

Processional and Threshold;

A Sacred Space for
Downtown Blacksburg

Graduate Thesis
Richard Dorman

Processional and Threshold; A Sacred Space for Downtown Blacksburg

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ABSTRACT:

This thesis is an investigation of architectural elements and lighting conditions that reinforce a journey. From the initial encounter to the presence of the sanctuary, a Presbyterian church has been constructed in downtown Blacksburg to instrumentally govern an interaction between congregation and form.

Acknowledgements

Special thanks to my wife Kimberly and her willingness to shoulder more than her share of responsibility to ensure this thesis has been given priority over all else. Her patience and service has made an overwhelming commitment of time and resources possible.

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I'd like to thank Patrick Doan for his friendship and advice. His comments and interest in my project were the product of a healthy studio relationship between colleagues.

Finally, I'd like to recognize those who lost their lives on Monday the 16th of April 2007. May we never forget them, and may we all move forward with a portion of their courage and ambition.

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When God said to Adam: “You shall be a fugitive and a wanderer on the Earth”; he put man in front of his most basic problem: to cross the threshold and regain the lost place.

-Christian Norberg-Schulz

Introduction

The current trend in churches has seen a decline in the role of architecture, as mega churches are housed in large industrial prefabricated structures. The rapid fluctuation of congregational size has removed design and replaced it with functionality. In this climate creating a church concerned with processional and threshold as tools of transport from a profane into a sacred space is of the utmost importance.

Using a corner of the high traffic intersection at South Main and Roanoke Streets in downtown Blacksburg shapes a great many decisions. The processional is more internal than external and the thresholds are monolithic in nature. Claiming this important urban corner was an act of defiance in an age where churches have been relegated to side streets: no longer inhabiting the cornerstone of each community.

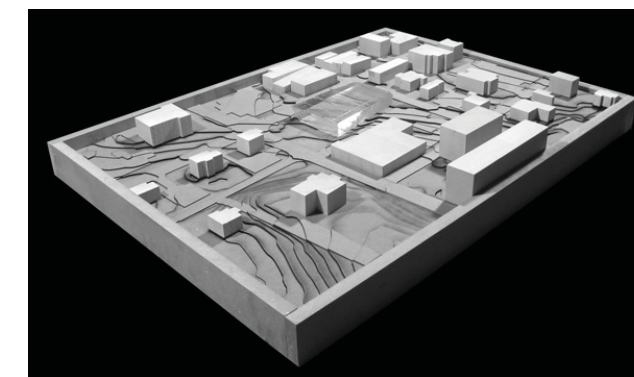
I have looked to Mircea Eliade’s “The Sacred and The Profane” to better understand the importance of threshold and processional. Rudolph Schwarz’s “The Church Incarnate” brings directionality to both the form and the part to whole relationship of both structure and congregation. Thomas Barrie’s “Spiritual Path, Sacred Place” has informed elemental decisions of design.

This Presbyterian church ultimately seeks to use architecture as a vehicle to transport members of the community from the noise and impatience of everyday surroundings to a quiet place of solitude where psychological time slows and a spiritual journey begins.

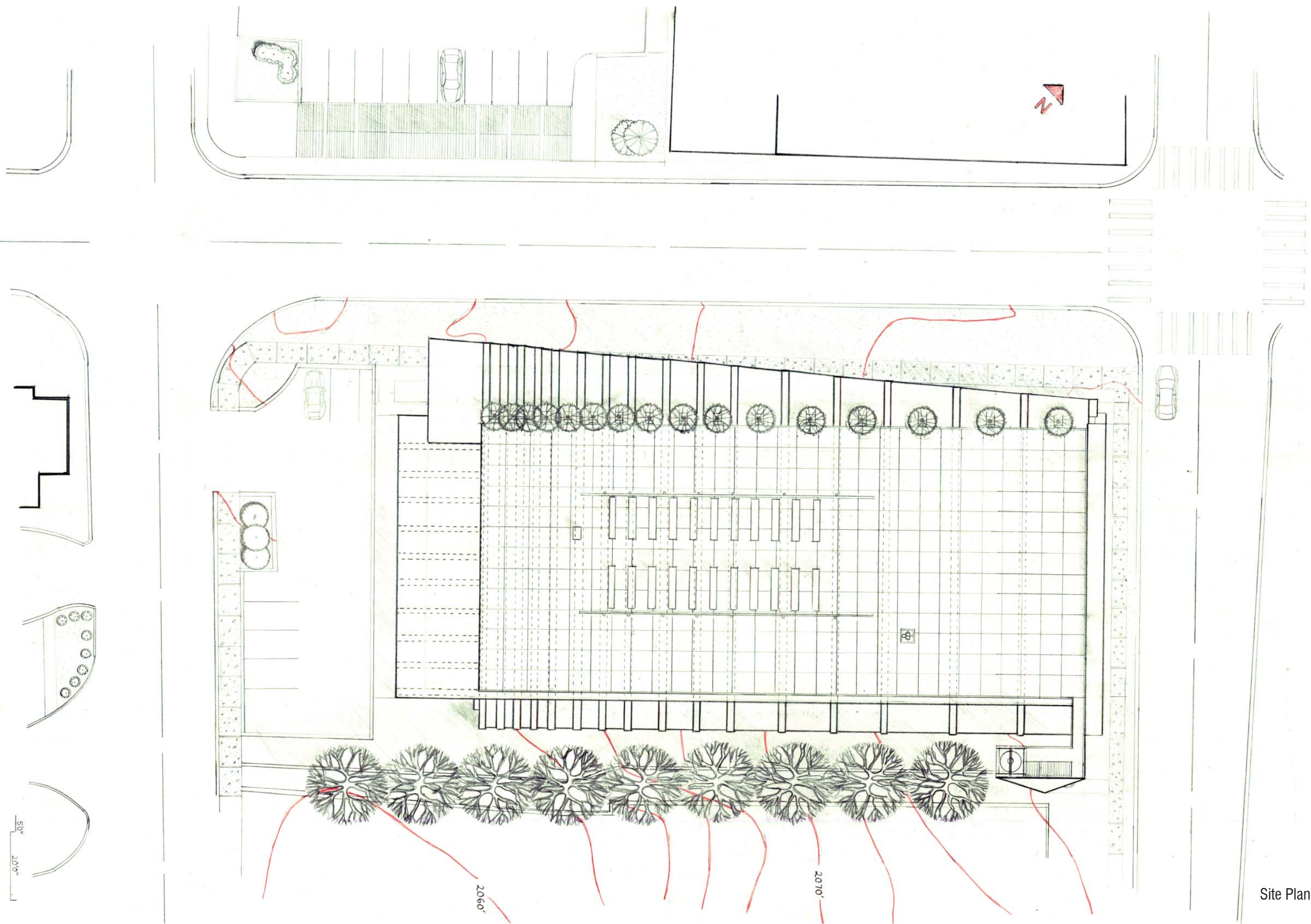


Site

The facades of downtown Blacksburg are largely brick, creating an opportunity for differing material choices in the Presbyterian church. The farmer's market establishes a horizontal datum line which plays well against the sloping site.



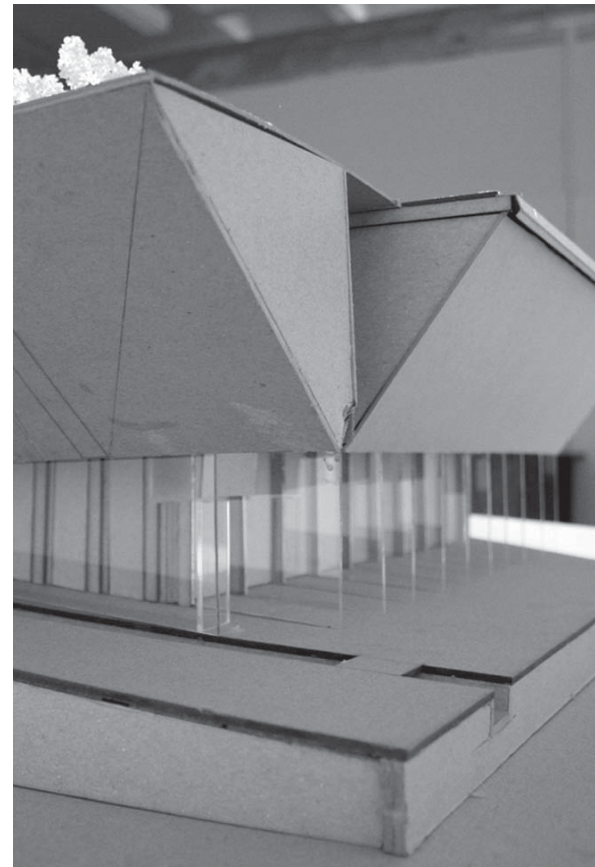
Sited between South Main Street and Draper Road, on the corner of Roanoke Street, the church occupies a crucial intersection of the original 16 squares of Blacksburg. Topographic lines in both the model and the diagram show the considerable change in elevation that takes place here.



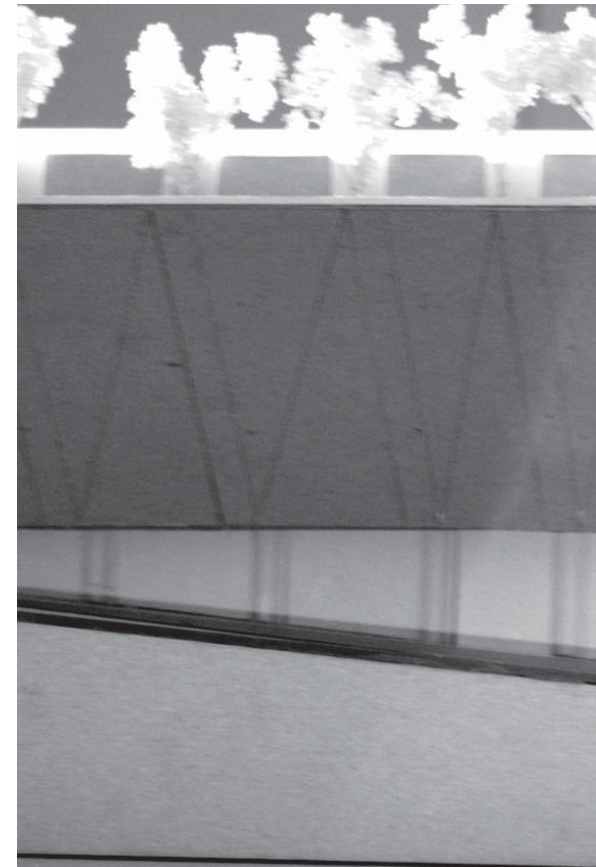
Site Plan



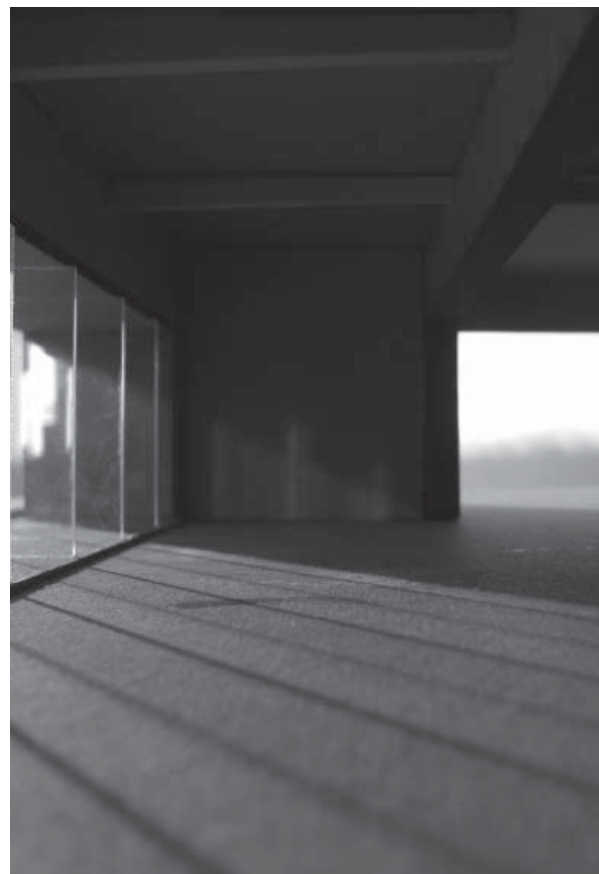
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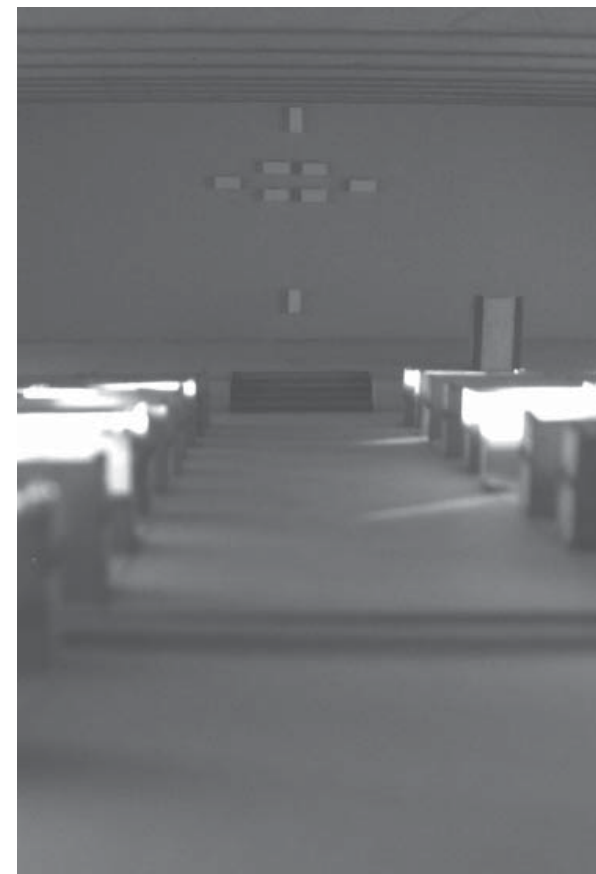
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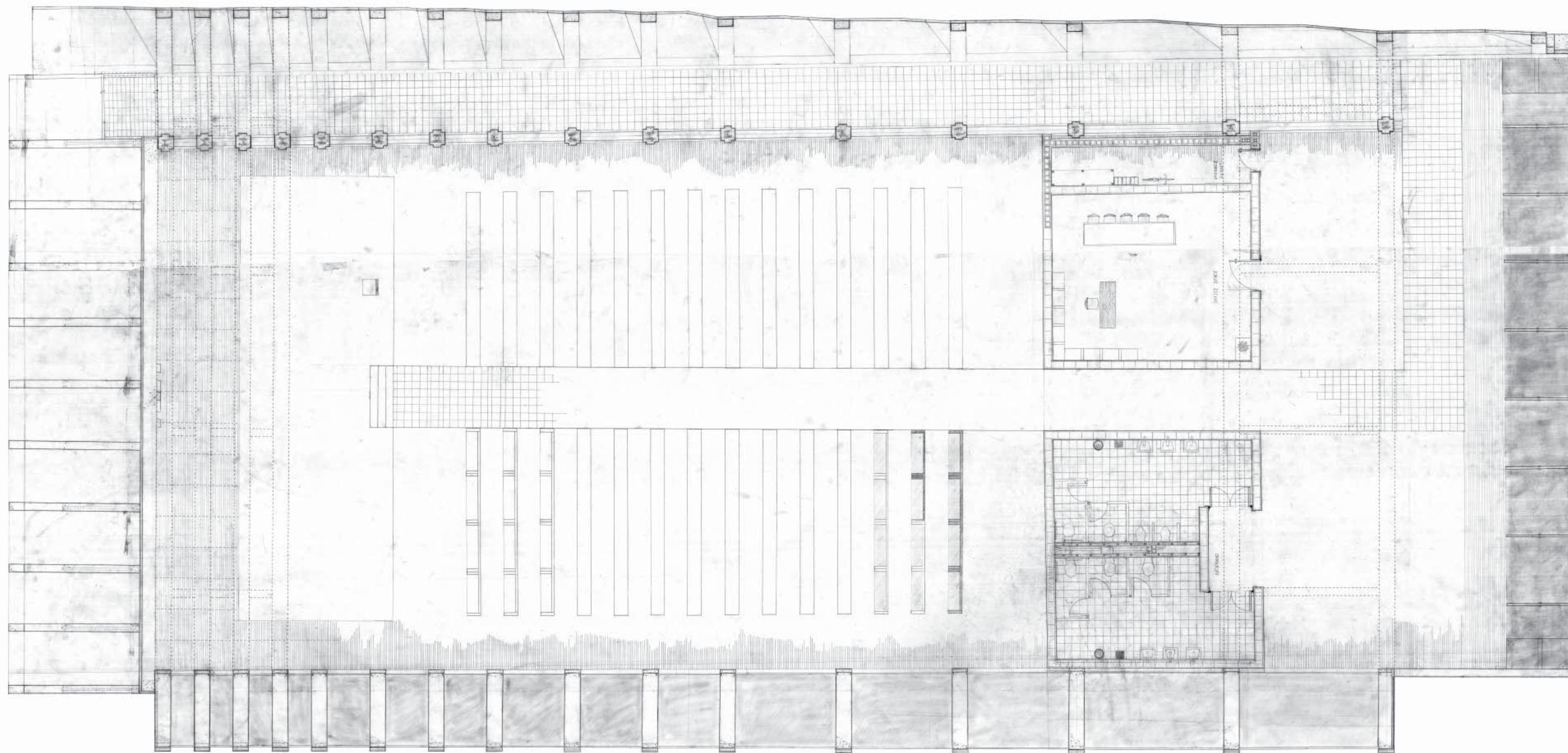
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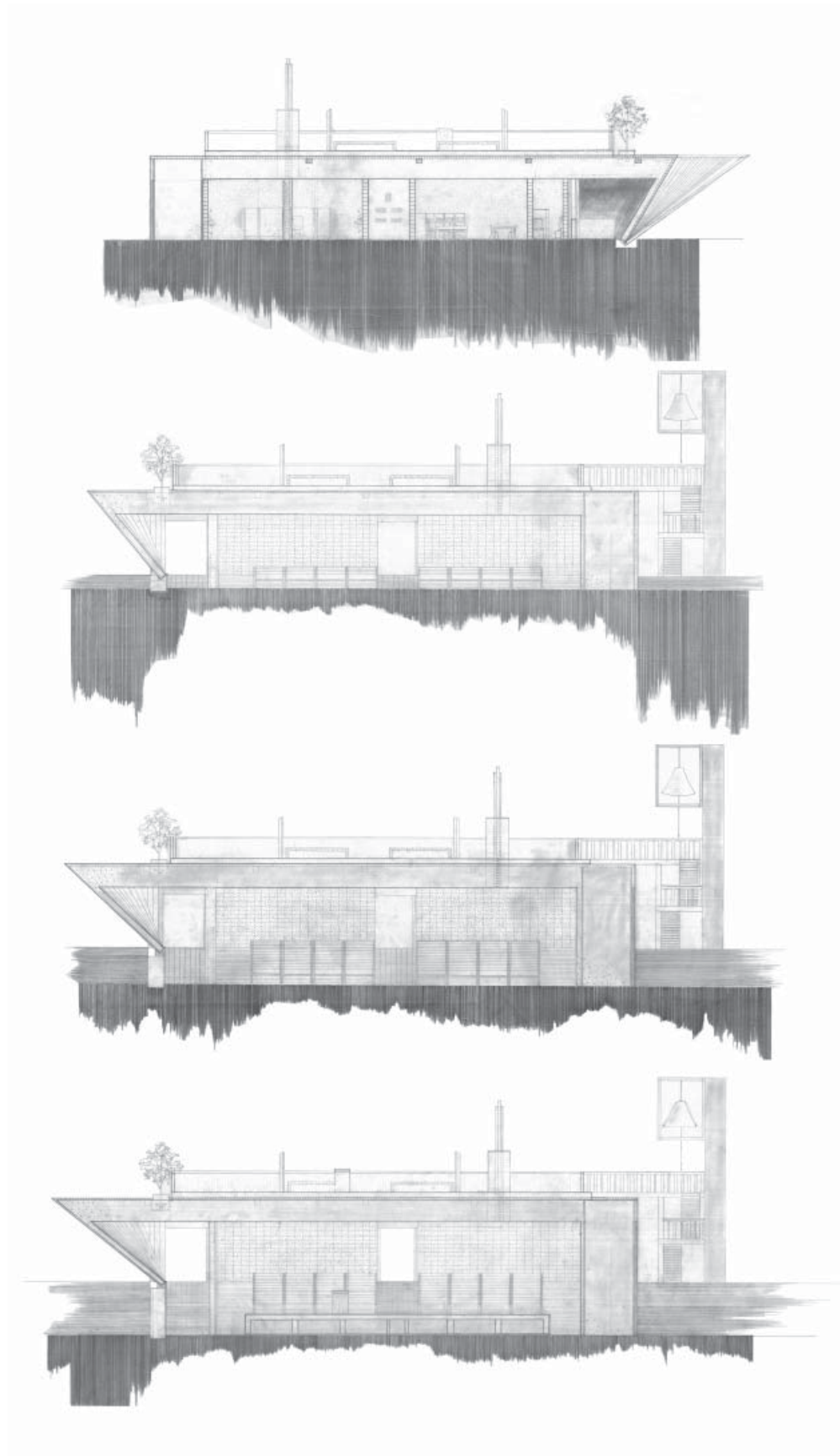


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Processional and Threshold

The experience of processional begins on the adjoining street where the cantilevering roof is first encountered. In-scribed space is achieved here by implying edges through the elements of roof, wall and curb (1). As one continues to the foot of the hill one crosses a small stream by way of a simple spanning bridge (2). This initiates an act of ablution: a sanctification which directly precedes the primary entrance threshold of the church. One enters through this glazed threshold and into the processional hallway as an act of separation as the width of the space is confined encouraging a journey of solitude (3). Monolithic concrete members pass rhythmically above: each member a part of the greater whole. Light is diminishing along this journey uphill beyond the light of the divergent window. At the end of this segmented space the narthex is entered, an area flooded with light (4). Initiation takes place just beyond this space in the sanctuary (5). Through the acts of baptism, marriage and funeral rites the celebration of life is engaged by the gathering of a congregation. Here one passes through the final threshold of adjoining rooms and into the sanctuary beyond (6). Light plays on the surfaces of monolithic concrete members. Congregants move into position sitting in pews as members of a greater network, each focusing on the salvation of the absent cross. The cross is carried symbolically along the preceding processional and held by the congregants. Each member falls into rank creating the presence of an army marching toward the goal of salvation.





Section taken one foot beyond CMU wall facing SW

Section taken at 4th column facing NE

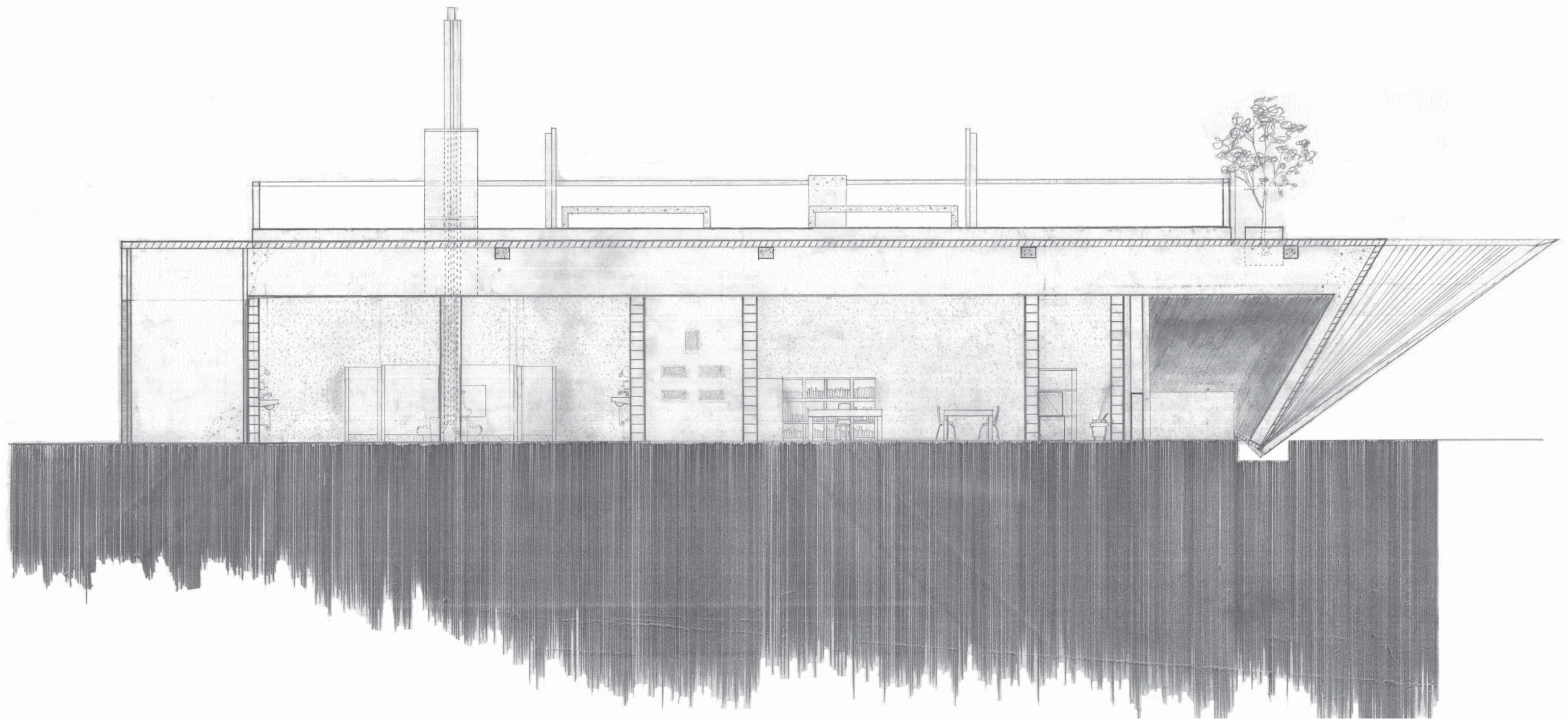
Section taken at 8th column facing NE

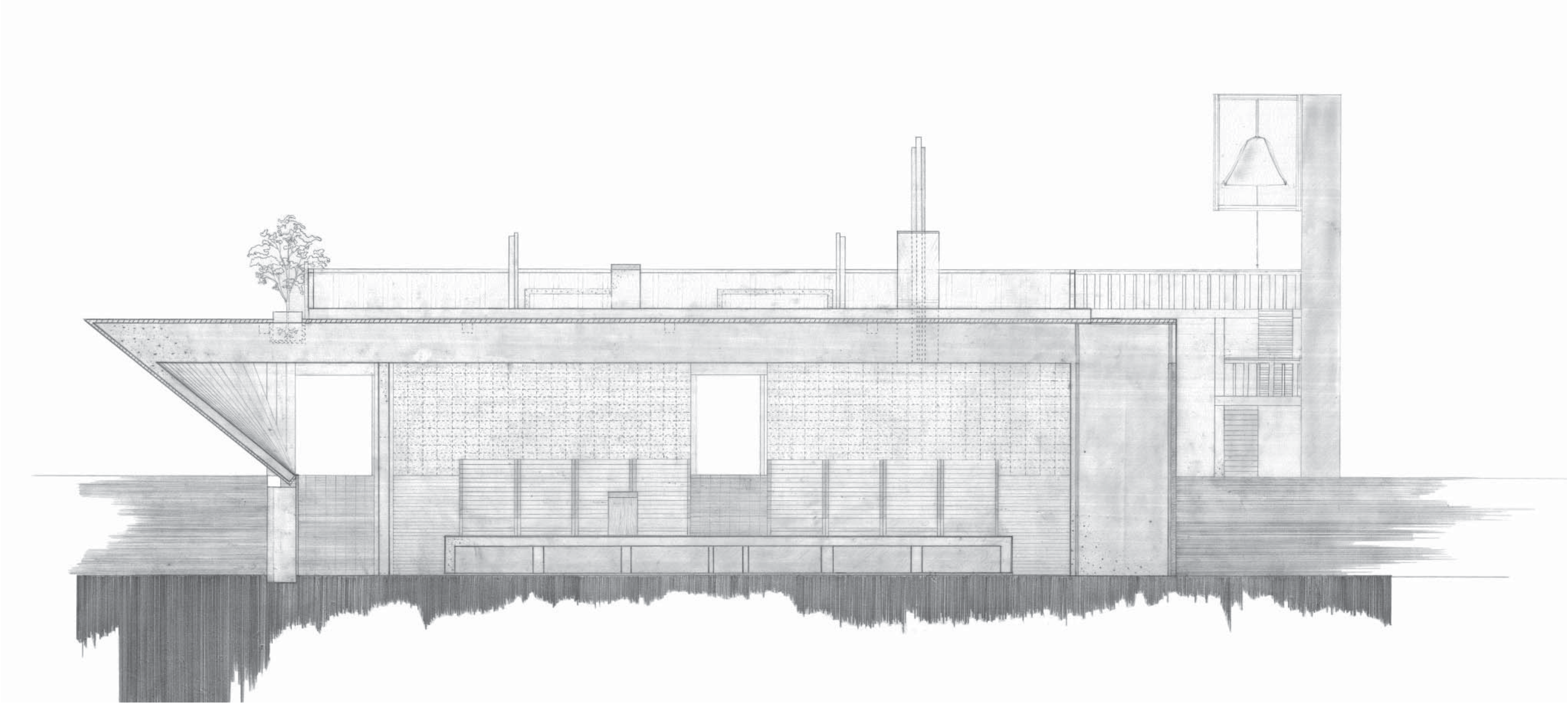
Section taken at 12th column facing NE

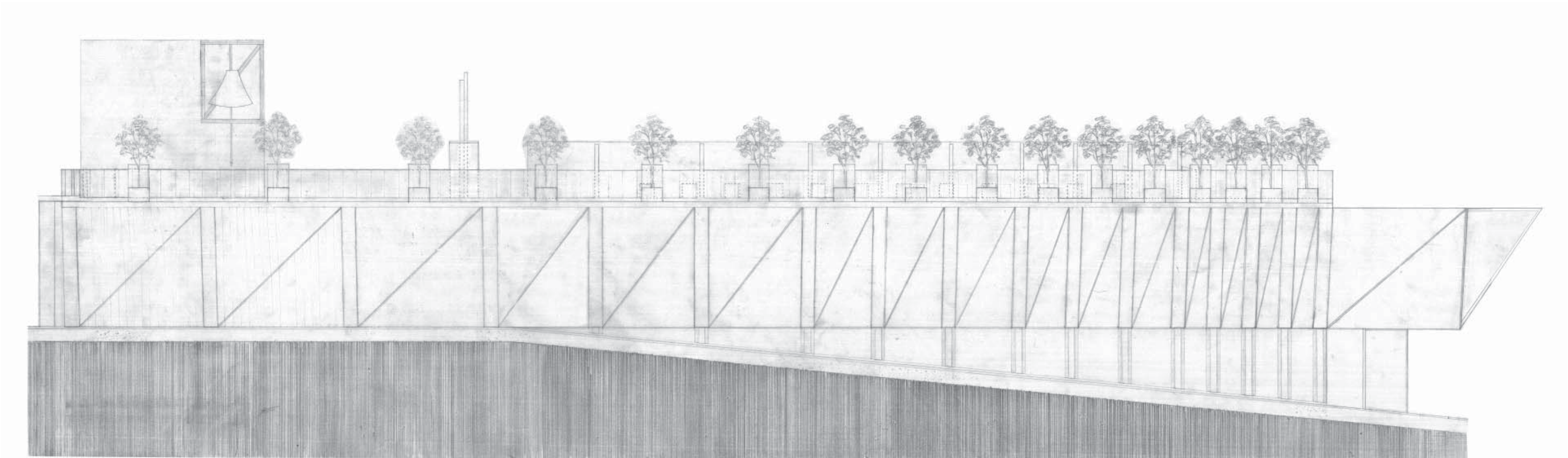
The journey from profane into sacred space is a ritual in many denominations. This journey is often signaled in the Presbyterian faith by a narthex or large vestibule entrance-way. The elongated processional of this church begins with a journey along the outer edge of the building as one is slowly encompassed by the circumscribed outer room formed by the cantilevering roof. Walking next to the stream that flows below this northwestern wall the pilgrim reaches the bottom of the hill and passes through a deep threshold of glazing entering into the inscribed portion of the processional.

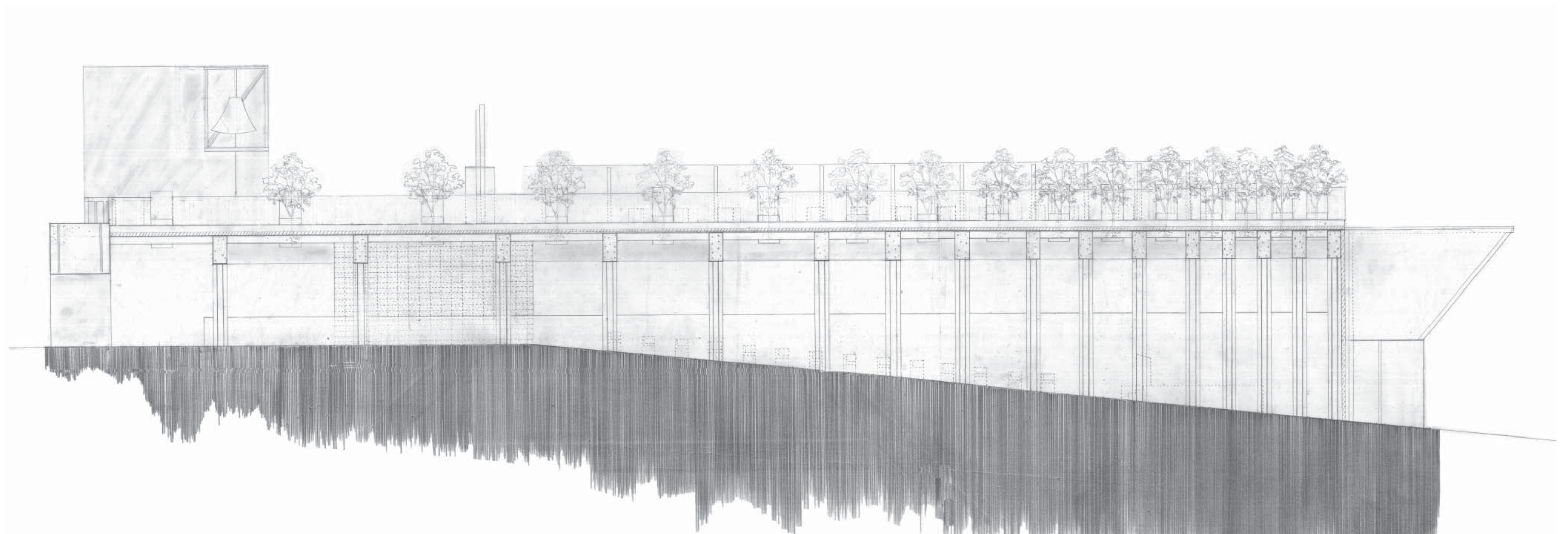
One experiences the rhythm of the monolithic columns and the elevation shift as one travels back to the peak of the grade. The pilgrim now reaches the narthex, a large gathering space where groups can organize to begin the final processional downward into the sanctuary.

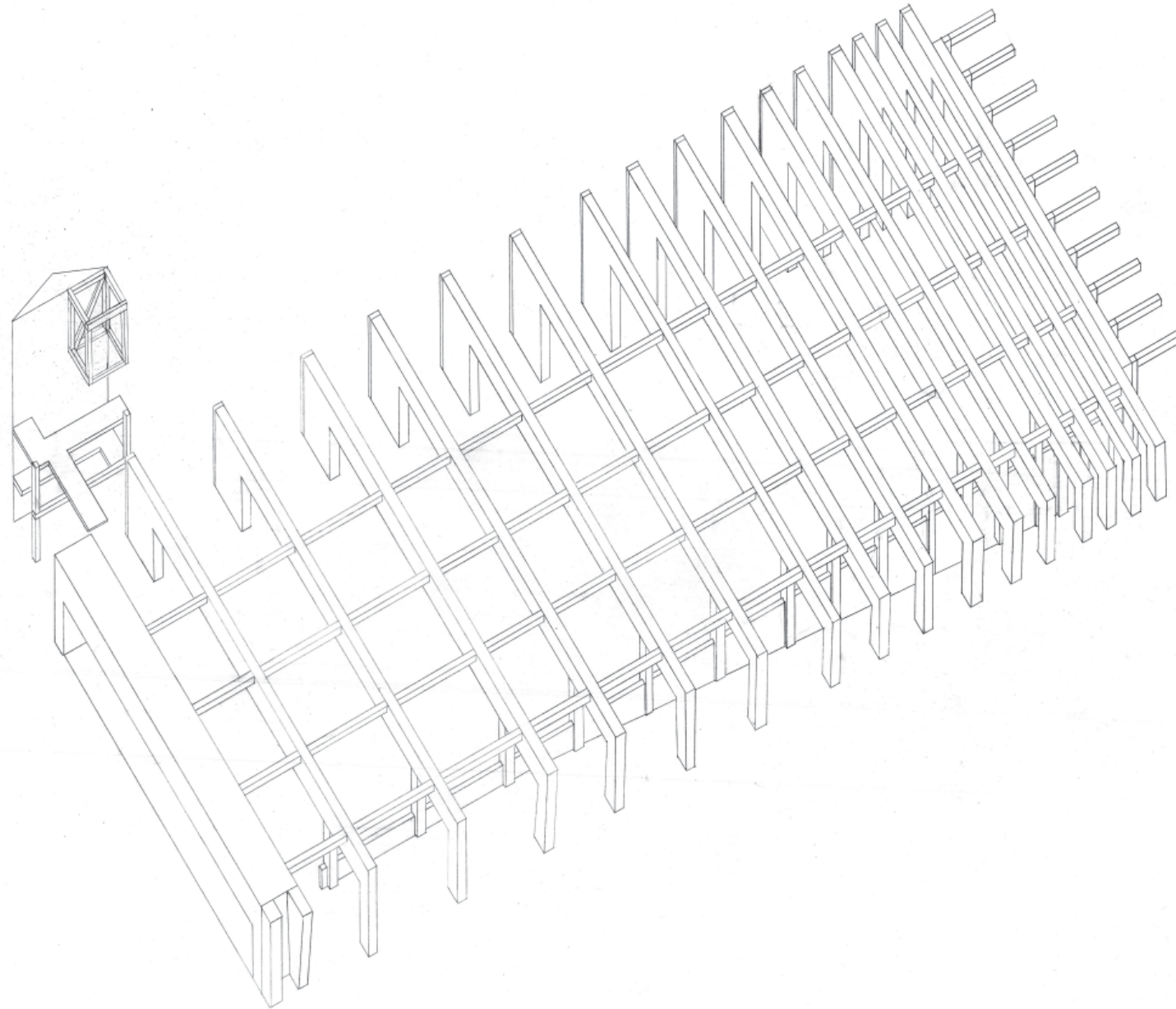
Section taken one foot beyond CMU wall facing SW.





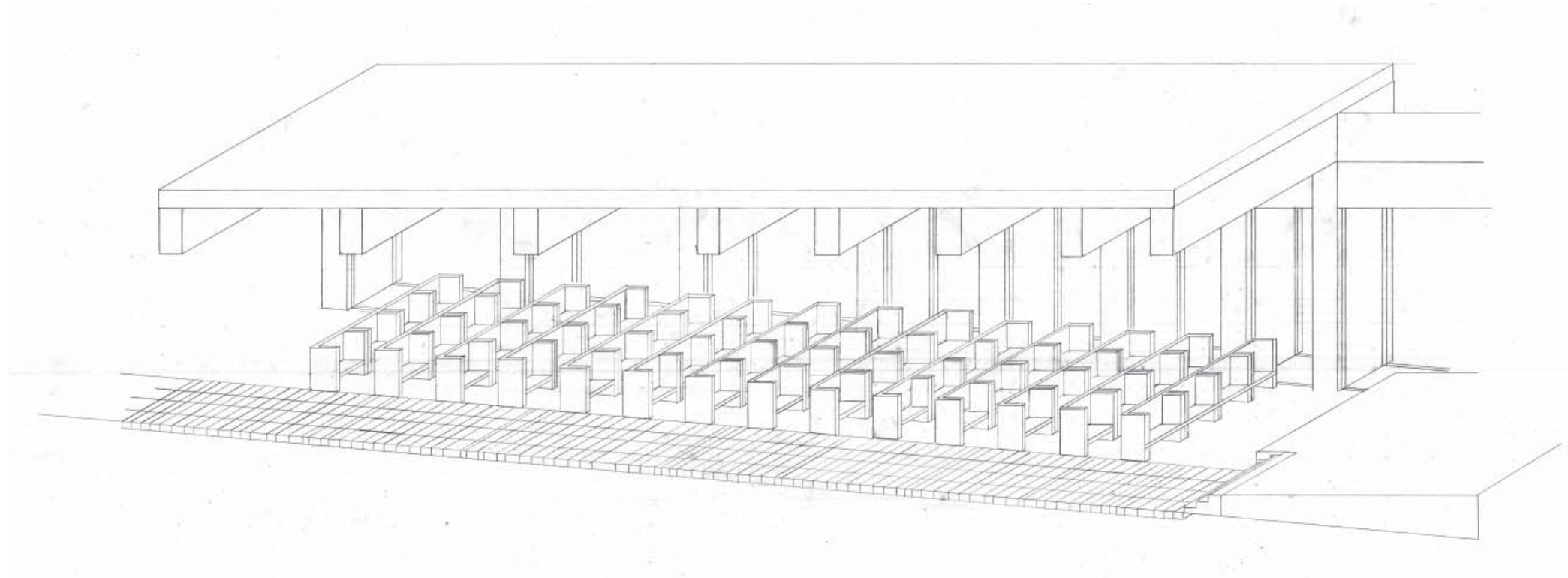






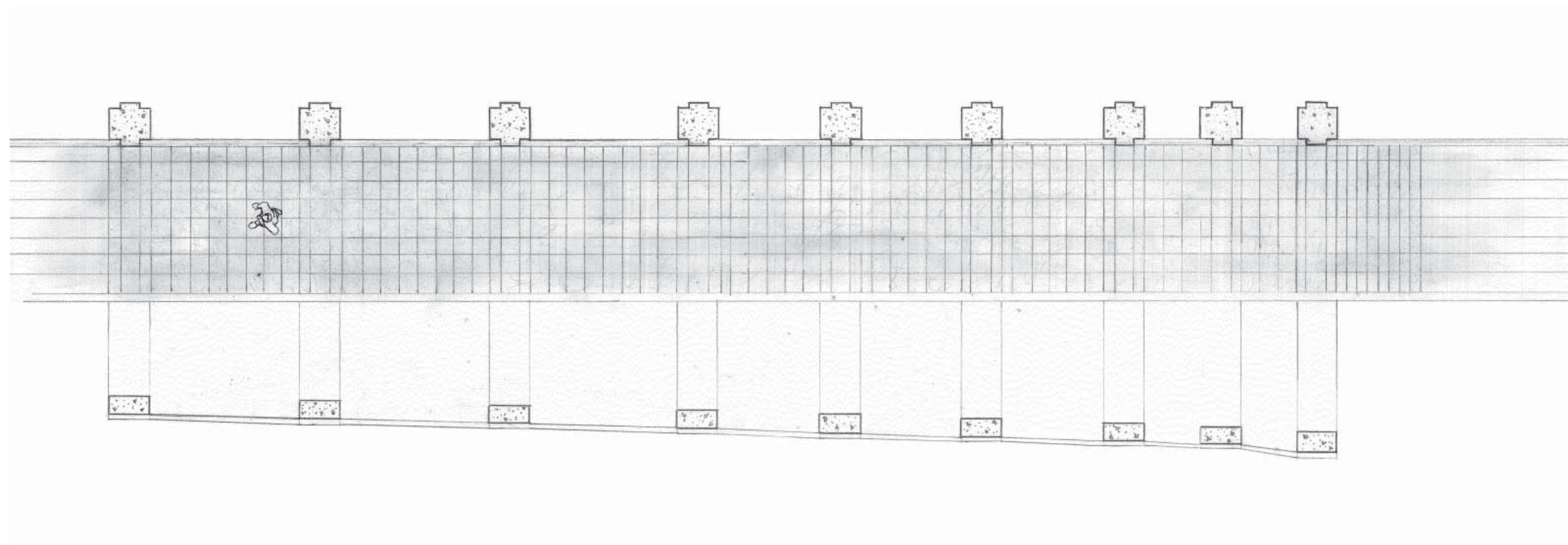
Threshold

The threshold is established as an inherent outcome of the structure making the spaces in between each monolithic member a unique condition. Each member varies only in angle and length; they are instances which work to create a body for the dwelling of the congregation.



Sanctuary Processional

The threshold originally existed as a means to keep straw (used for traction on stone floors) from being moved out of the house. This wooden board placed below the doorway has become a significant architectural element of transition. It has become not merely a floor board, but the presence of an opening signaling the space beyond. From the glazed entryway to the monolithic exit threshold this church uses many devices in the language of the threshold to indicate a change in conditions. The tiled floor of the processional follows the rhythm of each monolithic column. Each tile follows the dimensions of the column it neighbors acting as a threshold at each column. This creates small segmented spaces between each column. The tiles follow this same rhythm as the parallel processional leads one into the sanctuary.



Section of the Entrance Processional

At the exit threshold the idea of *widthe* is acknowledged. This Old-English term refers to the thickness of a threshold often corresponding to the width of the door. Within this context paneling and other finishes often relate to interior finishes reflecting the hierarchy of spaces. The direction in which the door opens further pronounces this hierarchy. Here the polished concrete surfaces of the threshold signals the importance of the interior surfaces of the church.

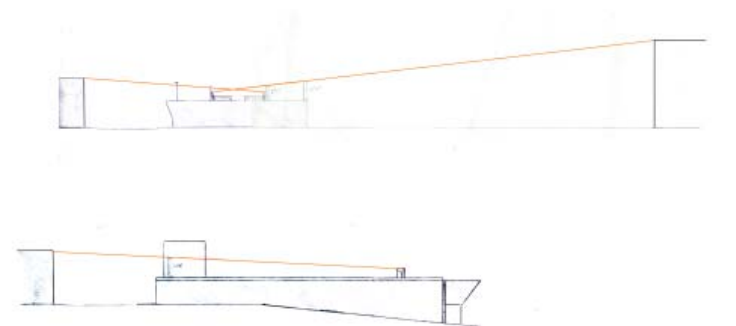


Exit Threshold

The exit threshold initially required a slight drop to prevent water from flowing into the church. Further studies yielded an outward sloping floor draining water into a stream just beyond the exit. The stream itself forms an edge of the church.

It is imperative for processionals to have a different exit route from that of the entrance ritual. This being a rule of what constitutes processional in religious architecture.

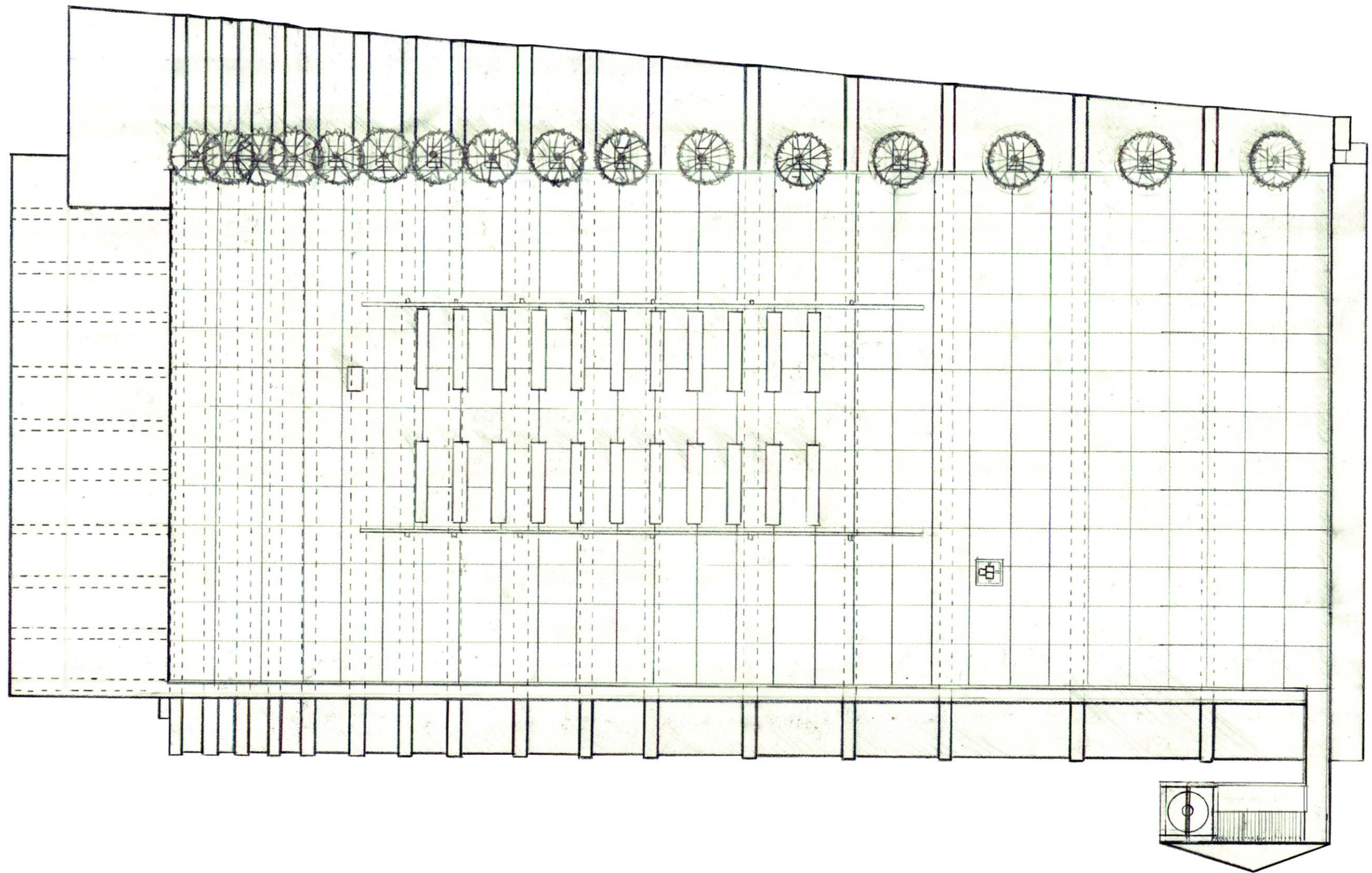
The narthex houses ten large glazed apertures capable of swiveling ninety degrees allowing a mass exodus at the end of each service. When not in use these elements are swiveled shut creating a glazed wall along the edge of South Main street.

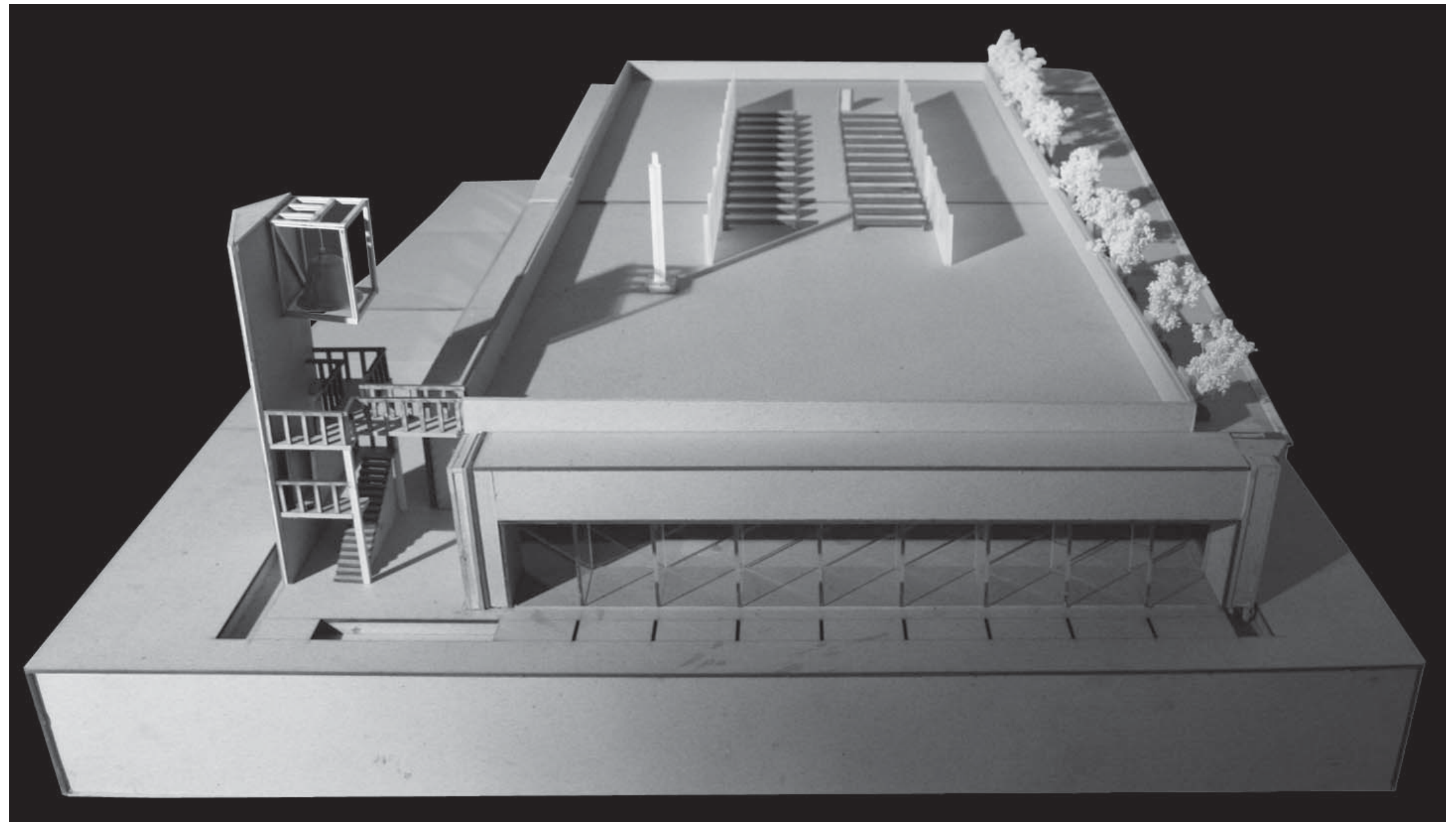
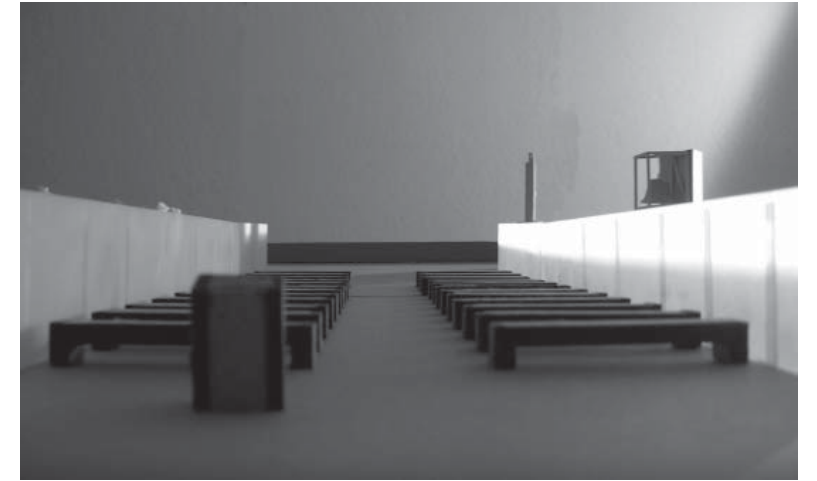


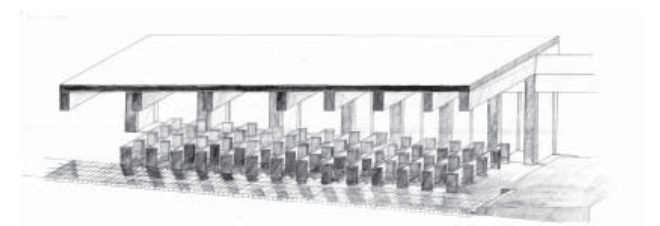
Study of Surrounding Building Heights

Roof Chapel

The roof chapel incorporates frosted glazing walls both to mediate light and to control rooftop views. Surrounding buildings have been studied to determine the ideal wall heights. The roof is surrounded on two sides by thick foliage, and the third side contains planters which hold periodically spaced japanese maple trees. These trees effectively create an edge and inform the directionality of the chapel. Facing Southwest the chapel is a space for seasonal services and rites.

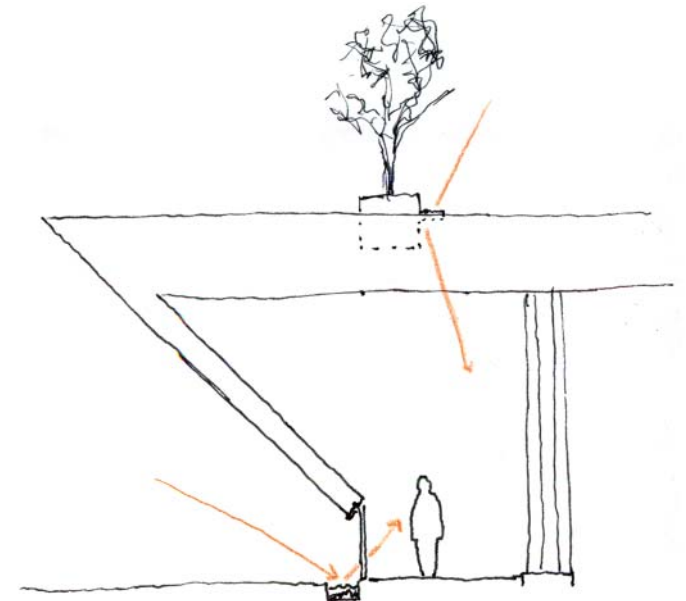




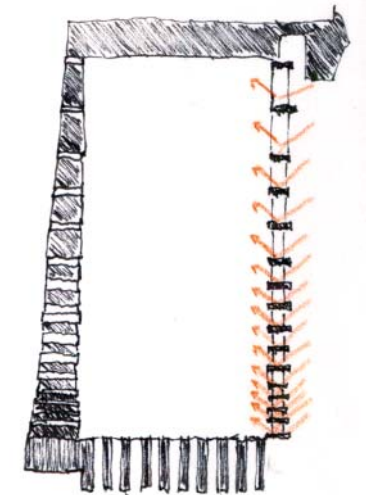


Lighting

The church is an instrument of light, a mediator of conditions through elements. Morning sunrise is of the utmost concern in the main sanctuary and polished concrete walls recurring and abutted with a double skin of glazing act to reflect light into the church from the eastern morning sun.

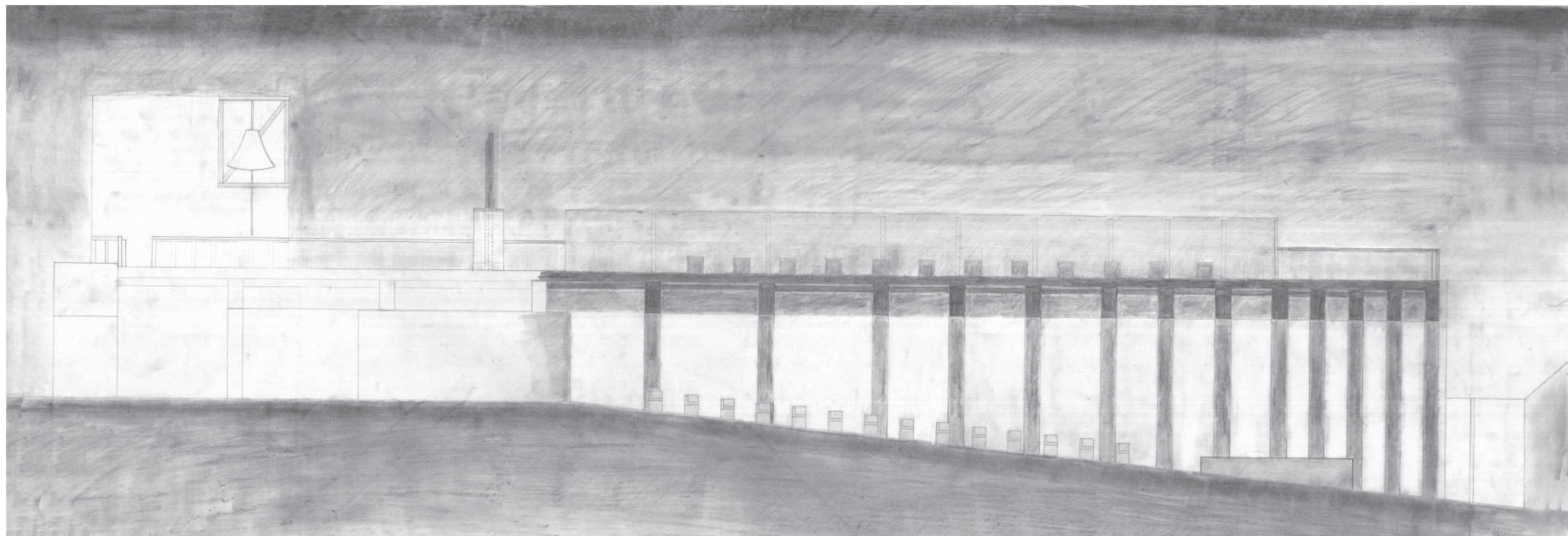


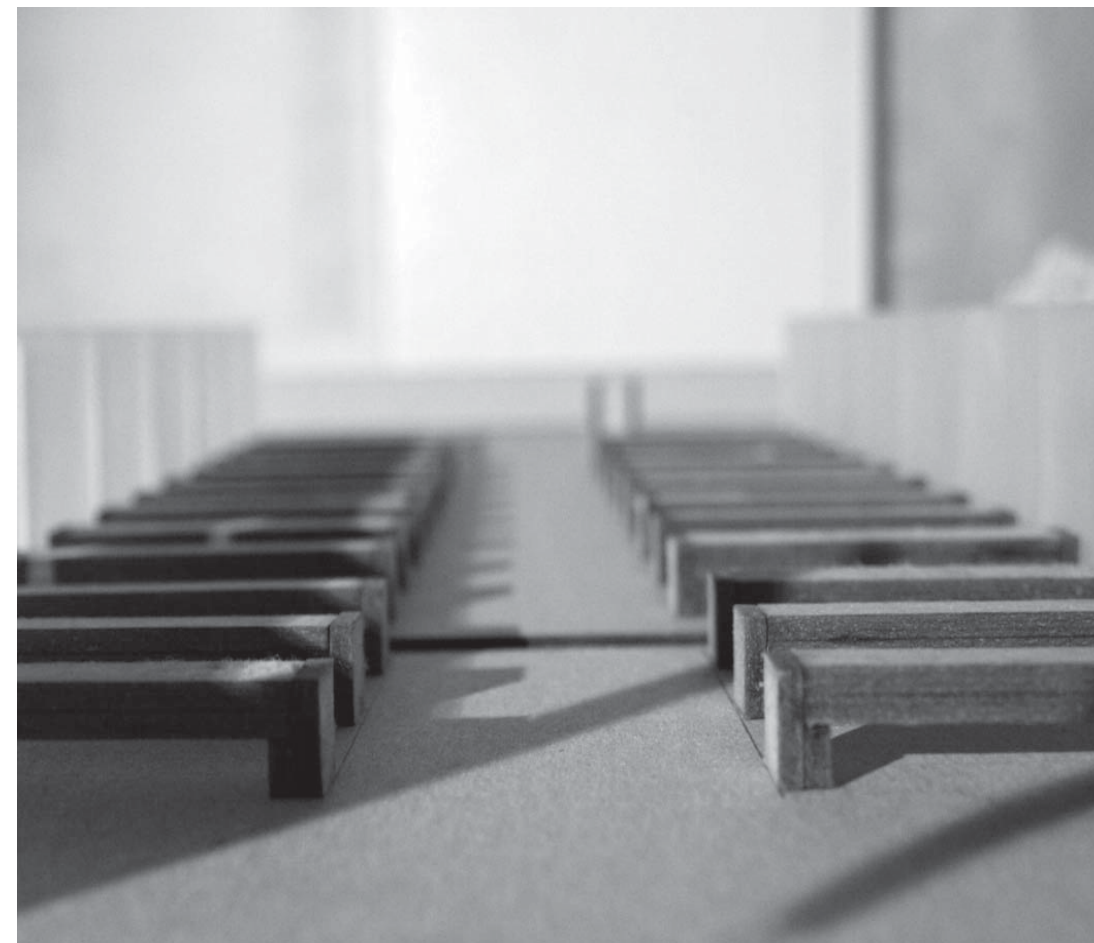
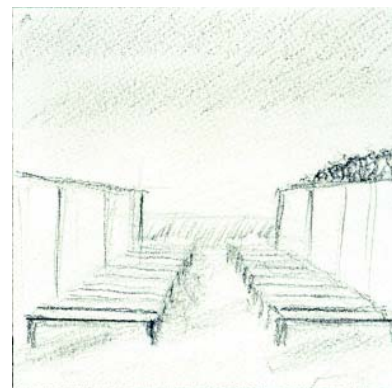
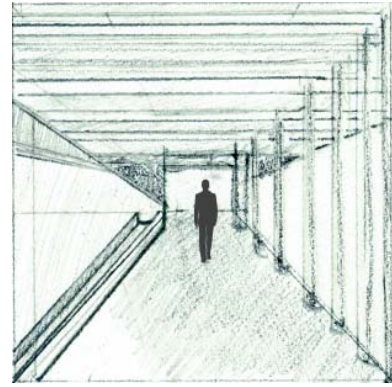
Processional Lighting Diagram



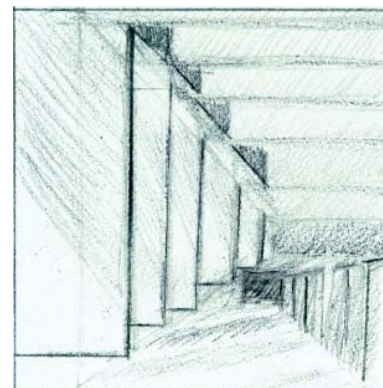
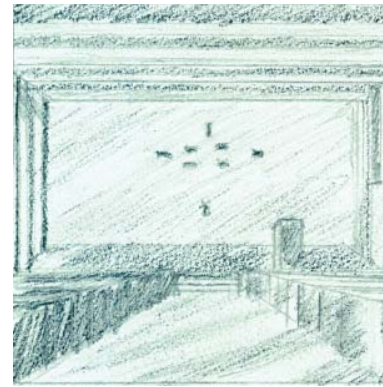
Sanctuary Lighting Diagram

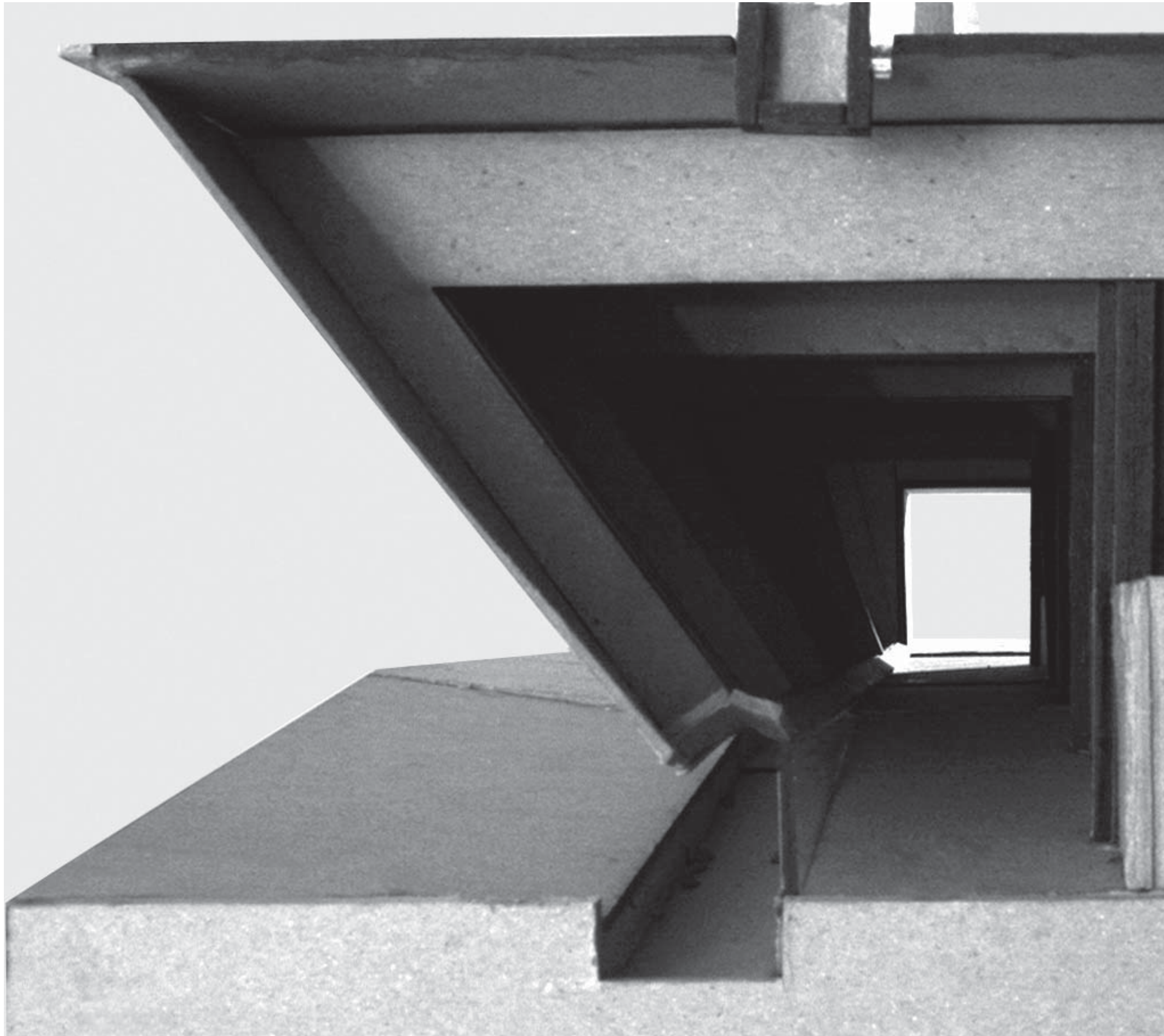
The above diagrams display the lighting intentions for the church. The adjoining spring uses the reflective surface of the waters to bring light diagonally into the processional space. Planters overhead have tall frosted elements resting against them which allow light to be pulled down into the processional in a rhythmic pattern. The addition of these panels was a later measure displayed in the model due to the inclusion of parapet walls which effectively blocked natural light. Parapet walls house light sources which can be used to light the processional in the evening. The Southeastern apertures reflect light against the large polished concrete walls of the monolithic structural members.





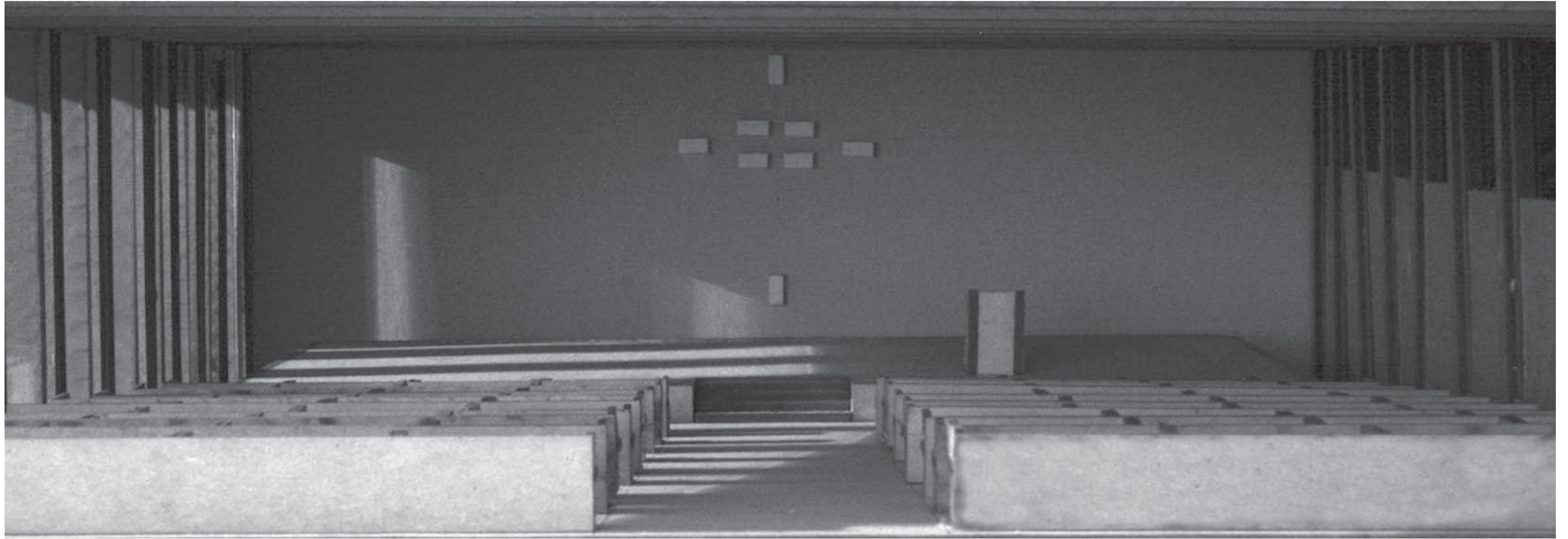
Initial sketches explore the intentions of lighting present in key moments of the church. Photographs seek to capture these intentions which are based on the relationship between building and sun throughout the day.

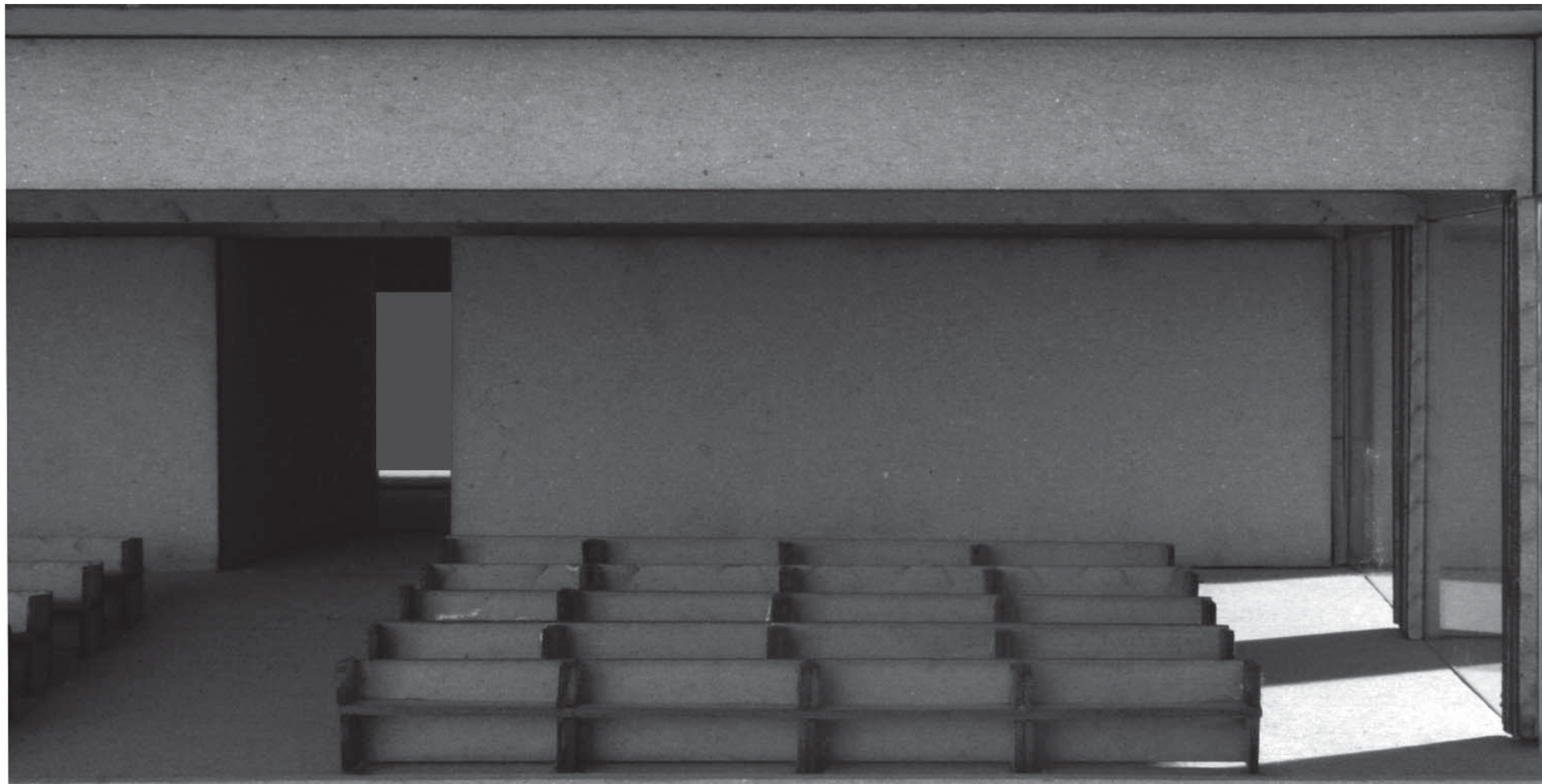


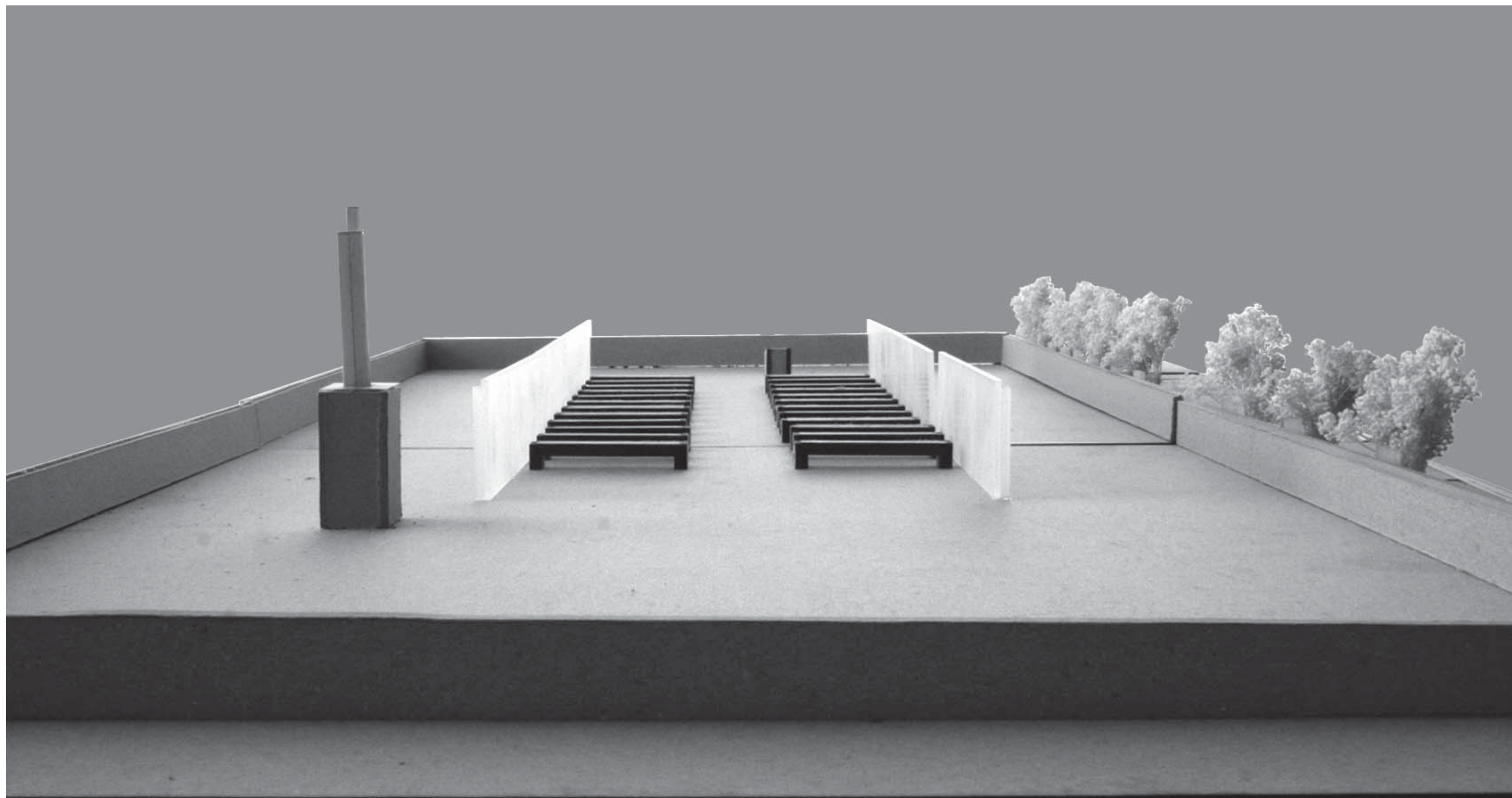


Spaces

Photographs have been helpful in capturing the character of spaces that comprise both processional and threshold. These images are concerned not with individual elements but the overall effect they achieve.

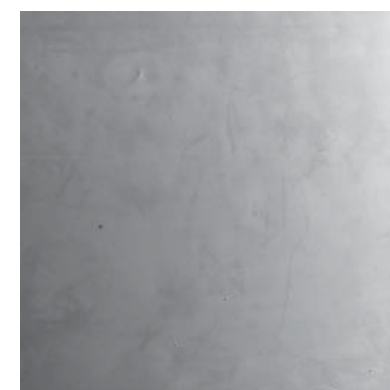








Processional Floor Tiles

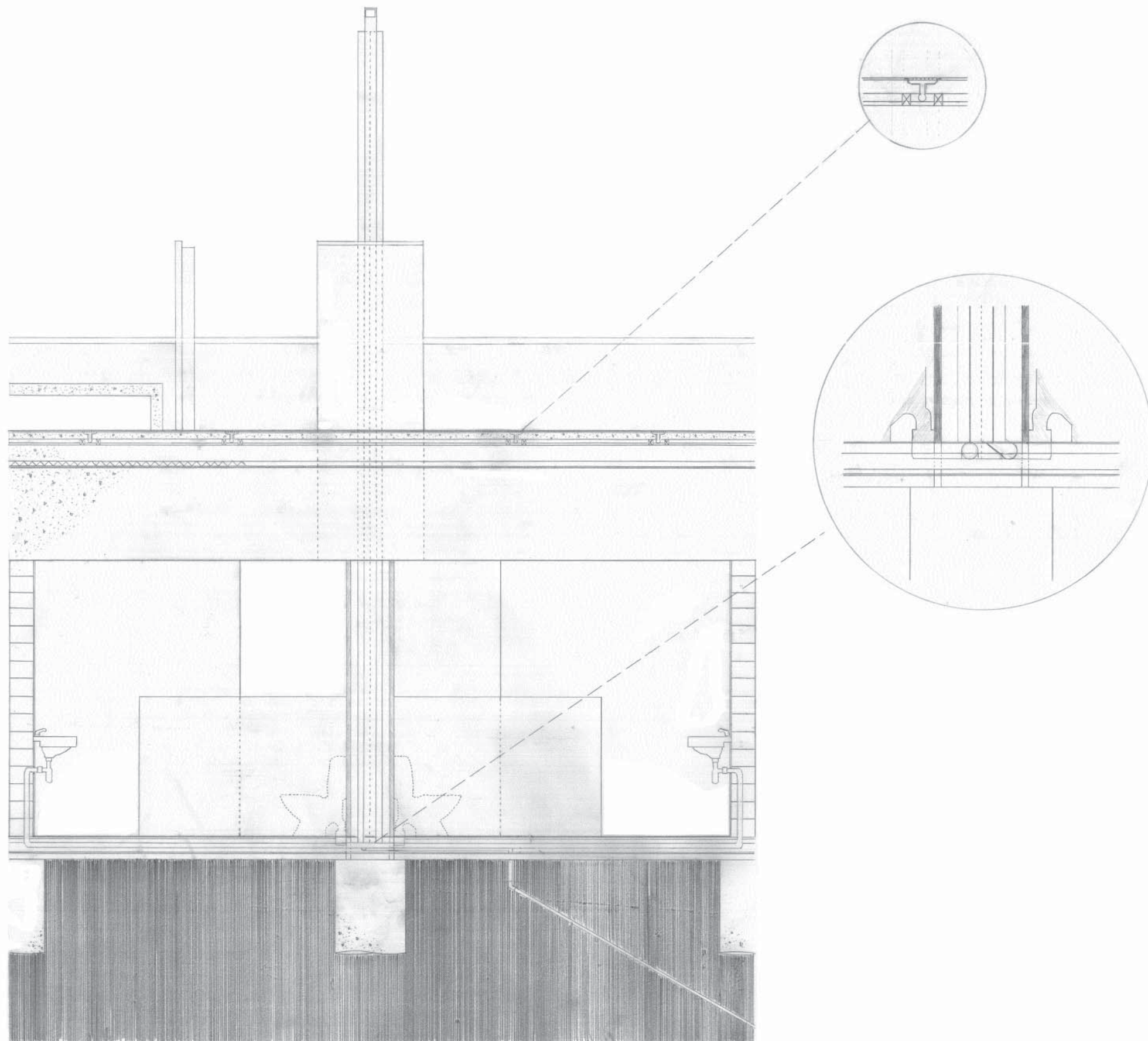


Structural Elements

Materiality

The texture of concrete is recorded by what it is poured into; rough or smooth, abrasive or polished. Structure is smooth while processional floor tiles and interior walls are rough and as such create shadow and rich texture. Samples to the left show these textures.

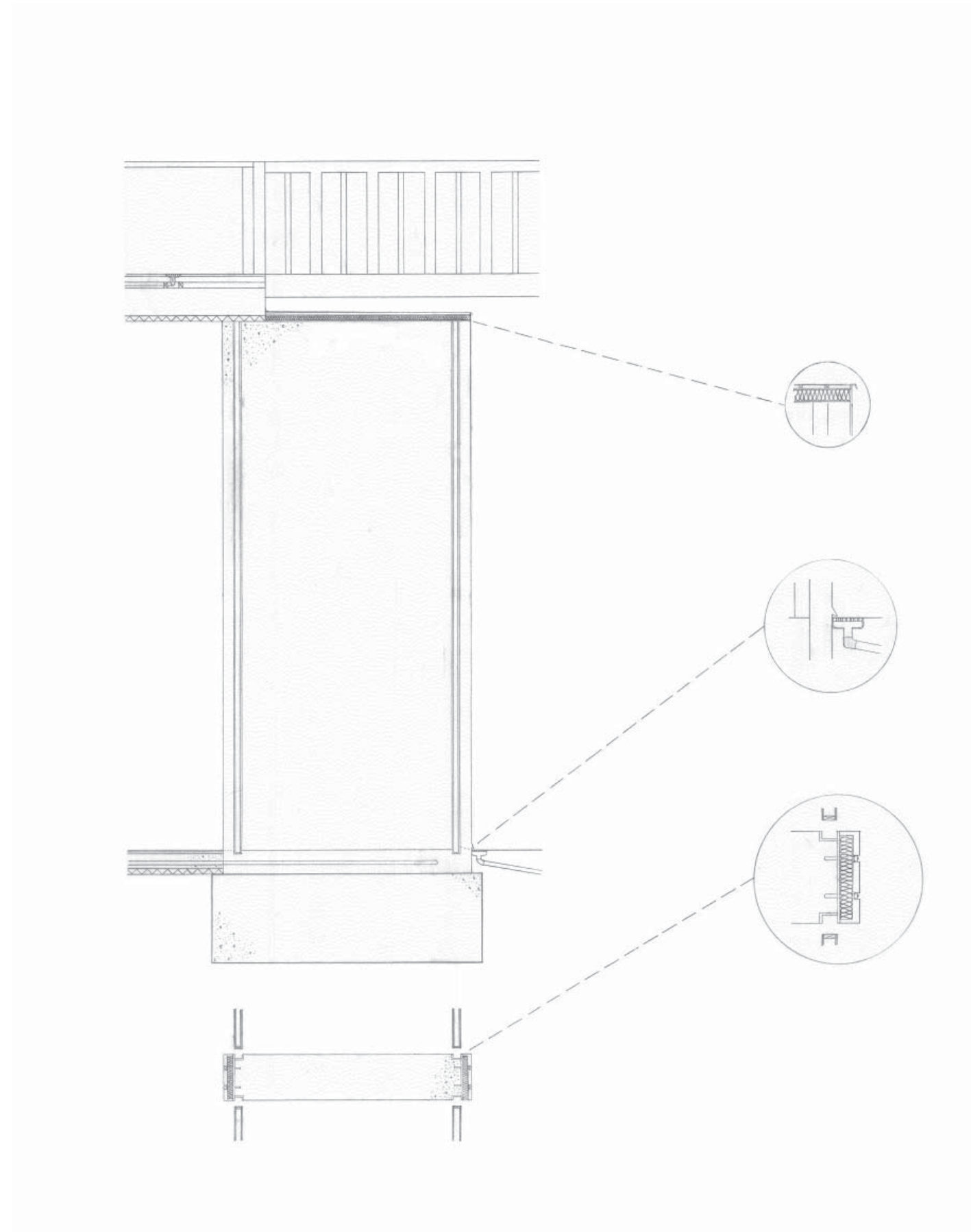




Drainage for the roof chapel was integrated with ventilation for the restrooms situated beneath through the use of the multiple pipes of the vent stack. The vent stack marks the entry to the chapel and presents the form of an abstracted sculpture. Concrete panels provide a coarse texture on the roof.

A reveal between each concrete panel drains water into a grid of piping that flows to the vent stack. Here syphonic drainage allows the flat roof to drain through one of the three down pipes and into the established public drainage system.

On the opposite side of the parapet wall the metal skin of the structure is sloped to meet a gutter that follows the angled line of the roof. Here rainwater is routed into the existing syphonic system. Any rainwater which through surface tension follows the side of the building downward is shed at the bottom of the side panels by a drip line into the stream which follows the northwestern wall of the church. This stream is constantly fed by water from the underground spring which runs below Lee Street.



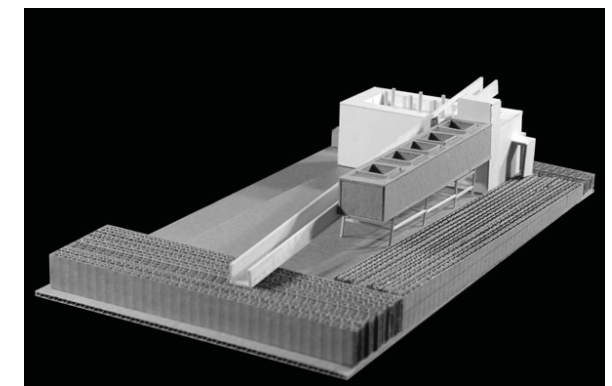
The southeast facade of the church is constructed of a series of double glazing panels sandwiched between the monolithic concrete structural members. Channels in the concrete are fitted with neoprene to receive the glass. Drainage of the facade is achieved through a drip sill which feeds into drainage grates connected to the local storm pipes.



Old Tennent Presbyterian Church (Founded in 1692) (3)

Precedents

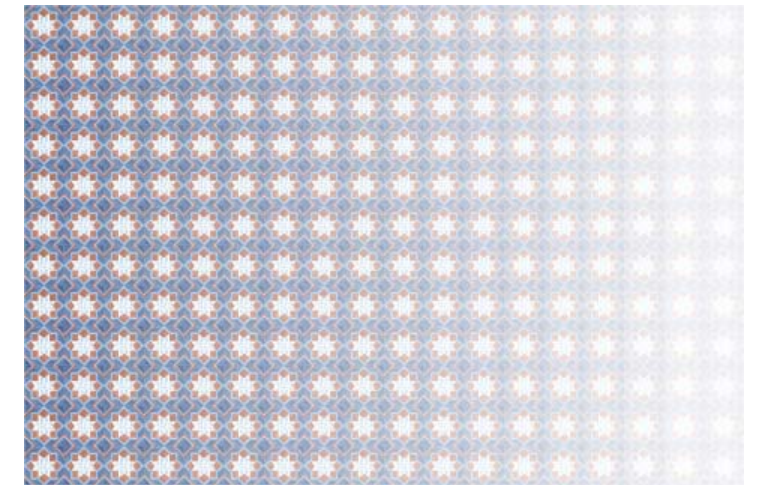
Having been raised in the Presbyterian faith I spent my youth attending one of the first such churches in America. The simple use of materials and colors and the compartments of space created by each pew were cues I followed in the design of my church. I have fond childhood memories of light dancing through the leaded glass windows of the church and I found the study of light to be an area of interest throughout my thesis. Although many lessons were learned by studying this church, its site was far more rural than where I chose to design. As such I investigated Rafael Moneo's church in Los Angeles. Amidst a car culture Moneo chose to double the length of his processional internally by offsetting the position of the sanctuary: a move which was most helpful when focusing on the processional of my church. Looking to the simple materials palette of Ando's *Church of Light* and his intense focus on revealing light was yet another inspiration for my thesis.



Conceptual Model

Process

My thesis year began with a series of wide ranging conceptual projects varying in their focus from the urban context of the church and its surroundings to the processional as access to a public piazza. Through these investigations a pattern emerged. It was decided that the slope of the site would not be compromised but instead used as a shifting element of the processional to signal to congregants a change in psychological states. Structural elements increasingly took on the role of marking these elevation changes and creating a rhythmic passage through which compression and expansion signalled the journey of pilgrims towards a goal.



The initial generator for formal ideas was the arabic tile pattern shown above. This began as an investigation of transition in direct relation to the topographical shifting of the site. The tiles led to an idea about columns which in elevation expressed divergent paths of both land and roof.

The first expression of this element was also directly affected by the density of the tiles. Each column was spaced more closely as its height grew, an opportunity for the church to possess a dramatic delineation between pews and processional spaces.

Through a series of initial plan drawings the idea of space was greatly influenced by the harmonic mean proportions of Andrea Palladio. Due to the diagonal nature of my structure these proportions created a general guideline to connect these divergent lines.

The building was first conceived as two divergent paths both in plan and elevation. This form was studied through an analog model. The consequences of this method led to a series of awkward and unuseable spaces that were not deemed appropriate to the formal necessities of a church.

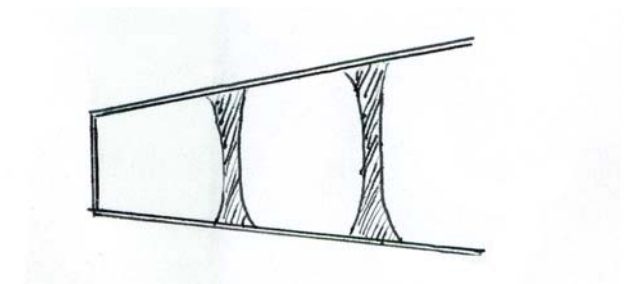
Lighting was of utmost interest in this first model. Controlling the interior lighting in a meaningful way was not achievable through the series of skins tested on the



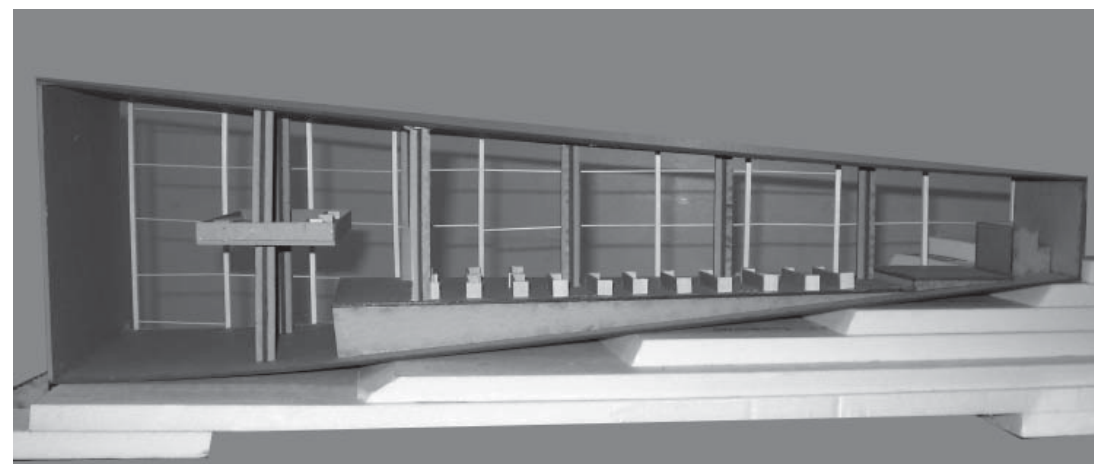
1/8 scale Conceptual model (interior view)



1/8 scale Conceptual model (exterior facade)

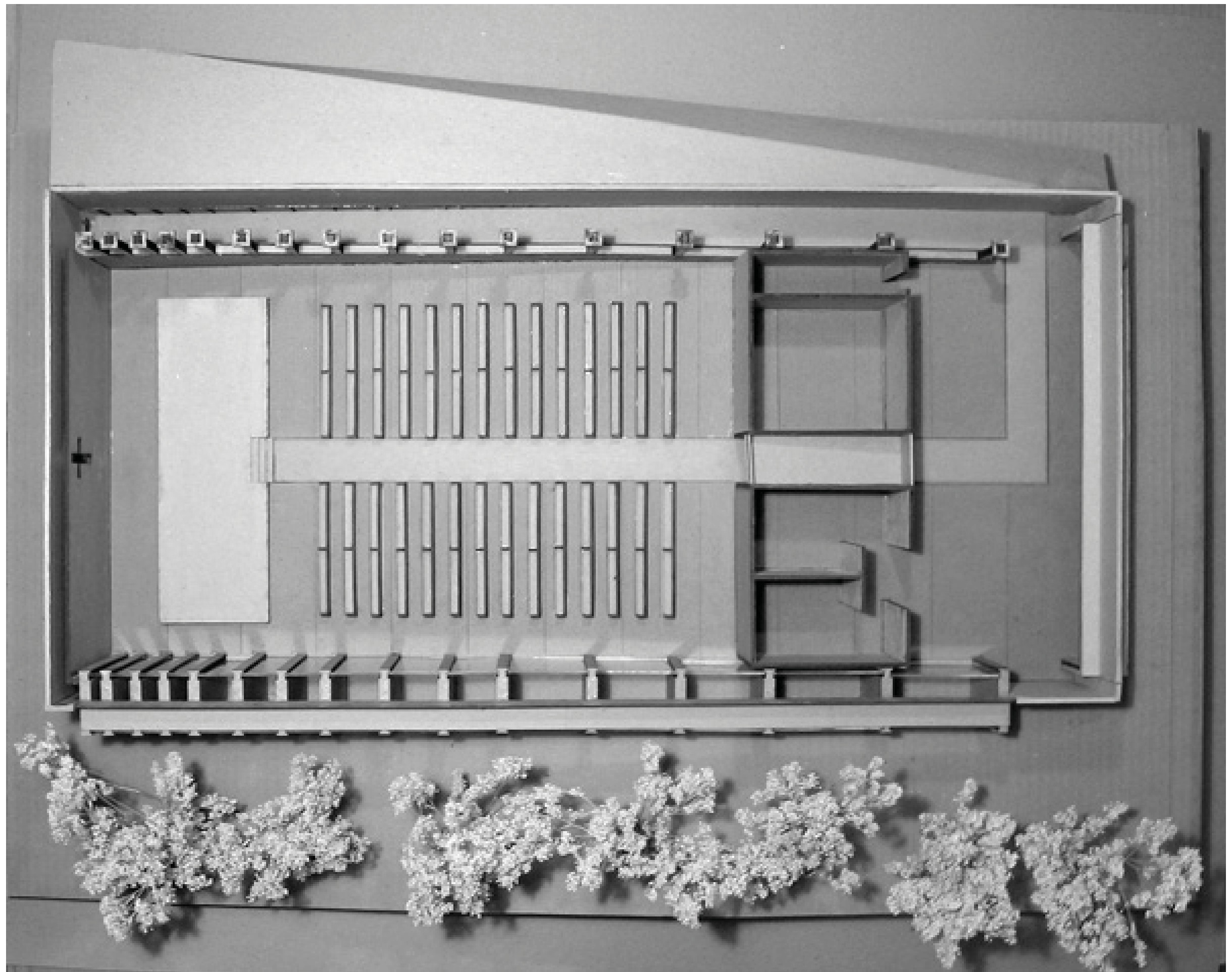


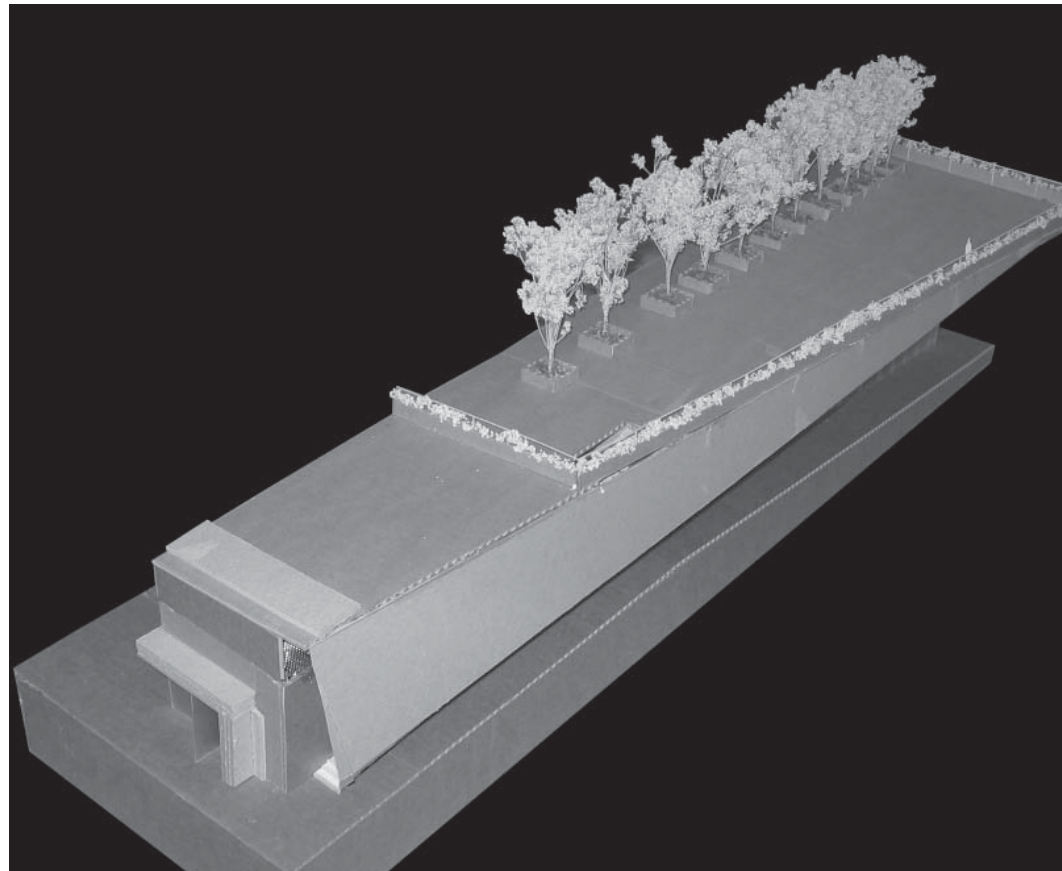
The structural mullions of the outer facade were primarily a grid meant to house different glazed and opaque surfaces. The resulting studies yielded little success and their best quality was their ability to create a horizontal datum which recorded the divergent lines of both floor and roof.



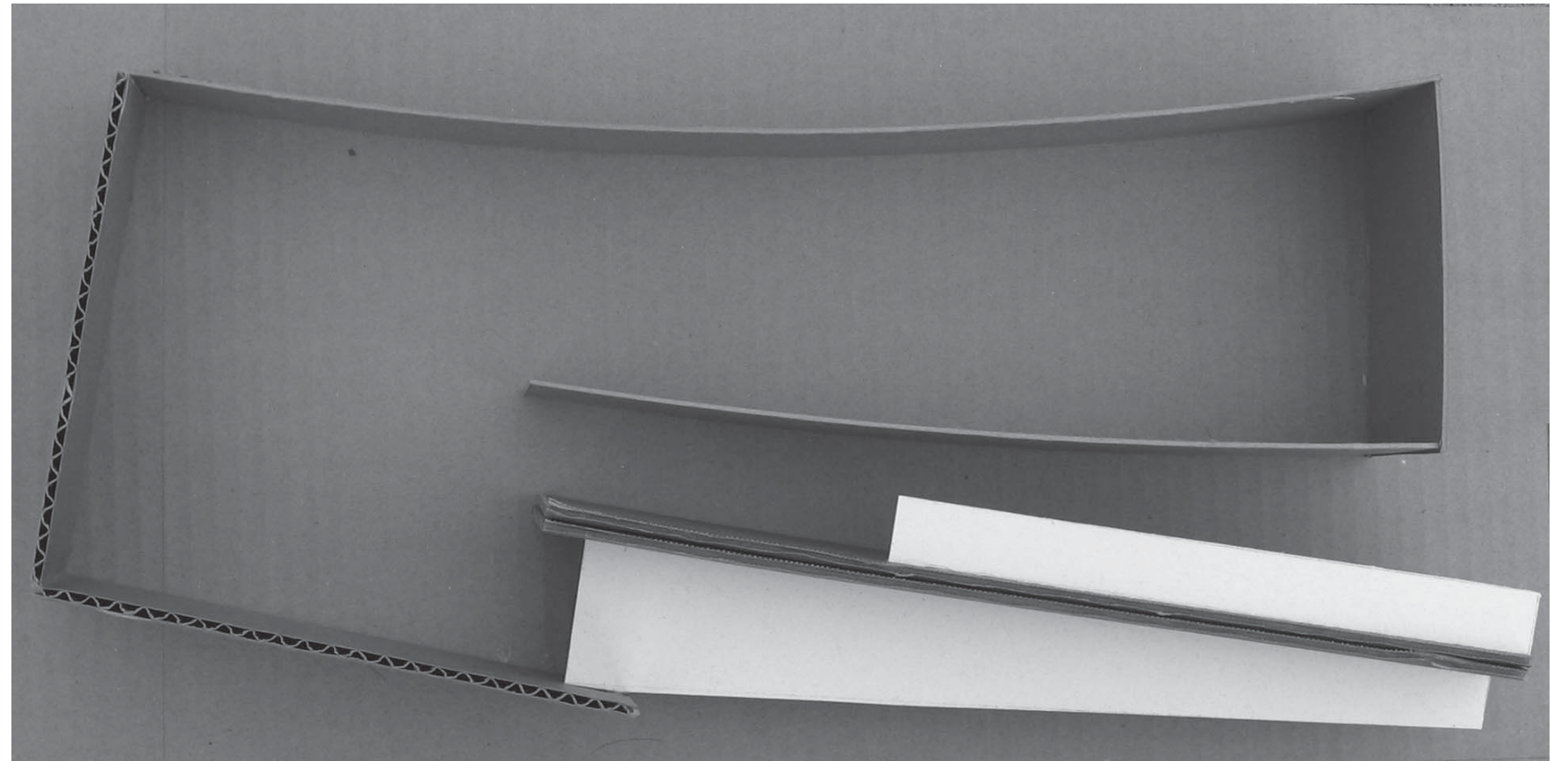
The columns in the sanctuary created disturbances in the line of sight to the altar and their structural placement was not necessary in the middle of the sanctuary so they were moved to the outer perimeter of the church. Large monolithic beams were studied as a means of bridging this gap and eventually became a segment of the larger structural elements.

The aforementioned decision to create divergent paths in both plan and elevation was reconsidered and, as such, both elevation and plan were later constructed with an orthogonal line and a diagonal line in both to reinforce the single divergent path.

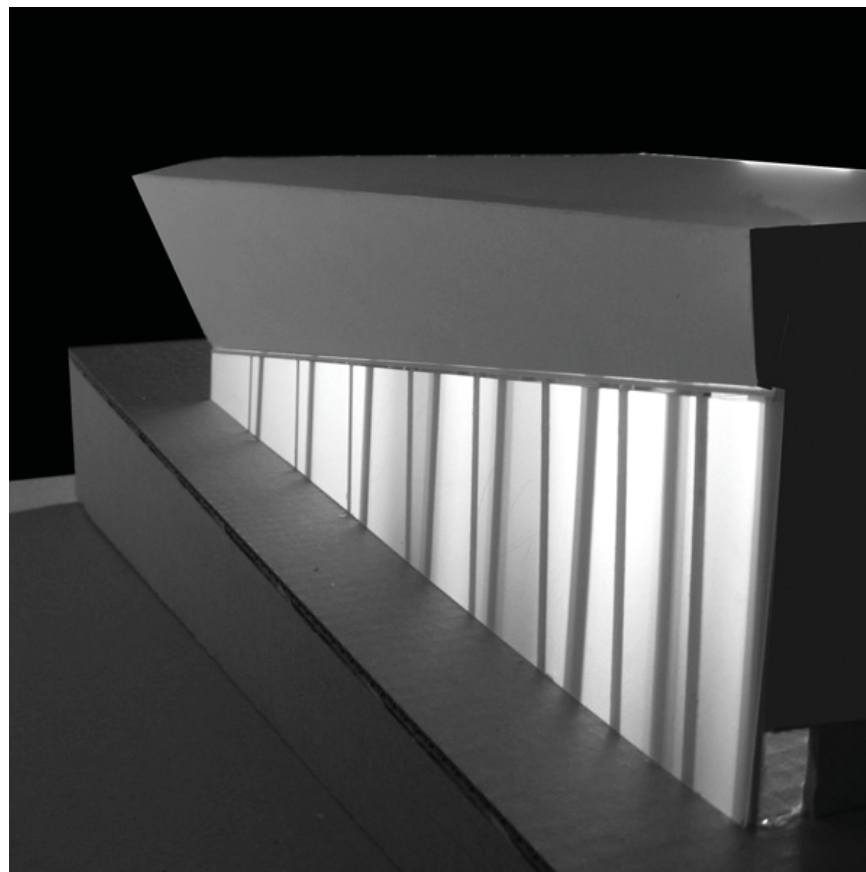




1/4 Scale Model



Processional Study Model

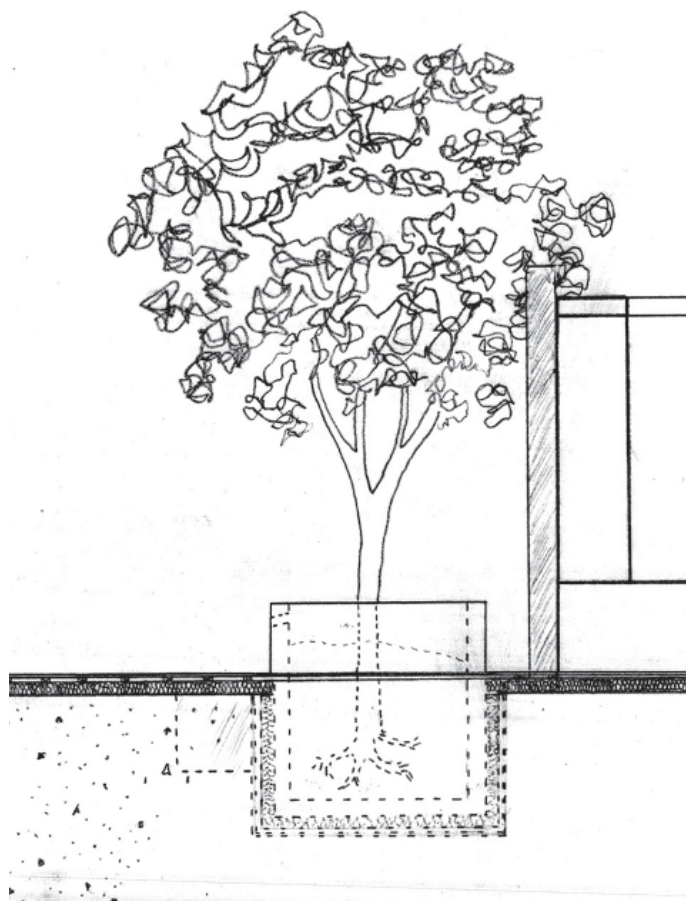


Conceptual Model

The initial one sixth completed scale model yielded many new opportunities. The cantilevering roof was initially treated as a separate object barring it from any real connection to the overall form. The 1/4 scale model was a study in how this space could be integrated into an overall cohesive form. In addition, an exit separate from the entrance processional was studied. The large open space on the roof was deemed suitable for a chapel and planters were integrated as a means of further isolating this space from the surrounding streets.



Entry to the roof chapel, by an open stairway sharing the space of the entry processional, disturbed the purpose and presence of this area. The stairway was next moved to a stair tower integrated into the double skin of the southeast wall but this unbalanced the lighting effect intended for this space. Finally a separate tower structure was constructed to house both the stairs and a bell used to signal services held on the roof chapel during favorable weather. An opportunity to create a transition similar to that of the entry processional was exploited by means of a narrow bridge linking stair tower to roof.



The roof is bordered by japanese maple trees on three sides with one side containing the aforementioned planters originally situated directly over each structural beam. The necessary depth of each planter encouraged a different approach and each planter was moved in the final model to sit between each beam sunken into the roof and supported by cross bracing members that span between the beams. To ensure the integrity of the roof the skin and insulation wraps underneath each planter.

Guard rails surrounding the perimeter of the roof were rejected in favor of a solid parapet wall which successfully limits views and cohesively follows the language of the structure. Controlling views on the rooftop chapel was another challenge as the height of surrounding buildings became a distraction. A long low wall of frosted glazing was designed to parallel each chapel bench, effectively framing the sky and limiting views.

The threshold, the door shows the solution of continuity in space immediately and concretely; hence their great religious importance, for they are symbols and at the same time vehicles of passage from the one space to the other.

-Mircea Eliade

Conclusion

How can architecture construct a place for both processional and threshold and use them instrumentally in creating an atmosphere for faith? Through the use of monolithic structural members the real relationship of the congregation is celebrated in instances. Natural light is mediated through the presence of structural members throughout the cycle of a day. This reflects the cyclical cycle of church surrounding religious holidays and events. And most profound is the process by which one enters into the holy space. Incorporating the act of cleansing a solitary journey and a climactic reunion of the faithful, it is marked by edges of both light and form. It is in these segmented spaces that one sets his mind on God. Light floods into the sanctuary touching all with its rays. The congregation is understood as an embodiment of a pilgrims progress towards salvation.

Many journeys have yet to be constructed, but all find meaning and by confession of faith find rebirth inside the hallowed walls of churches standing in the long tradition of the Presbyterian faith.

Afterword

As with any architectural project this is a work that I will continue to revisit for many years in the future. I have fallen into a language of both investigation and expression that will grow as I move forward in the discipline of architecture. My utmost respect and encouragement goes out to all those seeking a future in the field of architecture. In my limited experience it is one of the few concentrations that takes a lifetime to explore and is by all accounts inexhaustible in its breadth.

Thesis is a stepping stone that involves commitment and passion unparalleled in most areas of life. I have worked through despair and elation and although I have not yet mastered the balance of life outside of this pursuit I will work hard towards that goal as well.

Processional and threshold are but two elements of a well thought-out church. Where two or more gather in His name, there God is, regardless of the surroundings. Architecture can aid greatly in the way we live our lives and inhabit spaces, but in a world that is meant to be an opportunity for eternal life and the salvation of a triune and eternal God, grace outshines all else.

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View of the center Aisle. 01 May 2007 < <http://www.oldtennentchurch.org/>> **(1) With Permission.**

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