

RetroFILL: residual spaces as urban infill

by Marika Kobel

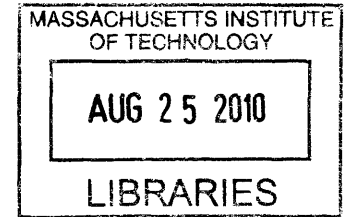
B.F.A. Illustration

Rhode Island School of Design, 1999

Submitted to the Department of Architecture
in Partial Fulfillment of the Requirements for the Degree of
Master of Architecture at the Massachusetts Institute of Technology
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Submitted to the Department of Architecture
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ABSTRACT

In any city there are small slivers and chunks of awkward spaces — in between buildings, occupying edge conditions, not large enough to warrant many forms of traditional use — which can be termed residual. These areas of the built environment represent sites for possible architectural invention that have been misunderstood, underused, ignored and generally not exploited to their full potential. Boston is a city with a large youthful population, as well being home to a considerable number of architecture firms. There is a distinct lack of both interesting new architecture and non-traditional building types. One explanation for the migration of the large population of college graduates out of the city and a failure to draw young professionals in to the area is the lack of unconventional and distinct places that create neighborhood identity and character. This thesis proposes an evaluation and activation of these residual spaces, using environmental and social cues to create vibrant infill architecture. The emphasis is on creating a multi-faceted responsive environment that respects both the user and public experience in the building. The design methodology includes the analysis and cataloging of a variety of residual site scenarios, culminating in a complete design proposal for one specific site, which will create a model and method for urban intervention.

Thesis Supervisor: Andrew Scott

Title: Associate Professor of Architecture

retroFILL

:residual spaces as urban infill





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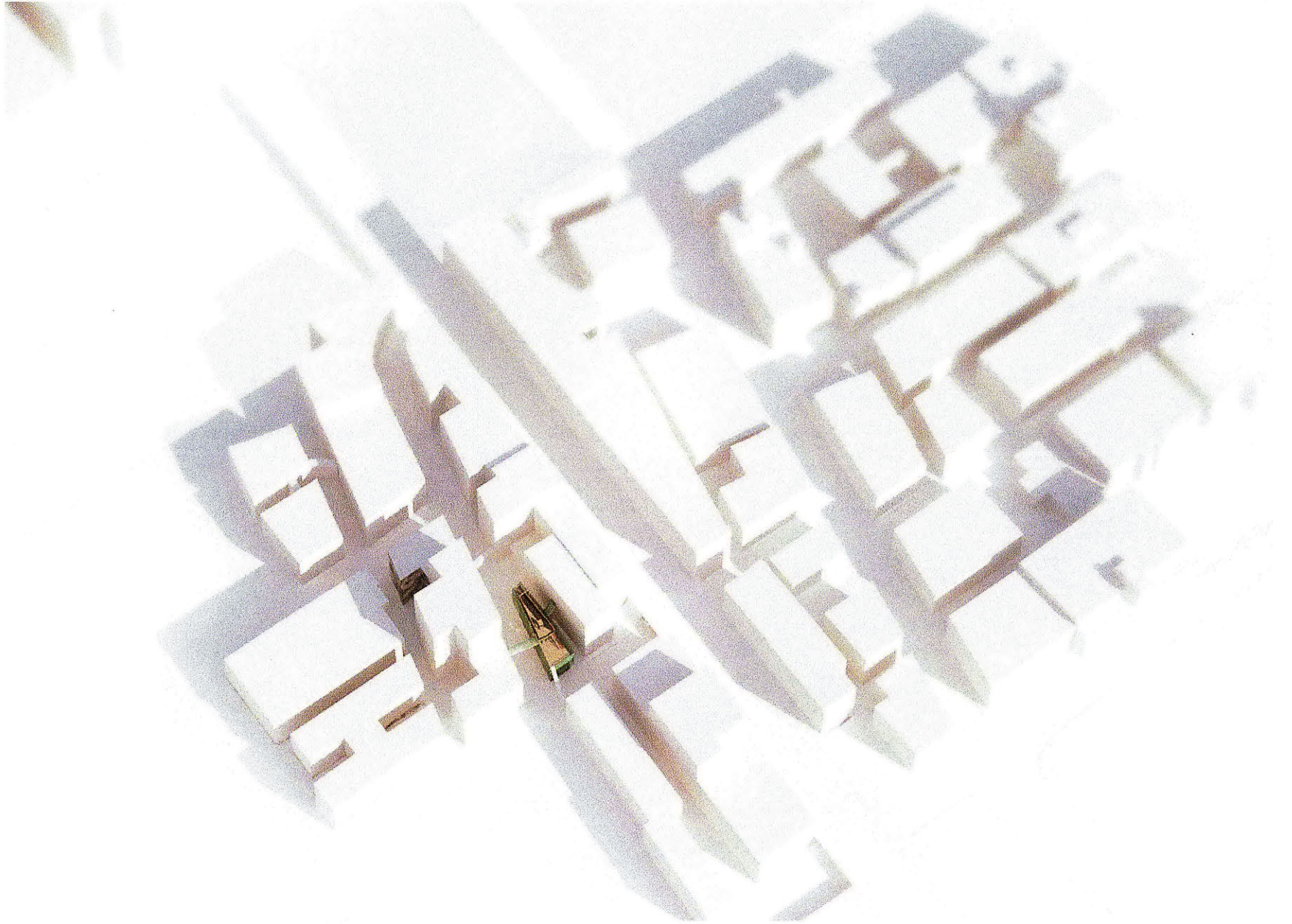
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1 : background

Project context

Slivers of unusable or ‘in-between’ areas, places of continually failing and turned over commercial enterprises, chunks of land that fall into disrepair and seem never to be salvaged. These are the sites for this project and represent residual areas of the urban environment that are left unbuilt upon, go unnoticed, or are not used to their potential. In the fully urbanized city, why have these spaces been ignored and devalued? Is it simply a physical limitation resisting their successful use or something more deeply embedded within perceptions of these sites? These are ideal locations for architectural intervention, that work with the existing neighborhood character to integrate arts into the community.

Although the project could be evaluated as a singular piece of architecture, I think there is strength in the theoretical consideration of multiple sites, with varying urban contexts, user groups and flexible programs. As the sites are evaluated for their qualities and limitations and an appropriate program is determined, the sites begin to work together as an urban-scale strategy. The association between sites could be as conceptual—architectural systems and intentions—or as intertwined—video links, rotating exhibits, common events—as desired.

Boston has asserted itself as a suitable location for this project. In some ways Boston is ideal be-

cause there are several architecture schools, as well as a large number of architecture firms, yet somehow very little engaging, new architecture. A large part of Boston’s rather conservative identity seems to rely upon tradition, history and the familiar. It is curious, considering the quality of academic discourse, as well as the sheer quantity of youthful population in the area, that there is not a more diverse arts environment. Unexpected, unconventional and socially responsive architecture could be quite welcome here. Reconciling a forward-looking arts and architectural program with the embedded tradition permeating the city is an interesting design challenge.

Defining residual sites

To be classified as *residual* there is an implication not only of smallness, but of awkwardness or inadequateness—leftovers. It is understood that the plot will be squeezed, stretched, incomplete and/or somehow characterized, conventionally, by unusability. Of course these plots exist in any urban environment, risking remaining unidentified, becoming spatially appropriated by an adjacent plot, or hosting impermanent program of varying success.

In many dynamic environments, particularly non-western, residents have managed to adequately convert such unwieldy spaces into viable properties. Of course, examples of tiny but functioning spaces abound among the makeshift squatter housing and markets of overpopulated third-world cities. But the implications here are quite different—this type of adaptive building is the norm rather than the anomaly and a function of social or economic necessity.

However, it is also possible to find examples in fully industrialized urban centers where the value of real estate is extremely high and space constraints a constant issue. Tokyo provides a perfect

model of how adaptive, ingenious and, sometimes, suspect building methods have developed to maximize the most minimal of spaces. Housing continues to be a setting for inventive space-saving architectural design, but it is in the curious cafes, boutiques and warehouses where both the need and worth of seemingly useless areas becomes readily apparent.

A catalogue of these unusual, and apparently locally common, buildings was compiled by Atelier Bow-wow in association with the Tokyo Institute of Technology Tsukamoto Architectural Laboratory in their publication *Pet Architecture Guide Book*. As in Atelier Bow-wow's earlier book *Made in Tokyo*, the authors have recorded the most inauspicious of structures through site plan, photograph and diagram, listing address, function and dimensions of the building. The intent is not to elevate these humble structures to Architecture, but rather to acknowledge the implications of these adaptive construction methods in consideration of a city's history. This *pet architecture*, as the authors refer to it, exists as an embedded historical account of urban adaptation and it is left to the viewer to pull lessons away¹.



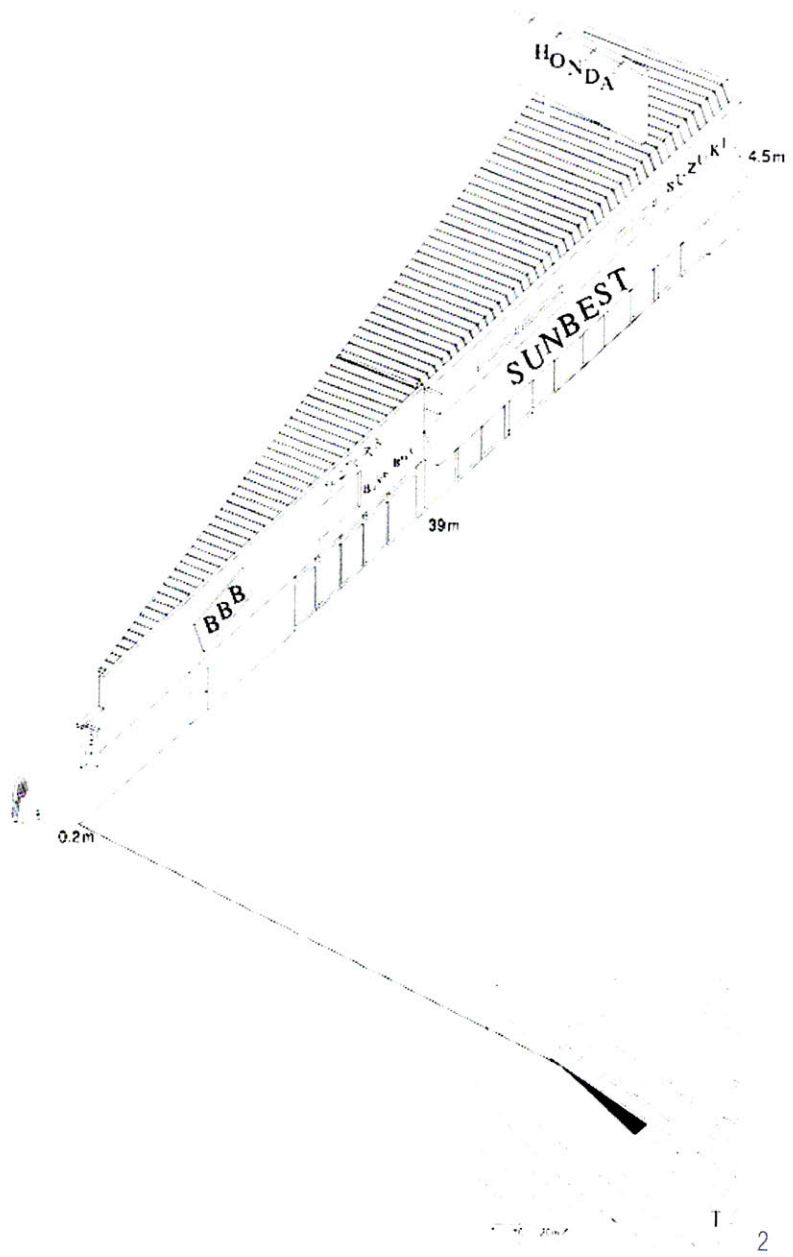
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Bikebox Ikebukuro.

Image courtesy Pet Architecture Guide Book.

Photo/diagram: Go Hasegawa.

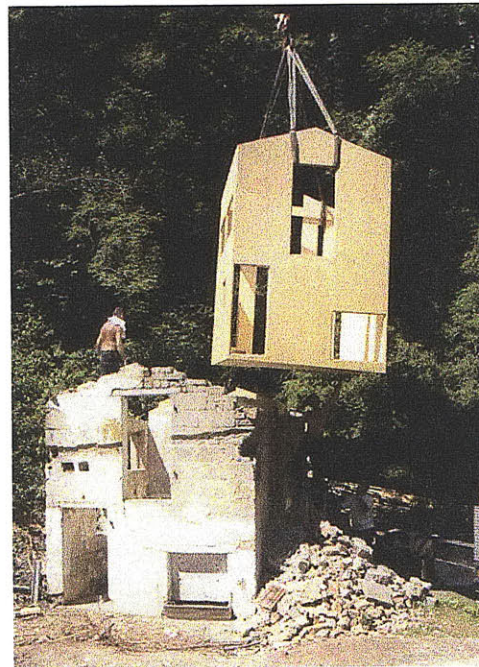


While interesting and playful examples of small spaces put to good use, the buildings in *Pet Architecture* are primarily exemplary of functional solutions to highly restrictive physical parameters. Aesthetic effect is of little or no concern beyond clear signage. However, space constraints are not merely a recent problem in Japanese cities. There are many historical and modern examples of Japanese architects maximizing space and inventing flexible spatial systems, while conforming to strict aesthetic standards. Atelier Bow-wow, Suppose Design Office, Tezuka Architects and Hiroaki Ohtani are just a few examples of offices currently in practice that have found beautiful means of working with tight spaces.

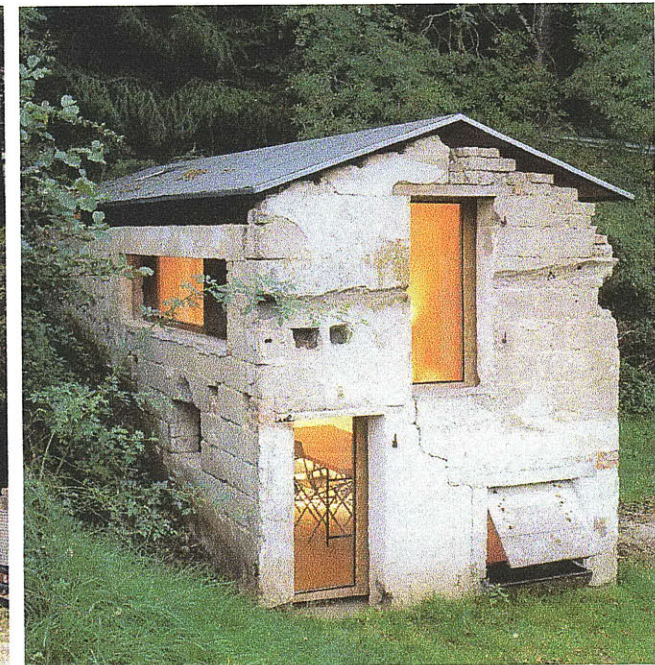
The commingling of visual and experiential effect with efficient structural design seems a more recent phenomenon in western societies—an effect of growing population densities and over-development in urban areas. Coupled with an increasing concern for sustainable and cost-effective building methods, this has led to the development a sub-genre of architecture associated with small, prefabricated, moveable, flexible and parasitic architecture. Exemplified by published books, some in series, such as *Spacecraft*, *Parasite Paradise*, and *XS*, and international design exhibitions such as “Living in Motion” (Vitra Design Museum, 2002), “Home Delivery: Fabricating the Modern Dwelling” (MoMA, 2008), and *Psycho Buildings* (The Hayward, 2008) the discipline is gaining in popularity and attention.

The questions being posed with this genre of ar-

3



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3-4

FNP Arkitekten. *Saving the Bacon*. 2004. Courtesy Spacecraft: Fleeting Architecture and Hideouts. Photos: Zooney Braun.

5-7

Korteknie Stuhlmacher Architekten. *Parasite Las Palmas*. 2001. Courtesy Spacecraft: Fleeting Architecture and Hideouts. Photos: Anne Bousema.



5-6



7

chitecture appear to be commensurate with: What constitutes modern dwelling? How can we express our modernity, materially and conceptually? What is necessary of our spaces rather than what is offered? How can architecture adapt along with changing values and expectations?

While in many cases this architecture may provide accurate or challenging social commentary, it often addresses only the needs of an individual within a given society, not the public at large. Many of the *Pet architecture projects*, while visually undistinguished, may be providing a coffee shop, retailer or service otherwise absent to the neighborhood—perhaps humble in its reach, but towards public service. The new 'small' architecture, is mostly towards private application. In reality, If each of us had our own *small* house, or *small* office, we would be using land area in a far less efficient way than currently.

Perhaps a more appropriate question to pose would be: How can architecture enhance the urban experience and address social issues while retaining individuality and artistic value?

Applying analysis

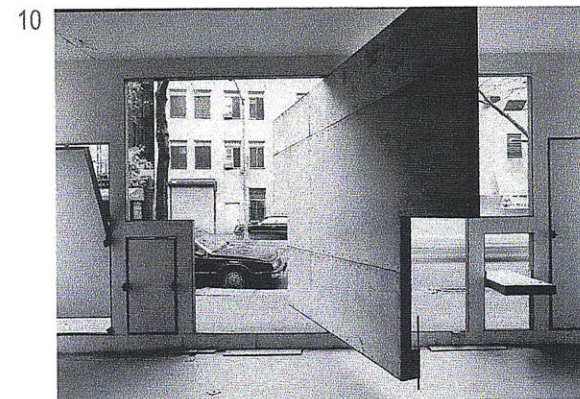
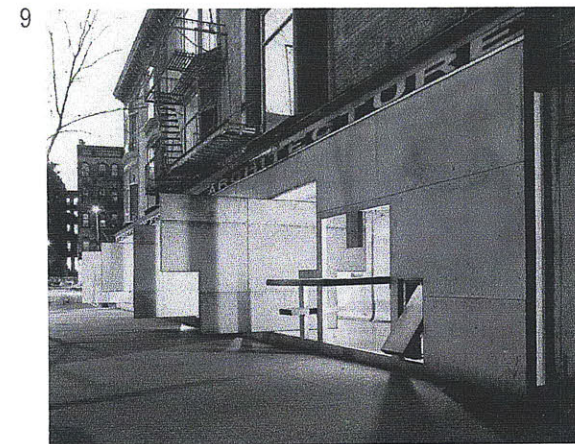
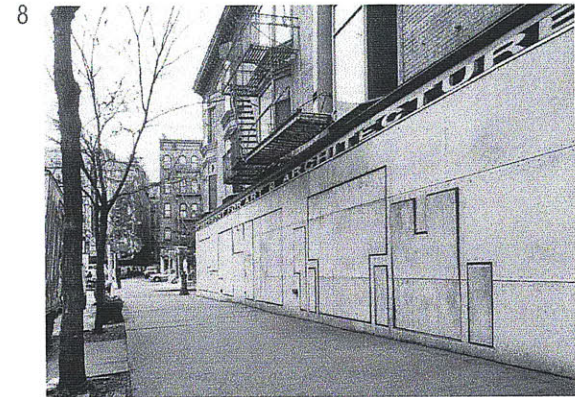
One of the most significant case studies to the thesis development is Steven Holl and Vito Acconci's Storefront for Art and Architecture, which occupies a difficult sliver site in the lower east side of Manhattan. Together the architect and artist, respectively, were able to transform the restrictiveness of the dimensions into an opportunity for invention and interaction with the street. Founding the storefront gallery as a space for architecture and art was the response of a small group of architects and artists to what they clearly perceived as something that had been missing in this city.

Storefront is a classic residual space in the awkwardness of its dimensions and the architectural limitations presented. The space not only makes good use of this sliver site, but it activates and engages the street, makes inventive use of the idea of 'skin,' and provides the city with something it was lacking, even in such a culturally rich environment. The following excerpts are taken from Acconci's book on Storefront and embody what I think are the most salient points about the project.

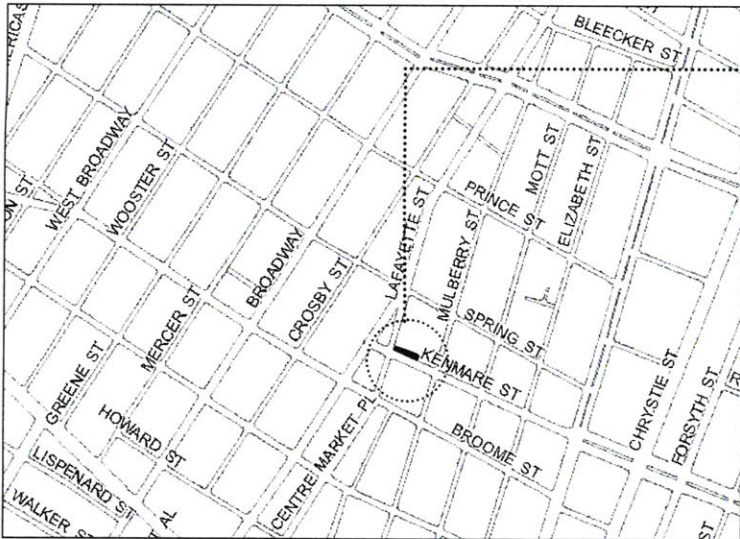
If the gallery is wide open and the panels are either at right angles to the flow of pedestrians or go with this flow, it encourages the city user by way of this unusual gesture to stop and linger or to enter the unfamiliar space. It diverts the usual trot of the big city and crosses, that is to say runs counter to, the automatism of the direction of flow. And even if, as in many cases, the reason for this intervention goes unrecognized,

the seed sown in the form of Acconci and Holl's fundamental idea does indeed take root, for we have been presented here with a new kind of relation between private and public space. ²

The space on the inside of a structure is the actual reality of a building....a central point in architecture has always been the differentiation between inside and outside, the separation of two different realities that cannot be experienced at the same time because the interior space and the exterior form of architecture cannot be experienced from any one observation point simultaneously. Thus there is always time and movement between the perception of a building from the inside and from the outside.³



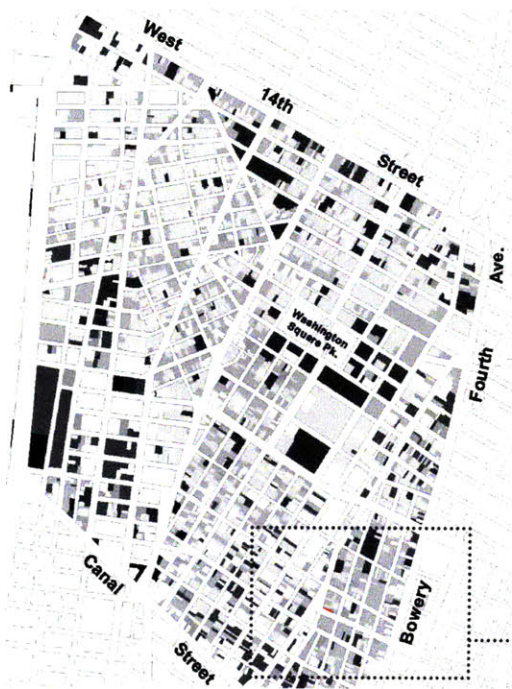
8-10
Vito Acconci and Steven Holl.
Storefront for Art and Architecture. 1993.
Courtesy Storefront for
Art and Architecture. 2000.
Photos: Paul Ott.



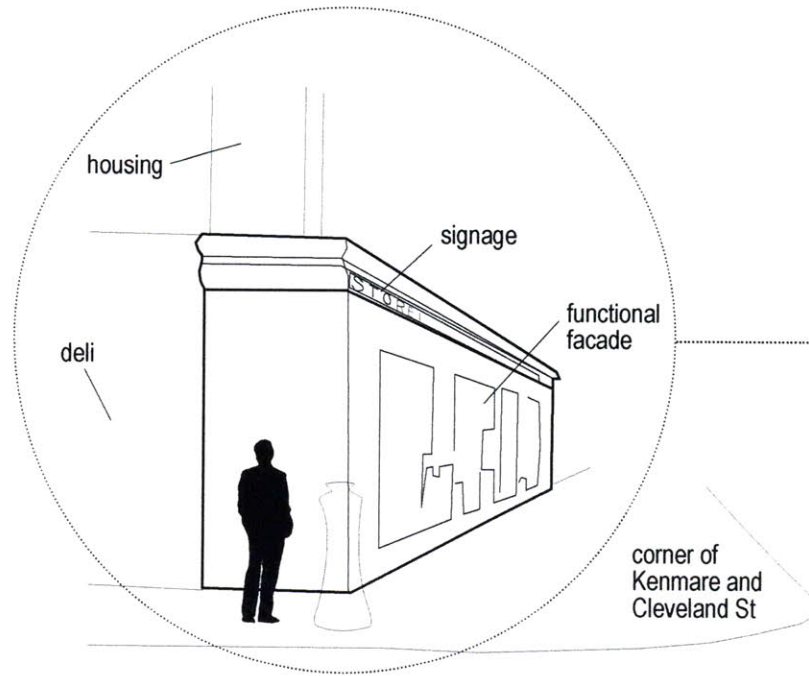
local

Manhattan Community District 2
 total population: 93,119
 mixed use- commercial/housing

gallery: 868 sq. ft.
 book store: 64 sq. ft.
 restroom: 29 sq. ft.
 total sq. ft.: 961 sq. ft.
 facade total: 1067 sq. ft.
 gallery wall area total: 1747 sq. ft.



urban



individual

corner of
 Kenmare and
 Cleveland St

Residual Boston

Using the 'pet architecture' model, I surveyed the Boston/Cambridge area. Although space usage and restrictions in metropolitan Boston are not directly comparable to those of Tokyo, or even New York, the method of cataloguing and assessing can be applied. Unlike Pet architecture, both developed and undeveloped sites were considered in this analysis with an emphasis on parcels whose misuse or disrepair belied their relatively propitious siting. Although these noted spots varied in scale and use both from each other and the Tokyo models, the most promising of these could be said to share several characteristics. Each was located at a corner intersection in which at least one of the streets is a significant local thoroughfare. The parcels are tapered and triangular in shape, denoting a site leftover in parceling. Each is located within a clearly defined neighborhood, bearing particular characteristics and identity. The sites were either vacant or contained a building no longer in use. Dimensionally, they were each under 3000 square feet in area and had the potential to be free-standing.



CENTRAL SQUARE

Closed bar

HARVARD SQUARE

Closed bookstore 1

NORTH END

Parking lot 2

SOUTH BOSTON

Bridge

Building overpasses

Corner cafe 3

SOUTH END

Intersection corners

Four-space parking

Factory building shell

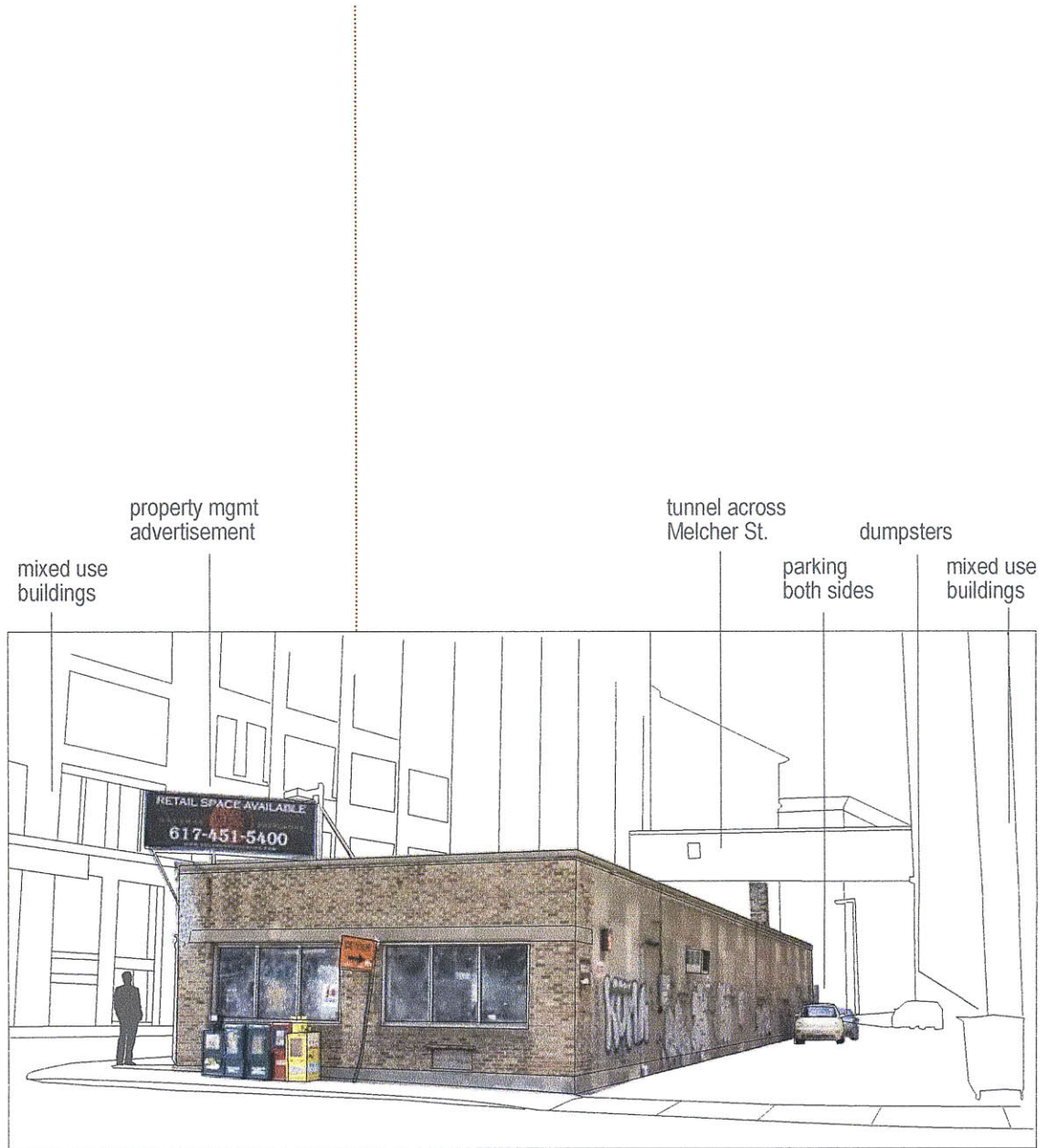


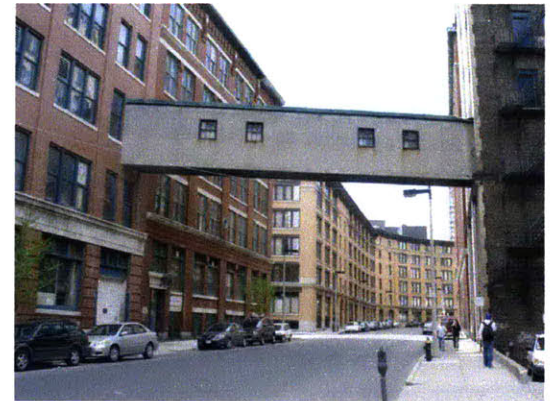
324 A Street, South Boston

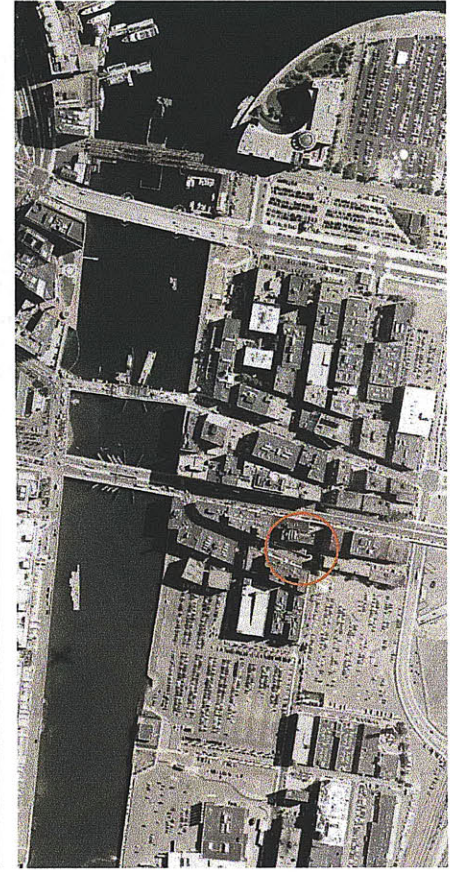
The site at 324 A Street seemed both particularly interesting and in dire need of redevelopment. The building is located in a mixed use area occupied by a number of architecture, engineering and law firms, as well as artist lofts and studios. However, many of the area buildings have been vacated and require varying degrees of refurbishment. The neighborhood of Fort Point Channel, in the Seaport area of South Boston, has been designated a historic district and includes many original structures erected by the Boston Wharf Co. during the city's industrial boom during the 19th century.

The existing building on the triangular, corner site at 324 A Street was last used as a cafe/diner several years ago, which has now fallen into disrepair. It is surrounded by former Boston Wharf buildings, relics of the area's industrial past. The current owners have, to date, left the site untouched, although it is now undergoing some refurbishing to attract tenants.

The site is promising for several key reasons. The uphill curving Melcher St links the upper (Summer St) and lower (Congress St) portions of the district. This site can be seen from several vantage points on both levels. A Street directly connects Fort point to the main area of South Boston. 324 A is at a crossroads yet appears distinctly different from its industrial neighbors. It sits in witness of a rich urban history, but the building itself is undistinguished. This area has been awaiting revival for many years, the progress slow and unheralded.









Site analysis

My primary task was one of transforming the use and, ultimately, the perception of residual spaces, such as 324 A Street. Since the goal of the project is neighborhood activation and interaction through arts integration, the program must follow from the particulars of the site—location, area inhabitants and users, environmental cues. To create *functional* space the architectural limitations of the site needed to be analyzed and certain questions posed. What physical restraints made previous building on the site improbable or ineffective and how can those restraints be exploited in the spirit

of architectural innovation? To create *intriguing* space the environmental and social surroundings needed to be analyzed. Is there an architectural vernacular in the area, a typical user/passers-by, a program noticeably absent in the area? The user community was investigated to programmatically integrate the new spaces with its existing neighbors.

The site was researched from three angles: *urban history*, *physical environment* and *social environment*.

Urban history

It was important, before delving into the design problem, to understand the nature of Fort Point and how it has related over time to the larger Boston context. It is still primarily a place of business, but the nature of these businesses has shifted dramatically. The character of the area has gone through several significant changes and is still in flux.

In colonial times the area was originally tidal marsh that was filled to create a commercial area and wharves. With the building of the first bridges in

site plan
scale 1: 4550



1804-05 the area became a major industrial area for the next 140 years. Early industry included glass works, iron works, ship building, and oil refineries. By the turn of the 20th century South Boston was the center of the wool industry and the new wharves stored all of Boston's sugar and lumber among other things. The Boston Wharf Company, responsible for the filling of many of the mudflats and creation of the channel, was founded in 1836. The brick buildings in Fort Point, surrounding 324 A Street, on Summer St and along Congress St, were built by Boston Wharf Company during the remainder of the 19th century.⁴

South Station quickly became the busiest train station in the country after its opening in 1899 at which point the Fort Point area had achieved its current form.⁴ The number of bridges required to service the busy area ultimately proved disastrous to business to the area. With eight bridges, many with fees, and the associated stoppage of vehicular traffic, local officials placed restrictions on channel traffic. Trucking and air transport had mostly replaced maritime shipping by this point and the storage wharves emptied. Additionally, the wool industry was greatly diminished by the increase in synthetic fabrics. By the mid 1900's the majority of industry was non-maritime related, including the Gillette company which moved into the area in 1905, and the US Postal Service headquarters. Rail yards that serviced the absent industries were turned into parking lots and scrap-yards.⁵

By the 1970's, the vacated industrial buildings

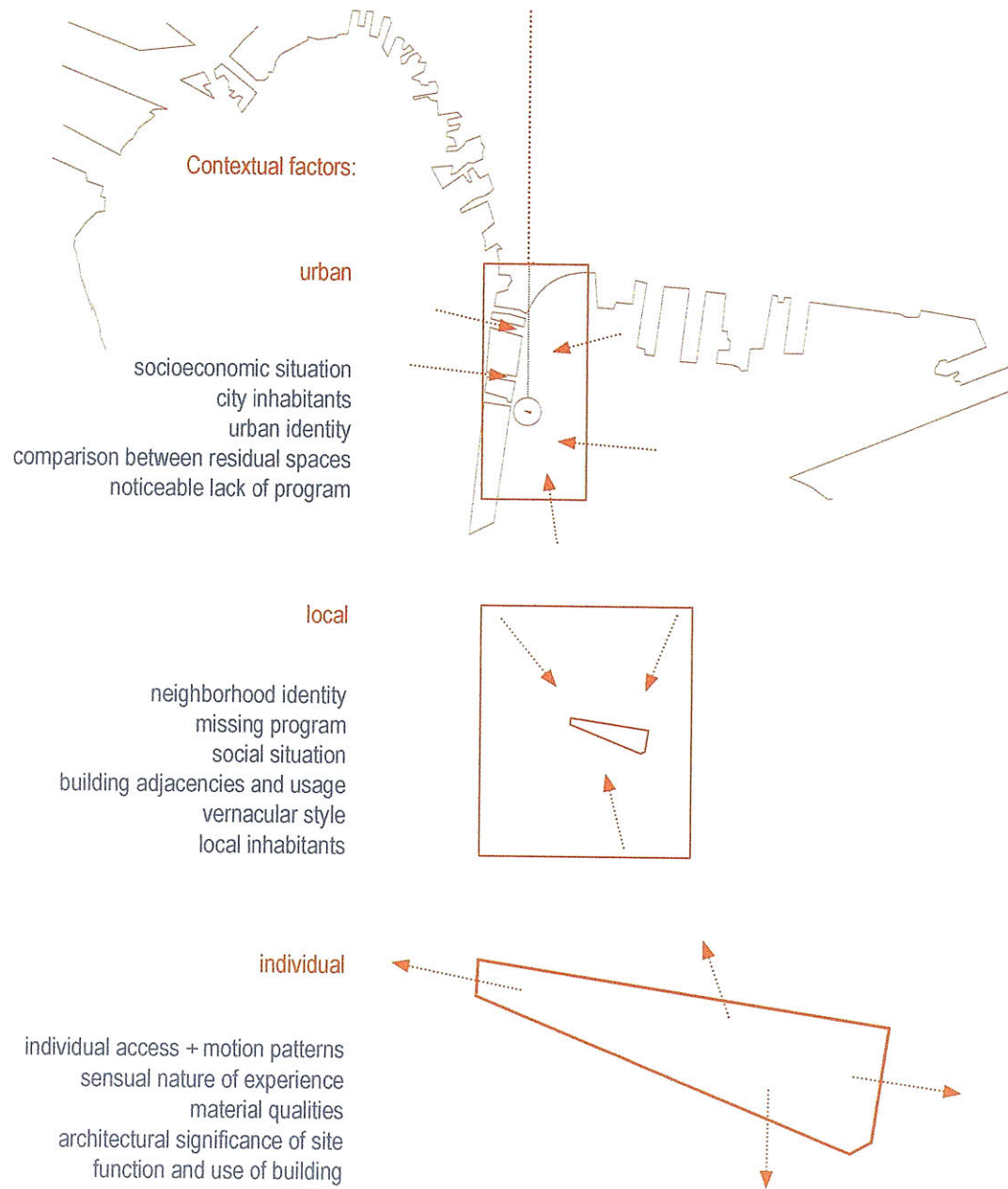
of Fort Point were inundated with artists seeking cheap and plentiful living and working space. Besides small businesses and the Gillette Companies, industry was dead—the artists had incorporated. In the last decade of the 20th century, interest grew in the area with a number of public works project planned. The Ted Williams Tunnel was planned to run under the area to Logan Airport as part of the Big Dig. A federal courthouse and exhibition center were constructed during the same time as the economic climate rose interests in the abandoned area.

For the past two decades, the Boston Redevelopment Authority has been conducting area plans and zoning variances in the area, but little developments have been made. Increased interest in the area and rising real estate costs have pushed many of the artists from the area, in some cases displacing warehouses full of artist studios. One such masterplan, the "100 Acre Plan," promises to fully invigorate the area with a complete renovation of the Fort Point historic area. This 25 year projected plan includes the creation of open green spaces, widened sidewalks and residential housing.⁶

The Fort Point District finds itself once again at an important turning point in establishing its identity. While in many ways the area has turned around with the large influx of design and professional firms and restaurants to service those companies, it is also pushing out the artists that spurred the influx—and with them the authenticity of the region's rich history. A number of organization in Fort Point

have made a mission of preserving the history and integrity of the area, such as Fort Point Arts Community Inc, Fort Point Neighborhood Alliance, and Seaport Alliance for a Neighborhood Design. One of the major concerns is that after two decades of planning by the BRA and steadily increasing real estate, the area still contains no civic spaces, public open parks, schools, community center, library or police station.

For a concise but informative history of Fort Point, see the BRA's "Seaport Public Realm Plan," and the Fort Point Arts Community website.⁷



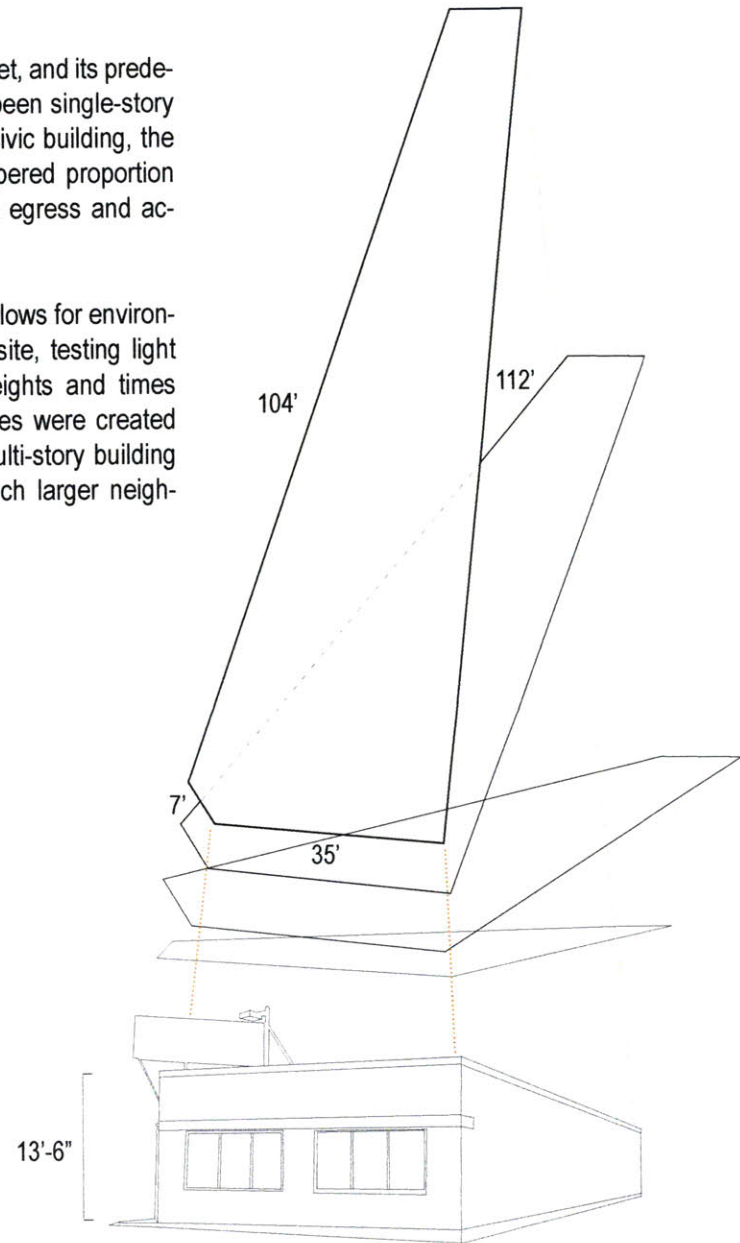
:physical environment

To understand the best use of the residual site, the context needs to be addressed from three scales: urban, local and individual user or building. This is not simply an issue of putting a cafe where currently there is not. The questions being asked are trying to get at the heart of broad and specific identity of both the area and the user. What kind of architecture will activate the area? What kind of architecture will activate one site and very clearly not another? What is the best way to introduce art program while engaging the surrounding neighborhood? Are there expectations of the site and area that need to be respected or overcome? Some of the elements to be acknowledged in the analysis process are:

- building adjacencies
- street condition
- pedestrian traffic
- set-backs
- existing building on plot
- existing materials
- structural condition
- context scale
- style
- neighborhood identity
- demographics
- existing transport

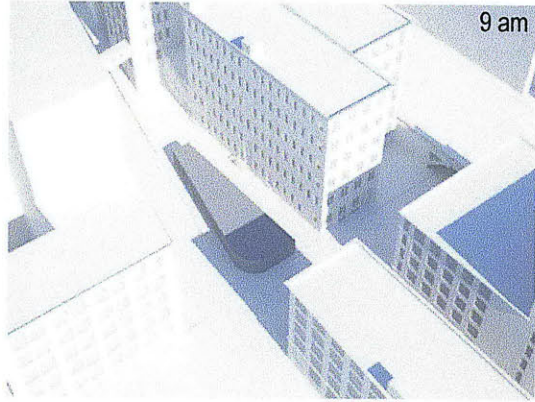
The current building at 324 A Street, and its predecessors since the 1940's, have been single-story structures. Dimensionally, for a civic building, the parcel is quite small and the tapered proportion introduces dilemmas concerning egress and accessibility.

The digital modeling of the site allows for environmental analysis of the building site, testing light conditions at several overall heights and times of year. The following sun studies were created to model light conditions of a multi-story building while still surrounded by its much larger neighbors.



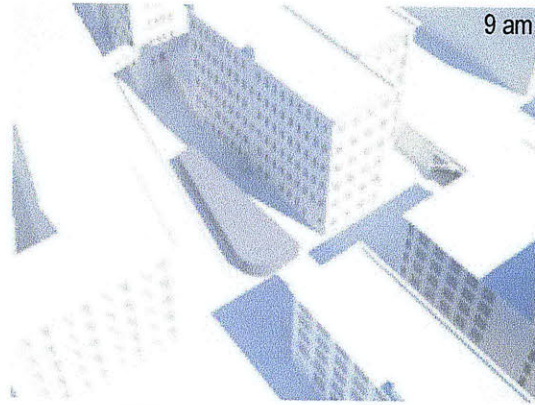
one-story building

March 21



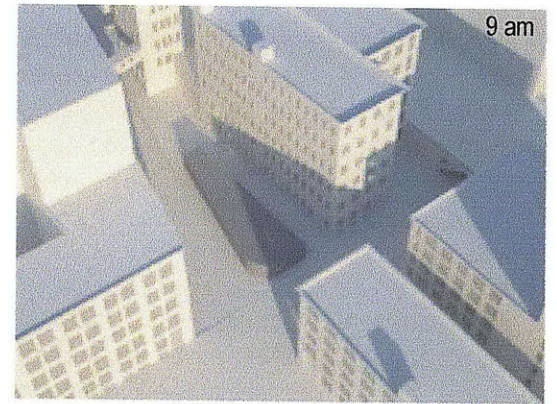
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June 21



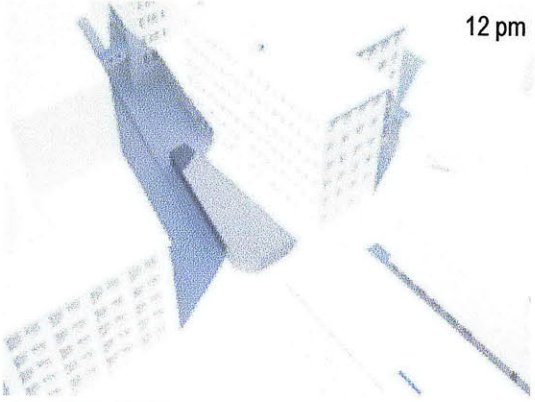
9 am

December 21

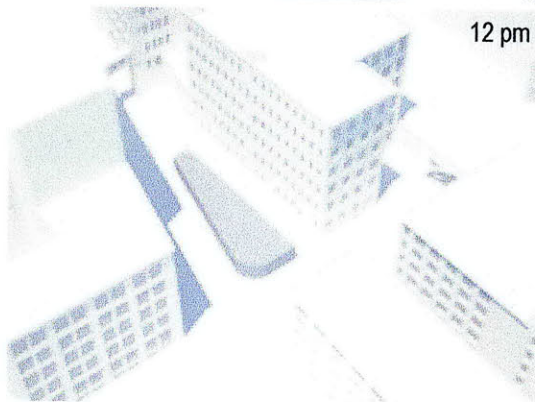


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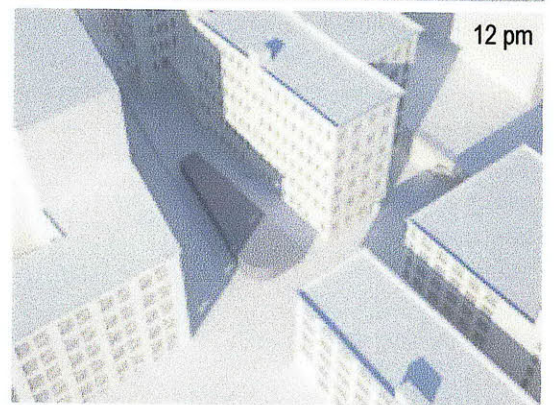
12 pm



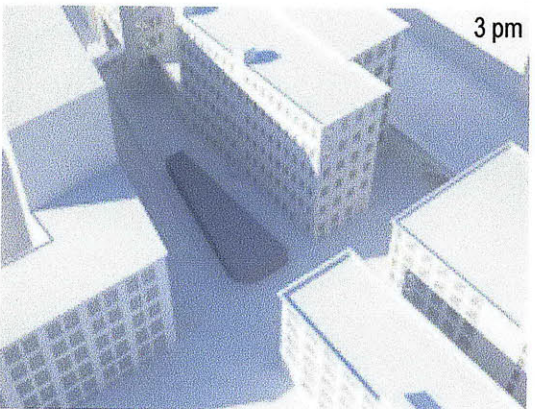
12 pm



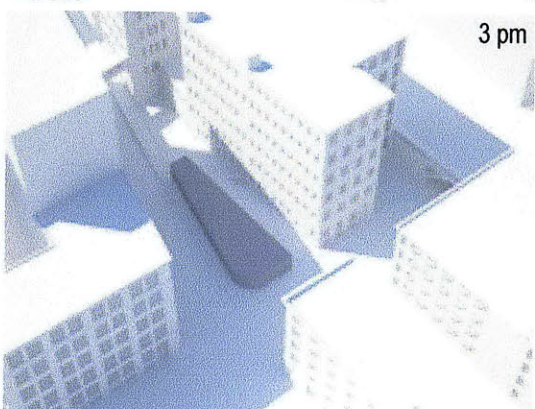
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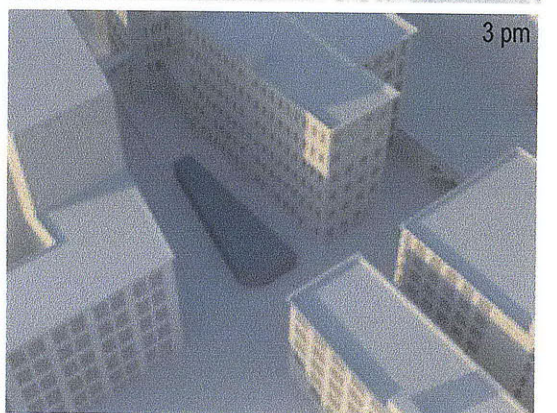
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3 pm



3 pm

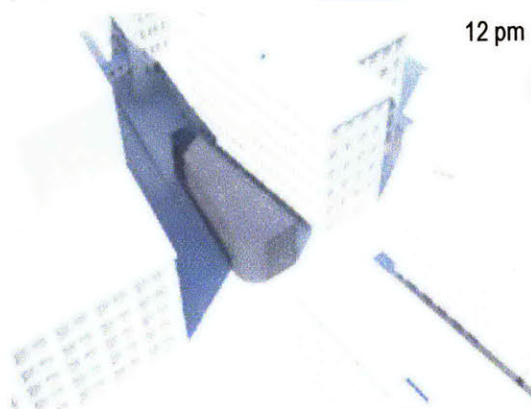


three-story building

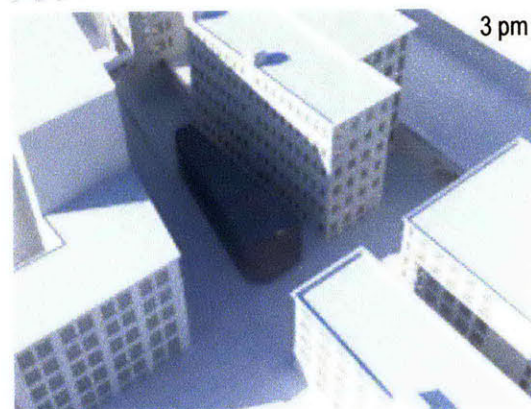
March 21
9 am



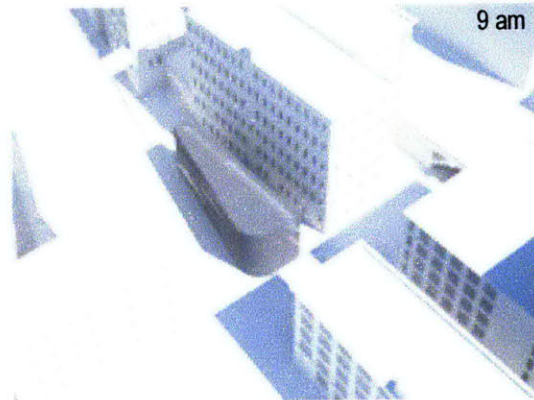
12 pm



3 pm



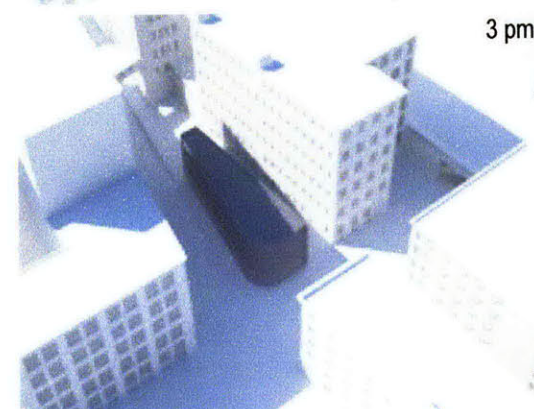
June 21
9 am



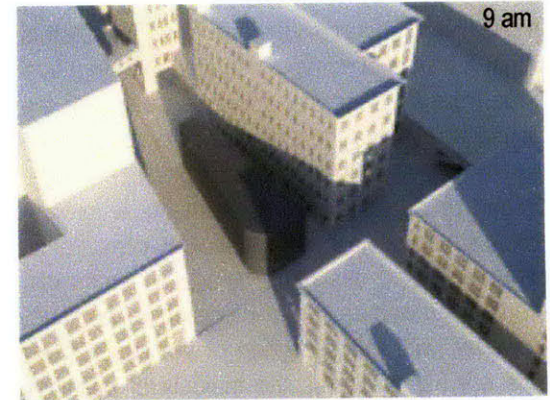
12 pm



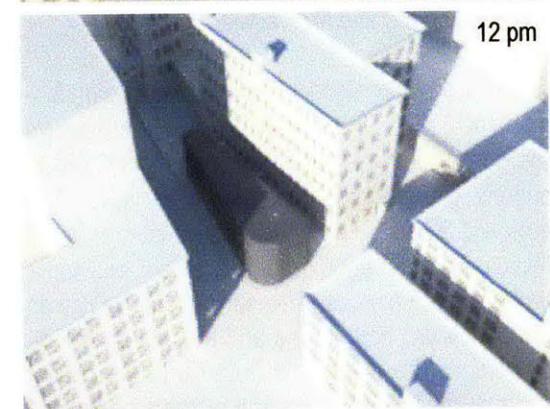
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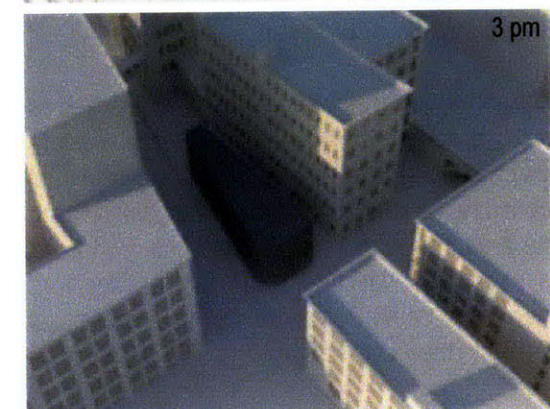
December 21
9 am



12 pm



3 pm



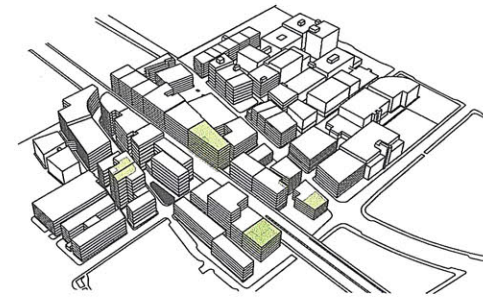
social environment

In addition to understanding the Fort Point District within a historical context, I studied the neighborhood from a usage standpoint. A survey of the buildings revealed the extent of diversity in building program as well as the extent of disuse. A large portion of buildings in Fort Point house professional services—lawyers, technology consultants, engineers—and designers or artists—architects, graphic and web design, photographers, painters. However, with the exception of the immediately adjacent 326 A Street, the majority of buildings surrounding the site are vacated.

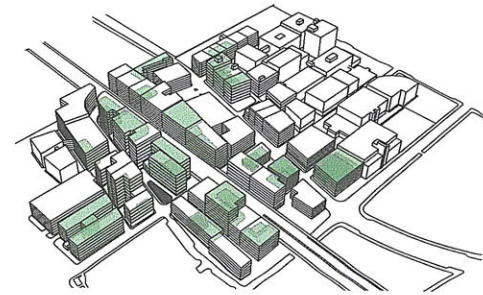
There are some signs of renewal and refurbishment at 319 A Street and 327 A Street, across the street from the site, both containing almost entirely design and professional services. The adjacent 326 A Street is also comprised of architects, designers, photographers, artists, and some professional services. The surrounding buildings are consistent both in use and modest spatial dimensions. The residential housing in the district is generally limited to several warehouses which have been converted to high end lofts.

The population of the district can be generalized as young and well-educated, white-collar professionals or artists that come and go with the extended work day. There is an obvious lack of amenities in the area that support residential living. Fort Point is physically and characteristically distinct from the rest of South Boston as well as the financial district to the west.

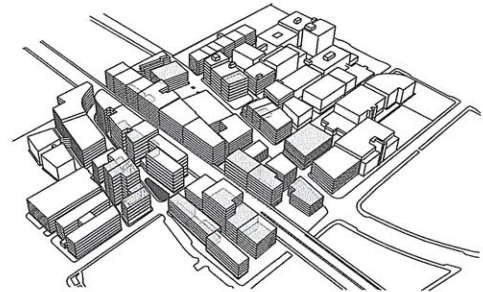
artist studios



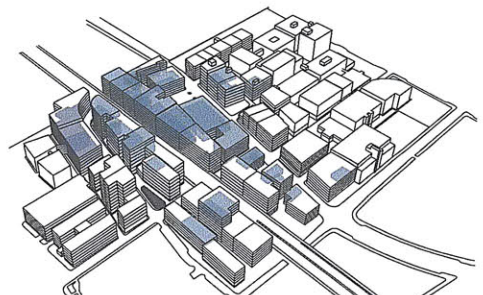
designers

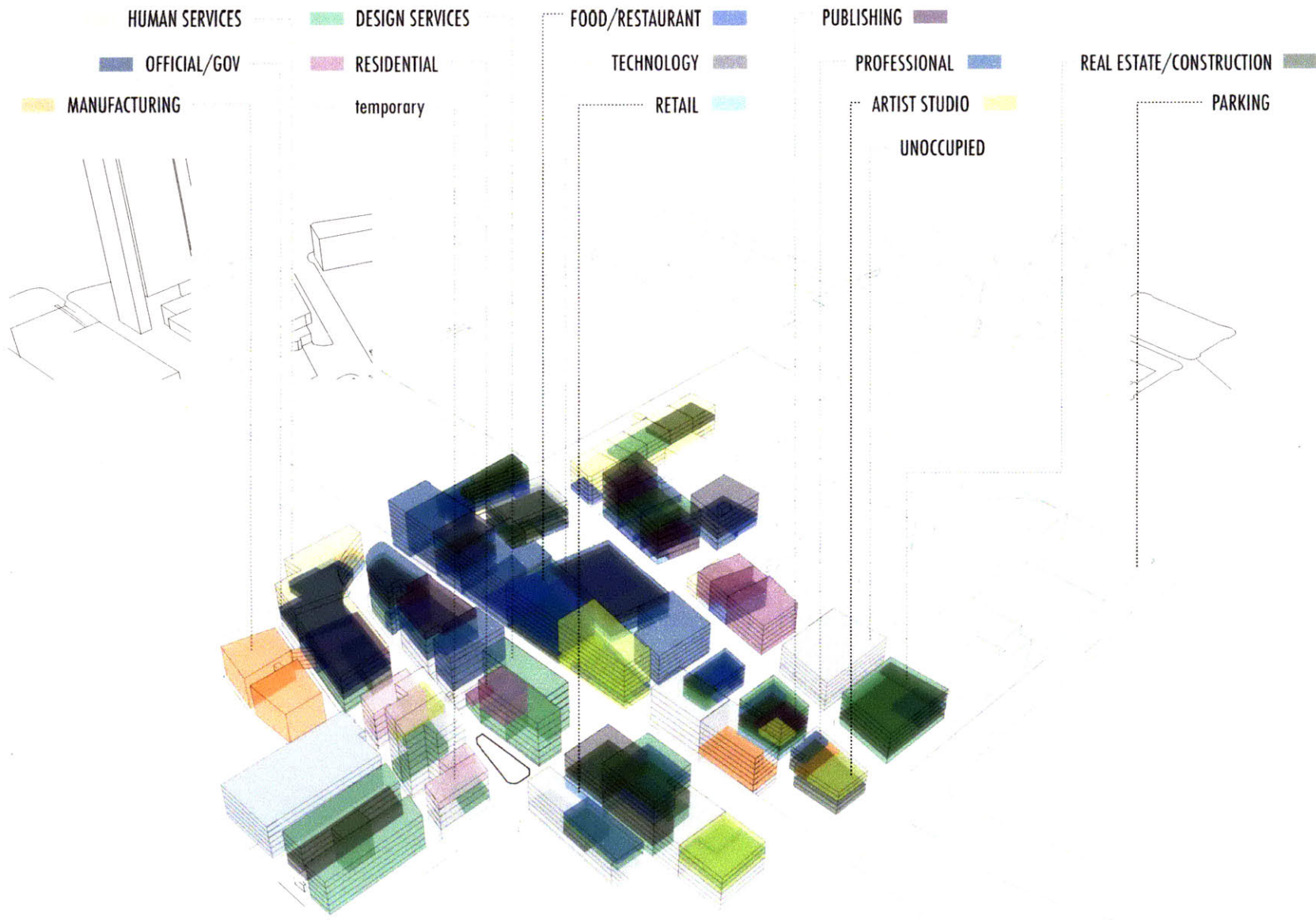


unoccupied



professional services





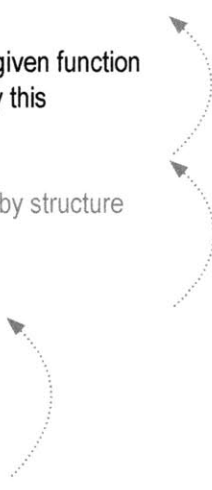
Fort Point Channel
 Neighborhood program

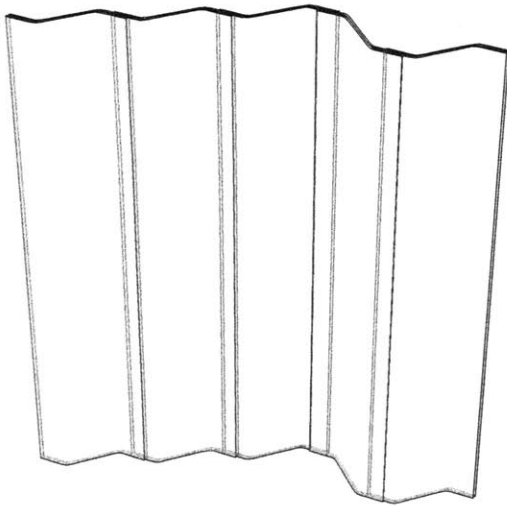
Process: design studies

Many of the concerns developed in early thesis research proved applicable to the design process (see Appendix "Previous thesis permutations"). This list of conceptual concerns emerging from this research established rough criteria to follow in developing the project:

intimate space
custom design
sensory experience
structure-function-form
personal needs
transformation
simplicity
object/furniture
multi-functionality
personal interaction
details

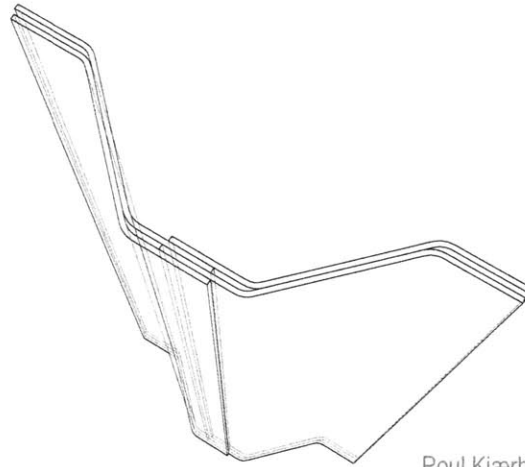
The key words address personal concerns and projections for a successful public space. I developed a list of issues, in a rough chronology to address in planning and designing the building:

- 1 The unit
 - what is the configuration/effect of adjacent building units
 - permanent vs. temporary structure (non load-bearing)
 - shape as a product of function
 - individual vs. automated control
 - 2 Building scale
 - how many units is appropriate given function
 - how is configuration affected by this
 - 3 Transformations
 - type/amount can be supported by structure
 - functional and visual properties
 - 4 Parts
 - reconfigurable components
 - kit of parts
 - application to multiple sites
 - 5 Modularity
 - possibilities and limitations
 - control and choices
 - maintenance and lifespan
- 



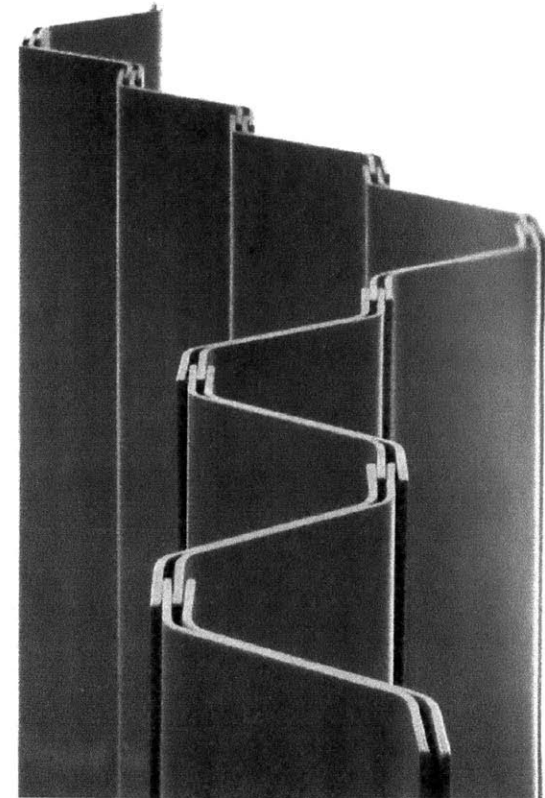
1 the unit

The idea for the interior system 'unit' came from the structure of Poul Kjaerholm's *PK 111 room divider*. This elegant form is structurally simple, but I felt it contained some interesting possibilities if some of the key criteria were introduced: scale

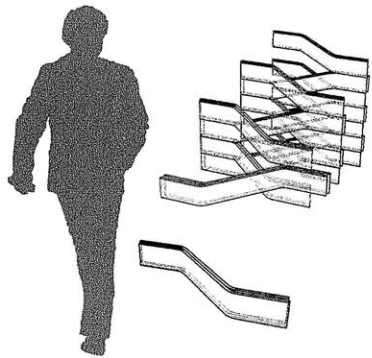


12
 Poul Kjaerholm.
PK 111 room divider. 1956.
 Courtesy Poul Kjaerholm:
 Furniture Architect. 2006.
 Photo: Paul Keld Helmer-Petersen.

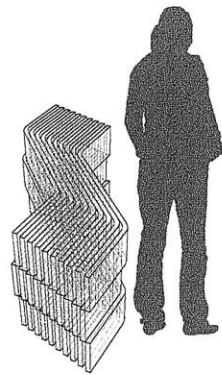
changes, changing the static nature of the form to create actual rather than implied motion, modularity and directional changes, light properties, and the concept of personal interaction. The following diagrams represent some of the studies done:



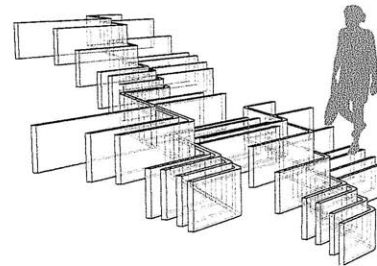
scale:



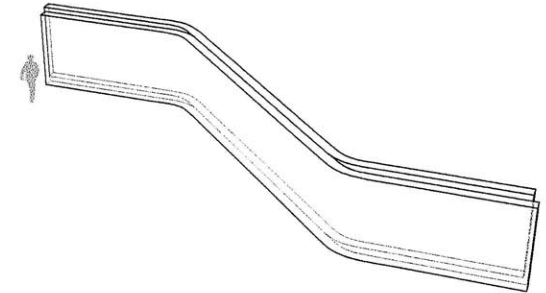
building unit



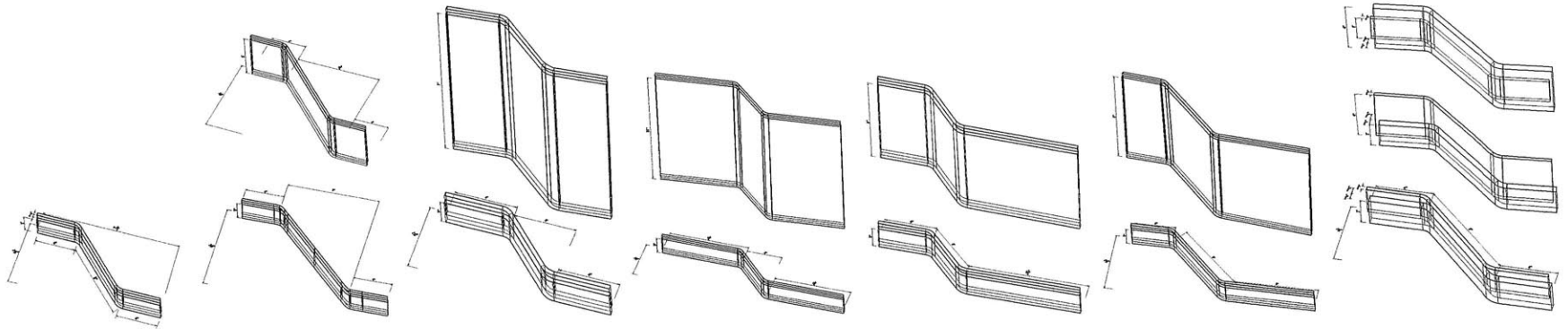
furniture



system



building concept/circulation



extended core

equal dimensions

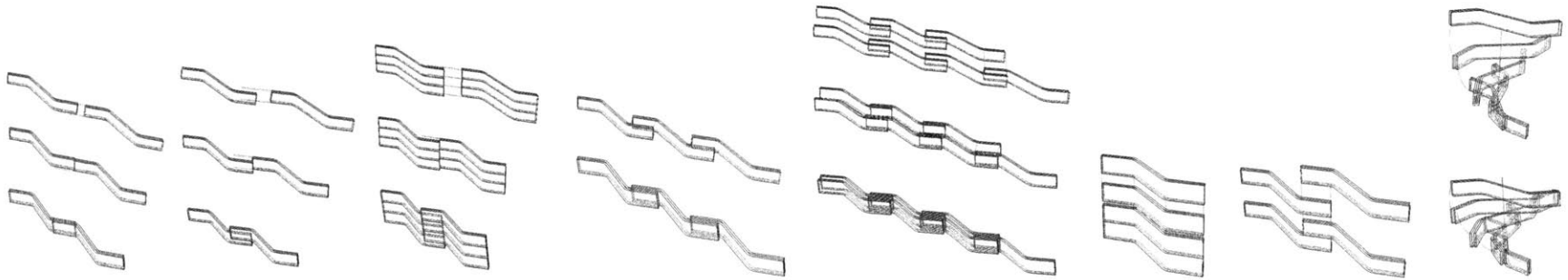
extended ends

extended end

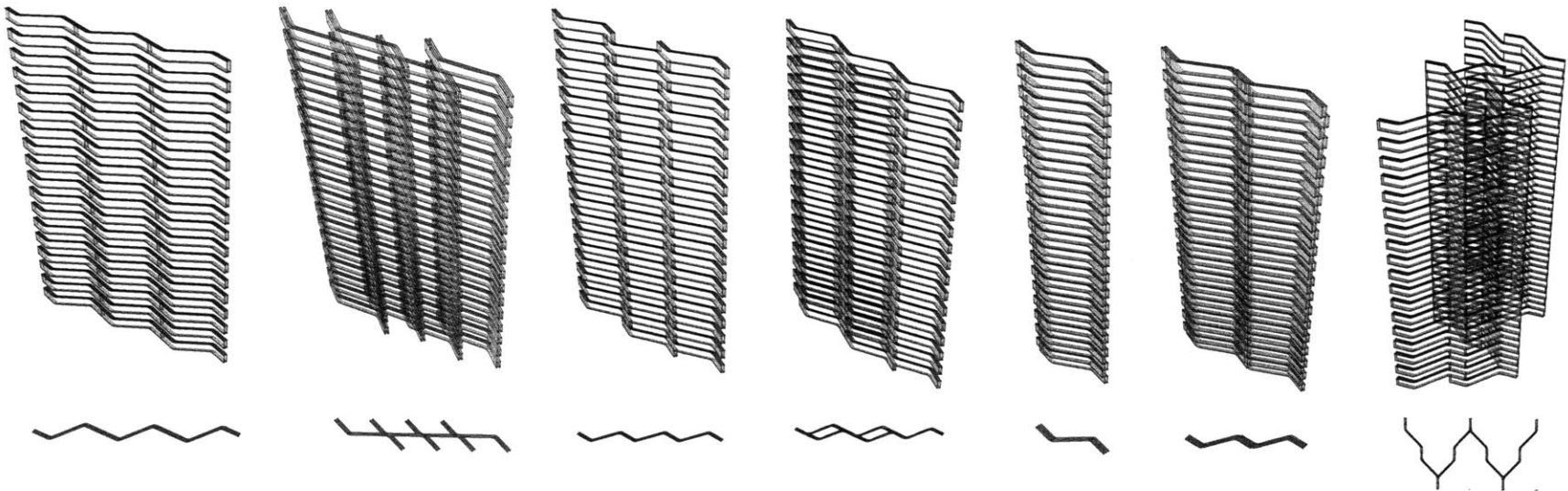
extended core + end

multi-height

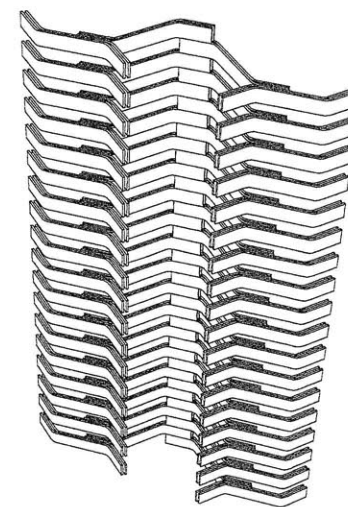
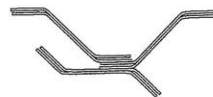
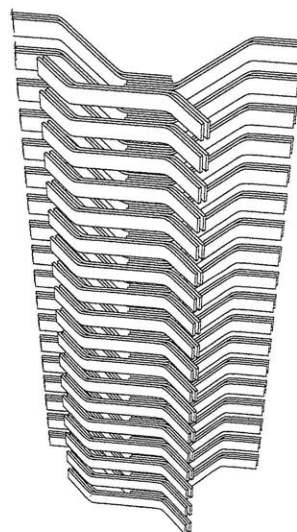
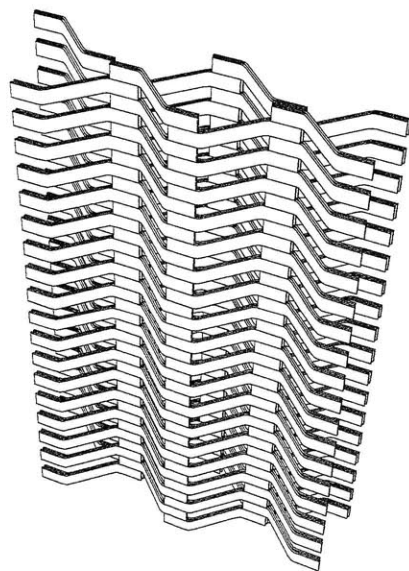
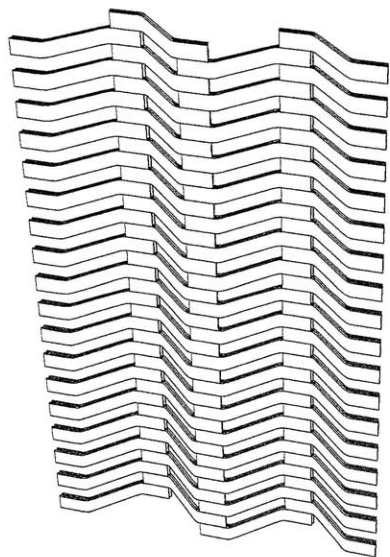
fixation:

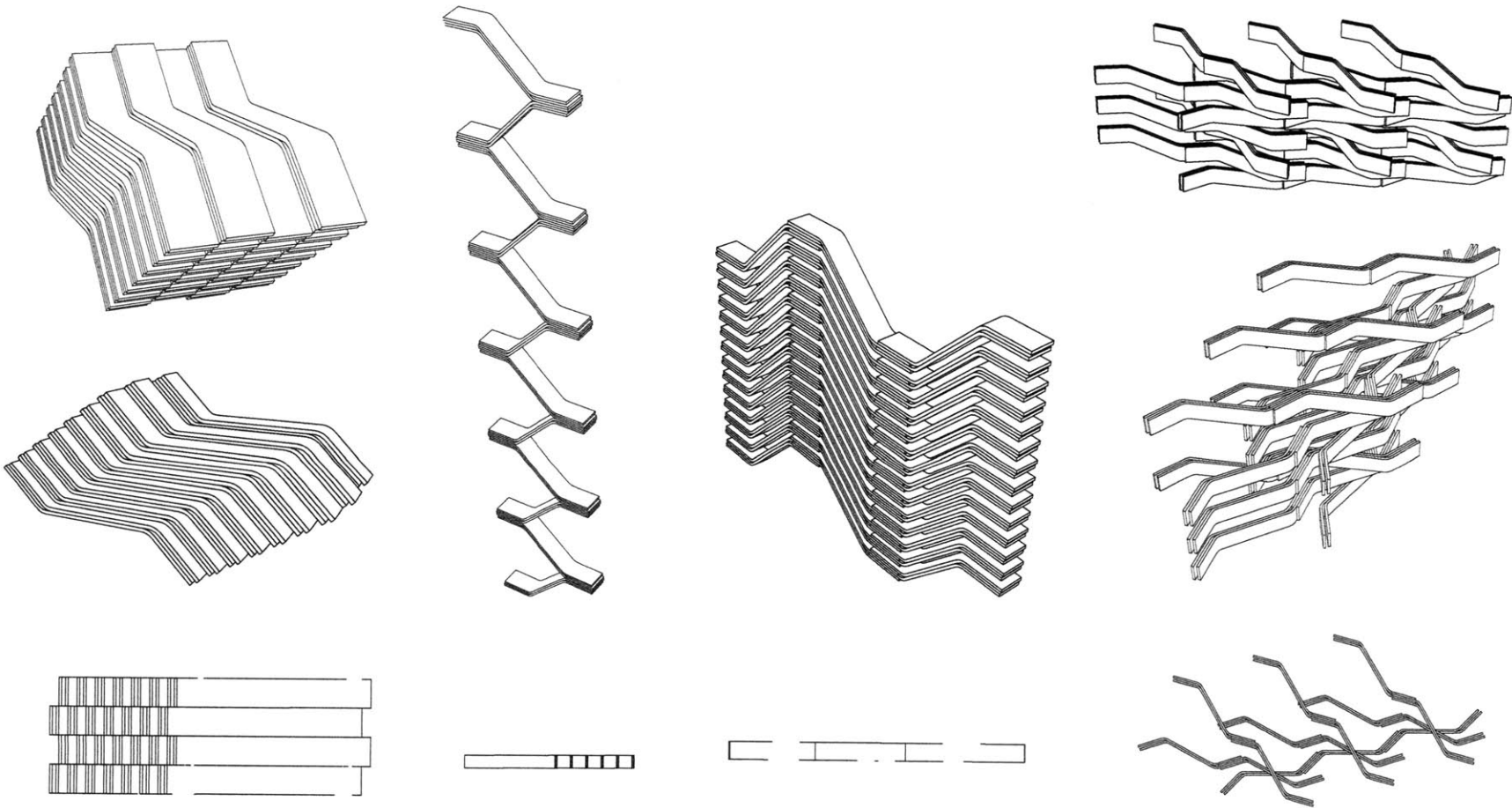


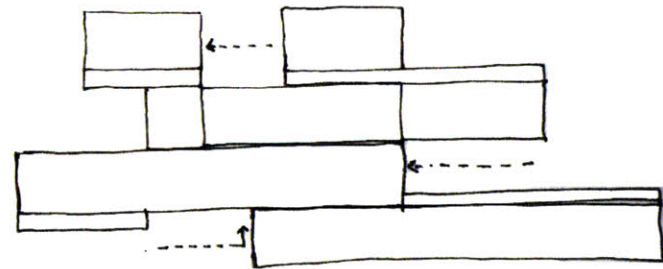
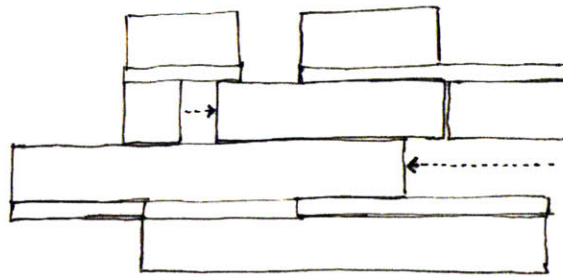
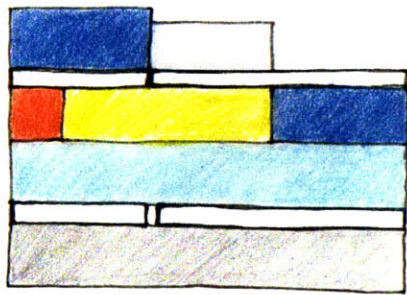
density:



offset and orientation:







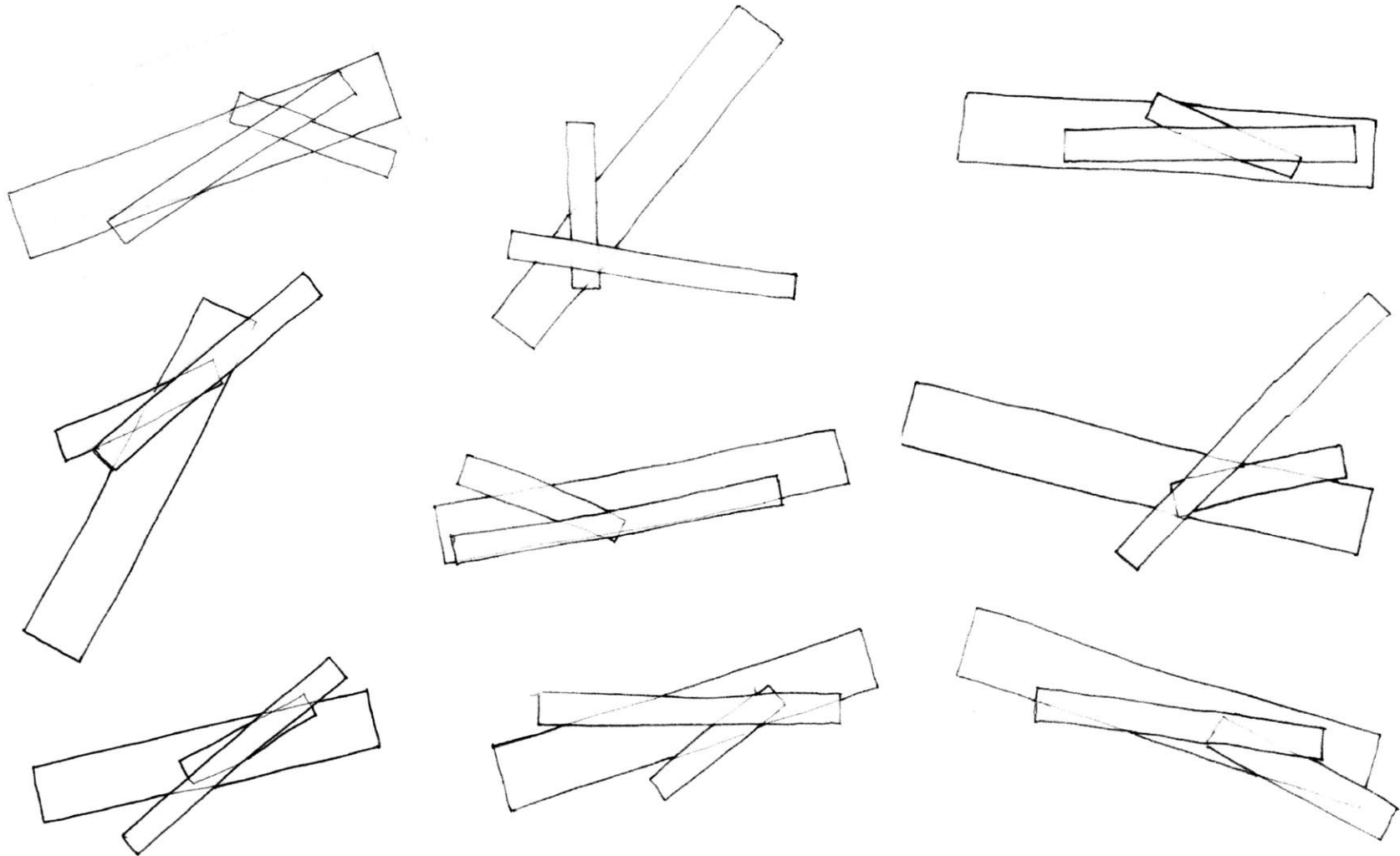
2 the building scale

After focusing on the unit, I jumped to the building scale to understand the physical limitations of the site and how individual elements would come together to create a functioning space. These studies began as conceptual diagrams and sim-

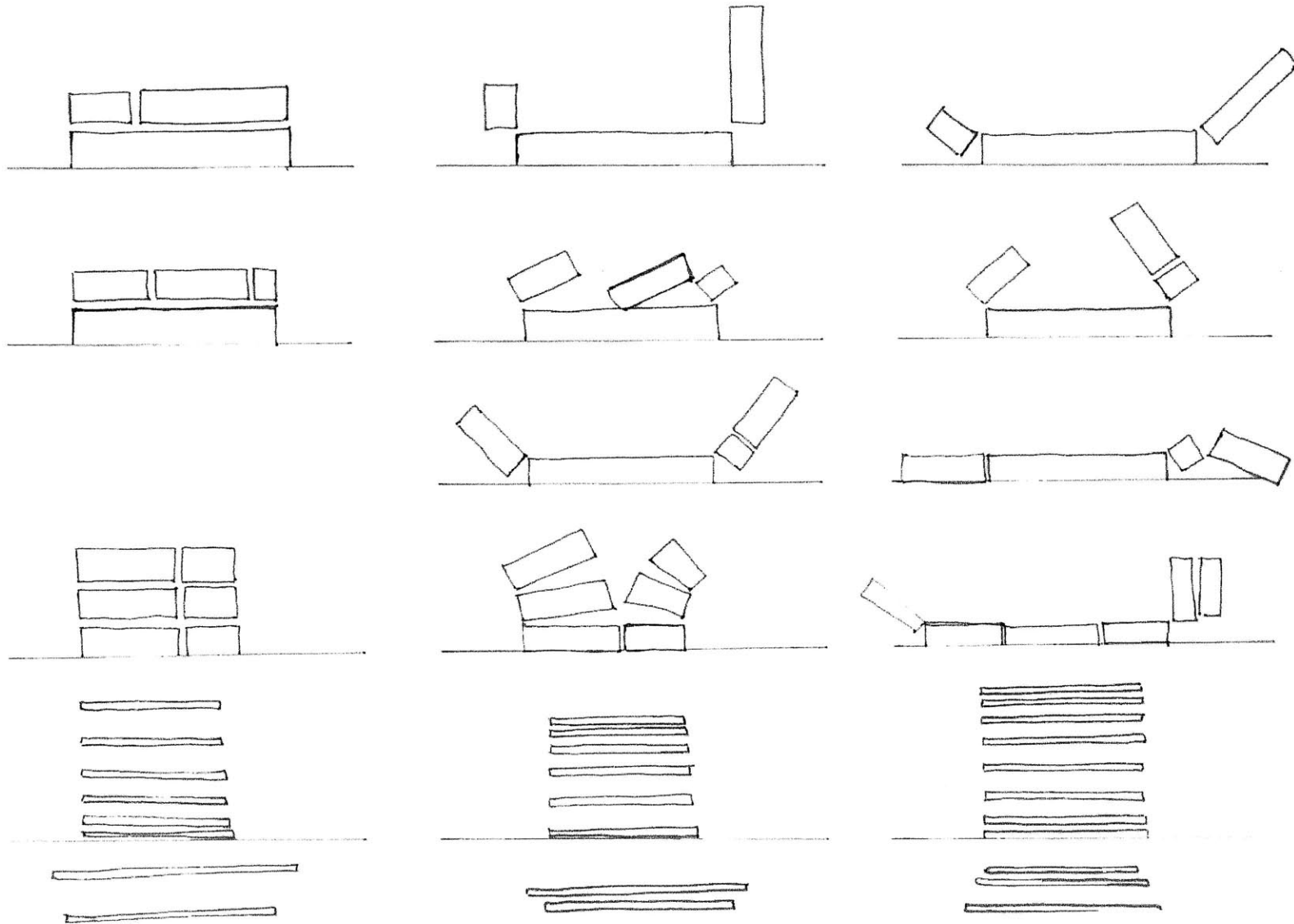
ple scale drawings to test the design criteria and also to apply ideas of the unit to a system. These options and permutations led me to several basic building plans and organizational structures. From there, working with circulation and required build-

ing elements, main function of the spaces were determined. This was a back and forth process between functional requirements, physical challenges, and conceptual approach to the building.

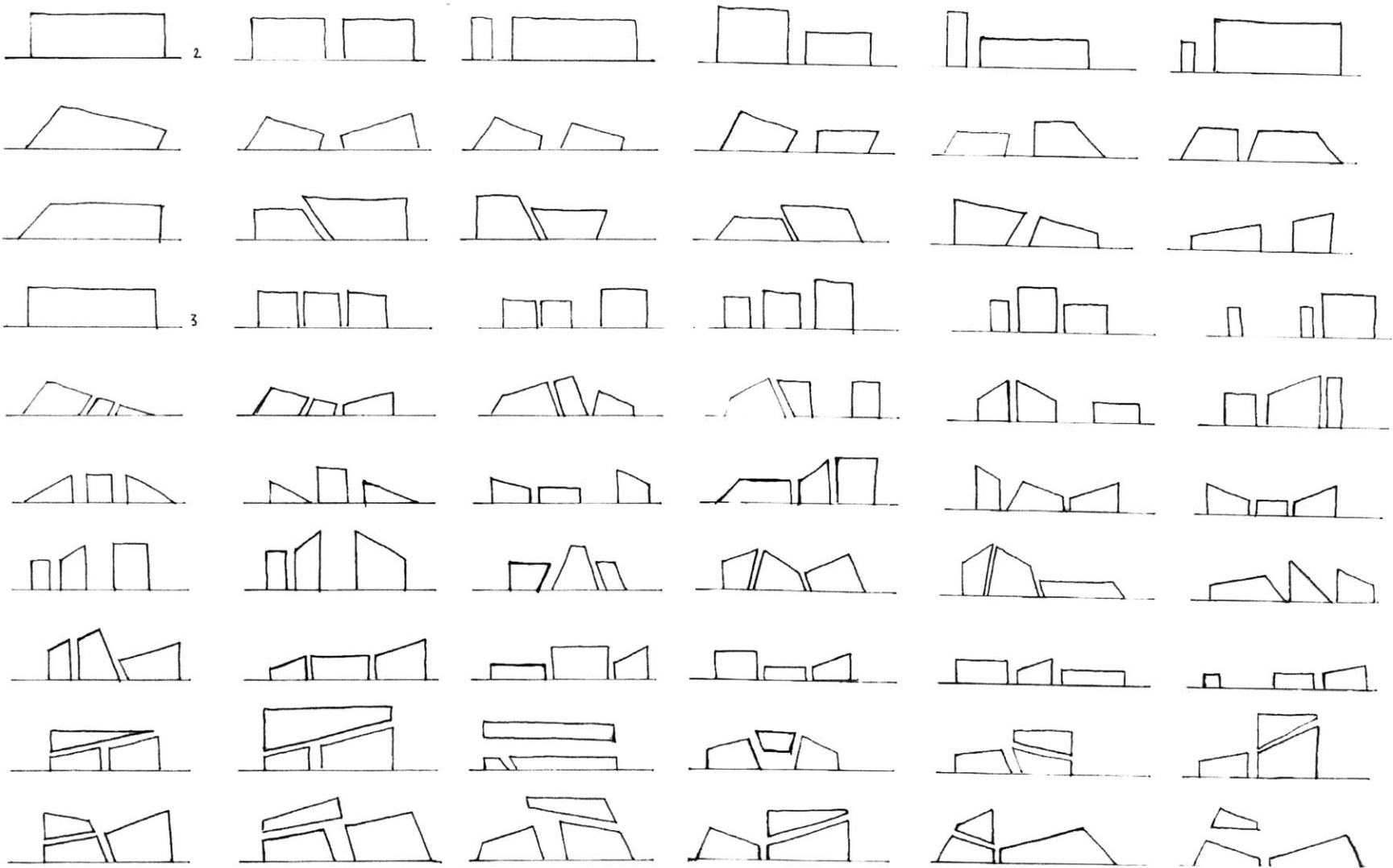
rotation:



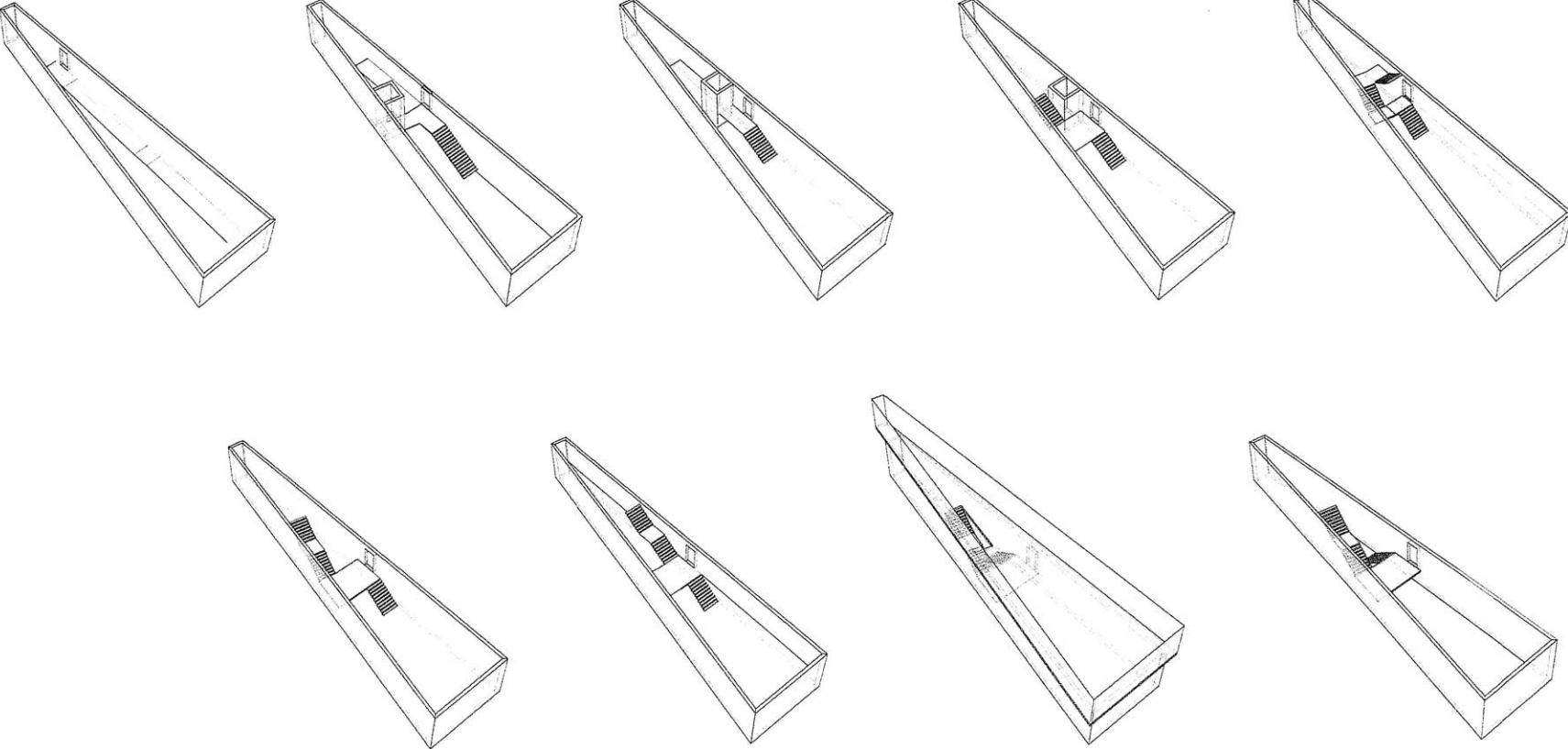
expansion:



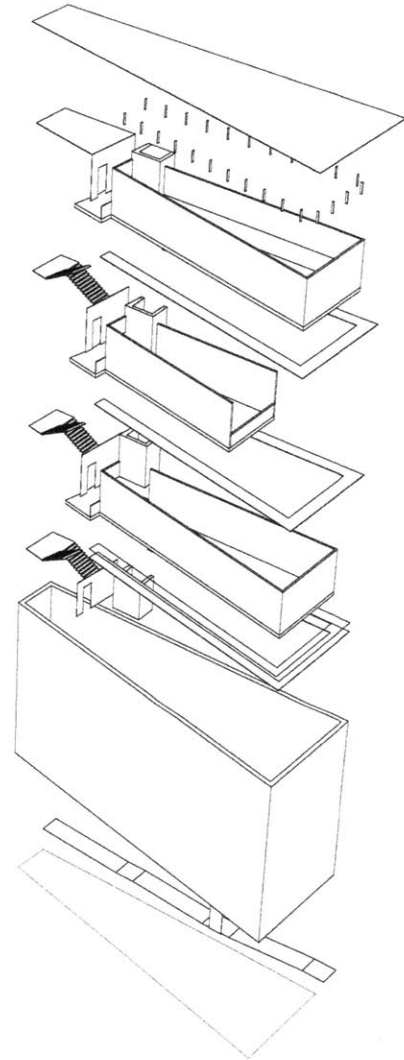
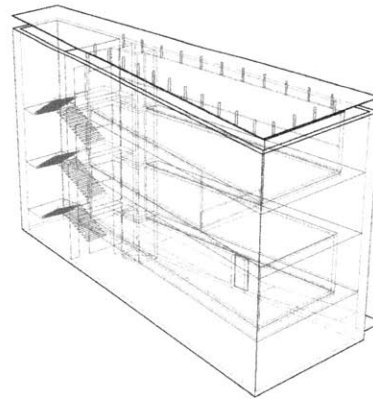
massing:



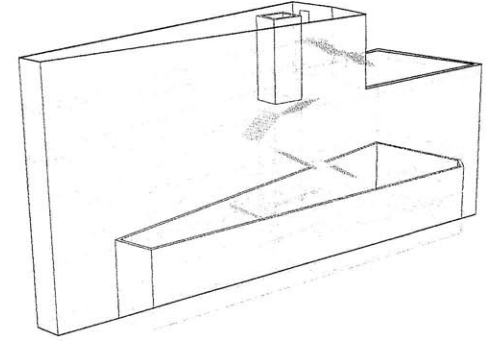
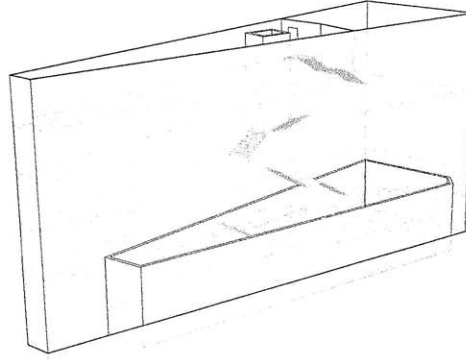
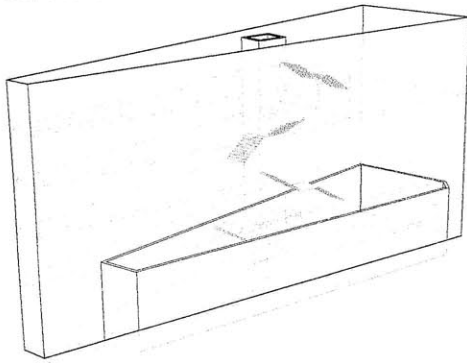
circulation:



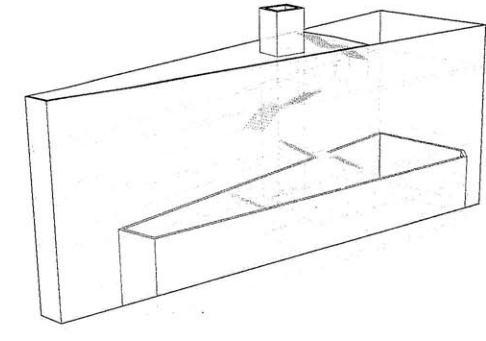
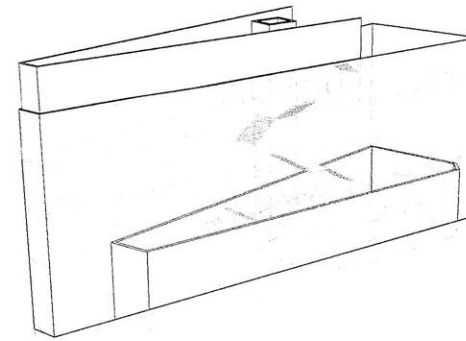
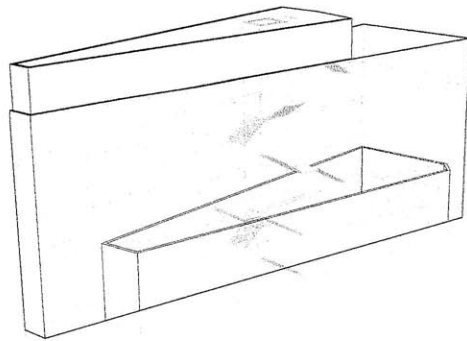
The first full design iteration of the building used the awkward triangular point of the site for circulation. The building contained an outer brick shell, both relating to the vernacular architecture of the area and separating the interior from it. The main entrance was at the basement level, forcing the visitor to descend by ramp below ground for access. There was a 2.5' shaft around the floorplate above the ground floor as a visual/experiential connector from floor to floor, culminating in a operable glass roof. This structure would essentially seem impenetrable from its base and open from the interior. The building would contain a flexible program—with a few exceptions, that function could change depending on the user group.



enclosure condition:



roof condition:

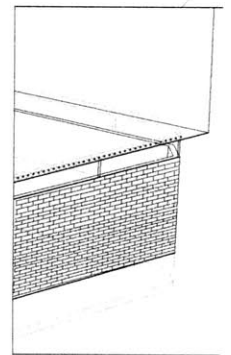
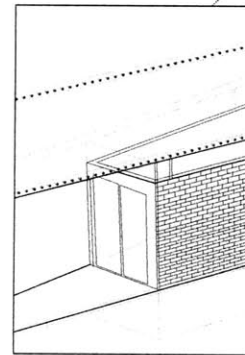
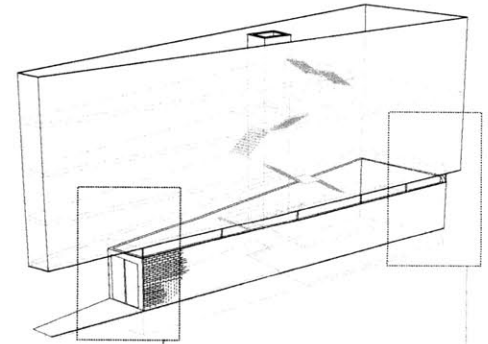
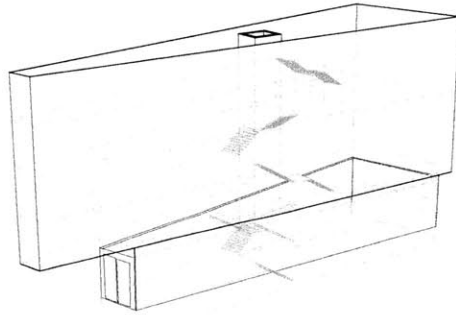
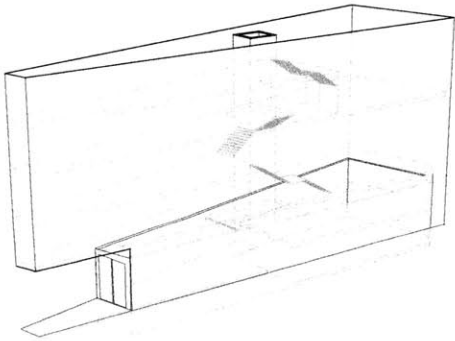
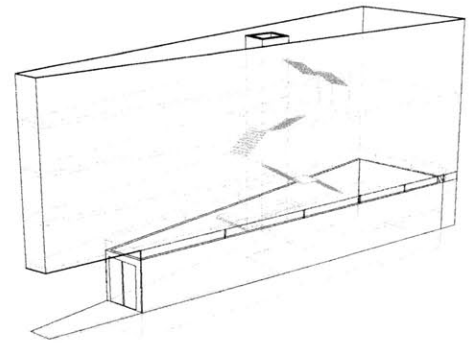
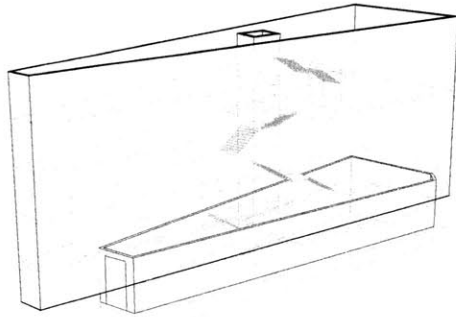
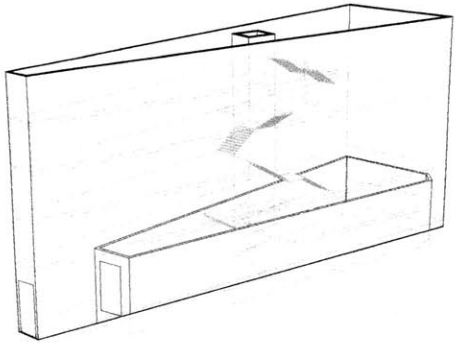


Incorporating the critique of the building—loss of connection to the neighborhood, roof and shaft as questionable light source, lost opportunity with the positioning of circulation in the tapered point—the building was re-imagined with a glass outer wall.

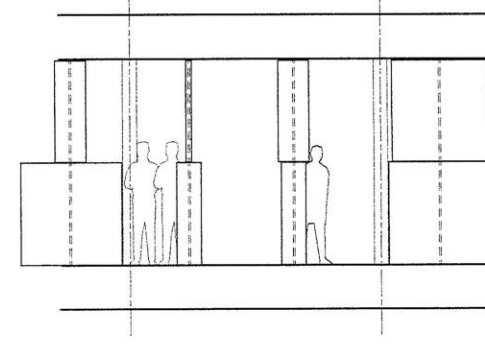
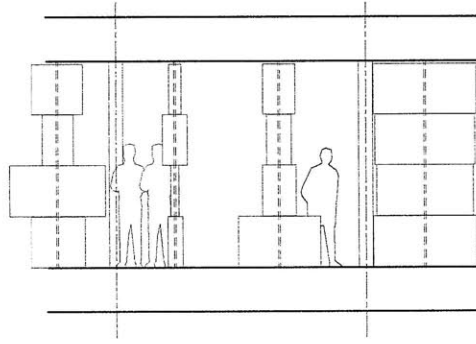
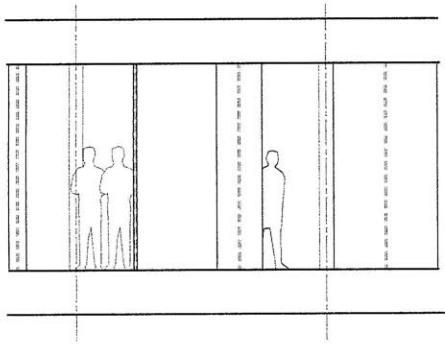
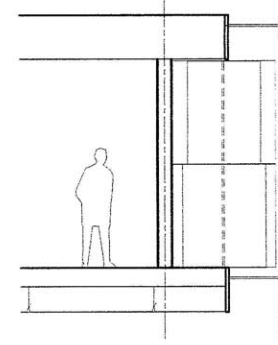
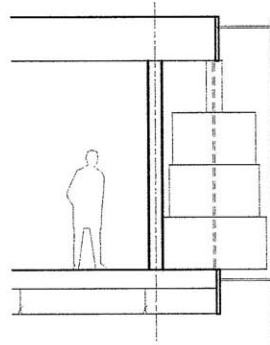
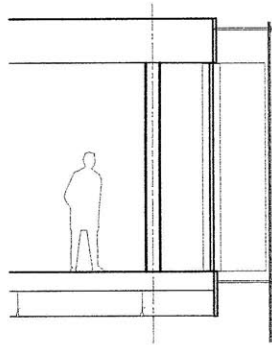
A series of studies were done concerning the type and extent of the glass wall. Consideration was given to the retention of the existing brick structure, as a nod to the history and character of the site. However, the existing brick/CMU structure

has little architectural value. Constructed in 1940, the structure replaced two clapboard buildings, each cafes that served workers of the surrounding Boston Wharf Company buildings. Both were destroyed in fires and rebuilt with the same plan.⁸

ground condition:



scale:

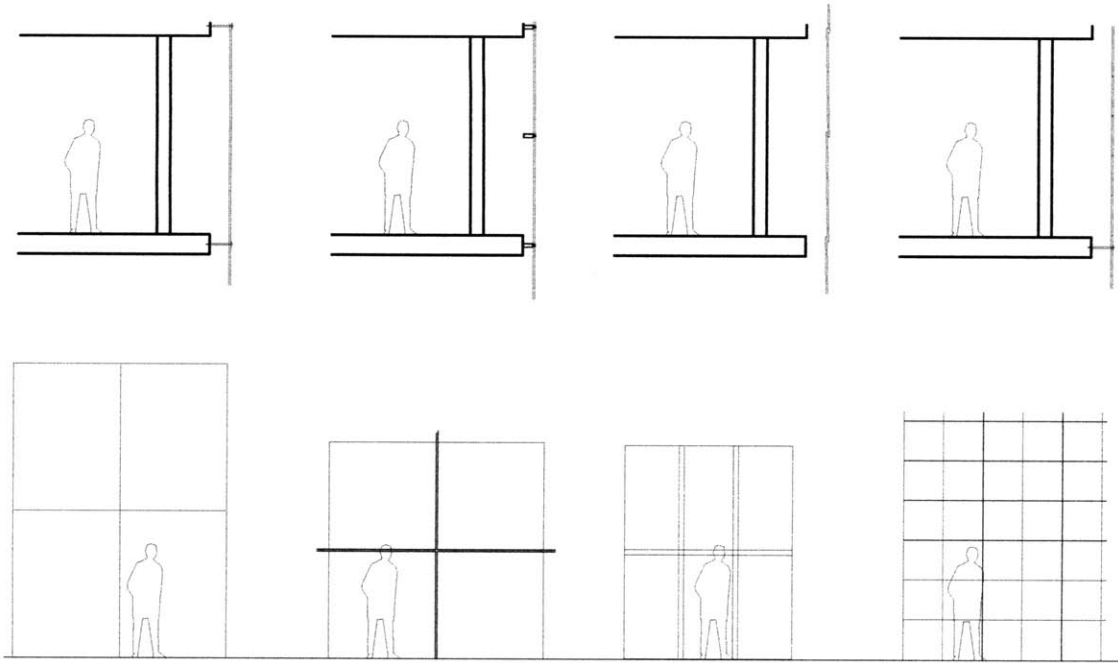


The following sections were studies integrating the interior 'unit' into the structure. The significant conditions were: the distance of the floorplate to the outer glass curtainwall, which maximizes the floorplate area while allowing rotation of the sys-

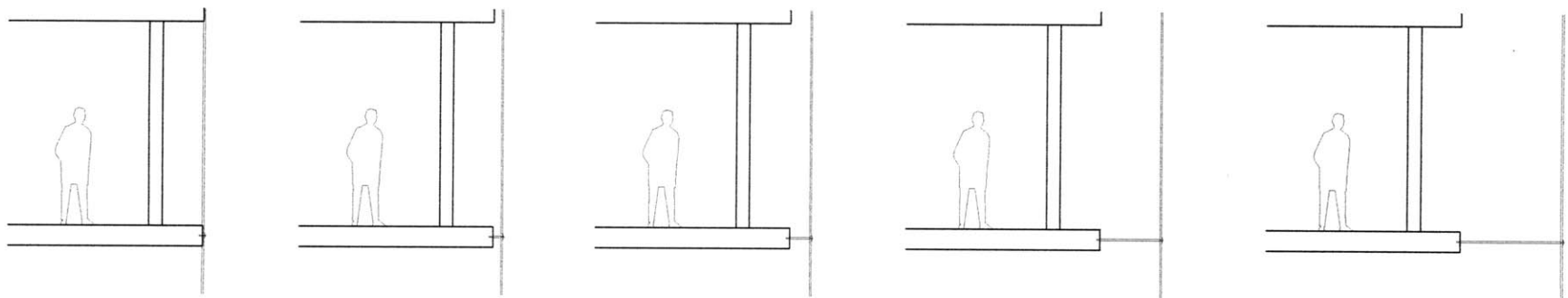
tem; the scale of the interior unit as compared to the human body and floor to ceiling height; and the method of fixation and visual effect of the glass system. The most desirable conditions were 3d modeled and tested under sunlight conditions.

The decision was made, based on historical images of the building site, to create a clapboard exterior structure the scale of the original cafe as a reference to the past. This facade would be continued vertically through the interior system.

glass system:



glass/floorplate separation:

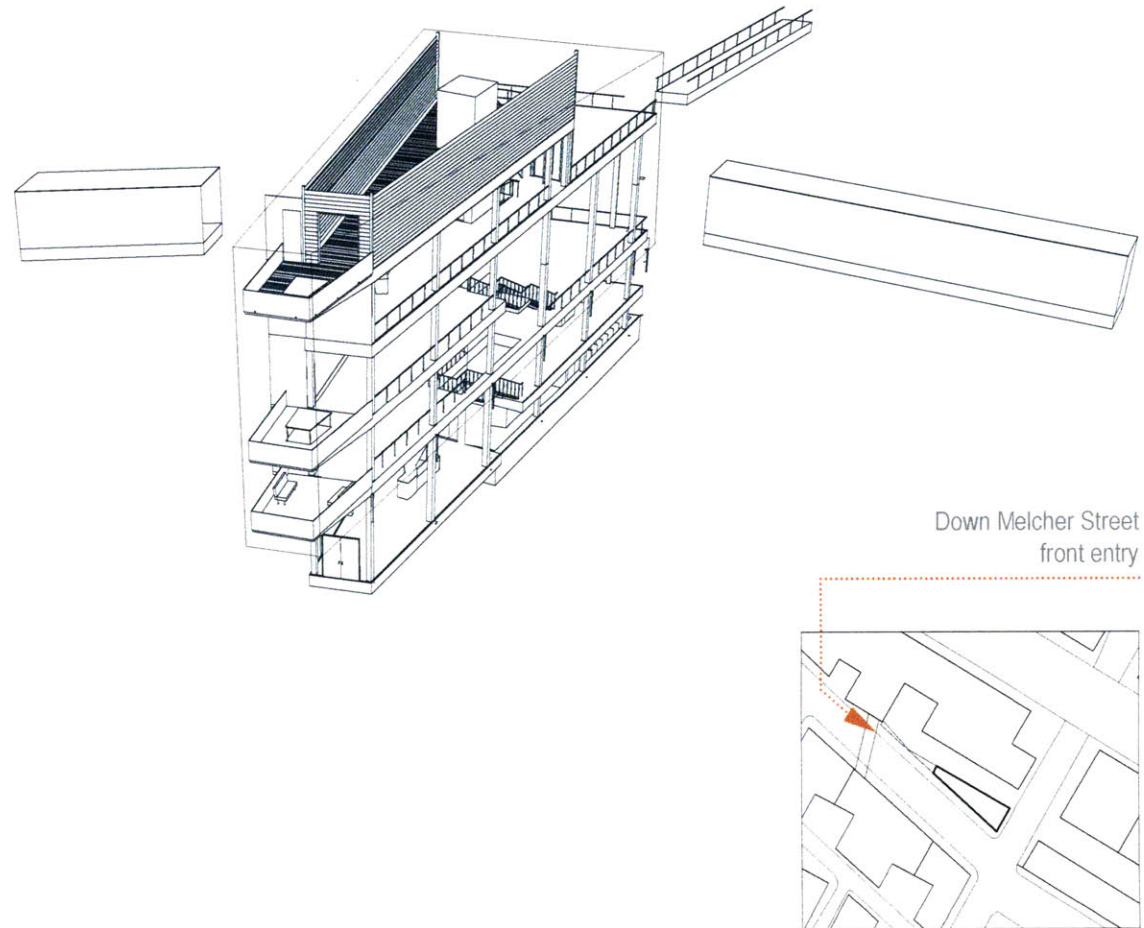


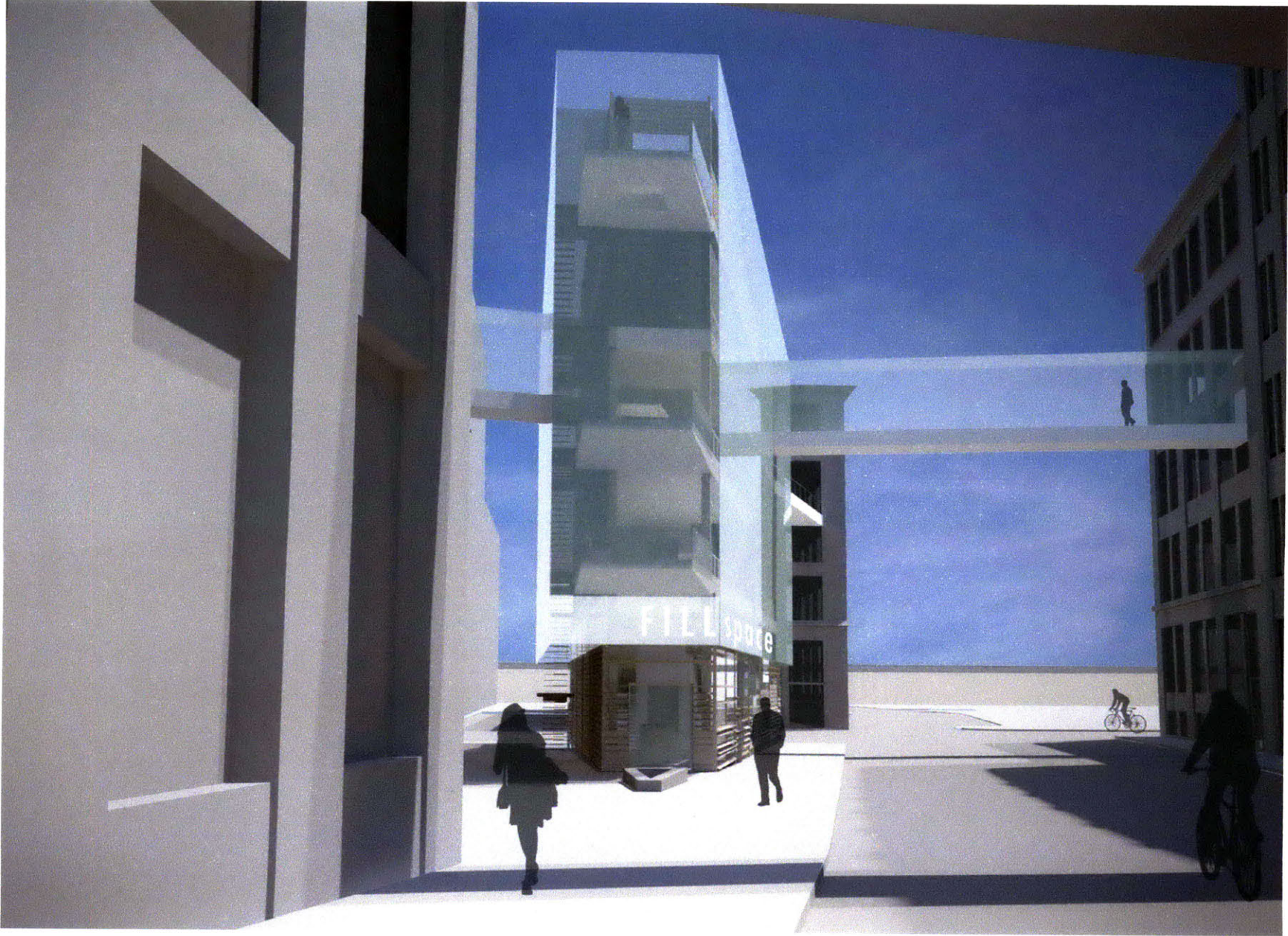
Final design

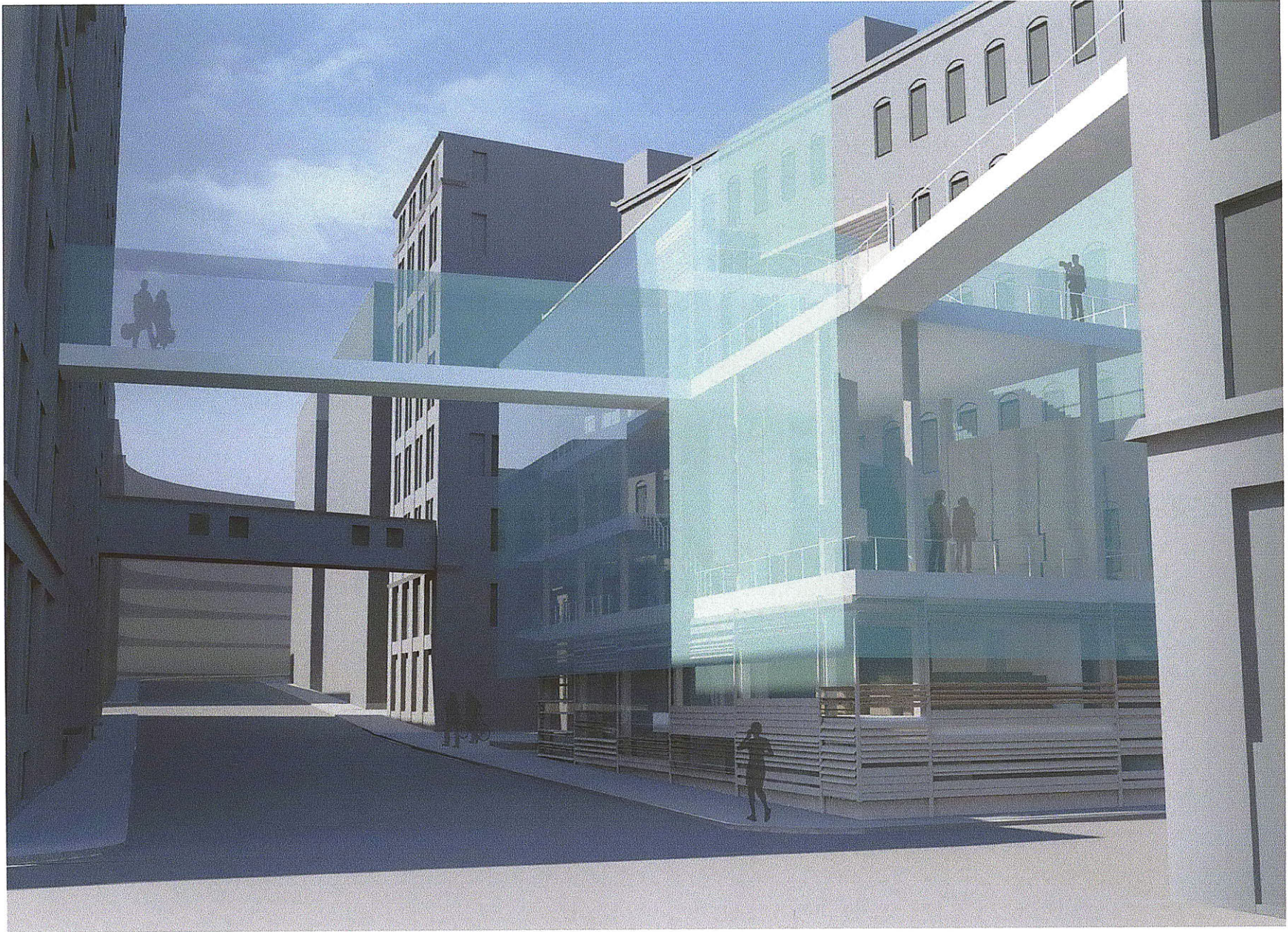
The final building at 324 A Street has been designated *FILLspace*. It functions as an arts inspired neighborhood center. There is a double height gallery space with an extension onto a mezzanine, but this space can essentially be filled with a number of functions depending on the user group: arts and exercise classes, meeting space for local businesses, event space, lectures, etc. The fourth and fifth floors have outdoor space that can either remain open to locals for eating or lounging or it can extend the total area of rented space. The fourth floor is also the main circulation space to neighboring buildings. One open air and two enclosed passageways to adjacent buildings help to encourage circulation and use.

The operable interior system and glass curtain-wall ensure either the privacy or varying degrees of transparency for the user group. Whether the system is mechanized or individually controlled, the views into and from the building can be manipulated. The system is flexible in several ways, controlling light penetration, air flow and ventilation, dividing interior spaces or maintaining open floors. *FILLspace* can therefore be used simultaneously by several user groups, rented as a whole or left open for public circulation.

The finished structure neither denies the physical limitations of its site nor restricts use due to them. It essentially works in conjunction with its neighbors to fill any number of needs, while retaining the arts identity the is beginning to get lost. Physically it looks to the past and future.

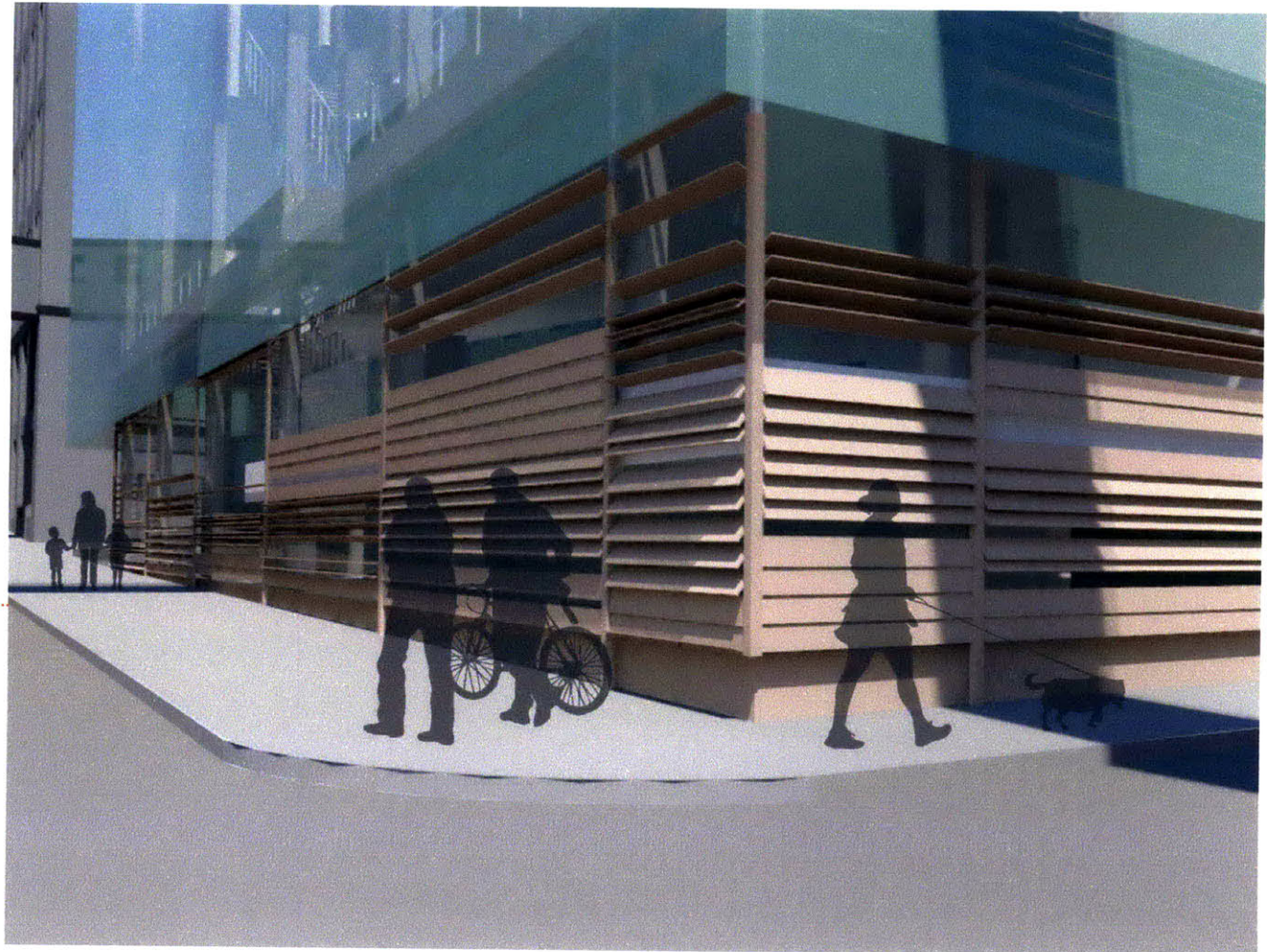






Across A Street

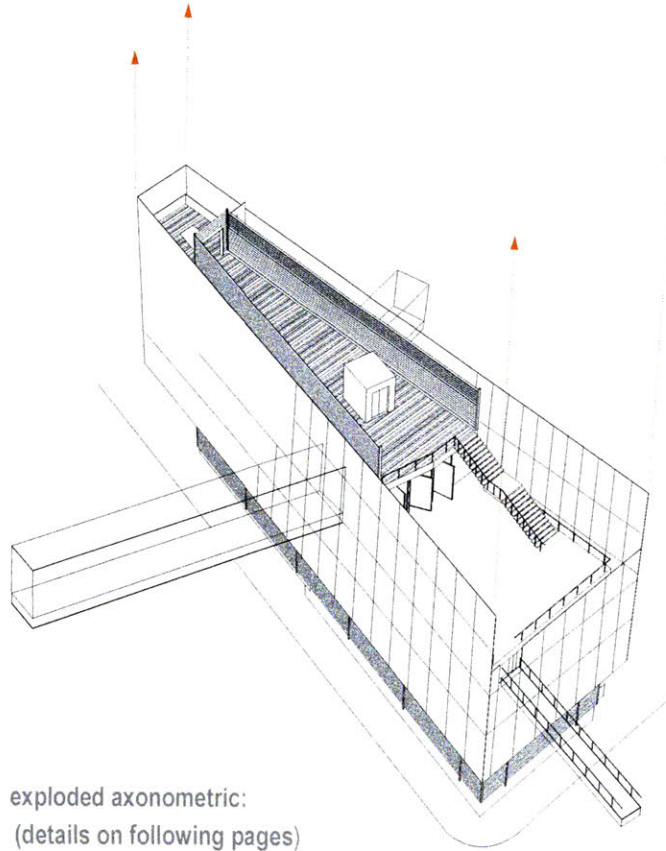
facade
detail



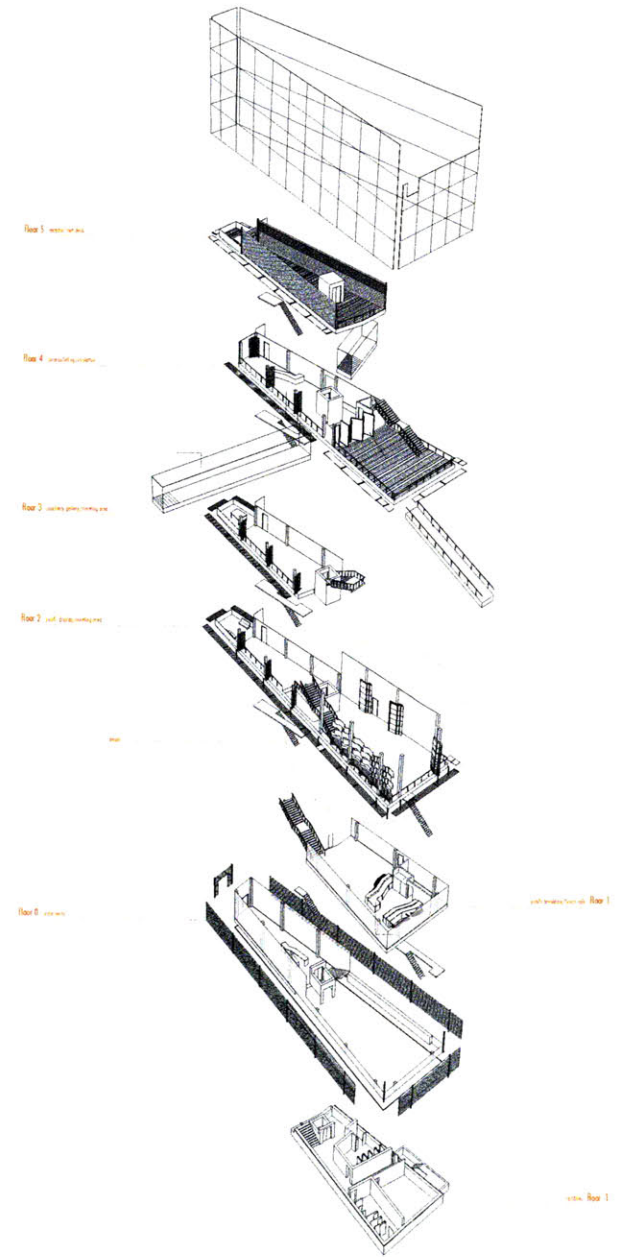




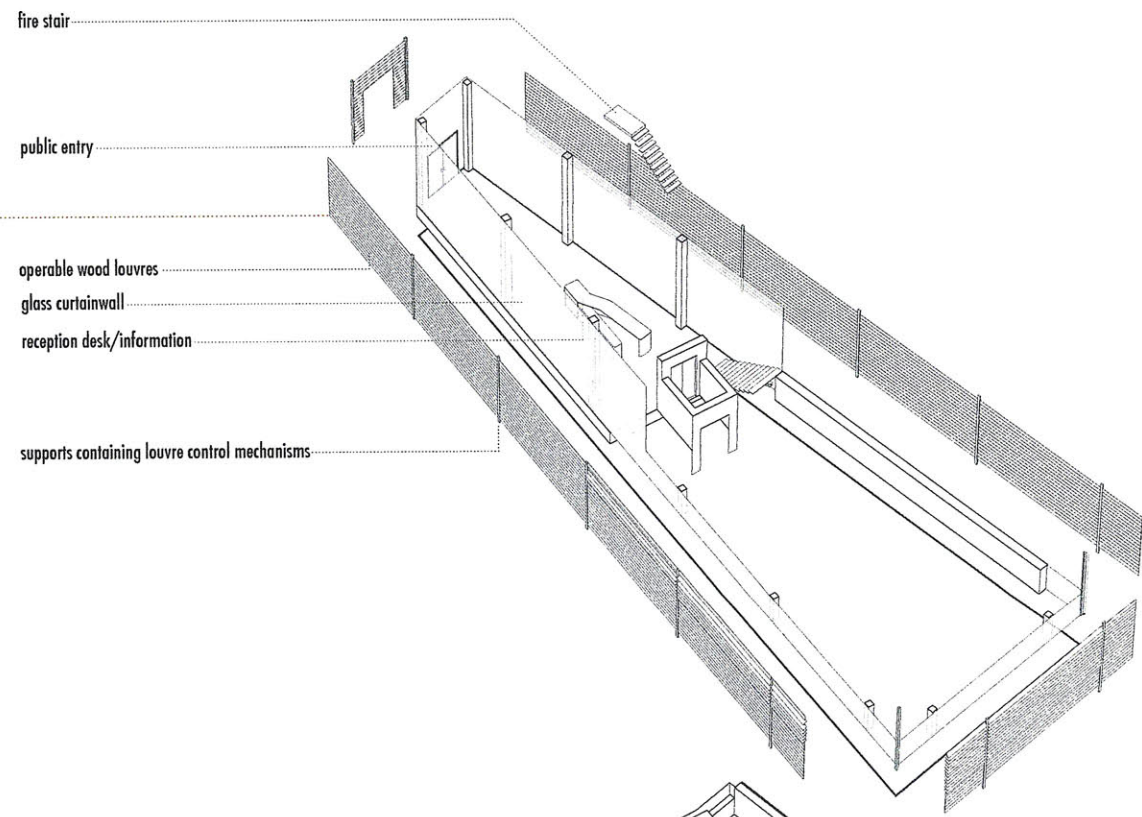
View from Summer St bridge



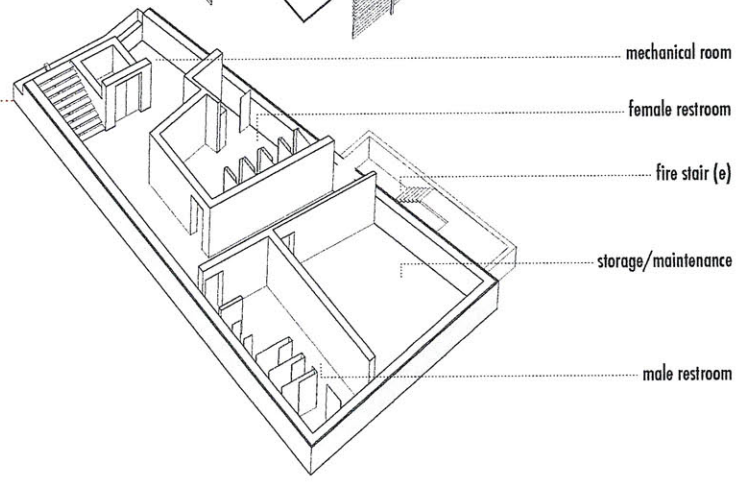
exploded axonometric:
(details on following pages)



floor 0 main entry
reception area
information
public access



floor -1 facilities
male/female restrooms
storage/supplies room
mechanical room



floor 2 public display/meeting area

double-height main space
gallery display/openings
lecture-performance area
class/recreation area
public gathering rental

- glass railing
- lounge area
- fire exit
- operable facade screens
- operable ventilation grating
(with insulated glass)
- fire stair

detail

- operable facade screens
(space divider)
- louvre supports
(vertical extension arm)

- fire exit
- translucent glass fire wall

fire stair (e)

floor 1 public breakfast/lunch cafe

neighborhood cafe
food prep area
back room storage/aux. prep
food cases
counter seating/eating
table seating

additional table area

fire exit

back kitchen
(storage/food/prep)

glass wall
(louvers extending in front)

food prep/service

counter seating

fire stair (e)

floor 4 inter-building circulation

tunnel linkages
administration
access to outdoor deck
gathering
lounging
accessible wc

operable privacy screens

fire exit

administration area/office
(public/private optional)

operable facade/privacy screens

operable ventilation grating
(btw floorplate and curtainwall)

fire stair

glass tunnel to 82 Melcher Street

glass tunnel to 326 A Street

tunnel entry/exit

translucent glass fire wall

elevator

accessible restroom

tunnel entry/exit

rotating glass doors

wood decking

operable glass weather barrier
(btw floorplate and curtainwall)

floor 3 auxiliary gallery/meeting area

double-height meeting area
gallery space continuation
workshop/class space

glass railing

rentable meeting space
(privacy optional/open above)

fire exit

translucent glass fire wall

operable facade/privacy screens

operable ventilation grating

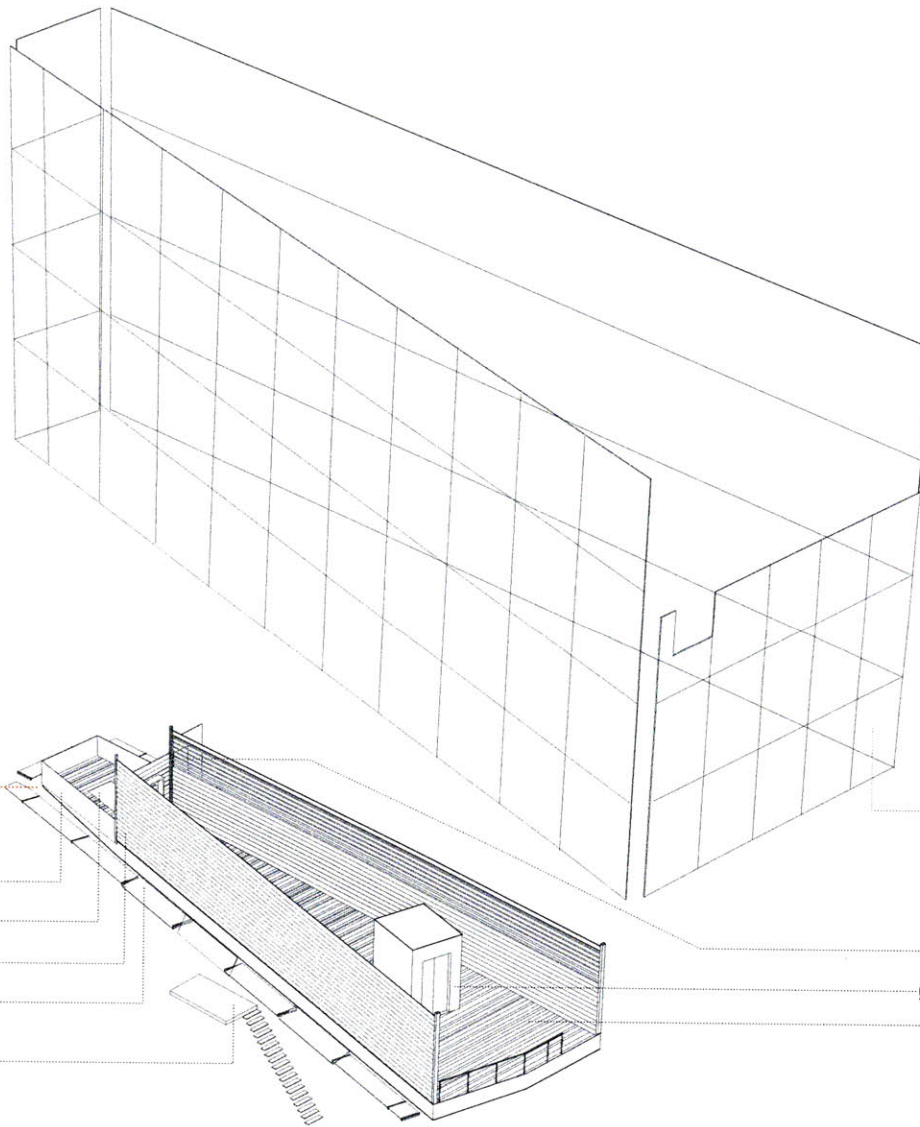
fire stair

passage to 319 A Street

floor 5 exterior roof deck

gathering
lounging
eating/seating

- glass railing
- operable skylight
- operable wood louvres
- operable glass weather barrier
(btw floorplate and curtainwall)
- fire stair

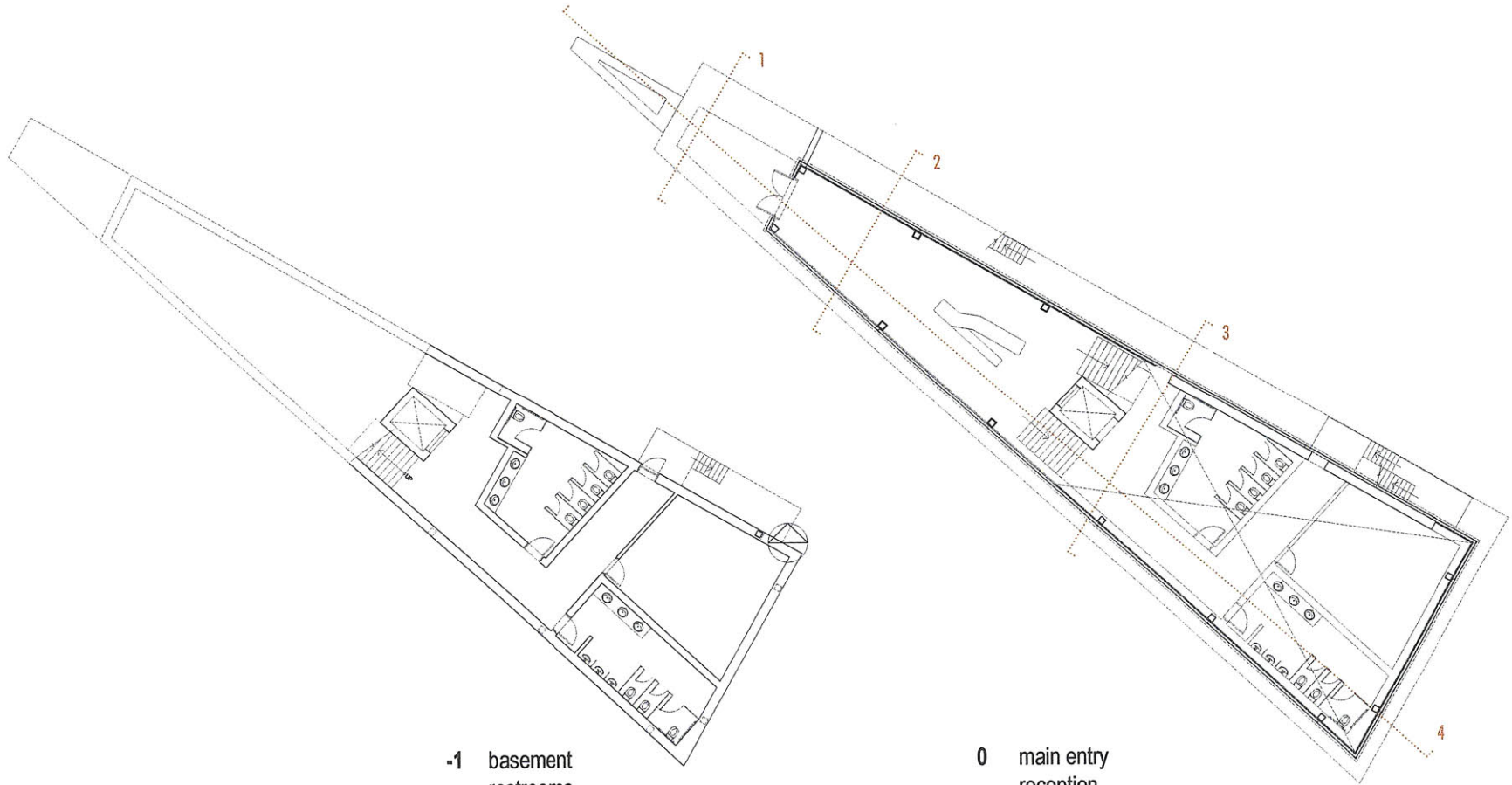


glass curtainwall

fire exit

glass elevator enclosure

wood decking

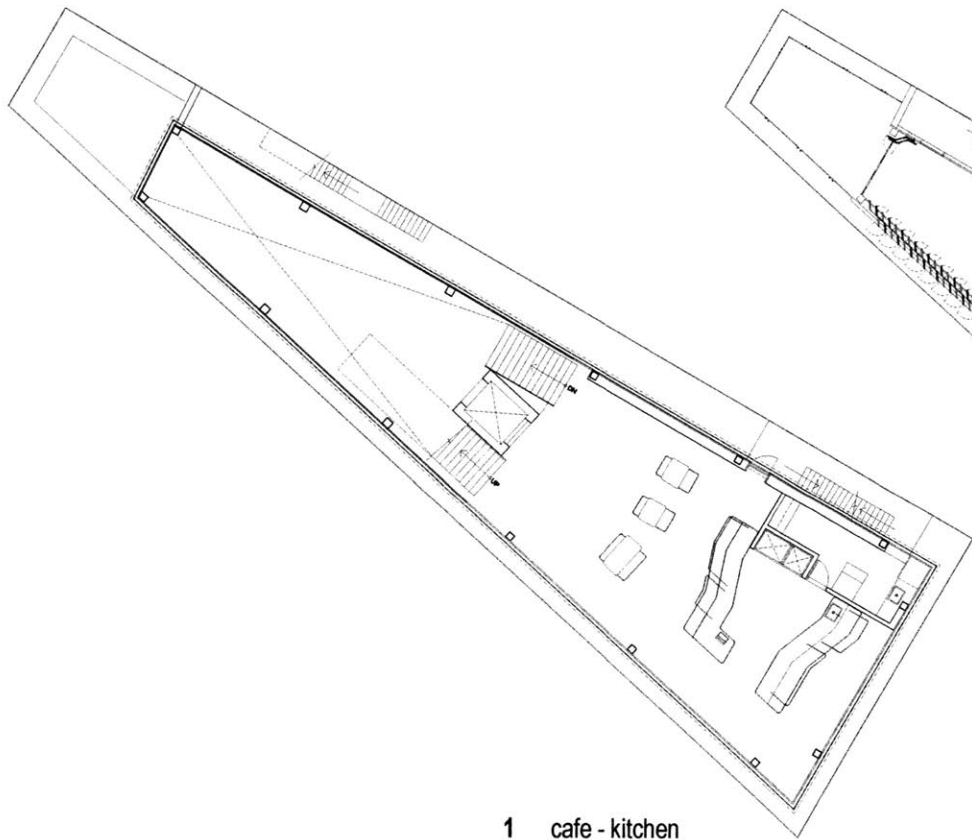


-1 basement
restrooms
primary storage
mechanical room

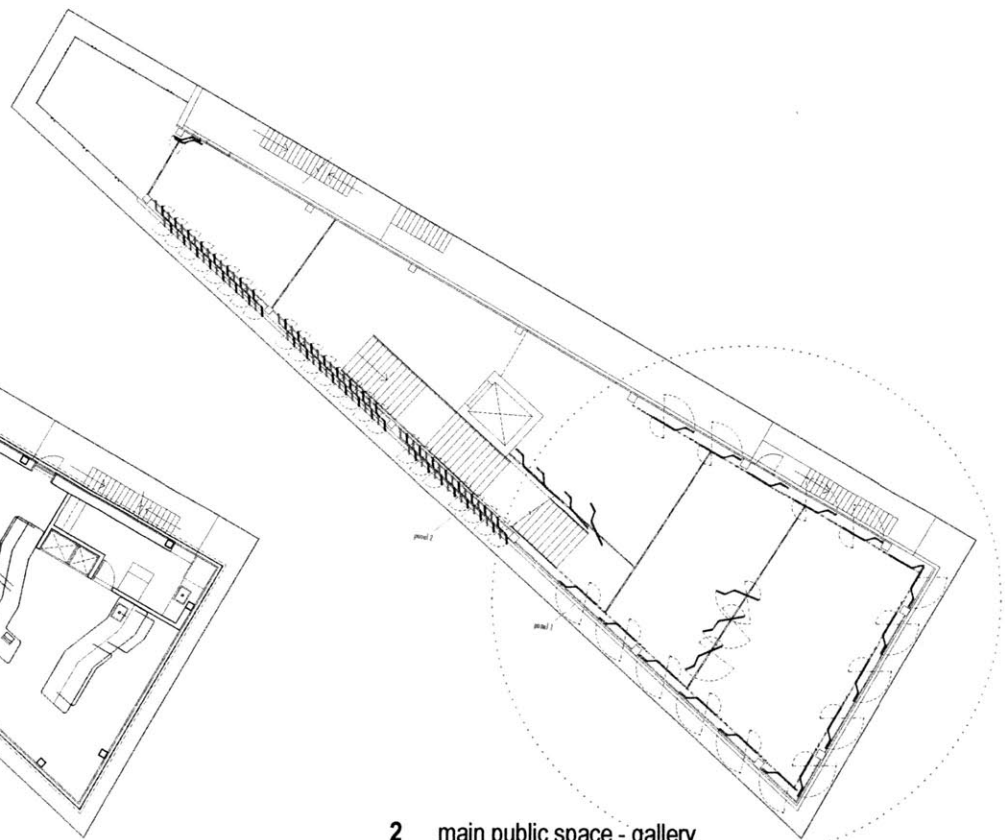
0 main entry
reception



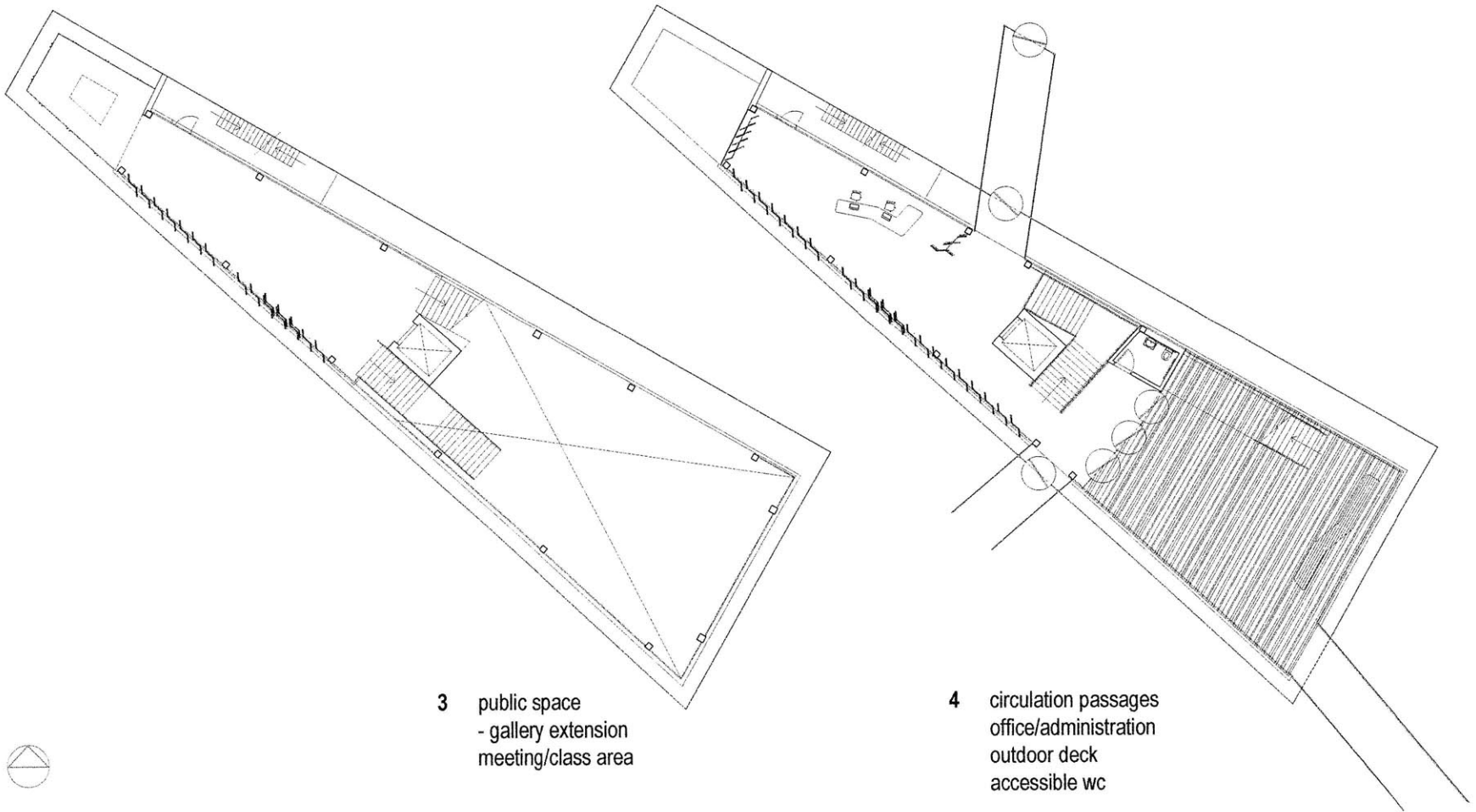
plans
scale: 1/16" = 1'-0"



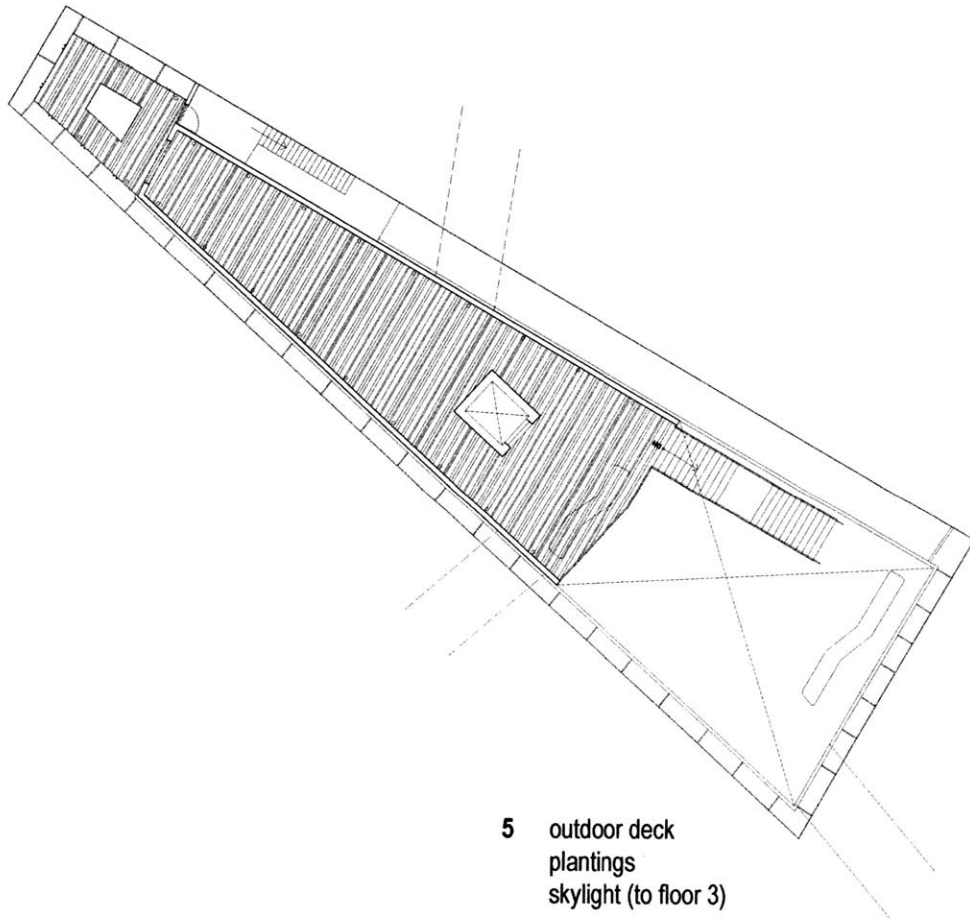
1 cafe - kitchen



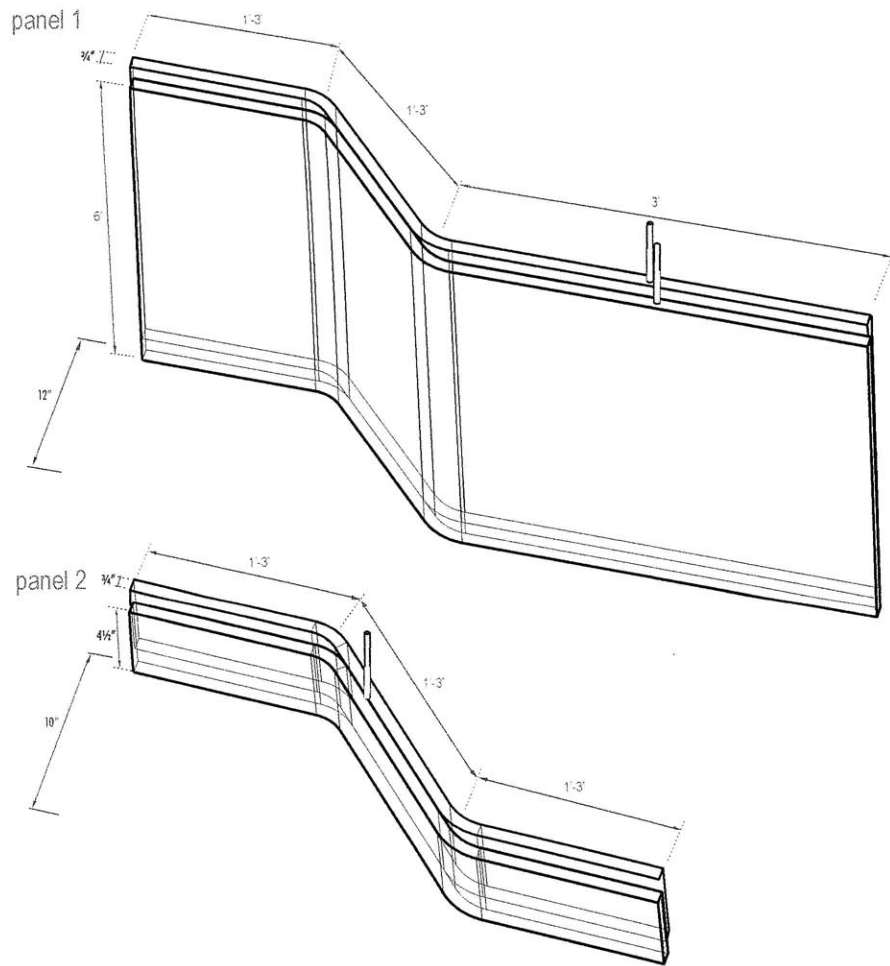
2 main public space - gallery
flex space - meeting



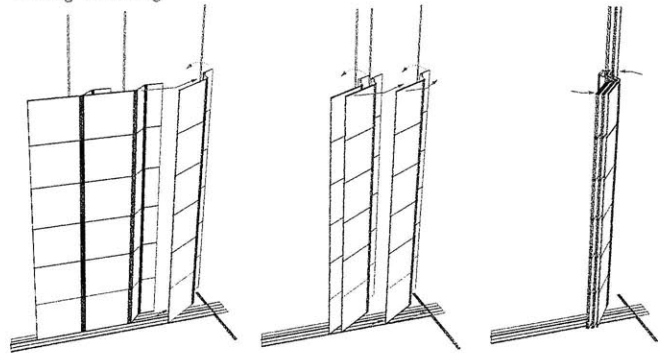
plans
scale: 1/16" = 1'-0"



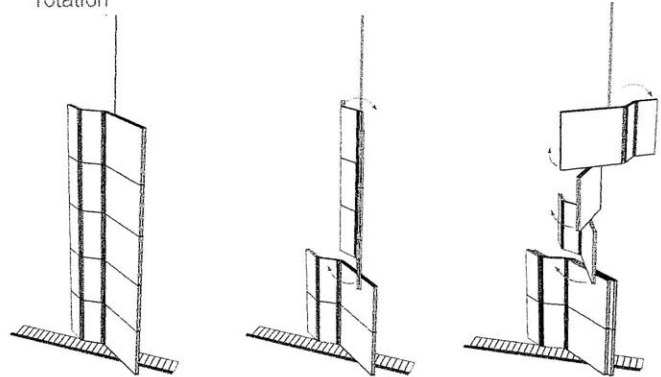
5 outdoor deck
plantings
skylight (to floor 3)



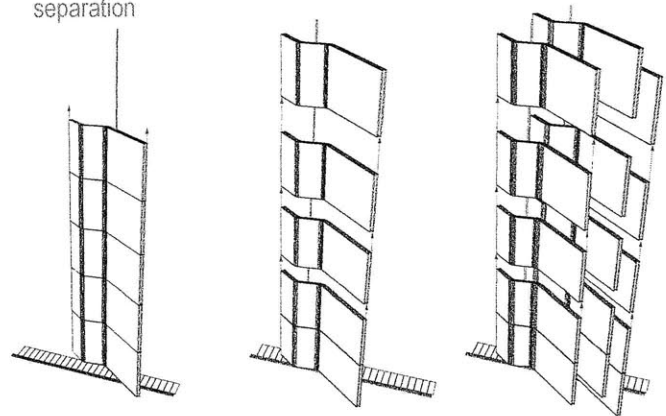
sliding-stacking



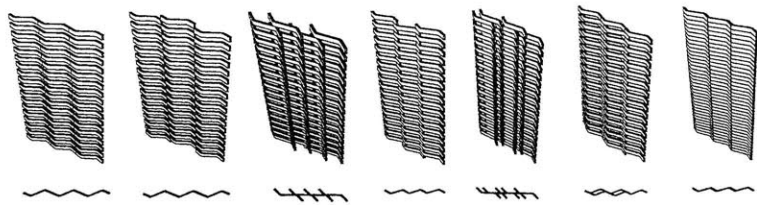
rotation

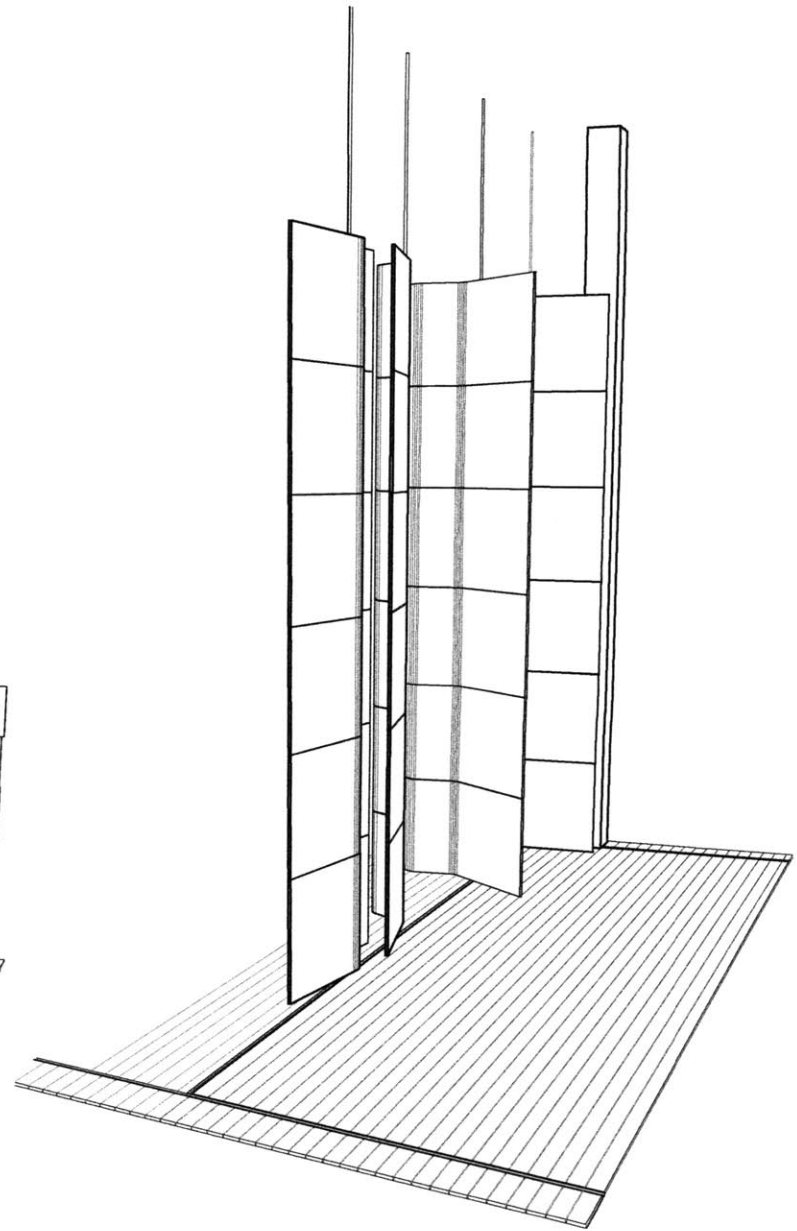
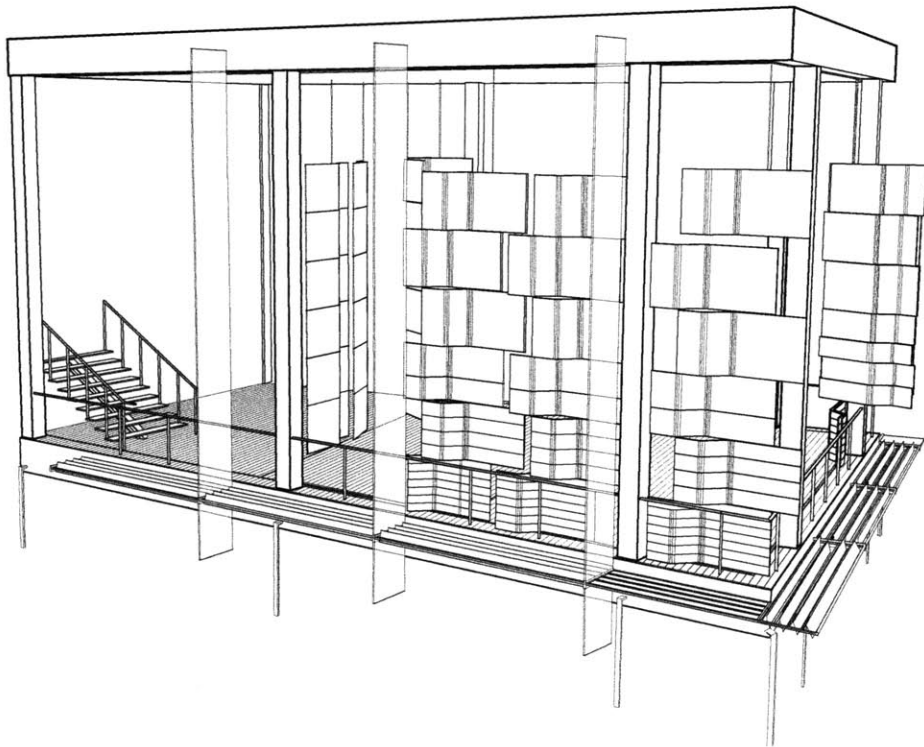
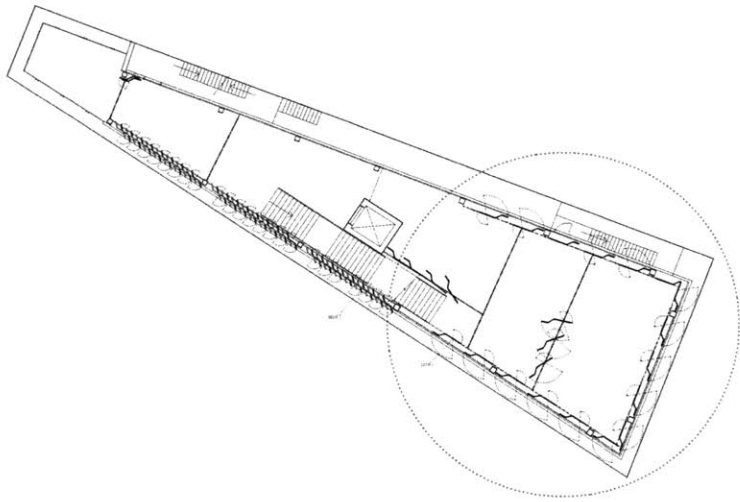


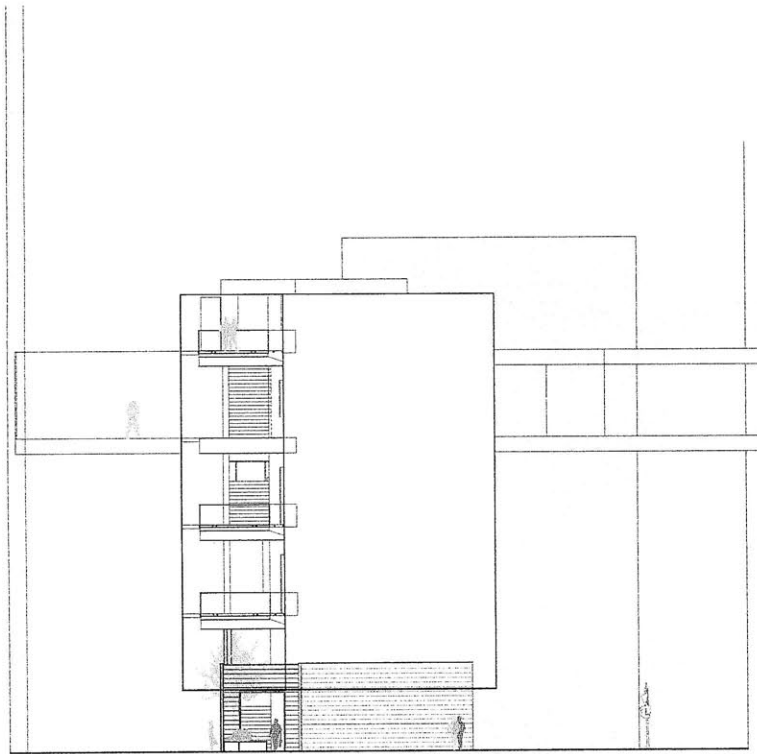
separation



system details



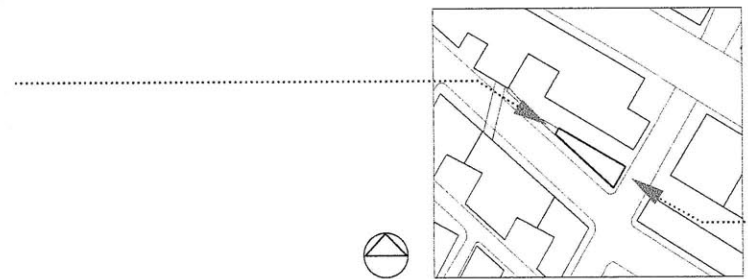


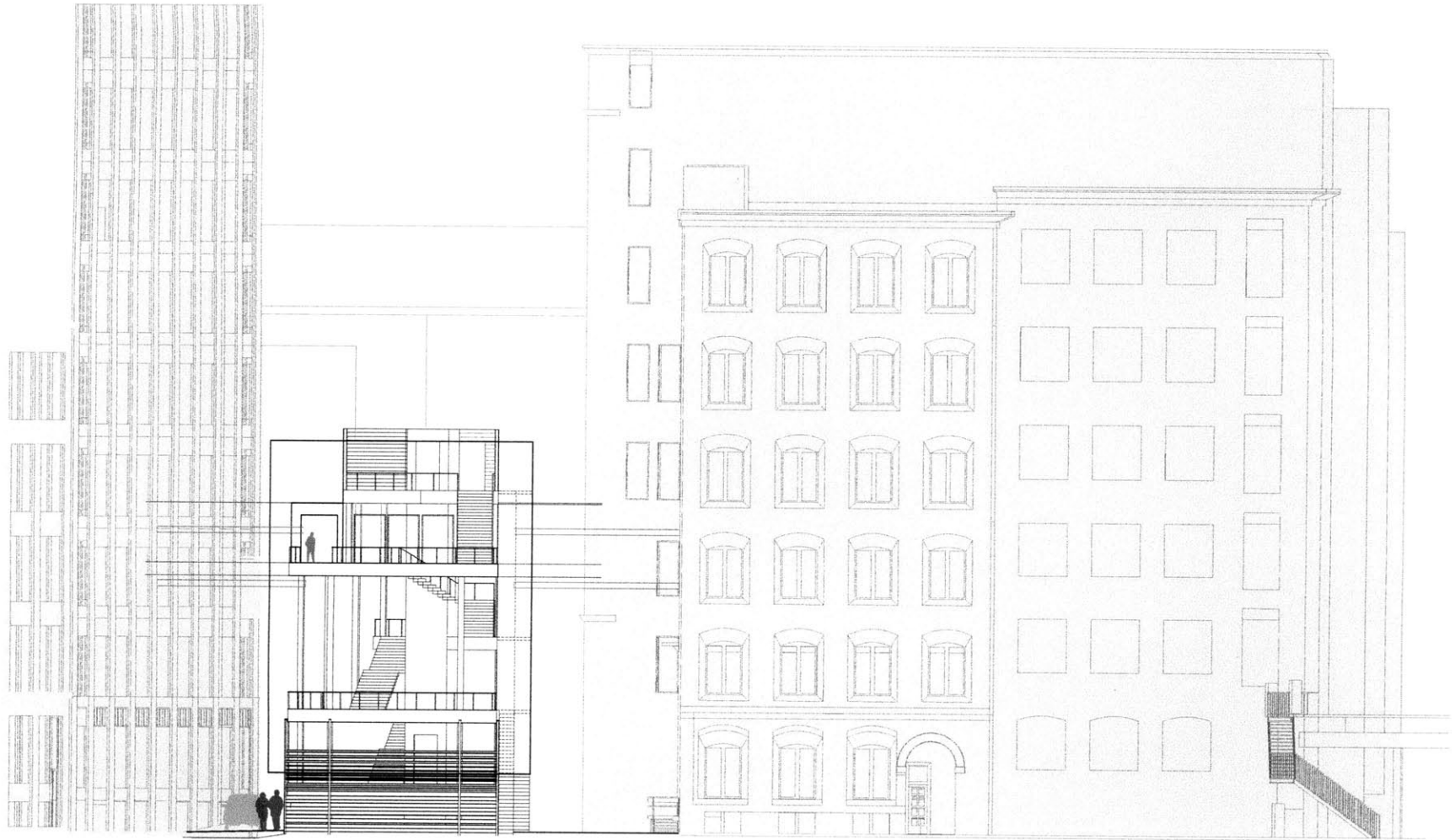


northwest elevation

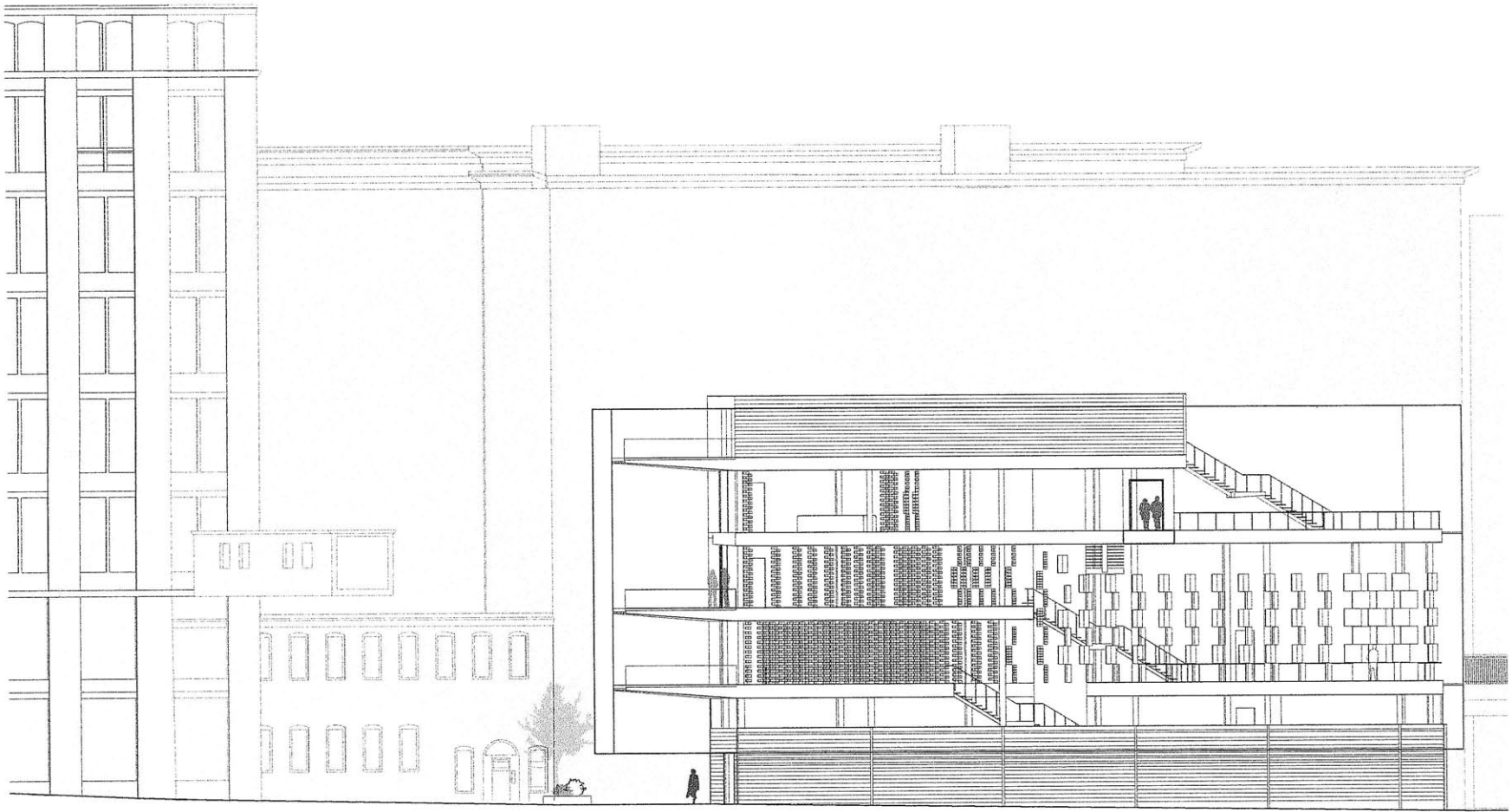
elevations

scale: $\sim 1/32" = 1'-0"$



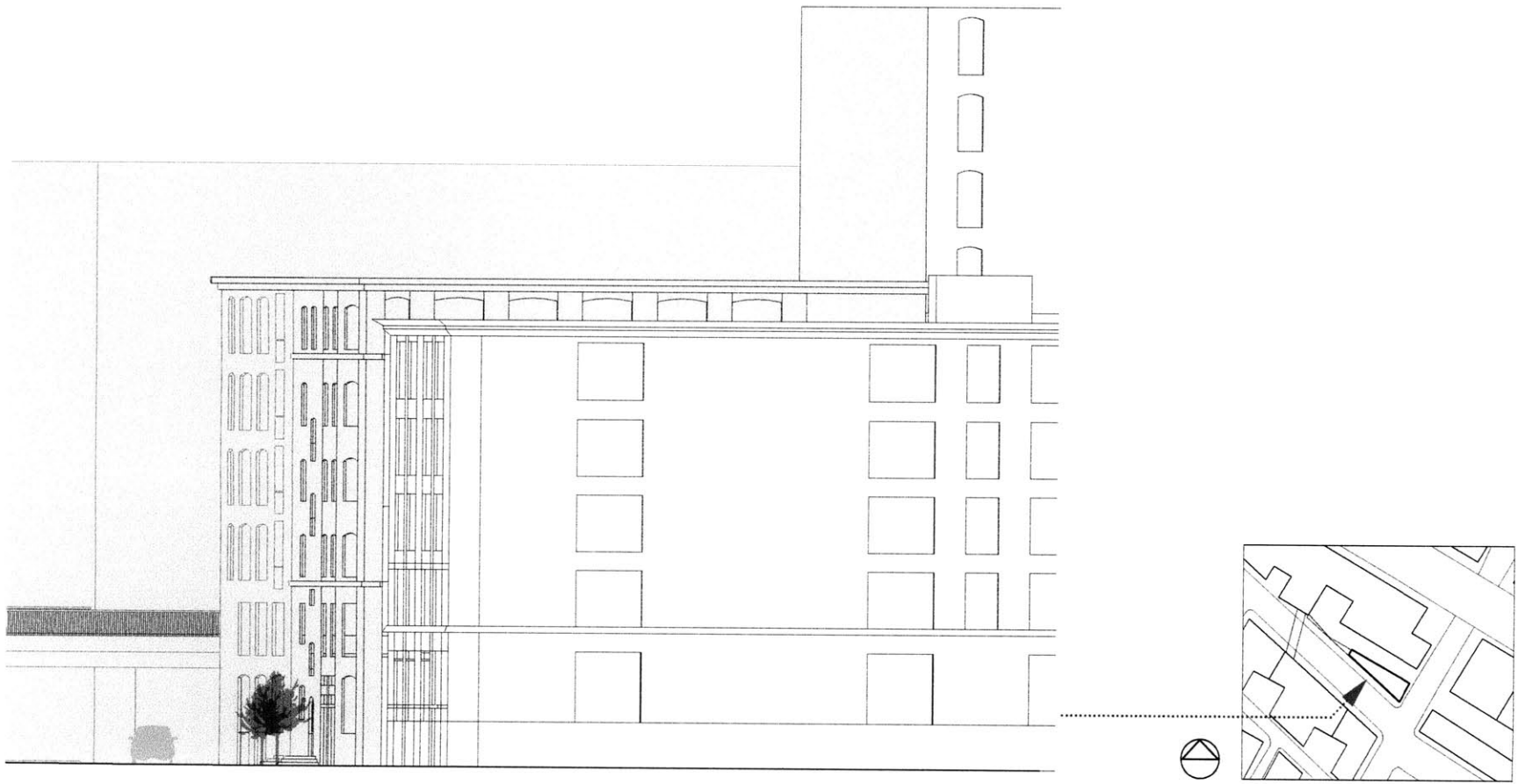


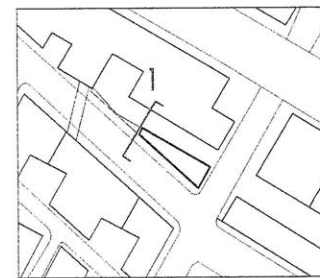
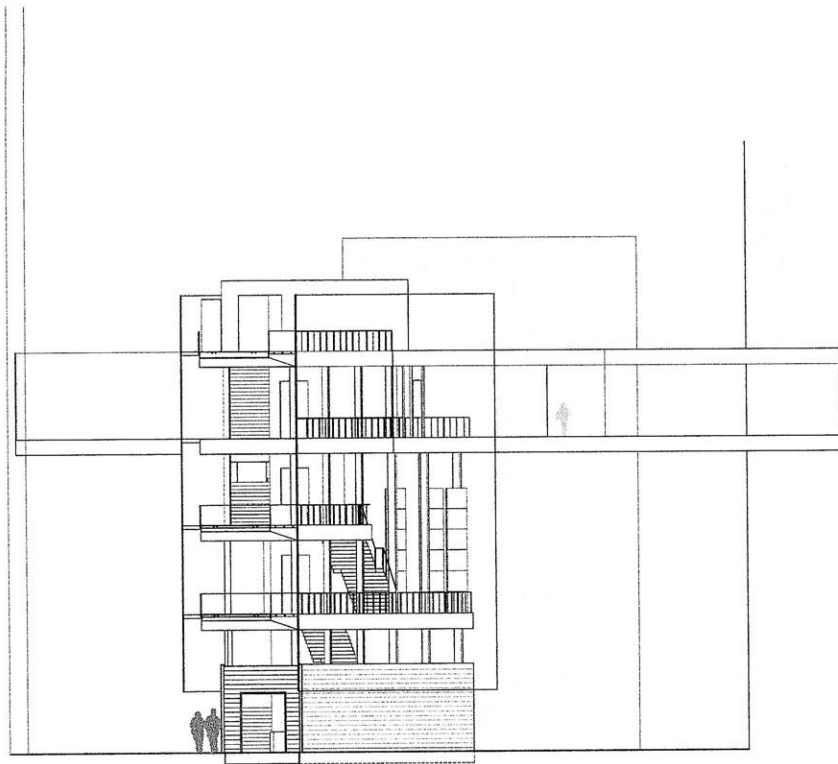
southeast elevation



southwest elevation

elevations
scale: ~ 1/32" = 1'-0"

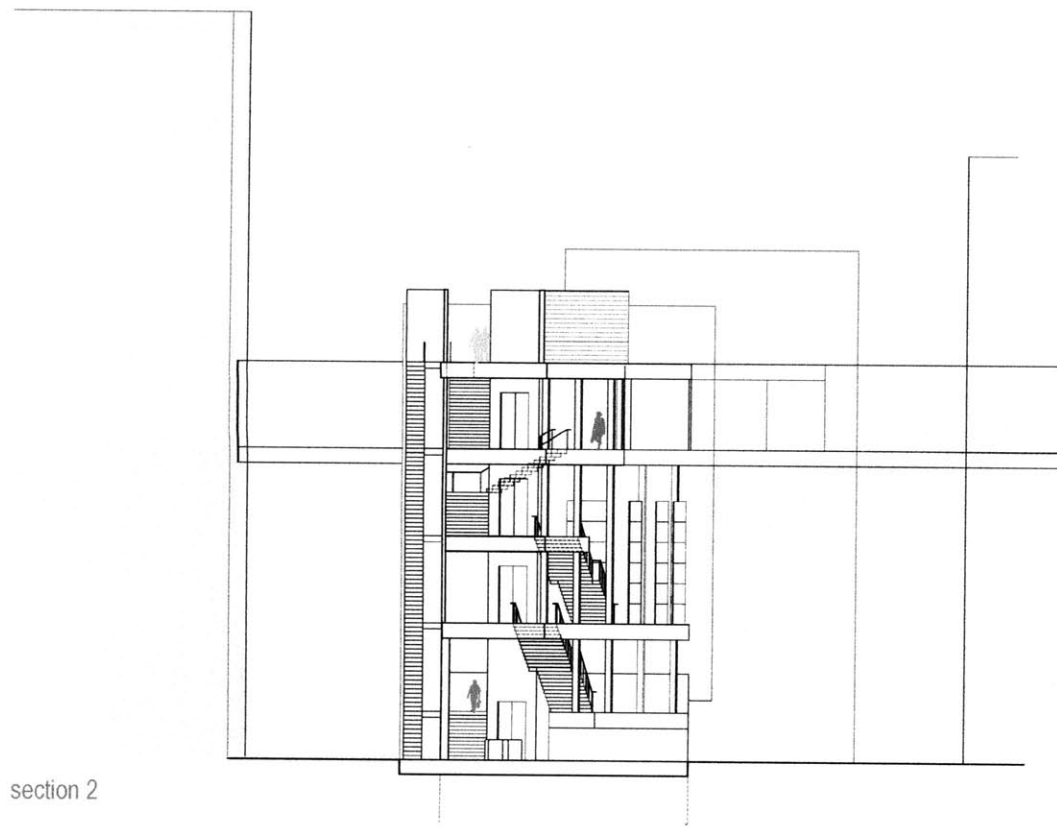




section 1

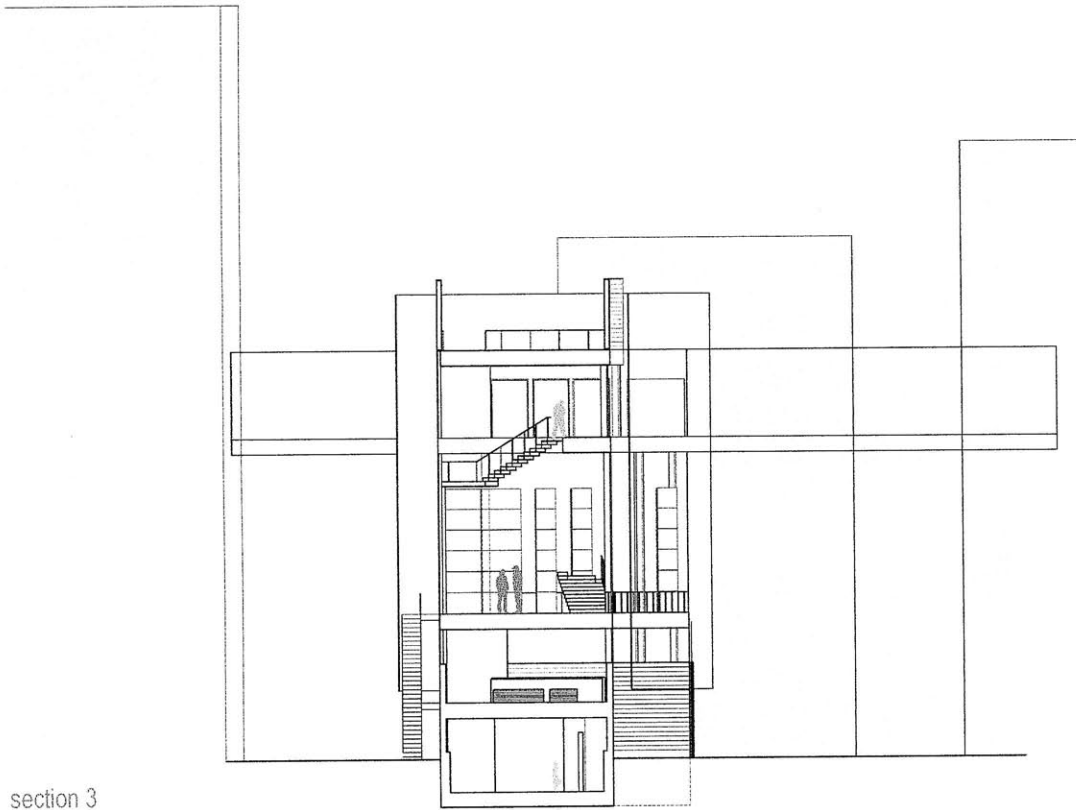
sections

scale: $\sim 1/32" = 1'-0"$



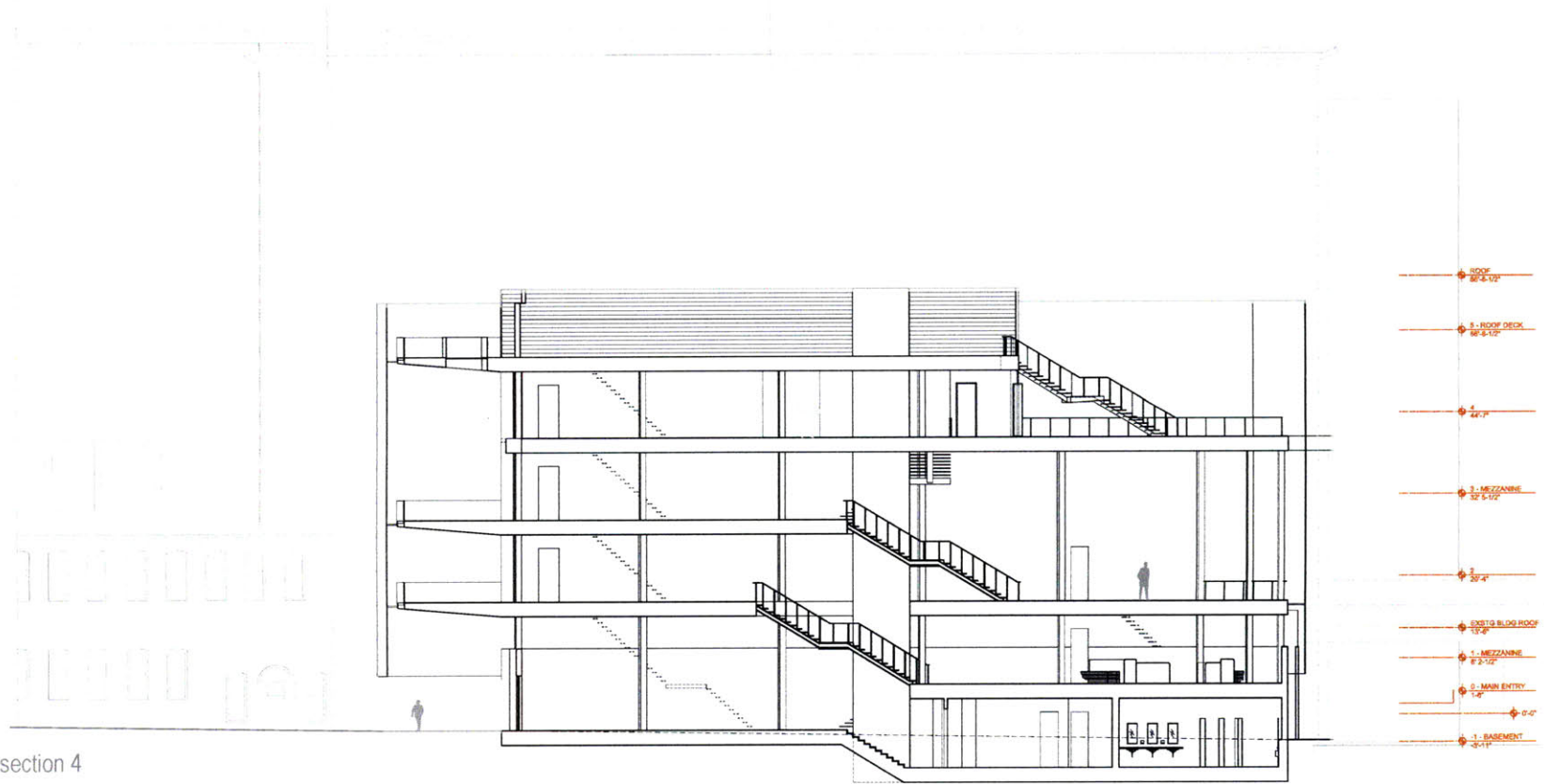
section 2



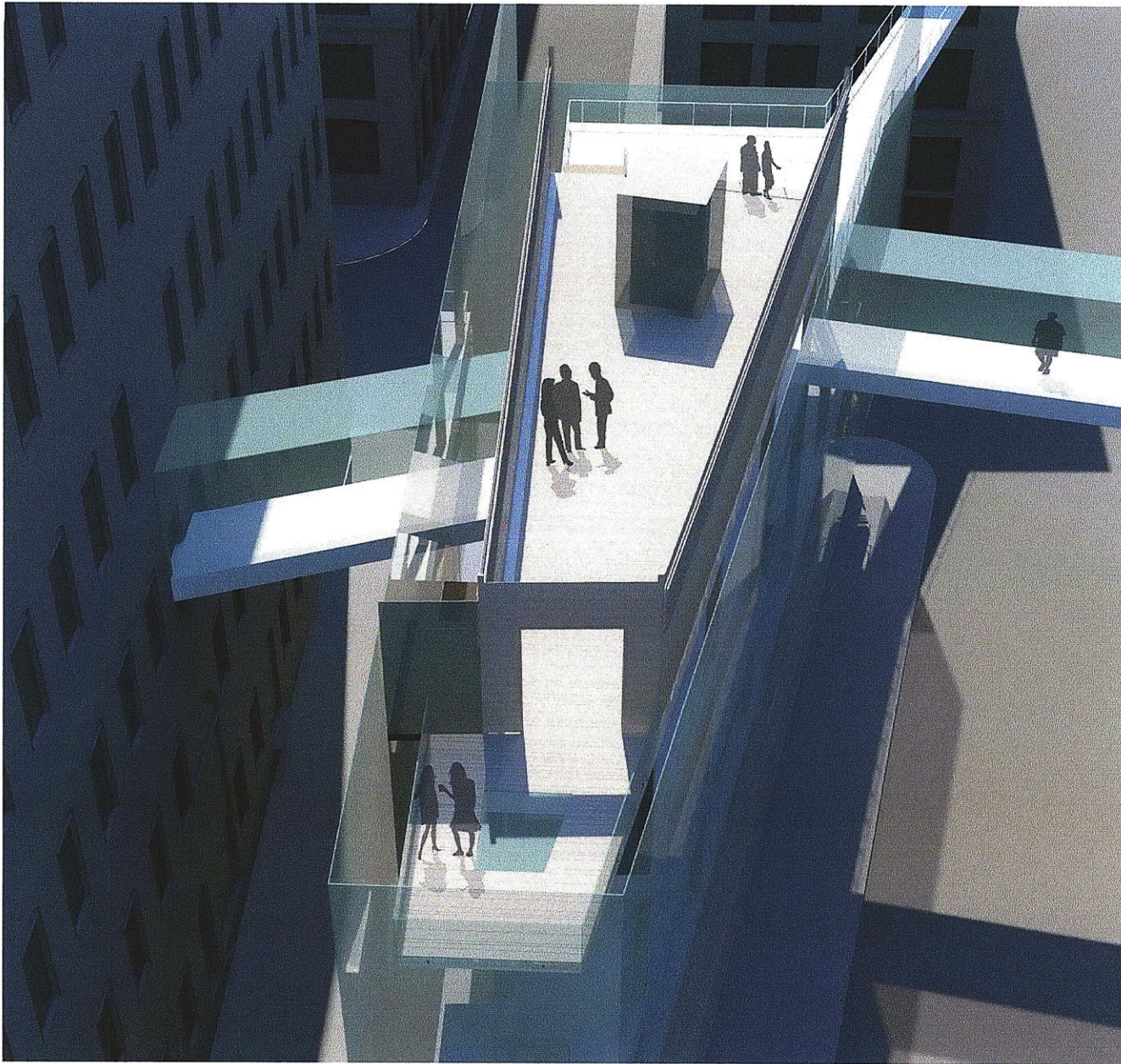


section 3

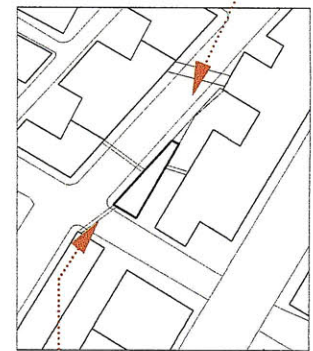




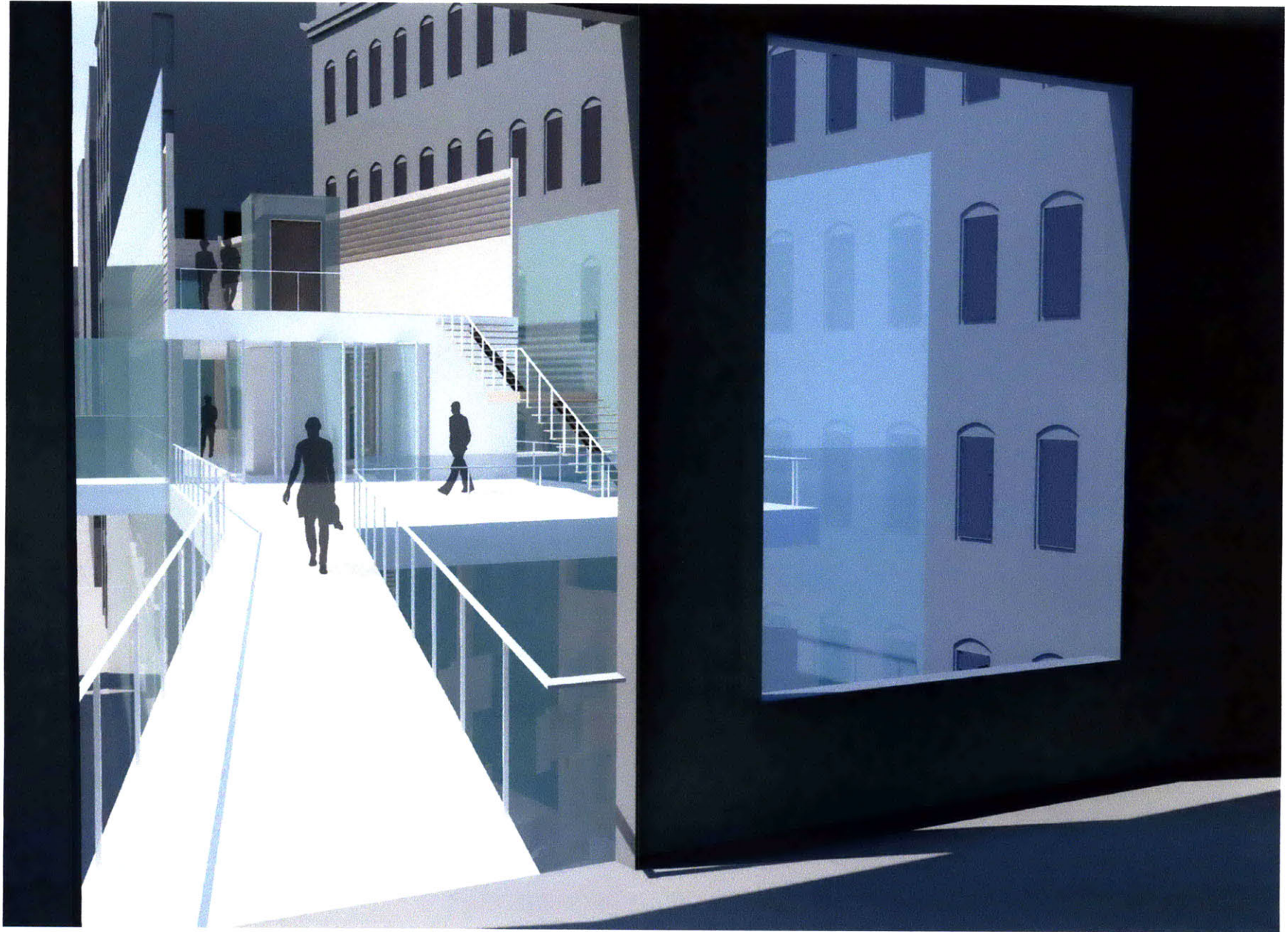
section 4

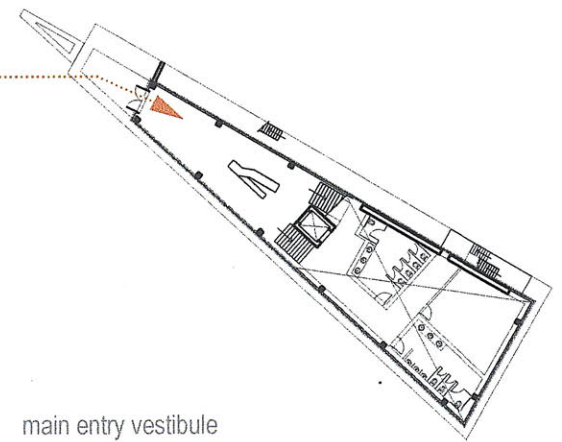


View from Summer St bridge

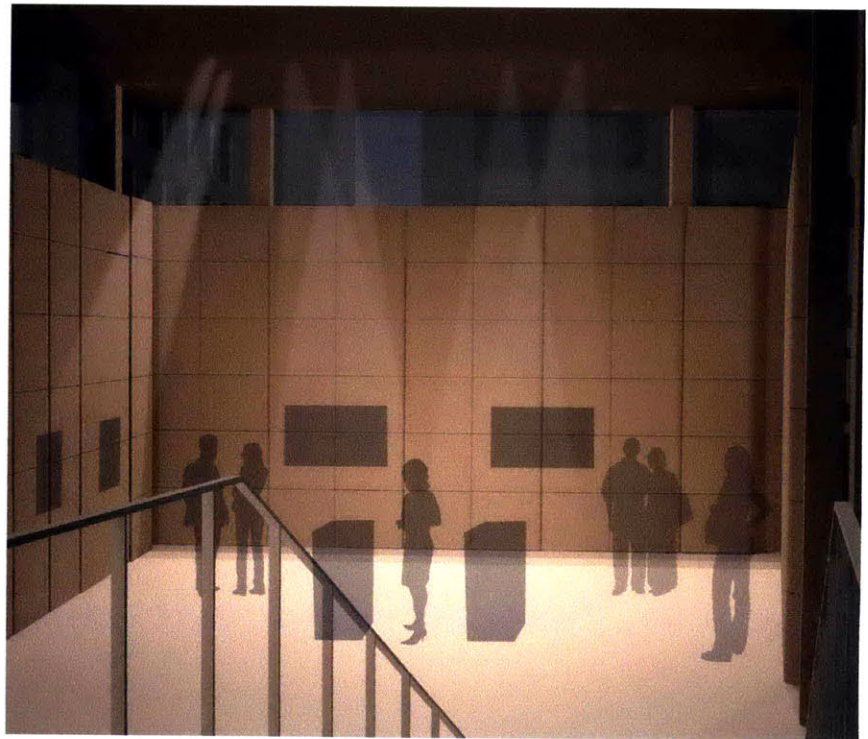
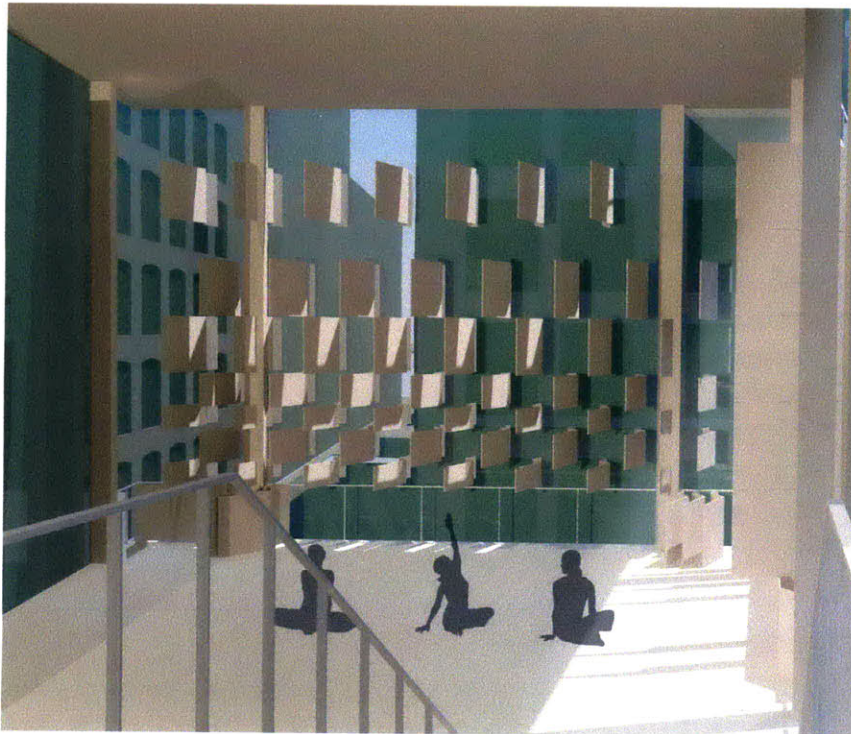
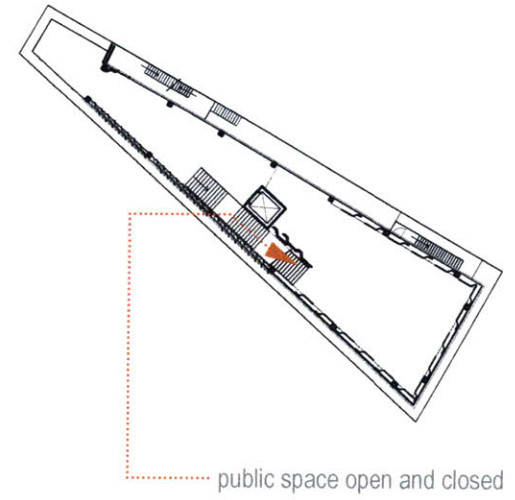


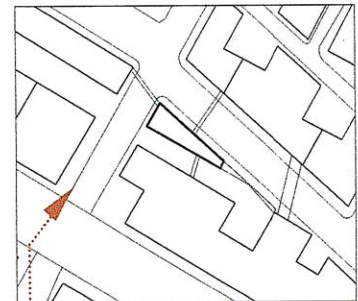
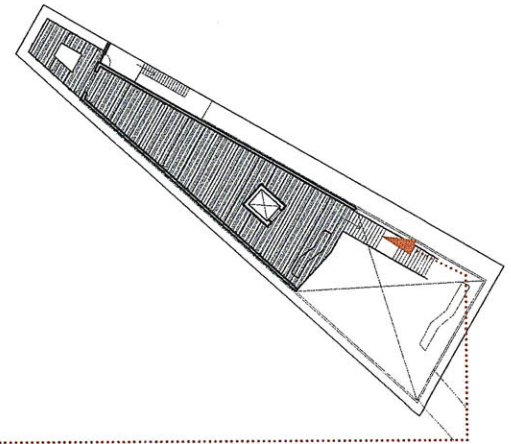
from tunnel across A St



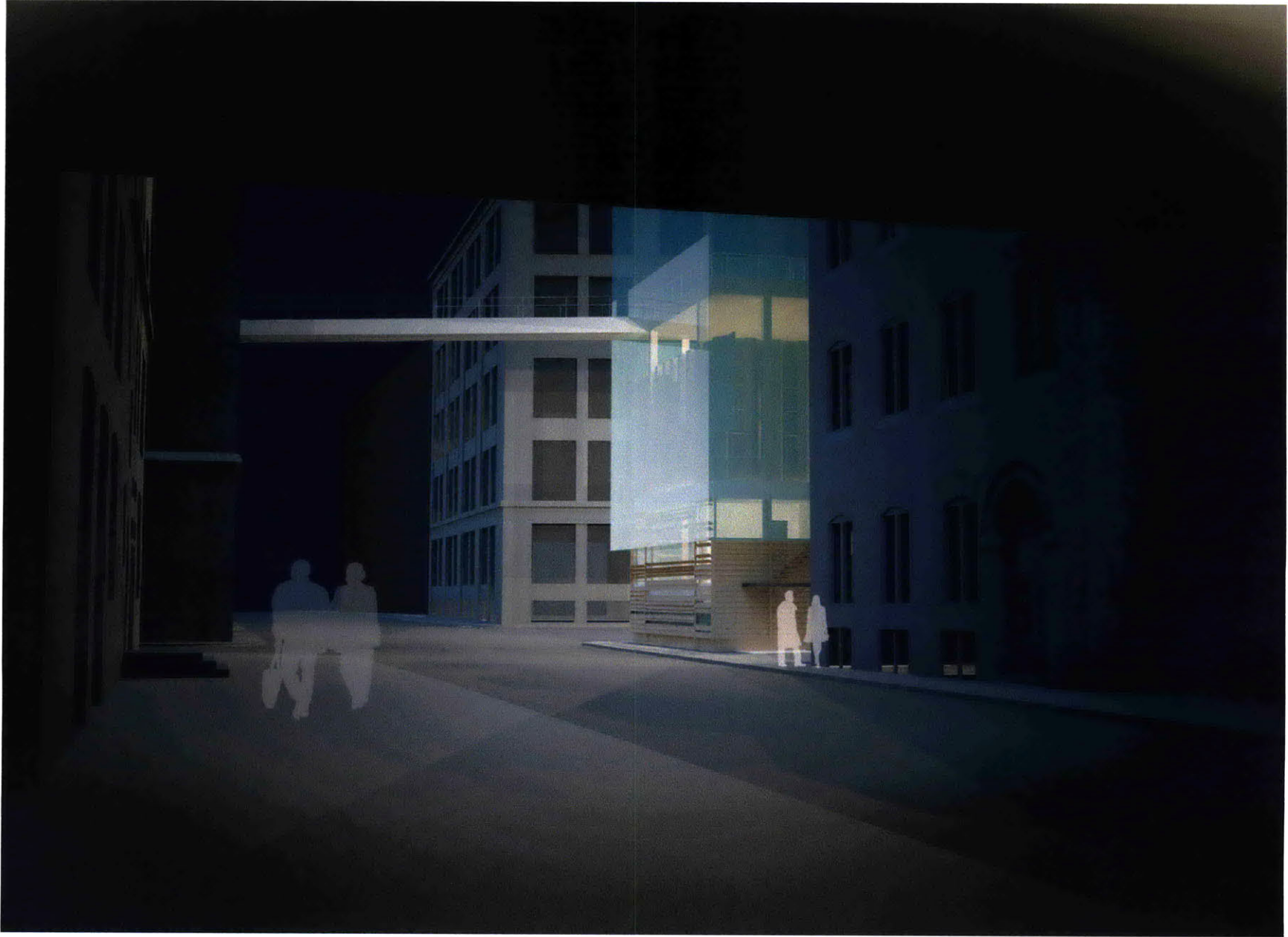


main entry vestibule





A St under Summer St bridge



3 : appendix



Final presentation

The following graphic layout, excluding several omissions, was prepared for presentation to the thesis committee on Wednesday, June 2, 2010.


retroFILL

: residual sites as urban infill
markus hofstad

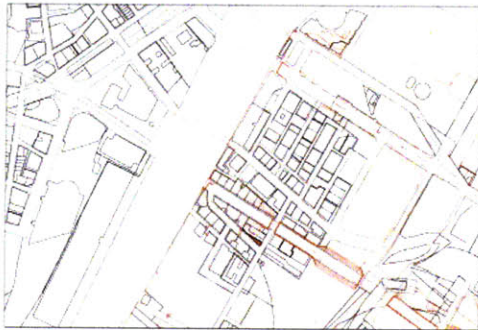
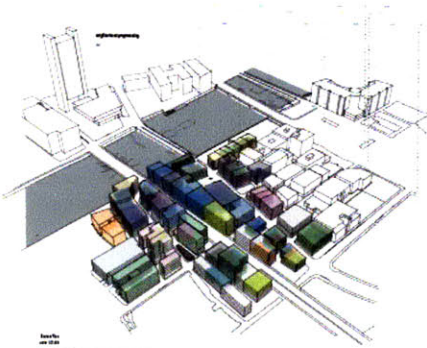
It says: the three are small, dense and made of urban fabric - in between and the existing urban fabric. It says: the three are small, dense and made of urban fabric - in between and the existing urban fabric. It says: the three are small, dense and made of urban fabric - in between and the existing urban fabric.



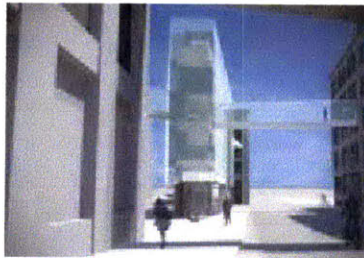
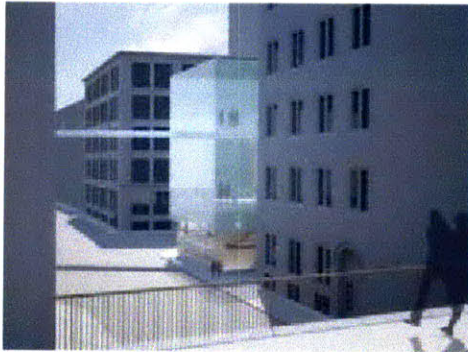
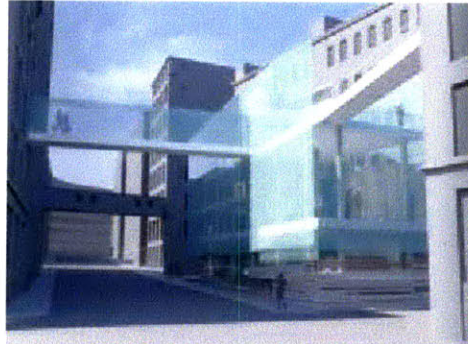
Urban Form
Urban Form



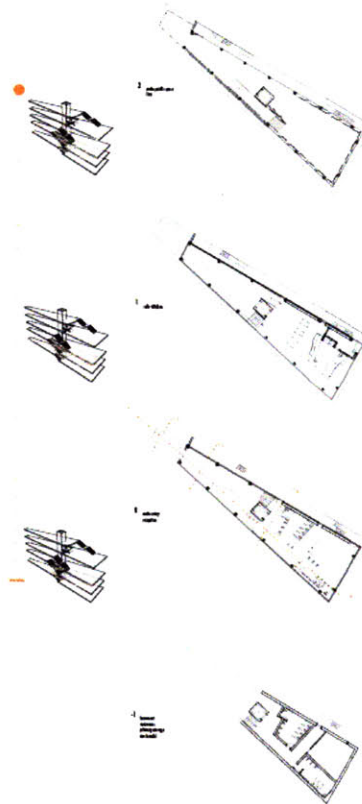
2011/12
City Hall



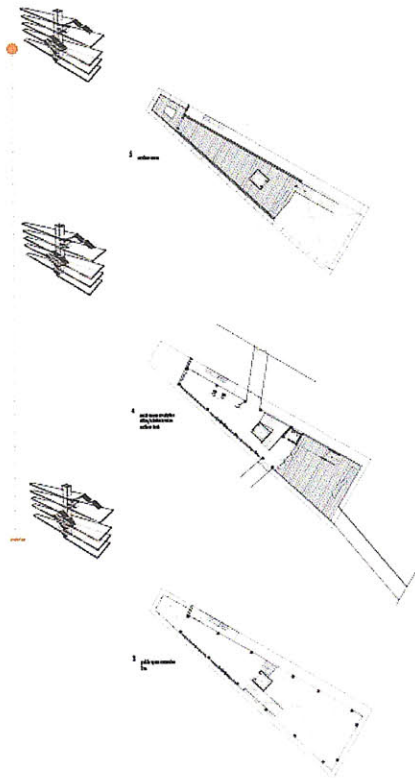
2011/12
City Hall



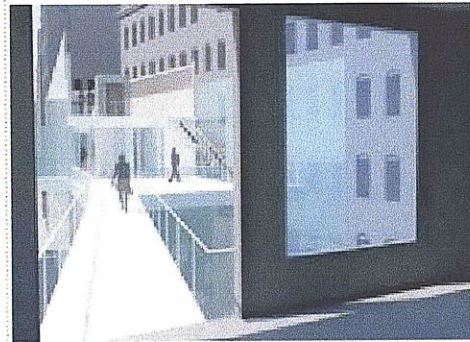
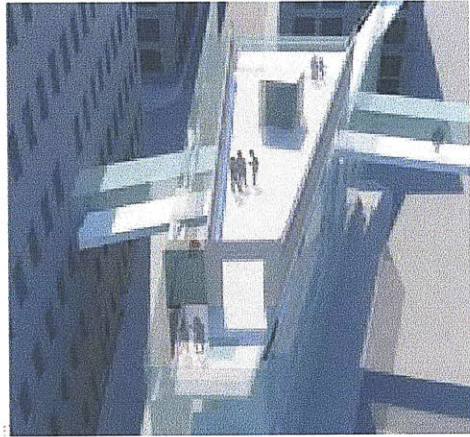
2011/12
City Hall



Plan
1:1000



Plan
1:1000



Plan
1:1000

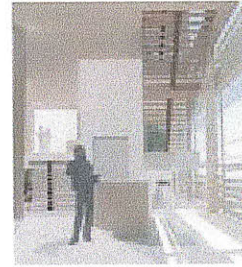


Figure
 Building section
 1:1

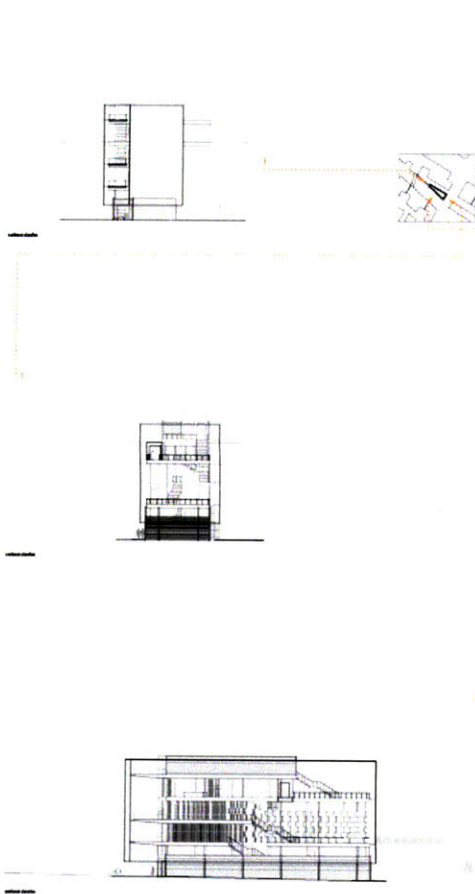


Figure
 Building section
 1:1

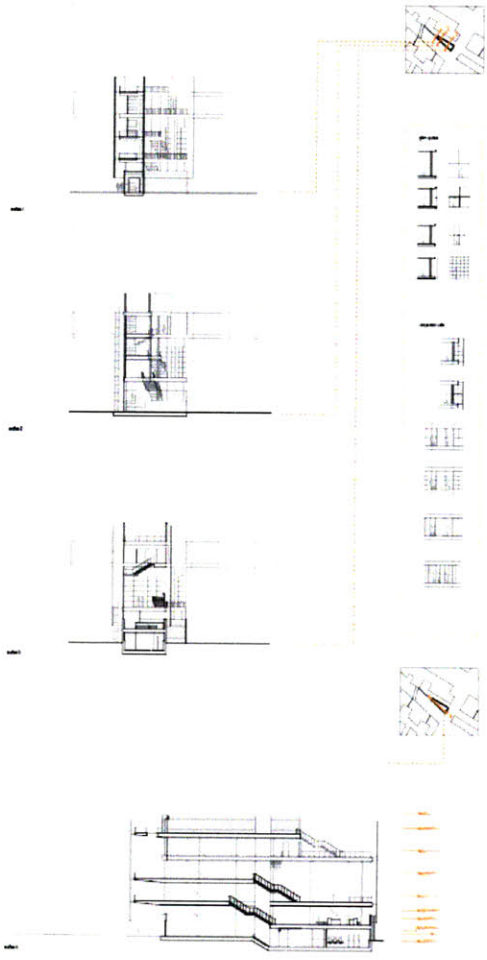
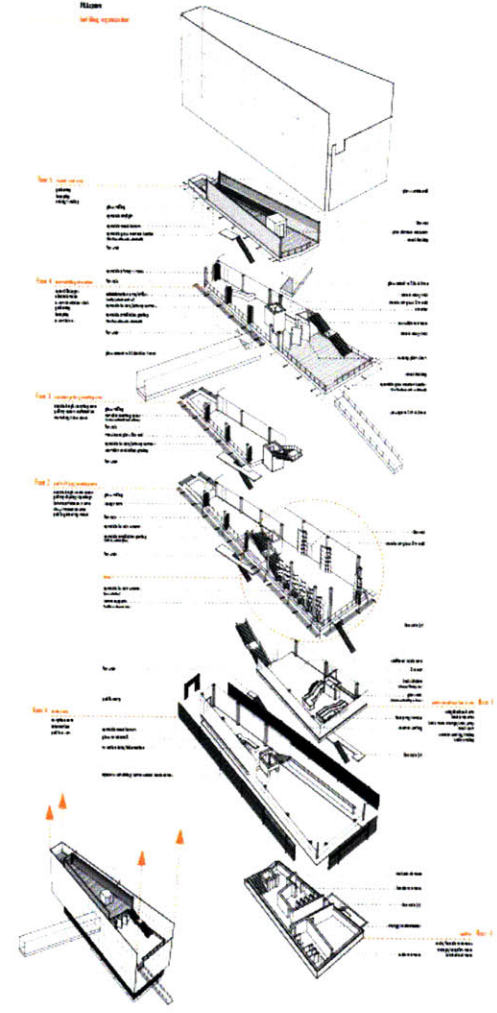
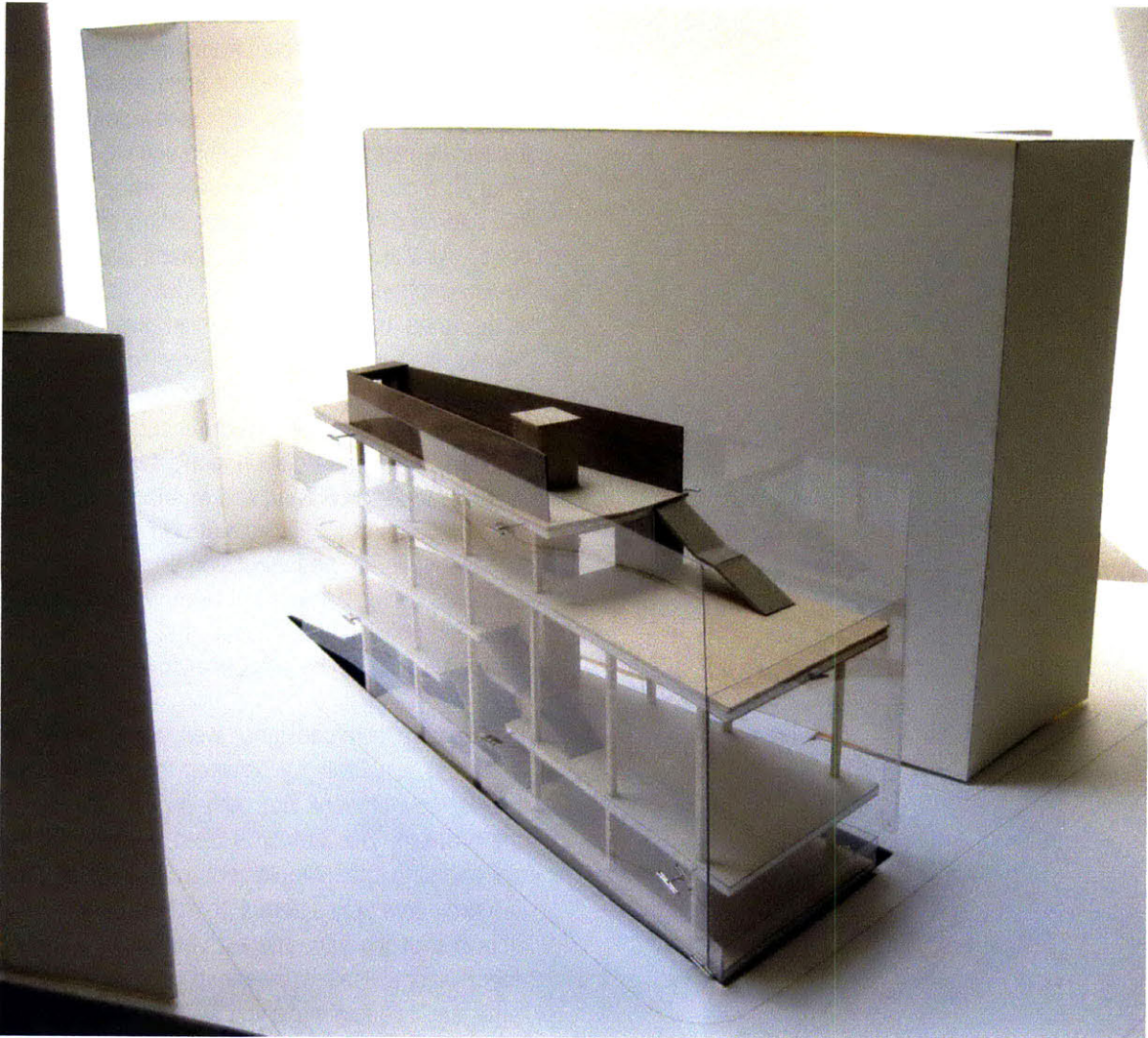


Figure
 Building section
 1:1

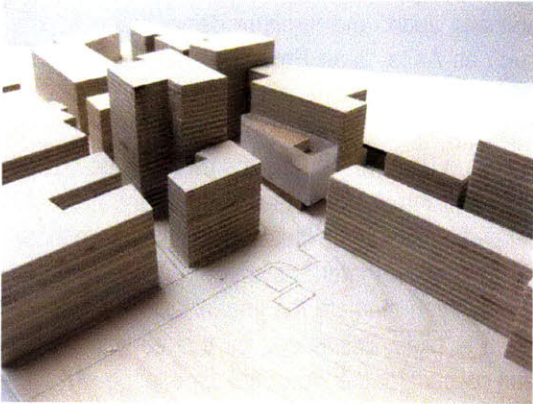
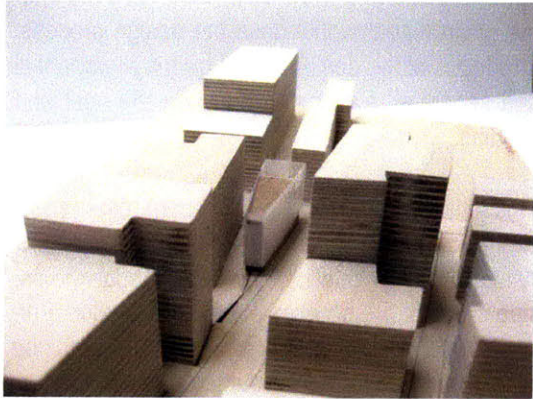


physical models:

scale 1:100



scale 1:600



Previous thesis permutation

This thesis originally began under the title 'Inside-Out.' The argument was based on the problematic disconnect between architectural design (form) and actual living (function). Architectural expression is too often limited to the exterior viewing of the structure, or at least there is limited synchronicity between outside and inside. The premise of the argument was that a fully functional and beautiful building could be designed by flipping the method of design. Instead of designing from macro-scale down, the details and specifics of the desired interior environment would drive the design process. The focus of the design would be the experiential and sensorial relationship between the user and building.

This topic has enjoyed a more recent resurgence, exemplified by Harvard Design Magazine's Fall/Winter 2008-09 publication "What About the Inside?" Important sources I look at included Pallasmaa's *Eyes of the Skin*, Zumthor's *Thinking Architecture*, Alvar Aalto; numerous works by architecturally-inspired artists such as Turrell, Eliasson and Judd; and furniture designers/architects such as Aalto, Jean Prouvé, Charlotte Perriand, and the Eames.

Although I abandoned the theme of 'inside-out' as the main thrust of my thesis argument, the work retained many of the ideals referenced from these designers. The interior system in *FILLspace* and its ability to mediate the interior/exterior environment is highly influenced by this early research and respect for the individual experience.

INSIDE-OUT

Abstract

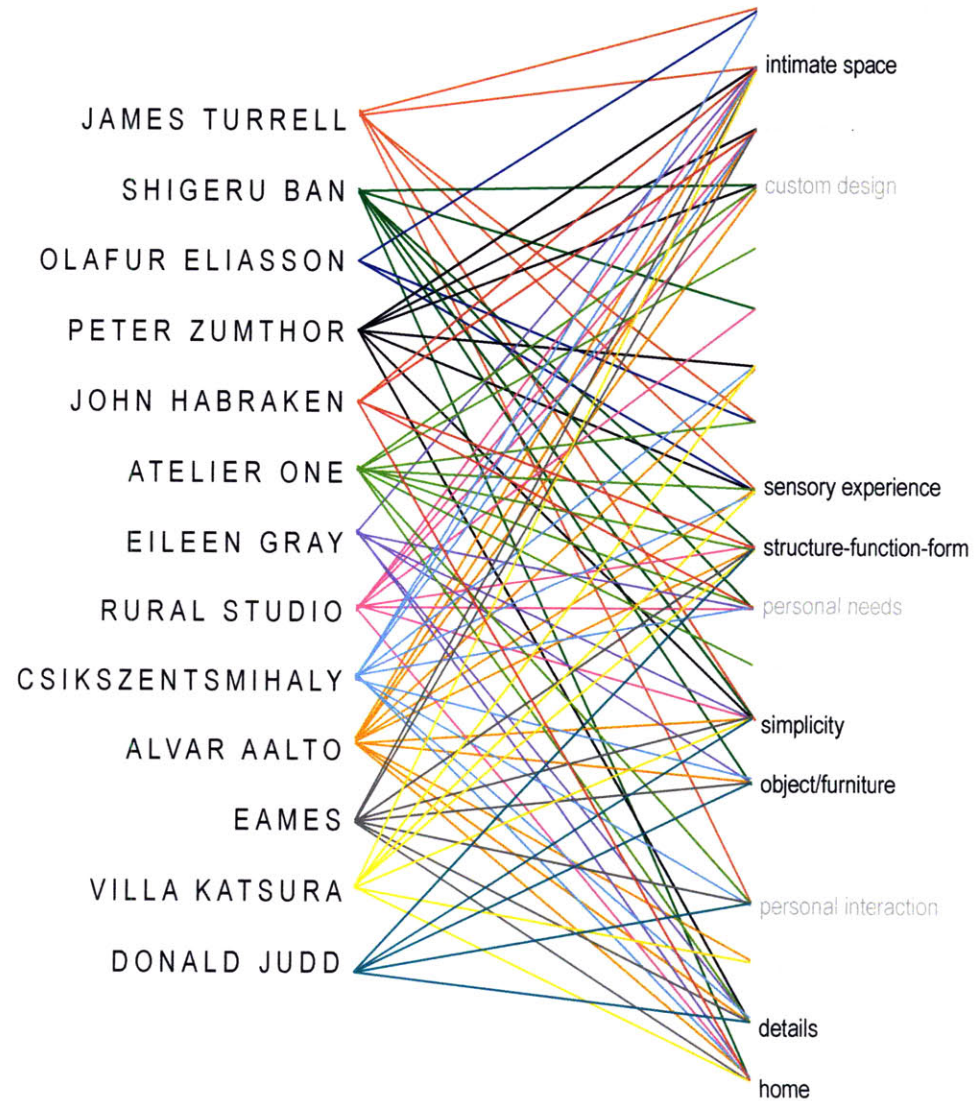
There is an impossibility in separating architecture as a structure and concept from the life that takes place within it. The creation of architecture can be conceptually driven and it can make a powerful artistic statement, but it is art with a definite function. There is a complex relationship occurring between the user and the concrete expression of the built form. As Karen Franck and Bianca Lepori state in *Architecture from the Inside Out*, "Architecture is designed, built, created, not just given. It is designed, built, created by someone, for someone, each with their own inner architecture. There is no separation between architecture and life." There is often an inherent disconnect between the nature of our personal living and working spaces and the objectives of a building's design or motivation of the architect. The expression and reception of architecture has traditionally been visually dependent and, more recently, a result of digital dependency and production or fabrication techniques.

Architecture, when designed well, can represent a seamless synchronicity between the exterior and interior environment, but perhaps that is exactly the problem. The interior is often a visual, material and structural complement to the exterior, but the two serve very different purposes. The facade should provoke you, interest you, make a statement—about itself, its owner, its context, even the architect; it should make you want to go inside and

experience it. But when you enter the threshold it should also make you want to stay inside. It should be implicit in the understanding of what you came to do and it should be responsive both to you as a person and you as an individual. It should not act in awkward opposition to your scale, your proportions, your physical limitations or your purpose for being within. As Juhani Pallasmaa states in *Eyes of the Skin*:

Our bodies and movements are in constant interaction with the environment; the world and the self inform and redefine each other constantly. The percept of the body and the image of the world turn into one single continuous existential experience; there is no body separate from its domicile in space, and there is no space unrelated to the unconscious image of the perceiving self.

What if the traditional design process were reversed? Suppose that instead of starting from an urban or macroscopic scale, the architect began his or her work by focusing on the functions, performance, materiality and responsiveness of the most essential elements of an interior space? This is not to suggest the creation of a discrete inner space detached from an overall architectural vision. On the contrary, social, cultural and environmental factors considered in relation to these interior details should provide a framework that will ultimately inform an overall building solution that is unambiguously connected to its larger context and purpose. The thesis objective is the development of a methodological framework for the design process, focused on responsive and sensorial interaction between user and environment. The thesis is a means of analyzing and redefining the architect's role in the creation of spaces, resulting ultimately in a design prototype.





4 : acknowledgements

I would like to thank *Team Marika*, without which I am sure I would not have survived: Mom and Dad, Steve, and Jaine. Your support, patience and words of wisdom will not be forgotten. The t-shirts are still being made.

I extend special thanks to Steve for his invaluable help in the final days.

Thanks to my advisor, Andrew Scott, for going with the flow and my readers Dennis Frenchman and Liam O'Brian.

Additional thanks to Akira, Annika, Chris Dewart, Danielle, Hertha, Justyna and Ed, Marissa, and Viktorija for making it better (and putting up with me). Alison, you were right.

See you back in the real world.

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2. Ritter, Arno. *Storefront for Art and Architecture*. Bregenz, Austria: Kunsthau Bregenz and Hatje Cantz Verlag, 2000, 56.
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6. For full information see: *100 Acres Master Plan*. Boston: Boston Redevelopment Authority, 17 January 2006. Web.
7. *fpac: Fort Point Arts Community Inc.* n.d. Web. 1 February 2010. <<http://www.fortpointarts.org/>>.
8. Albert Price. Co-president, Goldman Properties. Personal Interview. 21 April 2010.

6 : image credits

1-2.

Go Hasegawa. *Bikebox Ikebukuro*. n.d. *Pet Architecture Guide Book*. By Atelier Bow-wow and Tokyo Institute of Technology Tsukamoto Architectural Laboratory. Tokyo: World Photo Press, 2002.

3-4

Zoey Braun: Photos. FNP Arkitekten. *Pigsty in Ramsen, Germany*. 2004. *Spacecraft: Fleeting Architecture and Hideouts*. By Robert Klanten and Lukas Feireiss, eds. Berlin: Die Gestalten Verlag GmbH & Co, 2007.

5-7

Anne Bousema: Photos. Korteknie Stuhlmacher Architekten. *Parasite Las Palmas*. 2001. *Spacecraft: Fleeting Architecture and Hideouts*. By Robert Klanten and Lukas Feireiss, eds. Berlin: Die Gestalten Verlag GmbH & Co, 2007.

8-10

Paul Ott: Photos. *Storefront for Art and Architecture*. 1993. *Storefront for Art and Architecture*. By Vito Acconci and Steven Holl. Bregenz, Austria: Kunsthau Bregenz, 2000.

11

Maps originated from *Google Earth*. Manipulated and cropped by author. 8 May 2009.

12

Keld Helmer-Petersen: Photo. *PK 111 room divider*. n.d. *Poul Kjærholm: Furniture Architect*. By Michael Sheridan. Esbjerg, Denmark: Louisiana Museum of Modern Art, 2006, 134.

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