In Search of Equilibrium : Containers of Light

In Search of Equilibrium : Containers of Light

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Master of Architecture

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Contents

Equilibrium

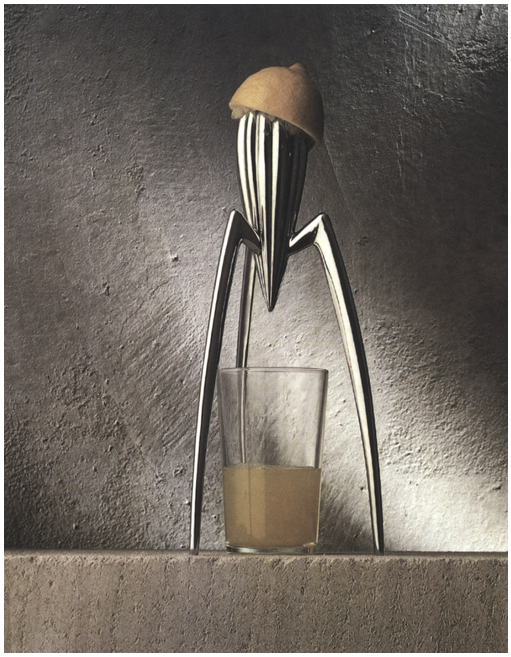
I began by looking at a selection of works of art and architecture that I have responded to instinctively. The attempt was to investigate if there is a common quality that they all share.

In this example the red stroke is the point of focus of the composition. If it is subtracted, the remnant is just a brown color field. An addition of a second red stroke will serve the same purpose as the first one.

Painting by Barnett Newman

‘Aesthetic quality,’ says industrial designer Dieter Rams, ‘means talking about nuances…the harmony and balance of various visual elements working together.’

I believe that each and every part of this juice squeezer has a role to play. The size of the bulb is designed to fit the average fruit size and the serations on it are spaced just enough to let the juice drip down and tear the fruit simultaneously. The designer, Philip Starck makes three supports and not four with optimum space to place a glass.



Juicy Salif by Philip Starck

I find similar qualities in Japanese **Katsura** architecture. The materials and the process of construction are all self-evident. Construction is reduced to what is aesthetically indispensable. The Katsura palace illustrates a strong distinction between skeleton and skin. Simplicity and clarity are pushed to the ultimate, without being dull and bland. In the Katsura, it is not the boundaries that we see but it's the space between the frame. The Japanese traditional notion of Shibu, is studied restraint, that can best be described as **knowing when to stop.**

'The Katsura palace, Kyoto, begun in the early 17th century, and extended and developed over a long period, is one of the master pieces of Japanese architecture. The complex is made up of a number of small pavilions used in the ceremonies of the tea masters...This is the most refined kind of aesthetic order, one which could be seen as prefiguring the purist aspects of the modern movement. If an architecture from an entirely different culture, and with such a different pallate of materials, can produce an unmistakable aesthetic echo 200 years later, it must be possible to infer that there are at least some underlying permanent aesthetic rules?'

Interior View, Katsura Palace, Japan

Exterior Corner , Katsura Palace, Japan

Mies Van der Rohe’s Farnsworth House offers qualities of refinement similar to a Katsura pavilion.

Farnsworth House,Illinois - Mies Van der Rohe.

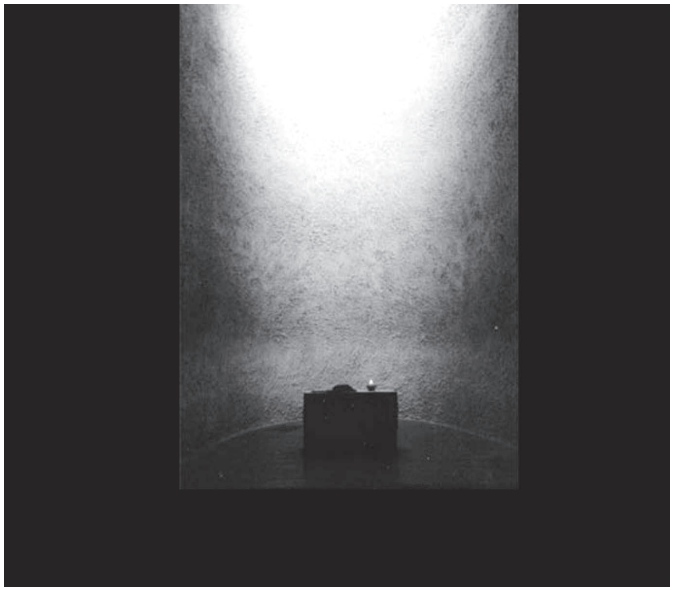
The Program

The nature of this investigation requires a program where simplicity is a virtue. The word temple is derived from *temnere*, which means to cut, to take away. I understand this as a process of subtracting to create meaning out of something that would otherwise have been inert matter. The program proposes a sequence of three distinct spaces for contemplation, and welcomes people of any faith. While it is impossible to meet the exact requirements of each religion, there is a common thread that ties all sacred spaces together. The goal of this project is to create a silent meditative environment by bringing into play essential qualities of the space itself such as material and light.

Church on Water, Tadao Ando

Does it make a difference if someone believes in A god or a hundred gods?', says architect Claudio Silvestrine. *'A space, a cube within a high ceiling, built by a Jewish architect is beautiful irrespective of whether it is Jewish or not. … If I see something that inspires me, I don't worry about the religious or historical aspects. If something is beautiful and gives a spiritual presence to the setting, why not?*

Street in San Francisco



Notre Dame du Haut, Ronchamp

I believe that light has the power to shape and transform an architectural space. Light, however cannot exist by it self. It is brought to life when it falls on a surface. And a surface comes to life when light renders it.
In the words of Tadao Ando, '*it is the light that wakens materials to life and gives space its form'.*

From this point onwards, the process focussed on natural light and the resulting space as the two main elements. The challenge was to find their equilibrium.

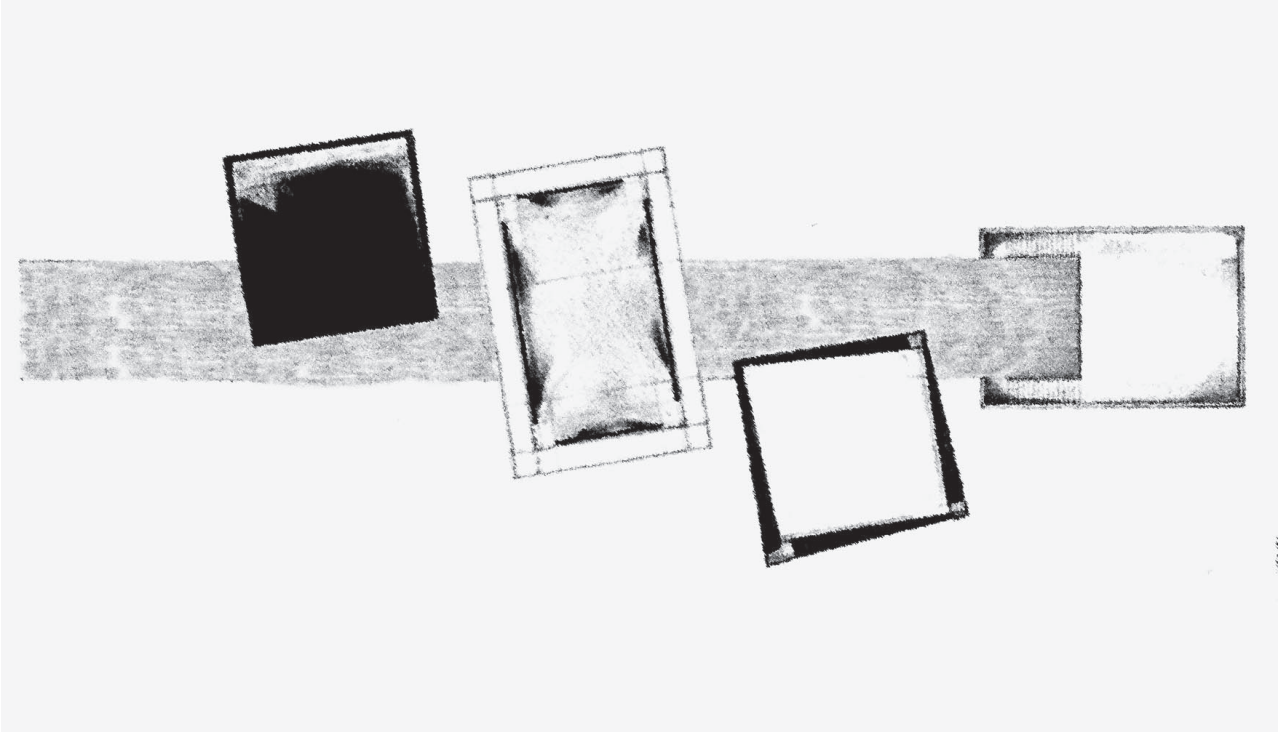
Chapel du Ronchamp, Le Corbusier

The Idea

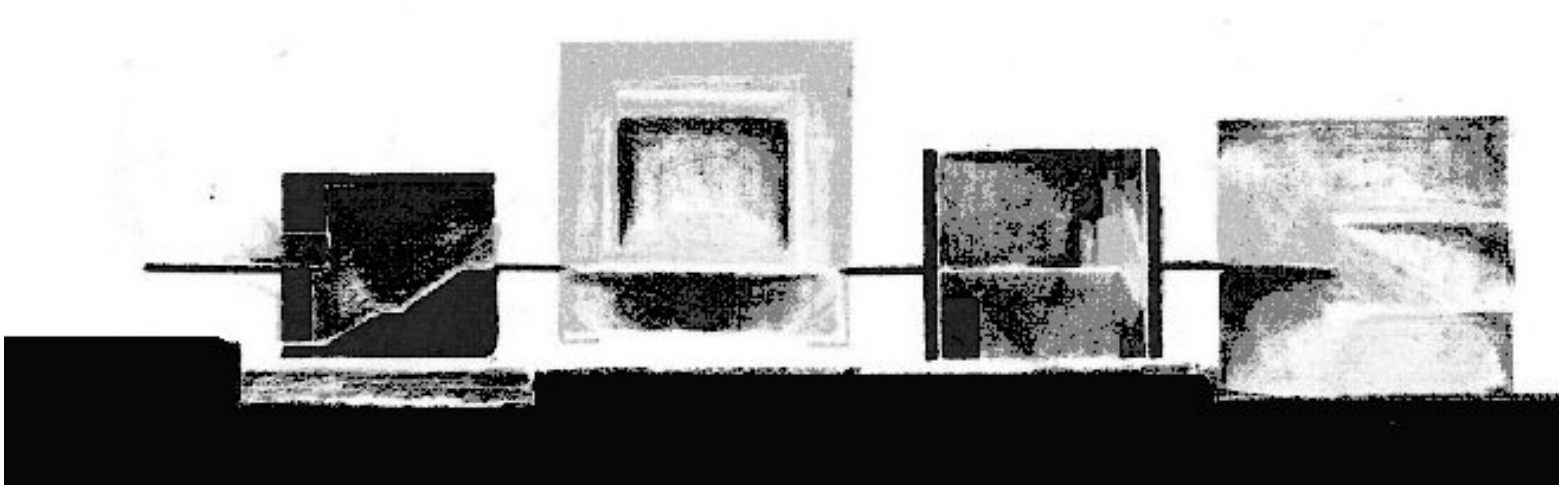
Three *sacred* rooms are connected by a path. Each room offers an experience in light. The fourth or *mundane* room houses the functional aspects of the projects.

The rooms are simple geometric configurations free from any preconceived connotations.

As you move from right to left, you encounter four rooms in the following order. *Mundane Room, Soft Light, White Light and Black Light.* The process concentrated on, the character of each room by itself, the interface between the room and the path, and the transition space between the rooms.



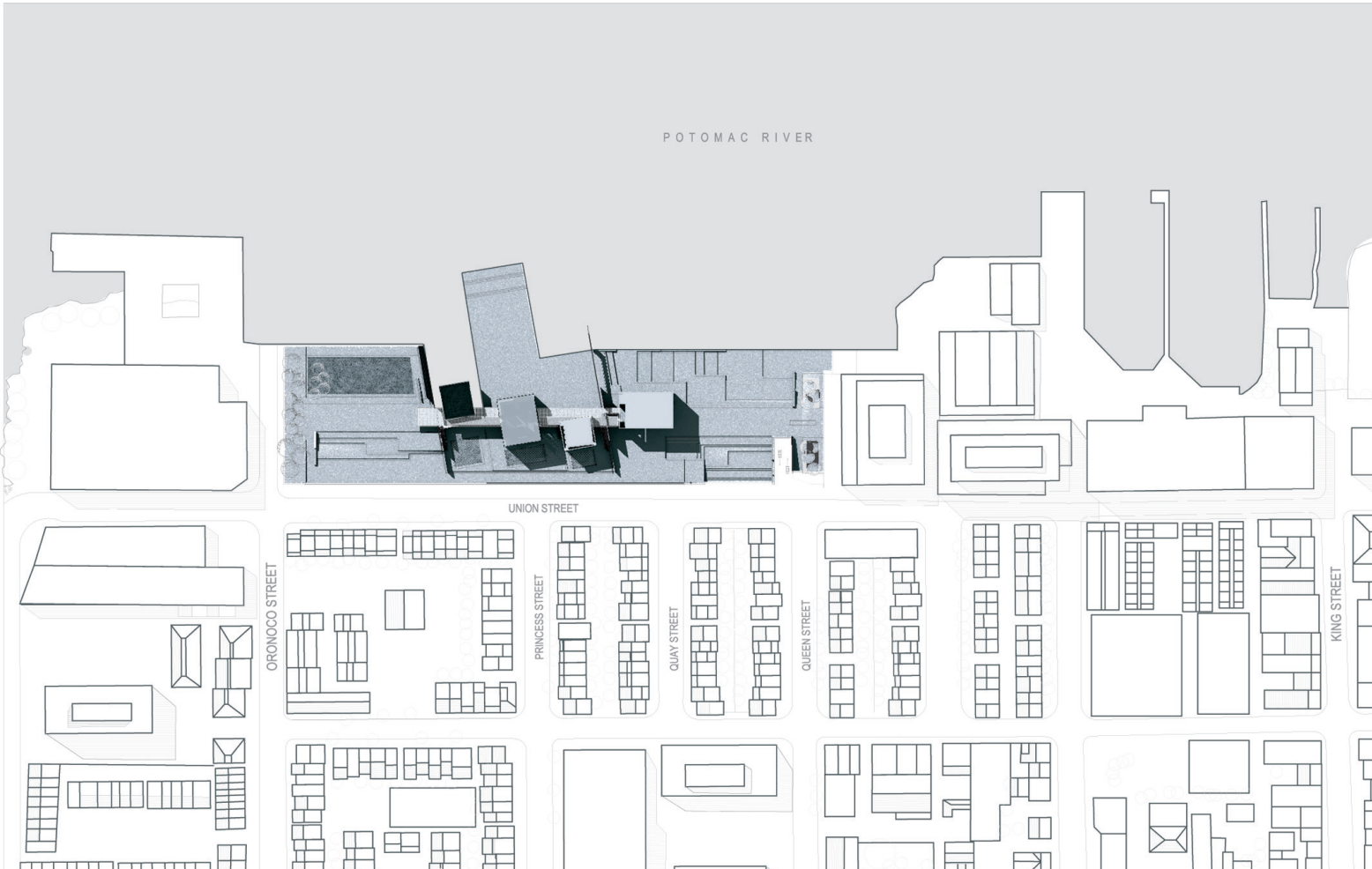
The path originates in the mundane room and makes its way beyond the last room.
Soft Light is the first of the three scared rooms. The quality of light is subdued in nature. Openings are tuned to avoid direct sunlight. The only light visible is that which washes on surfaces inside the room.
The second sacred room is *White Light*. The idea is, to feel enclosed in a light glass box. The room has an outer envelope of translucent glass to allow plenty of natural light inside and emphasize the quality of lightness.
Black Light is the third, and last of the sacred rooms. It is in sharp contrast to the previous one. The room is dark and has only a single source of light. It appears like a black box floating on water.



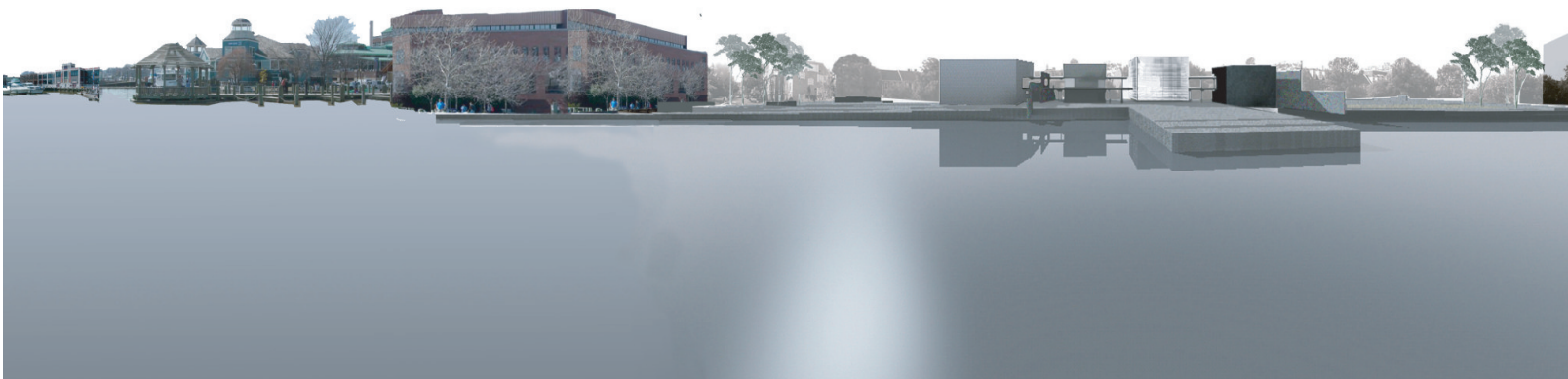
The Site

The proposed location for the contemplative space is Founders Park, Alexandria. It is in close proximity to Washington DC. A significant asset of this location is the fronting of the Potomac River.

The sacred rooms are separated from the city by a raised plinth and are laid at a skew, while the mundane room follows the profile of the city. Most people would approach the site from the south side, either along Union Street or from the water front.

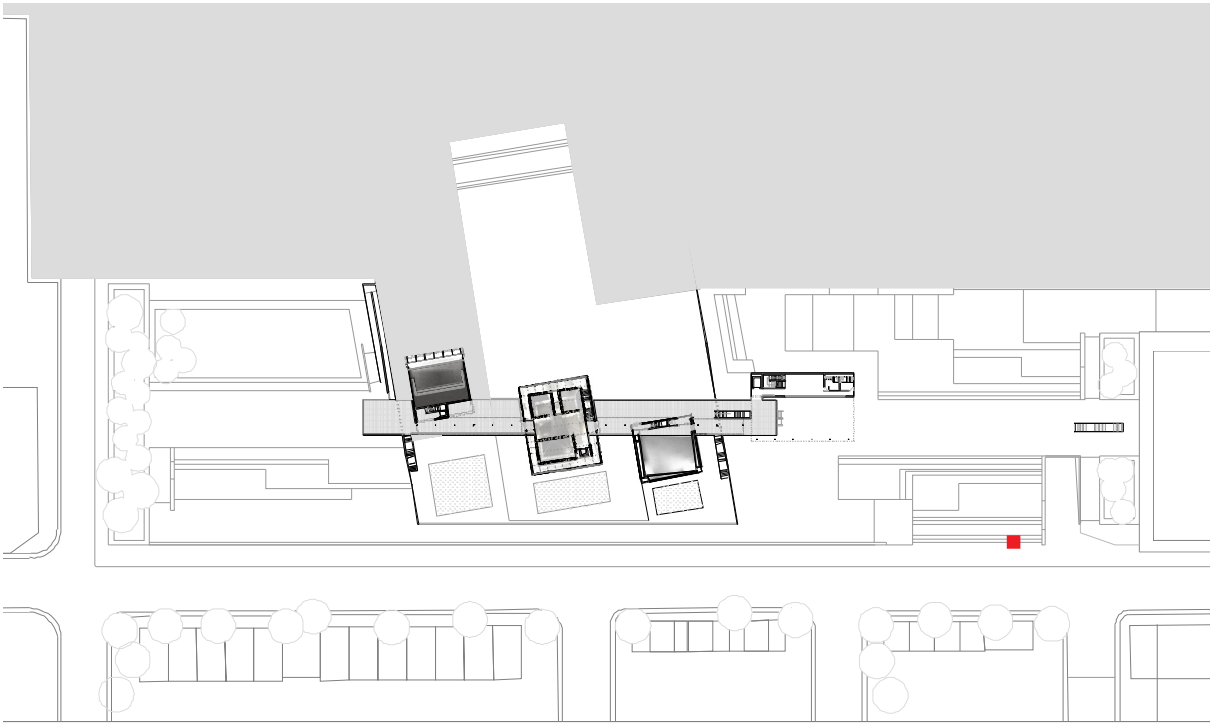


View from the river.



The Path

As you approach the site along the street, you come across a raised plinth. A series of levels lead you to the entrance of the building.



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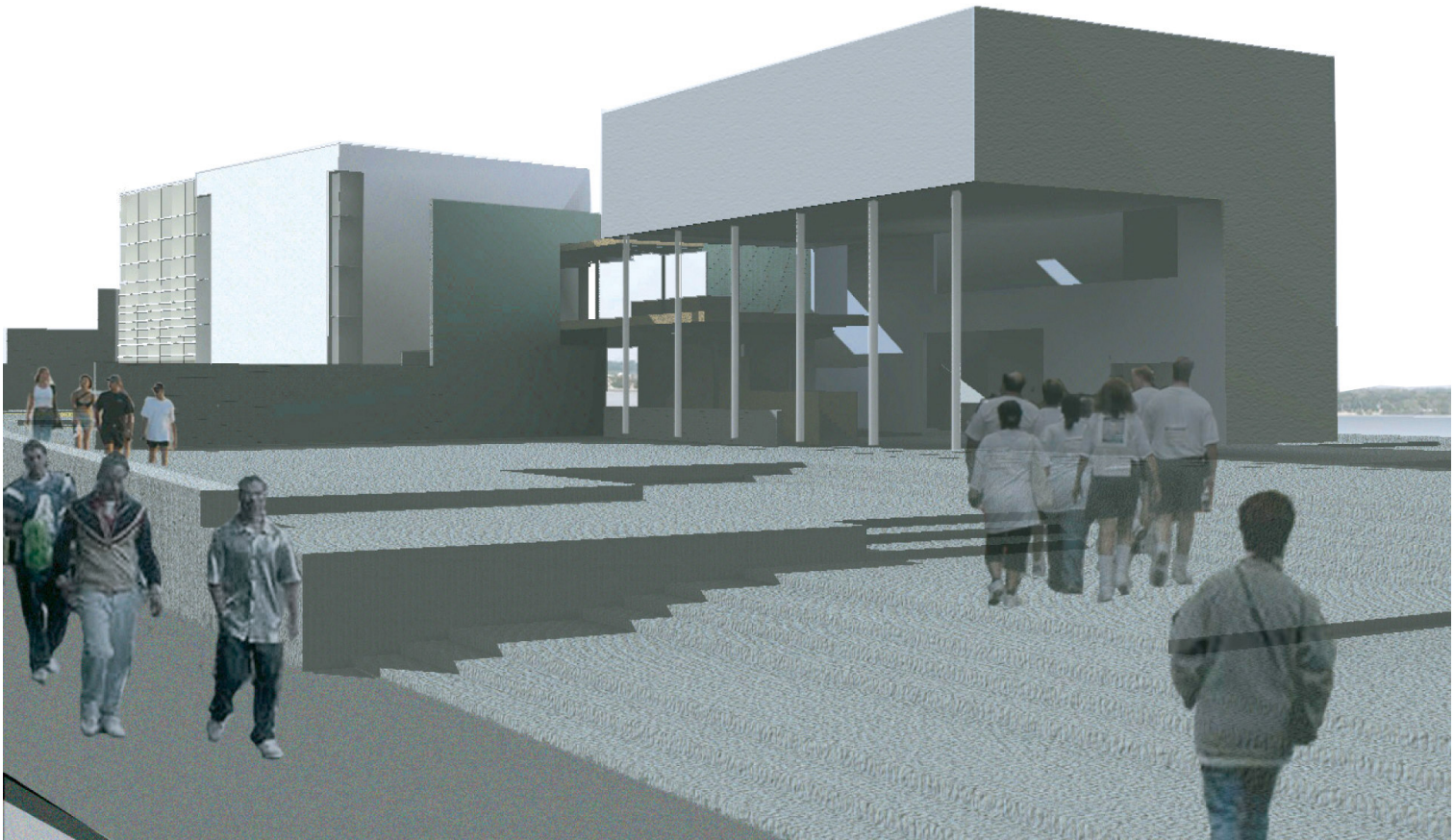
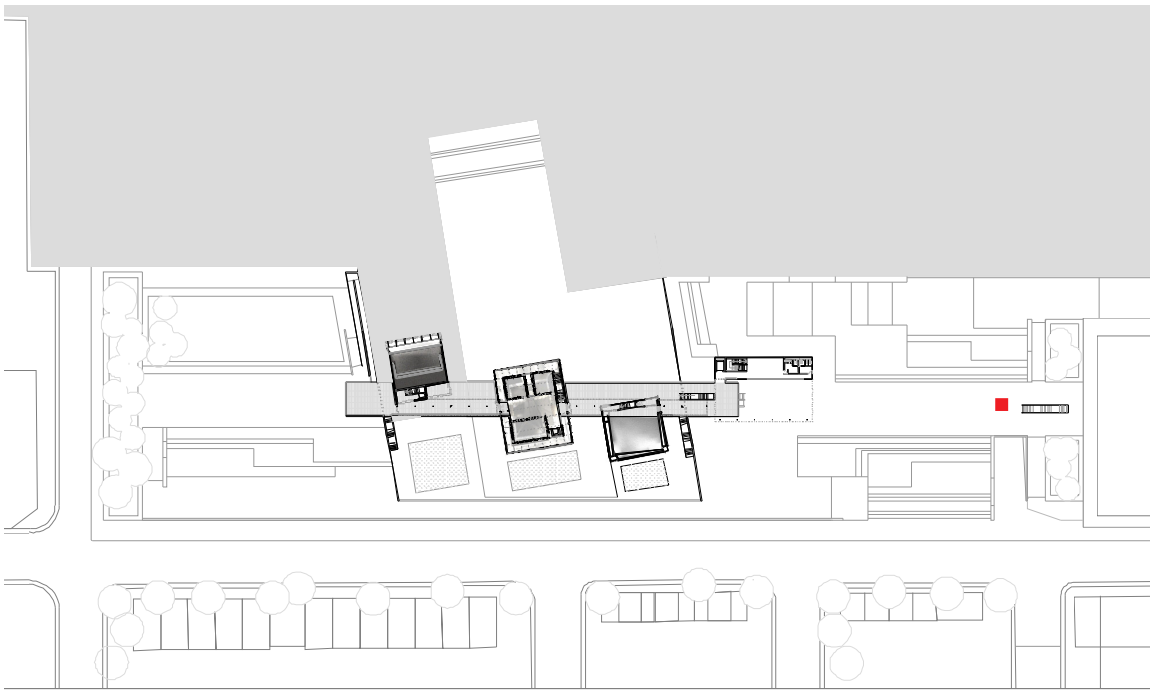


The first thing you see a glimpse of the path that is framed by the first block, and the steps leading up to it. The path is a wooden deck supported by a steel structure. Behind this is a concrete wall that becomes the gateway to the sacred precinct.



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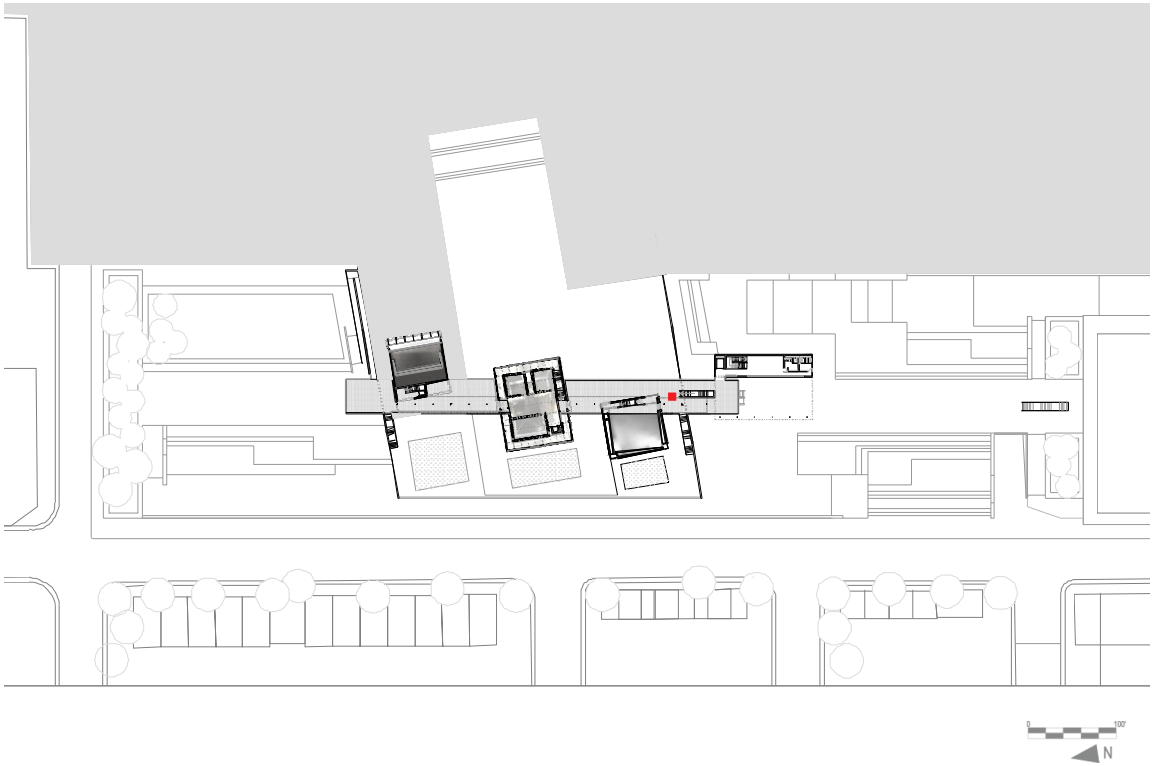
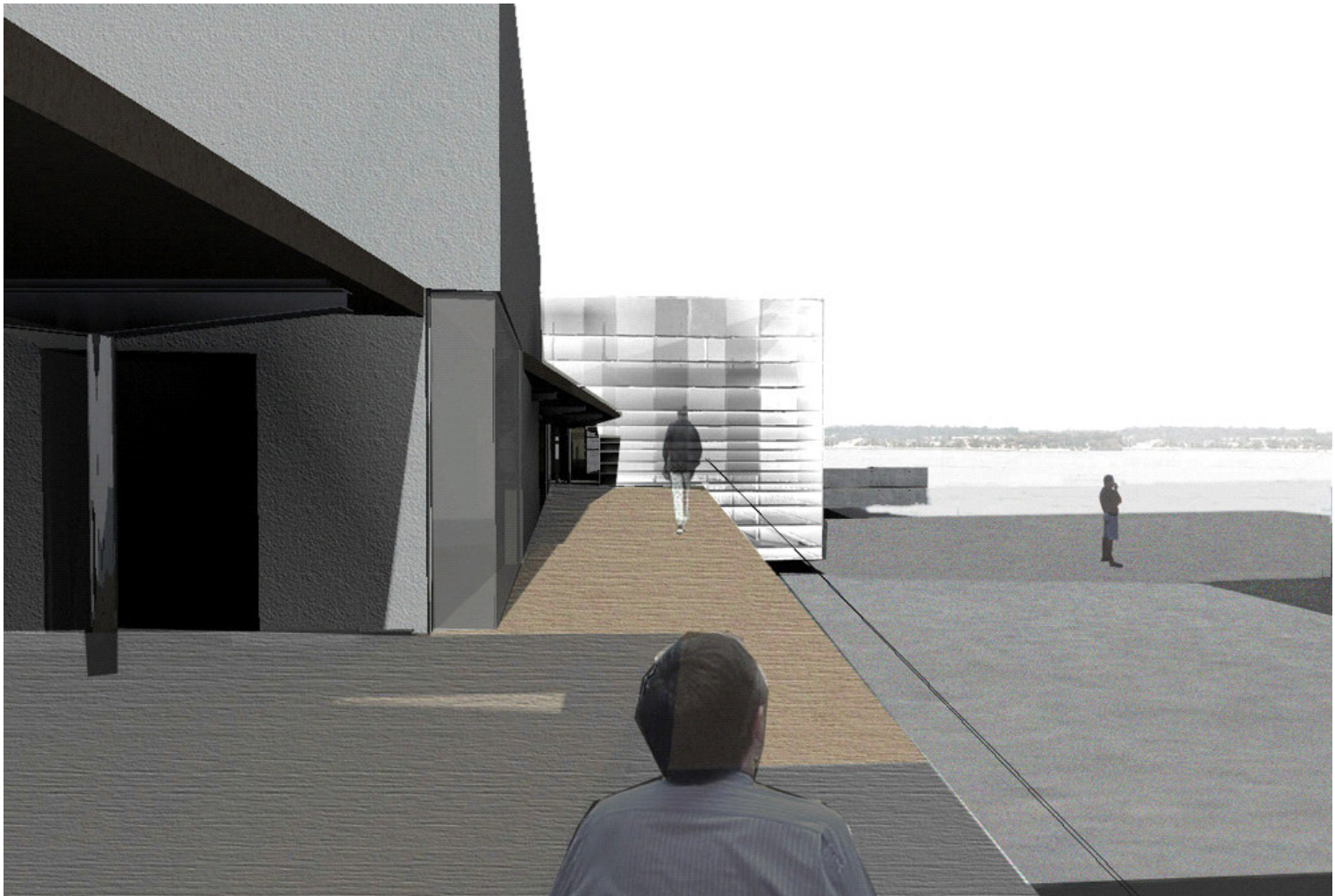
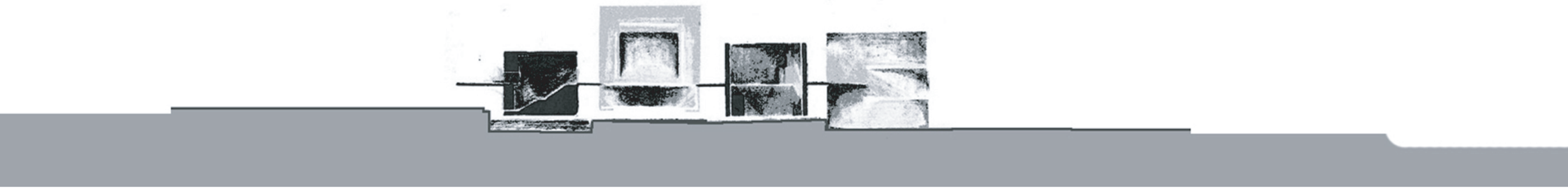
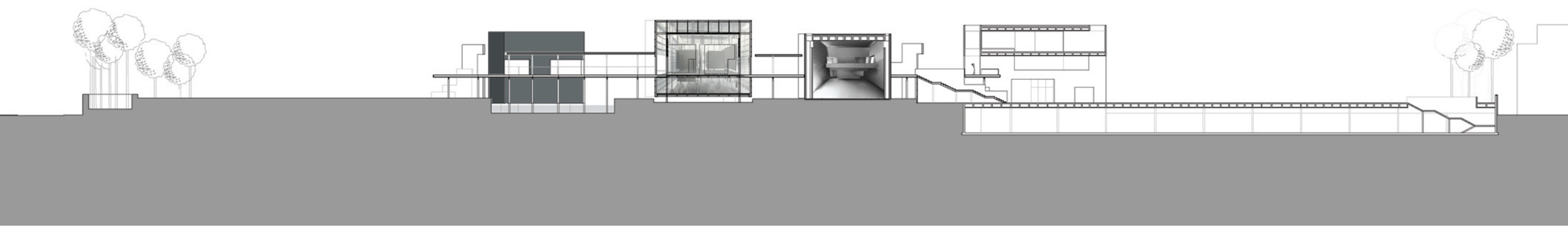
The steps land on the other side of this wall. This point marks the entrance into the sacred precinct, and begins the journey along the path. A view of the river is presented to you on the right and to the left is the first of the three sacred rooms.



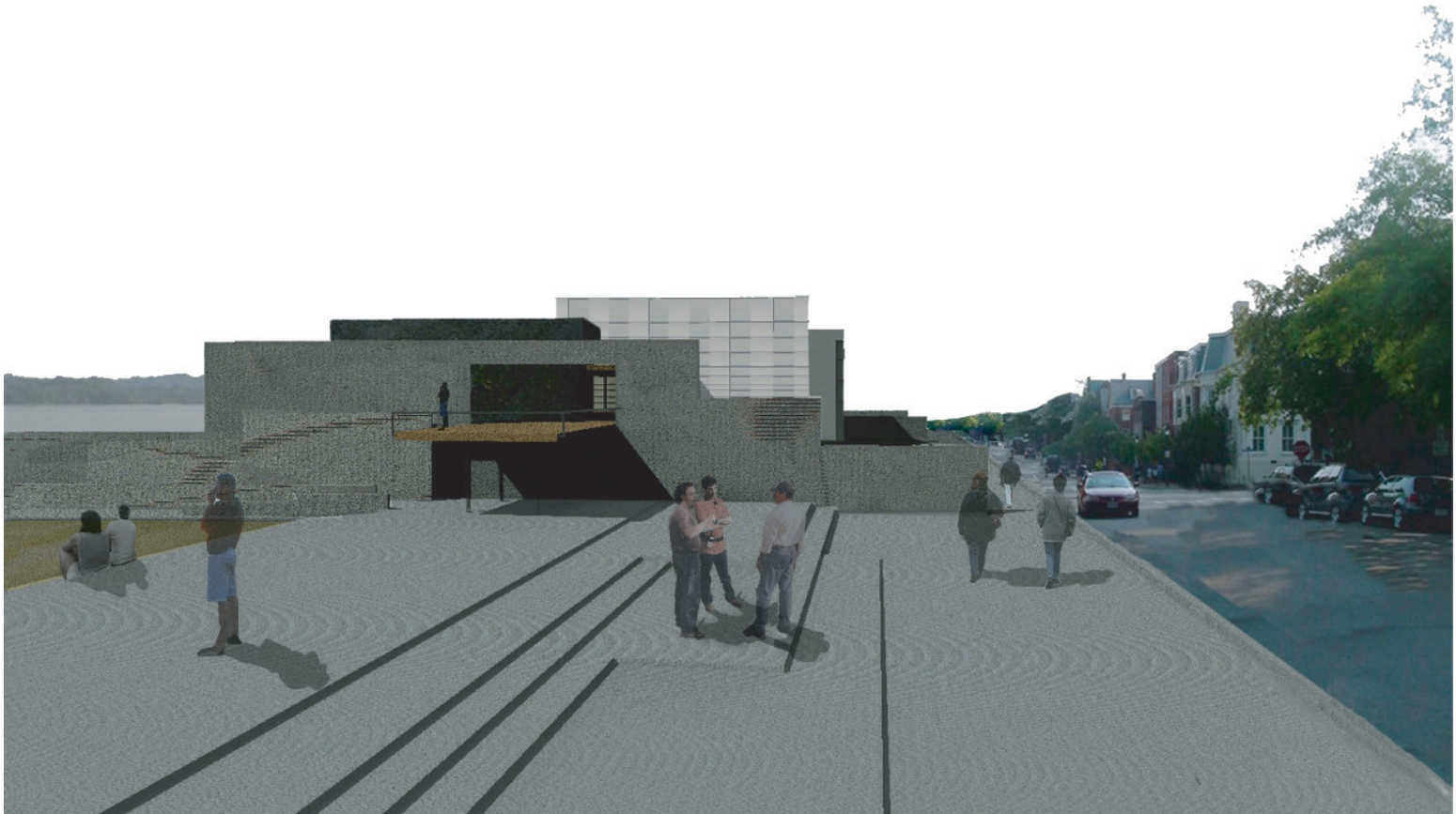


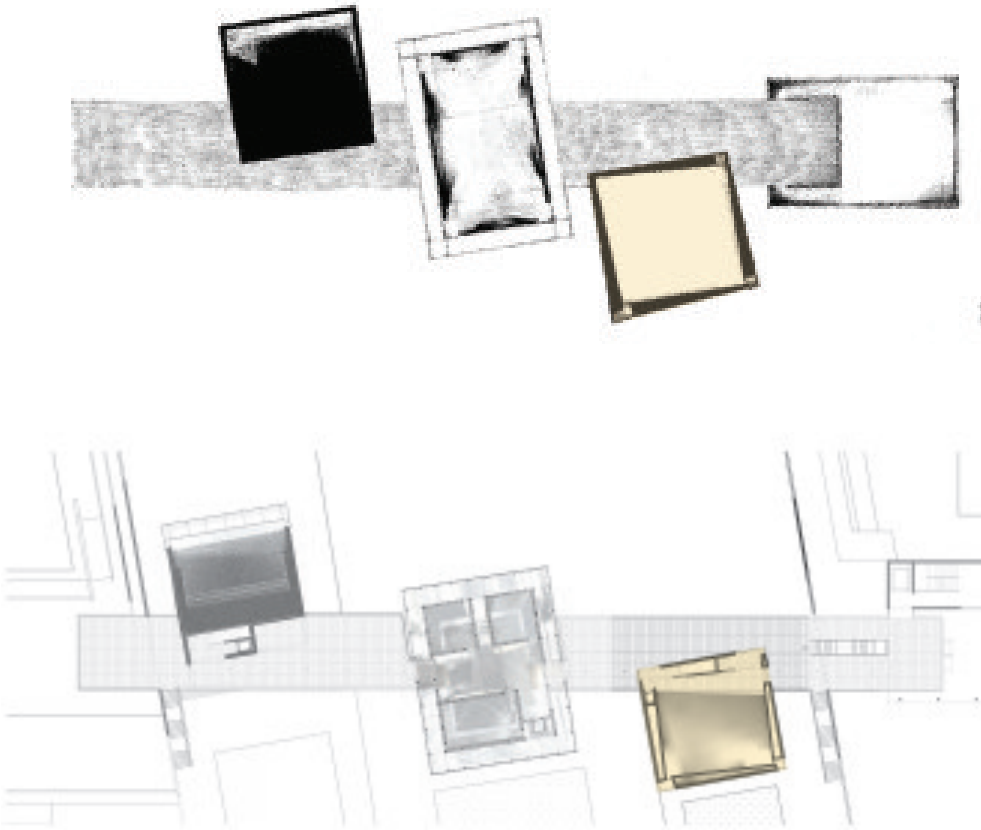




As you walk along the path between the two defining walls, you encounter the three rooms in a sequence. Each room interacts with the path in its distinct way.

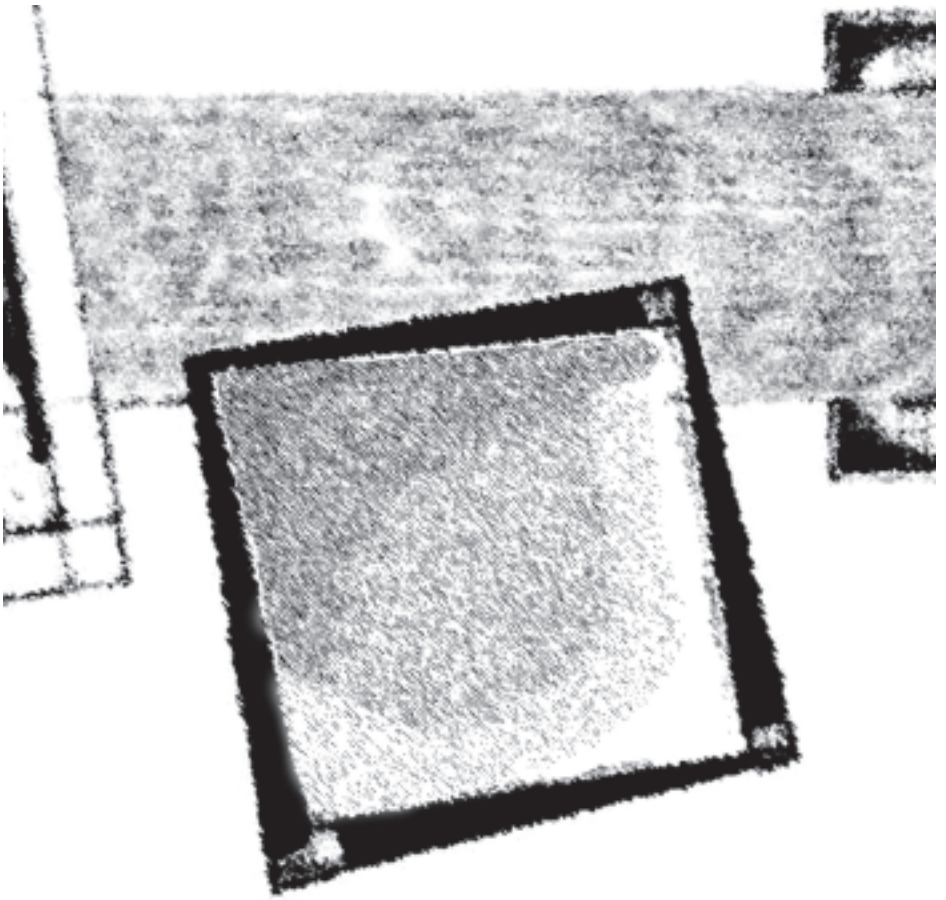
A second concrete wall marks the end of the sacred precinct. The path extends beyond this, overlooking an open space that steps down towards the river. A viewer can descend into this space using a ramp along the wall.

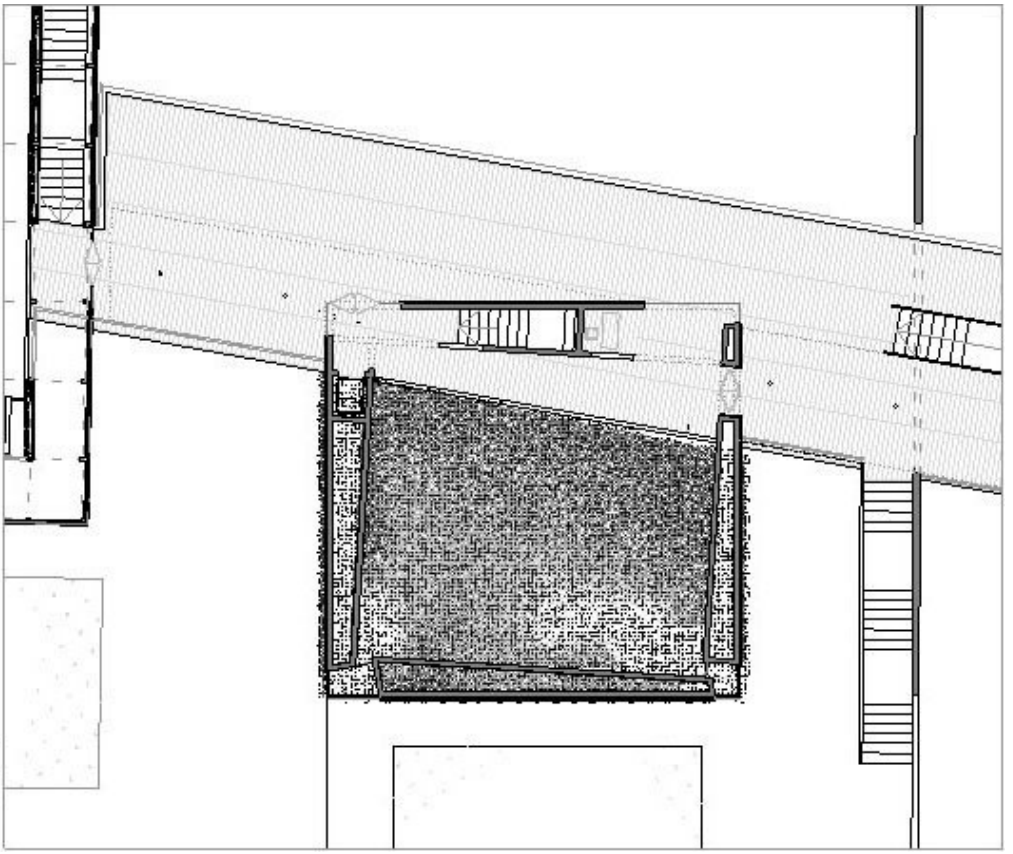




The next step was to study the sacred rooms individually. The design process was guided by findings from light experiments for each room.

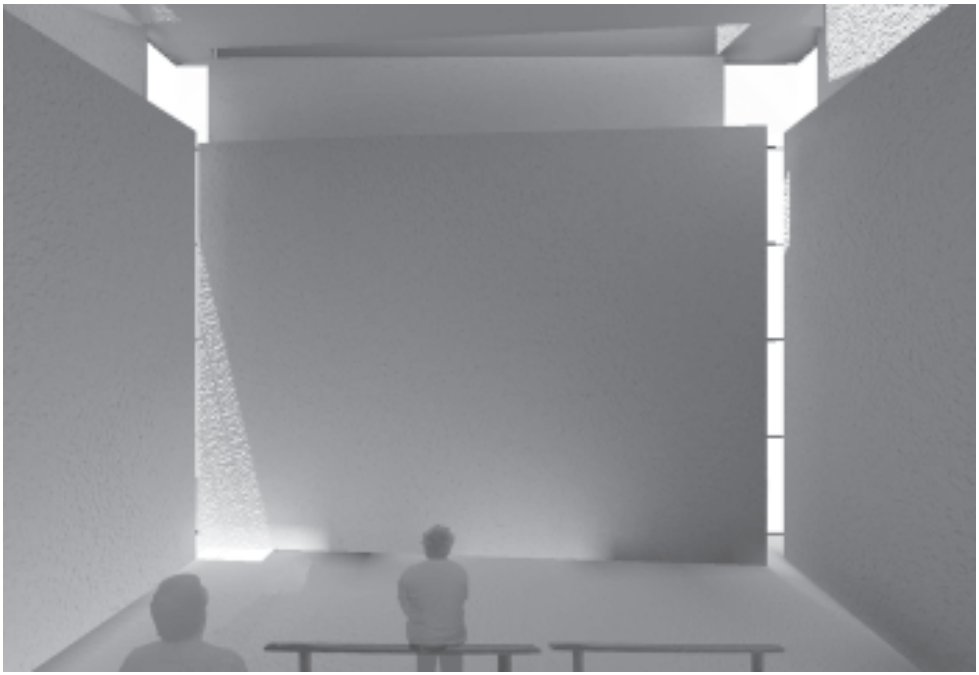
Soft Light

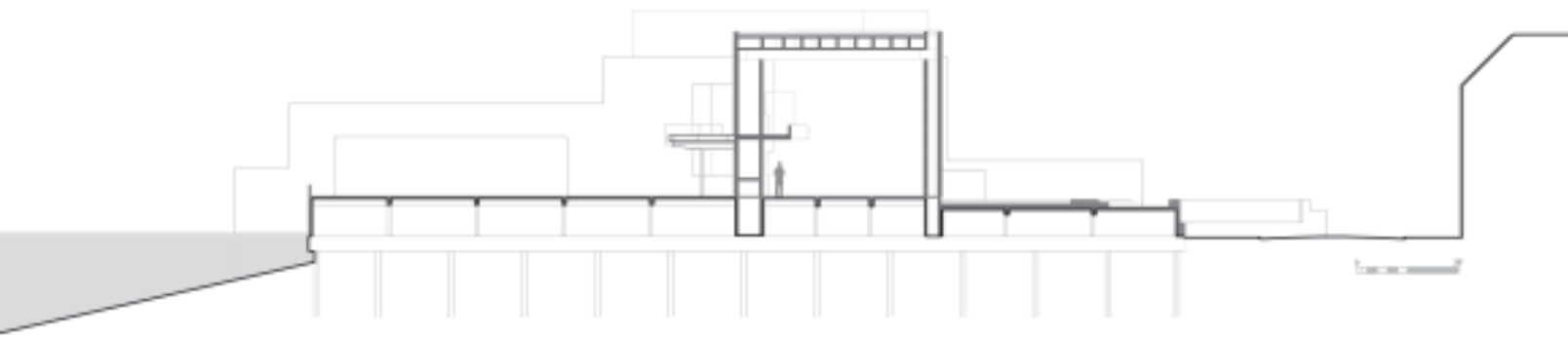




The wooden deck extends into the first container in the form of an overlooking balcony. You can either descend into the space using the stair or continue along the path.

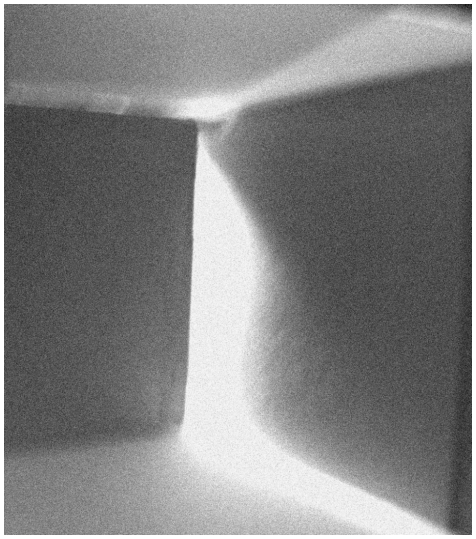
Thick walls create corners that collect light. The size of the openings is tuned to allow little or minimum direct beams into the space. The floor and ceiling have a smooth concrete finish. The roof is a concrete hollow core slab, so utilities can run in its cavity and allow a clean surface at the bottom.The inner wall does not extend all the way up to the roof and stands as a separate element, to reveal the double layered wall.



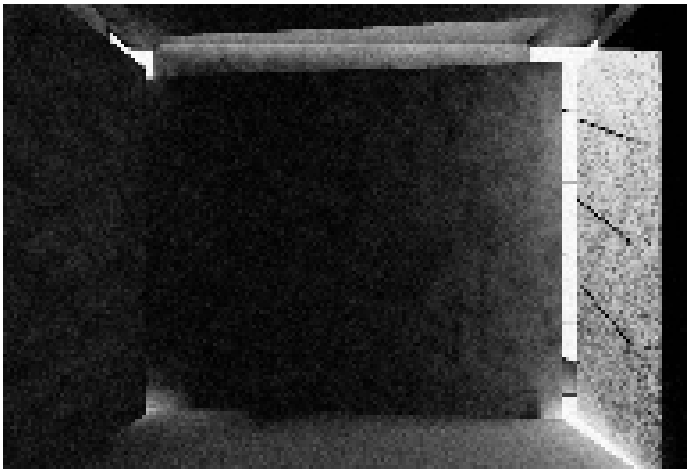


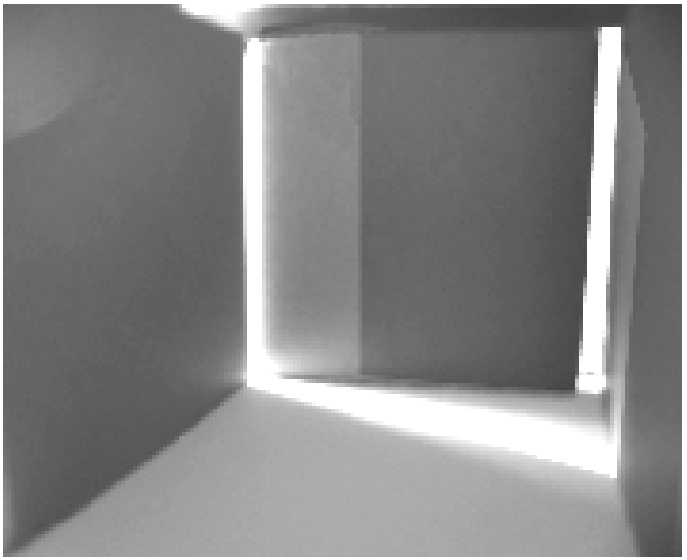
Section looking south.

Experiments

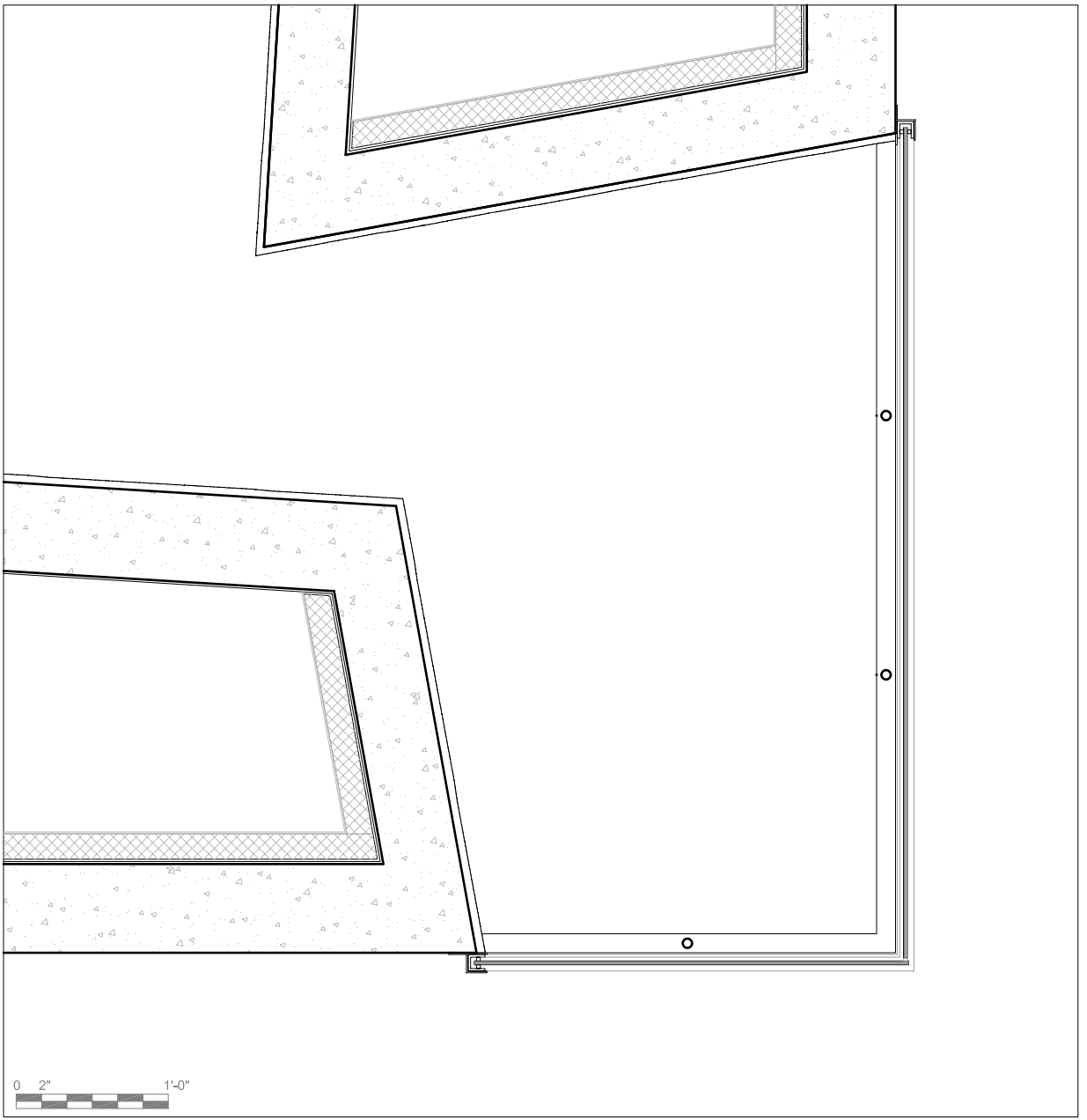


The space is intended as neither too bright nor too dark. Initial experiments revealed a lack of natural light during morning hours. As a response, parts of the roof directly above the double walls were removed to allow more light through the roof to fall inside the wall cavity, and not directly into the room.



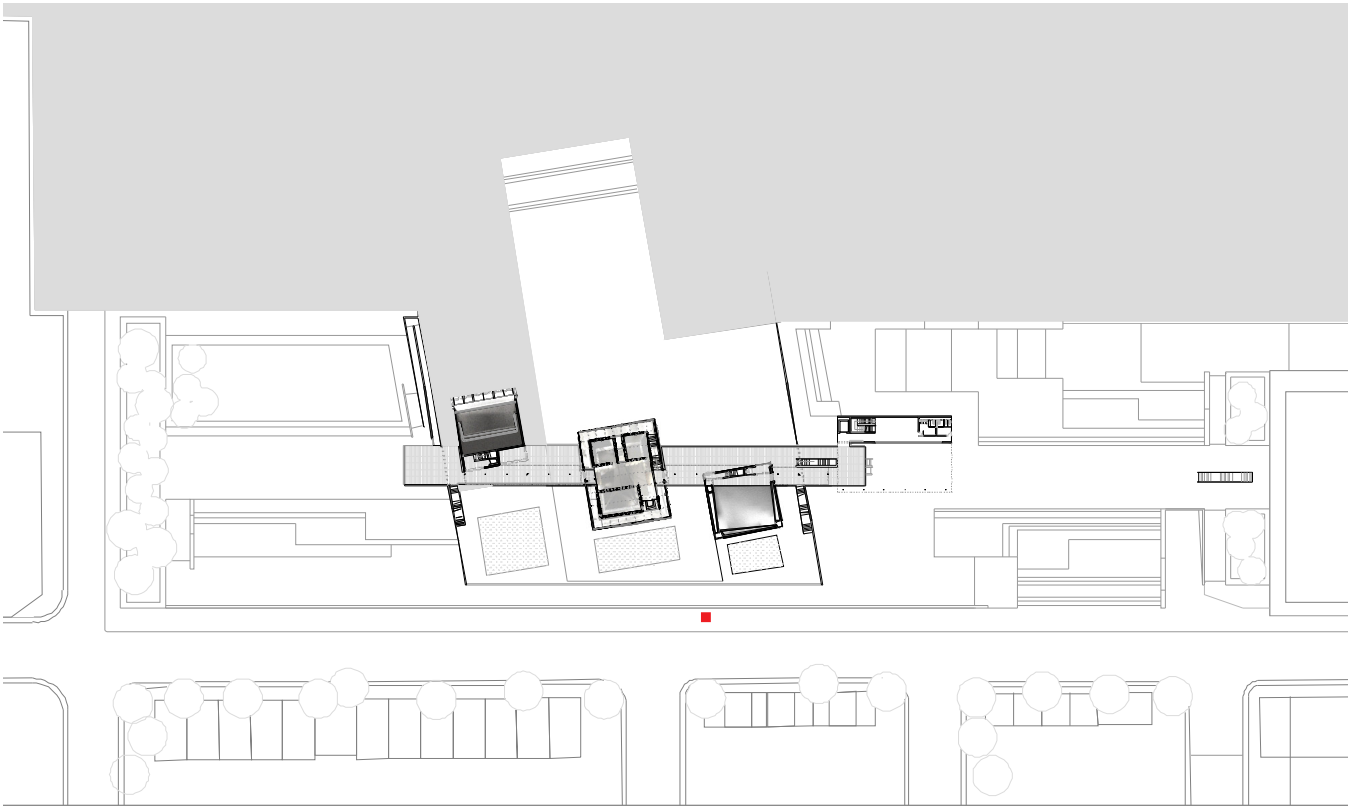


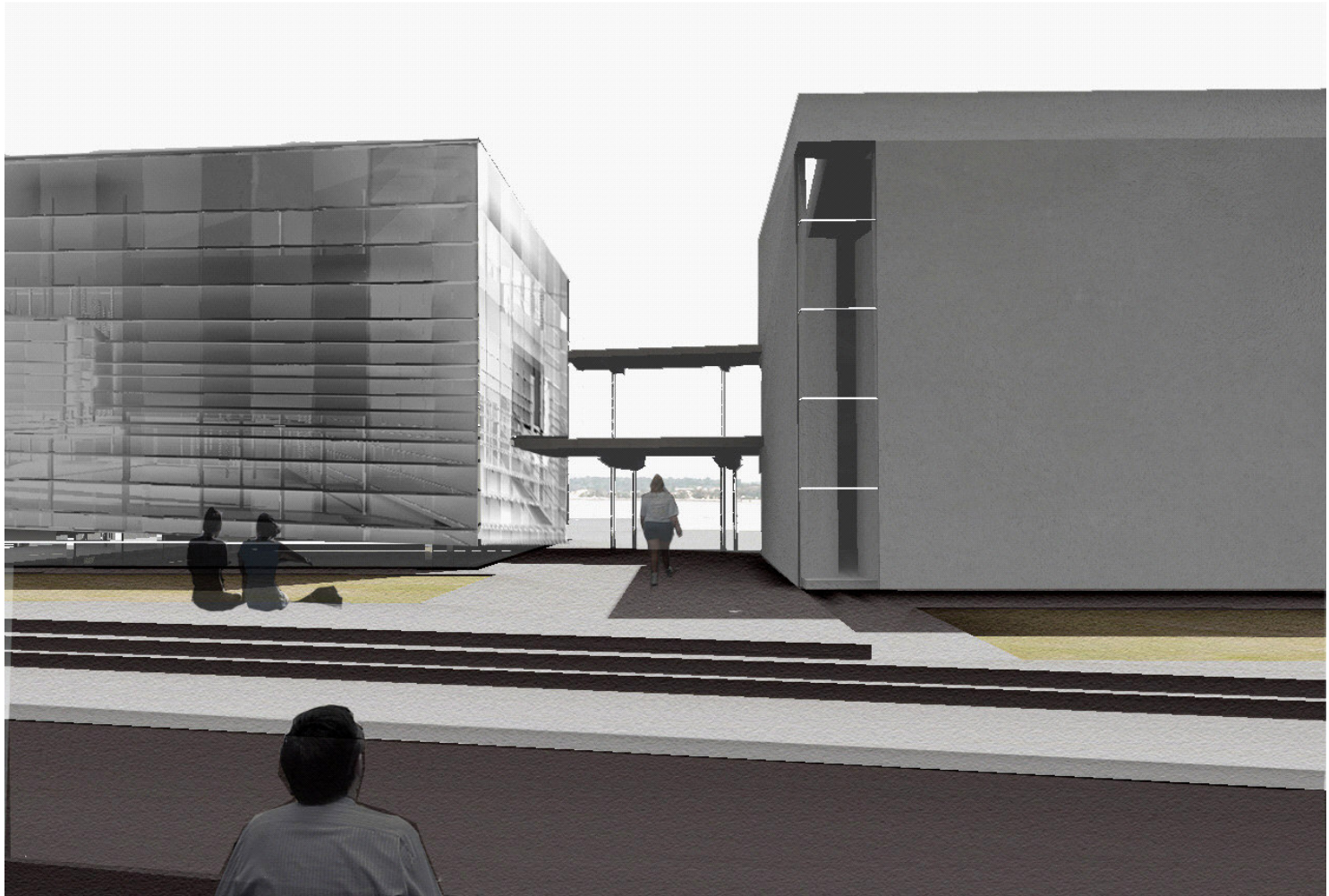
Moderate light washes the wall surface,
highlighted by the texture of the stucco.

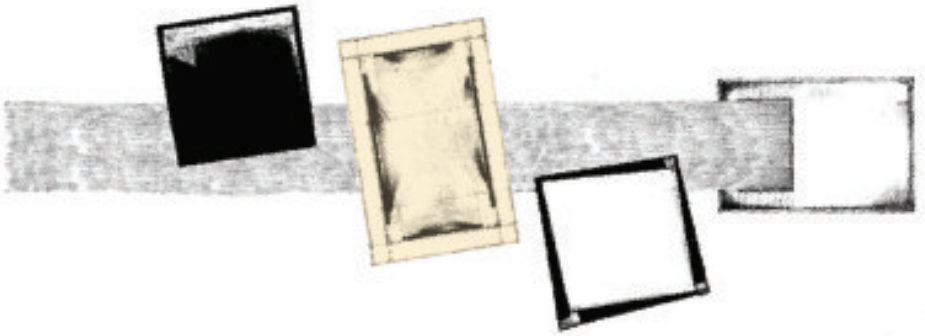


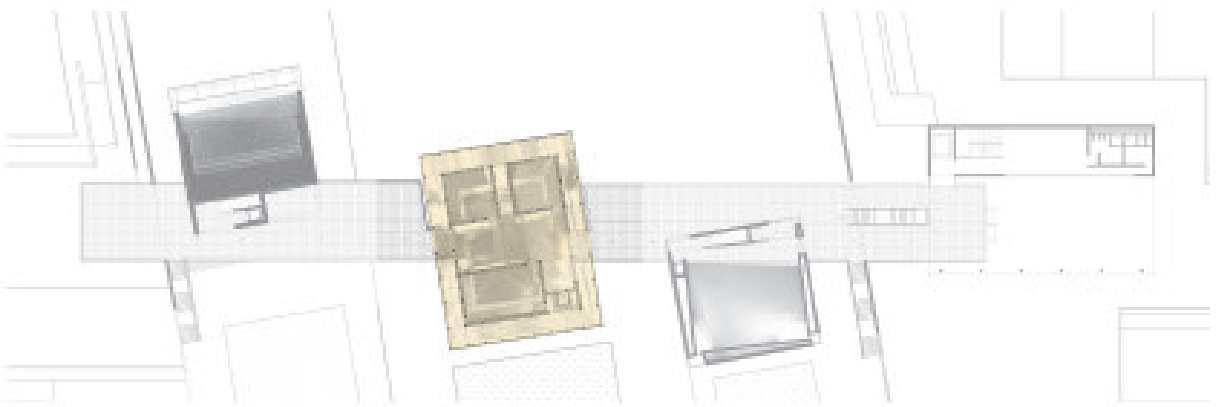
Detail at west corner

As you move along, you find yourself in between the first and second room. The transition space is just close enough so that you can feel the physical presence of the two contrasting volumes at the same time. While one reads as heavy and thick concrete walls, the other is a light glass box.

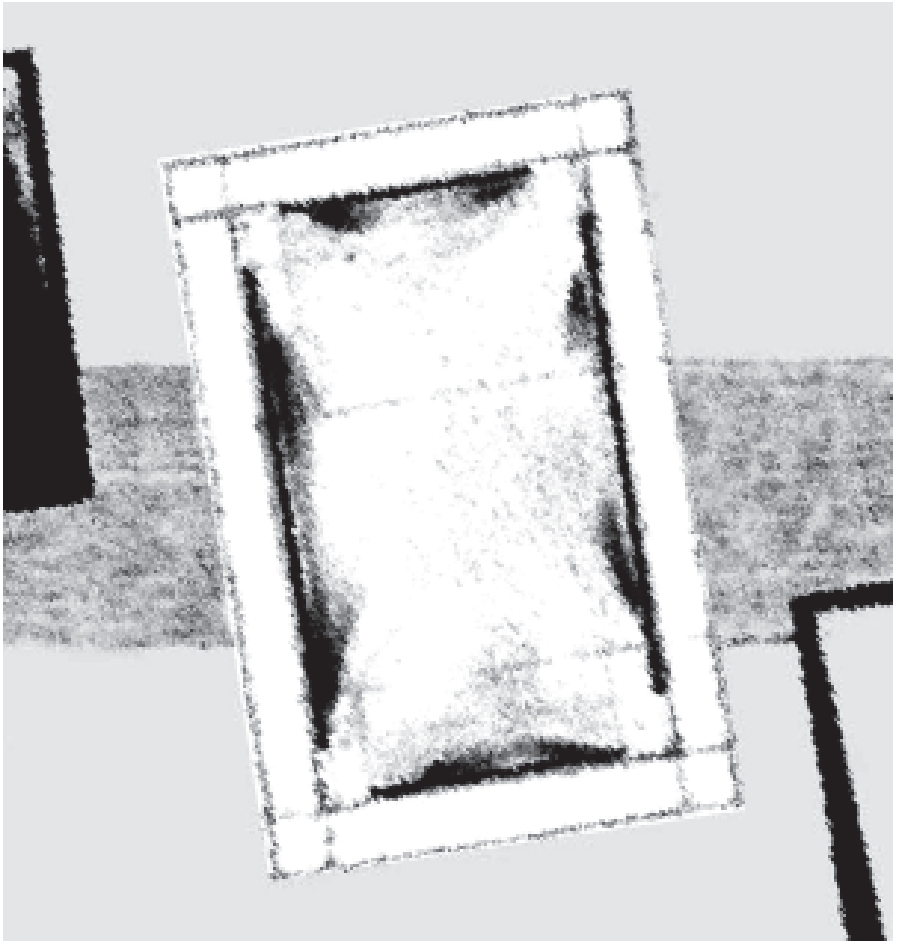


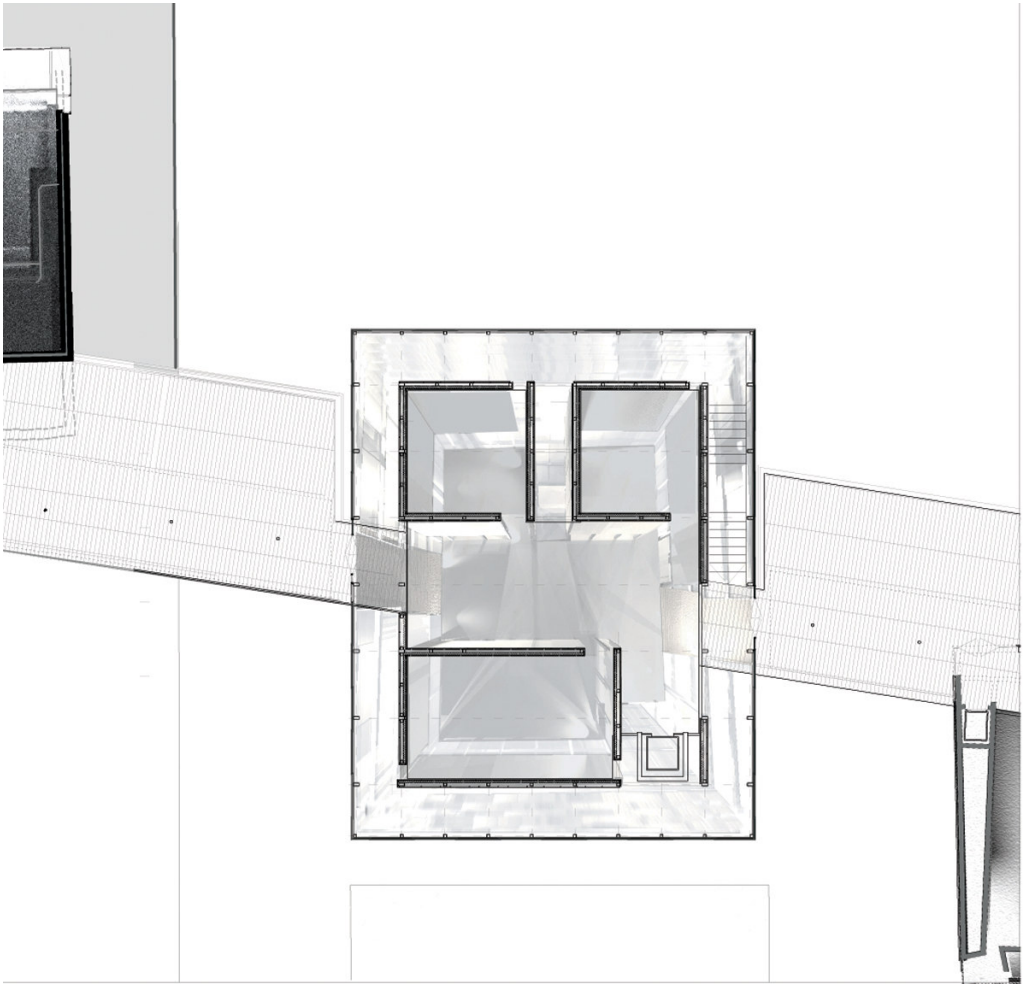




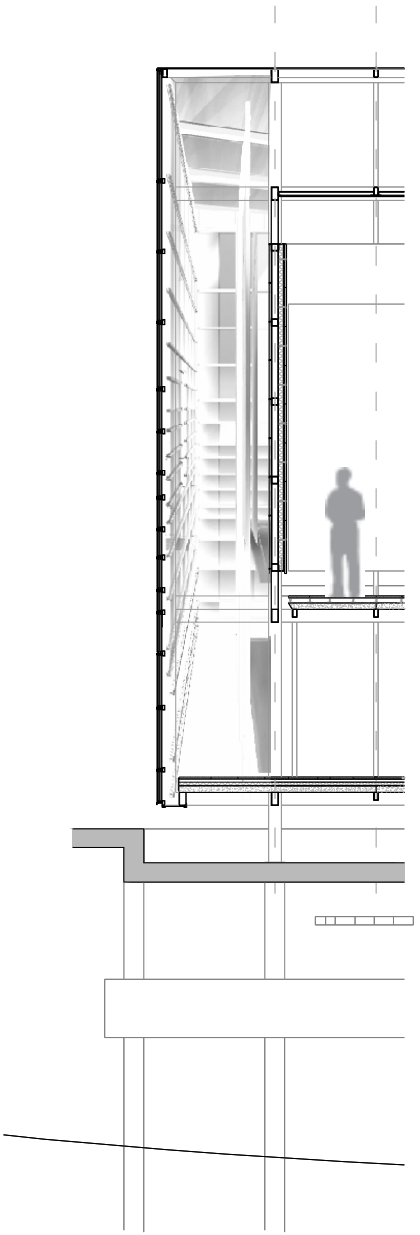


White Light

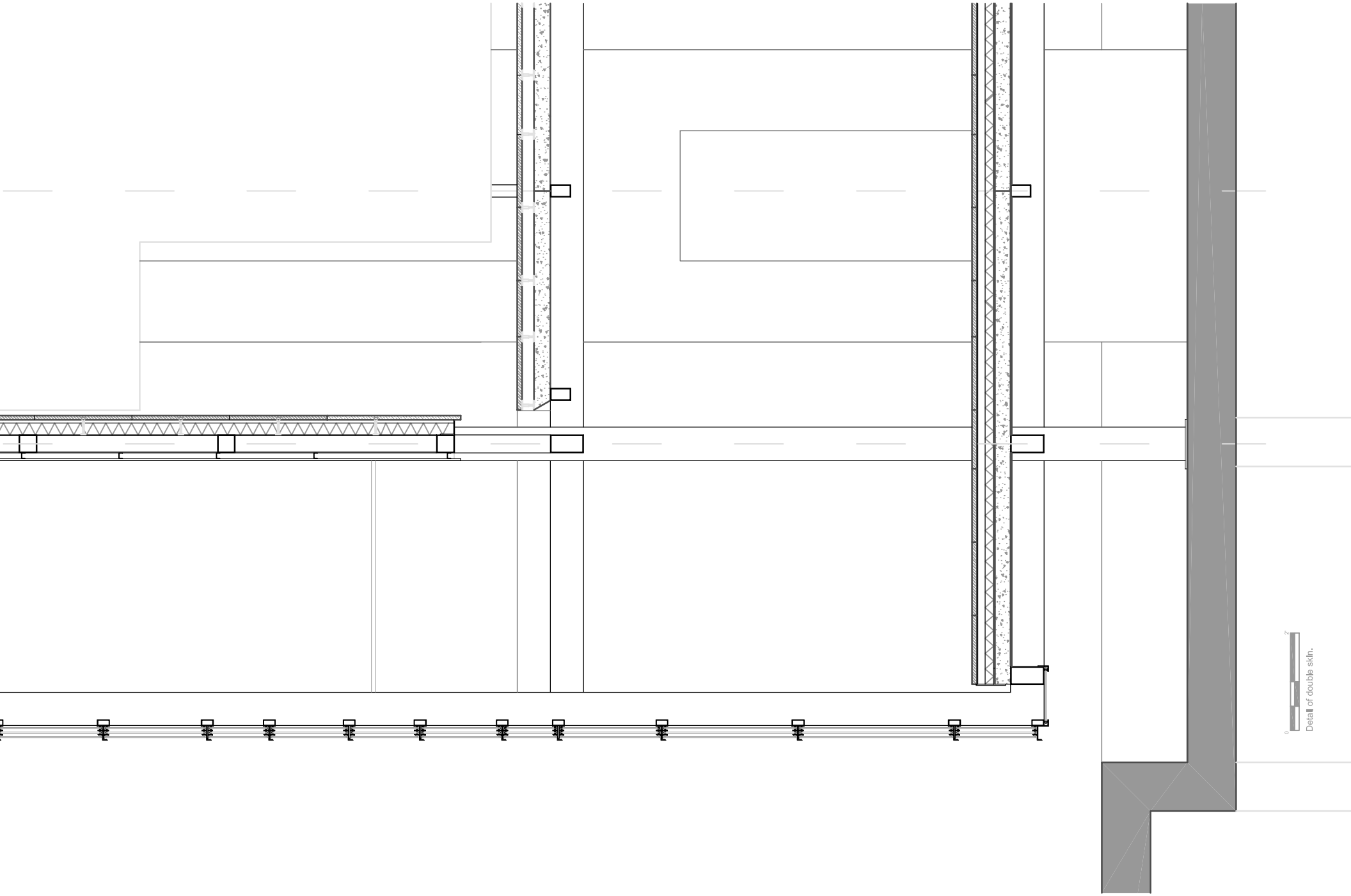




The second room straddles over the path allowing a viewer to walk right through it. The room has two seperate skins. The attempt was to give the illusion of trapping light in between. An outer translucent envelope defines the volume of light. Within the light box there are compartments for gatherings of small to moderate sized groups.



A skeleton of steel carries a light translucent skin on the outside and a thicker opaque skin on the inside. The outer skin is translucent double glazing. It does not sit directly on the ground, but a foot higher, to give the illusion of floating. Thermal insulation is sandwiched between stone and plasterboard to build up the thick inner skin.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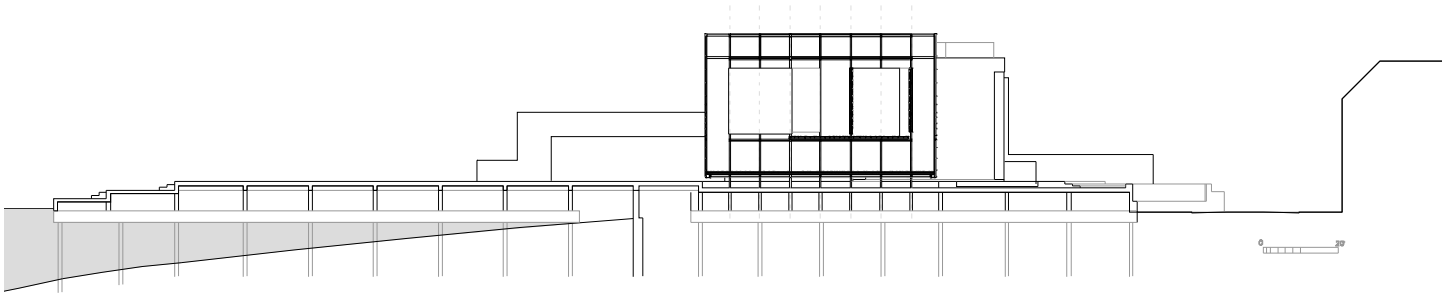
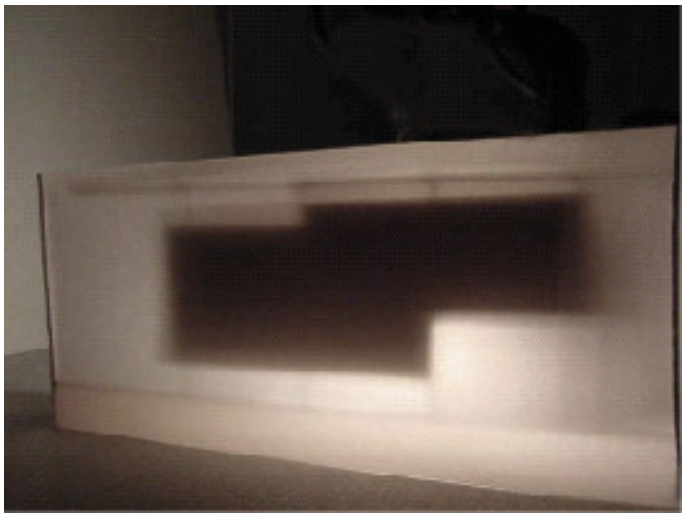
Detail of double skin.

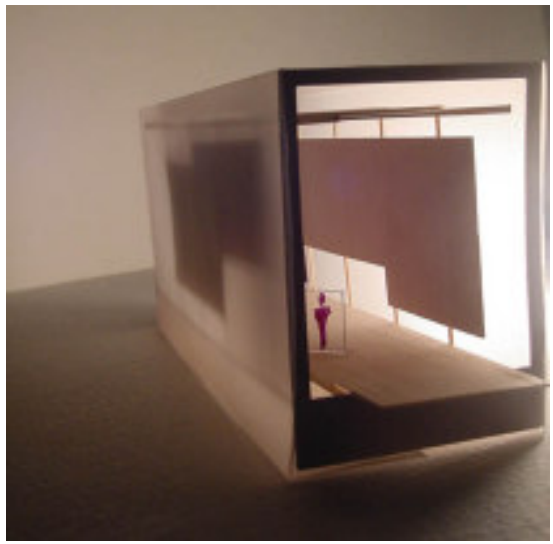


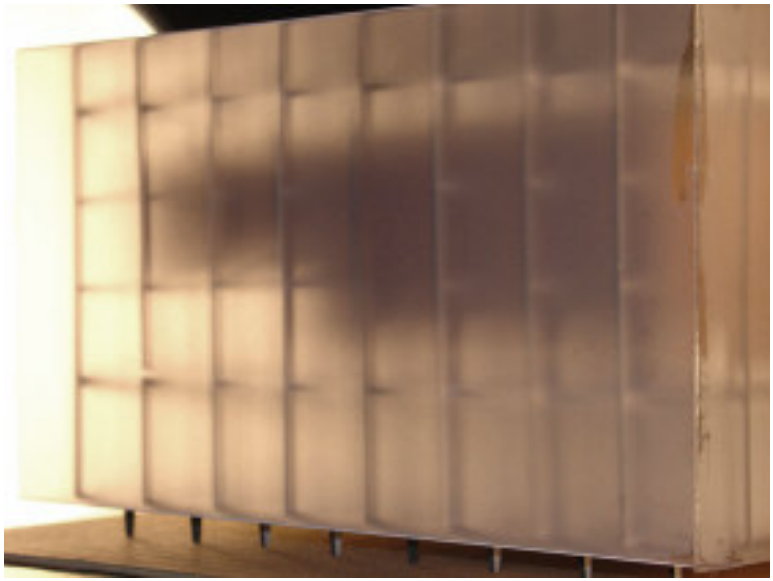
Secftion looking south

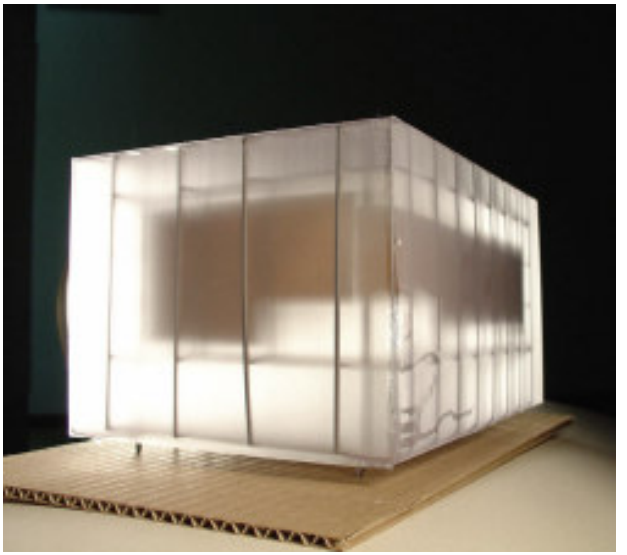
Experiments



The level of translucency was an important decision because a completely transparent box would not have given the illusion of trapping light. Likewise, a more opaque skin would lose the subtle hints of the skeleton which give it the quality of lightness. The goal was to find a balance between lightness and weight.

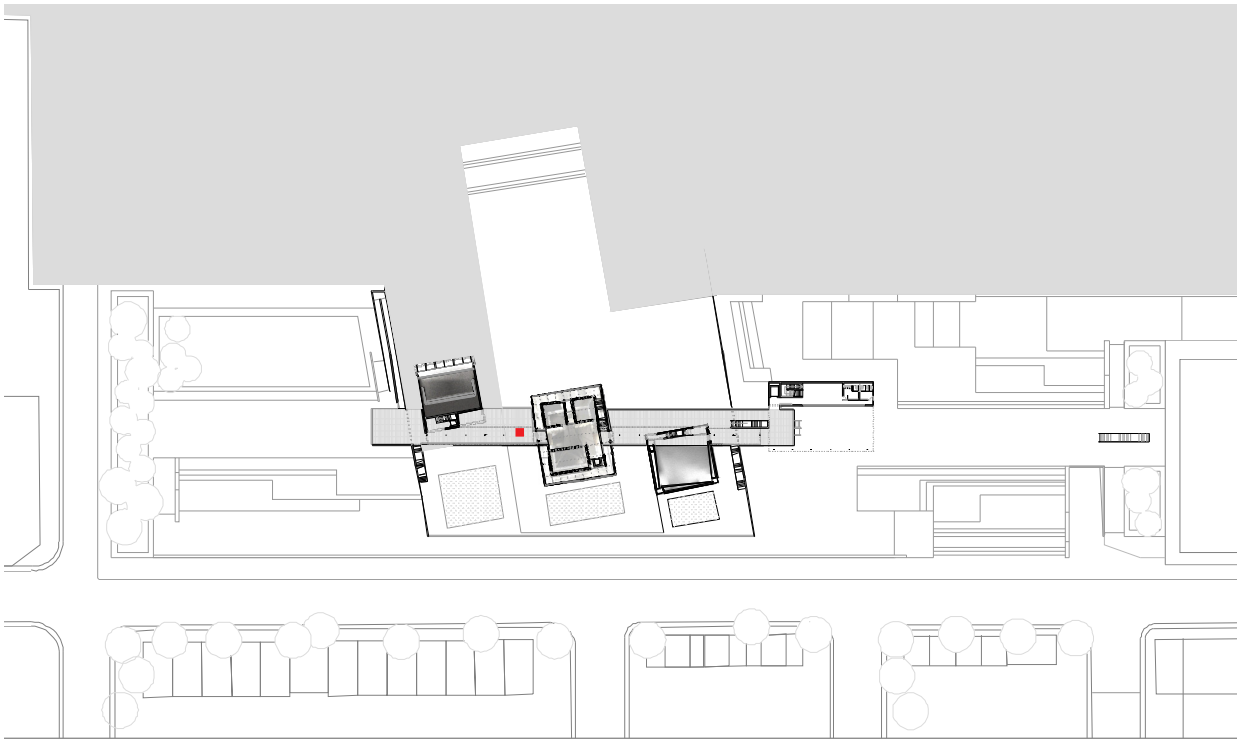






At no point does the opaque skin go all the way up to the ceiling. This was to make sure that the presence of the envelope is felt at all times, and the inner opaque skin brings out the contrast of the light backdrop.

There were three entities that I was dealing with here, the outer skin, the skeleton and the inner skin and I couldn't decide which one needs to be given most importance in the composition, to achieve the quality of space that I was looking for.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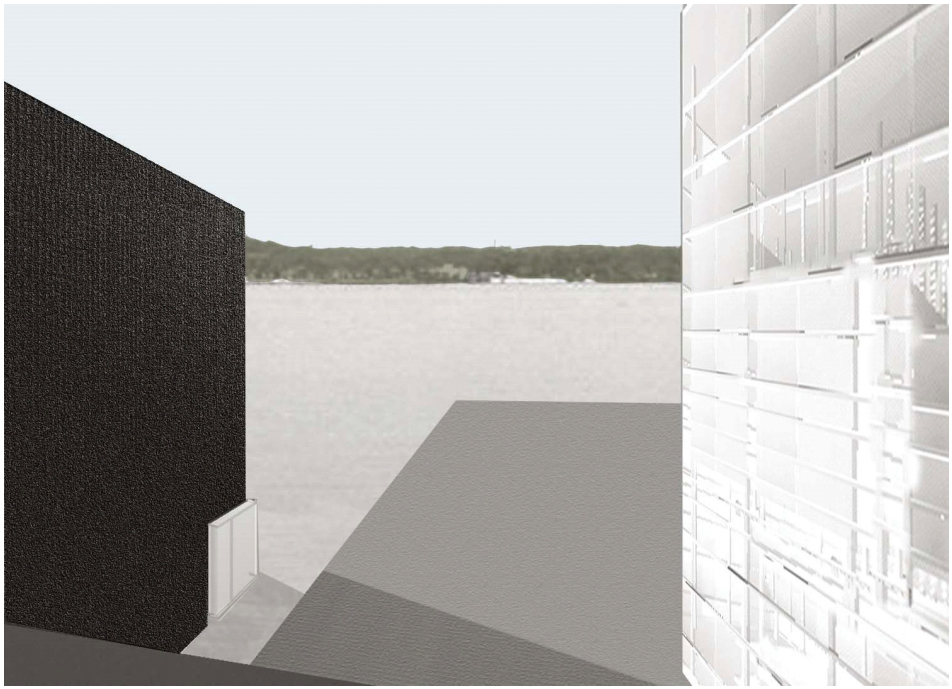
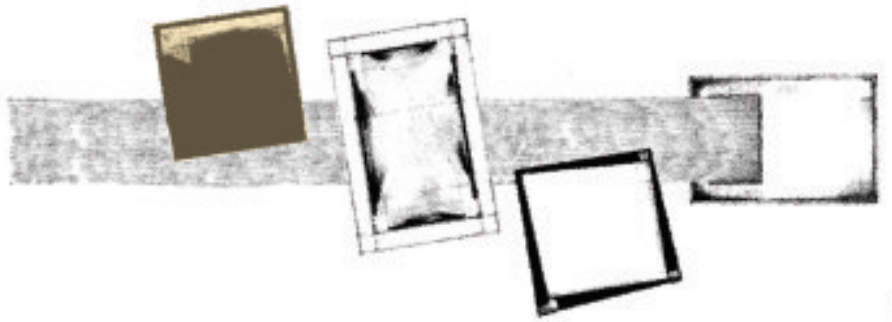
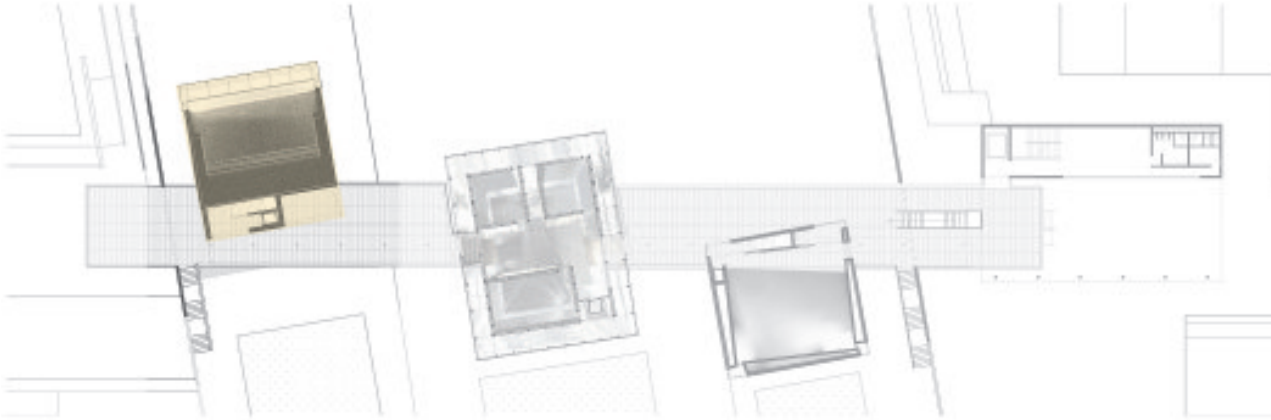
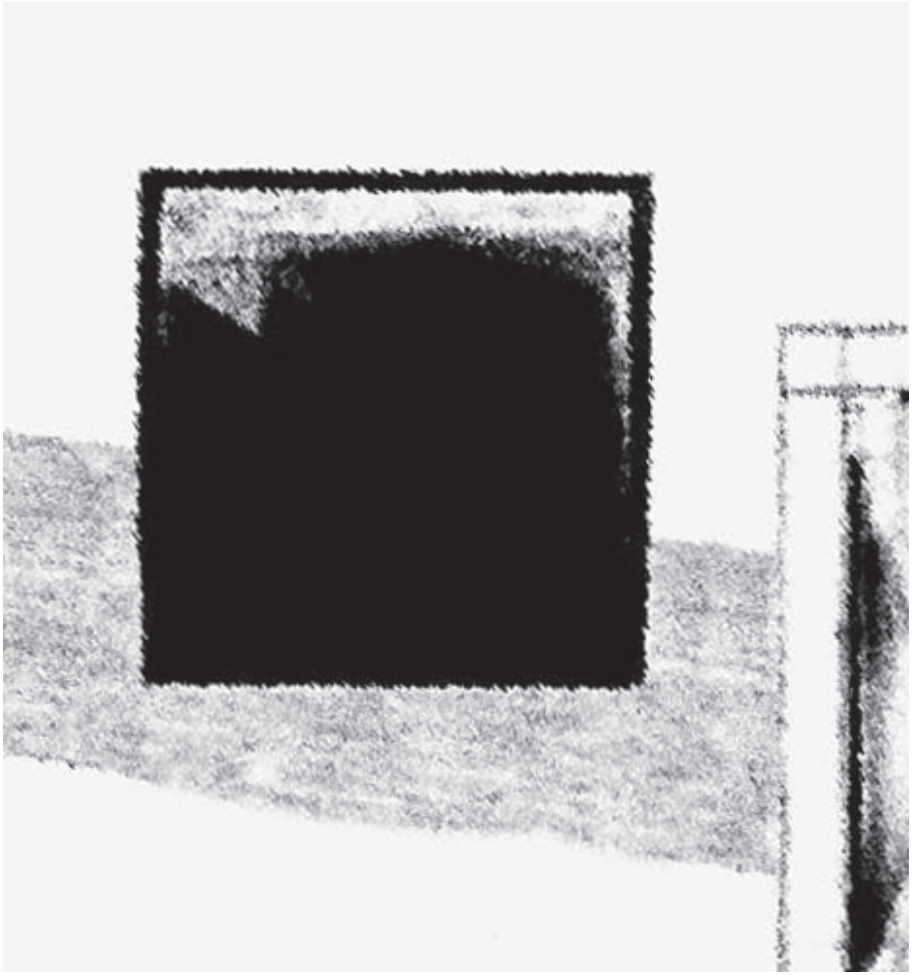
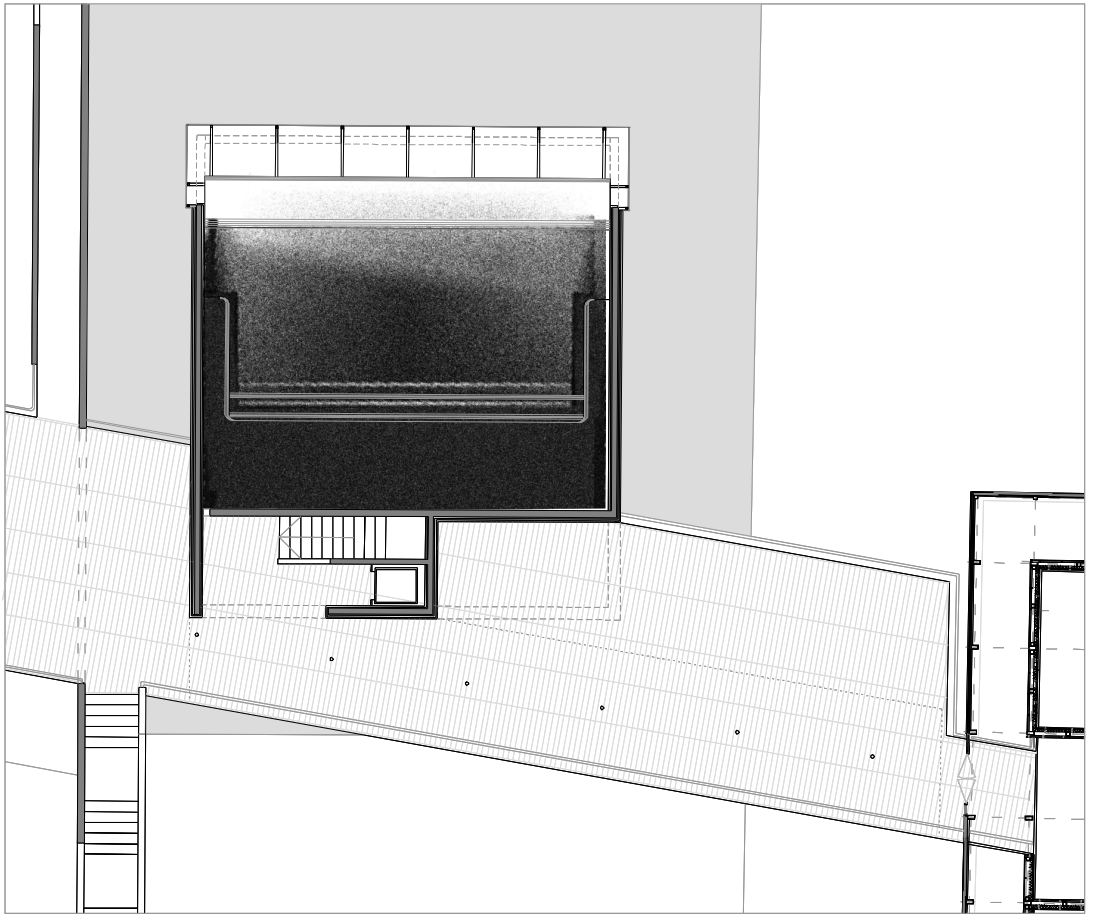






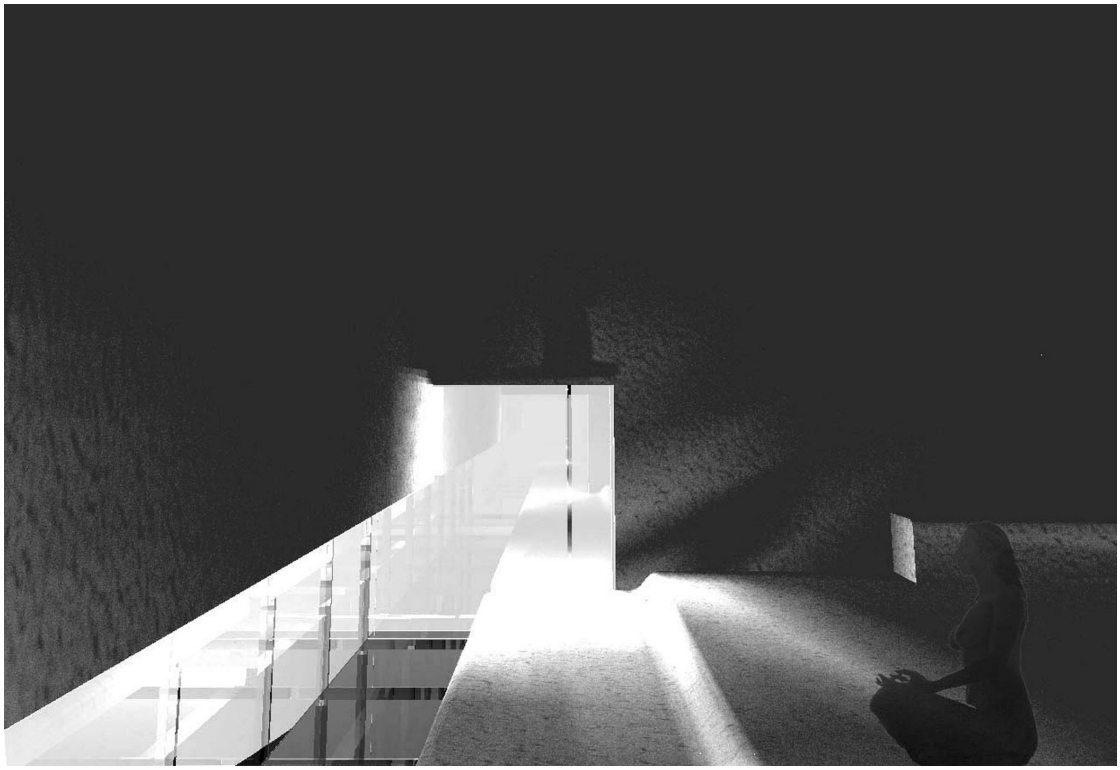
Black Light



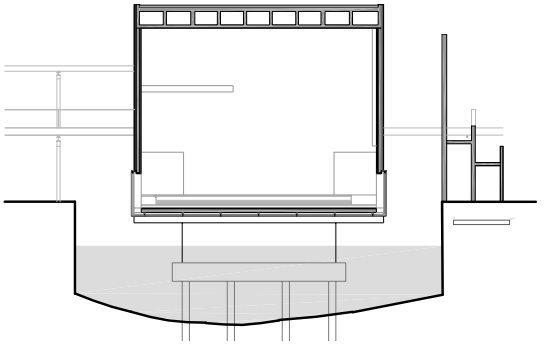


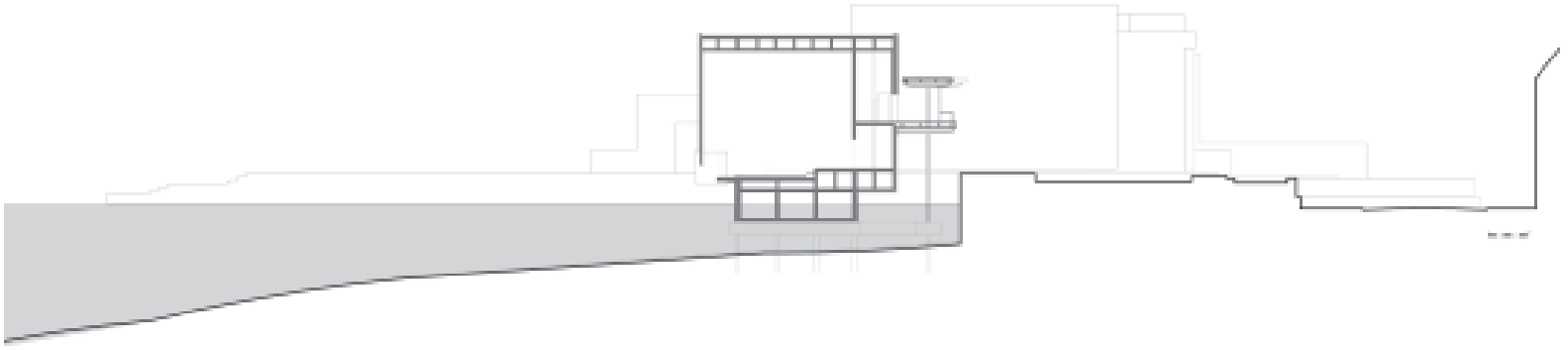
A narrow stair takes you down into a large dark space. On entering, the first impression is that of being inside an absolute black space. It would take a few seconds for the viewer's eyes to get adjusted to the level of darkness. Those few seconds are the transition from outside to inside. Then your eyes are automatically attracted to the only source of light in the room.

A single open corner reveals a sliver of light. The sliver can become a point of focus for meditation. The corner, which is the only source of light, hovers over the waters surface. Light reflected off the water filters in through the sliver. The size of the open corner is such that you can only see a slice of the water outside and nothing more.



The opening and the glass were to be read as two separate entities, in the sense that it had to be an open corner closed in by a transparent glass box. Steel box sections define the framework of the box, and hold the glass. In the horizontal and vertical plane, the glass starts much before the opening and sits away from the wall surface. The overall idea was to create an illusion of a black box floating on water. So the box is cantilevered equally on all four sides from the foundation, and the entire structure sits on a set of piles.



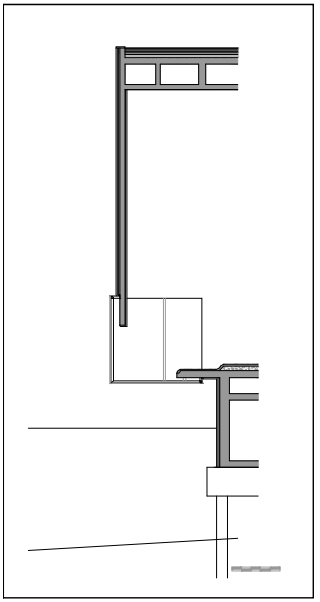


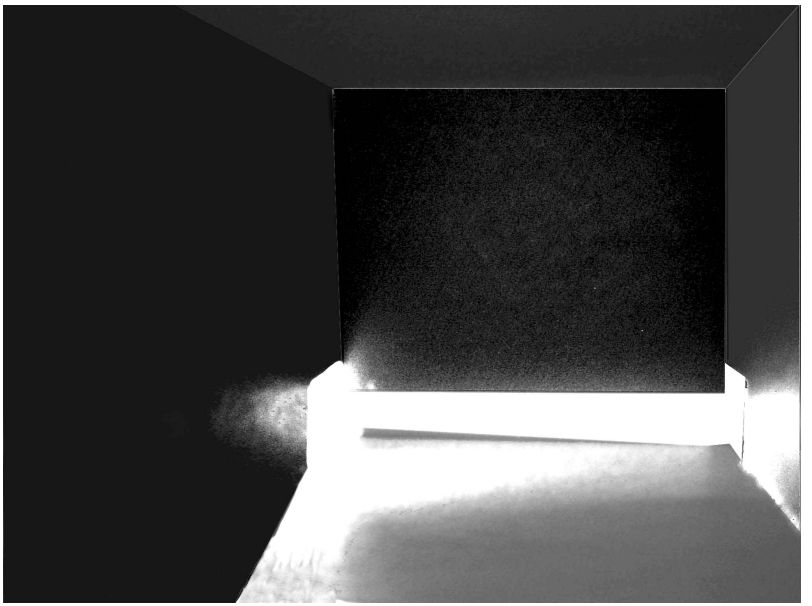
Wall section through open corner

Just as mass is necessary to perceive void, darkness is needed to perceive light.

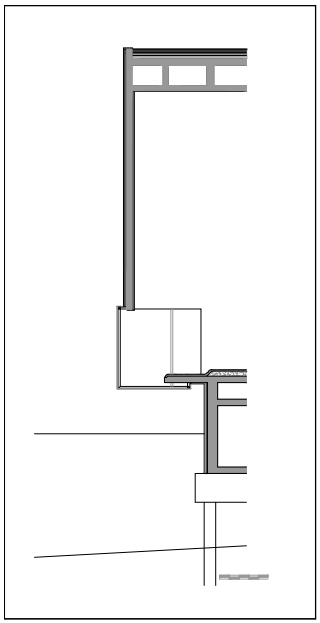
I went through a process of careful subtraction of light to achieve the ideal level of darkness.

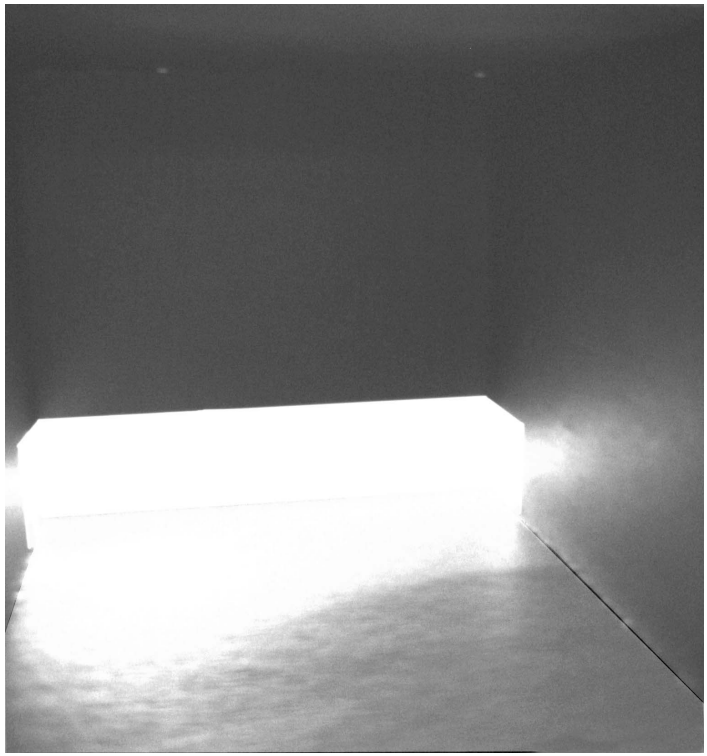
Experiments



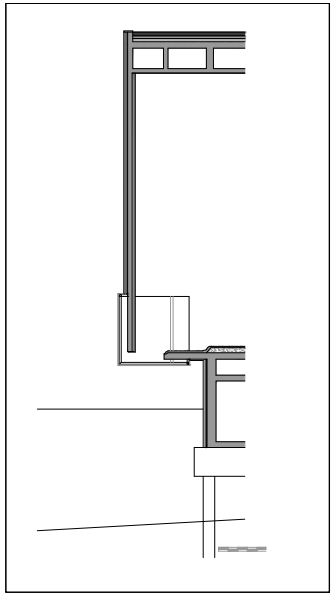


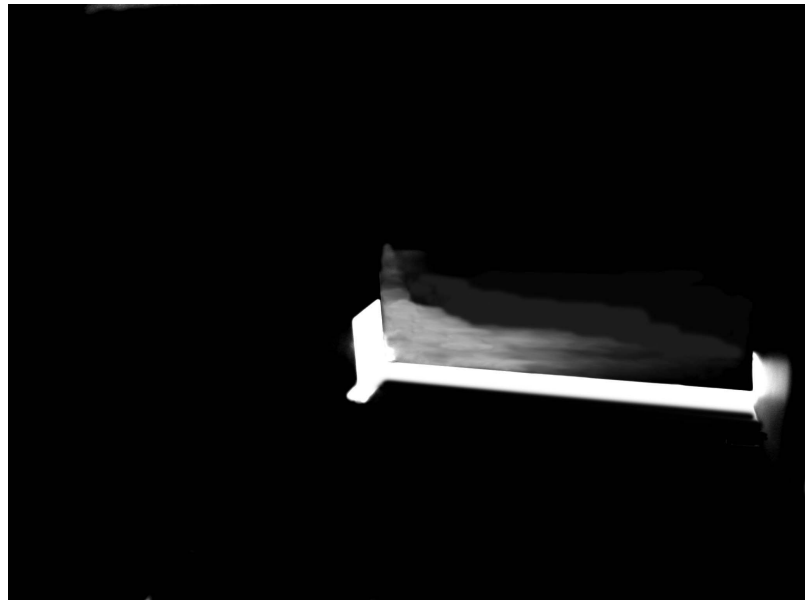
I experimented with the size of the open corner with respect to the box and the waters surface.



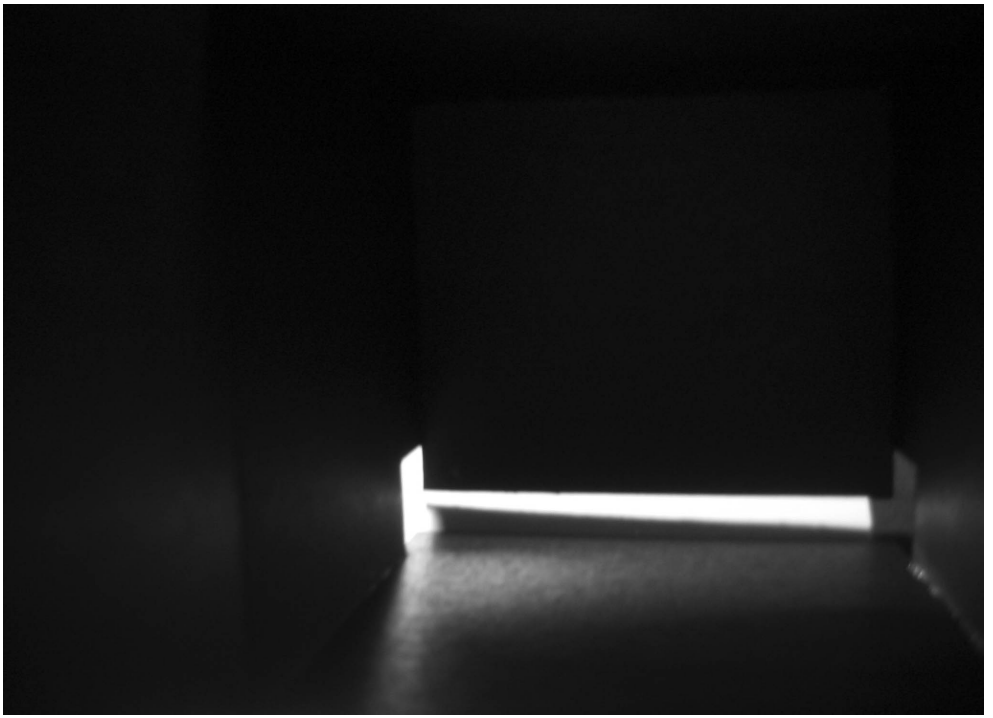


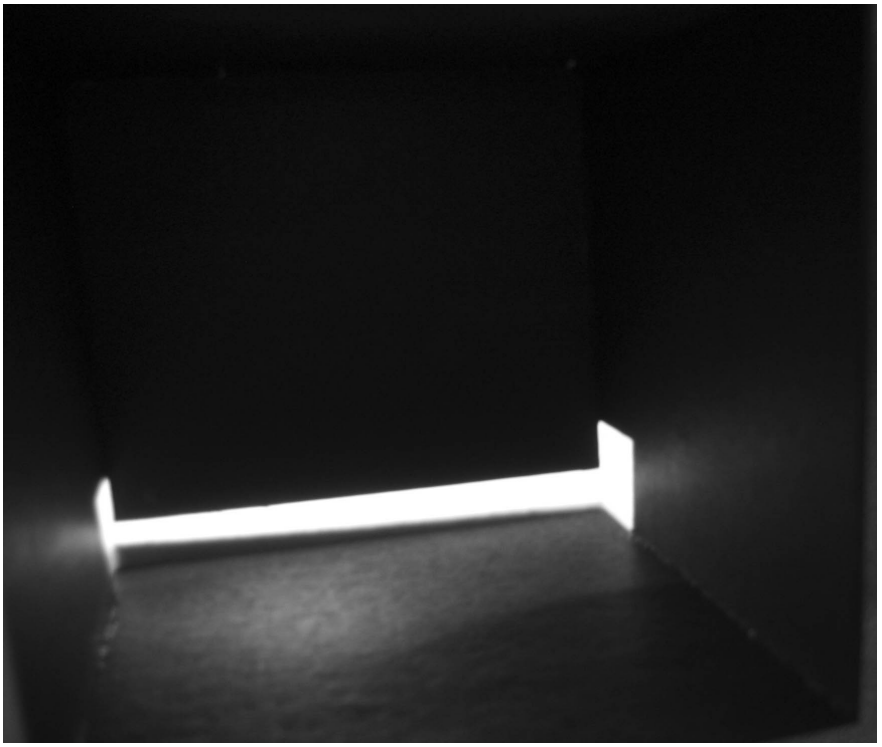
Too much light denies the presence of the sliver.



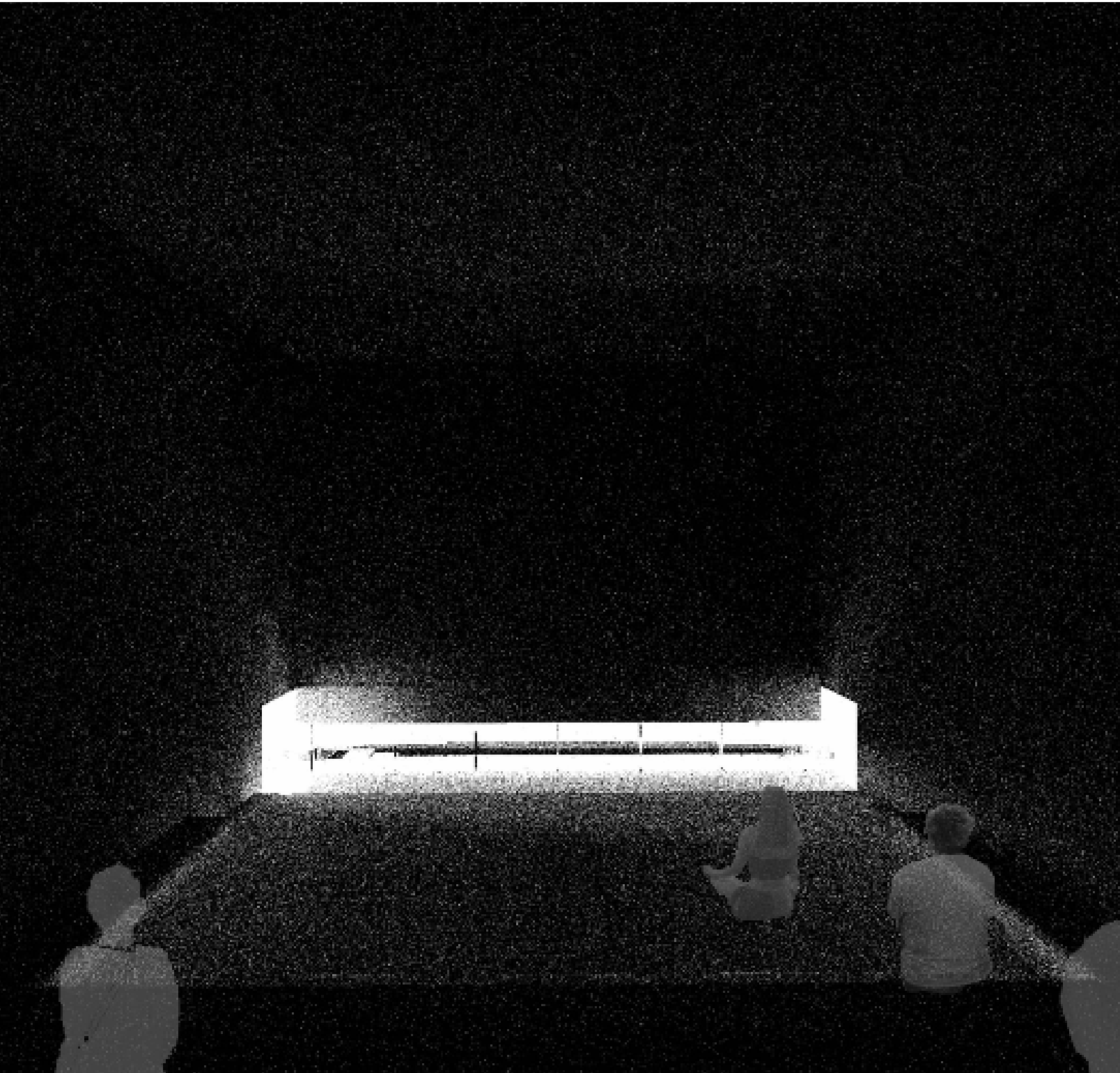


If the opening is too small then there not enough light to perceive what the sliver does to the space inside.

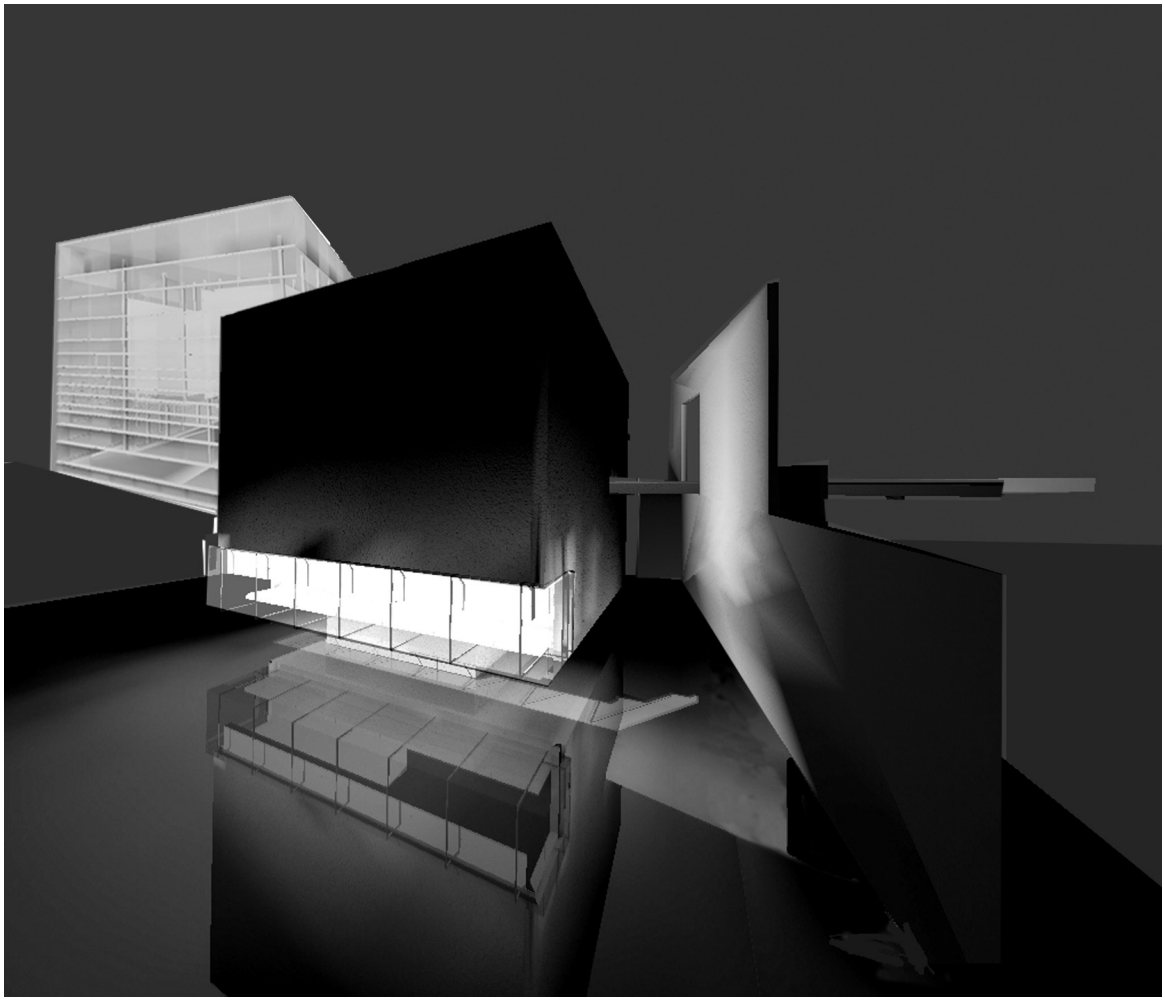




Finally I stopped at a point where there is just enough light to feel the presence of a person nearby, but enough darkness to not be able to see who it is.



I believe that faith is a state of mind. What makes a space sacred is beauty in configuration, freedom from clutter, non fussy details and purity in materials. All these qualities are essential for a calm atmosphere that allows focus without distraction. Distraction happens when one or more elements are disharmonious with the rest- or out of balance. I look for balance or equilibrium in a process. There will always be possibilities to do more. But the challenge lies in knowing when to stop, in recognizing when you have reached that critical point of equilibrium.



‘The difference between a good and a poor architect is that the poor architect succumbs to every temptation and the good one resists it.’ - Ludwig Wittgenstien

Printed Sources

Baker, Kenneth; ‘ Minimilalism and the Art of Circumstance’; Abeville Press; 1988

Bertoni, Franco; ‘Claudio Silvestrin / Franco Bertoni’; Birkhauser Publishers, 1999

Holl, Steven; ‘Parallax’; Princeton Architectural Press; 2000

Ishimoto,Yasuhiro; ‘Katsura; Tradition and Creation in Japanese Architecture’; Yale University Press; 1972

Meyer, James; ‘Minimalism : Art and Polemics in the Sixties’; Yale University Press, 2001

Pawson, John ; ‘ Minimum’; Phaidon Press; 1996

Plummer, Henry; ‘Light in Japanese architecture’; E ando Yu; 1995

Schittich, Christian; ‘Detail’ ; Mar., v.37; 1997

Zumthor, Peter; ‘Kunsthaus Bregenz’; Hatje; 1999

Credits

Images

Pg 4 Barnett Newman painting
Meyer, James; ‘Minimalism : Art and Polemics in the Sixtie; pg22; Yale University Press; 2001

Pg 5 Juicy Salif, Alessi, 1990
http://www.philippe-starck.net/industrial/1990juicy_salif.jpg
Philippe Starck Network

Pg 6 Katsura Palace, Kyoto, Japan
Photographer: Yasuhiro Ishimoto
Pawson, John ; ‘ Minimum’ , Landscape: Marks made by man; p100; Phaidon Press; 1996

Pg 6 Room Two, Katsura Palace, Kyoto, Japan
Photographer: Yasuhiro Ishimoto
Ishimoto, Yasuhiro; ‘Katsura; tradition and creation in Japanese architecture’, Old Shoin; p32; Yale University Press; 1972

Pg 7 Farnsworth House, Plano Illinois
Photographer: Hedrich Blessing
Johnson Philip; ‘Mies Van Der Rohe’; p150; MoMA; 1978

Pg 8 Church on Water, Hokkaido, Japan
Photographer: Richard Pare
Pare, Richard: ‘Tadao Ando:The Colors of Light.’ The Church on Water; pg 117 ; Phaidon Press; 1996

Pg 9 Street in San Francisco
Photographer: Arnaud Claass
Pawson, John ; ‘Minimum’, Containment: How architecture defines space.;p163; Phaidon Press; 1996

Pg 9 Chapel, Notre Dame du Haut, Ronchamp, France
Photographer: Marc Riboud
Pawson, John ;‘Minimum’,Light:Shadows and the Power of Transformation; p39; Phaidon Press; 1996

Pg 10 Window, Notre Dame du Haut, Ronchamp, France
Pauly, Daniele ; ‘Le Corbusier: La chapelle de Ronchamp’;p14; Birkhauser Verlag; 1997

Quotes

Pg 5 Pawson, John ; ‘Minimum’ ; p9; Phaidon Press; 1996

Pg 6 Pawson, John ; ‘Minimum’ , Landscape: Marks made by man; p100; Phaidon Press; 1996

Pg 9 Bertoni, Franco; ‘Claudio Silvestrin / Franco Bertoni’; p179;Birkhauser Publishers, 1999

Pg10 Schittich, Christian; ‘Detail’ ; Mar., v.37, n.2, p.137-140; Tadao Ando’s Museums - An Interview’; 1997

Pg 67 Pawson, John ; ‘Minimum’ ; p9; Phaidon Press; 1996

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Kavita Pradhan Harish Chavan Madhukar Keer Chandresh Chhatpar Biju Menon Ujval Gandhi

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