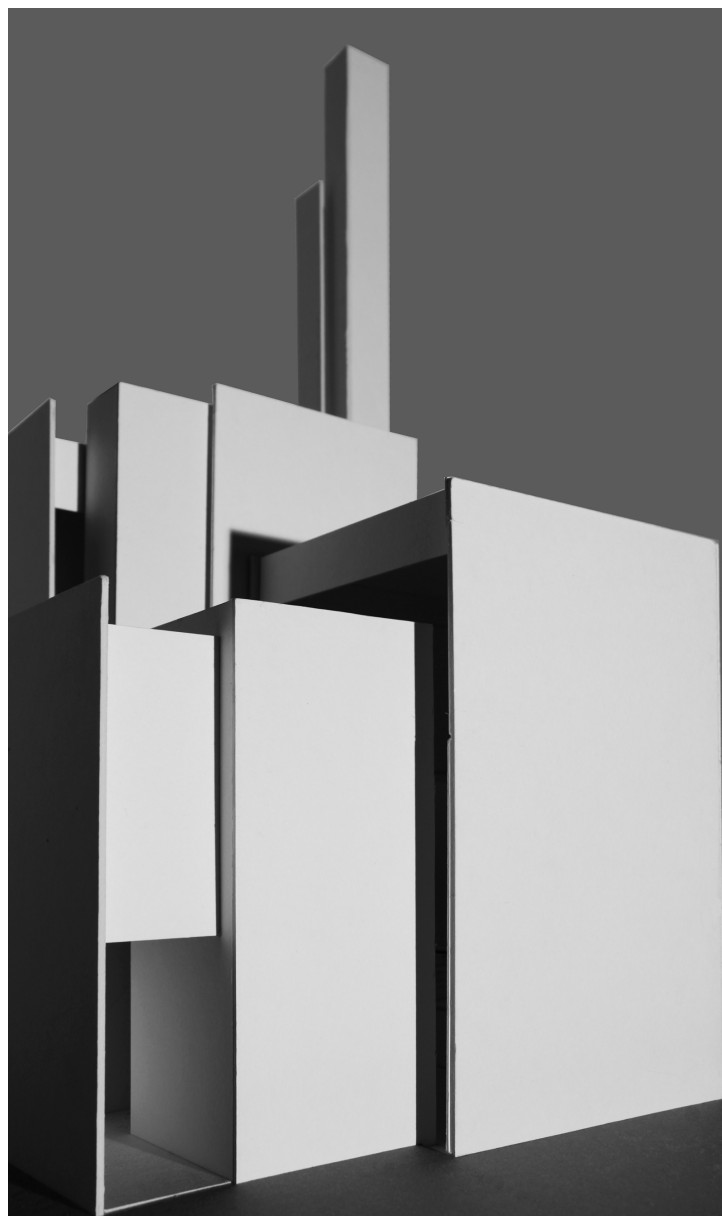


A Family Chapel  
Searching for Form

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Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of

Master of Architecture  
in Architecture

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# A Family Chapel

Searching for Form

Erika L. Knaebel

## Abstract

The building is a family chapel comprised of three separate yet interdependent spaces: a sanctuary, a stair tower, and a spire. The design developed from the inside out, specifically from the interior of the sanctuary to the building as a cohesive whole. The building's form was found through sketching and making a model. The design is represented through sketches, drawings, and photographs.



## Acknowledgments



I have great admiration for and am immensely grateful to the faculty and staff of Virginia Tech's School of Architecture + Design. Their generosity, dedication, patience, and care for good work has been transformative for me as a new designer and as a human being.

To Hans, thank you for holding space for the necessary struggle of architectural education. Your reverence for humanity and the strength of your convictions are qualities I aspire to have.

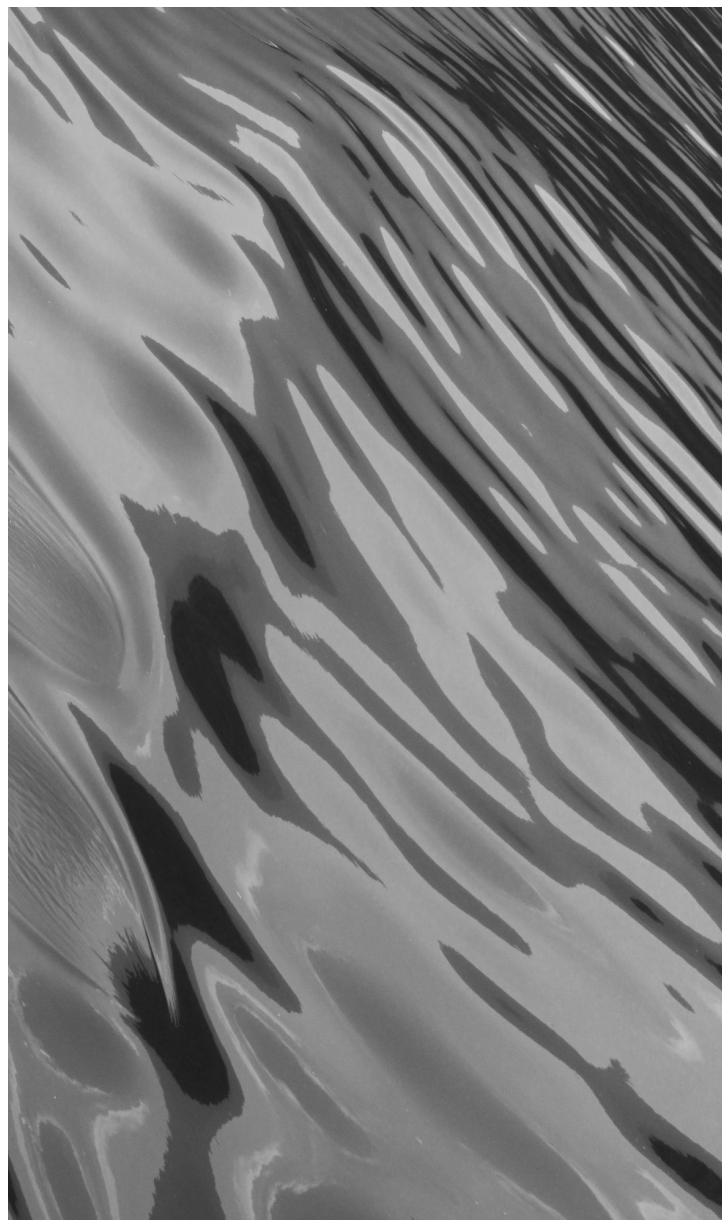
To Steve, thank you for your generosity of wisdom. Conversations with you were like locating myself on a map. You helped me to know myself and my context, which in turn is helping me to become a better architect.

To Frank, thank you for encouraging my curiosity. Your perspective and levity were vital to me in both my comedic and tragic moments. Your kindness, patience and honesty are gifts for which I am perpetually grateful.

To my studiomates, thank you for inspiration, encouragement, humor, and enthusiasm. I look forward to seeing what you make with your talents.

To my husband Jarret, thank you for the sacrifices you made so that I could return home.

## Dedication



This project is dedicated to my parents, Pam and Kent Knaebel, who taught me through their example to give the best of myself for the benefit of others, to doggedly pursue my curiosity, and to find joy in the questions that I am unable to answer.

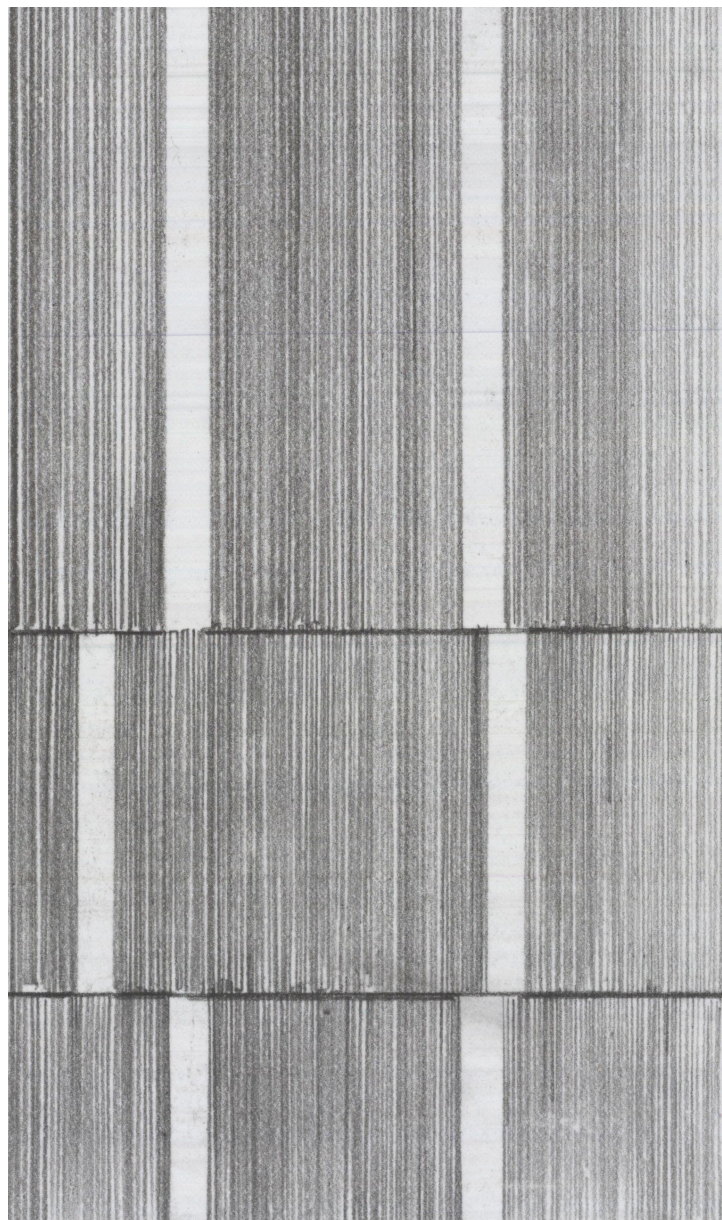
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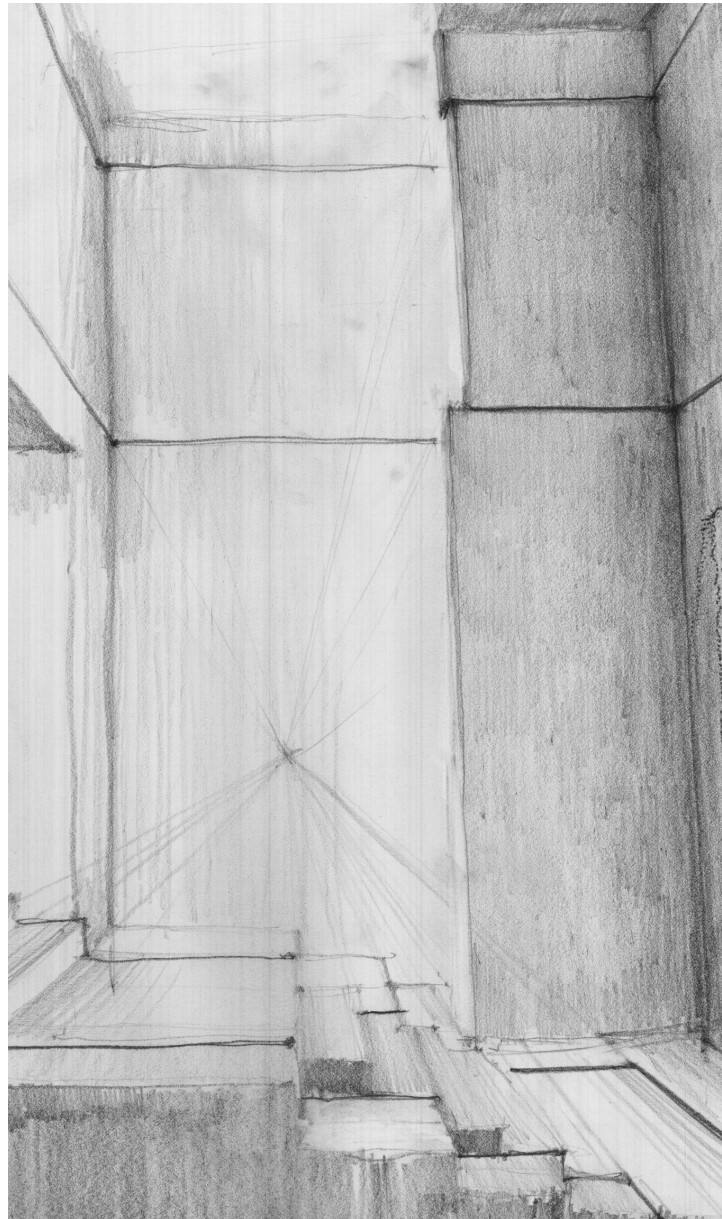
## Foreword



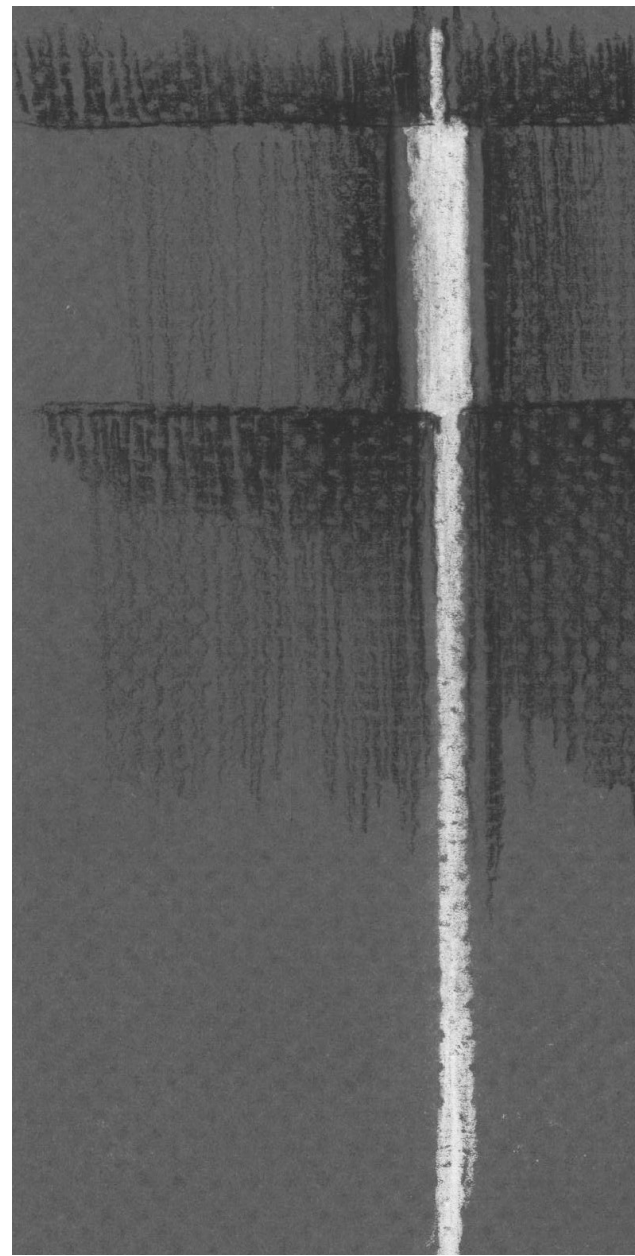
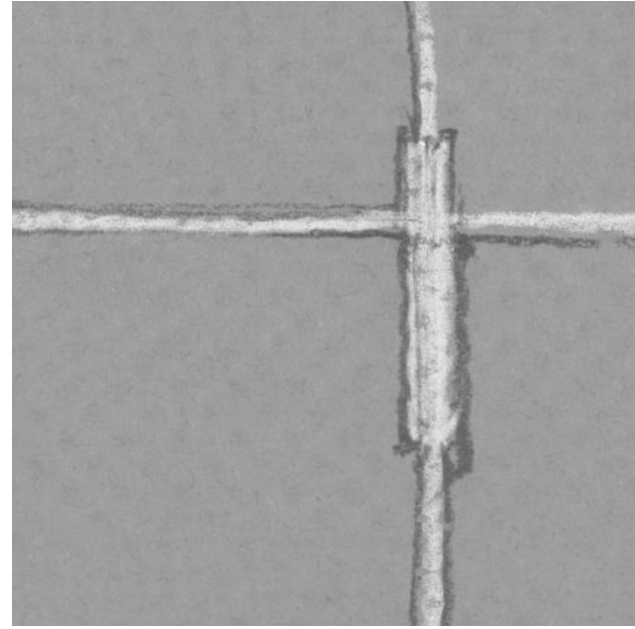
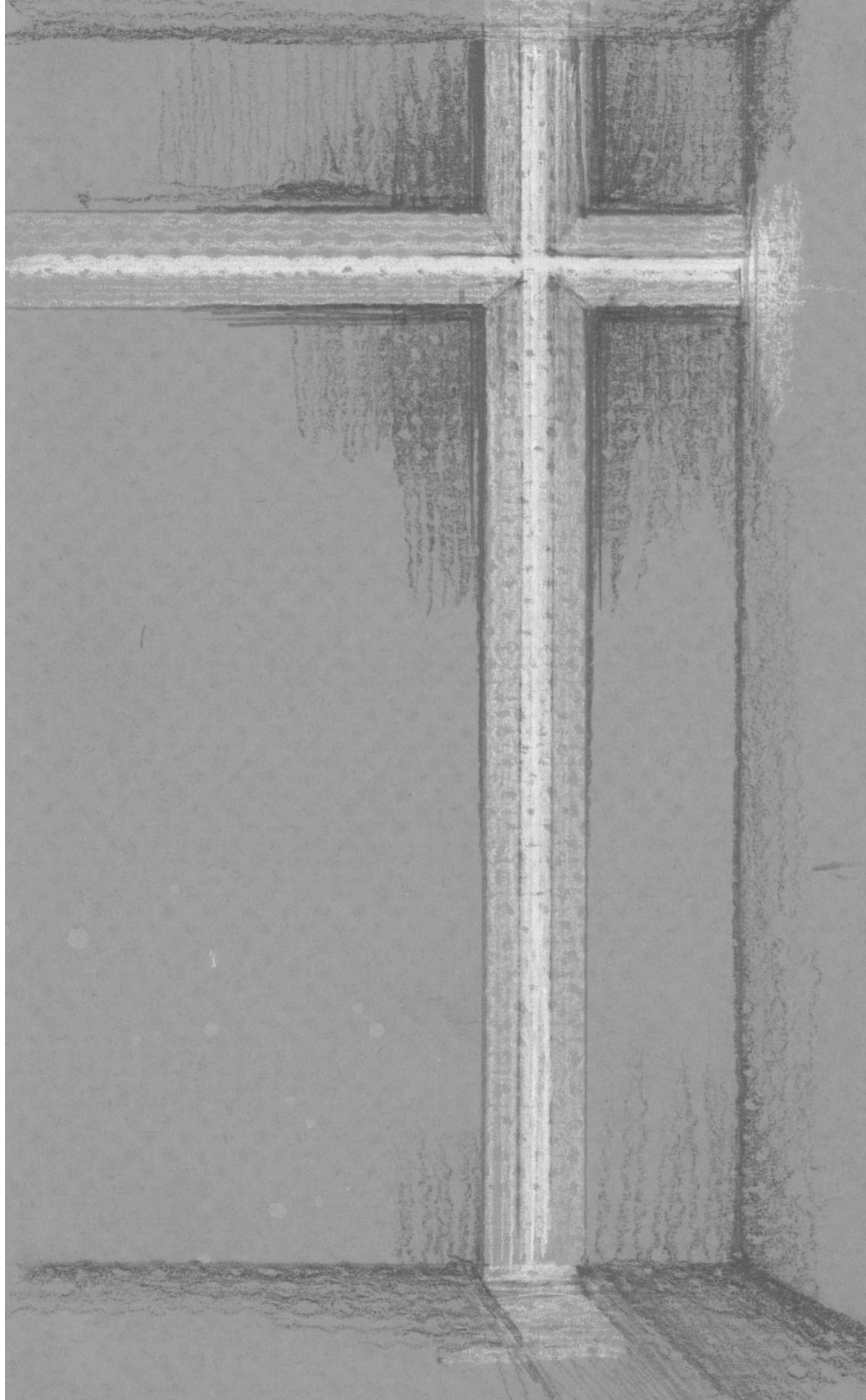
*I only wish that the first really worthwhile discovery of science would be that it recognized that the unmeasurable is what they're really fighting to understand, and that the measurable is only the servant of the unmeasurable; that everything that man makes must be fundamentally unmeasurable.*

Louis I. Kahn

Sanctuary





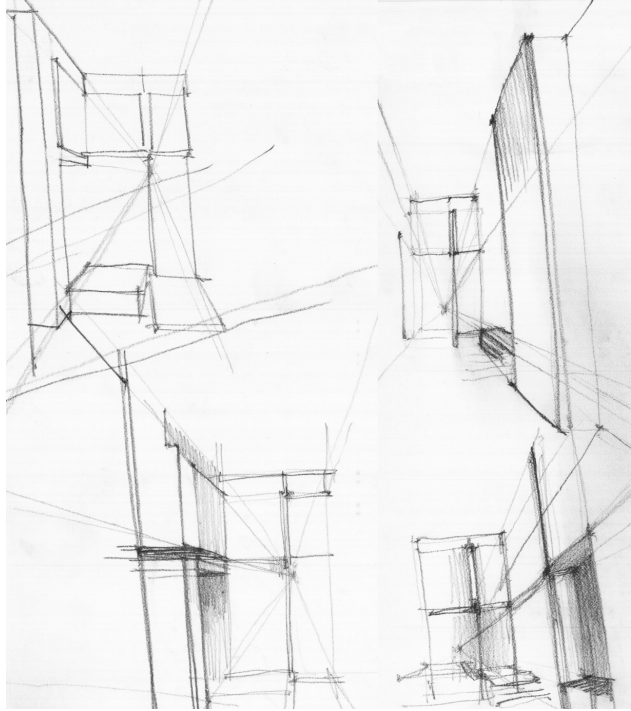


*Even a room which must be dark needs at least  
a crack of light to know how dark it is.*

Louis I. Kahn

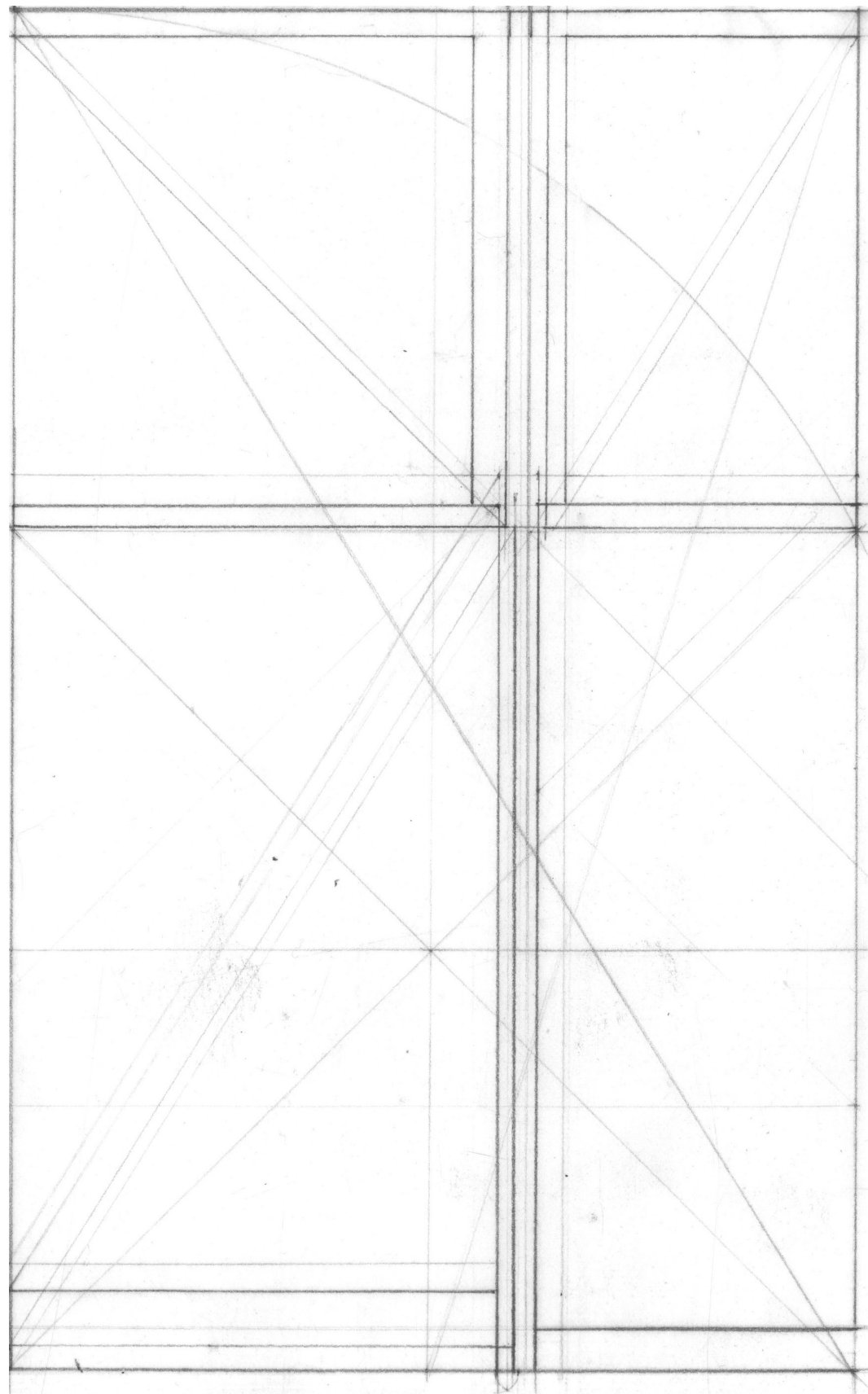
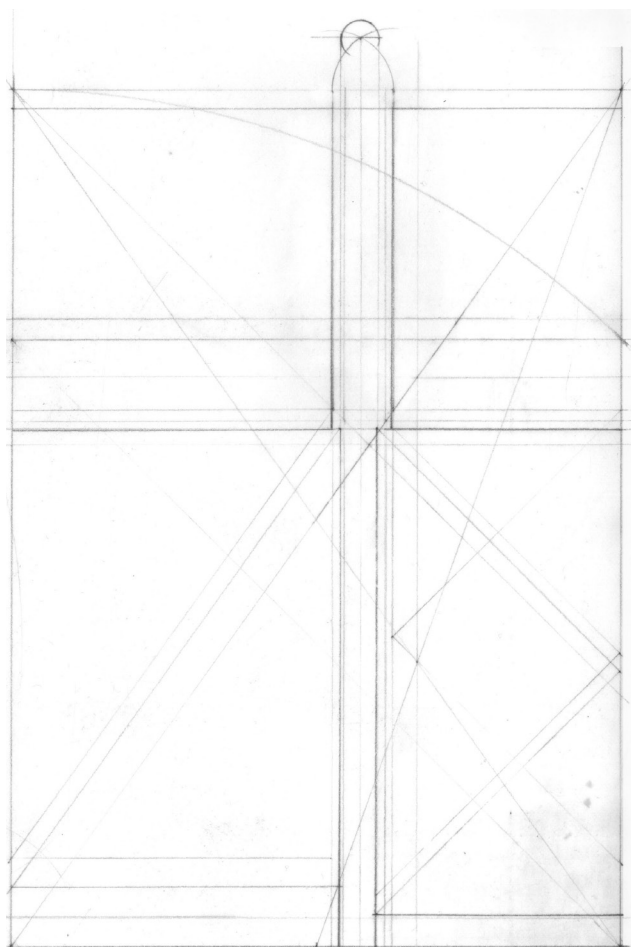
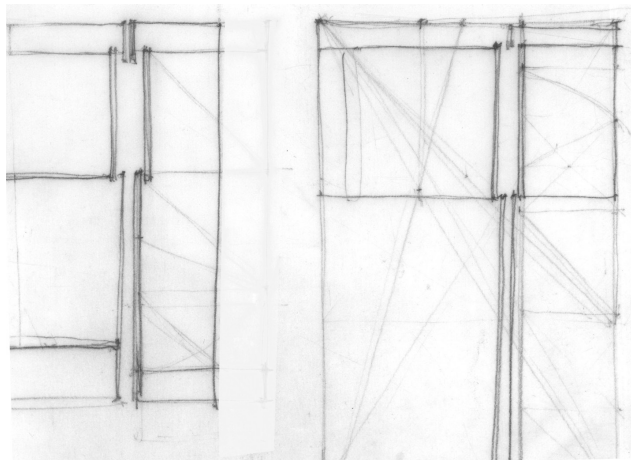
The sanctuary is a dark room with a crack of light entering it. When searching for the specific shape to give this line of light, the common drawing tools of graphite or charcoal proved insufficient. Finding the light required working in light.



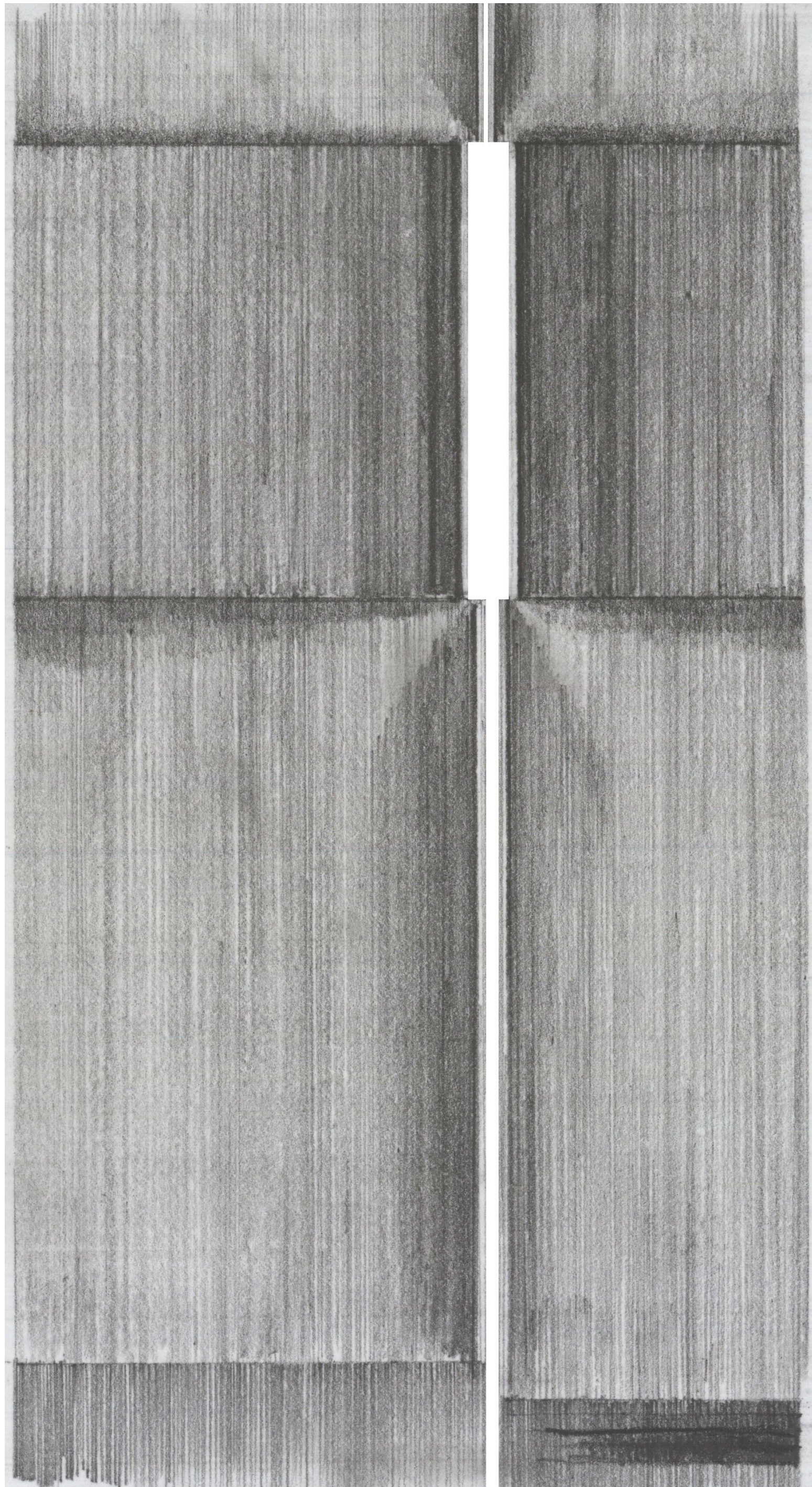


The vertical line of light that widens near the top is combined with a proportioning device to bring geometric specificity and order to the design. The device begins with the golden rectangle, which is divided into the originating square and smaller golden rectangle, which is divided again.

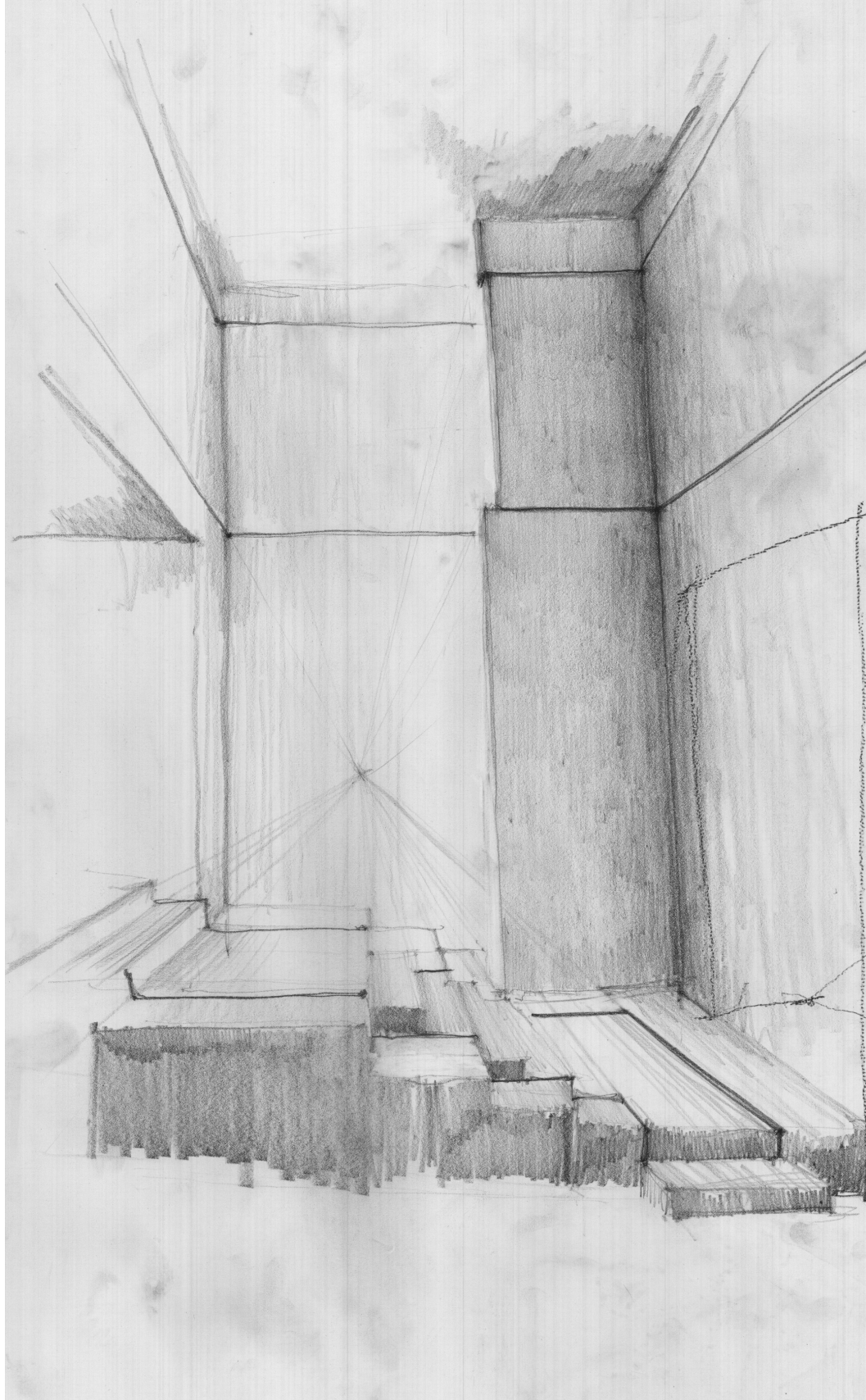
The sanctuary is a tall room, a place for lifting up voices, questions, and eyes.











As the form of the entire chapel developed, the crack of light became a fault, a discontinuity between two planes of the wall. One side of the wall is pulled inward and the light enters transversely, through the gap formed by the shift of the wall.

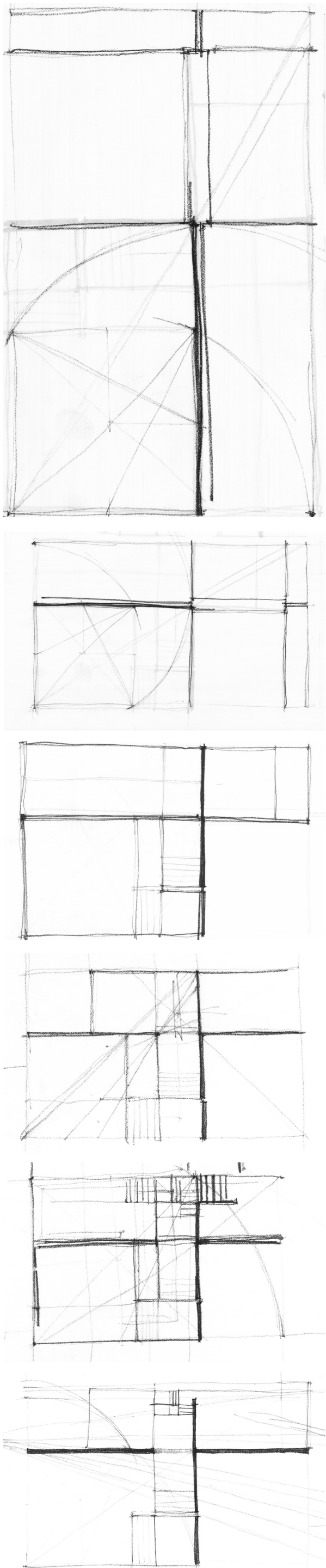
In certain times of the year, morning light enters and streams across the floor and ceiling and lands on the side wall, reflecting brightly on the concrete surfaces. The light takes shape, forming the figure of a door with its edges glowing.

This is a door in symbol only. It is an immovable portal.



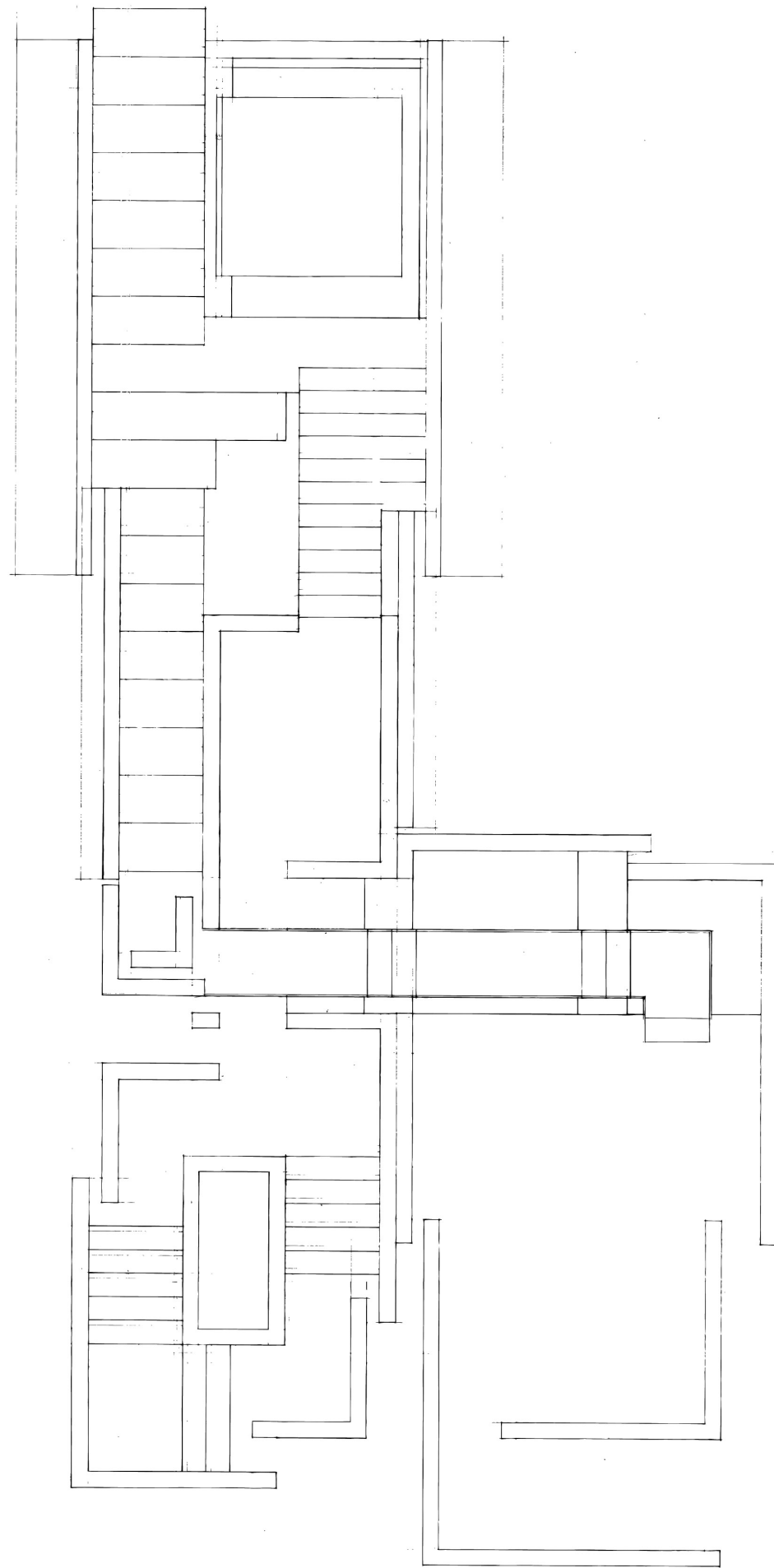




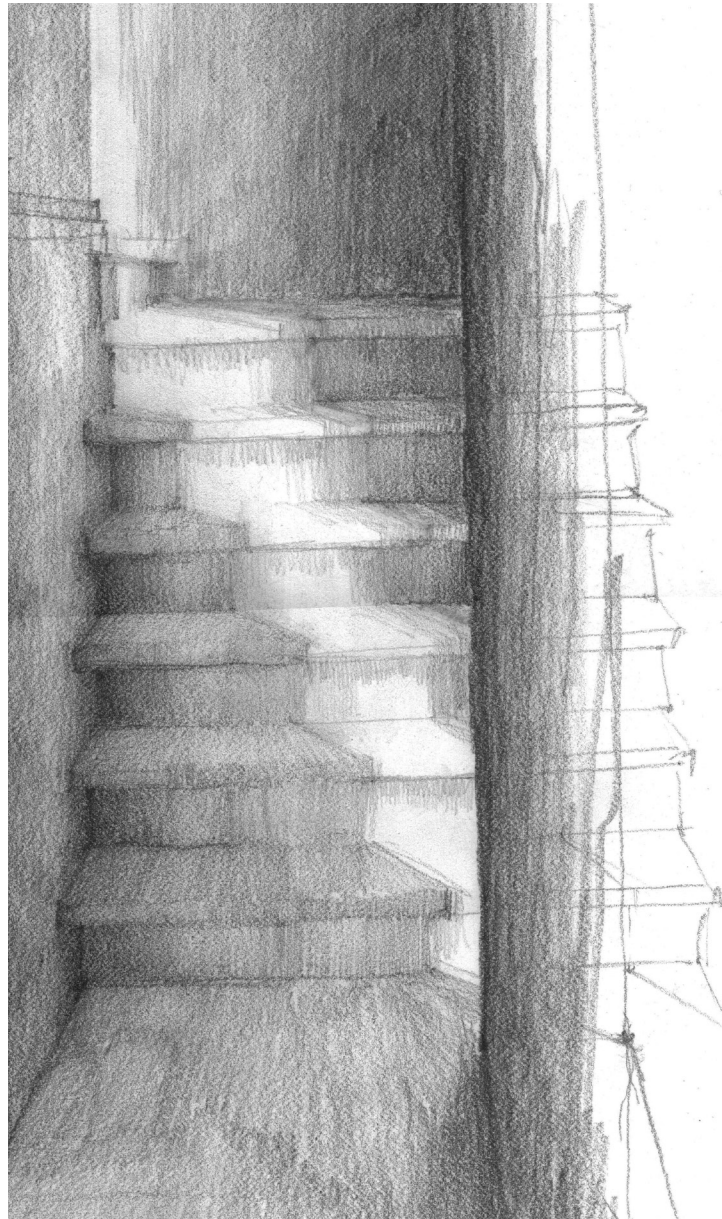


The proportional device of this wall is the basis for the scheme of the building. Three of the four large rectangles became the sanctuary, the stair tower, and the exterior stairs. As the building developed from a scheme to a plan, the proportional rigidity was abandoned as other considerations took precedence.

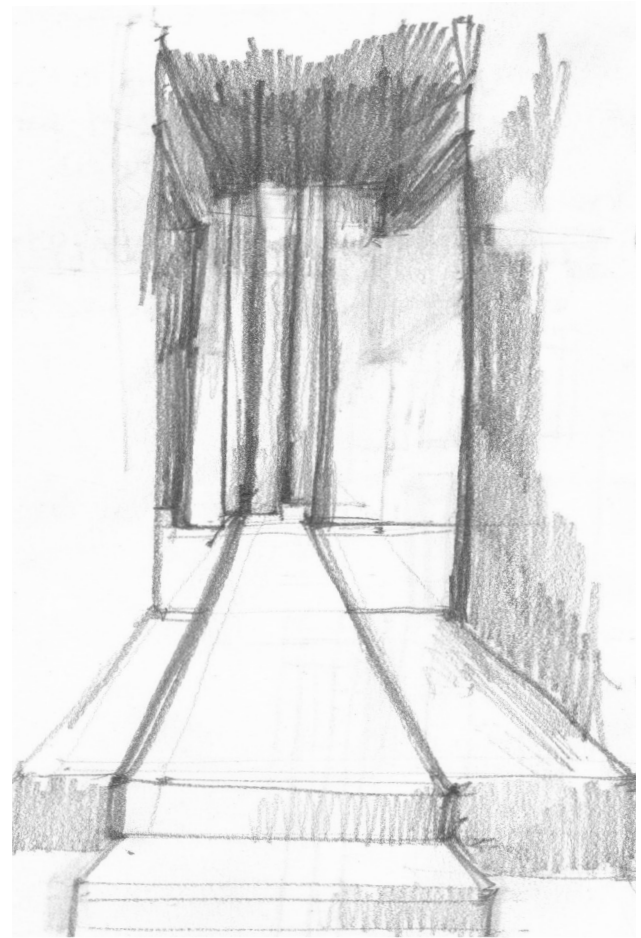
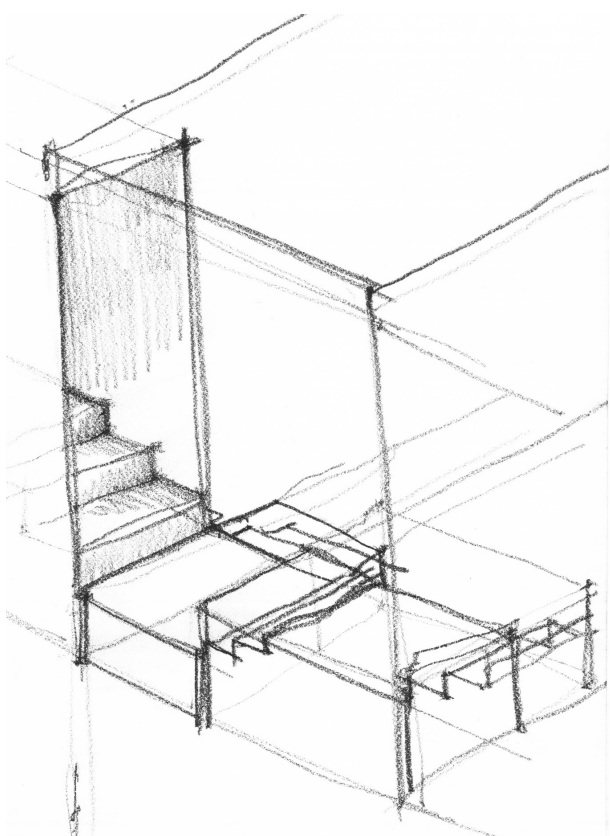
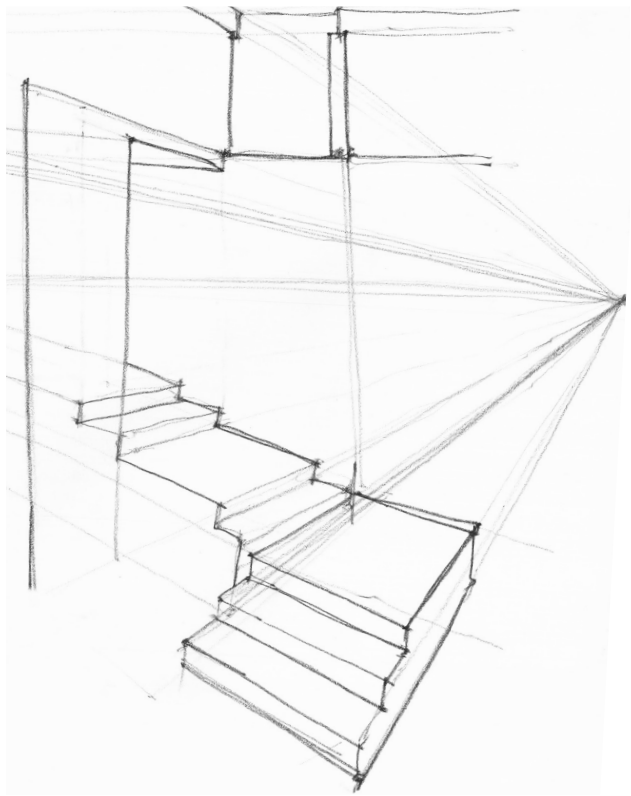
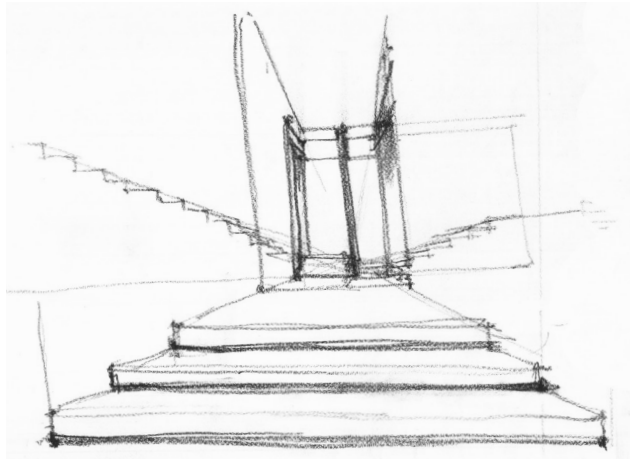
The sketches to the left show the development of the plan through its incarnations. Below is a drawing of the final first floor plan.



Stair Tower



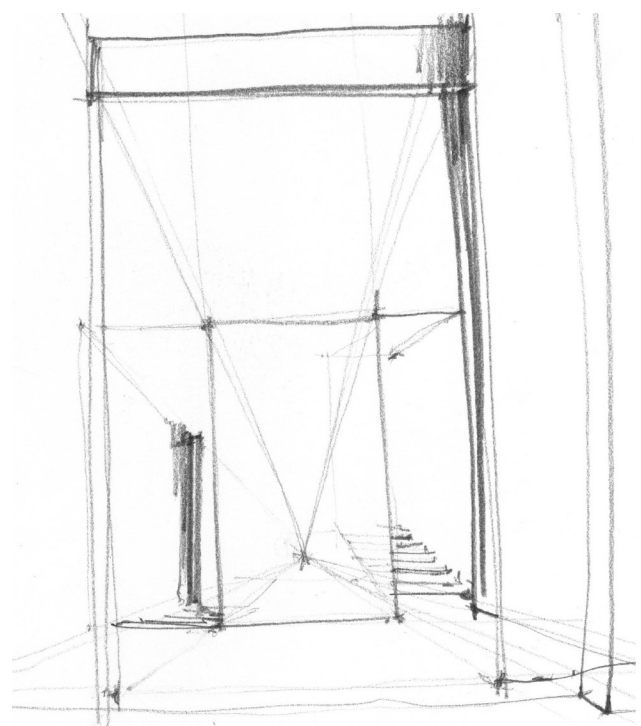




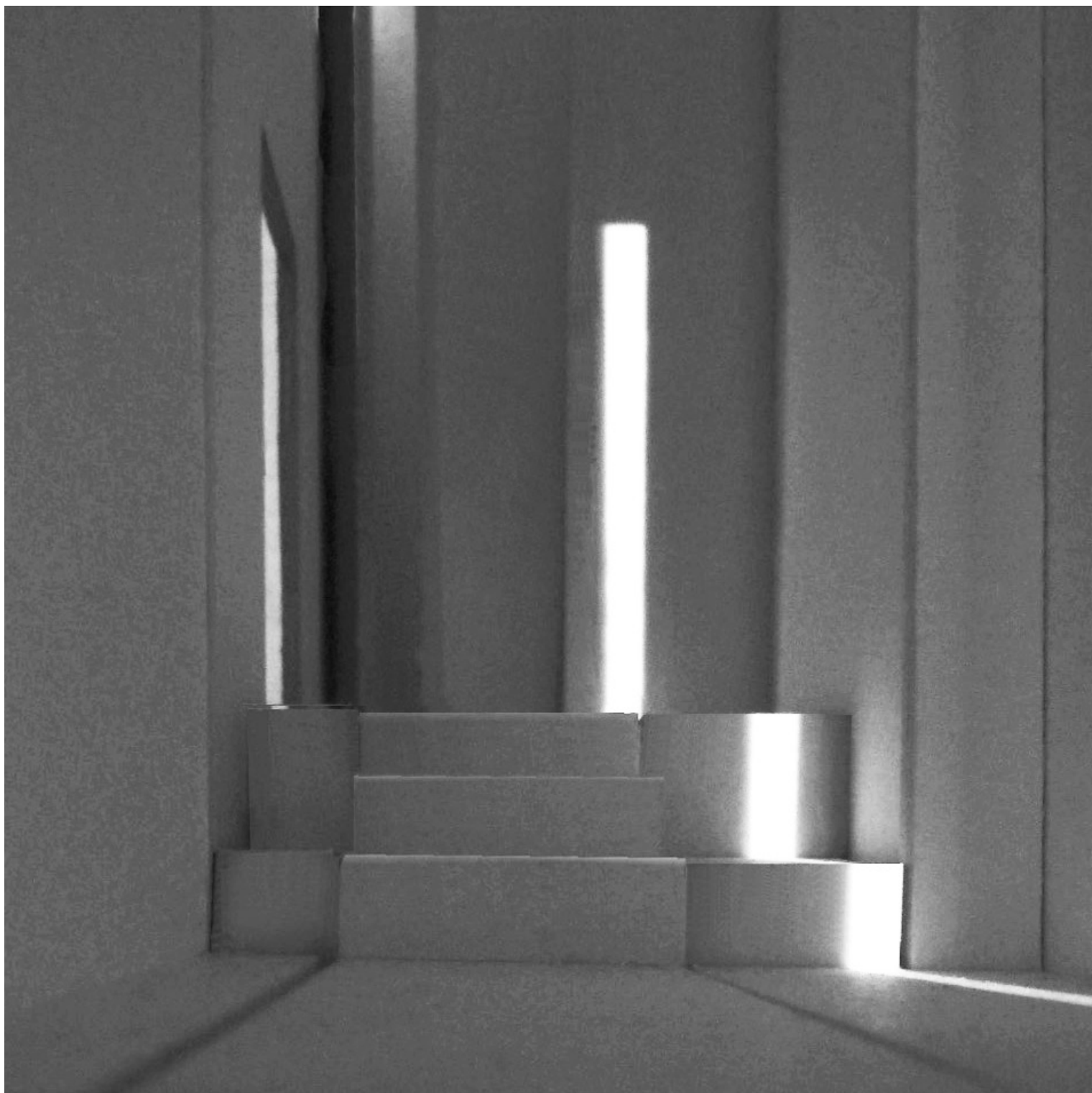
The stair is an essential element to the chapel. Stairs provide a change in vantage point, a deliberate distance from the ground and its inhabitants.

The stairs of the sanctuary, which also serve as a platform, lead out of the room to the side of the spire. From here, turning left leads to the stair tower and turning right leads outside, down stairs that end at the base of the spire.

The sketches to the left are early thoughts about the transition between sanctuary platform and stair tower. Above shows a sketch of approaching the spire's side from the sanctuary and below shows the entrance into the stair tower.







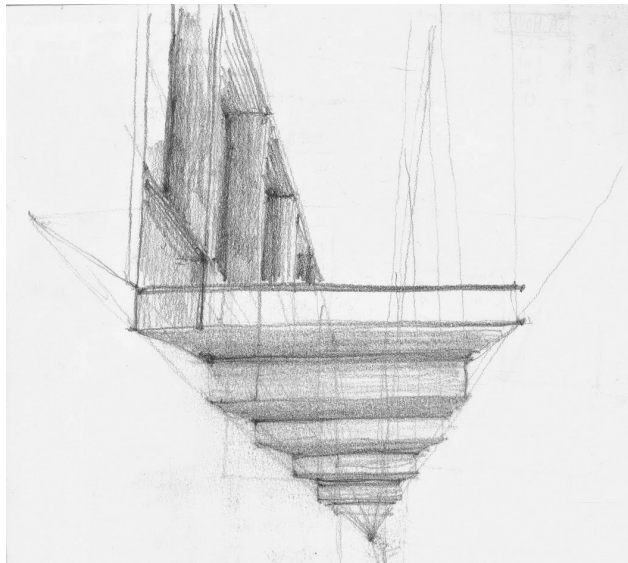
In the afternoon and evening, with the sun in the western sky, the spire is directly illuminated. From the chapel's interior, the spire behaves as a light baffle, reflecting light into the interior. The reflection makes a soft gradient across the surface of a face of the spire.





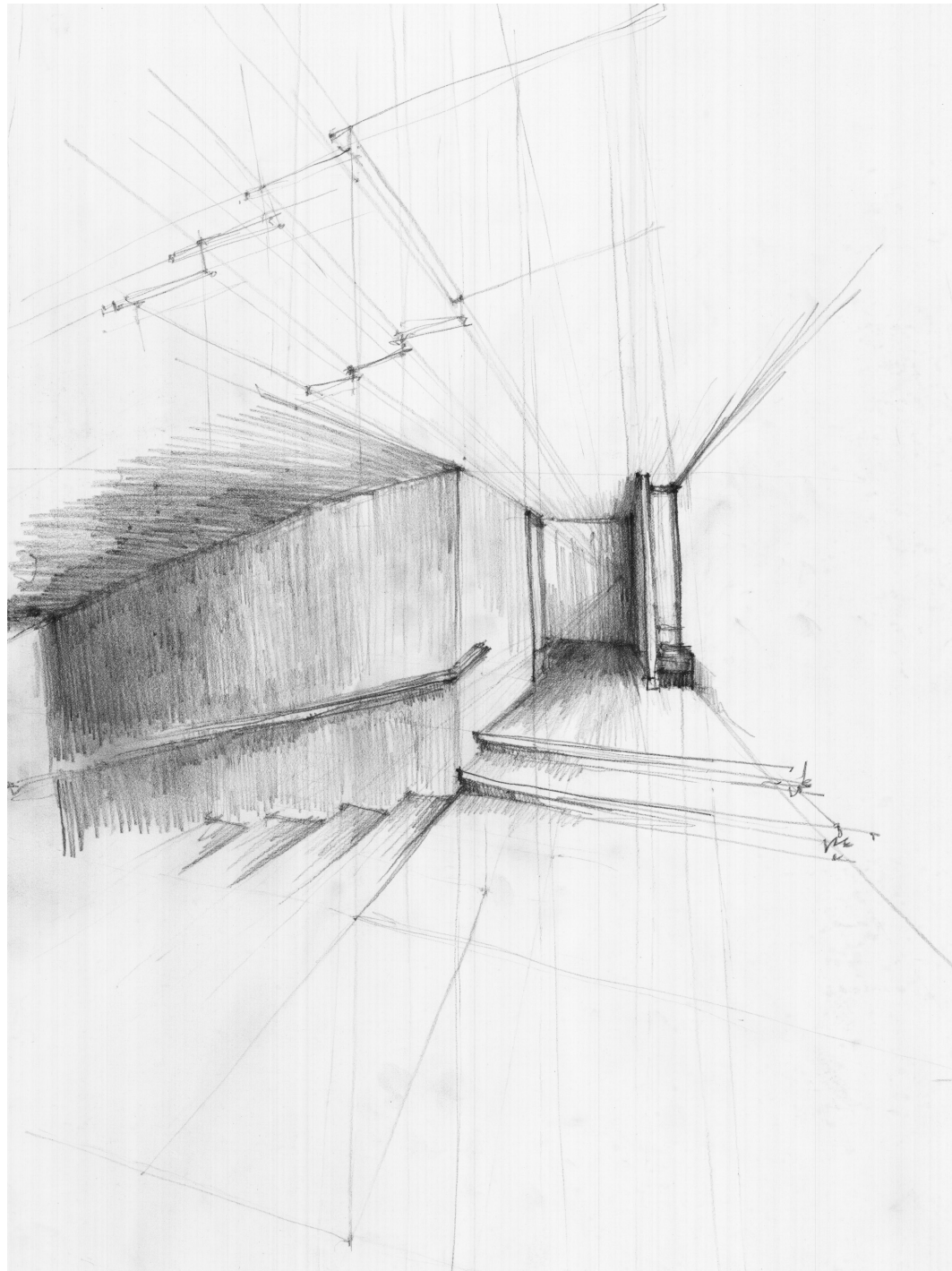
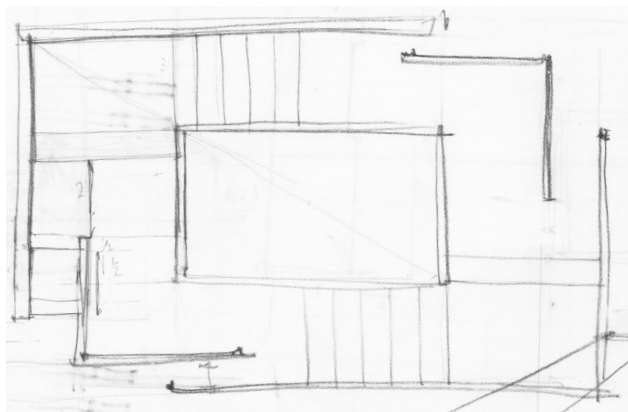
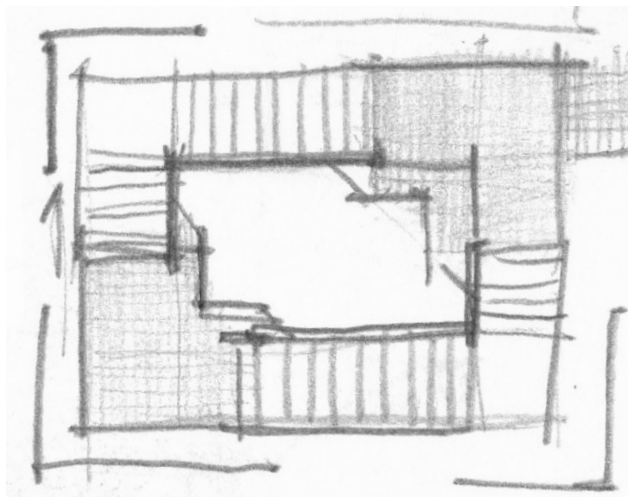
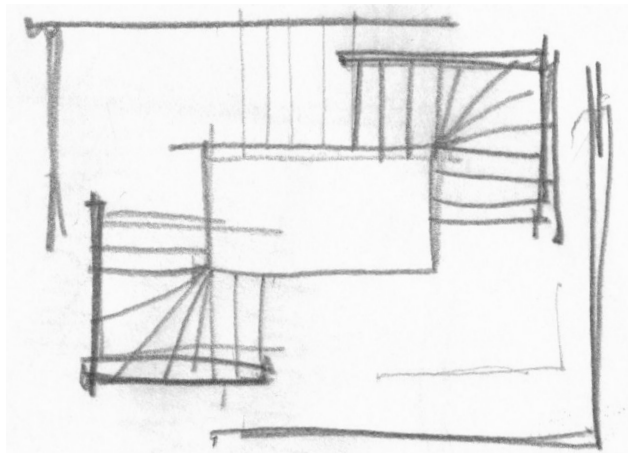
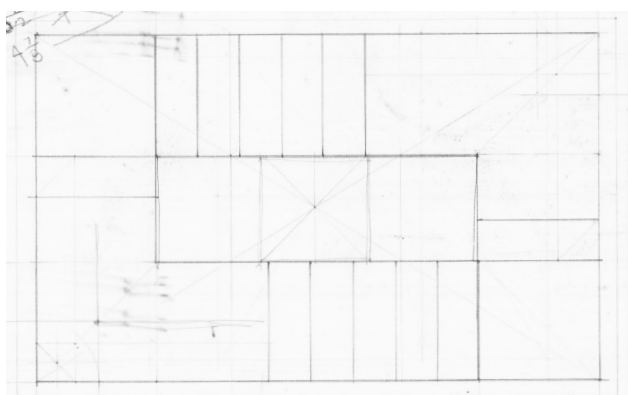




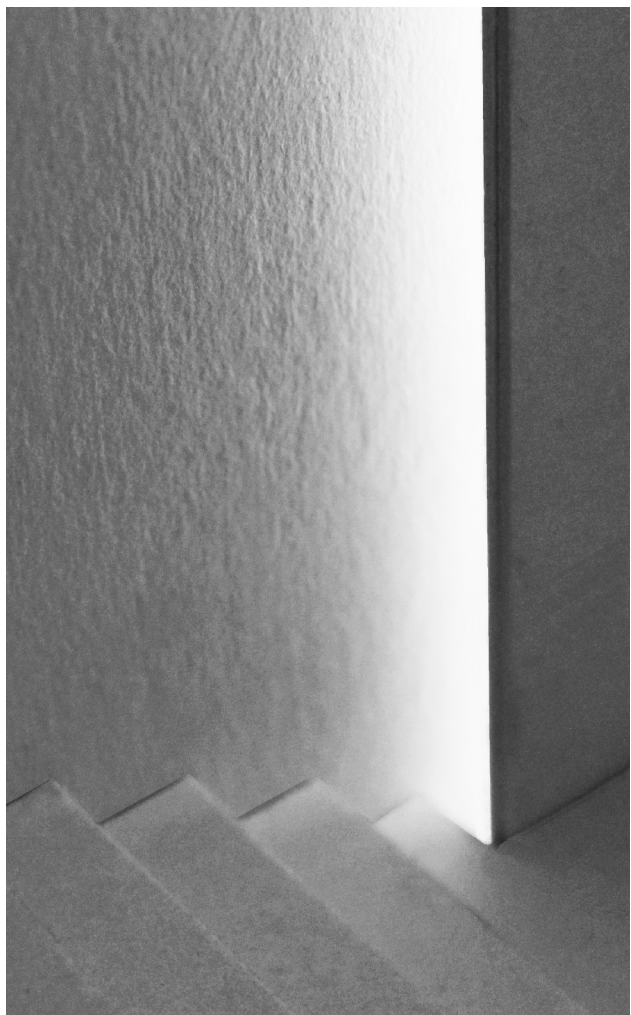
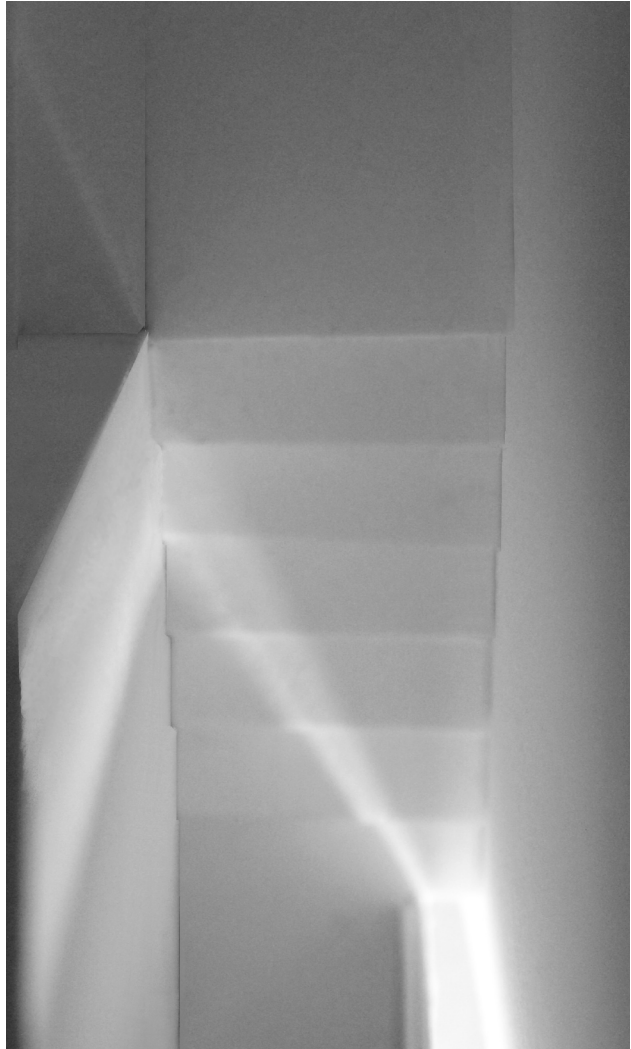


The steps of the stair tower have a rhythm that corresponds to golden proportion of its plan-- a few steps on the short sides and several on the long sides. Two corners of the tower's exterior wall are brought inward, making gaps for light to enter. These corners contract the space, forming a rhythm of turning corners, stairs and landings, contraction and expansion.

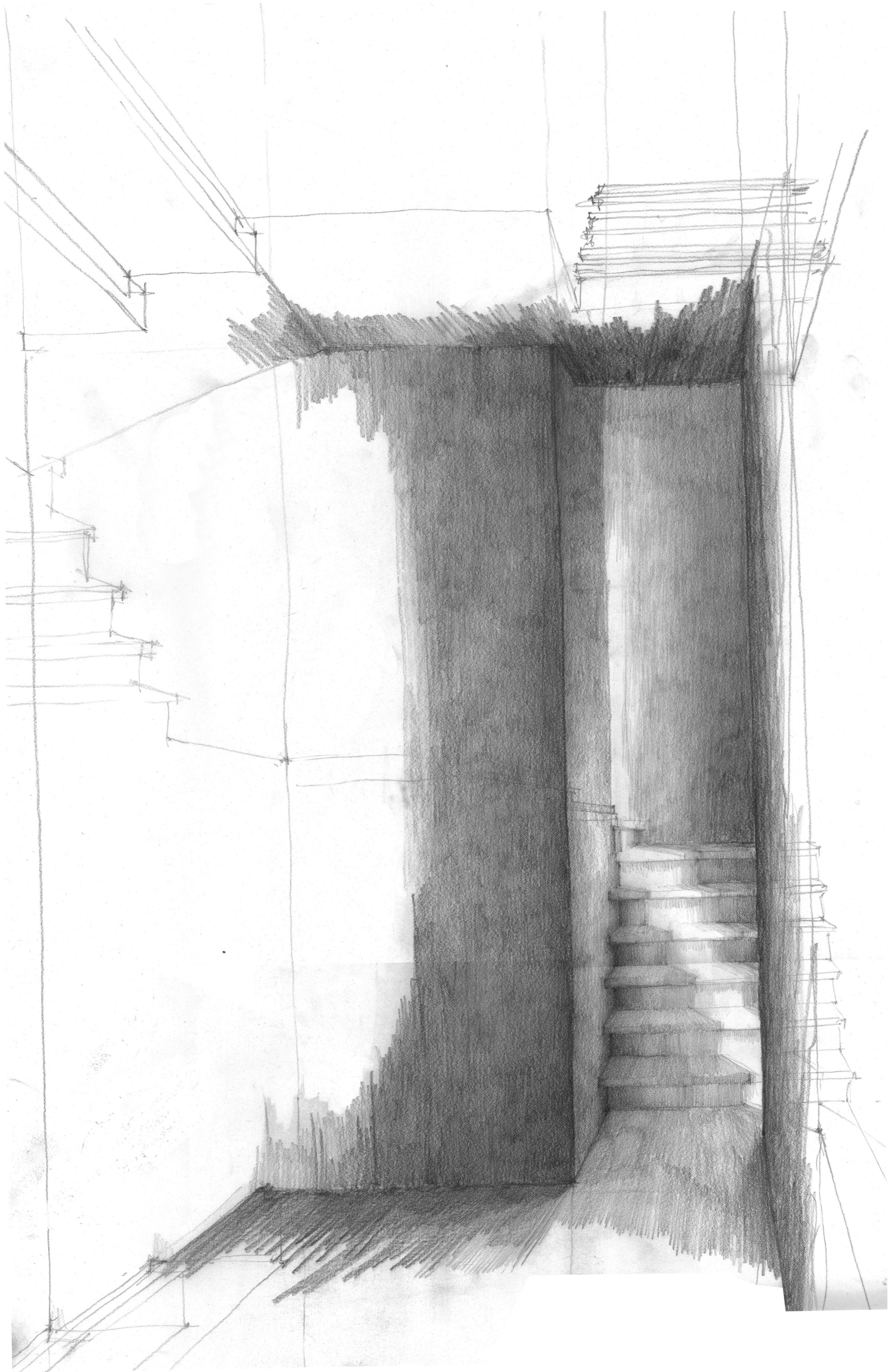
The sketches to the left show early plans of the stair tower. Below is an early sketch of the interior, showing the thinness of the stair treads mimicking the thinness of the exposed edge of the exterior wall.





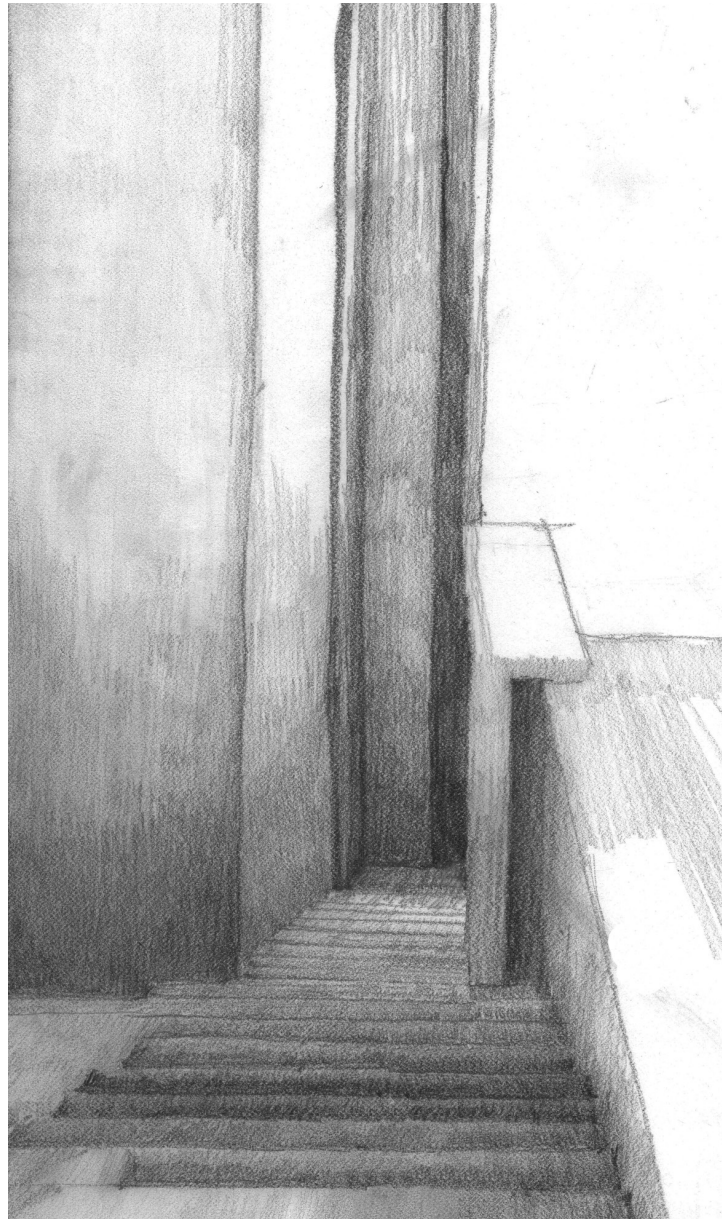


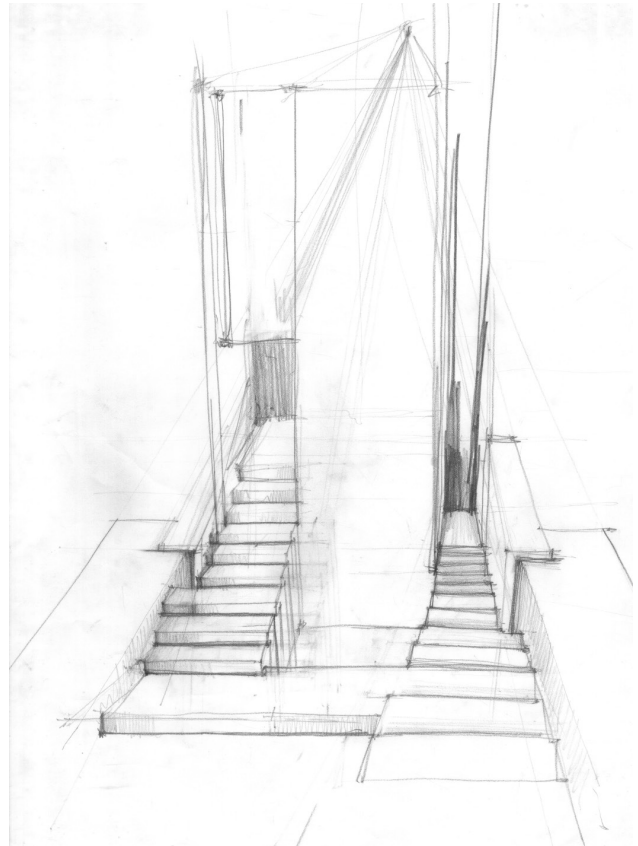
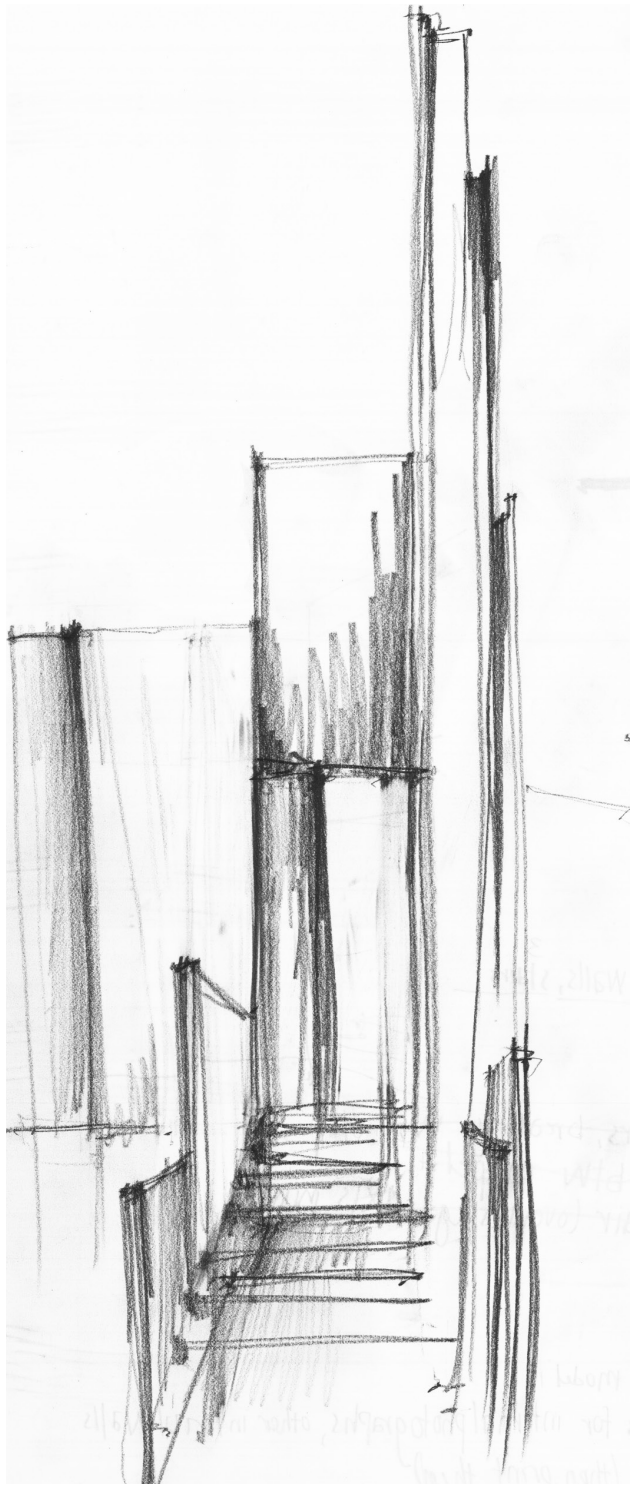
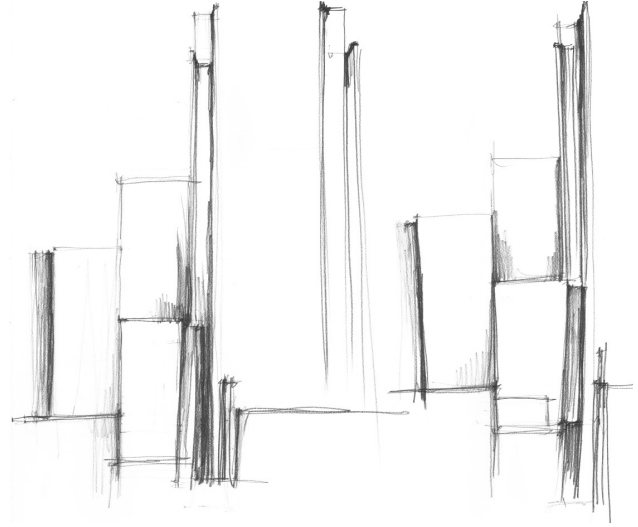
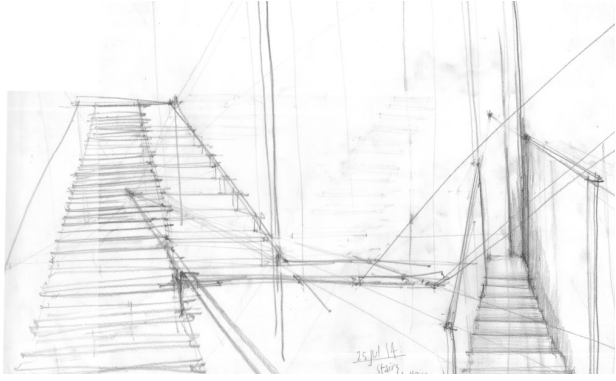






Spire





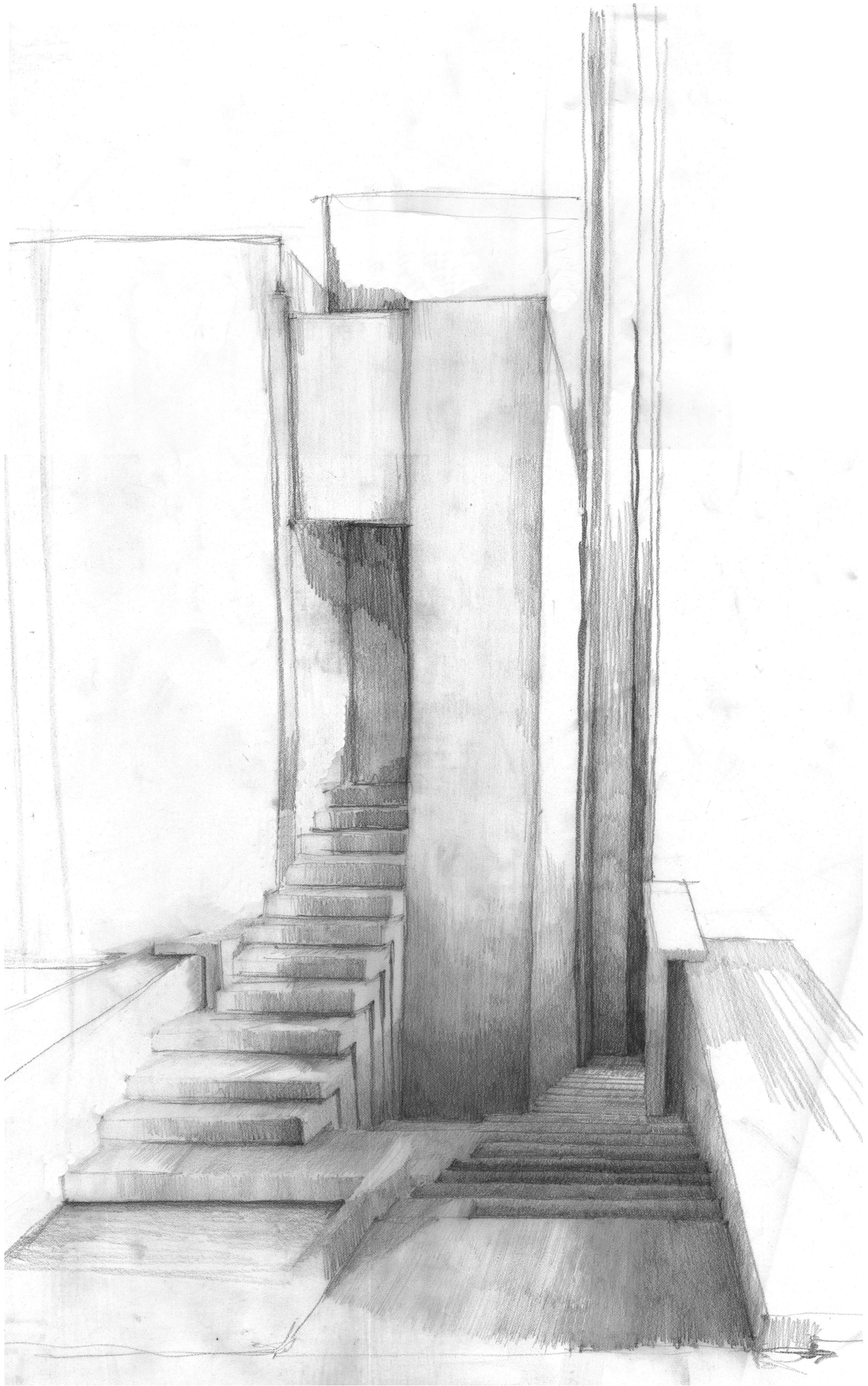
The chapel's spire references chapels, churches and cathedrals before it: the building reaches into the sky, aspiring to be closer to the celestial. The spire cannot be ascended by a set of stairs but one can descend to its base and stand within it. The spire, being partially enclosed, is a kind of axis mundi, a path or connection between heaven and earth. One can occupy it but not travel through it.

These sketches show the development of the spire and the stairs descending to it.







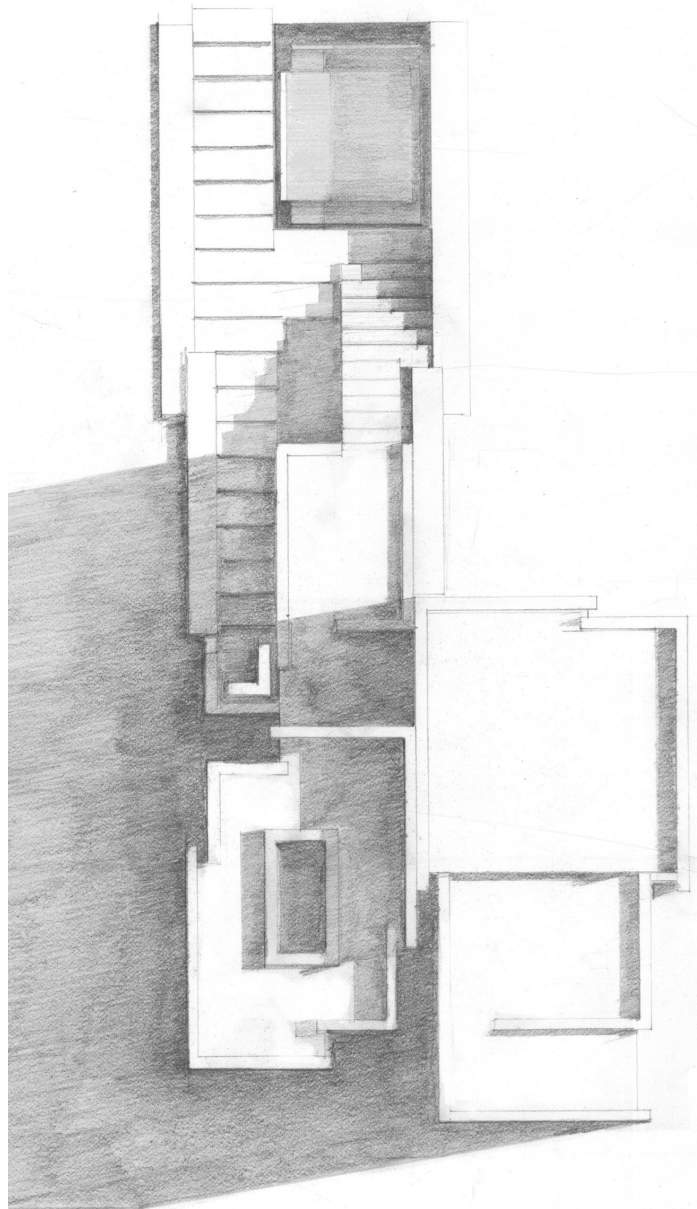


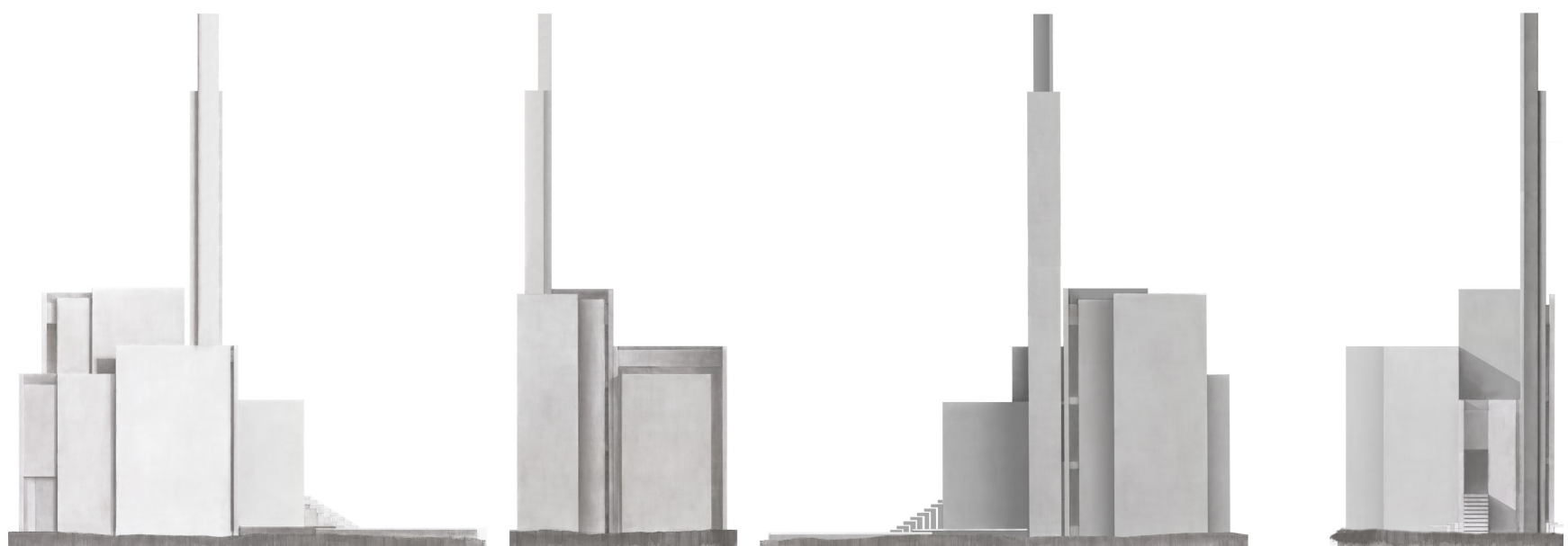
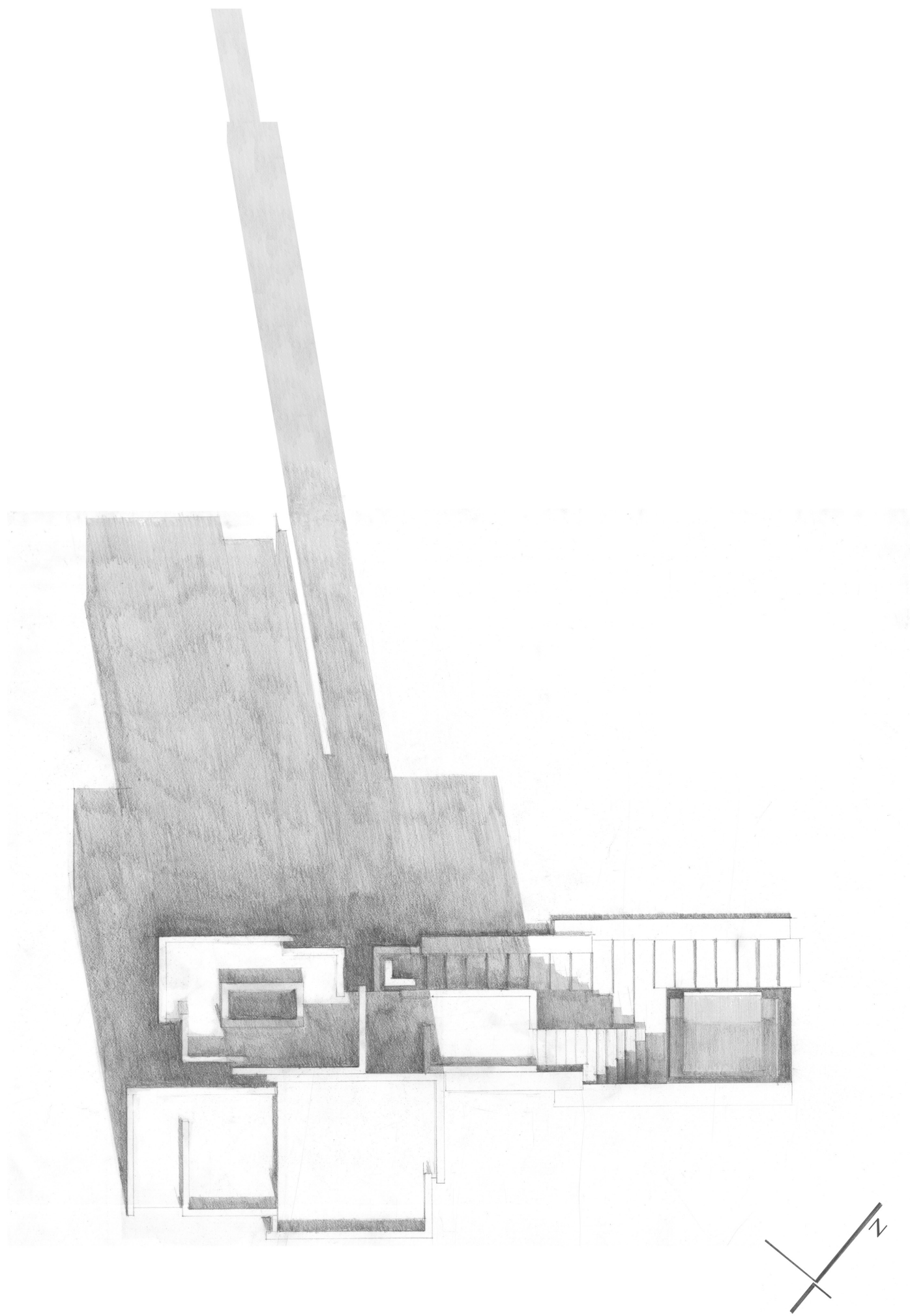




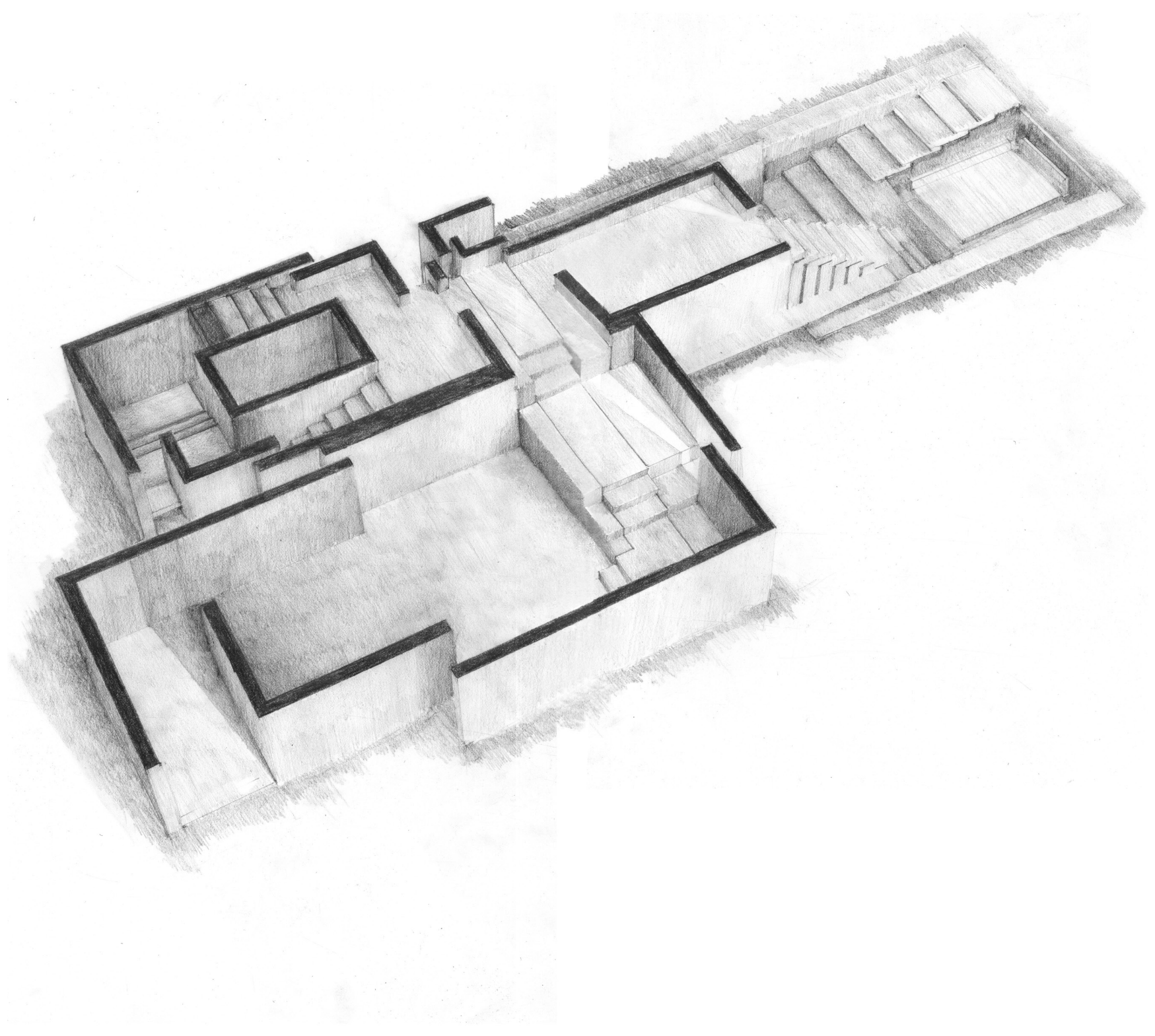


The Chapel

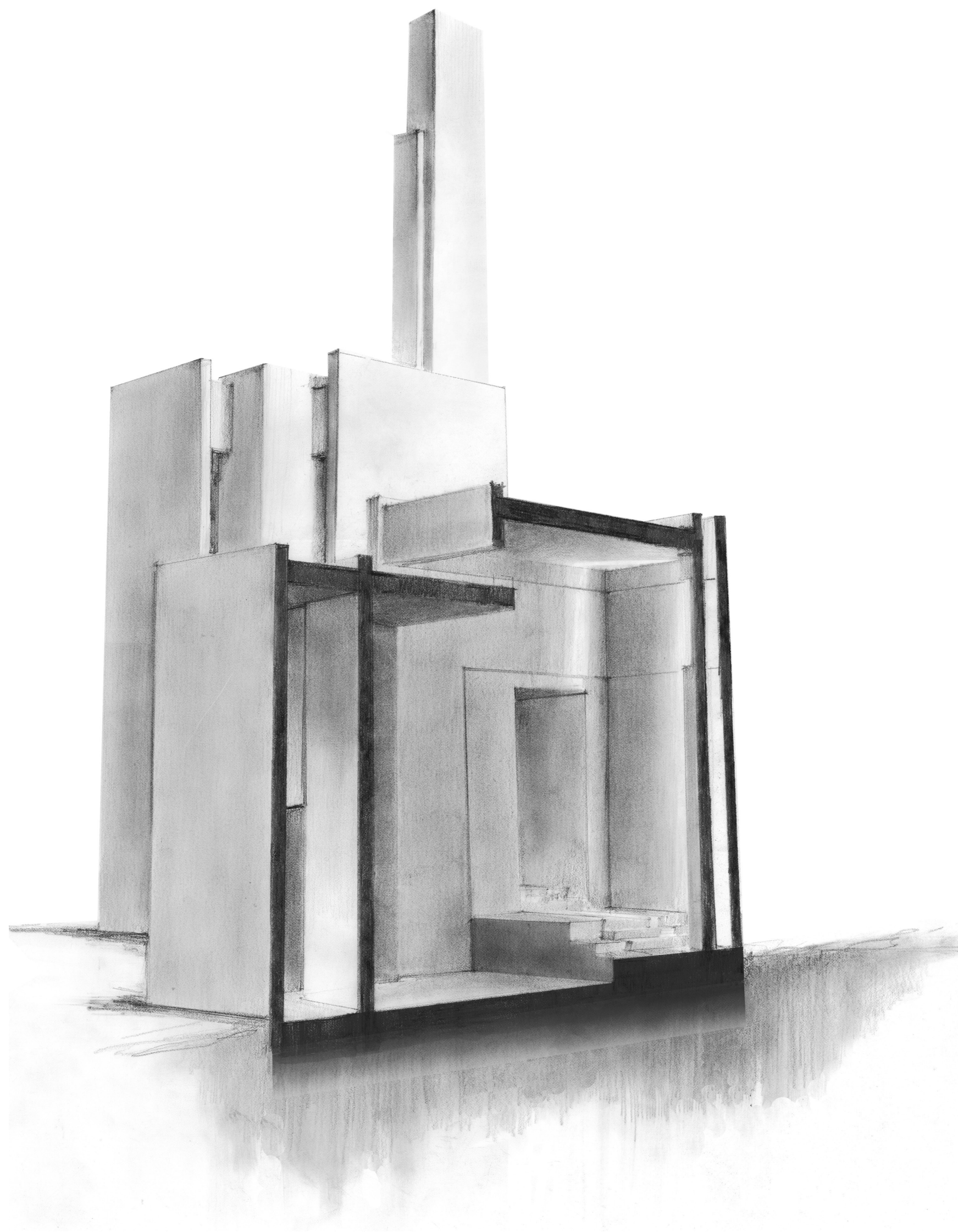




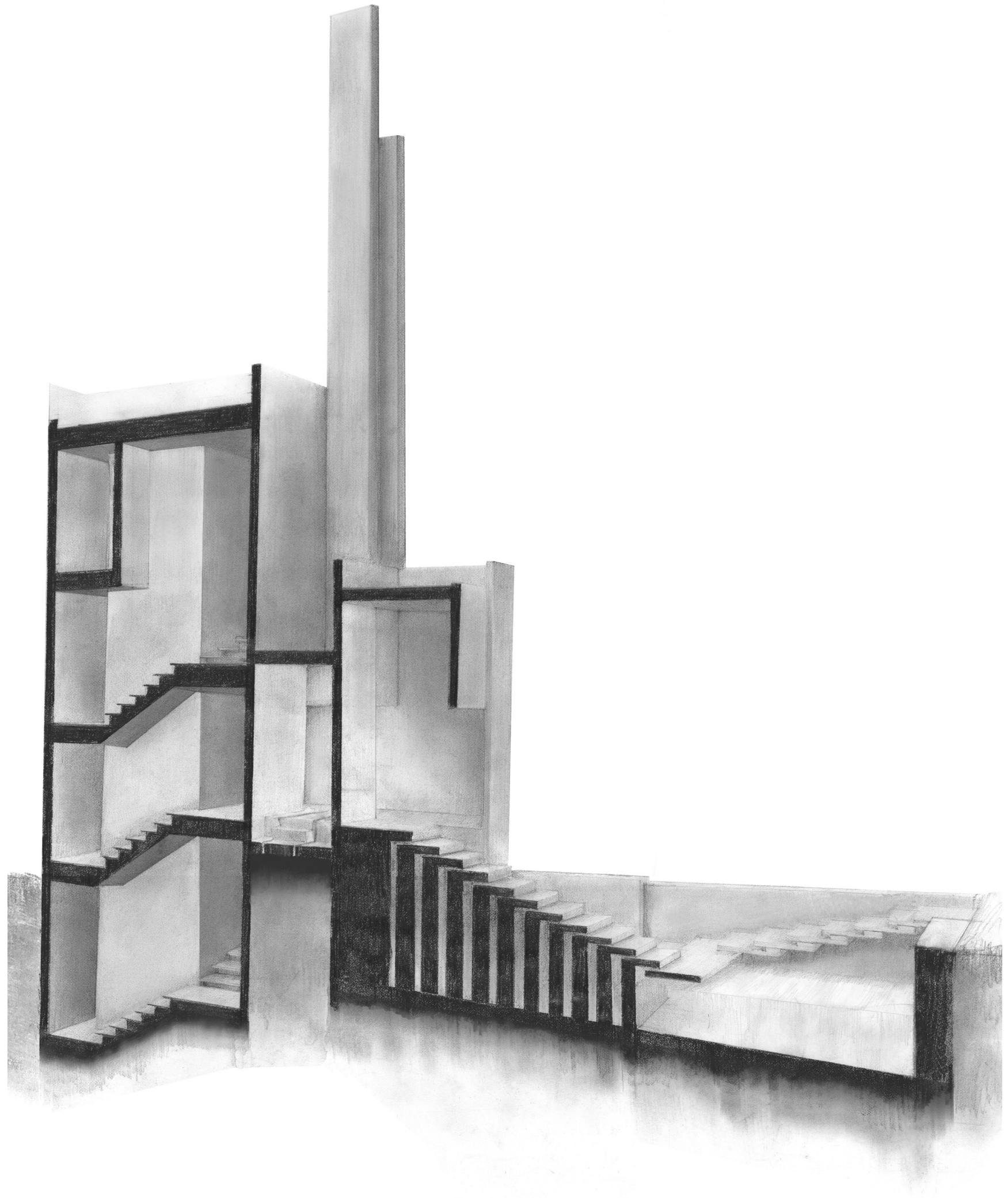




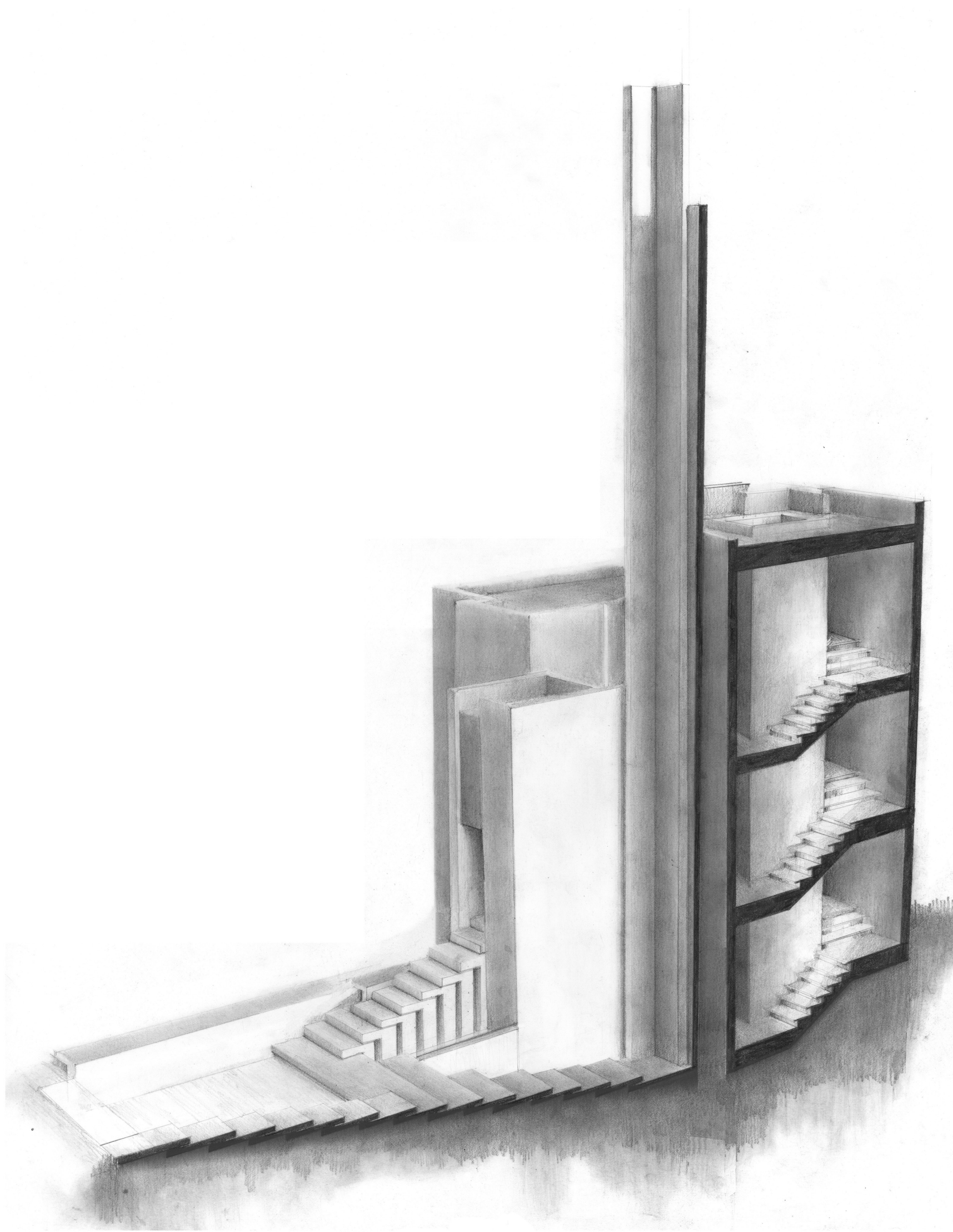


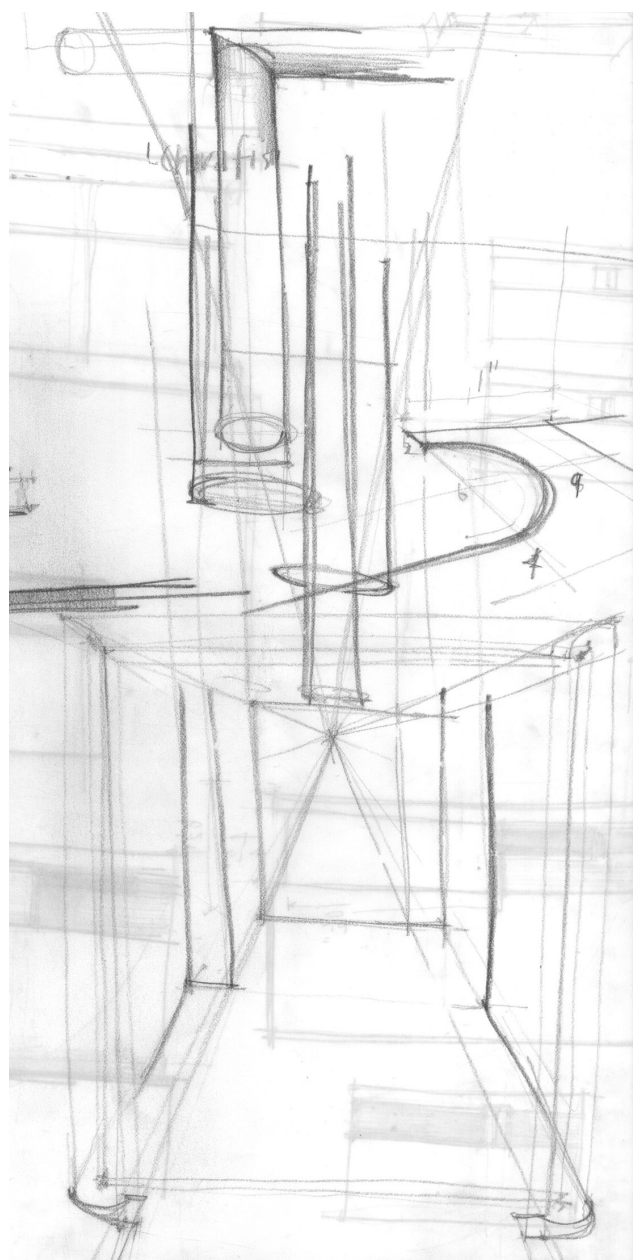
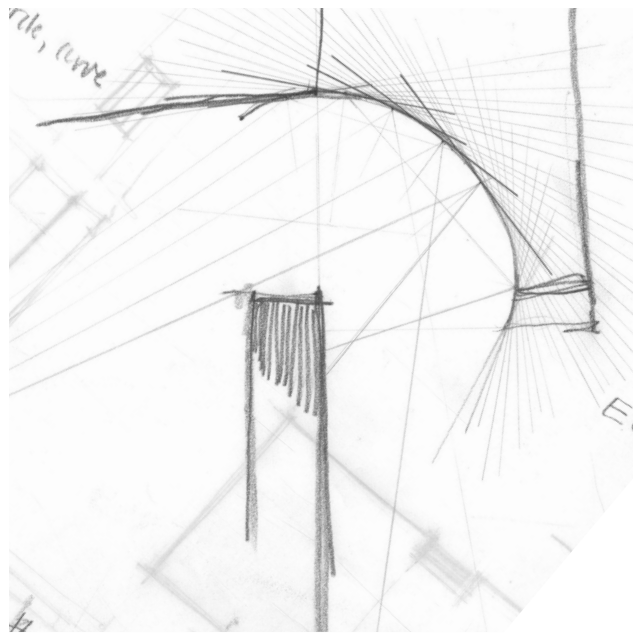




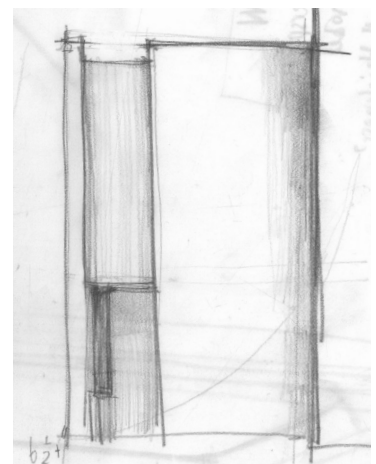
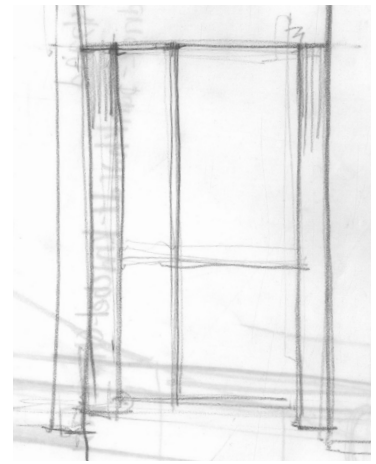
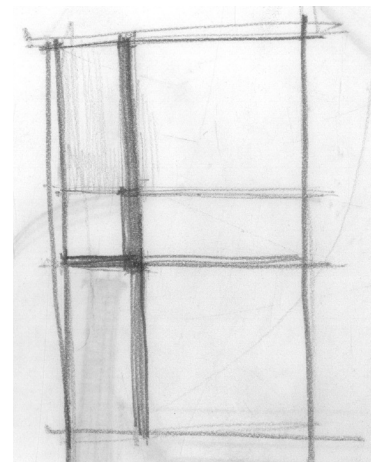
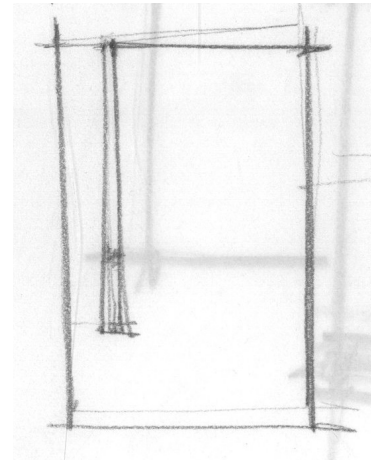




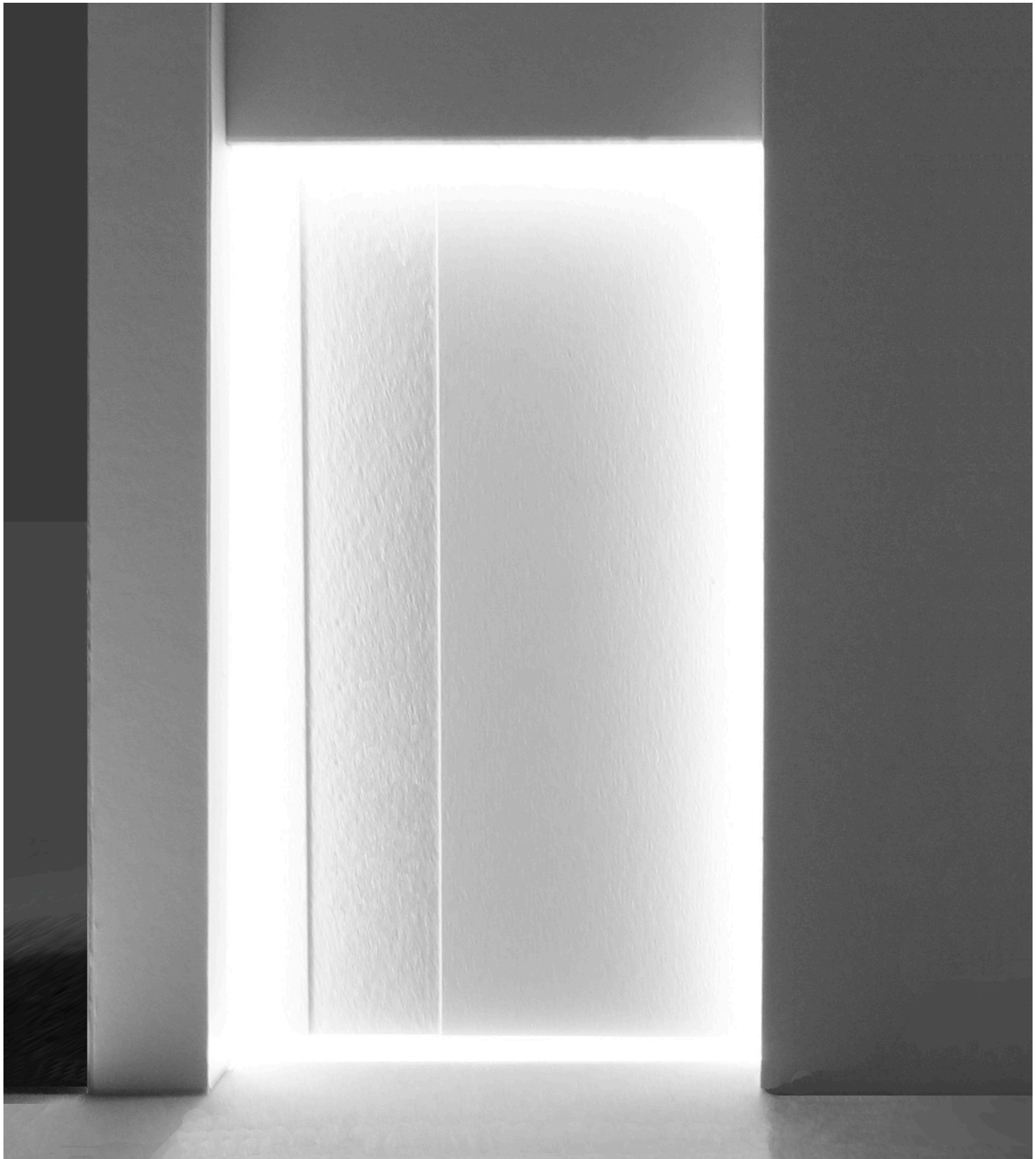
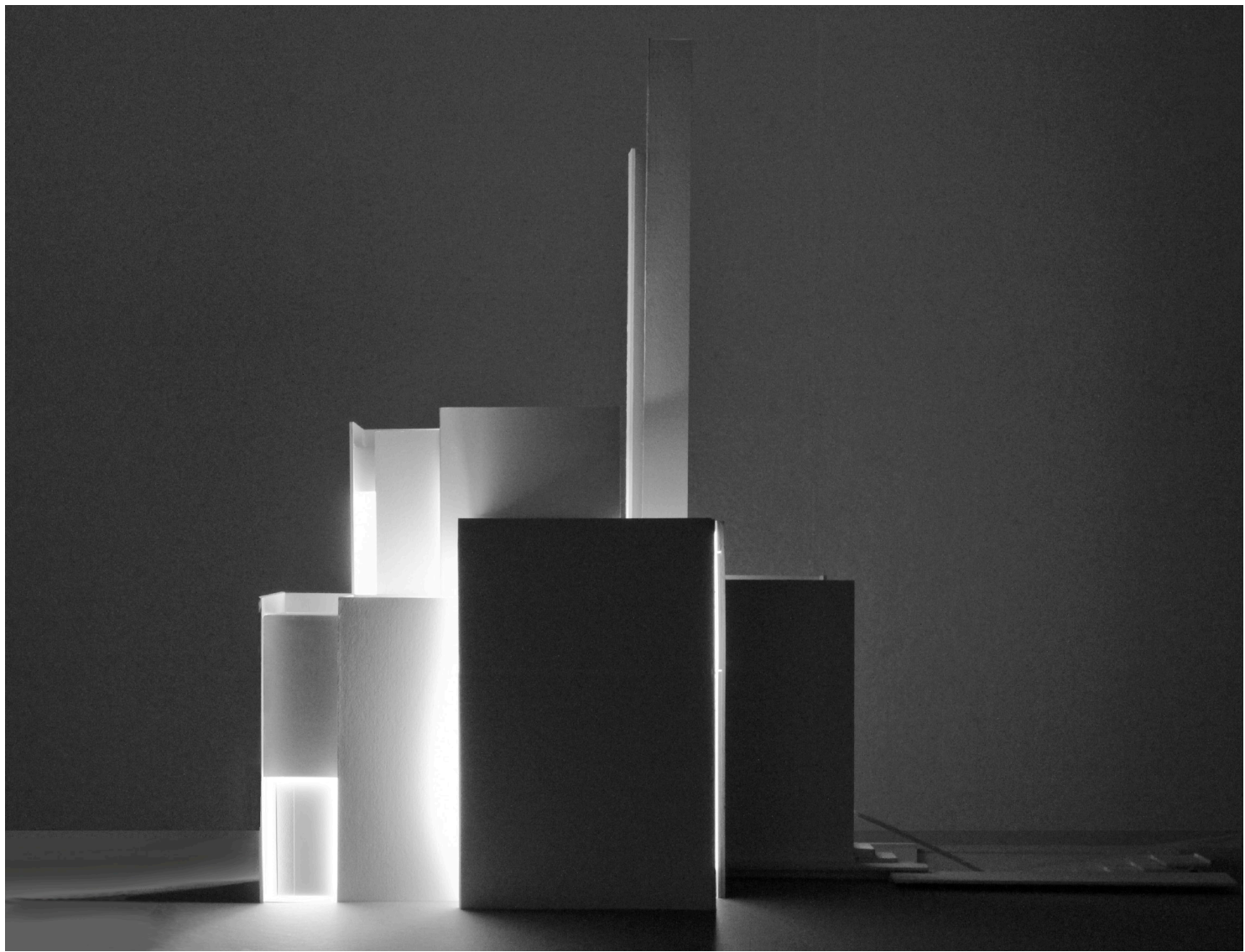




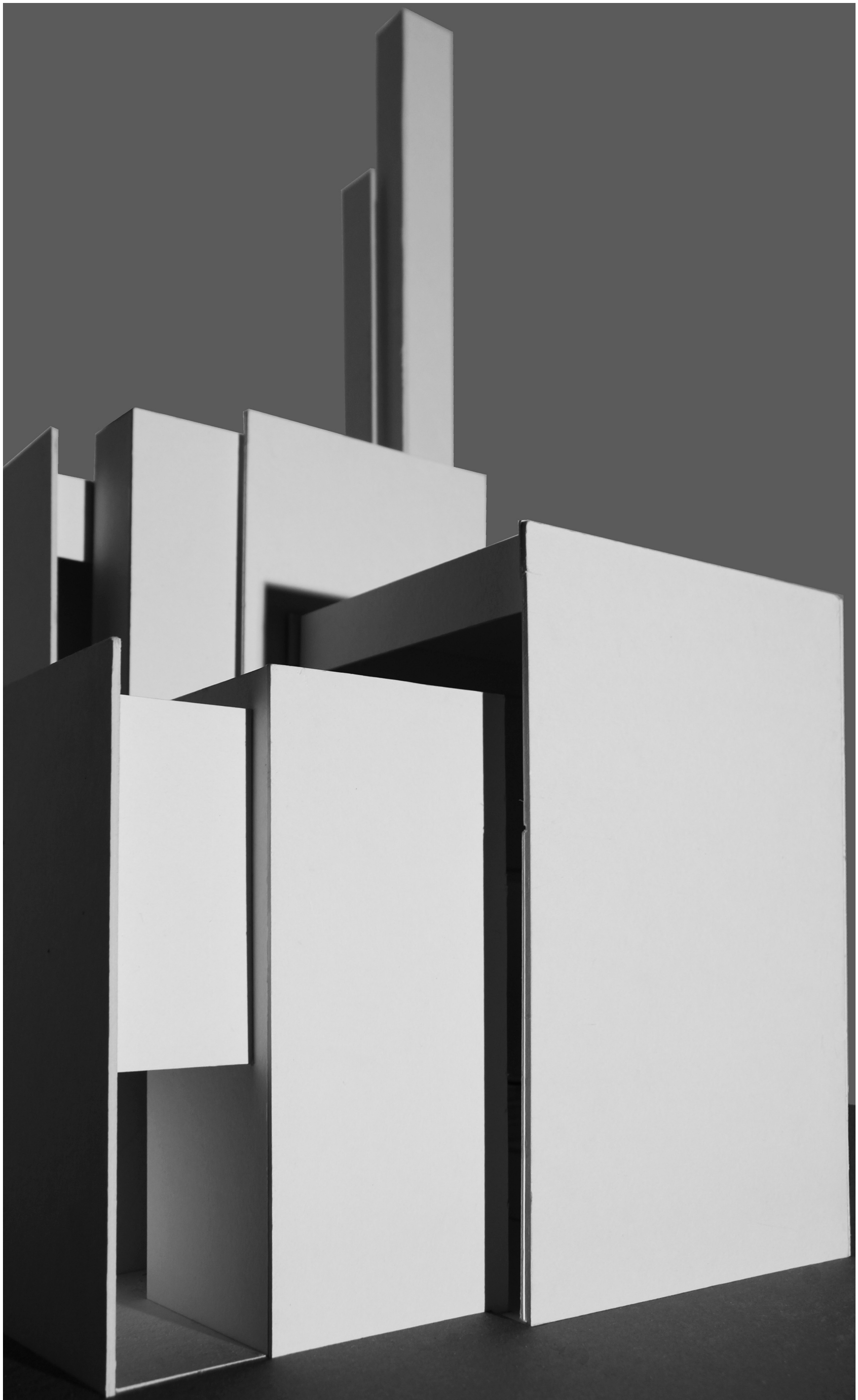
The idea for the door came from thoughtful consideration of the work. A figure of a door emerged from the sanctuary, a door with lit edges, and the idea of a door lit from within was pursued for the entrance to the chapel. Curved walls wrap in front of the door and reflect light around its edges.



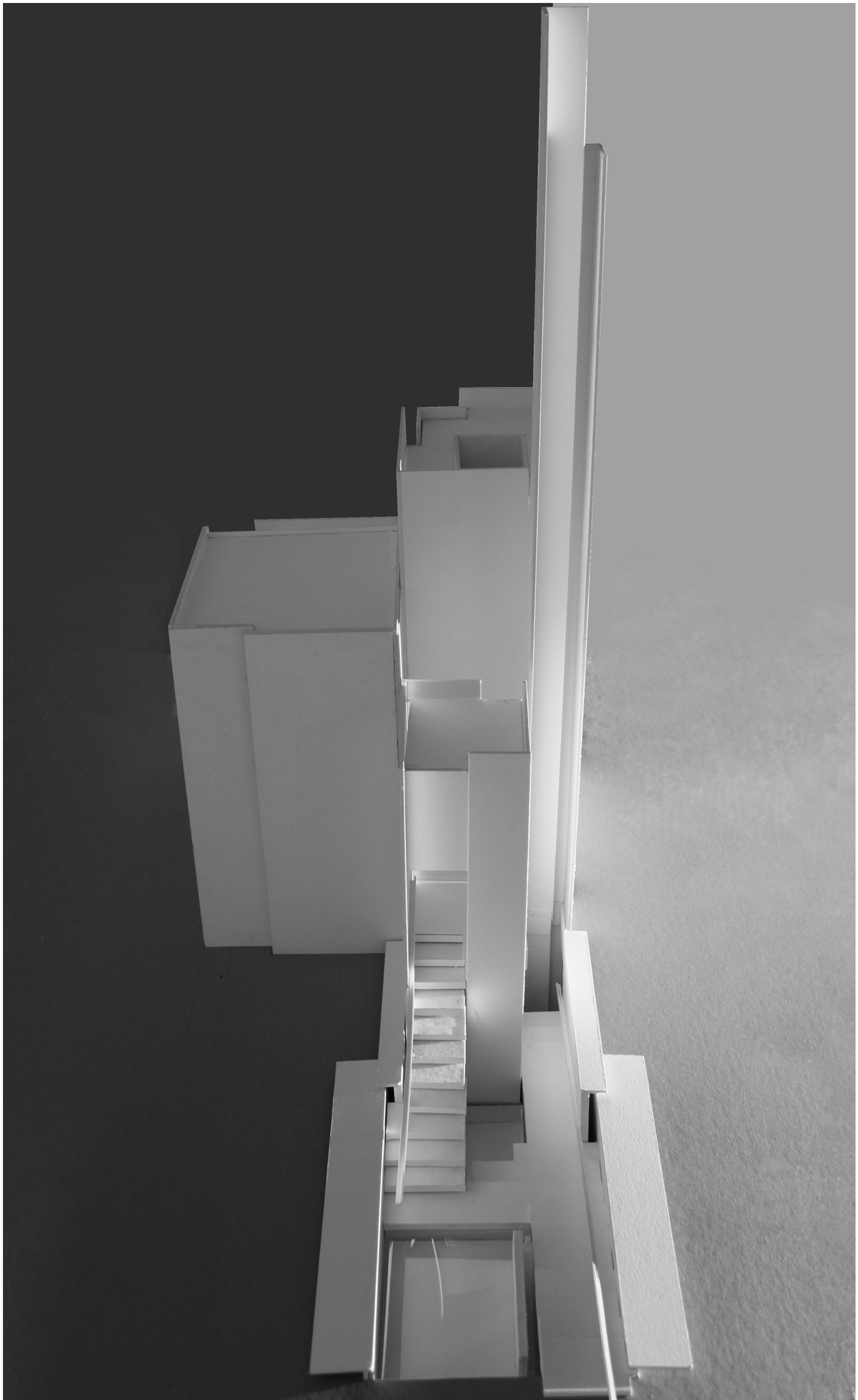


















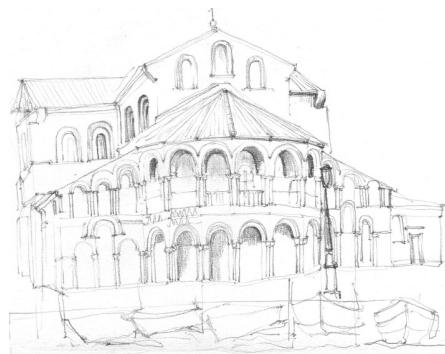
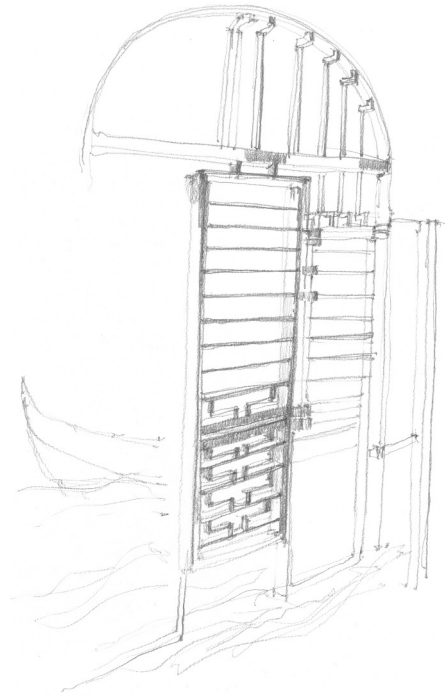
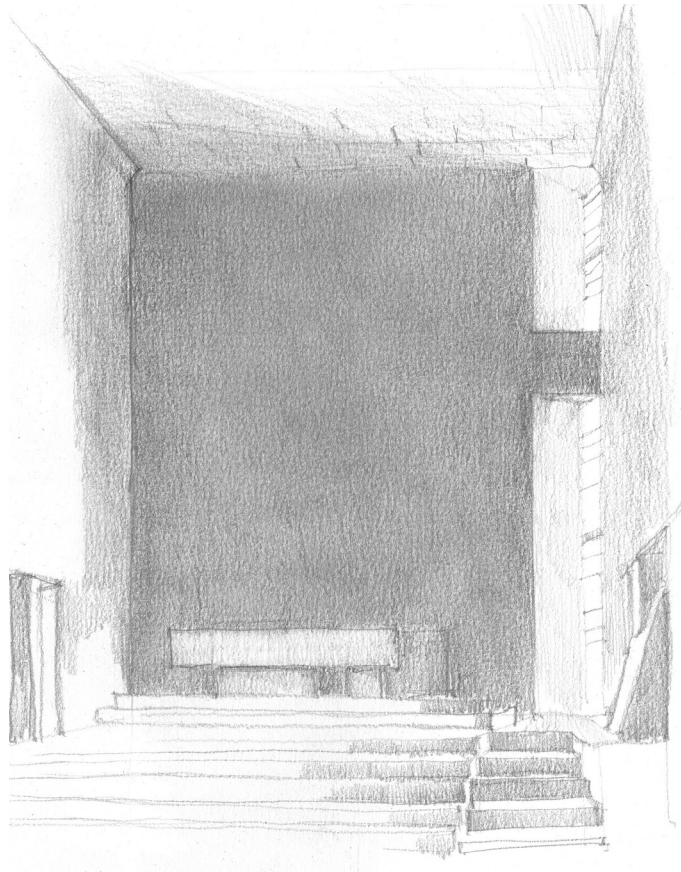
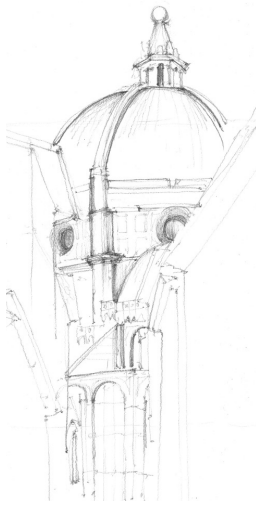
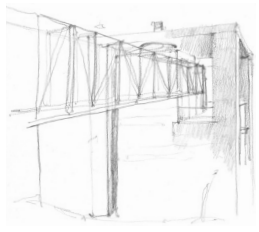
## Afterword



*When one travels and works with visual things -- architecture, painting or sculpture -- one uses one's eyes and draws, so as to fix deep down in one's experience what is seen. Once the impression has been recorded by the pencil, it stays for good, entered, registered, inscribed... To draw oneself, to trace the lines, handle the volumes, organize the surface ... all this means first to look and then to observe and finally perhaps to discover ... and it is then that the inspiration may come.*

Le Corbusier







Casa Bianchi  
Riva San Vitale, Switzerland  
Mario Botta

Belfry  
Church of San Vitale  
Riva San Vitale, Switzerland

Doge's Palace  
Venice, Italy

Duomo  
Florence, Italy  
Filippo Brunelleschi

Chapel interior  
Sainte Marie de La Tourette  
Éveux, France  
Le Corbusier

Brion-Vega Cemetery  
San Vito d'Altivole, Italy  
Carlo Scarpa

Foundation Querini Stampalia  
Venice, Italy  
Carlo Scarpa

Santa Maria e San Donato  
Murano, Italy

Santa Maria della Salute  
Venice, Italy  
Baldassarre Longhena