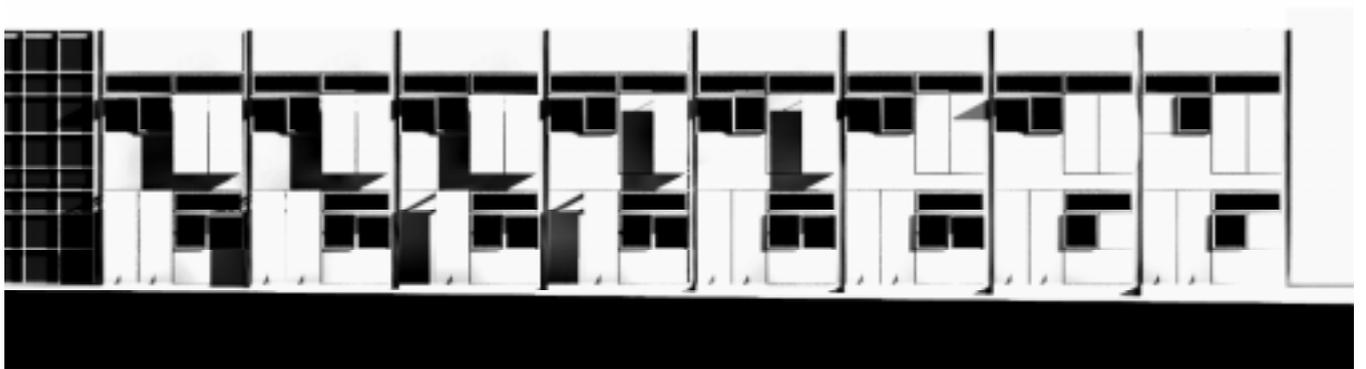


Transformations:

An Arts Center for Narrows Virginia.



Transformations

An Arts Center for Narrows, Virginia.

by
Paul Gehringer

A design thesis submitted to the Graduate Faculty of Virginia Polytechnic Institute and State University in partial fulfillment of the degree of Master of Architecture.

December 1, 1999
Blacksburg, Virginia

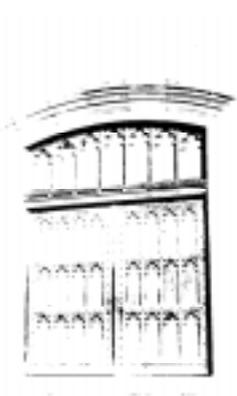
William Galloway - Thesis Chairman

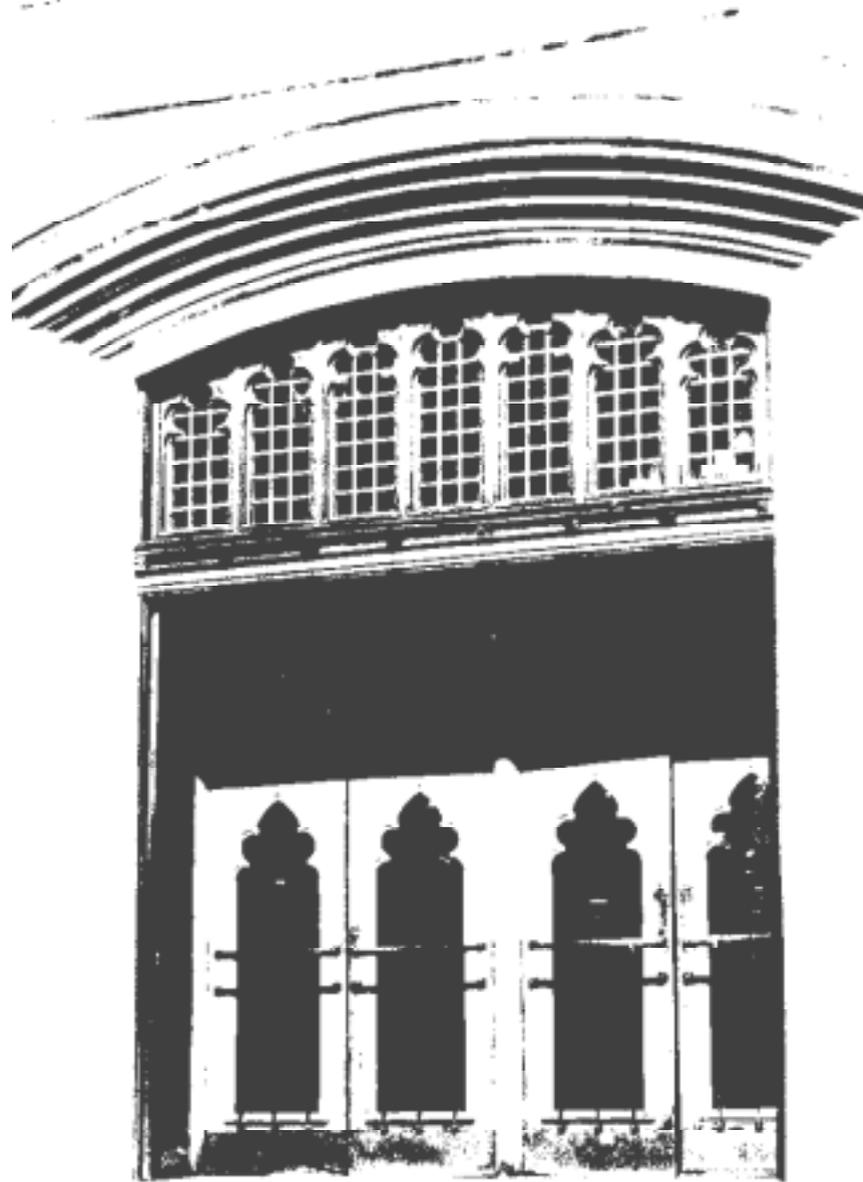
Michael O'Brien

Mario Cortes

abstract

What is the role of mechanisms and change in architecture? How does a building relate to the people in and around it? How might architecture interact with people, not as an object, but as a participant in a dialogue?





Burruss entrance - Virginia Tech



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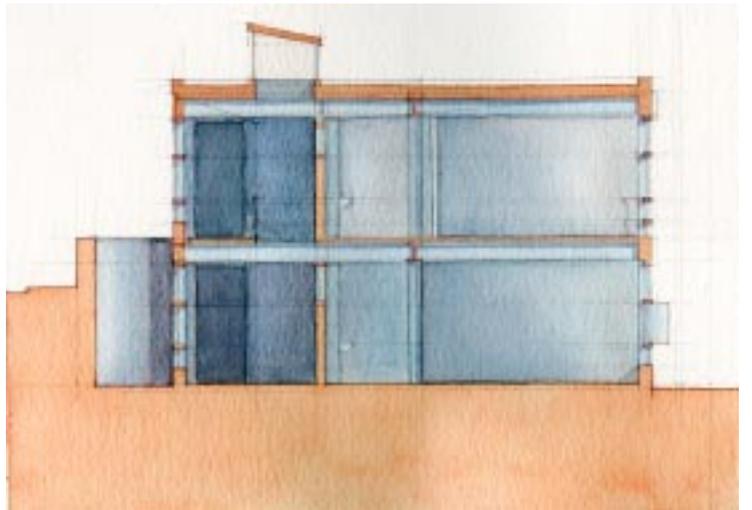
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Watercolor section study



introduction

Architecture is not static. Buildings are alive with mechanisms that facilitate such things as the opening and closing of doors and windows. Modern buildings have an array of mechanical systems that turn on fans and open or close vents to regulate the environment. Beyond these mechanisms, buildings change as a result of the effects of the passing of time. Weathering and use leave traces on a building's surface that give an observer a sense of the building's history. So what causes buildings to change? Mechanisms are just some of the tools that facilitate change; the reason buildings change is people. Rooms are not partitioned because a function requires less space, but because someone desires a smaller area in which to perform an activity. Buildings do not need fresh air or a specific level of light- people do and as a result windows are opened. When viewed from the outside, these changes animate a building and humanize it.



"There is an inherent suggestion of action in images of architecture, the moment of active encounter, or a promise of use and purpose.... A building is encountered; it is approached, confronted, related to one's body, moved through, utilized as a condition for other things."

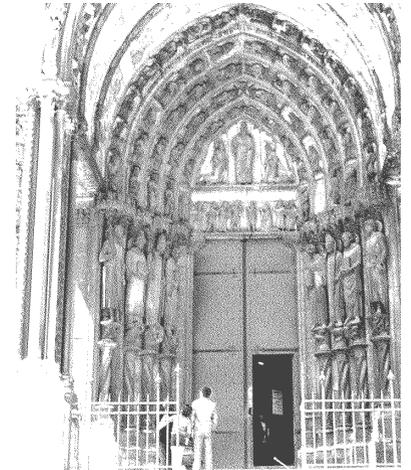
Juhani Pallasmaa
Eyes of the Skin

precedents

Mechanisms in History

Mechanisms are not new to architecture. Gothic cathedrals required the use of hinges for their many doors. More than just a functional detail, these doors developed symbolic purposes. On the entrance, a door scaled to the size of a person would be set into one of the large doors scaled to the size of the church. The door on the northwest transept side, meanwhile would be reserved for the use of the Bishop.

In medieval Japan, an elaborate system of sliding partitions was developed. These panels - called *shoji* if they are translucent, *fusuma* if they are opaque - are paper covered panels set into parallel tracks in the floor. These partitions allowed for the openness and flexibility that are hallmarks of Japanese residential construction.



1. Chartes Cathedral -
South Transept



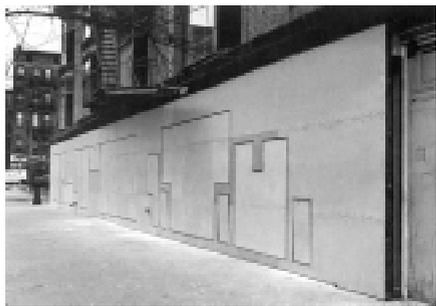
2. Katsura Villa



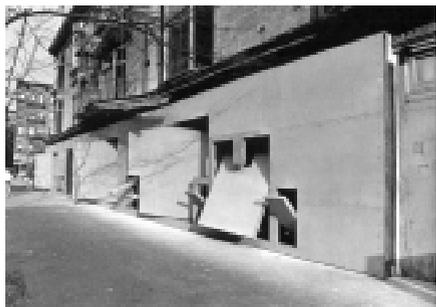
precedents

Movement in Elevation

In the 20th century, the use of mechanisms as an expressive element has been explored by architects in different ways. Steven Holl's StoreFront for Art and Architecture magnified the condition of an urban storefront, which presents a different facade depending on whether or not the building is open to the public. In a similar manner, Peter Worndl's "Gucklhupf" is a plywood box which can be unfolded in a number of ways to present different vantage points from which to view the landscape. Both of these projects use mechanisms that enable the elevation to be radically altered.

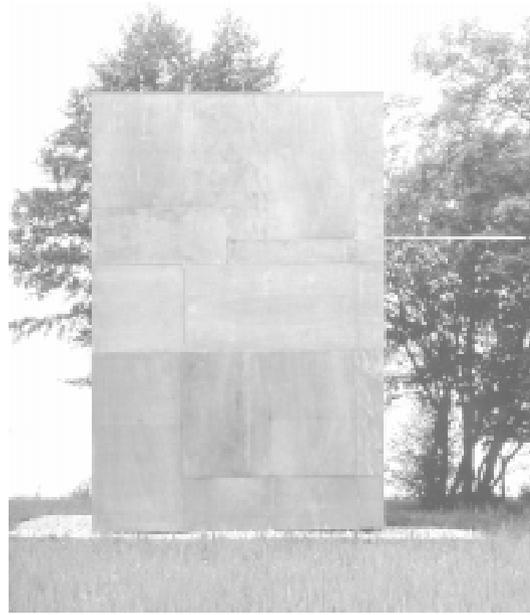


3



4

StoreFront for Art and Architecture - New York
Steven Holl & Vito Acconci



5



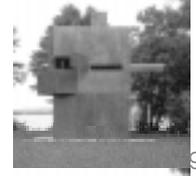
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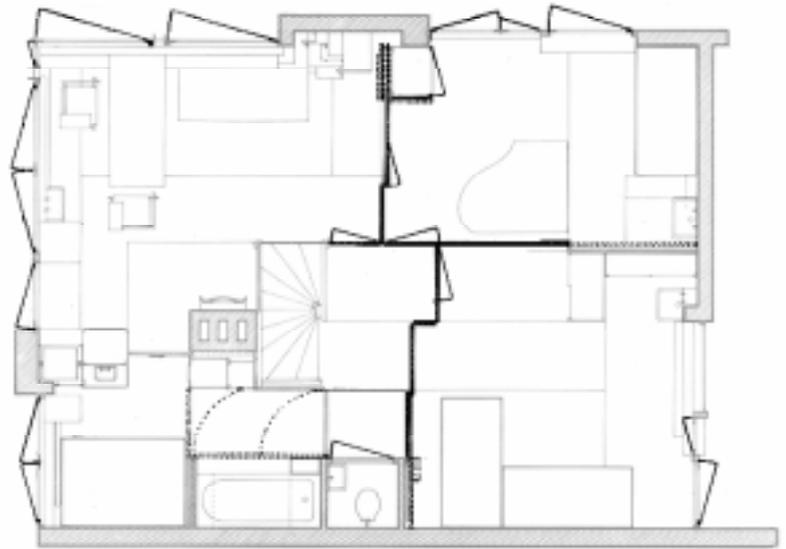
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Gucklhupf
Hans Peter Worndl

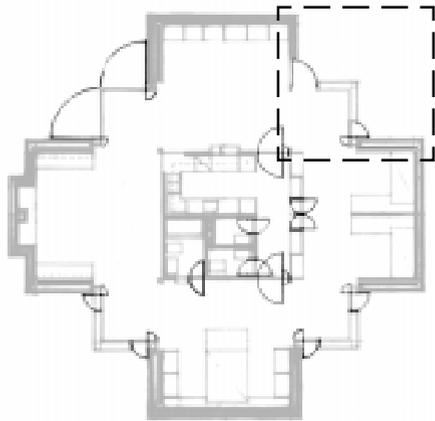
precedents

Movement in Plan

Other architects have used mechanisms as a response to the functional requirements of a building. In Gerrit Rietveld's Schroeder House, numerous hinged and sliding panels allow the building to be divided into discrete rooms or completely opened up. More recently, Sverre Fehn's House in Norrkoping utilized sliding doors as a way of dividing a house into either one or nine rooms, depending on the number of people living there at the time.

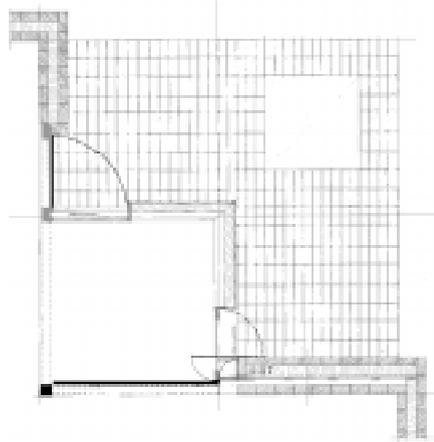


14. Schroeder House
Gerrit Rietveld



15

House in Norrkoping
Sverre Fehn



16

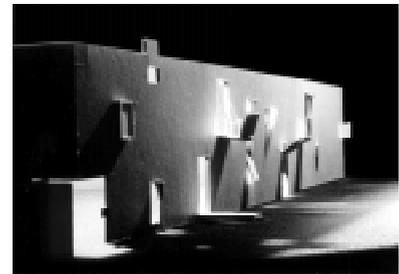
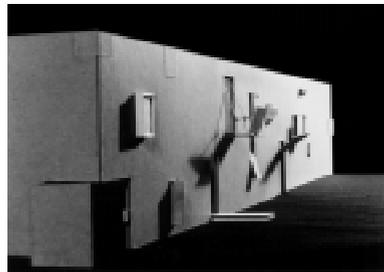
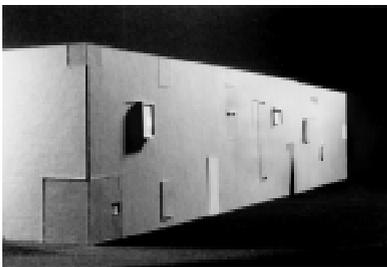
"The sliding walls regulate the light and secure the silence of night. The house is a reference in relation to each day. The door mechanism is a challenge to make the place coexist with one's temperament. For the lazy man the house remains the same and his walk is a passage engraved forever."

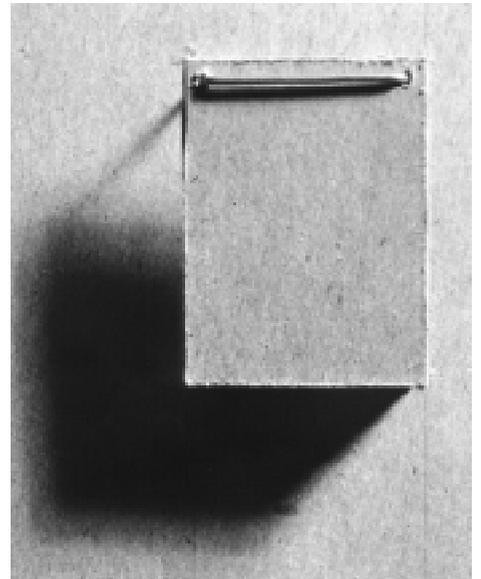
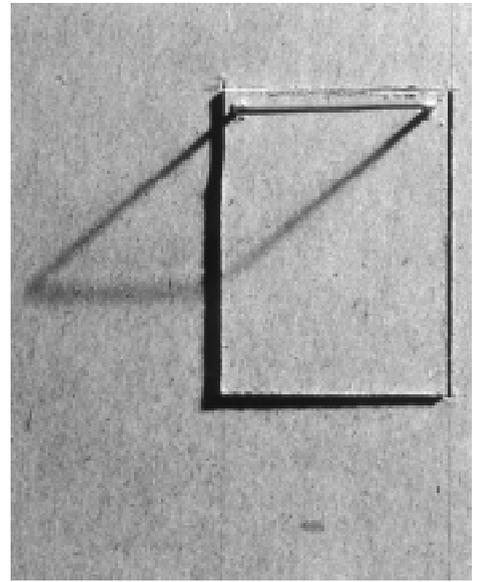
Sverre Fehn

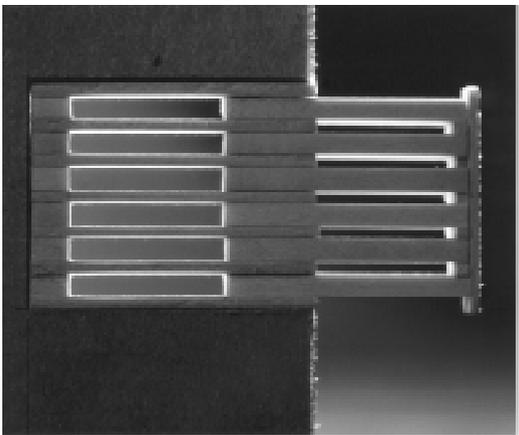
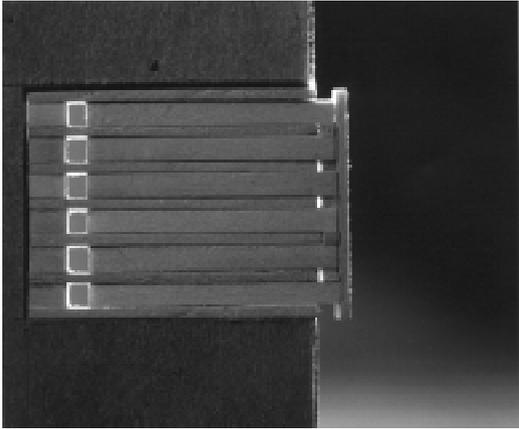


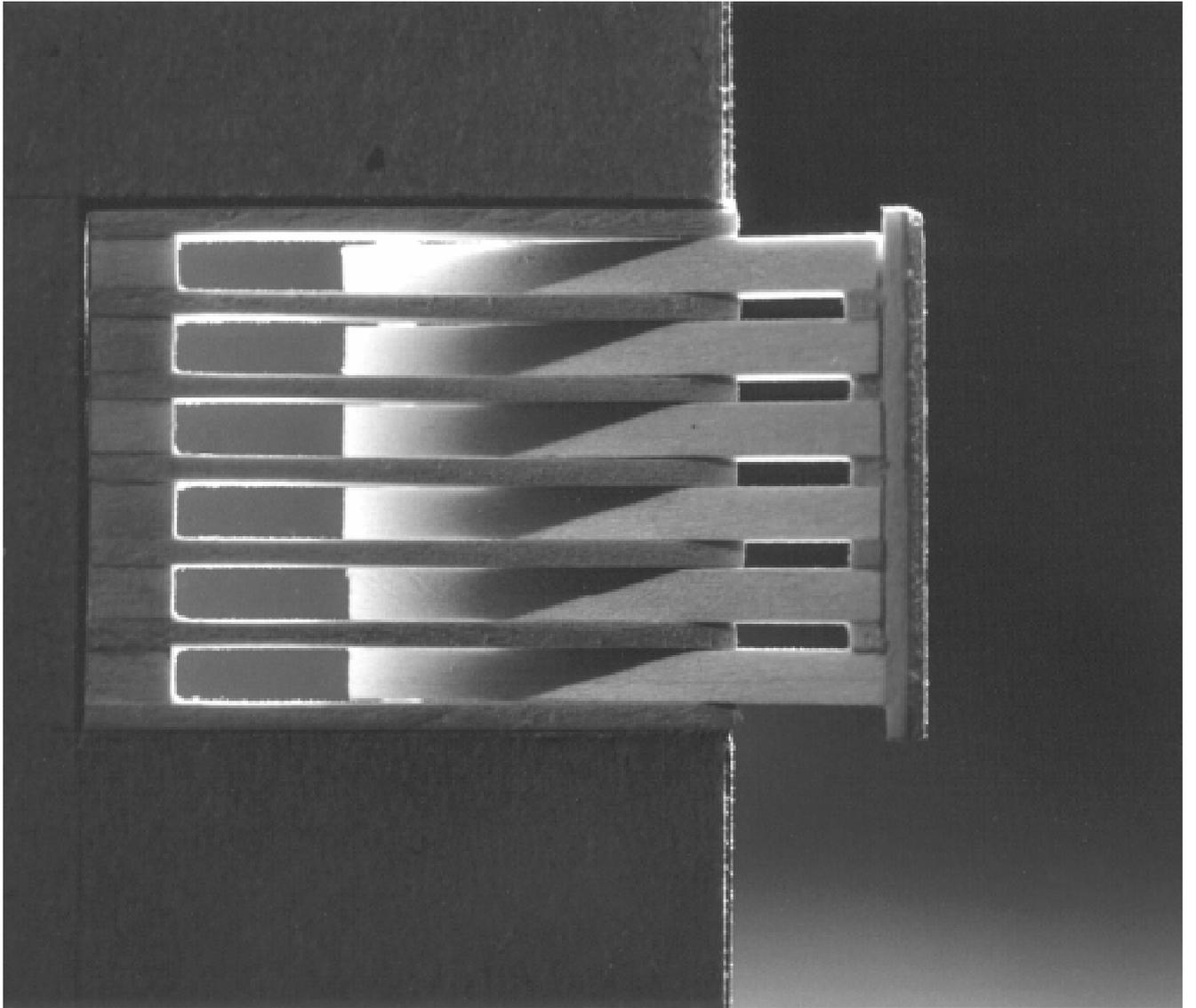
origins of the project

This project began with the study of a wall. A chipboard model was constructed containing 12 openings which could be open and closed. While the openings differed greatly from each other, they operated under a common rule: the movement of each had to contribute something to the wall besides a change of position. Some created a new element, such as an awning or vestibule, while others changed the profile of the wall. Most of the elements were “shadow-casters” that changed the wall through an unexpected transformation.





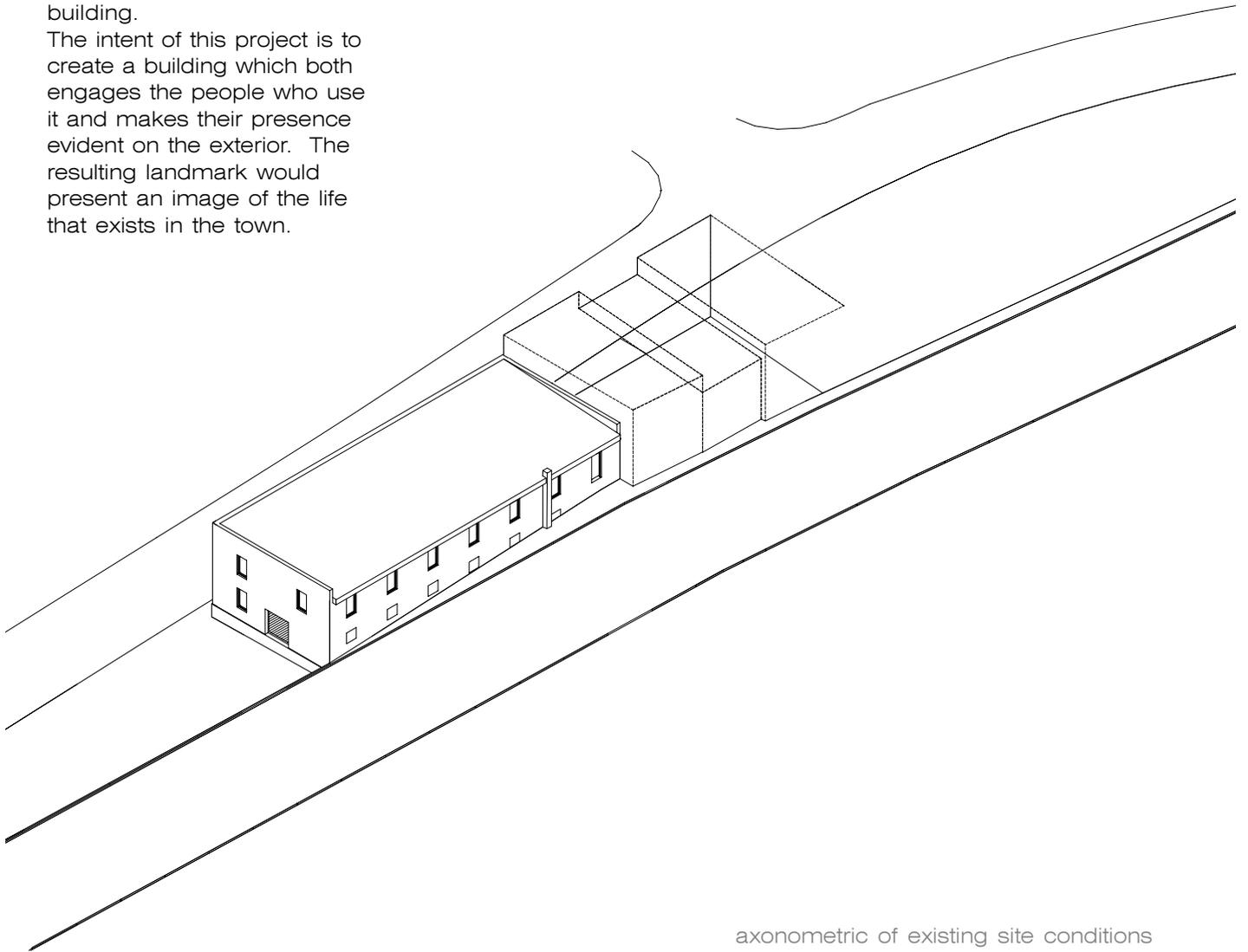




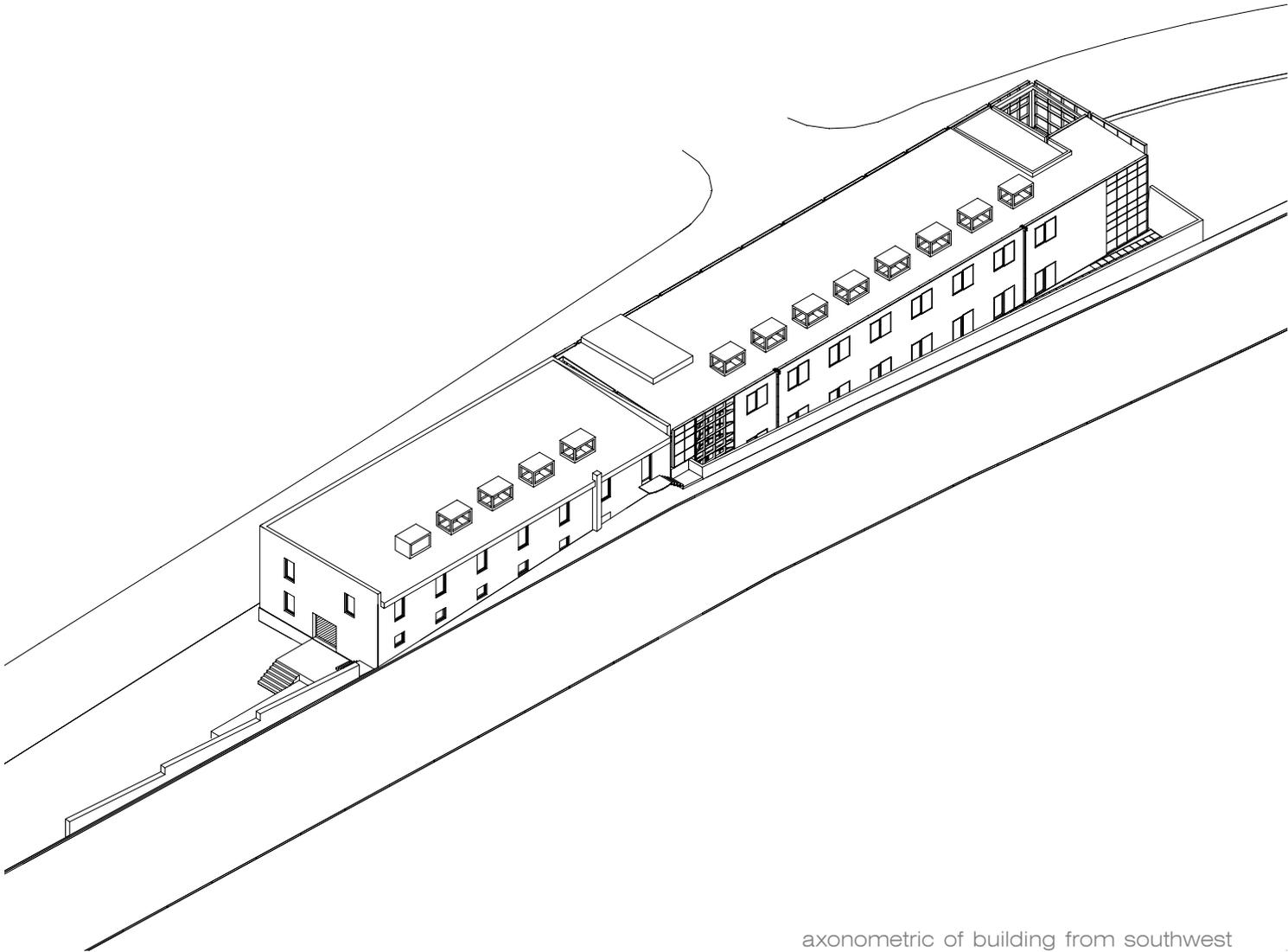
the project

The project is a small arts center containing artists' studios, classroom space, and a gallery, to be located near the entrance to Narrows, VA. The site includes an existing brick building which is to be renovated and is closely bounded by two roads that run along opposite sides of the building.

The intent of this project is to create a building which both engages the people who use it and makes their presence evident on the exterior. The resulting landmark would present an image of the life that exists in the town.



axonometric of existing site conditions



axonometric of building from southwest



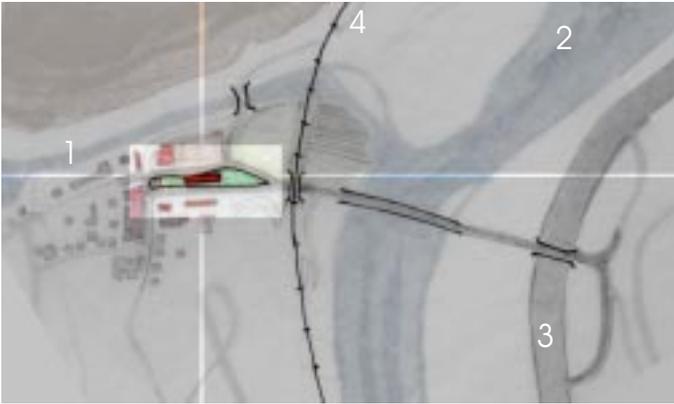
the site



View to downtown from southeast

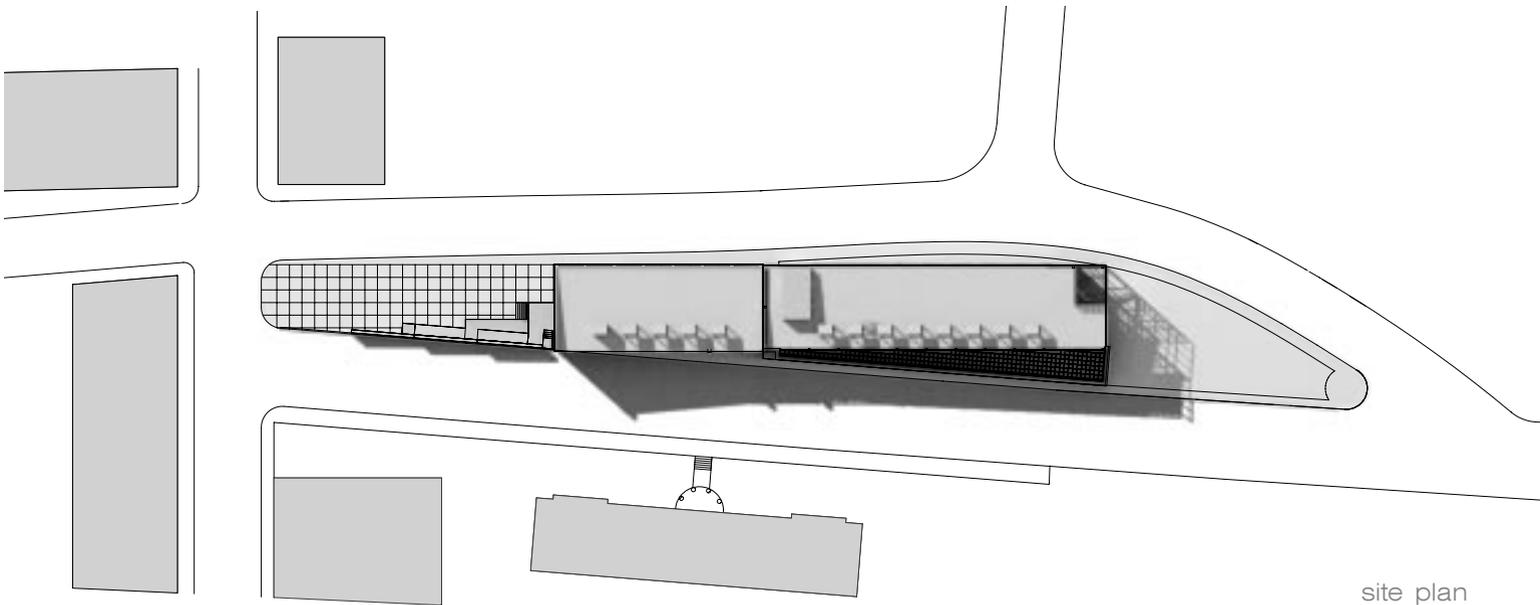


View to downtown from northwest



Key:

- 1. Wolf Creek
- 2. New River
- 3. Route 460
- 4. Virginia Western Railroad



site plan



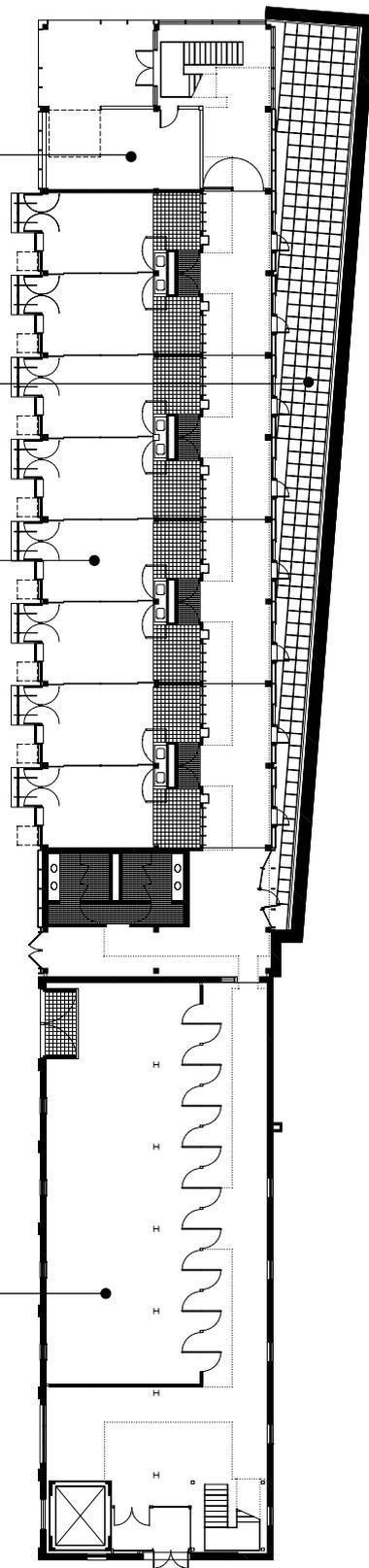
plans

mechanical room

sculpture garden

studio

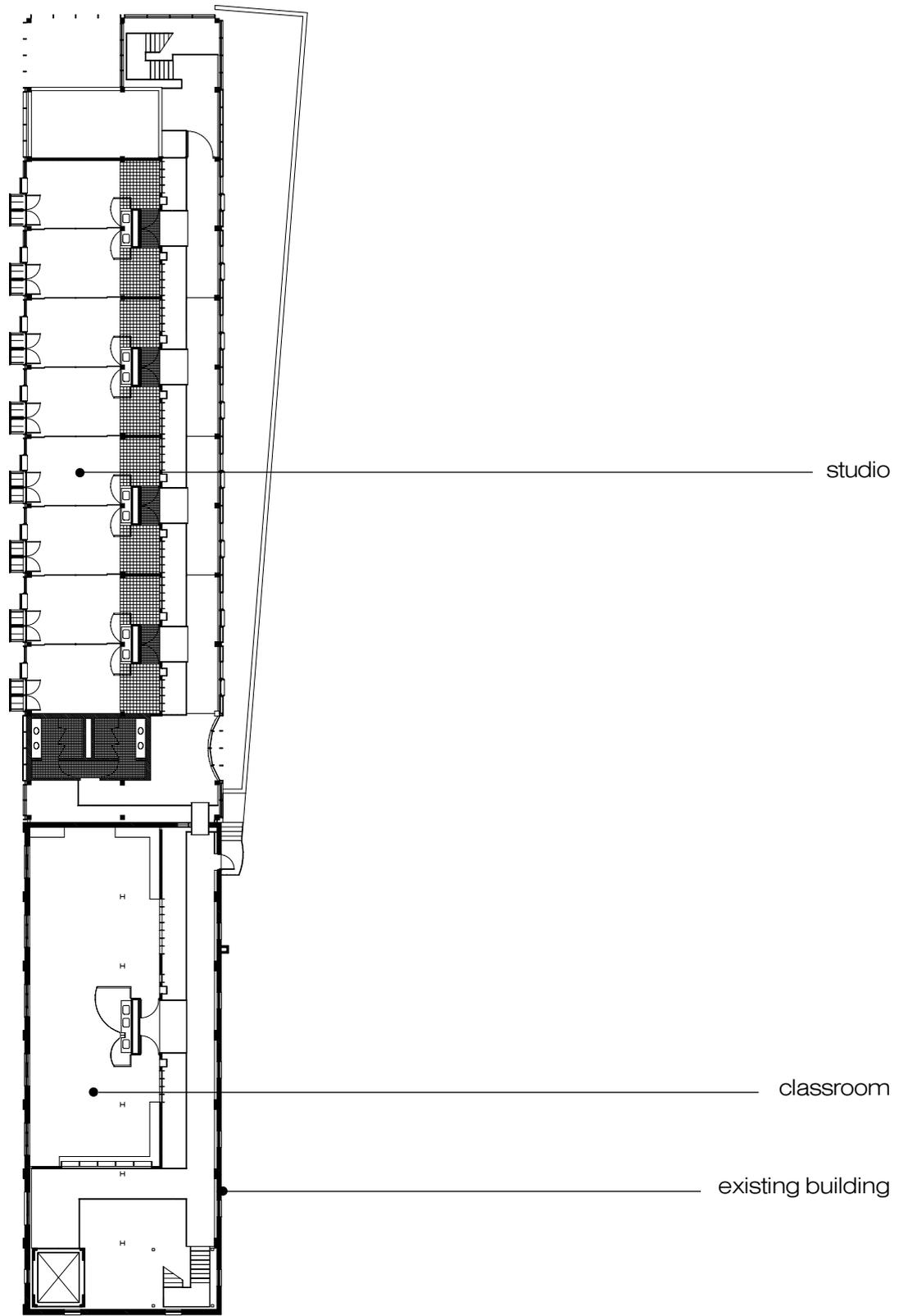
gallery



first floor

scale

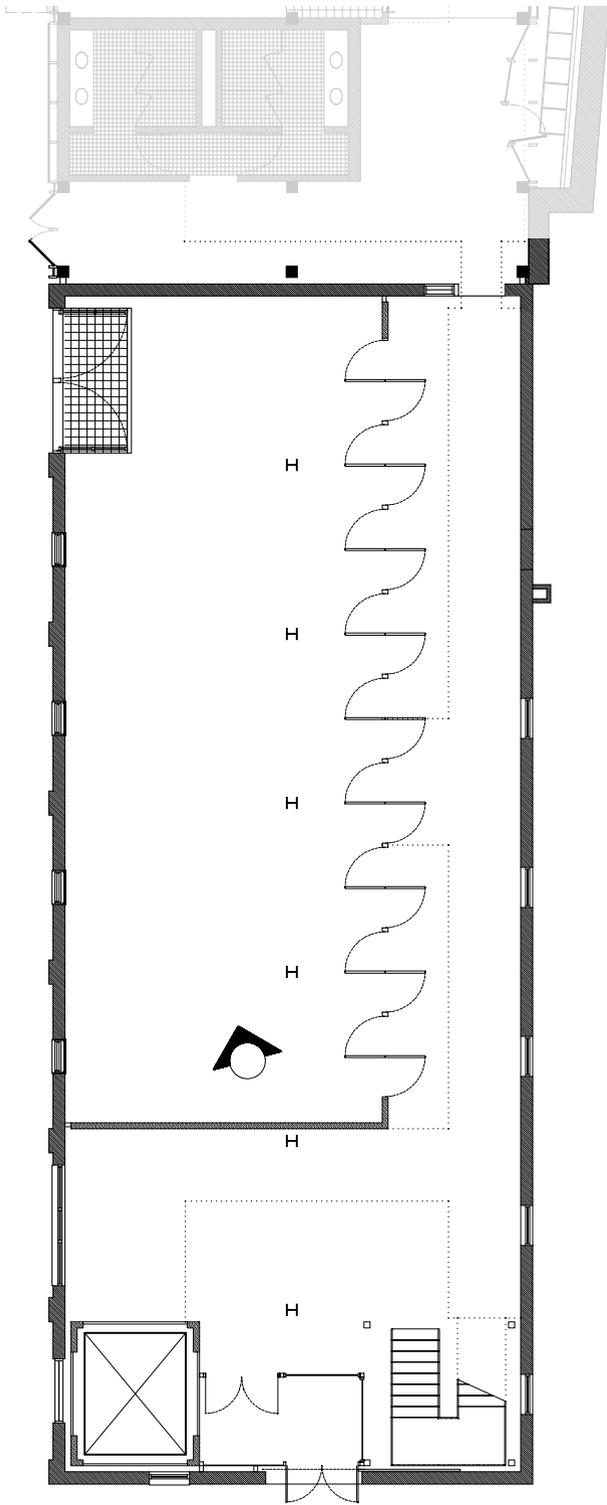




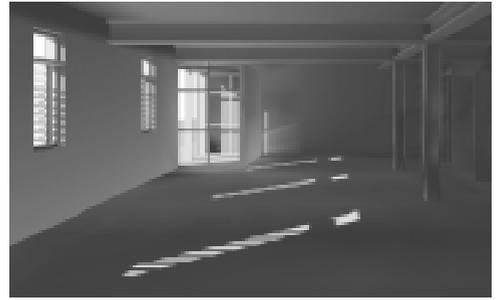
second floor



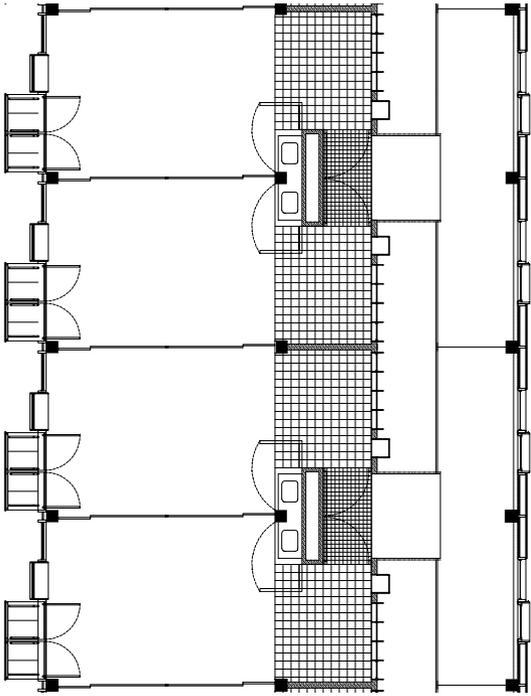
plan details



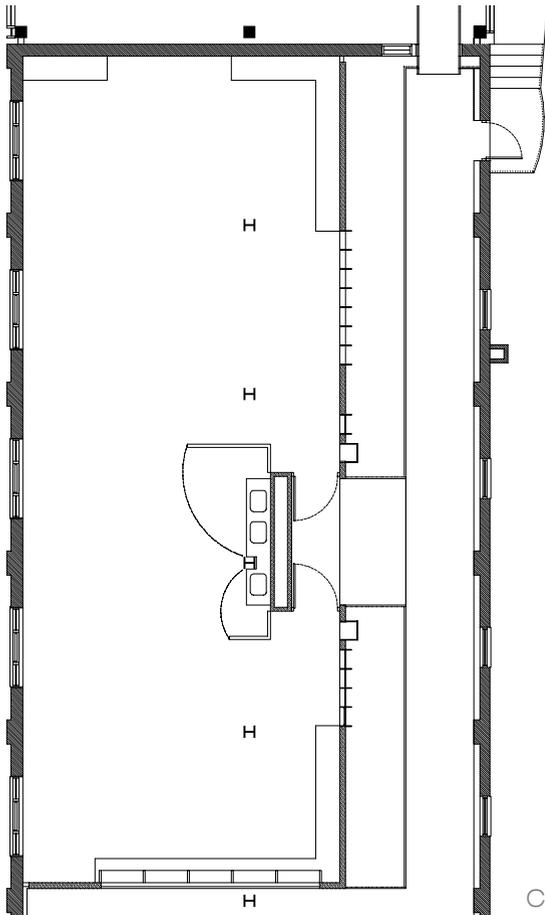
Gallery (first floor)



Gallery interior



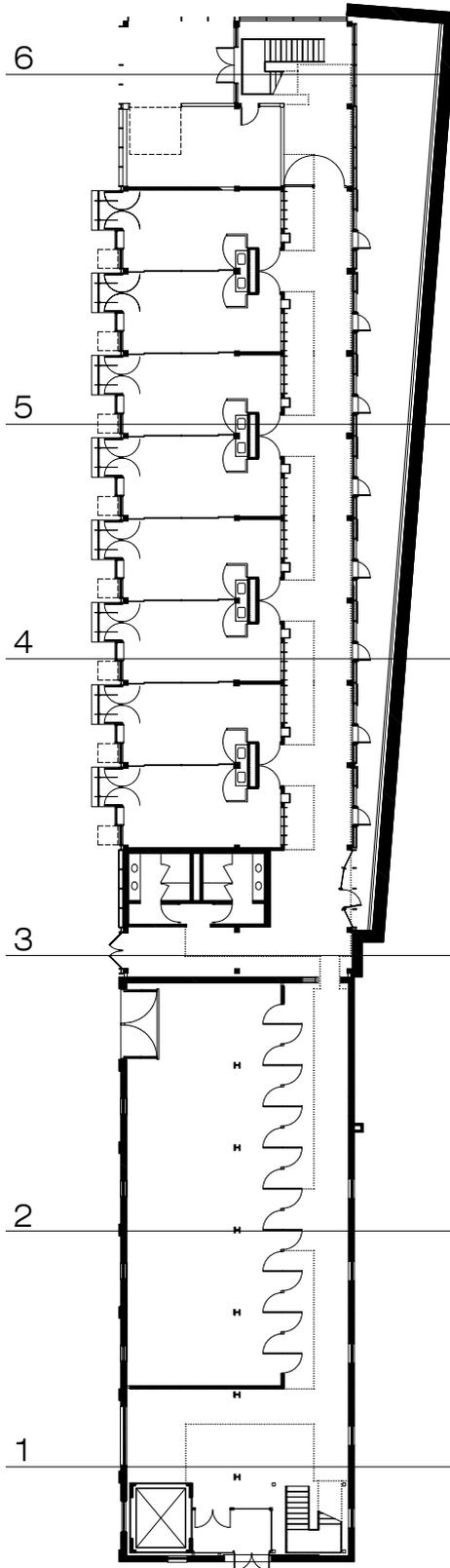
Second floor Studios

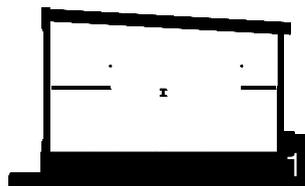
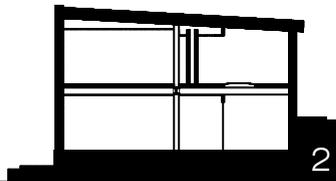
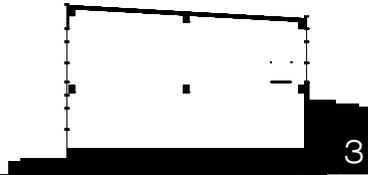
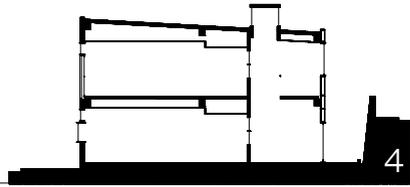
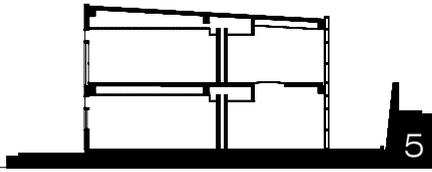
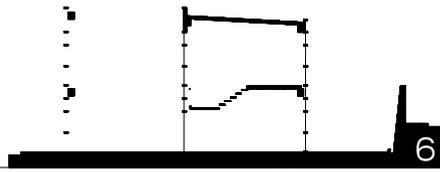


Classroom (second floor)

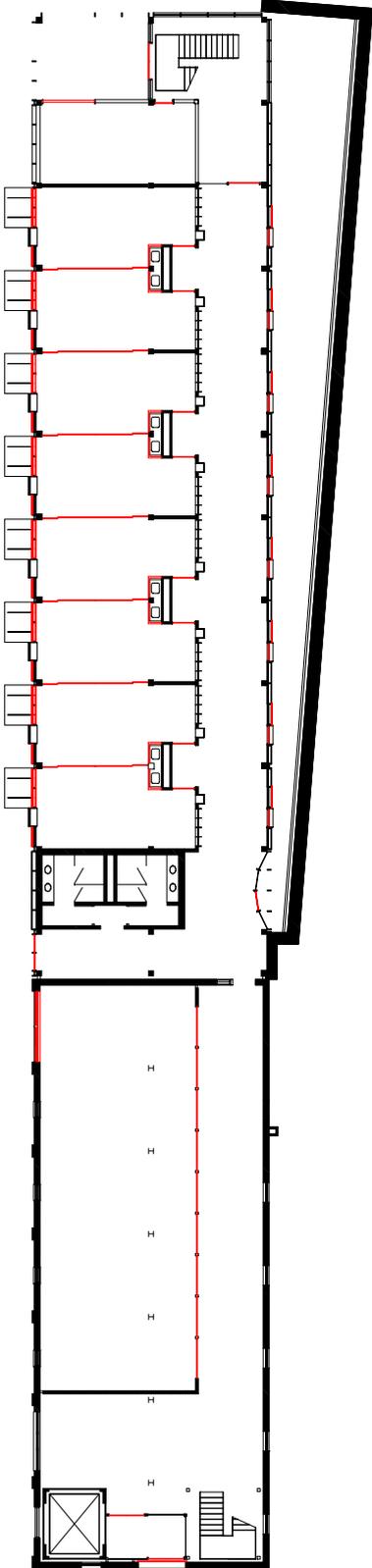


sections





first floor plan-open/closed

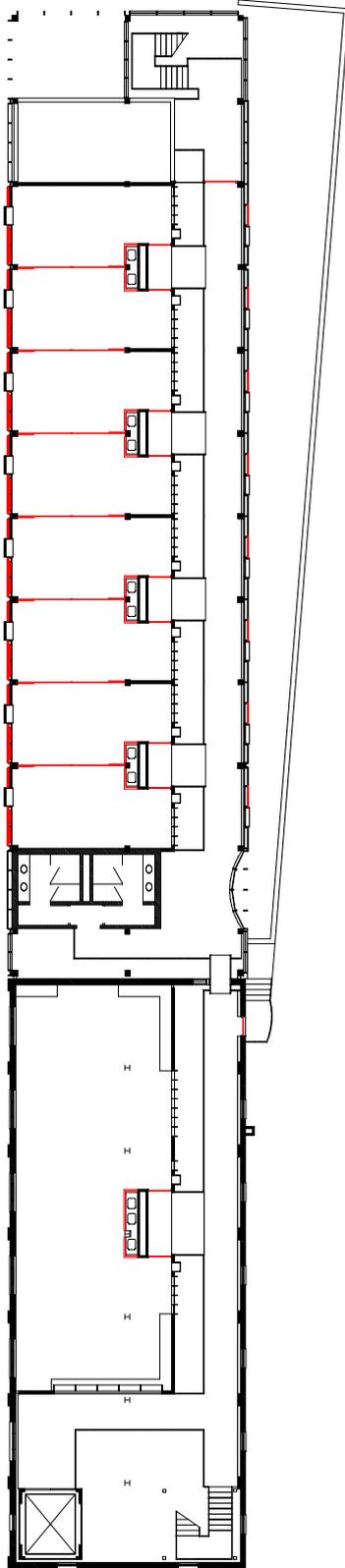


closed

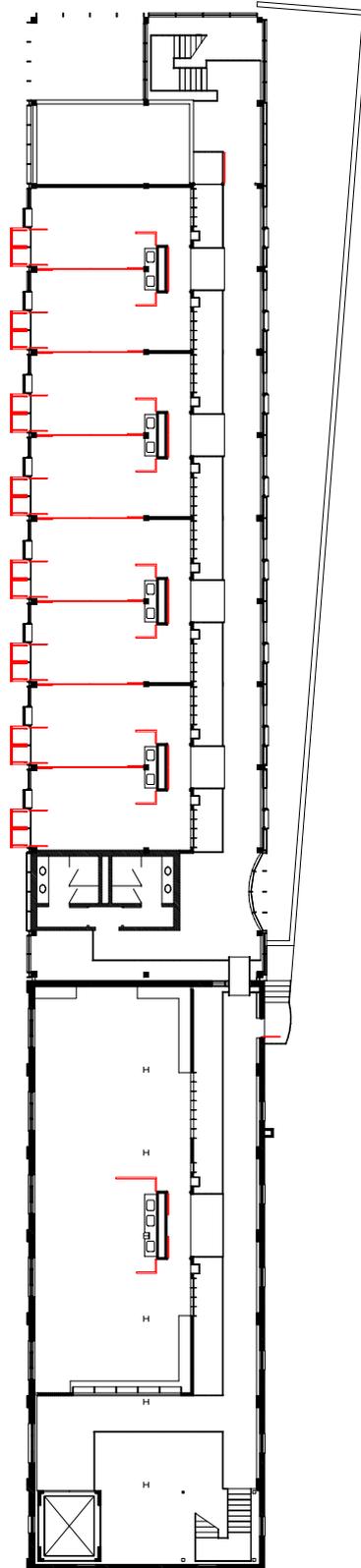


open

second floor plan-open/closed



closed



open



relation to the street

How do buildings relate to the street? The openings in a facade reveal the life occurring inside, either through the pattern of open /closed, or lit / unlit at night. These changes pinpoint activity and accentuate the presence of other people.

The adjustment of these controls over the course of a day cause the elevations to change. In this way, they also serve as a temporary record of the passing of time.

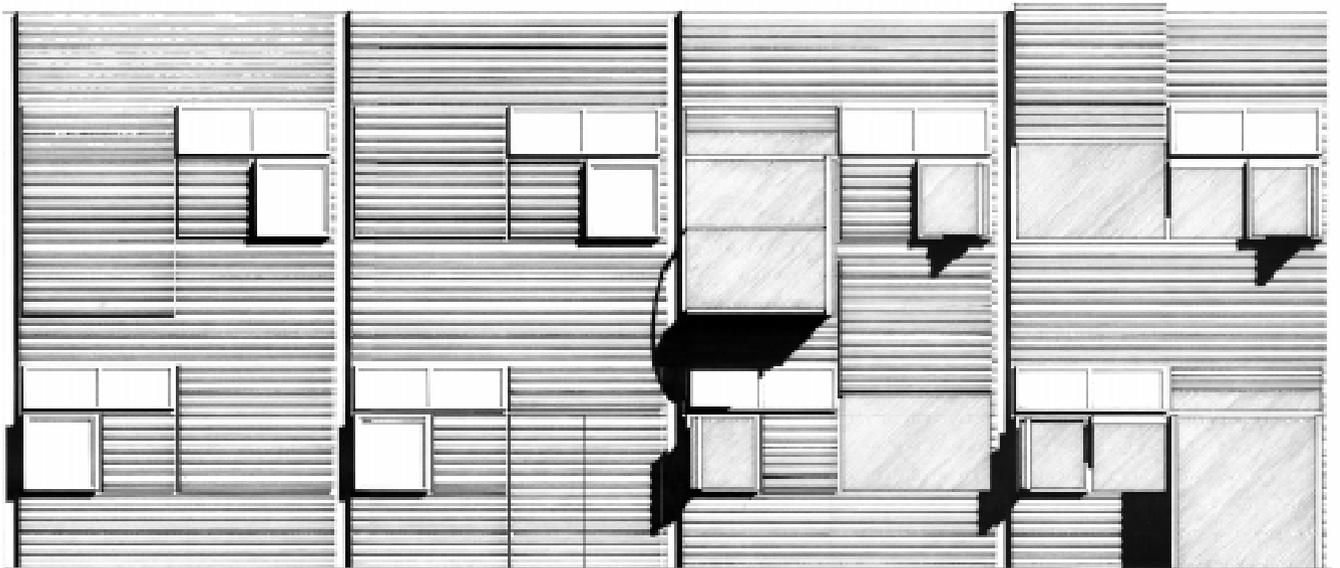
The northwest elevation in this project contains a variety of doors and windows that exaggerate the difference between open and closed.

The result is that the opening of a window has an effect on the whole facade, not just the room.



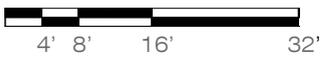
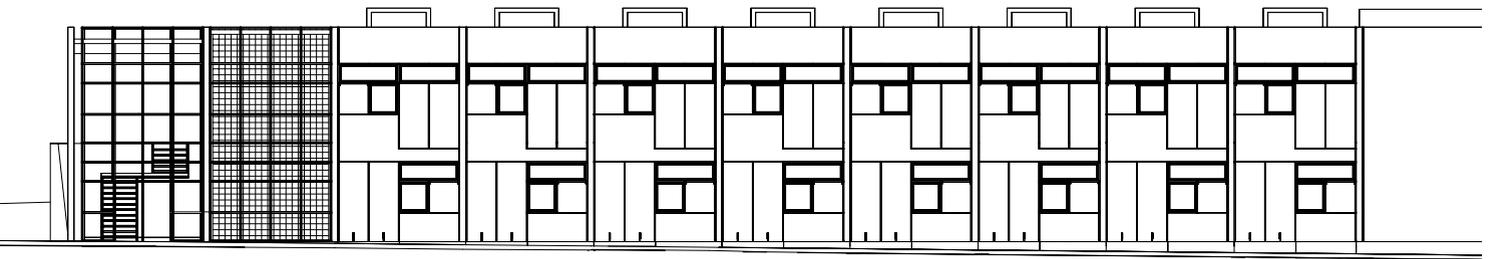
New Engineering Building - Virginia Tech

"Seen from the outside, it is the openings in a wall that strike the strongest rhythms across its face, and that narrate the life within, either directly, through the activities they reveal... or by inference, through the pattern or shape of windows that suggest the nature of spaces behind...."
Donlyn Lyndon
Chambers for a Memory Palace



Elevation study

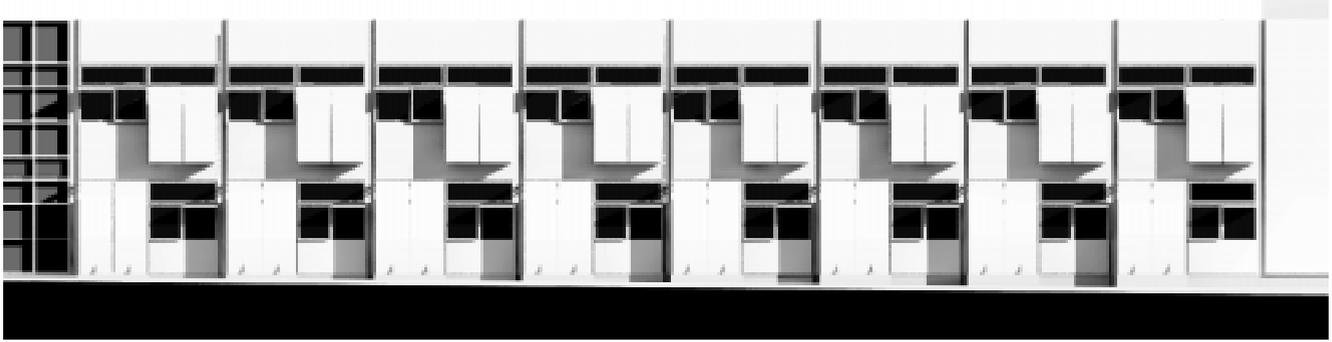
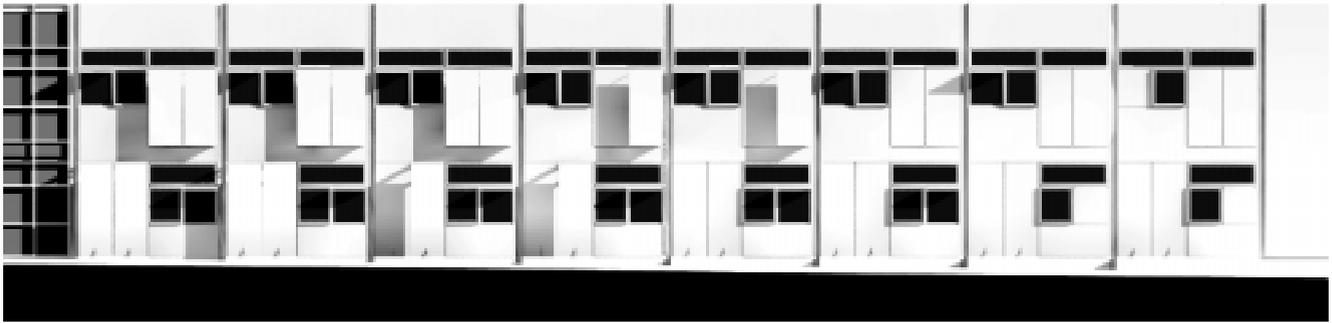


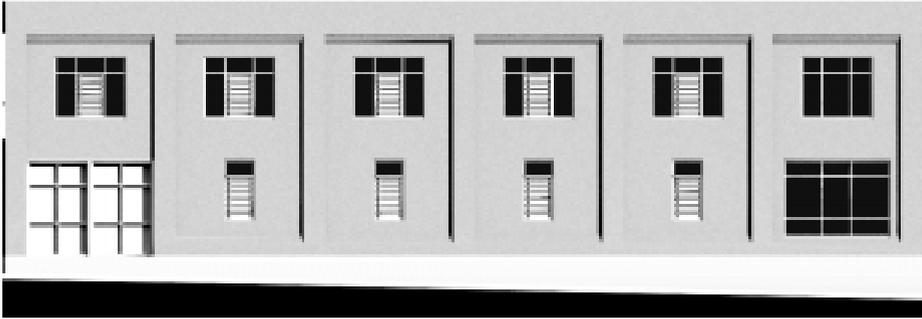




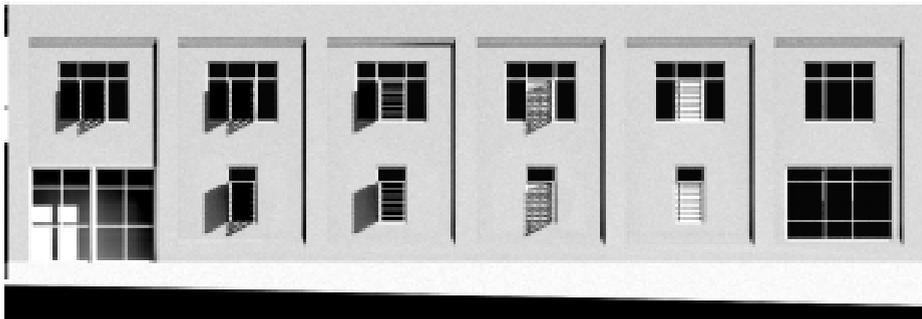
Northwest Elevation



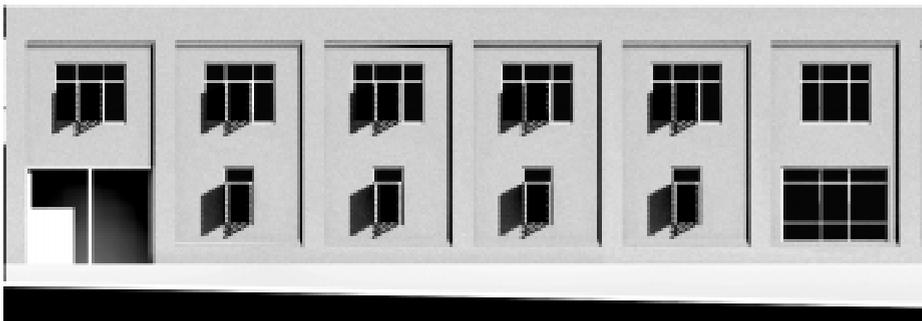




Doors and windows closed

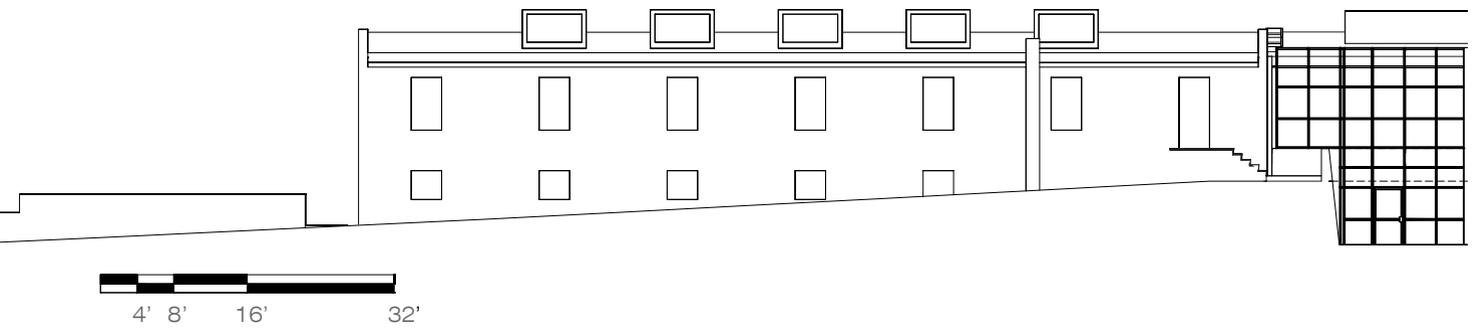


Doors and windows half open

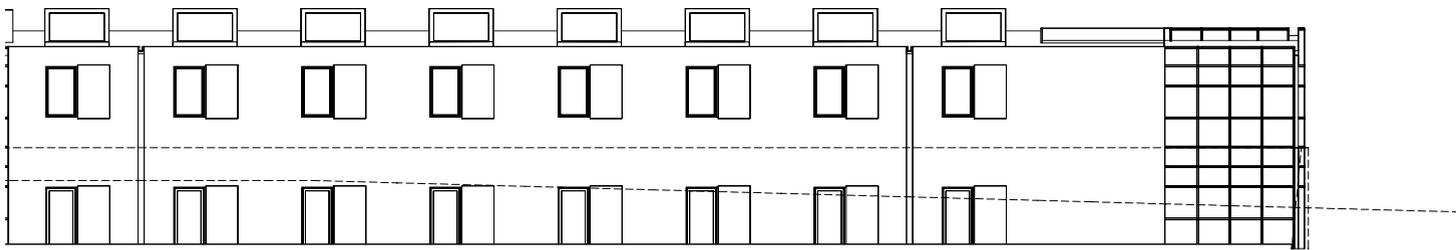


Doors and windows open





Unlike the varied northwest elevation, the southeast elevation is marked by uniformity. This is the location of the corridor which runs the length of the building. The nature of these openings - a shutter that slides parallel to the wall - serves to minimize the differences in position rather than emphasize them.



Southeast Elevation

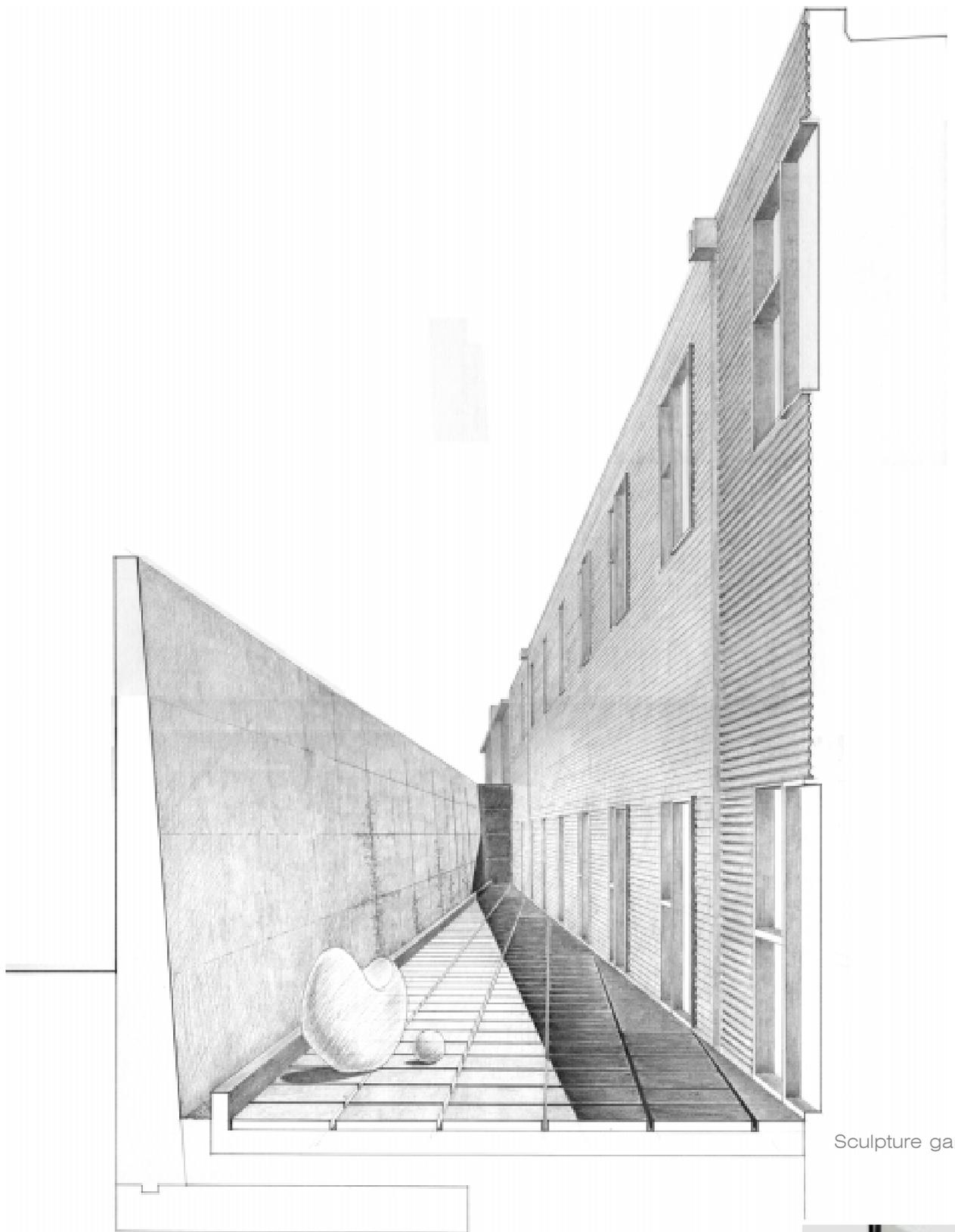


passage of time

On the southeast side of the building, as a contrast to the variable elevations of the studios, the pace of change slows down. Instead of time being measured in hours of a day, it switches to seasons of a year - or years. Here a place is made for plants to grow and rain or snow to lie. Vines grow and wither along the sloped wall while rain is channeled into the gaps between the pavers. In the winter, snow blankets the sculptures and dormant plants.



Horticulture Garden - Virginia Tech

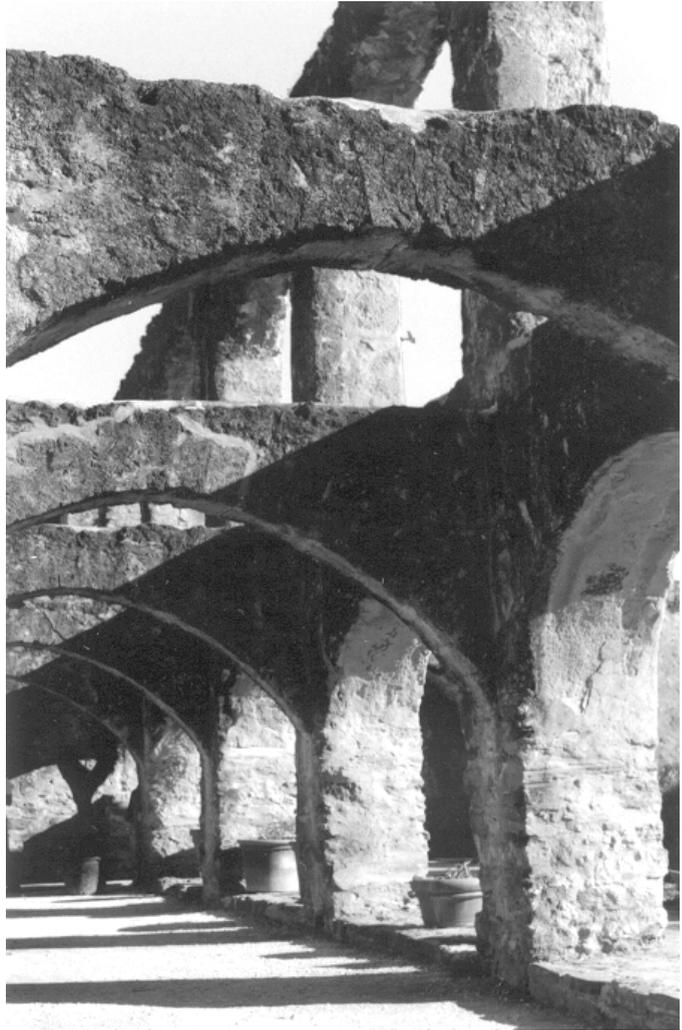


Sculpture garden

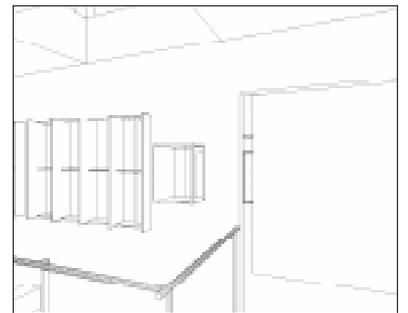
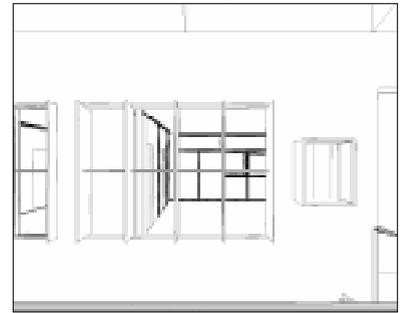
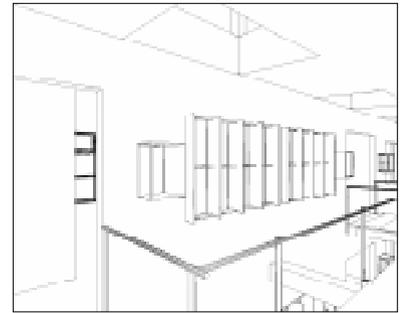


people as the dynamic element

Inside, the corridor uses static elements to take advantage of the movement of *people*. As visitors move through the arts center, their experience of the building changes. Deep vertical mullions along the studio windows to the corridor alternately obscure and reveal views into these rooms. On the second floor, a gap between the corridor and the rooms provides glimpses into the activity on the first floor. Starting in the dark volume of the existing brick building, visitors move along a path which is occasionally lit by light-monitors on the roof. This path is punctuated by brightly lit sections at either end of the new addition.

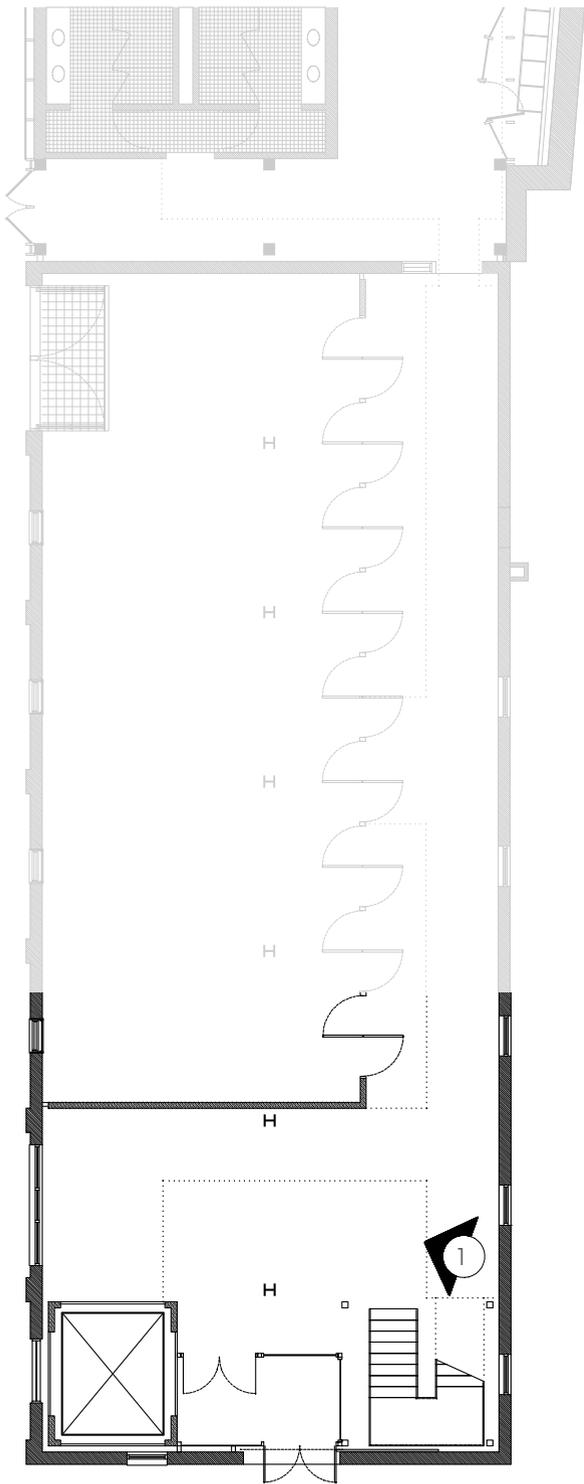


Mission San Jose - San Antonio



Studio walk-by

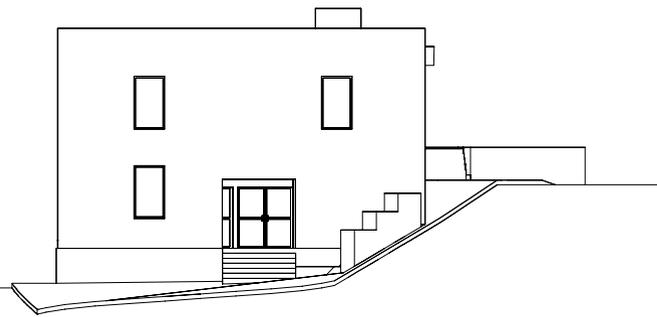




Plan at Southwest entrance

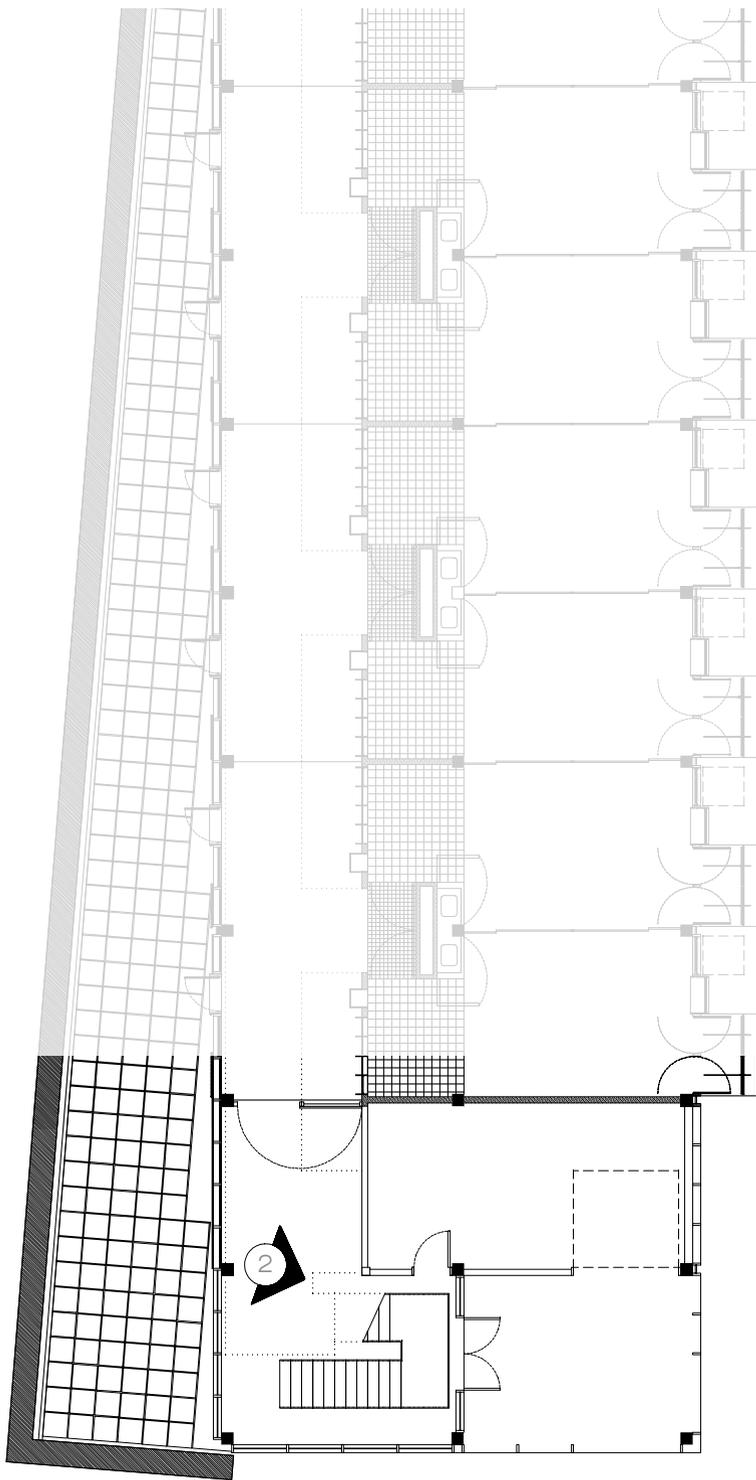


① View inside lobby

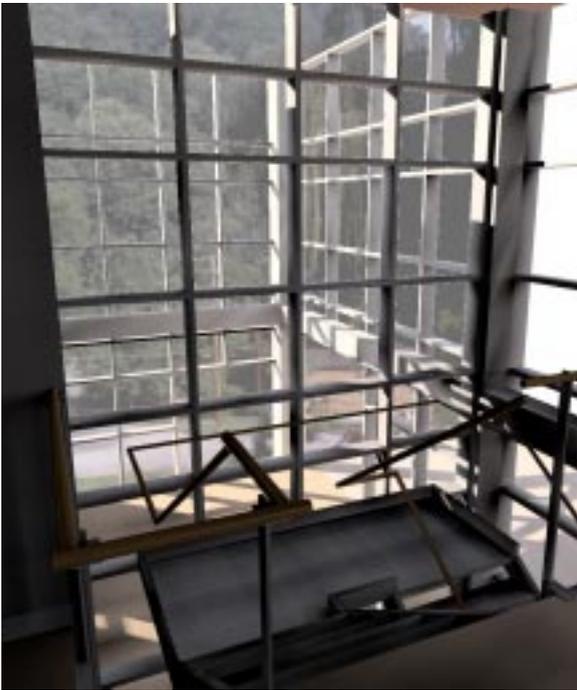


Southwest elevation

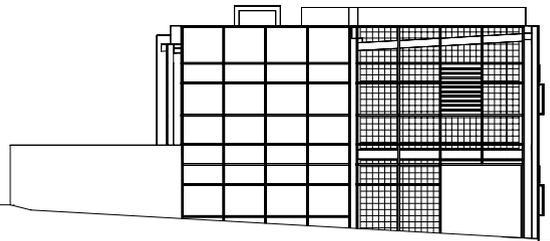




Plan at Northeast entrance



② View from stairs



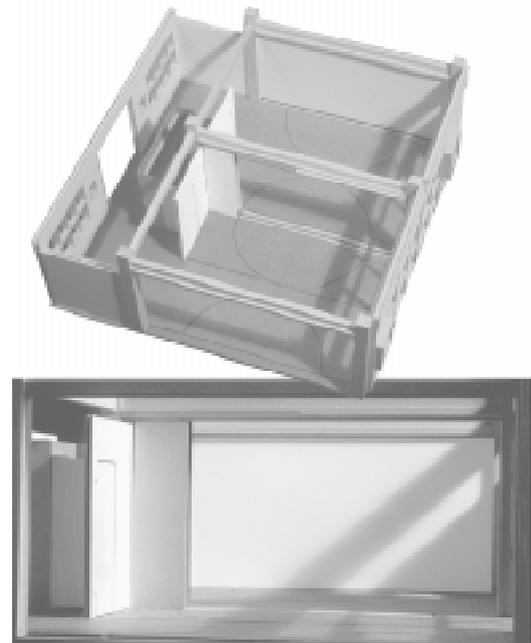
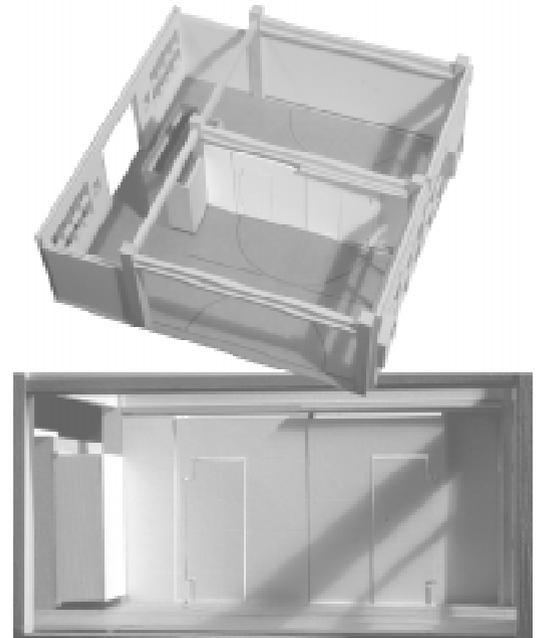
Northeast elevation



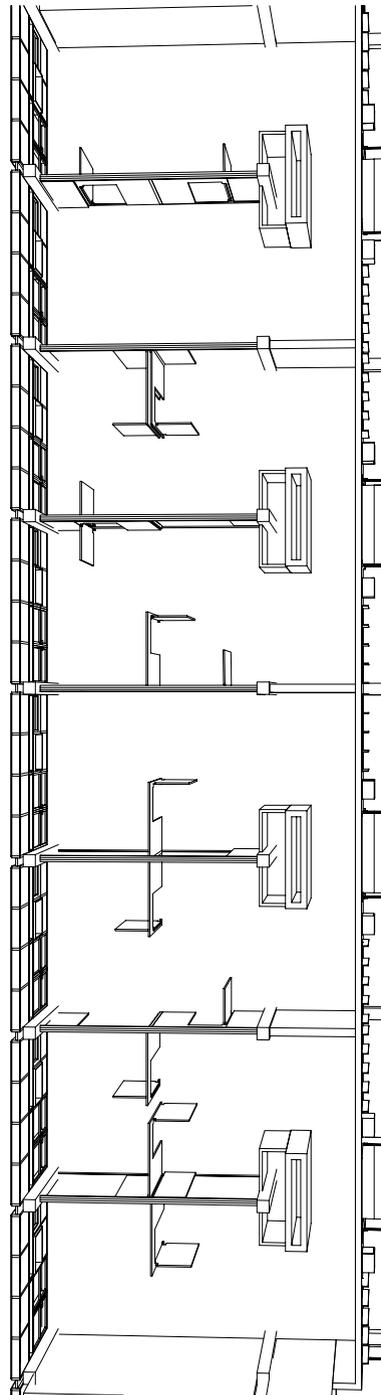
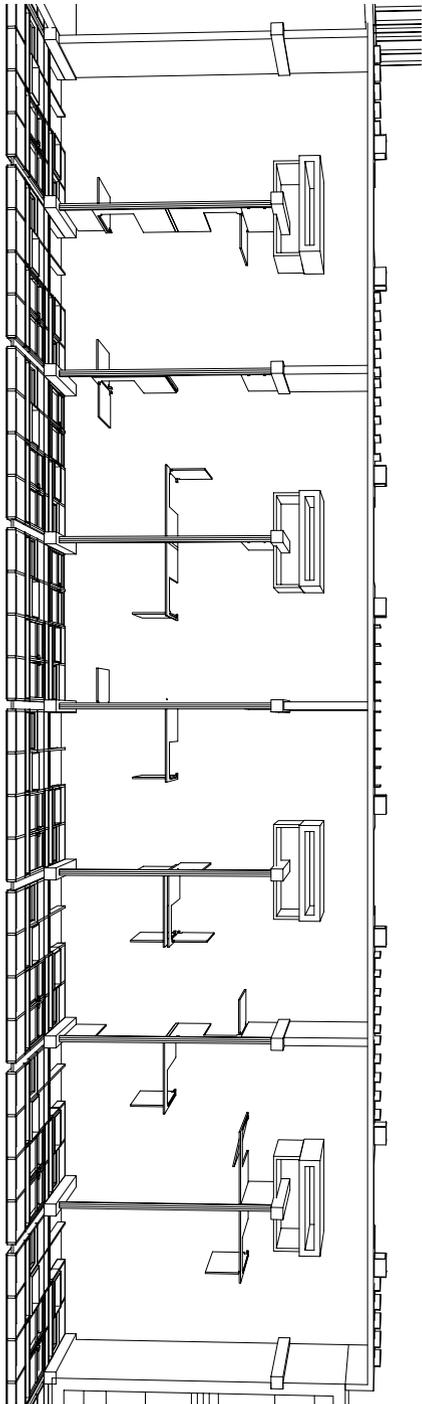
functional qualities

The studios are divided by partitions which can be manipulated in various ways to open up and connect them. Unlike an accordion partition which only has two positions - open and closed - these walls slide and rotate to produce a variety of configurations.

These walls consist of 2 large panels, each of which contain a door. The panels can pivot 90 degrees to define a smaller room within the larger one, or one panel may be pivoted 180 degrees to produce a partition half as long. The panels also slide along a track to allow the space to be completely opened up. Around the sinks are L-shaped doors which may be closed to hide the dirty brushes and other studio debris from visitors. These doors may also be left open to help shape the layout of the floor. Through these doors, the building enters a dialogue with the inhabitant by suggesting possibilities for use.



Studio study model

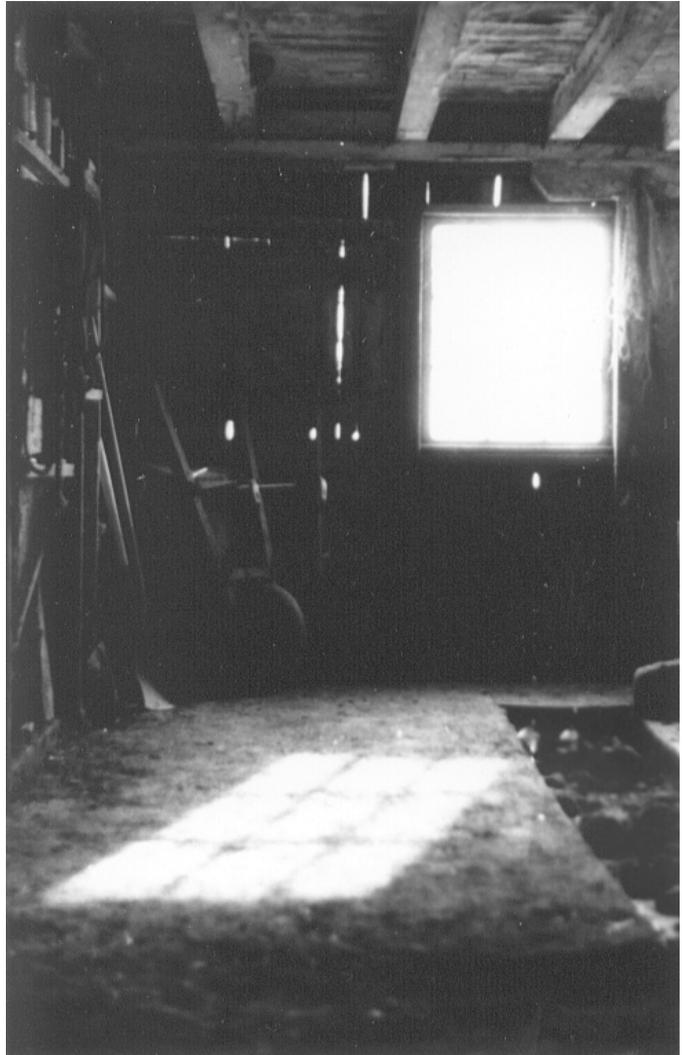


possible partition-wall configurations-
aerial views



spatial qualities

A window may convey information to passersby, but its real importance lies in what it does for the inhabitants of a room. Windows can be adjusted to control the amount of sunlight or fresh air, but they can also be used to alter the character of a space. A room that receives all its light from a window located along the ceiling is brighter and has a different feel than one that receives it from a single window located at eye-level. When there are several windows open, the room is washed in light and appears larger because trees and hills begin to form the boundaries beyond the immediate walls. If all of these windows were closed off except one, the darkness and occasional shafts of light would direct one's attention inward to the room itself and the resulting character would be one of intimacy, or perhaps loneliness.

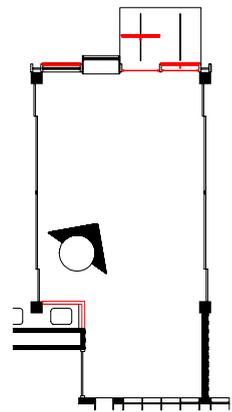
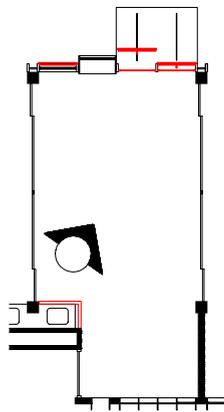
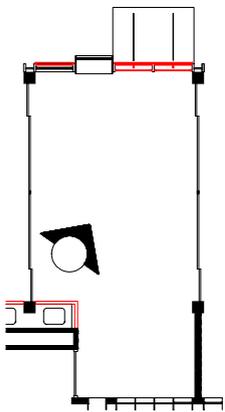


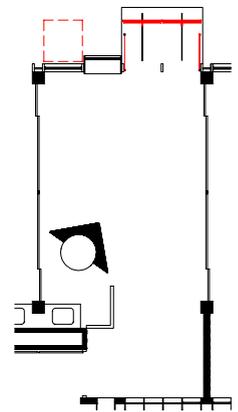
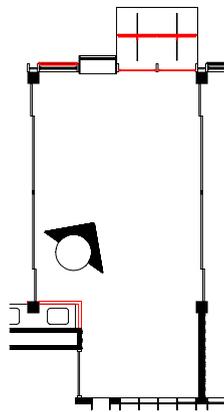
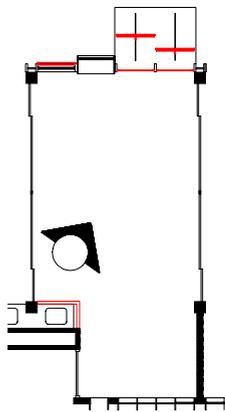
Barn interior - Bally, Pennsylvania



Studio interior







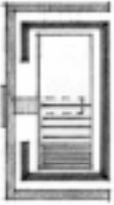
Studio light-study

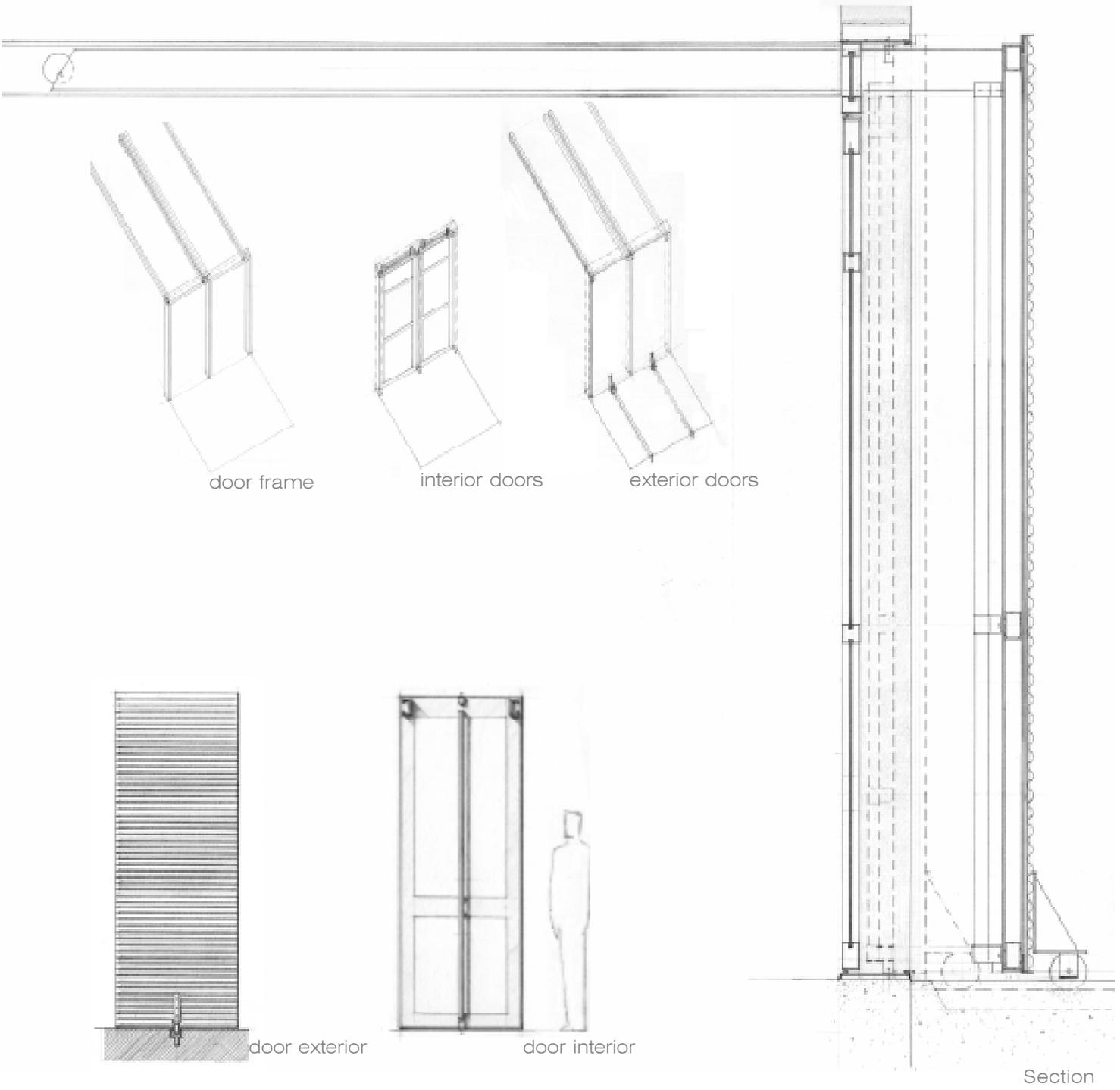


details

Pushout door

This door extends the boundary of the studio beyond that of the building itself. Due to the proximity to the roadway, it also acts as a privacy screen to the traffic. It operates in a manner similar to a drawer with telescoping rails.

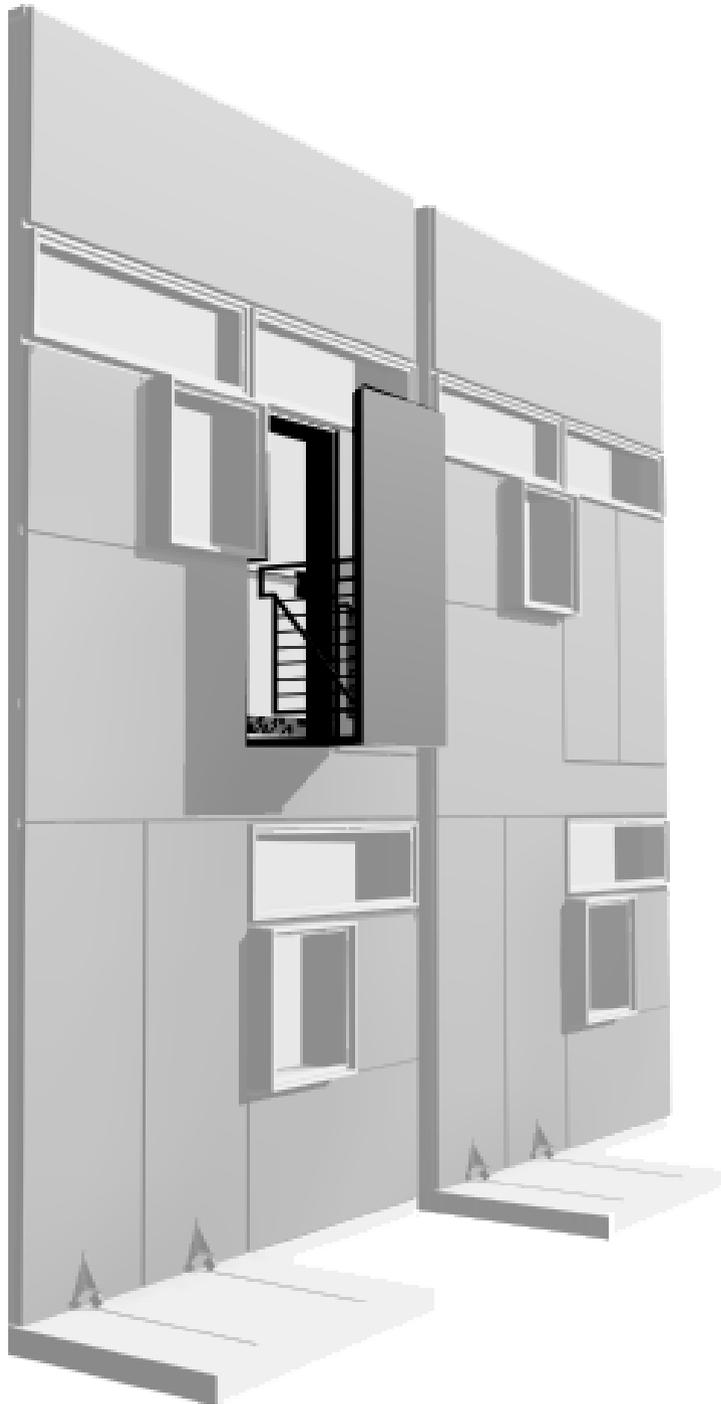




details

Balcony door

This door provides the second floor studios with an outdoor area by creating a balcony just large enough for one person. The doors are opened by pushing on the pivoting handrails which are attached to a steel grate. This grate rides on rollers in a channel cast into the underside of the concrete floor slab where it can disappear out of sight when the balcony is not in use.

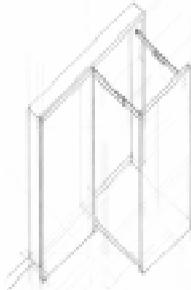




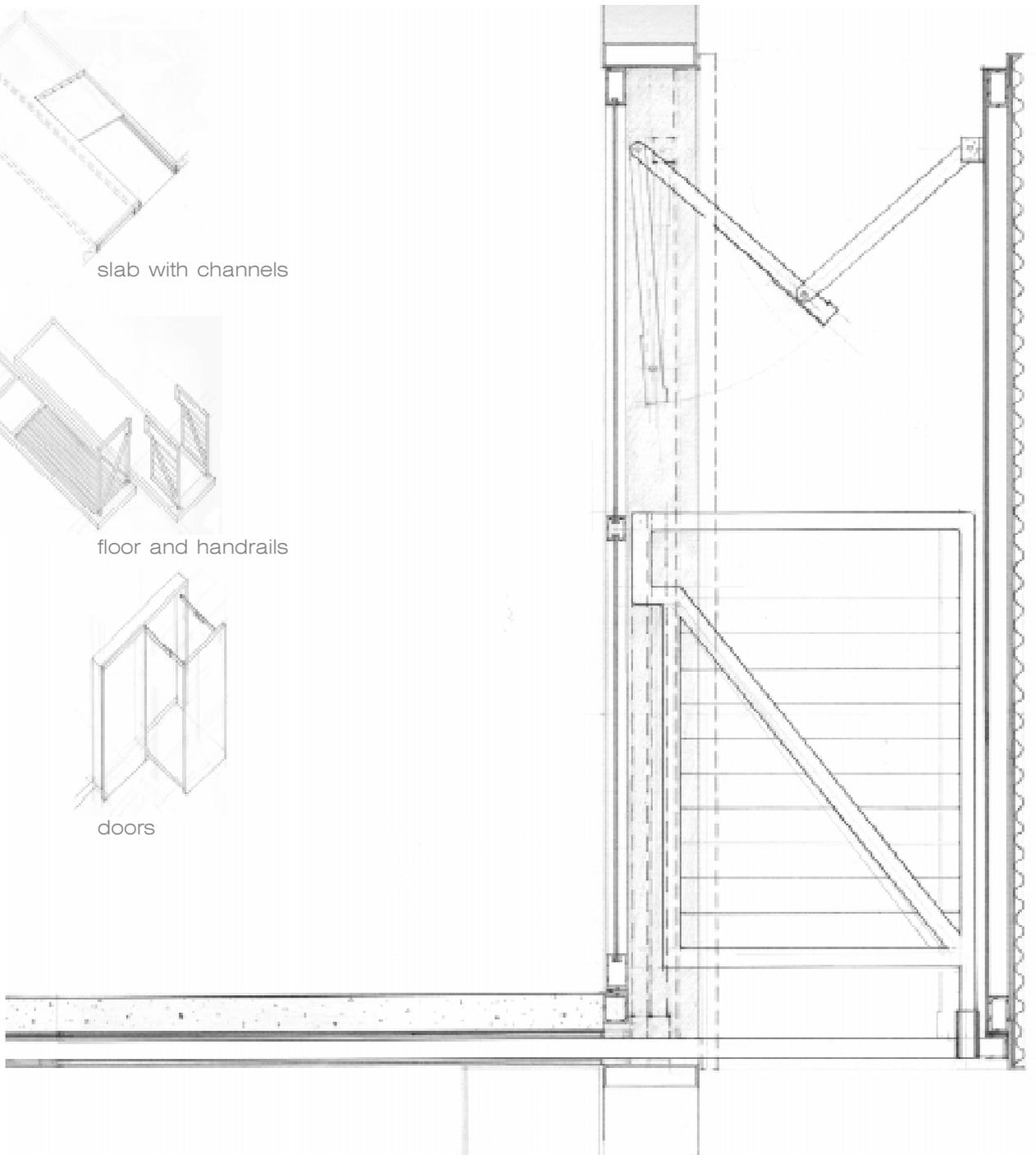
slab with channels



floor and handrails



doors



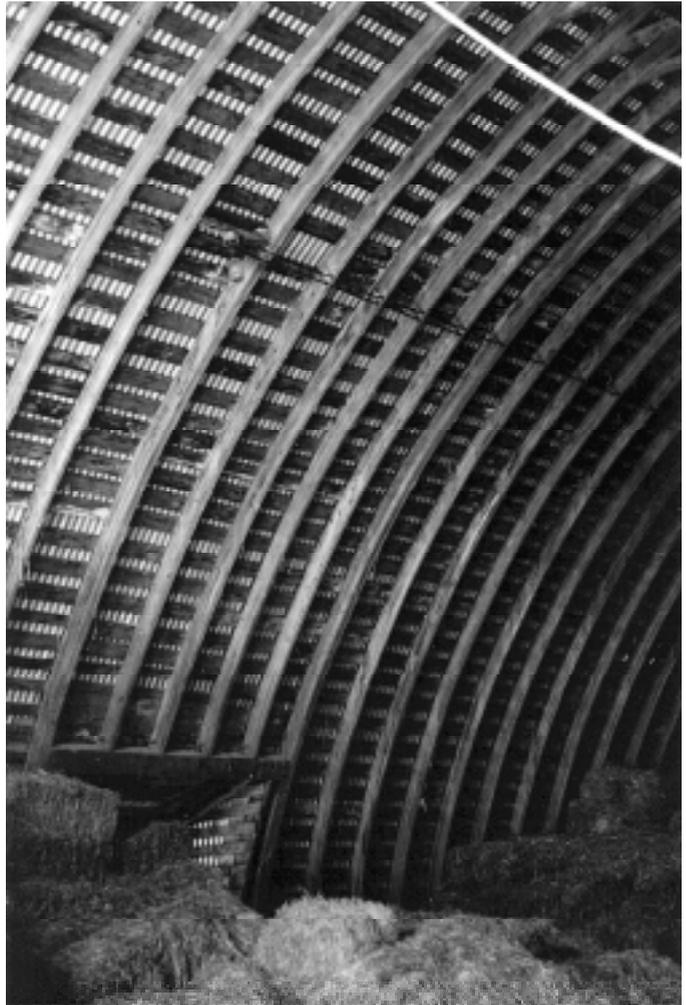
Section



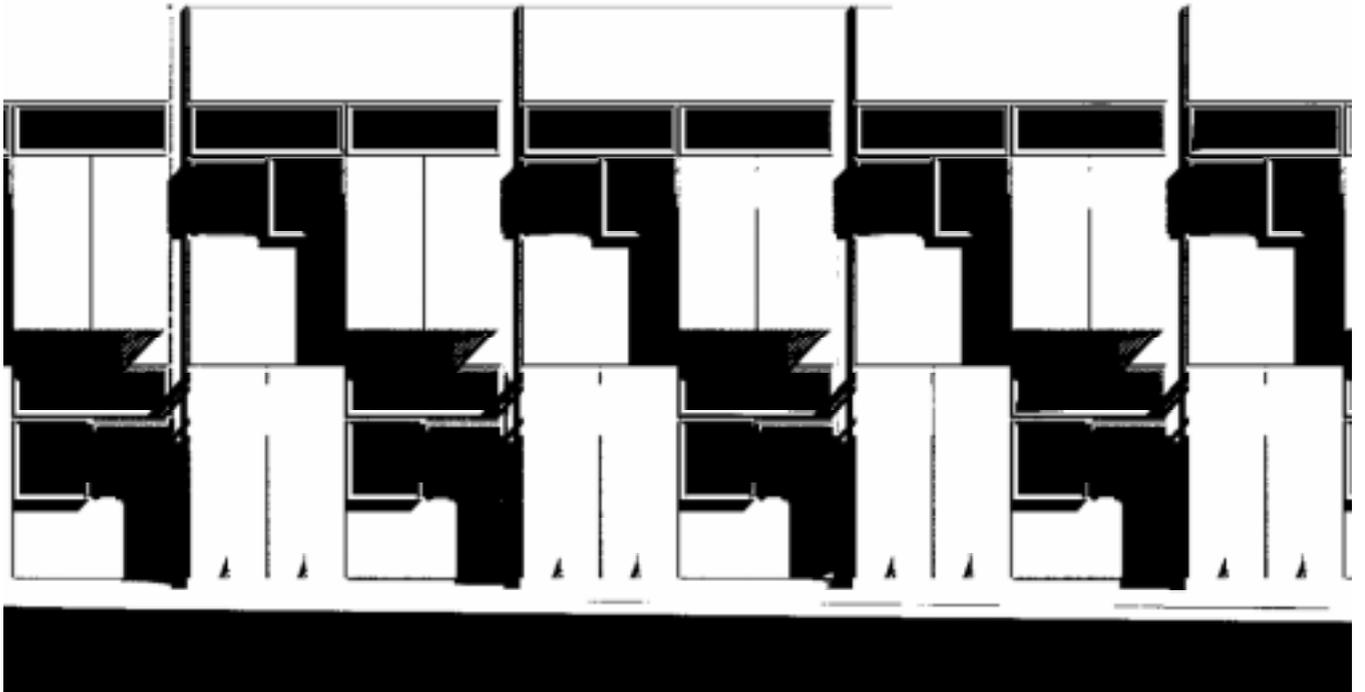
order

When dealing with elements that vary in position, it is important to construct a framework that orders them. The importance of this structure lies in the way it relates the various pieces to each other and to the whole, while providing a static backdrop against which the elements can react. In a system where many possibilities exist, it sets the limits to what can occur.

The order in this project comes partially from limiting the number of variables and their location. The elements that vary include a partition wall, two types of windows, and two balcony doors. These are inserted into a grid-ed frame which was partly derived from using standardized door and window sizes and heights. The static elements, such as column spacing, were ordered according to clues picked up from the existing building on the site.

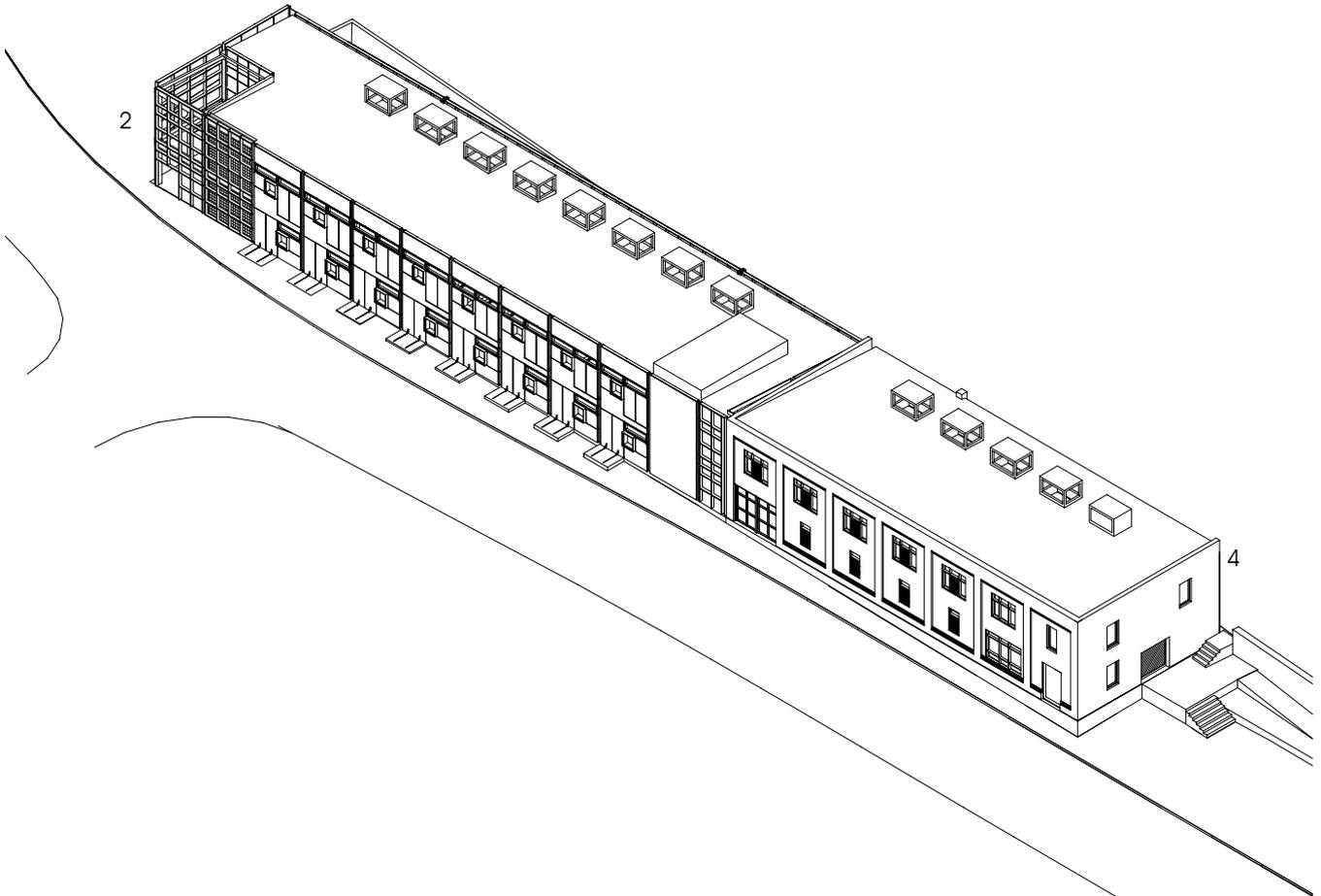


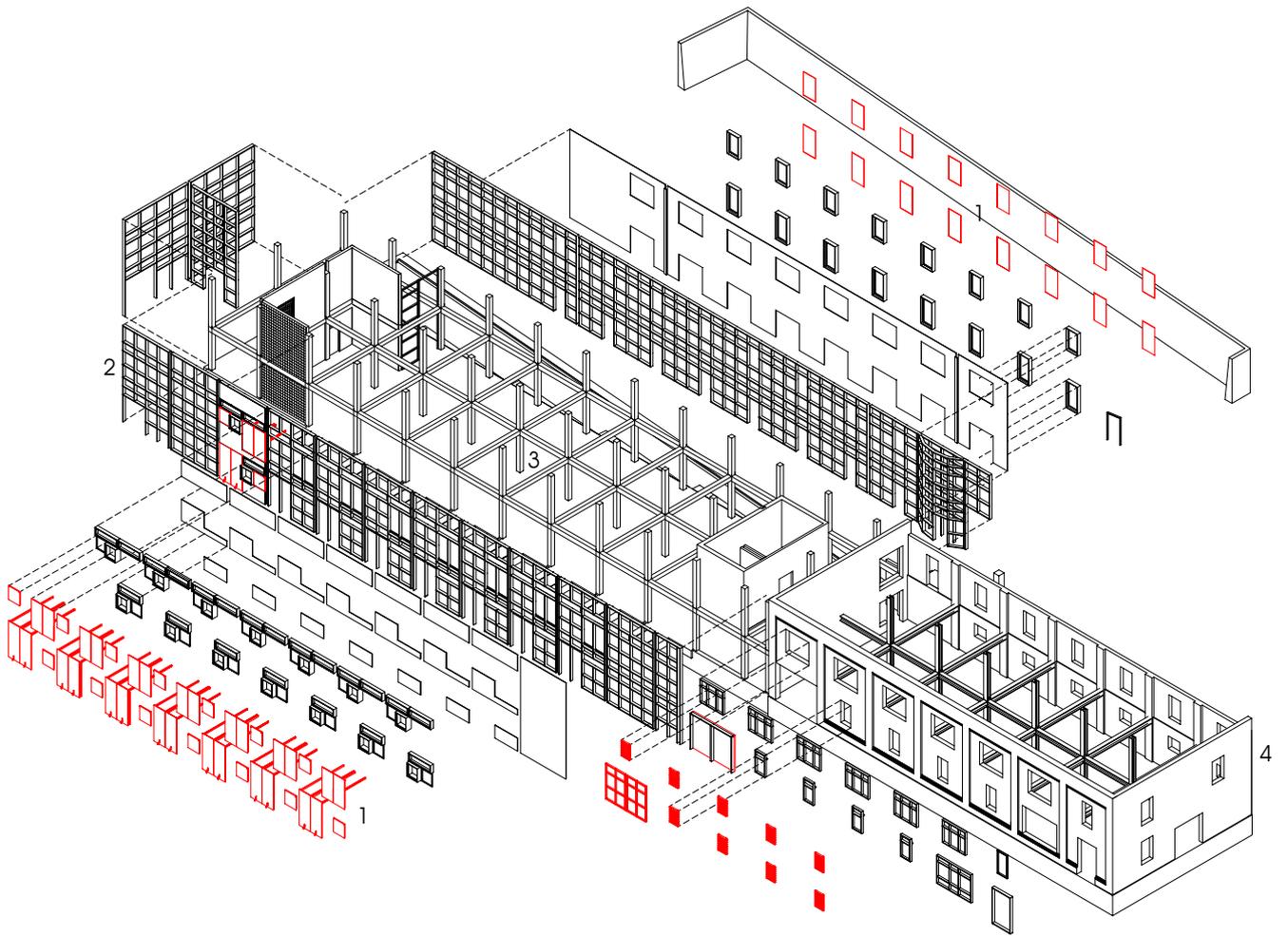
Barn interior - Virginia Tech



the parts

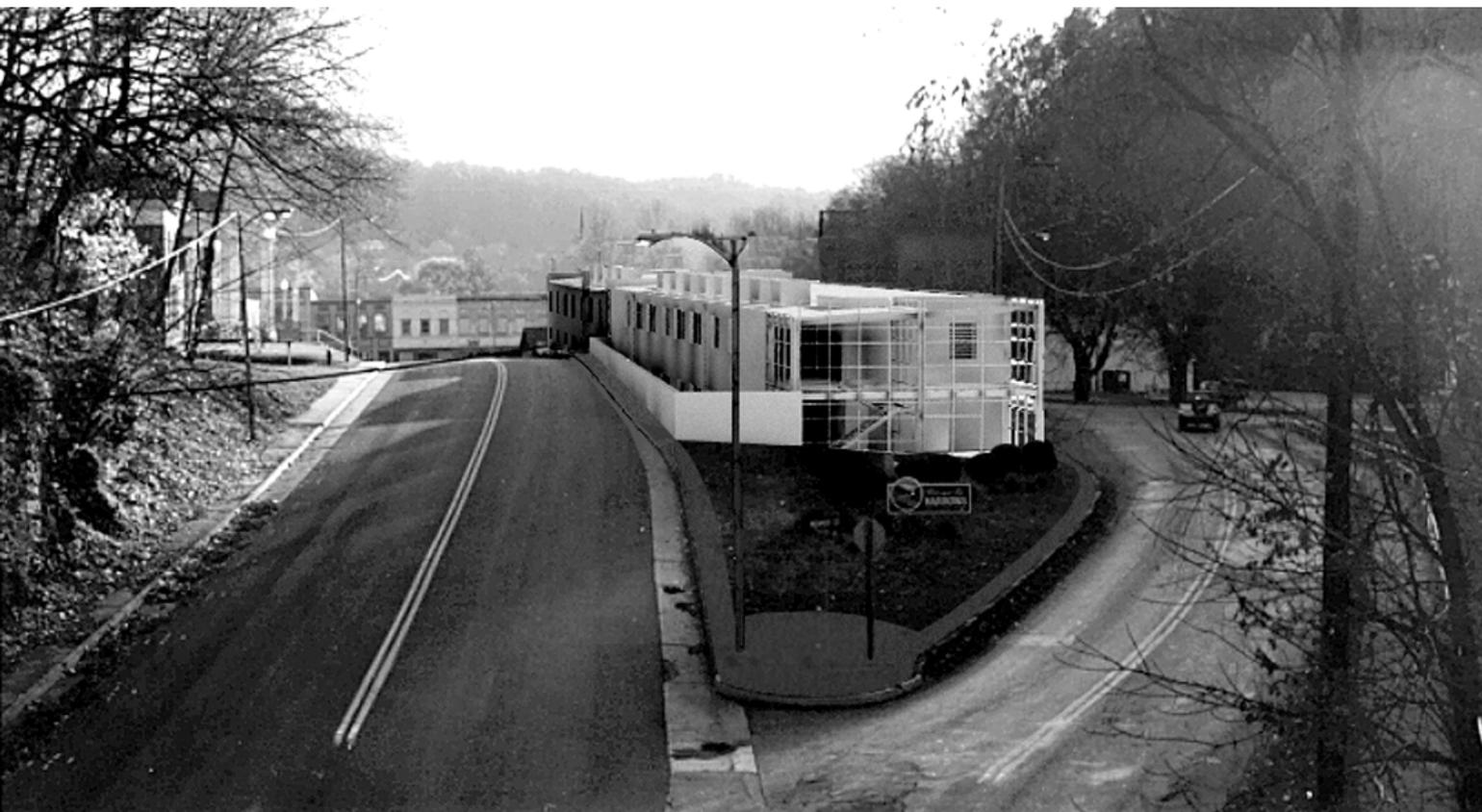
1. doors and windows
2. frame
3. structure
4. existing building





conclusion

Although many things change, there are still some constants. In architecture, I believe one of those constants is the importance of the individual and their connection to the world around them. Monuments, which are built to commemorate events and ideas, are still erected for the benefit of the viewer as much as they are for those they honor. It is this scale of the individual that should not be overlooked. It is not enough that buildings have a pleasing form or that they offer protection from the elements - these are minimal requirements. Architecture has the capacity to stir the imagination and as architects, we must use the tools at our disposal to accomplish this. Some of the tools are abstract, such as order or time, while others are as tangible as the constructive materials or the choice of a hinge.



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View from first floor balcony

notes/credits

Images

Unless otherwise noted, photos and work are by the author.

p. 2 1 *Chartes Cathedral* <http://info.pitt.edu/~medart/image/france/france-a-to-c/chartres/m0284cha.jpg> 2 *Katsura Villa* Yasuhiro Ishimoto *Katsura Villa, Space and Form* p.100

p. 3 3,4 *StoreFront for Art and Architecture* Steven Holl *Intertwining* p.110 5-13 *GucklHupf* Hans Peter Wornl *a + u* May 1998 p.49, 52-55

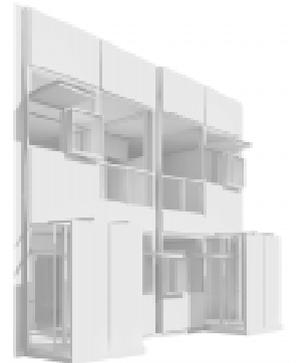
p. 4 14 *Schroder House* Bertus Mulder *Rietveld Schroder Huis 1925-1975* p.42 15,16 *House in Norrkoping* Christian Norberg-Schultz *Sverre Fehn: Opera Completa* p.108, 109

Quotes

p. 1 Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the Senses*. p.44

p. 4 Fjeld, Per Olaf. *Sverre Fehn: The Thought of Construction*. p.67

p. 22 Lyndon, Donlyn. *Chambers for a Memory Palace*. p. 103-4



Northwest elevation studies



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and to Rob - wherever you are....



vita

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