

**Connection and Differentiation:  
Housing for an Urban Renaissance**

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# Connection and Differentiation: Housing for an Urban Renaissance

A design thesis submitted to the graduate faculty of  
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in partial fulfillment of the requirements for the  
degree of

**Master of Architecture**

by

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Virginia Polytechnic Institute and State University  
Blacksburg, Virginia      September 11, 2001

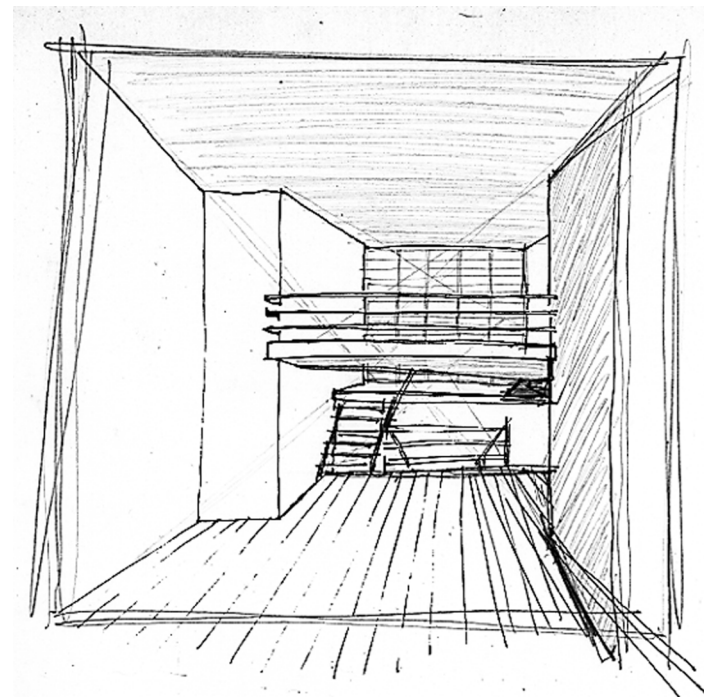


## Abstract

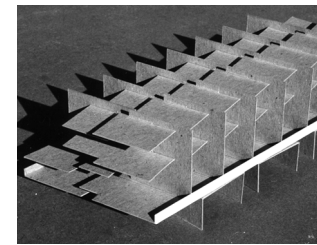
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As architects and planners explore ways to re-introduce housing and attract a stable population into the higher densities of urban environments, the inadequacies of both traditional urban and suburban models of housing become apparent. Issues such as entry, flow of interior space, connection between interior and exterior, dwelling identifiability, relation to the greater urban fabric and others present themselves as fertile territory for re-evaluation.

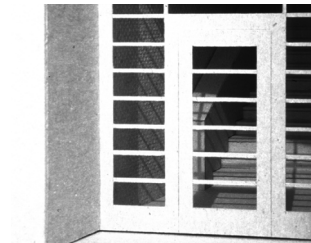
This thesis explores one possible response to issues of residential form and identity in the context of a multi-use building at a prominent urban intersection. While the basic physical form of this project responds to the programmatic needs of housing, allowing it to function in an efficient manner, the expression of this form attempts to speak to the individual acts of moving through and living in these dwellings. It is in elevating these activities of daily life *beyond* merely serving a utilitarian function that architecture finds its place; *empowering* them to ignite our spirits and enrich our souls. *This* is where architecture begins to engage in a dialogue with the dreams and aspirations we hold as a society.







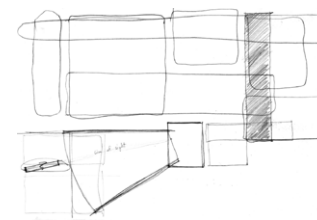
Introduction



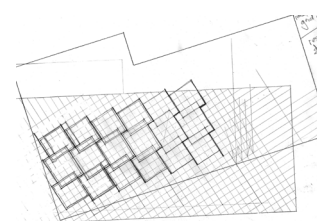
Connection



Differentiation



Residence



Plans



*above:* Typical suburban conditions in southwestern Virginia.

This thesis grew from an examination of the “single-family detached” suburban development, the “typical” American suburb, from the perspective that suburbs might be a physical manifestation of the ideals held by American society from some point in our history. Envisioned as an idyllic “middle landscape” between the vast, untamed wilderness of the Western frontier and the crime, overcrowding and poor sanitation of immigration-swollen cities at the turn of the last century, suburbs today embody a widely embraced quantification of the space/privacy/individuality desires that define American culture and, arguably, represent the housing goal of the typical American family.

This decentralized pattern of residential development is undergoing a shift, however, as the available land around most metropolitan areas has become scarce, and the lifestyle costs of typical low density development exceed the financial reach of large segments of the population. It is increasingly common to find “urban density” apartment complexes in the suburban landscape, as part of the economic - and lifestyle - segregation that suburban developments reflect. Added to this is a growing awareness that suburban developments benefit from healthy urban centers, while at the same time weakening those very cities on which they depend.

These conditions are leading to a fundamental shift in the collective American consciousness regarding the continued desirability and pervasiveness of the suburban “middle landscape”, especially in the absence of the extremes that defined it. Demographic shifts have resulted in segments of the population that value the cultural and civic advantages offered by living in or near a downtown, people who expect urban opportunities in exchange for urban densities. We have become a global civilization and must come to terms with the limited size of our planet, the resources it holds, and the irreplaceable value of natural areas that have not been lost to development. The time is upon us as architects to reinvent urban housing as an expression of the emerging ideals of our society.



*above:* Aerial view of downtown Roanoke.



above: Front view of the City Market building.



left: View of project site from across the intersection of Church and Jefferson showing painted signs uncovered when site was cleared.

## The City of Roanoke

The City of Roanoke, Virginia, began the process of reshaping its downtown in response to changing economic and market conditions over 20 years ago through its *Design '79* initiative. With the successful implementation of the City Market and Center in the Square to build on, Roanoke has become a strong regional center. With the addition of the Virginia Museum of Transportation, the Jefferson Center and the Hotel Roanoke and Conference Center, the city is in a good position to continue its revitalization.

A recently commissioned report, *Outlook Roanoke*, identifies the next steps the city should implement to foster and shape the continued development of the downtown. This report proposes a strategy to “connect the dots” of the existing development efforts, allowing them to support, rather than compete with each other.

One component of this strategy would expand the downtown into a 24-hour city through reintroduction of residential development. This would provide a stable market base for the cultural and retail opportunities already available downtown. It could also help relieve the perception of limited parking, since new living units could be designed to incorporate parking so that the people already living downtown wouldn't be competing for available parking spaces. The report indicated that creative renovation of existing structures can provide a portion of the units necessary for this component; however, since this type of housing has limited appeal, the report suggests construction of a new multi-unit residential development as the appropriate catalyst to overcome market inertia and negative perceptions associated with downtown.

Roanoke is a city ripe for a renaissance of urban living. It remains to be seen whether this opportunity will be ignored by the design community, squandered in a regurgitation of past forms, or embraced as a chance to move beyond that past to produce a new urban housing that truly fulfills our needs and expresses our aspirations into this next century.



One of the most appealing aspects of the “Middle Landscape” has been its connection to nature and open spaces, and an abundance of sunlight and clean, fresh air; all of which had been scarce or non-existent in our cities. This connection was achieved in the form of private yards, open porches, large operable windows and inviting as well as functional front and back doors. These same means of connection have been used, admittedly with varying degrees of success, throughout the evolution of suburbs. They have provided connection not only to the elements of nature, but also to the surrounding neighborhood and community, by acting as environments that foster interaction with neighbors, recognition of common interests and a sense of belonging. As a consequence of our long history with and acceptance of these suburban connections we, as a society, have incorporated them into the ways we live and into our understanding of “home”, and have come to look for and expect them in the places we might consider living.

This presents a dilemma for planners as cities try to reintroduce a residential component into their overall composition, since these examples of connection and the average urban landscape seem to be mutually exclusive. Typical examples of urban apartments provide a common “front door” through which all residents are funneled; individual apartment porches, if provided at all, are usually afterthoughts stuck onto the building and not large enough to be usable. In the name of energy efficiency and initial cost, windows continue to grow smaller and seem to be arranged with personal privacy as the only consideration, with little or no thought given to view, light or connection to the neighborhood. Urban and suburban apartments alike do not provide private yards, but instead offer “shared” green space, with the typical consequence that these spaces are shared by all and used by none.

This thesis focuses on these areas of connection, exploring the idea that there are alternative ways of providing for connection that can be achieved with urban housing. This urban market is an arena into which developers, home builders, and the real estate marketing establishment have refused to venture. It will be up to the creative vision of the architectural community to affect the future of housing by finding these opportunities for connection that will bring the life, joy and desirability back to urban housing.

## Making an entrance.

Historically, floors above street level commercial spaces have been considered secondary, and access to them has minimized impact on the primary use. This typically consisted of a steep, 36 inch wide stair in a walled enclosure to one side of the storefront. The resulting stair, rising 15 to 16 feet without landings, was often dark and uninviting with no visual connection between the bottom of the stair and the destination at the top. By the same reasoning, these entrances did not compete visually with adjacent storefronts and were usually nondescript windowless doors, flush with the face of the building.

The current suburban condition, with automobile access to a multitude of housing developments, commercial and retail strips has significantly altered the urban equation. Almost anyone can choose to escape the less than desirable conditions of urban buildings, previously tolerated out of necessity, for suburban conditions which are perceived to be better. The resulting exodus has turned many urban centers into ghost cities outside the 8 to 5 work day and has caused the failure or relocation of many of those businesses which previously occupied first floor commercial spaces.

The challenge for architects then is to envision and facilitate forms of buildings which deal more creatively with urban conditions, to more equally balance the competing yet interdependent needs of commercial and residential interests. We must not only meet the expanded functional needs of residences, but do so in ways that uplift the spirit, to make people feel excited and encouraged to be a part of the rebirth of cities as places to live.



above: Entrance on Salem Avenue.



above: Entrance on Campbell Avenue.



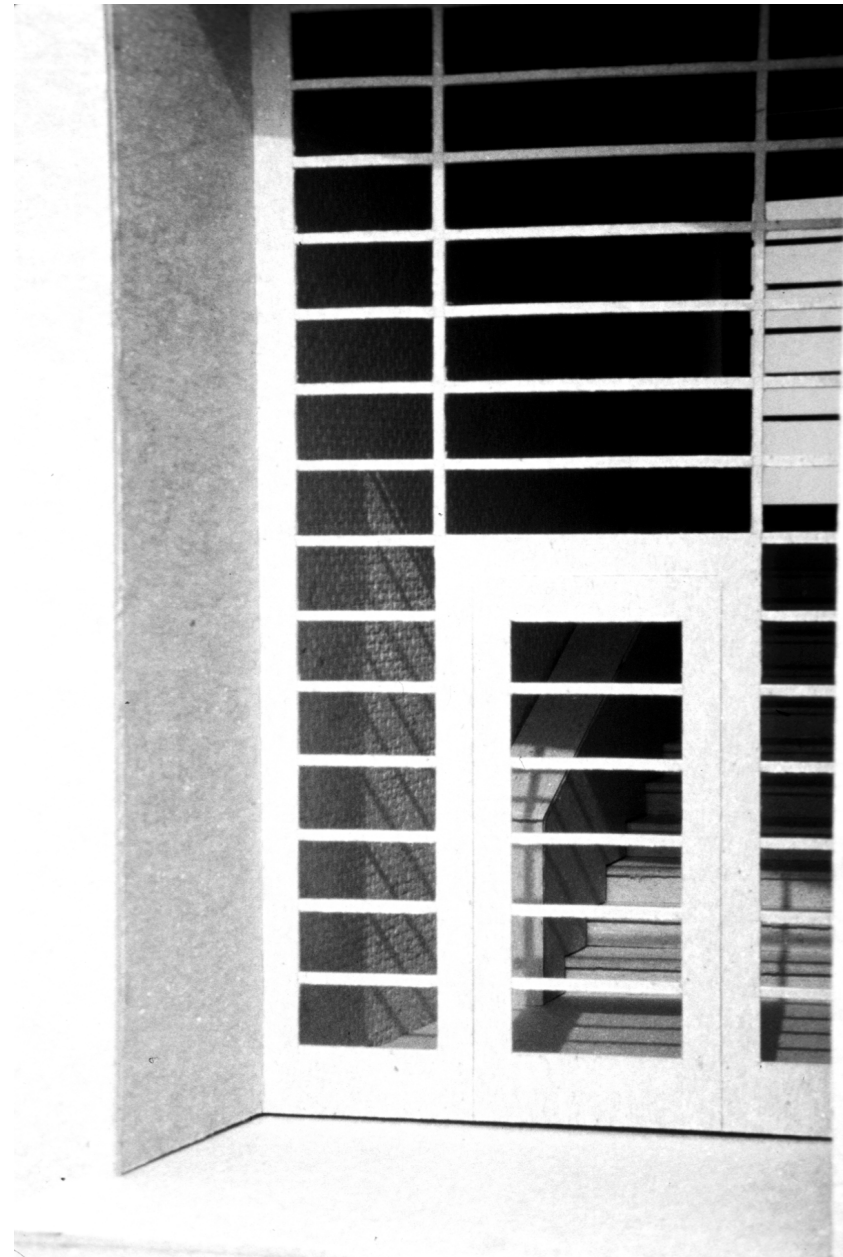
above: Entrance on Campbell Avenue.

## The Front door.

The residences of this thesis project are envisioned for a new generation of urban pioneers; people who want to live in an urban environment because it fits their lifestyle and is an exhilarating part of who they are. People for whom a front entry is more than a formal gesture that acts as a barrier, a device to shut out the city - but rather "the" way to access it, a gateway that glorifies this act of passage.

These front entrances must be obvious and easy to use, inviting to both the residence and the city, and must mediate between them since this is the physical connection, the place where the two environments come together. This is where our experience of the residence begins as we enter, and our experience of the city begins when we leave. The entry must also be conscious of the need to afford the residents a measure of privacy and safety from the merely curious as well as the dangerous.

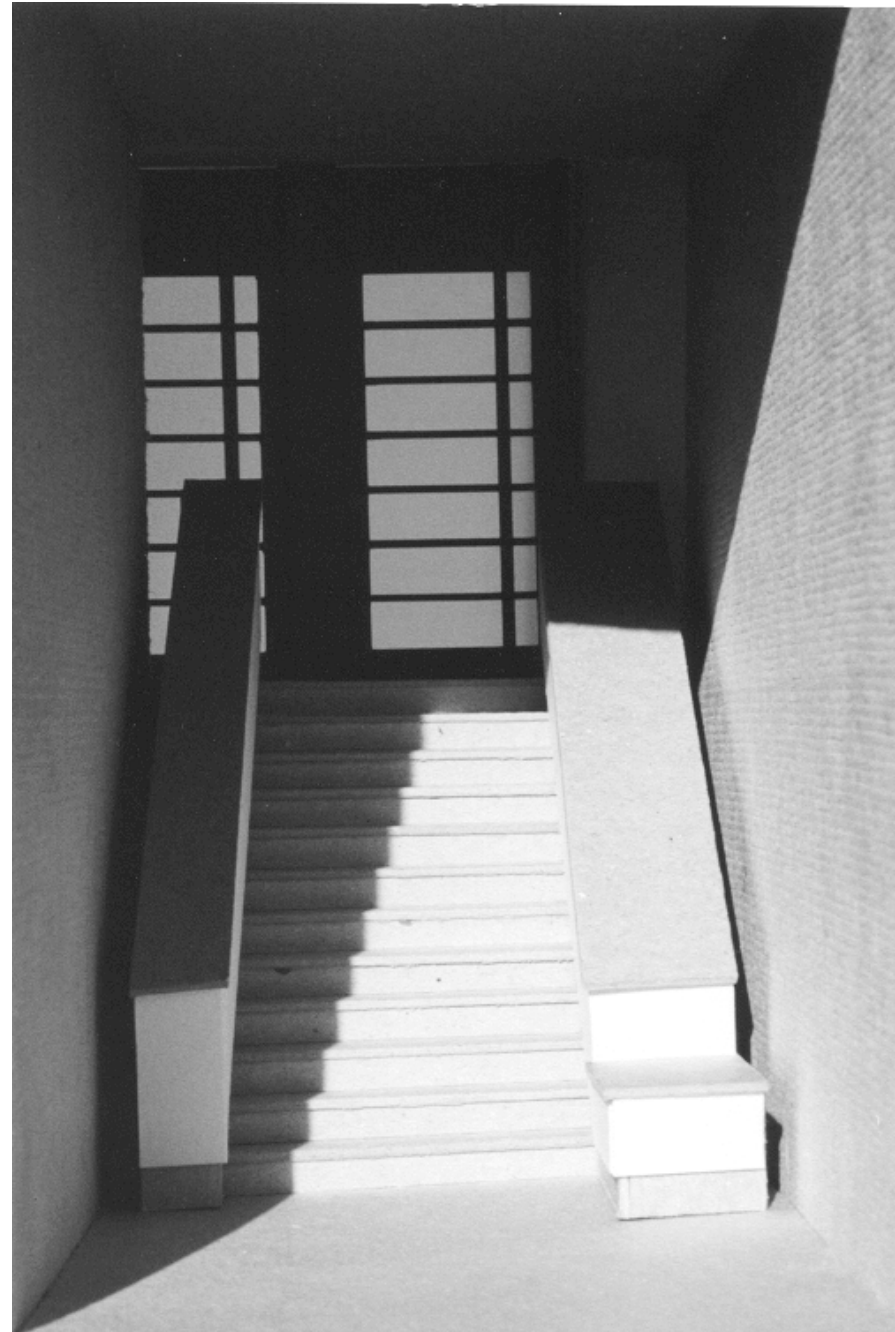
The entry should avoid being a "stair in a dark tunnel" - the traditional response; but instead be light and open, sharing some attributes of a front porch such as being between inside and outside, sheltering, a place to pause out of the flow of pedestrians to get one's bearings. One way this can be accomplished is by combining entrances between pairs of living units into a single, wider entry stair recessed slightly into the face of the building, and by incorporating them into the overall rhythm and composition of the street front. By allowing the entries to take advantage of the full height of the first floor they become bright, open, inviting spaces with the potential for unlimited design expression.



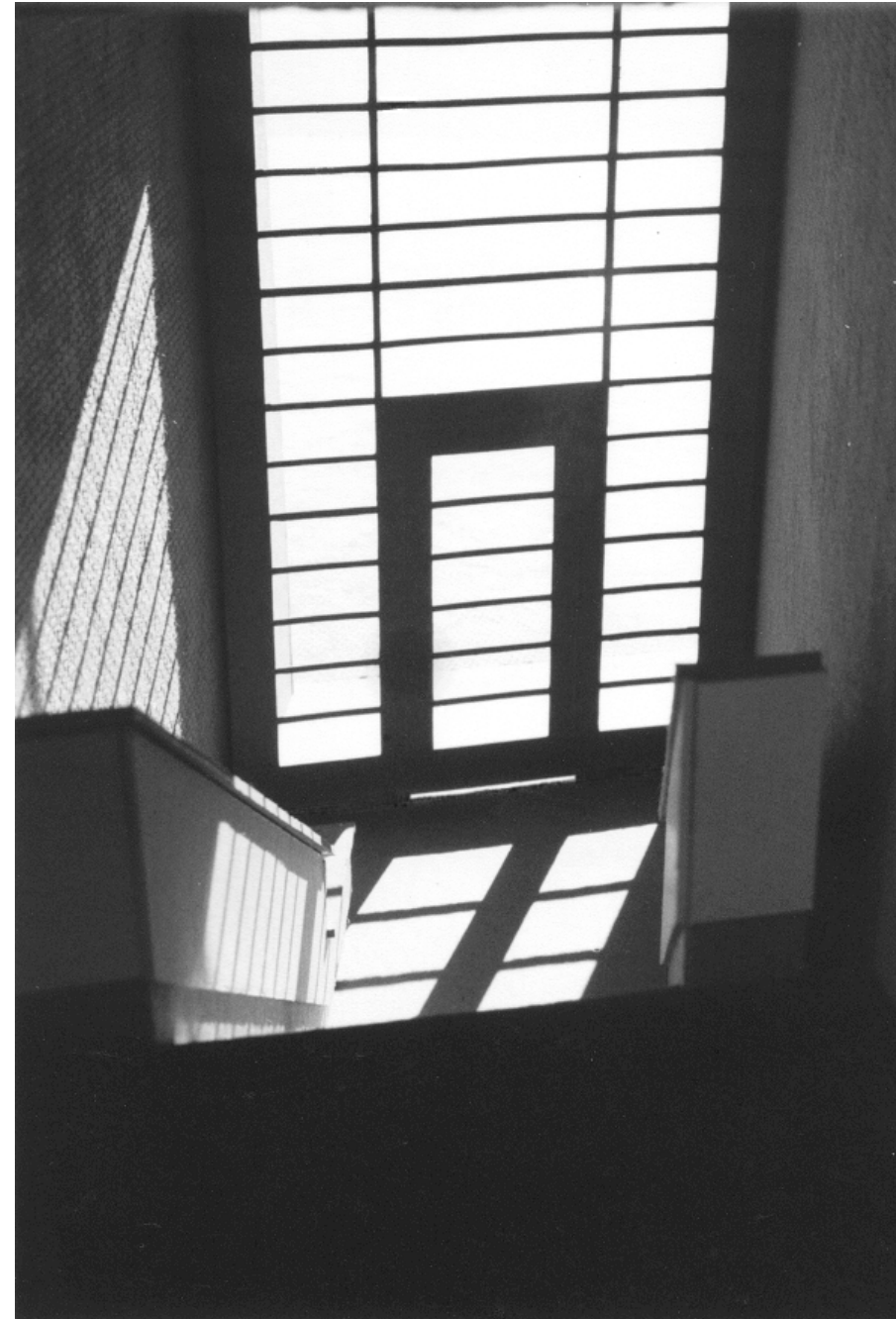
above: Model view of project entry from sidewalk.



*above:* Typical entry stair along Salem Avenue; dark and narrow, with no visual connection to door at top of stair.



*above:* Shared residential entry stair showing visual connection and openness.



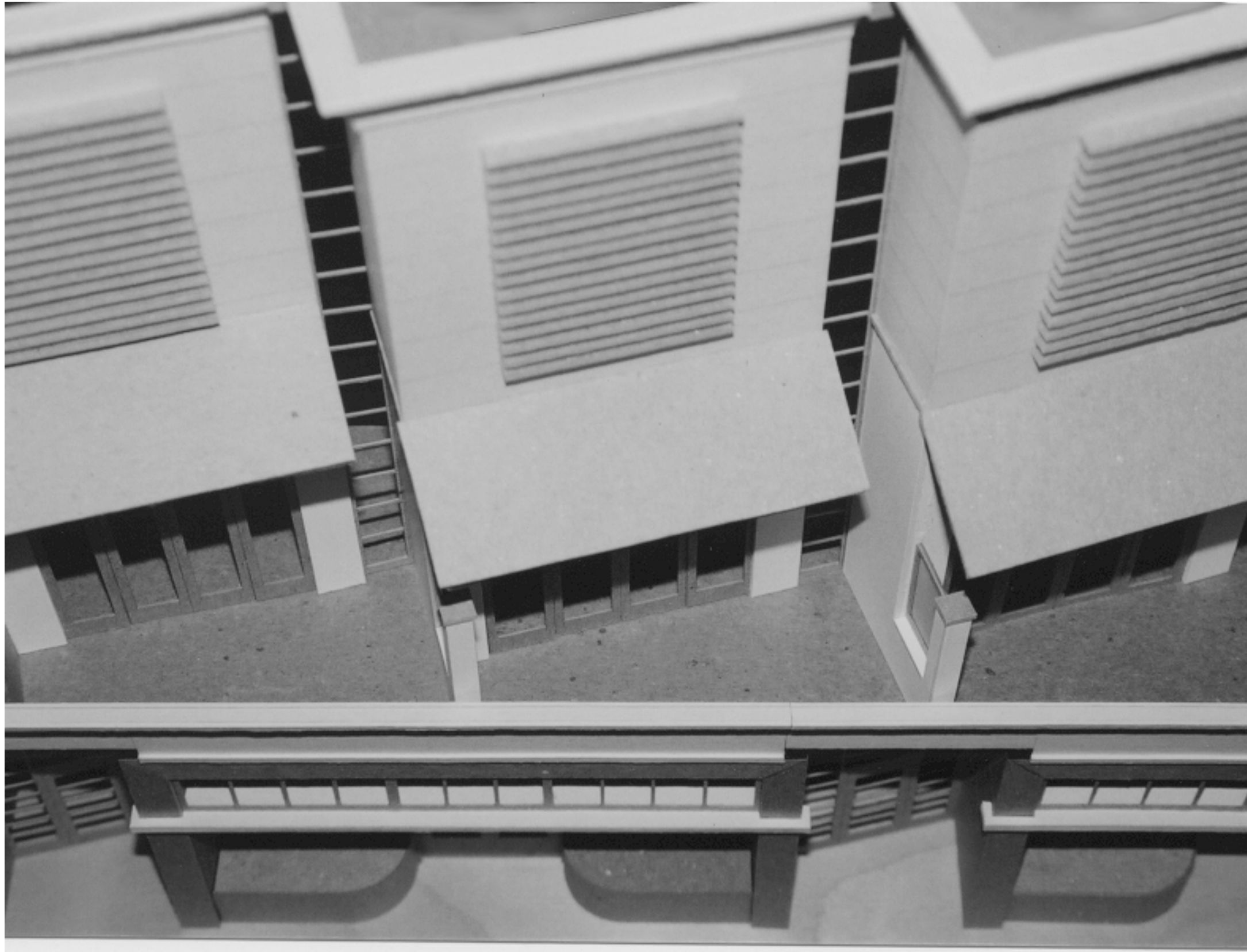
*above:* View from shared landing looking down stairs toward street.

The entry and stair pass between the parallel, roughly finished, side walls of the commercial spaces occupying the street level. This is obviously the domain of the street grid, even as the angled glass wall, and stair treads hint at the shifted grid of the residences above. The bolsters at each side of the stair provide a sense of enclosure, a more comfortable width for the stairs in this expansive space. They actually become the walls of the stair, standing free of and separating the residents from the rough side walls that they pass between, reaching down from the landing to the street in a welcoming embrace.

At the top step, a symbolic threshold is crossed as the parallel side walls shift to match the grid of the residences, the rough surfaces are coated with exposed plaster and the ceiling is stepped up to define this as a distinct space. The pigmented concrete of the lower entry and stair also gives way to smooth stone tile flooring at this point and the angled wall of the townhouse entry doors becomes the only remnant of the street grid below.

It is important that the height of this stair be held to a minimum - to maintain a strong visual connection between the door at the street and the individual entry doors on the landing. This will reduce the perceived separation between the residence and the urban fabric.

The connection between the entry stair and the sidewalk must be immediate and nearly transparent, inviting from both sides to reinforce the importance of this act of passage. The wall of glass that provides enclosure then becomes a screen within a frame. The frame, by its substantial nature allows the screen to be fine, the mullions close enough together that they begin to disappear; and the screen, by continuing the lines of the door frame, adds to this effect. The screen by its nature, with the prominence of the entry door, creates a differentiation between inside and outside to accommodate the need for a feeling of security.



*above:* Photograph of model showing adjacent balconies.

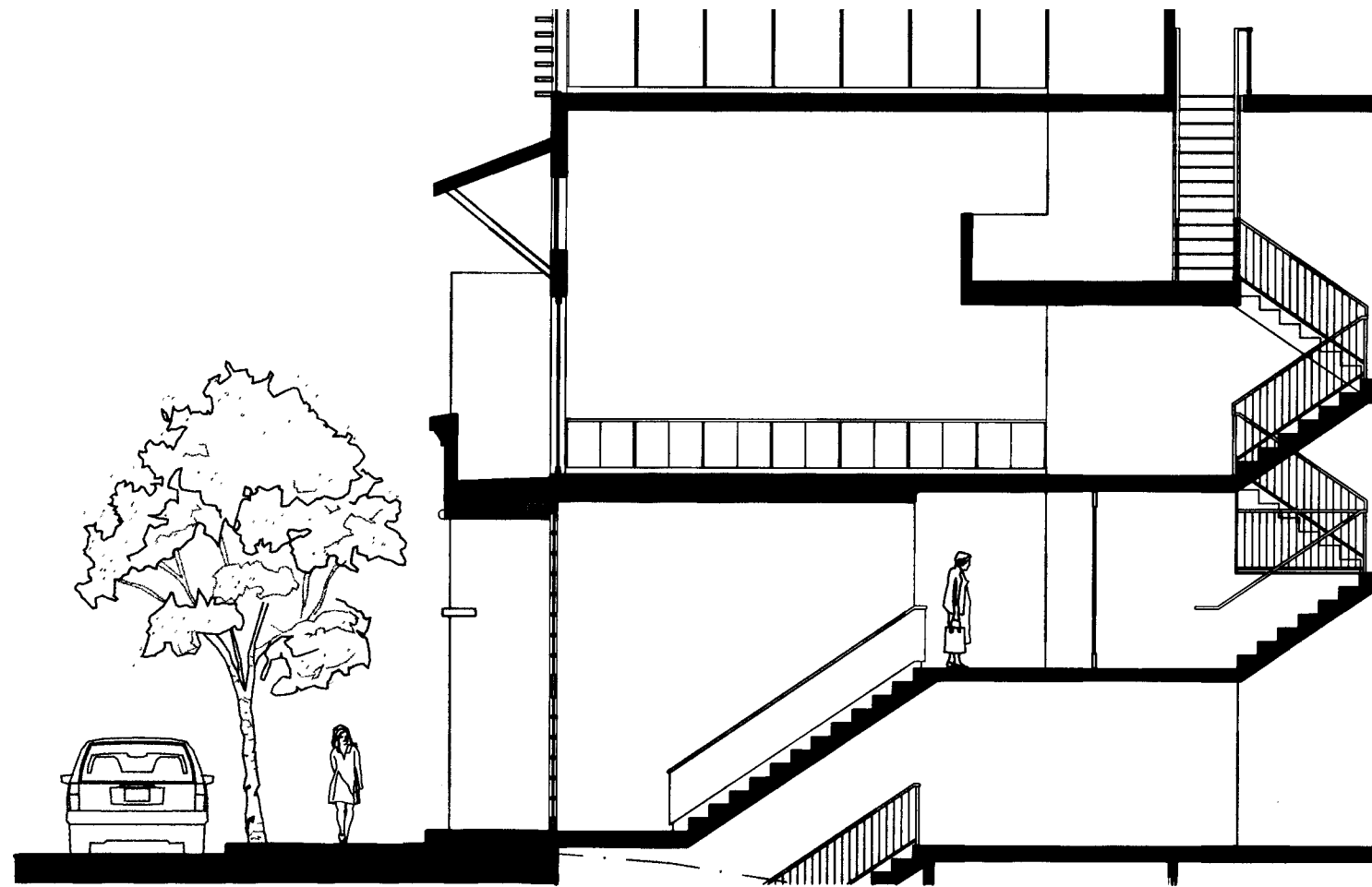
## A Front Porch in the City

One of the enduring images of "home" is that of the front porch, evoking thoughts of family gatherings and relaxed evenings, rocking chairs and casual interaction with the neighborhood. While these nostalgic images are not frequently the reality of suburban life, denying the opportunity for such experiences cannot be considered a positive development. There exists a need within the human condition for varying degrees of interaction with our environment, depending on one's mood at any given moment, ranging from near isolation to immersion including everything in between. This is especially true when the environment is as dynamic and ever changing as the city. The Middle Landscape has its front porch to satisfy that "in between", however, a suitable counterpart for urban residences has never emerged.

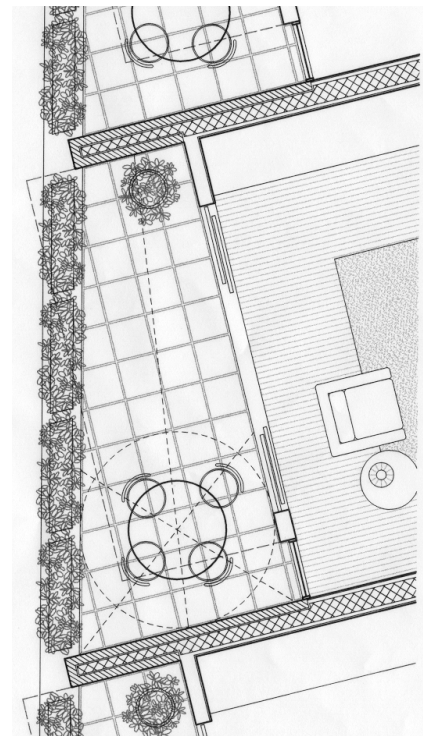
One possibility for filling the role of front porch and yard for these urban residences is a balcony. This balcony, if thoughtfully designed, can be a place to grow flowers, watch the activity of the street, shout down to neighbors, or enjoy a morning cup of tea. This is also the place that guests might gather after dinner on a pleasant evening. This balcony can be the most important place to interact with the city - without actually going down to the street.

A balcony wants to be solid and well integrated into the mass of the building; substantial - not stuck on like the ubiquitous pressure treated deck. It should be comfortable and elegant so that using it is as natural as walking into the next room. The balcony will benefit from being pulled back into the building to provide some privacy from the street, as well as from the neighboring balconies.

The shifted grid of these residential units has the interesting effect of providing an angled balcony, wider at one end than the other. This overcomes the static condition of a long, narrow, rectangular balcony by creating an area of increased importance, a center, at the wider end. It also increases the sense of separation between balconies because the generous end of each balcony, where people are more likely to gather, is always adjacent to the narrow end of its neighbor.



right: Section through balconies showing relationship to street.



above: Diagram of balconies showing effect of shifted grid.



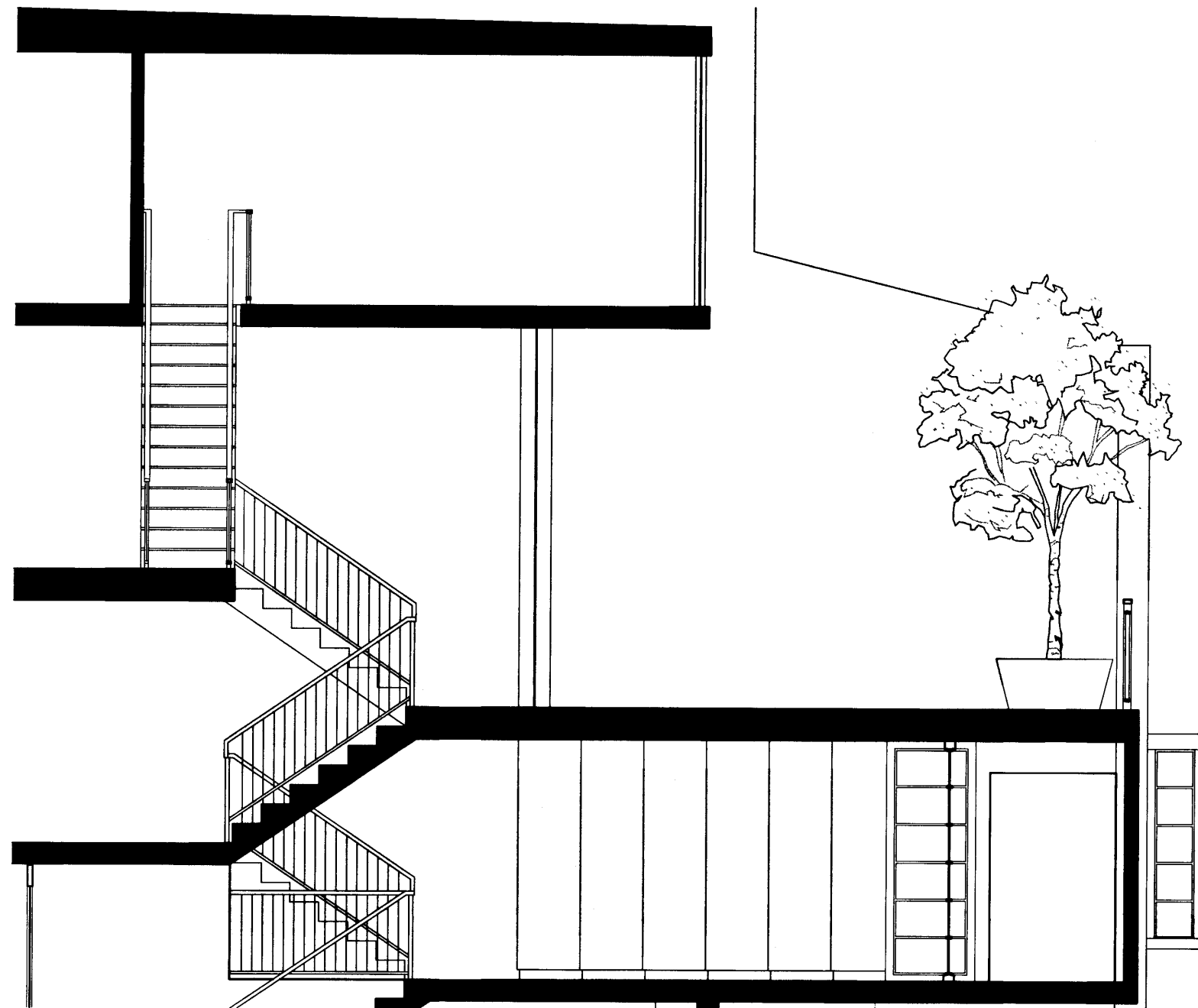
## Not in my back yard!

Playing in a sandbox, swinging, climbing trees, cowboys and indians, snowball fights, throwing a football, grilling burgers, refinishing furniture; the uses of a typical suburban back yard are truly endless. Most families even have stories or traditions associated with the yard they grew up in or a neighbor's yard. The essential ingredient in all of these activities is a large, semi-private outdoor space to spread out and get messy; to burn off energy without the constant worry of breaking something; to experience the beauty of a spring morning or the cool, crisp air of a fall afternoon. The suburban back yard has become universally accepted and expected as a part of the definition of home.

Unfortunately, back yards - especially private ones - are probably the lowest priority in the development of apartment buildings and complexes. Granted, a typical suburban back yard is not a possibility in an apartment, however, there are alternatives worth exploring in the urban context that have the potential to provide for those "back yard" activities. A back porch, terrace, roof garden - all hold potential for making "back yard" a reality for urban living. This thesis proceeds with the terrace, for reasons of location and openness, as a creative starting point for accommodating these activities.

These terraces will be the place where activities in the living room might spill out onto, so proximity is critical. They will be a place for Sunday breakfast with the newspaper or a family dinner in comfortable weather and so should be large enough for a table and chairs, with easy access to the kitchen. This is also where people might sunbathe, barbeque, have a planter garden, etc., suggesting a level of privacy from the neighbors but openness to sights, sounds, and smells of the city.

As with any urban endeavor, space will be an important area of compromise for these terraces, providing enough space to be useful without sacrificing equally valuable interior area. By placing the terrace above the kitchen and back entrance, it can be more generous; and because of the split levels of the townhouses, the terrace is only one half floor above the living room, and two half flights of stairs above the kitchen.



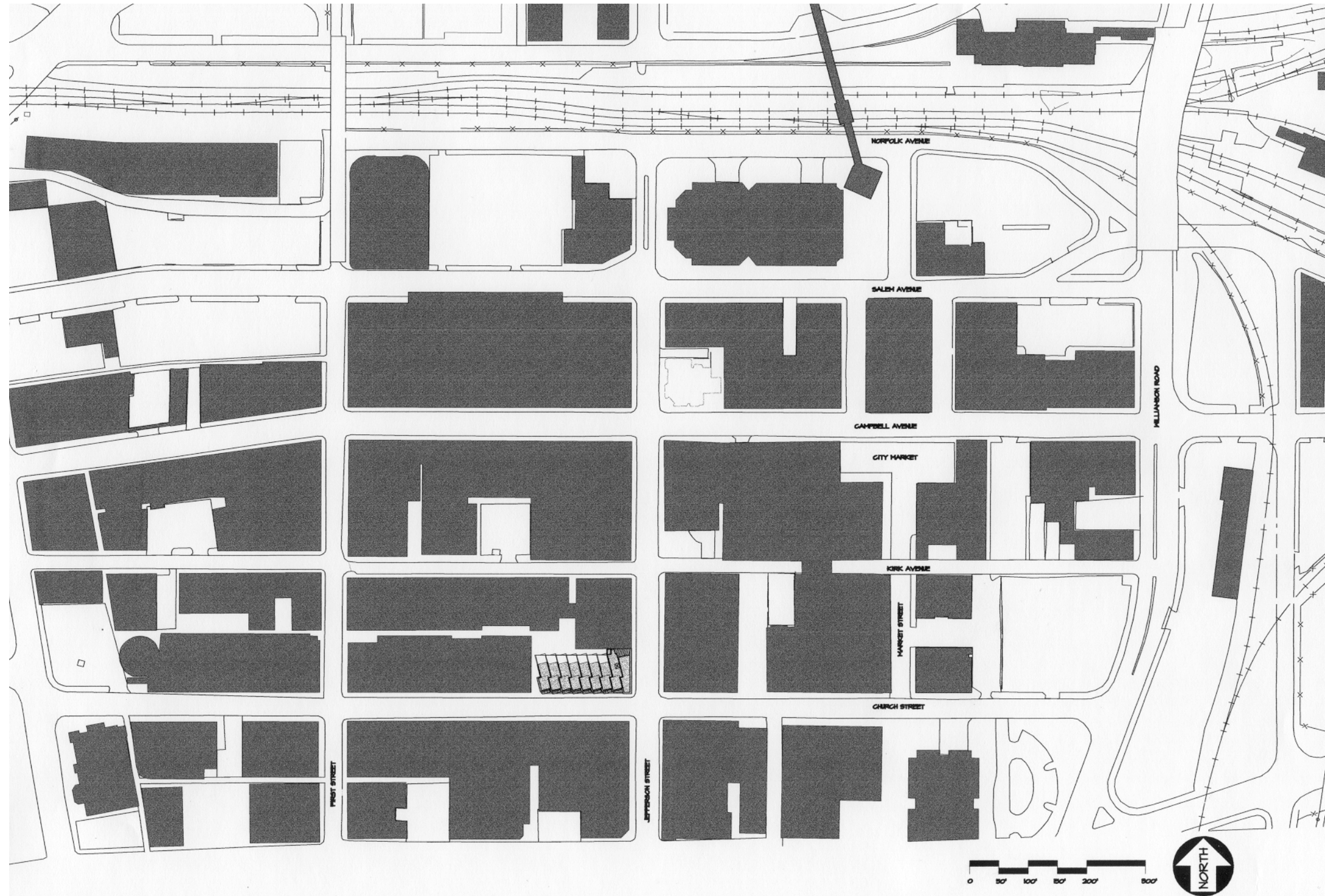
above; Section through terrace and kitchen.



When contemplating the forms urban housing might take and the image that it might convey, it is again important to go back to the “Middle Landscape” to which we have become accustomed, not to borrow styles or visual characteristics, but to look for those clues that will expose the aspirations we have with regard to our homes. One avenue that reveals much about this is an exploration of the types of restrictions that have been used to shape suburban residential developments.

Zoning ordinances determine how close together houses can be and how far from the street they must be. Many developments have minimum lot sizes which far exceed the needs of a single family home not engaged in agricultural production. We see an evolution toward more cohesive neighborhoods, through restrictions on acceptable materials and styles, with the obviously contradictory stipulation that adjacent houses cannot look similar. The real estate community continues to apply stylistic labels in the marketing of homes, despite the homogenized reality of suburban neighborhoods. Predictably, these changes have occurred first and are more prevalent in the most expensive developments where wealthy home owners can afford to indulge their aspirations, but the trends have filtered down through the entire range of single family housing, suggesting a wide acceptance.

These examples all point to the fact that we want houses which are distinct from each other and identifiable as separate. We, as a society, feel this is important enough that we have put mechanisms into place to ensure this outcome, and are more likely to buy houses that can be shown to fit this pattern. If this separation and distinction is important within a cohesive residential neighborhood, how much more important will it be in an urban context where adjacent buildings and floors might be offices, hotels, or shops? The very need to identify these residential units as different from the commercial spaces around them, without causing them to seem out of place, will prove to be a challenging, yet essential goal. This thesis explores these ideals of distinctness and separation, with the premise that there are alternative ways of providing for differentiation that can be achieved with urban housing.





The central business district of Roanoke, like most cities, is laid out as a rectangular grid of streets defining large blocks which, for the most part, are filled with commercial and retail buildings. These buildings come right up to the edge of the sidewalk and rise two, three or more stories straight up, forming an easily defined street edge. There are also a number of public buildings which, in a traditional way, step back from this street edge to announce a change of function and importance from the rest of the urban fabric. This fabric defines the character of the downtown part of the city and, except where buildings and blocks have been demolished, is very consistent and cohesive.

Another common pattern of older "corner" buildings is that, while continuing the rhythm and character of adjacent buildings, they present a composed image along the primary elevation which wraps a fraction of a bay width around the corner. Beyond this wrapping of the corner the rules governing the construction and composition of the facade are relaxed. This is analogous to a return on a piece of moulding or trim and allows for a graceful transition from the public front of the building to its more utilitarian side. Many of these corner buildings also share a tradition of employing a corner entrance, especially where the original first floor tenants found it advantageous to gain exposure from both fronts of the building.

This is a glimpse of the context into which urban housing will need to fit, and from which it will need to differentiate itself if the ideals of distinctness and separation are to be accommodated. Careful thought must be given to when and how these patterns will be continued or deviated from to shape our perceptions of whether or not these buildings are appropriate and easily understood as a new pattern or ill-conceived and confusing.

An early decision was made in this thesis project to hold the edge of the street at the first floor along both fronts of the building. This decision allows the functional needs of the commercial tenants to take precedence at this floor and to respect the fabric of the street edge. There was an importance to fitting into the existing urban fabric in a somewhat traditional way to help make attempts at differentiating the residential units more effective.

## Making a difference

The most traditional and formal act of differentiation used in the thesis project is the cornice above the storefront at the first floor. This element of trim is common throughout downtown Roanoke and historically serves as the first division in the classical "base, shaft, capital" composition of buildings of this era. Within this project, however, this line of trim has been greatly exaggerated to reinforce the horizontal division - to the point that the cornice becomes an element in its own right, rather than a dividing line. The cornice acts as a frame for the composition of the storefront, but is manipulated to reinforce other aspects of differentiation as well. At the inset entrances to the living units, the bottom edge of the cornice is disrupted - notched out - to strengthen the connection between the entrances below and the units above. Square "cornerstones" are inserted at either side of these notches to identify the individual units. This suggestion of discontinuity at the cornice reinforces the idea that these entrances to the units pass between the street level shops, rather than just passing through the facade and into the building.

Working together with the exaggerated cornice line, a setback in the facade at the second floor begins the task of setting these residences apart. By maintaining the street edge to the top of the cornice, this setback becomes a more deliberate and dramatic act, creating an unexpected amenity while also identifying this part of the building as unique and different from that below it and around it. Reserving this setback for the second floor also makes this a less overt challenge to the standard pattern of the street front and allows the street edge to be continuous - an important urban responsibility. In a similar way, the insets at the residential entrances mimic the recessed plane of the wall above and bring to mind images of a receding private realm of space within.



*right;* Photograph of model showing cornice and setback at balconies.



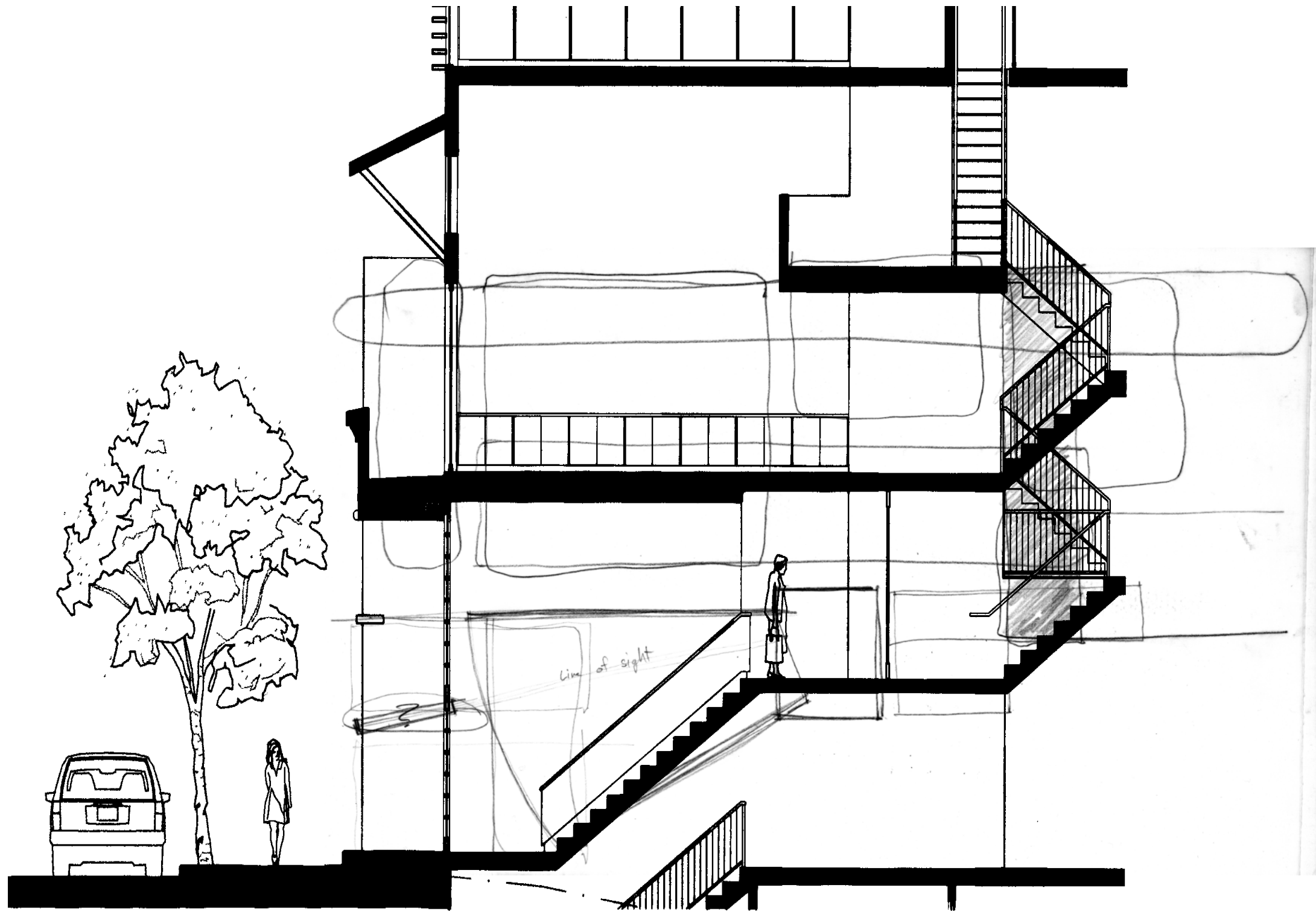
above: Photograph of model showing misalignment of vertical elements.

A more subtle difference between the first floor and the residence above is a deliberate misalignment of the vertical structural elements of the building. The party walls of the residences fall halfway between the end walls of the commercial spaces below, making clear the divergent layouts and functions of these very different occupants, and at the same time hinting at the shared nature of the entrances.

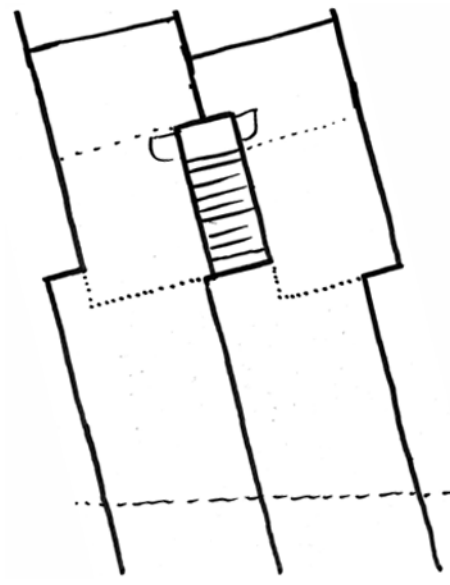
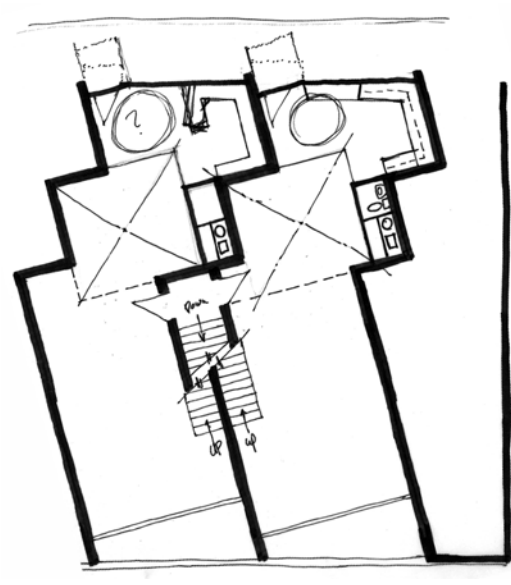
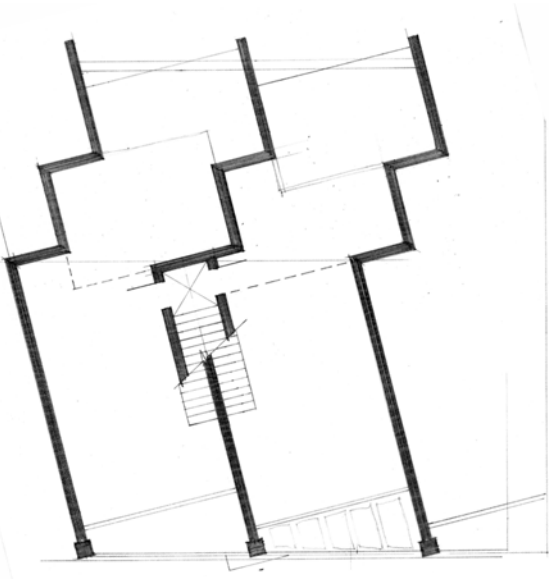
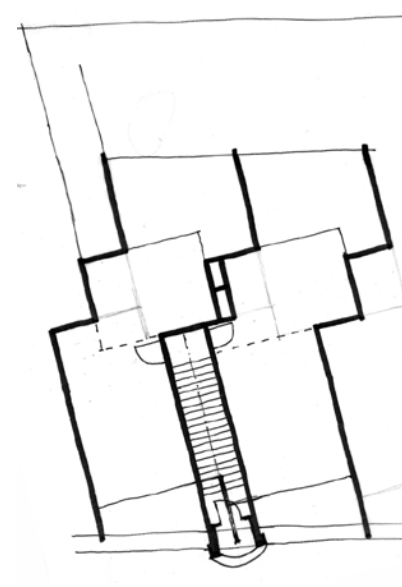
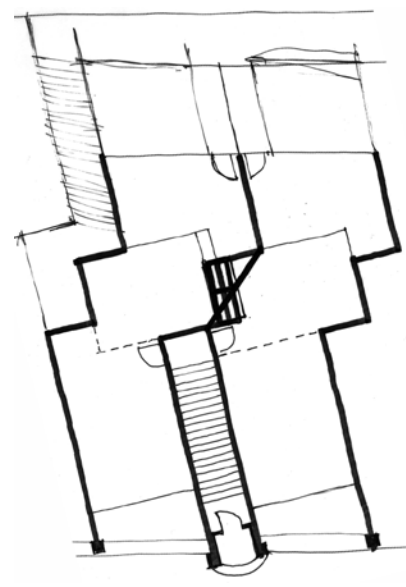
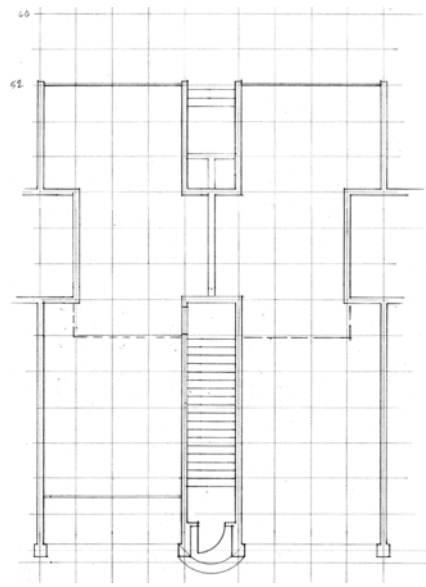
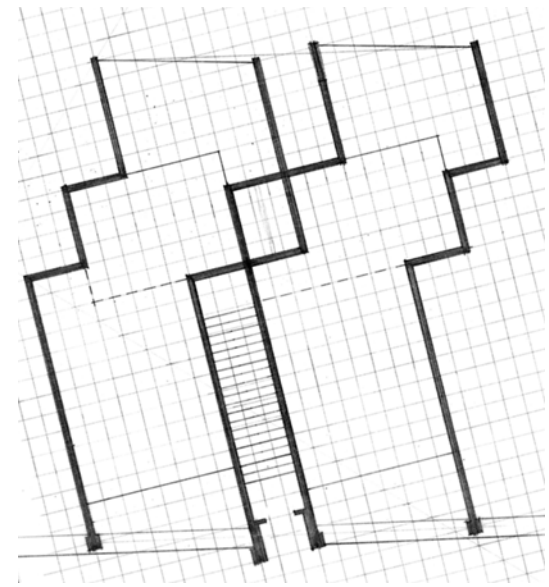
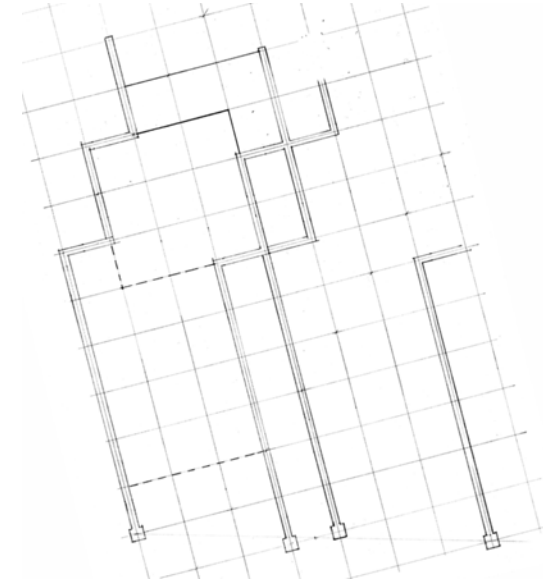
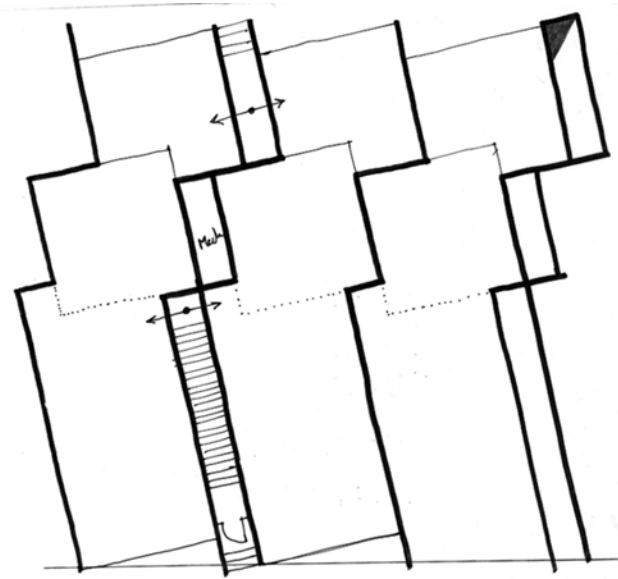
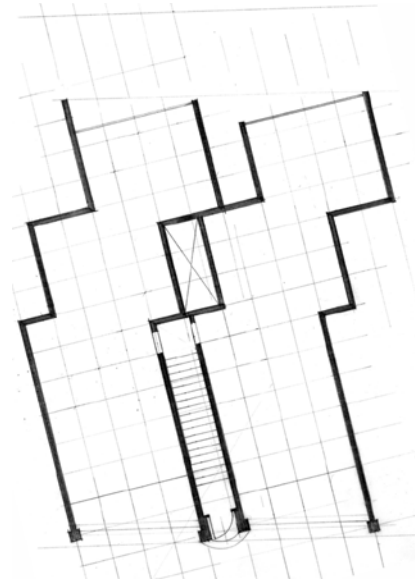
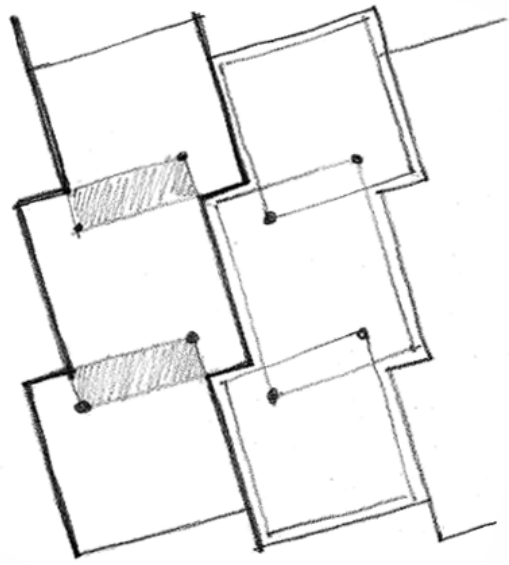
Because distinguishing these residences from each other was viewed equally as important as separating them from the surrounding buildings, a number of devices were explored to accomplish this. One device that advances both of these objectives is the rotated grid of the residential units. In addition to providing some interior spatial benefits the resulting angled walls allow each unit to expose a corner to the street. These corners, by their very nature, help to establish the boundaries of the individual units, allowing them to develop a separate identity within the framework of an inside and an outside corner. Adding significantly to this effect, a column of glass rising the full height of the residential units is tucked into the inside corner, which creates the illusion of a physical space "between" the adjacent units. This effect is carried through to the cornice at the skyline, which is discontinuous at the column of glass.

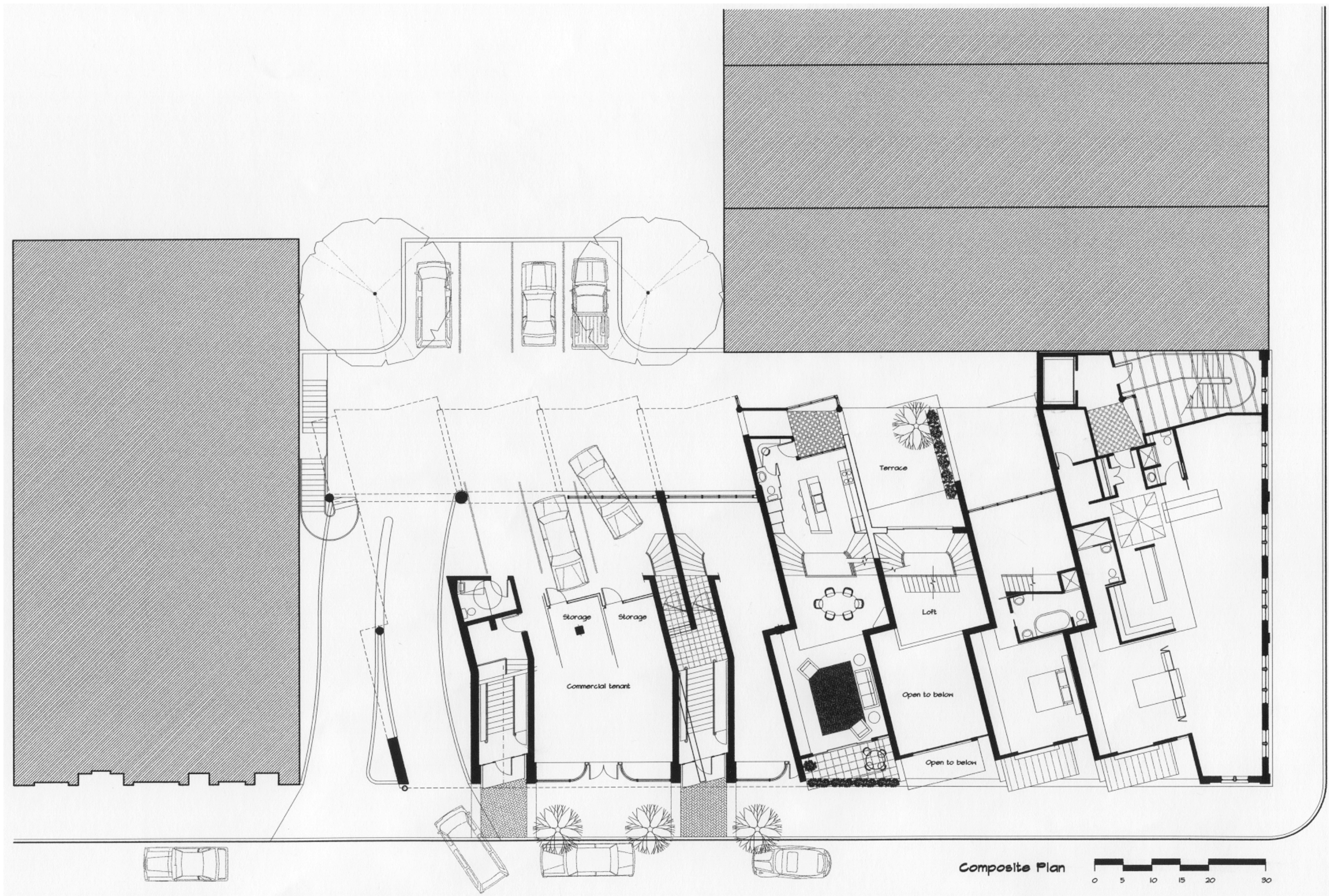
The sawtooth pattern created by this row of corners, while not unique in downtown Roanoke, will set these residences apart from one another and from the surrounding buildings, especially where they meet the sky.





# The Residence





Composite Plan 0 5 10 15 20 30

