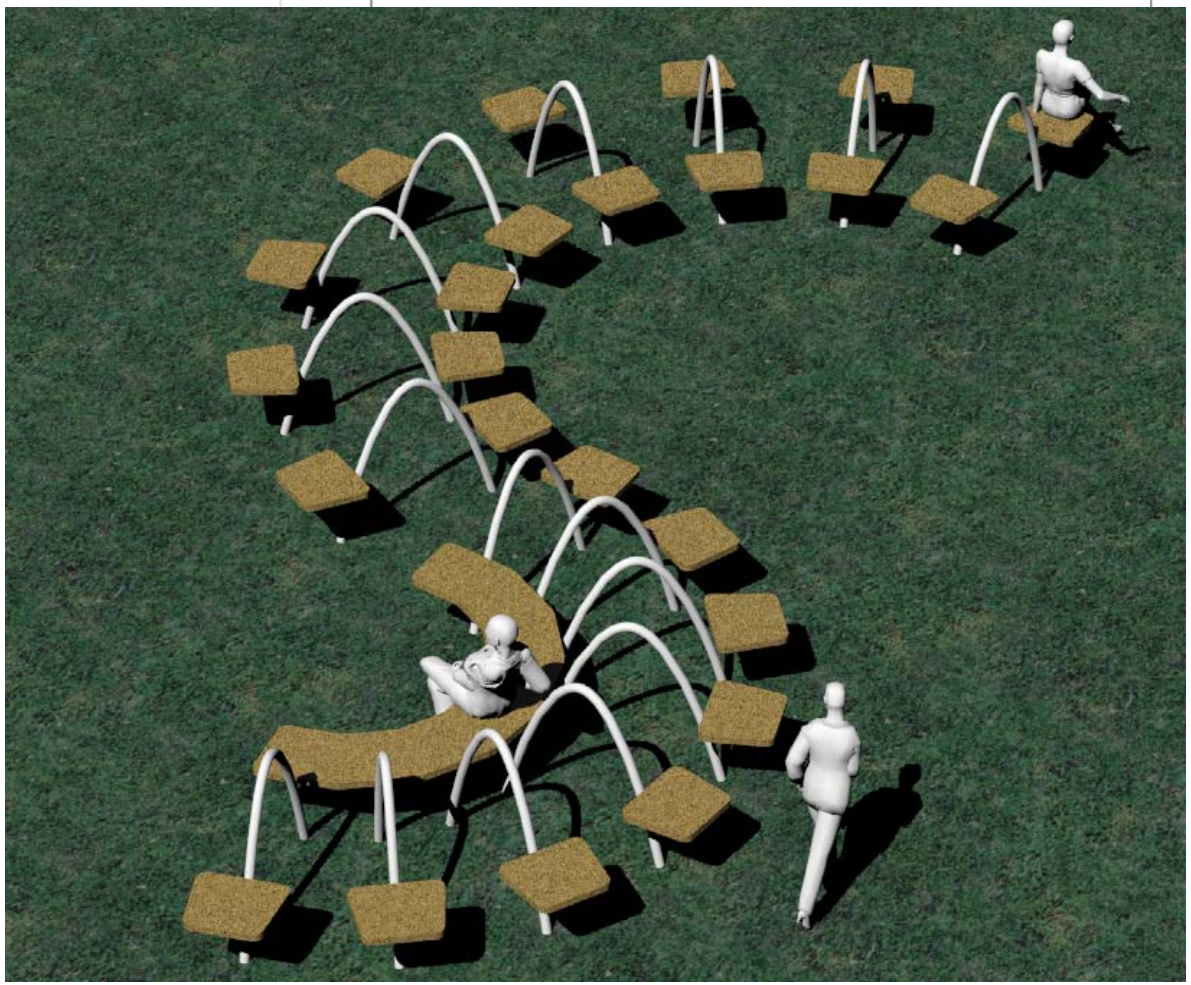




The curved steel rod encloses the space above the seats. The seats are bottom supported giving the form more stability and balance.

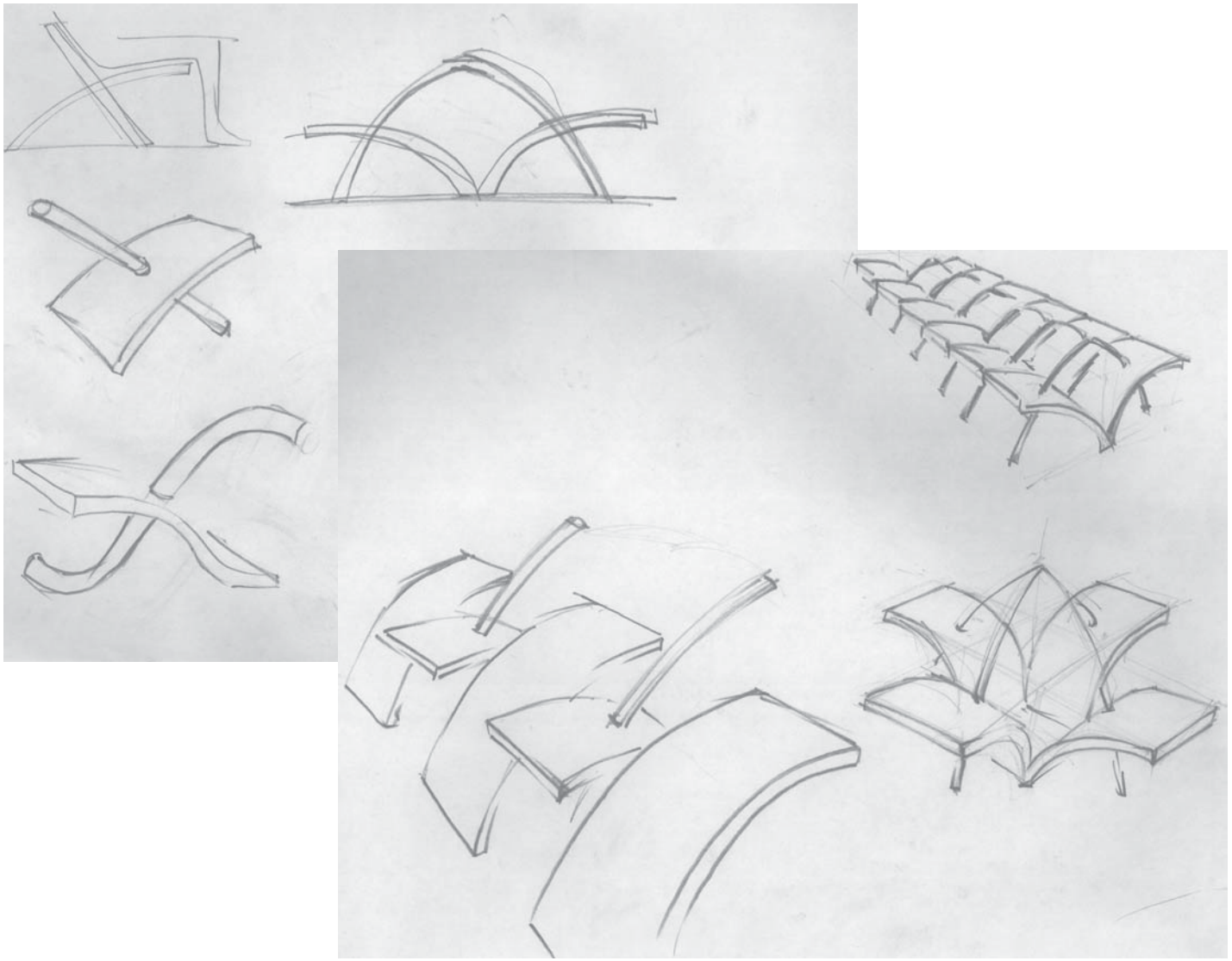
7.2.2 CONCEPT ALTERNATIVE 2

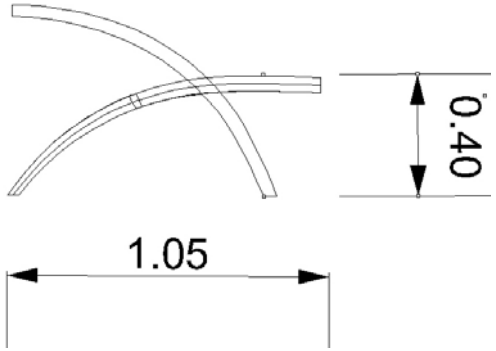




Repetition of a basic element that creates the aesthetics of movement in space as one moves along the curve from one end to the other.

7.2.3 CONCEPT ALTERNATIVE 3

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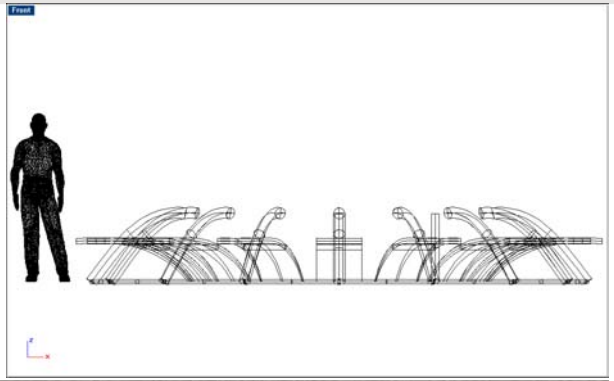

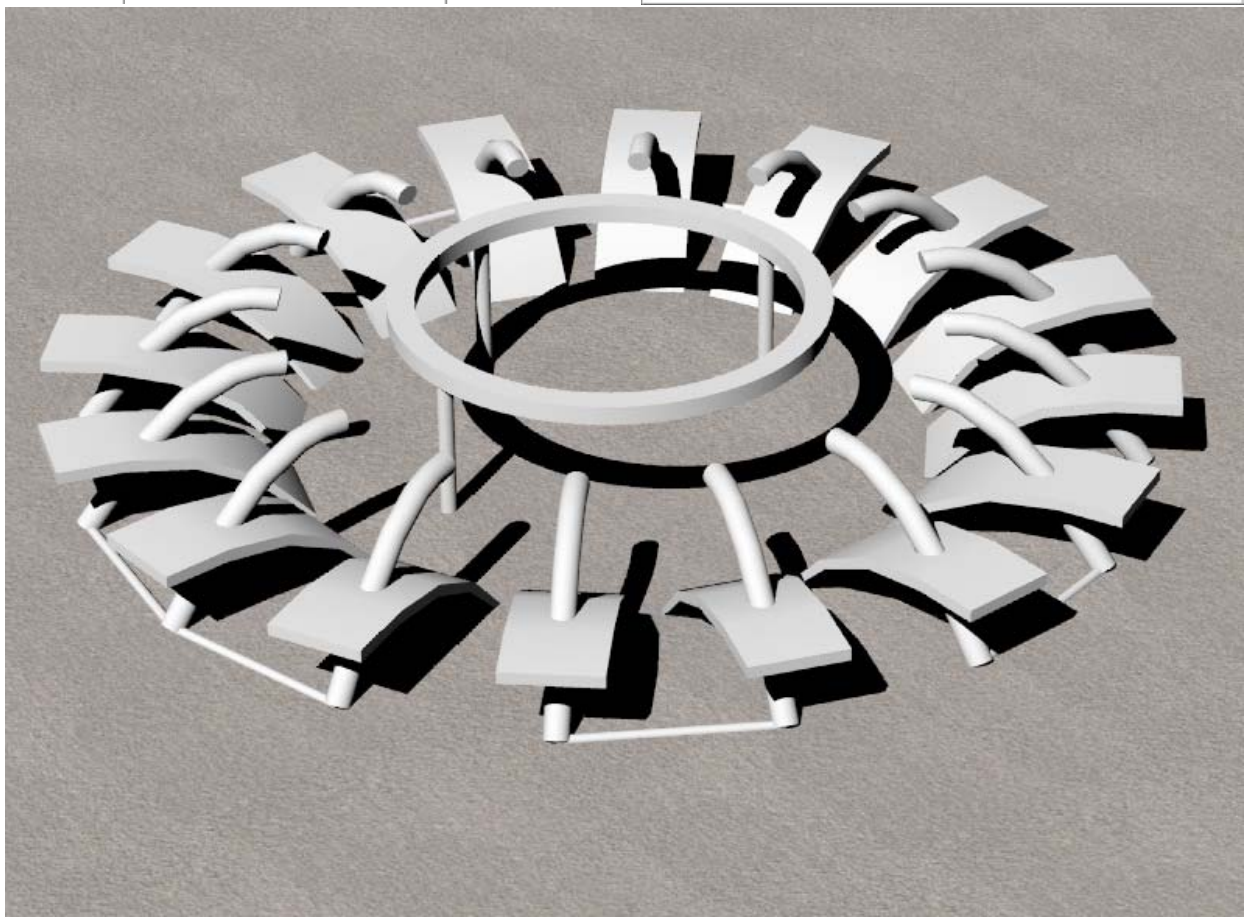

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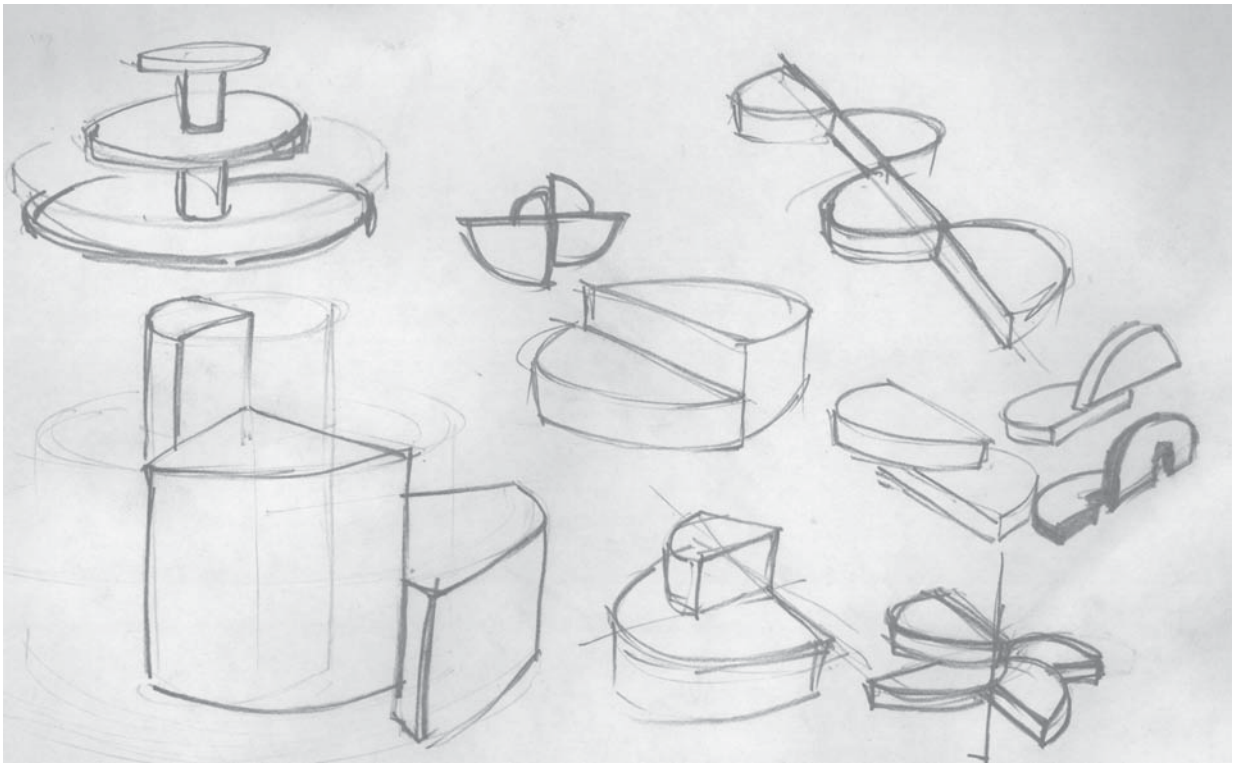

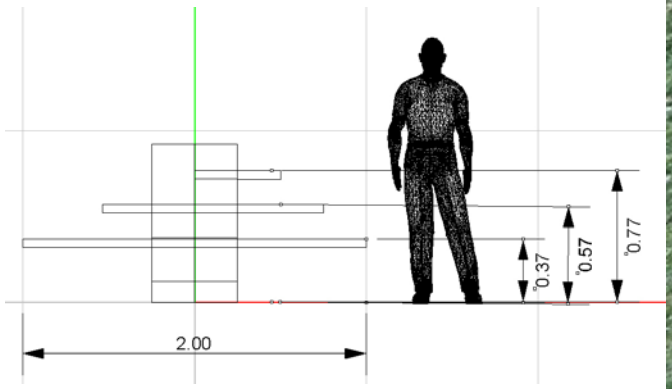
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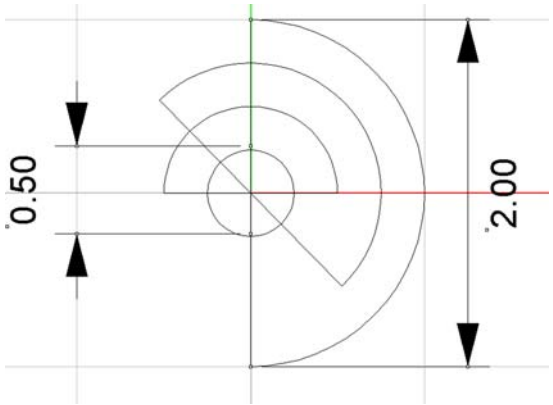
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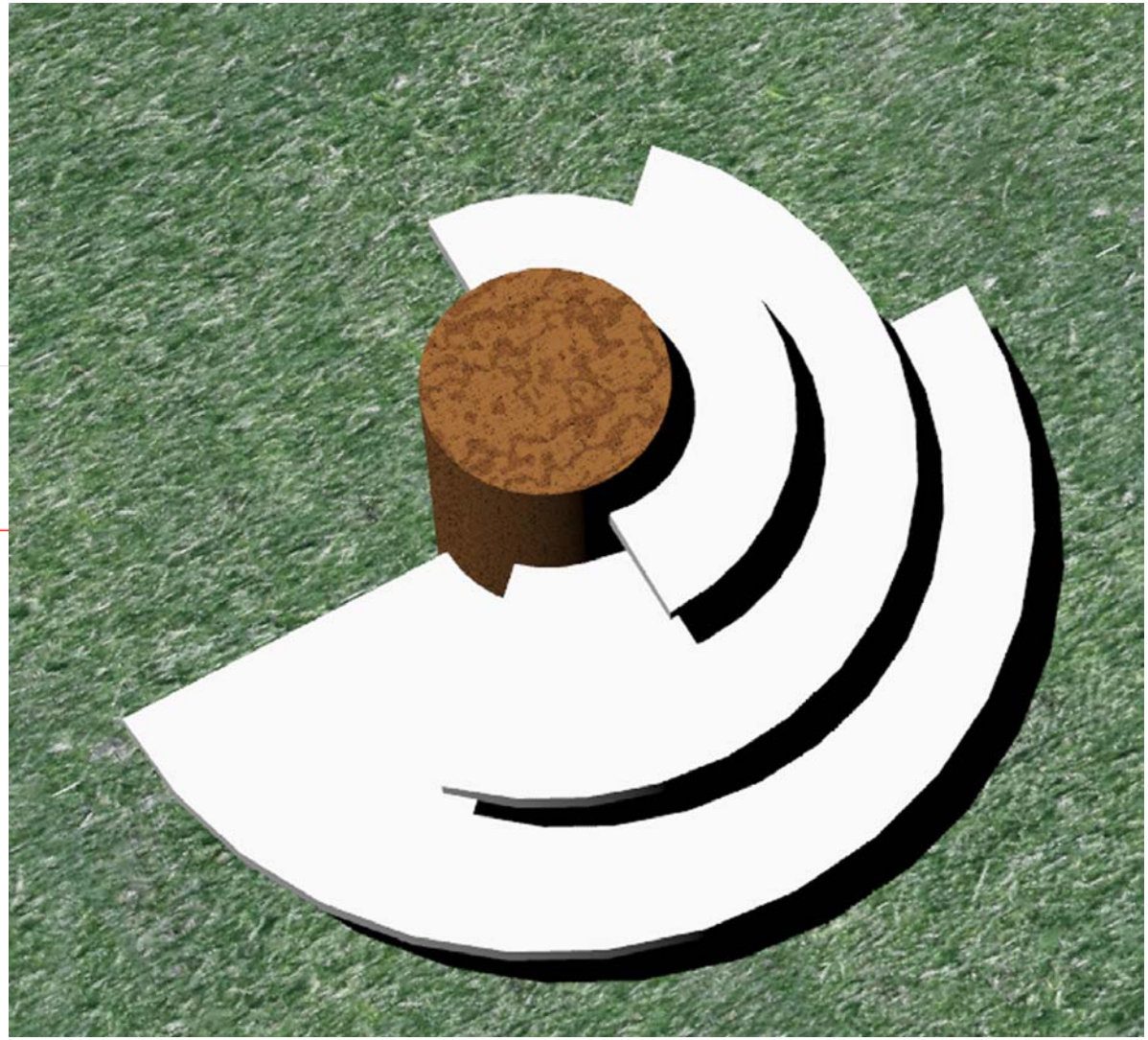
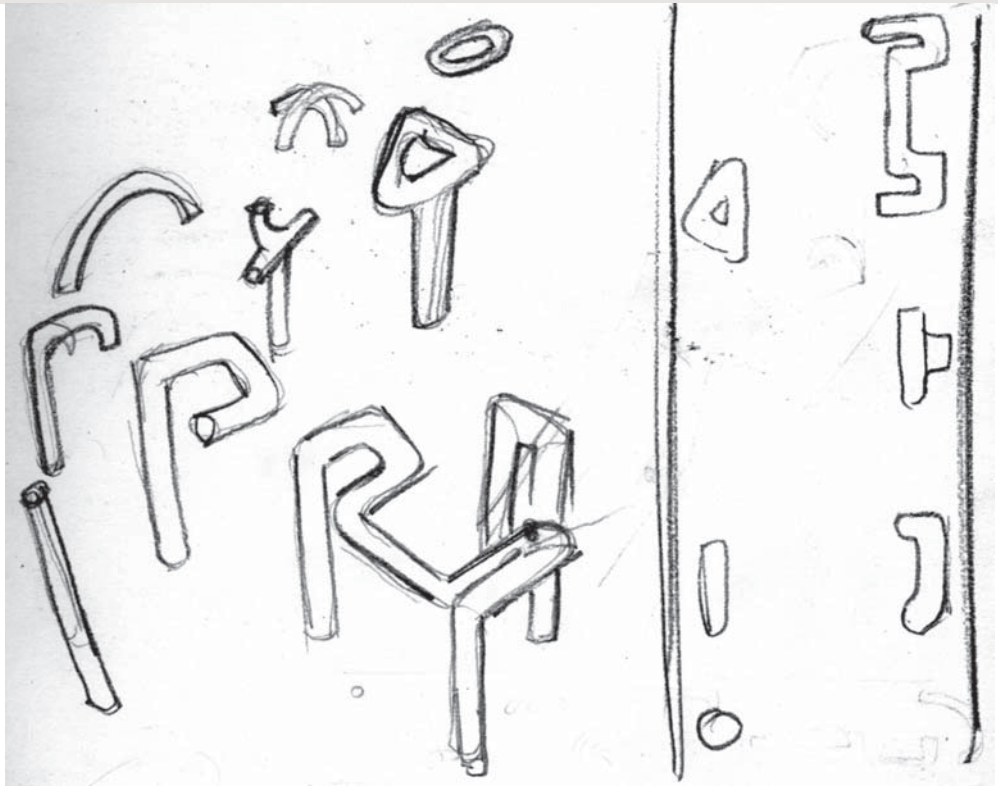
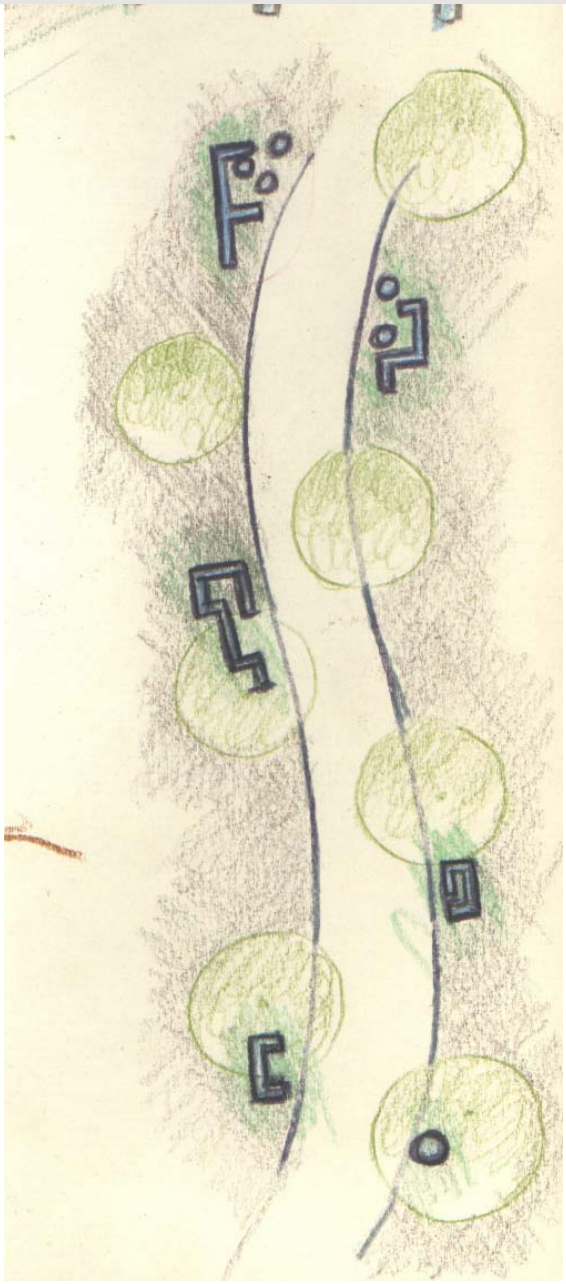


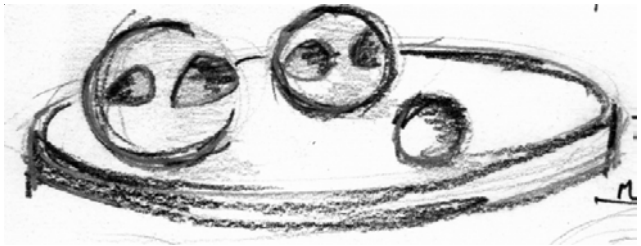


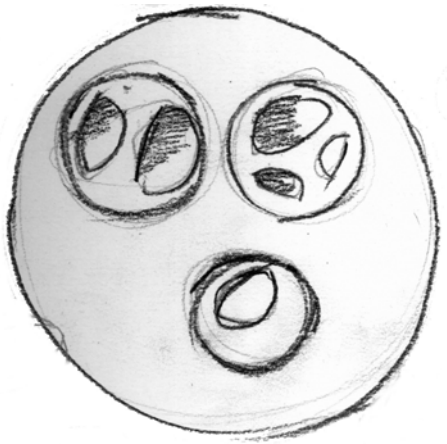


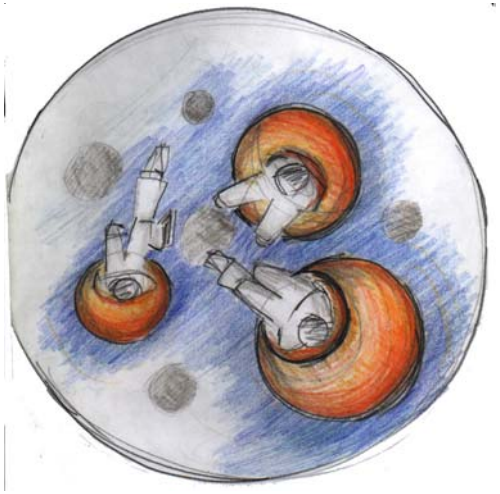
7.3 APPROACH 2

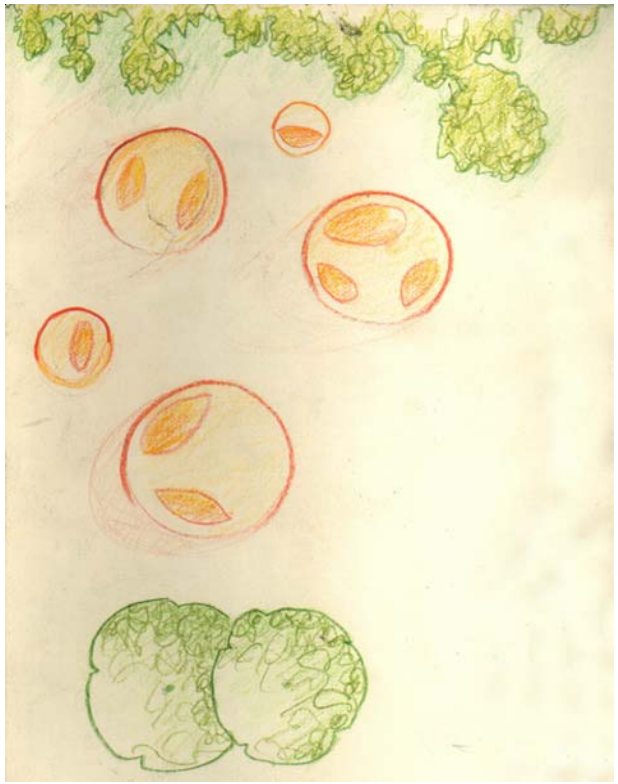
7.3.1 Series of objects

Series of objects made out of bent steel rod that are placed one after the other that act as objects that could cater to the semi resting posture. The engagement would be due to the variation in form as one moves along.



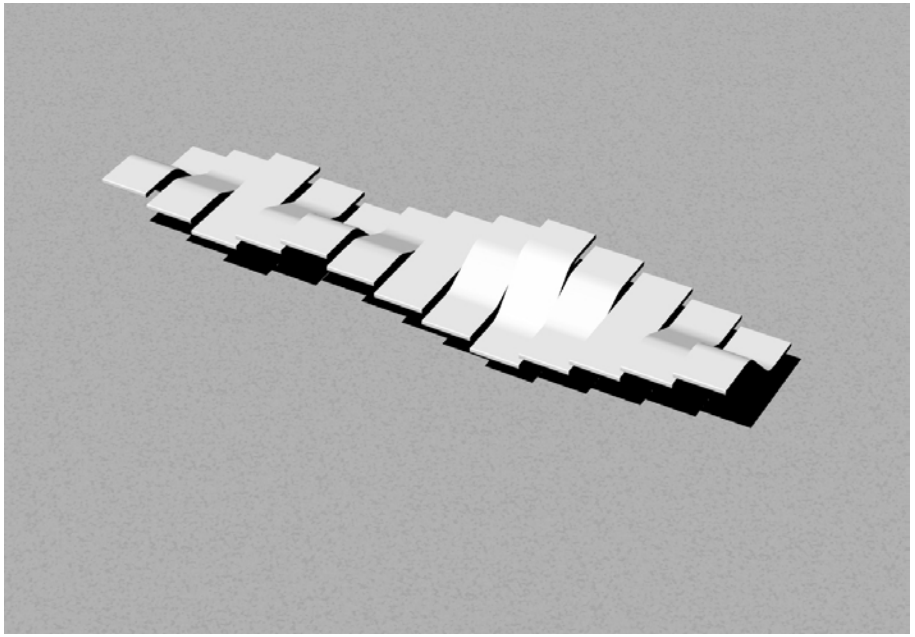






7.3.2 Interaction with the object.

Three spheres with indentation as seats. The spheres could be rolled over onto the dimples on the circular platform. There is engagement in the composition of the three spheres, which keeps changing as the user moves the spheres around according to his preferences. There is engagement in the very act of balancing on the sphere.

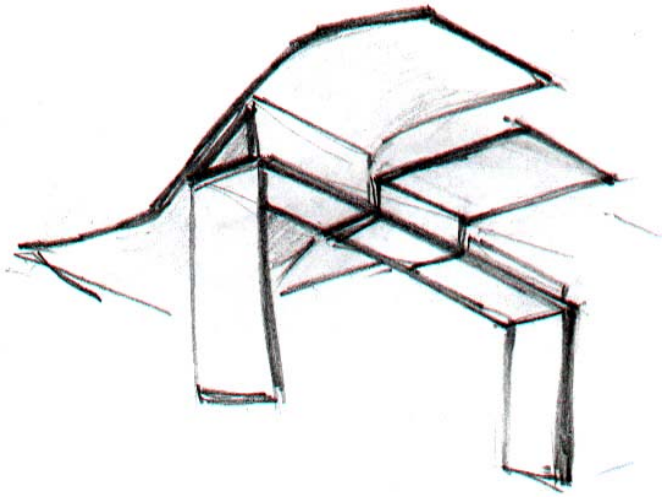


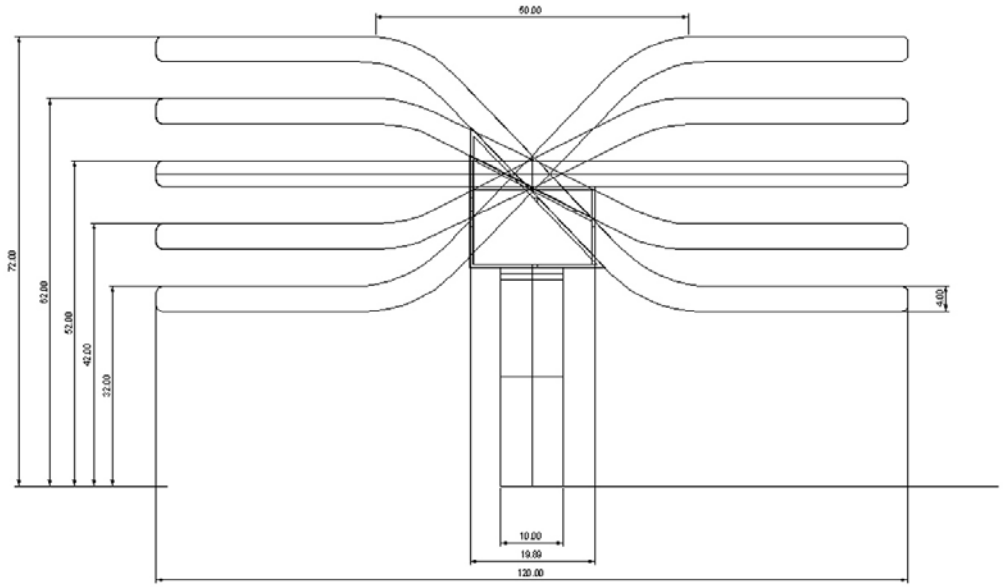
7.4 APPROACH 3

In this concrete era where we have gone so far away from nature, we derive our sense of sculpture, our understanding of form, our relationship to group composition from the natural phenomena. A resting place exploring an image of nature, the wave, in the garden. The wave was taken as a metaphor to create seating arrangement.

8.0 CONCEPT DEVELOPMENT

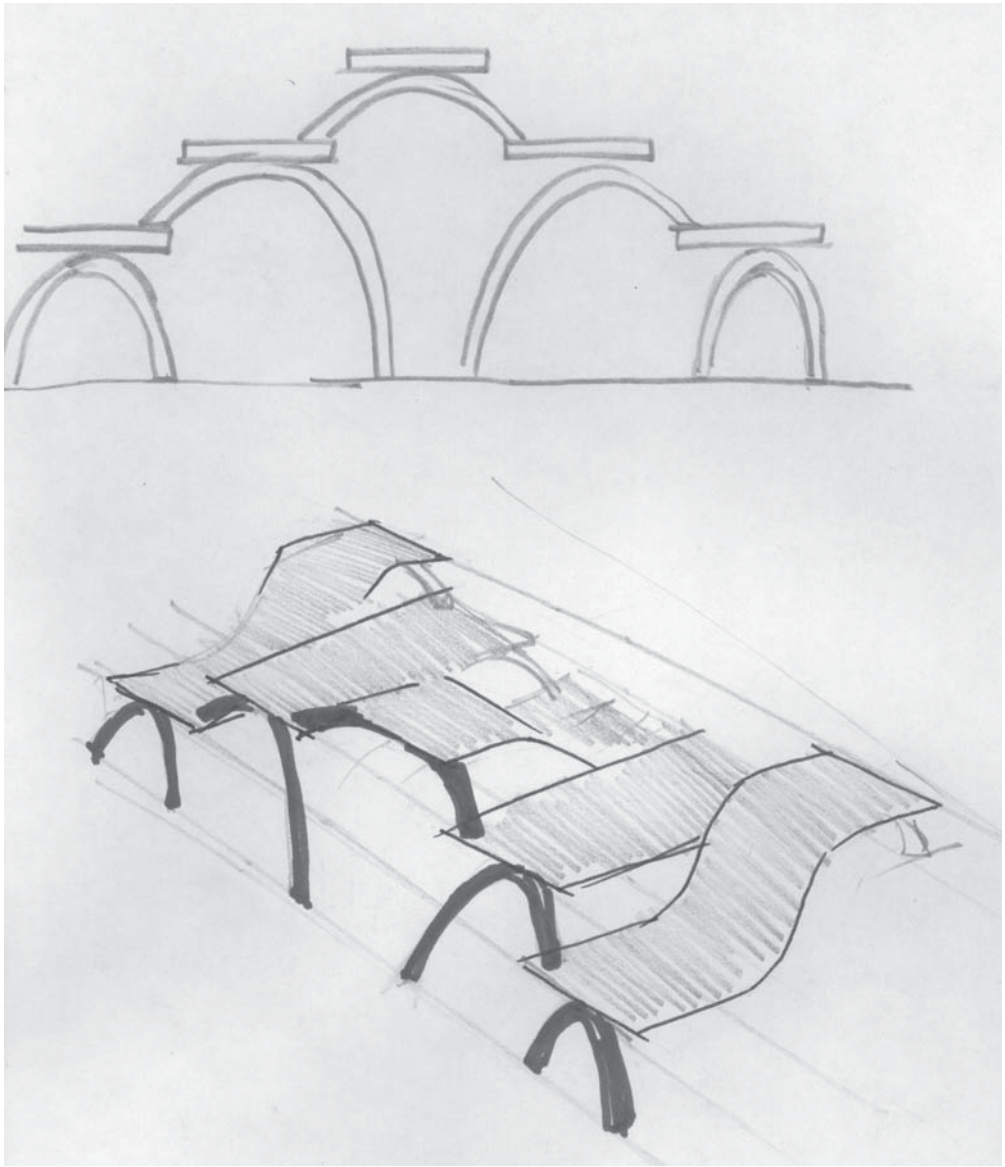
The wave concept was chosen for further development. It was made of modular units that could be arranged in the desired manner so as to affect the space its kept in, for easy reconfiguration, giving public spaces the flexibility to change their layout when needed.



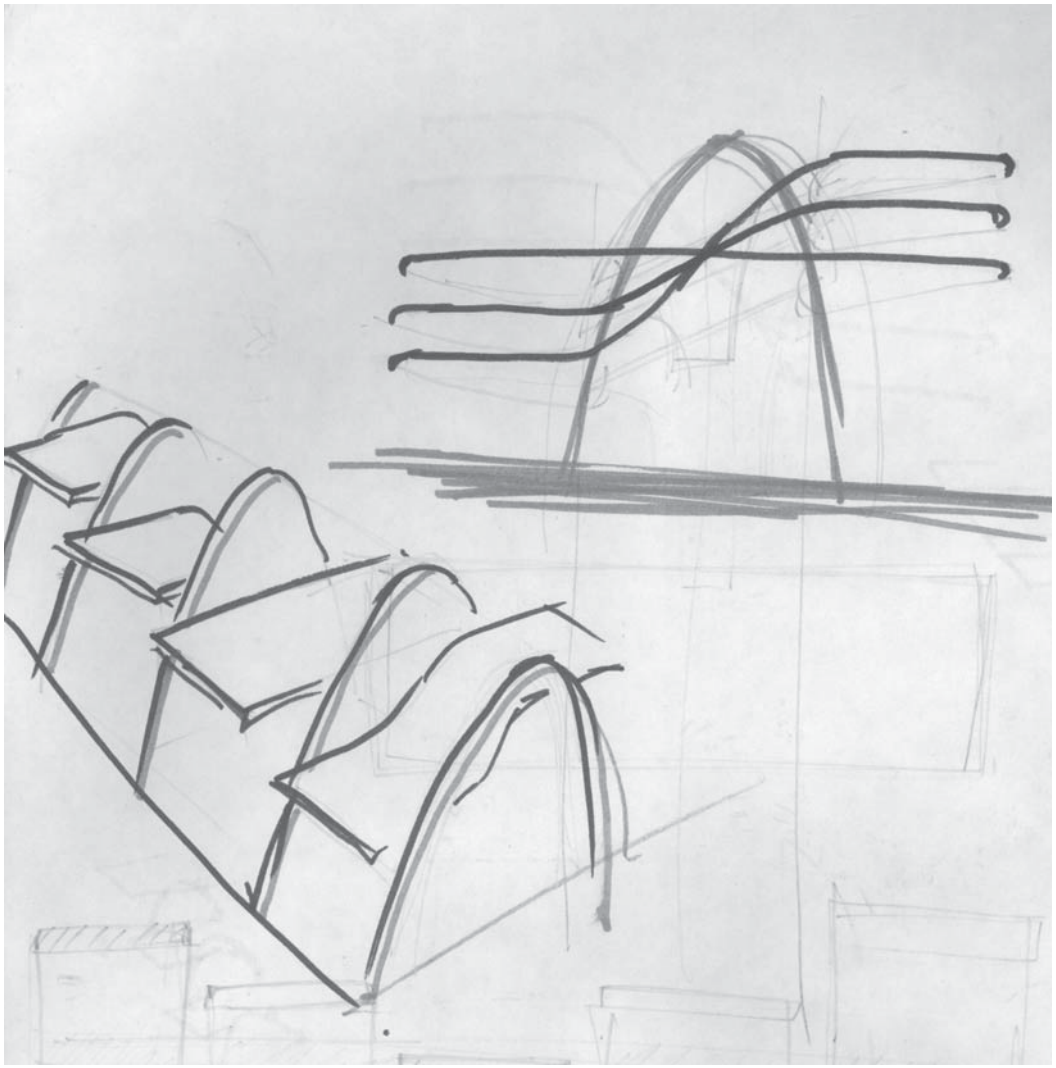


8.1 Material Detailing.

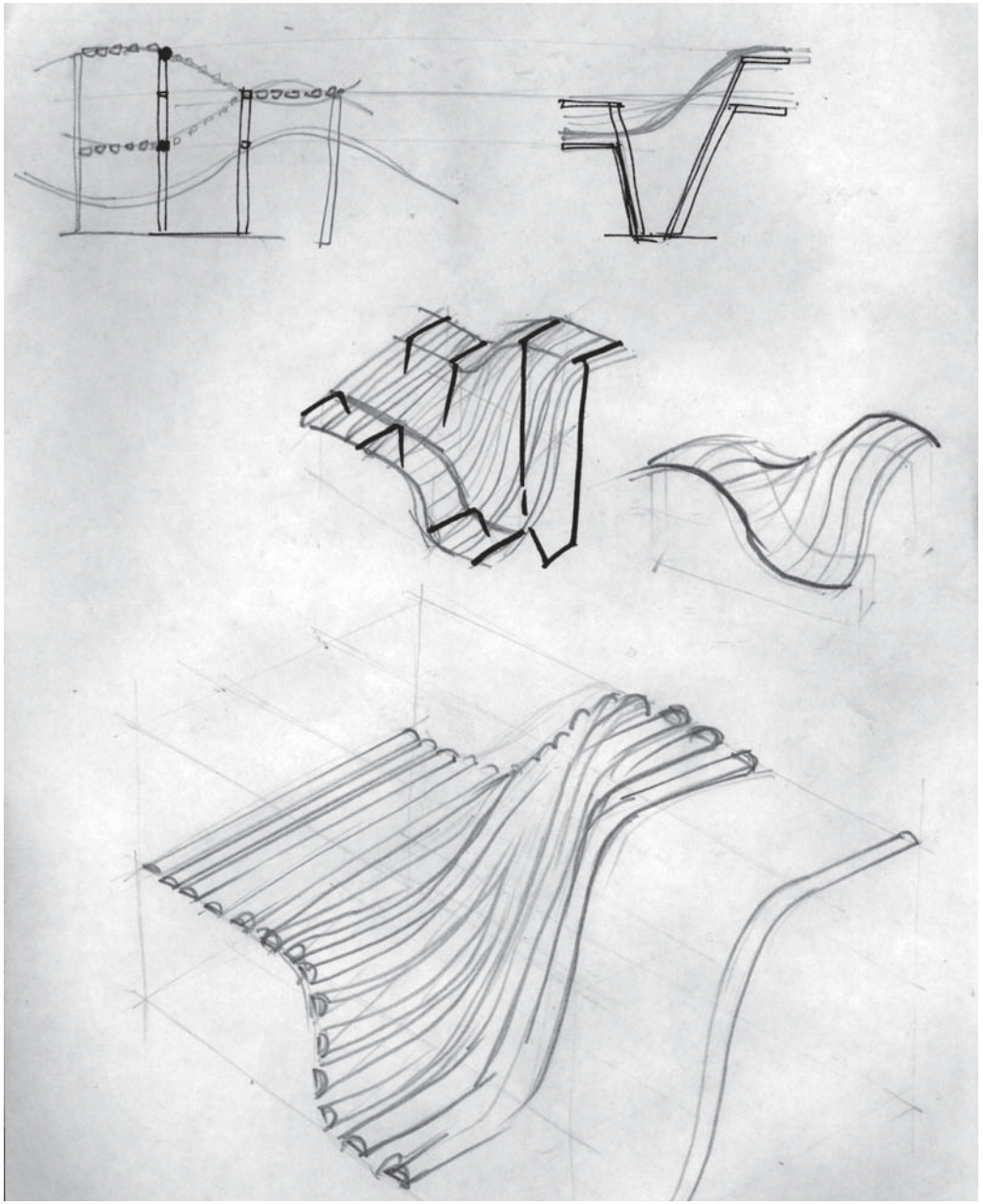
Metal extruded triangular sections to support the bent wood seats. Triangular elements looks very mechanical. Great amount of cantilever. Hence stablity issues.



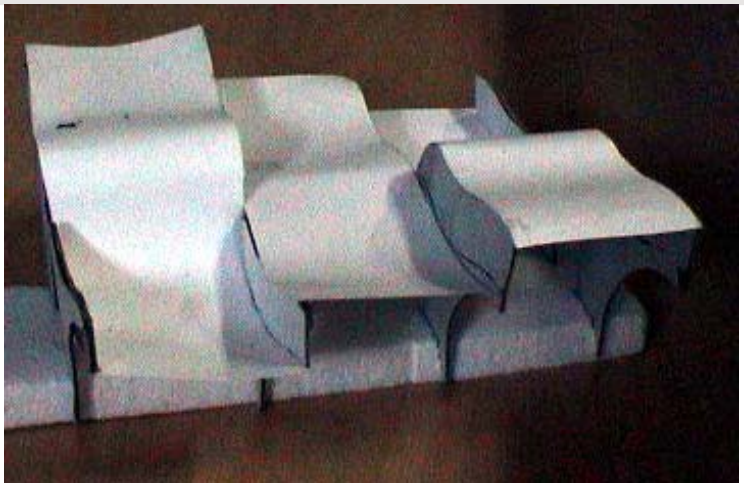
Bent steel rod to support the seats at both ends. Stable. But the supports deviates the attention from the main form intent.

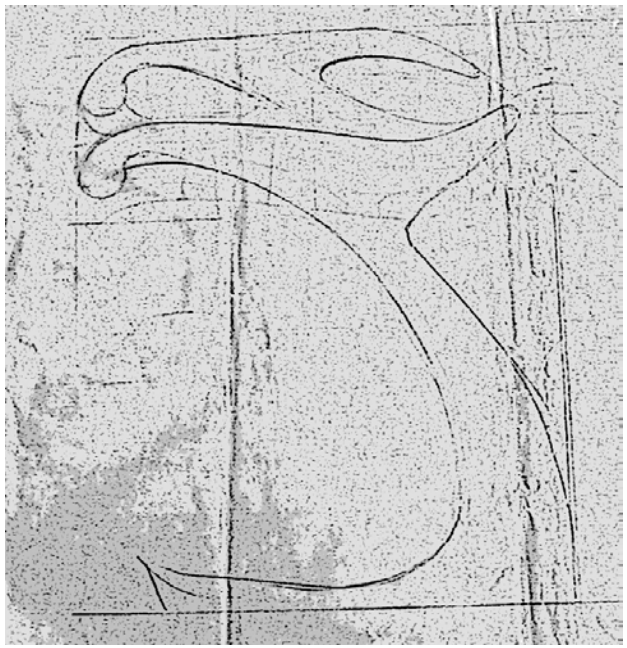


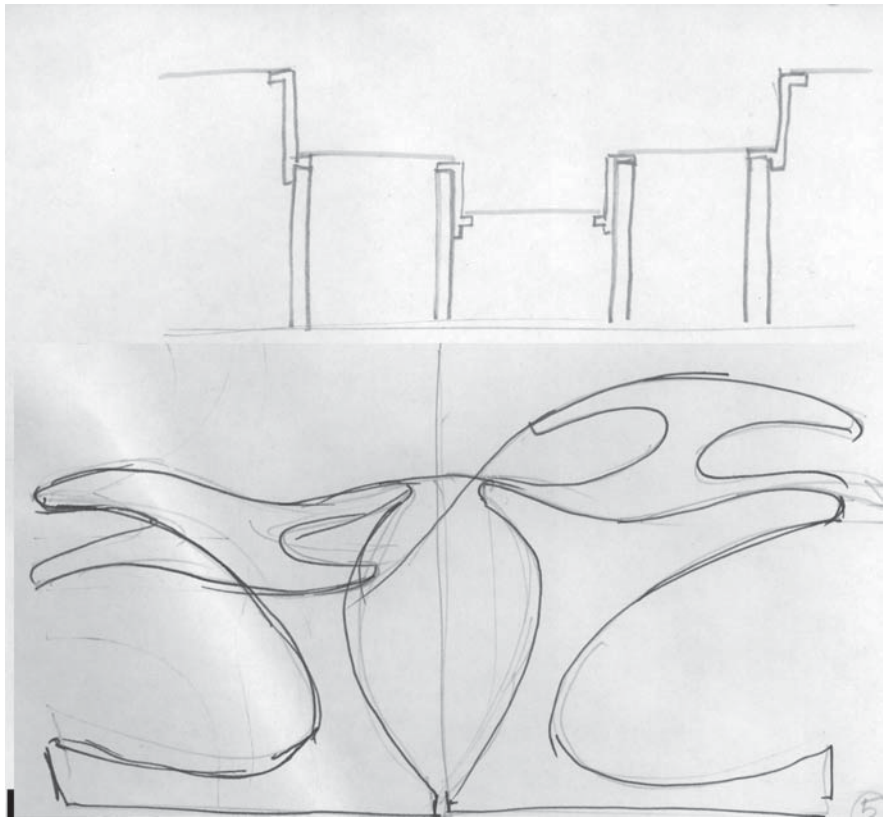
Curved steel rod supports. Stable.



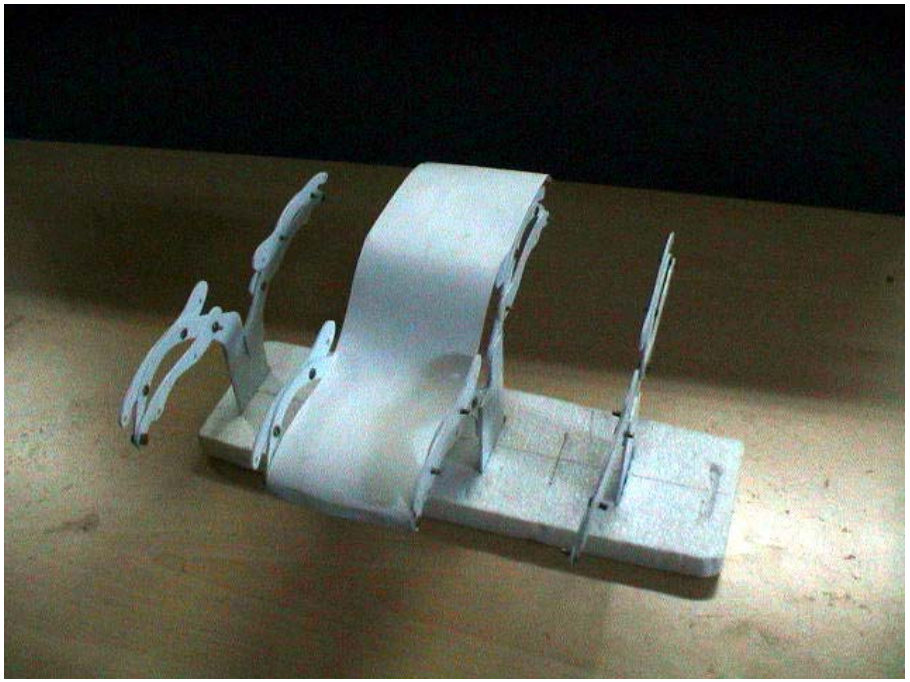
Metal strips bent along different profiles to create the wave.

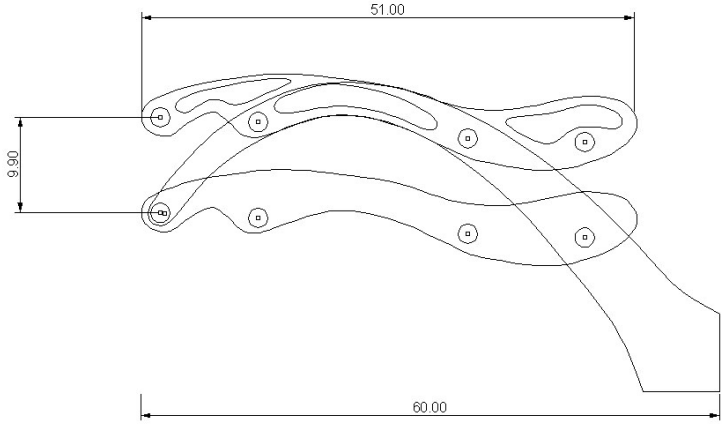


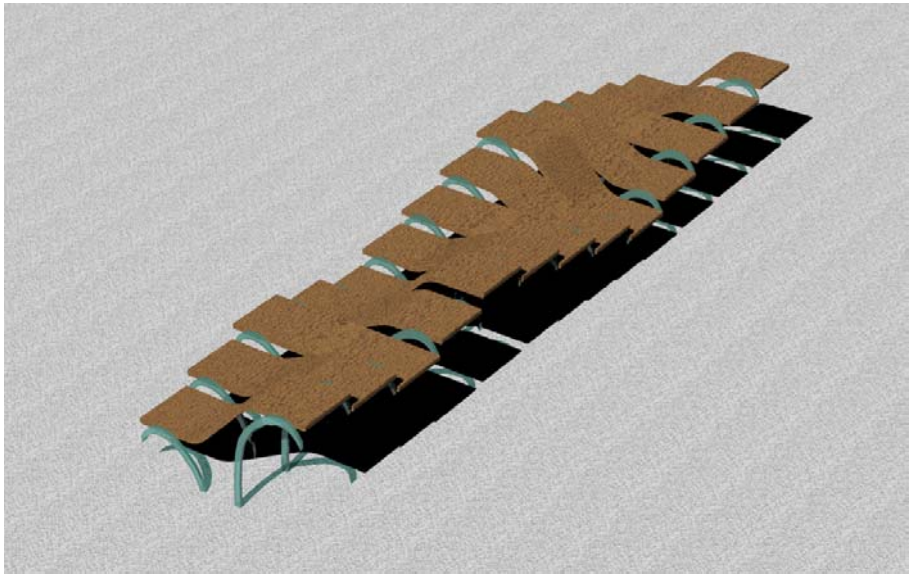




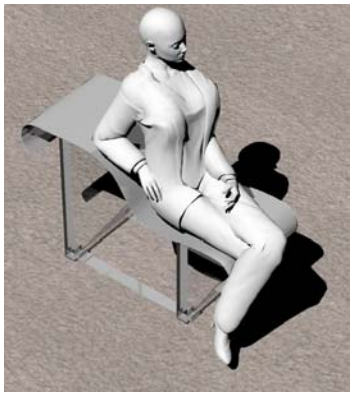
The basic structure is made of cast iron base and modular aluminium die cast element to obtain the variation in height. Thin sheet metal or perforated sheets are used to make the seat.

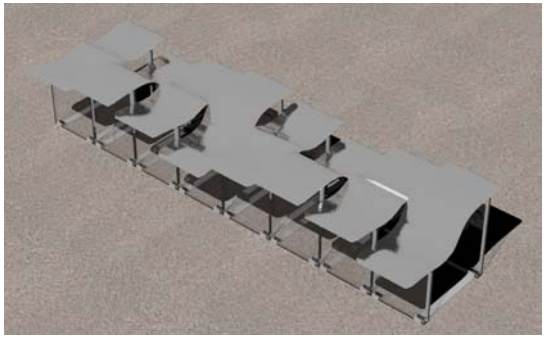


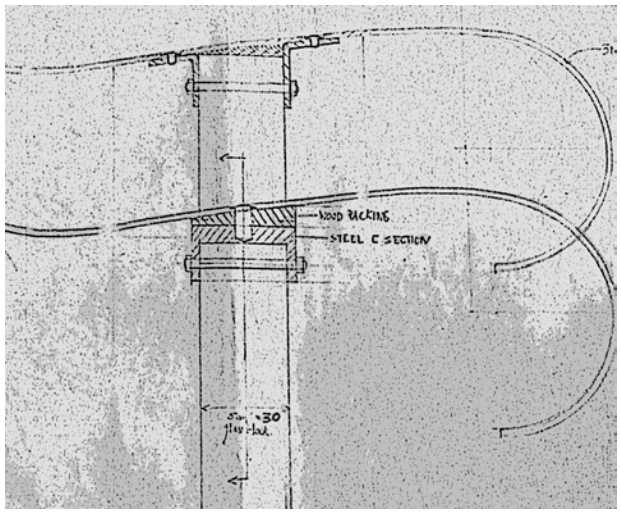


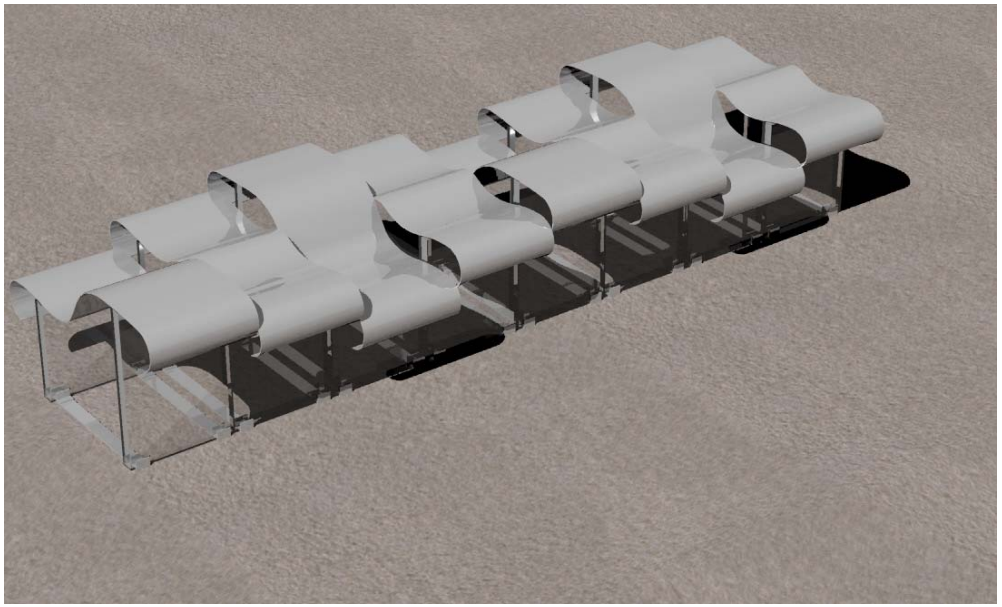


Cast iron structure is used to support the seat. The structure was found to be too redundant.









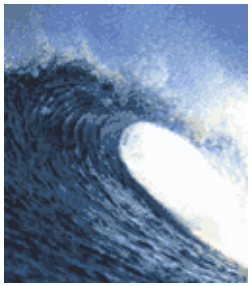
Stainless steel plate on glass sheets 5 cm thick. The glass blocks made the whole form as if floating in air.

Momentary ness

The wave chunks

Intermediate.
Modular elements.

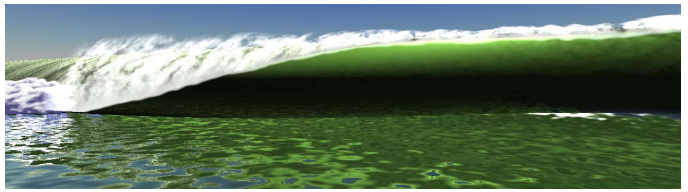
Wave comes in chunks still is a part of the whole. In itself it is complete. All of them together they make the entire.



The Curves

The varied curves creates randomness.
But the curves have perfect definition and balance.
Gradual and abrupt.

Height variation



Negative and positive spaces

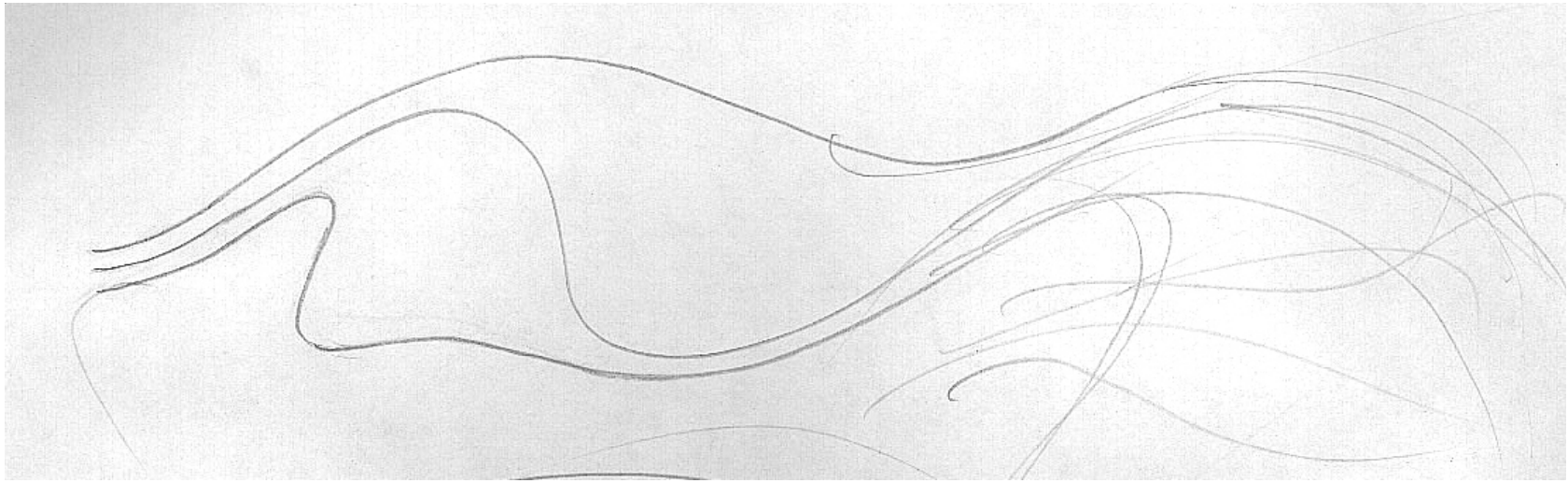
Colour

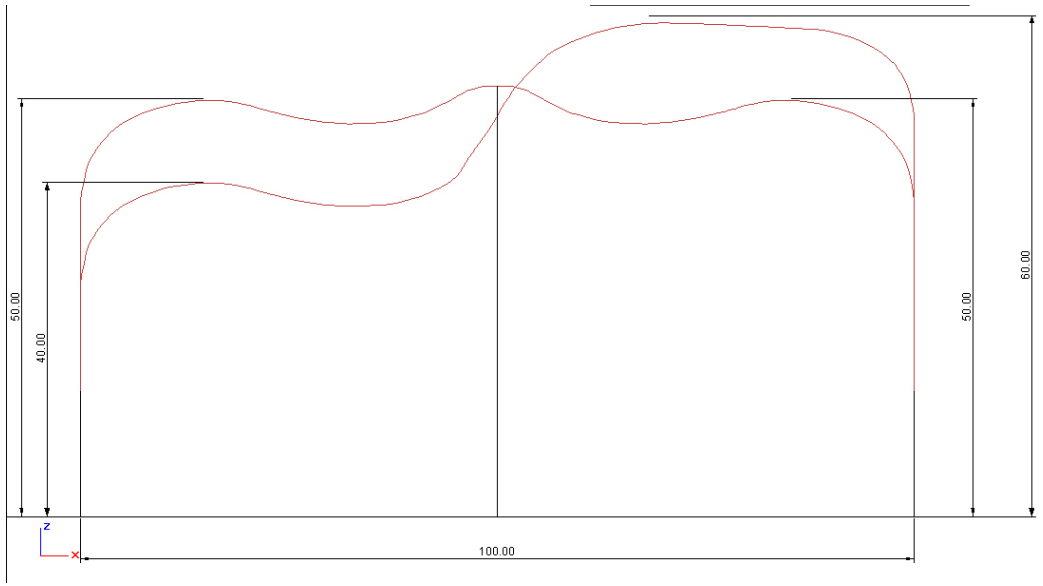
Contrast
imbibed form the surrounding.

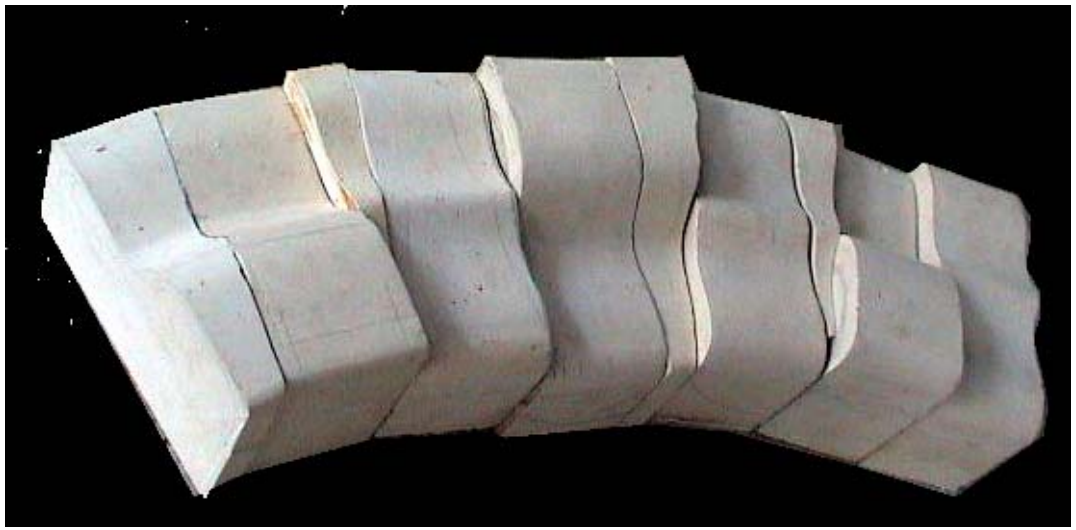
Shades and shadows

varying thickness of water.

8.3 Form refinement

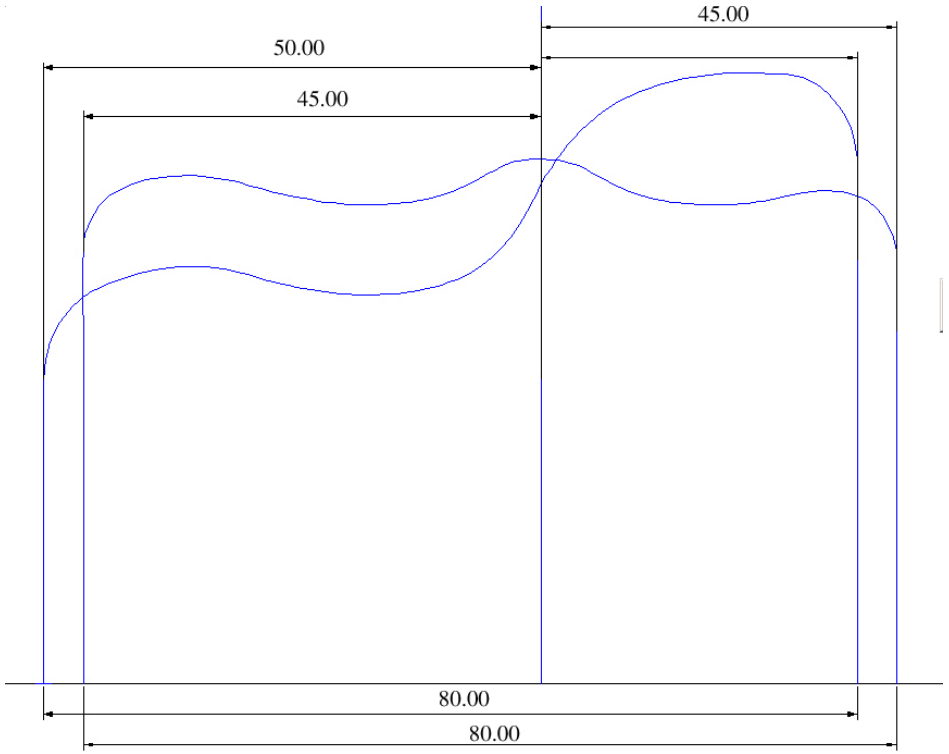


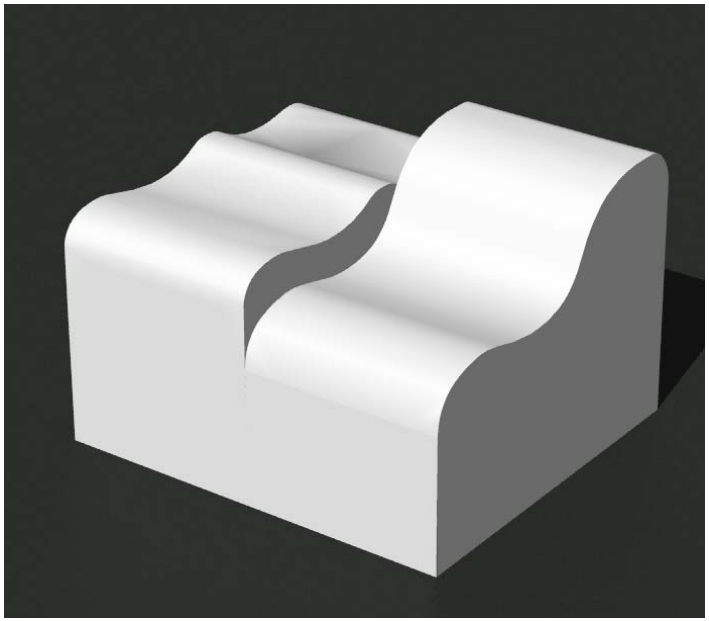




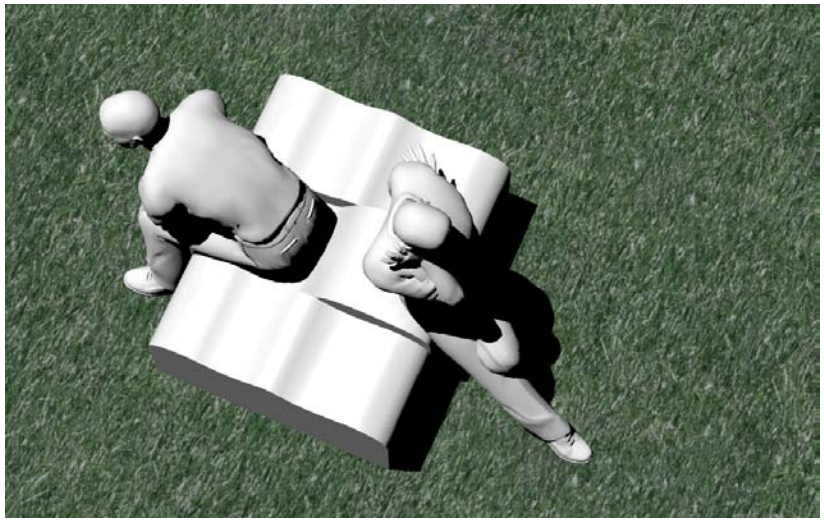
The form had to be a whole in itself

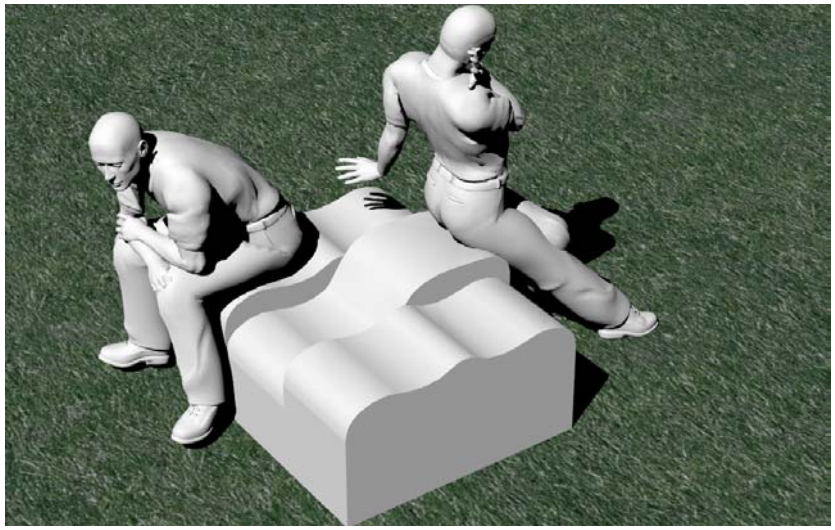
Balance
Curves from the ground rising and falling.

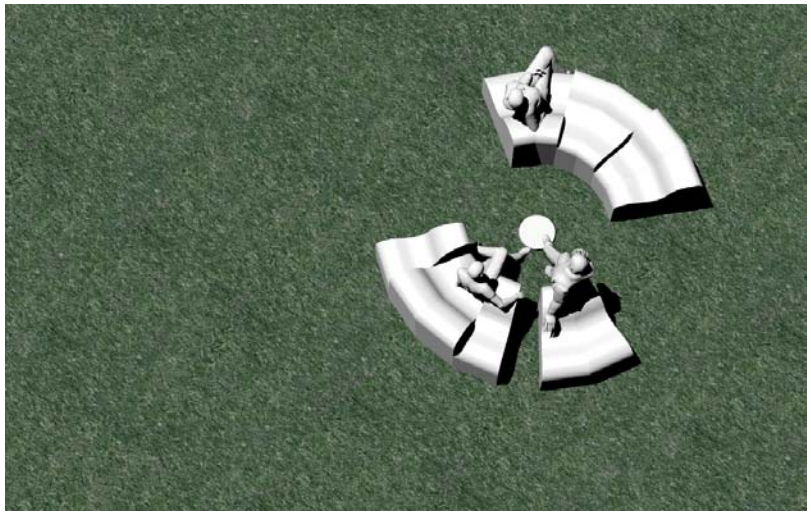


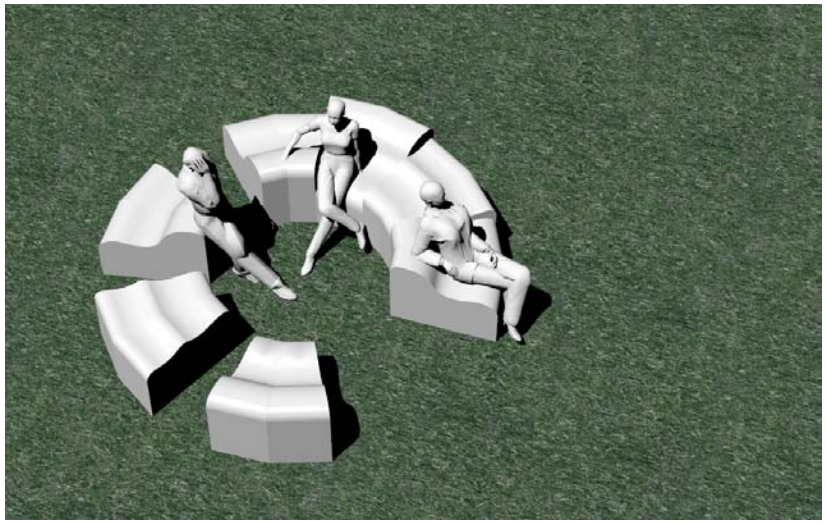


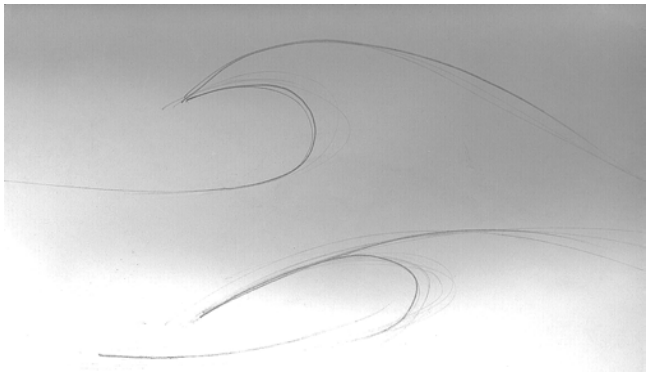
The form was modified and the curves refined with considerations of how people would sit.
There is an imbalance. The imbalance that creates the force of wave

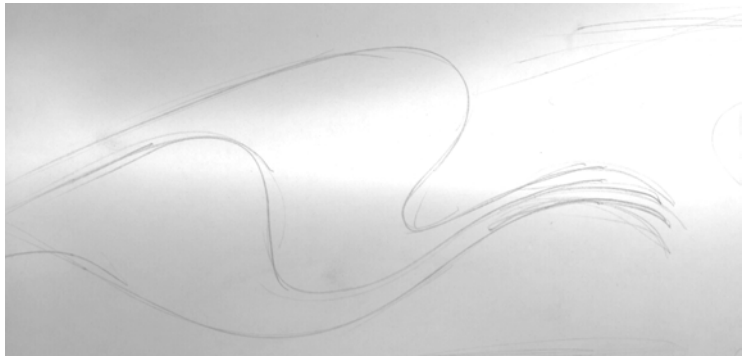


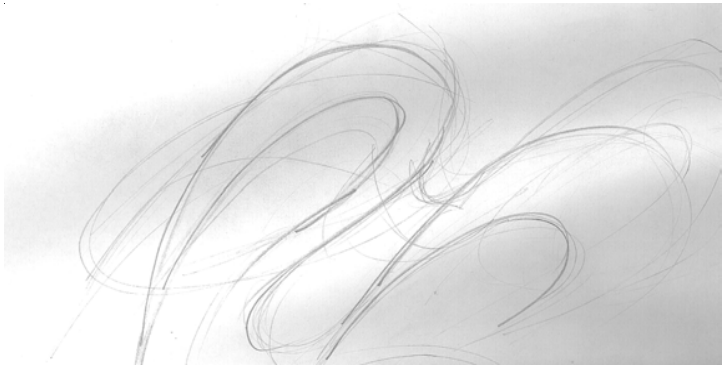


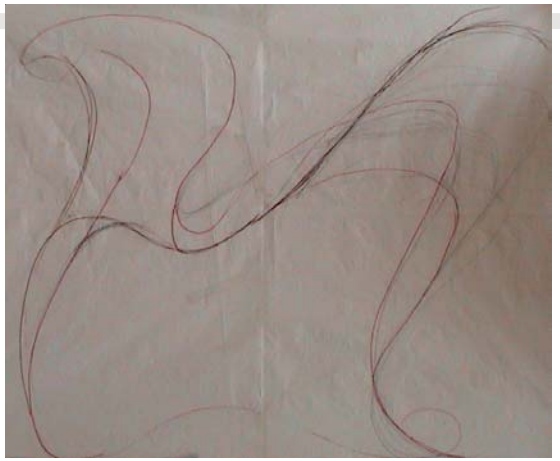


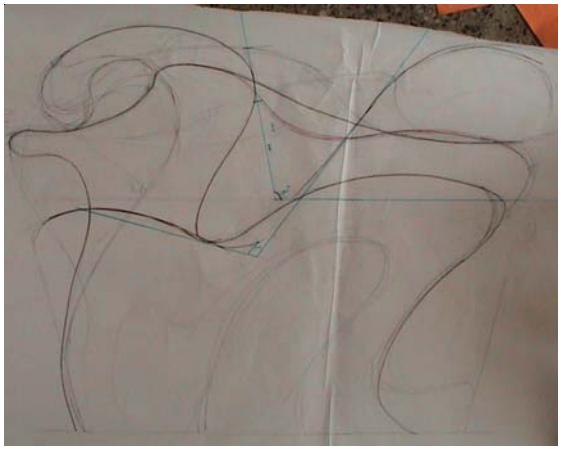


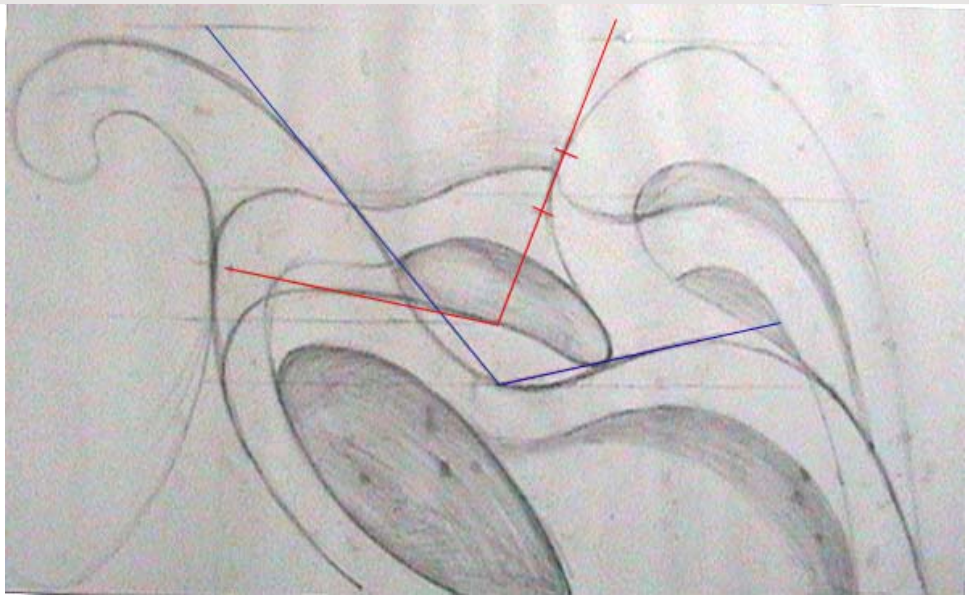




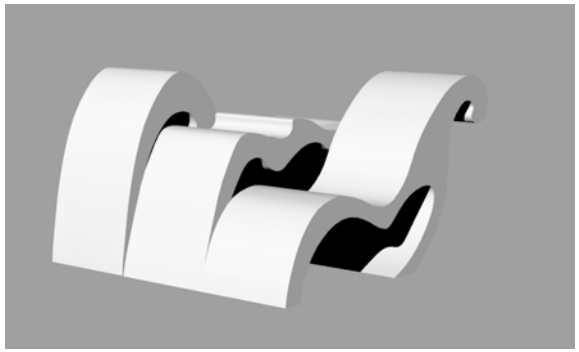


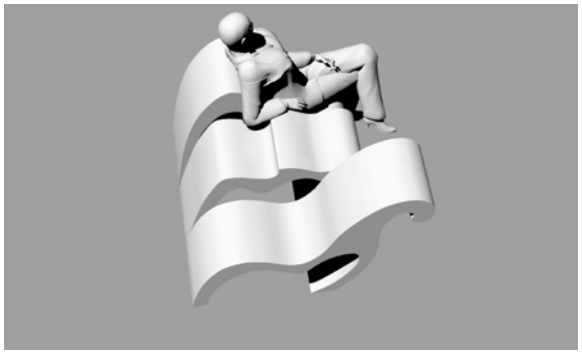






The curve of the wave and the human curves were matched. The seats where designed for two seating positions erect seating and relaxed seating.





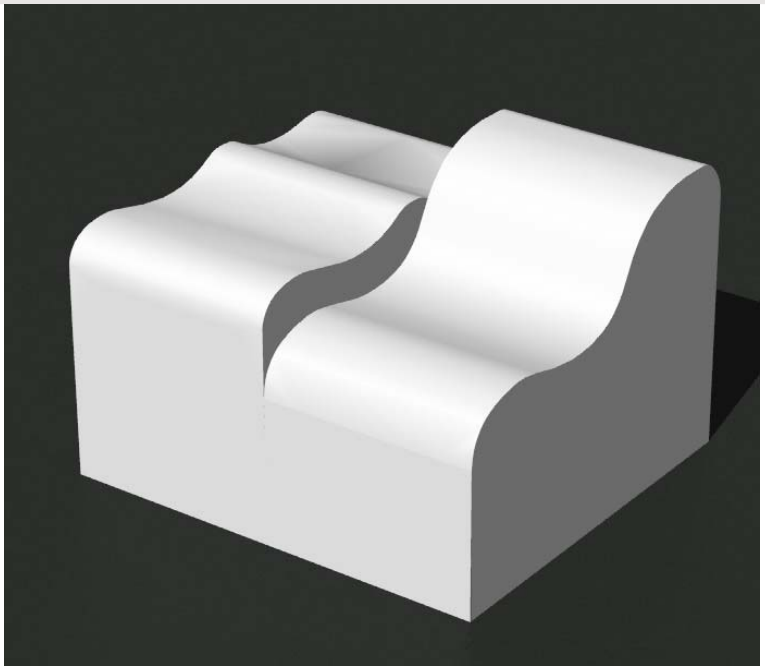
combined data

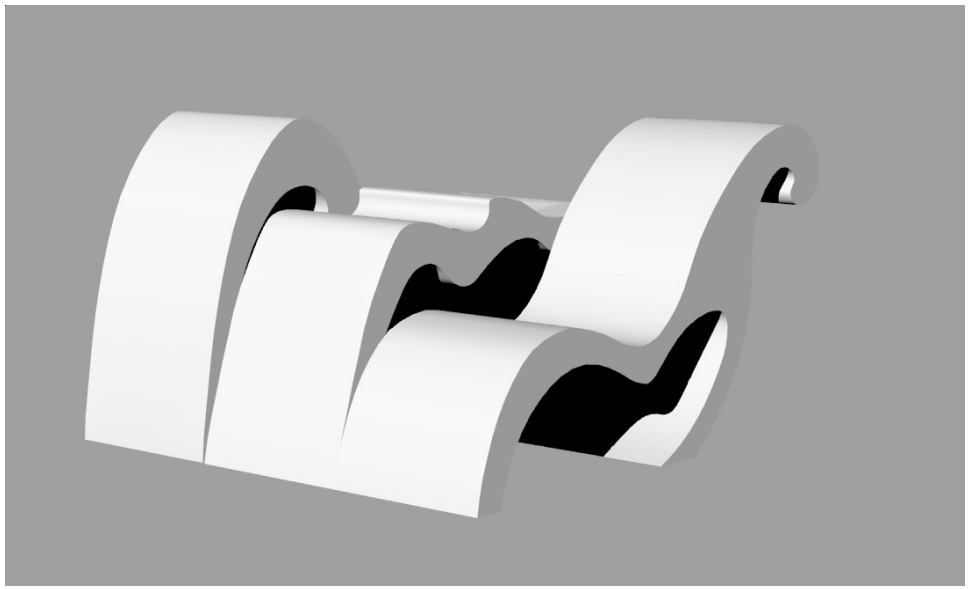
incline seat pan angle - 2 degree 14 degree
backrest (most comfortable) 110 - 130 degree back rest angle

lumbar
lower lumbar 95% - 159 mm
upper lumbar 5% - 246 mm

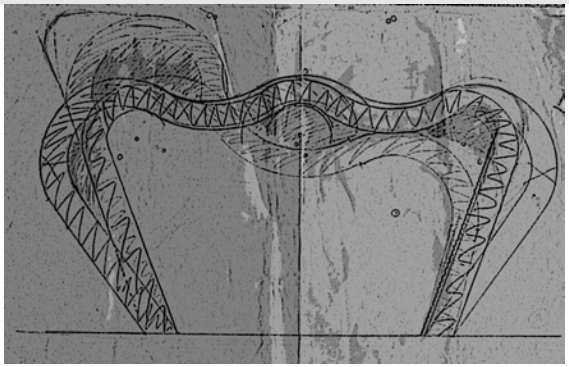
buttock to popletail
5% - 394 mm

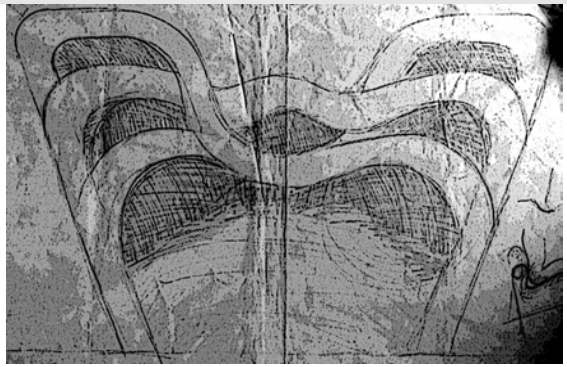
height details percentile population
old
65+ 388.6mm 473.22mm

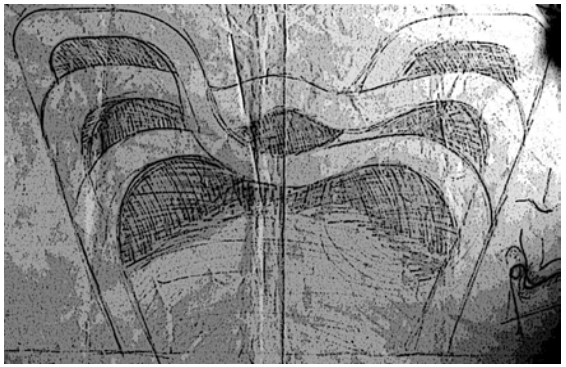


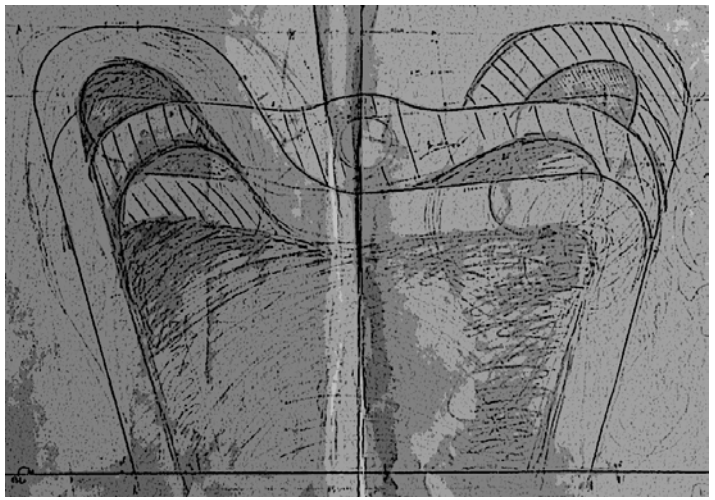


On comparison of the two forms the first from was found to be stable and less confronting and balanced.

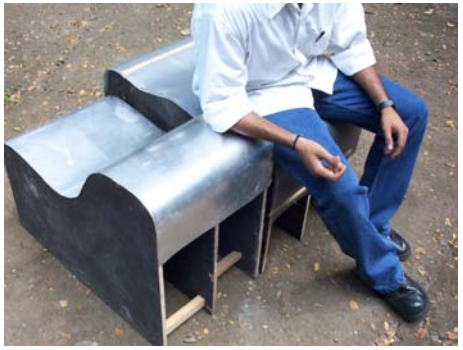








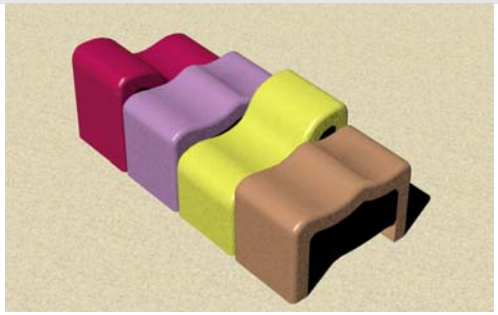
The effect of negetive and positive spaces created by the voids between the repeated elements where studied.

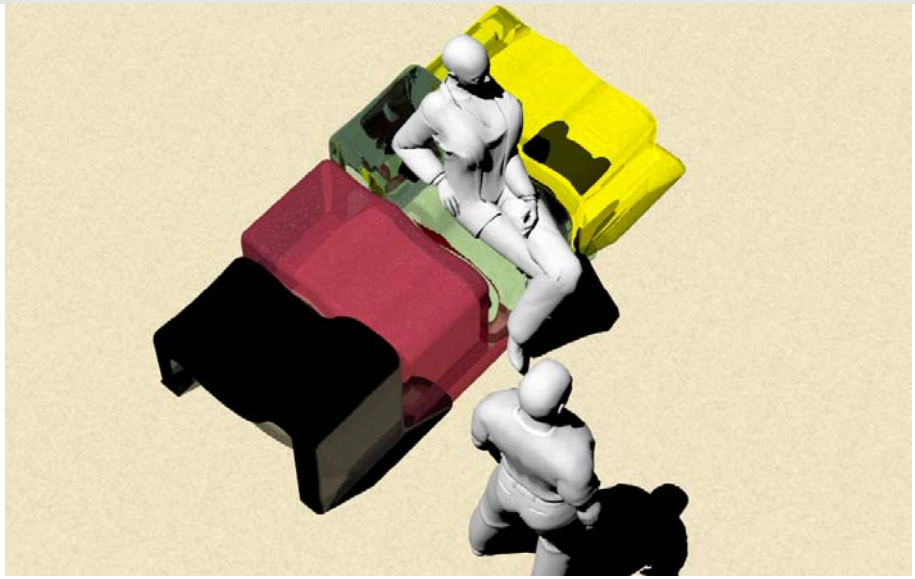


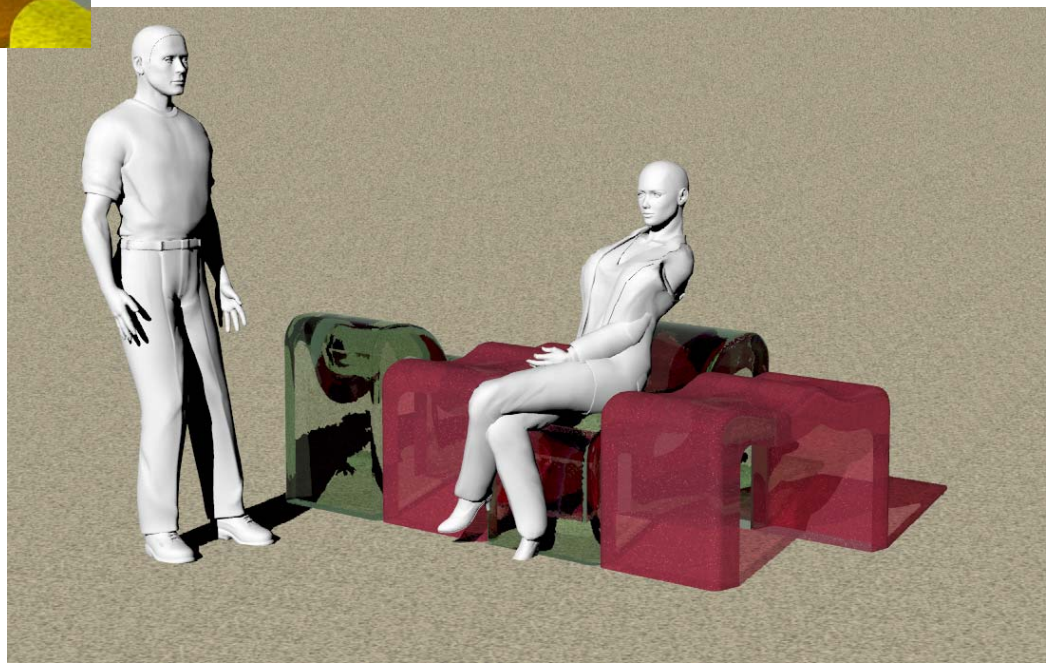
MOCK UP MODEL

Ply wood model was made to understand seating height and comfort. The Diferent heights where fixed for a wide variety of people.

9.0 Material Exploration



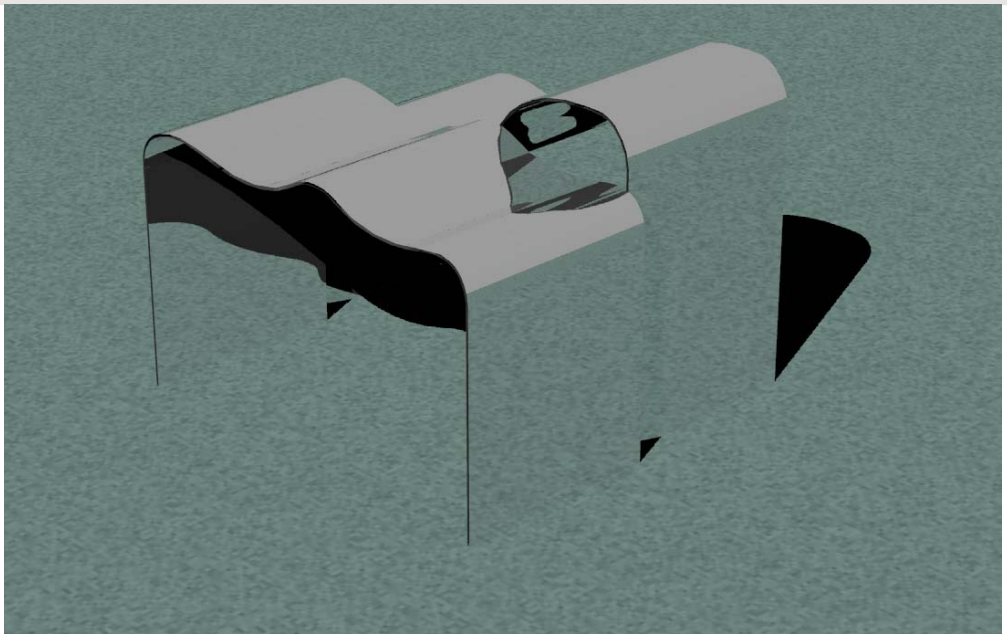


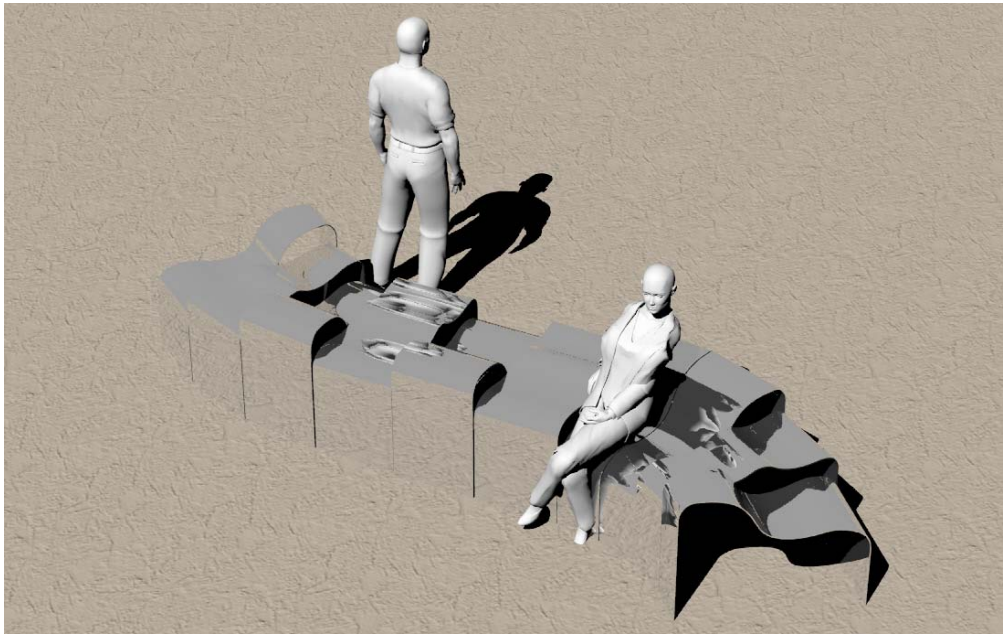


9.1 Fibre Glass

Hollow moulded, in bright colours. The edges could flow down to cover the wedges in between the modular elements. The transculcent colours would merge with each other in an interesting manner.Tranclucent

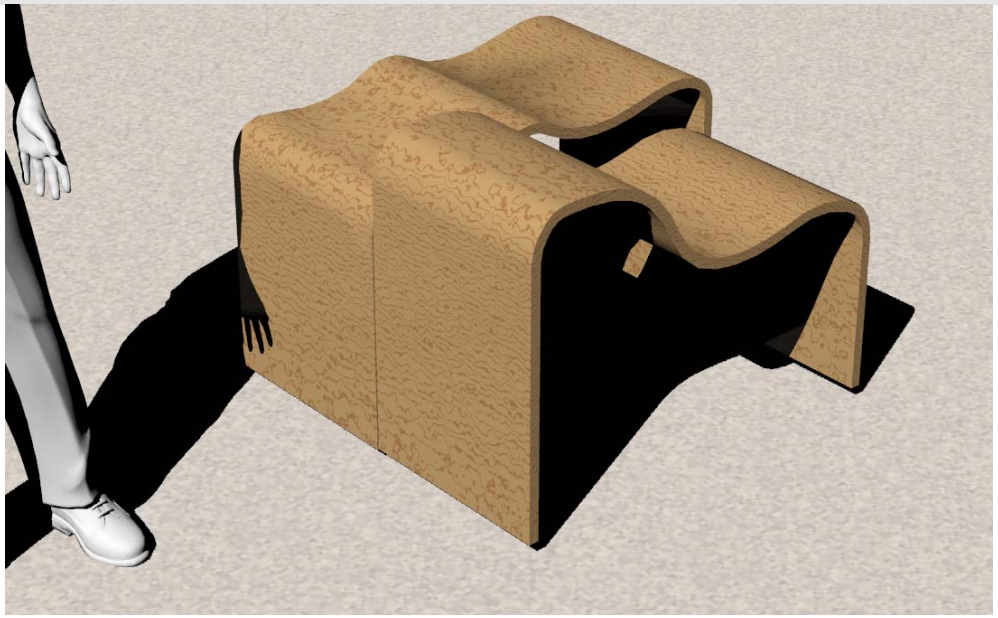
Play of light
Variation in colour
Merging of colours

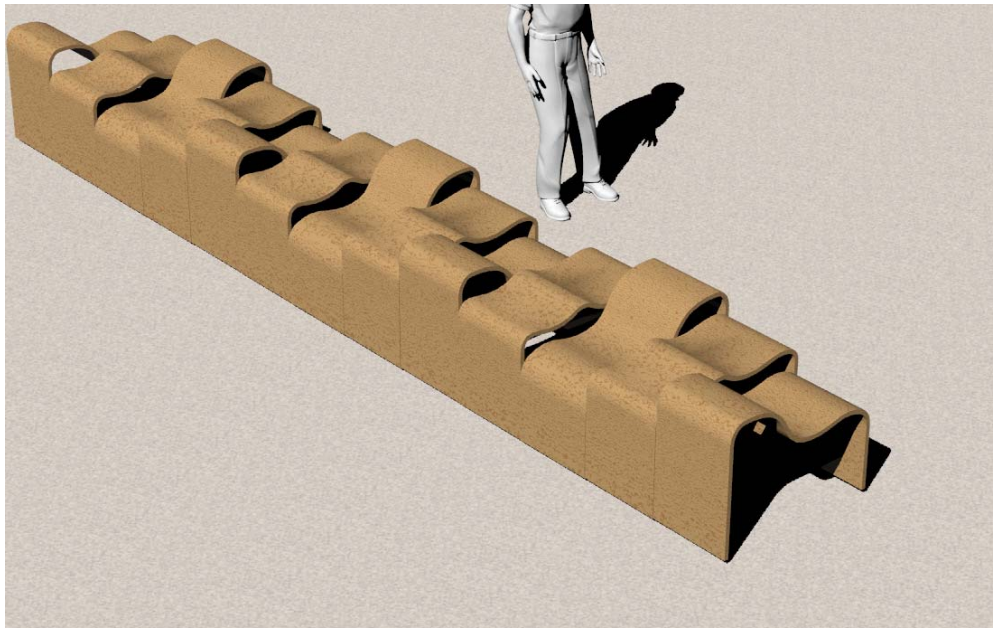




9.2 Stainless Steel

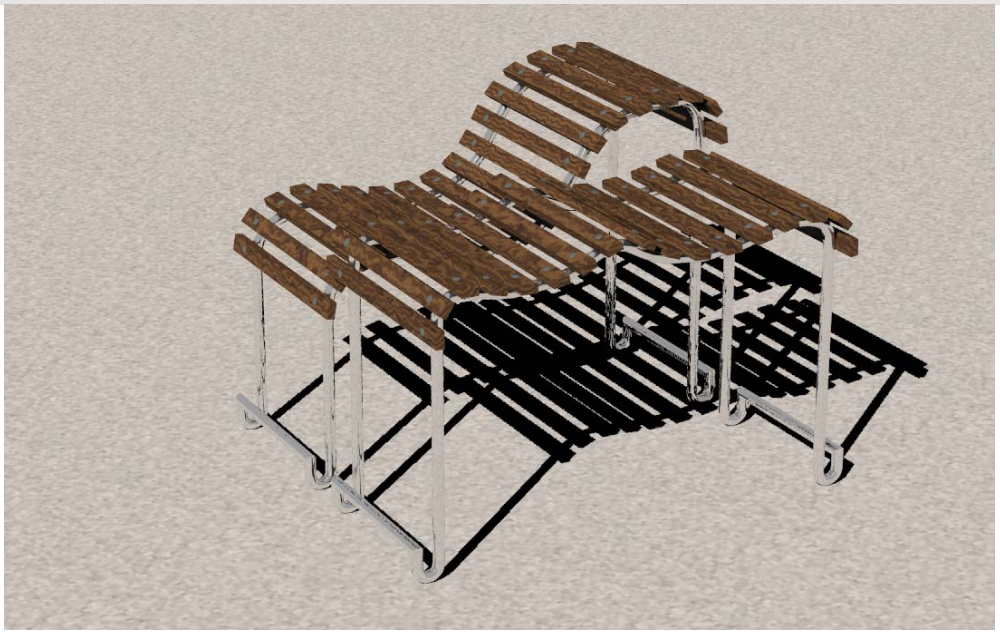
The highly reflective surfaces could denote water.

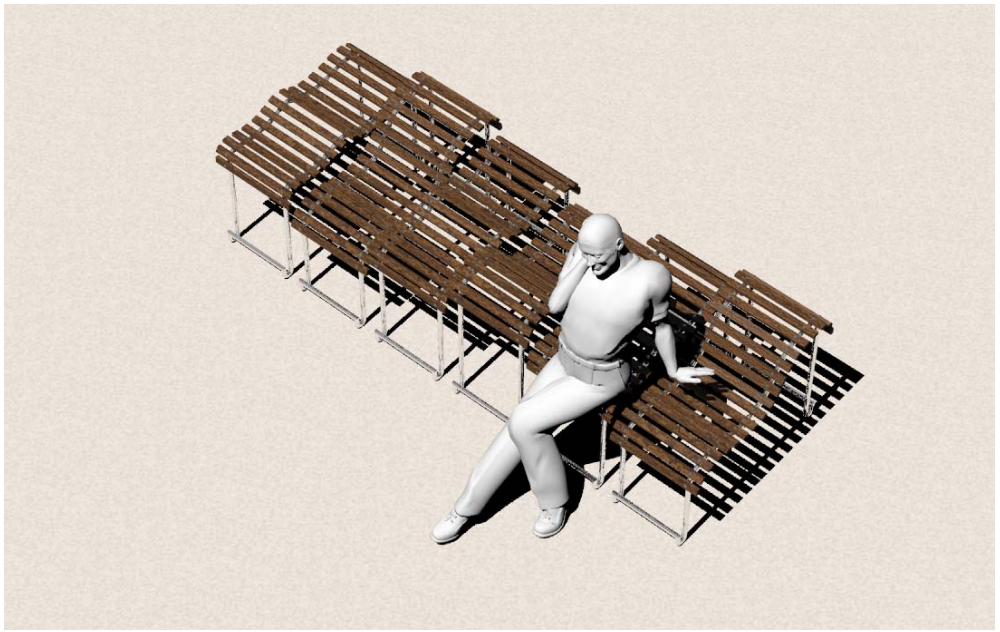




9.3 Bent plywood

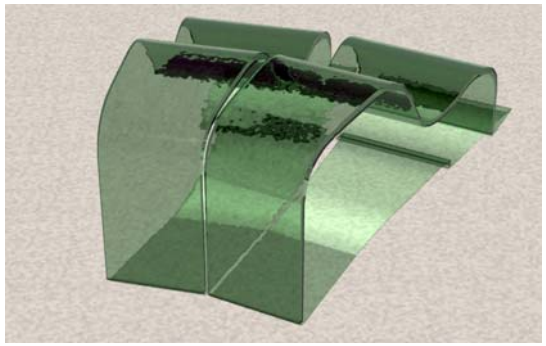
Thin layers of plywood could be stuck one over the other to create the desired thickness that is required. Looks sturdy and warm.

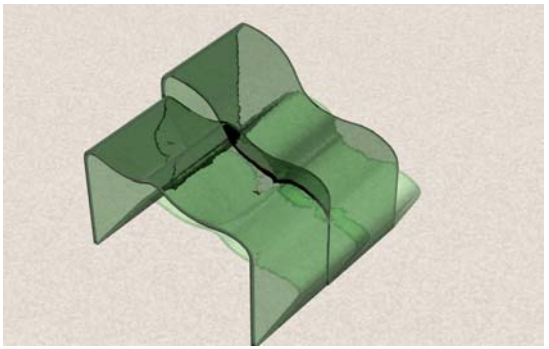


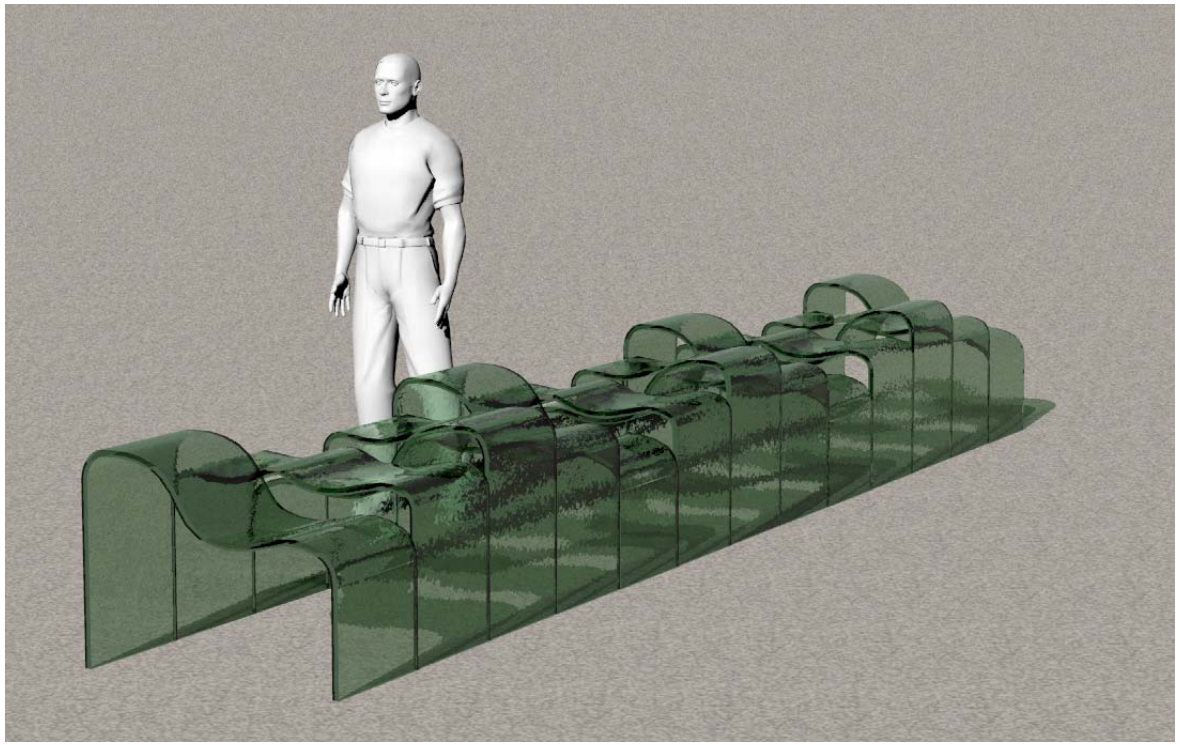


9.4 Wood slats on stainless steel tube.

The wood slats dominates the steel structure below. The thin steel tubes makes the form lighter as if floating in air.

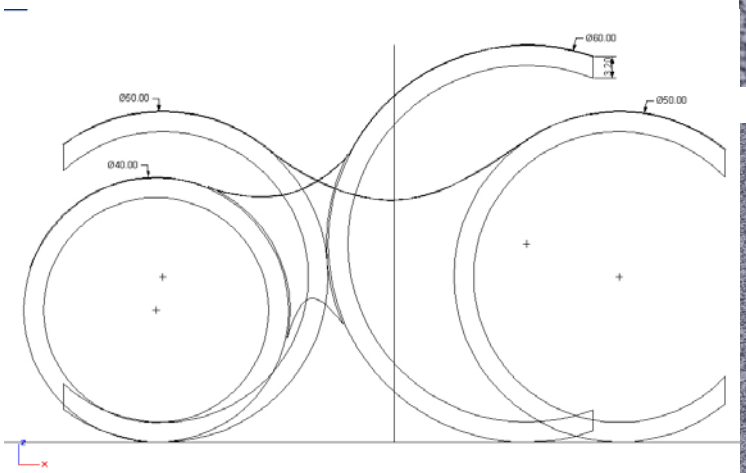


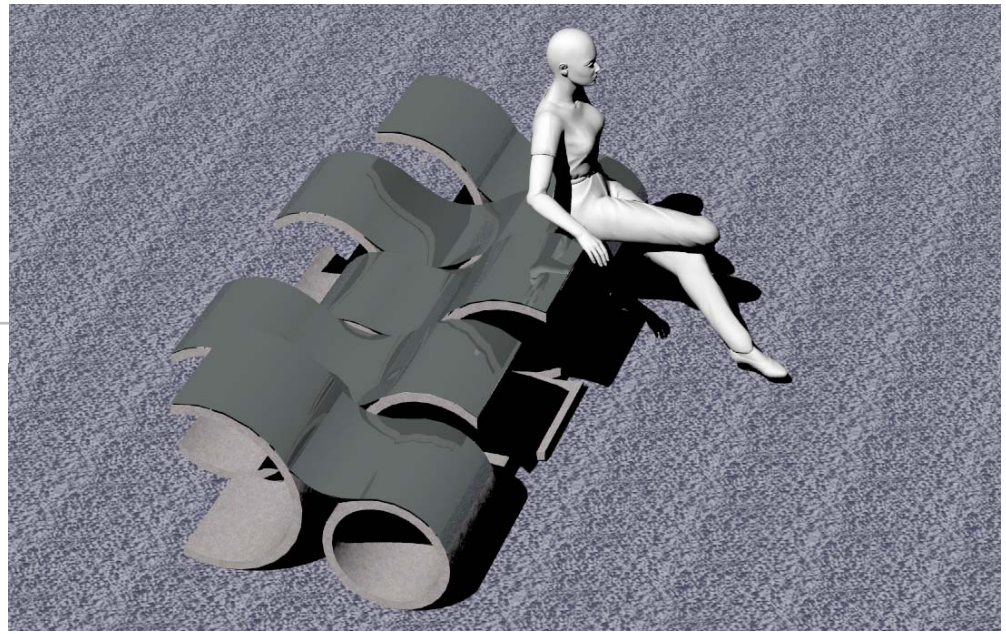




9.5 Glass sheet

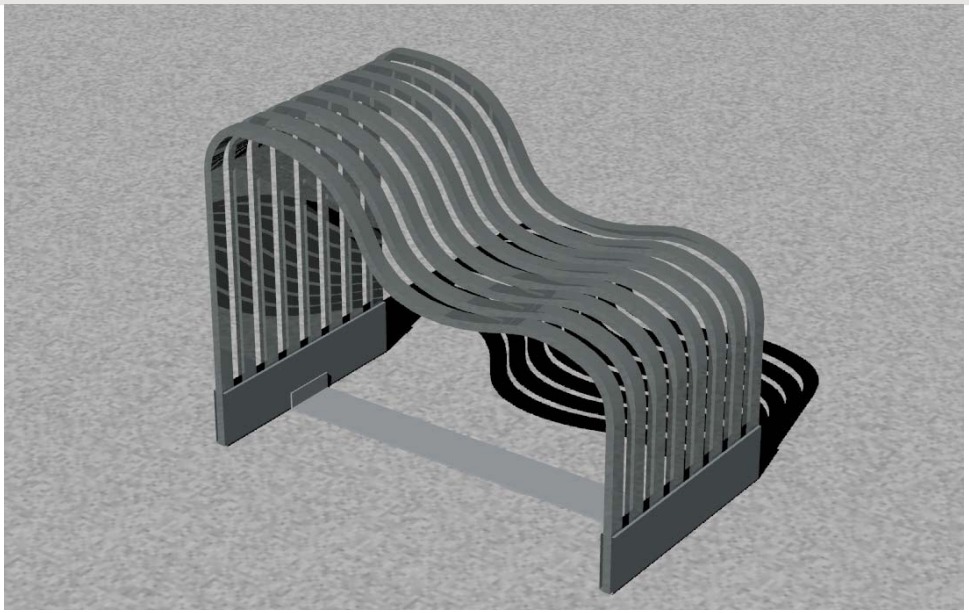
Glass would be the ideal material to denote water.

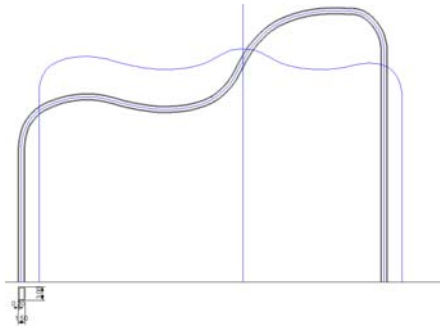


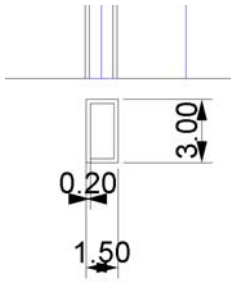


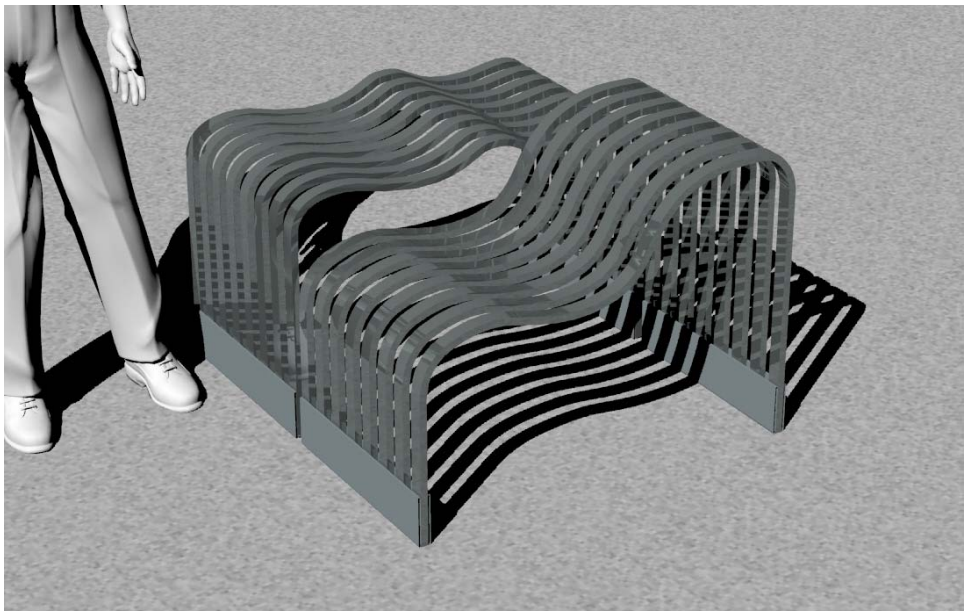
9.6 Concrete

Concrete pipe sections and sheet metal.





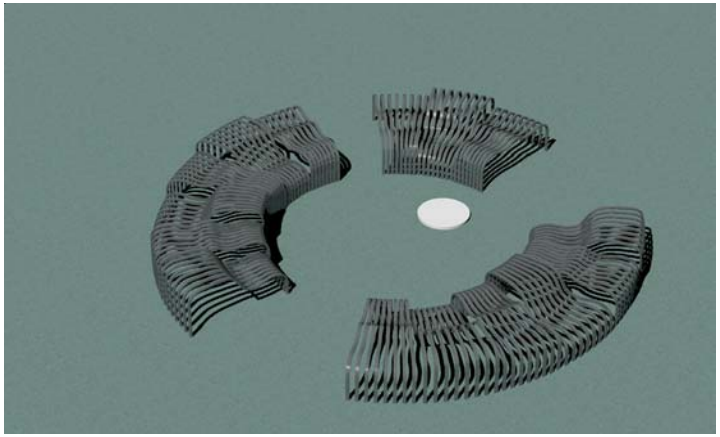


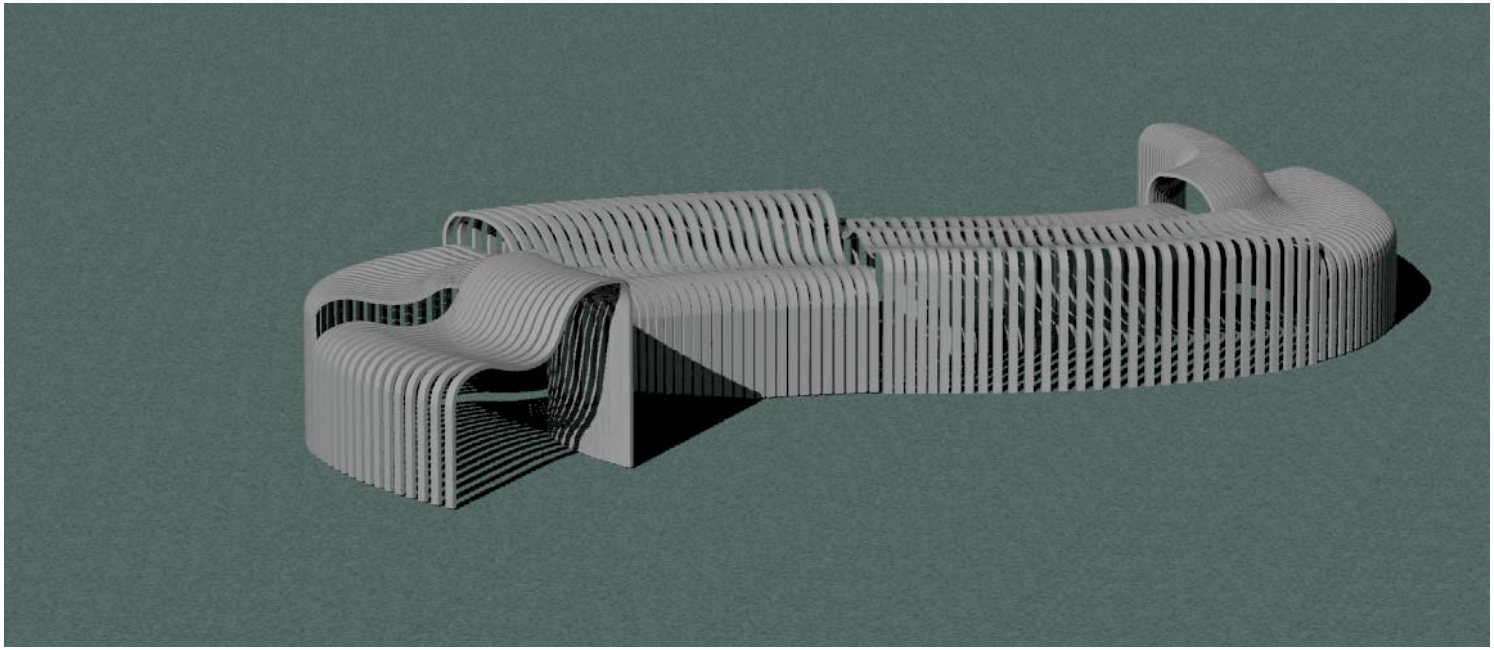


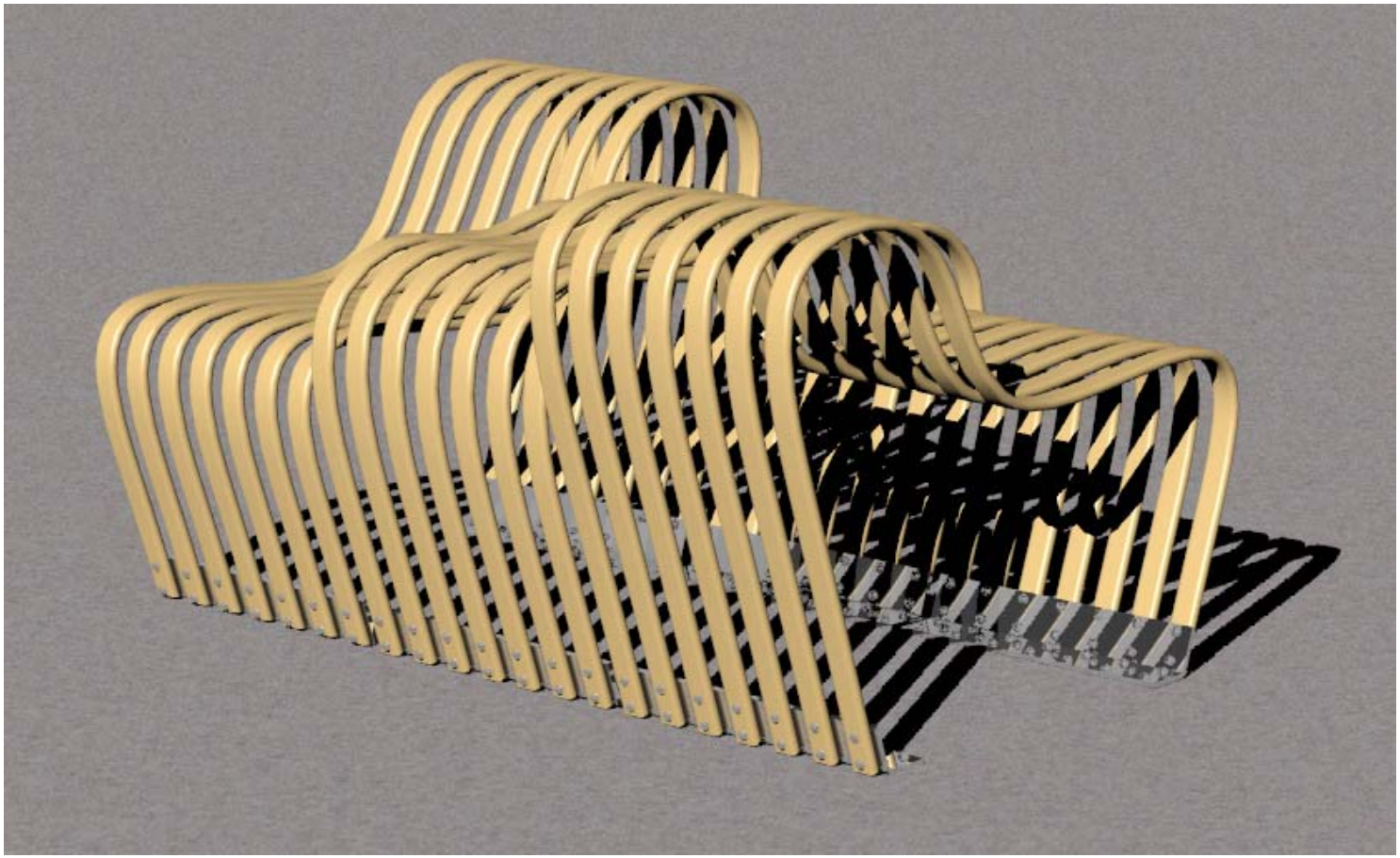
9.7 Mild steel box sections.

Looks light, the sections along the curve supplement the form. The parallel tubes also creates interesting shadow patterns.

Bent tubular box section are inserted into the metal casting and bolted.







11.0 NEED AND COMMERCIAL VIABILITY

Current market is flooded with benches of various types. They look like typical benches and are fixed elements. There exists a need in the market for flexible shapes to suit various environments.

Architects, landscape architects, interior designers or urban designers may incorporate the design into their own design process by configuring the modular product to suit their environment. For architects who want to design objects for the space that they create but do not have the facility to manufacture.

11.1 PRODUCT POSITIONING

This bench would be appropriate for designers who appreciate assistive products that enhance their creation of beautiful spaces.

Businesses that need to uphold a distinguished image in the spaces they provide could also be targeted. They could create a potential market.

The product will compete with other public seating and provide an alternative to expensive custom-made furniture.

12.0 POST SCRIPT

Natural elements like rain, wind, growth, seasons are perfect examples of an engaging experience which have been truly explored in places like zen gardens.

Modularity and industrial manufacturablility and cost were of primary concerns. It was found as a serious limitation during form generation.

Fully aware of both the aspects of design, the emotional side and the practical industrial side, I have tried to come up with a design which strikes a balance, compromising none of the factors.

13.0 REFERENCES

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