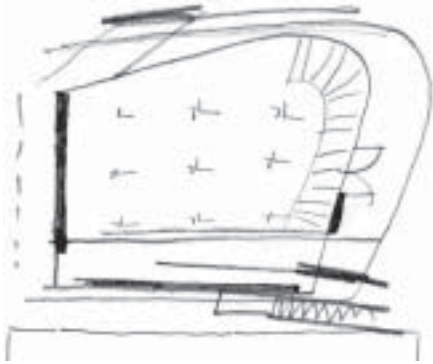


Commercial Structure

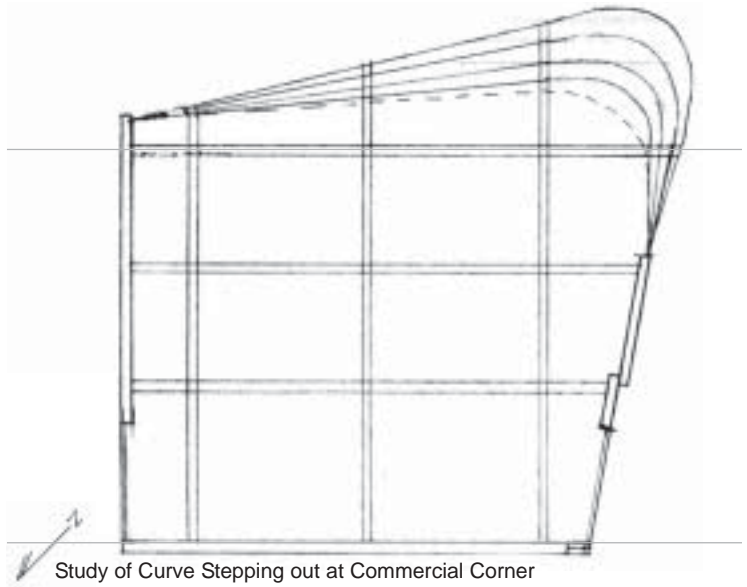




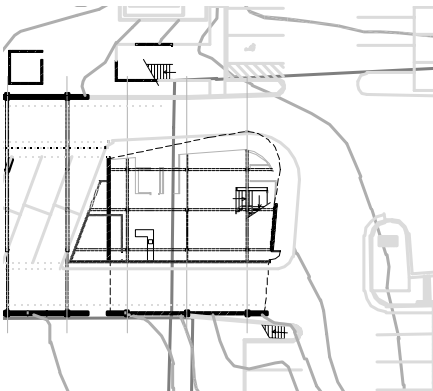
Initial Curve



Curve Sketch



Study of Curve Stepping out at Commercial Corner



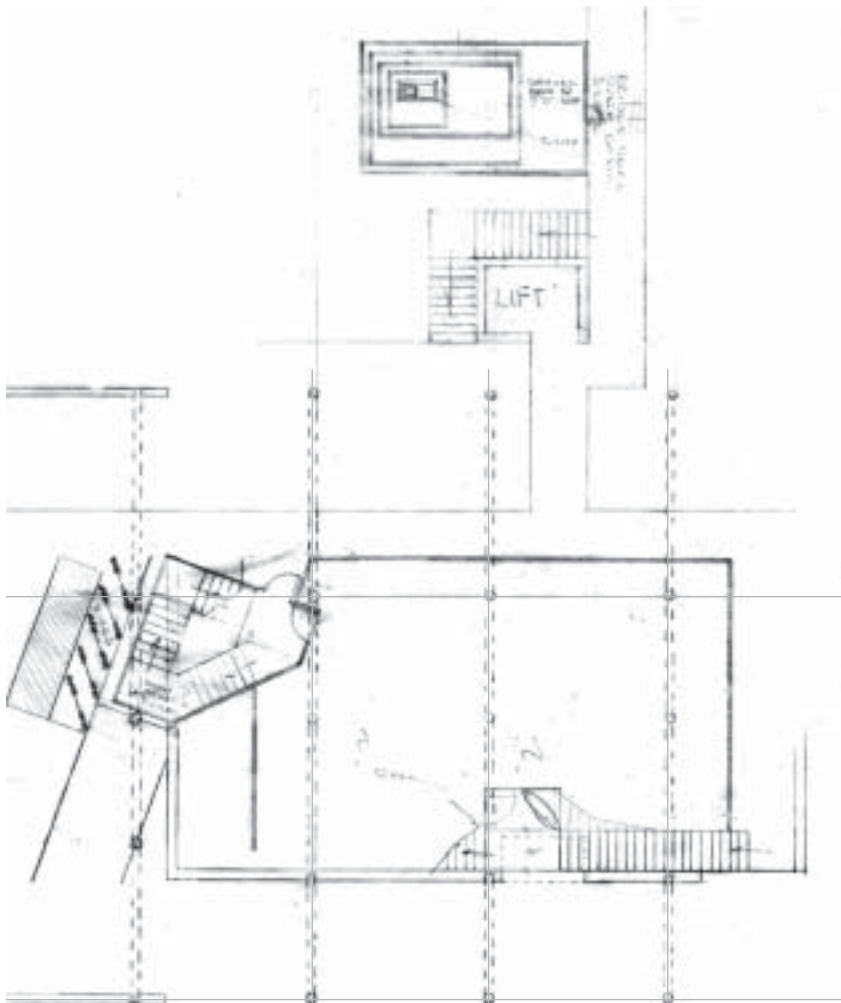
Final Curves



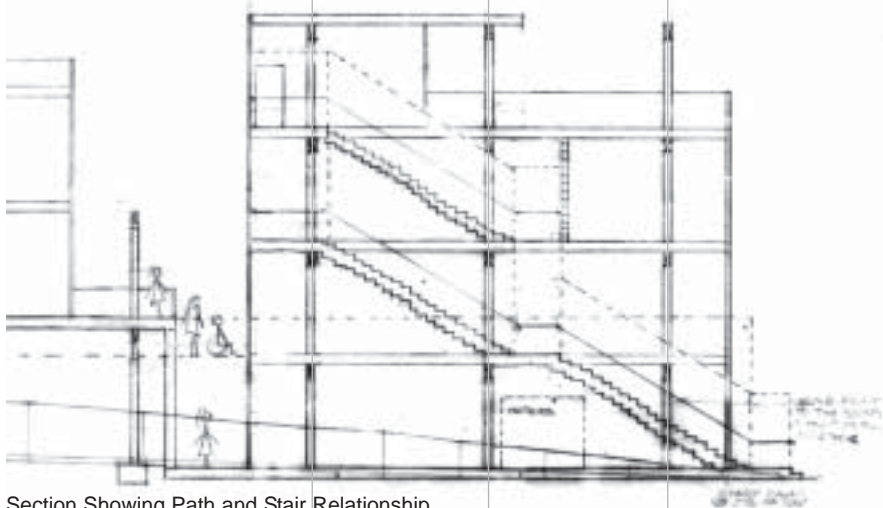
Local Firestair



Firestair Detail



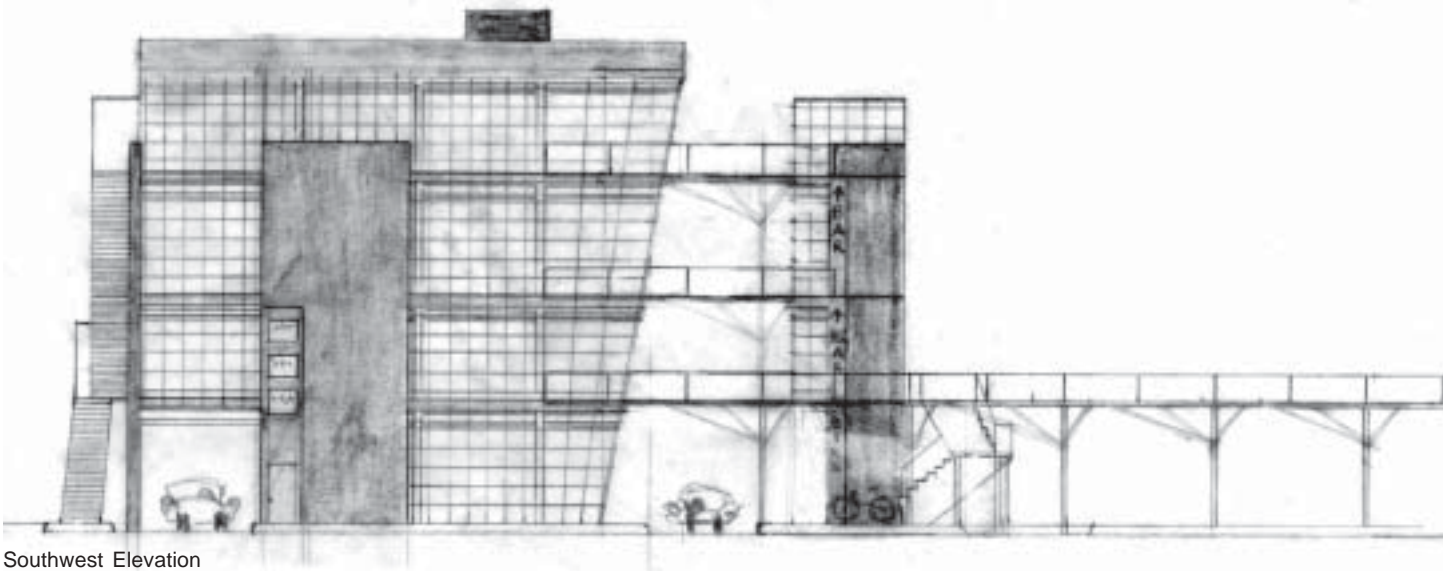
First Floor Plan with Stair Locations



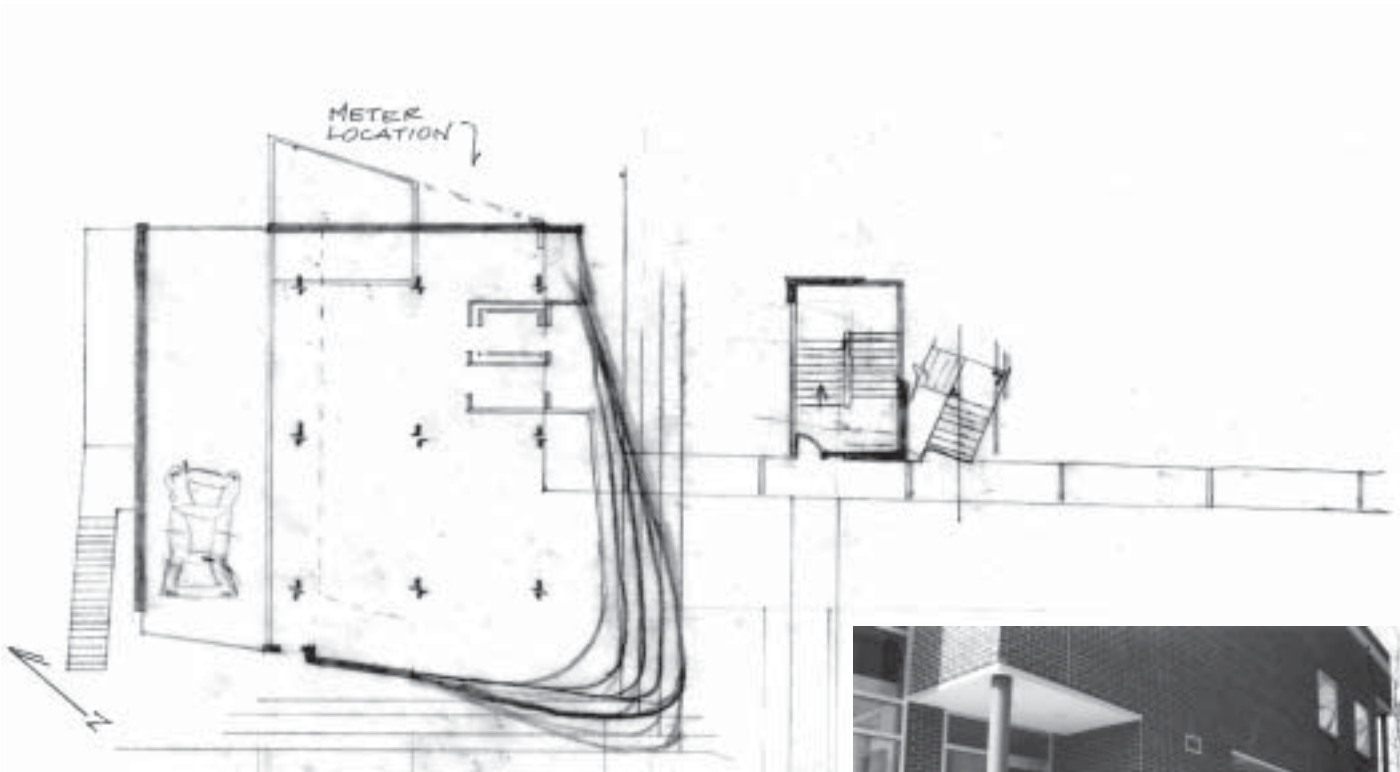
Section Showing Path and Stair Relationship

The facade of the commercial mass responds to the interaction of the public path and the path of automobiles moving around the new building. As a result, the southern corner of the commercial building is curved.

A very light covered steel stair somewhat like an existing firestair in downtown Blacksburg [bottom right] is placed on the northwest elevation. This stair will serve as an emergency exit as well as a second access to the restaurant and bar.



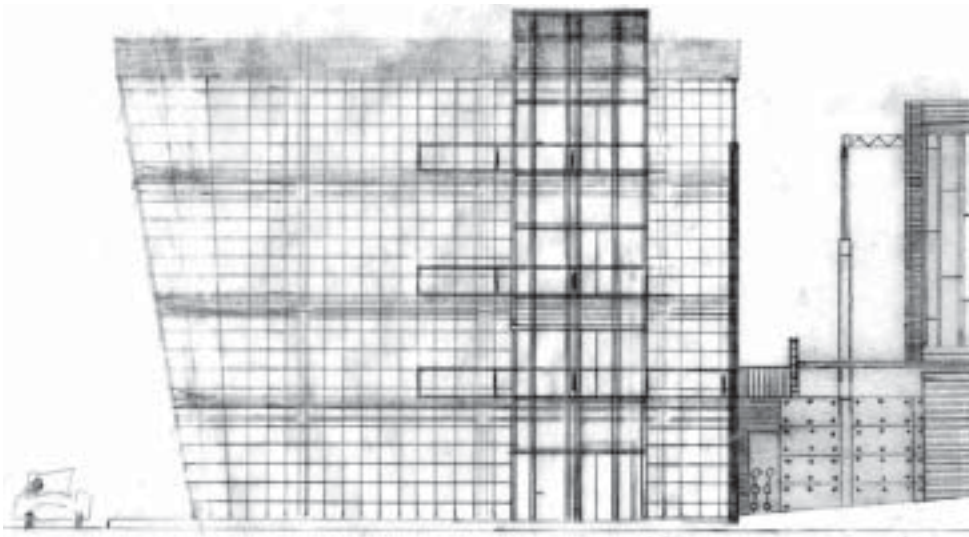
Southwest Elevation



Floor Plan



Angular Wall at 712 N. Main Street



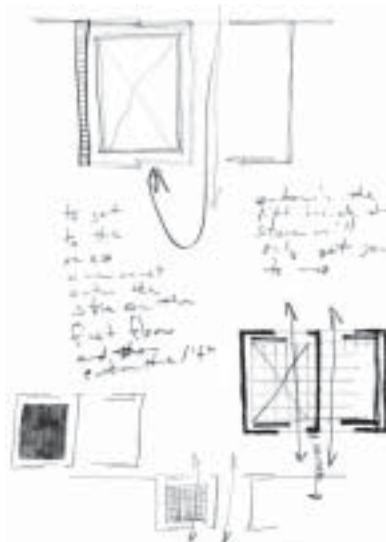
Southeast Elevation

For better service to the third and fourth floors, the elevator is located inside the building. Likewise the connecting path is adjusted. A stair tower is maintained outside the building as the focal entrance to the restaurant and bar.

In the southwest elevation [top left] the main entrance and firestair to the upper floors are shown. Indicating a hierarchy between their functions, the light steel of the emergency stair differs from the heavier concrete and glass of the main stair.

In order for the elevator to remain a prominent and easily seen element [bottom right], it is designed as a glass tower that is constructed within the building yet visible both inside and out. Access to the elevator can be reached from the path as well as from inside the commercial building.

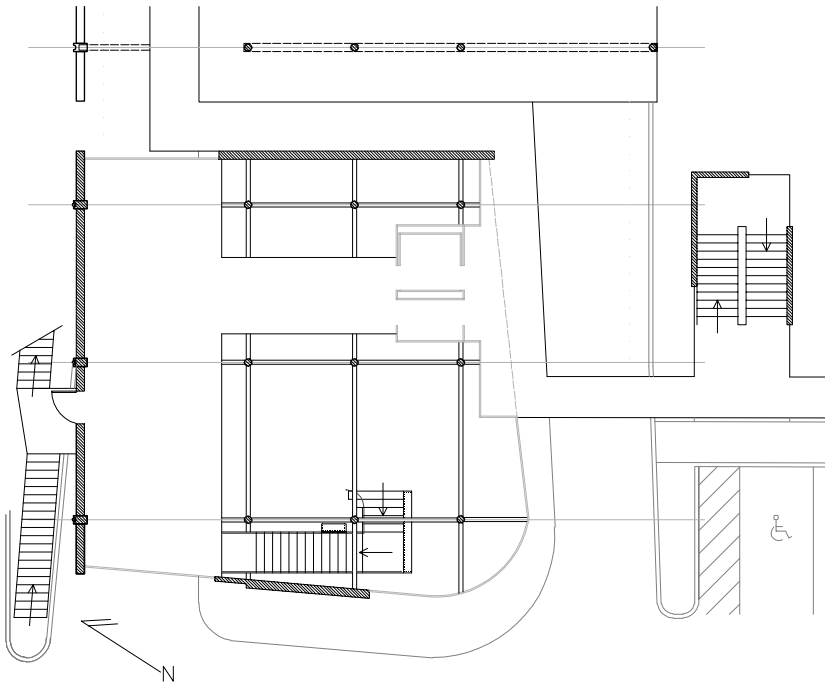
The building at 712 N. Main Street [lower left] provides a place for the numerous meter boxes and such. In the proposal a wedge of the angled wall [plan] is removed in an attempt to provide a place for routinely monitored systems.



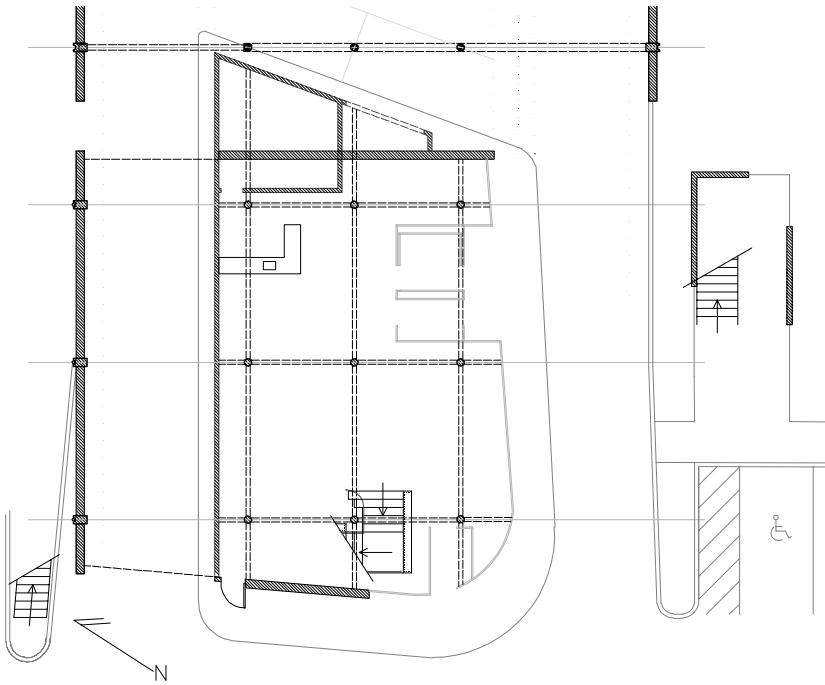
Glass Elevator Sketch



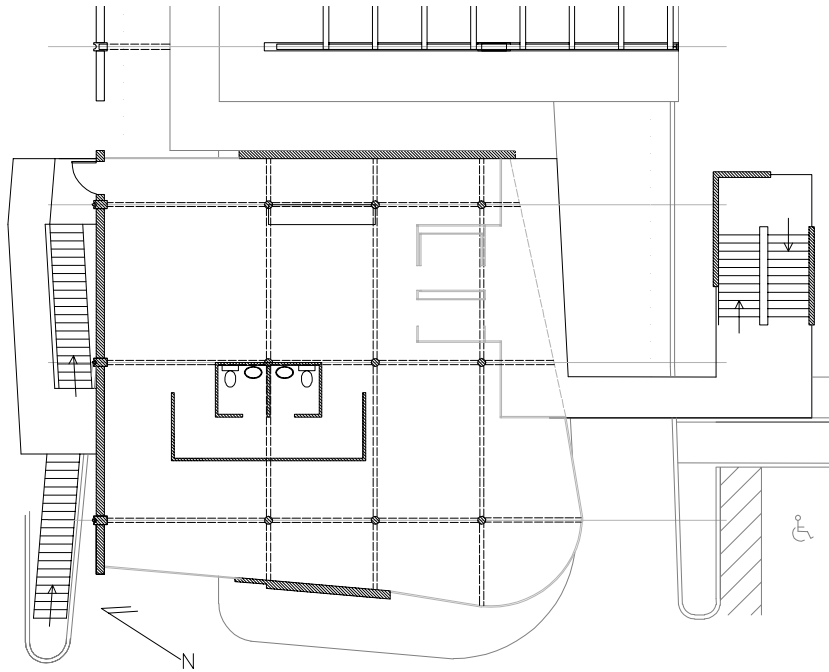
Glass Elevator in Context



Second Floor Plan



First Floor Plan

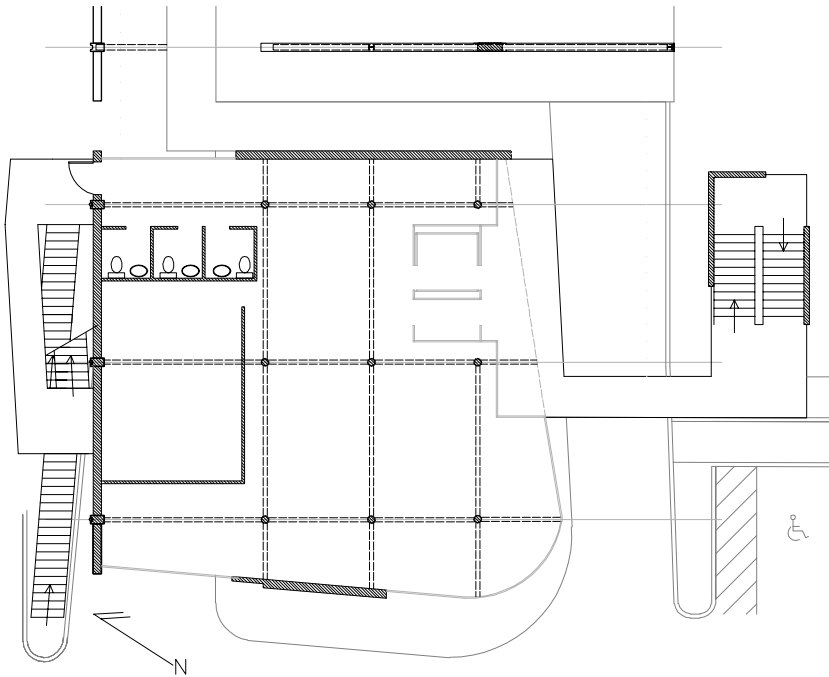


Fourth Floor Plan

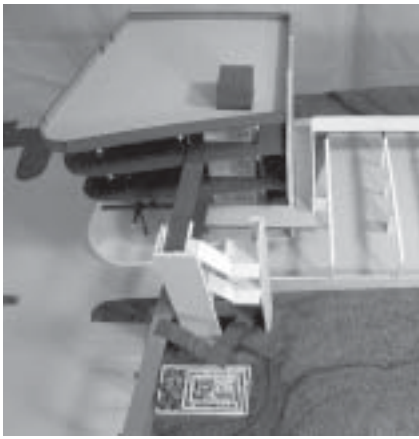
The floors are used to transfer lateral loads from the column to shear walls behind the facade. Interior vertical planes are developed as shear walls on the fourth floor because the exterior walls do not reach the roof. At least one wall in each axis connects to the roof of the building to provide lateral stability.

If fireproofing cannot be achieved by applying intumescent paint to the steel structure, then the columns and beams in the commercial end of the complex would be constructed in concrete.

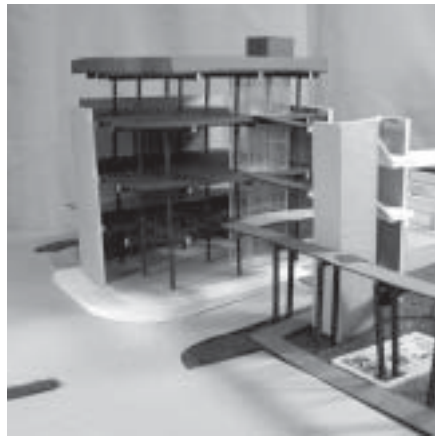
The path is wider at the elevator entrance on all floors to provide more space for people to maneuver.



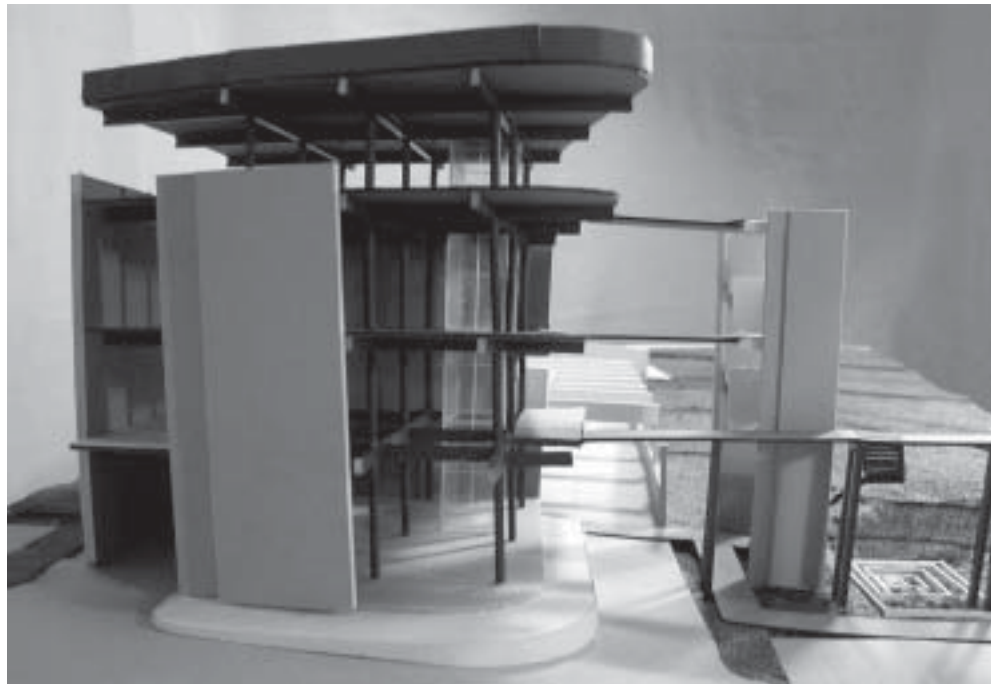
Third Floor Plan



Commercial Mass, Aerial View

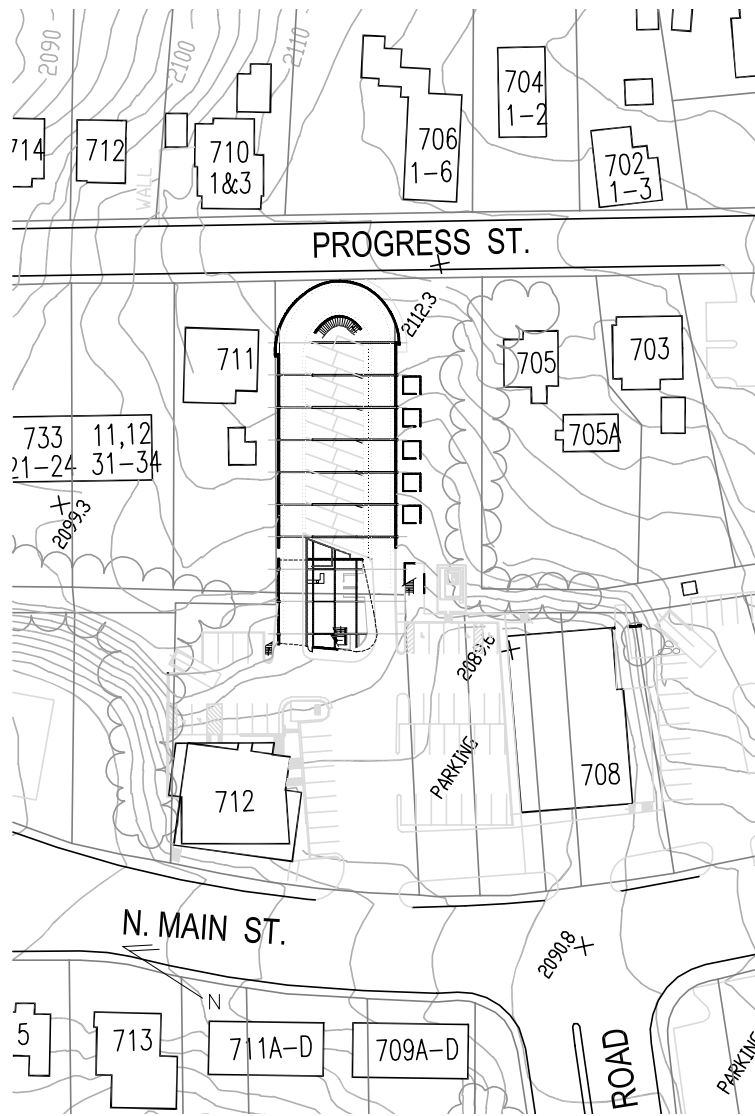


Commercial Mass Engaged by Path



Commercial Face





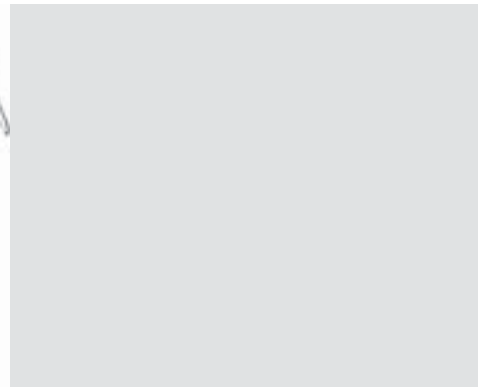
Entire Complex, Ground Floor

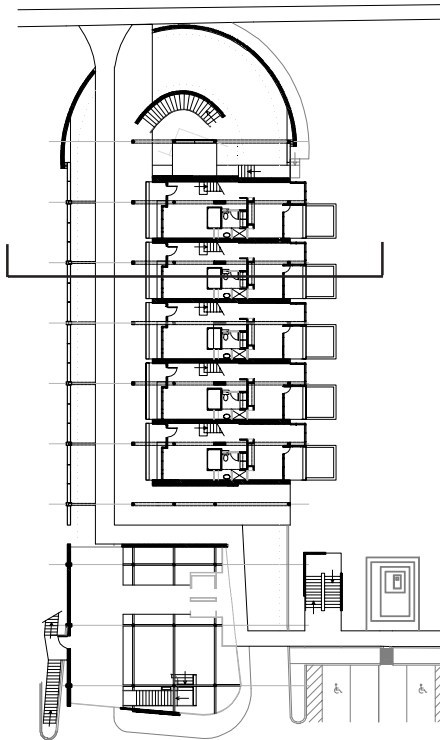
The development of the three-dimensional curve of the commercial facade is driven by the automobile path curving around the mass. The upper floors of the commercial mass lean out toward the stair tower to shorten the length of the bridge on the third and fourth floors. The curved facade of the proposed contrasts the rectilinear qualities of the existing commercial buildings.



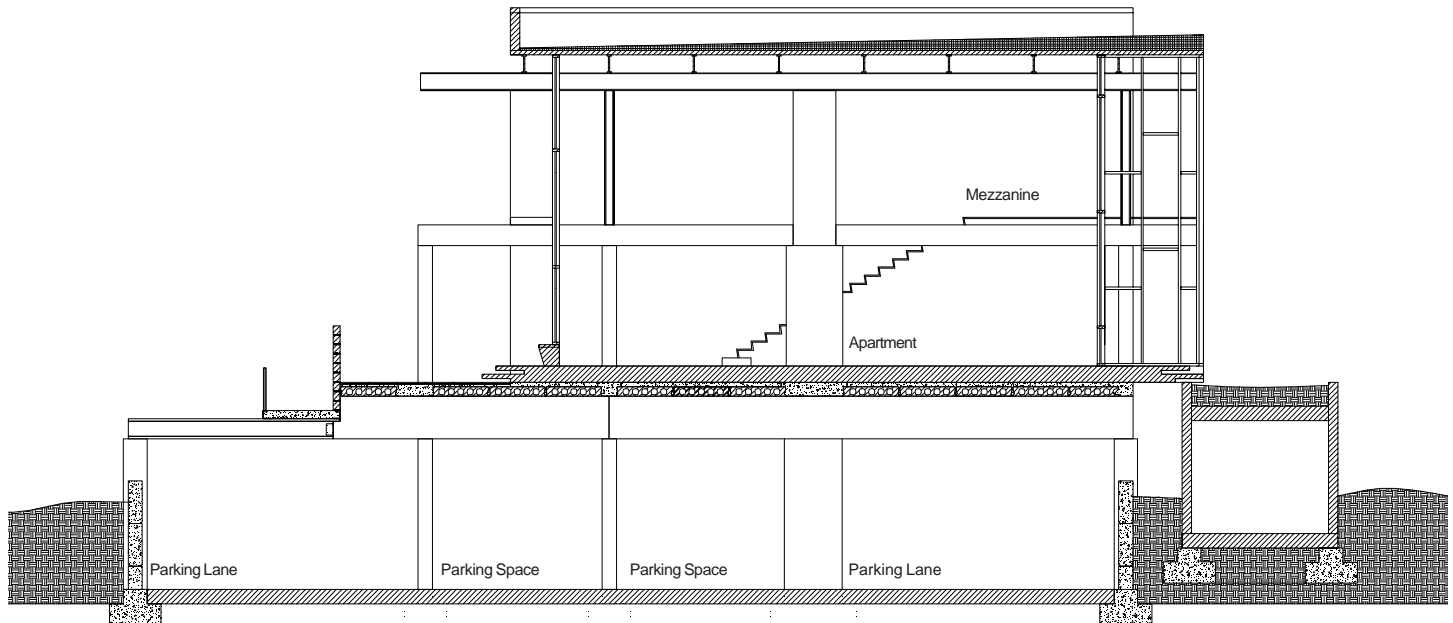


Residential Structure

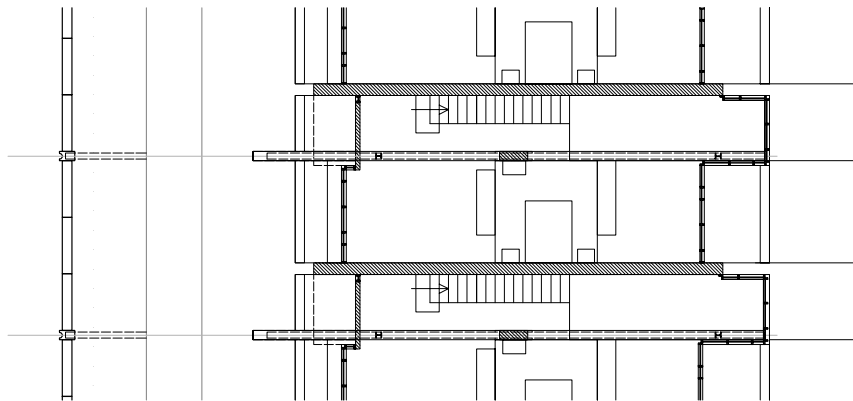




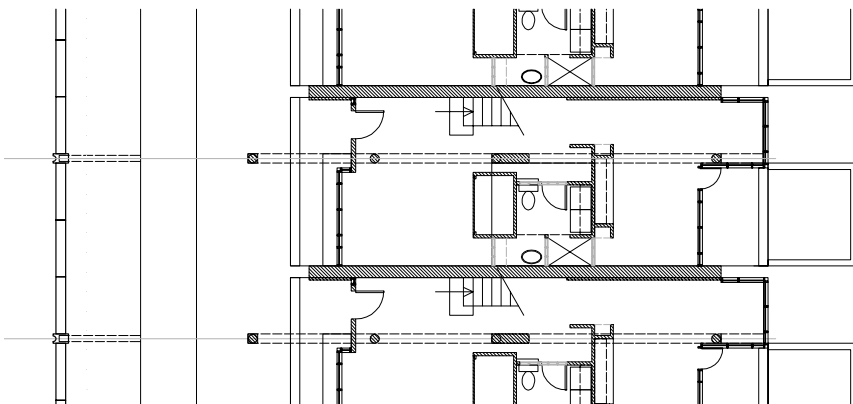
Second Floor Plan



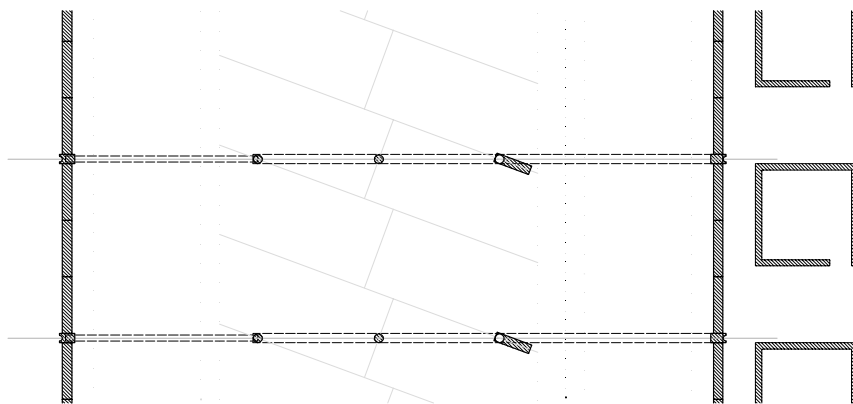
Apartment Section



Third Floor Partial Plan, Apartment Mezzanine



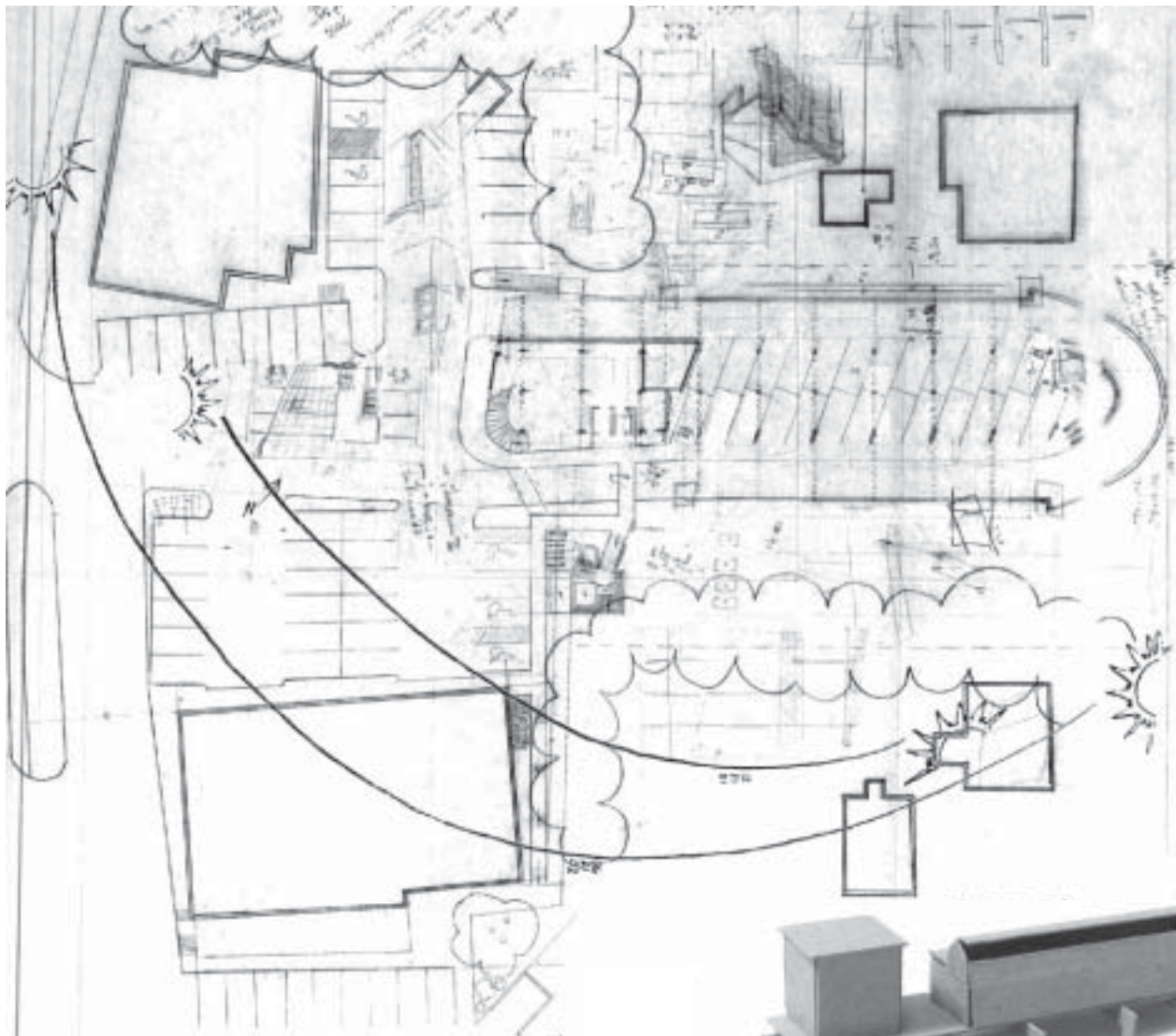
Second Floor Partial Plan, Apartment



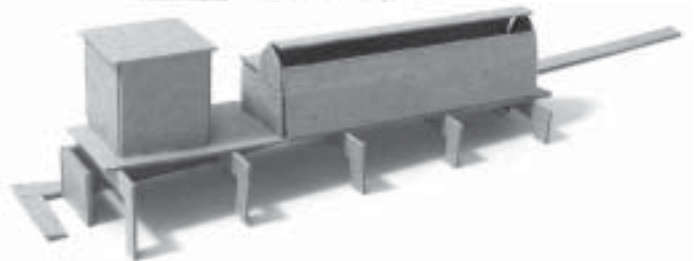
First Floor Partial Plan, Garage

The initial concept for the apartment is to be one generous volume with a mezzanine for sleeping. Two long walls, parallel but offset from the column and beam structure, define the unit's boundaries. The ends of the unit are enclosed by glass running the full height of the space. The public entrance or "front door" is to be set in place as a portion of a panel of wood that also runs floor to ceiling. The door is held in place by a piano hinge accentuating the vertical plane. The den and kitchen are at opposite ends of the space. The sleeping area rests above the bathroom which is in the middle of the apartment.

Building materials, such as brick, wood, and steel, are chosen based on durability which will result in lower maintenance effectively keeping annual costs of repairs low. Using brick as a separation wall between the units, reduces annual maintenance from the expected spackling and painting required when using sheetrock. Because the unit is long and narrow the brick walls are specified as light in color to reflect light through the space. Ideally the brick would be made from a clay which is bone in color. Due to issues of economy, brick can be white-washed and sealed with a polyurethane product.



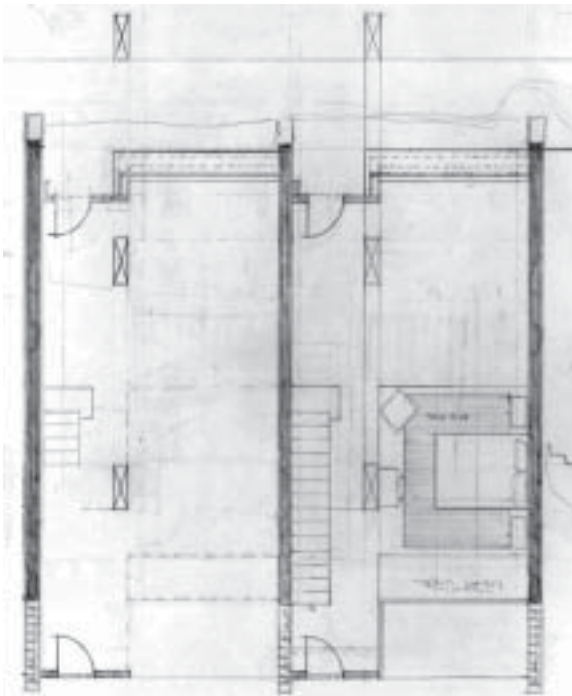
Site Plan with Sun Path



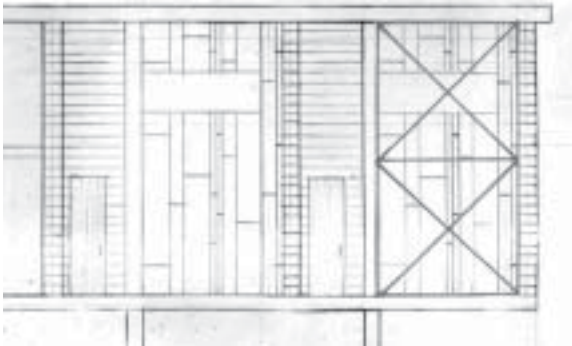
Barrel Vault Diagram Model



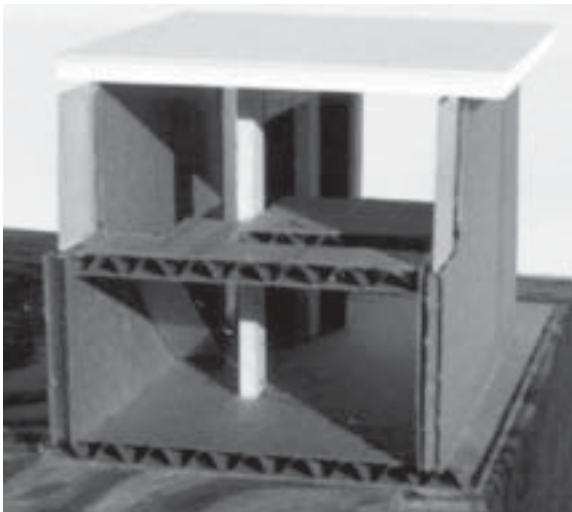
Barrel Vault Sketch



First/Second Floor Plans



Apartment Elevation

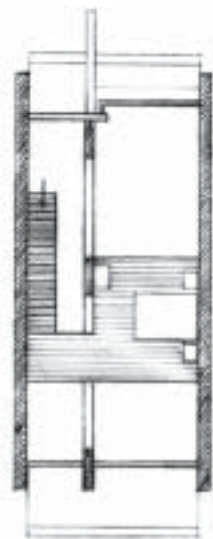


Model Testing Sun Path

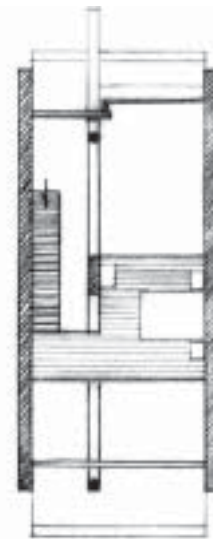
The interval for the apartment is based on firewalls which define the space for the individual apartment. These walls are offset from the major structural frame and clearly expose the joinery of load-bearing elements. The column and beam interval, spaced 19' 3" o.c., is set by parking parameters from the garage. The offset frees the columns from being engaged with the walls.

The offset is calculated at a one-third to two-thirds ratio. With the columns and beams running the length of the apartment, this offset defines hall space and living spaces. The one-third hall space contains the entry door and the stair to the mezzanine. The other two-thirds of the unit is used as living space, kitchen, bathroom, and sleeping area. Floor to ceiling height is determined by a proportion of twice the width of the living area.

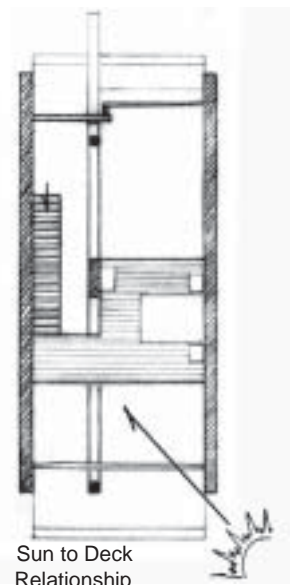
By orienting the apartments northeast to northwest, on top of the parking garage, it is possible to have natural light from the east enter each unit. In the diagrammatic model [middle left] early efforts were made to insure morning sun access into the apartments through a slit in the barrel vault. However, this barrel vault shape conceals the order of the structure, and therefore is not acceptable.



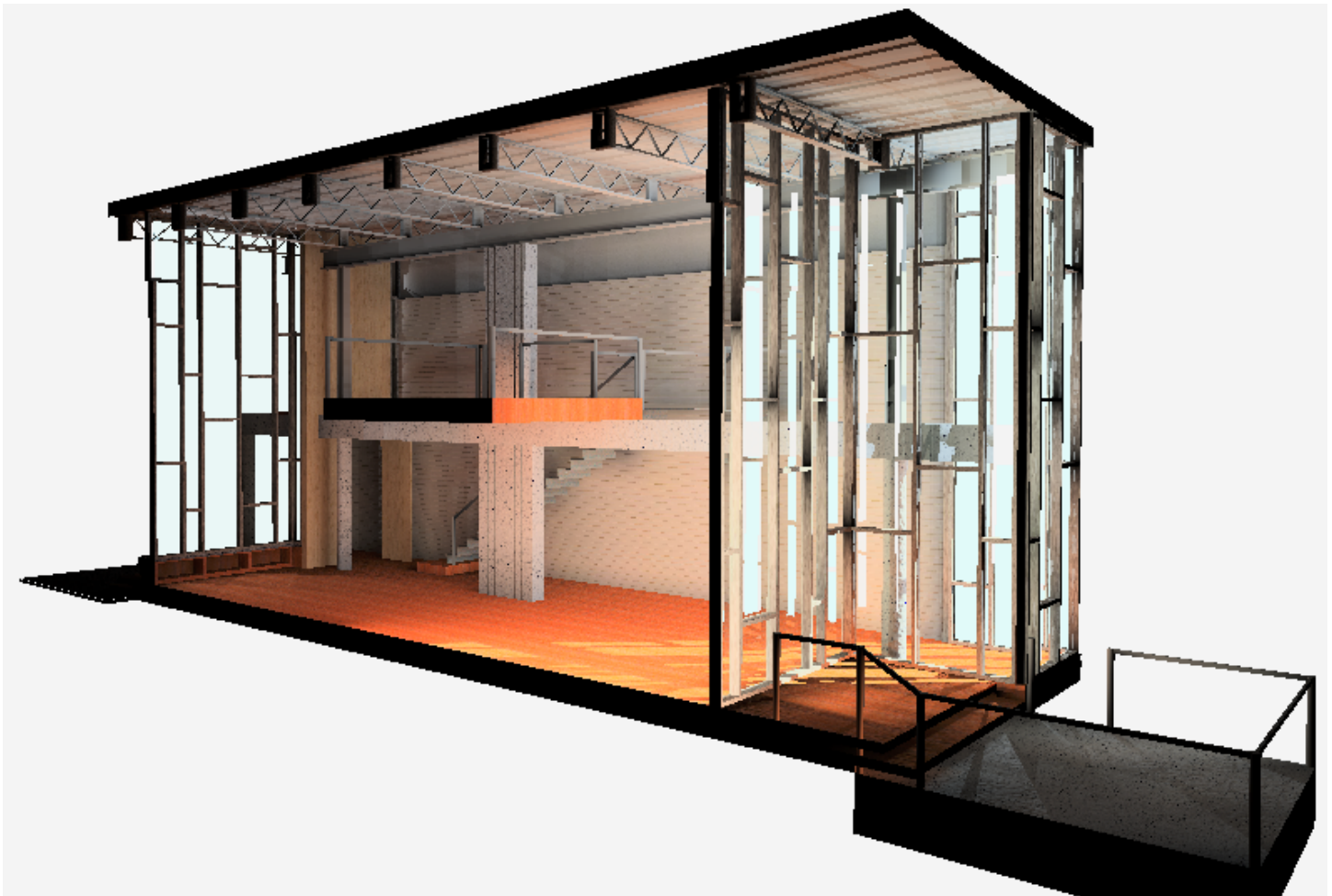
Rectangular Columns



Column Variation



Sun to Deck Relationship



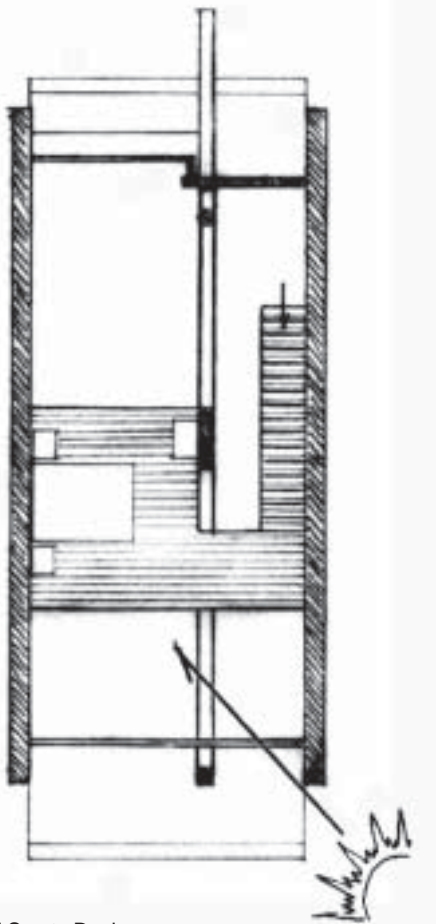
Apartment with Bath Box Removed, Showing Path of the Sun



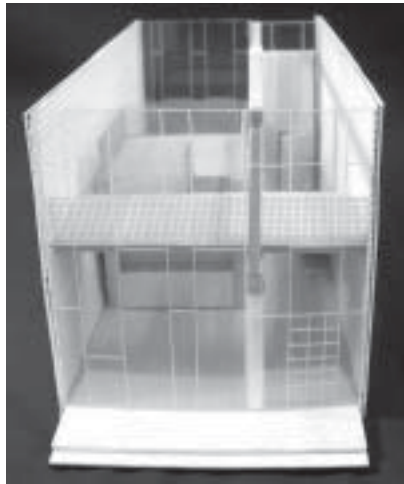
Refinement of the apartment begins with consideration of the column form in the space. If the columns are rectilinear, sized 1' X 4', then they can act also as small walls for furniture. However, if all columns are transformed in this way the structural relationship between the columns from the garage to those in the apartments above is compromised. Therefore, only the service column is used as a wall in the unit. The other columns remain sonotubes, which allow better circulation of people in the space.

With the mezzanine against the north-east wall, the sun's entry into the sleeping area is minimal. By moving the mezzanine to the opposite wall, the early morning sun makes contact with the bed loft.

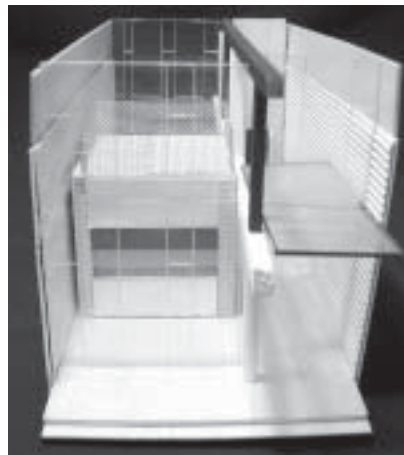
An earlier consideration was for the roof load to be carried on sets of heavy timber columns and beams resting on the concrete beams [middle right]. Because the basic roof construction is corrugated decking with conventional components, it is reasonable for the roof load to be carried by steel. Open-web joists rest on steel beams which transfer the roof load down to the concrete columns and beams. At the mezzanine level the columns and beams are wide-flange sections [represented in black, bottom right].



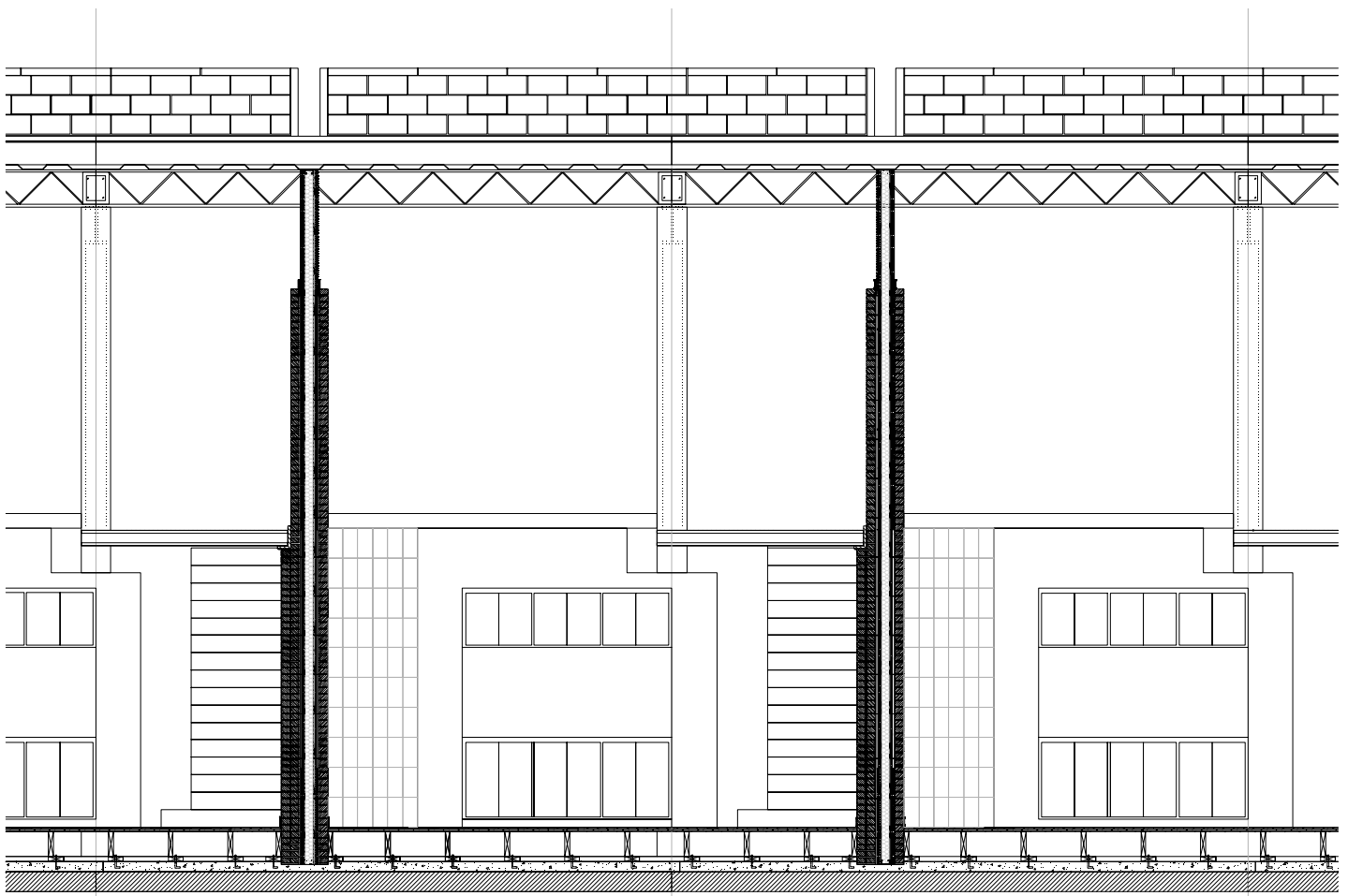
Final Sun to Deck  
Relationship



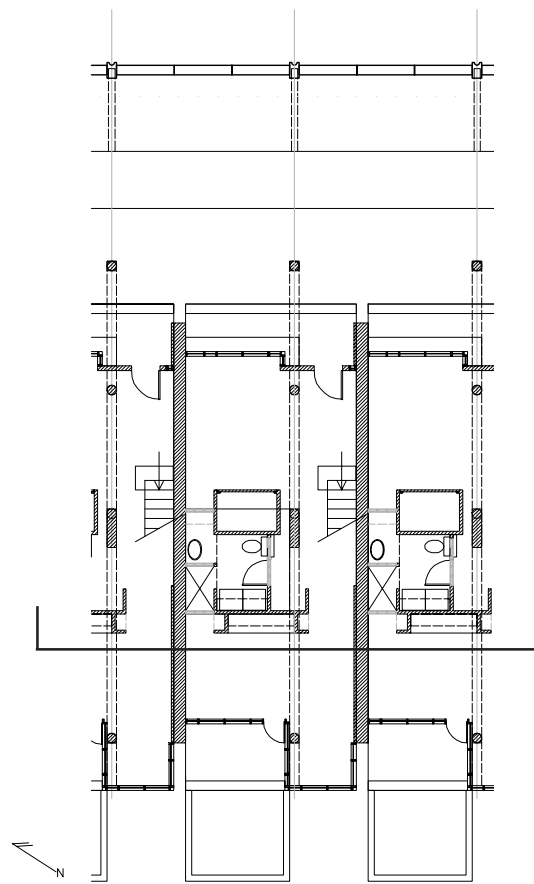
Southern Face, Wood Beam



Southern Face, Steel Beam



Apartment Partition Wall Section



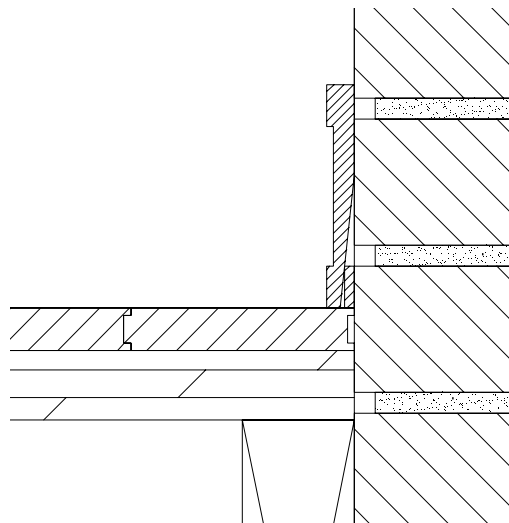
Apartment First Floor Plan

The interruption in the block parapet wall [section, left] indicates the water drain location.

The northeast end of the mezzanine bridge is held in place by the brick wall. The opposite side of the mezzanine is supported by the concrete beam running the full length of the space.

The apartment floor [section, left] is raised 14-inches above the precast hollow-core slabs. The space in-between provides a place for air ducts, electrical cables, and pipes.

Inexpensive trim molding [lower right] is installed rotated so that the factory top is down and the face is toward the wall. This rotation gives the molding a symmetrical appearance. A strip of wood is installed between the molding and brick face to function as the kerf making the installation more accurate.



Trim Detail



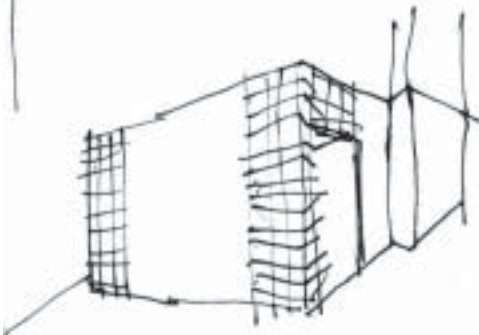
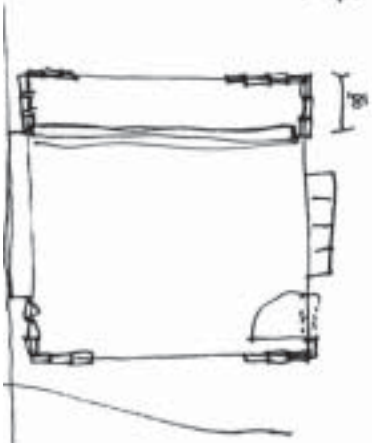
Kitchen Elevation



Bath Box Plan



Entrance Condition



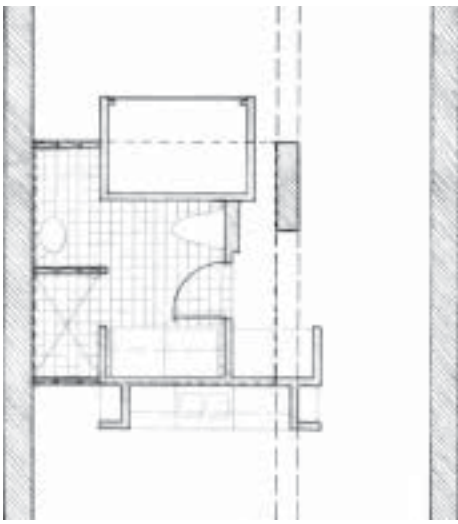
Single Box Sketches



Bath Box, Kitchen Insert



Casa del Fascio, Roof Terrace



Bathroom Plan, Final Configuration

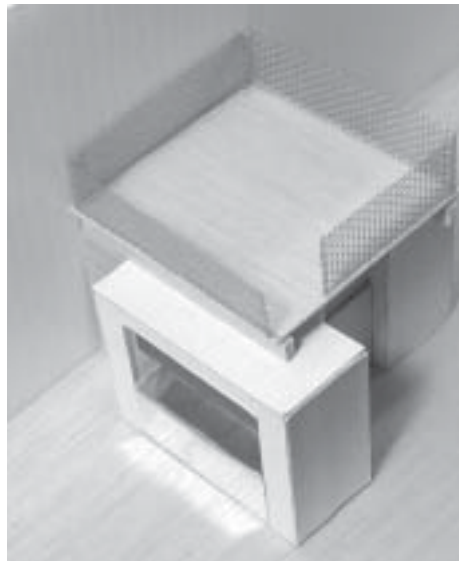
Initially the bathroom was to be contained within a cubicle object in the apartment. The sleeping loft was to perch on top of this bathroom box. The bath box was to be perceived as a separate, “floating” object in the apartment.

A single box [top left] was explored to meet spatial needs. Glass block was used at the corners to transfer natural light into the box. The spatial configuration of fixtures within the box was variable. A recessed edge concealed the box and apartment connection. Kitchen cabinets were set into the box.

In Terragni’s Casa del Fascio, the glass enclosed path [bottom left] demonstrates a way to transfer natural light by using a series of glass block walls. In the proposal, glass block is used to separate the box from the apartment wall without giving up spatial needs for the bathroom fixtures. The one box is reconfigured to be two separate boxes. The larger box houses kitchen cabinets, storage, and a laundry. The smaller box houses some HVAC components. The platform for the bed is balanced on the two boxes.



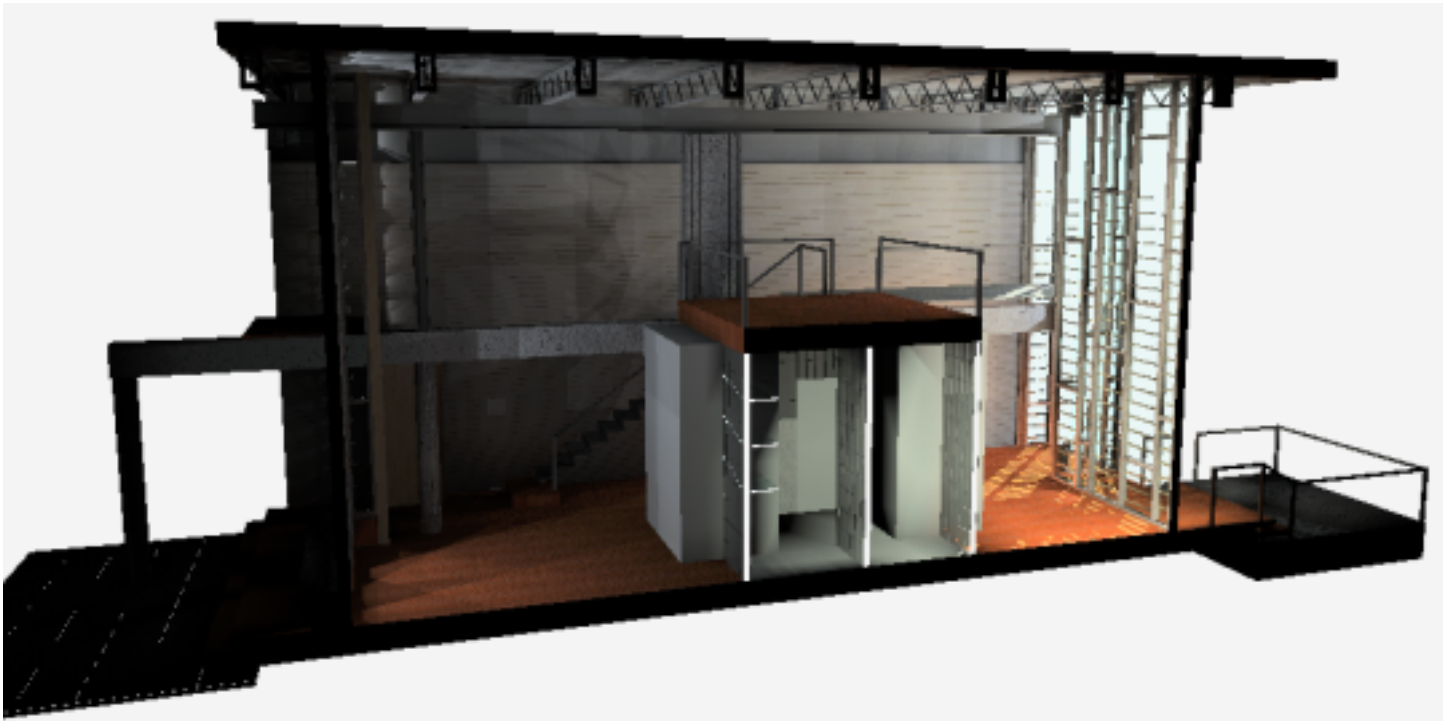
Bath Box, Bedroom Platform Removed



Bedroom Platform and Railing



Closer Look at Corner Detail



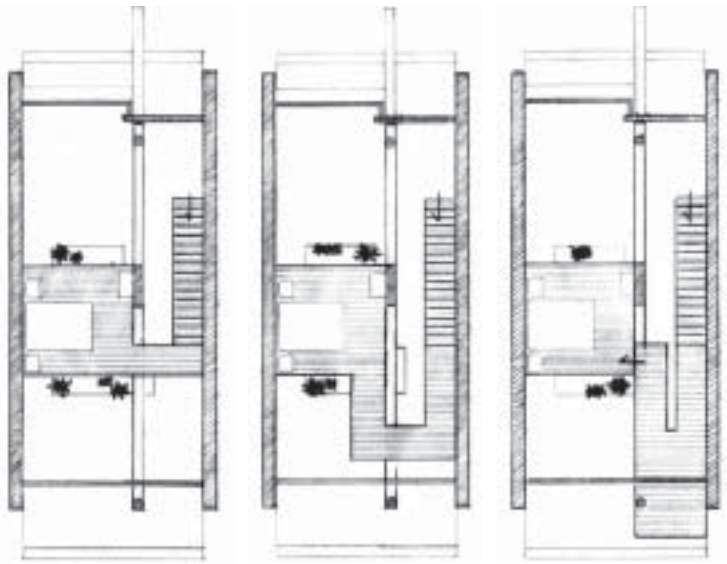
Apartment Including Bath Boxes

Each of the five apartments provides 994 square feet of floor area. The den area is 128 square feet. The kitchen is 99 square feet. The bed loft measures 121 square feet. The bridge is 147 square feet. Floor to ceiling height in the apartment is 22'0". Floor to ceiling height of the mezzanine is 10'5".

Glass of the north facade rests on a box which acts as a bench from the exterior and storage on the interior.



Main Entrance to Apartment



Straight Bridge

Horse Shoe Bridge

U-shaped Bridge

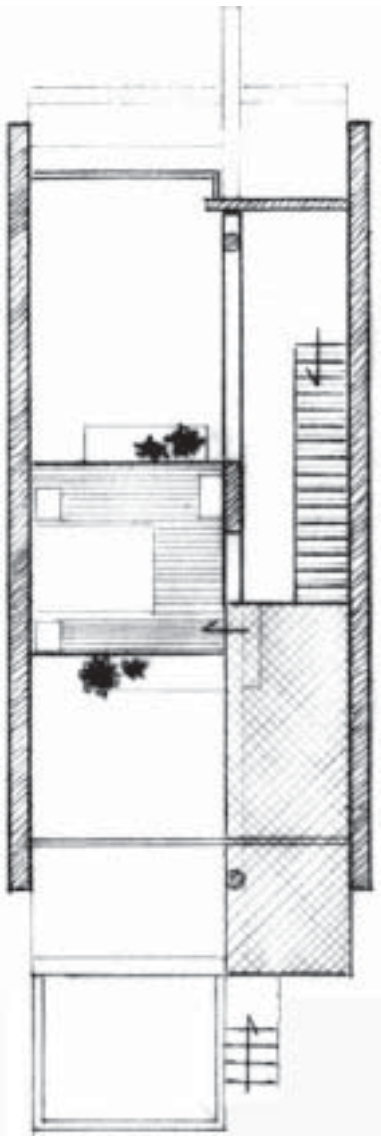


Portman, Apartment



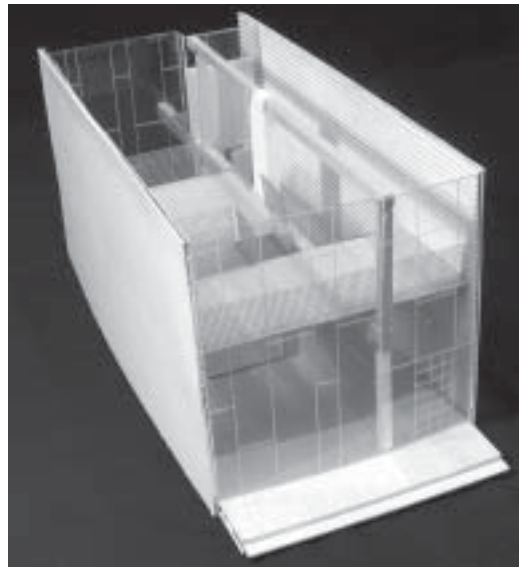
Detail of Bridge



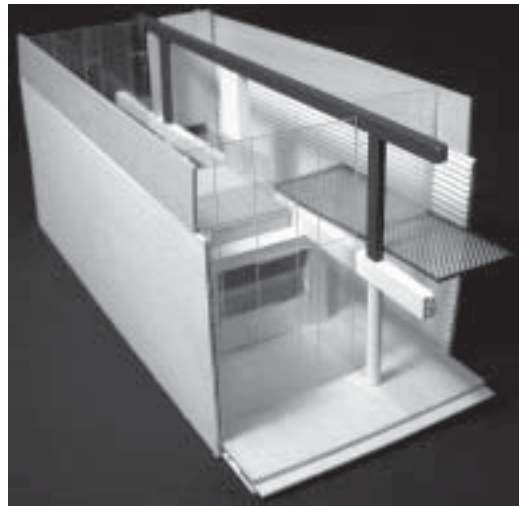


Final Bridge Configuration

A number of studies were made attempting to resolve the path from the stair to the loft. In order to preserve the mezzanine, the path is developed as a bridge. In John Portman's Atlanta apartment, [bottom left] the bridge doubles as a narrow reading space. Also, the articulation of the railing changes from the deck to the bridge. Similarly, the proposed apartment bridge is articulated differently than the loft. The bridge is made up of two layers of expanded metal and the loft is wood. At a width of 7 feet, this bridge is also wide enough to double as a small sitting area.



Bridge Study

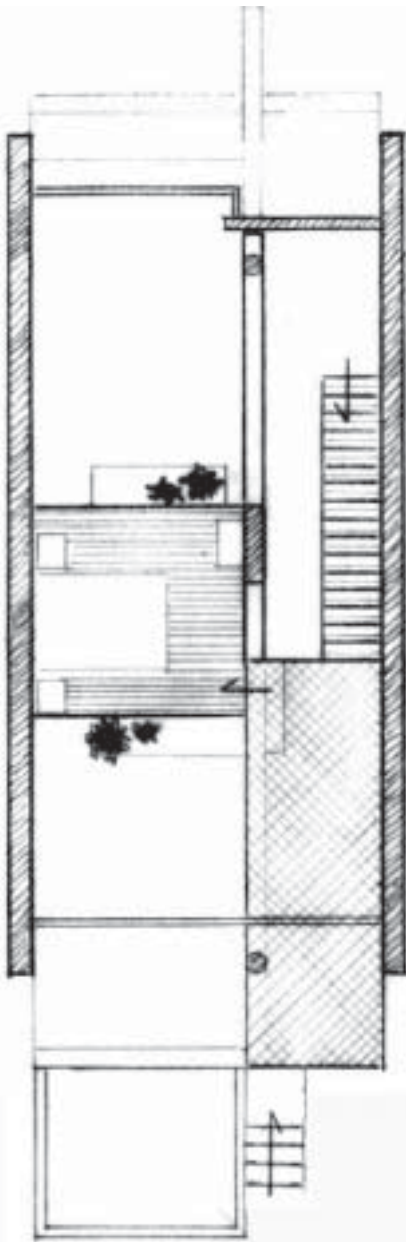


Final Bridge Configuration

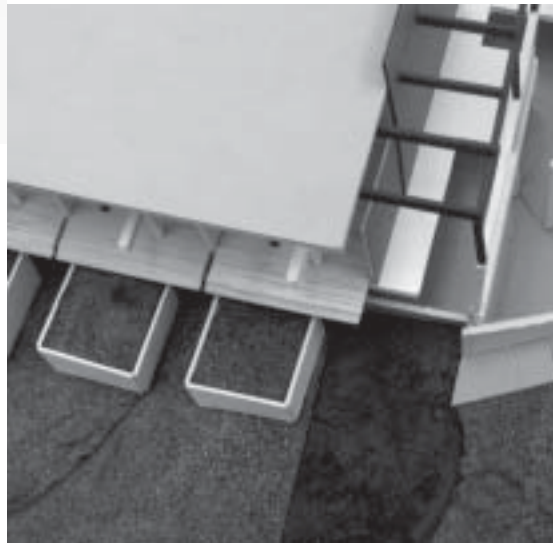


Apartment to Grass Cube Relationship

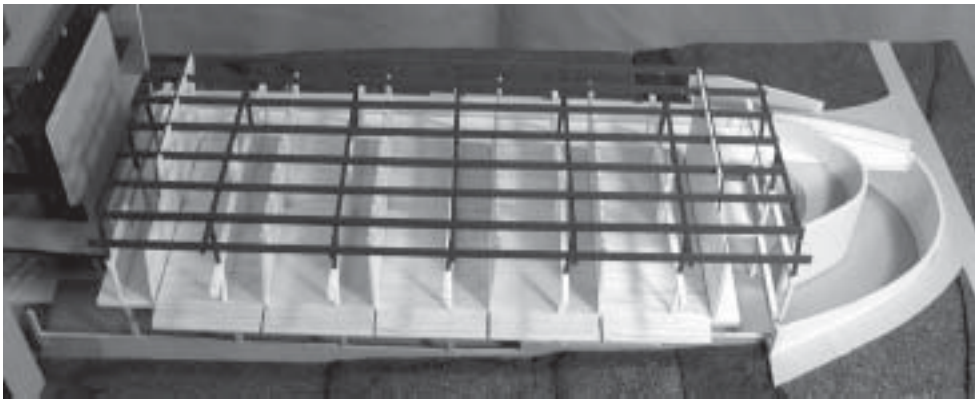
Each apartment has a private lawn made by a freestanding cube constructed of concrete block, carrying a slab, supporting 14-inches of topsoil, planted with grass. Storage is provided within the cube beneath the slab. A stair to the grounds of the larger lawn is attached to the side of each cube. The cubicle lawn provides individuals space for growing small flowers, herbs, and vegetables. As well, this lawn, which measures 11'0" X 11'0", provides ample space for lawn furniture.



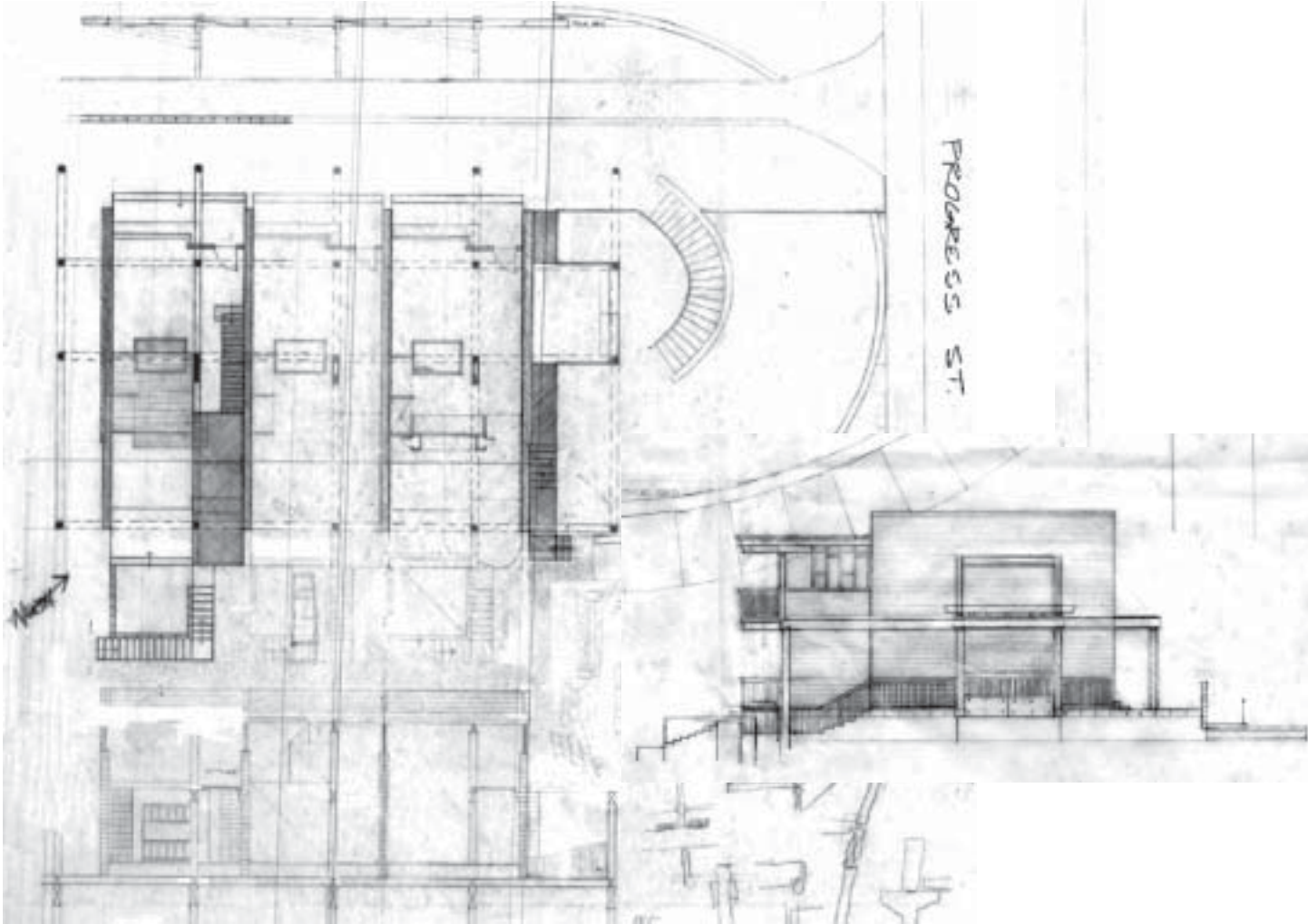
Plan Showing Grass Cube Position



Aerial of Apartment with Grass Cube

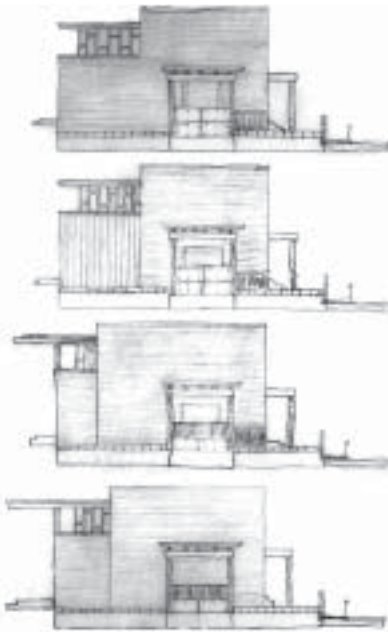


Model Showing Open-web Joists of Roof

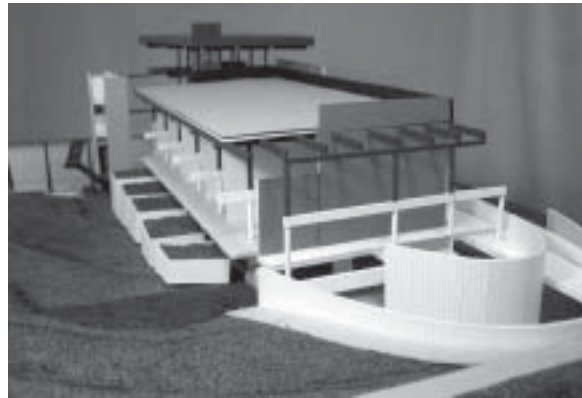


Plan and Elevation of Progress Street Face

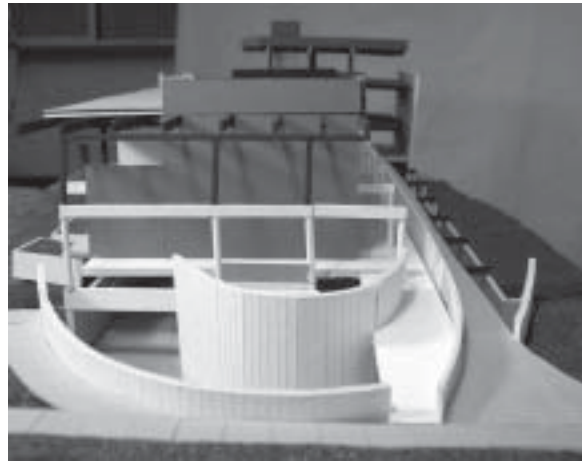
Variations of the materials used for the Progress Street facade were explored. In a comparable form to the houses on Progress Street, this facade pulls together the apartment wall, roof structure, the public path, and the radial walls rising up from the garage. One element prevalent with housing on Progress Street, is the front porch. In the new building the front porch is the place for mail collection for all the apartments. The porch is accessible from the main entrance to the apartments as well as by a small path from the lawn.



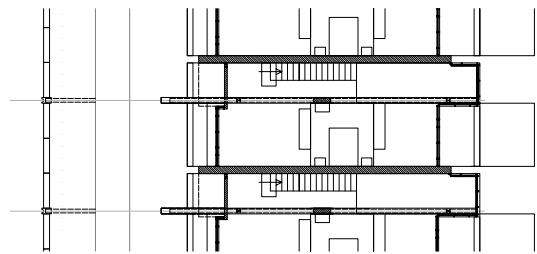
Progress Street Facade Study



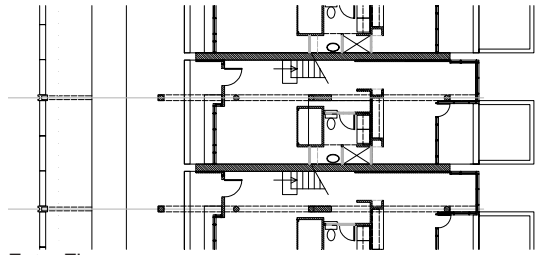
Progress Street Face



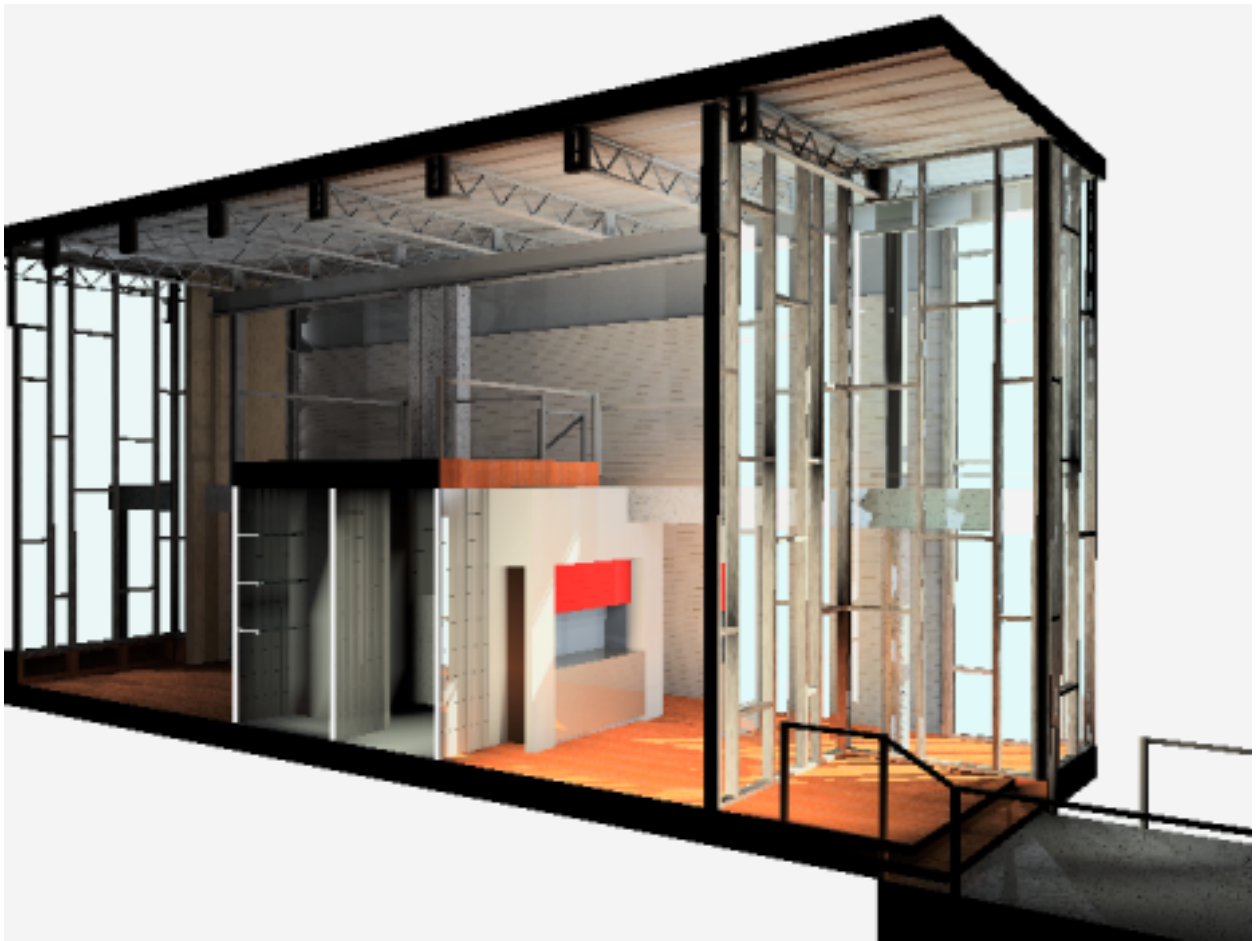
Progress Street Face and Path Entrance



Mezzanine



Entry Floor

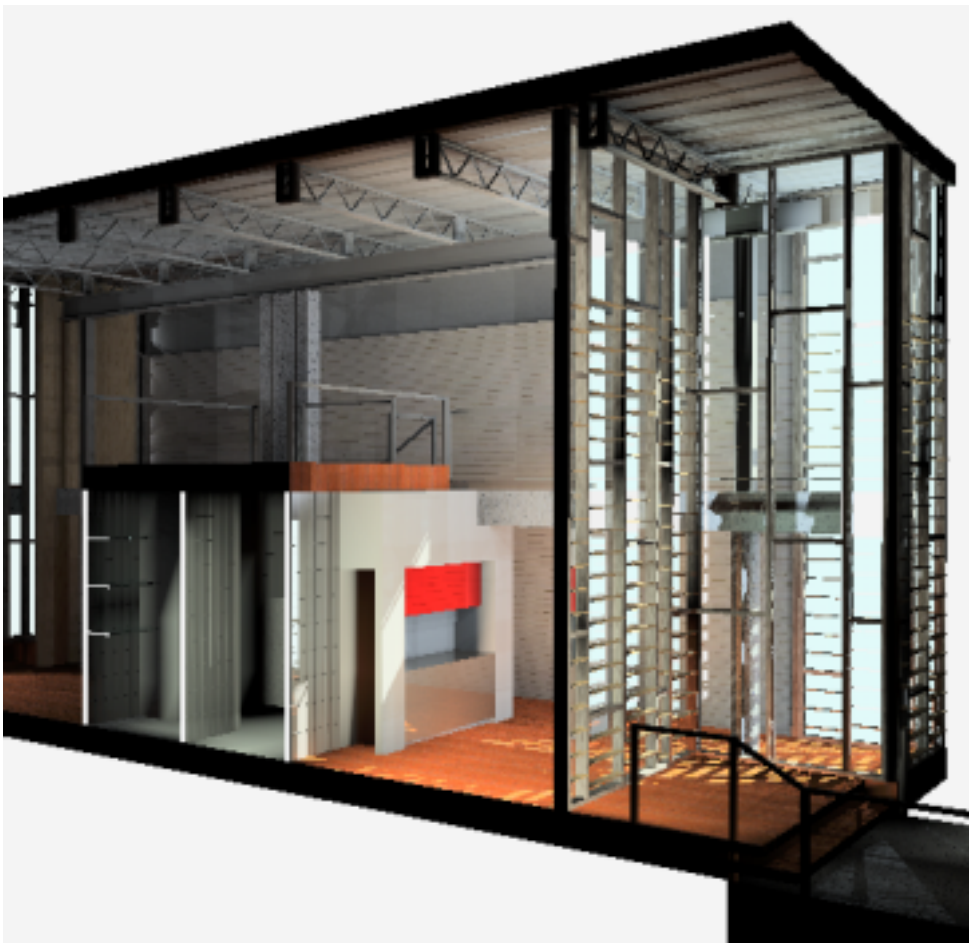


Light Study, Without Louvers



Louver Detail

The glass on the kitchen end of the apartment has manually operable louvers to provide protection as desired from eastern light. A light study was conducted to determine the effectiveness of the louvers in blocking the sun's rays. Though the pattern of sunlight is similar in its overall area, the louvers which are set parallel to the ground, cut the sun rays in half. Reduction in natural light transfer through the glass block walls of the bathroom is minimal.



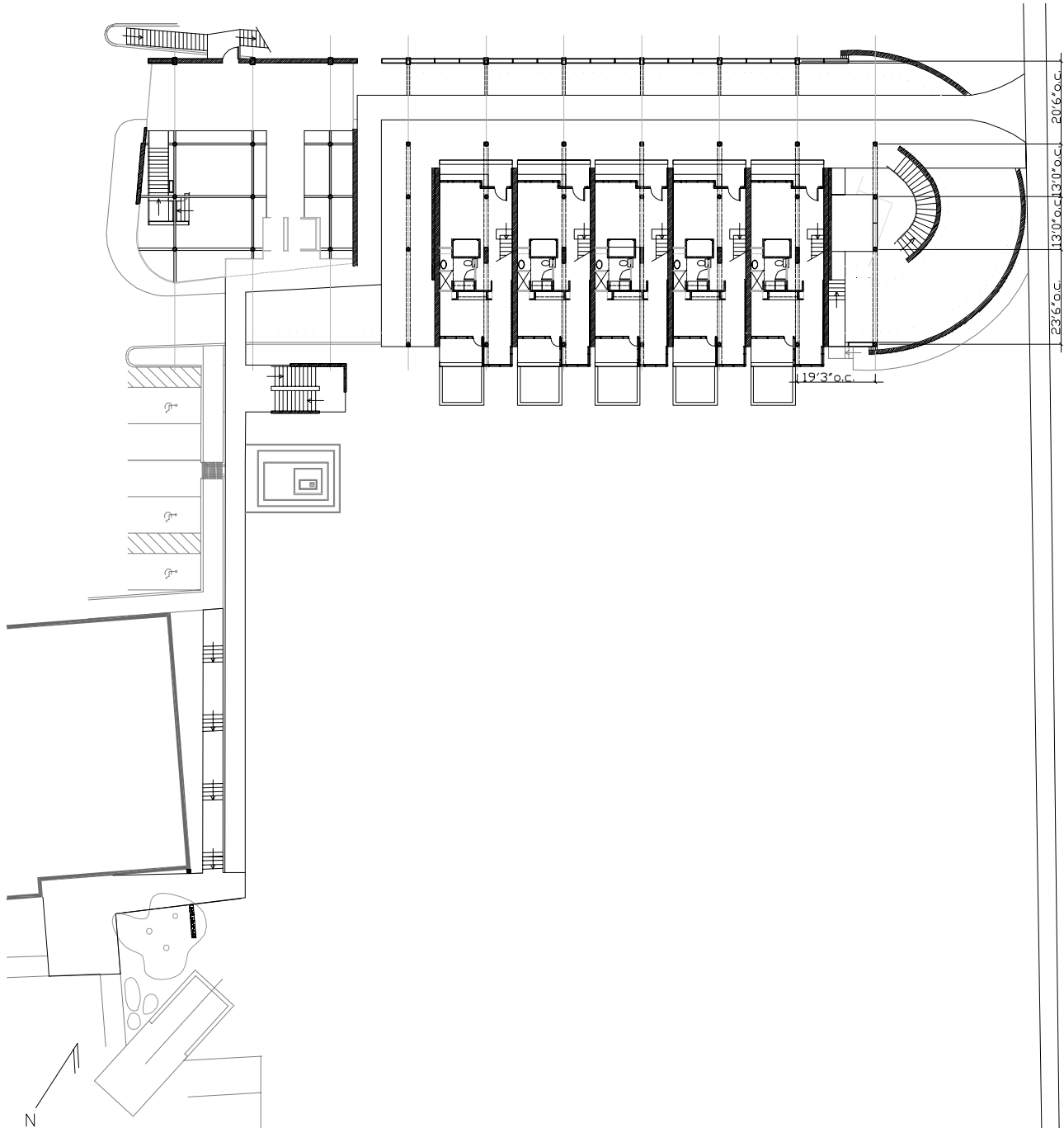
Light Study, With Louvers



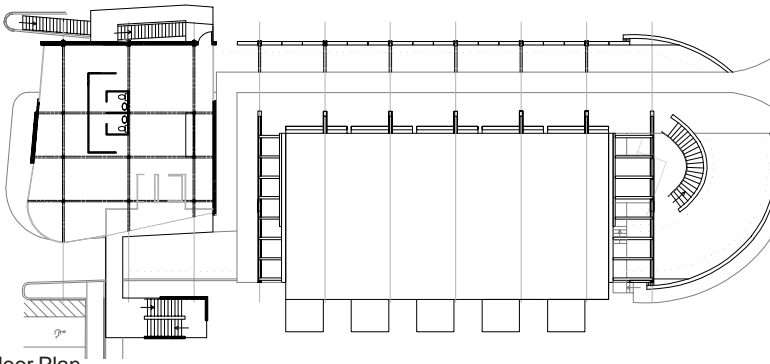


## Conclusion

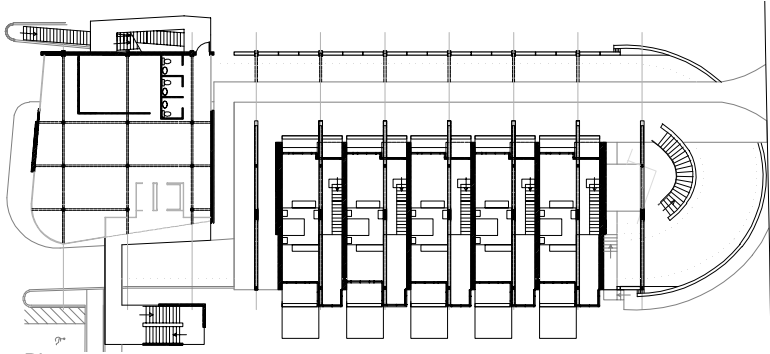




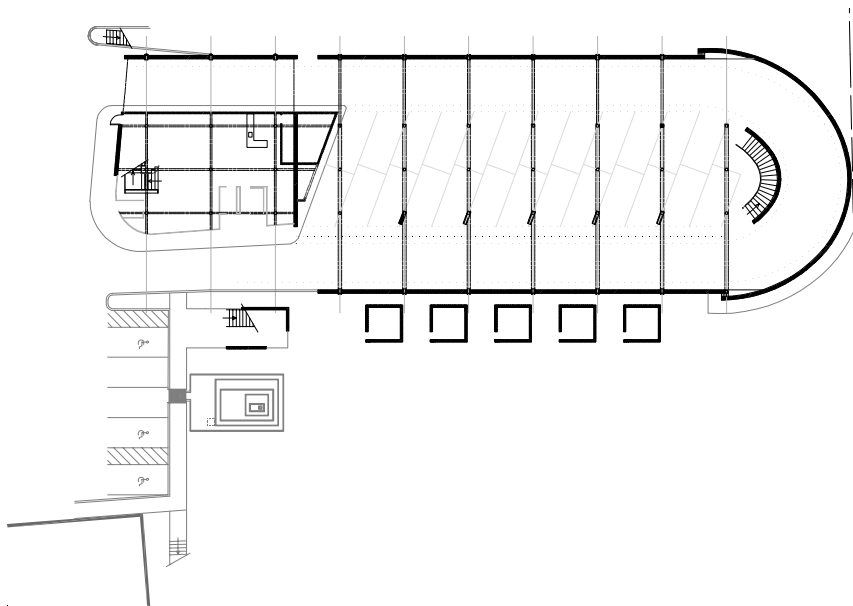
Second Floor Plan



Fourth Floor Plan

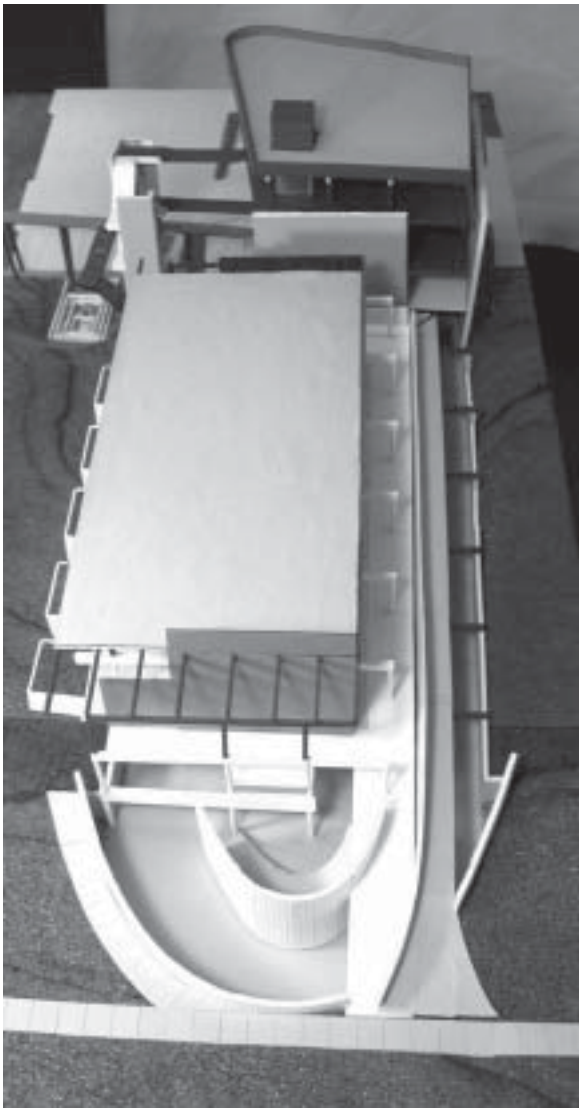


Third Floor Plan

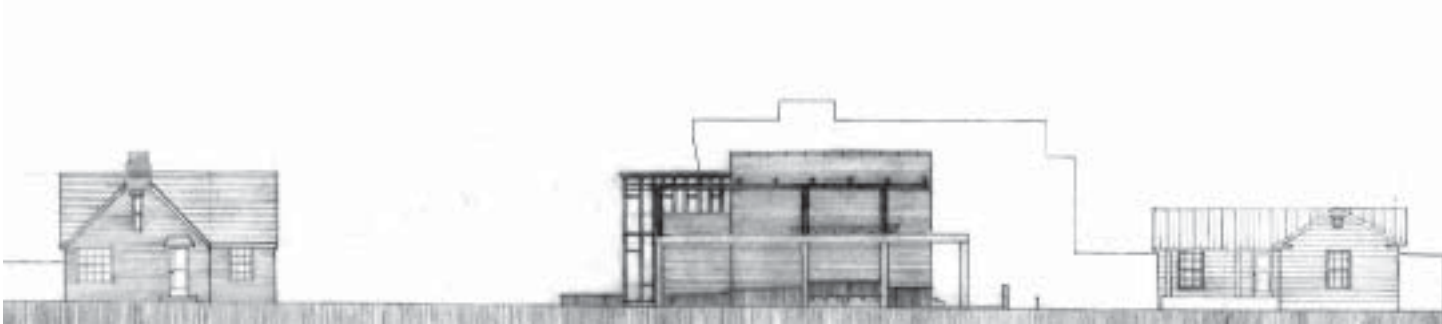


First Floor Plan

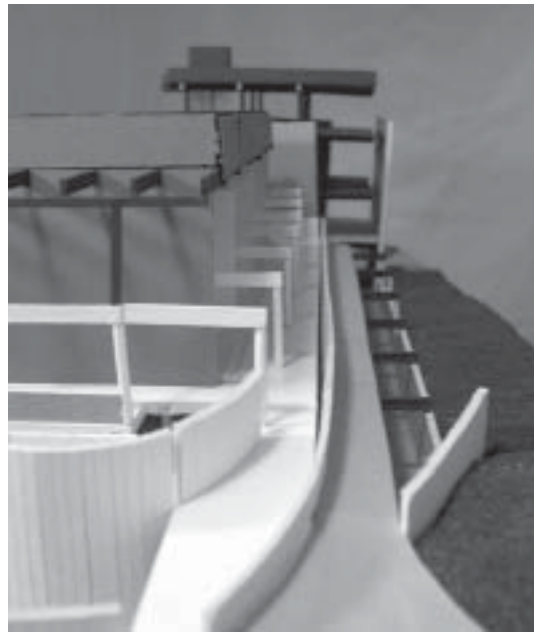
Although the building is private it makes a public offering through its perimeter with two major contributions; a pedestrian path, and resolution of the automobile path. The project has two principal scales, invoking scales of both adjacent streets. A two story facade is seen from Progress Street. A four story facade is seen from Main Street. The proposed building retains much of the character and duties that the site had prior to this study. The lawn is preserved. The path and pool are significantly improved. The additional parking, concealed in the slope of the site, addresses the needs for the residential and commercial spaces.



Aerial View from Progress Street



Progress Street Facade



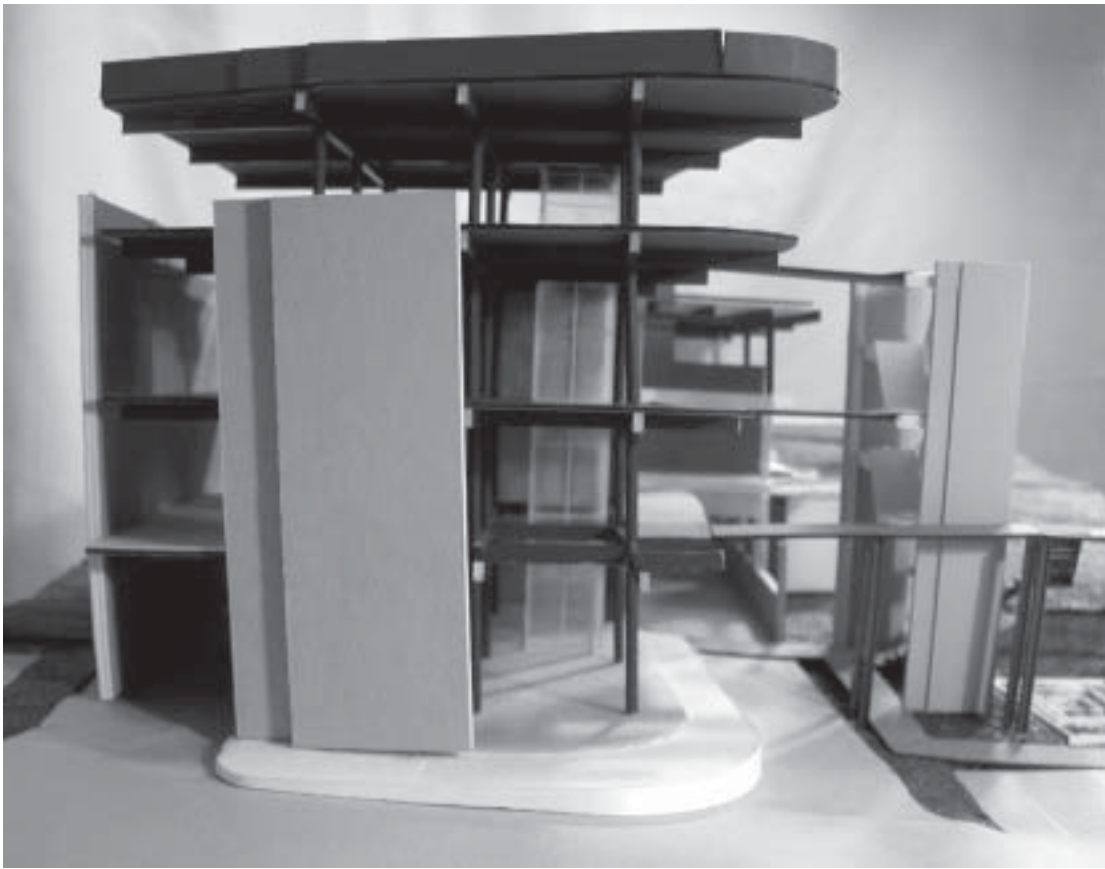
The main entrances to the apartments are signalled by a colonnade formed from the concrete beams running through the apartments.

The primary living spaces are oriented to the east. The offset in the apartments provides a distinction between path and dwelling as does the public path in relation to the entire complex.

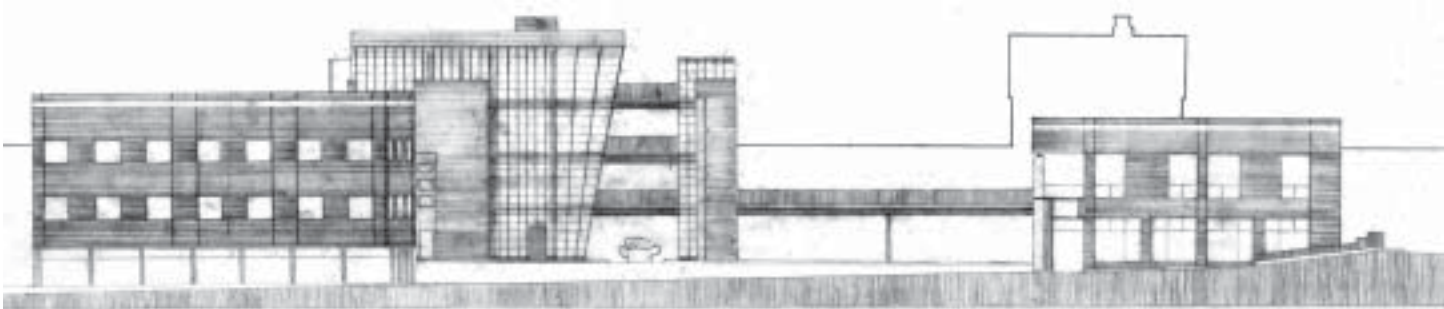
View from Progress Street



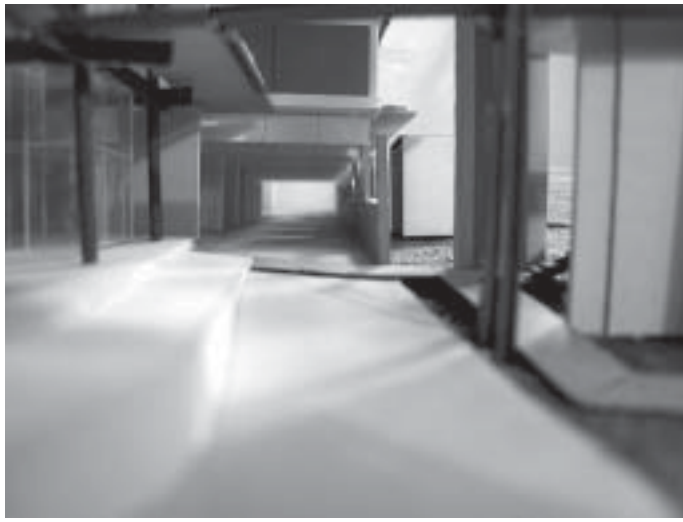
Apartment Showing Division of Space



Commercial Mass, Garage Entrance, and Public Stair



North Main Street Facade



View Through Garage Entrance

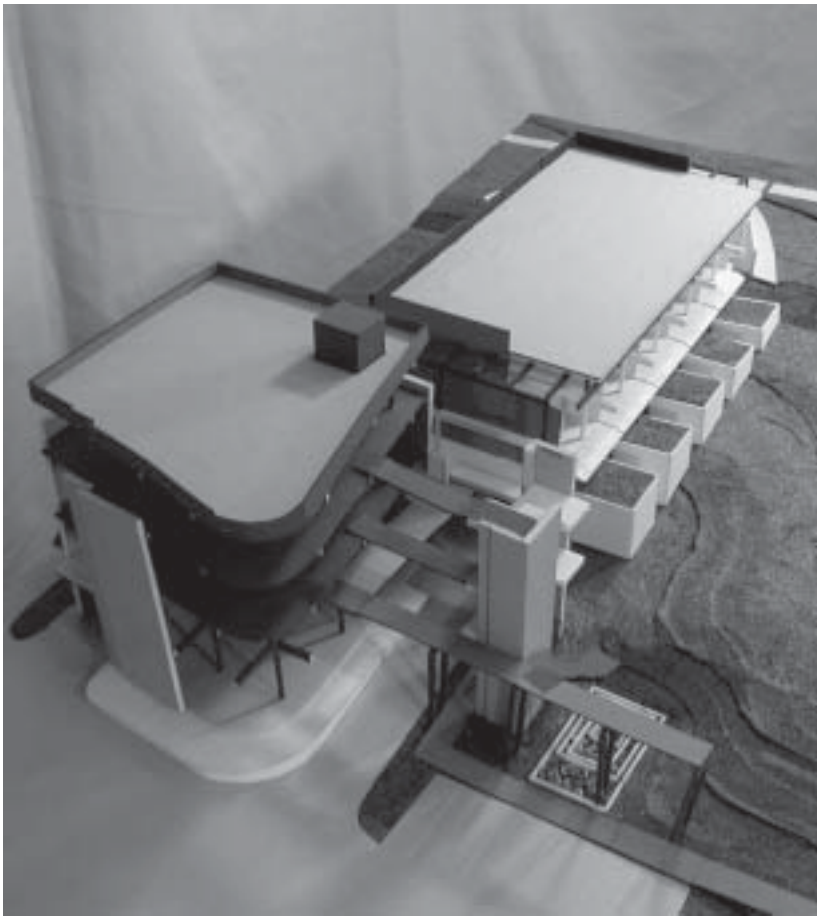
Similar scale to the adjacent existing commercial buildings is achieved while developing the proposal with contrasting materials.

Light at the northeast end of the building finds its way to the garage level from the curving traffic path which is open to the sky.

The dynamic of the public path cutting through the entire complex changes from the commercial mass to the residential mass.



View of Public Path and Stair

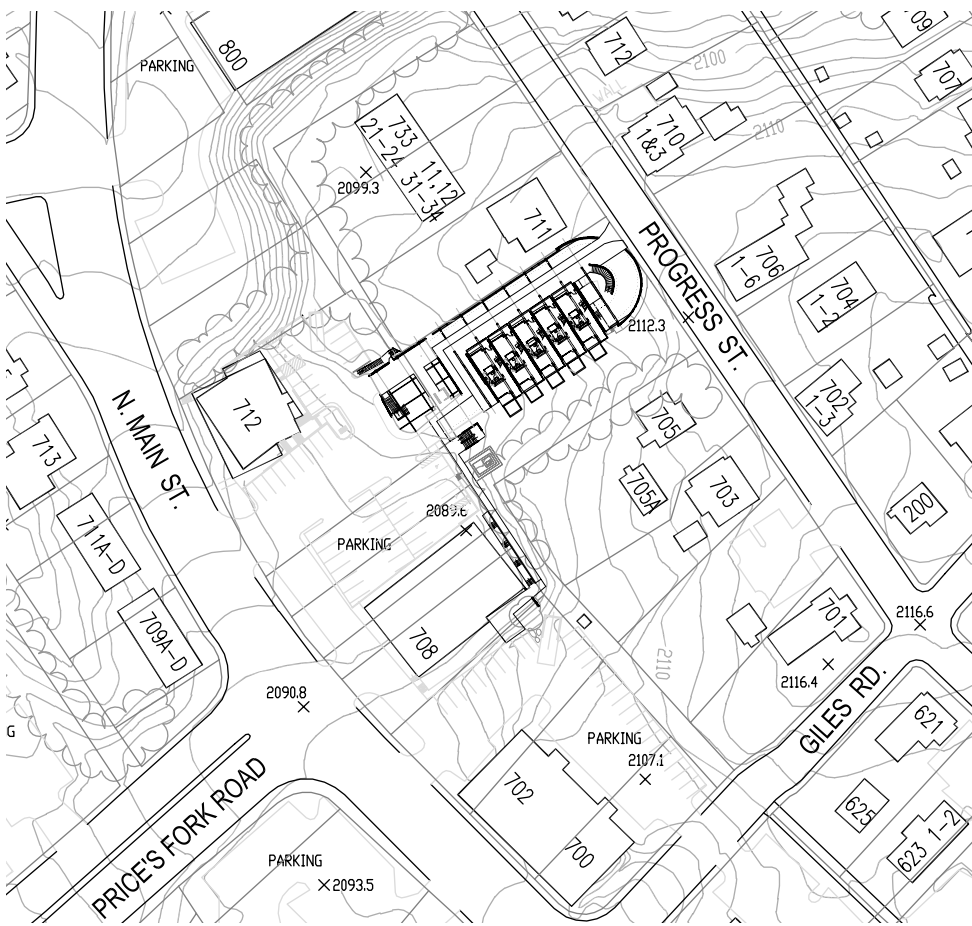


Entire Complex



Southern Facade





Site Plan with Proposal

Many of the concerns of homeowners in the neighborhood and local developers became evident while attending a number of town council meetings where various owners of the property attempted to gain special permits for development. Issues such as; maintaining a private neighborhood atmosphere, continued movement of commercial businesses into the area, foreseen increases in parking demands, popular impressions of parking lots as being undesirable, and fears of cheap commercial construction lowering property values, lead to repeated denials for special permit requests for the site. Considering a number of these issues without compromising the potential financial returns of a developer informed the design while investigating the site's potential.

The private and public realms of the complex are integrated yet bound by a public path which passes through the site. Parking, which is necessary for both public and private use, is combined and contained within the structure. Integrating a regard for the community with the building program resulted in the final design for the project in-between commerce and residence. The entire complex is designed using common materials and conventional construction methods. With these materials and methods, conditions of architectural significance are developed through interweaving components of the program with the structural form.







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