





a study of showing  
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in partial fulfillment of the requirement for the degree of Master of Architecture.

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abstract:

The thoughtful expression of building components provides a conceptual framework through which we can come to an understanding of architecture.

Beyond the appreciation of individual elements involved in an assembly, numerous opportunities emerge to form architectural conditions and places.

An envelope that oscillates between transparency and opaqueness introduces a modern conception of boundary.

The control of natural light can also contribute to a compact space without compromising the desired level of privacy that is expected from a house.



keywords:

legibility | daylighting | facade | transparency

I would like to thank Hans Rott, Jim Jones, Heiner Schnoedt, and Steve Thompson for their guidance.



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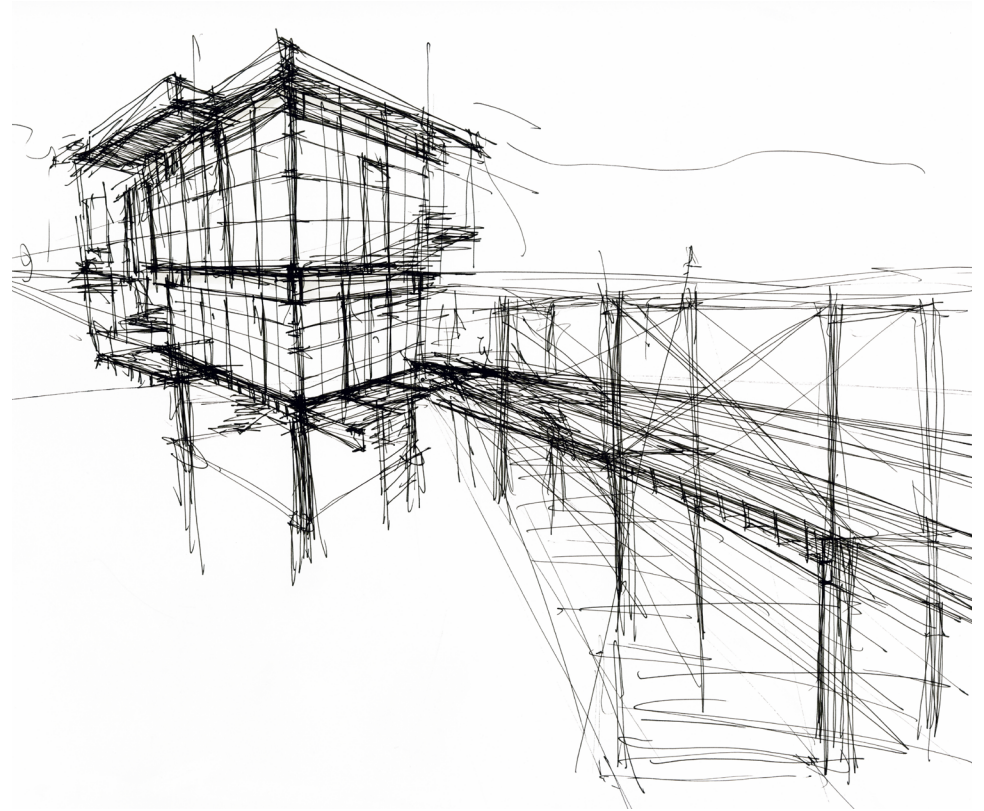
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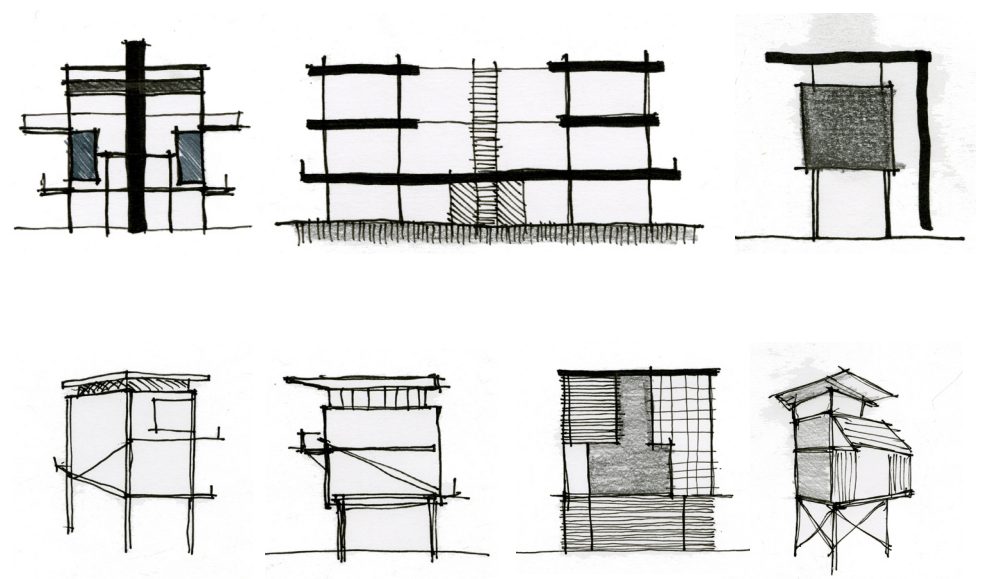
This is a study of showing and a look into  
questions of revealing and concealing.

The models used for the exploration are  
three houses and a pedestrian bridge.



The initial goal was to design a legible modern assembly  
that emphasized a connection to a greater space.

It became a partnership between construction  
and the idea of transparency.





Flexibility within an ordering system and an expression  
of components can provide architectural opportunities.

By revealing and concealing elements and  
space, a relationship can be established  
between viewer and structure.



Bringing the elements of construction into view creates opportunities for better daylighting, an improved facade, and a sense of transparency.

Showing, however, does not have to mean exposing. The goal is constructive legibility with visual interest.





project goals:

Create a space filled with light, connecting  
the inhabitant with its rhythm in time.

Demonstrate a system of components  
that enhances our quality of life.





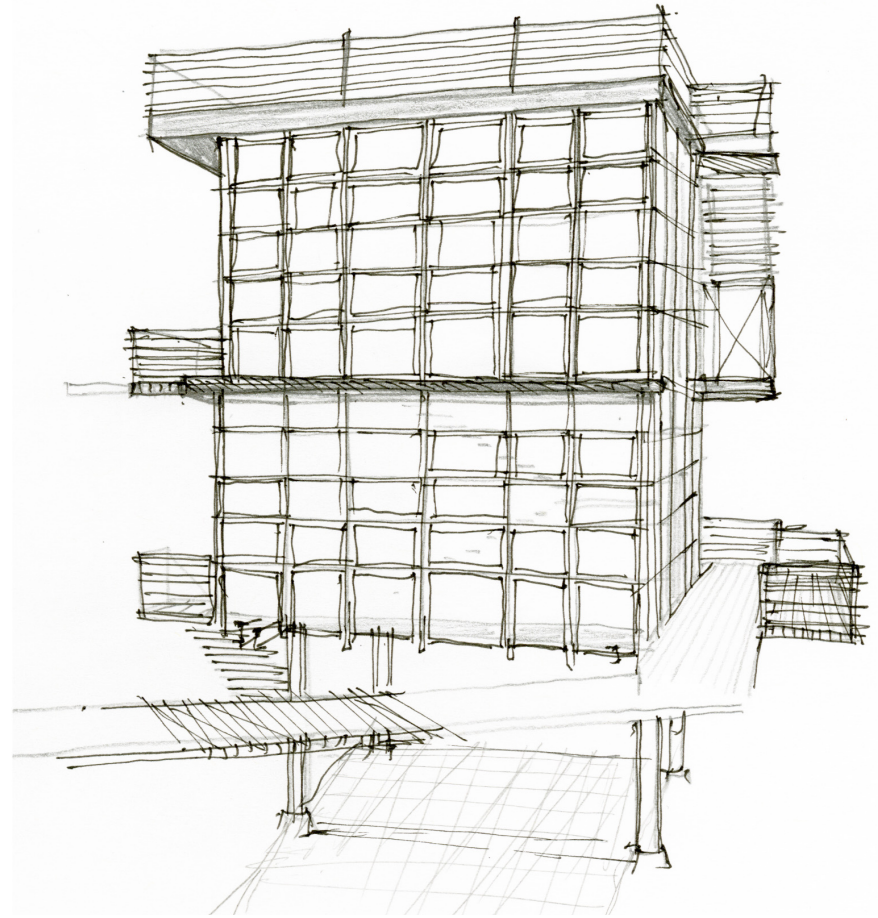
proposal for living:

A house can be a place that offers privacy *and* connects the inhabitant with the exterior environment.

Our need for privacy does not necessitate confining enclosure.

A structure can present *itself* as the thing to be appreciated, thereby removing the need for concealing finish materials.

A modern assembly, however, while encouraging legibility, is not usually associated with conventional domestic buildings.



Following the standard conventions of domestic construction is not the goal.

We must do away with the notion of structure as a skeleton for surface materials.

The project investigates how modern form can be livable.





N



W



E

S







The site slopes downward from the road to a creek.

looking Southeast



Neighboring houses are positioned close to the road.

looking Southwest



The houses are positioned in order to stretch the narrow lot in both the North-South and East-West directions.

This unconventional arrangement gives the homes equal access to the sun, divides the yard into manageable, more personal parcels, and positions each home to share the pedestrian bridge.

The result is a more dense, urban environment that still fulfills the common desire for house instead of apartment.

While all neighboring houses front the street, these homes stand in a seemingly blatant disregard of its presence.

The staggered and offset positioning creates depth, and with it, interest.



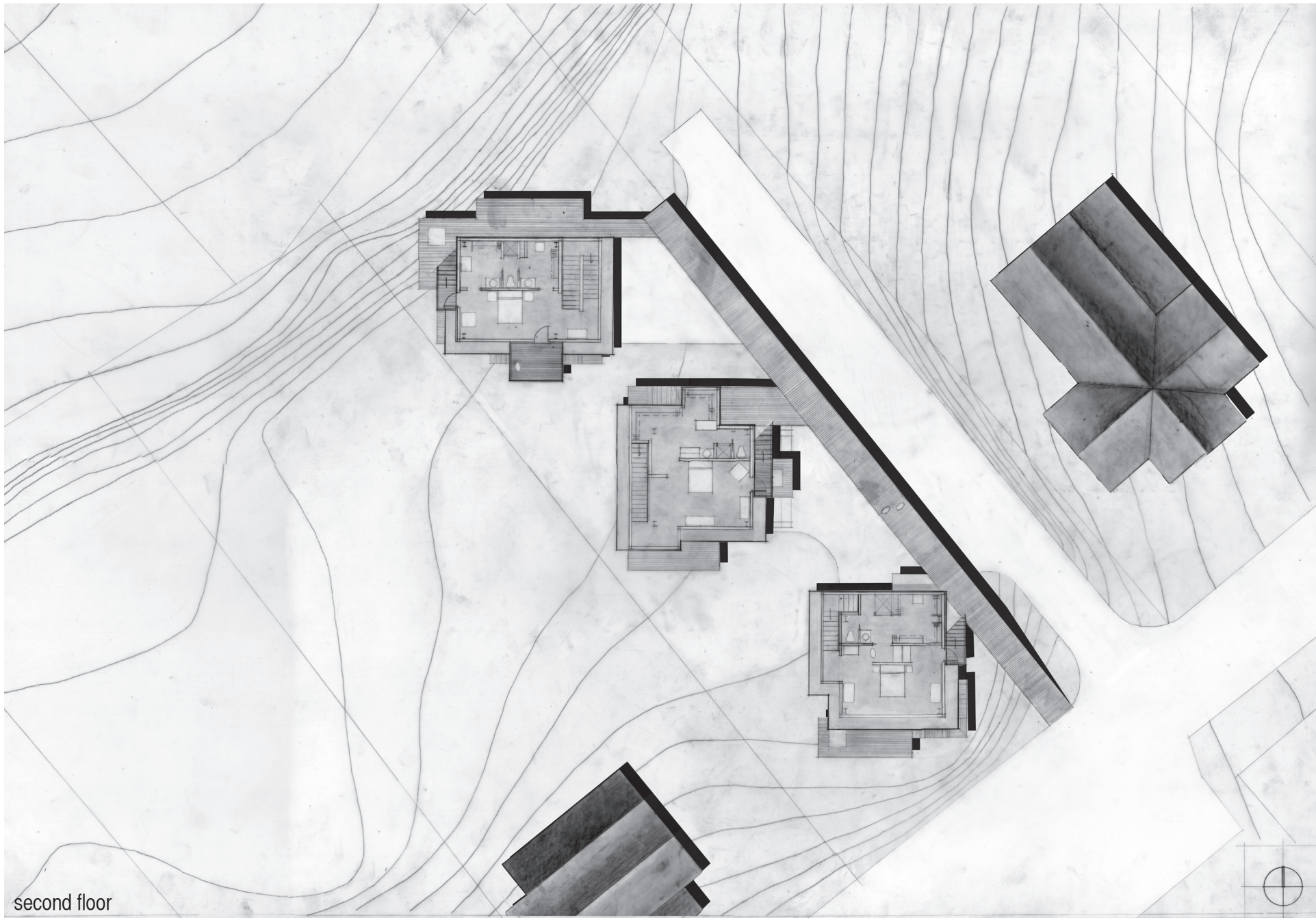
first floor

II

organization

11





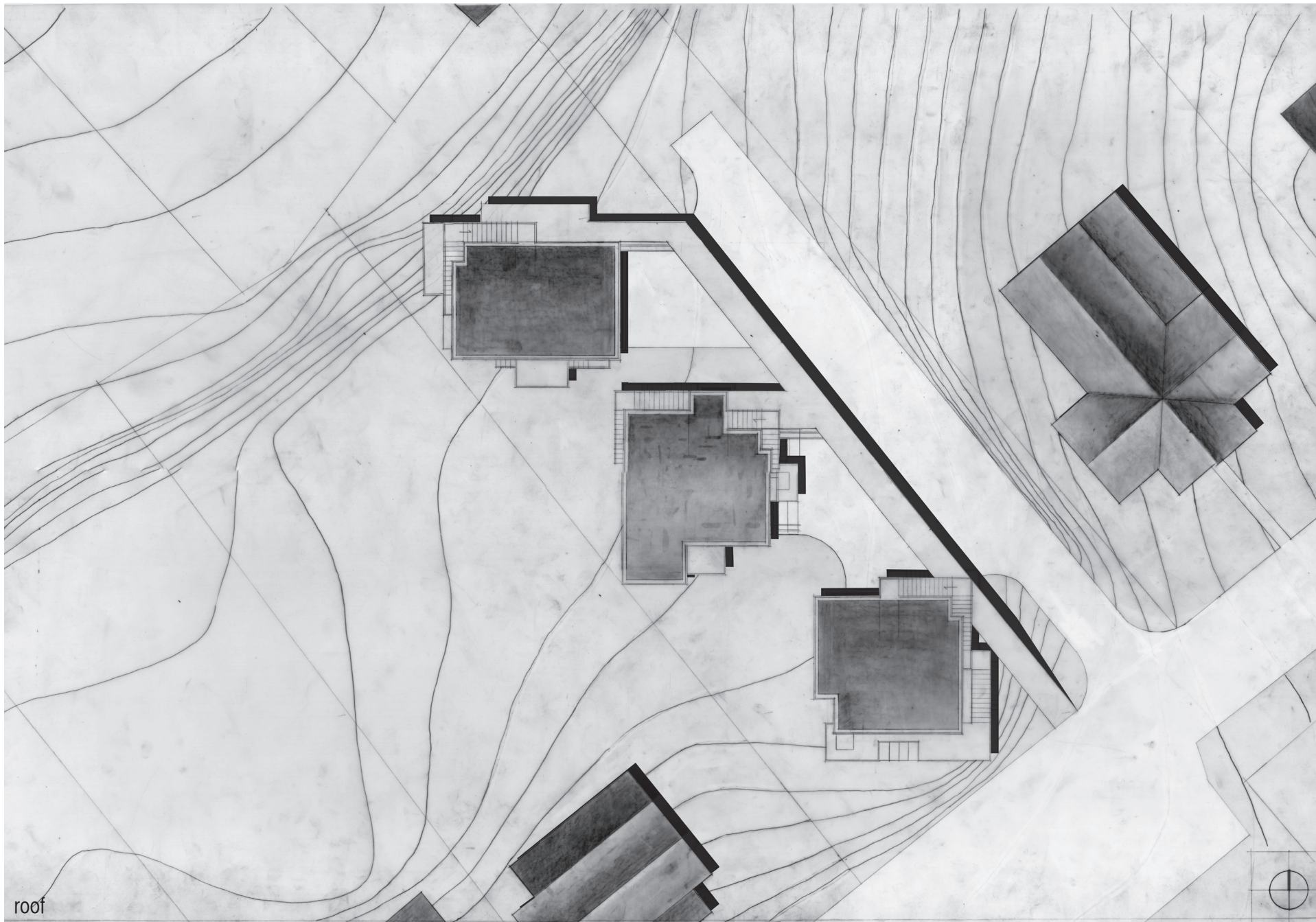
second floor

II

organization

12





roof

II

organization

13



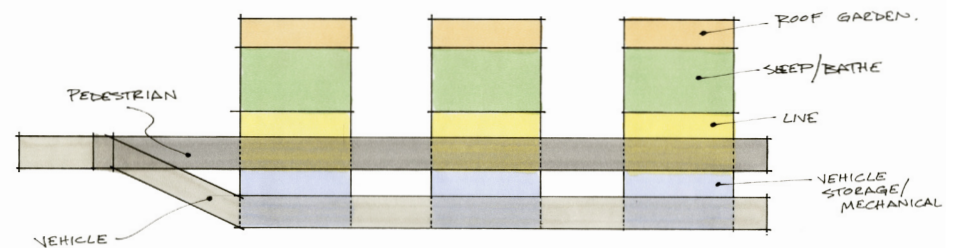
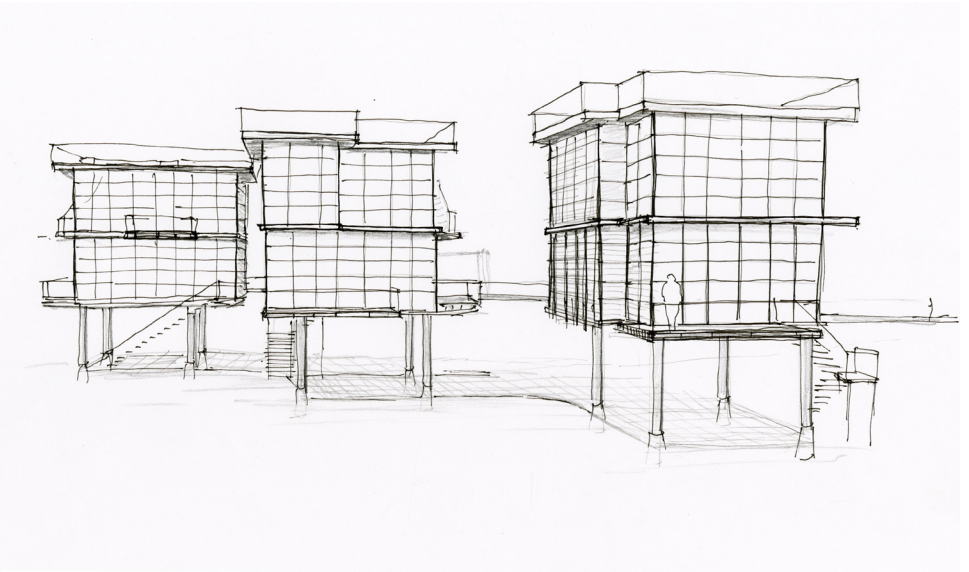
Three structures seem to achieve an appropriate density for the lot.

This decision was based on a number of considerations:

- one house was not enough given the proximity to downtown,
- two houses would compete with one another or be twins,
- and four would be too many for such a small site.

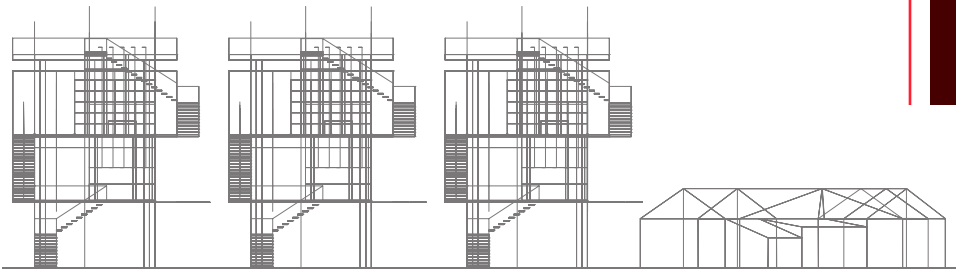
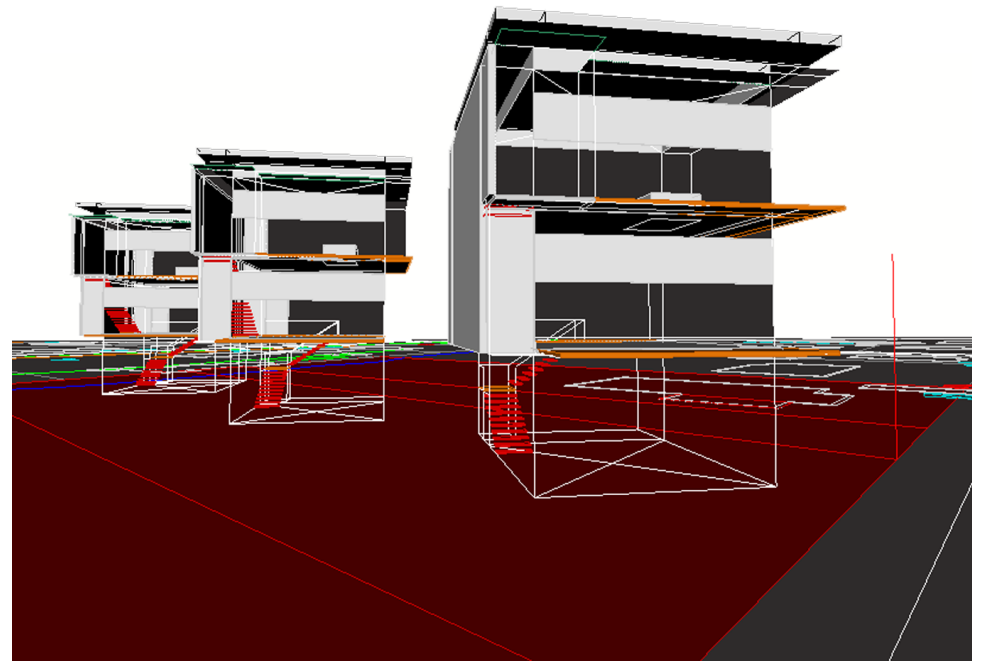
As three structures, the houses seem to balance somewhere between standing independently and depending on one another.

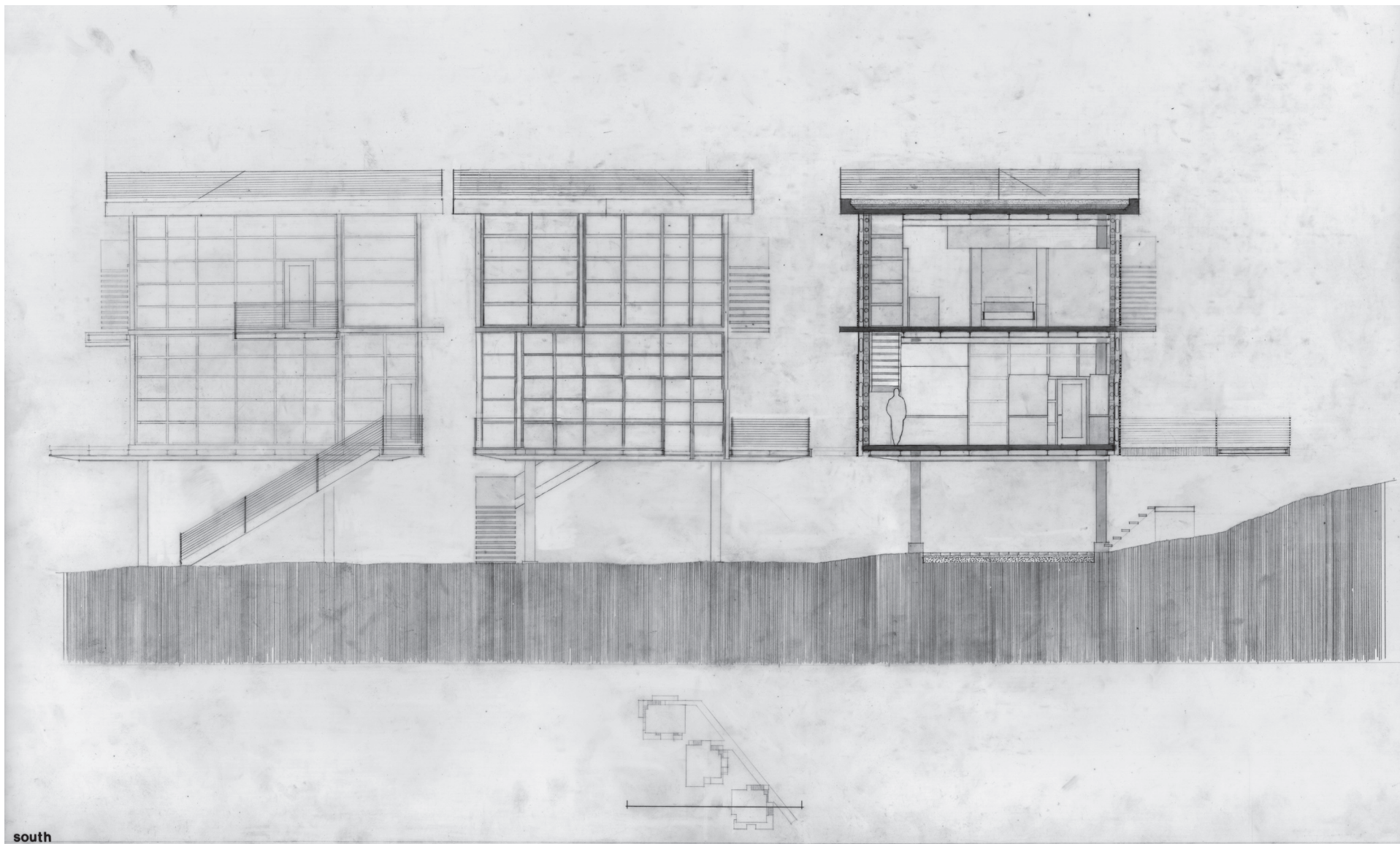
Instead of single points in the landscape, they share a bridge, which becomes a linear connecting element.



The houses are raised one story off the ground for a number of reasons:

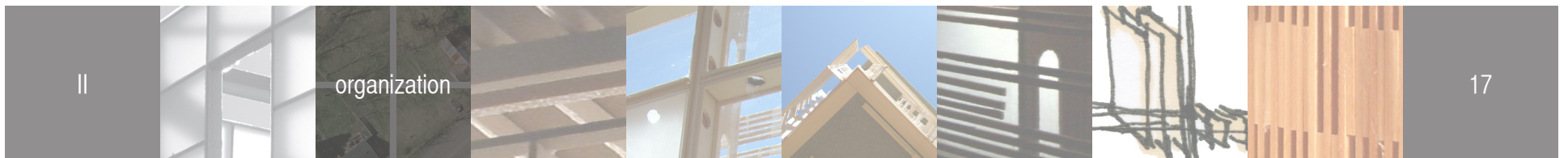
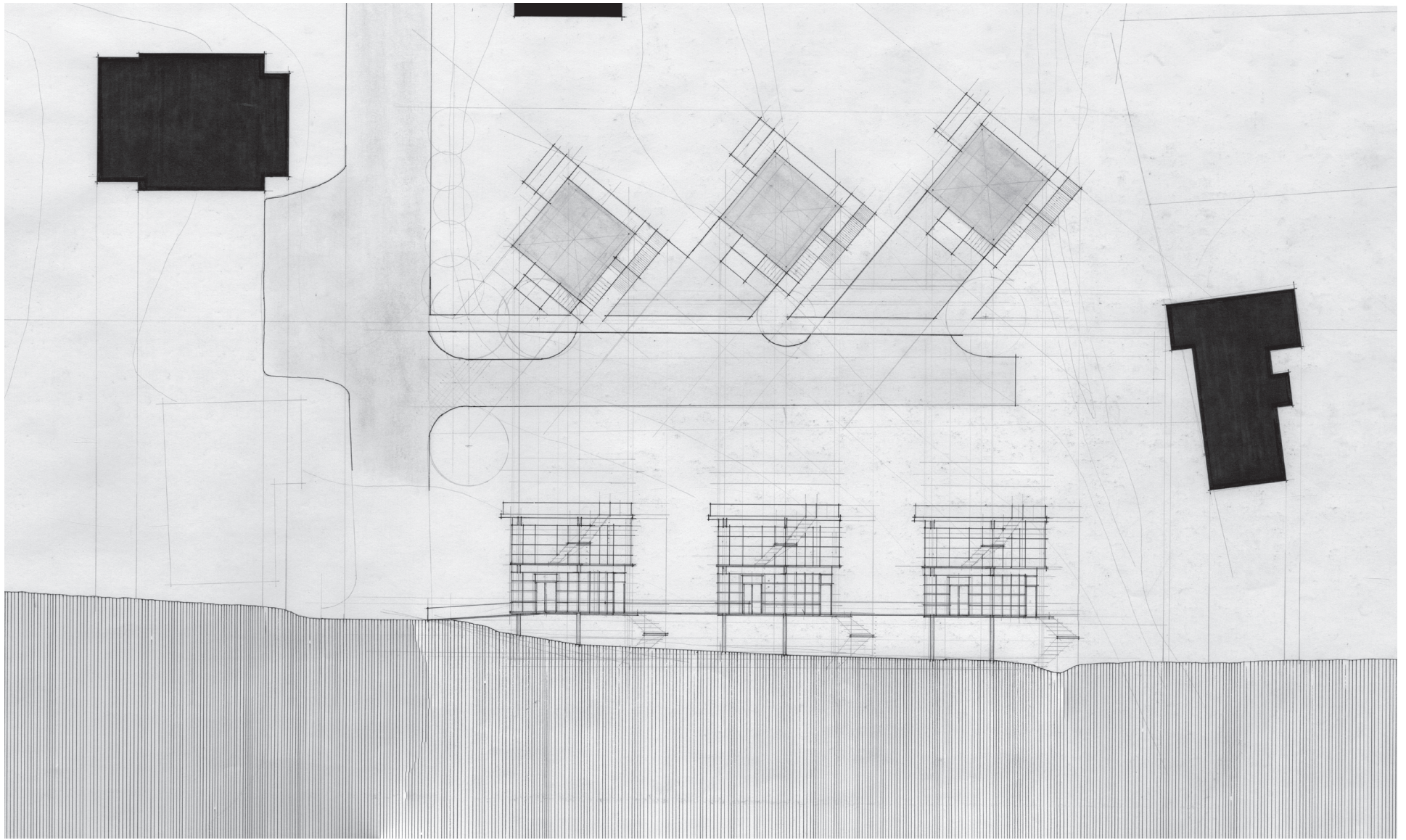
- it reduces the amount of disturbance to the existing ground plane,
- it offers covered vehicle parking below, tucked away and somewhat removed from the house itself,
- it aligns the first floor and street elevations, creating the opportunity for a graceful and level transition by bridge,
- and it brings the structural elements and ordering system up and into view.





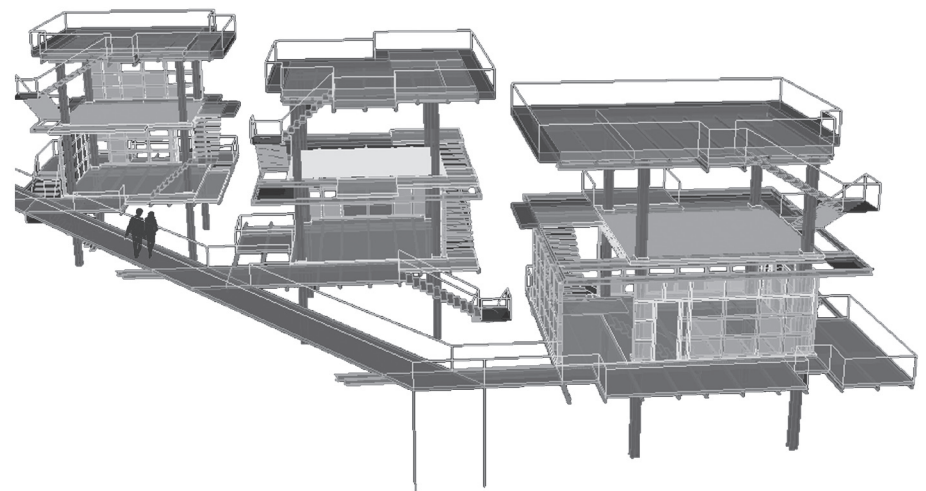
south





The bridge carries the street elevation deep into the site as a datum, registering the first floors and reconfiguring the standard formal hierarchy between house and street.

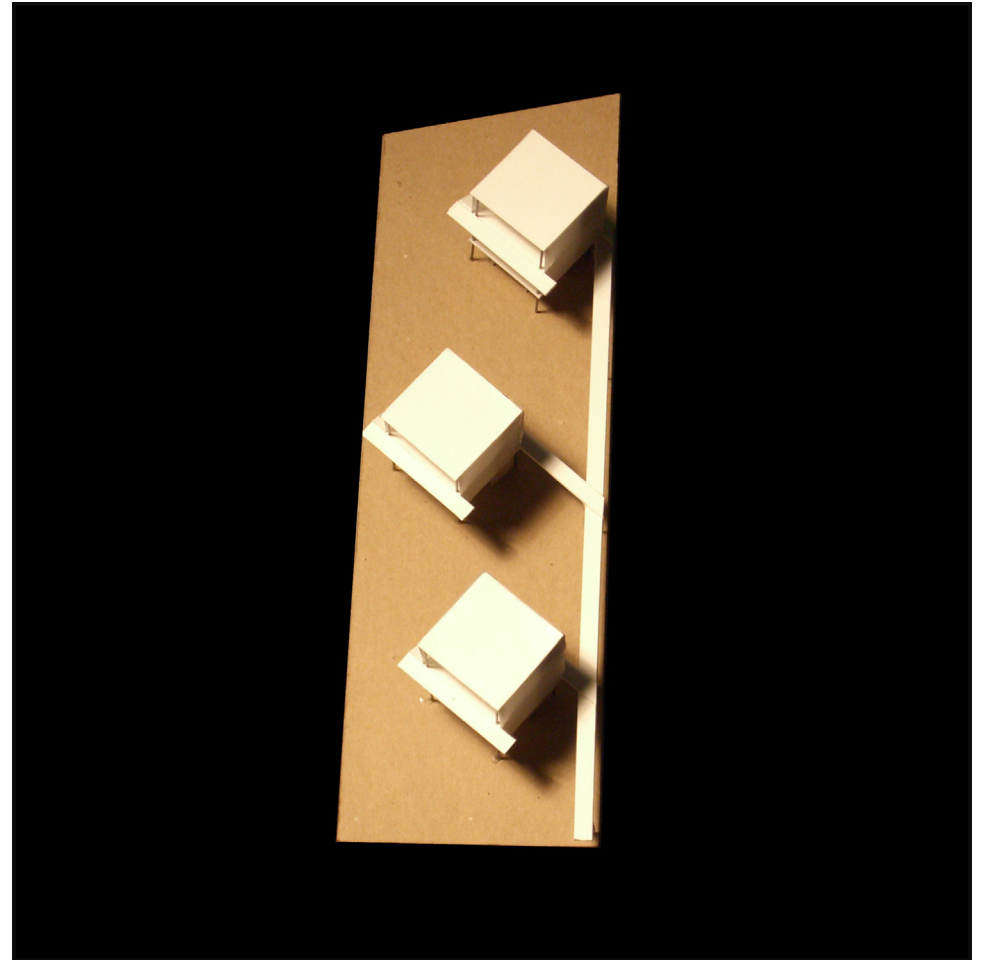
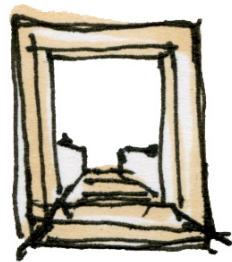
This helps to blur the transition between the public and private realms.





Through its linearity, the bridge acts as a welcoming gesture, like an outstretched arm, reaching out to assist the pedestrian.

By offering direct contact to the three houses, it seeks to emphasize the importance of the group rather than an individual object.



Each house is essentially docked at the pedestrian bridge.

At the joint between house and bridge, the teak deck boards are held back slightly and change direction from running parallel to the street, to running East-West.

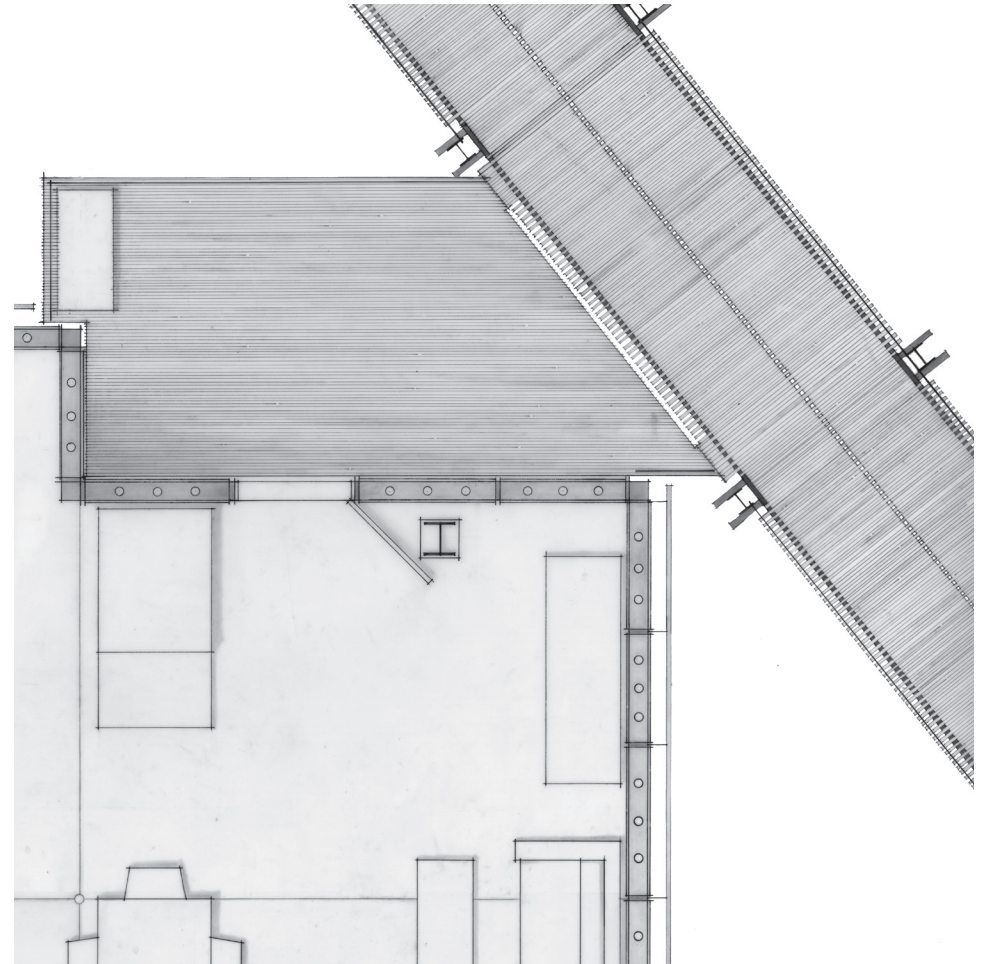
This creates a somewhat understated threshold between the semi-public bridge and the private residence.

The similarity of the assemblies and the identical materials also help keep the bridge and home from becoming separate entities.

The inhabitant and guests essentially travel in and out of the project on an extension of each home.

The owner's vehicle, on the other hand, takes a more service-like approach, below the bridge.

In addition, instead of forcing a formal front entrance, the bridge entrance is purposely located in the rear of each house, as a more relaxed point of entry.

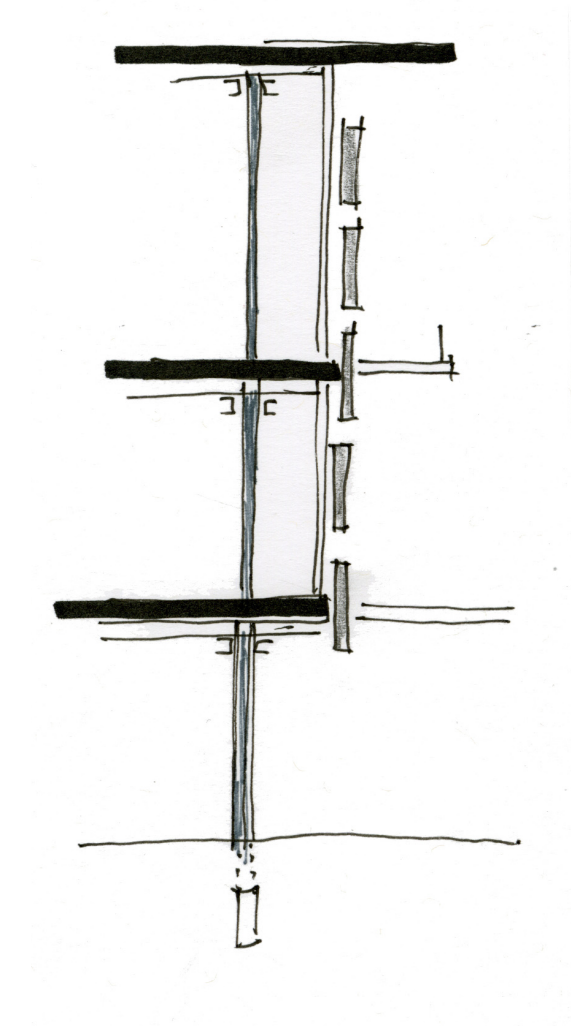


The skeleton, skin, and clothing are the principal elements of assembly in the three houses.

The piers, steel frame, concrete slabs, and wall framing make up the structural skeleton.

The glazing panels act as the building's permeable skin.

Finally, the wood screen acts as the building's clothing by revealing and concealing the structure and by offering protection from the elements.



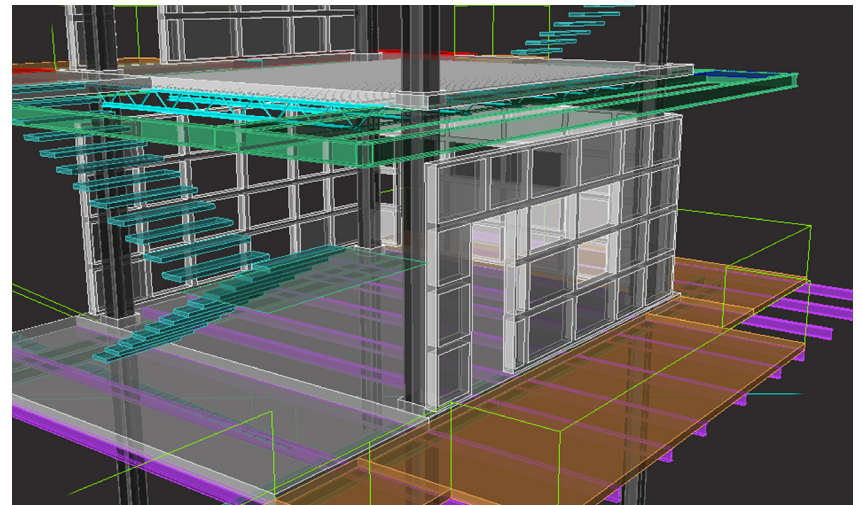


The structural hierarchy begins with the steel framework and extends to the concrete slabs, wood decking, fiberglass and aluminum walls, glazing system, and wood screen.

It ends with the interior furnishings.

The parts of the assembly are distinguished and yet work with one another to form a system.

The intent is to architecturally formulate a clear assembly of individual elements that work in concert to form space and enclosure.



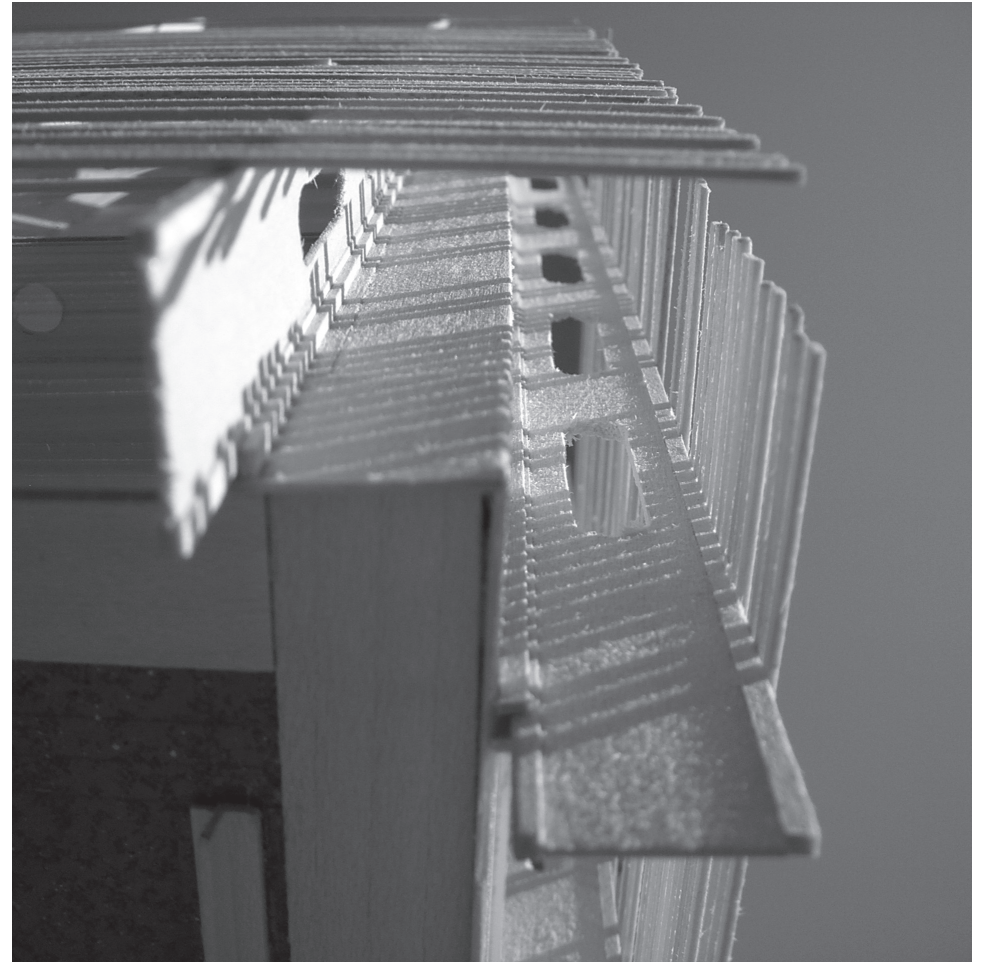




This sense of clarity is usually only possible during construction, before finish materials are applied.

In fact, a building that is under construction is often more interesting than the finished product.

The concealment of constructive elements often diminishes the initial expressive qualities of the raw construction.



By showing the elements of construction,  
we create opportunities for demonstration.

The tapered steel beams and  
joists are one example.

The goal is an elegant expression  
of material and assembly.



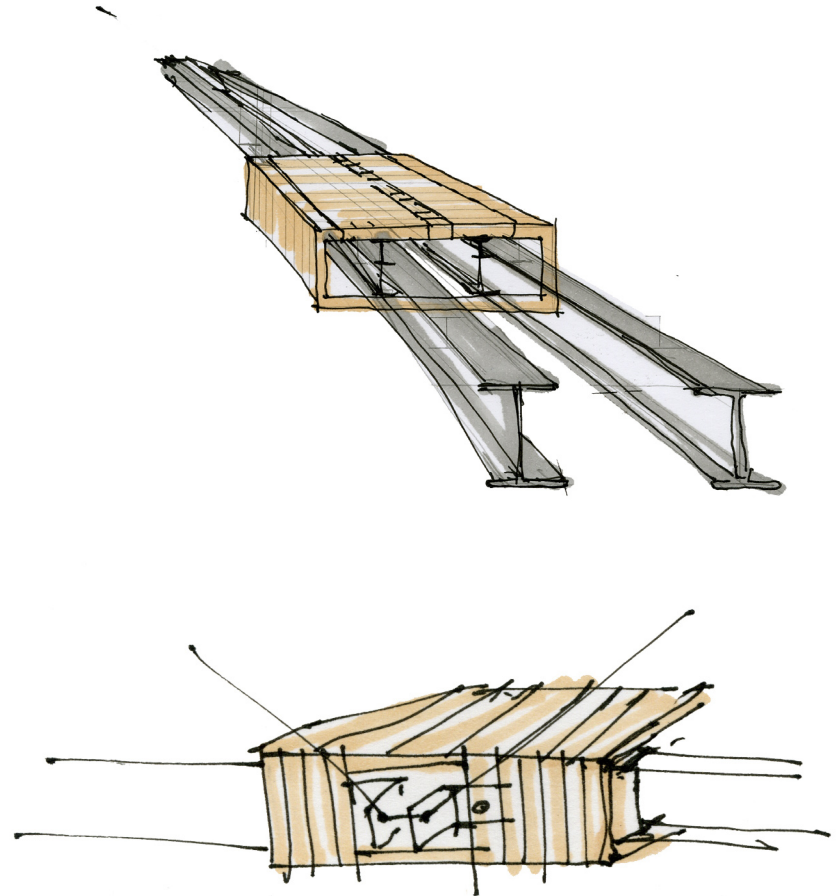


Clarity of assembly, however, does  
not necessarily mean exposure.

In some circumstances, if an object is somewhat concealed,  
it can be more interesting than if it were fully exposed.

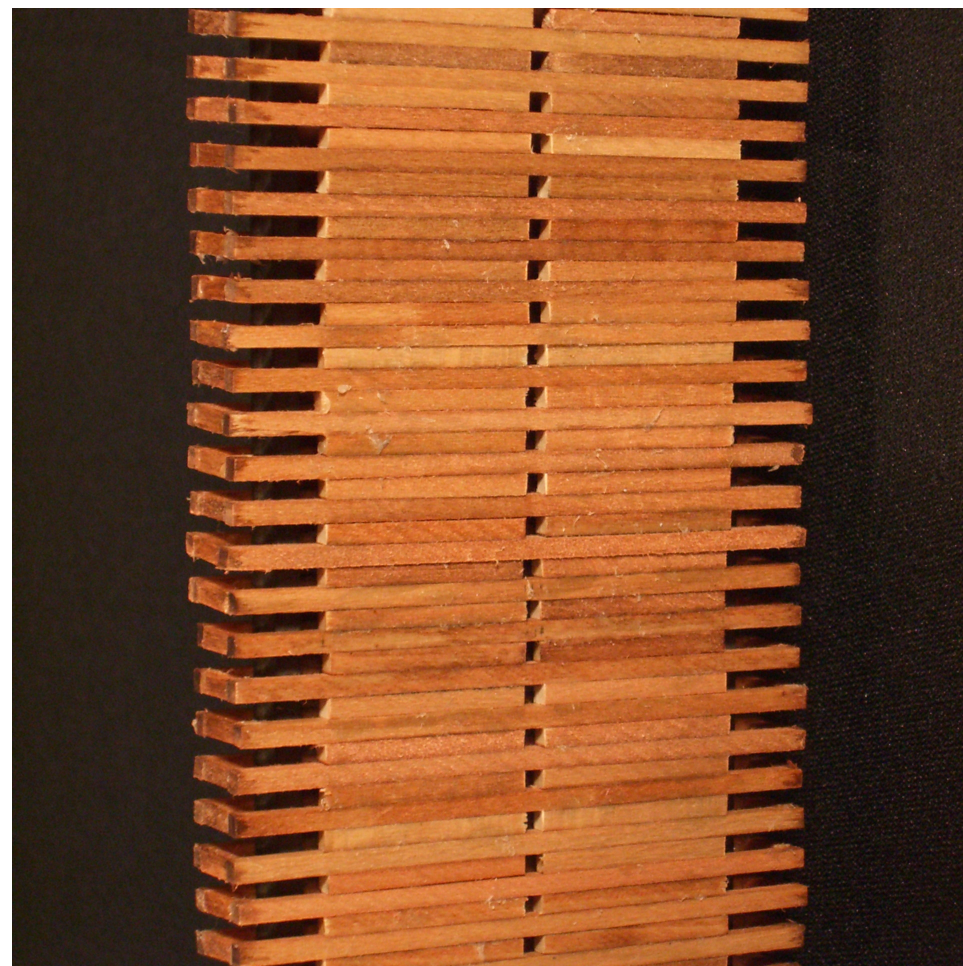
The bridge decking, for example, reveals its  
support only at the edges and ends.

In the center of the span, it  
reveals the space below.



The gesture attempts to complete the assembly and to demonstrate the relationships between the elements.

It presents the decking as a serrated and perforated wrap.







We tend to thrive in naturally lit environments.  
Daylight makes us more productive and it lifts our spirits.  
We can actually live more comfortably in less space  
if we have a connection to a greater space.





Although our need for environmental information is both real and natural, we are mostly separated from any understanding of the condition on the opposite side of a wall.



This is especially unfortunate in the Winter, when sunlight can be both physically and psychologically warming.

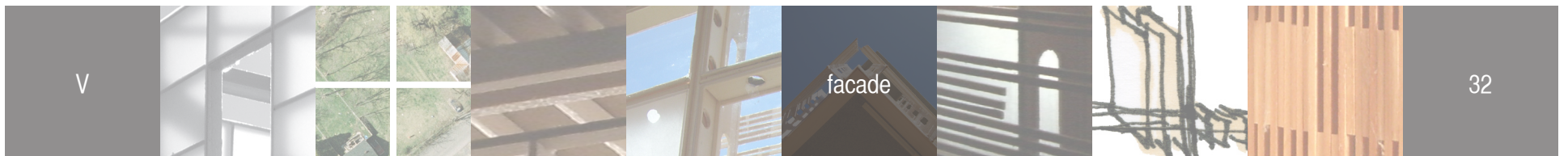




The facade of a building, while having the potential to be a provider of light, is often treated as an opaque surface.

In this case, however, the facade is treated as a system of components, allowing greater control and improved effects.

Through the separation of elements, the facade can become a mechanism for controlling light, ventilation, and privacy.



facade

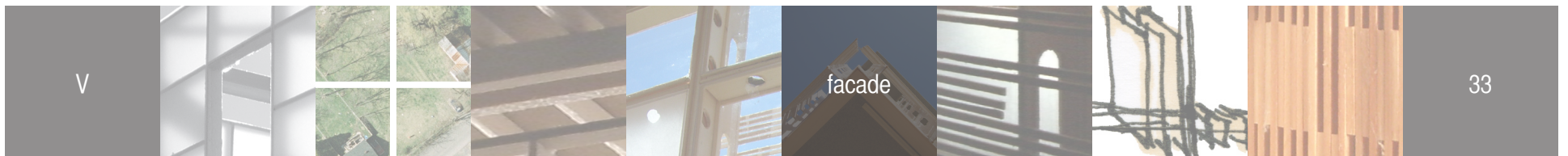
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As a mediator between the interior and exterior, a facade tends to conceal.

It is often treated, however, as a one-sided surface, without relation to what it conceals.

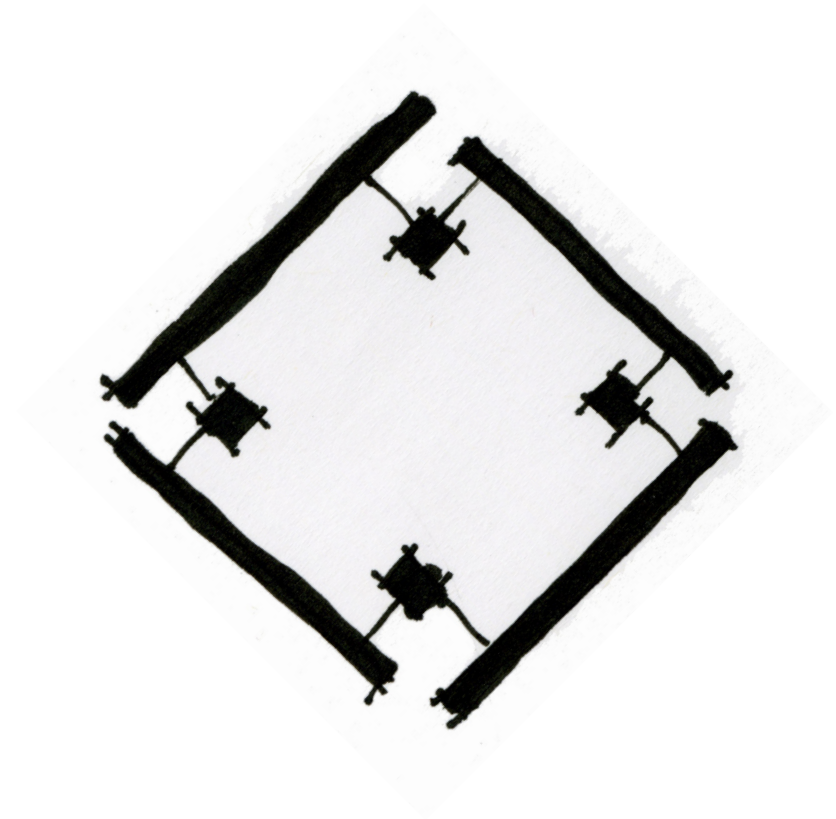
In these houses, however, the facade seems to both conceal and reveal.



Instead of a typical front or street facade, all four sides of the house begin as equally important.

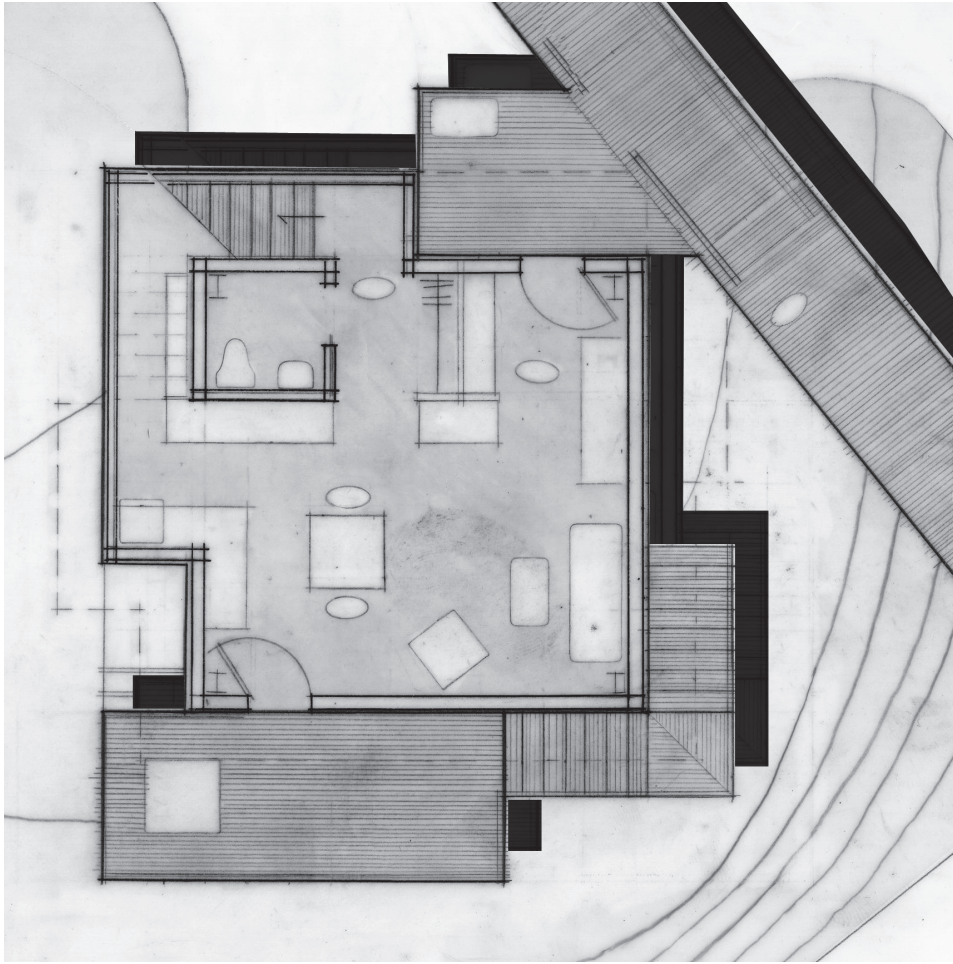
This creates an opportunity for the facade and floor plan to work together in order to satisfy our needs.

Each facade can then distinguish itself according to its relationship with the sun, wind, neighboring houses, street, views, and desired level of privacy.

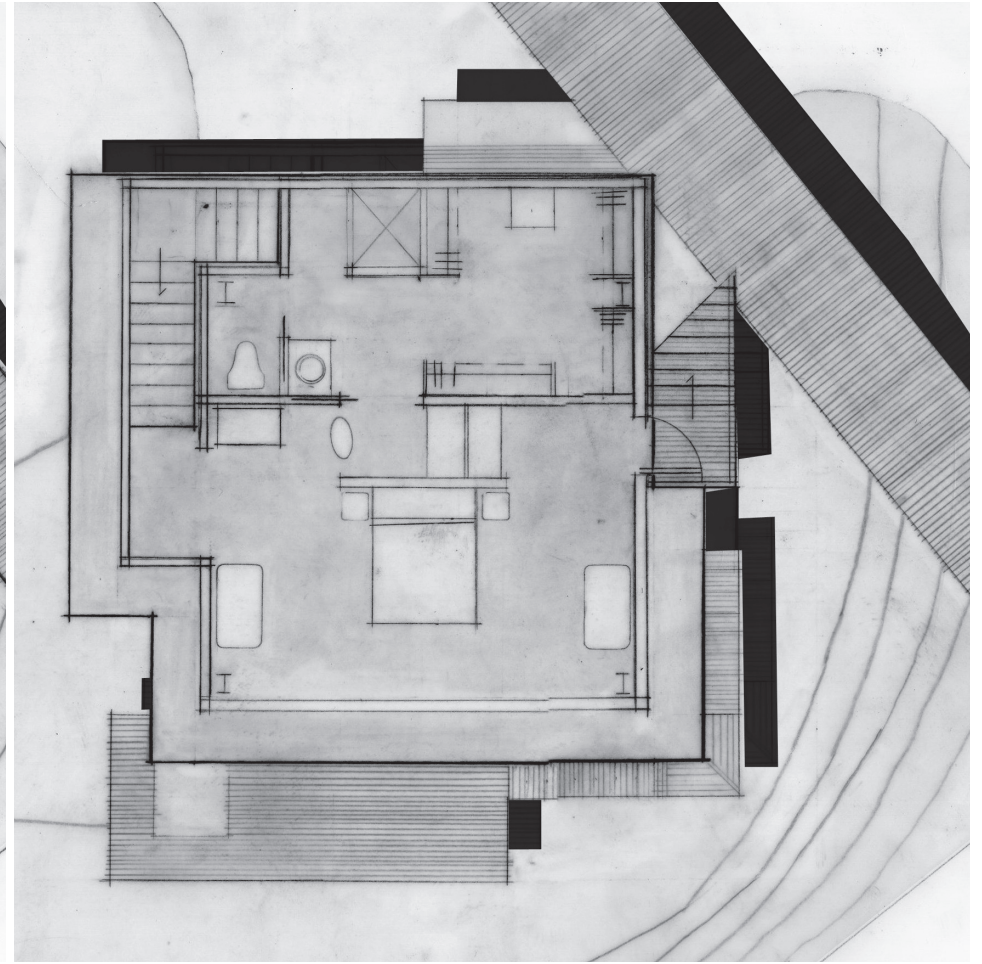




house 1



first floor



second floor





The image displays two hand-drawn architectural floor plans of a building, likely a residential or institutional structure. The plans are oriented vertically, with the top of the drawing corresponding to the top of the page. The left plan shows a large central hall with a staircase on the left side, a long rectangular table or counter in the center, and several smaller rectangular and circular shapes representing furniture or fixtures. A large window or glass wall is visible on the right side. The right plan shows a similar layout but with different furniture arrangements, including a large rectangular table in the center and a smaller table on the right. Both plans feature a series of parallel lines along the top and bottom edges, possibly representing a roof or a wall. The drawings are executed in black ink on a light-colored background, with some areas shaded to indicate depth or material.

This is a detailed architectural floor plan of a building. The plan shows a large central hall with various rooms and furniture layouts. On the left side, there is a staircase and a long, narrow room, possibly a kitchen or a service area. The central hall contains several tables, chairs, and a sofa. On the right side, there is a large window area and a room with a large window. The plan also shows structural elements like walls, doors, and stairs. The drawing is in black and white, with lines indicating the layout and furniture.

This architectural floor plan depicts a single-story house with a central living area. The layout includes a kitchen at the top, a bathroom to its right, and a staircase on the left. A large diamond-shaped feature is located in the center of the living area. The plan is surrounded by a hatched area representing the exterior or a garden. The drawing is a black and white line sketch with some areas filled with hatching.



The image displays two architectural floor plans of a building, likely a residential or institutional structure, showing interior layout and structural elements. The plans are rendered in black lines on a light background, with some areas shaded in grey. The left plan shows a large central room with a staircase, a kitchen area with a sink and stove, and a living area with a sofa and armchair. The right plan shows a similar layout but with a different arrangement of furniture and a different staircase configuration. Both plans include a small rectangular structure at the bottom, possibly a bathroom or a small office. The plans are oriented horizontally, with the main entrance at the top. The building is situated on a plot of land, with a road or path visible at the bottom. The plans are detailed with dimensions and structural lines, indicating a professional architectural drawing.

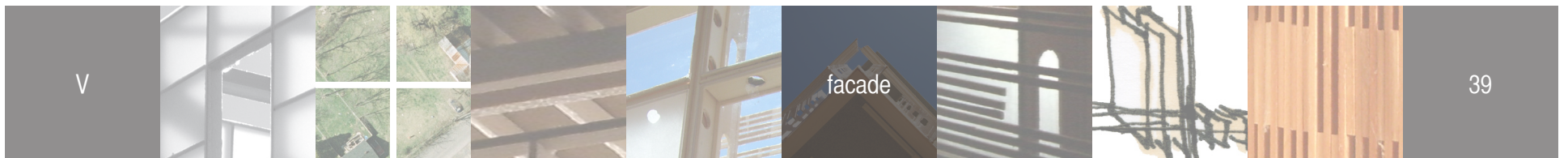
This architectural floor plan depicts a building with a central hall and several rooms. The layout includes a large central hall with a staircase, a reception area with a desk, and multiple rooms, some of which are furnished with desks and chairs. The plan also shows a large outdoor area with a pool and a building with a curved roof. The drawing is a black and white line drawing with some areas shaded in gray.

This architectural floor plan depicts a building with a central bathroom and several staircases. The central bathroom is located in the middle of the plan, featuring a bathtub, two sinks, and a toilet. To the left of the bathroom is a staircase with a curved landing. To the right is a larger staircase with a straight landing. At the bottom center, there is a small, rectangular structure, possibly a utility room or a small entrance, with a circular opening. The building is surrounded by a large, open area, and there are some dark, irregular shapes at the top and bottom edges of the plan, which might represent landscaping or other structures. The drawing is a black and white line drawing with some shading to indicate depth and structure.



The design of the wall assembly became an important architectural opportunity in the project.







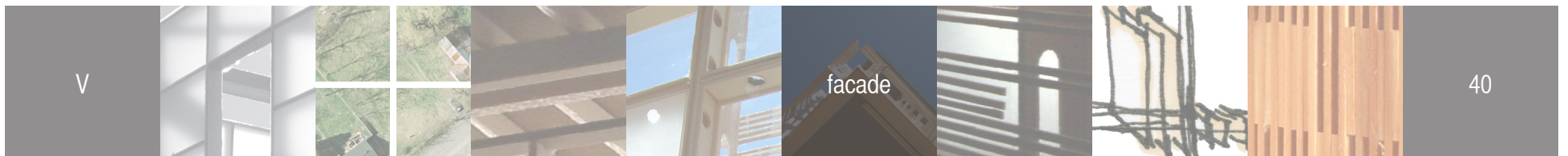
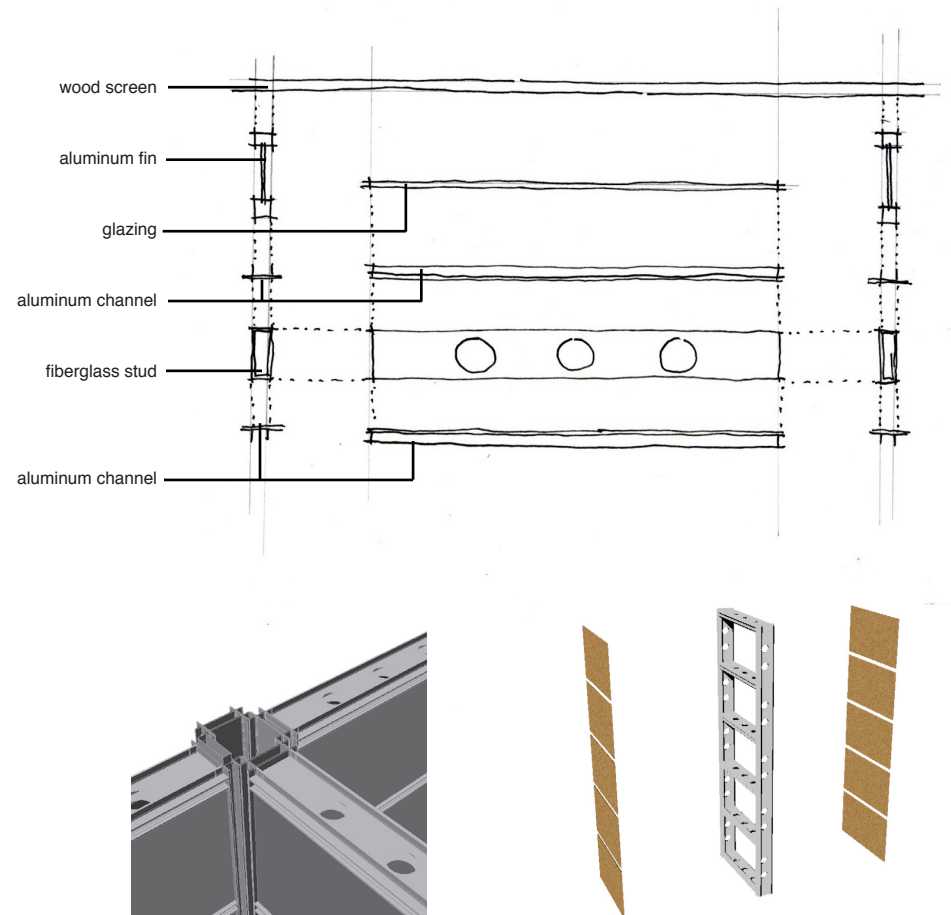
The walls are made of foam-filled, pultruded fiberglass studs, which are capped with double T-shaped aluminum channel.

The aluminum channel then accepts panels, which could be hinged or unhinged, transparent, translucent, or opaque.

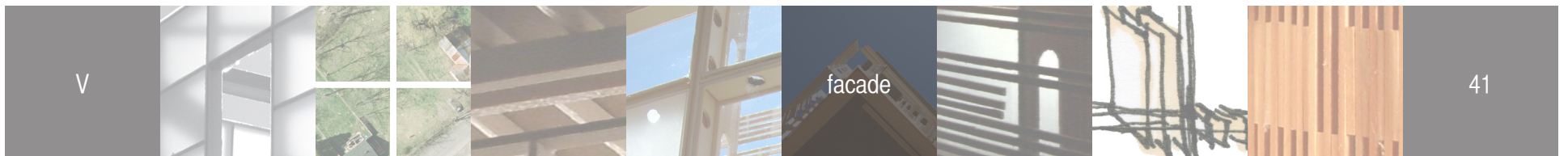
The cavity created by the two opposing panels provides room for translucent insulation.

Access to the cavity is through drilled holes in the studs, which also serve as mechanical chases.

A vertical channel in the aluminum cap accepts aluminum fins, which hold the wood screen.

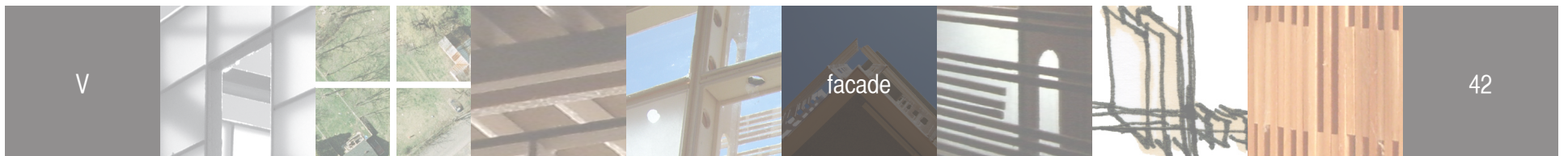


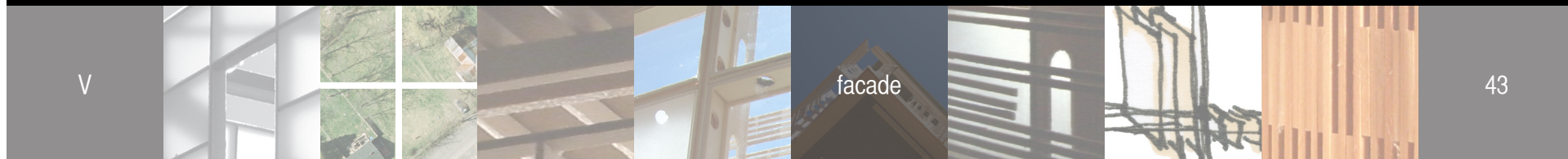
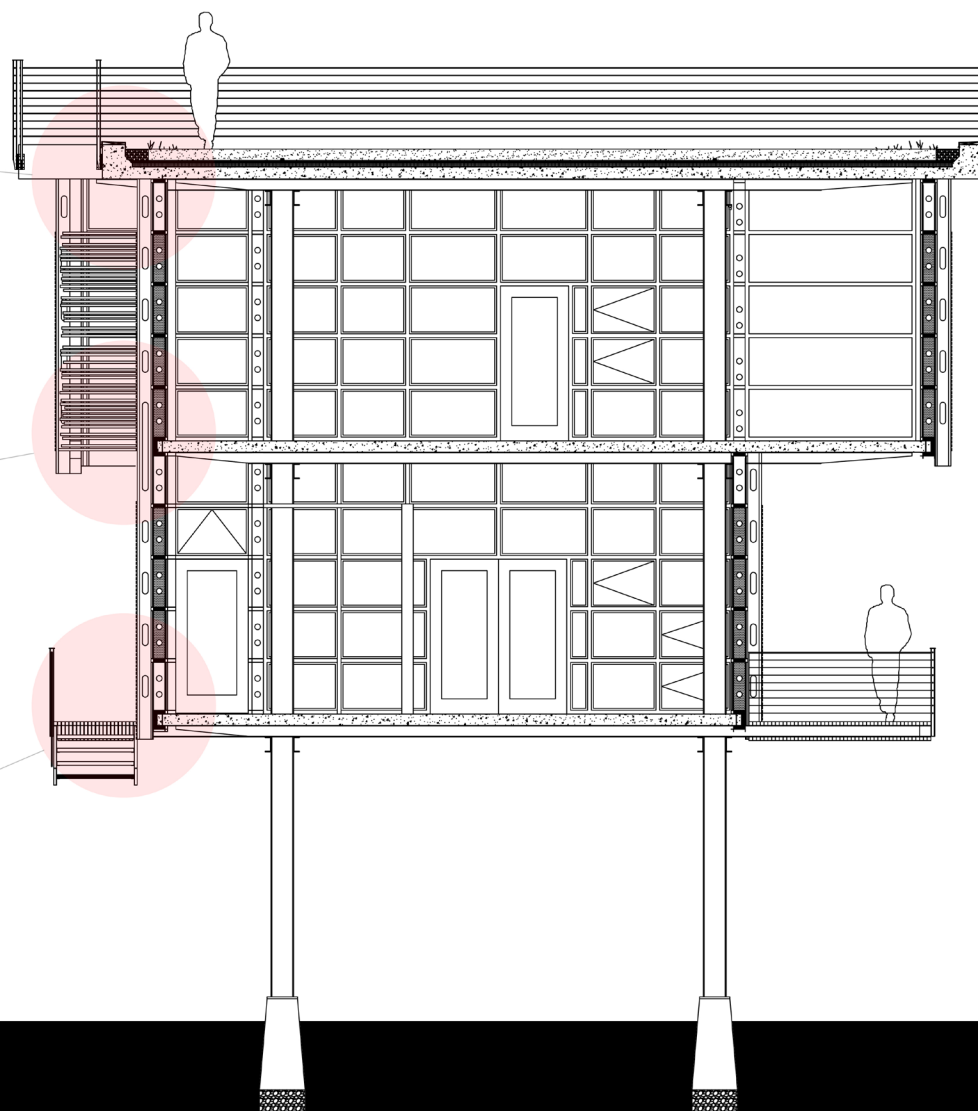
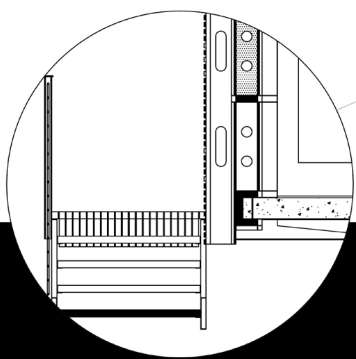
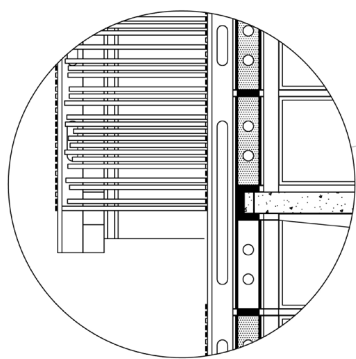
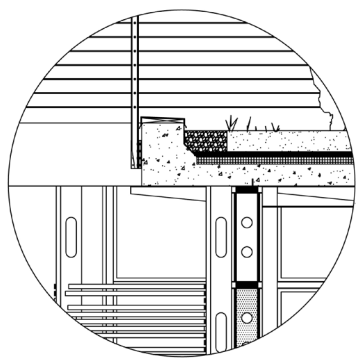
The components of the wall assembly  
can be rearranged according to need.





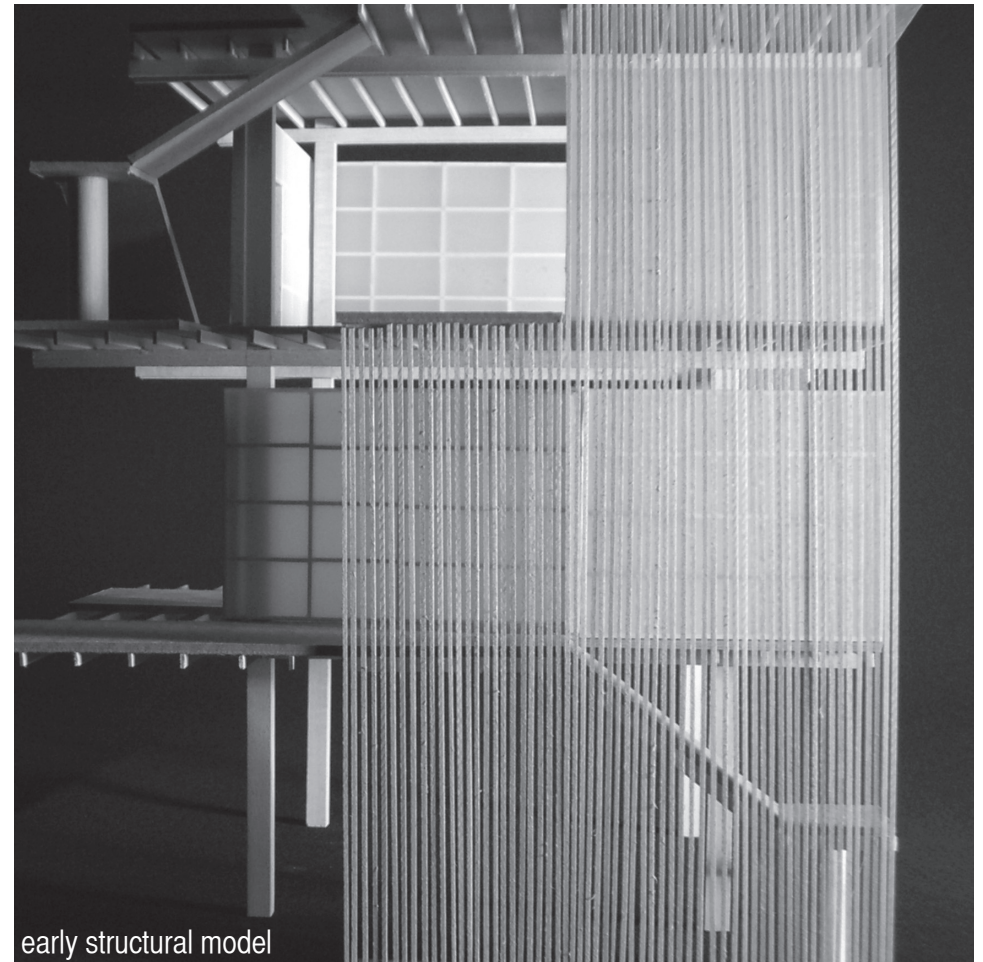
By manipulating the density of the wood screen  
and the type of glazing, we gain better control  
of light, heat, air, views, and privacy.





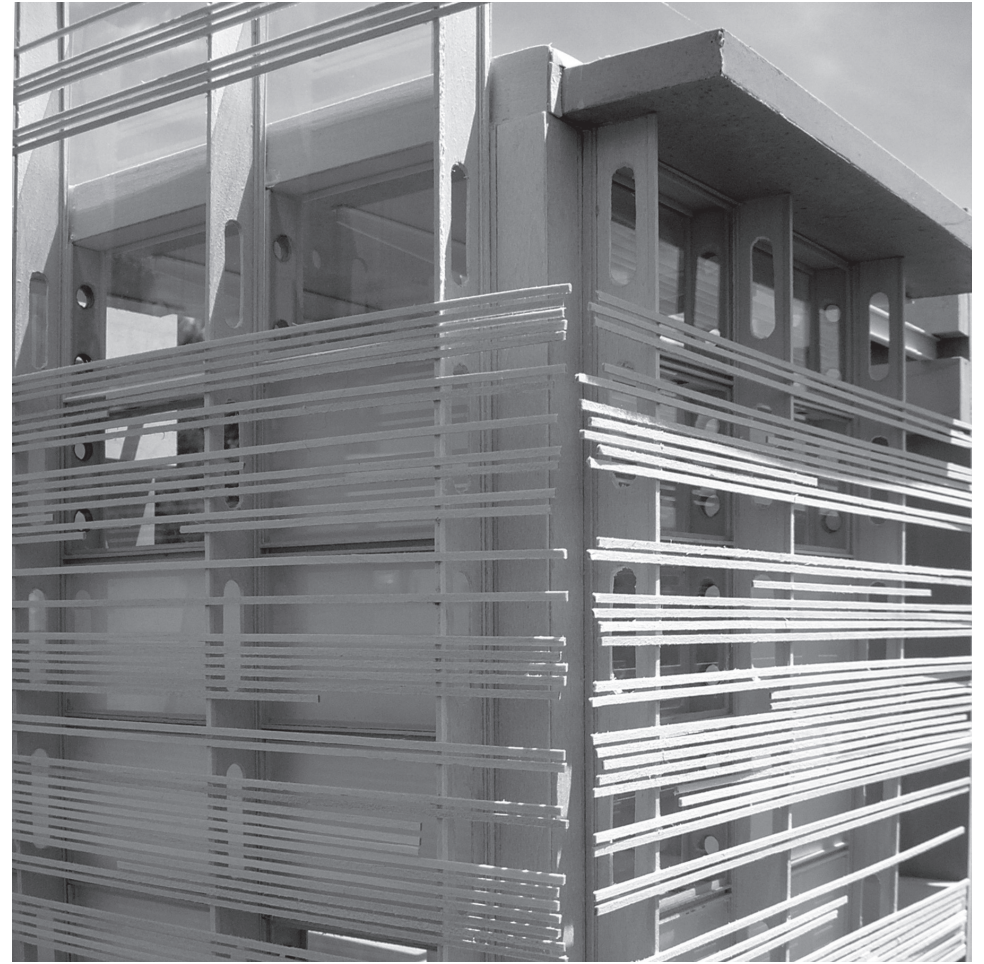


With the components of the assembly distinguished, we can have a relationship with the parts of the building, and a controlled view of the condition on the opposite side.



The screen and structure seem to work against each other  
and with (if not for) each other at the same time.

The outer layer becomes a permeable  
veil without concealing the shift  
between structure and space.





The result is both a literal transparency, in terms of the quality of the materials, and a phenomenal transparency, in terms of our simultaneous understanding of multiple spaces.

The thickened section, deliberate manipulation of the facade, and flexibility within the ordering system create the opportunity.

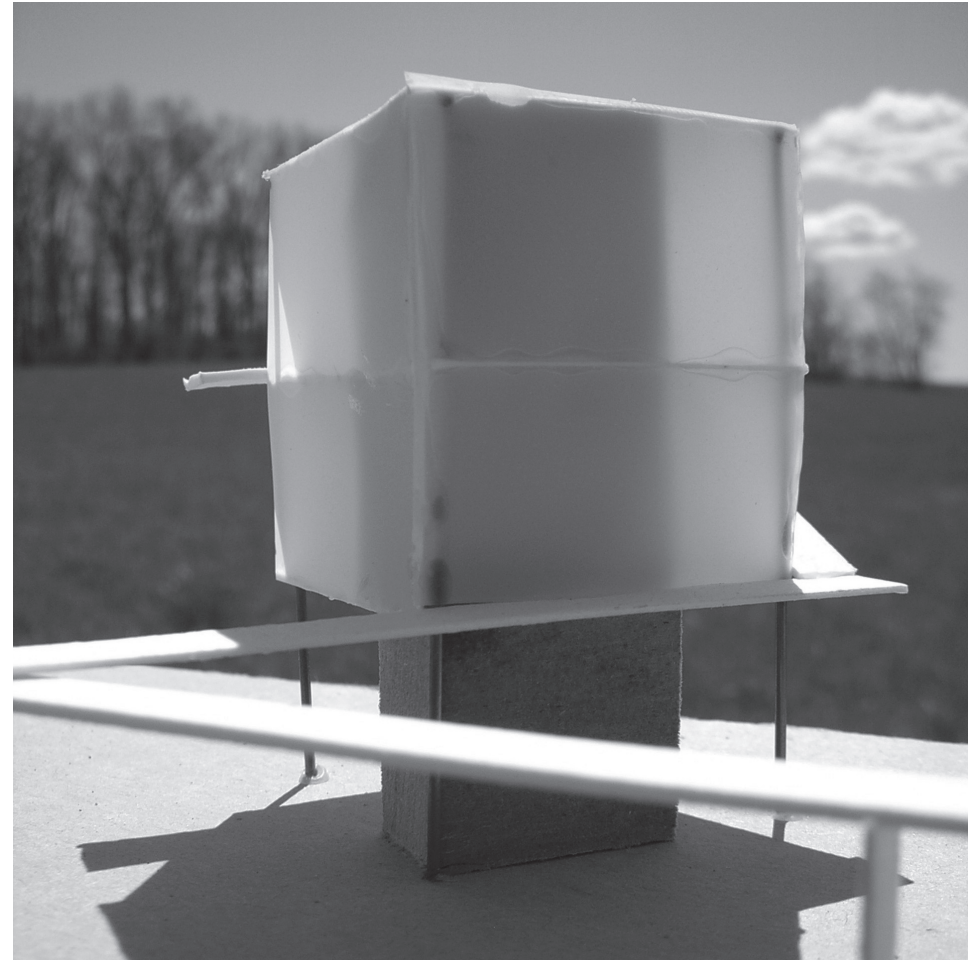
The relationships between the elements, in turn, help us organize the form.

We are now able to see the houses both as containers and as filters.



This sense of transparency, while perhaps lying somewhere in the background initially, became a significant issue in the project.

In a way, pursuing an understanding of *how* it would be made led to an understanding of *what* was being made.





Aside from transparency and site related responses, 'three houses connected by a bridge' became the typological vehicle for the study.



Changes in scale tested the ideas and brought the project to some degree of realization.

The 3/4" scale model helped to provide an understanding of the actual assembly and the type of light the various levels of transparency would admit into the interior.



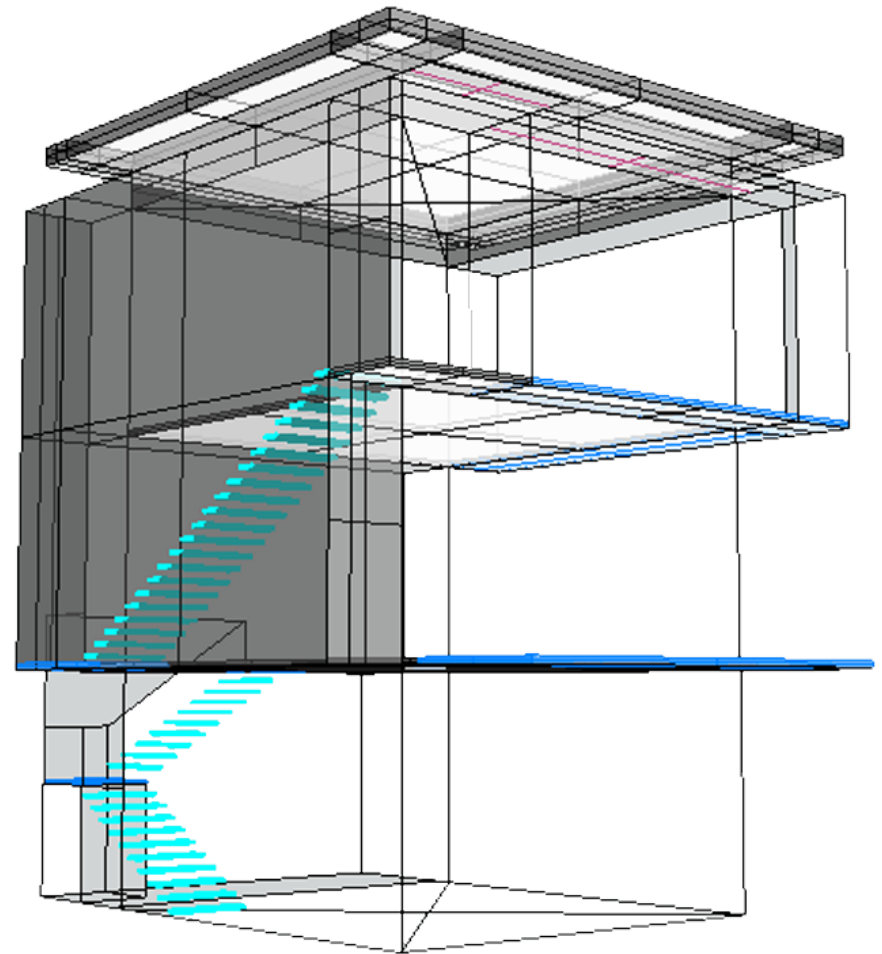


An interesting shift of control happened  
in the process of creating this work.

While the initial ideas acted as a guide through  
many of the decisions, at a certain point,  
the project started pushing back.

The houses began to respond to the  
choices that were being made.

In fact, later in the process, when there  
was some momentum, the project  
seemed to be driving itself.



The desire to express the edges of the slabs, for example, gave way to the improved thermal performance of a curtain wall.



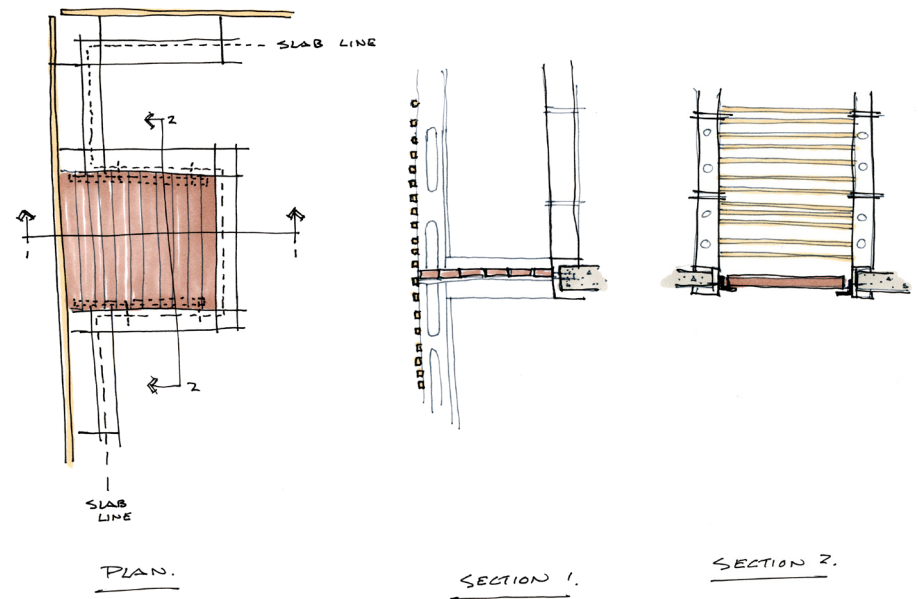


In addition, the design of the wall assembly affected how the porches would be made.

This change to the floor plan was a direct result of the wall section.

In section, the screen remains in one plane while the slab and glazing wall are pulled back.

The porch then becomes an inhabitable pocket within the facade, subtracted from the footprint of the building.

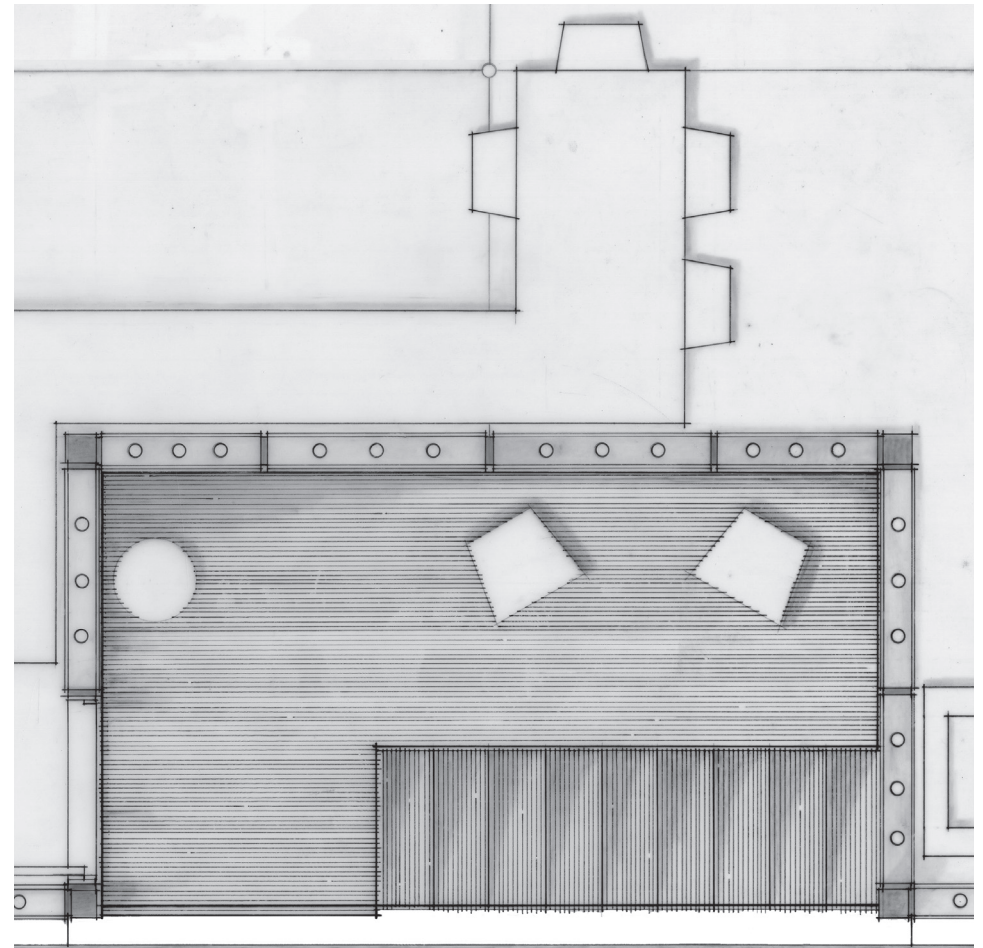


The divergence of enveloping layers, which typically parallel each other, form a habitable space which hovers between inside and outside.

This allows us to occupy the interstitial space that is created by the assembly.

We can now inhabit part of the envelope, and in doing so, we find ourselves in an ambiguous position, both inside and outside.

It serves both as an entrance and as an open air porch with a high degree of privacy.

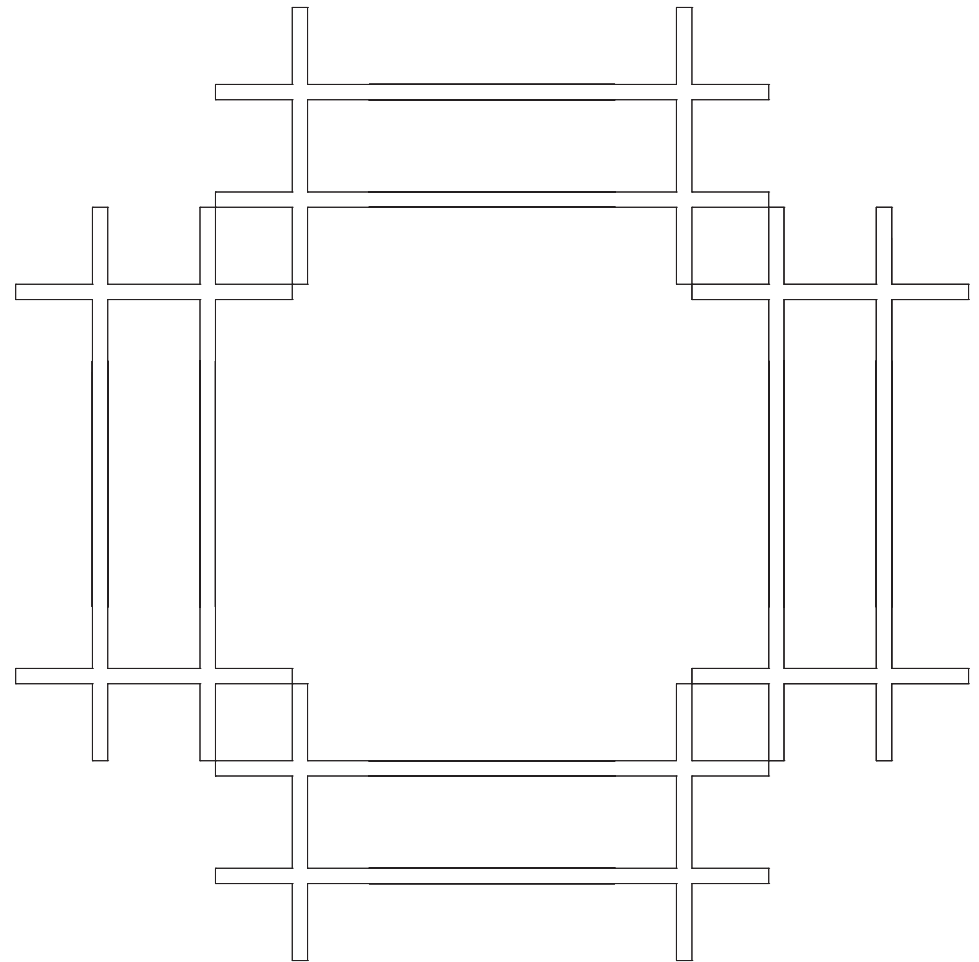




The primary intent of this work was to architecturally *reveal*  
through a careful and clear assembly of elements.

The investigation sought out opportunities for creating habitat  
in which the assembly (particularly the envelope)  
embraced various degrees of transparency.

The dialog between space and enclosure aimed to  
develop an architecture of modern living within  
a compact space, but with spatial generosity.



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image credits:

2005 aerial image of the Town of Blacksburg, Virginia obtained from [www.blacksburg.gov](http://www.blacksburg.gov).

All other images are by author.

