

A r c h i t e c t u r e & C h a n g e

The Conversation Between Old & New in Architecture  
as Examined in the Montmartre House, Paris, France

Thesis submitted to the faculty of the Virginia Polytech-  
nic Institute & State University in partial fulfillment of  
the requirement for the degree of Master of Architecture

J e s s i c a N o e l H a y e s

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P r o f e s s o r H a n s R o t t  
C h a i r m a n

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P r o f e s s o r S t e v e T h o m p s o n

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P r o f e s s o r F r a n k W e i n e r

B l a c k s b u r g , V i r g i n i a  
M a y 9 , 2 0 0 7



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J e s s i c a N o e l H a y e s

## A B S T R A C T

Buildings and the cities they make up are in a state of constant change. Temples become churches, palaces become apartment complexes, and railway stations have been turned into hotels and museums. Paris is an example of a city which reuses existing buildings, and on a smaller scale as the city changes over time, buildings are split in half, windows become doors, and row houses become apartments. In its centuries long evolution, Paris has developed into one of the most beautiful cities in the world full of an architecture of reuse and renovation of existing structures. As this process of reuse occurs, the history of a building is revealed as its original materials, structure, and scars are uncovered and celebrated.

In the Montmartre House, the building's original vaulted brick structure is exposed. This traditional structure, along with new partitions and rooms, form a modern house in which new and old contrast, enhancing each other and creating a new architecture. The aim is not to reconstruct the old brick building into what it once was, but to use it in conjunction with modern construction methods and materials and continue the subsequent reuse and transformation making this house a reflection of the architectural spirit of Paris itself.

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## D E S I G N I N G A H O U S E

In the first few weeks of my thesis year, I came to a realization which will influence my thinking about design in the future. In the two years prior to my thesis, I designed public buildings such as galleries, cafes, and classrooms all with simple, clean lines. As I began to design a house for my thesis, however, I realized that I do not want to live in clinical, concrete spaces. My journey through designing a house led me to ask: Is designing a home a different architectural process than designing other buildings, or has my design aesthetic changed?

For this specific project, my idea was to contrast old and new to create a building which is not a reconstruction of an old space, but a new building altogether. I decided to examine this uniquely urban condition of reuse. My model home is an apartment in Paris, and throughout this process, I tried to discover what it is about this city I find so beautiful. I love the traditional Parisian facades, but what I find most appealing about Paris are the "happy accidents" which come from centuries of renovation and reuse. As an architect, I am drawn to the result of chopping a train station in half to make room for a boulevard, and the subsequent renovation of that train station into apartments. Constructive architectural conditions which would never be designed in a new building occur in these re-built spaces to keep them standing, and as a result the old and the new spaces become anew architecture. The building consists of "old" materials such as structural brick, which contrast "new" materials of glass and steel. The contrasting materials enhance each other and this modern building becomes not only a rich space architecturally, but also a time line telling a story about the history of the city, what the building once was, and by whom it was occupied.

My desire for arches in this house led to my use of brick as it is best for use in compressive arched structures. Brick, which was once often used structurally, has been replaced by cheaper, stronger, and more affordable materials such as concrete and steel. Today brick is used primarily as either as a veneer, or a symbol. Why do apartment owners in New York put a brick veneer on one wall of apartments they lease? Why do builders construct houses which are clad with vinyl siding on three sides, and a brick veneer façade? Is it to make them look sturdier, older and richer? To me this is an unacceptable and false use of the material. My dilemma as an architect occurs here in what I saw as the apparent contradiction between my desire for old, rich materials and my belief in the use of a material for its constructive properties. How do I justify my desire to construct a brick home and still consider myself a modern architect? I found the solution to this conflict in what I consider to be the most beautiful structural form; arches, which demand to be built out of masonry.



Old and new brick, Munich, Germany



View of Tour Montparnasse between traditional Parisian buildings



Louvre Museum and Pyramid



Modern Montmartre storefront



Parisian building along a boulevard

## A B S T R A C T

Buildings and the cities they make up are in a state of constant change. Temples become churches, palaces become apartment complexes, and railway stations have been turned into museums. Paris is an example of a city which reuses existing buildings, and on a smaller scale as the city changes over time, buildings are split in half, windows become doors, and row houses become apartments. In its centuries long creation, Paris has developed into one of the most beautiful cities in the world full of an architecture of reuse and renovation of existing structures. As this process of reuse occurs, the history of a building is revealed as its original materials, structure, and scars are revealed and celebrated.

In the Montmartre House, the building's original vaulted brick structure is revealed. This traditional structure, along with new partitions and rooms, form a modern house in which new and old contrast, enhancing each other and creating a completely new architecture. The aim is not to reconstruct the old brick building into what it once was, but to use it in conjunction with modern construction methods and materials and continue the subsequent reuse and transformation making this house a reflection of the architectural spirit of Paris itself.

## O V E R V I E W

The Montmartre House consists of an initial ideal structure of brick vaults. The building is 108 feet 9 inches long and 25 feet wide, typical of an urban row house, however, in the center of the building there is a courtyard which lets light into the space and provides a sheltered area for children to play, and an outdoor refuge for adults.

Wood, glass and plaster partitions create rooms in this open brick structure, and their modern, clean edges contrast the rough imperfections of the brick. Where the partitions and the brick meet are important moments in this house. They signify the meeting and contrast of old and new, an idea which is at the core of this project. A delicate brass detail celebrates this connection.

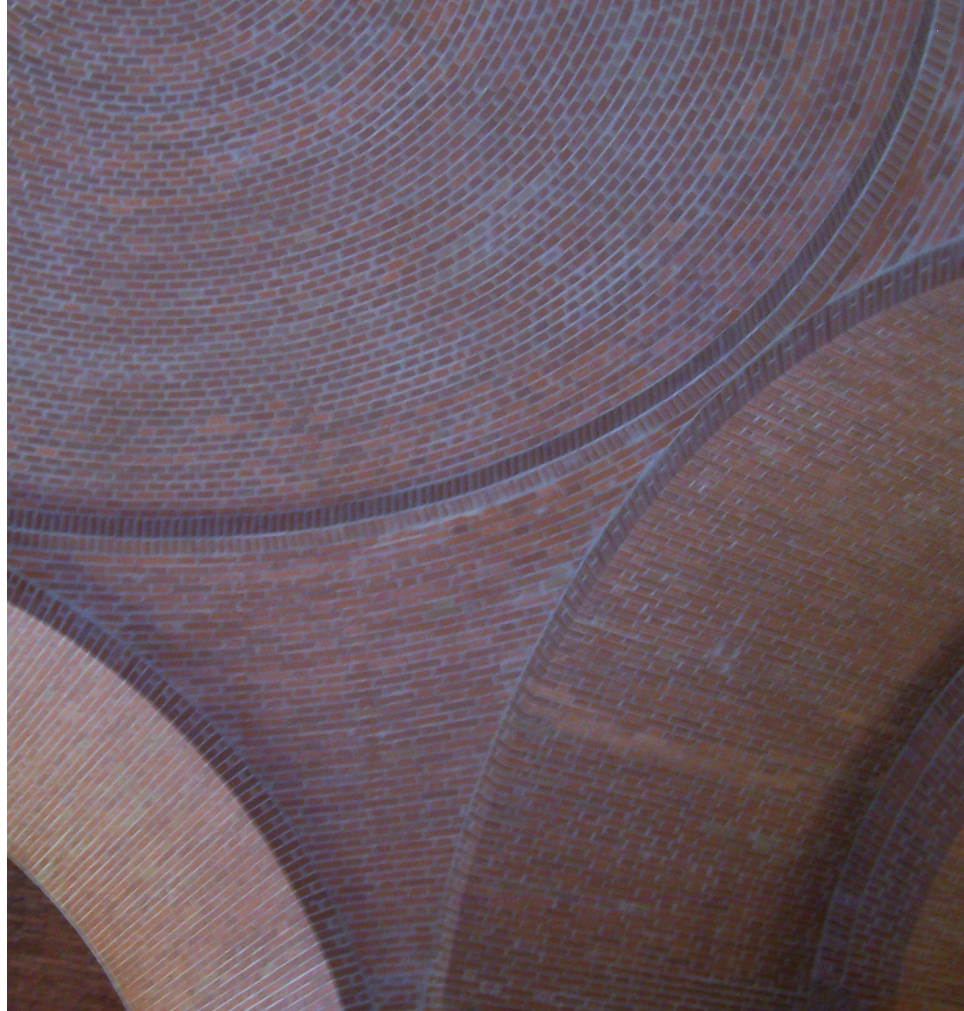
In the spirit of contrasts, Montmartre House sits next door to the Tzara House which Adolf Loos designed for the Dadaist Tristan Tzara. Loos' material approach to architecture as evident, for example, in his use of non-structural timber beams in his interiors, contrasts the constructive approach used in its neighbor.

The floors play an important role in distinguishing the formal and informal nature of the individual rooms. Lifted one foot above the brick structure, the floors, constructed out of either wood or slate allow modern mechanical and electrical systems to pass unseen below. Wood floors create a comfortable atmosphere both in look and in feel in the informal rooms. Slate floors in the formal areas of the house evoke a more formal mood as guests walk around, their heels click on the hard surface.

Light, both natural and artificial is another important aspect of this house. Due to the length of the structure it is difficult to bring light into the interior parts of the house. The inner courtyard as well as large windows let in natural light, while translucent screens shield the interior from the city beyond. Lamps and sconces help light the darker rooms in the house, and also serve to accentuate the vaulted ceilings above.

The kitchen, considered the heart of the house called for a more open space. The existing columns were removed and replaced by steel beams. Creating a large well-lit space where the whole family can congregate while dinner is prepared and then eat together in front of the fireplace.

Finally, a rooftop deck provides views of the city as well as a place to grow herbs, fruits, vegetables, and flowers and serves as another slightly less private outdoor refuge.



Brick Vaults, Munich, Germany



Brick Arches, Barcelona, Spain



Brick Vaults, Munich, Germany

And if you think of Brick, for  
instance,  
and you say to Brick,  
"What do you want Brick?"  
And Brick says to you  
"I like an Arch."  
And if you say to Brick  
"Look, arches are expensive,  
and I can use a concrete lentil  
over you.  
What do you think of that?"  
"Brick?"  
Brick says:  
"... I like an Arch""

- Louis Kahn



MONTMARTRE HOUSE



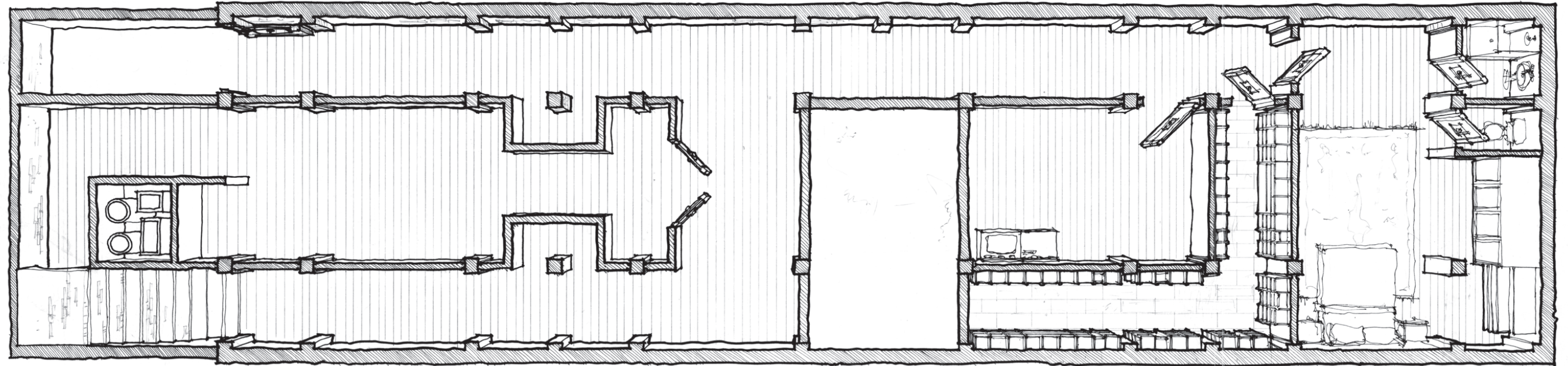
## S I T E

The neighborhood of Montmartre sits on the highest hill in Paris. Sloping sidewalks become steep stairways in an area as famous for its change in elevation as for its cabarets. As strolers make their way through the streets lined with nightclubs, charming cafes, boutiques, and houses, it is clear to see that this neighborhood is one of the most eclectic in Paris.

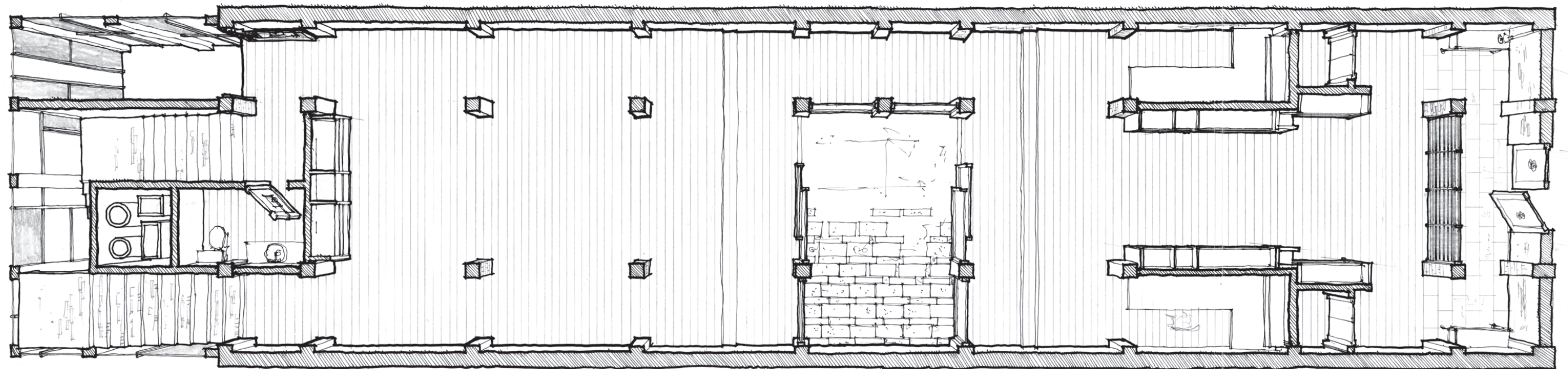
The house sits on Avenue Junot, the street connecting the center of Montmartre with rue Cauliancourt, a major artery into Montmartre. The site is steep, sloping up towards the rear of the house. The site is ideal in that it was an empty lot in a neighborhood which supports the urbane lifestyle of this family. It also sits next to Adolf Loos' Tzara House, therefore contrasting two different architectural beliefs, one constructive and one material.





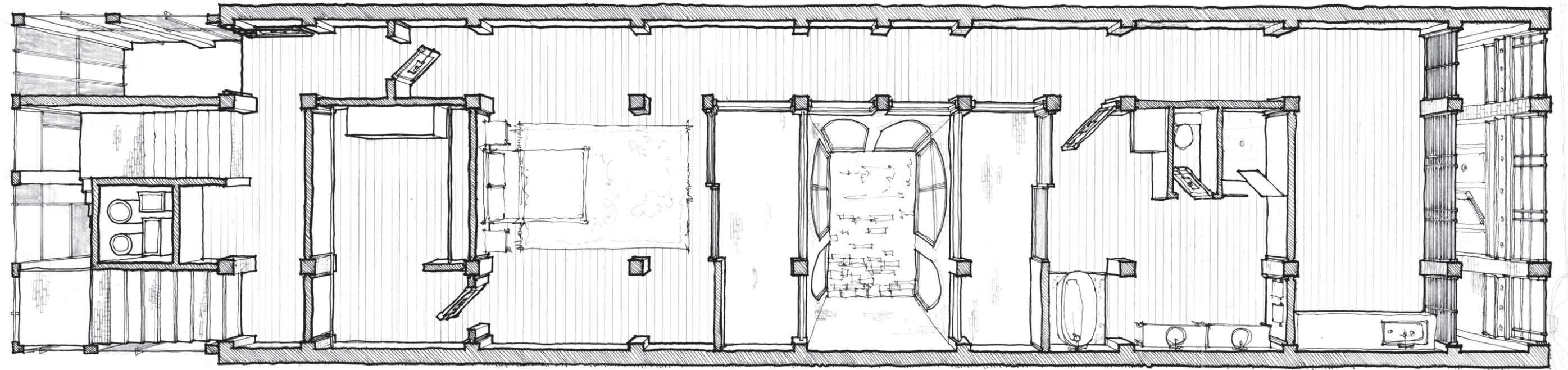


Basement Plan

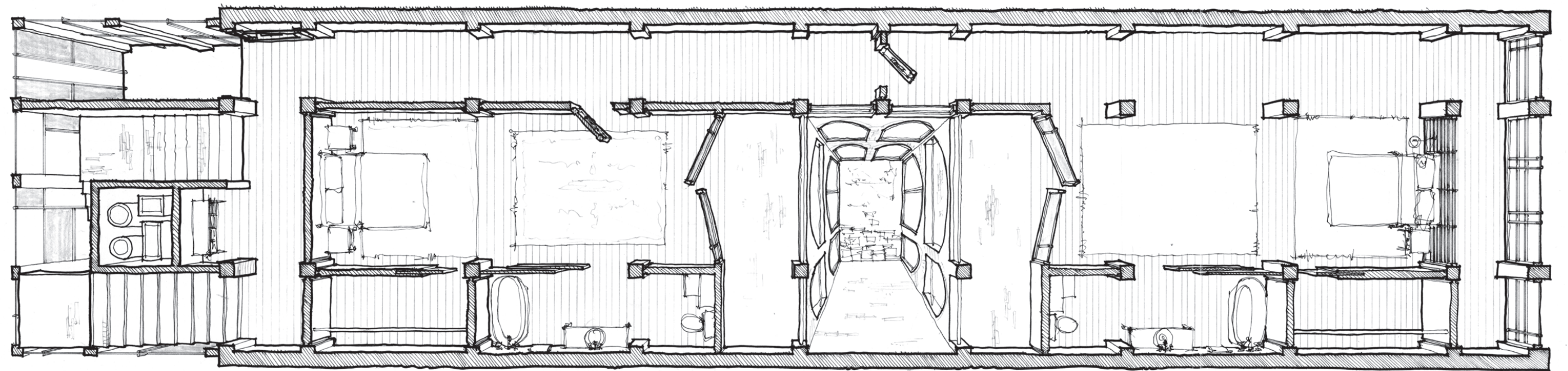


1st Floor Plan

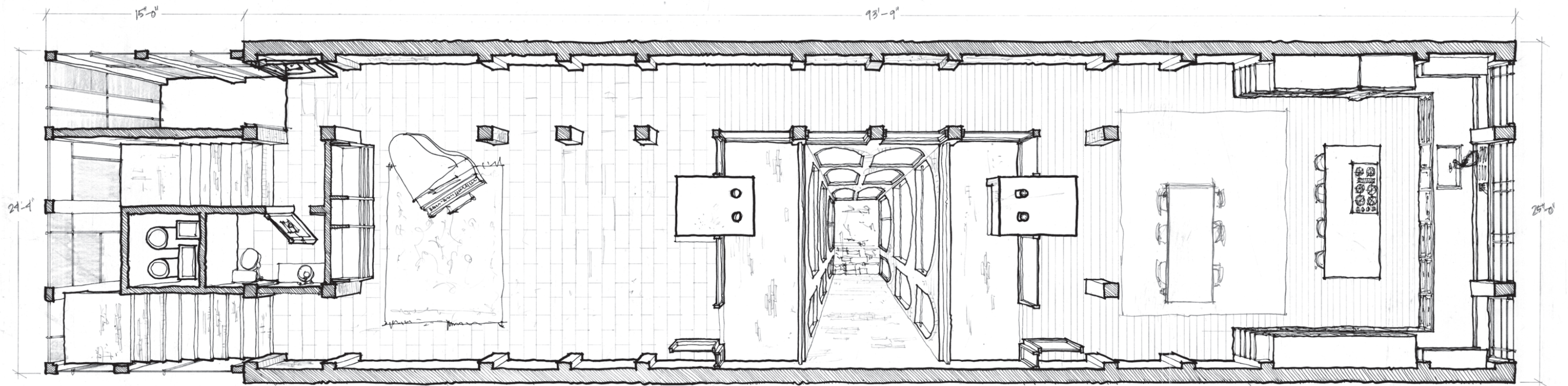
The location of the partition walls was determined by imagining the family that would live in this house. What are their habits, their likes and dislikes and everyday rituals? All of these things determined where the partitions would be placed. For example, dinner is an important time for this family. While one parent is cooking, the other is helping children with homework. This large, open room at the top of the house lets the whole family be together while completing their respective obligations of the day.



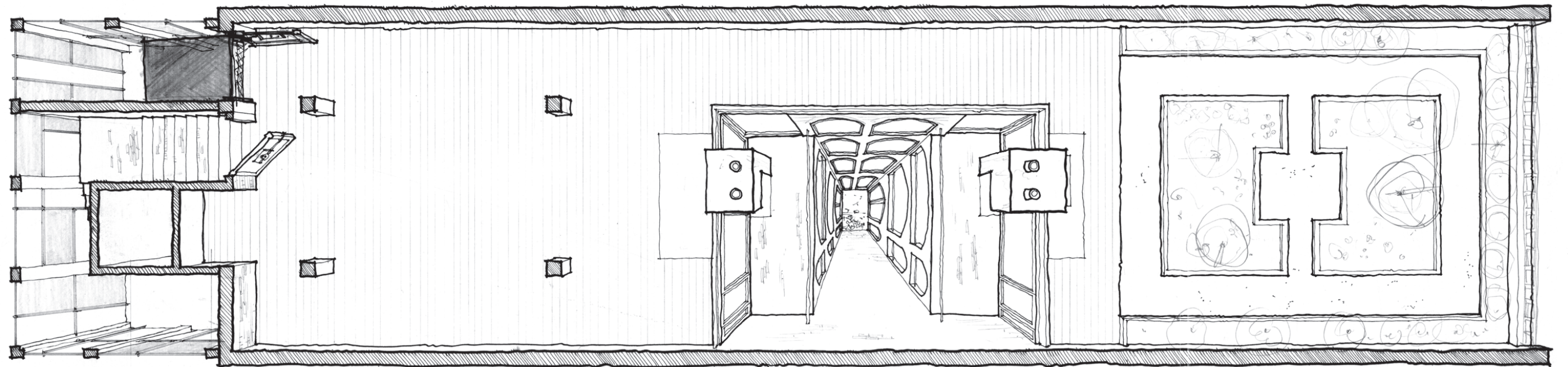
2nd Floor Plan



3rd Floor Plan

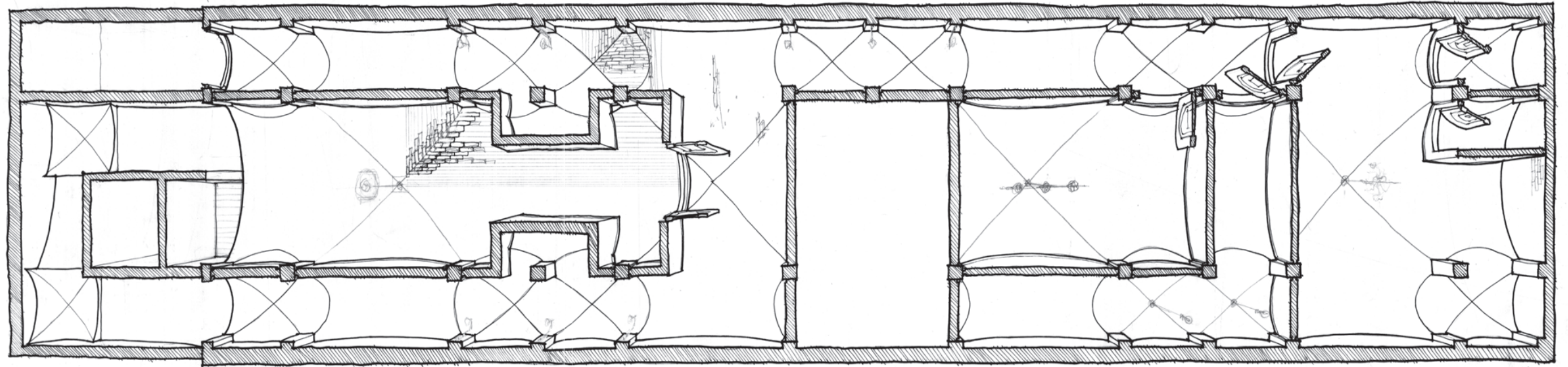


4th Floor Plan

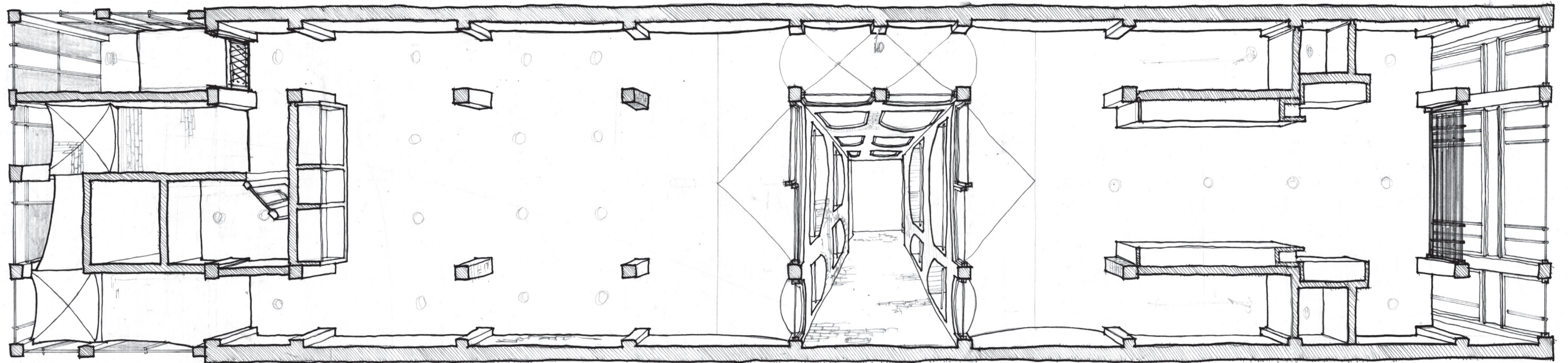


Roof Plan

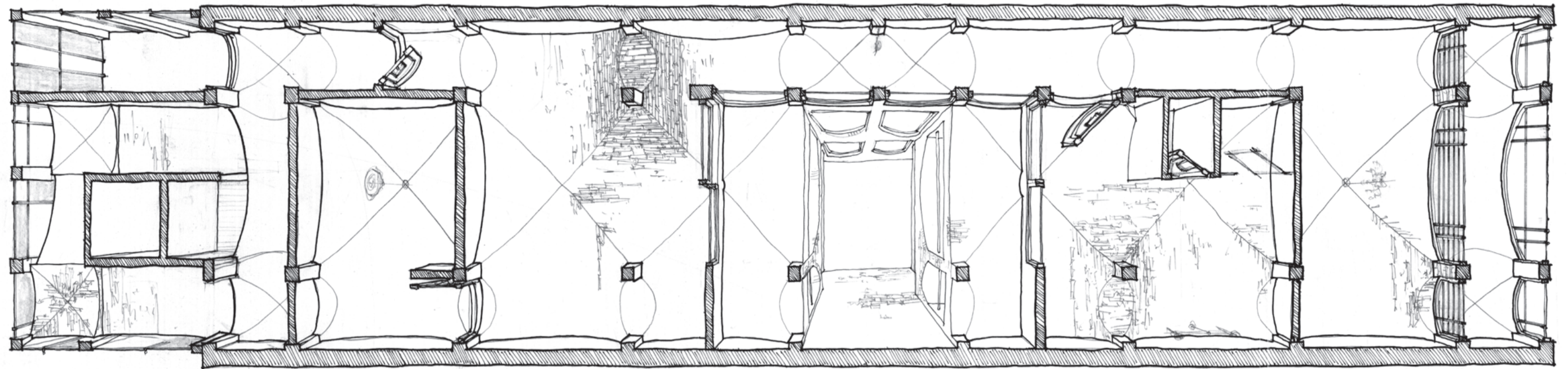
REFLECTED CEILING PLANS



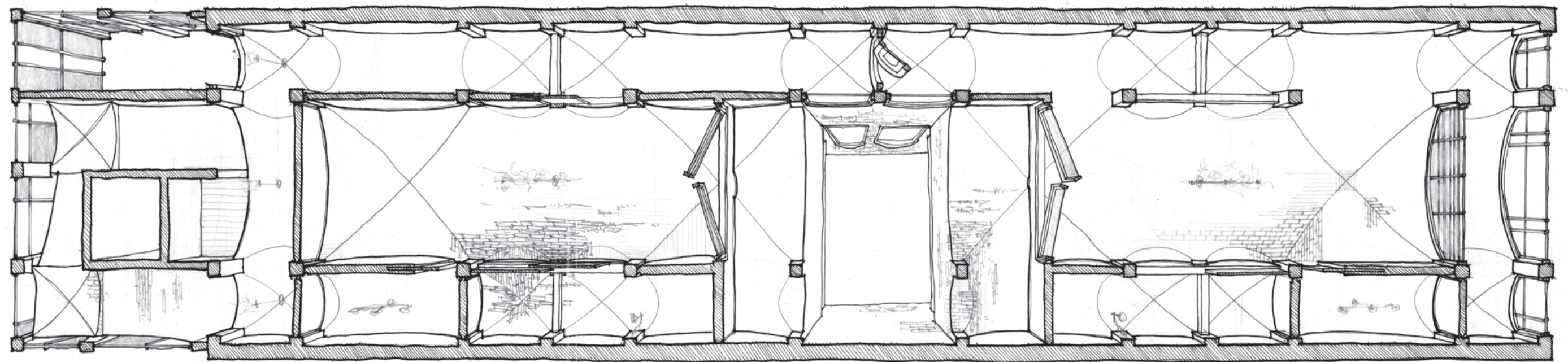
Basement RCP



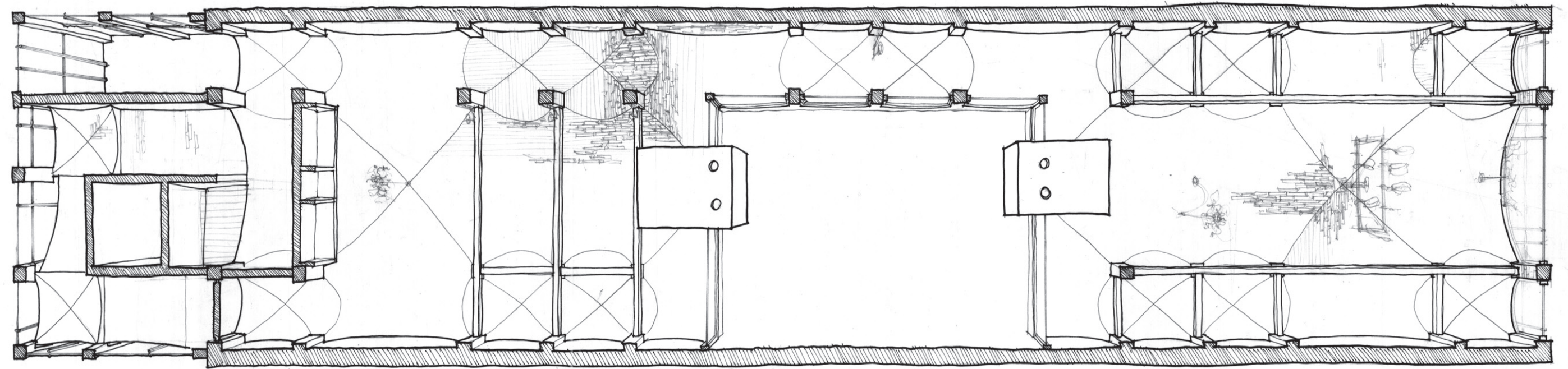
1st Floor RCP



2nd Floor RCP



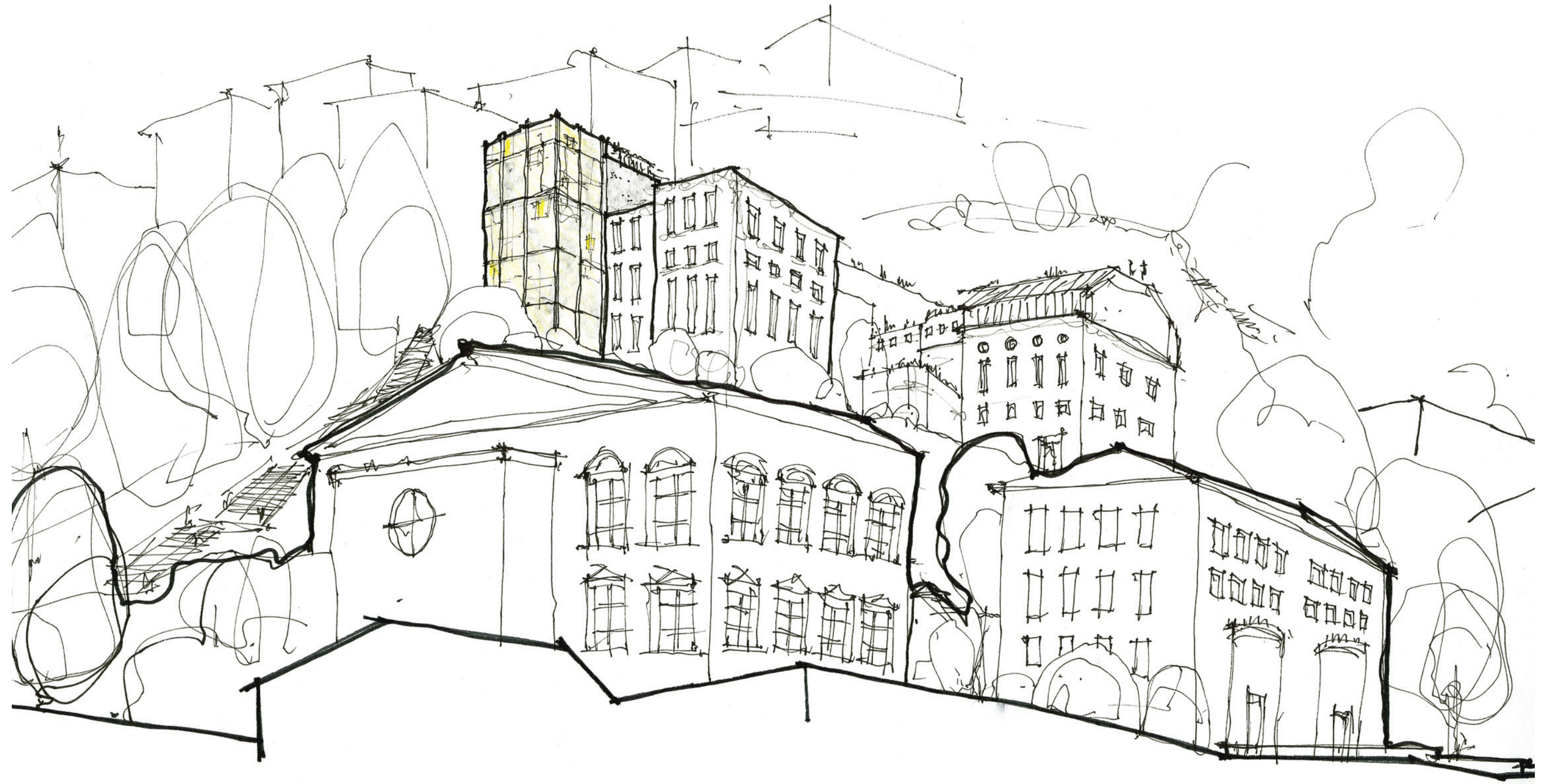
3rd Floor RCP



4th Floor RCP

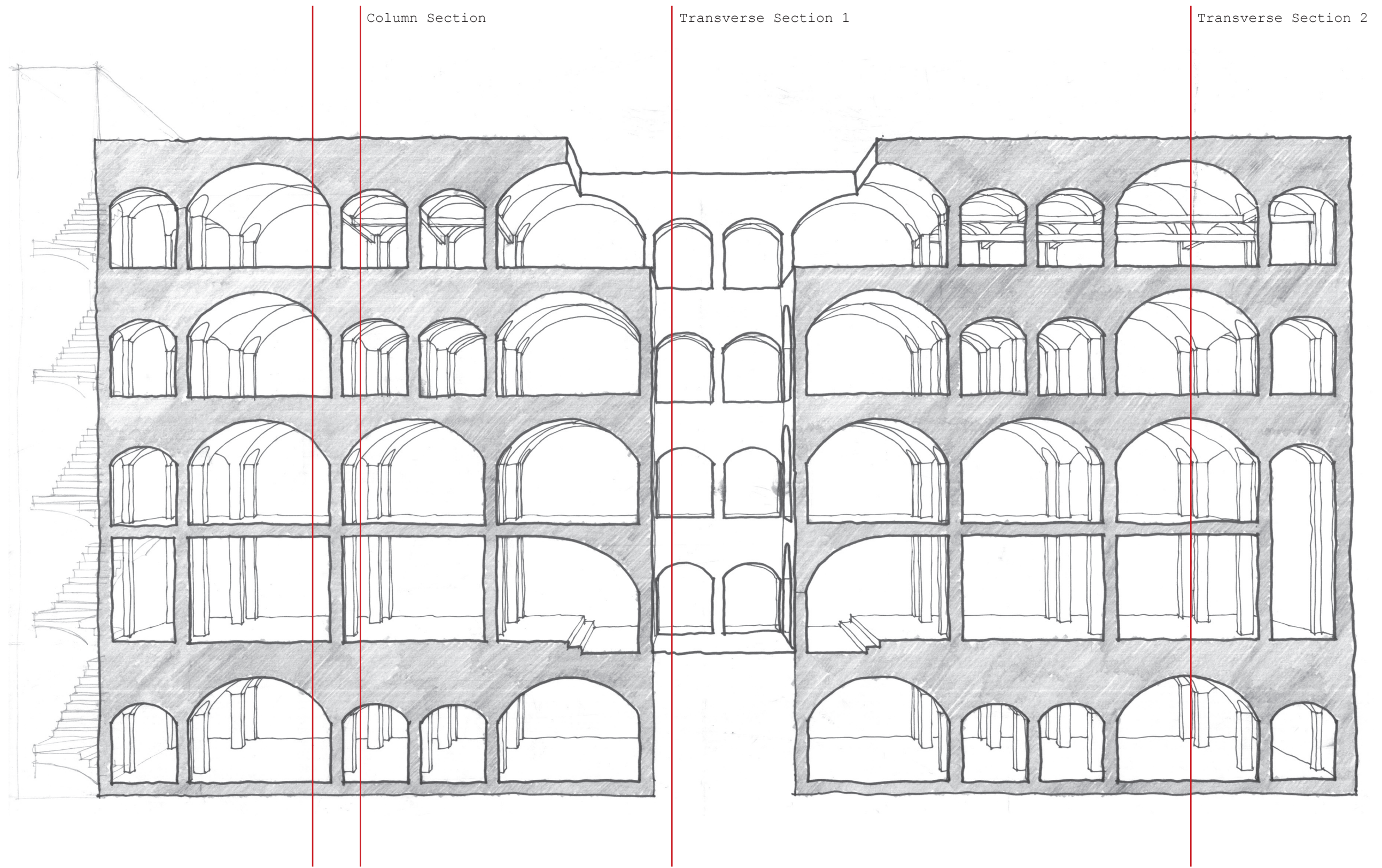


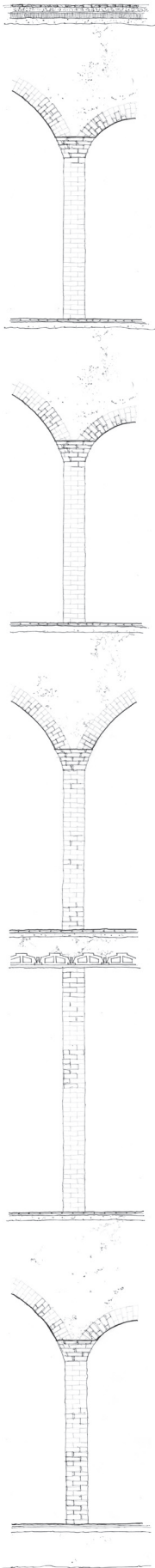
Front Facade



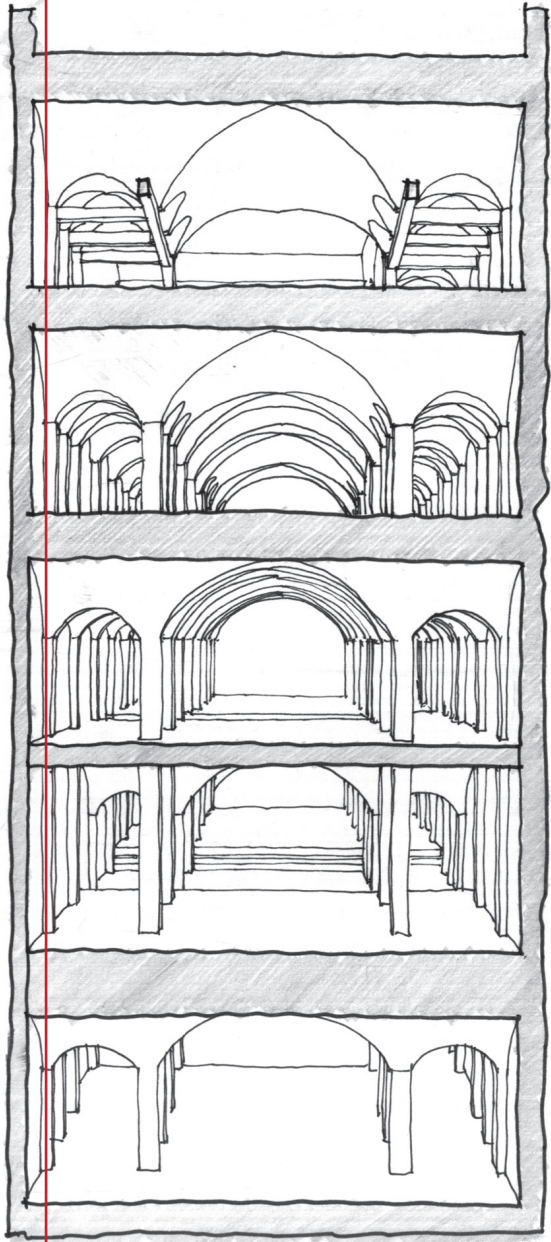
Back Facade

S E C T I O N S



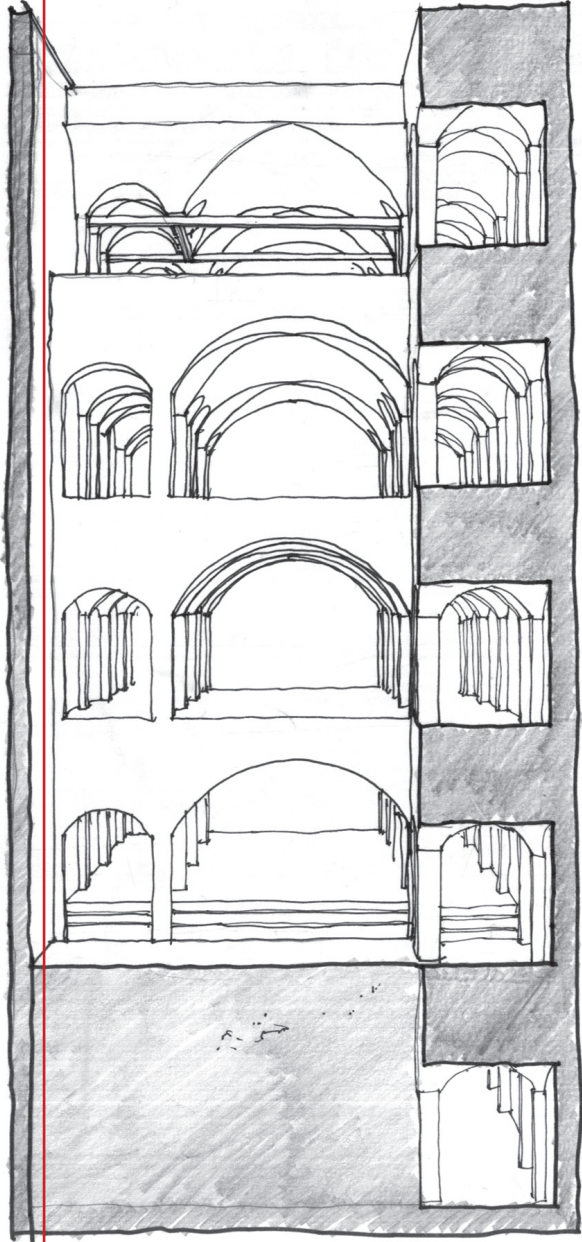


Longitudinal Section



Transverse Section 2

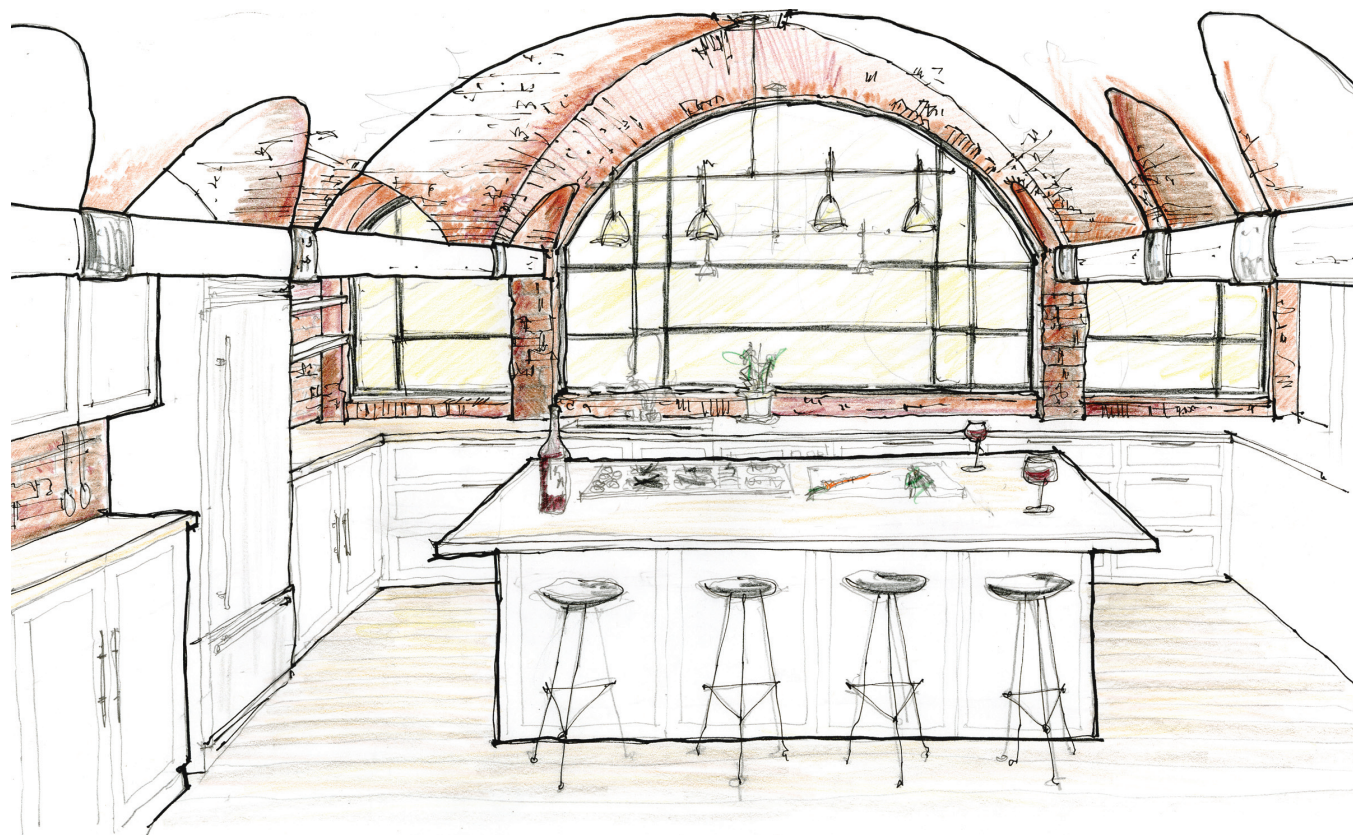
Longitudinal Section



Transverse Section 1

Site Section





## F O R M A L V S . I N F O R M A L

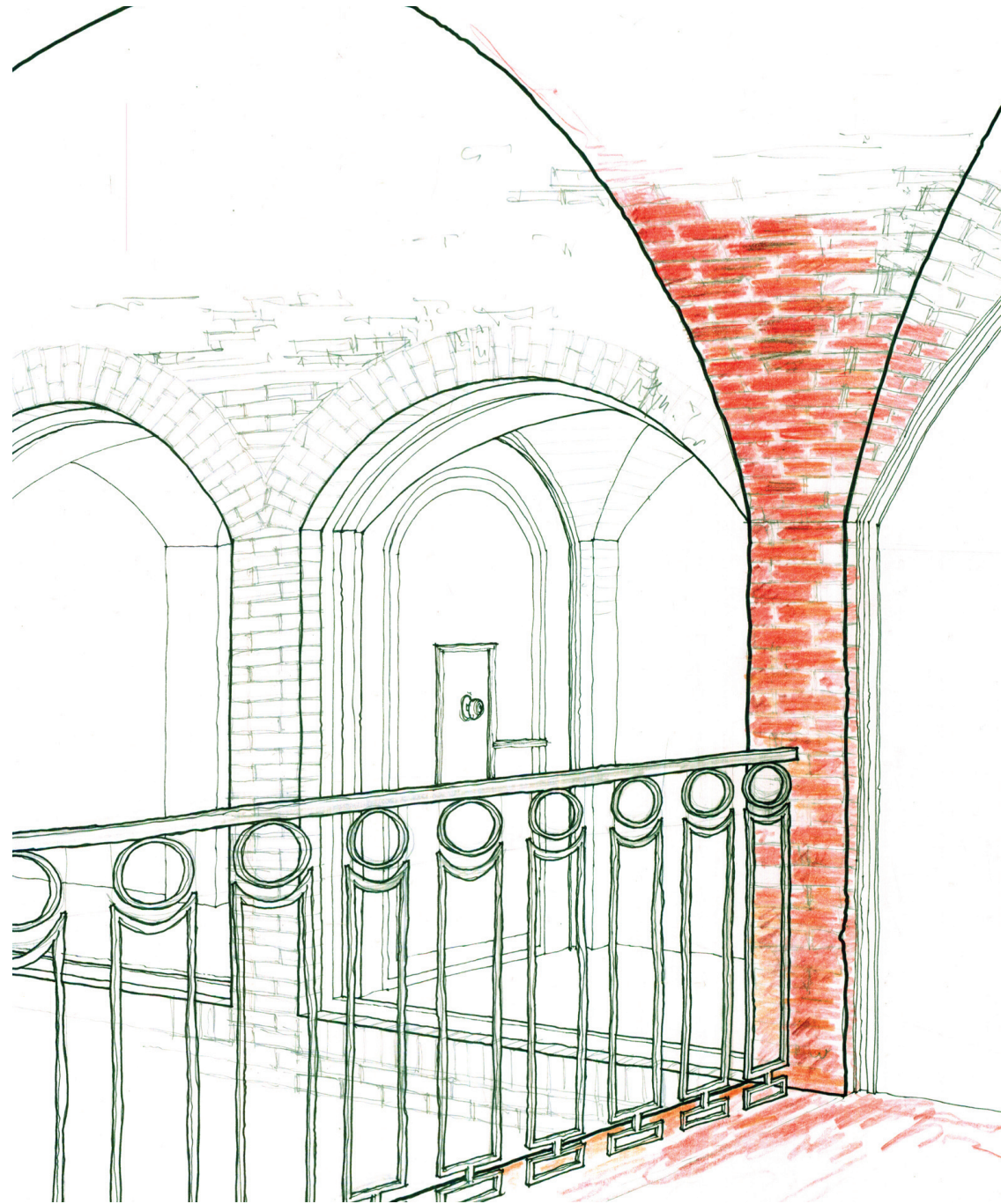
The formal areas of the house are distinguished by a change in the floor material. Wood floors in the informal areas provide a softer, warmer floor for the family's day to day life. Slate floors in the formal areas such as the entry and living room provide a harder more sophisticated surface which is designated not only by a change in material, but a change in sound. As one moves from the informal to formal their heels begin to click on the slate and they become aware of a change in their surroundings.

## E N T R Y

Path and light are present in the design of this entryway. As one enters the house from the tree-lined street, they walk into a space which is flooded with light from windows above. The foyer is a double height space heightening the experience of transition as one moves from outside to inside; from walking under a canopy of trees to walking under a ceiling. Between outside and inside there is a light-filled space which seems to have no cover, and signifies the transition from public street to private house.

In the vestibule one faces a translucent screen which directs the resident to walk either left or right where they will find identical coat closets on either side. This screen serves to slow the transition between public and private and allow the resident to transition from one space to the next.



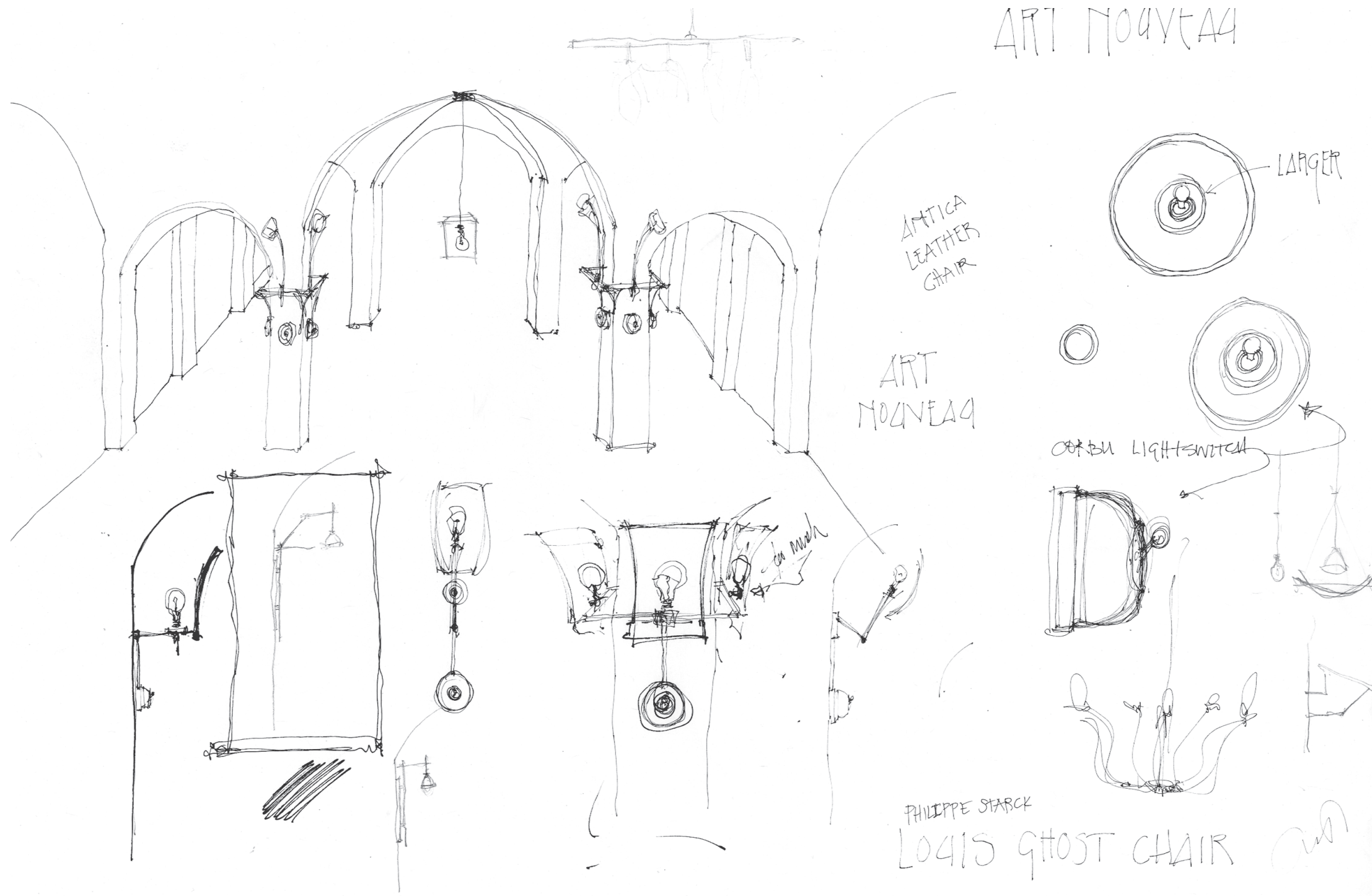


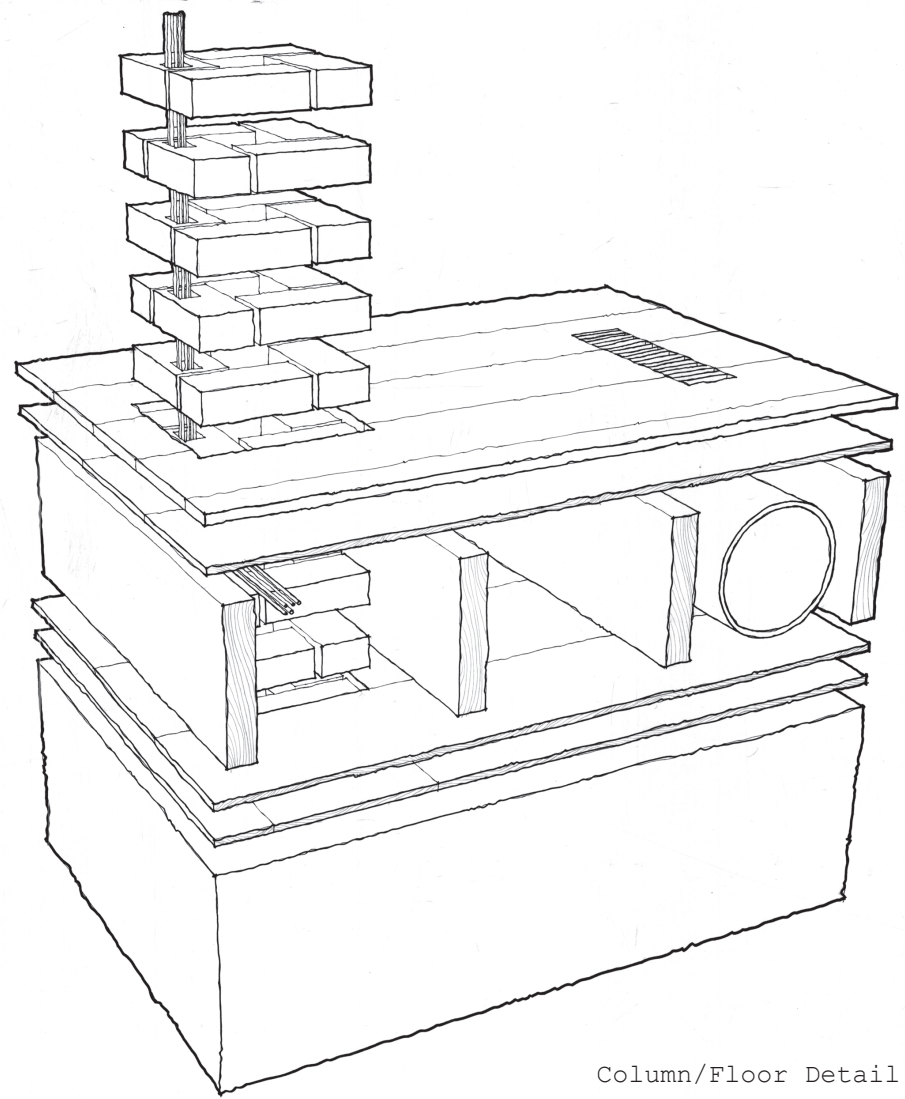
## P R I V A C Y & L I G H T

The house has a central core which serves as a private space away from the city. Children can safely play away from traffic and other city dangers, and adults can enjoy eating outdoors in a quiet, secluded place. In addition to acting as a private outdoor space, the core also lets natural light into the center of the house, something which would otherwise be impossible considering the long, narrow plan. Each bedroom has a balcony which looks down into the core, and on the fourth floor the family has their own place to sit in front of a fire and watch snowfall outside.

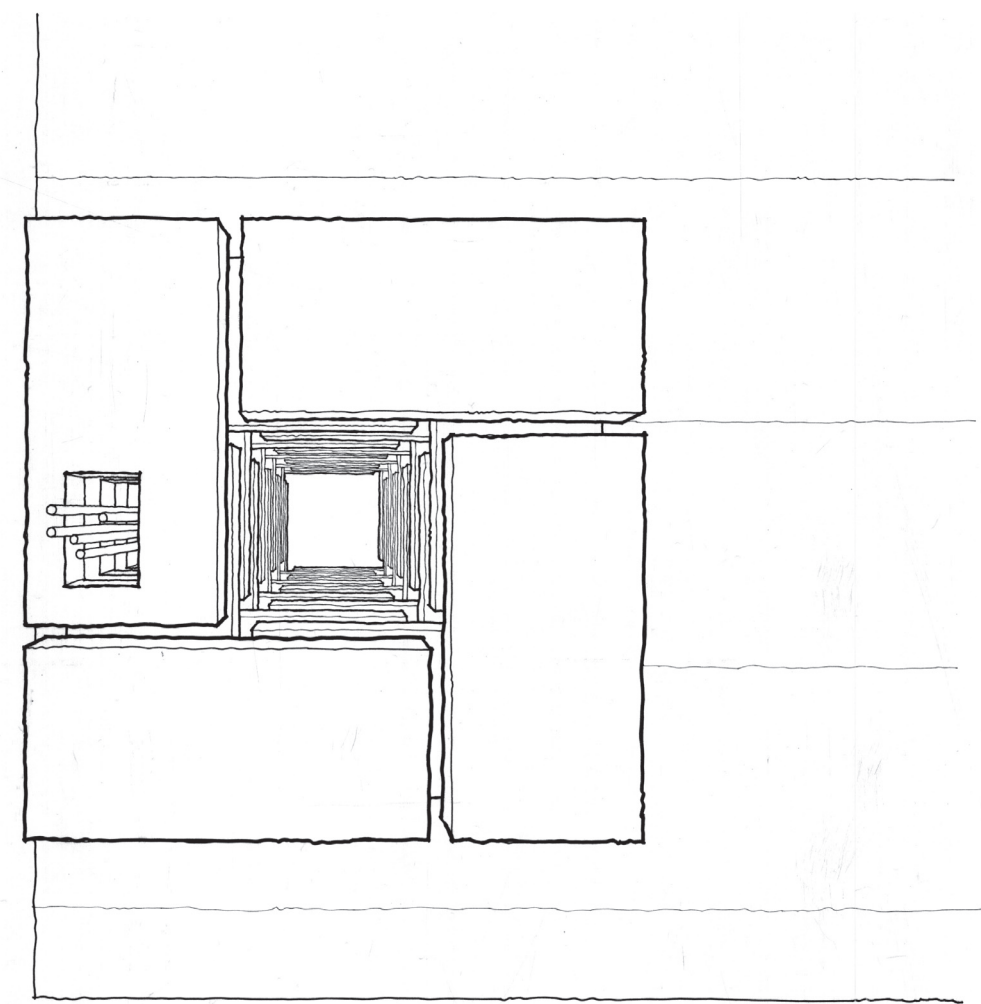
Letting light into the house and still keeping the house private requires translucence. Privacy is also a question within the house itself from room to room. Translucent glass allows light to enter the rooms, while obstructing views. Translucent glass is present all throughout the house. In the front, screens provide privacy from the city. In the core, translucent glass balcony doors on the bedroom levels provide privacy from other areas of the house. And in the back stairwell, translucent glass intermixed with transparent glass provides a certain amount of privacy in the stairwell while still giving the family intermittent views of the city outside.

DETAILS





Column/Floor Detail  
(American Construction)



Column Perspective Plan

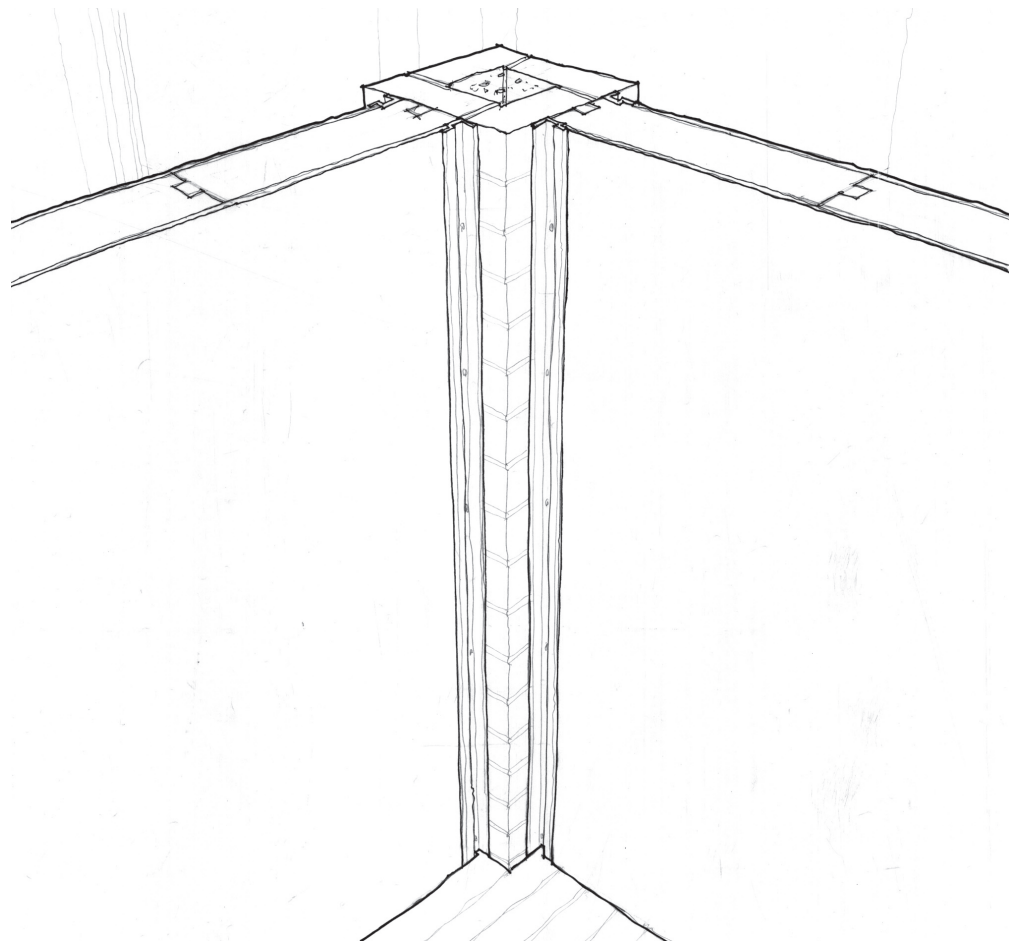
C O L U M N S

Brick columns supporting vaults are one foot square. They rest on the structure below while the wood or slate floors are built up around them. Where needed, modified bricks are used to allow electrical wires to pass through to sconces at the top of a column where it meets the vault. The wires do not pass through the center of the column to allow for ease of modification and renovation in the future. A small chisel can break through to the wires. This modification will result in a small scar in the column and create another visual reminder of the changing nature of buildings.

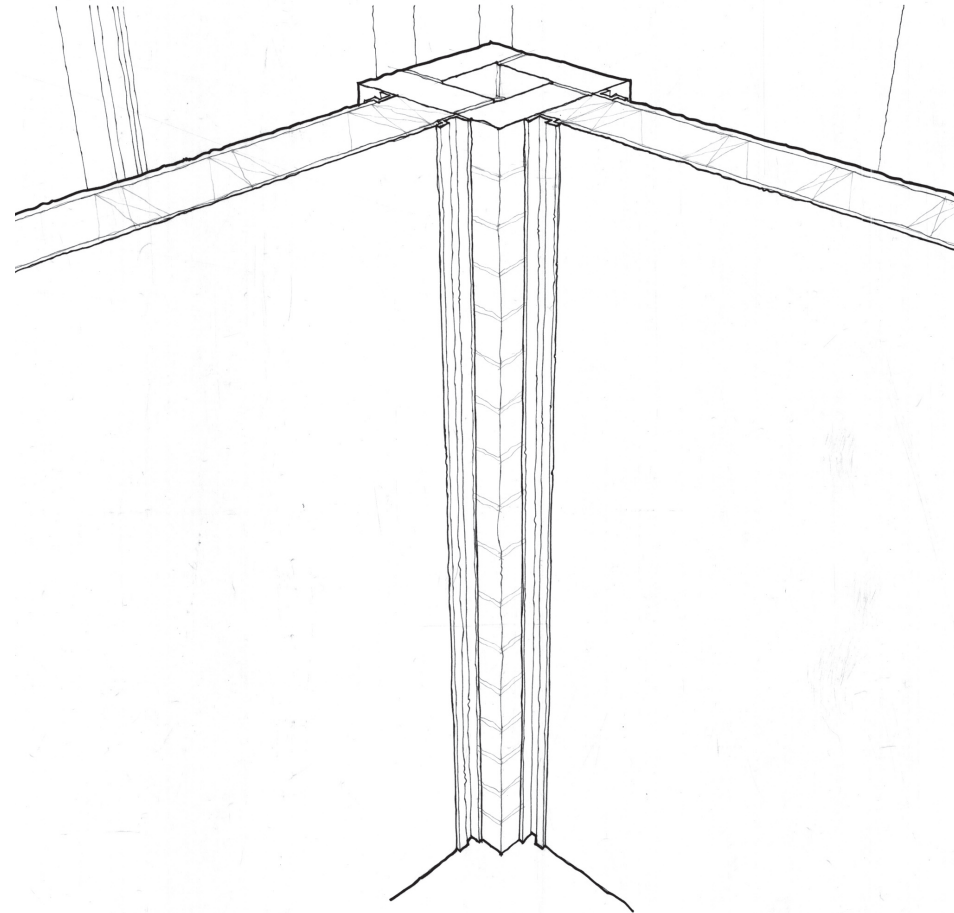
## PARTITIONS

The partition walls act to create rooms and along with the floors represent most of the renovation work in Montmartre House. Their connection to the brick columns represents an important connection in the house and is addressed with a brass detail. An additive connection at the meeting point contributes to the idea that the old brick and the new partitions are coming together to create a new space altogether.

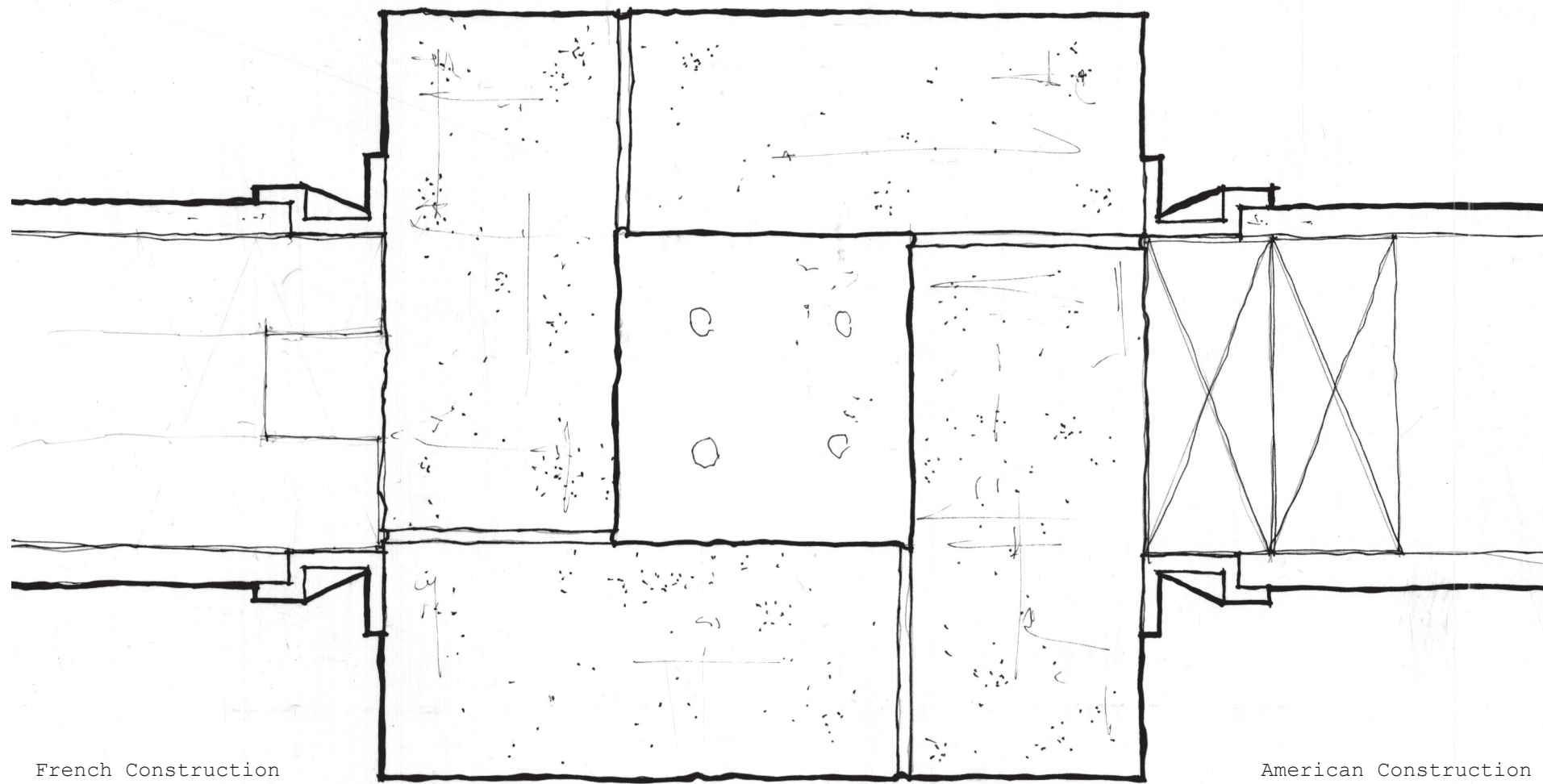
In each detail showing the partition construction and/or floor construction, both French and American construction methods are shown. The American construction method consists of drywall over stick built structure. The French, or European construction method consists of plaster over a tounge-in-groove, foam concrete wall panel system.



Partition Wall Section  
(French Construction)



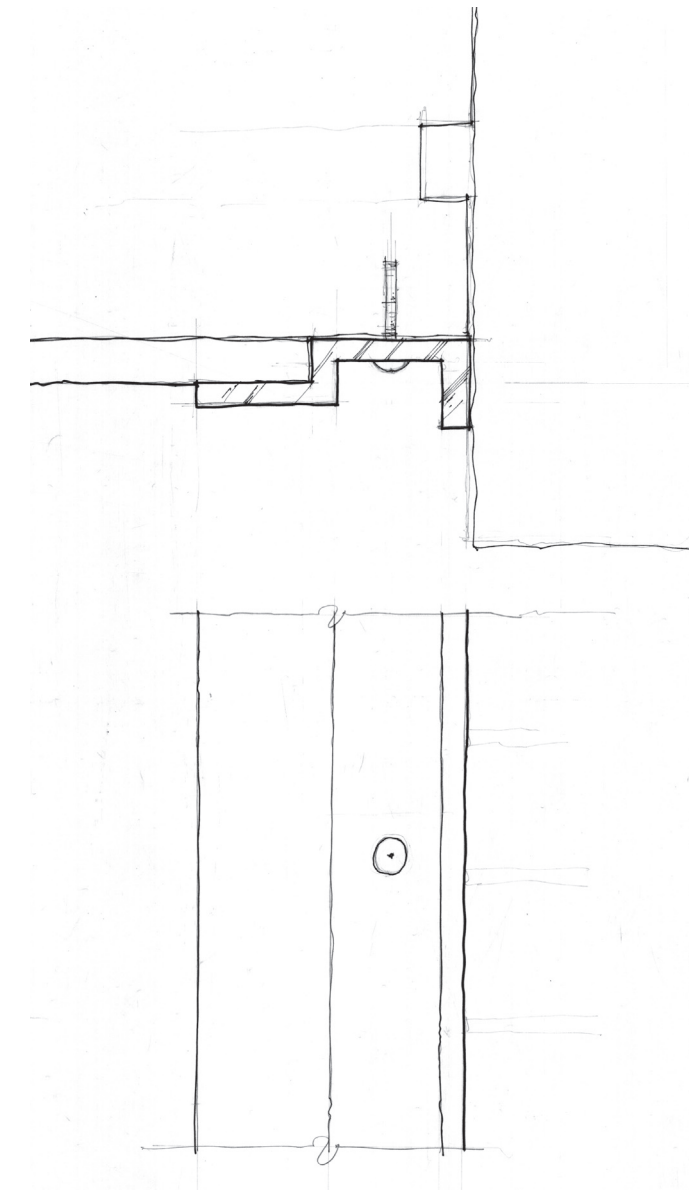
Partition Wall Section  
(American Construction)



French Construction

American Construction

Column/Partition Connection



Brass Connection Detail

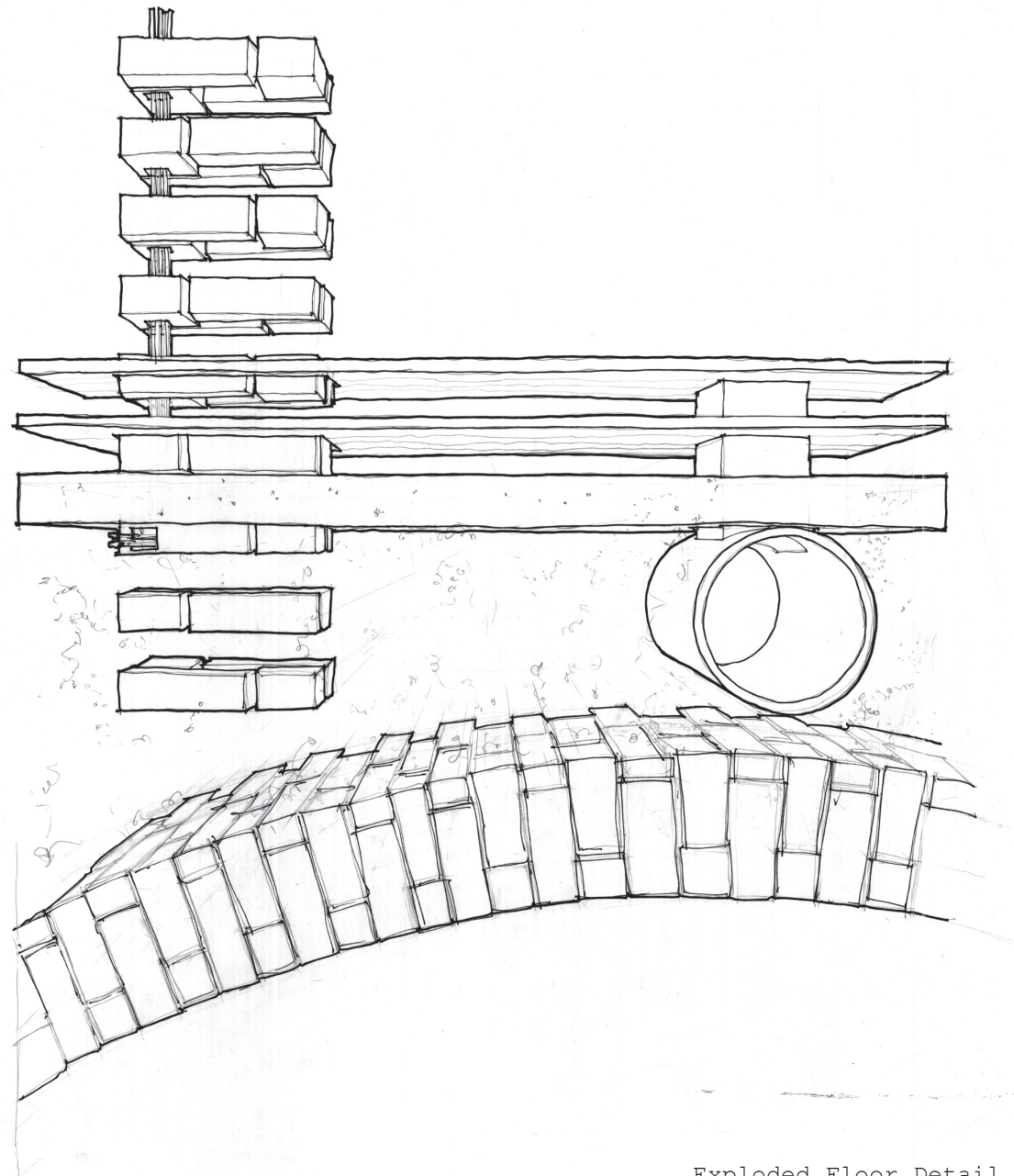
F L O O R  
S Y S T E M

The floor system construction, like the partition wall construction, differs between the United States and Europe.

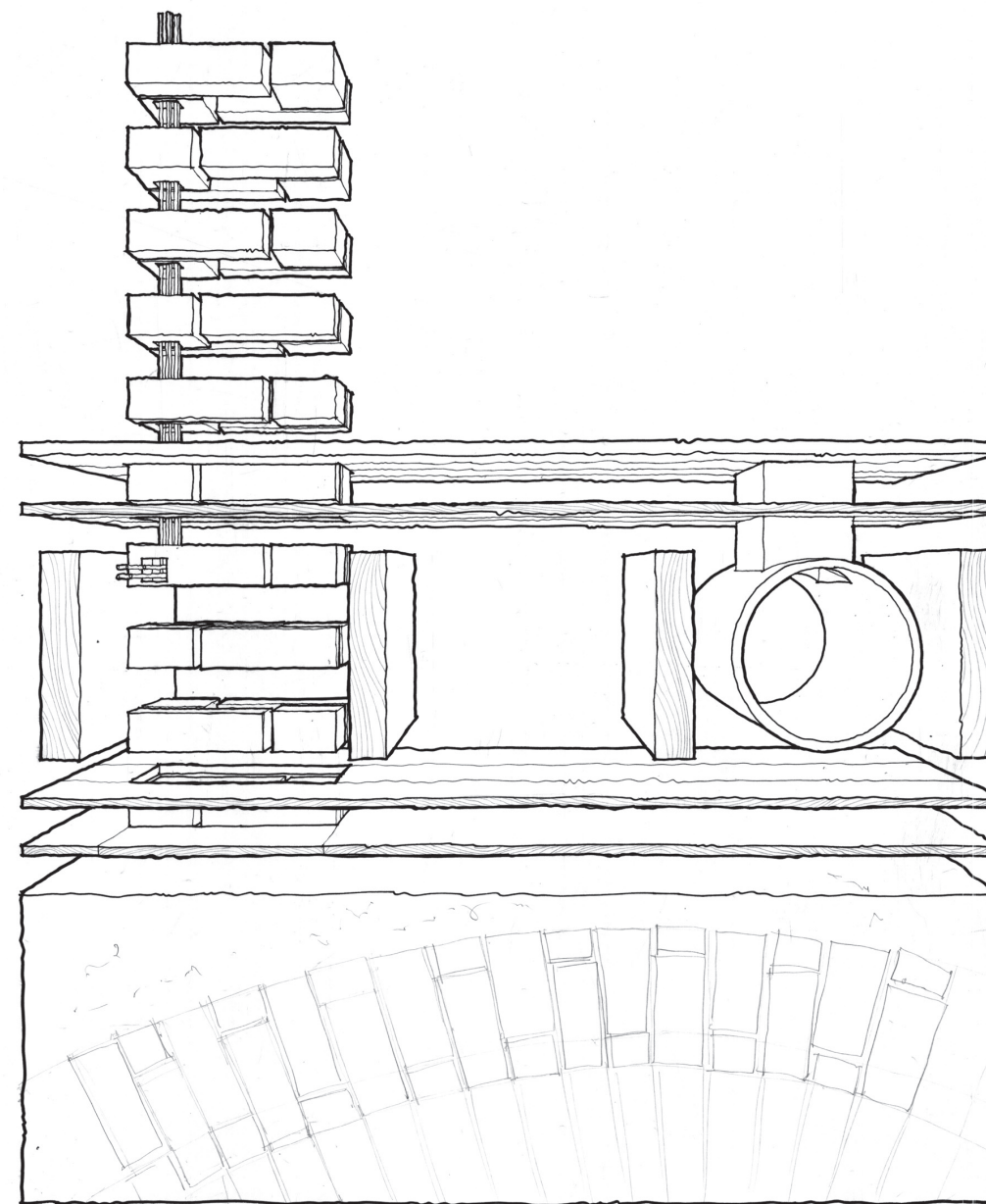
French floor construction consists of gravel laid over the brick arches, a layer of lightweight concrete, sub-floor, finished floor.

In the U.S., the construction method consists of plywood, floor joists, sub-floor, finished floor.

In both versions, systems run up from the basement via a vertical shaft surrounded by the stairs. Systems are then run from the back of the house under the floors to the front of the house.



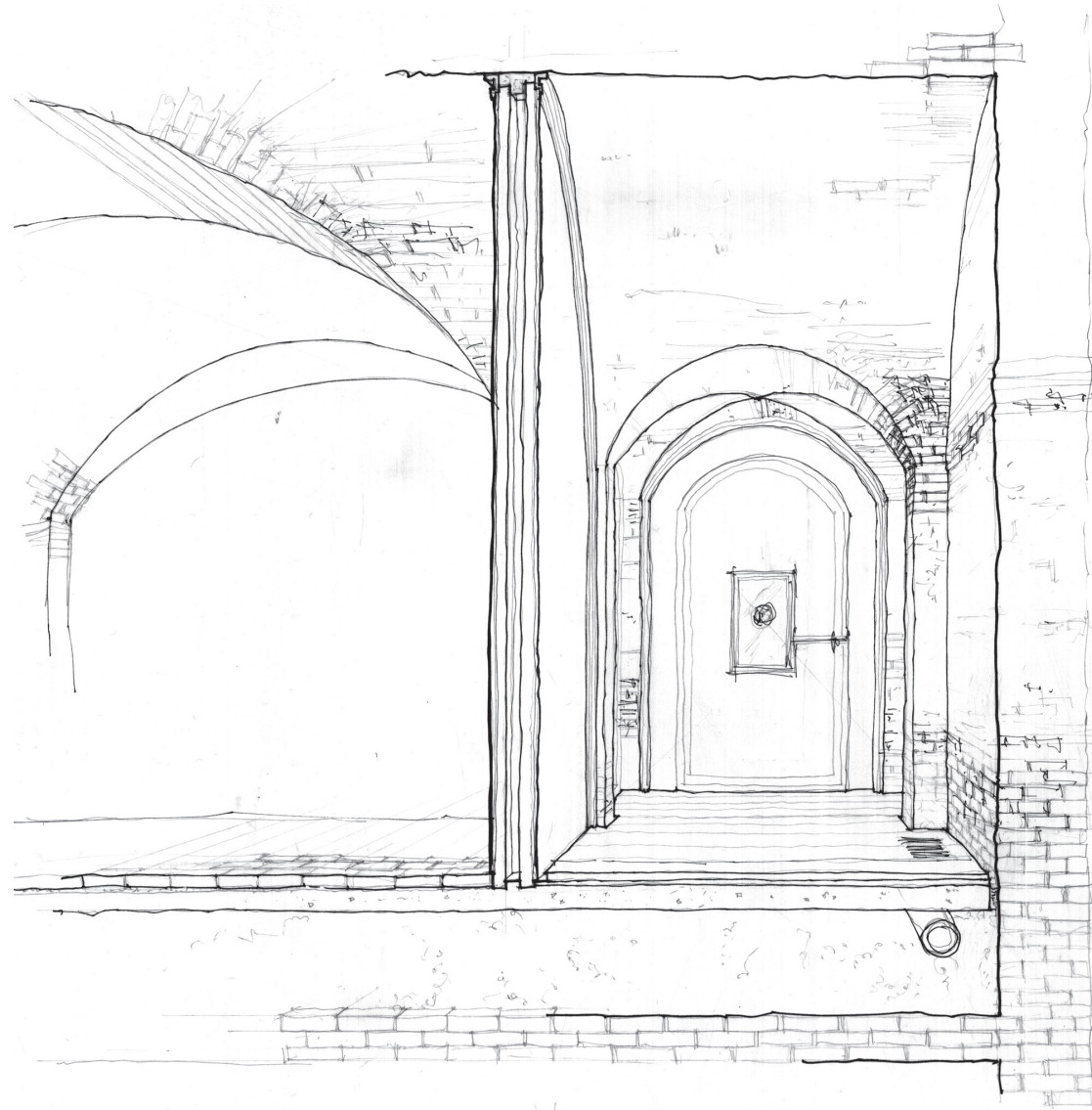
Exploded Floor Detail  
(French Construction)



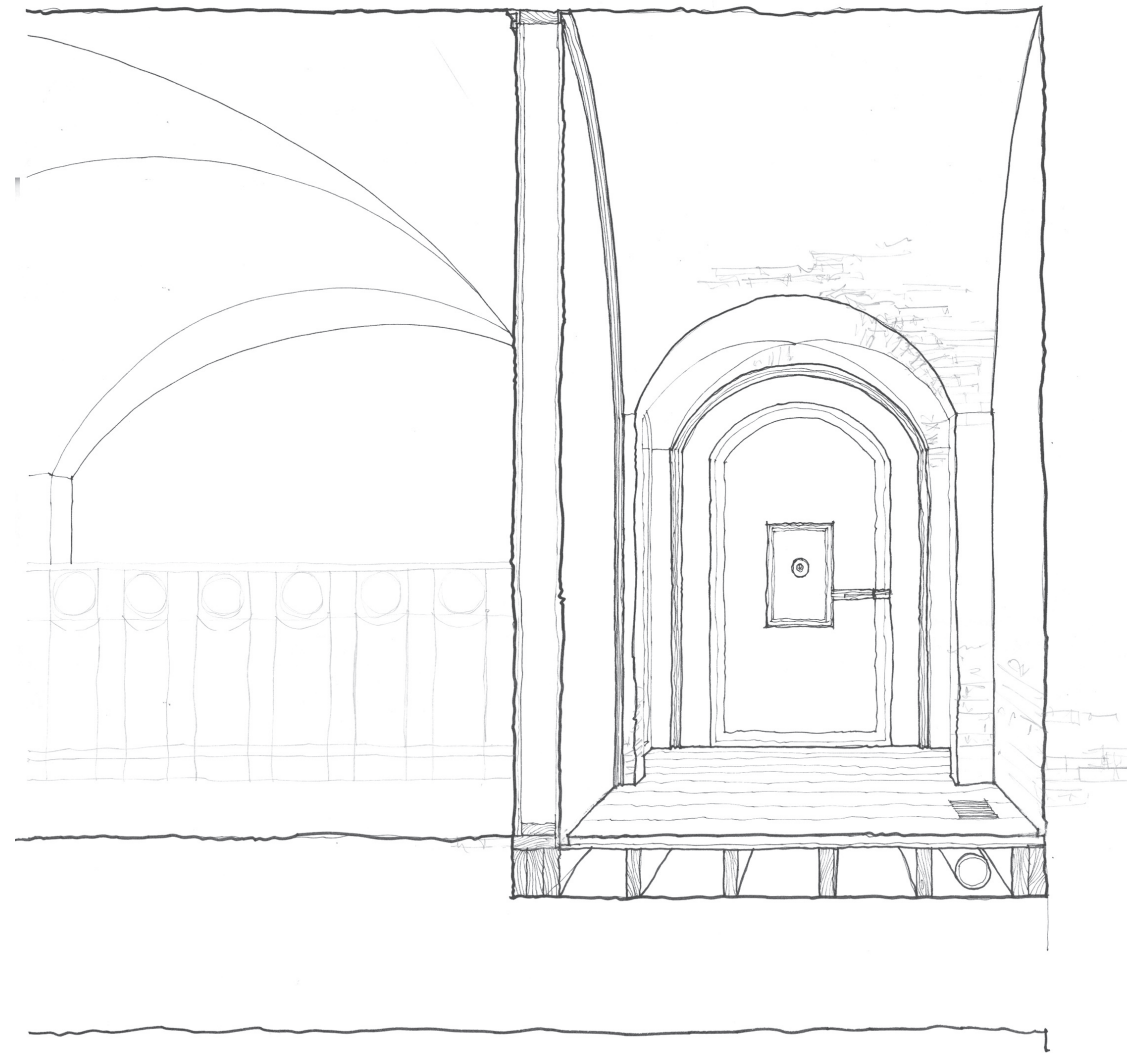
Exploded Floor Detail  
(American Construction)

D O O R

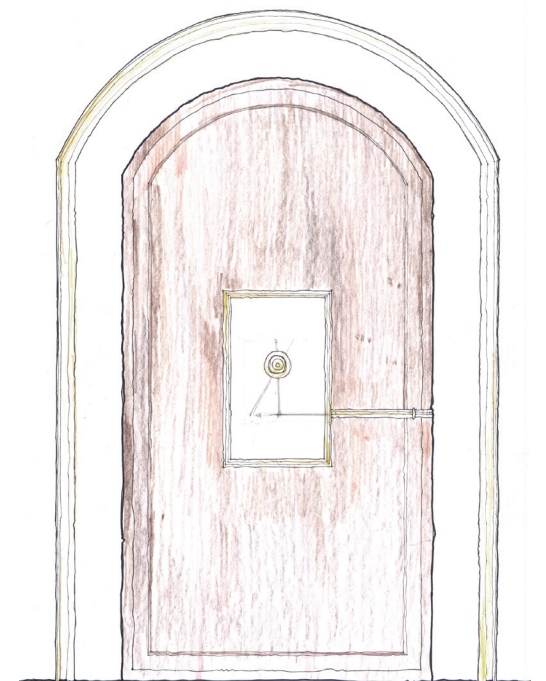
Reminiscent of old European front doors, the doors in the Montmartre House have a center knob surrounded by a brass detail similar to that at the connection of the partition and the column. The brass detail serves as a lock for the door as well as a signal as to which way the door opens.



Floor Section  
(French Construction)



Floor Section  
(American Construction)



S T A I R &  
R A I L I N G

Situated at the back of the house is the masonry stair, its form is a result of its material and therefore its construction. Vaults create the structure for the landings and arches span between.

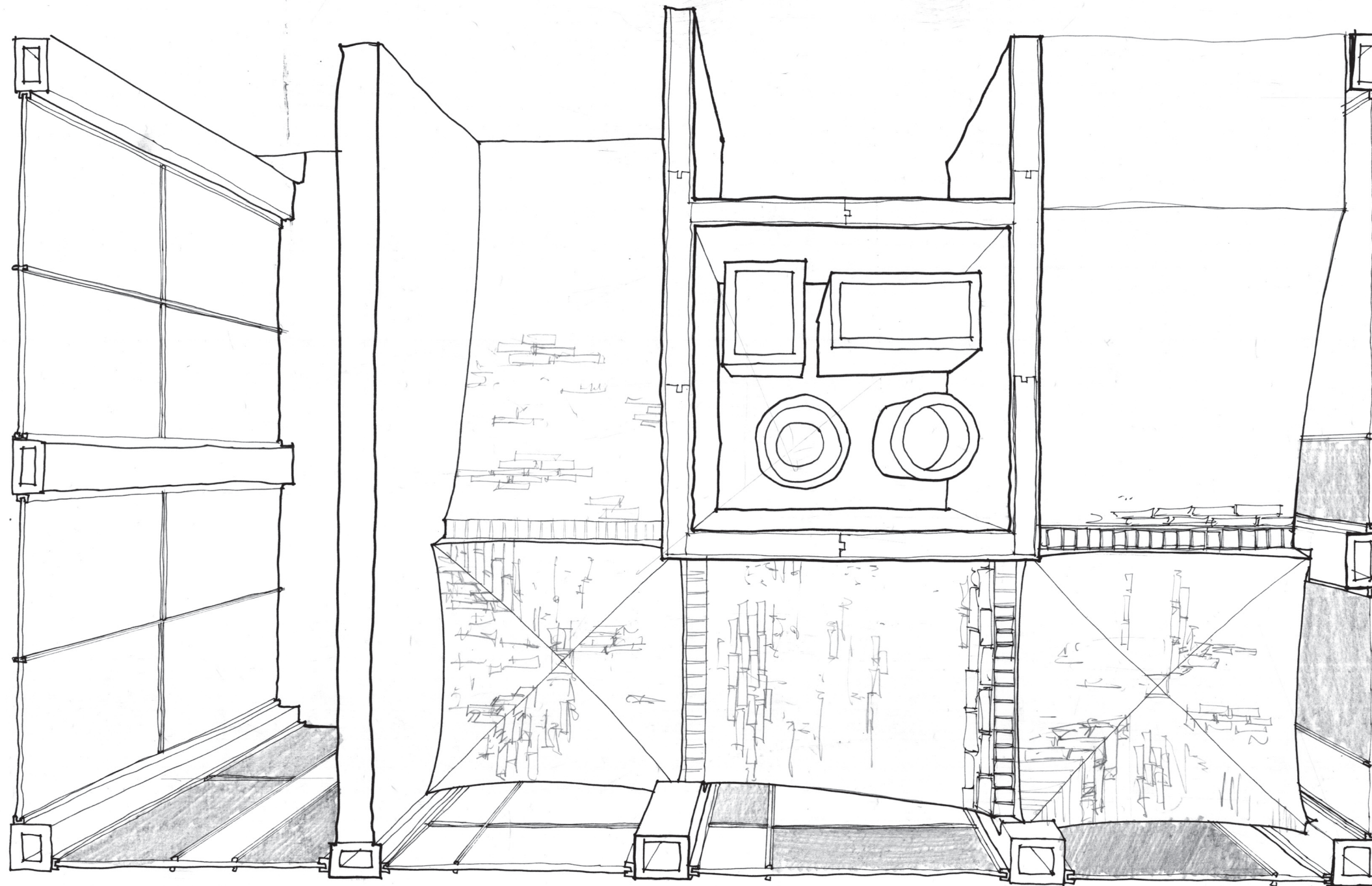
The stair is enclosed in translucent and transparent glass and becomes an architectural element at the back of the house.

Surrounded by the stair, a vertical shaft carries systems from the basement to the upper floors.



Stair Elevation

Stair Section & Railing Detail



Underside of Stair: Section  
(French Construction)

## O N D R A W I N G

During the design process, a difficult time for me personally is the point at which I must decide the best way to represent my building. Whether through a model, a painting, hard-line drawings, or measured hand drawings, for a young architect, the decision never seems clear.

For my thesis, as I initially defaulted to hard-line computer drawings. I felt that as I took a constructive approach to designing the Montmartre House, construction drawings would be the best way to represent it on paper. However, I felt the building was not properly represented through these drawings. The dead lines of the computer did not show the viewer the beautiful brick space I had designed. Through further investigation, I found that there is more to the relationship between drawing and architecture, and that the best way to show a building is not always through conventional construction contract drawings. A drawing can show not only the dimensions and material defining a space, but it can also show the character, the proportions, as well as the feeling, emotion, and detail an architect has put into designing it.

Drawing has several roles in its relationship to architecture. It is through this project where I begin to understand its potential in conveying a project on paper. For me personally, I have understood the relationship between drawing and architecture after comparing the process of creating both a drawing and a building. I make drawings by layering. My drawings evolve through layers upon layers of pencil and ink, with each layer contributing in some way to the finished product. More detail is applied as each layer is drawn and in the end the drawing has depth, feeling, it becomes photorealistic and hopefully causes viewers to experience some emotion. The same is true when designing a building. My design process parallels my drawing process in that with each new overlay of design, the project as a whole becomes more detailed until I have one cohesive building.

I continue to evaluate the relationship between drawing and architecture. Does a good drawing make a good building? Is drawing a part of architecture, or is it simply a vehicle by which we move from imaging a building to constructing it? As Louis Kahn stated in his essay, "Form and Design", "I dream of spaces full of wonder. Spaces that rise and envelop flowingly without beginning, without end, of a jointless material white and gold. When I place the first line on paper to capture the dream, the dream becomes less...This is a question of the unmeasurable and the measurable." Perhaps this journey from the mind to paper to a physical building is architecture. Because no building would exist had it not started in the mind. I believe drawing is a part of architecture as it is an essential part of the design process, and architectural drawings can be as beautiful and powerful as the built work they intend to help erect.

## B I B L I O G R A P H Y

Allen, Edward. Fundamentals of Building Construction: Materials and Methods. Hoboken, NJ: J. Wiley & Sons, 2004.

Ambrose, James E. Simplified Design of Masonry Structures. New York: J. Wiley, 1991.

Baudot, Francois. Paris. New York: Assouline, 2004.

Beltramini, Guido, and Zannier, Italo. Carlo Scarpa: Architecture and Design. New York: Rizzoli, 2006.

Twombly, Robert, ed. Louis Kahn: Essential Texts. New York: W.W. Norton, 2003.

Powell, Kenneth. Architecture Reborn: Converting Old Buildings for New Uses. New York: Rizzoli, 1999.

Schezen, Roberto. Adolf Loos: Architecture 1903-1932. New York: Monacelli Press, 1996.

## N O T E S / C R E D I T S

### Images

All photos and work are by the author.

### Quotes

p. 10 [http://thinkexist.com/quotes/louis\\_kahn/](http://thinkexist.com/quotes/louis_kahn/)

p. 35 Twombly, Robert, ed. Louis Kahn: Essential Texts. p. 62-63

## A C K N O W L E D G E M E N T S

First I would like to thank the three people who had the greatest hand in my return to school for my Master of Architecture degree, my uncle Urhan Mesen, Tony Rounds and Jon Fritsch. Thank you for getting my foot in the door both at work and at school, thank you for hiring me, and thank you for being such a wonderful influence in my life.

My thanks also go to my brilliant and inspiring professors who have taught me more than I can hope to summarize here. Thank you Hans Rott, my committee chair, as well as Steve Thompson, Frank Weiner, Heinrich Schnoedt, Jim Jones, and Bill Galloway. I would like to have three more years of lectures and studios with all of you.

Thank you to my family and friends for your unending love and support, especially my aunt Debbie Mesen, and my best friends Colleen Maloney and Julia Franz.

And to David Coxson, my love and companion through this process. You gave me laugh lines on my face and brought clarity to my work. I am ready for the next chapter with you.

J E S S I C A   N O E L   H A Y E S

V I T A

Education

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