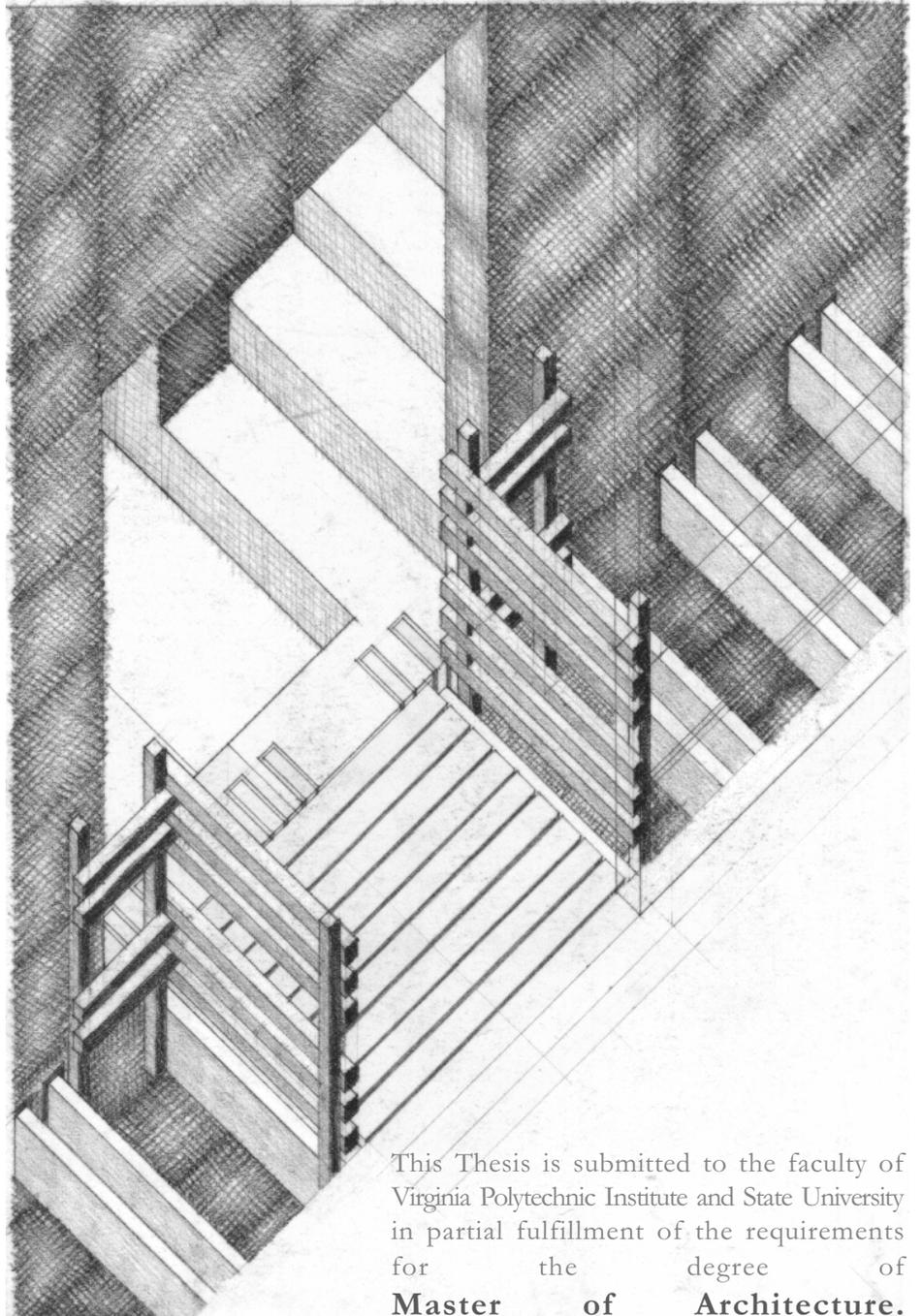


Interplay:

Studies in Rowhouse Design

Patricia Tedesco



This Thesis is submitted to the faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of **Master of Architecture.**

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Abstract

This thesis began as an exploration of the idea of home, a study that revealed the importance of place. Seeking to understand what makes a successful place, I studied neighborhoods with which I was familiar, identifying characteristics of both the vital and the lifeless. As a foundation for architectural exploration, this study helped me to recognize the dynamic qualities of denser, more urban neighborhoods, and to establish rowhousing as the vehicle through which to undertake my exploration of urban living. While providing the genesis for the project and further defining certain elements as worthy of further study, this initial exploration was nonetheless lacking. I had to do more than just speak of the conditions I hoped to achieve and of the characteristics of the elements with which to make the conditions manifest. I had to make the conditions, make the elements. It was essential for me to establish a clear order, so that these conditions could be brought together to form a cohesive whole.

I was able to arrive at a fully conceived expression of the project by structuring the conditions that I identified through the application of three dimensional grids. The interrelationships among the grids helped structure the relationships among various conditions, ensuring that they enhanced one another, and were, in fact, stronger together than separately. Working with the grids taught me that in order for them to be effective regulators the grids had to be intelligible while still being flexible; that they should help define but never dictate. It exposed the tension between the regulating devices we, as architects, utilize as tools for design and the three-dimensional material with which the designs are constructed, as well as the obligation of reconciling the two. Not only must the device accommodate the material and the material reveal the device, but indeed all facets of the design must be considered in relation to one another and to the whole. When philosophy, device, and material work in service of one another the possibility for architectural expression rather than simple building is created. One does not revere great architects solely for their philosophies of design, the functionality of the spaces they create, the materials with which they construct them, or the regulating devices they employ, but rather for the complexity with which these elements are brought together to form a whole so well designed that it seems that it could have been done no other way.

Acknowledgments

I'd like to extend my sincerest thanks to the following people:

My committee, for their criticism and guidance. They have helped me develop and hone my architectural sensibilities and convictions.

My friends and classmates, for the atmosphere they fostered in Cowgill during our shared journey. They asked insightful questions, offered assistance, provided technical expertise, and shared their homes and computers, all in a spirit of camaraderie, mutual support and respect.

Ellen Braaten, for being both a mentor and a friend. Her skill as an editor helped me find my voice. I hold her in the highest regard.

My family, for their unwavering faith in my abilities, which bolstered me when my faith in myself flagged. No words of gratitude could possibly express all that their confidence, encouragement, and support have meant to me.

Dedication

For Rob Kovack, wherever he may be.

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Re-imagining Home:

Thoughts on New Urbanism



I began my inquiry by examining the places in which we live, those places that should nourish the soul. Our homes should enrich us, both as individuals and as members of our communities, affording us the opportunity for connection, as well as for retreat and reflection. In order to provide for such divergence, the usual definition of home must be broadened to encompass more than the individual dwelling in which one resides. A more complete understanding of the word must also include the neighborhoods we frequent, the streets upon which we walk, our houses as we approach them, as well as the interiors of the house itself.



So how does one begin to make this sort of examination? It was essential to be able to identify the places I felt were worthy of study, and in order to understand my observations, to devise a structure for studying them. We have all heard the adage, “Write what you know”, the essential truth of this statement being that one’s own surroundings are both sufficiently fertile to merit exploration and that their very familiarity encourages a truer, deeper, less cliched understanding. Therefore, I looked at places where I lived, places in the town of Blacksburg that I had an intuitive sense of being either successful or unsuccessful, places that were comfortable, welcoming, and vibrant as well as those that were not.

Successful places were those I felt compelled to explore on foot rather than by car. When driving through these places so rich with detail I found myself wanting to slow down, even relishing the usual nuisances of stop signs and traffic signals as opportunities to stop my car and simply look around. So much were my eyes drawn to these places that at times I had insufficient attention to safely drive.

By contrast, the places I deemed as unsuccessful did not contain much to arrest my attention and provided little incentive for me to slow down or take a closer look. These were not places to be in, but rather were places to pass through. While it is certainly true that our rate of travel is inversely proportional to the amount of detail we are capable of observing, I have found the converse of this statement to be true as well. That is, that the level of detail present in a place is inversely proportional to the rate through which it feels comfortable to travel. Or more succinctly, the more there is to see, the slower we are inclined to travel. Of course the presence of a proximate destination is also crucial to the walkability of a place. Poverty of destination can handicap even the most interesting places and serves to further highlight the futility of walking through those that are uninteresting.

It was apparent that in order to undertake a comprehensive study of these places, I had to slow down enough to be able to see them in all their detail. I had to walk through them, think critically about what I saw, and then be able to understand and codify their essential architectural qualities. Photography and sketching were invaluable in this regard.

I chose the normative condition of the suburban subdivision with which to begin my inquiry. From the small scale, that of the individual house, to the larger scale of the streetscape, to the still larger scale of the subdivision, I sought to follow and to explain the consequences of various design decisions. For comparison, I then looked to similarly scaled areas of downtown Blacksburg that I viewed as being successful. I studied these very different places with an eye towards recognizing the decisions and choices that shaped them, and sought to understand the deeper consequences of these decisions. It was particularly interesting to note that similar problems often employed very different strategies in their solutions.

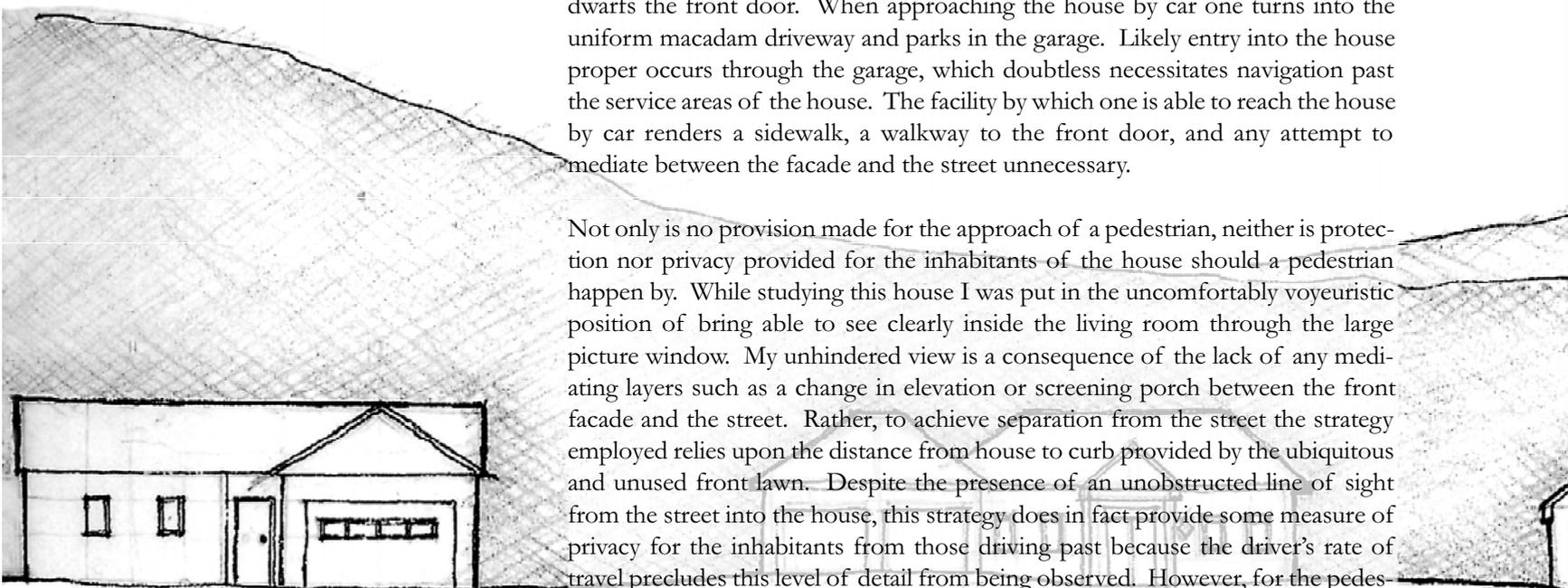
I looked around me, and this is what I saw.

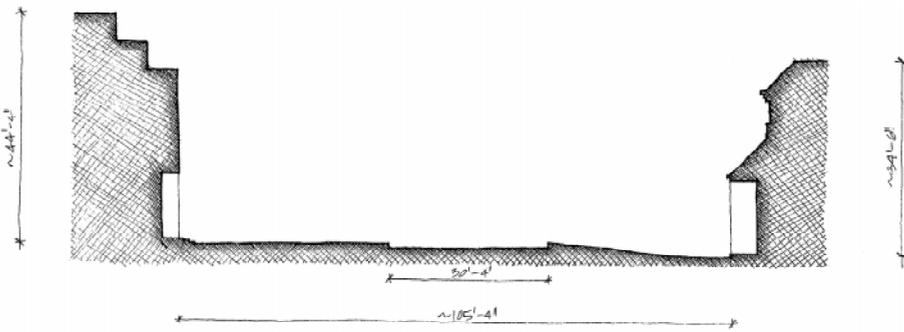


To walk by a suburban house such as this is an unwelcoming and uncomfortable experience. It presents a facade whose design ignores the pedestrian, his scale, and his needs. To begin, there is no sidewalk. To walk past this house it is necessary to walk in the street. In order to approach the front door from the street one must walk up the driveway, as there is no walkway from the curb to the front door. The driveway is surfaced in macadam, whose chief characteristics are that it is smooth and inexpensive. Lacking texture and pattern, it is interesting neither tactilely nor visually, and is suited to being ignored. Very little transition occurs as one continues towards the front door. No change in elevation or moderating layers such as a front stoop or porch signify the traditional significance of the front door as the welcoming main entry, mediate between the front of the house and the street, or protect from strong sun or inclement weather the hapless person unlucky enough to approach the house this way. Indeed, nothing intrudes upon the blank plane of the facade. One is simply in or out.

The suburban house is obviously not designed to be approached by foot. For what kind of approach then is it designed? Solely for arrival by automobile does it make any provision. This bias in favor of the automobile is revealed by the prominent placement of the garage door on the facade. Its scale is such that it dwarfs the front door. When approaching the house by car one turns into the uniform macadam driveway and parks in the garage. Likely entry into the house proper occurs through the garage, which doubtless necessitates navigation past the service areas of the house. The facility by which one is able to reach the house by car renders a sidewalk, a walkway to the front door, and any attempt to mediate between the facade and the street unnecessary.

Not only is no provision made for the approach of a pedestrian, neither is protection nor privacy provided for the inhabitants of the house should a pedestrian happen by. While studying this house I was put in the uncomfortably voyeuristic position of being able to see clearly inside the living room through the large picture window. My unhindered view is a consequence of the lack of any mediating layers such as a change in elevation or screening porch between the front facade and the street. Rather, to achieve separation from the street the strategy employed relies upon the distance from house to curb provided by the ubiquitous and unused front lawn. Despite the presence of an unobstructed line of sight from the street into the house, this strategy does in fact provide some measure of privacy for the inhabitants from those driving past because the driver's rate of travel precludes this level of detail from being observed. However, for the pedestrian traveling at a far slower speed, the strategy is woefully inadequate.



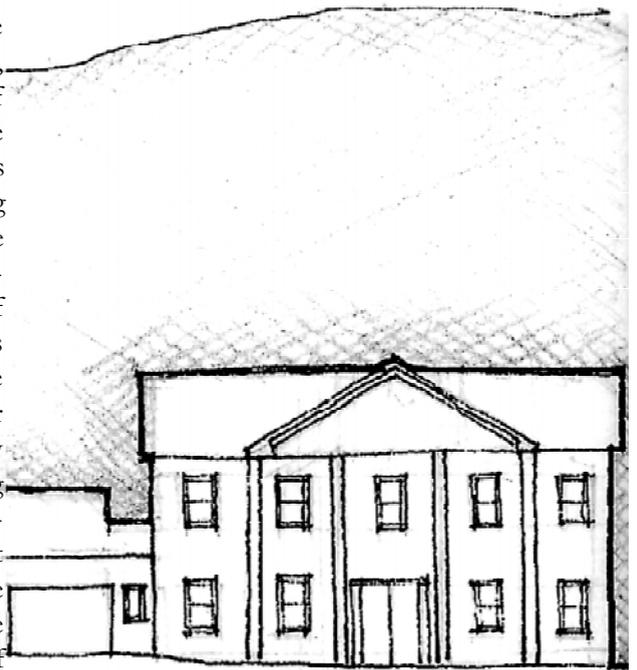


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When several such houses are grouped together, the resulting streetscape is one that appears barren and feels uncomfortable. It is simply too wide, too unbounded, and feels too exposed. I believe this can be explained by looking at the section of such a streetscape. The reason for its extreme width from facade to facade can be understood in the context of the strategy of employing distance from the street as the chief means of providing privacy for the homes. Conventional reasoning dictates that if some privacy is good then more must be better, and thus the newer the subdivision, the wider and less welcoming become the streets. A perusal of the elevation of such a street shows that the uncomfortable feeling of unbounded space is further exacerbated by the voids of the empty side yards between the houses. Again, the distance provided by this largely unused space provides a measure of privacy among the residents. Unfortunately, a further result is that the distances from house to house increase and it becomes necessary to walk farther distances for longer periods of time to get anywhere. Walking becomes still less tenable an option, again reinforcing the primacy of the automobile. This sort of arrangement ensures that the houses that make up the street have little opportunity to relate to one another. Designed to be approached in the isolation of one's car, the possibility of interaction with those living on the same street or indeed next-door is precluded, undermining the very underpinnings of community.



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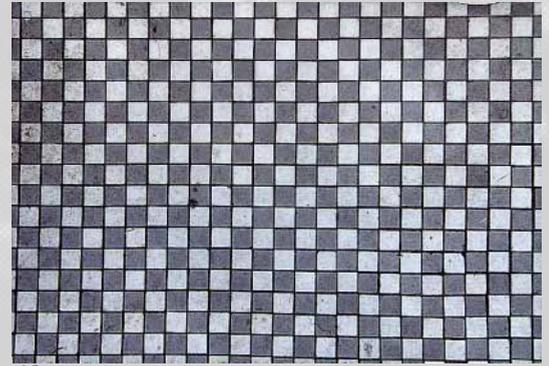
When many such streets are put together to form subdivisions, still more problems emerge. Current planning principles espouse a separation rather than an integration of land uses and as such new developments are often made up exclusively of clusters of residences which are often of unrelenting sameness. Places for shopping, businesses, schools and leisure are not only located separately from these places of residence, they are also separate from one another, the distances between them considerable. This in turn necessitates driving through increasingly congested roads to navigate among them. Bowing to the tyranny of the automobile, the very possibility for neighborhood gives way to an increasingly isolated existence in sterile surroundings.



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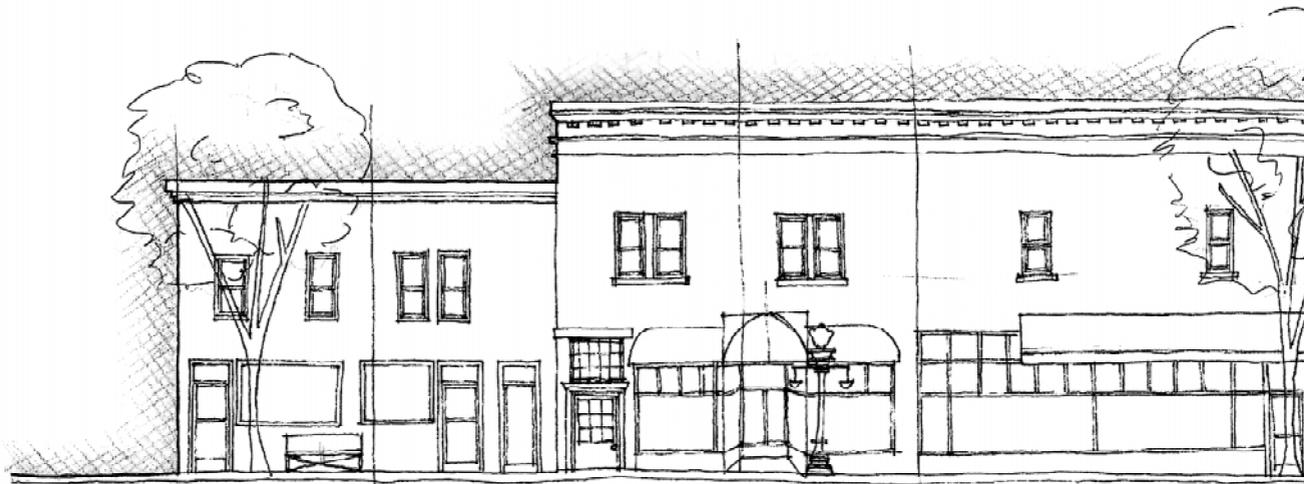
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On the other hand, downtown Blacksburg is a joy through which to walk. What is it about the place that makes it so? While the pedestrian is ignored in the design of many newer residential subdivisions, here in this mixed use setting he is in fact catered to. The design of the individual buildings are mindful of both human scale and needs. A sidewalk of comfortable width encourages walking. Even the surfaces underfoot have been considered with care, with an abundance of textures and patterns to interest one walking past. Subtle and considered too are the entry conditions. They are not gaping car-sized voids but rather are appropriately sized for pedestrian use. Considerable layering occurs between the street traffic and the building facades with parked cars, curbs, street lamps, trees, benches, and sidewalks all acting as buffers between the pedestrian and the cars traveling on the streets. At the building entries, additive or subtractive elements such as awnings or recesses provide one walking past with shelter in case of inclement weather and shading from the sun. In addition they act as yet another layer mediating between the street and the entrance to the building itself. For those approaching by automobile it is necessary to park either on the street or in small municipal lots and then proceed to the particular building on foot. Here the facility of approach is granted to the pedestrian.

Privacy for the residents of this area is simply and elegantly achieved. By locating residences on the second and third stories, visual privacy from the street is attained. This reliance on vertical distance between the residences and the street ensures that although an unobstructed line of sight may still exist, it is angled too far above the normal point of view of a person on the street to be an apparent one. Regardless of the speed of the passerby, whether a slow walker or a fast driver, this strategy is equally effective.

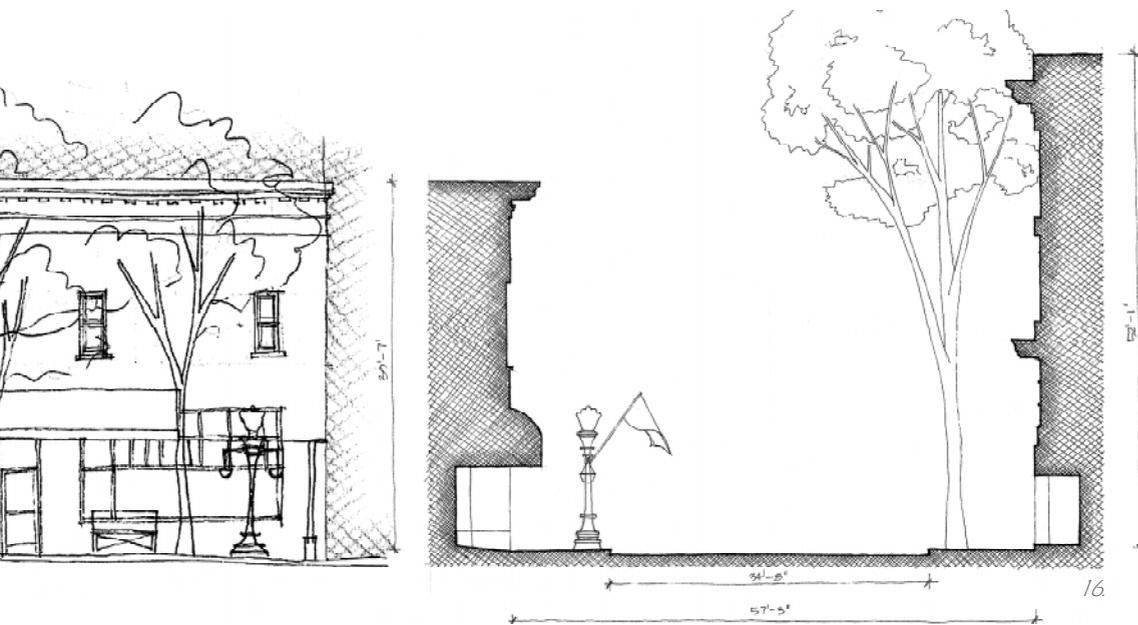


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The resulting streetscape achieved through the grouping of many such buildings is comfortable and welcoming. As revealed in section, the width and height of the buildings that line the street form a space of room-like dimensions. There is a sense of comfortable boundedness. Because vertical rather than horizontal distance from the street is the strategy employed to achieve privacy for the residents, the width of the street from facade to facade can remain quite narrow. Neither are the buildings so tall that a canyon-like streetscape is created. The elevation of such a street is revealing as well. Party walls rather than voids separate the buildings from one another. Distances from door to door are minimized, ensuring that the time it takes to walk from one to another remains brief, thus ensuring the viability of a pedestrian-based culture. Designed to be approached on foot, the possibility for personal interaction is increased, and with it so too is the opportunity for community.



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Choosing downtown Blacksburg as the location in which to design places to live can be seen as an antidote to the expensive, unhealthy, inconvenient, unsustainable, and yes, immoral way of living fostered by the suburban subdivision. By relying more on the pedestrian and less on the automobile for mobility, it is possible to live in flourishing places rather than in featureless spaces. This entails living more densely and in a more urban fashion - in a town rather than on its outskirts. A housing type eminently suitable for higher density areas, rowhousing became the vehicle through which I could undertake an exploration of urban living, and indeed a return to urbanism.

However, in order to undertake a well-considered exploration, I had to acknowledge that the normative condition I was seeking to replace, which I had heretofore examined only in terms of its negative consequences, does in fact provide some positive aspects as well. Indeed, few of us would choose to live in suburban single-family detached houses if they engendered purely negative experiences. As a type, it provides a number of tangible and intangible benefits which touch us on both the practical and the emotional level.



Designed around the needs of those traveling by car, suburbia abounds with ample parking. While a more pedestrian-centered way of living is a worthwhile goal, private, dedicated parking nevertheless remains an eminently desirable amenity, facilitating the movement of heavy or bulky items to and from the house.

Private outdoor space is another endowment generously granted in suburbia. Back yards and other such usable spaces extend the living areas of the house during the warmer months, offer a secure environment in which children can play, and also provide a forum for connection with the natural environment.

Less tangible though still important is the sense of ownership engendered by this style of living. It is a force that is both powerful and deeply affecting. Crucial I think to its elemental nature is that the house can be picked out, identified, and called one's own, a feeling that merely purchasing an apartment can never satisfy.

Similarly, inherent in the proposed alternative, there exist numerous design challenges along with the advantages previously considered. Built to satisfy greater density requirements, places for automobiles are often limited to the public on-street parking located in front of the building. The very proximity of a myriad of other building uses ensures that these parking spaces are also to be vied for by those who have driven to the area to shop or to work. Even if we rely less on our cars and more on our feet for basic transportation we will certainly still need to drive from time to time, making the omission of dedicated parking a hindrance to a more widespread acceptance of this housing type.

Neither is appreciable outdoor space an amenity commonly associated with the rowhouse type. Usable living space is sometimes augmented with the occasional balcony, but these tend to be too shallow and so exposed that they are often not used. Window boxes must suffice to satisfy the residents' horticultural aspirations.

Sharing party walls with their neighbors, rowhouses can only have their windows located on their front and back faces. Coupled with their tendency to be rather long and narrow, these available faces are quite small. Thus, what light can be introduced into the building has little chance of penetrating deeply into the farther reaches of the interior. Any walls which traverse the width of the interior further reduce even this modest penetration of light.

Rather than viewing these as obstacles difficult to surmount, I saw them instead as opportunities to be explored through thoughtful design. In order for my own proposal to be a credible alternative, I had to do more than recognize the flaws inherent in normative designs of the rowhouse type. By using the shortcomings I had uncovered as the impetus for architectural exploration, I was able to focus my inquiry into those areas that most merited consideration.



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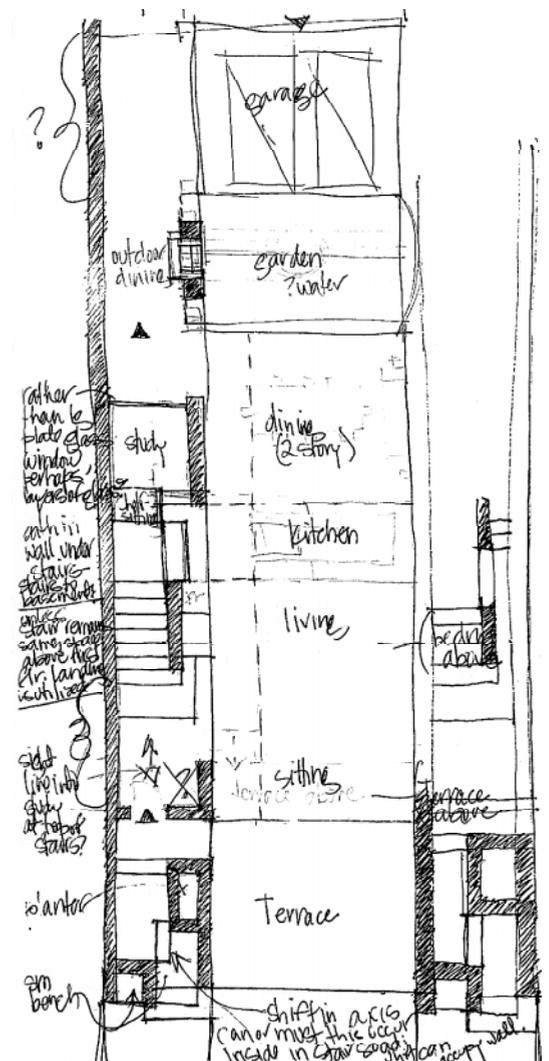
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Continuing my walks through Blacksburg proved inspirational for devising solutions for providing some of the amenities we desire while mitigating some of the shortcomings we disdain. Parking presents a considerable problem for houses facing Main Street just south of the downtown. Automobile traffic in this area is significant as well as fast moving. The sheer volume of traffic precludes designating the curbside for parking. This coupled with the higher speed limit on this section of the street render turning into and out of driveways both impractical as well as dangerous. Rather, places for parking occur in private garages behind the houses, and are accessed via alleyways that run parallel to Main Street. Between the embrace of the garage and the house lie the backyards. This arrangement at once solves a number of problems. While providing parking for the residents away from the bustle of Main Street, the alleys also form a framework in which to locate the backyards. Trash pickup occurs here also, which relieves passersby on the street from having close contact with garbage, as well as eliminates slow moving sanitation vehicles from congesting the flow of traffic on Main Street. In addition to all this, the alleys are pleasant places in their own right, attractively room-like in their dimensions. It is an ingenious solution that can accomplish so much through such a simple act.

Successful places share a common genesis in that they are all born of a priority to nurture the public and private lives of those who live there. As such they also share certain physical characteristics, with discernible patterns emerging. Valued in these places, the pedestrian is catered to, from building entries that welcome to streetscapes and neighborhoods that encourage walking. The inhabitant's need for privacy is respected as well, with screening elements and height from the street providing needed separation while still allowing light to enter. Neither is the need for private outdoor space nor parking ignored. These hallmarks were crucial for me to recognize, understand, and apply in the creation of my own design.

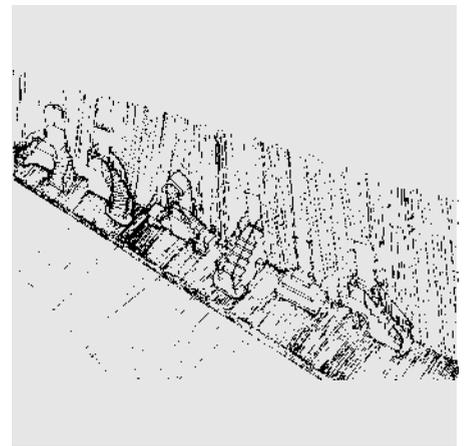
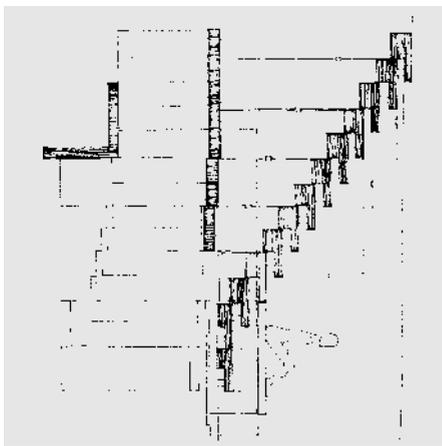
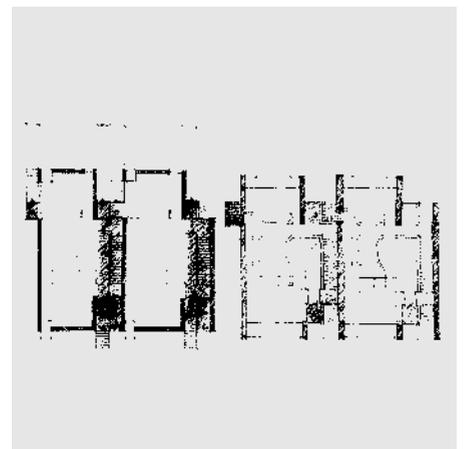
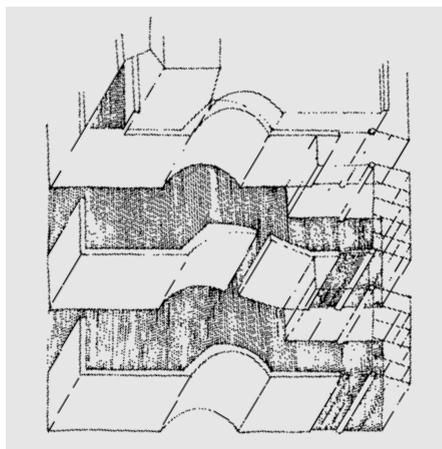
I came away from this inquiry with a more developed understanding of the qualities embodied in successful places and with a more fully considered sense of what I hoped to achieve in my own design. While certain strategies did in fact emerge, I did not find a precise formula or recipe to be simply applied. What I found instead was a mindset, a sensibility to be entered into, in which a realignment of priorities occurred. It is a change on the most fundamental level, that of the premise. It redefines the qualities of home that are seen as valuable in the first place. It recognizes and celebrates the idea that the places we live should both support community as well as nurture privacy. This is not so daunting a task as it may sound, for these places do exist; indeed, they are all around us. We have to recover from our collective amnesia and learn to see them again.

While this study of new urbanism yielded a trove of principles, it was not for me an inherently architectural study because it did not address issues of form in a generative way. I had a strong grasp of the concepts I would address, and even had some notion as to the arrangement of the nascent unit, but I had no specific idea as to the form they would ultimately take. After all, the thing being designed must be beautiful and worthwhile in its own right - quite apart from any theories about it. I had to find a way to move beyond the abstract and into the actual.



24.

Precedent Studies

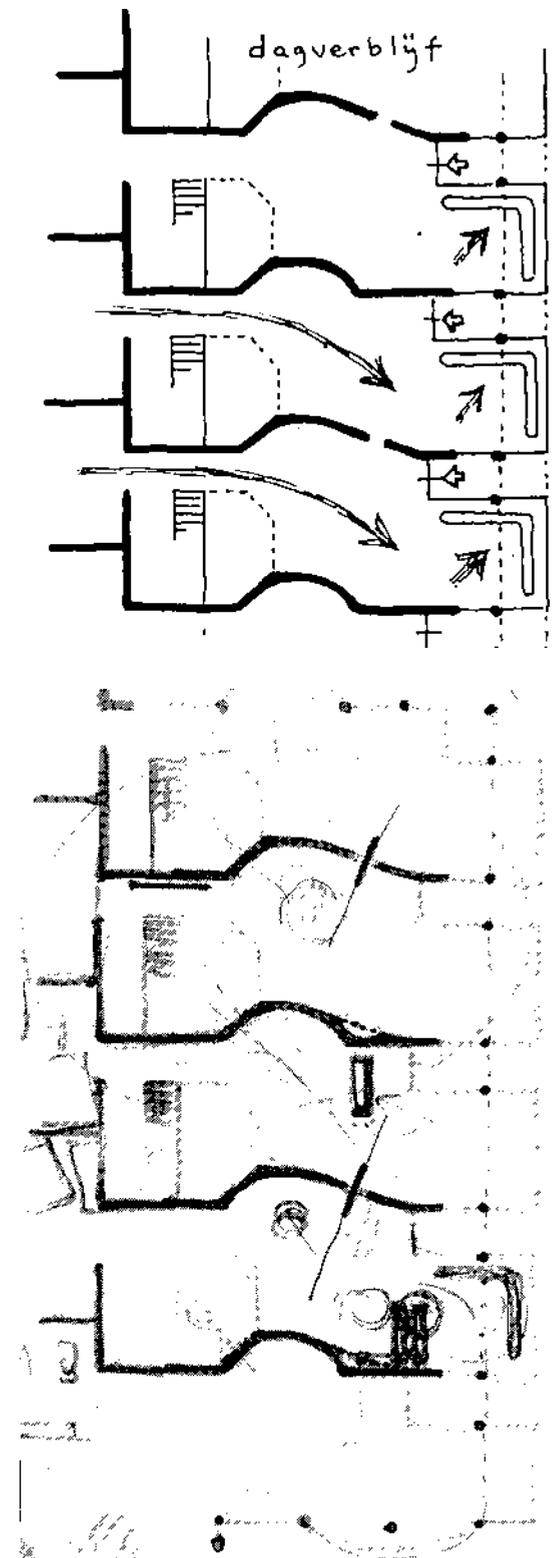
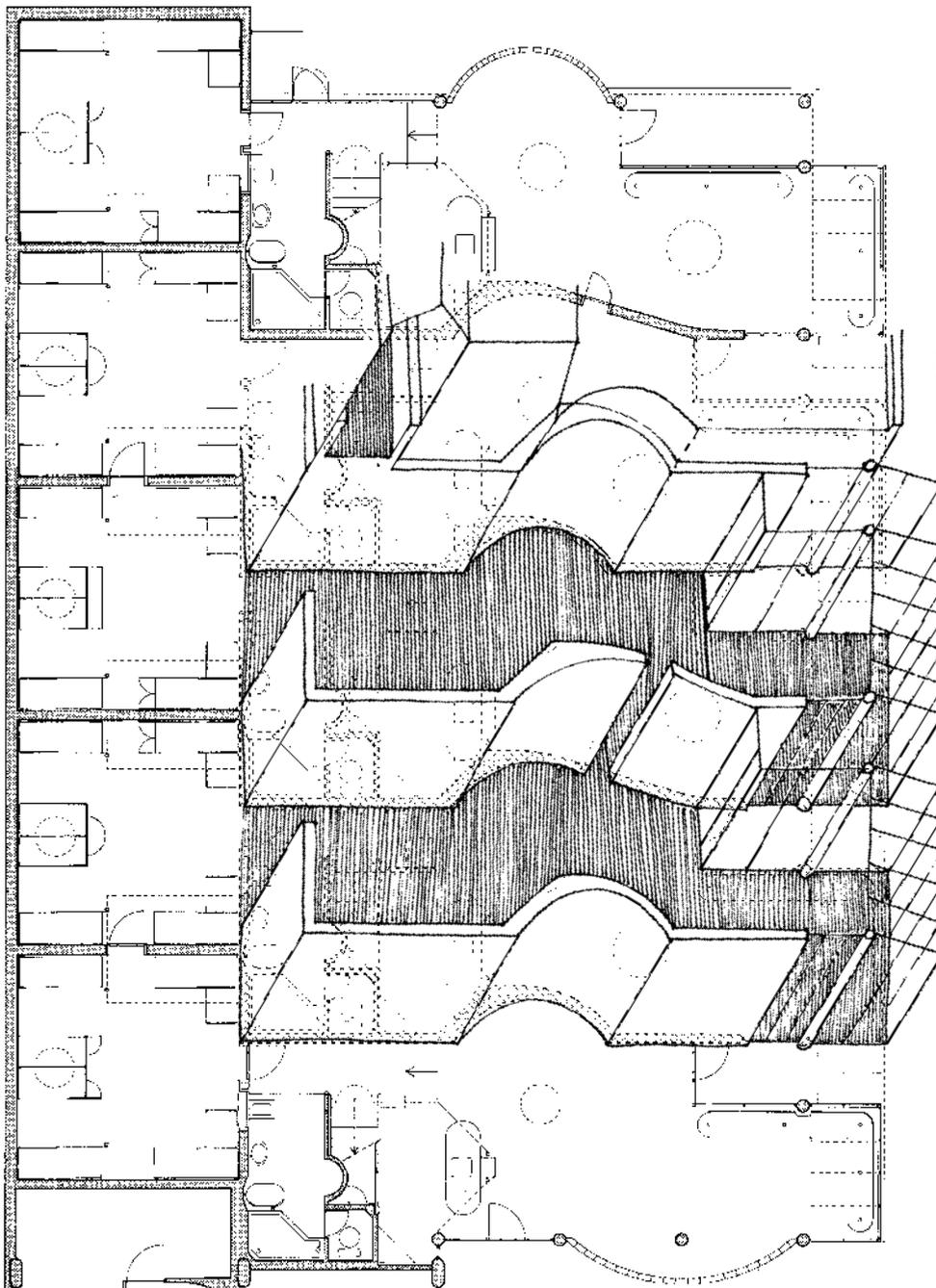


Having chosen rowhousing as the building type through which my conception of home could best be brought forth, I isolated architectural elements important to the type, these being the manner in which each unit is separated from and connected to its neighbor, the condition of the building entry, and the design of the of the stair. Along with the unauthored streetscapes of Georgetown, I studied seminal works by Aldo Van Eyck, Rudy Hunziker and Carlo Scarpa, with an eye towards understanding how these forms achieved their effects. While beautiful images of these works abound, I sought a deeper understanding than the superficial one often fostered by the over-reliance on seductive imagery. It is through sketching that I am best able to engage my mind with my eye, and understand the principles and mechanisms which together help create places of such beauty.

Aldo Van Eyck

Hubertus House

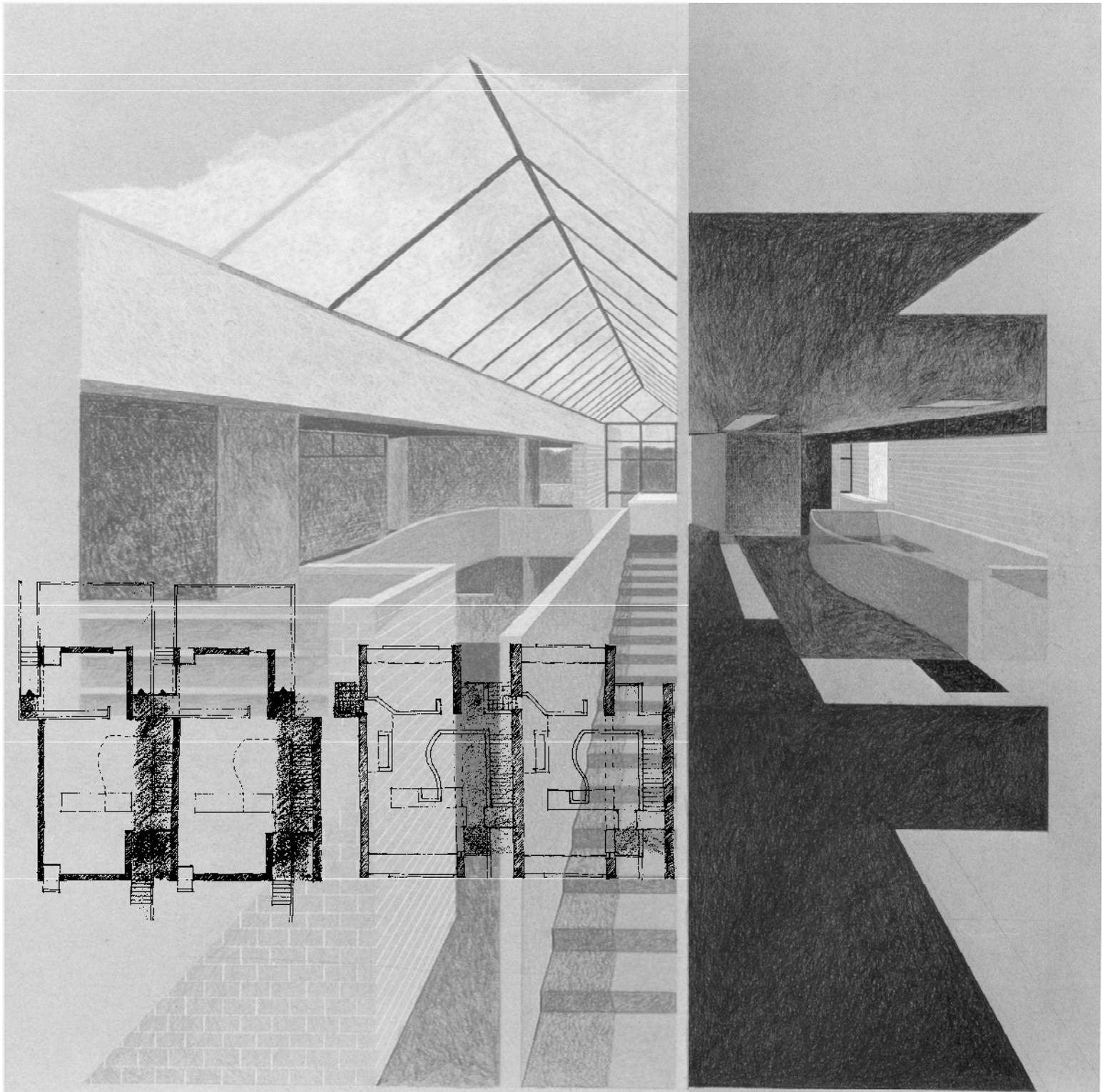
The party wall directs movement within each unit.
The party walls alternate between semi-circular and gently curved shaped.
The units are both separated and joined by the party walls.



Rudy Hunziker

Case a Schiera

What is the nature of the central zone?
To what extent is it shared by adjacent units?
Does it effect how one begins and ends a series?

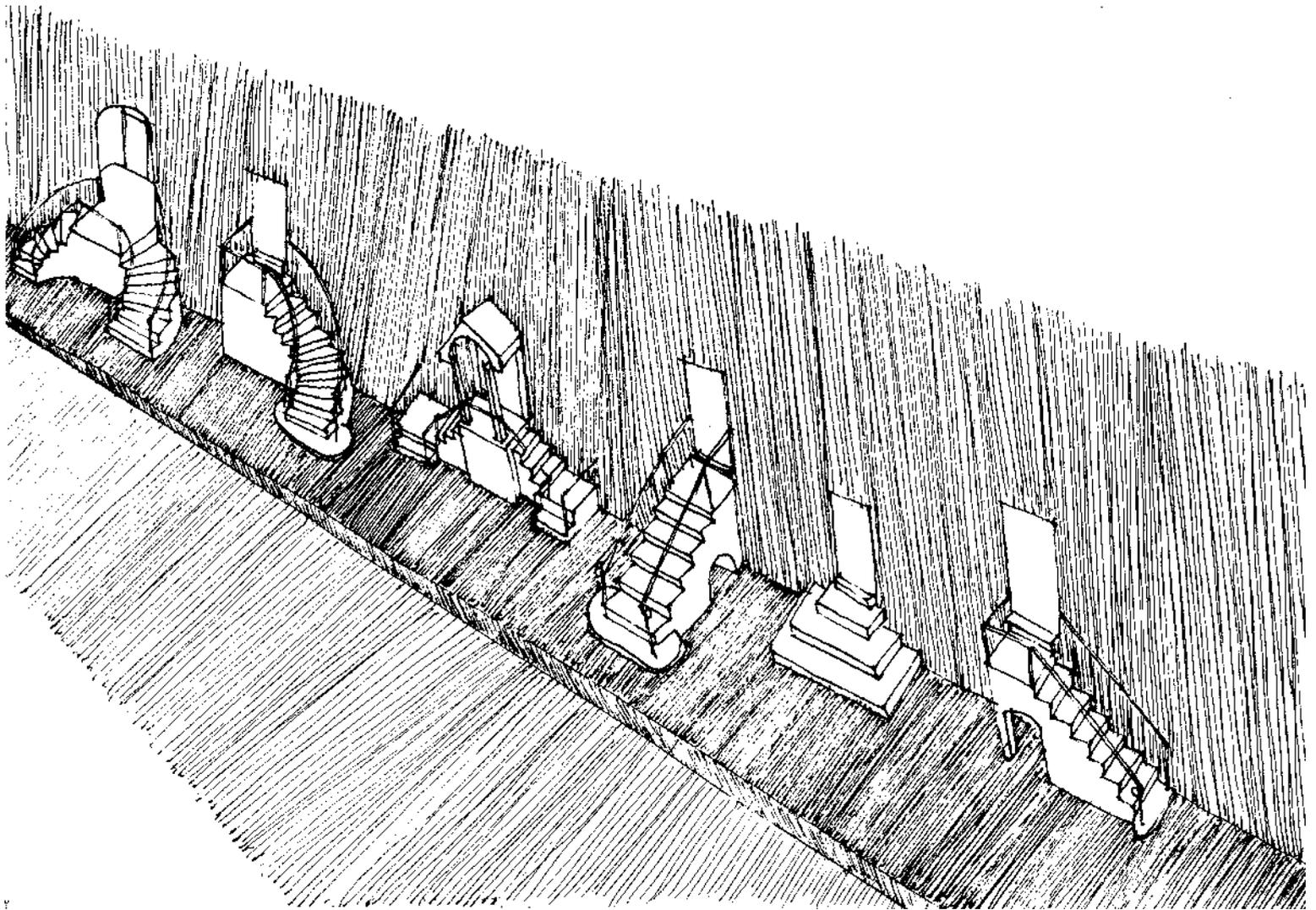
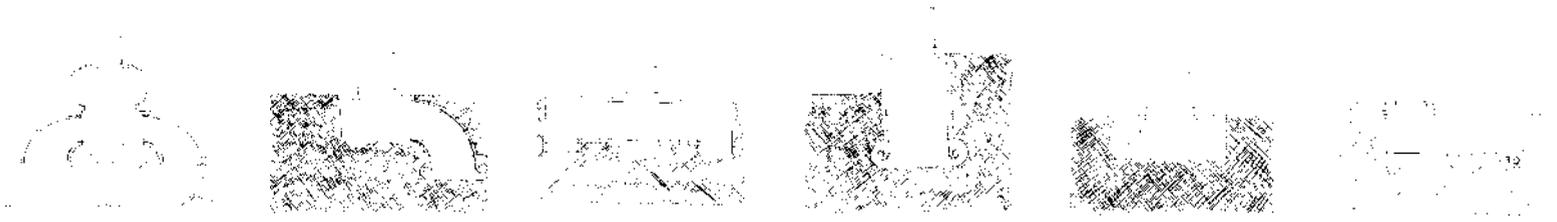


Georgetown

Stair Sidewalk Streetscape

entreaty. response. conversation.

reciprocity. enliven. variety.

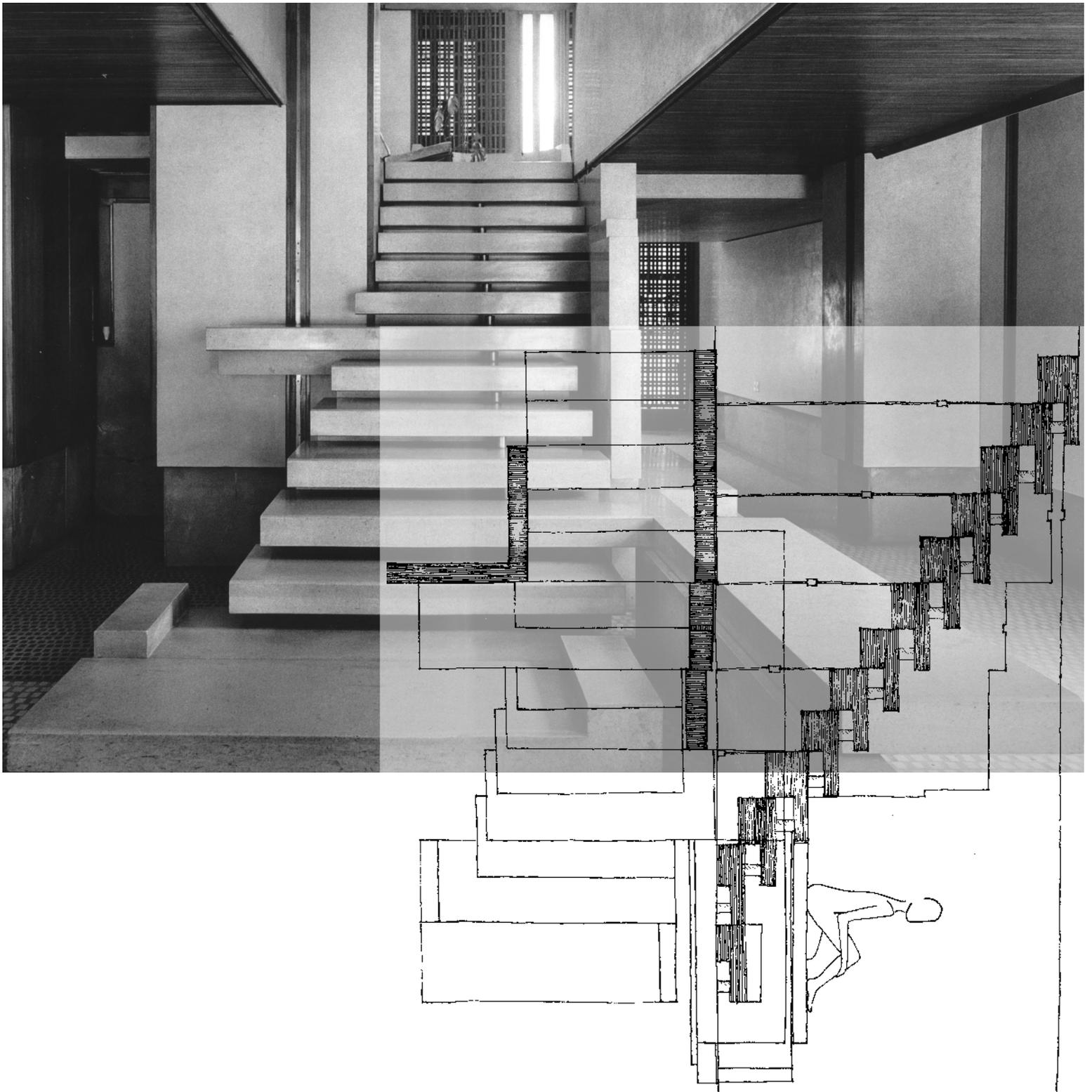


Carlo Scarpa

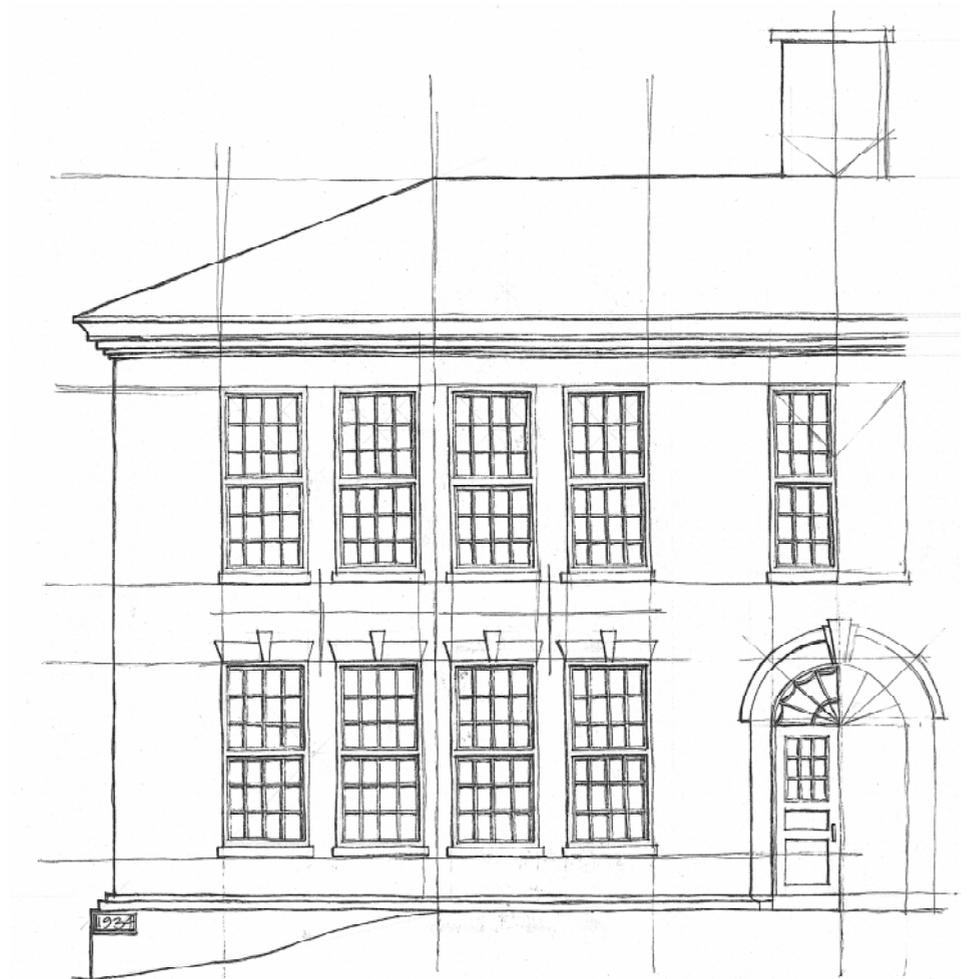
Olivetti Showroom

The stair is a sculptural object with the power to alter the rhythm of one's stride.

Seating and shelving are gracefully incorporated into the language of the stair.



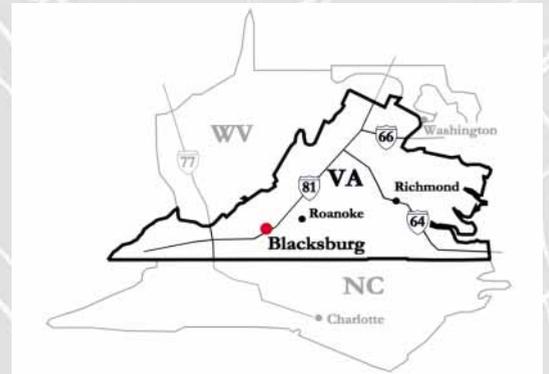
Site



“Architecture, whether as a town or a building, is the reconciliation of ourselves with the natural land. At the necessary juncture of culture and place, architecture seeks not only the minimal ruin of landscape but something more difficult: a replacement of what was lost with something that atones for the loss. In the best architecture this replacement is through an intensification of the place, where it emerges no worse for human intervention, where culture’s shaping of the land to specific use results in a heightening of beauty and presence. In these places we seem worthy of existence.” -W.G. Clark, *Replacement*.



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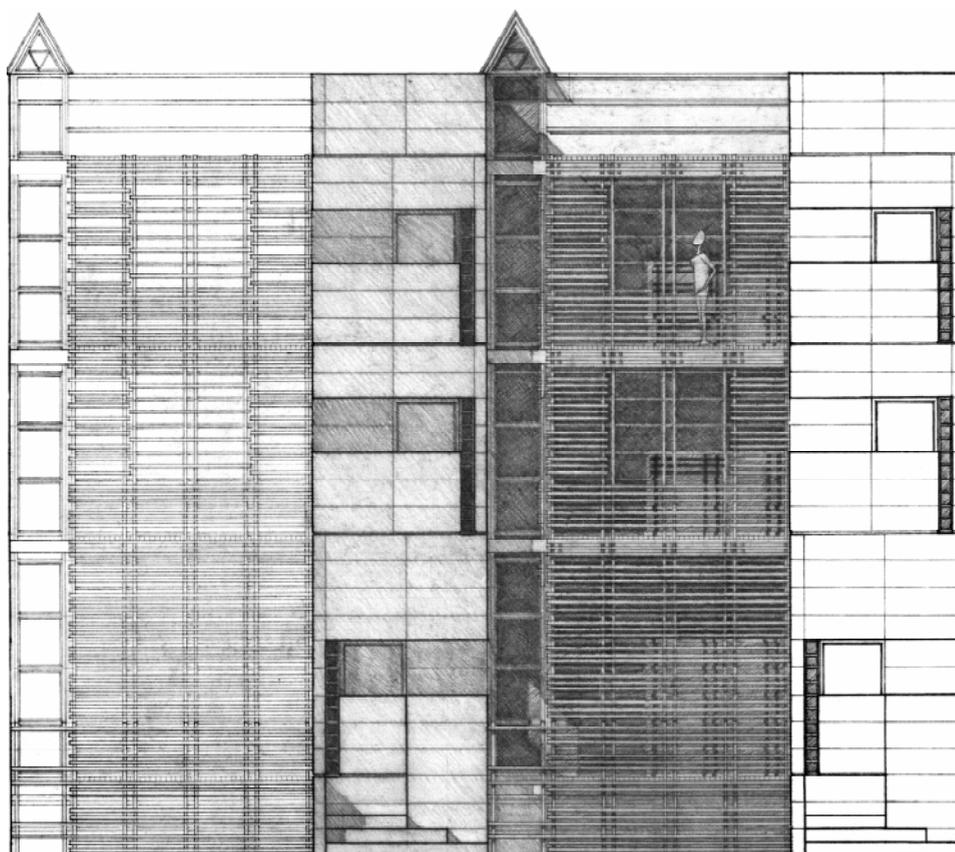
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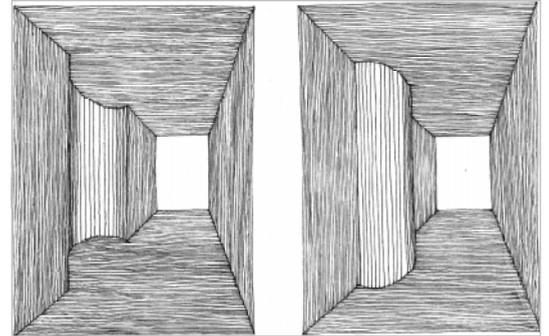
Blacksburg, a town of 39,600 people, is located in the mountainous western portion of Virginia some 5 hours and 300 miles from the more familiar and populous cities of the eastern seaboard. Incorporated in 1798, the city was designed as a grid of 16 squares, a layout which still forms the heart of the downtown. Virginia Polytechnic Institute and State University was founded in Blacksburg as a land grant institution in 1872, its buildings now situated around a grassy oval known as the drillfield. A large university in a small town, the student population swells that of Blacksburg by over 25,000 during the academic year. Academic buildings and commercial properties, some with apartments above, form the nexus between the university and the town. The site with which I chose to work is located on Draper Road at Roanoke Street, and forms the outside border of one side of the 16 square grid, at the confluence of the university and the town.

Project Development

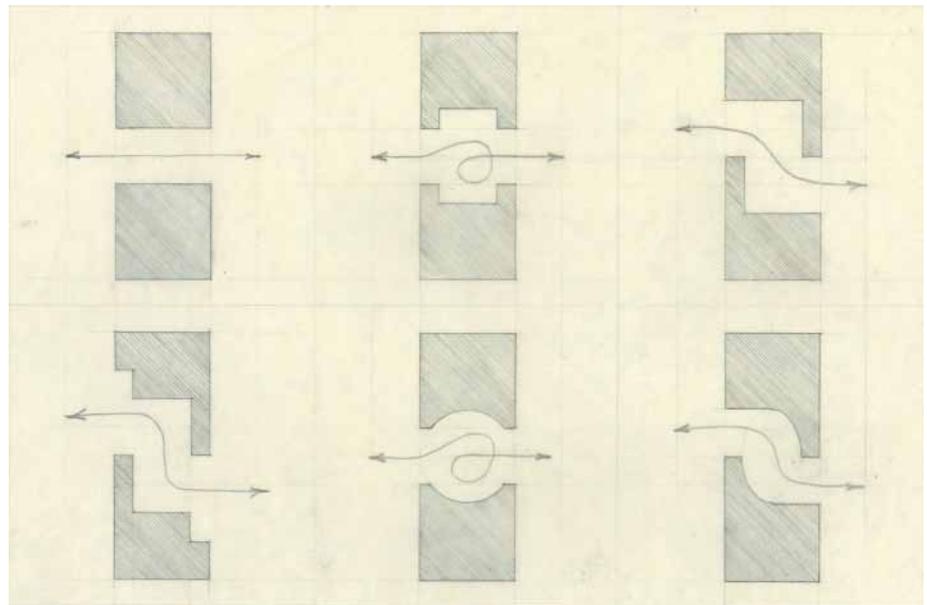


Together with my studies of new urbanism, the precedent studies I undertook helped me to define elements of the project that merited further exploration. In this way, the essential nature of the design of the party wall, the entry, and the stair emerged. By structuring the inquiry to address issues of form, I was able to go beyond the philosophies I had developed and the archetypes I had studied.

The Party Wall

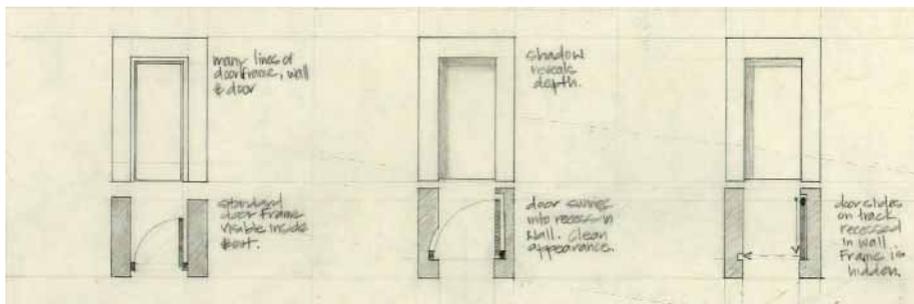


Party walls, walls which run between adjoining buildings, are an integral feature of building designs in which neighboring structures abut one another. Row housing is one such building type, with each unit sharing walls with its neighbors. In their usual incarnation, party walls tend to be narrow, perhaps eight to ten inches in thick, constructed of fireproof material, and run in a straight line along the length of the structures through which they pass. Their design is so very straightforward that they can hardly be said to be designed at all. However, as an integral element of the rowhouse type, I felt that it was crucial to be thoughtful about their design. What then might an architectural study of the party wall yield? What aspects of it might be explored? Could a study of the party wall elevate its character from prosaic to architecturally vital?



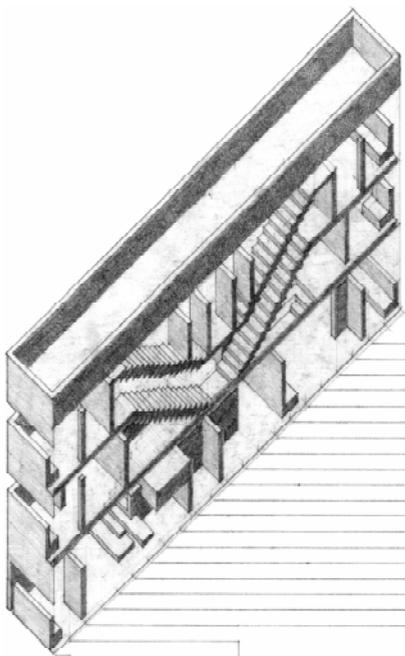
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Appearing often as a simple line in plan and as a two dimensional surface in built form, the party wall lacks a third dimension. In order to bring it into three dimensionality I manipulated the least generous of its measurements - its thickness. Expanding to eight-feet, eight-inches, the wall grew to become a zone. When I speak of the wall, it is to this habitable space that I refer. Now that I had created a space of practical width, I began to explore to what advantage such a space might be used.

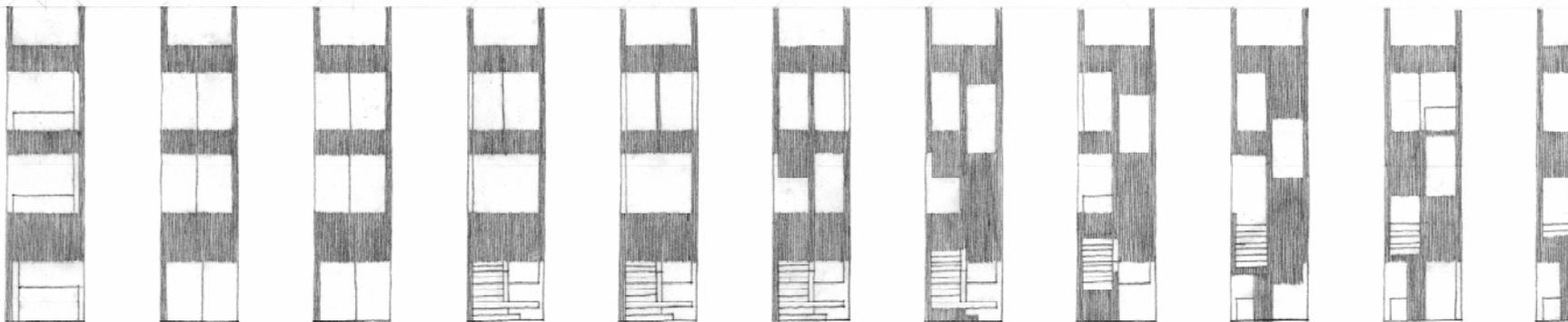


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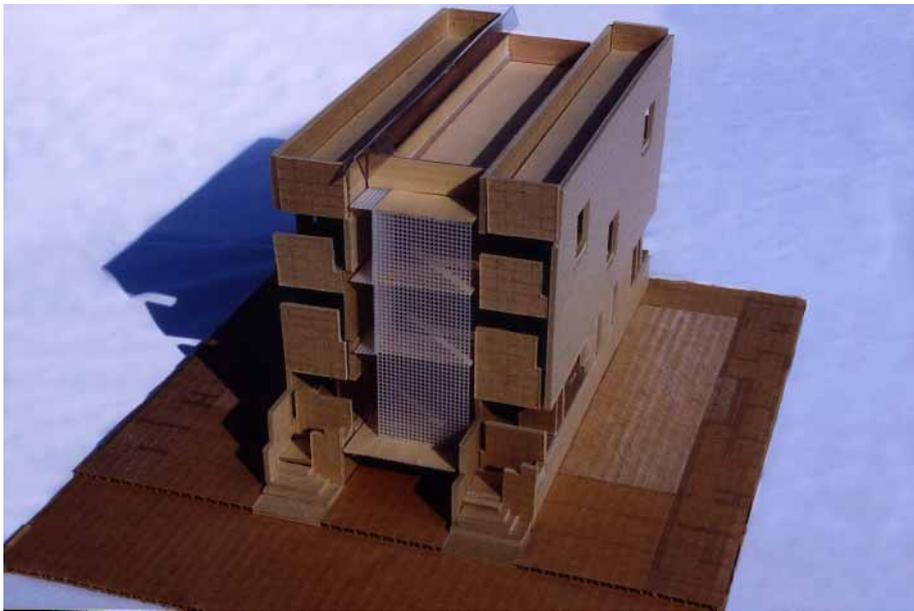
I set up a number of rules for this wall. First, it would be the only place in which vertical movement could occur. This meant that, in addition to all interior stairs being located within the wall, so too would the exterior stairs, such as those leading to the front door. Second, the location of points of entry to and exit from the building would also be restricted, occurring only within the confines of the space within the wall. In this way, the wall would begin to assume a servant-served relationship with the living spaces it adjoined, with additional service spaces such as closets and bathrooms being incorporated within it.



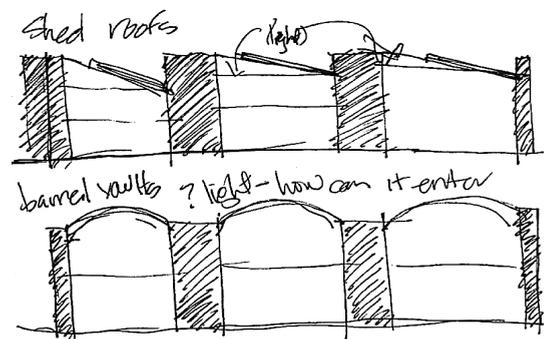
Locating the service spaces within the wall allows the living areas of the house to be free from the necessity of housing those spaces, and therefore of the walls needed to construct them. The open plan that could now be easily achieved contains no barriers to obstruct the diffusion of light admitted through its front and back faces. Still more light enters the interior through a skylight which is immediately adjacent to and parallel with the party wall and which runs the length of the living space. Except for three small bridges which cross it, the space below this skylight is unobstructed.



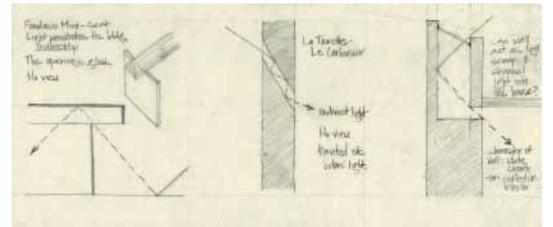
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54.

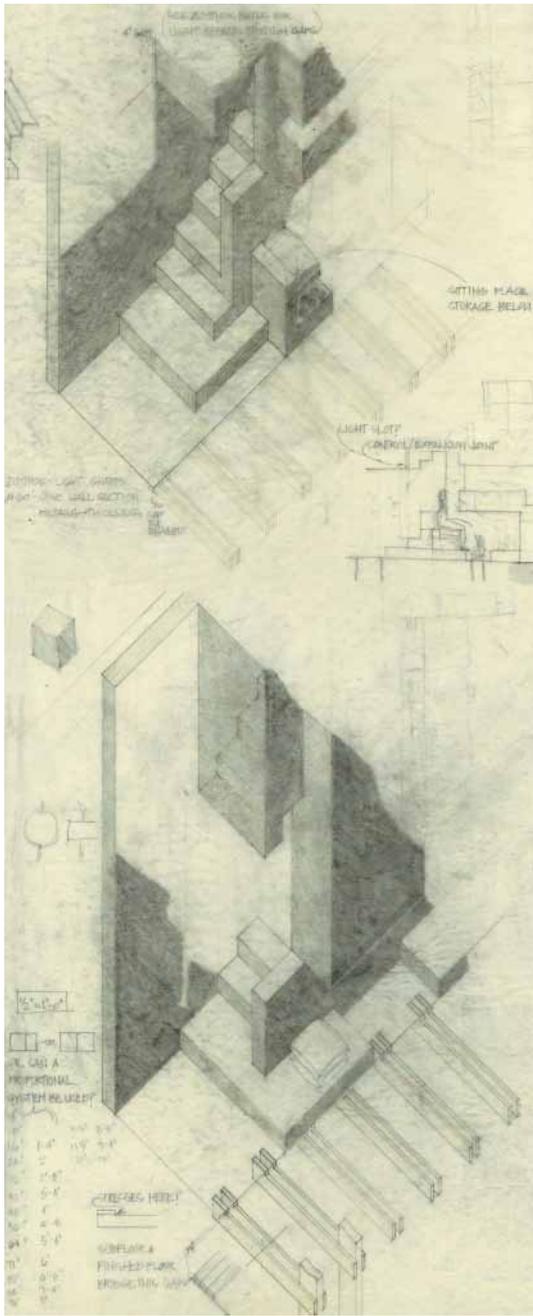


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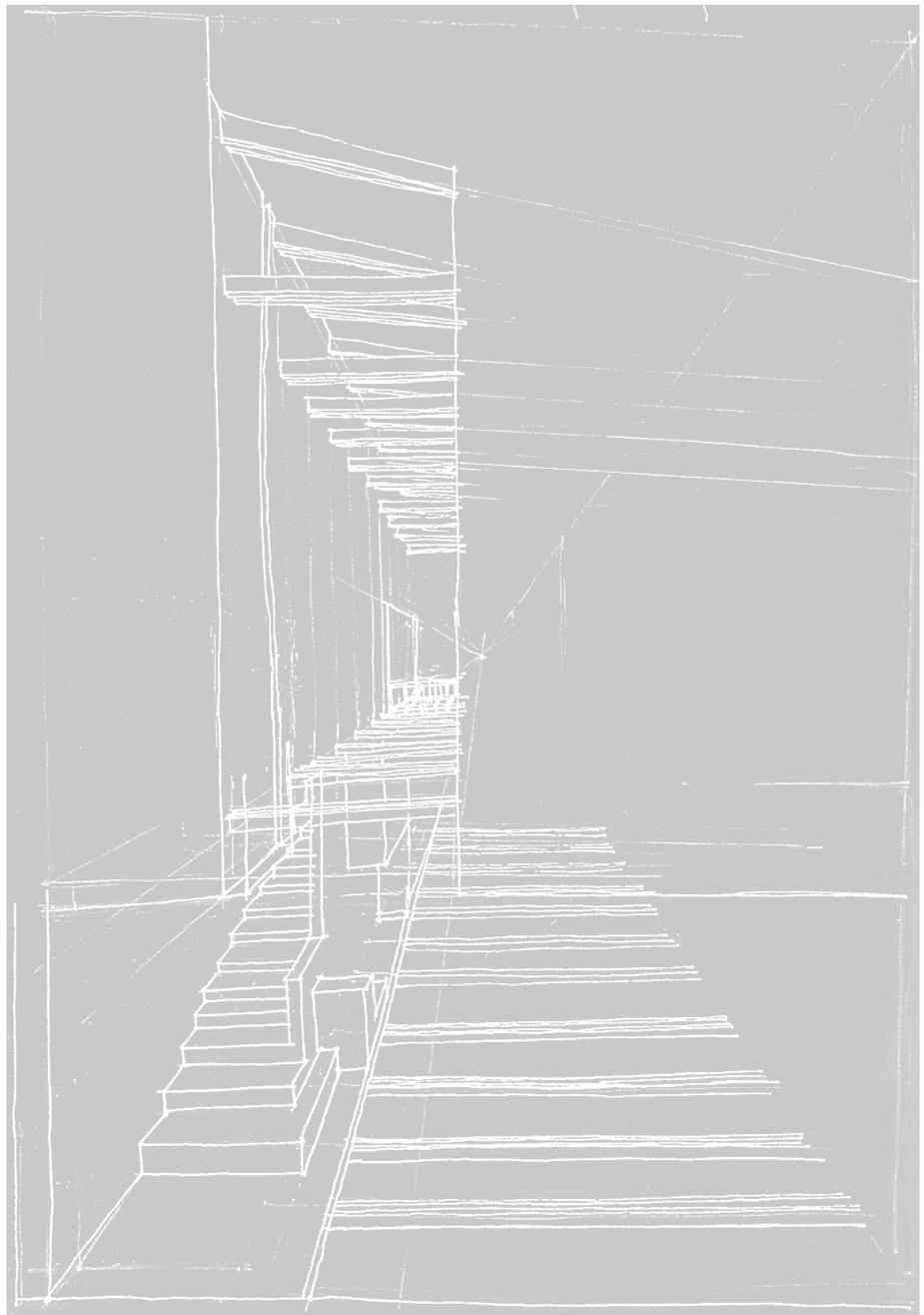


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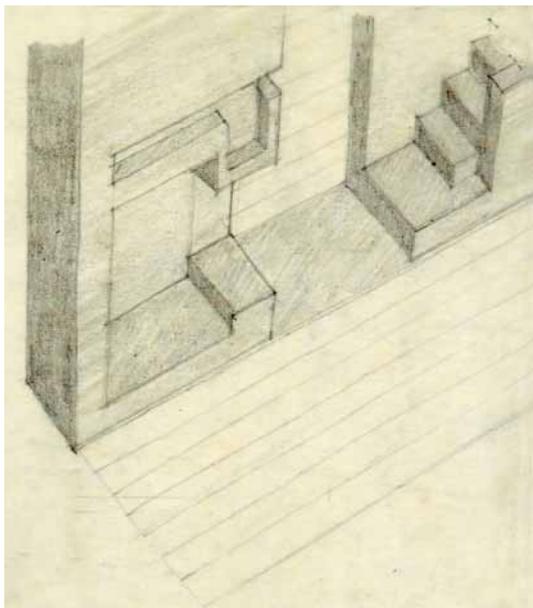




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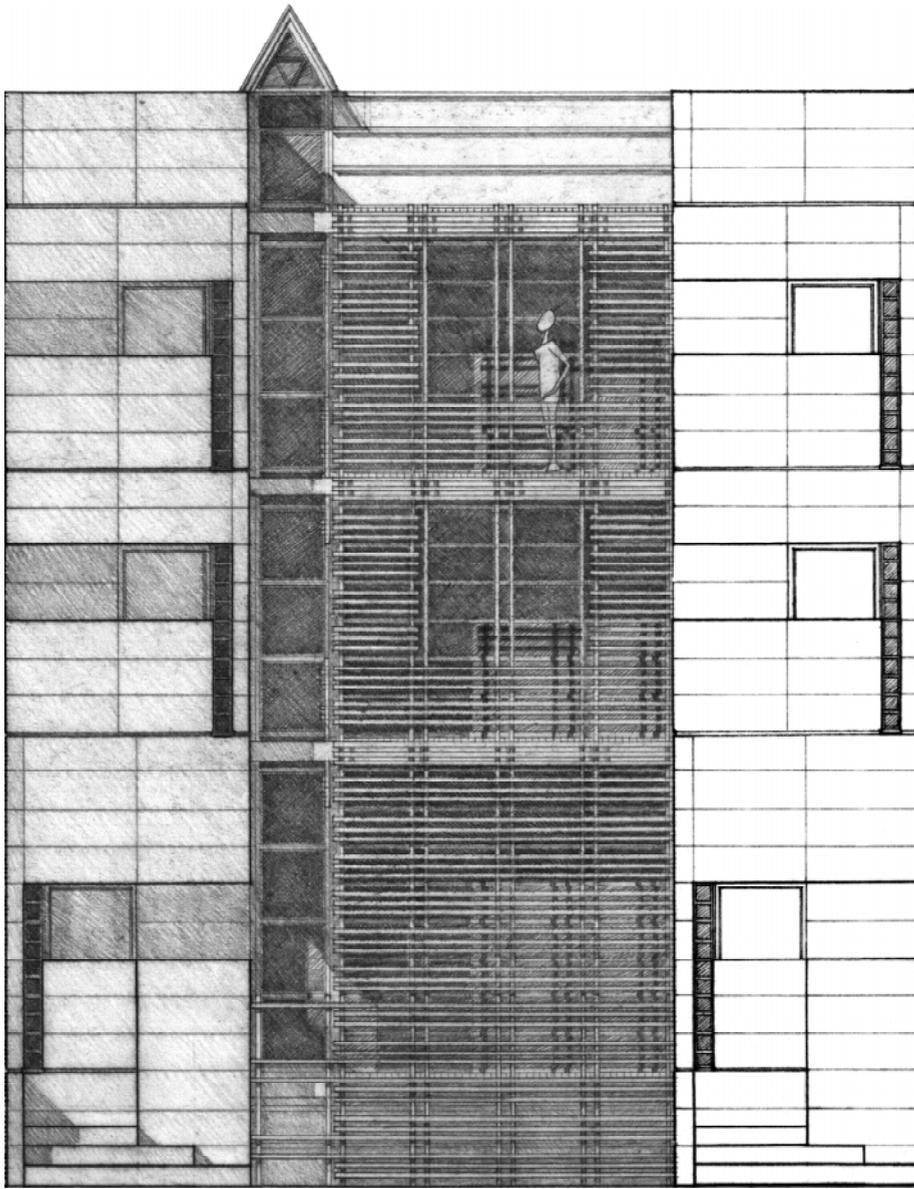


59.



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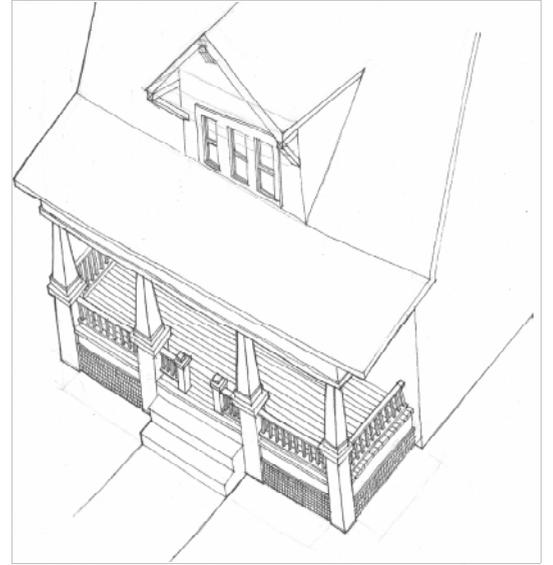
In addition to its functional capacities, the wall also assumes the role of servant structurally. In maintaining its traditional duty as a firebreak, I chose to construct it of cast concrete, its refined surface regulated by form lines along its length, up its height, and across its width. Joists are supported perpendicularly between parallel pairs of party walls, framing into their concrete surface. It is upon these joists that the floors of the living spaces are constructed.



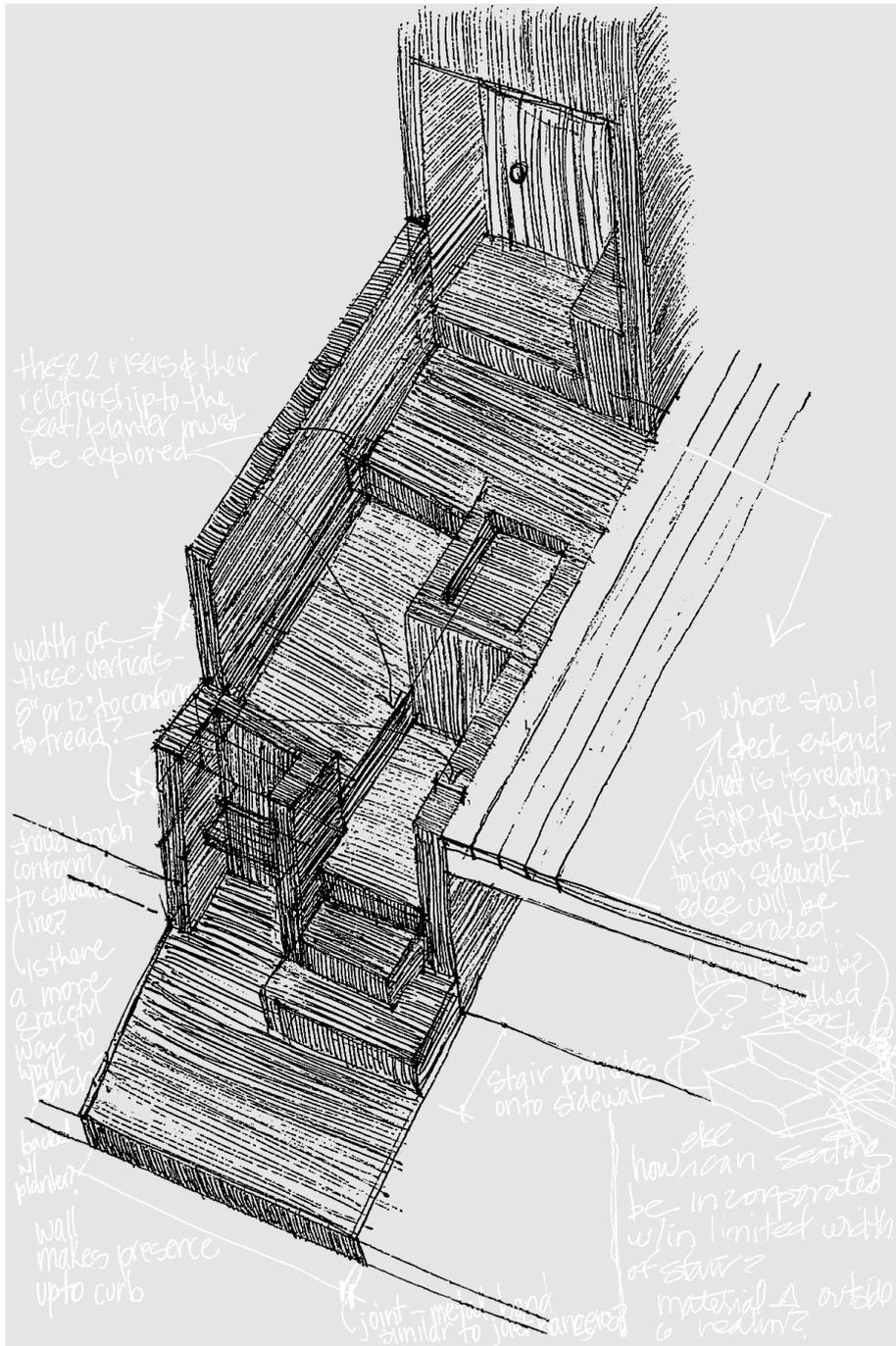
· entry wall (for unit A) · skylight · corridor · living space (for unit A) · neighboring party wall ·

60.

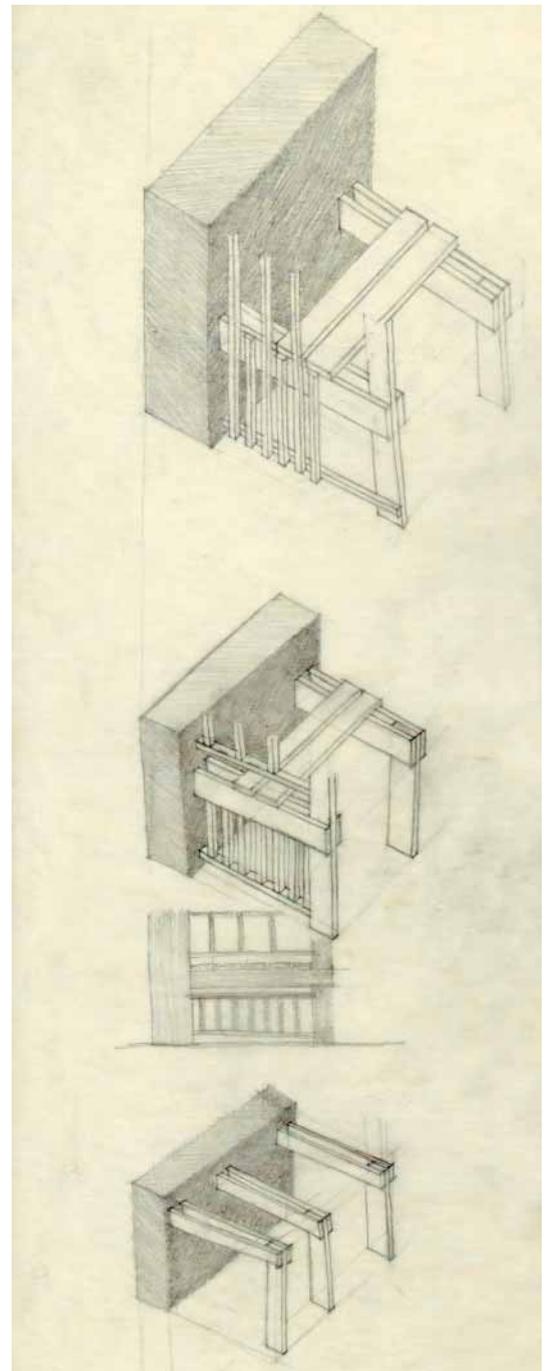
The Entry



The entry provides an opportunity to mediate between inside and outside, and is at once key in the provision of privacy for the inhabitants of the house while also presenting a welcoming facade to the neighborhood. I carefully considered various elements, including the sidewalk, the walkway, and the porch to create an entry antithetical to the blank planar facades seen all too frequently today.

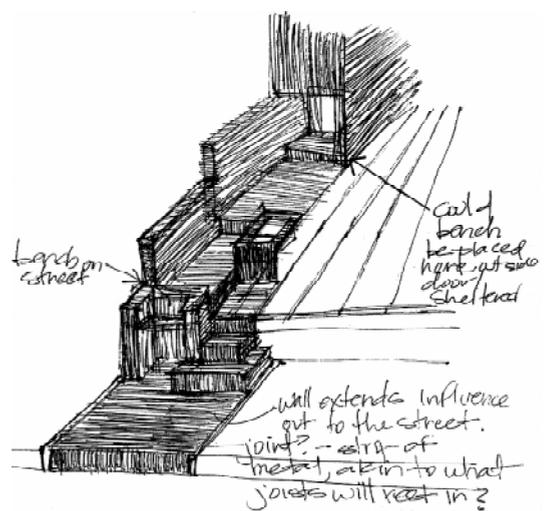


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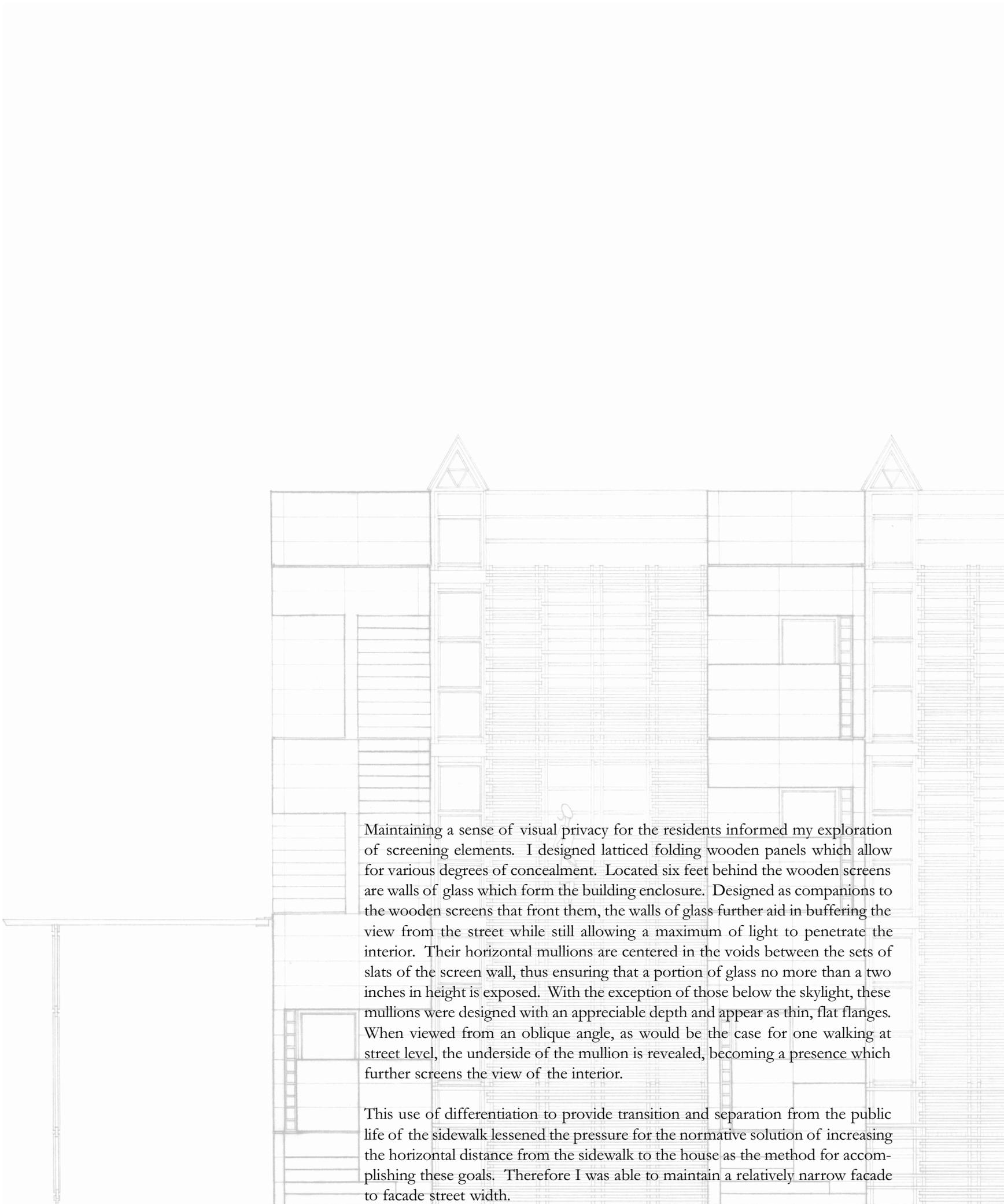


63

I approached the design of the entry condition mindful of the principles I had gleaned from my studies of new urbanism. Thus all the sequences I explored are designed to be accessed on foot rather than by car. I carefully considered the details of the surface one walks upon in order to reach the front door. While this surface could be seen as a mere extension of the sidewalk, I felt that it should be distinguished from the sidewalk proper as a way to honor the significance of the entrance. The smooth and precise surface which forms the floor of the entry is at once like the sidewalk it interrupts in that it too is made of concrete, and distinct from it in that its texture is more refined. The form lines which regulate its surface are meticulously placed. The joint between the entry sequence and the more prosaic surface of the sidewalk is rendered as a polished metal strip. The connection between the refined concrete and the joists which provide structural support for the wooden surface of the porch are also expressed, with the joists held in metal-lined pockets cast into the concrete.

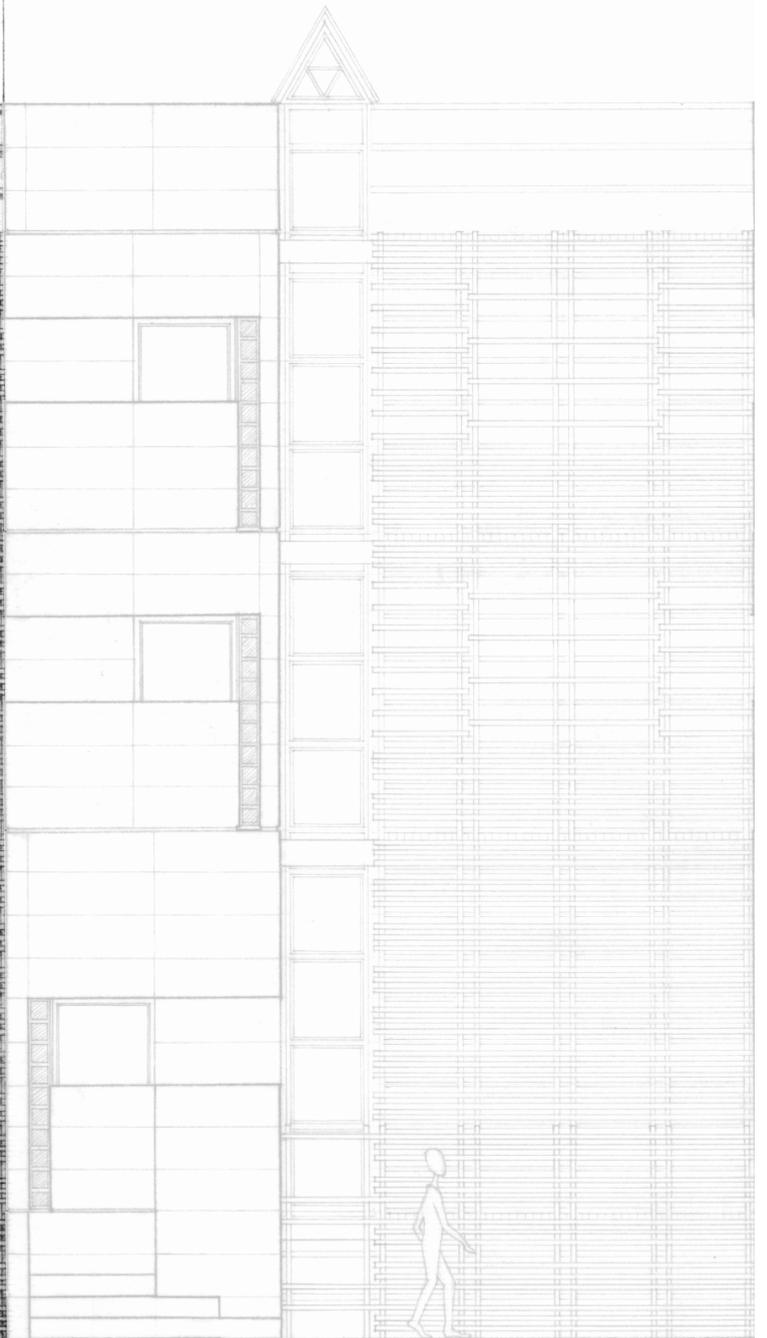
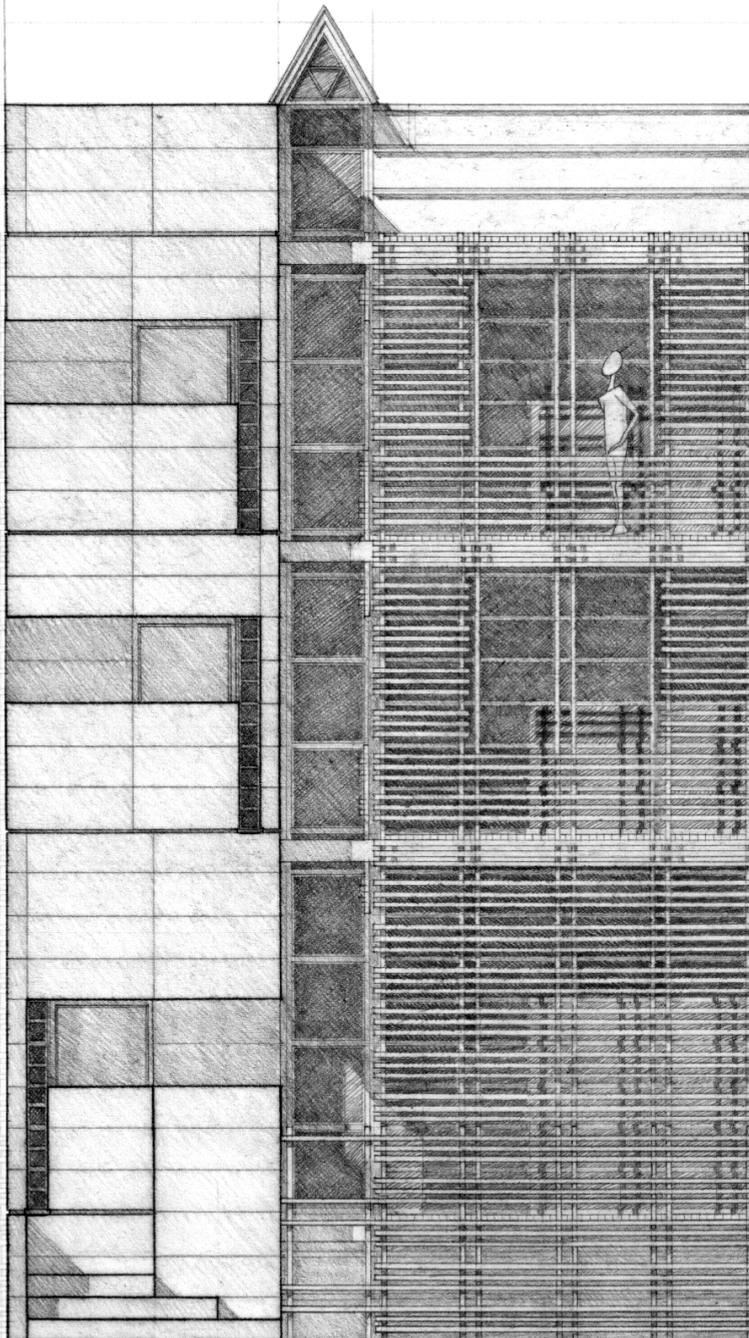
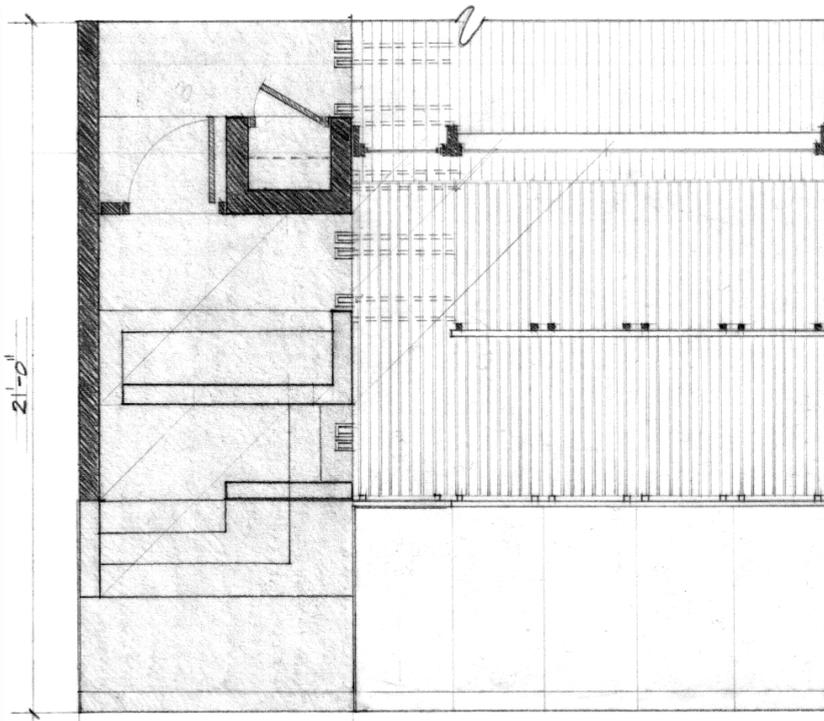


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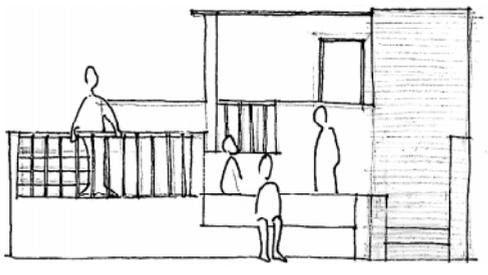


Maintaining a sense of visual privacy for the residents informed my exploration of screening elements. I designed latticed folding wooden panels which allow for various degrees of concealment. Located six feet behind the wooden screens are walls of glass which form the building enclosure. Designed as companions to the wooden screens that front them, the walls of glass further aid in buffering the view from the street while still allowing a maximum of light to penetrate the interior. Their horizontal mullions are centered in the voids between the sets of slats of the screen wall, thus ensuring that a portion of glass no more than a two inches in height is exposed. With the exception of those below the skylight, these mullions were designed with an appreciable depth and appear as thin, flat flanges. When viewed from an oblique angle, as would be the case for one walking at street level, the underside of the mullion is revealed, becoming a presence which further screens the view of the interior.

This use of differentiation to provide transition and separation from the public life of the sidewalk lessened the pressure for the normative solution of increasing the horizontal distance from the sidewalk to the house as the method for accomplishing these goals. Therefore I was able to maintain a relatively narrow facade to facade street width.

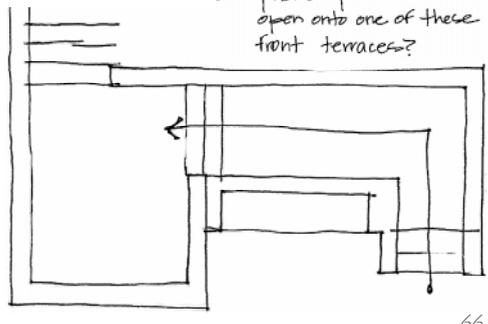


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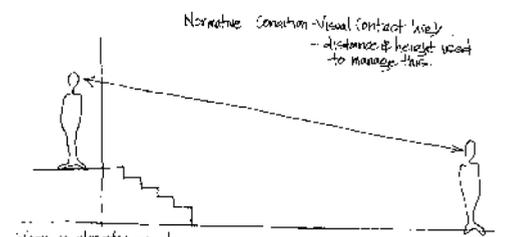
3 'cascading' levels
 bench facing street
 bench at door
 sitting wall 1st level
 standing wall 2nd level
 higher still above?
 levels of transition
 any 'green' space?
 some roof enclosure
 near entrance

can public spaces of house
 open onto one of these
 front terraces?

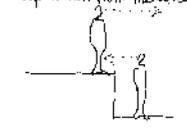


66.

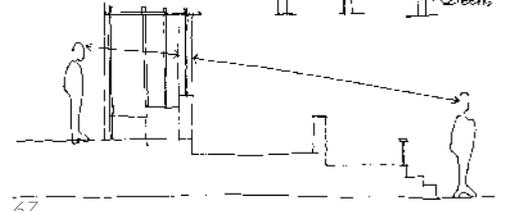
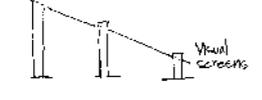
thick, solid wall?
 structure could attach/
 rot. support from this



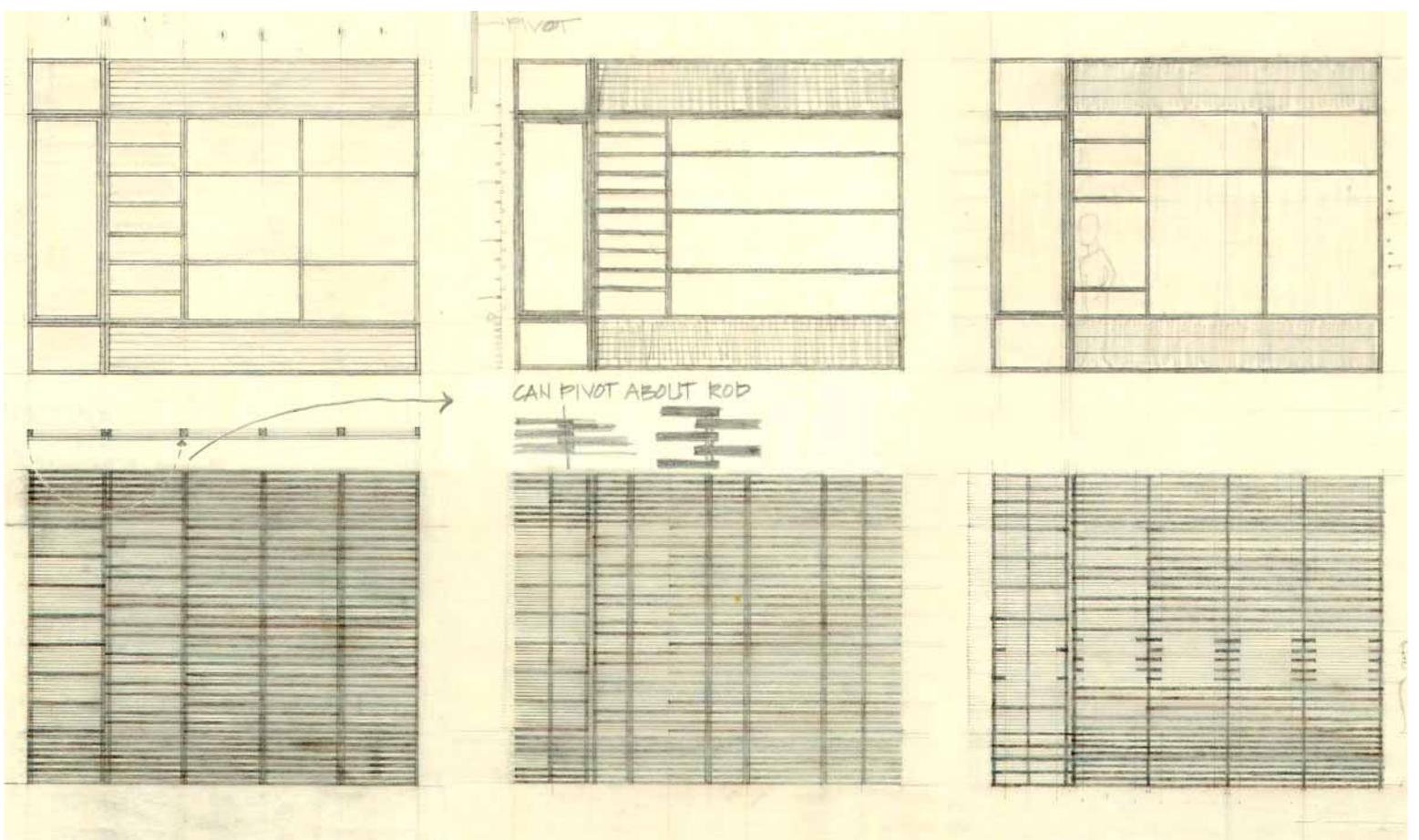
When in closer proximity
 keep broader feeling of
 separation from the street:



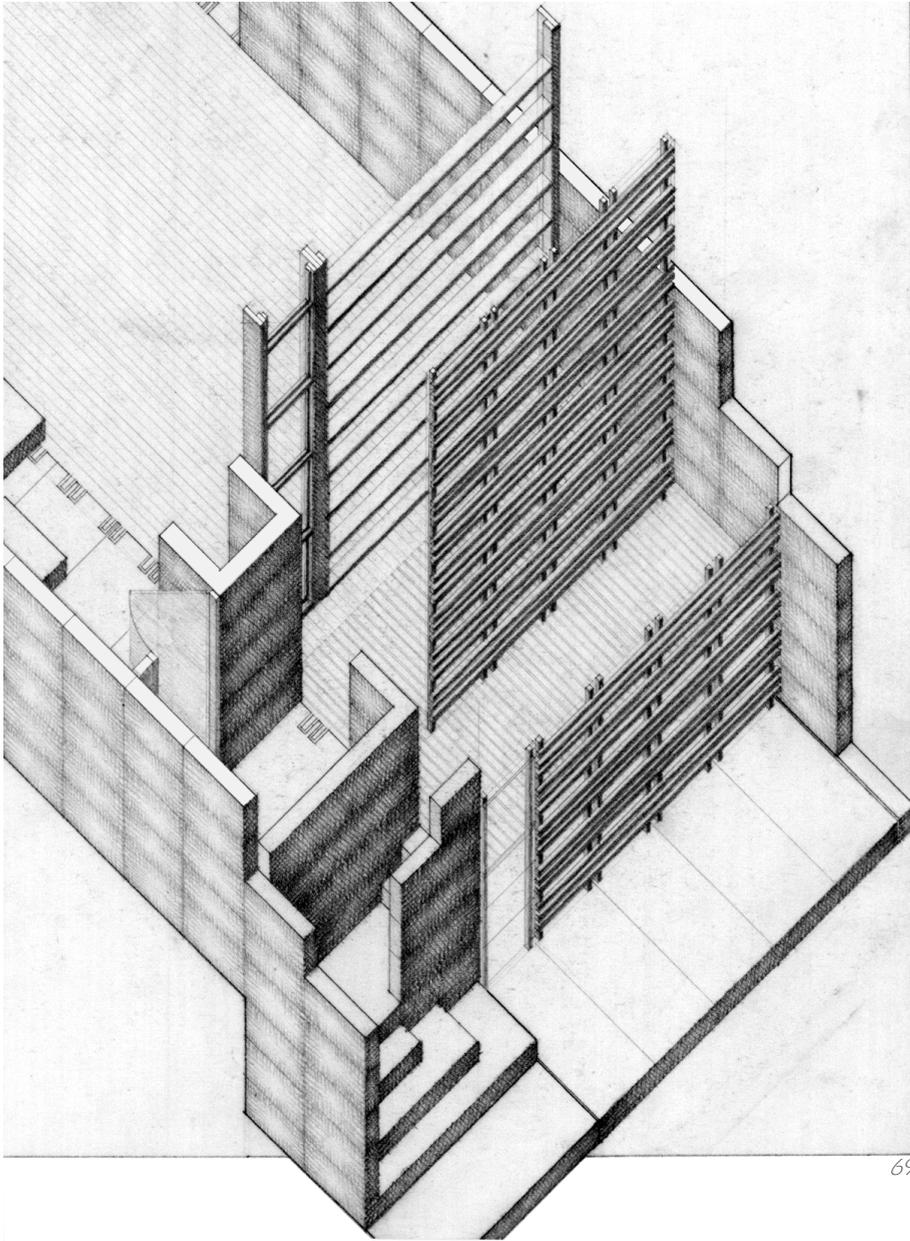
If distance is fixed & height is
 the same, how else can
 visual privacy be facilitated?



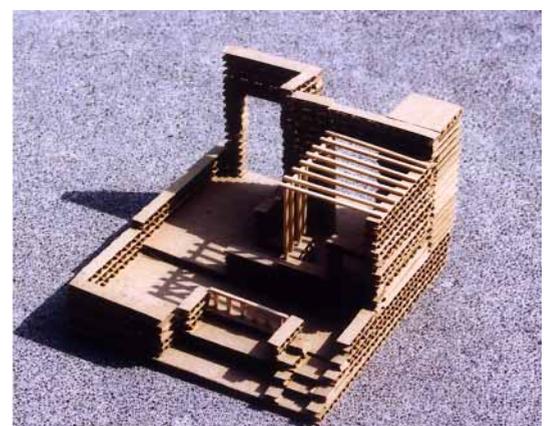
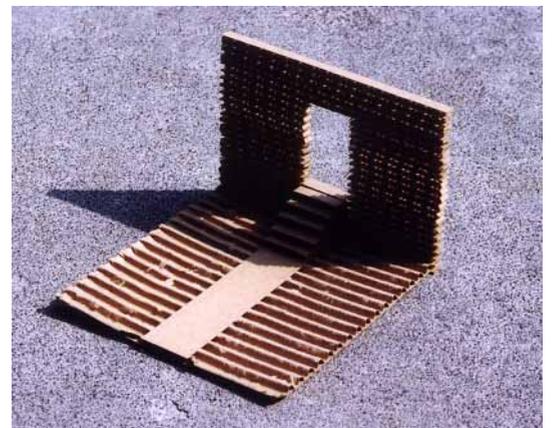
67.



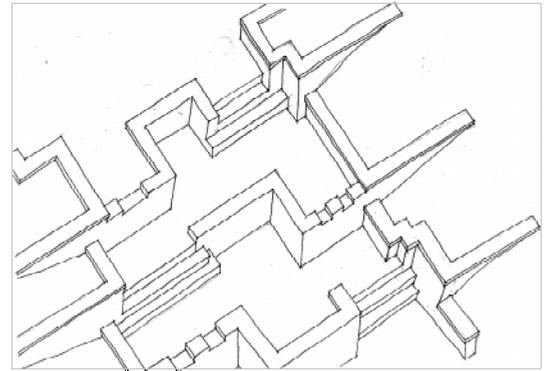
68.



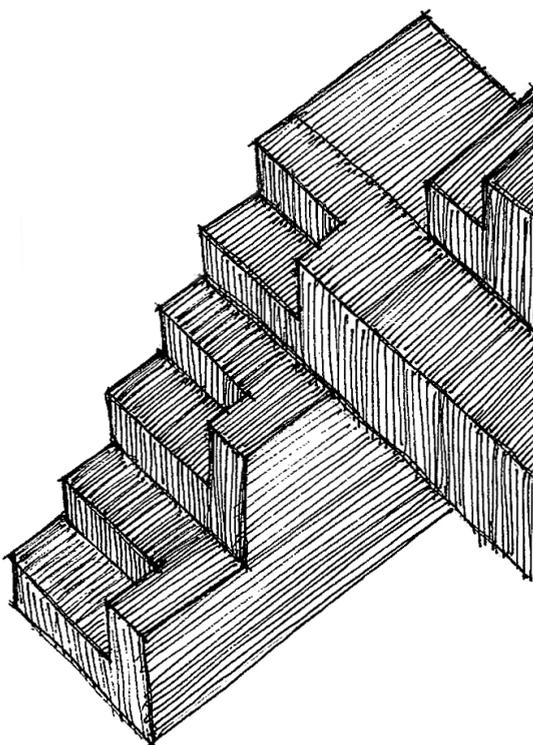
The entry sequence is comprised of differentiated zones which are distinguished by material choice, level of enclosure and height above grade. Within the concrete surface these include the flat plane at sidewalk level, the open stair, the stair hidden behind the low wall, and the covered vestibule at the front door which is sheltered by a still higher wall and which contains a small bench. The adjacent wooden porch is raised six steps above the elevation of the sidewalk and contains several such zones as well. These include the area closest to the street which is uncovered and protected by a latticed handrail and the area behind the screen wall which is covered by the overhang of the balcony above. The screen wall may be folded open or kept closed. Thus, entry into the house is not experienced as merely passing through a plane from outside to inside. Rather, the variety encountered as one is progressively led onward transforms entering the house into a journey. Beginning from the moment that one steps from the sidewalk onto the refined concrete surface until the front door is reached, the journey spans a full fifteen linear feet.



The Stair

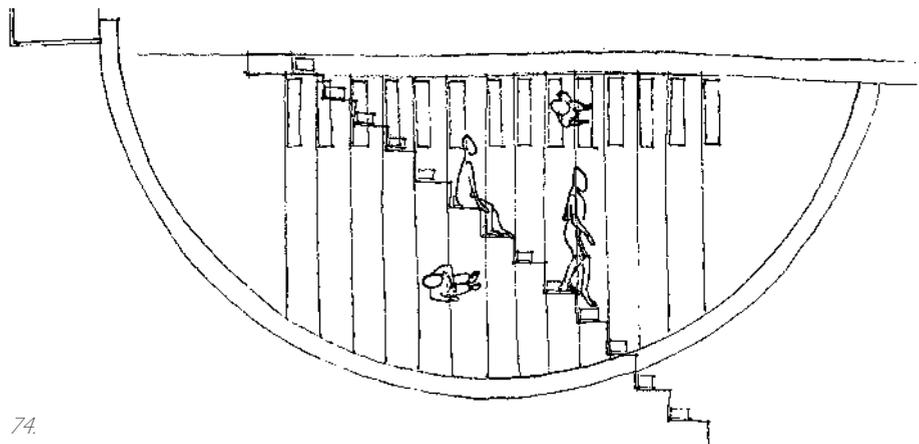


My interest in the stair grew from having designed the entry. Raising the living spaces of the house above street level was of key importance in the provision of privacy for the residents of the house and therefore to the design of the entry. As such, a means for reaching this higher elevation would be a prominent feature of the facade. As an element however, the stair would not be confined solely to this location, but rather would appear again and again both within and without the three story house. While the stair certainly serves the obvious functions, I was interested in exploring what else it might be able to affect.



73

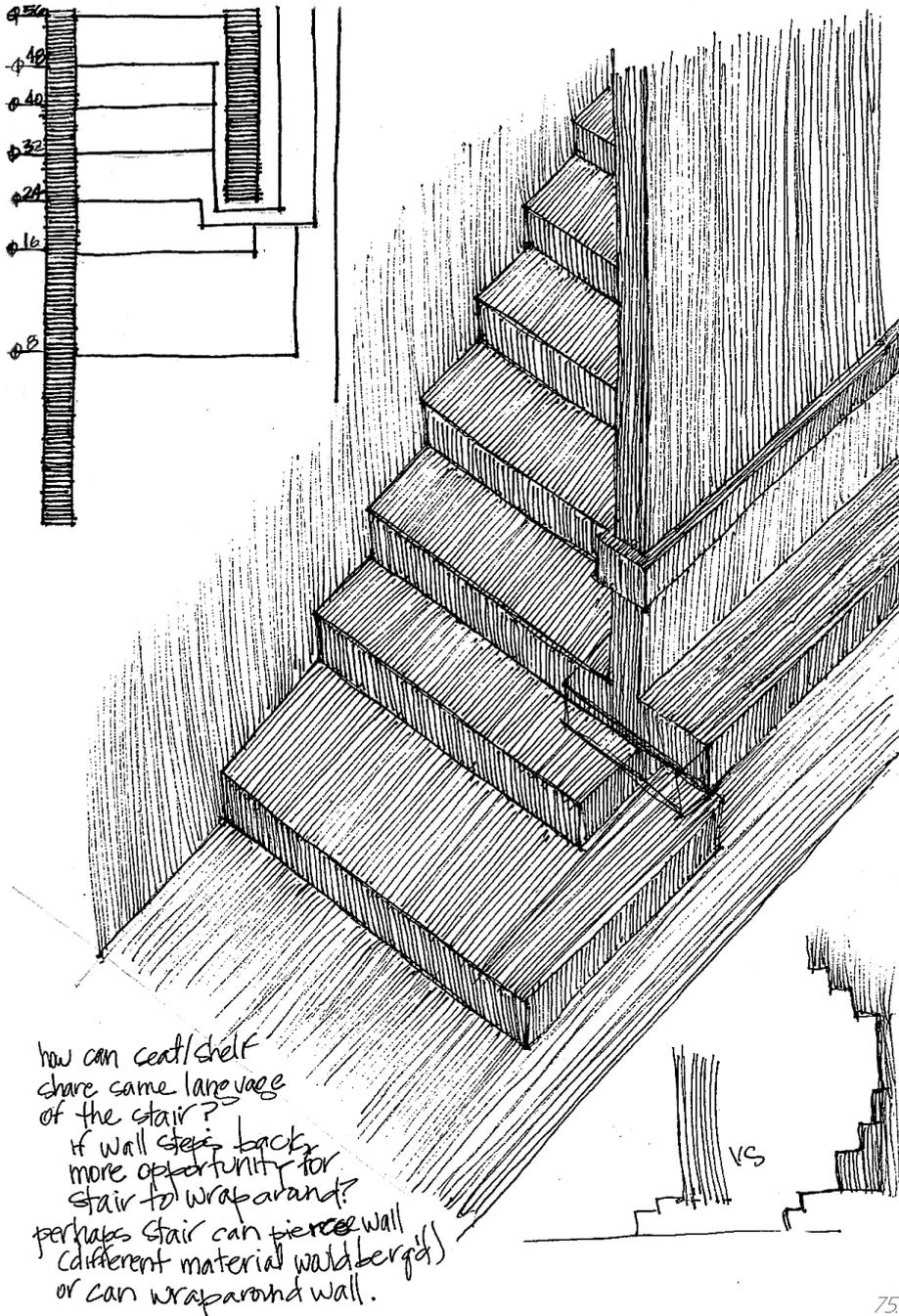
73. Stair tread variations
74. Stair plan and section, Mario Botta's Chapel at Monte Tamaro



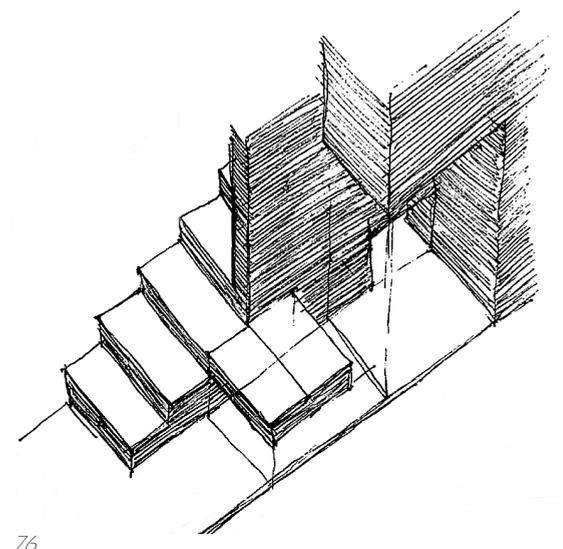
74.

Stairs are directional and, as such, can influence one's course of travel. They may run in a straight line or can turn to trace any course. At their commencement they can gather or distribute those walking upon them in one direction or in many.

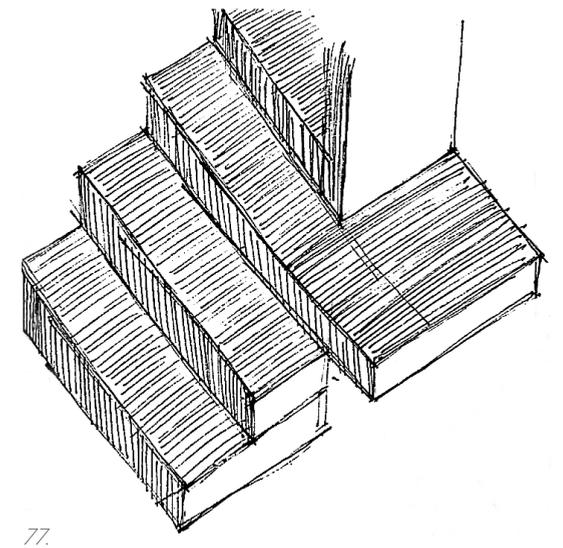
The ratio of their rise-to-run results in slopes from gentle to steep, which in turn influence the rate at which one traverses them. A stair with a long tread and shallow rise is taken at a leisurely pace and invites lingering, while one comprised of short treads coupled with a deep rise is taken far faster and at a more regular pace. Manipulating the rise and run yields more results. For instance, a stair whose rise and run are doubled results in one that is both too tall and spaced too infrequently to be comfortable when traversed. Although ill-suited for being perambulated, it is perfectly proportioned for sitting and resting.



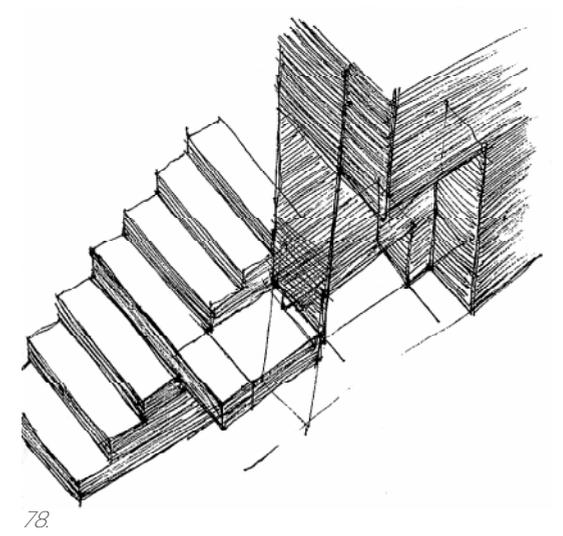
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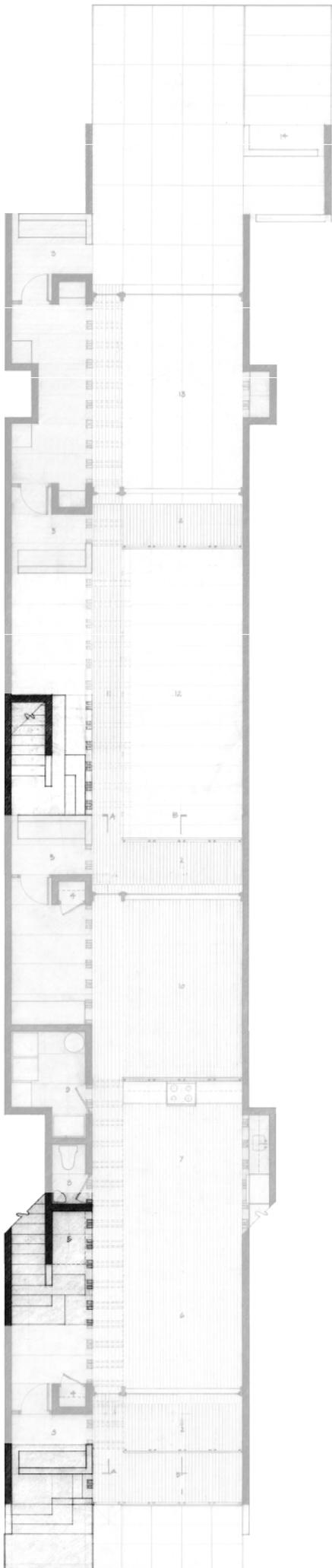
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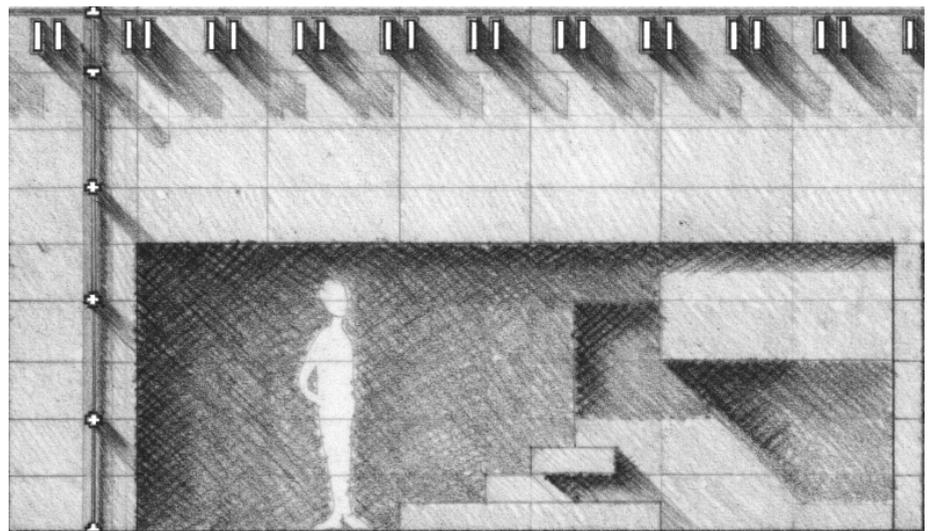
Treads at various elevations may be extended beyond the boundary of the main body of the stair to form horizontal surfaces. In this way seating and shelving may be incorporated into the stair's design.

The width of the stair is yet another component of the design that can be explored - from wide steps suitable for many to use at once to private narrow steps meant for one traveller at a time.



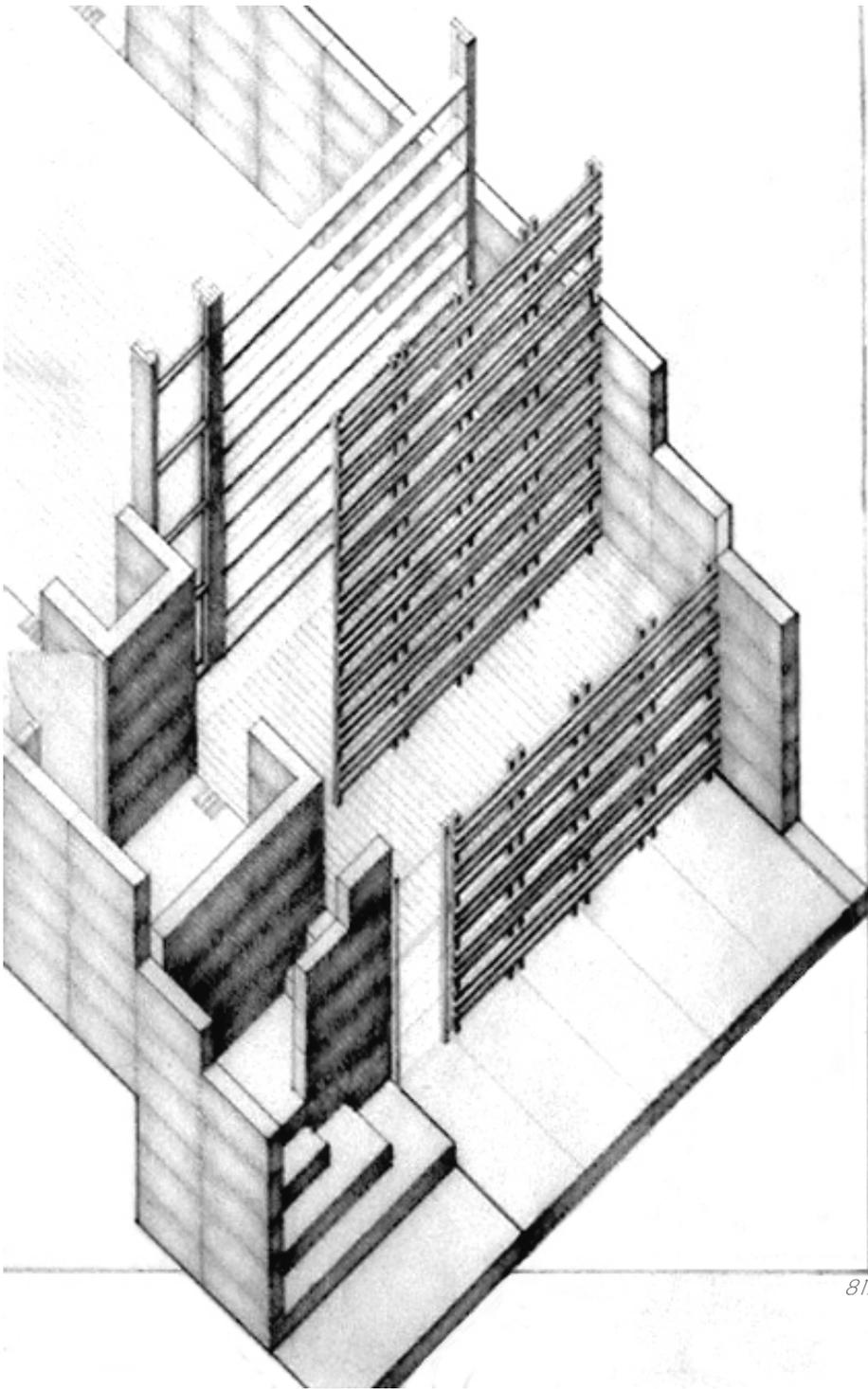
79.

79. First floor plan with stair conditions
80. Stair detail, interior stair elevation

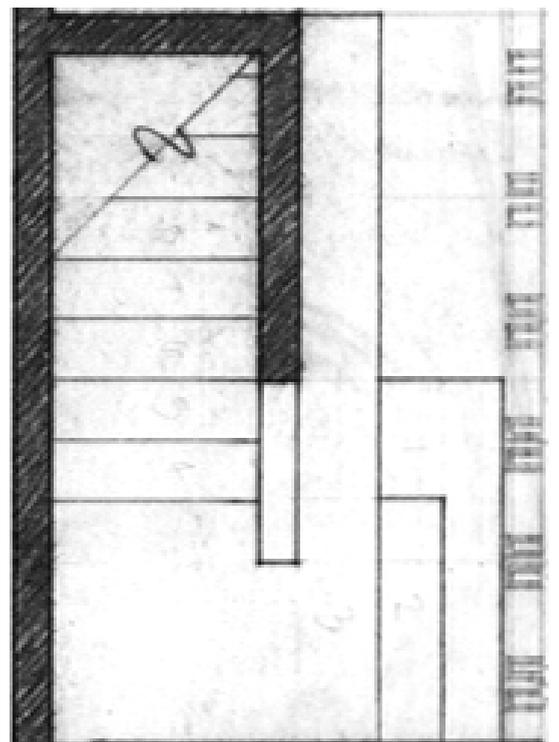


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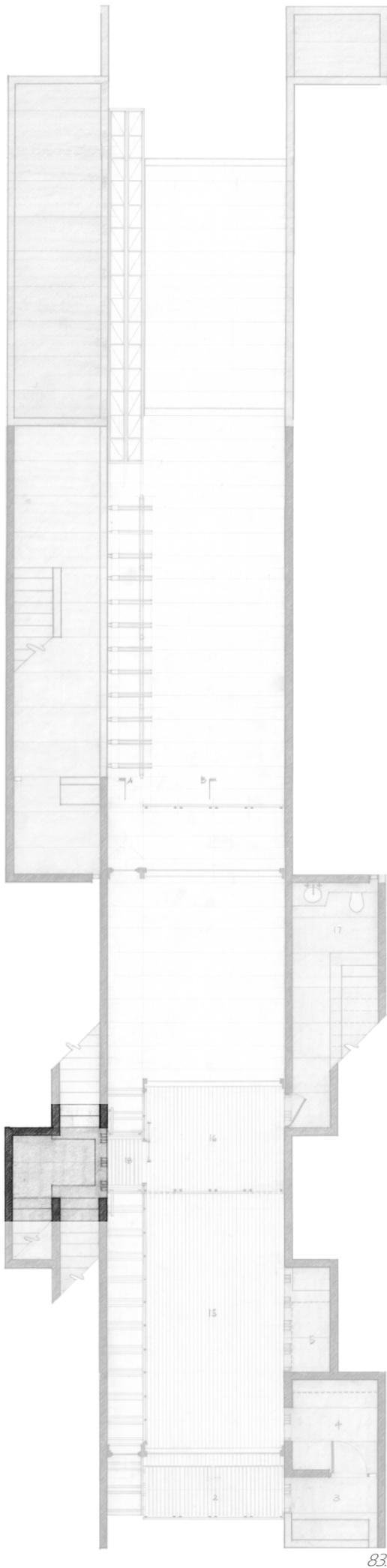
On the first floor, at their lowest elevation, the stair's wide, welcoming treads cascade out to beckon ascendants. Some treads and landings extend beyond their neighbors, forming surfaces for sitting or shelving. Further climbing these stairs, one is funneled past low walls behind which the stairs narrow, becoming utilitarian straight runs.



81.

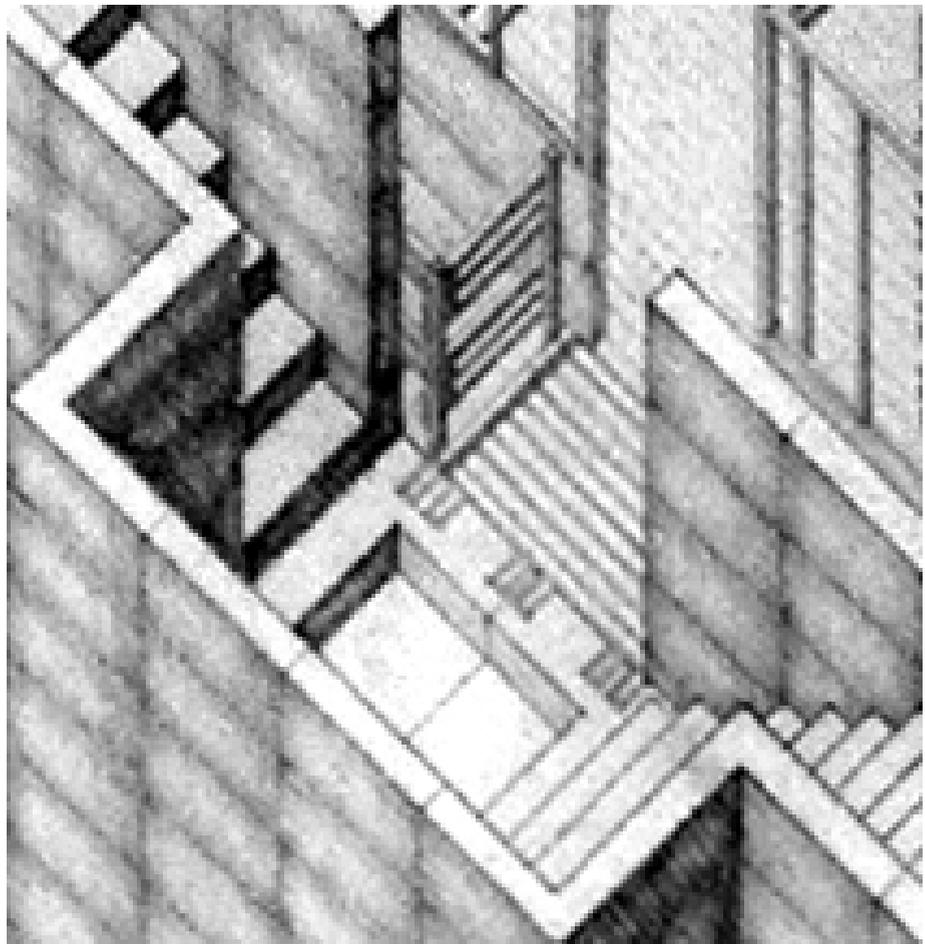


82.



83

83. Second floor plan with stair condition
84. Stair detail, interior axonometric

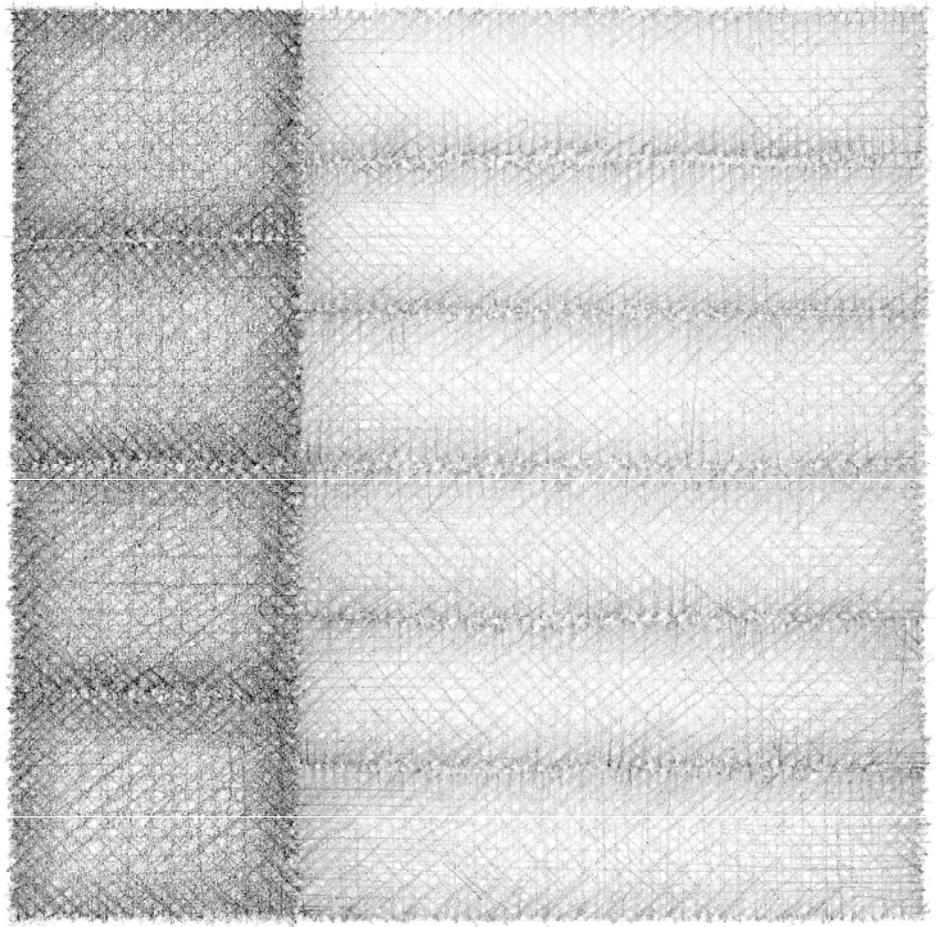


84

Approaching the second floor, the treads again deepen to form a landing on which to turn ninety degrees. A second landing, one step above the first, is surmounted by a U-shaped tread from which one may proceed straight ahead and into a bedroom or continue to ascend either to the left or to the right. Continuing to climb to the bedrooms above, these twin stairs once again pass behind a wall and become more narrow. The width of the stairs are here at their least broad, as at this point each is used by only one person. In this way the design of the stair makes intelligible a complex traffic pattern.

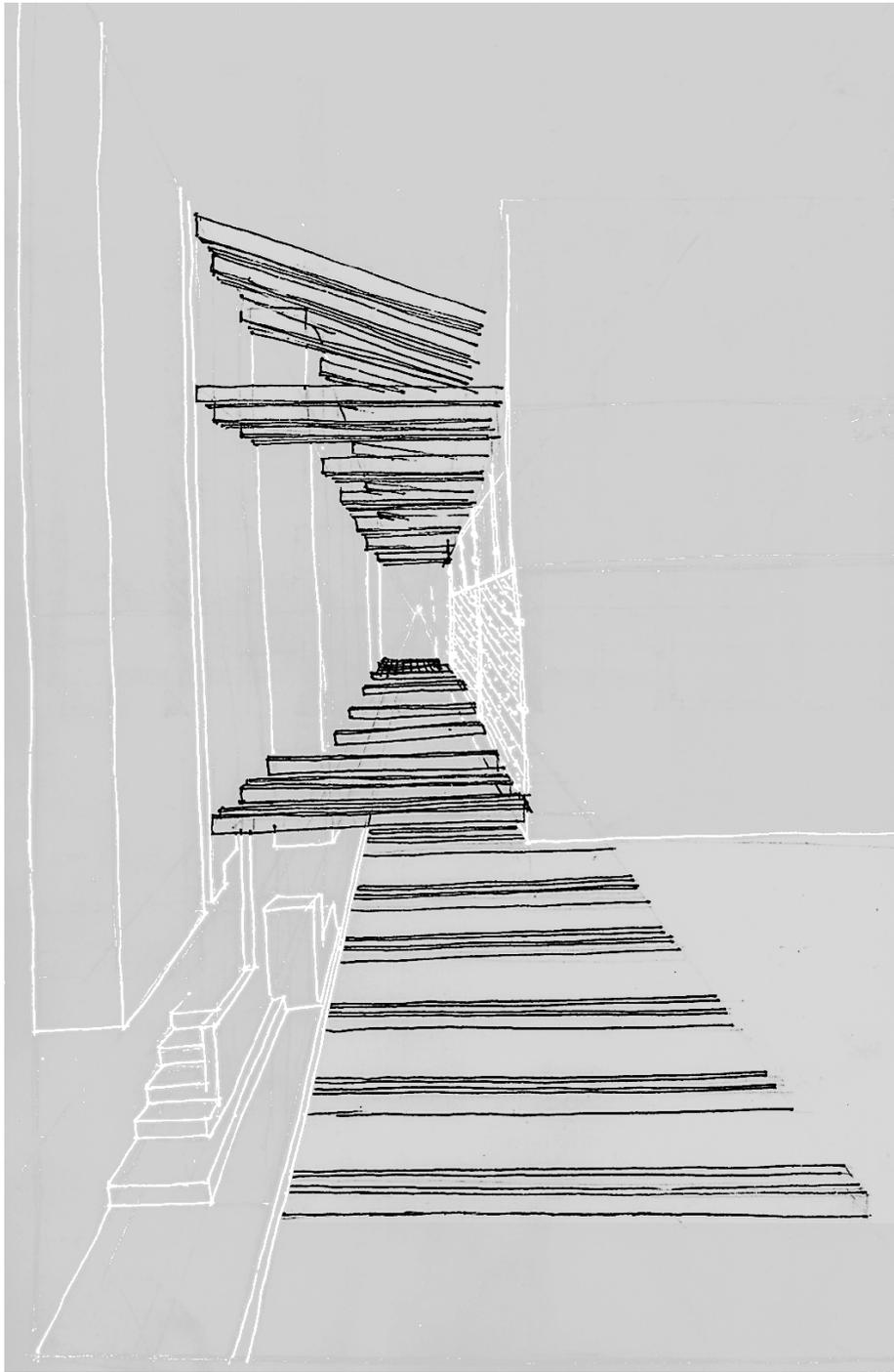
By treating the majority of the spaces with utilitarian straight runs and reserving more generous treads and landings for public areas deserving of grand gestures allows the wider areas to make a stronger visual impact, accommodate directional manipulations, and incorporate areas for display or seating. Introducing these layers of meaningful complexity into what can be an overlooked architectural element strengthens the design of the project. Both poetic and prosaic, the stairs accommodate the function of vertical movement while also fulfilling a higher standard of design.

Interplay



“The creator’s function is to sift the elements he receives, for human activity must impose limits upon himself. The more art is controlled, limited, worked over, the more it is free.

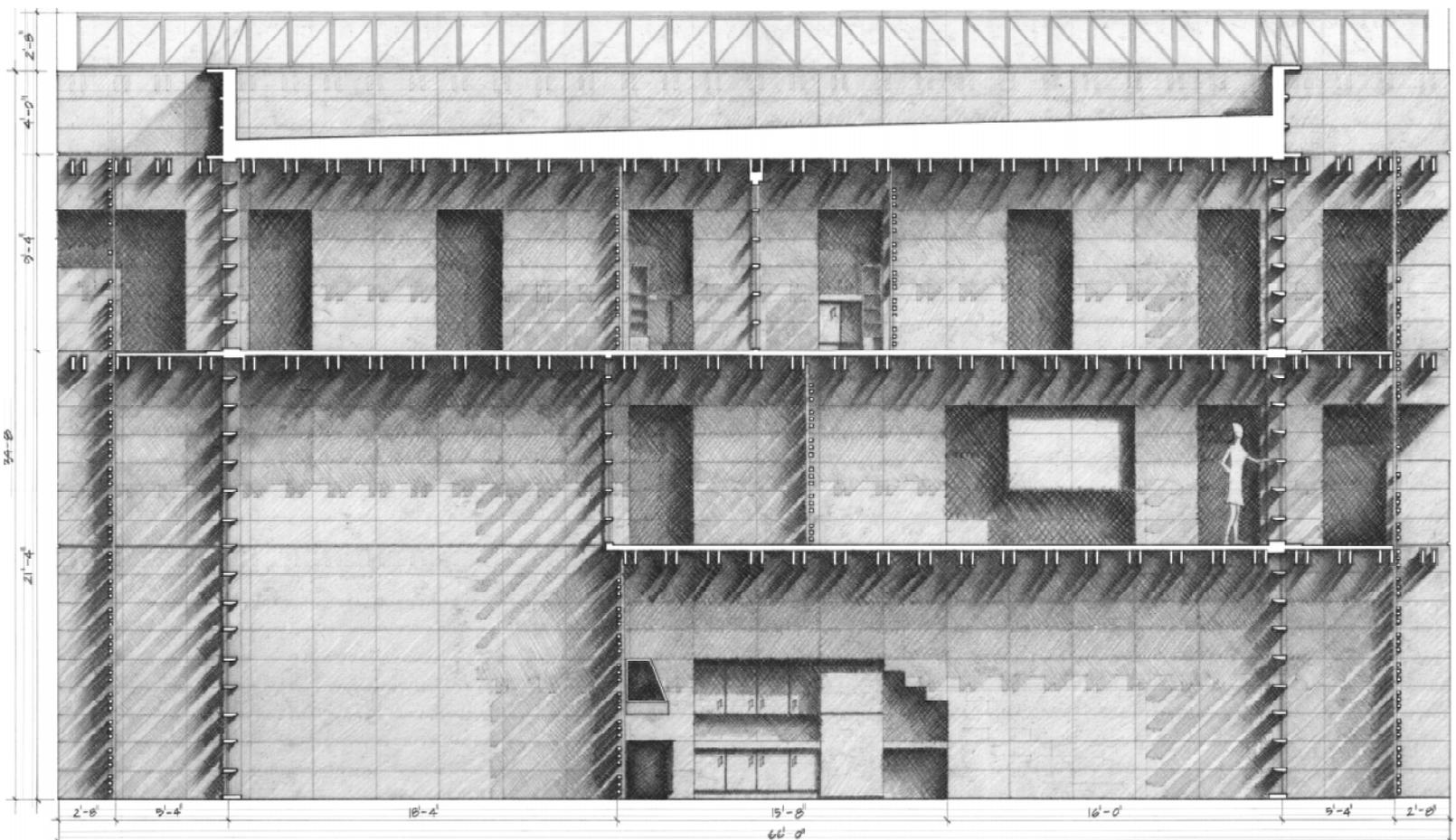
As for myself, I experience a sort of terror when, at the moment of setting to work and finding myself before the infinitude of possibilities that present themselves, I have the feeling that everything is permissible to me. If everything is permissible to me, the best and the worst; if nothing offers me any resistance, then every effort is inconceivable and I cannot use anything as a basis, and consequently every undertaking becomes futile.” - *Igor Stravinsky, The Poetics of Music.*



86

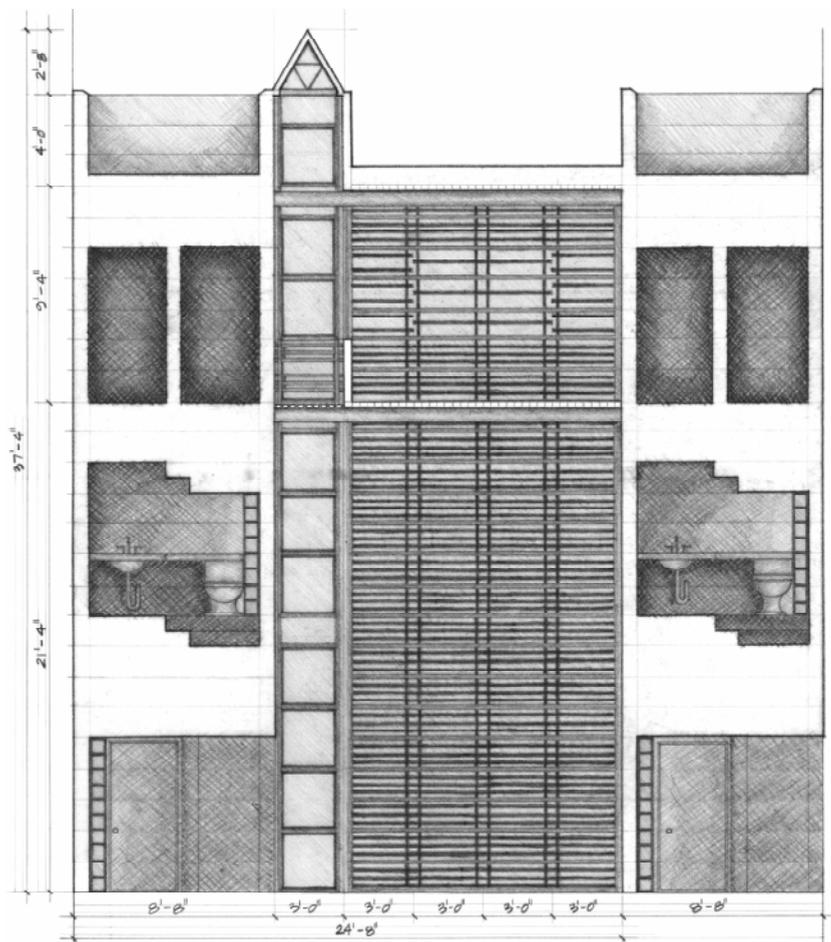
In considering the units, envisioning the kinds of spaces they would contain, and designing what those spaces would specifically be, I began to work with the opposing conditions of light and dark, high and low, and warm and cool within the servant-served dichotomy I had established earlier. Each condition, I reasoned, would gain strength through contrast. It is the shadow and a surface upon which to cast them that define sunlight which, if unregulated, might be simply overwhelming. The sense of compression engendered by a low, tight space is made still more present through its release into an expansive one. A cool material may seem to be even more so when placed near a warm one. Thus the servant spaces within the concrete wall are designed to be dark, low, and cool, while the living spaces they serve are light, high, and warm.

The servant spaces are lit only by narrow strips of glass block at the doorways. With many walls crossing the space perpendicularly, even this small admittance of light is blocked. In contrast, the living areas served by the wall are flooded with light admitted through the glass walls that enclose it front and back, as well as by the long skylight above. No solid walls interrupt the living space, the spaces are instead defined by a series of latticed wooden screens. While providing the feeling of privacy and enclosure, the screens interrupt the light only enough to pattern it with shadow as it falls on floors or is cast upon the adjacent concrete wall.

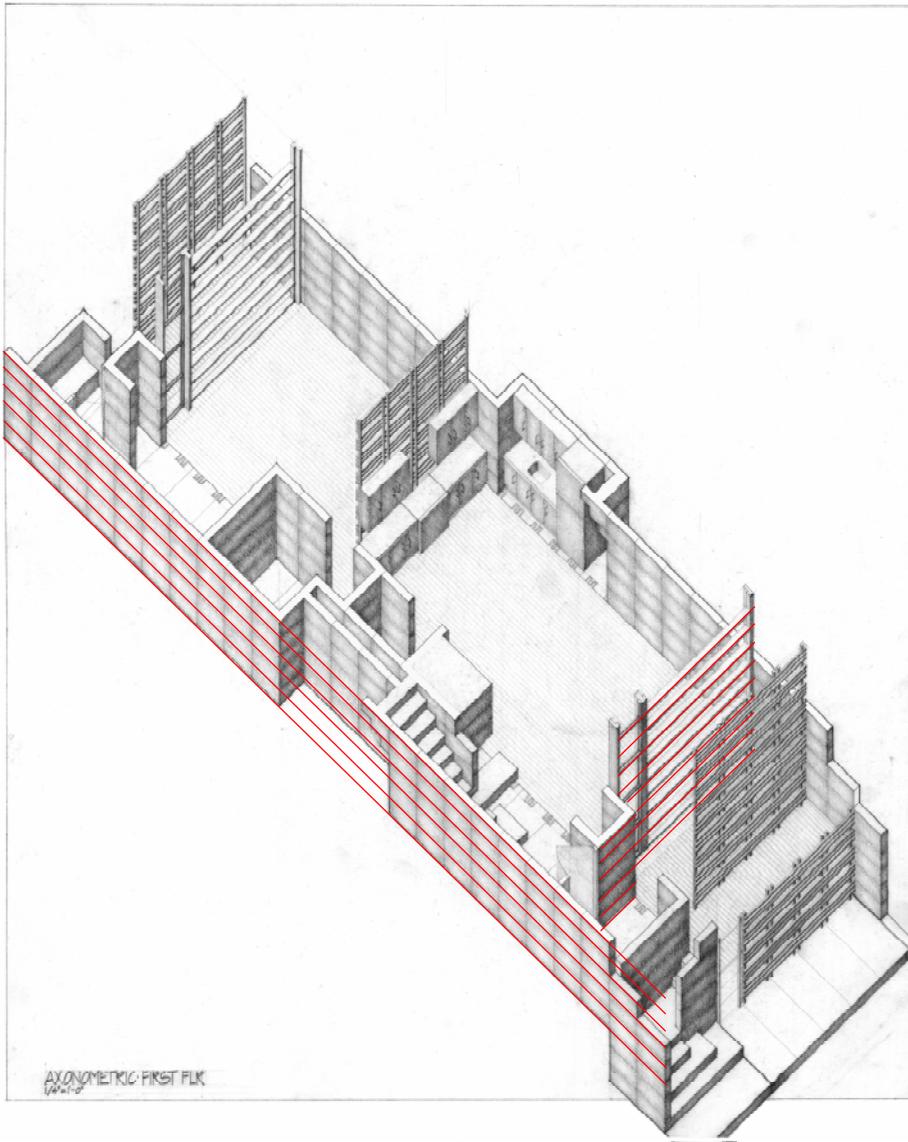


Also characteristic of the servant space is its low ceiling. At six-feet, eight-inches in height, a sense of compression is engendered. The materiality of this space serves to reinforce the close feeling. Constructed of cast concrete, the wall speaks heaviness and solidity, both of which are further heightened by the manner in which the ceiling stacks up as one ascends the stairs - as though it were put together slab by slab. This sense of compression is relieved upon entering the living areas of the house. With ceiling heights of twelve-feet on the ground floor public spaces and nine-feet, four-inches on the second and third floor private rooms, the feeling here is far more expansive. The wooden joists which support the living space appear delicate in contrast to the heavy concrete walls into which they frame. The thin flange-like mullions of the window walls along with the latticed screens that define this space carry on the attenuated appearance.

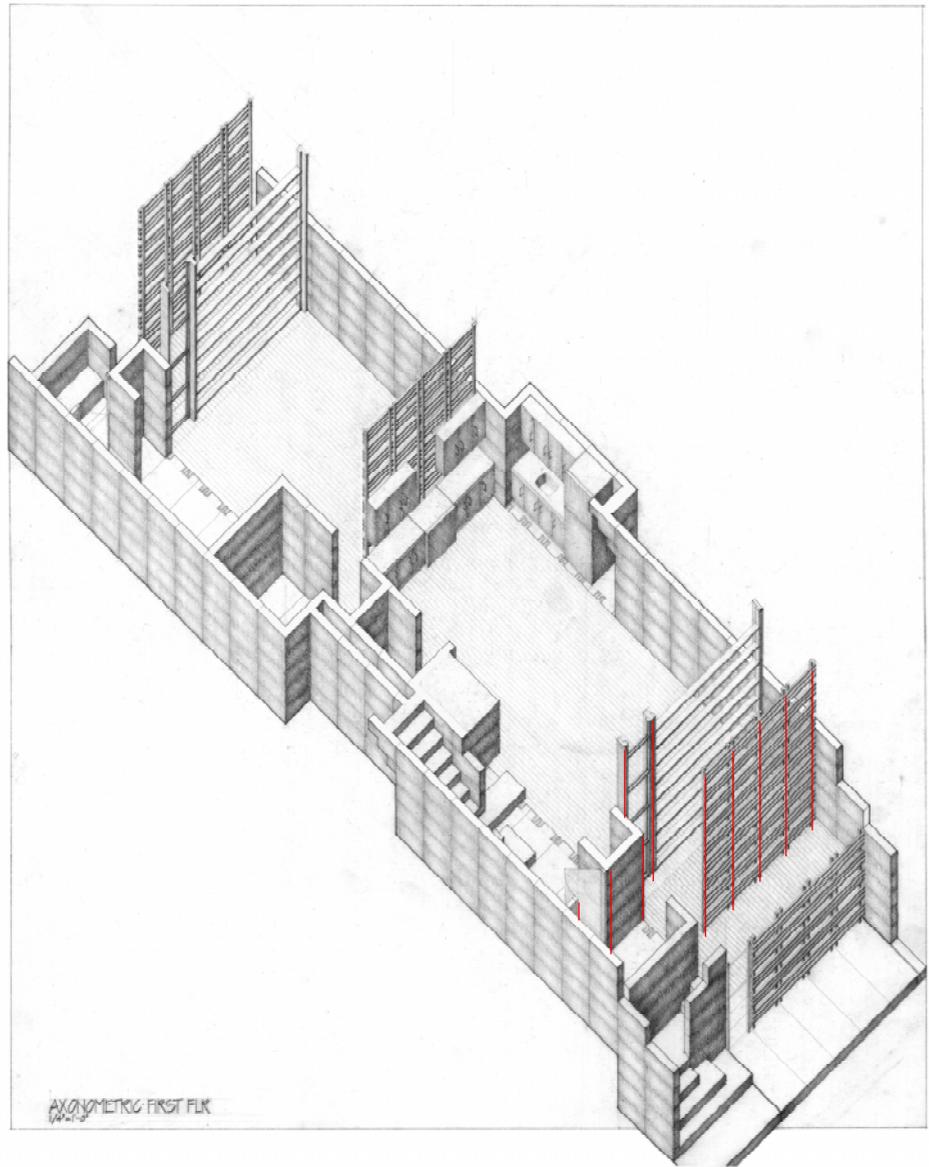
Coolness is another dimension which defines the wall - one which engages ones sense of touch as well as sight. The materiality of concrete is such that it feels cool to the touch. While it can be colored to suit nearly any taste, I chose a cool grey tone in keeping with the material's intrinsic temperature. Structured by wooden joists, the living spaces of the house are characterized by the brown and amber hues of the joists, the window frames, and the latticed screens. The floor that rests upon these joists is also constructed of warm-toned wood. The glow of the natural light entering the living areas works in concert with the wood to amplify its characteristic warm colors. Not only are these wooden structures and surfaces warm to the eye, but the nature of the material ensures that they feel warm to the touch as well.



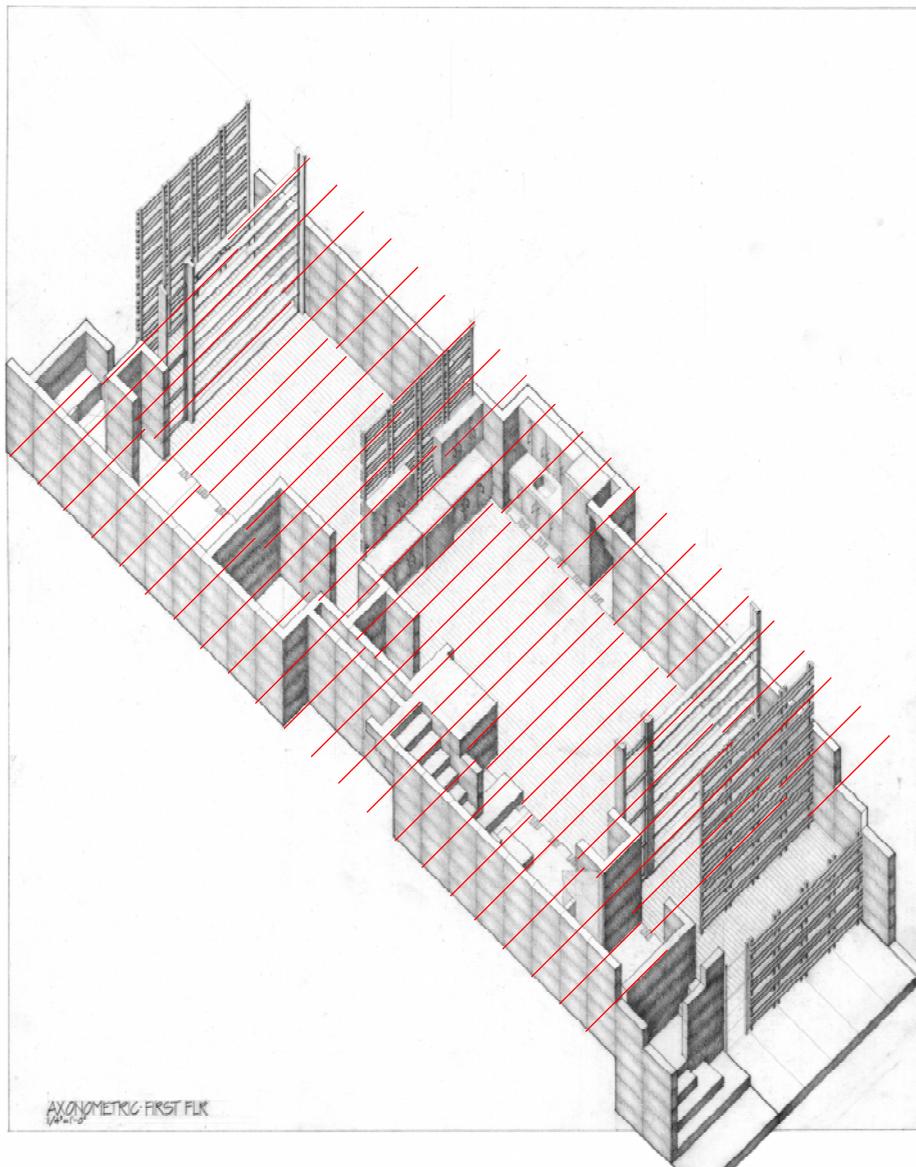
However, I found that it was not enough to merely juxtapose these opposing conditions. I had to find a way to structure these contrasts, to make the differences intelligible. I began to think that I had never truly been working with opposing conditions at all, but rather had been exploring opposite expressions of the same conditions - those of light, space, and materiality. I could therefore structure the conditions, making them rational and rationally knowable through the application of a three-dimensional grid that defines each aspect while also providing the framework for the relationships among them. While regulating up the height, across the width, and along the length of each unit, I had to work with the grids in such a way that they could help me to define the conditions without being overly rigid.



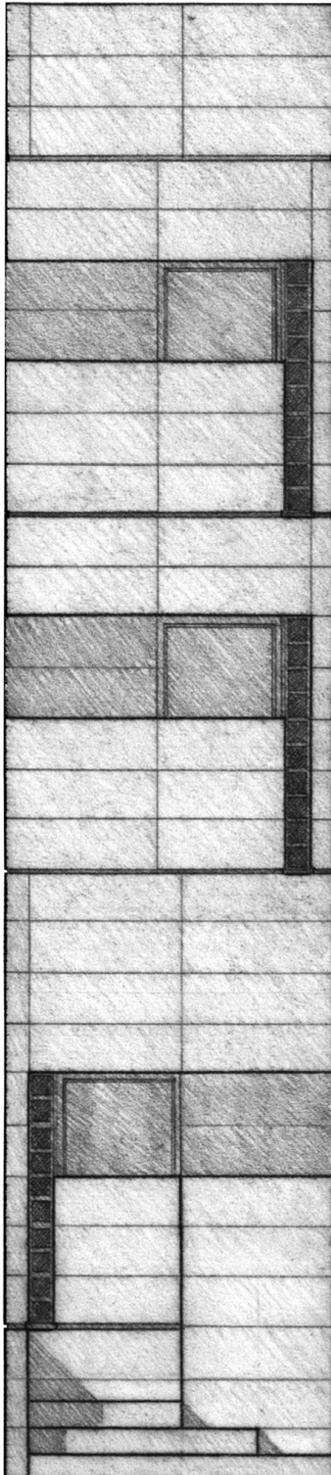
The horizontal module of the grid divides the height of the building at one-foot, four inch intervals and regulates relationships of height. In the concrete wall these define the height of openings and regulate the rise of the stairs, ensuring that their layouts are clean. The placement of the window mullions and the horizontal ribs of their companion screens reveal the regulating lines in the frame portion of the units. In addition to defining aspects unique to either the concrete or the frame, the courses also serve as a guide for the disparate ceiling heights found within them. Thus, while the low boundary of the servant areas and the taller ones of the living spaces may at first seem to be unrelated, they in fact are multiples of the horizontal module of the grid.



Running up the building's front, the vertical component of the grid helps to provide order across the width of the facade. In the concrete wall, door openings and interior walls are placed relative to these. Vertical spaces and structures within the frame portion, such as the three story void beneath the skylight, the bridges that cross it, the division of operable to fixed windows, as well as the structure of the screen walls rely upon these guidelines for their placement. These regulating lines are spaced at larger intervals when traversing the concrete wall than when crossing the living areas, hinting at differences in function and sensibility between them.



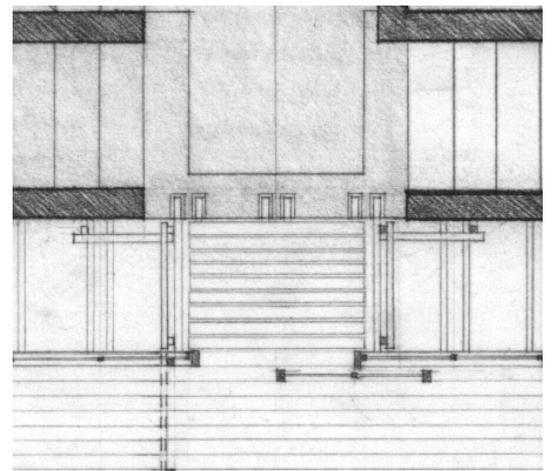
Along the length of the unit, at the place where the concrete wall meets the wooden joists upon which the living areas rest, different modules of the vertical component of the grid appear. The regulating lines that define the concrete wall occur at three-foot intervals down its long axis. The width of openings in this wall correspond to this module, which also regulate the length of the stair treads, allowing the run of the stairs to begin and end logically. Framing into the concrete surface, the wooden joists are spaced at two-feet on center. Wall panels and openings occurring in the frame portion correspond to this module. As both modules are multiples of six, the two will align at these points, and will be offset from each other when they fall in between. The syncopated rhythm of this set of repeating conditions is experienced when one travels along the length of the house, becoming a way in which to measure one's progress along this long axis. Not only does each material tap out its respective cadence, each is balanced with the other, and together their interplay creates a certain harmony.



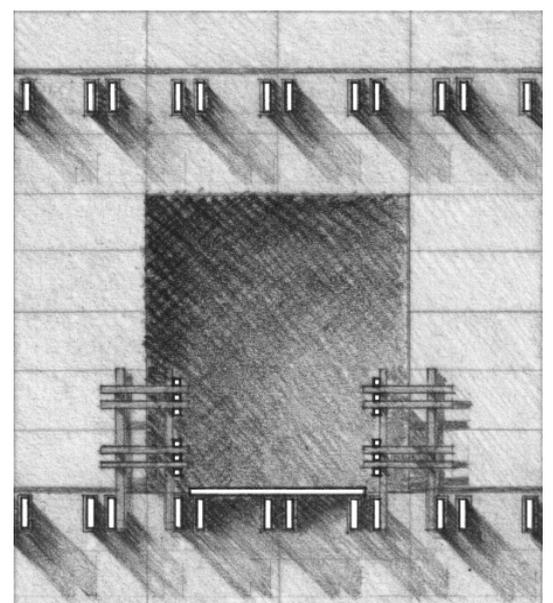
The grid I had created worked well as a framework within which to structure various parts of the project, but it did not dictate the precise design or placement of elements. Rather, the grid often revealed areas where judgements had to occur. I sought to regard these as design opportunities whose creative solutions would result in a stronger project.

The concrete portion of the facade is one such area. The four-foot module which runs across its face would seem to dictate that a multiple of that module should define its width. Yet at eight-feet, the wall was just slightly too narrow to accommodate its spatial and functional duties, while at twelve-feet it was far wider than it needed to be. My solution was to expand its width by eight inches, the thickness of the concrete panels. The facade now consisted of two four-foot panels and one eight-inch panel. The eight-inch panel could be placed on either the right or the left of the larger panels, corresponding to the living space the wall at that point served. Resulting in a small shift in the form lines, something of the interior space is subtly revealed.

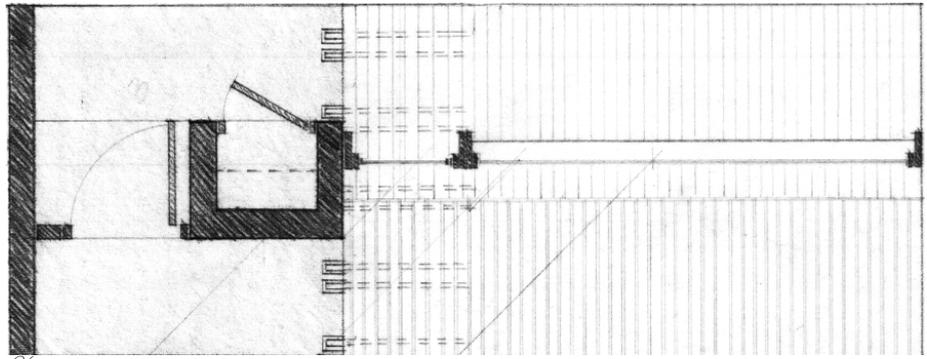
Along the long axis, where the differing modules which regulate the concrete and the joists come together, is another area where judgement was needed in order to intelligibly manage their meeting. An intriguing challenge along this axis is the design of the bridges that span the void beneath the skylight, connecting the wall to the upper level bedrooms. In order to maintain a logical precision, I chose to have the openings in the concrete wall correspond with the regulating lines, which are placed at three-foot intervals. However, a three-foot opening results in an uneven and awkward arrangement of joists upon which to construct the bridge, while an even disposition of joists presents itself if a six-foot opening is used instead. The bridge itself, supported on the wooden joists, could be any multiple of the joist's two-foot module. For passage into the bedrooms I deemed a four-foot opening to be ideal. Thus the six-foot opening in the concrete wall is met by a surface only four-feet wide, a difference that had to be resolved. By manipulating the railing of the balcony I was able to maintain the integrity of each module while ensuring that they work together. The tension between the two grids demanded thoughtful reconciliation and afforded me the opportunity to truly consider the design of the railing.



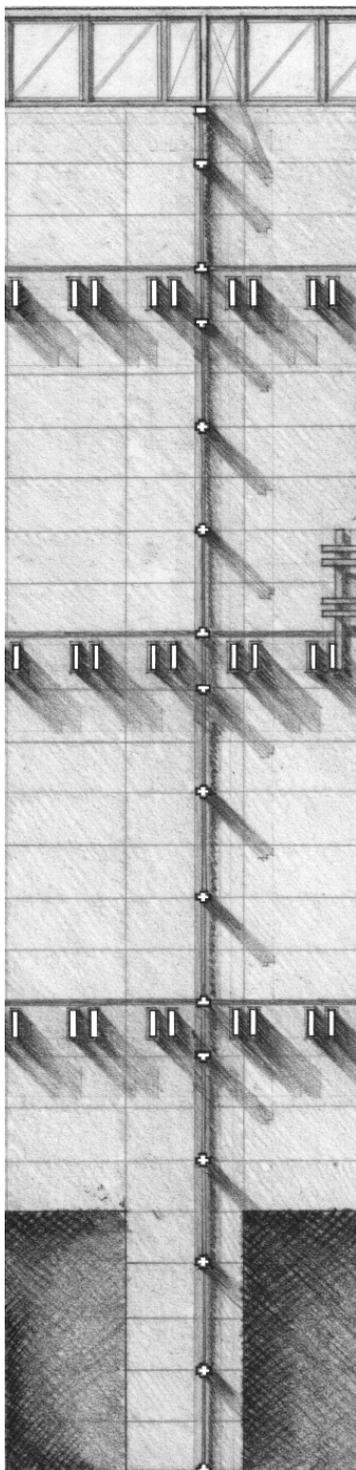
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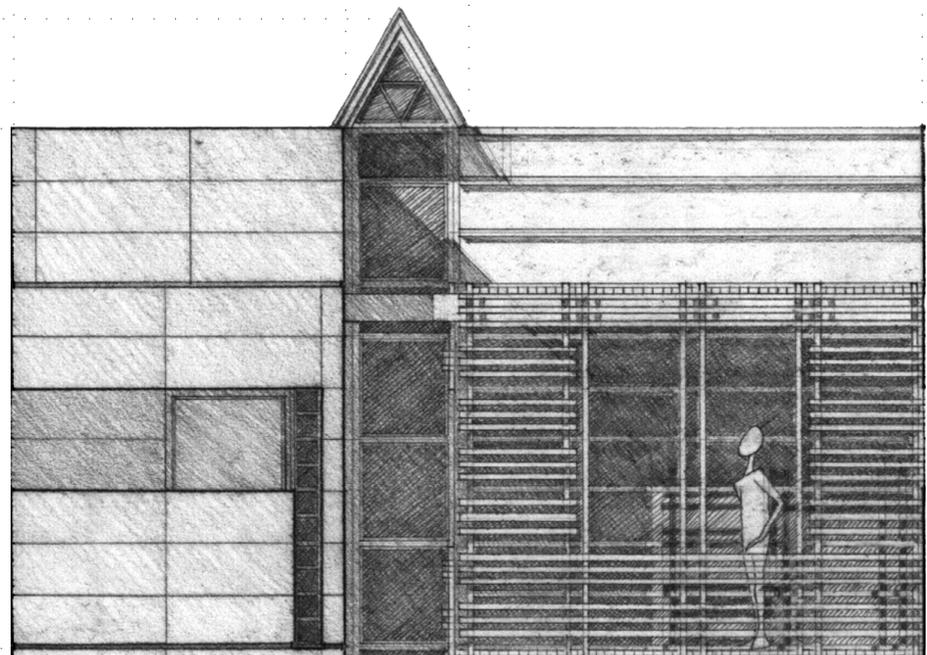
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96.



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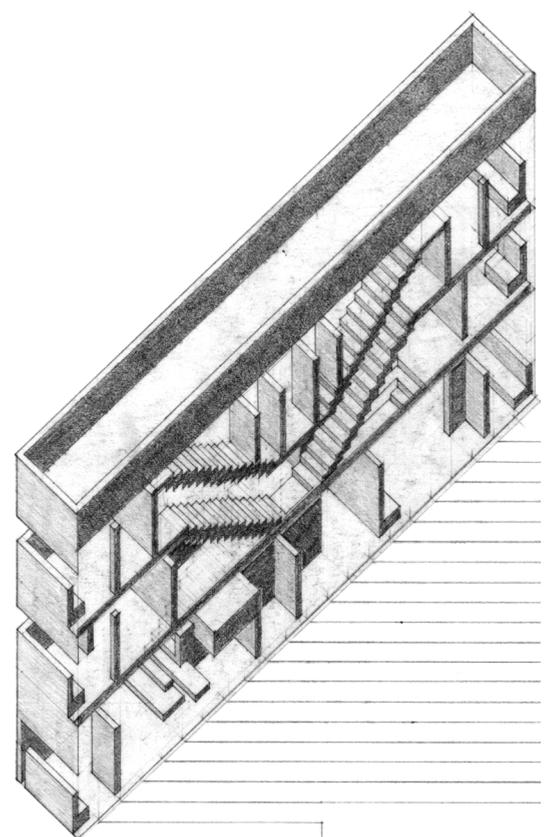


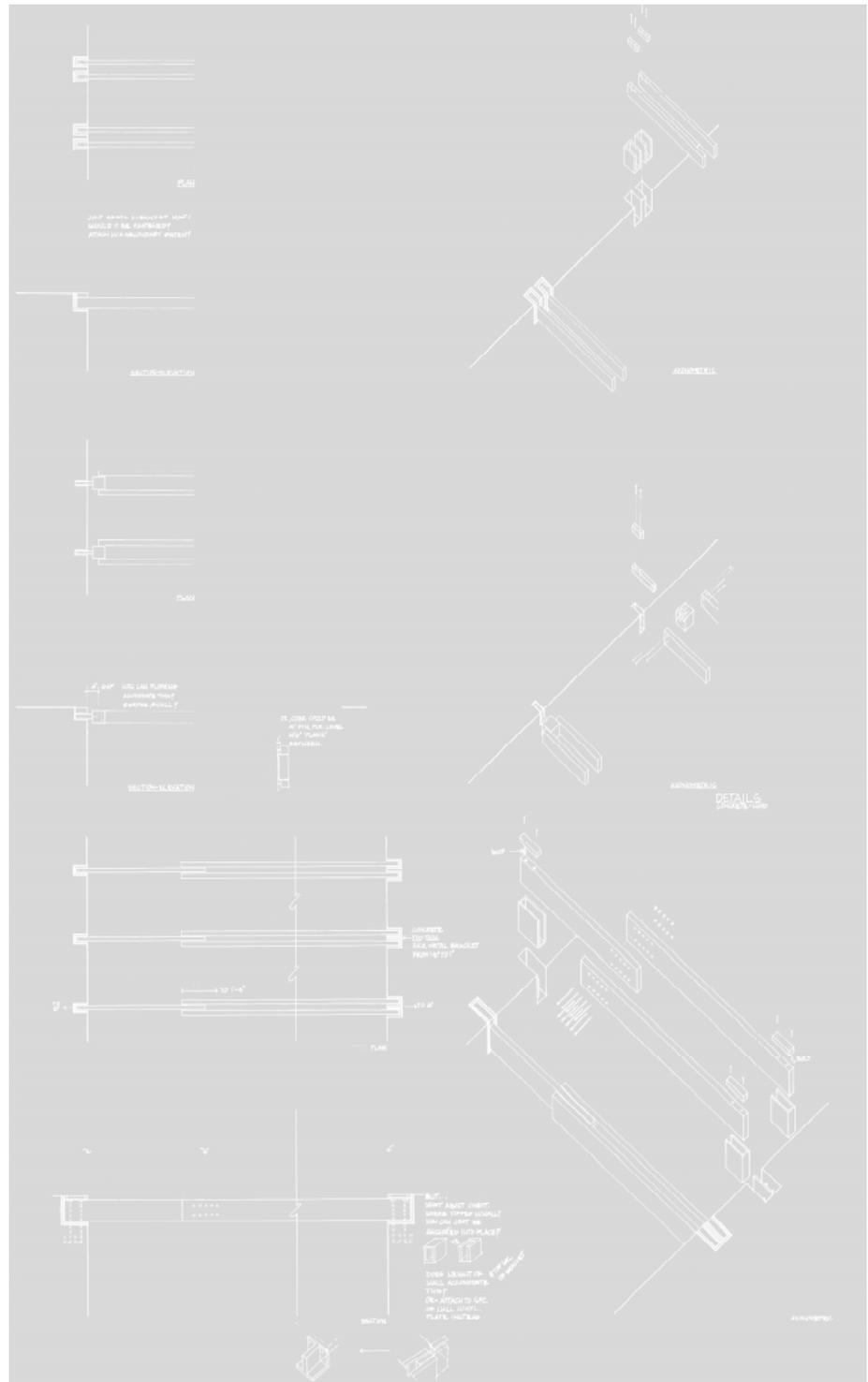
97.

Nor was deciding upon the location of the building enclosure as straightforward as it at first seemed. Because the modules that regulate the concrete and the wood along the long axis at times correspond with one another it appeared at first to be a foregone conclusion to locate the building enclosure at their meeting. However, this would result in a flat facade which I felt would tend to homogenize the very different functional, structural, and spatial aspects of the spaces I had worked so hard to design. Placing the building enclosure at the point where the modules are offset was the next option I considered, the push and pull of this arrangement allowing for a play of shadows across the facade. However, locating the window wall here meant that the presence of the joists would interrupt the horizontal courses I had already established. By placing the window independent of both modules I was able to create a facade that both had depth and maintained a horizontal rhythm.

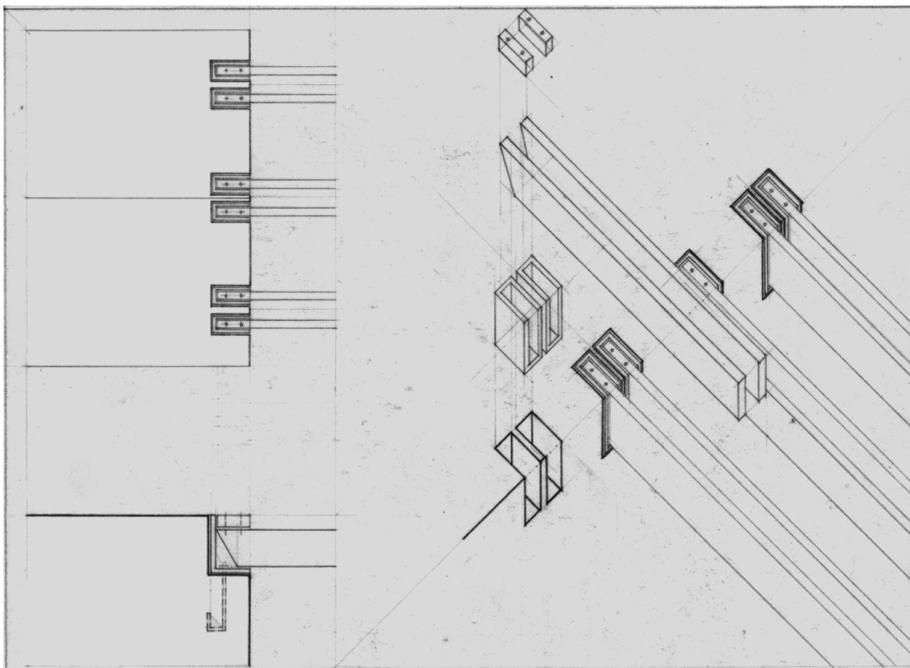
Working with grids made obvious the need to reconcile the dimensionality of material with the imaginary nature of regulating lines. Lines, after all, have only the dimension of length, possessing neither thickness nor depth, while material is bound by all these dimensions. This reconciliation was particularly important to achieve along the long axis of the units, at the place where the wooden joists are spliced into the concrete wall, for it is here that the grids are experienced most closely and frequently by the inhabitants of the units.

For the concrete wall that defines this primary axis the resolution was fairly simple. Concrete is a plastic material, one which takes on a given form representative of the negative space within the mold into which it is poured. I chose to construct the framework for this concrete wall of modular panels whose dimension correspond with that of the grid. The joints between these panels are expressed as formlines cast into the concrete. Because I wanted to maintain the integrity of the grid as much as possible, any walls placed perpendicular to the primary wall had their thickness hidden by being offset to either side of the formline. Thus, the commencement of the primary walls could resolve themselves neatly on the formlines, as could any openings within them.





Accommodating the width of the wooden joists that defined the grid's two-foot module proved far more challenging, particularly where it was coincident with the three-foot module of the concrete. Aligning the center of the joist and its metal pocket with the form line of the concrete not only results in a joint condition nearly impossible to cleanly detail, but also allows the outer half of the joist to extend unsupported where the concrete wall begins and ends. Neither could I offset the joists so that their edge aligned with the form lines. First, the joists would have to be further offset by the thickness of the metal pocket in which they rest, which would diminish the effect of the alignment of the grids. Second, the joint between the concrete wall and the joist pockets, were they to occur at the formline, would be difficult to detail. Finally, the conditions created at the commencement of the concrete wall would be awkward because the last joist would have to be eliminated, which would in turn affect the limits of the floor and skylight above. While changing the side to which the last joist aligns corrects this problem, it results in a bay inconsistent with the others.



Rather than relying on a single joist to describe the two-foot module, my solution instead utilizes a pair of joists, aligned at the center of the space between them. Maintaining this clear space solved the dilemma of the detail by allowing the pair of joists to straddle the formlines in the concrete and permitting the formlines to continue unimpeded between the joists. Only the innermost of the pairs of joists would be required at the commencement of the concrete wall, making it simple to maintain consistent bays throughout. The double-joist solution also supports the manner in which I had chosen to structure and regulate light. Rather than using a large single joist, pairing two together enabled each to be smaller and lighter, as well as spaced more generously. In their final incarnation, the twin joists act as another sort of screen, this one horizontal, patterning the light entering from the skylight above as it is cast on the floor or walls. Flanking the formlines in the concrete, the shadows created by the pairs of joists amplify the instances of the grid's alignment. Thus the joists not only reinforce the conditions of light, space, material, and function, they also join these conditions together in relation to one another, structuring their interplay.



102.



103.



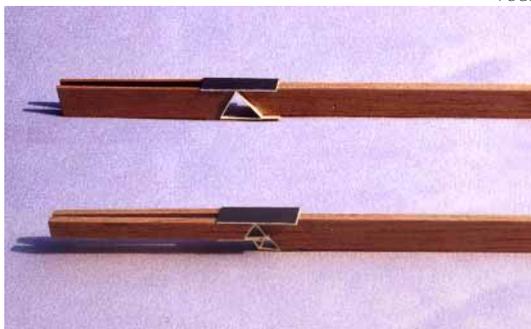
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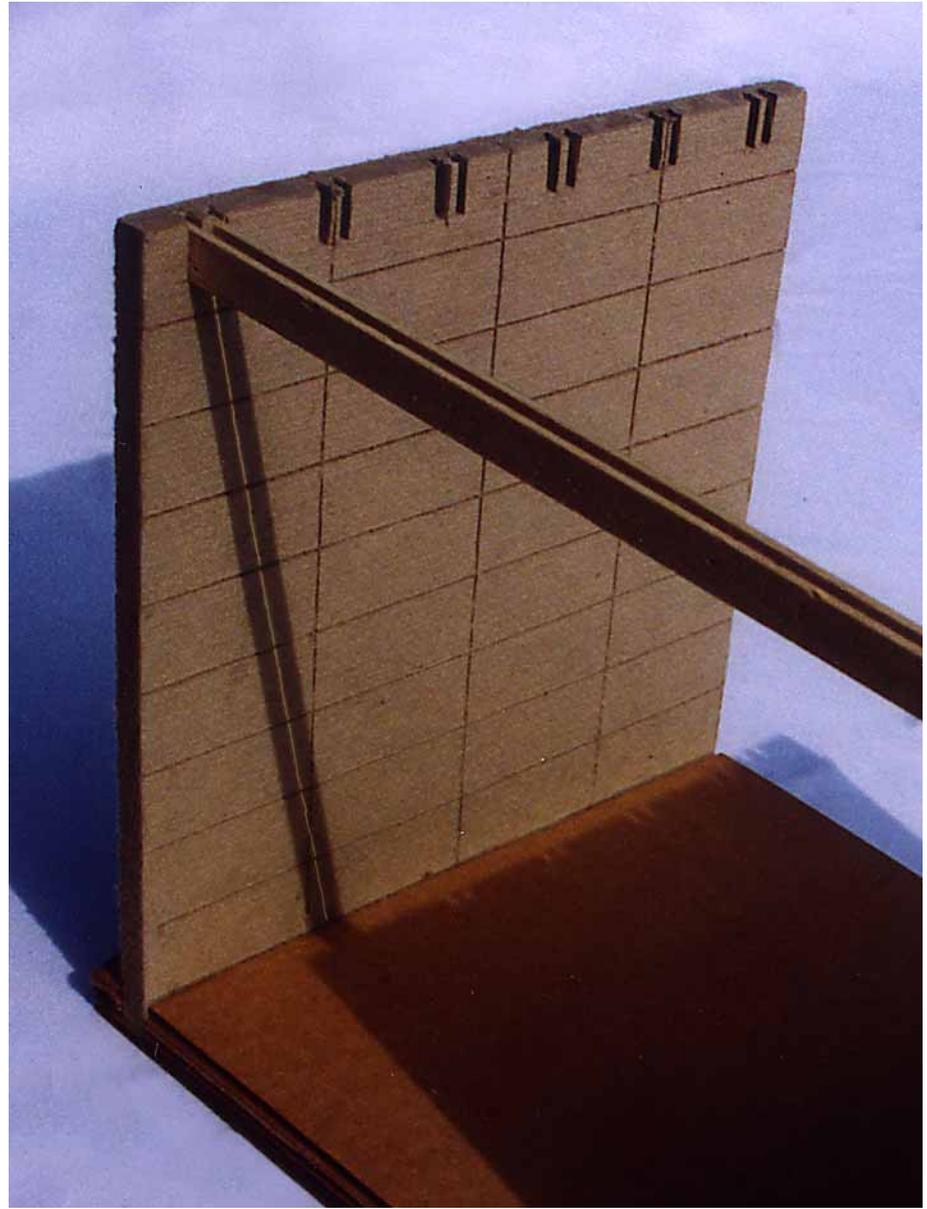
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107.



108.

In this way, the integrity of each grid is maintained as much as possible, while their meeting is structured such that it renders them stronger together than either would be separately. Despite maintaining a high level of consistency, the grids still accommodate many different aspects of the project, such as the condition at the grid's beginning and end, the disposition of the floors and skylight, as well as the design of the bridges and their railings. While some flexibility is surely needed, to have adjusted the grids each time such a situation presented itself it would have weakened the regulating ability of the grid that I sought so fervently in the first place.

