

*AN EXPLORATION*



# **UNDERGRADUATE THESIS**

COLLEGE OF ARCHITECTURE AND PLANNING

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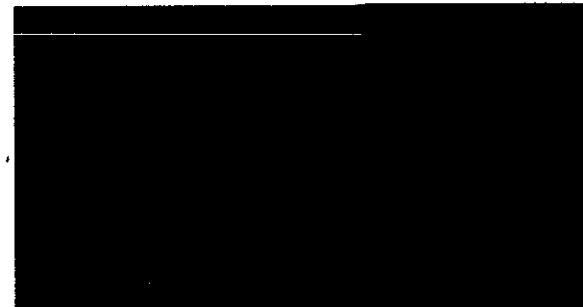
Mary Rogero

We experience architecture through what we come in contact with; the cool breeze in the air, the smooth, polished handrail on the stair, the hard solidity of the concrete floor beneath your feet. What we touch is of immediate impact to us, giving us an immediate grounding in a place. These instances of touch engage us in the built work, causing us to interact with it. These momentary acts of engagement are what forms our experience of a place.

Through their materials, buildings exhibit traces of use, the signs of inhabitants and weather; which offer a physical narrative of its use over time. This observation of use is vital in the understanding of a place.

A built work should draw from the patterns and traces of use of its site and allow for visible traces to be left by its inhabitants.

How a design process can be informed by these factors is the focus of this thesis exploration.





*Learning and understanding through touch and making is a simple but deeply important reason for doing my work. \_Andy Goldsworthy*



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We experience architecture through what we come in contact with; the cool breeze in the air, the smooth, polished handrail on the stair, the hard solidity of the concrete floor beneath your feet. What we touch is of immediate impact to us, gives us immediate grounding in a place. Through their materials, buildings exhibit signs of people and weather; offering a physical narrative into how it has been used through time. To contrast this used/aged structure with new materials and connections; infusing it with a new function, fascinates me. How can this conflicting/divergent relationship can be emphasized through materials? And how, through the act of making with these materials you can learn more. Going through the act of building/making gives the designer a more intimate understanding of the materials and gives me the greatest satisfaction.

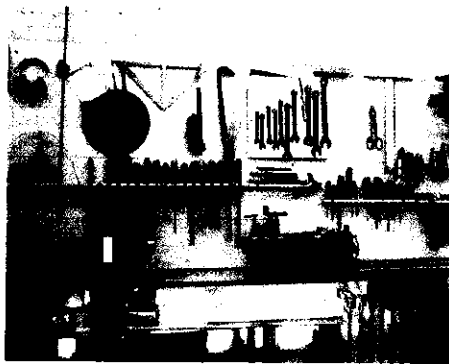
These ideas and focus on materials and building manifest themselves through the exploration and resulting design of an artists' cooperative on the edge of downtown Dayton, OH. Contained within are workshops, studios, and display spaces. The building is designed be built in and around an existing freight warehouse on the site. The research is continual, further attempting to get at why I believe materiality in design is important to me. Design exploration, research and making focused on materials, processes of making and craft.

I am interested in the tactile, the 'haptic realm' of architecture. I am attracted to how materials and buildings age, show the passage of time and how a building can show the past and be of the present. Through my thesis I wanted to explore how natural materials [wood, stone, brick] can age gracefully, add beauty to a building. I also wanted to further explore hands-on architecture, how going through the process of making can inform the design. I want to see how through the process, the material qualities can reinforce connections between what exists and what is newly created, and how this 'connection' can be beneficial.

## **MATERIAL [n] -anything used for constructing or making something else**

*...the material of the world, the number of the  
...the material of the world, the number of the  
...the material of the world, the number of the  
...the material of the world, the number of the  
...the material of the world, the number of the*

To come to terms, to an understanding of materials and how they can be used, their limits, can be a valuable tool to architects/designers/builders. I have read of how Zumthor's atelier makes their process models of a building out of the same materials as in the completed project in an effort to more fully understand the qualities of the finished product by using them in the process. Knowledge of material properties allows the designer to further the effect of the building by guiding the act of making in a more predictable way.



**ISSUES AND POSITIONS**



## MAKING [n] -the act or process of creating or constructing

There is much to be learned from the act of making. Working hands on with materials you can get to a deeper understanding of its qualities and capabilities, you achieve a more intimate knowledge. This, in turn, informs the design process by giving you concrete realities from which to begin design.

*With an understanding of the material, the student can begin to design. The hands-on experience is essential to developing a sense of the material and its capabilities. This is not to say that the student should not also learn through the use of models and drawings, but the hands-on experience is essential to the design process.*

-ARCHITECT

## CRAFT [n] -skill or aptitude, esp. in making things by hand or in the arts

Interested in how a building is constructed from a craft point of view. How the detailing is done, the skill and level of care that is involved. Some investigation I've done asks the question of whether or not we can get back to a level of craft known long ago in the building trade. With the economic and computer-aided environment of today, human skill is further and further removed from the process of designing and building.

*It is a mistake to think of the building as a craft or as a trade. It is a process, a way of thinking, a way of doing things. It is a way of life, a way of being. It is a way of seeing the world, a way of understanding the world. It is a way of creating a world, a way of making a world.*

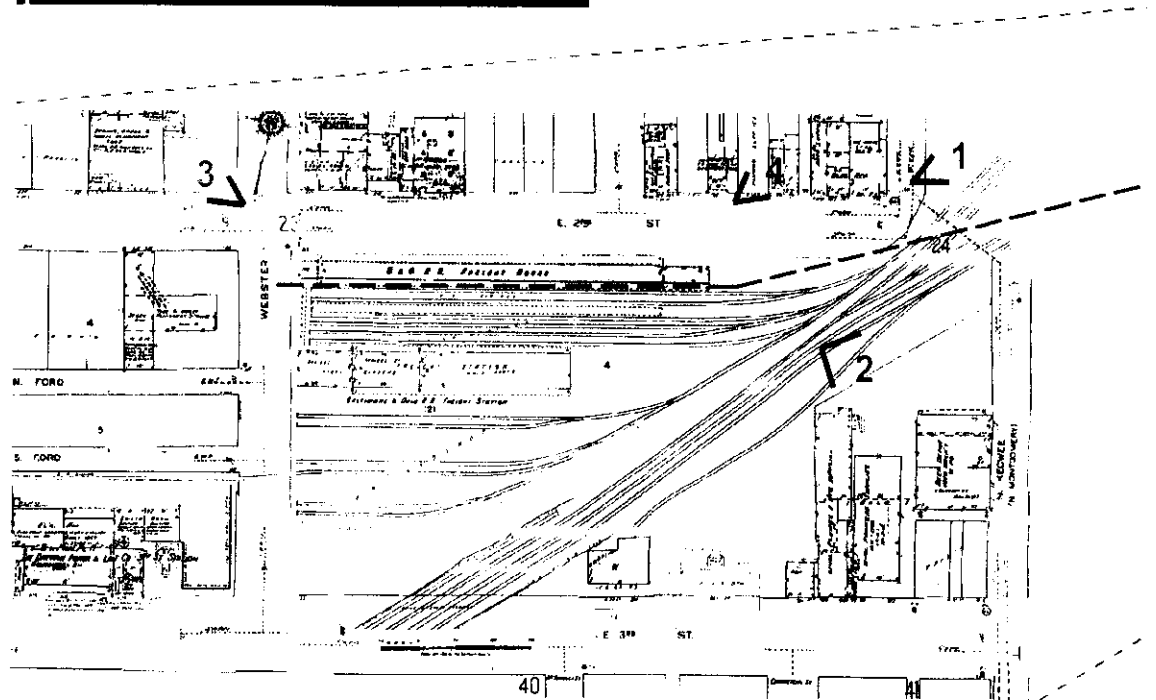
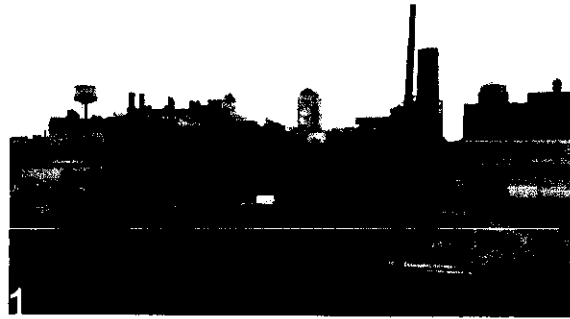
-ARCHITECT

I don't believe you can turn your back on advances though, that there needs to be some middle ground, some meshing of the two. Old techniques and new technologies. I am very intrigued with this idea that something can be learned, discovered when two or more previously unrelated items/things are used together, forced/brought together to serve a new use. Using old items in new ways. It is perhaps futile to look at bringing back traditional craft (craftsman, carpenters...) but I think the process of making with your hands can still inform architectural design.

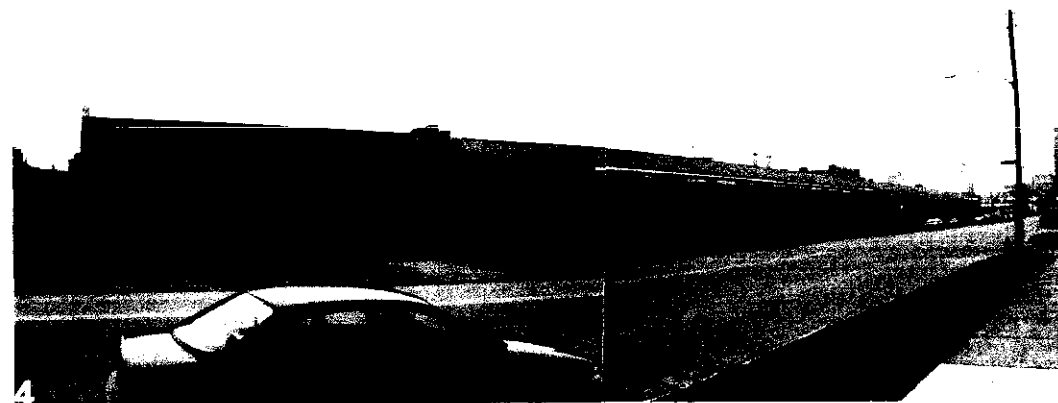
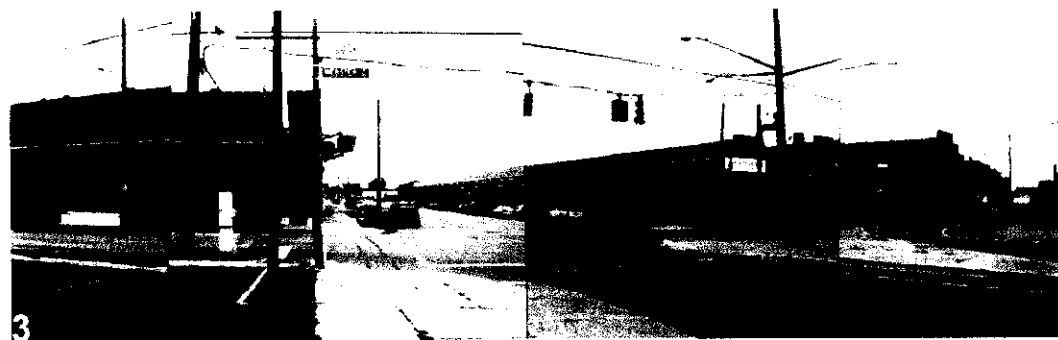
*While it is both infeasible and undesirable to maintain a hands-on approach to the increasingly complex construction industry it is also misguided to generate architecture from a series of hermetic abstractions initiated at a safe remove from concrete reality*

-mike cadwell

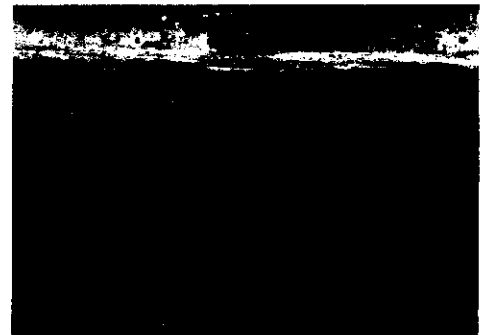
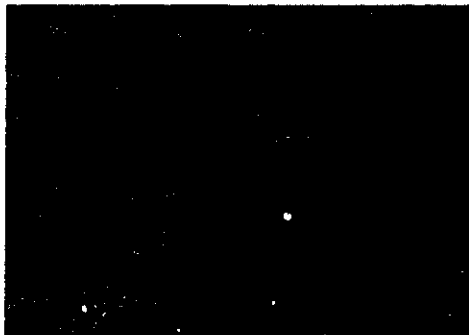
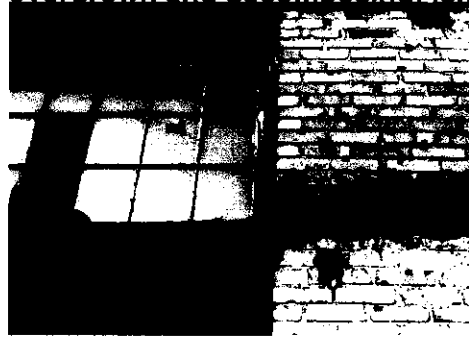
The site and building chosen for my project is located on the edge of downtown Dayton, OH, on the corner of Webster and E. Second. The area is a low-scale, one/two story warehouse district on the edge of the main downtown. Originally used as a freight warehouse for the B&O Railroad, the existing structure is 22' x 543'. Its extreme nature and honest materiality drew me to the site. As evaluation and understanding of the site are crucial in designing an appropriate response, the site was chosen because of its familiarity. I have spent my entire life in the Dayton area and know the city well. The site was also close enough to re-visit as needed. The site choice also led to my choosing my outside advisor. Mary Rogero is an architect practicing in Dayton and her firm is well-versed in the adaptive re-use arena, which was beneficial as I designed my project within an existing structure. The neighborhood is comprised of vacant lots, small scale light industry and deserted buildings.

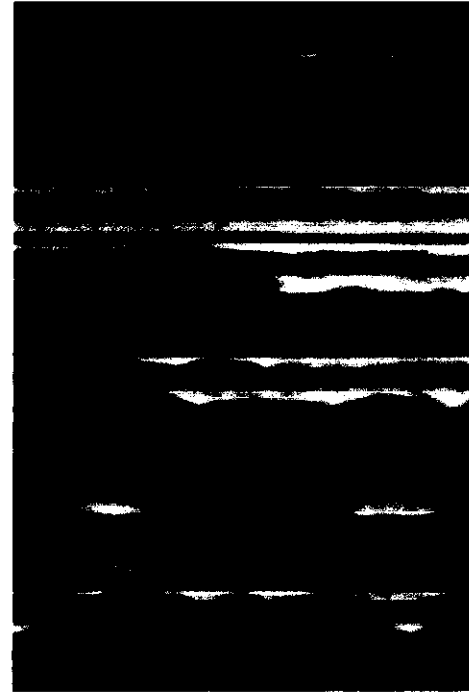
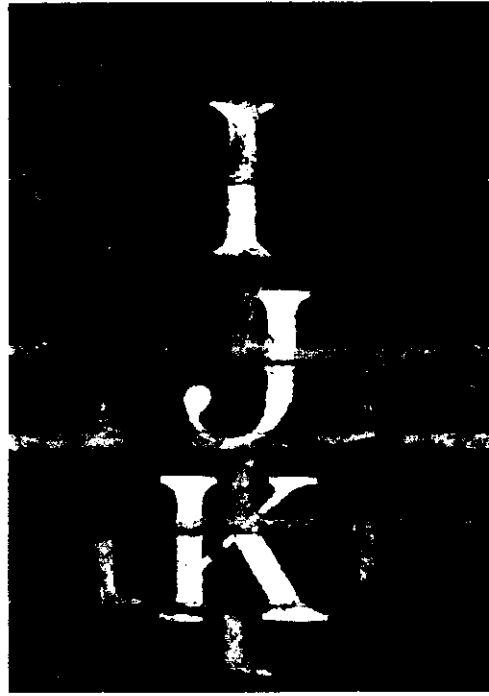


SITE BACKGROUND

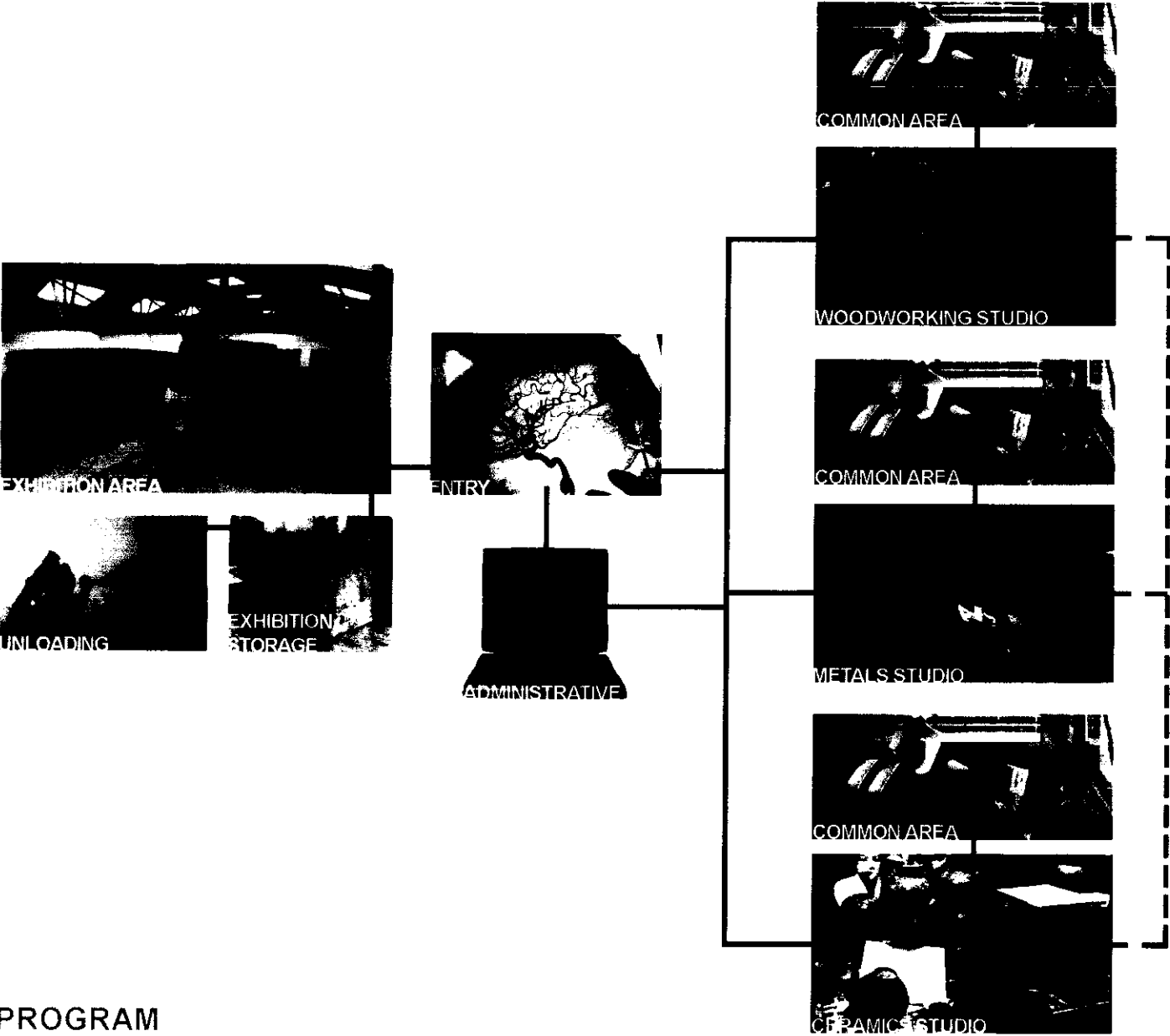


**Abandoned on the edge of the city, overgrown and decomposing: left to the graffiti artists and vagrants...**





SPATIAL RELATIONSHIPS OF PROGRAMMED SPACES



PROGRAM

## SPECIFIC SPACE REQUIREMENTS

<b>Lobby // Reception Area</b>		<b>750 SF</b>
Entrance Lobby	250 SF	
<i>Includes reception desk / workstation</i>		
Public Restrooms	500 SF	
<i>Includes 2-stall men's / women's</i>		
<b>Administrative Area</b>		<b>400 SF</b>
Conference Room + Kitchenette		
<i>Shared by all artists of the co-operative</i>		
<b>Exhibition Gallery</b>		<b>3000 SF</b>
<i>Variety of display stands for exhibition of diverse 3-D sculpture mediums</i>		
<b>Exhibition Storage Room</b>		<b>400 SF</b>
<b>Loading // Receiving Areas</b>		<b>300 SF</b>
<i>Located on outside wall with service access for vehicles, deliveries, etc.</i>		
<b>Mechanical Space (HVAC, systems)</b>		<b>500 SF</b>
<b>Studio Spaces</b>		<b>8900 SF</b>
Ceramics Studio [shared]	1700 SF	
<i>Includes glaze area (150 SF)</i>		
<i>dedicated restroom, kiln room (300 SF)</i>		
Metals Studio [shared]	1500 SF	
Woodworking Studio [shared]	1500 SF	
Common Area [to each studio]	500 SF	
<i>Includes unisex restroom and meeting area (500 SF each)</i>		
Individual studio work areas [nine total]	2700 SF	
<i>Includes desk, located adjacent to dedicated studio (300 SF each)</i>		
<b>TOTAL ASSIGNED AREA [NET SF]</b>		<b>14,250 SF</b>
<b>Exterior Gathering Space // Sculpture Court</b>		<b>5,000 SF</b>

Exploration of the site was the beginning. Using a Graphlex camera and 4x5 Polaroids, I researched the building and landscape on the corner of Webster and East Second. I used the lens to capture the details of its fabric, the essence of its material qualities and its sensation of age. Printed on 11x14 fiber paper, the images are rich and evocative. Studying them and explaining my perception of them through writing proved effective.

Research also consisted of 'making' as I constructed and poured concrete panels. Application of tactility and making was explored through my design and application of my webpage. The products and processes overlapped and informed one another. Flowing from one media form and scale gave richness to my design process.

## EMPHASIS ON DOING

## IMPORTANCE OF THE SITE

## UNDERSTANDING THE FURTHER KNOWLEDGE ONE GAINS THROUGH THE PROCESS OF MAKING THINGS

## DESIGN EXPLORATIONS // RESEARCH

A tremendously influential article on my thought pattern was *Notes on a Theory of Making*, by Guiseppe Zambonini. He wrote extensively about the role of the hand in design and making. Zambonini believes the architect should always seek out new methods and uses for materials, as well as being knowledgeable in basic construction. He often cited examples of contemporary artists and architects such as Donald Judd and Carlos Scarpa. Very poetic, yet it seems impossible to capture such craft, retain such control over a project and its construction today, a point he makes near the end of the article. It begs the question again, so how do we go on, how do we accept the loss of craftsmen and still search for craftsmanship in our buildings. An answer I have yet to find.

The work and writing of Steven Holl and Peter Zumthor proved valuable time and time again as inspiration. Zumthor's clarity of thought and word in *Thinking Architecture* served as a model when I got carried away. Juhani Pallasmaa also enriched the way I viewed my project. Andy Goldsworthy's work which I investigated spoke about time and decay. He has strong beliefs of the importance of the site as it relates to the built work and he places emphasis on doing, on constructing his works himself, understanding the further knowledge one gains of a material through the process of making things. Although I was not creating works such as his, these ideas were ones I explored in my design.





## The images speak of time and

stratification

crevasses, crackling,  
flaking [off]

bottom corner patchwork explains new layer  
added

to face to repair hole

otherworldly surface

moon surface  
pot-marked with  
battered  
valleys

desert-dry, earth baked and cracked  
one layer crumbling to reveal underneath surface  
building [brick] rejecting coating [paint]  
could pick it off, clean it off.

paint shrinking, cracking, drying: like parched earth  
shards of debris projecting from surface, rejected  
adhesion rejected by brick  
remnants scattered, abandoned, castaway.

07 Dec 2000.

layers in terms of erosion,

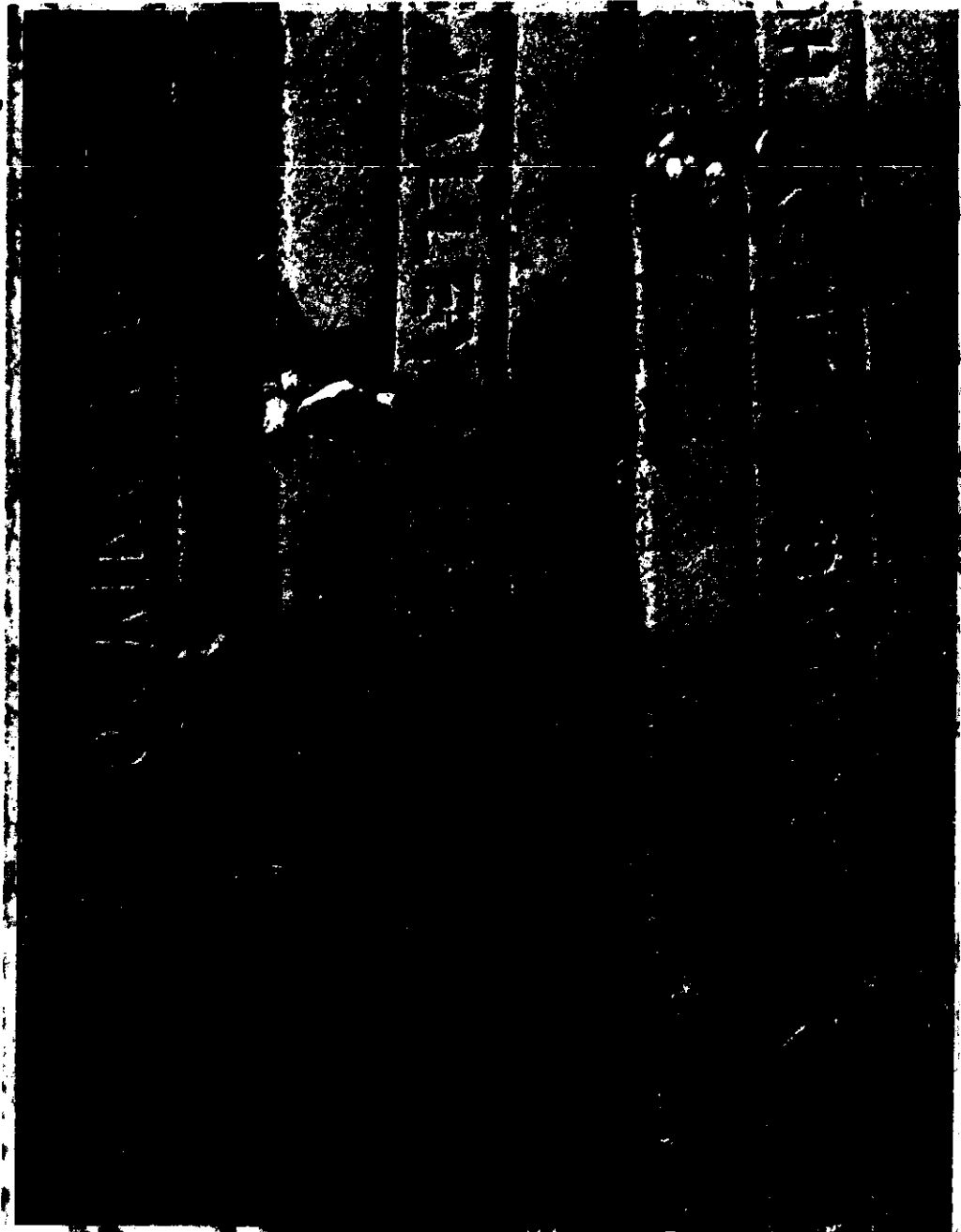
tremendous pores, as if the brick needs to breathe  
through them  
eroded corners, erased by wear  
the traffic of feet over time shown in the worn street.

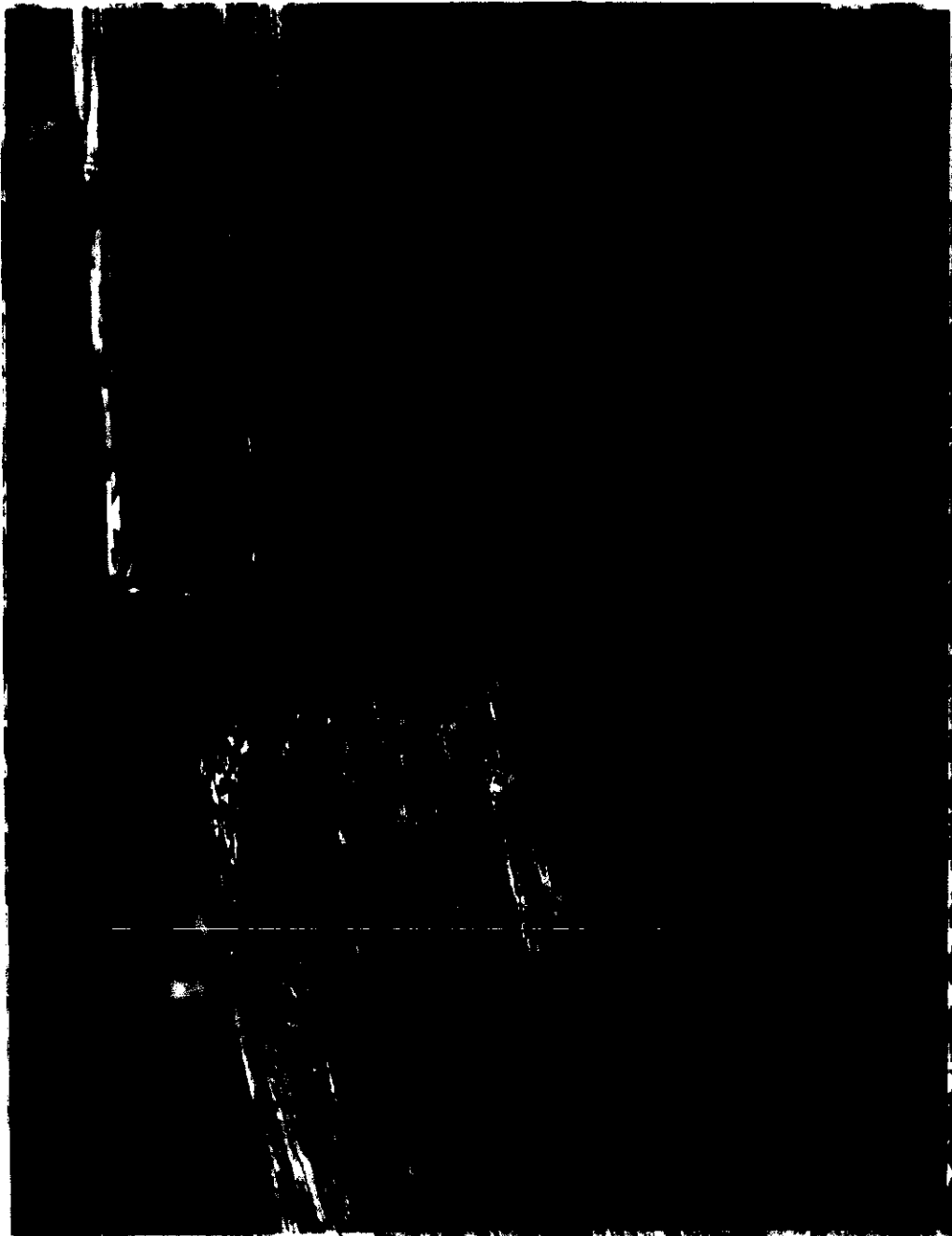
pot-marked, eroded,  
eroded remnants visible in the canyons between  
a sense of the volcanic, riddled with craters.

scarred,  
imprinted with branding of manufacture.

from clean-edged forms to rounded and smooth  
over time.

08 Dec 2000





## weathering of the materials. The

grain, lines of form.  
movement, direction implied.

weight, density of beams.  
dense concentration of fibers: drying, spreading out  
over time.  
layers overlapping, some protruding.

one half failing, no longer secured to building,  
resting, still holding on with help.  
split acts as collector of debris, rocks, pebbles,  
trash.

separation of strands allows for life to grow within  
the  
aging, drying out, warping, splitting, fragmenting.

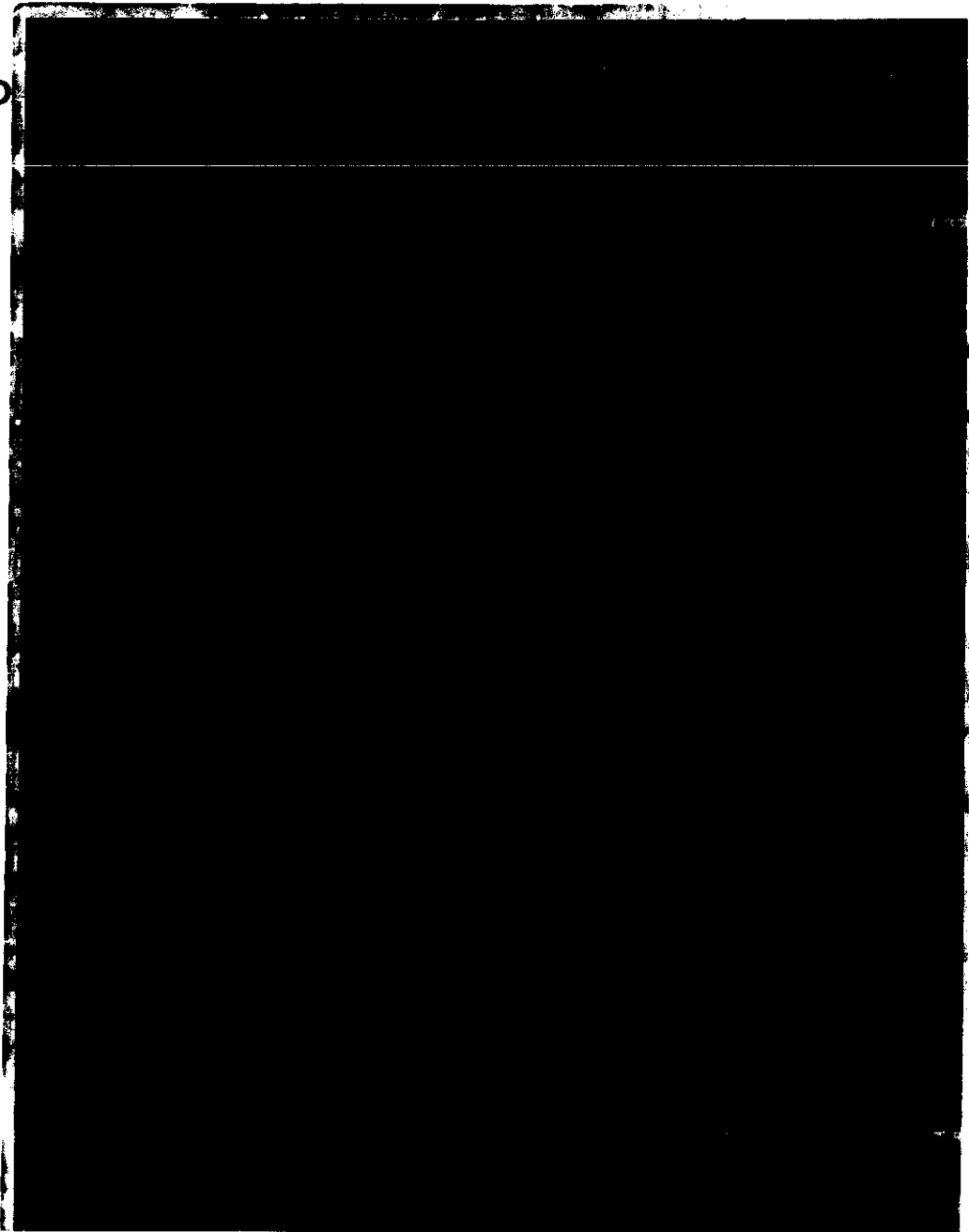
man-made or manipulated undergo

soft velvety dark creases  
dipping,  
fading tones; irregular staining  
lines with faint streaking

undulating landscape: implies softness, malleability  
indented concave valleys  
want to run finger down groove.

repetitive valleys and rounded crests, separated  
by thin crevasse.  
rust caused by moisture stains randomly, exposing  
irregularities.  
impurities of each band of steel, exhibits the  
random weathering  
that can result in unique finishes.

07 Dec 2000





## inevitable degradation.

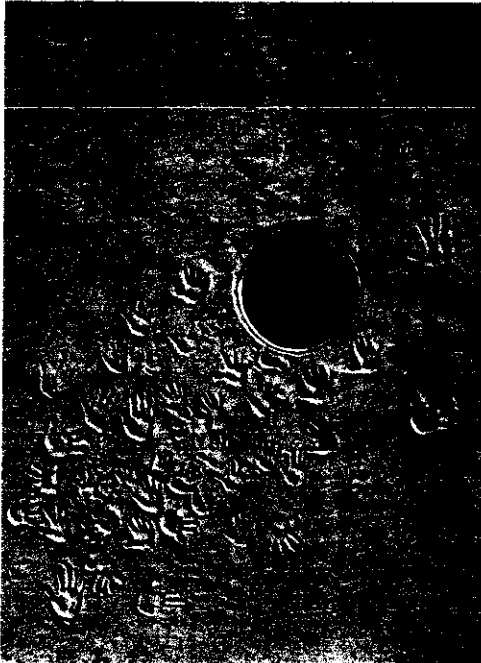
metal bar reaching out. overlapping wood:  
overlapping. weaving. undulating.  
hovering. protruding  
at one point connecting. wood splitting. nail  
penetrating.

perfectly round. soft nail head  
debris. flecks of weld left by the process of joining  
the welded, twisted. torqued corner.

caulk separated from wood and brick.  
mortar carved out by years of wear and weather.  
brick scratched. scrapped:  
pocked brick crumbling.

wood grain separating. splitting.  
sediment settled in corner.

06 Dec 2000.



[image from a library in Morrow, Georgia by Scogin, Elam and Bray Architects] The project tried to make the most from a modest budget. To incorporate the community in the construction of their new library, the contractors invited the town's children out for the concrete pour. As the tilt-up concrete panels were setting up, the workers brushed pine boughs across the surface to create a texture and then the children were each allowed to place their handprint in the wall of their new building, leaving a visible and visceral trace in their community.

In order to get into the act of 'making' things and get started on some ideas for the building, I experimented with varied textures and finishes in 6x6 inch concrete test pours. I wanted to make using my hands in a way that would engage me in the material and process. There was concrete mix easily available due to a structures assignment and with ideas from my photographs of the site, I set about creating finish textures that could be used in my artists' cooperative.

The idea for the building is that the artists/craftsmen that use the workshops will 'leave their mark' so to speak by each designing a panel that combined would be a wall in the entry or as pavers in the exterior courtyard area.



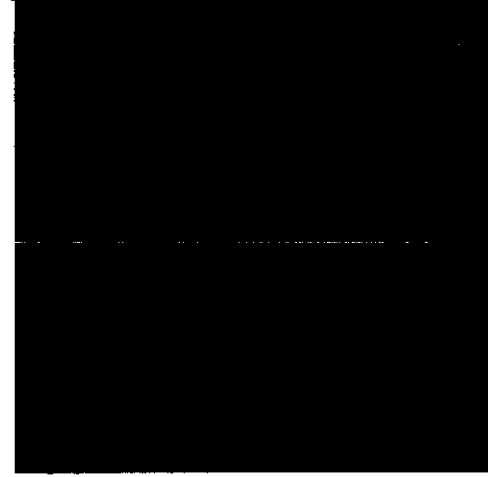
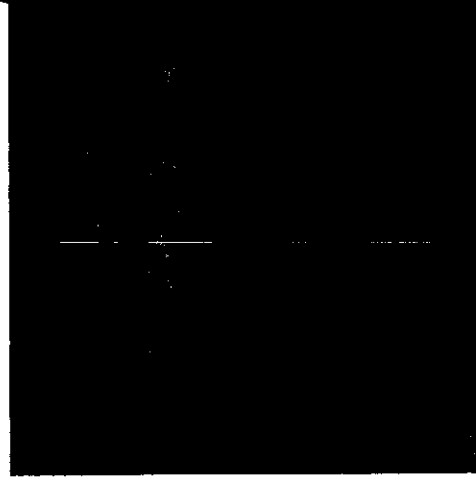
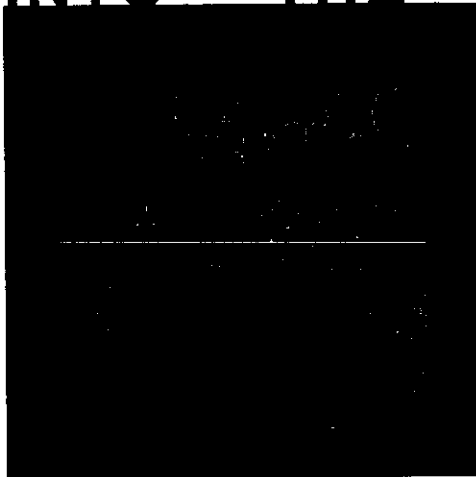
**PANEL ONE** was allowed to set up for a half hour and then extra aggregate added to the top to create a rough, unfinished surface.

**PANEL TWO** was allowed to gel and then made impressions into...which were later filled with small photos and then resin was cast over top of to fill in the holes.

**PANEL THREE** was simply the cut end of 2x4s placed onto the top, scrapped lines into the surface and imbedded some sandpaper scraps into the mixture.

**PANEL FOUR** was allowed to set up for a few hours and then I came back with a makeshift float and smoothed the surface as best as I could.

## INTO THE ACT OF 'MAKING' THINGS

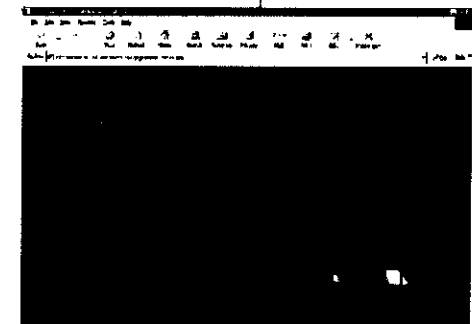
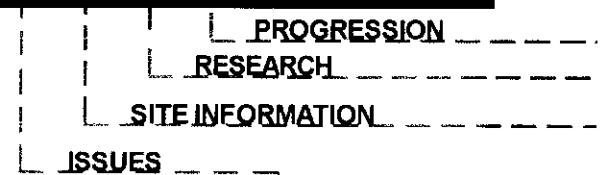




At the beginning of the semester I began work on a webpage. The idea behind its creation was two-fold. The first, to create a forum where I could post my work so that it could be viewed by those not currently at Ball State, mainly my outside advisor, who was in Dayton, Ohio.

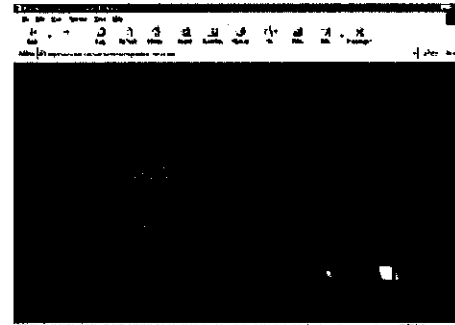
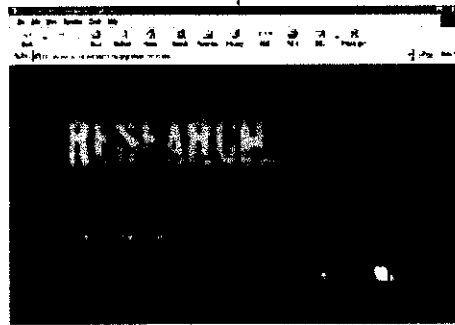
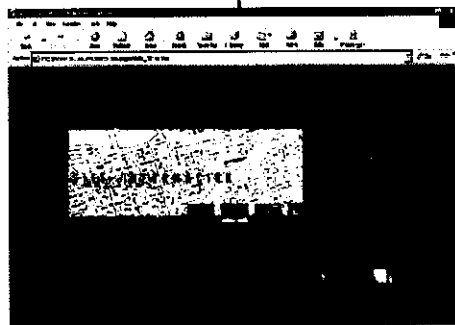
WEBPAGE

I also wanted to use the webpage to explore the idea that maybe there is a tactility to vision as well as the hands. It was something I could 'make' in a more abstract sense, you would not be able to touch, but concentrated on layers of texture and color, trying to make the web as 'tactile' as possible.

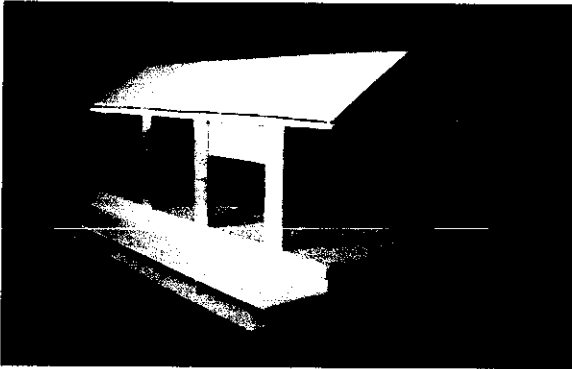


VISUAL TACTILITY



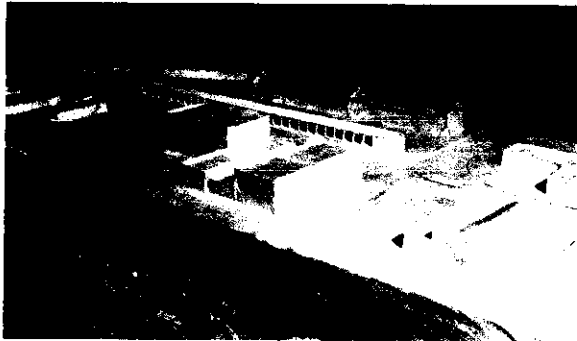


WWW.BSU.EDU/WEB/BETOLENE



SECTION MODEL :: model built to study structure/ /materiality at a larger scale. three bays of the existing warehouse. used to study detail ideas.

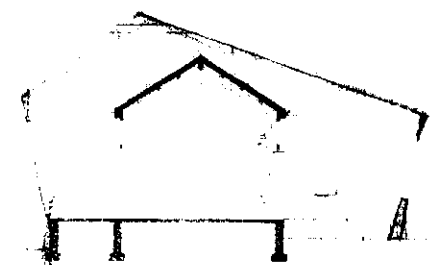
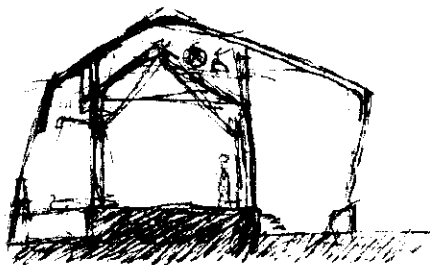
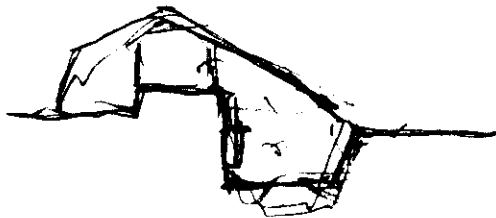
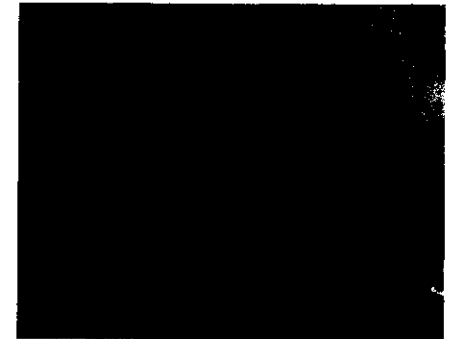
CONTEXT MODEL :: model built to study site context around the existing warehouse. additions to as design progresses.



I had early ideas about adding the workshops for metal, wood, ceramic off the back of the existing spine with individual work areas in the four bays in front of the workshops, but they were just tacked on. I wanted to go against grain, but I needed more rationale of where and how they attach.

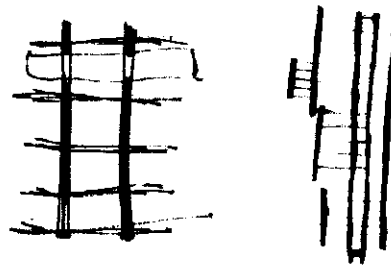
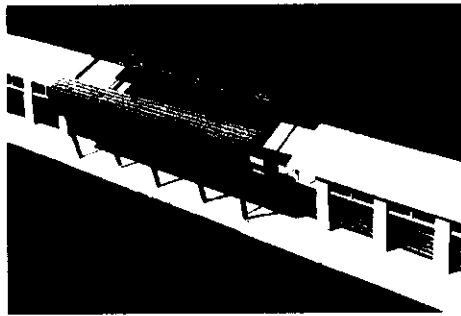
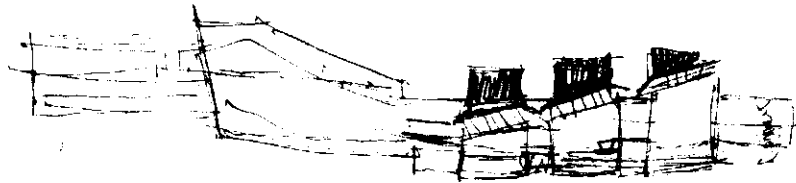
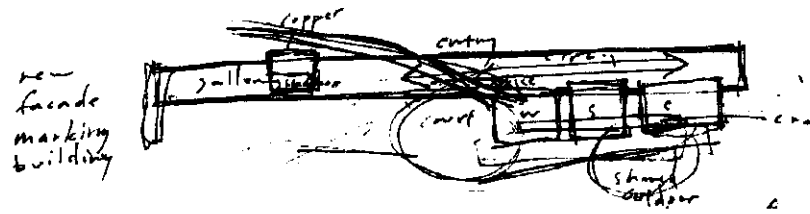


I then had other ideas following that about making the additions transverse. There would be three distinct forms, one for each studio. Wanted to follow transverse structure of the trusses, held up by other load-bearing walls that would be concrete instead of brick. I wanted to gain rationale from the existing, but not immitate.



DESIGN PROCESS // MODELING

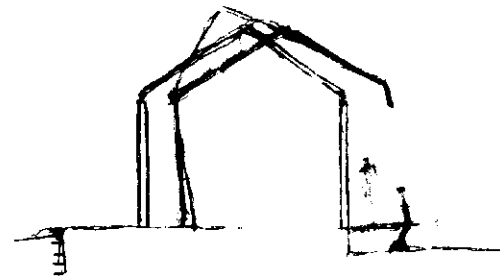
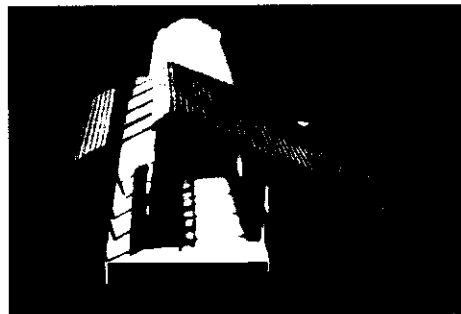
Of the early attempts at transverse addition, I decided to further the idea of wrapping it with a metal skin that would fold around. Using the inherent properties of the material, I could use its malleability to mold and fold its surface over and around the existing. Would use lighter, stronger steel to span, using the language of the existing, but in a new way. A language of decision making was evolving, but it wasn't working just right. Felt it was still somewhat arbitrary where I would make a move. I went back to diagramming the existing, looking at the 'grains' of the built, in order to further my decision making.

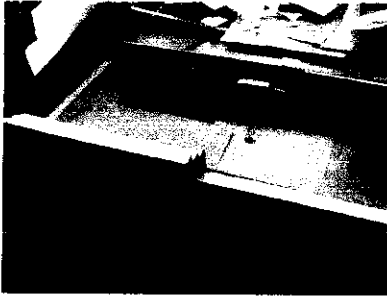


[MOLDABLE]

[SPANNING]

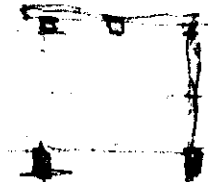
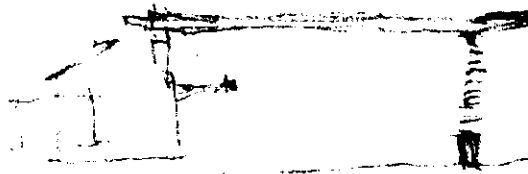
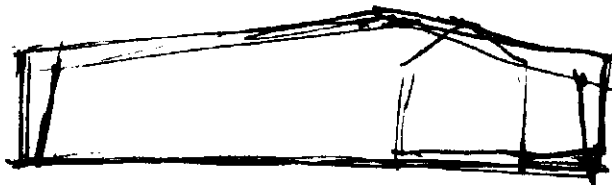
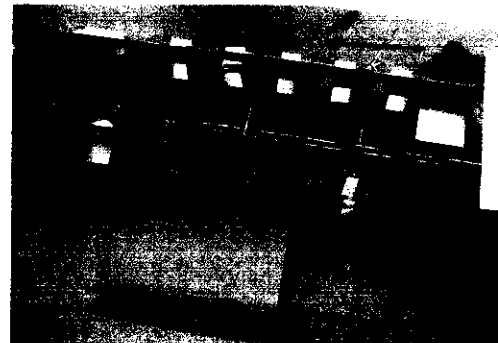
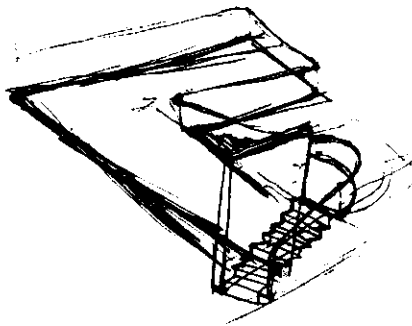
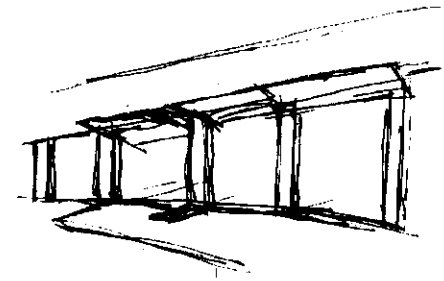
BRICK [BEARING]





Trying to work out ideas on an intermediate scale model, I began to develop the overall building concept. I had many detail ideas of how this steel plate could fold around the brick and become a shelf on which to display sculpture created at the center or how a bench outside could slide inside and turn to form a desk in the lobby area, but I felt I was losing a coherency to the building as a whole.

I got caught in a trap of some simply 'form'al moves and quickly came back to how I could apply my issues to the building form. A stronger language emerged where the insertions sliding transverse would all be metal [steel, copper, brass], wood additions would come back in the opposite direction of the metal and concrete bearing walls or points would run parallel to the existing.



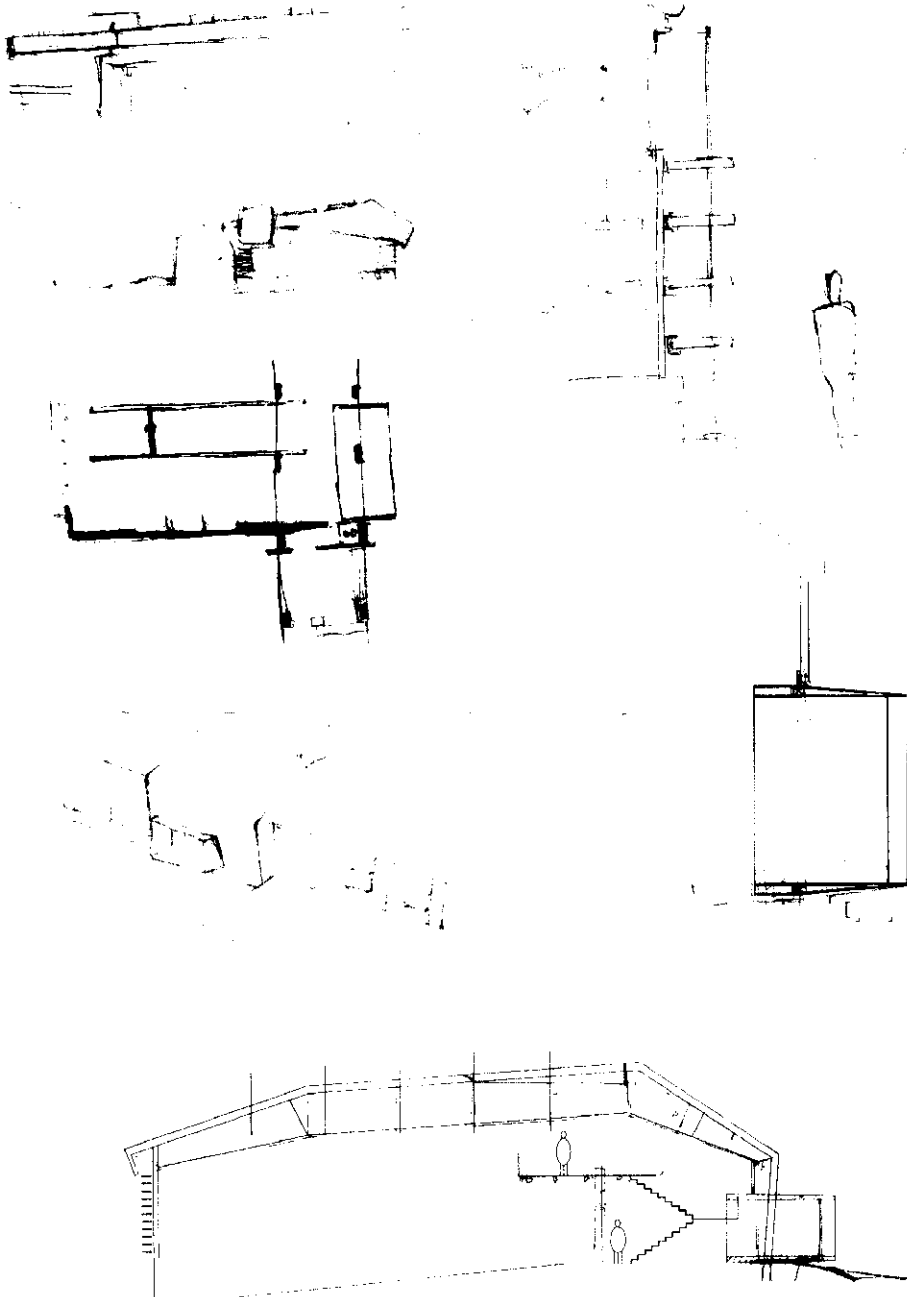
Through all my explorations and beginning design, I reached the approach, the attitude towards my additions/insertions. These guidelines I used to channel or direct my further interventions.

**As related to my thesis issues and goals, I wanted to ::**

1. Honor the existing honesty of materials and construction [bearing walls running east-west, lighter structure spanning in the opposite direction, metal doors as moldable, foldable 'skin' type material] honor, but not immitate.
2. Acknowledge the potential of materials to drive the generative process and produce a ruling idea for the larger work.
3. Make people aware of the weathering, aging of the materials of the project.

**More specific to the project, I wanted to ::**

1. Open up the site through the N-S axis in order to create a more open, outward building versus its current introverted state.
2. Free up the static nature of the existing, break up the repetition
3. Allow people to view art on display as well as the 'making' of this art.



**PRODUCTS // RESULTS**

**EAST FIRST STREET**

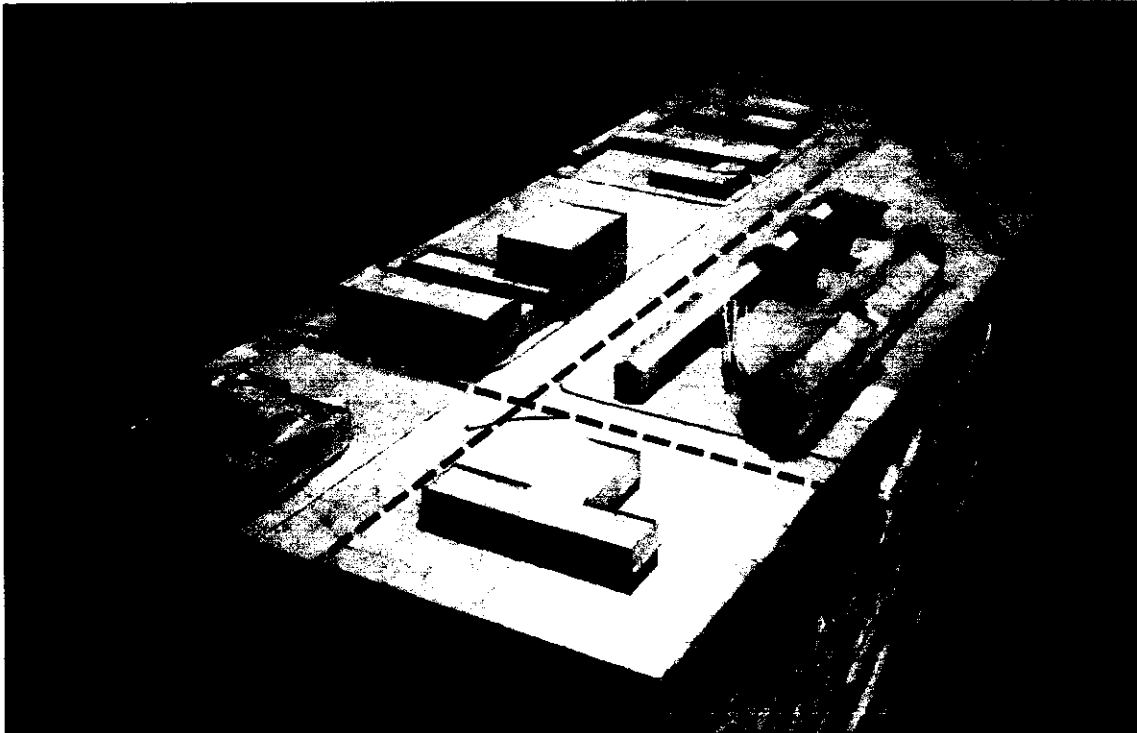
**EAST SECOND STREET**

**EAST THIRD STREET**

**WEBSTER AVENUE**



EAST SECOND ST.



WEBSTER AVE.

## REDEVELOPMENT OF THE WEBSTER STATION AREA

The material workshop cooperative is seen as a beginning to redevelopment of the Webster Station Area. More than simply workshops, the center would seek to pull in and attract the public to participate in their community through a variety of arts events.

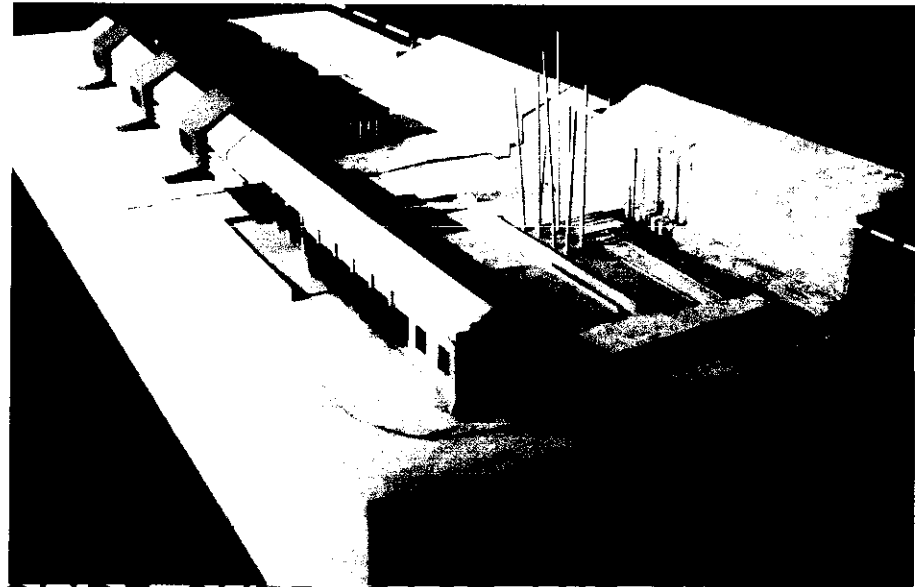
A tall grove of trees visible from Third Street, [the main traffic artery in the area] commands attention, introducing curiosity as to what is there. Natural growth is uncommon in this deserted portion of the city. An exterior display/sculpture garden would be developed that could add more life literally to the site and this portion/sector of the city and could accommodate around the clock activity.

The metal insertions slide past, over and through. The entrance canopy floats under the existing roof plane. a break in the canopy concentrates rain flow onto a continually weathering and rusting piece of steel, calling attention to the inevitable degradation of the building.

Gallery boxes project out of the gallery, offering a glimpse of the work contained within, and creating a visual and implied link to the exterior display area on the opposite side of the building.

The standing seam roof membrane of the studios float over and around.

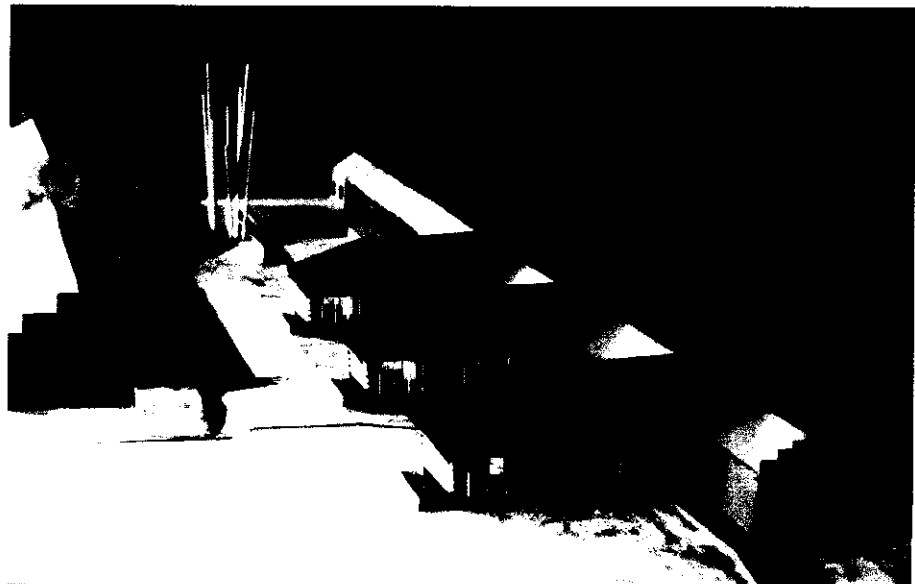
Entrance ramps of 1/2" cold rolled steel slide up into and through, becoming steps into the exterior work area.



## INSERTIONS SLIDE OVER, PAST AND THROUGH

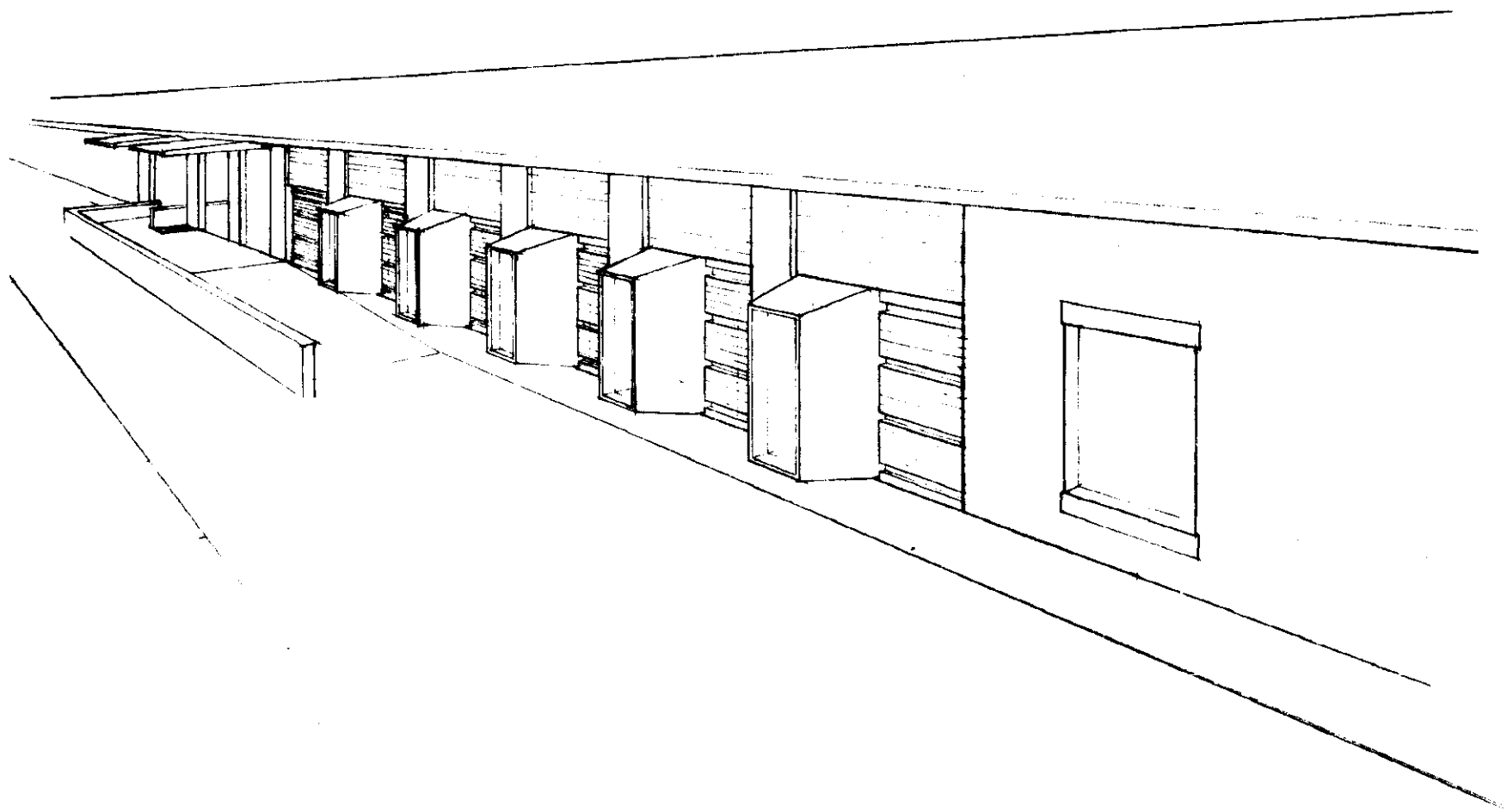
Concrete interventions run parallel with the building, acting as support to the studios, benches on which to sit and retaining walls on the site.

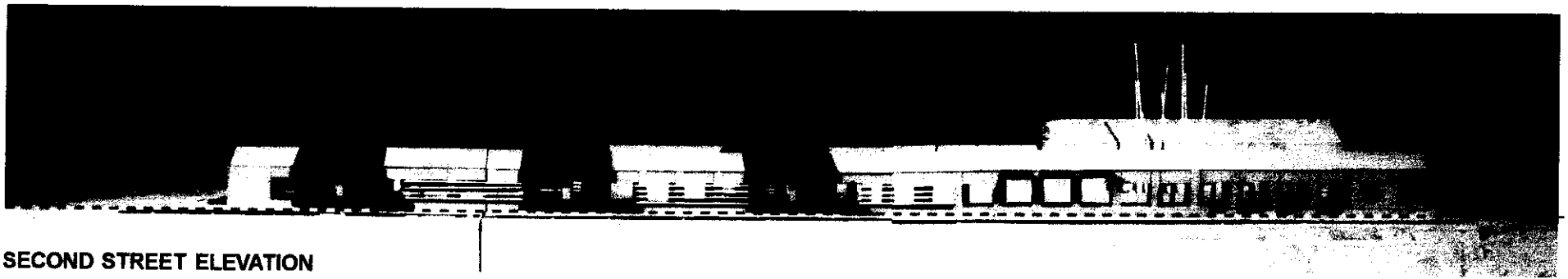
Acting perpendicular to the metal additions, heavy wood louvers break up the Second Street facade and offer privacy to the artists within. This grain of wood is also repeated in the rear canopy and in the vertical louvers of the workshops.



## ROOF MEMBRANE FLOATS OVER AND AROUND







SECOND STREET ELEVATION

SECTION AT 105'

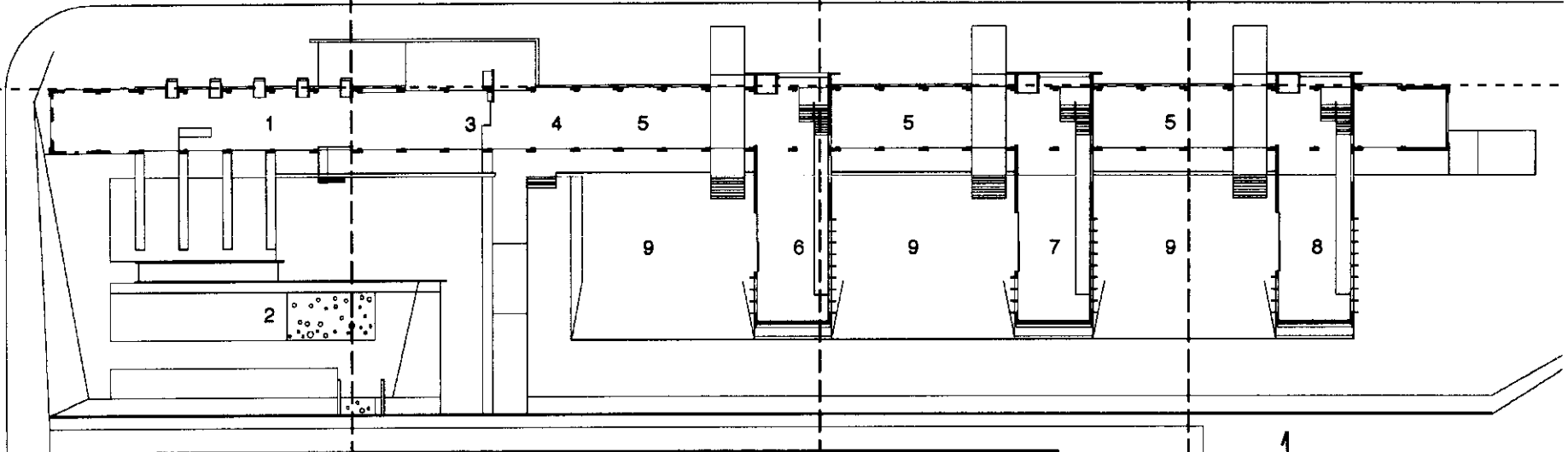
SECTION AT 265'

SECTION AT 375'

- 1. GALLERY
- 2. EXTERIOR DISPLAY
- 3. ENTRY
- 4. ADMIN. AREA
- 5. IND. WORK AREAS  
[one bay per artist]
- 6. WOODSHOP
- 7. METALSHOP
- 8. CERAMICS SHOP
- 9. EXTERIOR WORK AREA

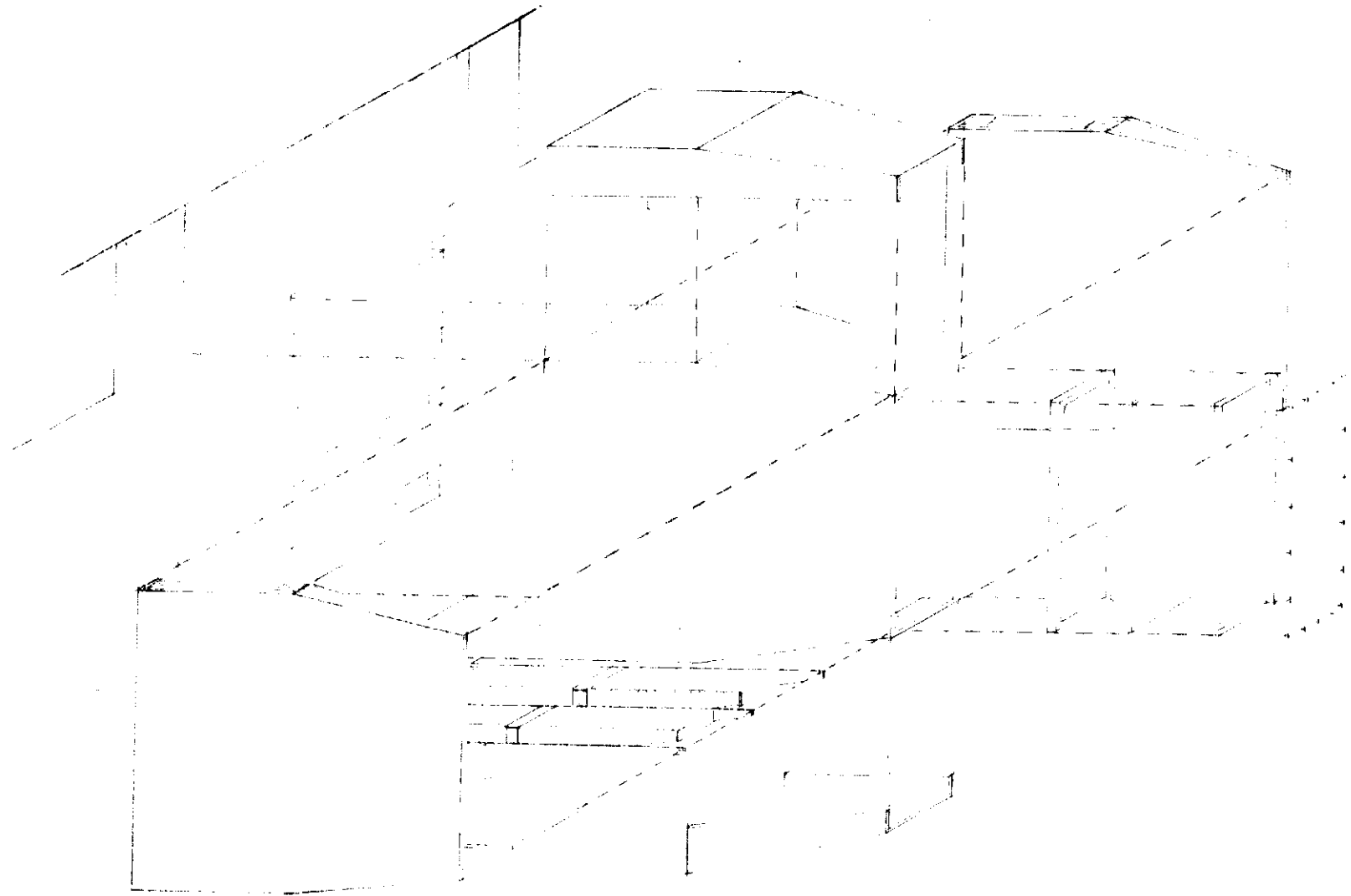
EAST SECOND STREET

WEBSTER AVENUE

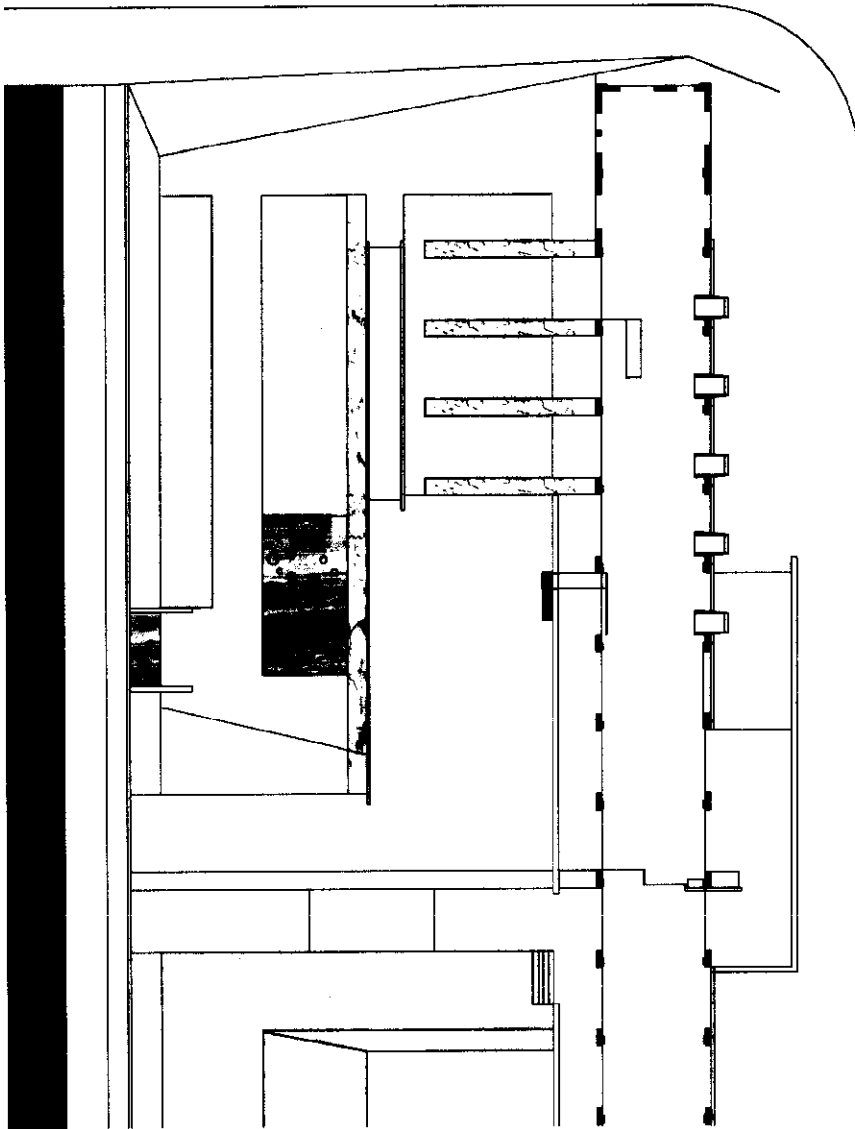


FLOOR PLAN

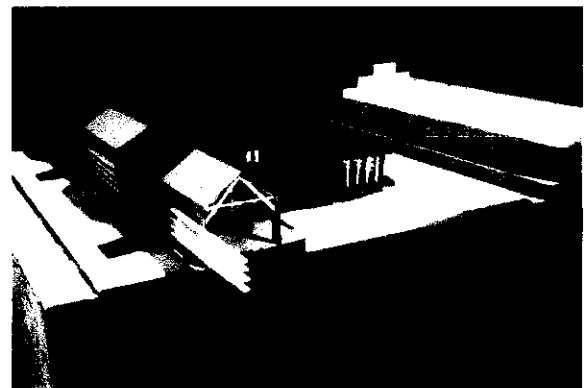
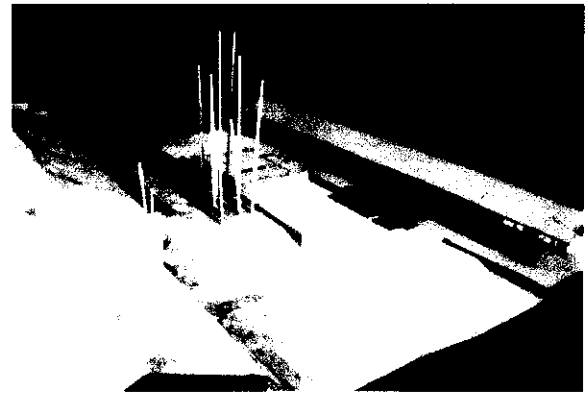
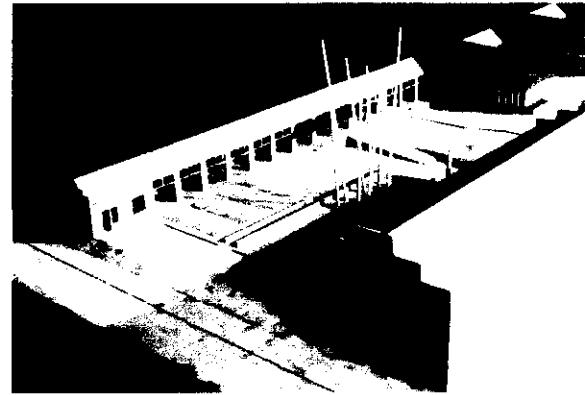


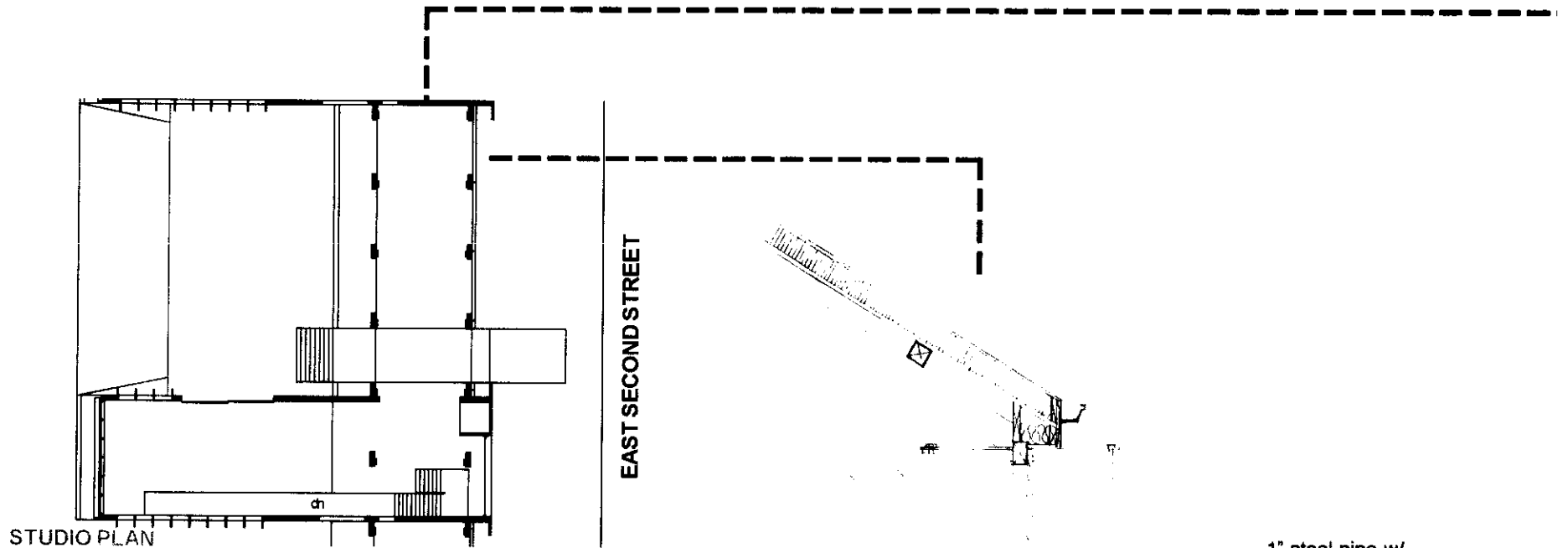


exploded isometric of gallery box



site painting showing textures of the materials



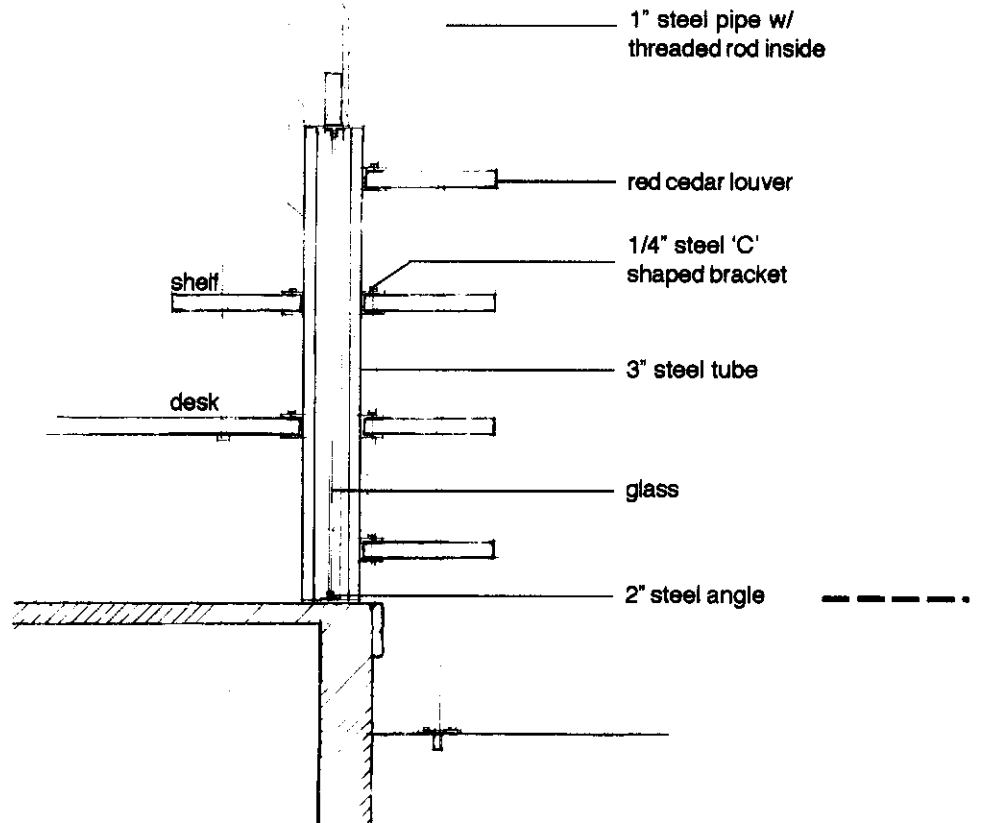


The workshop areas are to be shared throughout the cooperative. There are three individual work areas for the artists who own a portion of the common workshop.

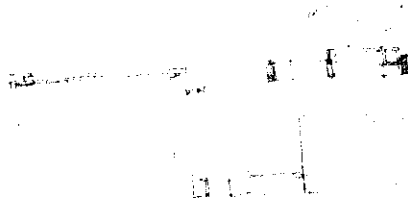
The language of the additions is evident here as well. The metal insertion of the ramp to stair at the entrance, the wrapping standing seam roofing, the supports for the back canopy folding around the brick columns. Wood present as red cedar louvers, projecting back in the opposite grain, sliding horizontally, unifying portions of the facade on the north and south faces. Vertical louvers on the east and west sides of the studios as well the slats forming the canopy are wood members.

Concrete as bearing which holds up the steel pipe structure, which in turn support the wood members is the language of the detailing of the louvering system.

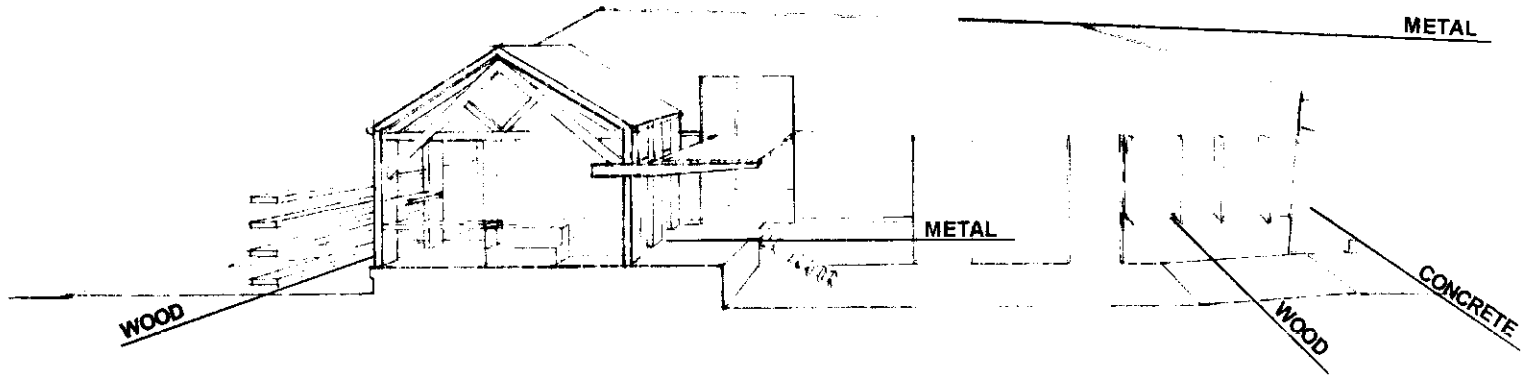
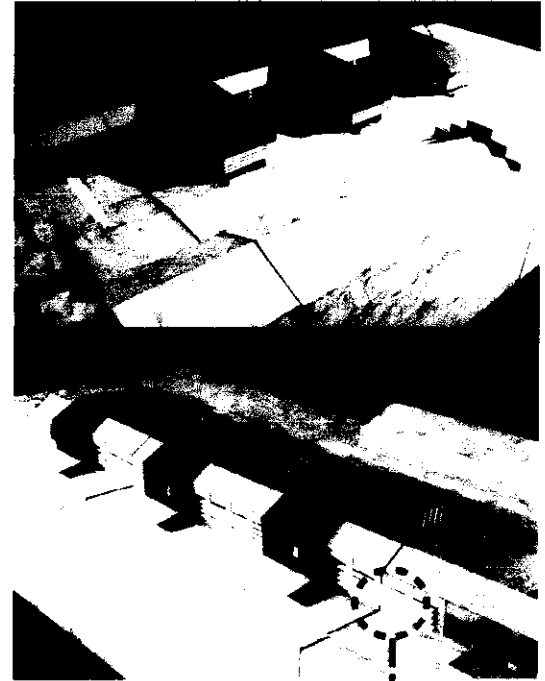
### STUDIO DETAILS



--- PERSPECTIVE THROUGH AND WORK AREAS



desk ideas



WALL SECTION WITH LOUVER DETAILS

The goal of the thesis project as a final 'complete' project is an elusive one. Going in, I did want to design a near complete building and do it well. I wanted to explore some issues I was interested in, yet a nice final product was the goal. Although I evolved from this, at times, it held me back. I would have liked to have 'made' more things, done more exploration with materials, yet I was concerned with designing a building. This meshing of investigation of a topic and the application of that investigation to a real building is something I am still trying to work on. I think the tendency of students is to treat them separately, but I don't think it has to work that way. Its challenging to make the connections sometimes, yet when the processes inform each other it is invaluable. A great part of joy in school is the pushing of the exploration, the getting to the heart of an issue.

As I researched through making, I did not get to level of play I would have liked though. I did not explore the materials and their properties as fully as I could have through sculpture or abstract modeling. My making was concerned with learning from the building and site. As I built models of varied scale and detail, my process was focused on craft. Through my craft in building, I began to more fully understand the existing conditions and rationale of its original construction.

Working at various scales, from the site to detail ideas and back to overall concept of the building, was very helpful in this project. I felt at times that I was jumping around too much, but in the end, they all helped inform each other immensely. Also flowing through different media, such as computer drawings, sketches and physical modeling, I was able to develop my designs effectively. Utilizing the various tools and scales in my design process was very informative.

As a good thesis should, this process has led me to new ideas and questions. My interest in these issues does not end with this project, their evidence will be found in further ventures. Although arriving late, I am more certain than ever that in each project or building, something should be investigated, questioned. These issues should also be explored at different scales, simulatenously. Every detail has the potential to explain the building. The site should inform the built work and craft in the design and the making are vastly important. Your work should engage the user through their interaction with it. And a sense of play should play a crucial role in your design process.

HOW CAN // WILL THIS INFORM HOW AND WHAT I'LL DO IN

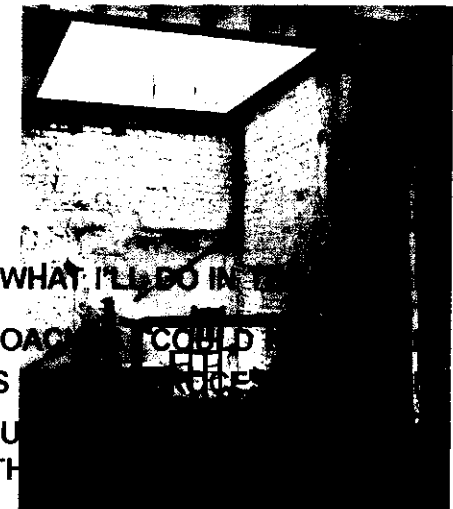
WHAT WERE SOME DIFFERENT APPROACHES THAT I COULD

HOW DID USING THIS

WHAT ARE MY TENDENCIES? HOW DID THEY COME OUT

WHAT IS TH

CONCLUSIONS // REFLECTIONS // RUMINATIONS





thank you to :

andrea swartz

andy seager

parents

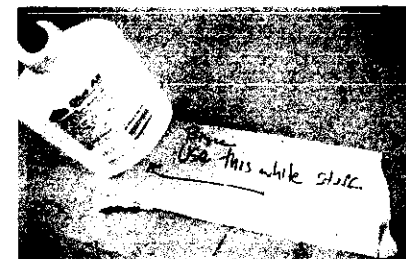
friends

mary rogero

dayton planning commission

others

for help and support



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clarity of thought and word. written not by a philosopher, but by a 'builder.'

#### PHOTO ACKNOWLEDGEMENTS :

All of the photographs are by Bryce Tolene except those on pages 08, 13, 21, 40.

p. 08, *Blueprint* magazine 1998.

p. 13, Richard Serra

p. 21, Scogin Elam and Bray Architects

p. 40, Caruso and St. John Architects