

Experiencing  
Architecture  
through Active  
and Mindful  
Spaces

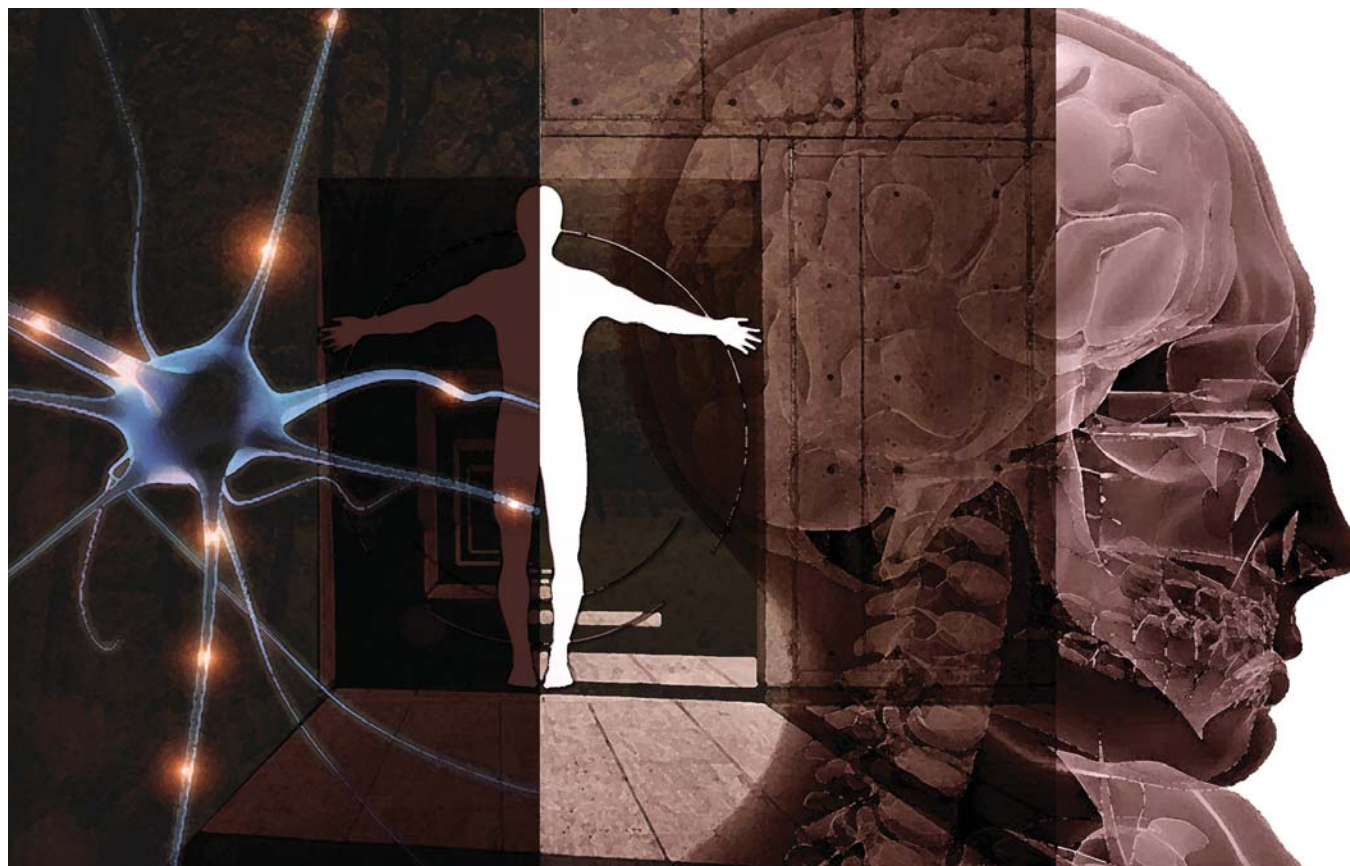


figure 1, mind and body collage (fair use)

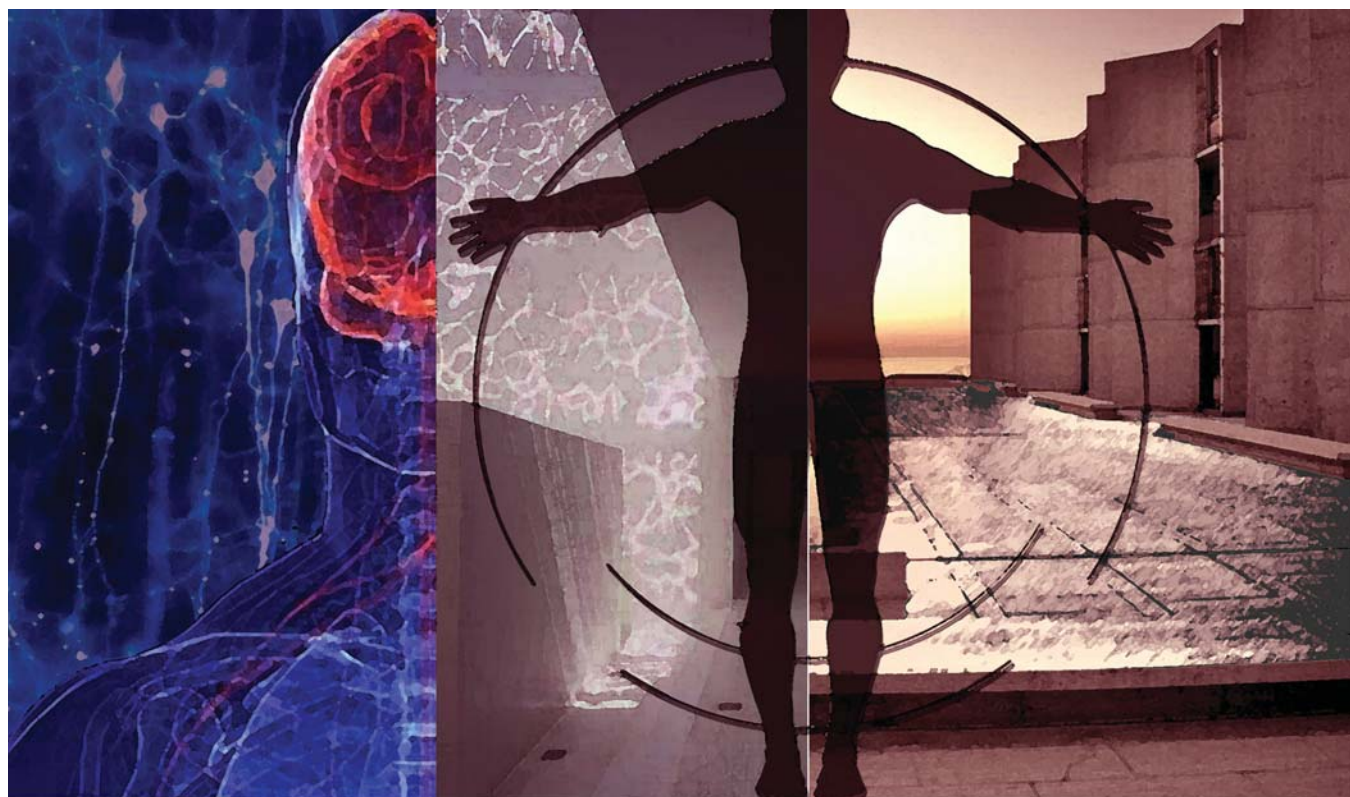


figure 2, mind and body collage (fair use)

samantha j. bennett

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**

Marcia Feuerstein, Chair

Susan C. Piedmont-Palladino

Paul F. Emmons

May 10, 2011

Alexandria, Virginia

keywords: active, mindful, light, shadow,  
materiality, dwelling



figure 3, mind and body collage (fair use)



figure 4, mind and body collage (fair use)

## abstract

### Experiencing Architecture Through Active and Mindful Spaces

by: **Samantha J. Bennett**

The connection between our body and mind is integral in the way we perceive and relate to the world that exists around us. Our perceptions and emotional responses to those spaces can influence and become a powerful tool for design. In turn, architecture can encourage active and mindfulness in a person's everyday life.

The architectural project is a mixed use development consisting of a multi-family residence, hotel, coffee shop, and spa located off of 14th Street in the Columbia Heights neighborhood in Washington DC. The program provides spaces for dwelling, both temporary and permanent, to encourage both physical and psychological wellness.

## acknowledgements

Thank you ,

First and foremost, to my mother and father, without their encouragement and love I would not have had the drive to fulfill my master's thesis. My mother's own strength and perseverance has been the best inspiration and has kept me going through everything I have been through in my life.

To my thesis committee, especially Carolina Dayer, for all of the valuable input, advice and support. This project would not be what it is without your guidance and motivation.

Also, to John Foote and Ryan, for your patience and knowledge in the shop. The installation would not have come to fruition without you.

To my friends and colleagues. Katie, who has become a great friend and a constant source of intellect and advice. Bryan, Ashton, and Dennis who became good friends from the day I started at the WAAC and kept me going through the stress of working and preparing for my thesis.

To my boyfriend, Dan, who has been so patient and supportive through this experience. I am really lucky and blessed to have him in my life.

And finally, to my family especially my sister Jen, I am so thankful for your love and support.

College of Architecture and Urban Studies  
Washington-Alexandria Architecture Center  
Alexandria Virginia

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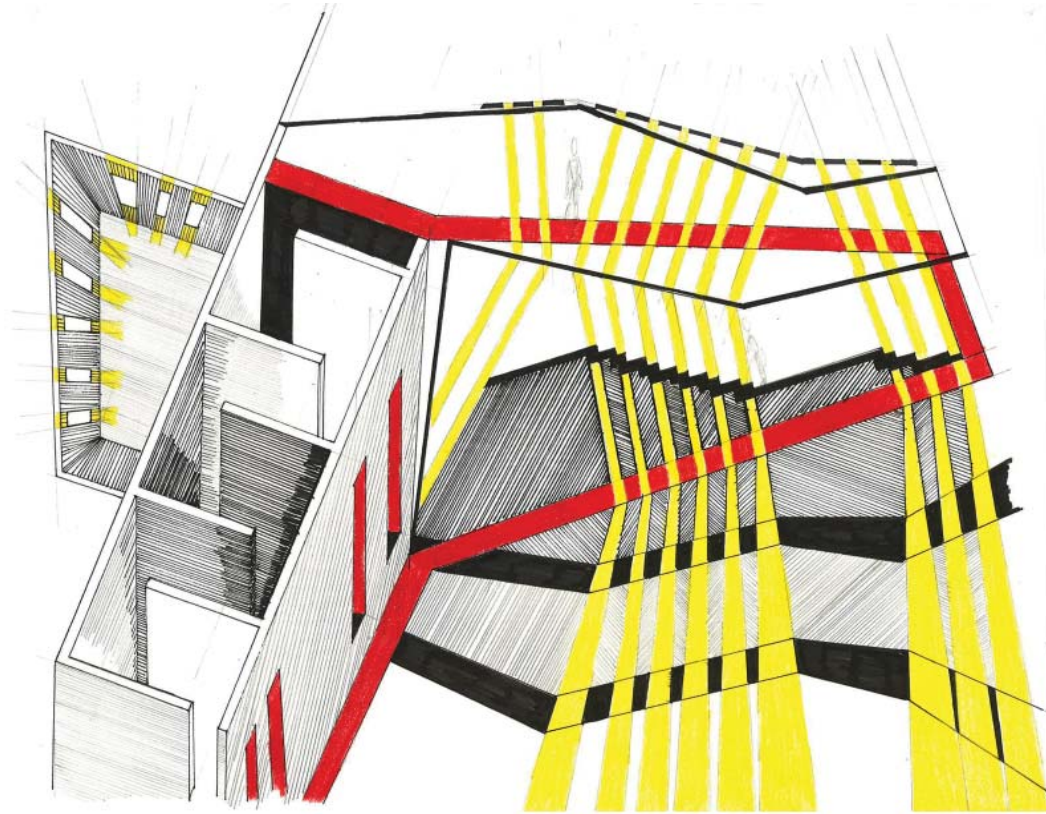
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installation process

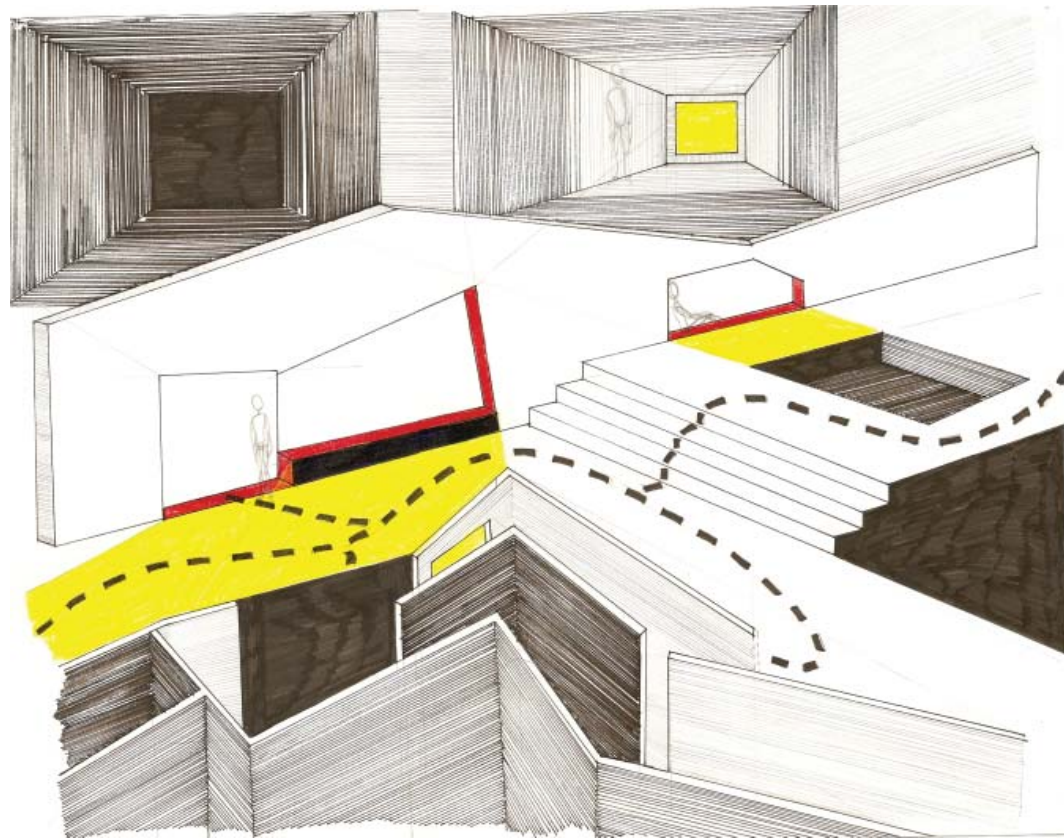
20

thesis:  
actively and mindfully  
thinking about design

*These abstract sketches were used to study the effect of light and passage of time in different spaces and to analyze the experience a person has as they pass through, pause, and contemplate each moment.*



hotel abstract sketch



residence abstract sketch

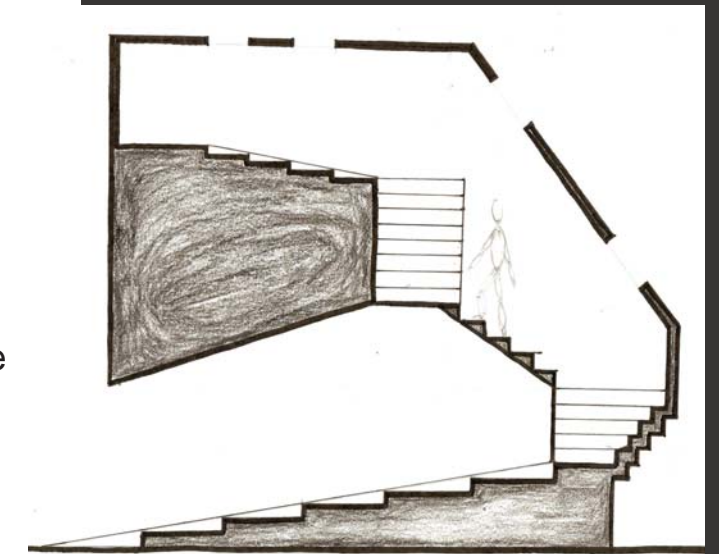
*These sketch studies helped to analyze the fluctuation and experience of spaces relative to the scale of the human body and the possible influence of these spaces on thought and consciousness*

**“The ultimate meaning of any building is beyond architecture; it directs our consciousness back to the world and towards our own sense of self and being. Significant architecture makes us experience ourselves as complete embodied and spiritual beings. In fact, this is the great function of all meaningful art.”**

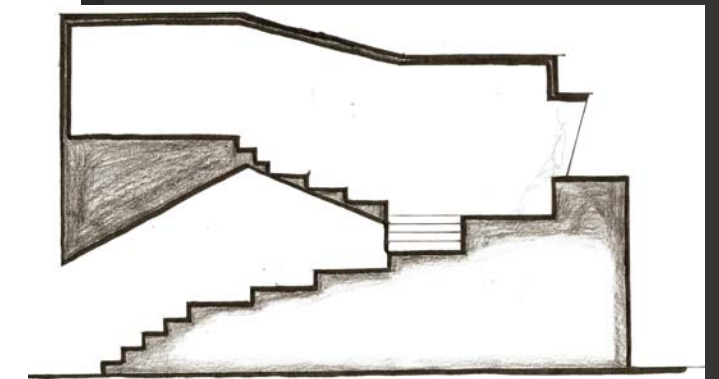
- Juhani Pallasmaa, *The Eyes of the Skin: Architecture and Senses*, p.11

Like the age old adage “What came first the chicken or the egg?” we can ask the same for our body and mind. Are we a body that thinks, feels, perceives, and reasons or a mind that can flex, stretch, pull, push, and move? Despite what the answer may be, what is understood is that the relationship between the human body and mind is powerful and essential to who we are as individuals and our overall well-being.

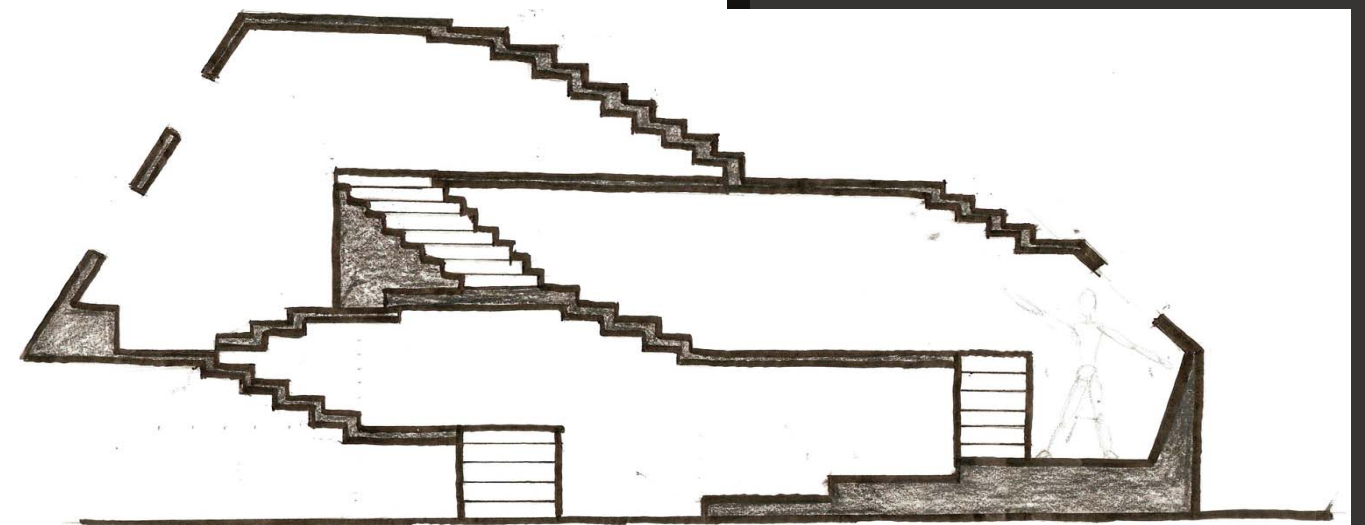
In contemporary times the built environment has become as essential to our society and lives as our own bodies and minds are to each other and ourselves. The problem that architects face now is how do we create spaces that can encourage the relationship between both our physical and mental health. The answer lies in many different elements: the elements of light



section study sketch 1



section study sketch 2



section study sketch 3



section collage - darkness

*looking at the effects that the play of light and shadow can have on the movement and expressiveness of the consecutive vertical spaces*



section collage - lightness

and shadow, of materiality, of circulation, of the passage and fluctuation of spaces, and of the relationship between the exterior and interior environments. And it is with these elements that an architect can create an environment that encourages individuals to become more mindful and active in their every day lives.

Architectural spaces can influence a fundamental change in a person's perspective and understanding of the world. It is within the spaces in which we inhabit, pass through, and see the world in every day that can change our physical displacement and mental condition the most. This makes the spaces we choose to dwell in so critical in encouraging the relationship between the human body and mind.

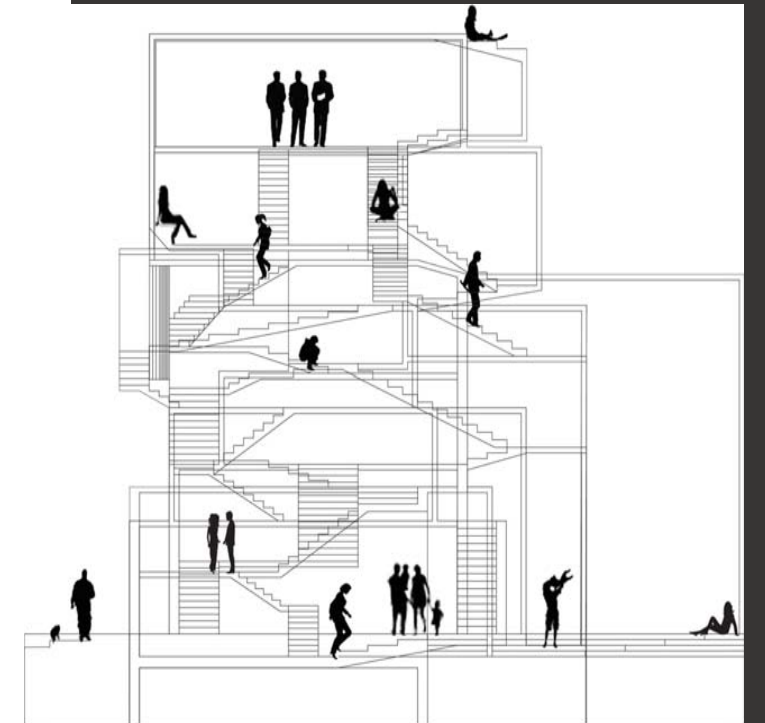
The program for this thesis was chosen with the intent to create spaces of dwelling both for temporary and permanent periods of time. To study the importance of shadow and light, fluctuations of spaces, and materiality. All of which will, in turn, inform spatial relationships and to allow the mind to wander and the physical body to traverse and be enveloped and released by the environment in which it exists on a daily basis.

The shadows created hold the phenomenological power of what lies beyond and with the manipulation of these within a room, hallway, or exterior space they allow the mind to wander and a person to contemplate the space in which they exist. It is in this absence of light and the consequent loss of space that a person tries to remember the space in which they exist and appreciate what it once was. It is also within the consistency juxtaposed to the variation of the light and shadows that our bodies are allowed to feel the warmth and coolness and the mind can begin to contemplate the impact that the exterior world can have on our interior environment.

Allowing the body to rise and fall, feel lost in tight spaces and open in broader places, and released when it is outside and comforted when it is inside is essential in a design that engages the sensorial system. It is not only the movement and rise or fall within a space but the moment of pause that the body recognizes a change and allows the mind to ponder. When a hallway encloses and suddenly begins to open up, it again, allows for a moment of contemplation and a bodily understanding of the world in which we live.

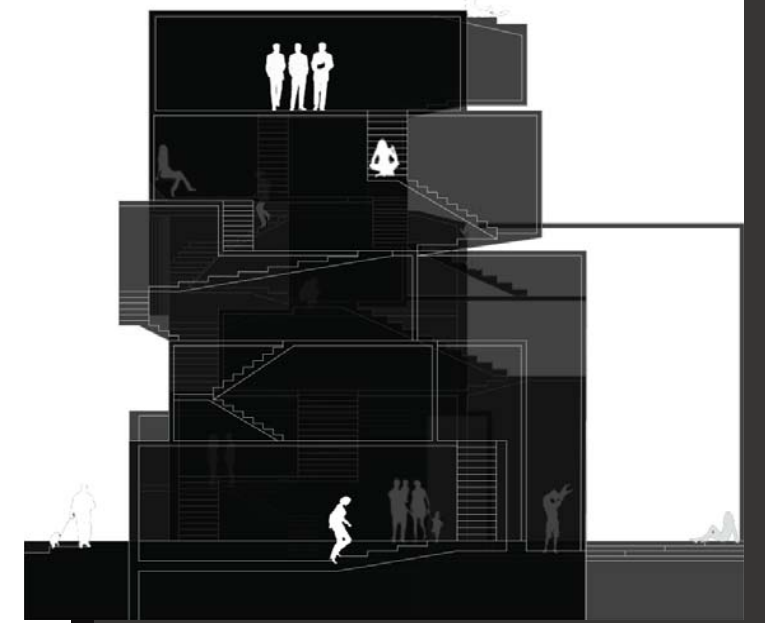
Manipulating certain materials that will contradict each other and engage each other within the facade can create an architectural imagery that will imply subtleties and nuances to enable a connection and activate an observer's mind. Allowing manipulation of those materials through transparency, mechanics, and reflection will create a constant tension between what remains stagnant and what elements are always changing. This allows for the interpretation of the building to never be the same for any one individual at any single moment during the day or year. Encouraging contemplation of the passage of time and the exploitation of the material itself.

These concepts brought together in a single design and within a program for dwelling, whether for extended lengths of time or only moments, will allow for a person to sit and understand as well as move through and engage the presence of architecture. Le Corbusier stated, **“An architecture must be walked through and traversed. ... Architecture can be judged as dead or living by the degree to which the rule of movement has been disregarded or brilliantly exploited.” (George Lakoff, p. 8)** It is important to address the passage of time through light and shadow, changing facades, and fluctuating spaces in order to engage both the body and mind in order to encourage a more mindful and active architecture.

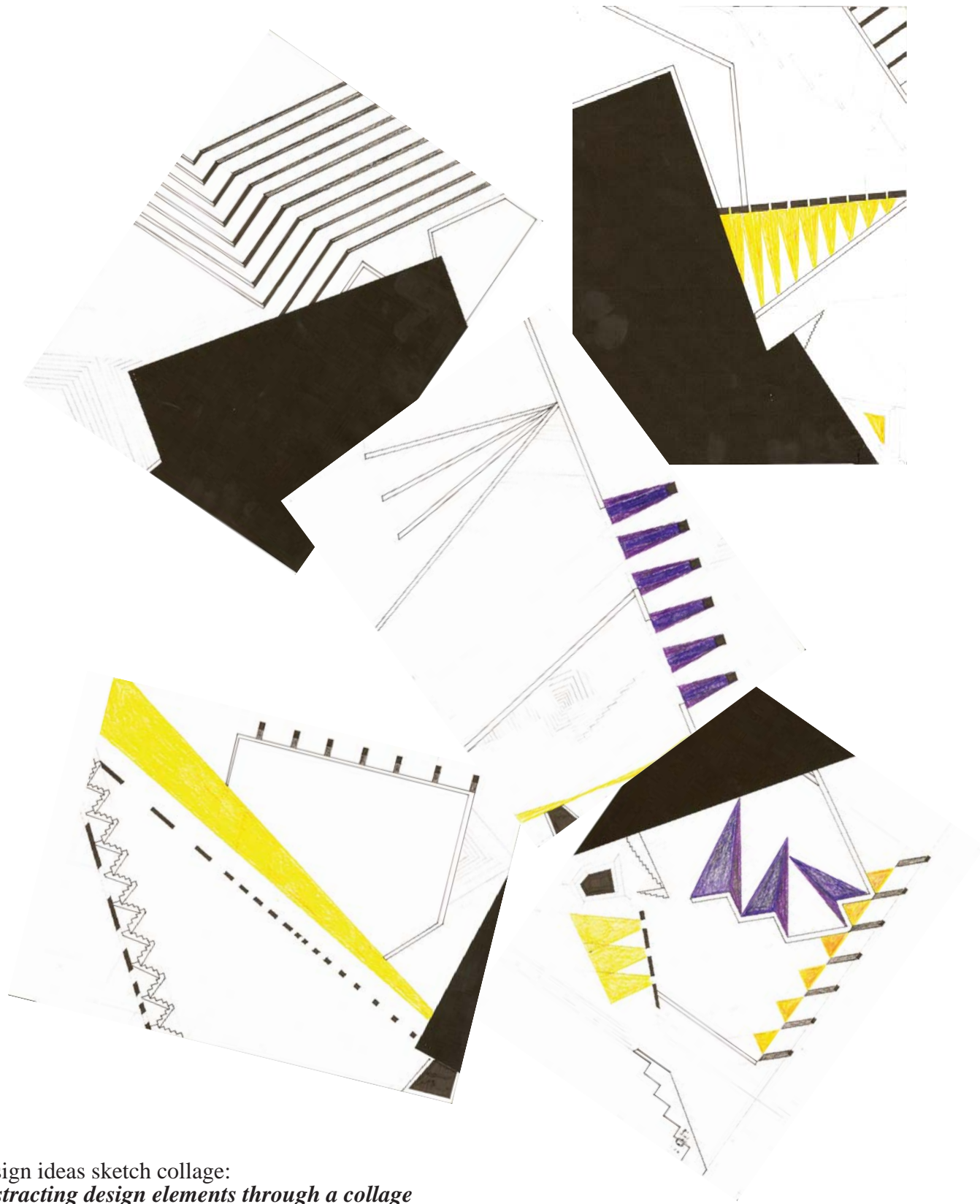


building section study

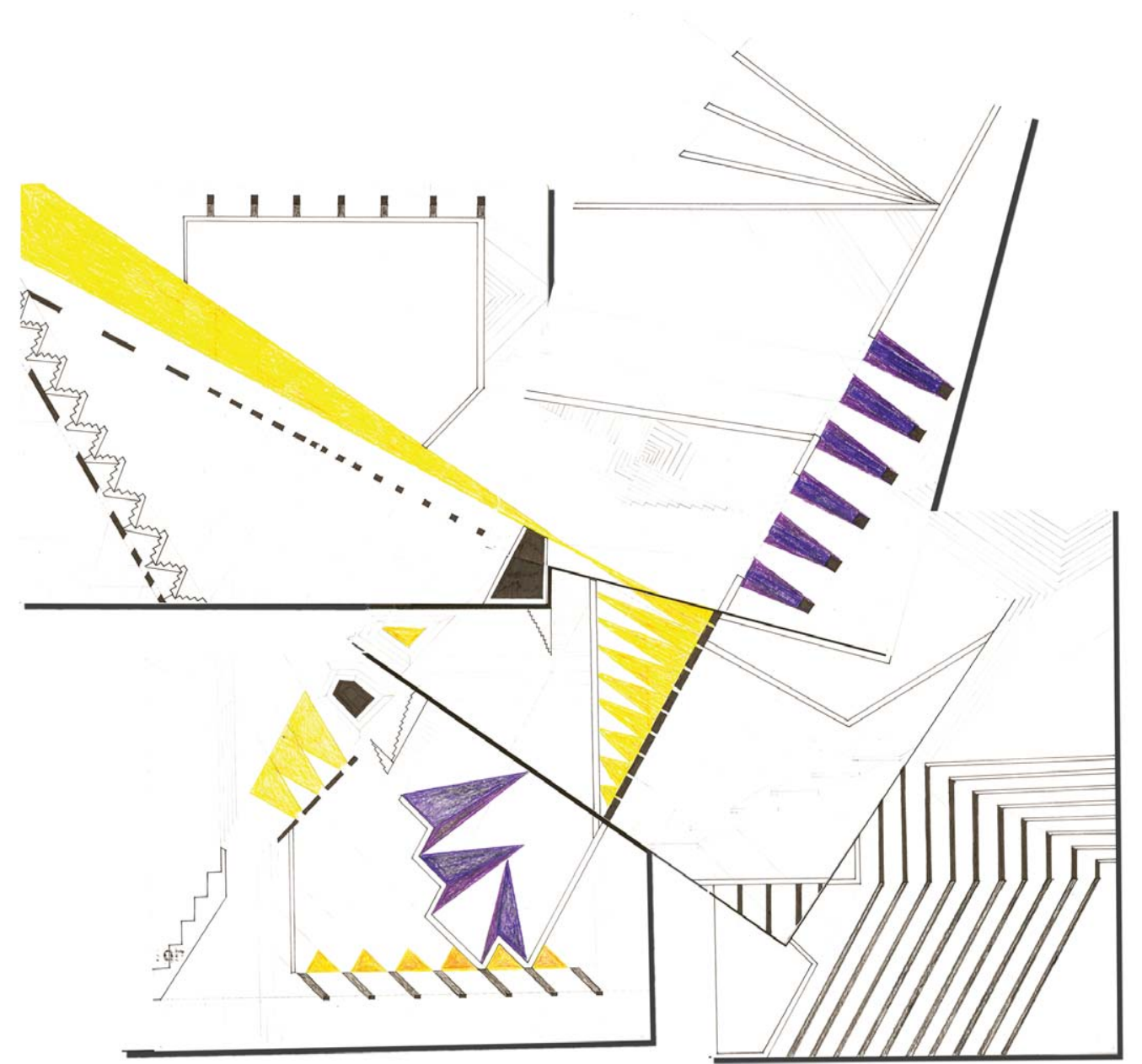
*populating and layering sections in order to better understand the use of the interior, exterior, circulation, and programmed spaces.*



building section study



design ideas sketch collage:  
*abstracting design elements through a collage  
 of architectural sections, plans, and details*



design ideas sketch collage:  
*piecing together the individual design ideas into  
 one cohesive and consecutive plan for spaces*



site:

14th st.  
nw washington dc  
columbia heights



14th st. retail center



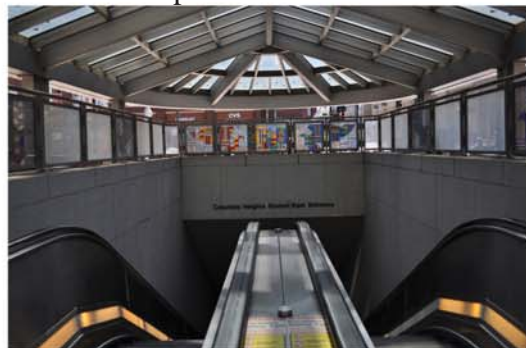
the dance institute



fire department



metro bus stop



columbia heights metro



open air market



the tivoli theater



dc bike share



google maps site map (public domain)

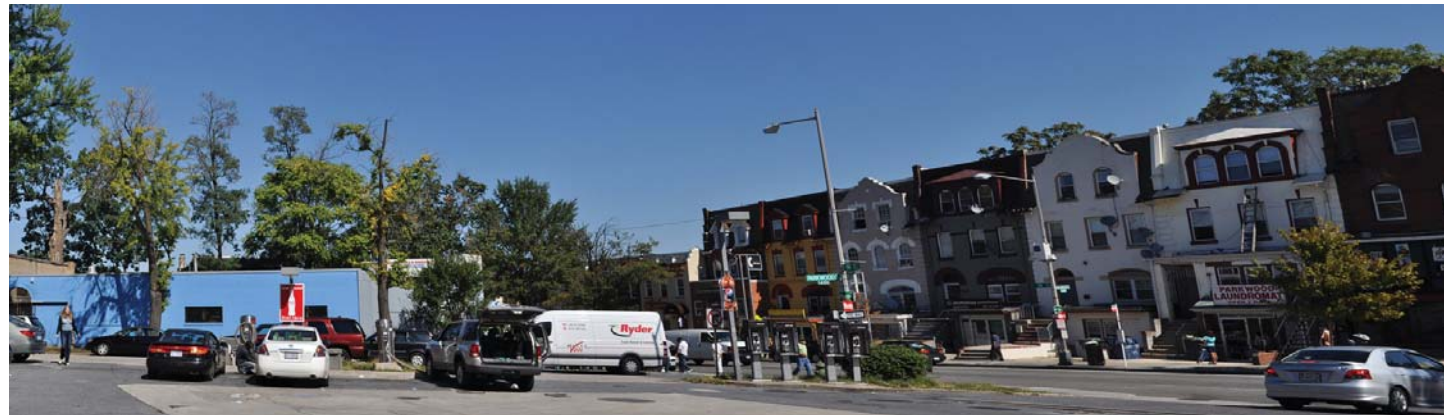
-   
Site
-   
Public Transportation
-   
Rock Creek Park
-   
Recreational Fields
-   
Significant Buildings
-   
Retail



site photo - looking south



site photo - looking west



site photo - looking north



site photo - looking east

"I experience myself in the city, and the city exists through my embodied experience. The city and my body supplement and define each other: I dwell in the city and the city dwells in me."

- Juhani Pallasmaa, *The Eyes of the Skin: Architecture and Senses*, p.11

Columbia Heights was chosen for the location of this project because it is an area of the city that is highly diversified in its culture, building typologies, and social classifications. It is an area that is growing in popularity and encourages new growth and urban development.

In addition it meets some of the Guidelines addressed by the "The Active Design Guidelines: Promoting Physical Activity and Health in Design" put together by the New York City Departments of Design and Construction, Health and Mental Hygiene, Transportation, and City Planning (p. 6-7):

**1. Improve Access to transit and transit facilities:**

Two Metro Bus stops are located within a block of the site and a Metro Stop is within 6 city blocks.

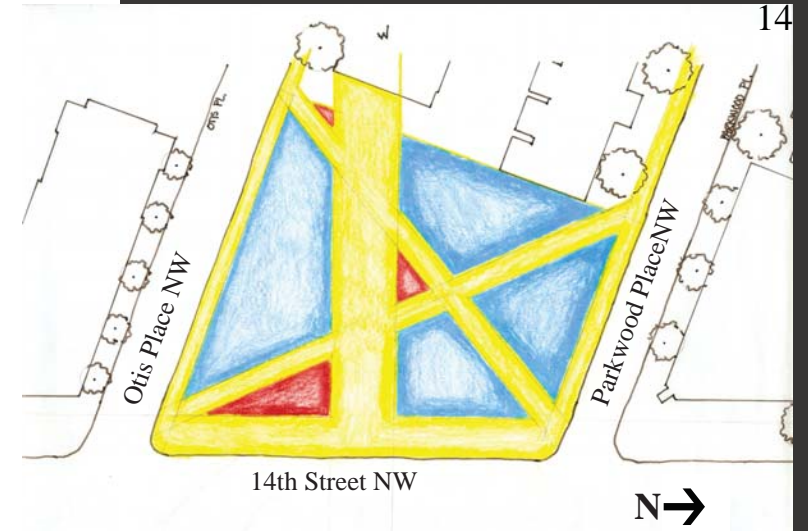
**2. Improve Access to Plaza, Parks, Open Spaces, and Recreational Facilities:**

Piedmont Park is within 2 blocks of the site. In addition to two recreational fields within 7 to 8 blocks.

**3. Facilitate bicycling for recreation and transportation by developing continuous bicycling networks and incorporating infrastructure like safe indoor and outdoor bicycle parking:**

A bike share location is one block north of the site.

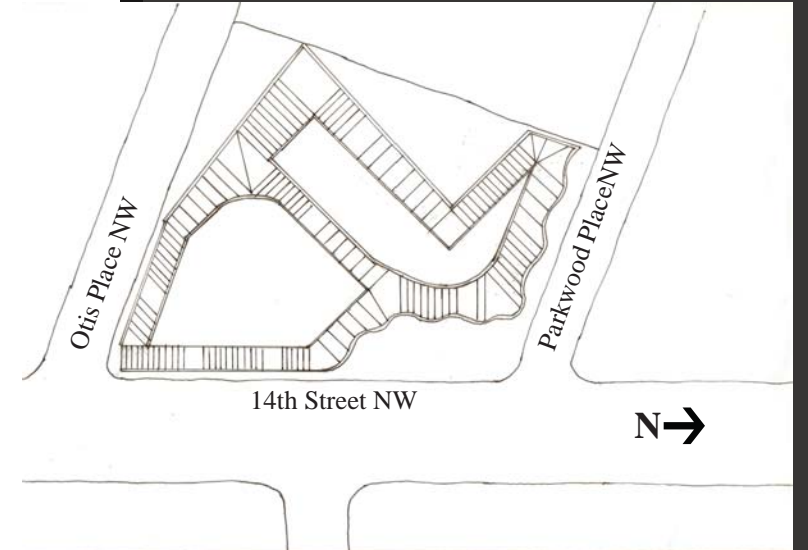
These are important aspects of the existing site location that will only further promote a more active and healthy population and also reduce energy consumption and green house gas emissions. Not only is it imperative for people to be healthier but to also be aware of and contribute to the healthiness of the environment in which we live.



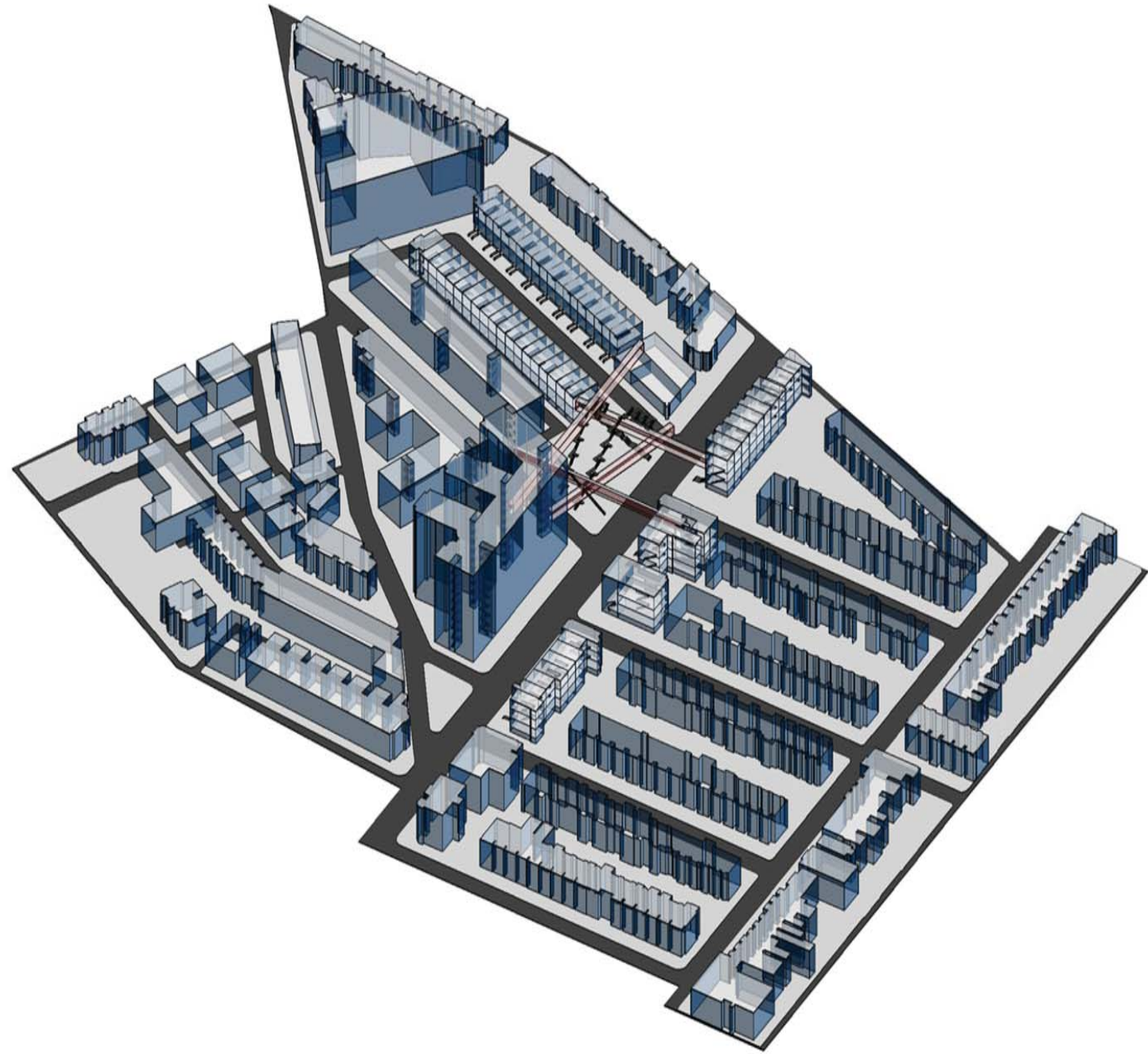
site design sketch: highlighting common paths of travel



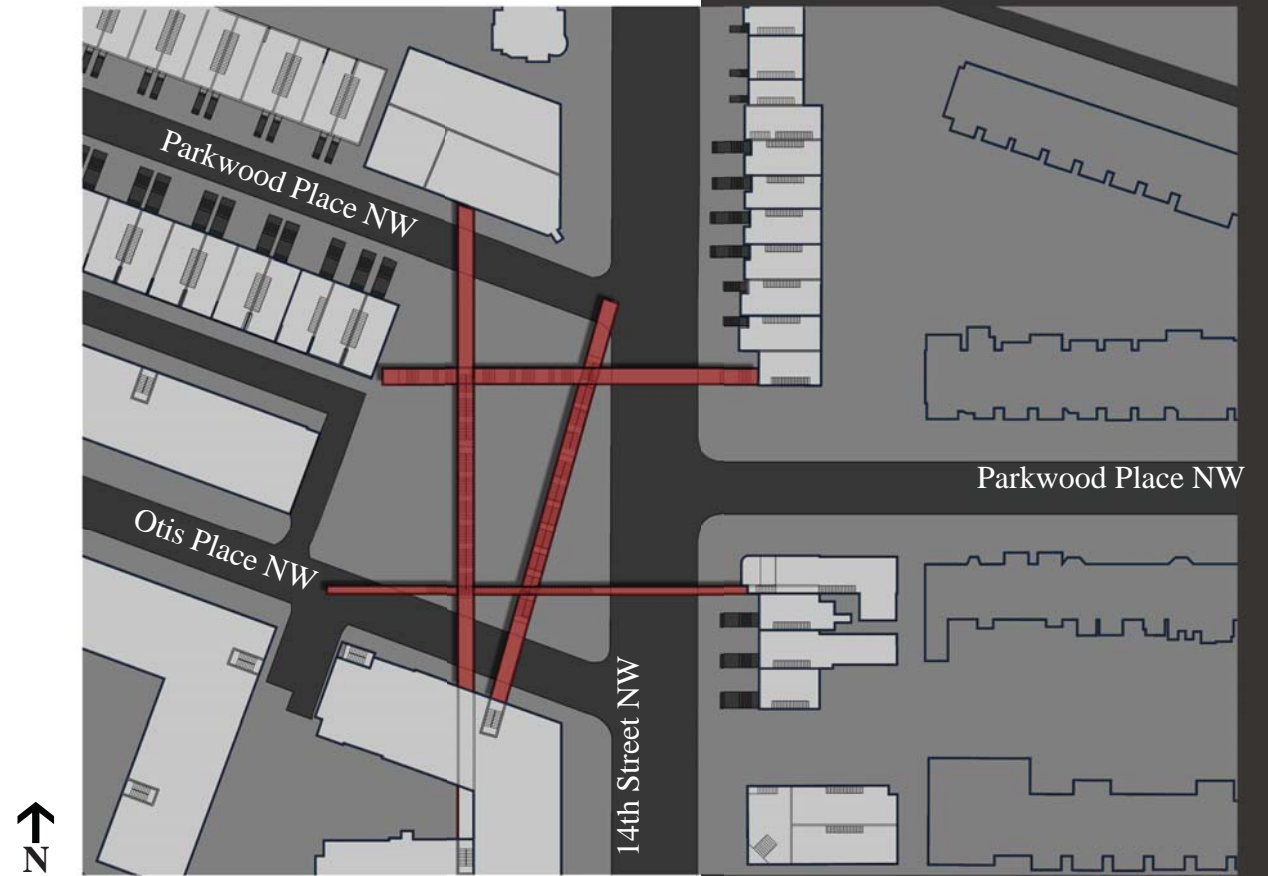
site design sketch: space planning study



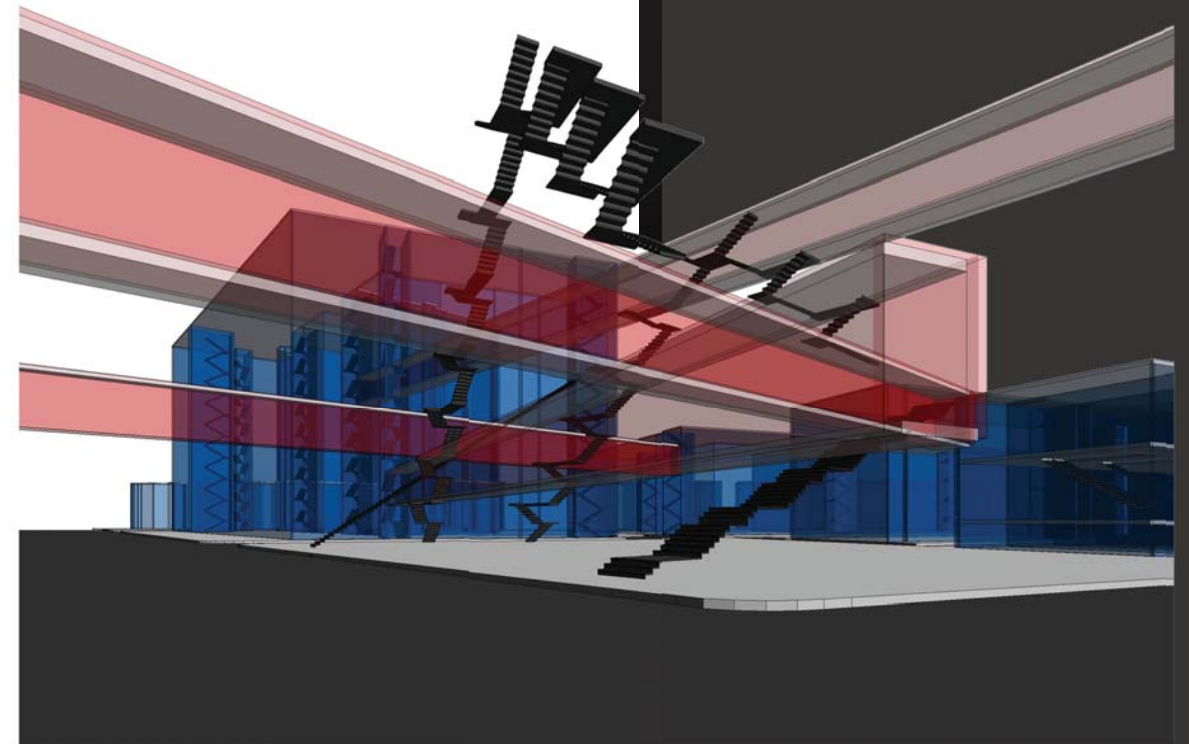
site design sketch: circulation in response to site



3d site model:  
*analyzing existing stair conditions within  
 the surrounding site and pulling those paths  
 through and up to fill and create ideas for  
 future spacial design*



3d site model: stair analysis



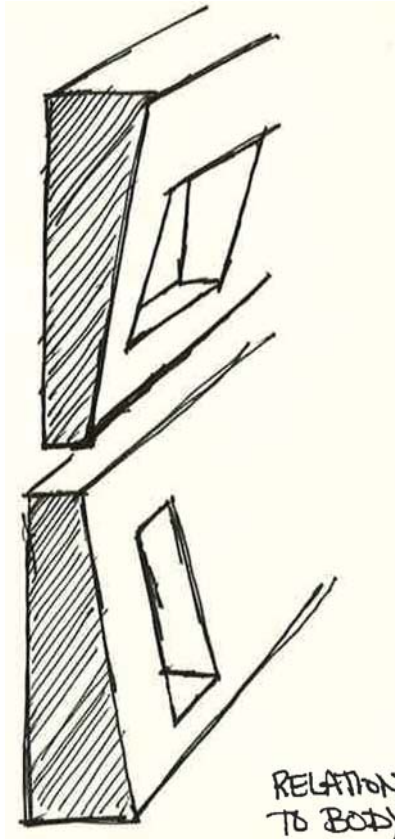
3d site model: stair analysis

design process:  
engaging the body and  
mind through the design  
of temporary and  
permanent dwelling  
spaces

### mindfulness in architecture

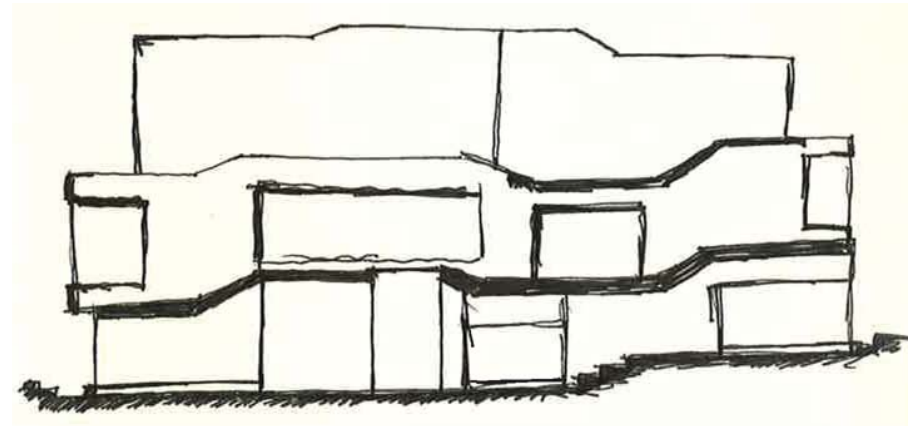
*Beginning sketches looked at wall sections, window designs, elevations, sections, and space planning to play with how different elements and rhythm of spaces can encourage mindfulness.*

*Mindfulness lies in a spiritual sense of the body and the reality in which a person exists in their every day to day life experiences, in order to gain awareness of bodily functions, emotions, and physical and psychological consciousness.*

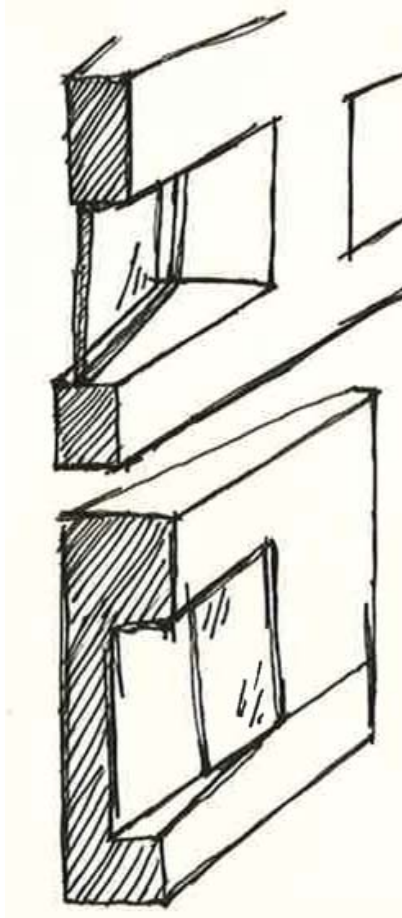


wall study sketches

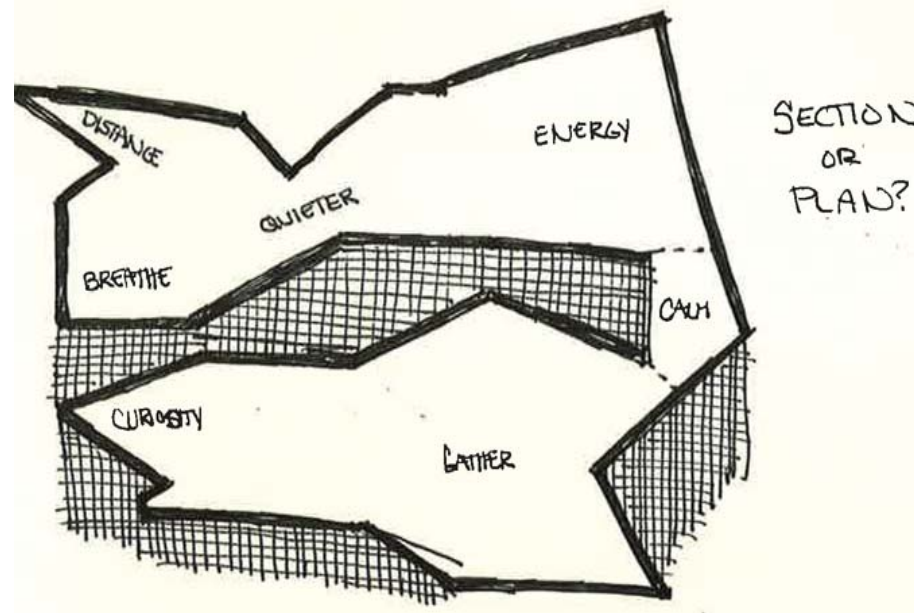
RELATION TO BODY



elevation study



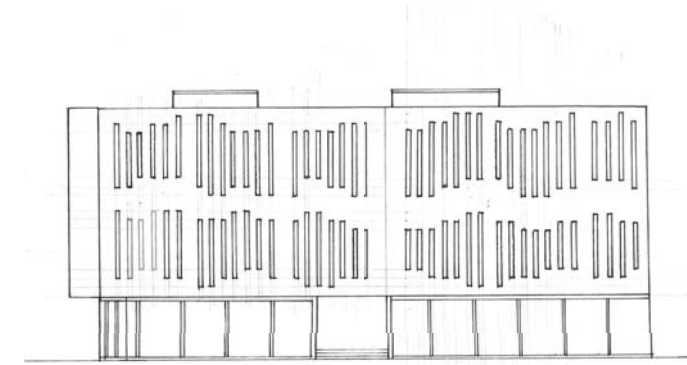
design spatial study



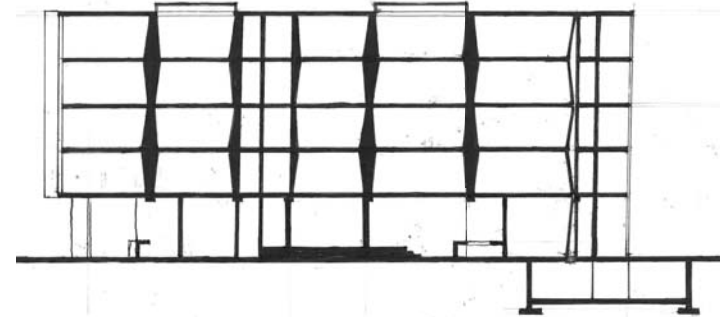
SECTION OR PLAN?

sketches and studies

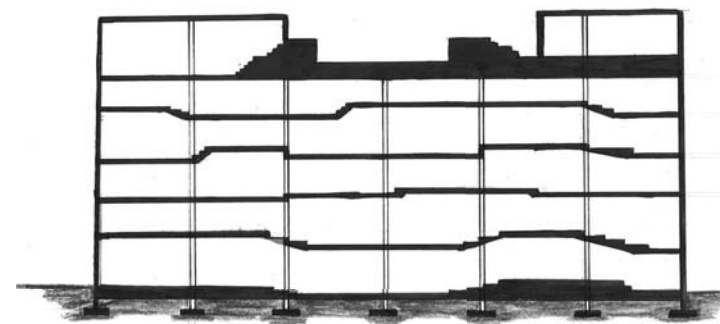
installation process:  
delving into physical and psychological interaction through vertical movement and the threshold between spaces



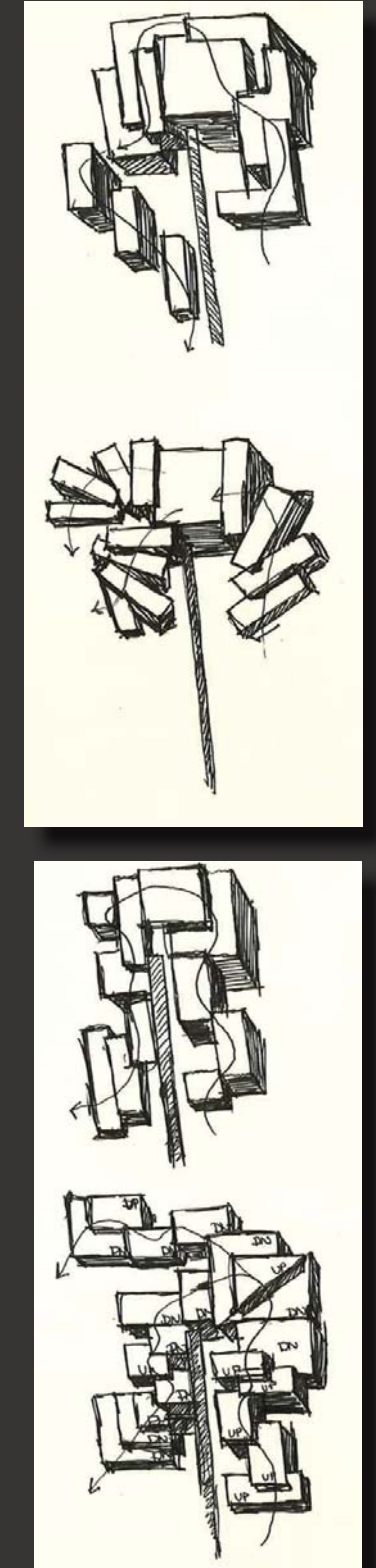
hotel elevation study



hotel section study

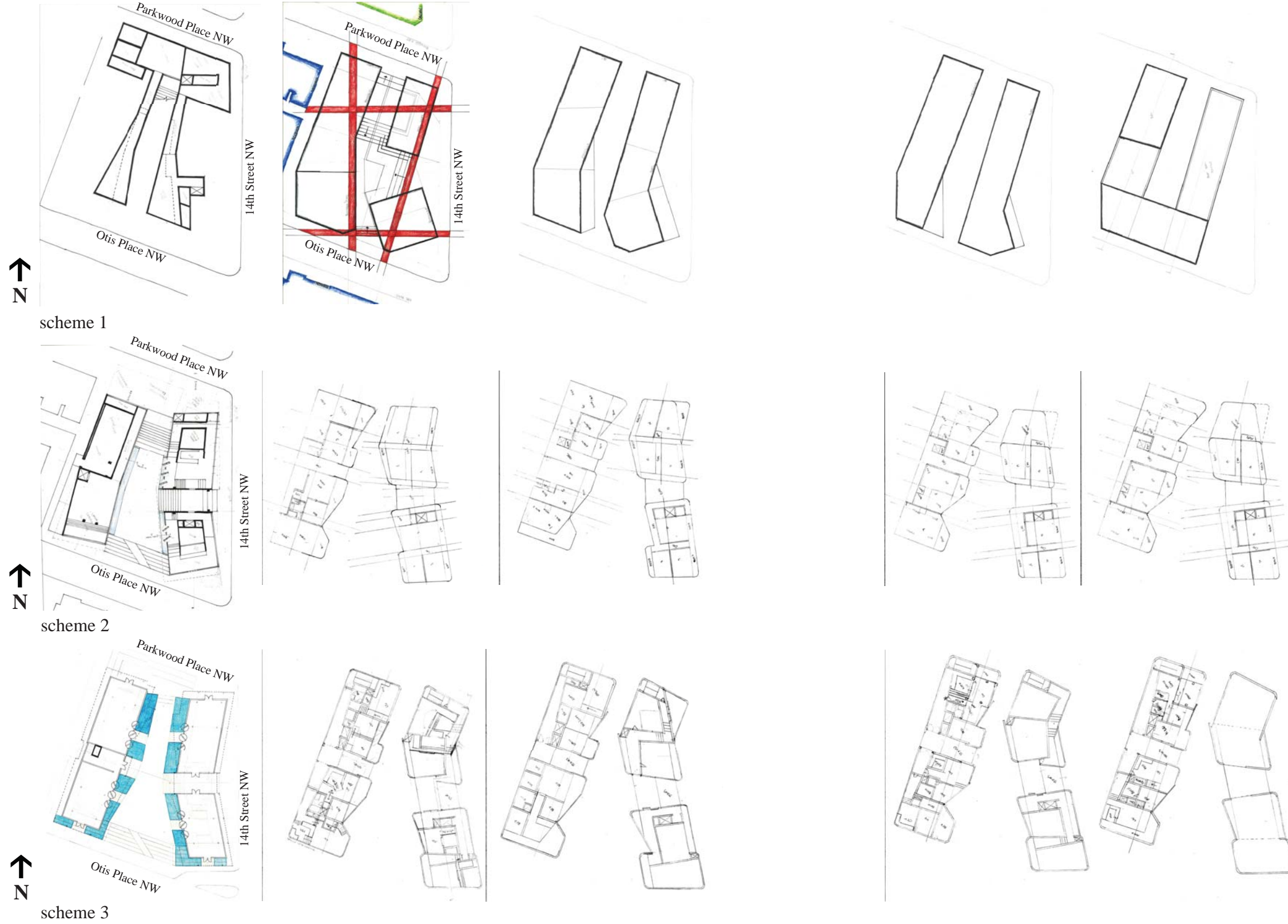


residence section study

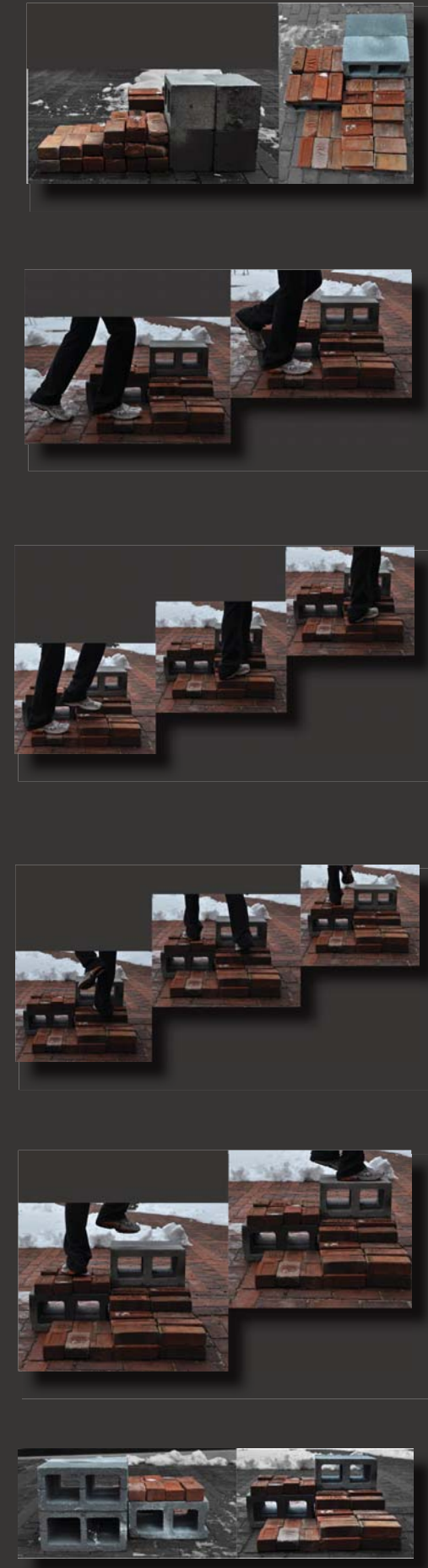


installation plan study sketches

*Defining the programmatic spaces and allowing them to influence the massing of the building drove the initial plan drawings.*  
*Keeping in mind the theoretical sketches and studies of light and shadow, presence of time, fluctuation of interior and exterior spaces allowed for two seemingly separate towers, one the hotel (an experience that is temporary) the other a multi-family residence (a more permanent dwelling space) connected underneath by a spa to re-emphasize the benefits of both psychological and physical well-being.*



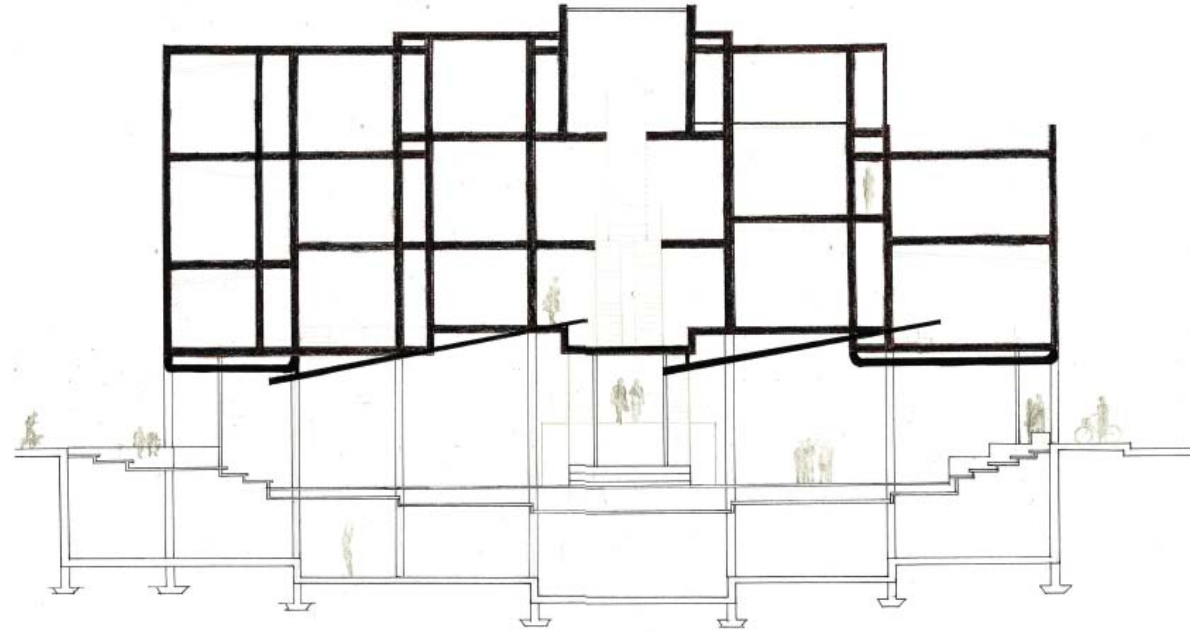
plan layout studies



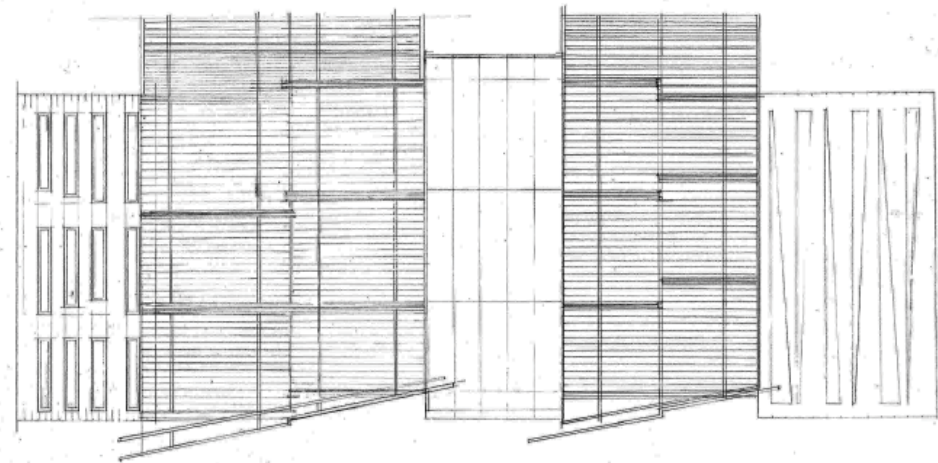
photographic step study 1

*For the hotel, circulation was where the elevation changes and fluctuation of spaces occur. Inside the rooms contemplation begins to be influenced by the play of light occurring from the design of the facade and placement of exterior windows while within the rooms themselves vertical changes remain singular and constant in order to oppose the temporality of the dwelling experience intended for the hotel.*

*The spa below that connects the two spaces, begins to influence the bodily experience by the rise and fall, not only from the floor below one's feet, but the ceiling above. As opposed to the sliced openings that play with the light above, the skylights above the spa are water filled, which reflects and refracts exterior light creating a calm yet everchanging experience.*



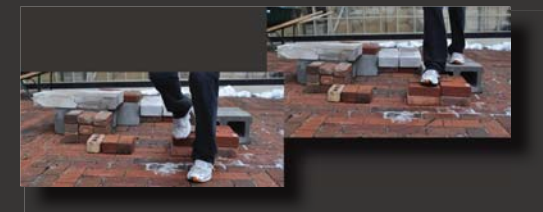
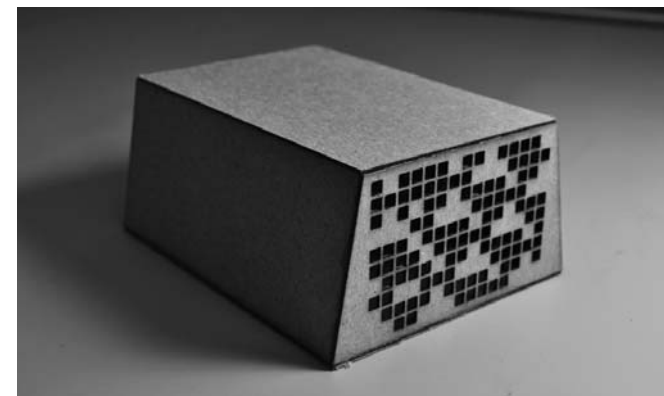
section sketch



elevation sketch

hotel elevation and section studies

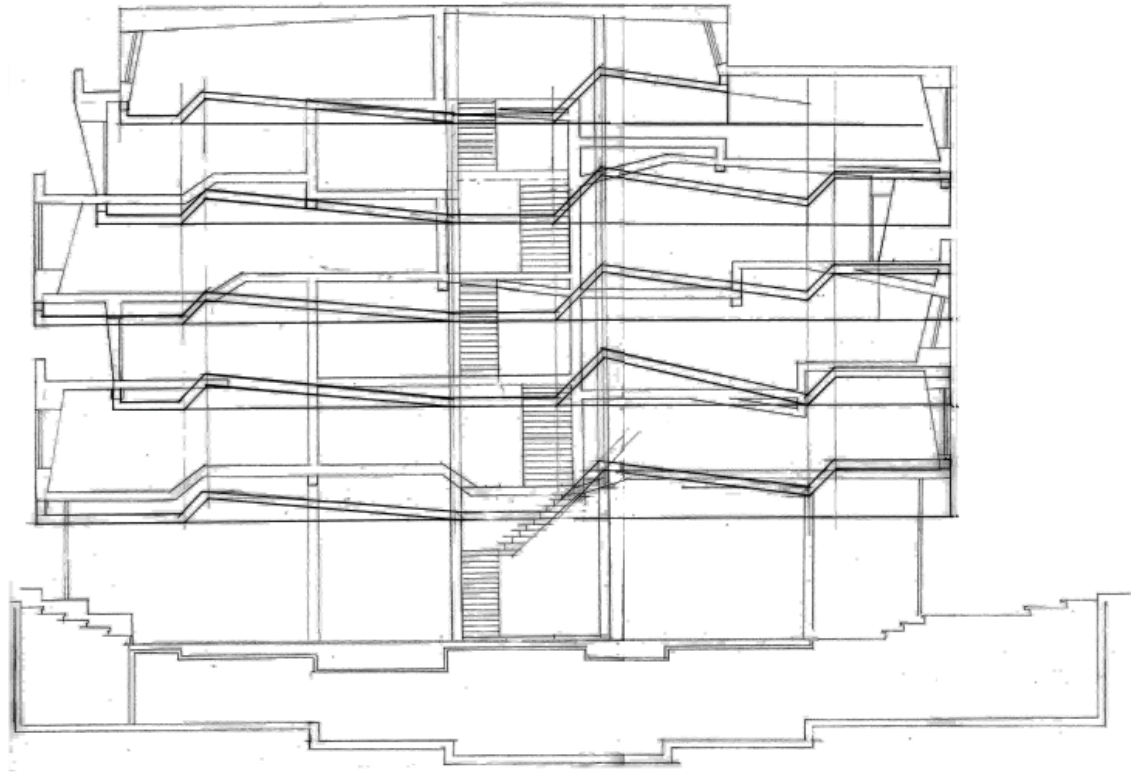
*light and shadow studies for hotel windows: the windows for the hotel attempt to show a quicker passage of time through using a series of smaller openings in set patterns to allow for a more dramatic play of darkness and light*



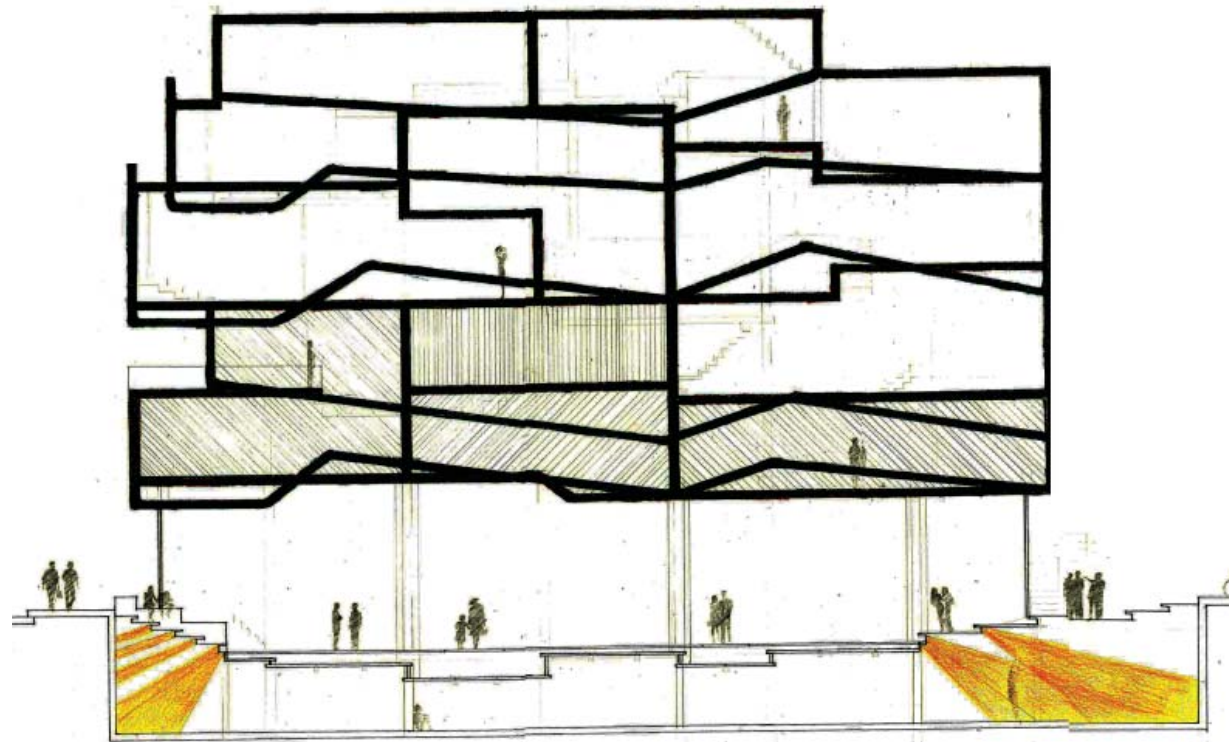
photographic step study 2



*For the residence, elevation changes were kept constant through the hallways and once inside the units a person will experience the rise and fall and the enclosed and openness of the spaces. Openings in the facades become larger and create planes rather than pieces of light to reiterate a more extended passage of time typical for an experience in a more permanent dwelling space.*

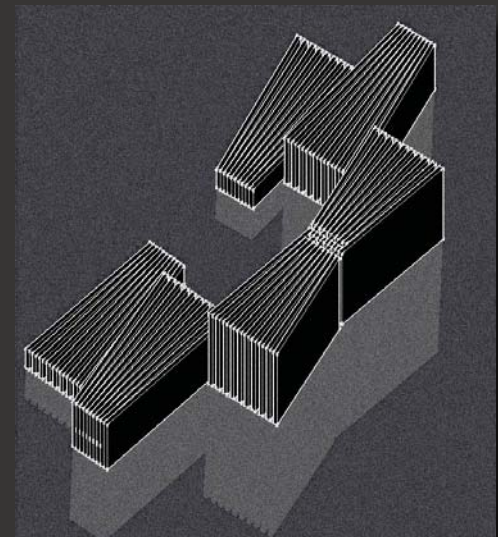
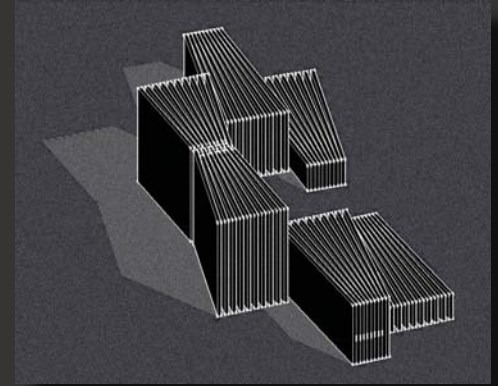
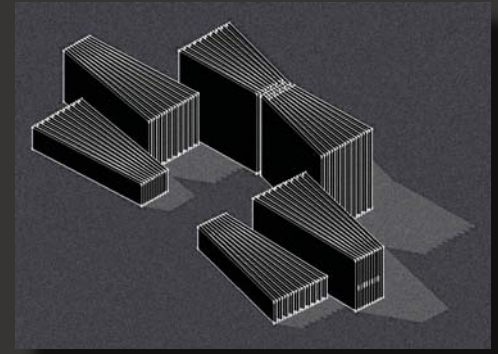


section overlays and sketches

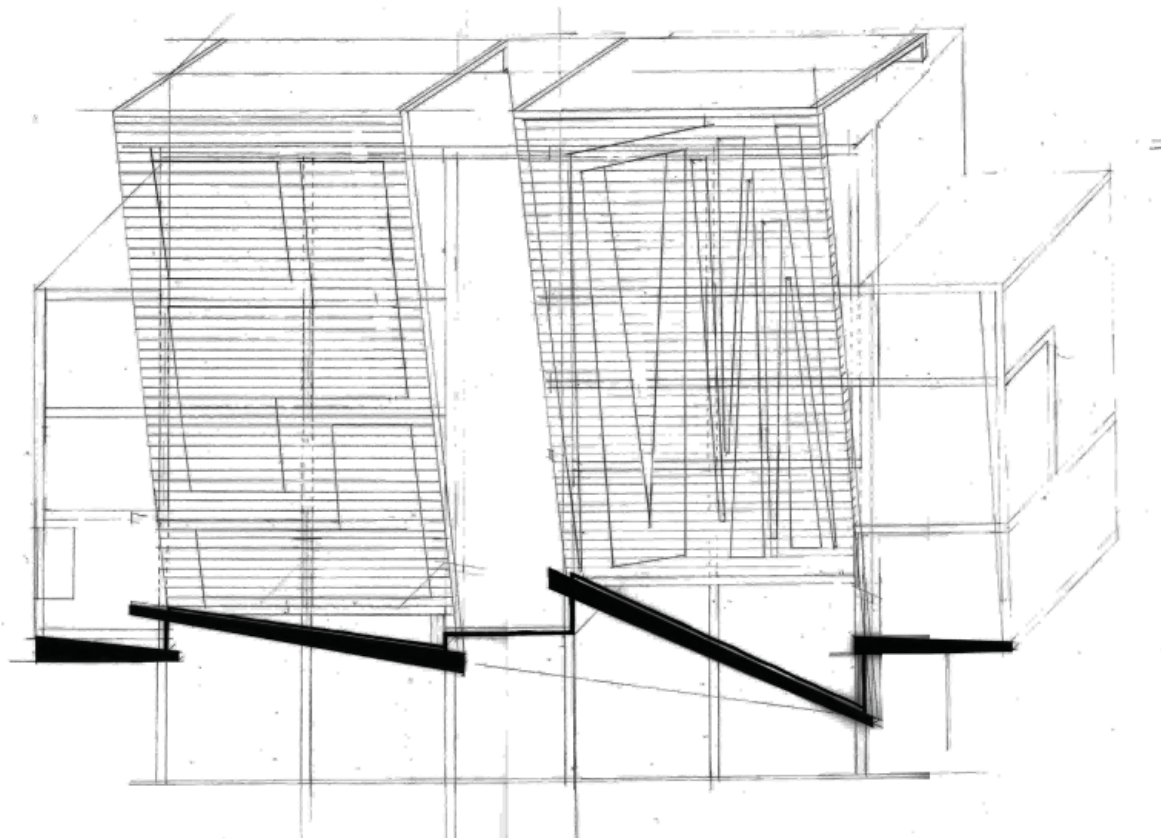


residence section studies

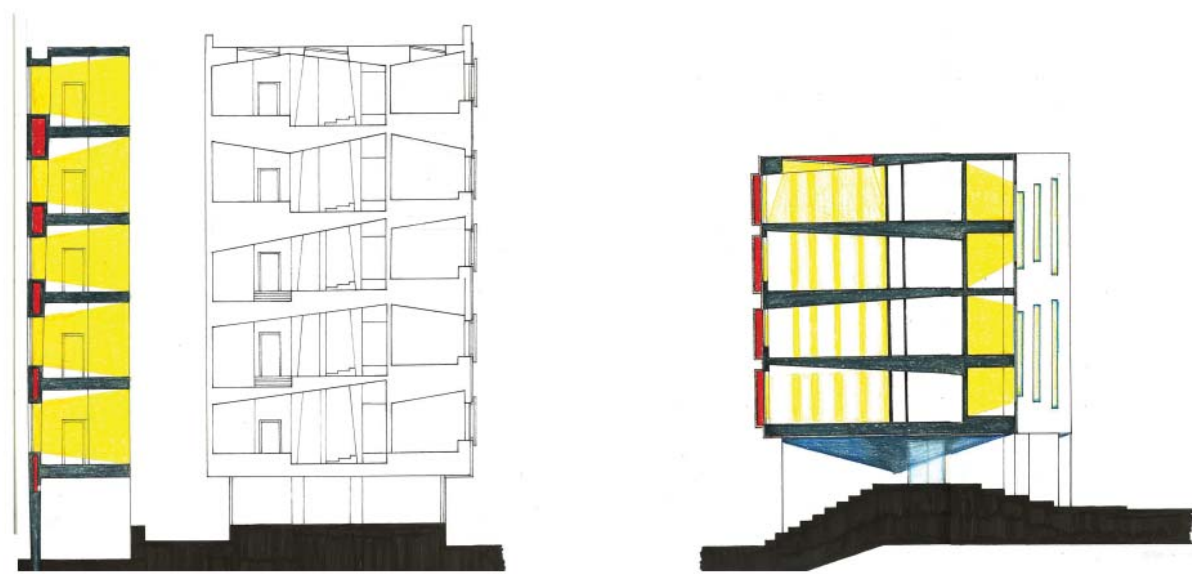
*exterior skin study model for residence: layering different materials and systems to create a more active facade and encourage a more physical and mental participation with the building*



3d step model studies - scheme 1

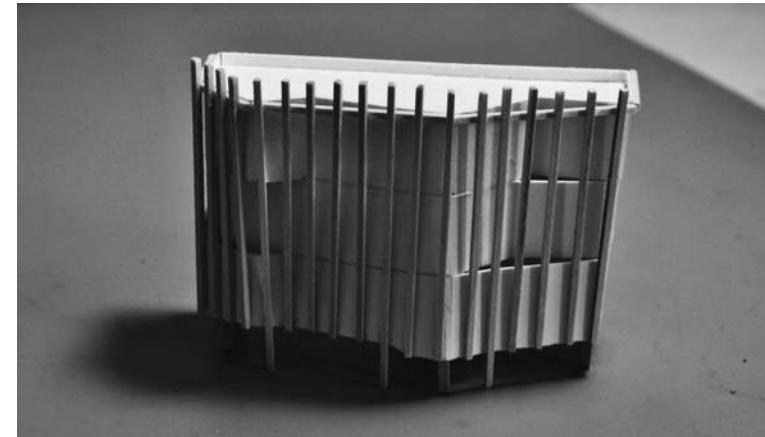


elevation and facade study: playing with staggering spaces vertically through the building along with using more consistent openings in the facade to begin to differentiate and reiterate the more permanence implied in the dwelling units versus those of the hotel

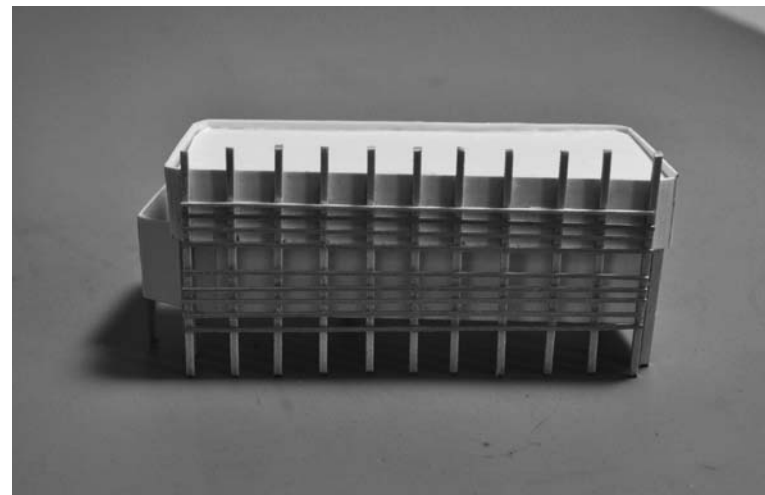


residence wall section and cross sections for hotel and residence: showing the different analysis of light and manipulation of spaces within each separately programmed space

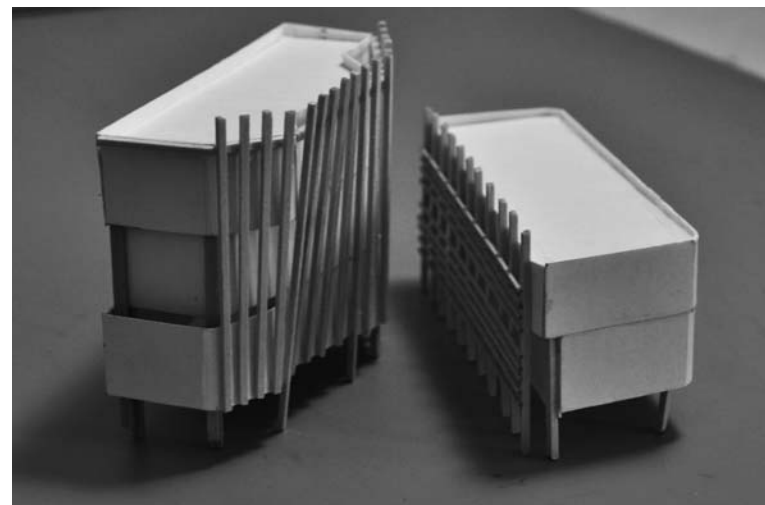
study models: begin to show a consistent set of rules in massing and materiality between the two towers and representing a differentiation in use and expression of both architectural ideas



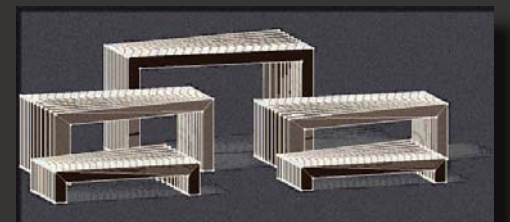
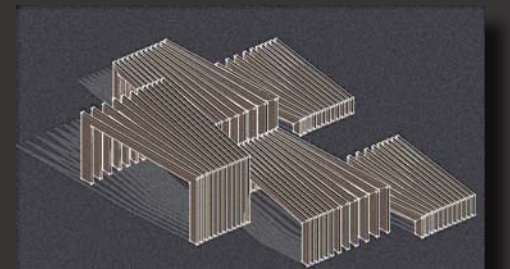
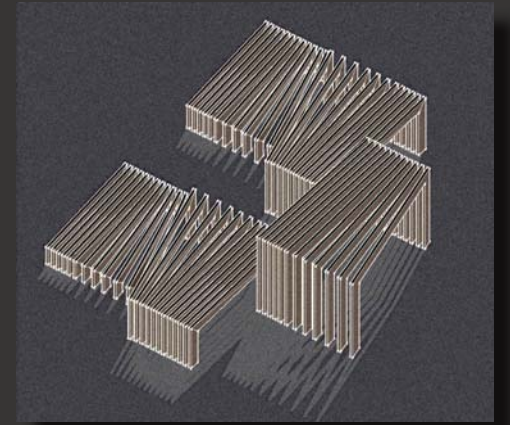
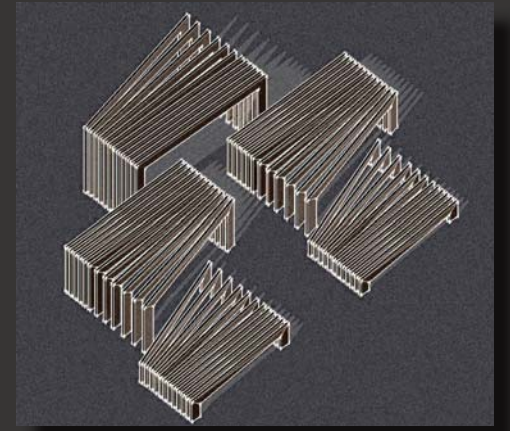
residence massing and facade study model



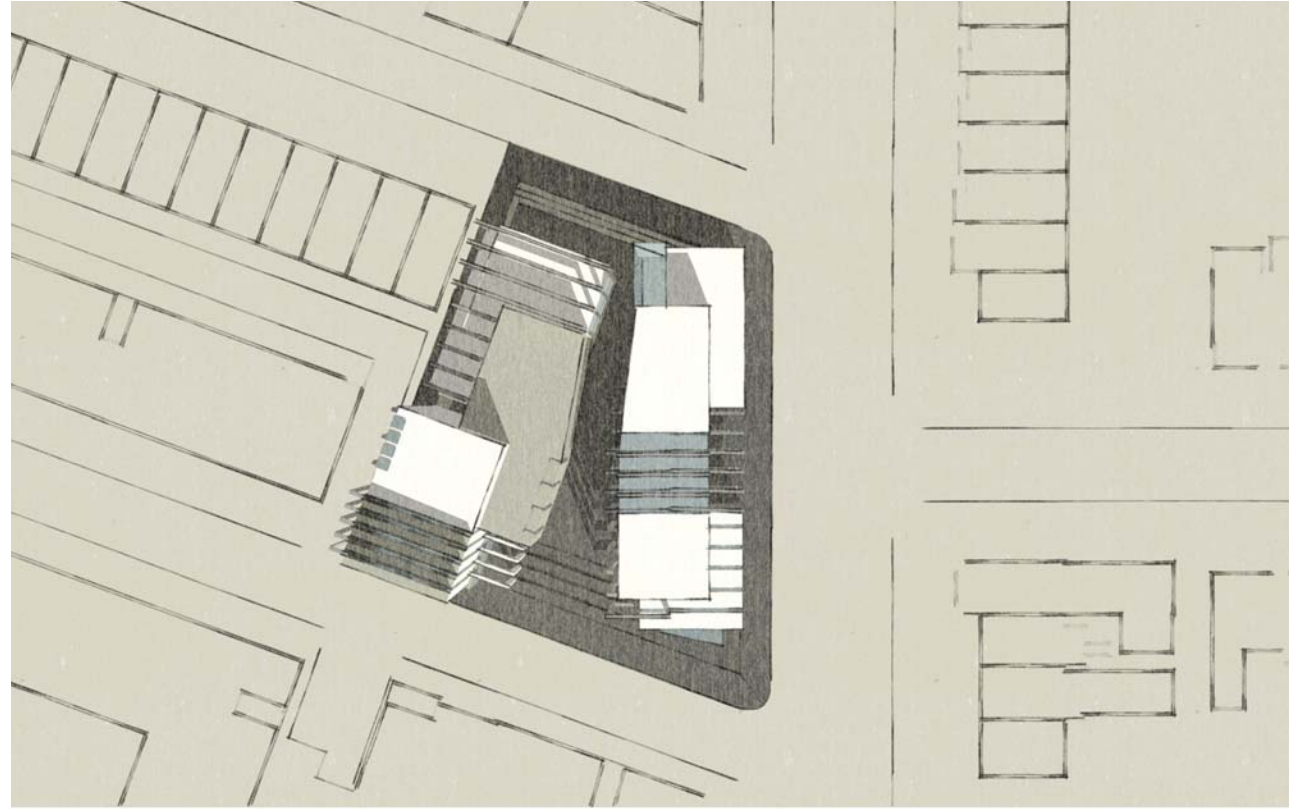
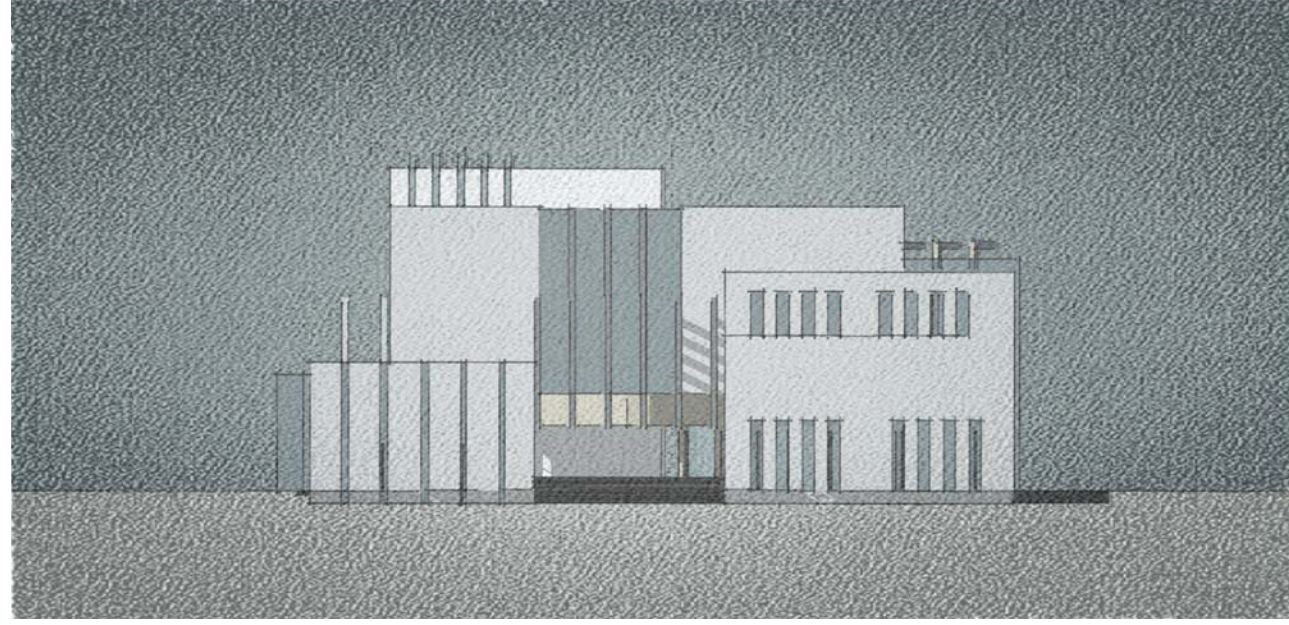
hotel massing and facade study model



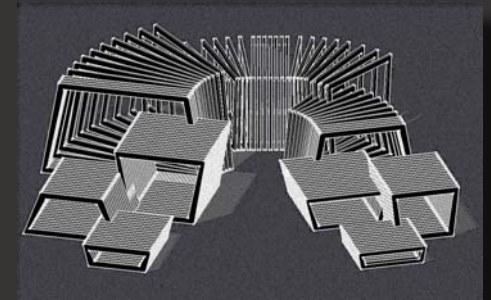
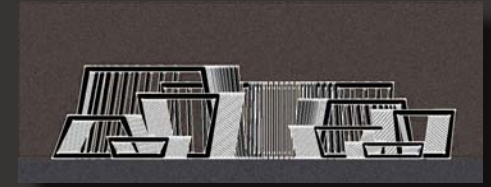
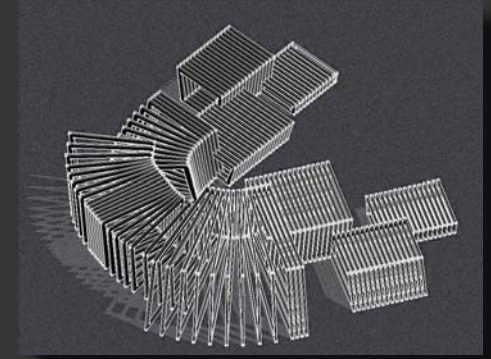
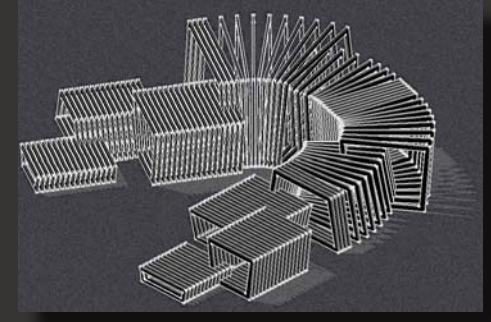
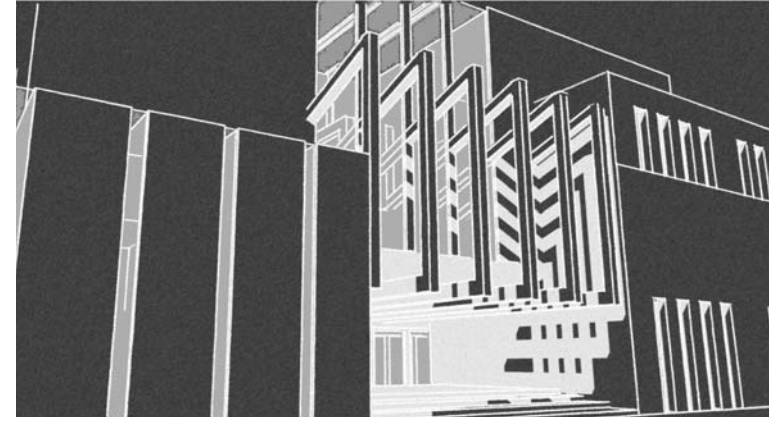
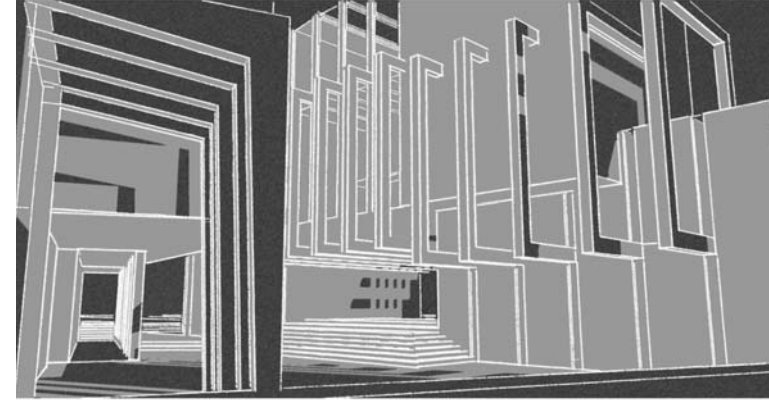
two masses relative to one another



*3d massing models were used to explore patterns of spaces and light. Forms that create arcades and passageways that encourage a person to want to pass through, pause and think, or actively engage their body and climb up through different types of spaces. To feel the coolness and absence of the shadow along with the warmth and comfort of natural light.*



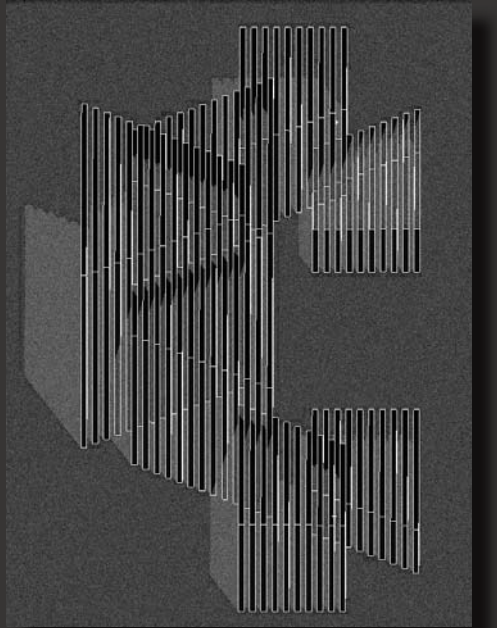
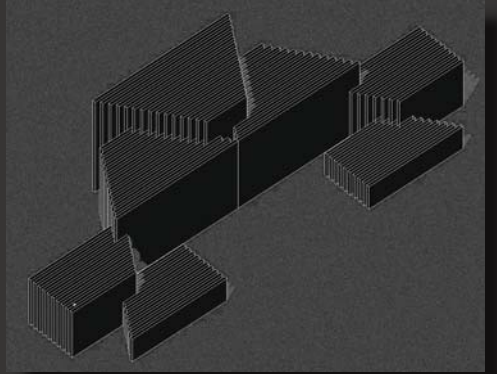
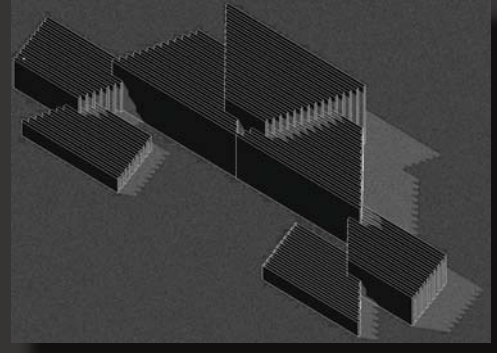
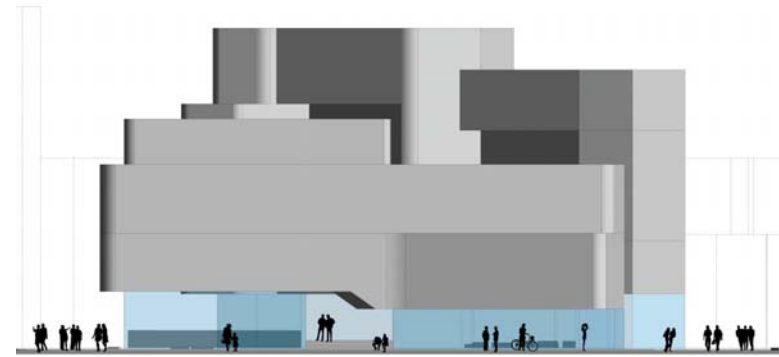
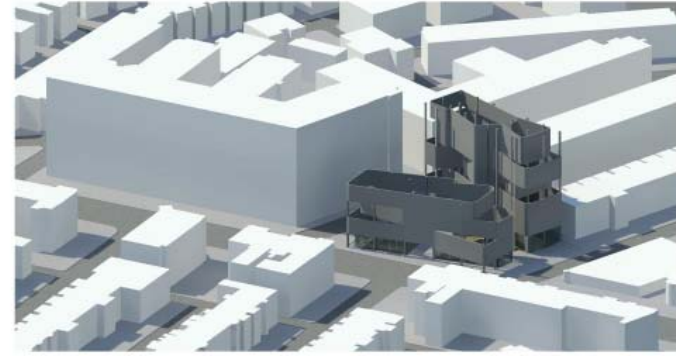
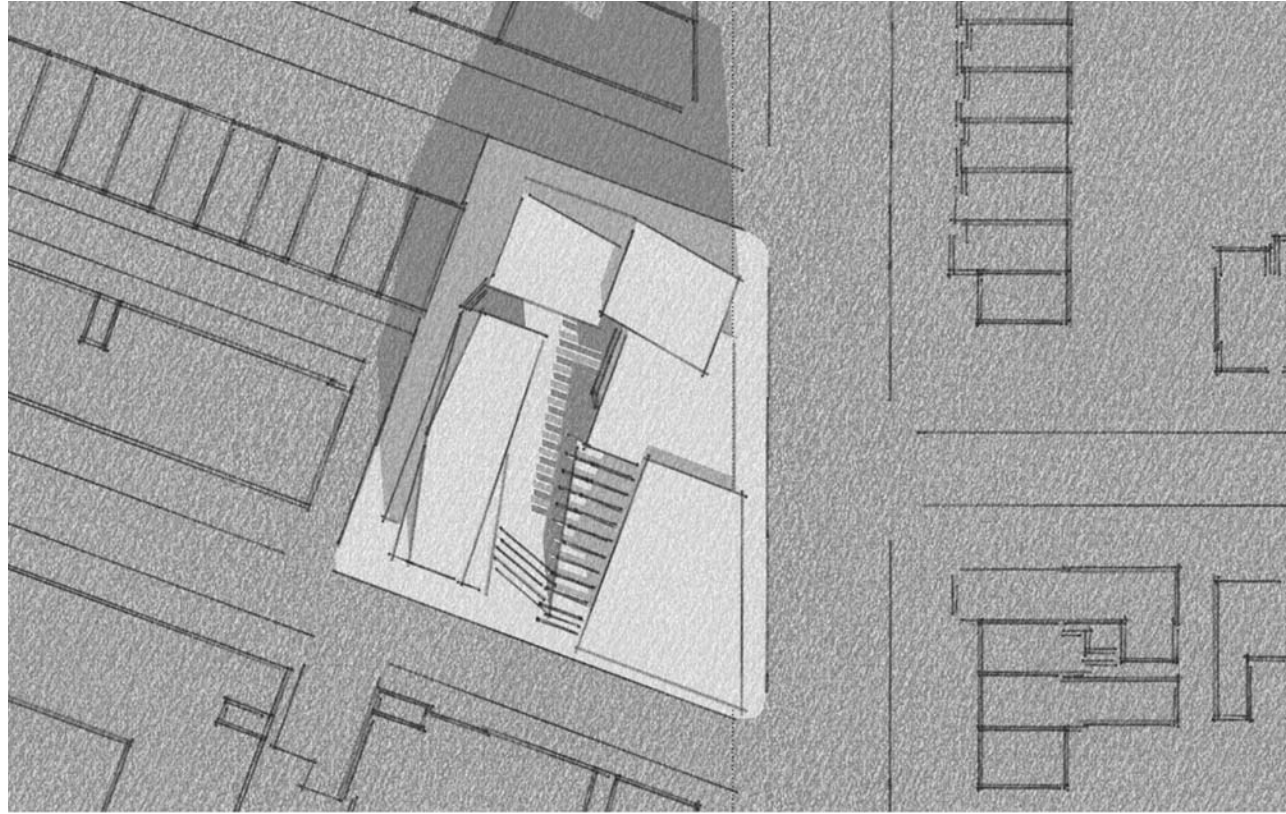
3d massing and facade study models



3d step model studies - scheme 3

*Model studies begin to play with the bending and wrapping of the facade integrated with a structural system that supports and suspends the materials of the building. Integrating the building with the surrounding site to connect, respond, and create a new architectural expression for the neighborhood.*

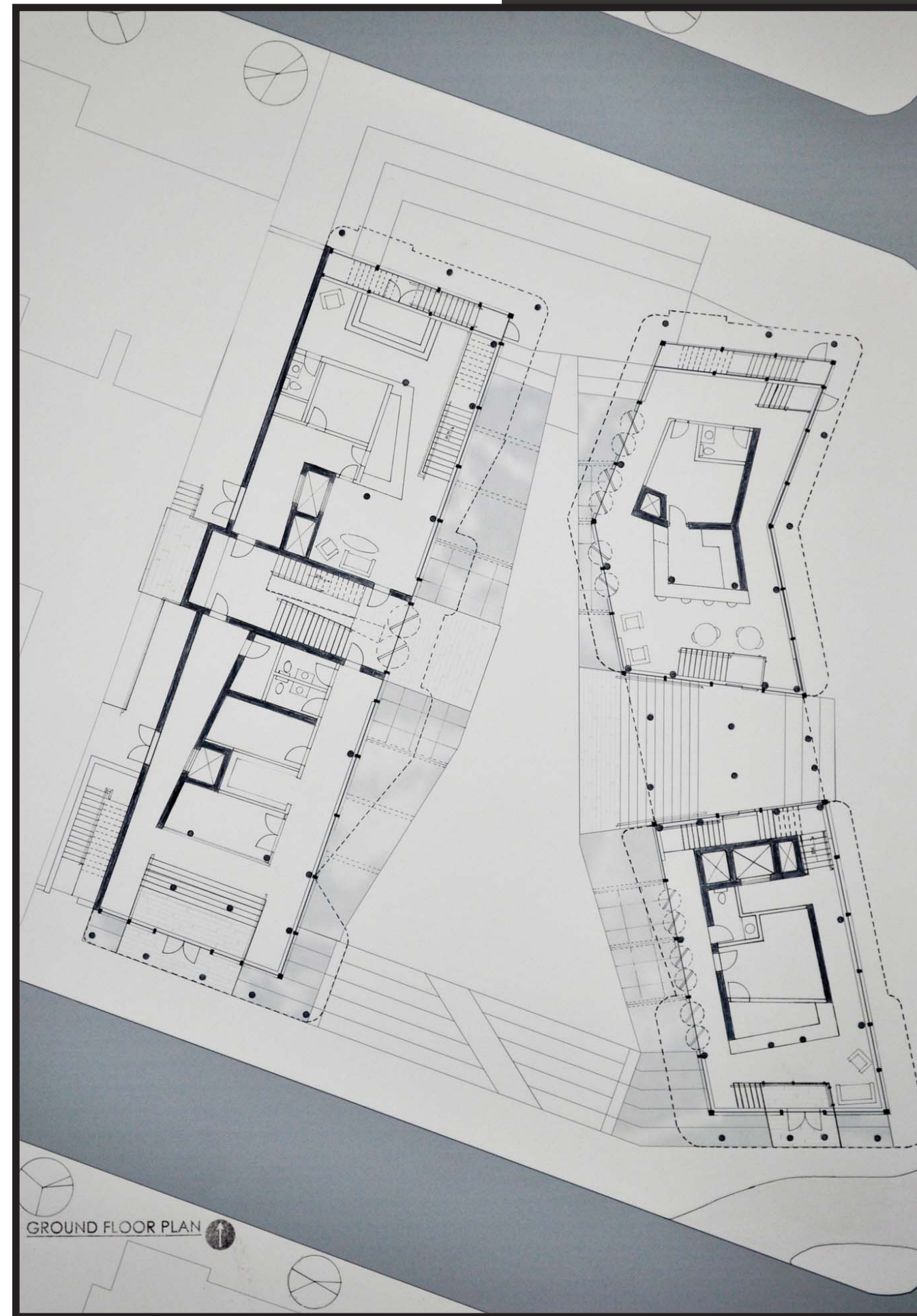
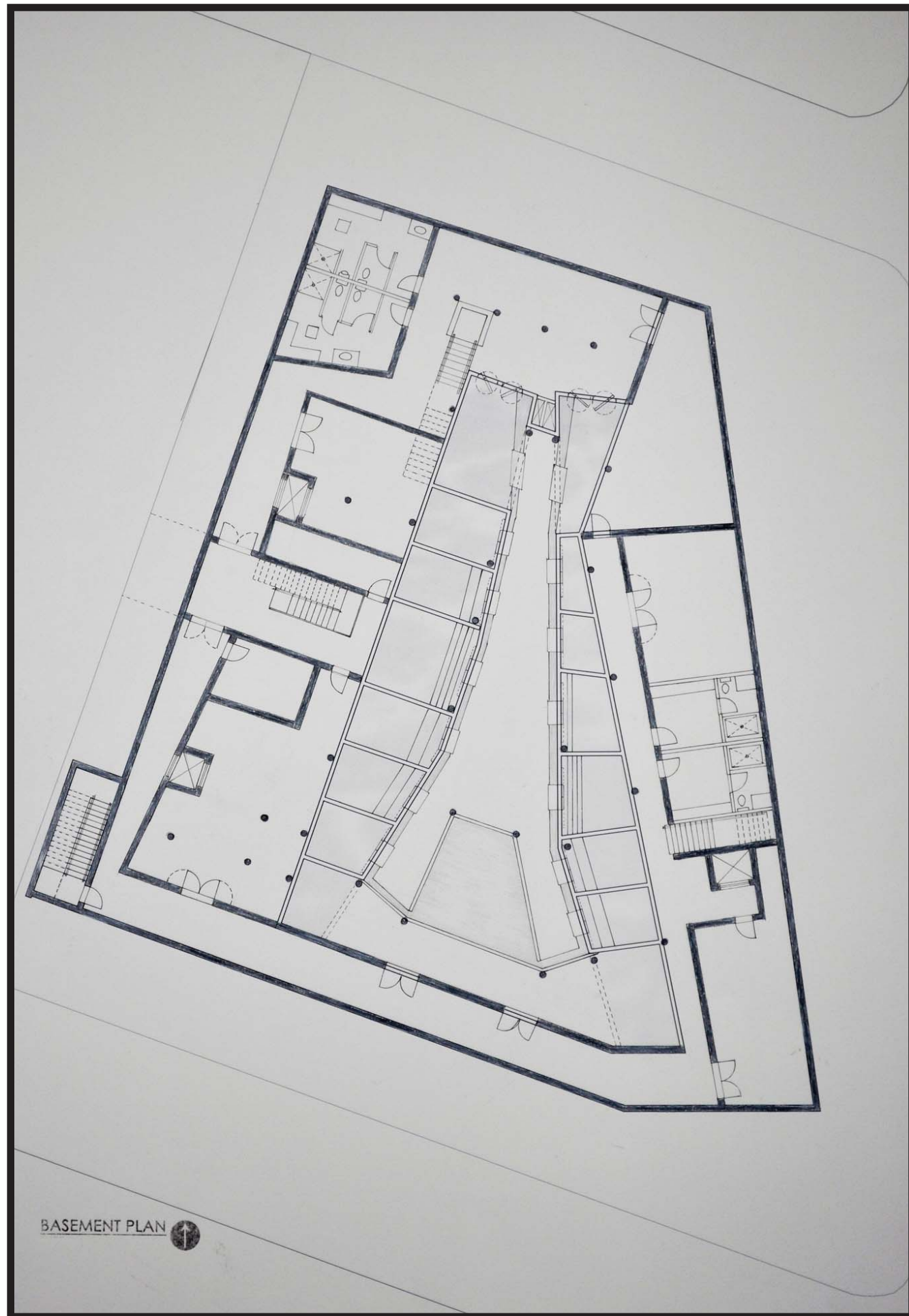
3d massing and facade study models



3d step model studies - scheme 4 (final)

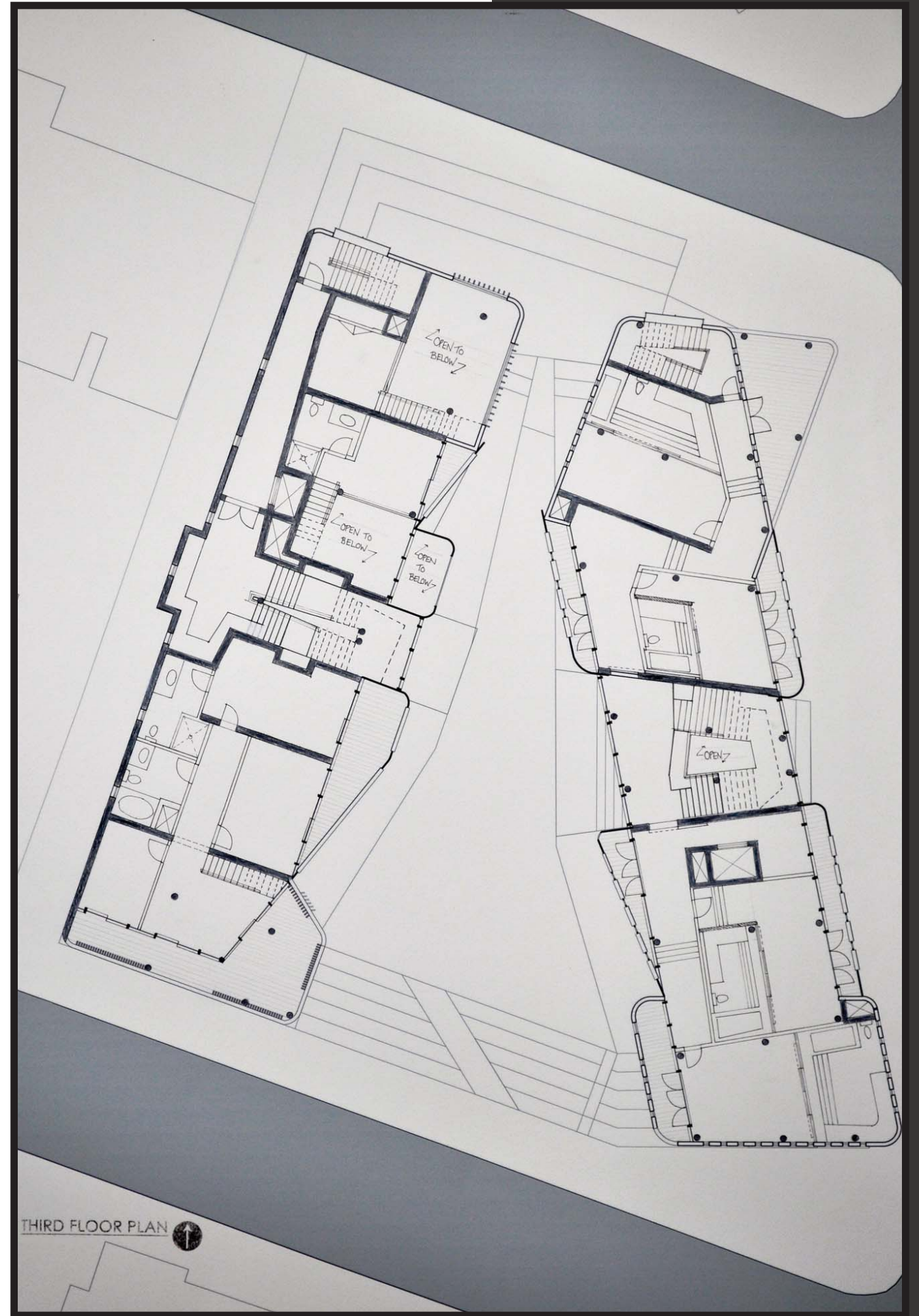
final presentation:  
the plans





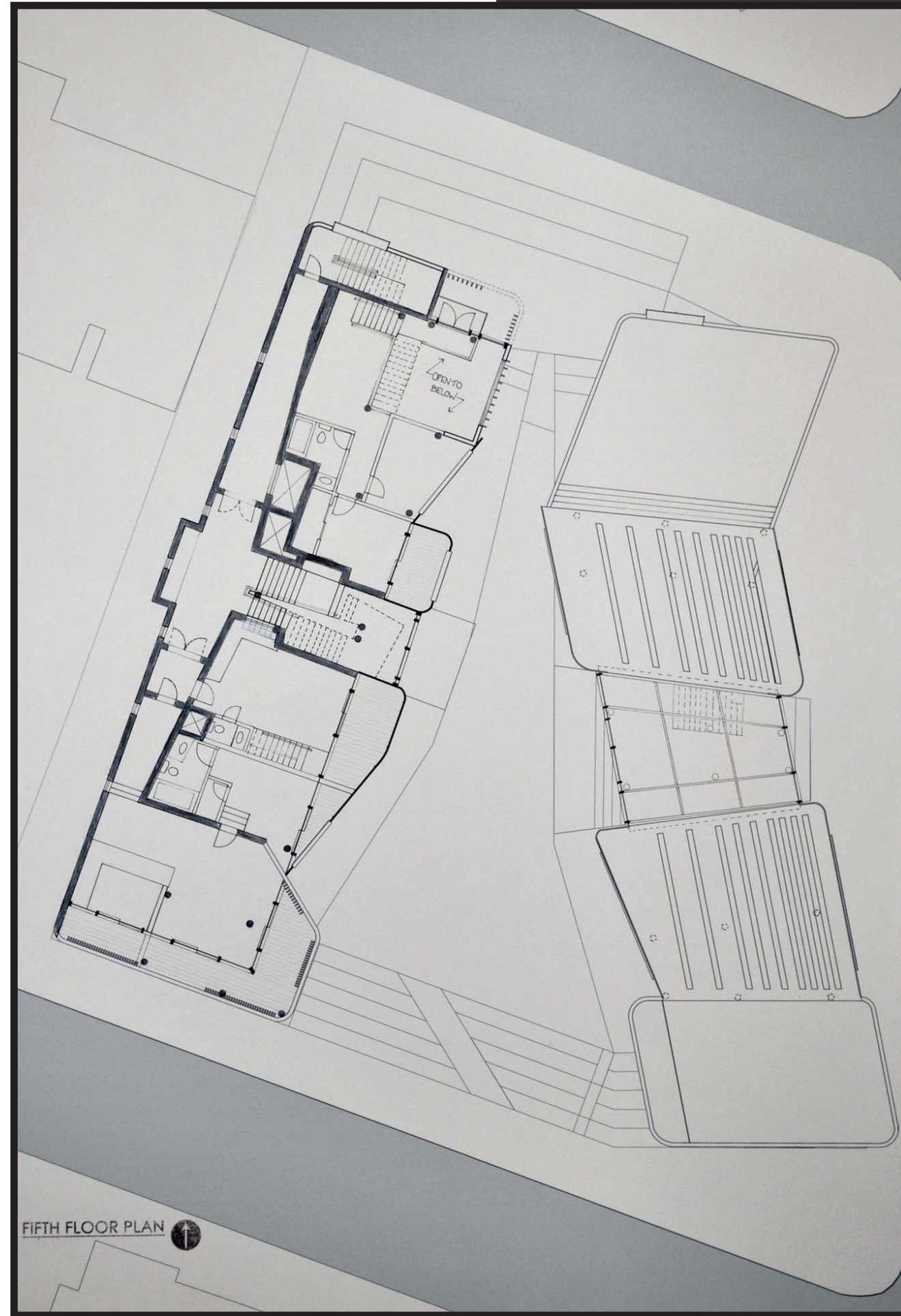
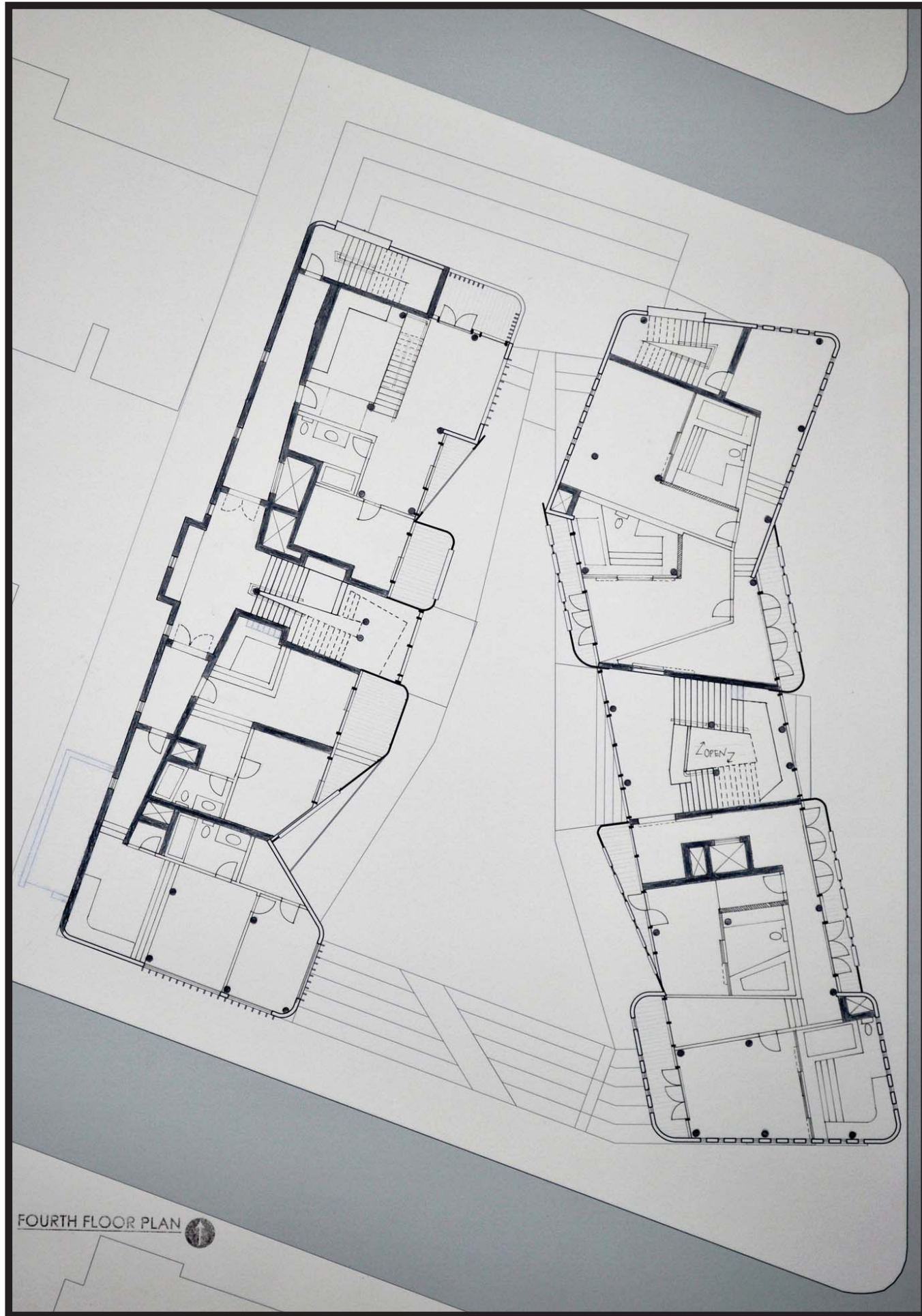


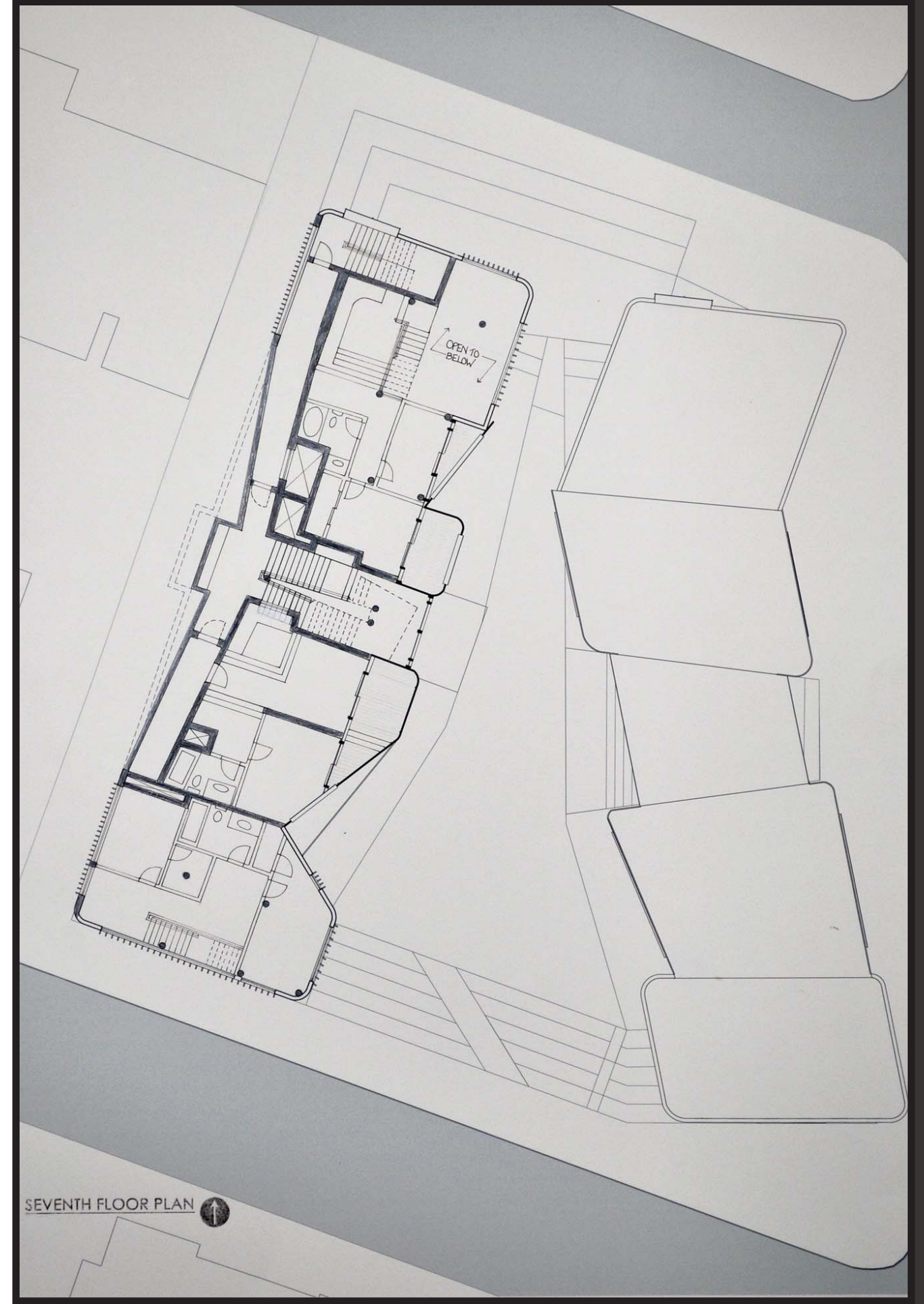
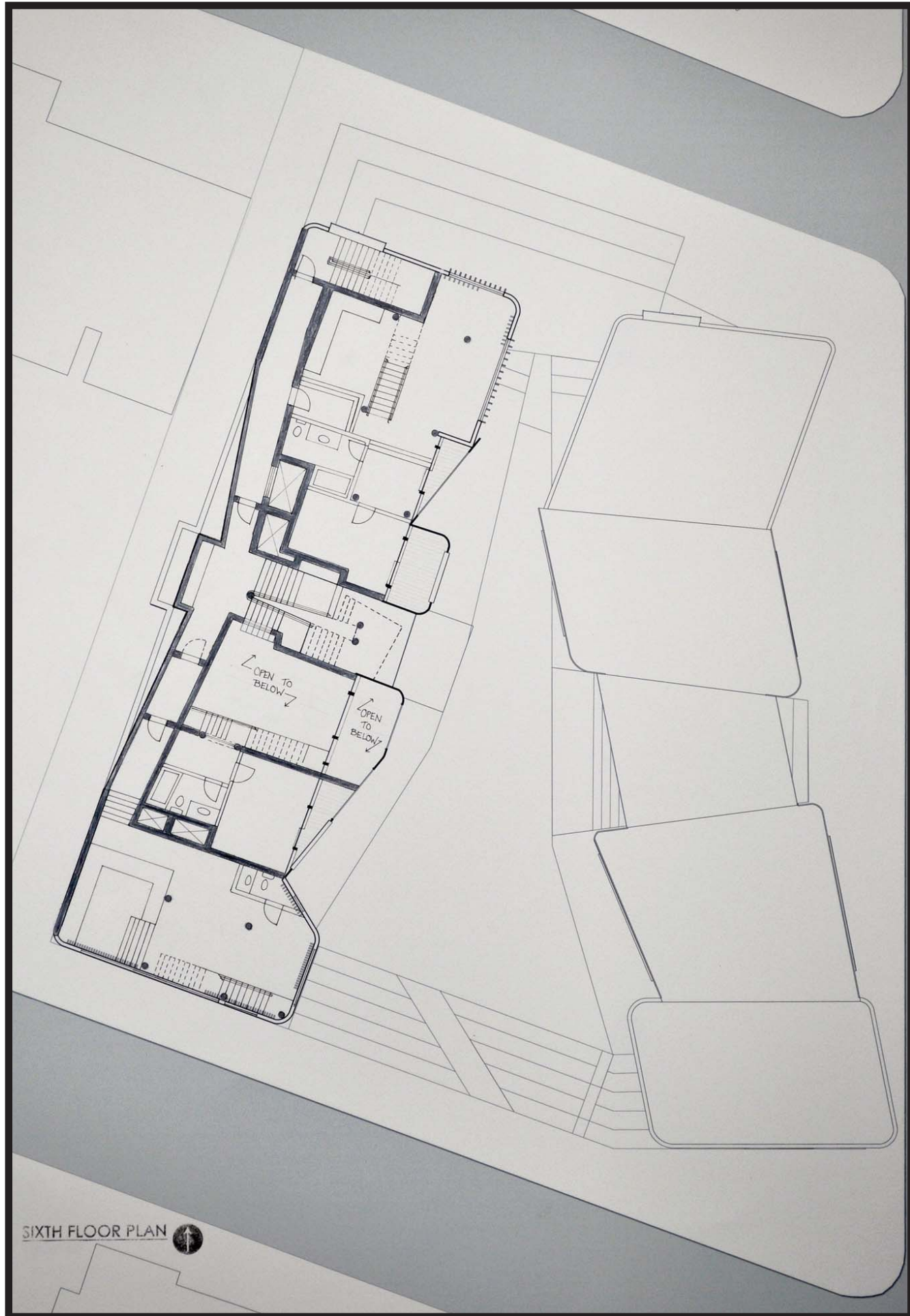
SECOND FLOOR PLAN



THIRD FLOOR PLAN



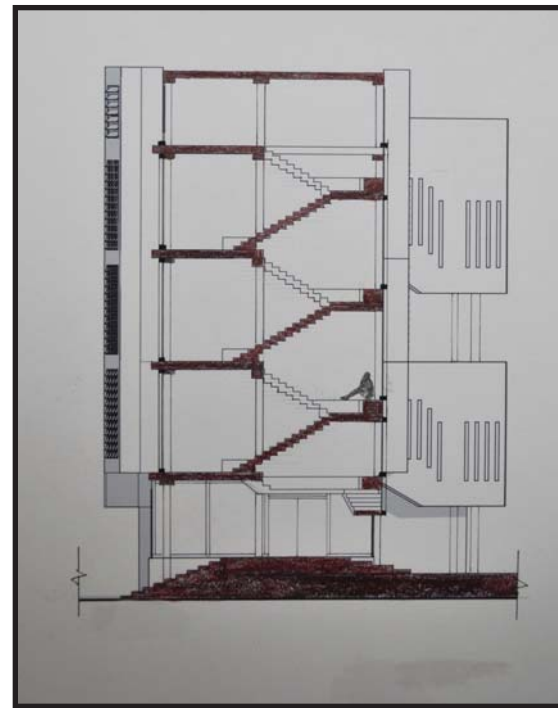




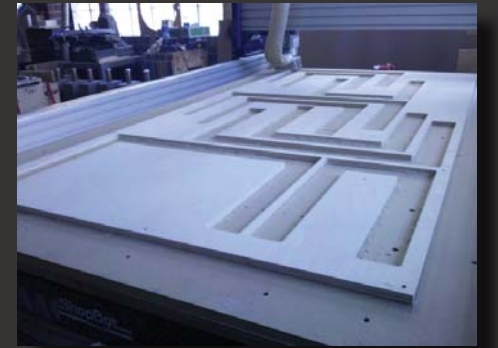
final presentation:  
sections & elevations



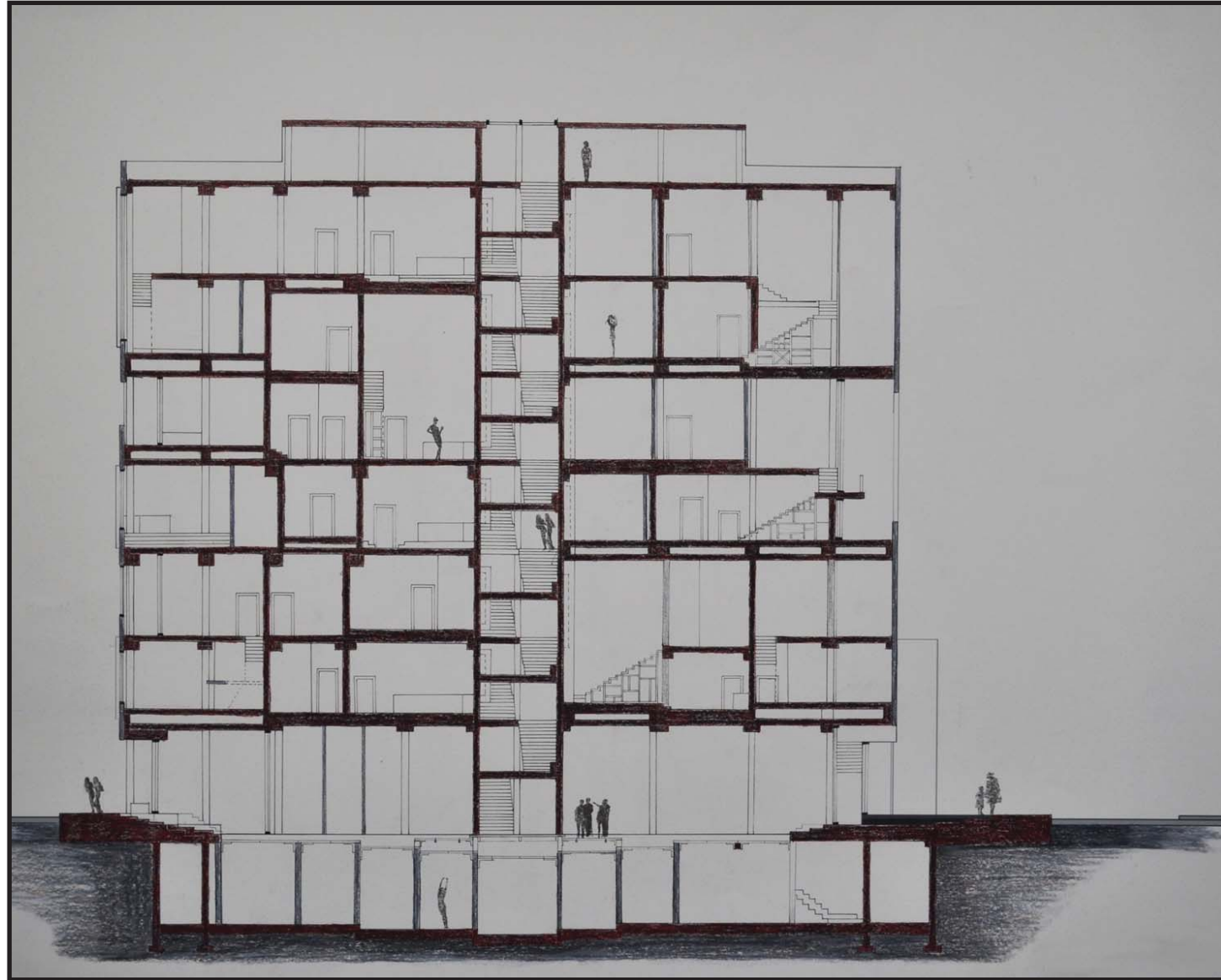
hotel section:  
*expressing elevation changes within the common areas while maintaining subtle and singular changes within each dwelling unit*



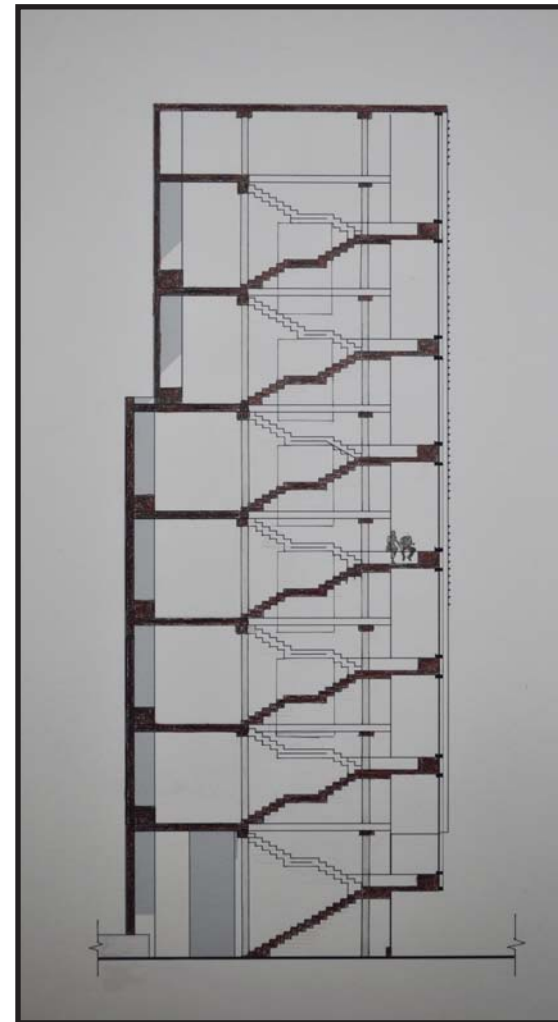
hotel monumental stair section:  
*creating spaces of pause to sit, think, rest, and talk within the folds the stairs.*



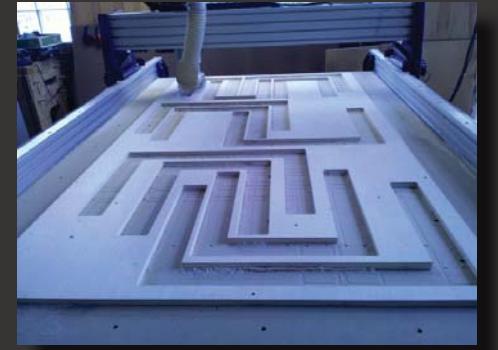
CNC fabrication of model installation



residence section:  
*manipulation of levels within the dwelling units engages a person to become active and aware within the space they spend time in their day to day life*



residence monumental stair section:  
*the stair folds up and in and out, engaging the walls and glazing creating spaces that are convenient for everyday living and experiences*



CNC fabrication of model installation



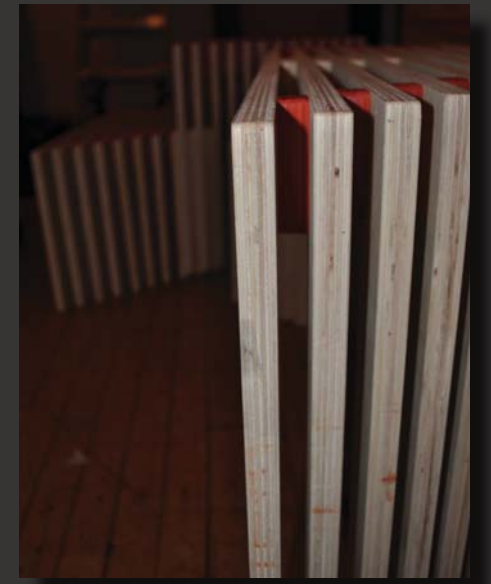
east elevation



north elevation

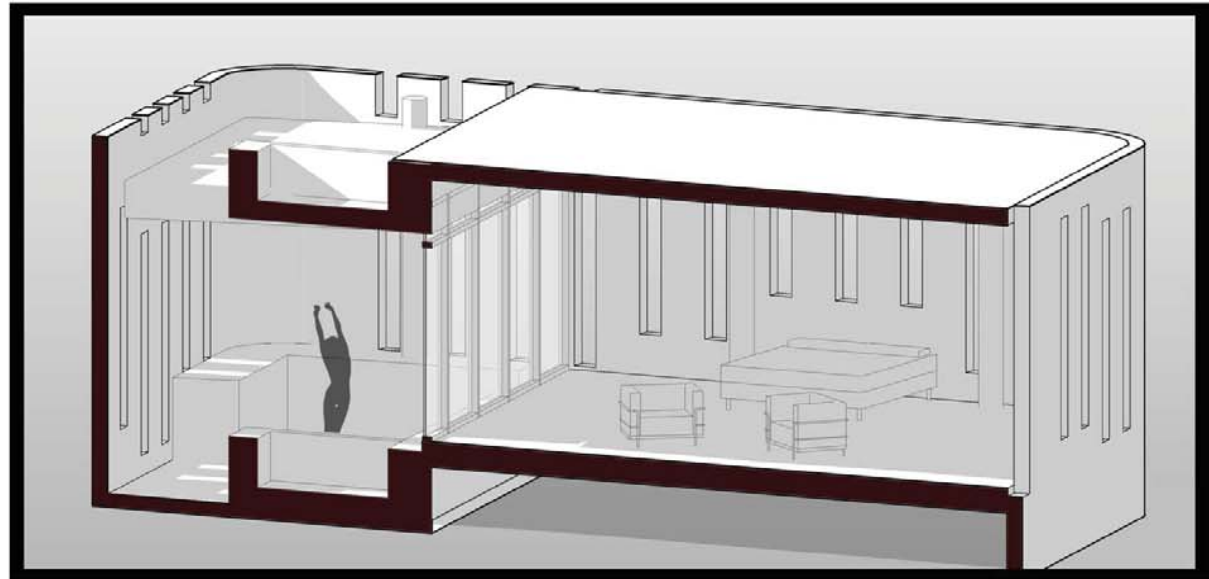
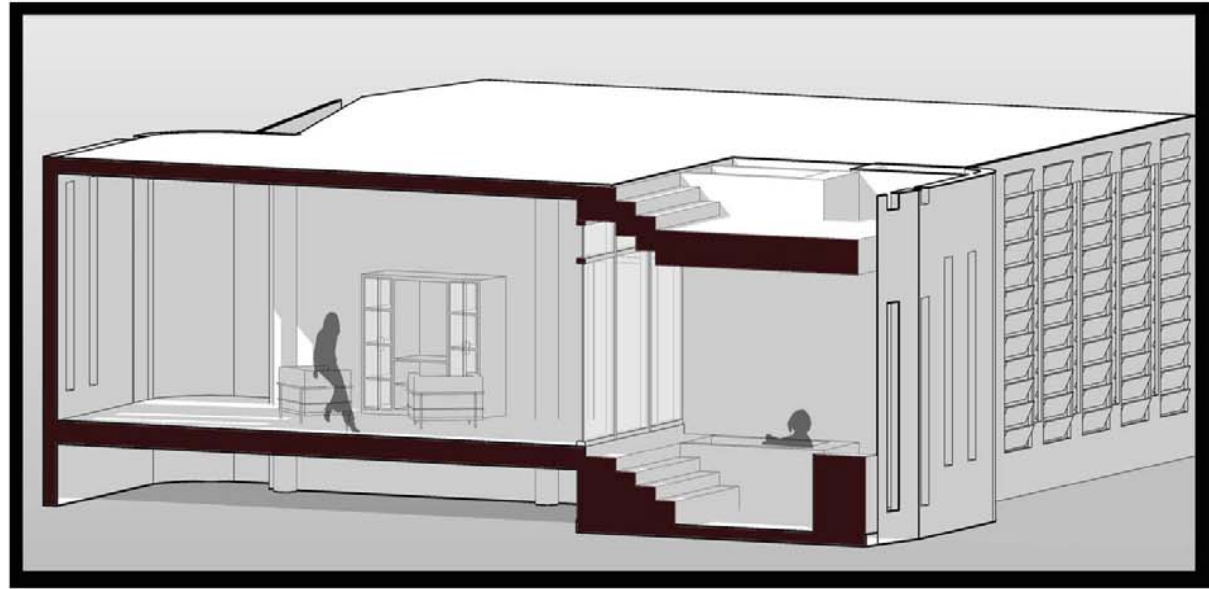
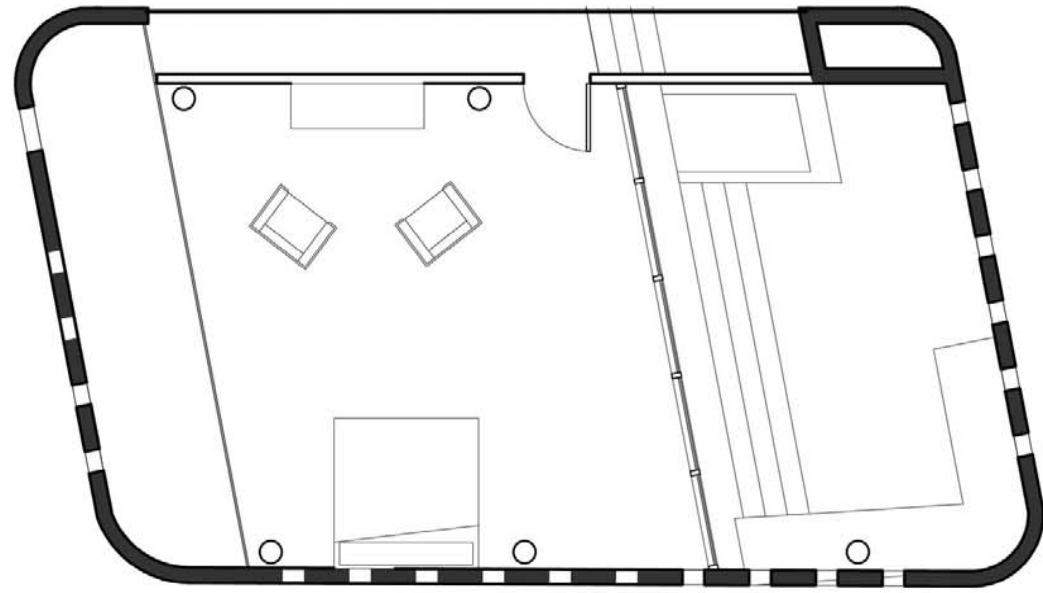


south elevation

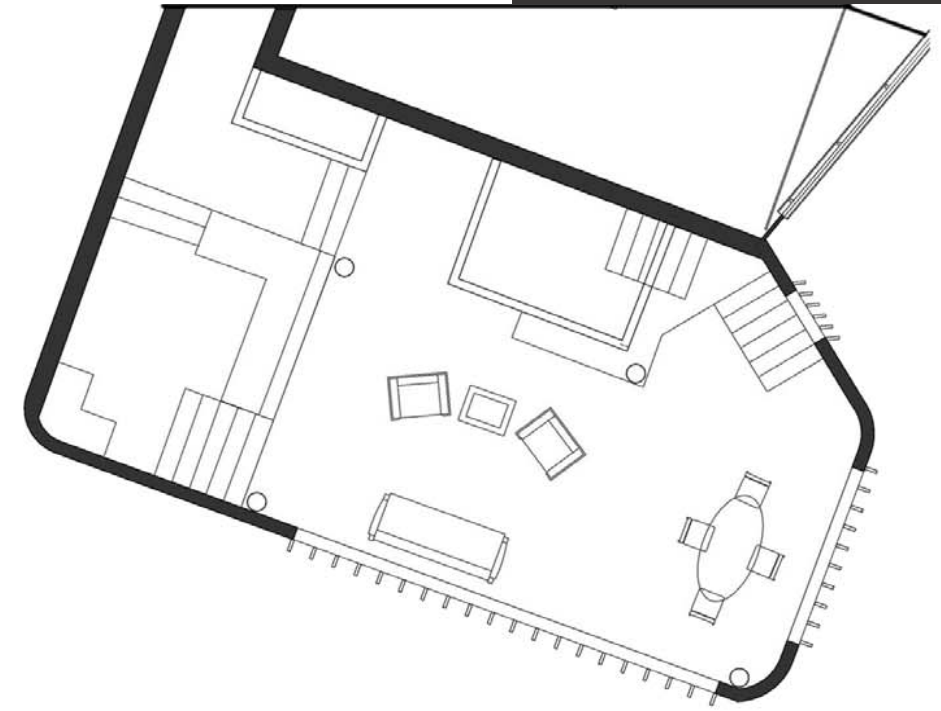


photos of model installation

final presentation:  
perspectives & models



hotel unit design vignette



residential unit design vignette

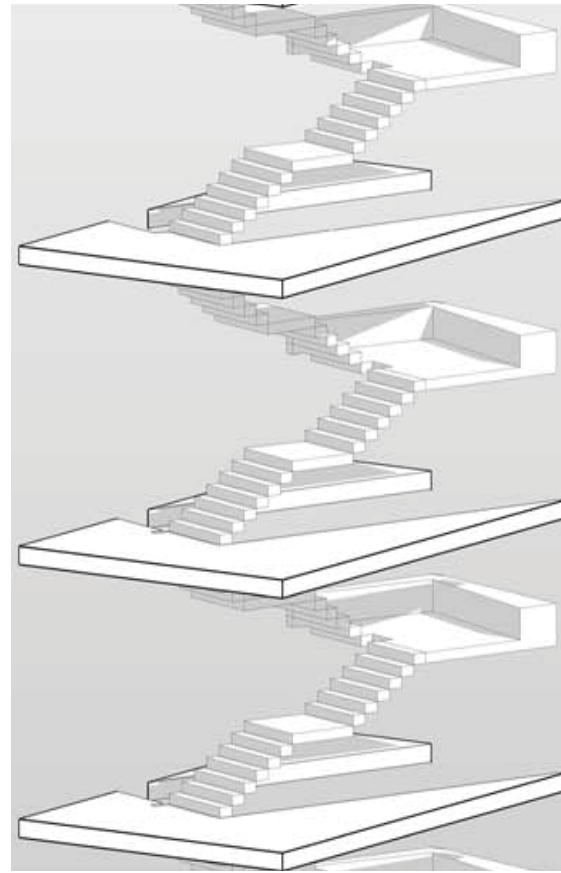




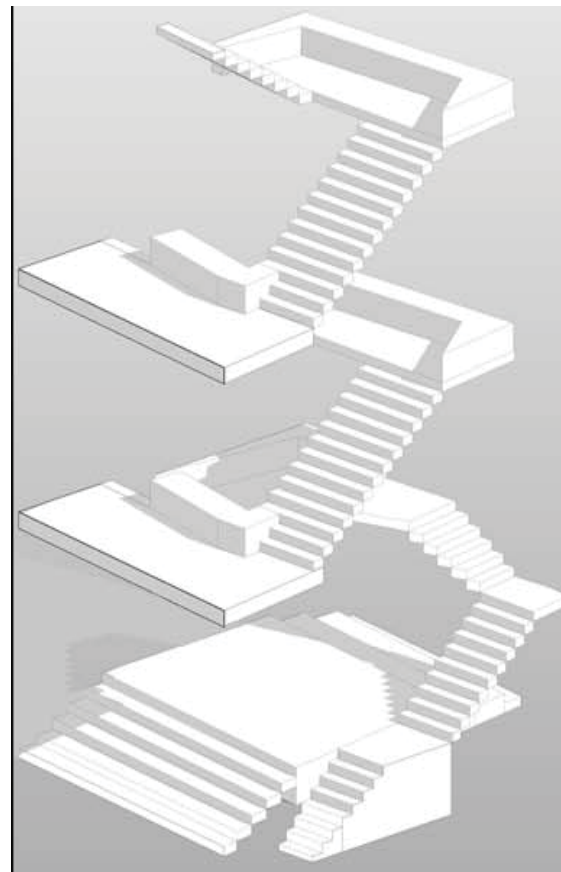
residence monumental stair perspective



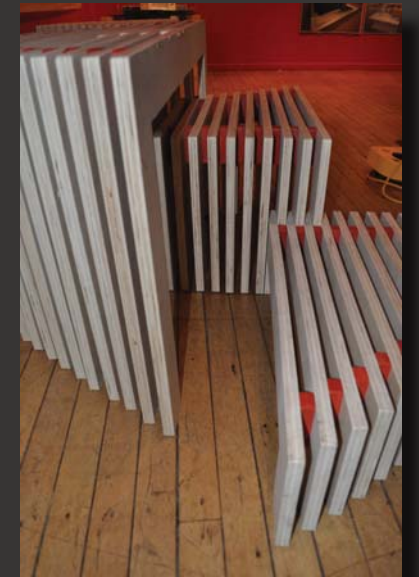
hotel monumental stair perspective



residential monumental stair design



hotel monumental stair design



photos of model installation



hotel roof perspective



residence roof perspective



hotel breezeway view into courtyard

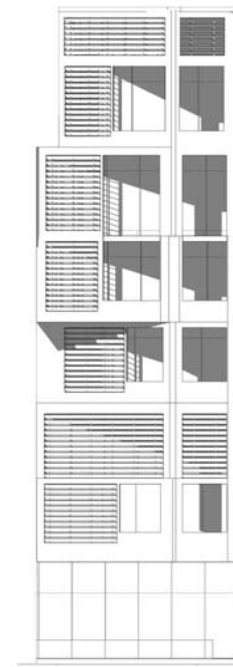
*playing with mechanical louvers to create and everchanging facade to allow for a different experience everytime a person passes by or through*



spring equinox facade



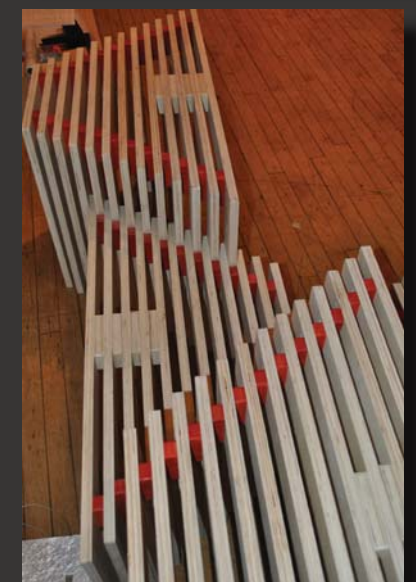
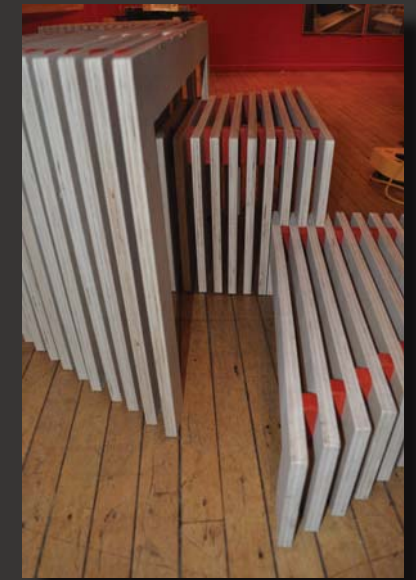
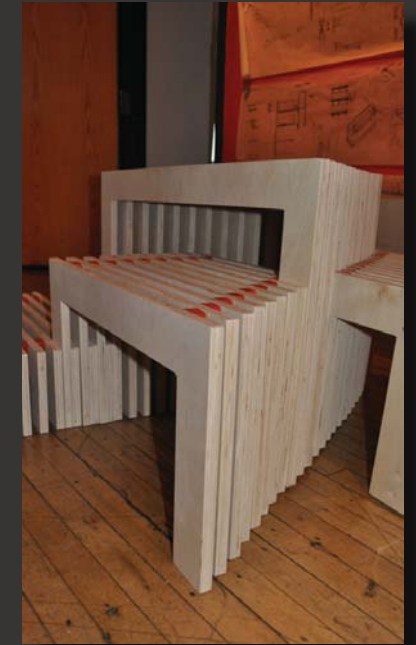
summer solstice facade



fall equinox facade



winter solstice facade



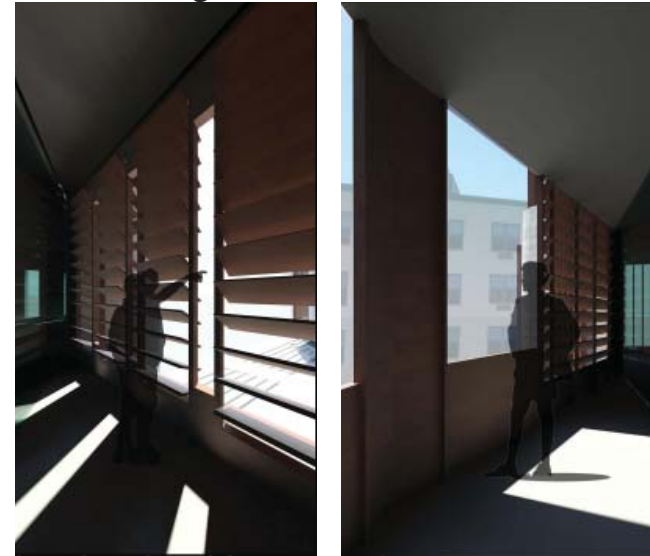
photos of model installation



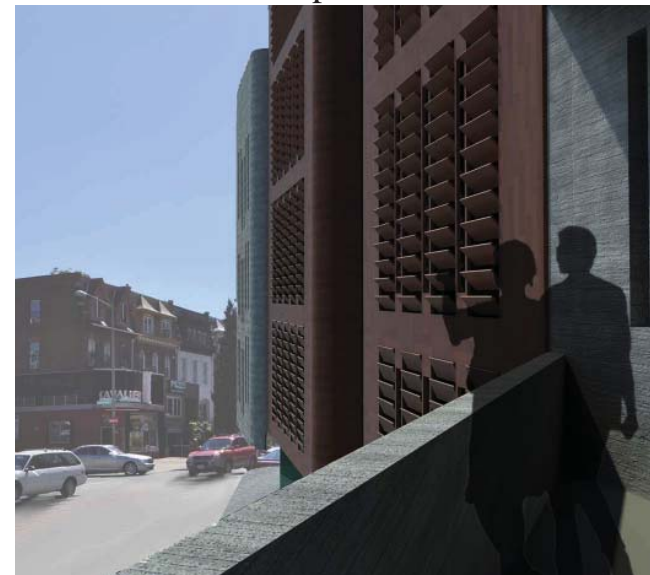
view through courtyard:  
*contrasting materiality, manipulation of masses to allow views, and juxtaposing public outdoor spaces with private interior spaces defines the architecture of this mixed-use urban building*



view looking north on 14th street



hotel and residence porches



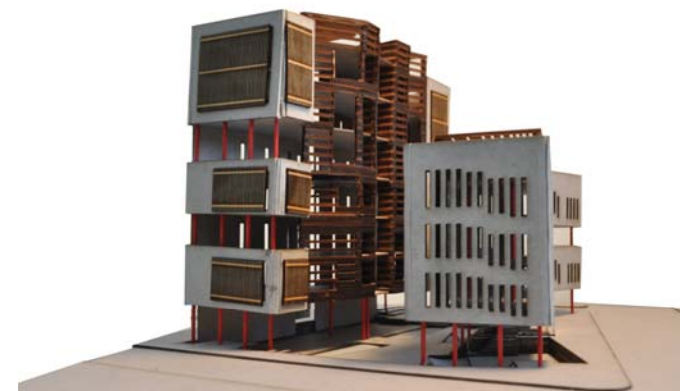
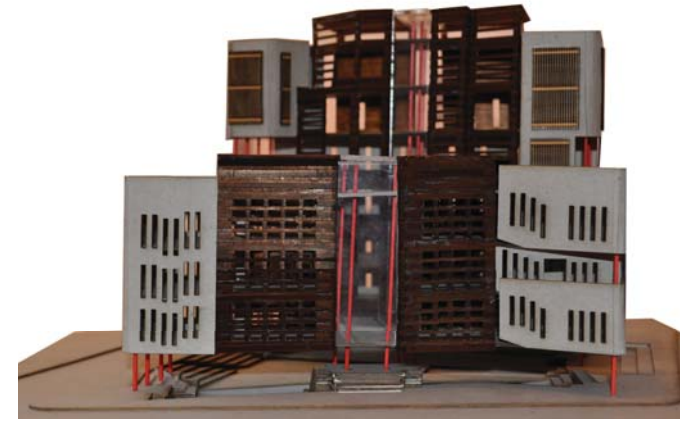
view looking south at 14th street



photos of model installation



final model



photos of model installation

mindful & active

**“When working, both the artist and craftsman are directly engaged with their bodies and their existential experiences rather than focused on an external and objectified problem. A wise architect works with his/her entire body and sense of self. While working on a building or an object, the architect is simultaneously engaged in a reverse perspective, his/her self-image – or more precisely, existential experience.”**

Juhani Pallasmaa, *The Eyes of the Skin: Architecture and the Senses*, P.12

The aim of this project was to explore how architectural spaces can influence the relationship and wellness of both the mind and body. I focused my design on three main elements. The first was vertical circulation; designing it to be ever present in the building and to be both a means of passing through space but also to give reason to pause, rest, gather and contemplate. The second was in the mechanical play of the facade and in the different way light and shadow can be manipulated within the different programmatic spaces of the building. And finally in the juxtaposition of the materiality; pairing the warmth of wood with the coolness of concrete floating above a transparent glazed box that reflects and refracts light.

Outside of the elements of design it was important for me to physically connect and immerse myself in the work. I took the time to not only analyze the building through 3d modelling but to also create each drawing by hand. Imagining each space as my pens, and pencils cross the paper to form lines, that turned into shapes, that ultimately became the rooms in my building. To further pursue the “existential experience” I studied the possibility of a full scale mock up of the steps and in this discovered what each step will mean when brought together and experienced by an individual. Through both the theoretical design of the program and intimate experience of conveying the ideas I was able to discover how architectural design can evoke an active and mindful way of living.

Burney, David, Thomas Farley, Janette Sadik-Kahn, and Amanda Burden. *Active Design Guidelines: Promoting Physical Activity and Health in Design*. City of New York, 2010.

Etlin, Richard A. "Aesthetics and the Spatial Sense of Self." *The Journal of Aesthetics and Art Criticism* 56:1, Winter 1998.

Frascari, Marco. *De Beata Architectura, Places for Thinking*. Lincoln, June 2010.

Lakoff, George. *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought*. Basic Books: California, 1999.

Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and Senses*. John Wiley and Sons Ltd.: West Sussex, England, 2005.

**figure 1** (collage on p. ii)

google image of salk institute designed by louis kahn: <<http://www.ksd-designs.com/resources/SALK-INSTITUTE-5.JPG>> (Accessed December 2010). [fair use]

google image of a neuron: <[http://slog.thestranger.com/2008/07/th\\_future\\_of\\_criticism](http://slog.thestranger.com/2008/07/th_future_of_criticism)> (Accessed December 2010). [fair use]

google image of human brain: <<http://www.dreamstime.com/human-brain-image2824635>> (Accessed December 2010) [fair use]

**figure 2** (collage on p. ii)

bing image of salk institute designed by louis kahn: <[http://commons.wikimedia.org/wiki/File:Salk\\_Institute.jpg](http://commons.wikimedia.org/wiki/File:Salk_Institute.jpg)> (Accessed December 2010) [fair use]

google image of jean nouvel Les Bains des Docks: <<http://saharghazale.com/2010/12/29/reimagining-the-public-pool-les-bains-des-docks/>> (Accessed December 2010) [fair use]

google image neurons: <<http://hubpages.com/hub/Einstein-Religion-or-Science>> (Accessed December 2010) [fair use]

google image of human brain: <<http://www.dreamstime.com/human-brain-image2824635>> (Accessed December 2010) [fair use]

**figure 3** (collage on p. iii)

bing image of salk institute designed by louis kahn: <[http://commons.wikimedia.org/wiki/File:Salk\\_Institute.jpg](http://commons.wikimedia.org/wiki/File:Salk_Institute.jpg)> (Accessed December 2010) [fair use]

google image search for nude descending stair: <<http://club.quizerela.com/2010/09/07/daily-question-616/>> (Accessed December 2010) [fair use]

google search jean nouvel des bains: <[http://directionarco.blogspot.com/2010/01/jean\\_nouvelles-bains-des-docks2008-le.html](http://directionarco.blogspot.com/2010/01/jean_nouvelles-bains-des-docks2008-le.html)> (Accessed December 2010) [fair use]

**figure 4** (collage on p. iii)

google image search for nude descending stair: <<http://thesesmoments.blogspot.com/2005/02/nude-descending-staircase-toe-upon-toe.html>> (Accessed December 2010) [fair use]

bing image of salk institute designed by louis kahn: <[http://commons.wikimedia.org/wiki/File:Salk\\_Institute.jpg](http://commons.wikimedia.org/wiki/File:Salk_Institute.jpg)> (Accessed December 2010) [fair use]

google image search for people sitting on steps (Accessed December 2010) [fair use]