

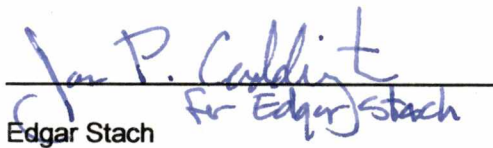
To the Graduate Council:

I am submitting herewith a thesis written by Robert Clayton Rogers entitled "An Exploration of the Joint: The Knoxville Center for Furniture Makers." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Masters of Architecture, with a major in Architecture.



George Dodds, Major Professor

We have read this thesis
and recommend its acceptance:

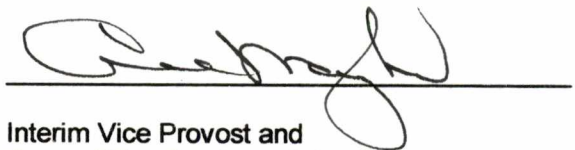


Edgar Stach



Robert French

Accepted for the Council:



Interim Vice Provost and
Dean of The Graduate School

***An Exploration of the Joint:
The Knoxville Center for Furniture Makers***



A Thesis
Presented for the
Masters of Architecture
Degree
The University of Tennessee, Knoxville

Robert Clayton Rogers
May, 2001

Dedicated to Linda,
without whose help and support
I would not have or could not have made it.

Abstract

This thesis will use the craft of woodworking and furniture making to inform the making of architecture. Techniques of joinery, lamination, and veneering can be translated into the broader language of architecture and conceptually interpreted in a variety of ways, giving the designer the means of creating a tectonically clear and expressive building.

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1.0 Project Title

An Exploration of the Joint: The Knoxville Center for Furniture Makers

2.0 Thesis Scope

The Center will combine a small school for the design, fabrication, and exhibition of furniture with a moderately scaled commercial facility, specializing in custom millwork and high-end furniture production. By integrating school and work, thought and process, the Center will attempt to teach and instill a sense of traditional craftsmanship and to apply that to changing technologies. Student instruction will begin with traditional techniques using hand tools, and progress to power tools, and finally to computer controlled machinery.

The school will have 16-20 full-time students enrolled in semester curricula; shorter, weekend/night classes for hobbyists may also be added. The commercial shop will employ 10-12 craftsmen, who will share teaching duties with the Director. Additional office staff will include an office manager/receptionist and salesman/assistant to the Director. Though emphasis will be placed on the interrelationship of working, teaching, and learning, there will need to be some separation of the school and commercial functions. Two woodworking shops are needed: one tooled for the more efficient production of a commercial facility, and the other smaller-scaled for the individual, experimental work of the students and craftsmen working on prototype designs. Certain functions, however, can be shared by the school and the manufacturing facility, such as the gallery/showroom, metalworking shop, finishing room, design studios, and seminar/lecture room.

3.0 Issues of Thesis

Critical to crafting of wood into furniture are the techniques of *joinery*, which not only provide the structural means to hold the pieces together but also affect the overall appearance. Joints may be expressed or concealed, simple or complex. Wood joinery has also been used in wood and timber framed construction for centuries, reaching its highest form in traditional Japanese building, but in architecture the joint exists on many levels. The joint can be the physical connection of materials, either similar or dissimilar. The physical joint can be at the scale of individual pieces or at the scale of the whole building, how the building is joined to the earth or to the sky. The joint can be spatial, how rooms connect, overlap, or interpenetrate. The joint can concern the connection of programmatic uses or even of elements at an urban scale.

The process of *laminating* several thin layers of wood with adhesives has greatly affected furniture making. Simple, flat sheets of plywood offer more dimensional stability than comparable panels of solid wood. Bent laminated forms, in which the steam-softened layers are bent to a form and then glued, have allowed new forms in wood, impossible to fabricate with traditional joinery techniques. The idea of lamination can be expressed in architectural forms in different ways. Contemporary building systems are more often composed of layers of materials, making a wall, for example, a lamination rather than a solid uniform element. Spaces can be layered, such as in a sequence of public to private spaces. Layers of meaning and symbolism can be laminated together to offer possibilities of new interpretations.

The technique of *veneering*, in which a thin layer of a finer material is applied over a structural substrate of inferior material, has a long tradition in both furniture making and architecture. The use of veneer can range from being a deceptive covering to the obvious outer skin of a built form. The materiality and placement of a building's veneer can help to define its relationship to its surroundings and to give it symbolic and cultural meaning. As the elements of building construction have become more layered, the possibilities grow for the consideration and treatment of the outer layers, the veneers, as avenues of architectural exploration.

A building can be considered a process from its design to its construction (and even throughout its occupation). In his design the architect can give **tectonic expression** to that process, its structure and its construction. How are materials joined together? Which of those joints are expressed and which are concealed? Are the layered components of the building revealed, or are they covered with a veneer? How is the nature of the veneer treated?

Critical to the furniture maker is a thorough understanding of his **materials** - their strengths and limitations. Likewise the architect, employing a much wider pallet, can achieve a fuller realization of his design with a deeper understanding of the materials to be built with, not only their physical capabilities, but also their meaning and inherent beauty.

Both the making of furniture and the making of architecture involve the joining of separate pieces to create a built object. While furniture is primarily perceived as **objects**, architecture is more often experienced and understood in terms of the **spaces** its physical form defines. But furniture can also be used to help define spaces, and architectural elements can exist as objects within larger defined spaces. This thesis will consider how architecture can create both rooms and objects within those rooms, and how the form of furniture can relate to the space of architecture.

While many of the techniques of furniture-making have long traditions with **craft** and working by hand, the craftsman has always used the most advanced tools at his disposal. Regardless of the sophistication of the **technology**, if the maker is working with care, skill, knowledge, and judgment, he can be considered a craftsman. The architect can utilize the new technologies of techniques and materials in service of his craft instead of letting them determine it.

As an urban infill project, this thesis will address the issues of **context** and **expression**. Does the building seek to repair the continuity of the street, with attention to horizontal continuities and the maintenance of vertical rhythms and use of similar materials? Or does the building express itself as a piece of furniture in the urban space of the street? Can both conditions be resolved?

4.0 Program Description

The Center will include the following facilities:

commercial shop	7000 sf
see equipment schedule	
finishing room	1500 sf
includes tables, drying racks, storage	
spray booth	250 sf
metalworking/machine shop	1250 sf
see equipment schedule	
prototype/student shop	3500 sf
see equipment schedule	
plastics molding & new materials lab	1000 sf
packaging/loading area	1000 sf
truck dock area	750 sf
with dumpster, dust bins	
materials storage	1000 sf
freight elevator	200 sf
samples and hardware room	500 sf
breakroom	500 sf
with kitchen facilities	
locker rooms	
staff	300 sf
students (2)	600 sf
lobby	500 sf

offices

Director	250 sf
office manager	200 sf
secretary	200 sf
sales	200 sf
faculty/staff (2)	300 sf
storage	150 sf
conference/lecture room	500 sf
AV equipment	100 sf
design studio	1000 sf
computer lab	250 sf
library/reading room	500 sf
class rooms (2)	800 sf
showroom/gallery	4000 sf
Net Area	28,800sf
mechanical, circulation, restrooms, etc.	5,7000 sf
Gross Area	34,500 sf

5.0 Equipment Schedule

Commercial Shop

5 axis CNC router

20" planer

8" jointer

drum sander

12" table saw w/ outfeed table

panel saw

horizontal mortiser

veneer press

drill presses

shaper

16", 20" band saws

lathe

12" radial arm saw w/ stock table

miter saw

work tables

clamp racks

tool storage

Metalworking/Machine Shop

lathe

horizontal band saw

16" band saw

drill press

grinder

roller press

sheet metal bend and cutter

welding stations

Prototype/Student shop

16" planer

8" jointer

belt sander

oscillating spindle sander

(2) 10" table saws

drill presses

shaper

12", 18" band saws

scroll saw

(4) 12" lathes

12" radial arm saw

miter saw

work tables

(6) woodworking benches

clamp racks

tool storage

6.0 Site Description

Downtown Knoxville provides an appropriate site for this project. Furniture-making facilities and schools are prevalent in eastern Tennessee and North Carolina. Nearby are the University of Tennessee Architecture School and a possible HGTV "attraction," which provide a spectrum from theory-driven design to practical craft in which the Center can find an in-between position.

The specific site is on Jackson between Gay and Broadway. The area is mostly late nineteenth century warehouse and light manufacturing buildings; it includes millwork and furniture facilities as well as architectural offices. The old industrial/railroad nature of the site offers the possibility of a dialogue between traditional and contemporary methods of construction. The proximity to the restaurants and shops of Old City make a streetfront gallery/showroom feasible. The site backs up to the steep hill of the downtown plateau. Immaculate Conception Church at the top of the hill gives this place a dramatic presence as seen from a distance (notably from I-40). This site particularly introduces several design issues: sectional slopes in both directions (along the street and perpendicular to the big hill), restricted access (none from the rear), decidedly different conditions for streetside and hillside, and different perceptual conditions from the local street, the hill above, and the more distant expressway.

The site is a trapezoid with a street frontage of 220' and sides of 150' and 100', giving it a total area of 27,500 s.f., part of which extends up the steep hill. The building to the east extends back 110' and the roofless building to the west 75'; this gives an area of 20,350 s.f. Since the hill has slid down into the empty lot over the years, the flat surface presently covers 14,300 s.f., with a depth of 60-70'. The slope of Jackson Street creates a drop of 14' from the west edge to the east.

The surrounding buildings predominately consist of brick load-bearing walls with either wood or steel floor and roof framing. Facades are mostly brick with some use of stone on Gay Street. Windows range from wood to steel industrial to aluminum storefront.

7.0 Expectations

This thesis will attempt to design a building that translates aspects of the making of furniture into the making of architecture. Expression of the tectonics of that architecture will be of prominent concern. This project will explore the details of its materials and its construction. Models, both physical and digital, will be crucial to the presentation of this project. Three scales of models would be appropriate: the building in its site context, the building and its interior configurations, and a detail. To gain a better sense of how the building would look if it were built, I propose to generate perspectival elevations from physically possible vantages, rather than the more abstracted orthogonal elevations. I will also generate interior perspectives to present a more perceptual representation of the building's spatial characteristics

8.0 Addendum

Having completed the design of the Center, the issues and ideas presented in the preceding proposal have necessarily changed and evolved. This thesis has become an exploration of the use of the joint as a means of making architecture at the beginning of the twenty-first century.

At the beginning of the design process, the idea of the joint became paramount. The other aspects of furniture-making were simply reconsidered as merely some of many types of joints. This translated into the design task of addressing the strong sectional aspect of the site and how to connect the top of the hill with the bottom, the industrial buildings of Jackson Street and the railroad tracks with Downtown. This joint is achieved with an exterior brick stair, which widens to a plaza at the top, level with the edge of the hill and the top entrance to the building. The center part of the plaza, raised higher to the level of Vine Street, addresses Immaculate Conception Church and is more contained from the rest of this public space. This added civic aspect of the project establishes the Center as a catalyst for a more extensive revitalization of the existing buildings as an arts and crafts district.

In analyzing this joint between the top and the bottom of the hill, I started to see that this was a diagram of my ideas about craft, which was my starting point a year ago. The railroad tracks at the bottom represent the utterly practical, and the church at the top represents the ideal (luckily it is a Catholic church) and pure art. The Center sits in between, in the joint between utility and art, the position of craft. There was also the potential for a temporal/contextual joint as well; the neighboring buildings, primarily brick warehouse type buildings from the turn of the previous century, establish a tectonic and material base from which the project can relate contemporary building.

The program calls for a new building for the Tennessee Center for Furniture Makers, the combination of a furniture manufacturing facility with a school for furniture design, fabrication and exhibition. Early design schemes attempted to create a joint between school and shop functions,

placing the gallery space in the overlap. As the public aspect of the project expanded, so did the gallery and display space, so that shop and school functions are contained in one solid, masonry building which is inserted into another, larger volume of gallery and display space. The offices and school rooms, contained in the interpenetrating portion of the solid building thus become another object on display. The masonry structure containing the workshops, offices, and school spaces is orthogonal to the grid of the railroad. Materially and tectonically it relates to the early 20th century warehouse buildings across the street, which are of solid brick walls and solid wood timber interior framing. It becomes an early 21st century version of this utilitarian structure: reinforced c.m.u. walls with a brick rain screen around the exterior and concrete floors and columns. The other building, into which the masonry box is inserted, is a wood framed "display case." Instead of the solid timbers of a century ago, it utilizes current technologies of glue-laminated and engineered wood and frameless glass walls. The joint of the two buildings is held together by two "pins:" one a solid stair enclosure, and the other a spatial notch cut out of the masonry building. This opening helps to reveal the overlap of the two building systems at the joint line.

Unlike traditional furniture making, which uses precisely cut joinery to connect pieces, often concealing the structural part of the joint, contemporary building construction relies heavily on steel as the material of connection (and reinforcing). Joints between elements in the gallery primarily use exposed steel connectors. The stairway and elevated walkways that connect the top floor of the gallery to the bottom and connect the gallery spaces to the school and offices are as well of steel. Other details reinforce the presence and nature of joints. The wood columns in the gallery building are composed of four smaller glulam columns joined together, but separated by reveals to emphasize that they are not a solid piece of wood, but a composite element.

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Site Information Sources

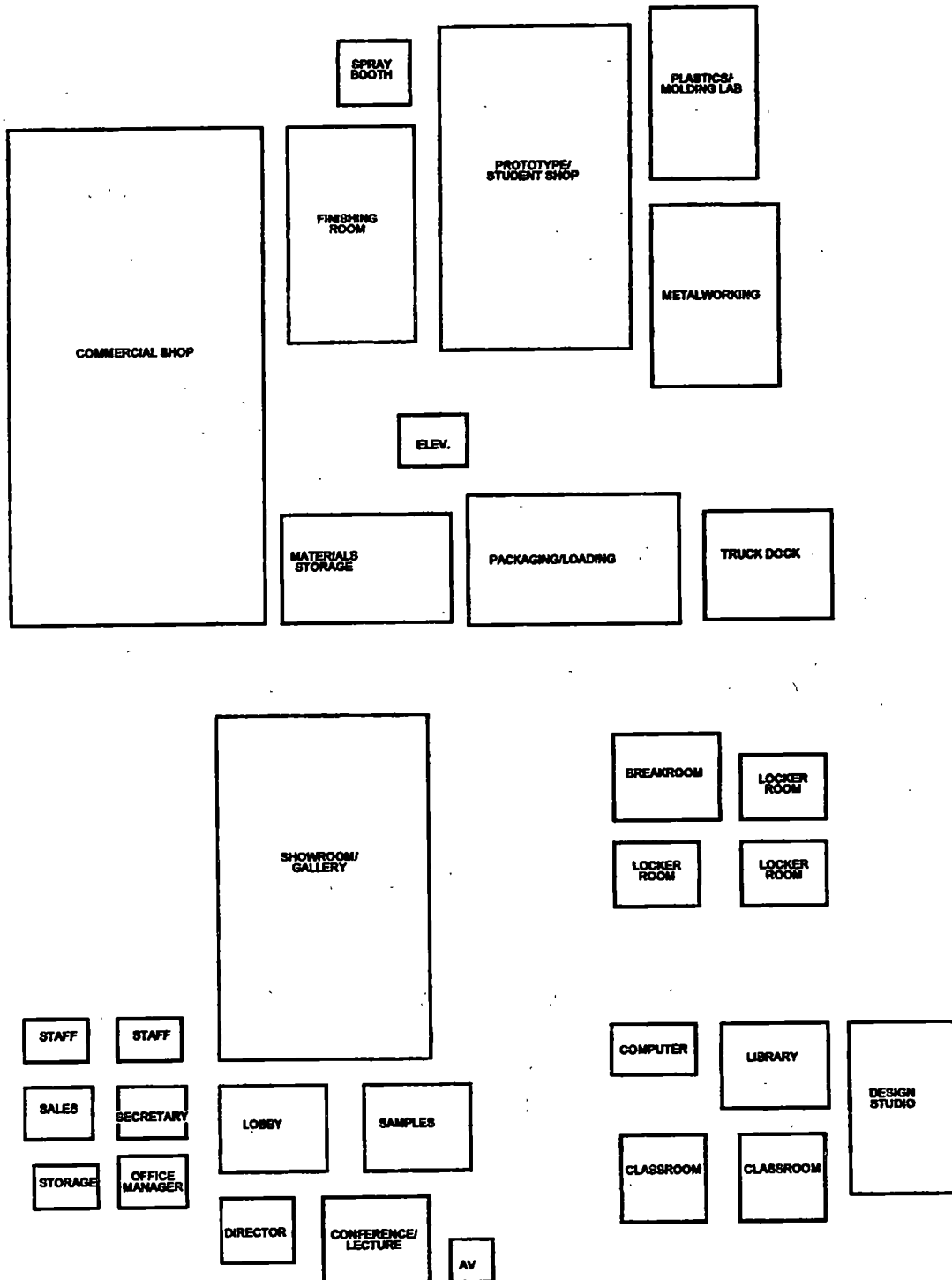
KGIS – Knoxville/Knox County/KUB Geographic Information System, sheet no. 650800.

Knoxville & Knox County Street Atlas (Knoxville: Superior Mapping Co., 1998).

Microsoft Terraserver images (terraserver.microsoft.com)

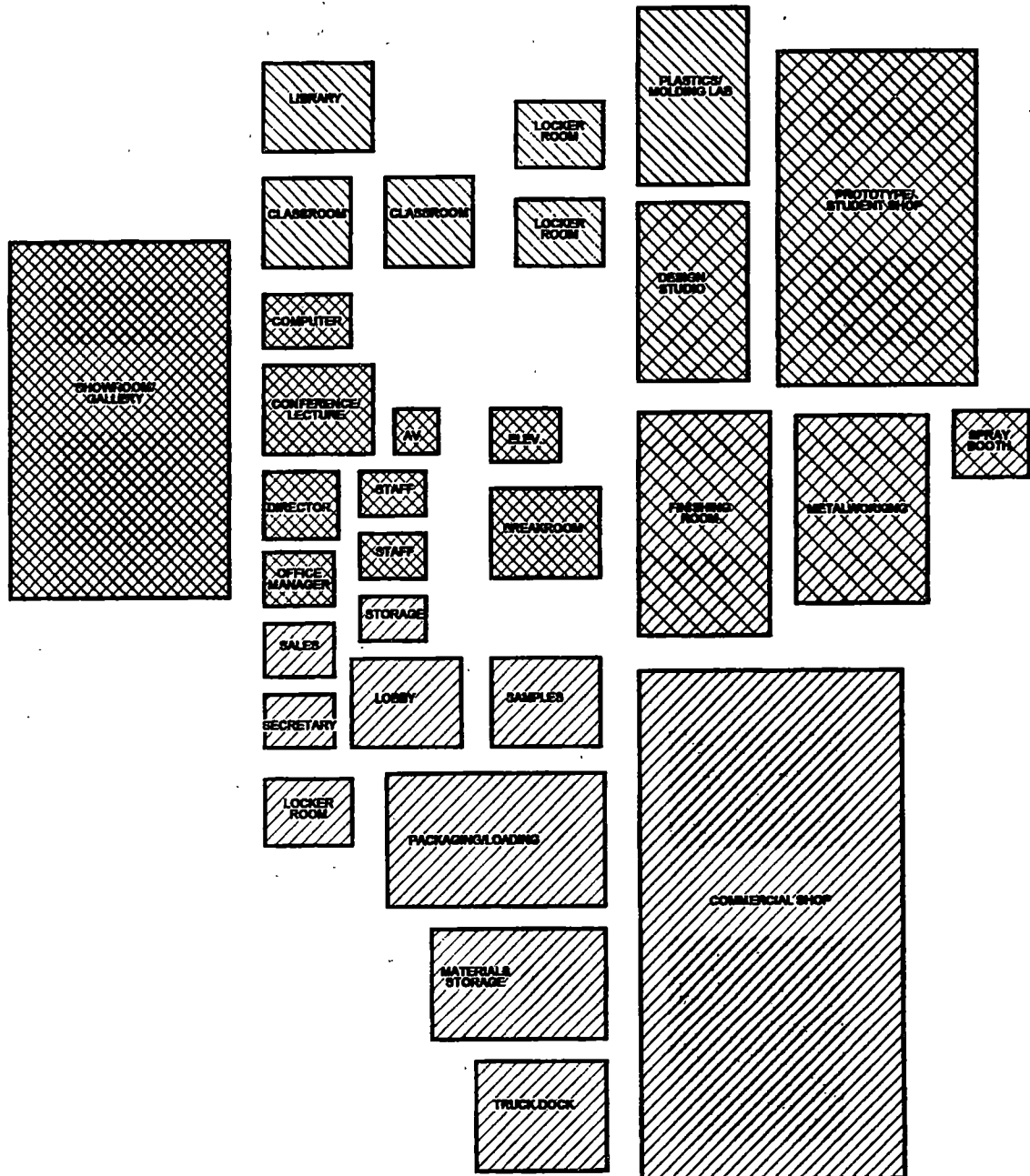
Appendix 1: Program Analysis

Program Spaces - Adjacencies



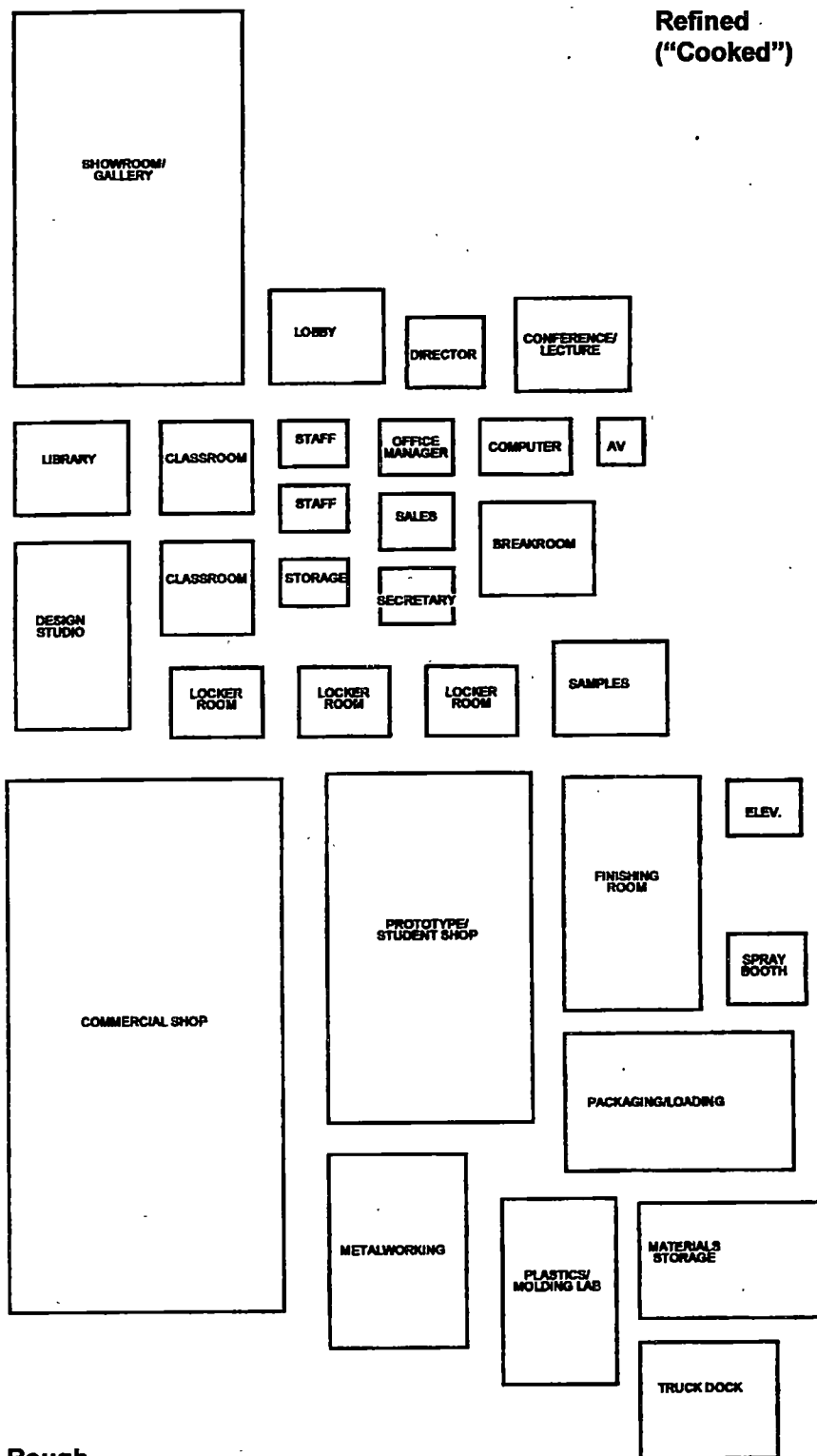
School/Commercial Operation Separation and Overlap

School



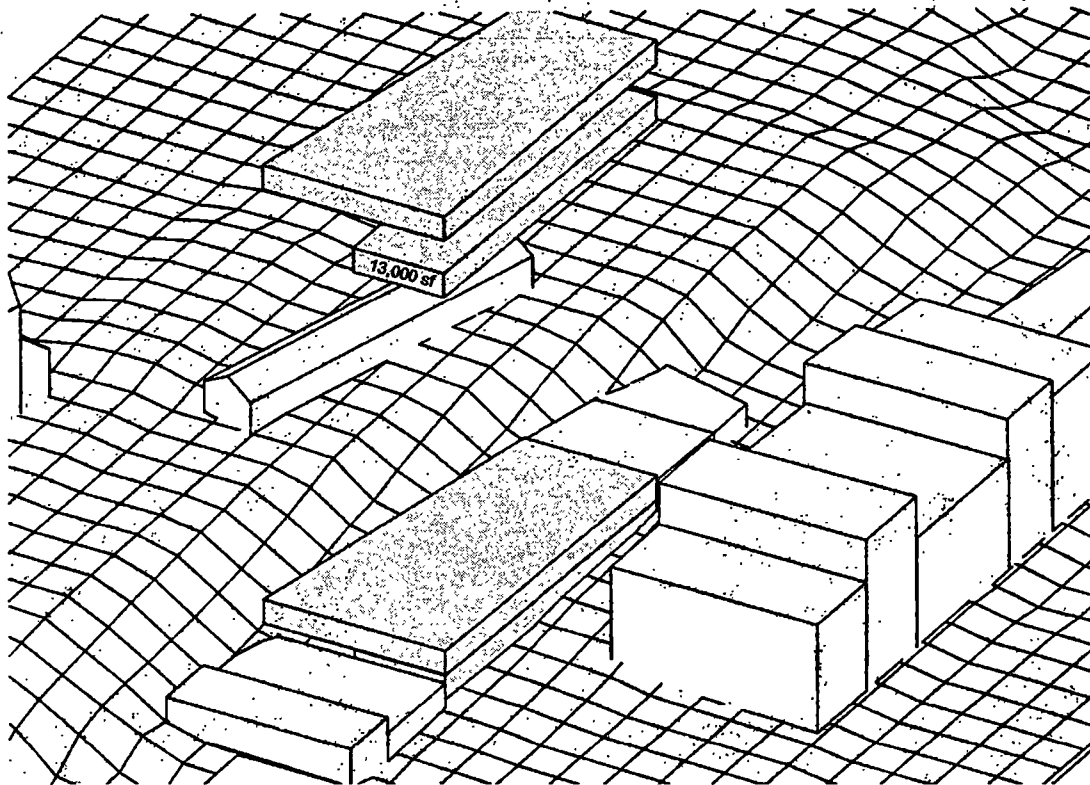
Commercial Operation

Program Spaces - Rough/Refined

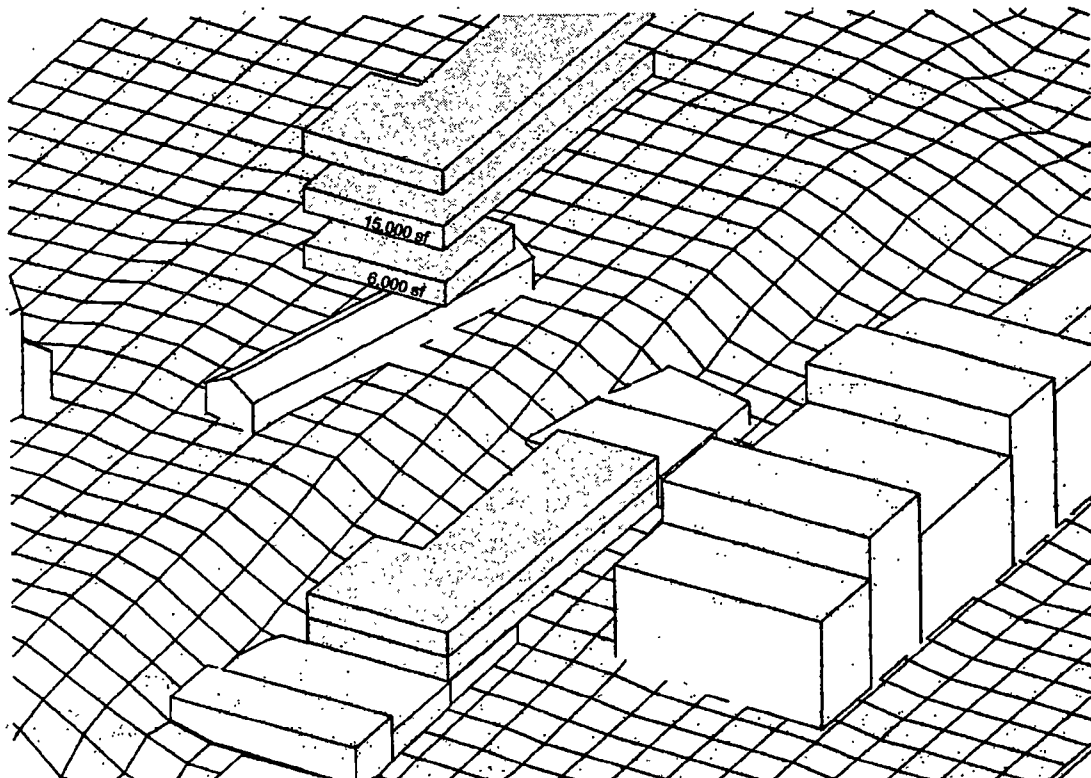


**Rough
("Raw")**

Program Site Fit

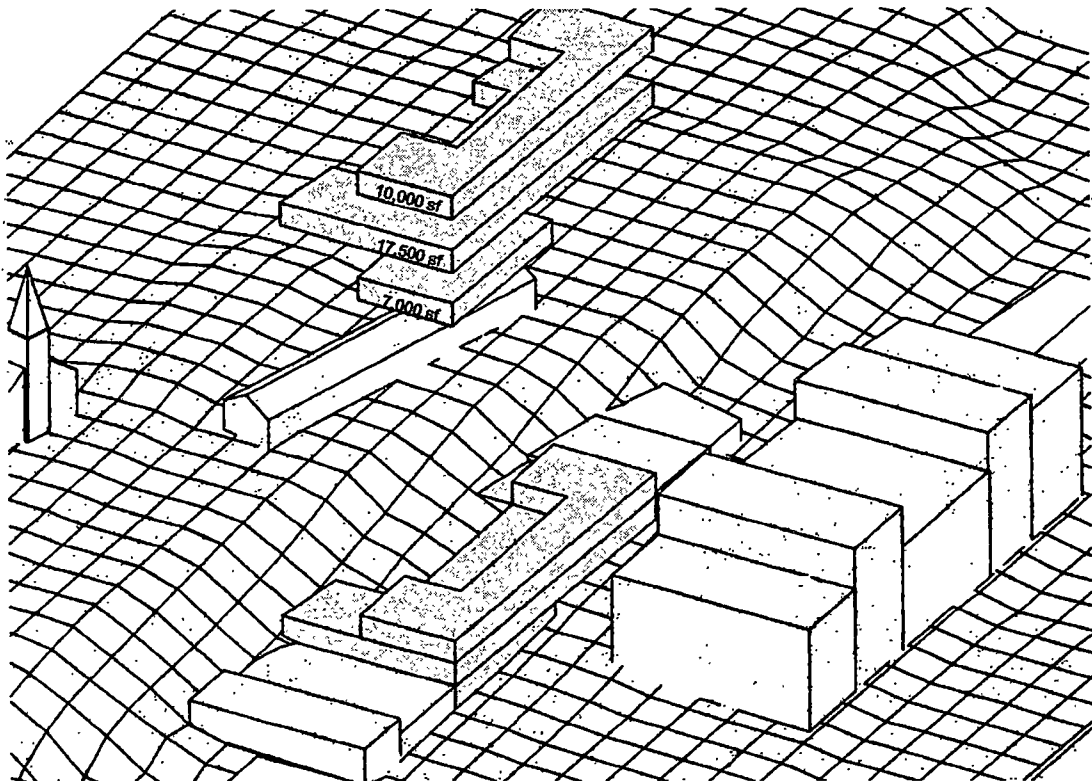


Scheme 1 - 2 Stories

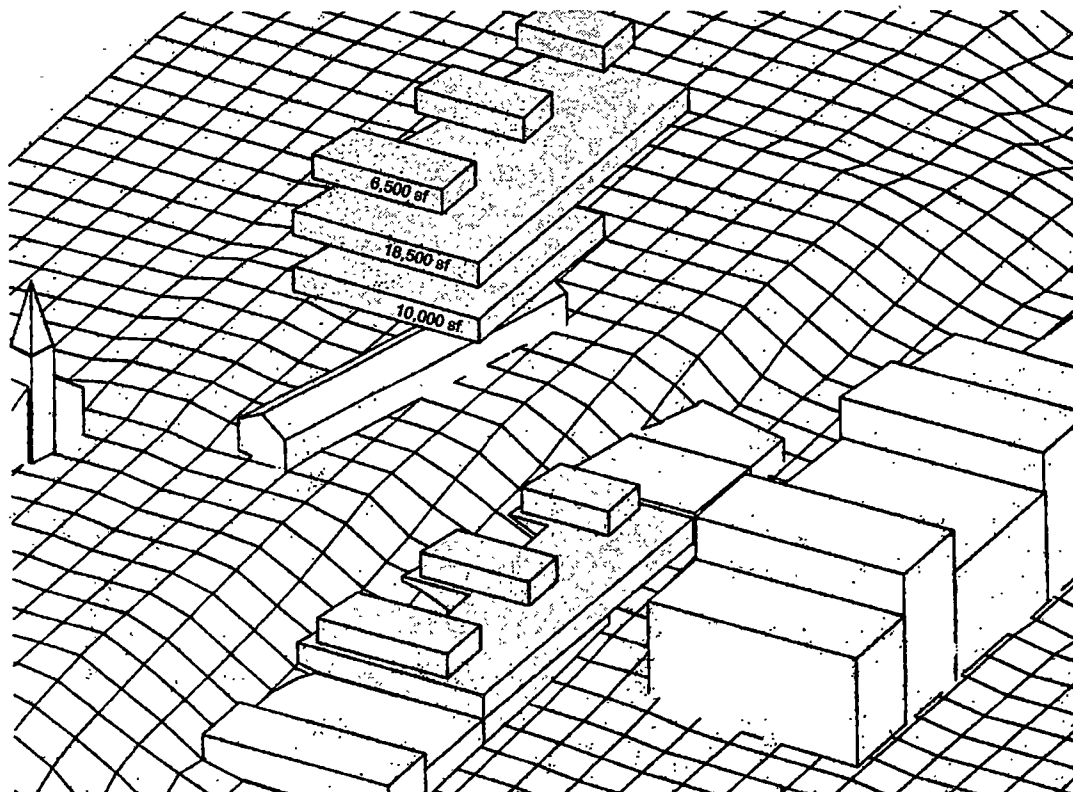


Scheme 2 - 2 1/2 Stories

Program Site Fit

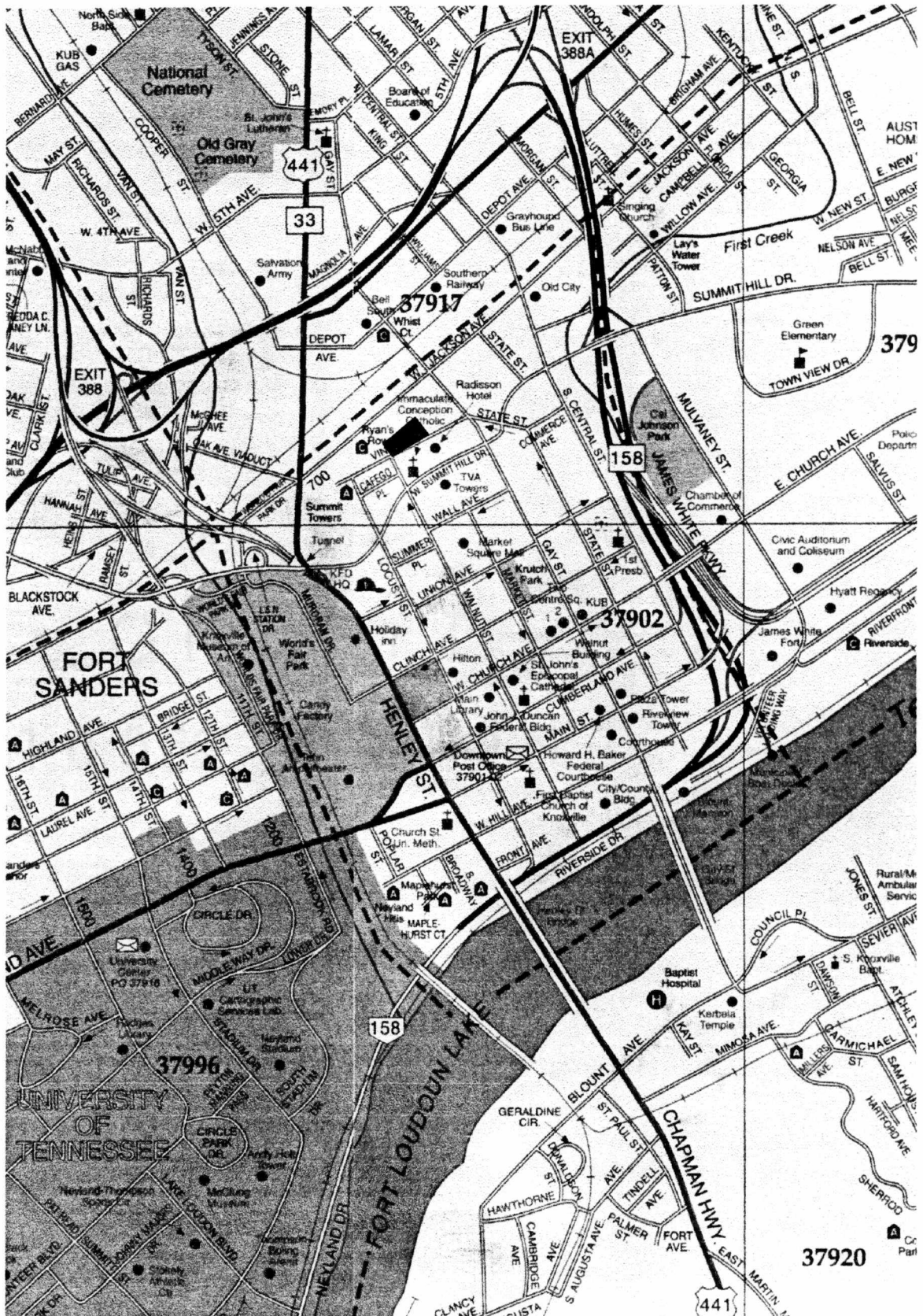


Scheme 3 - 2 1/2 Stories



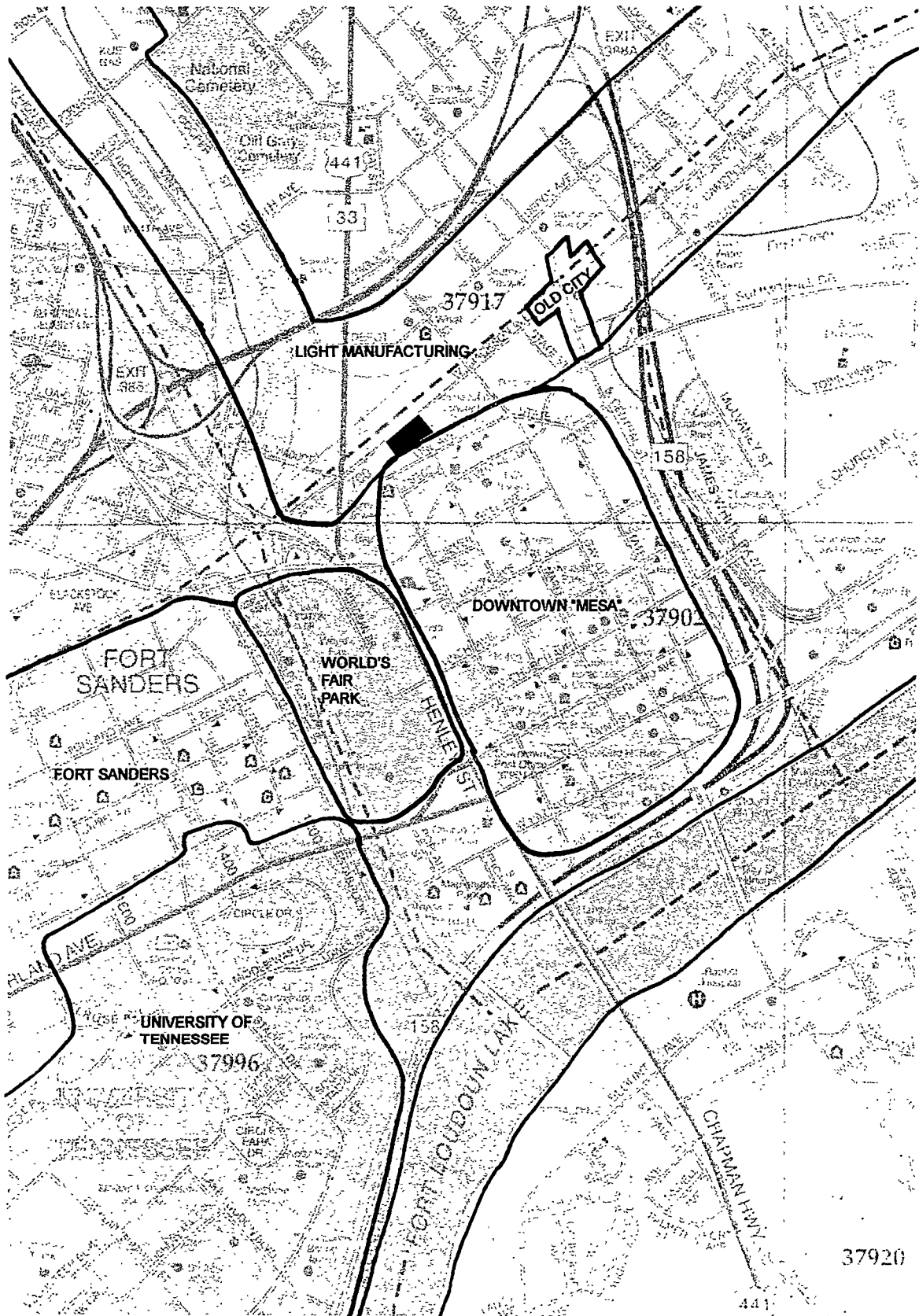
Scheme 4 - 1 1/2 + Stories

Appendix 2: Site Analysis



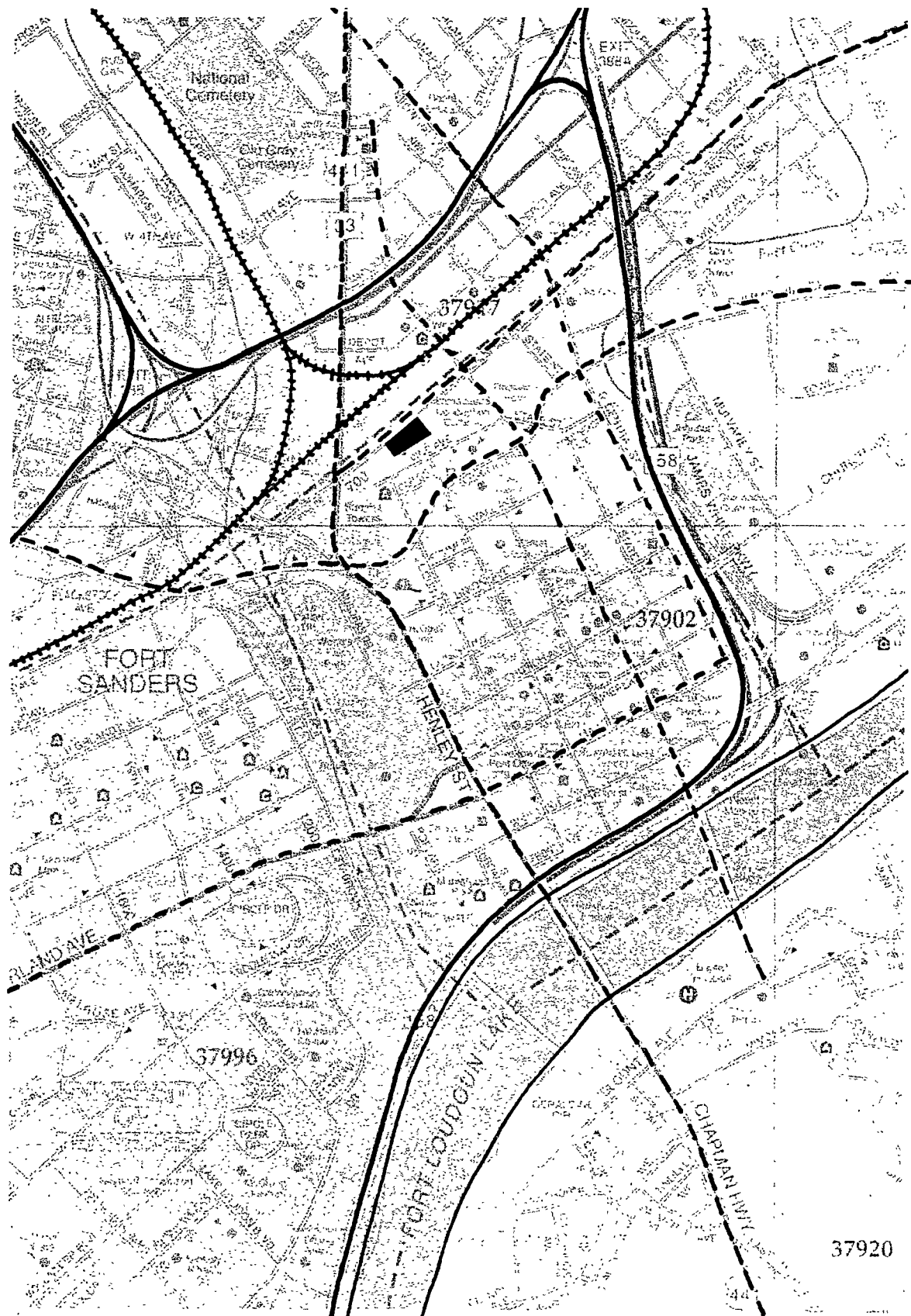
Downtown Knoxville





Downtown Knoxville - Districts





Downtown Knoxville - Major Circulation

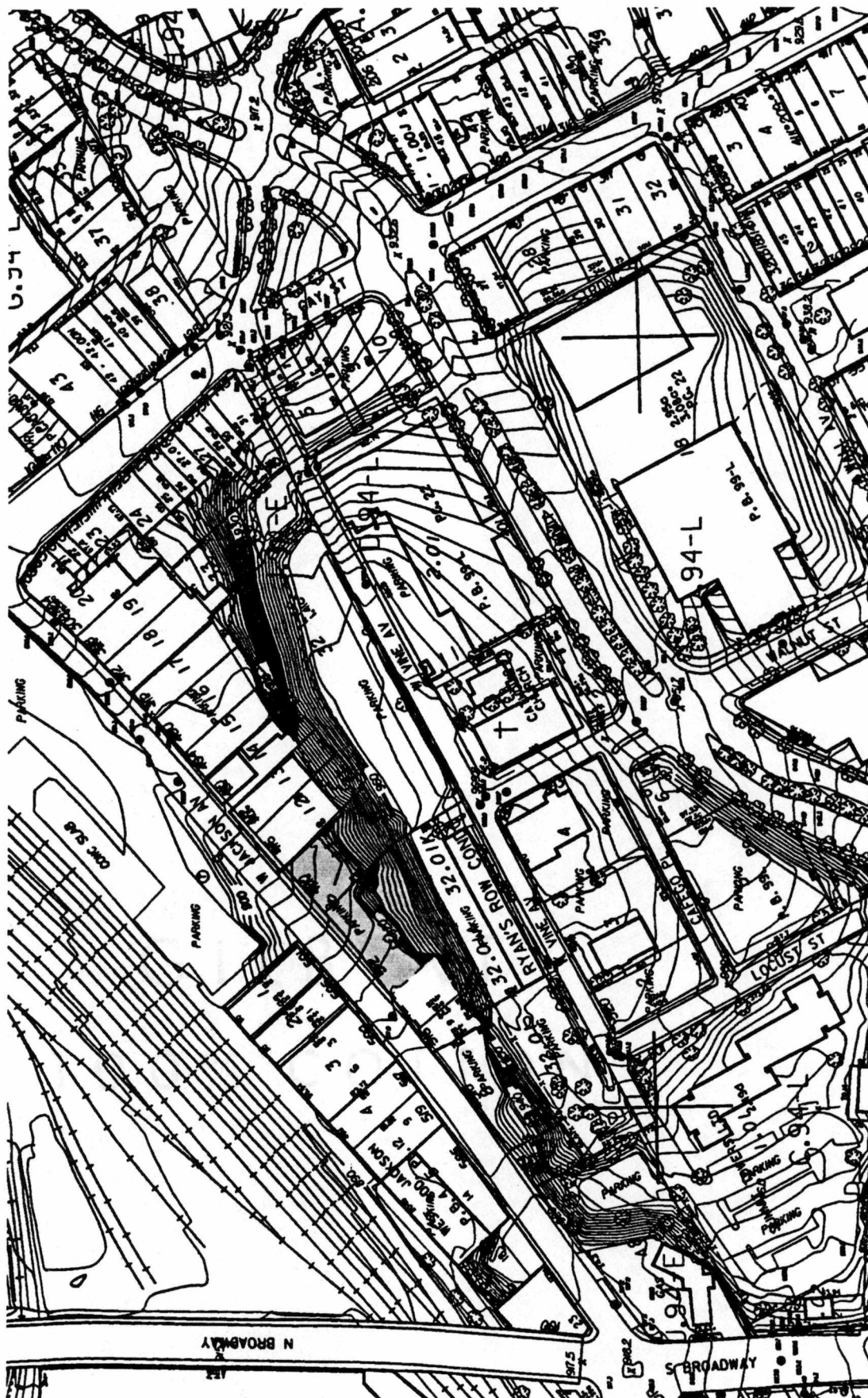




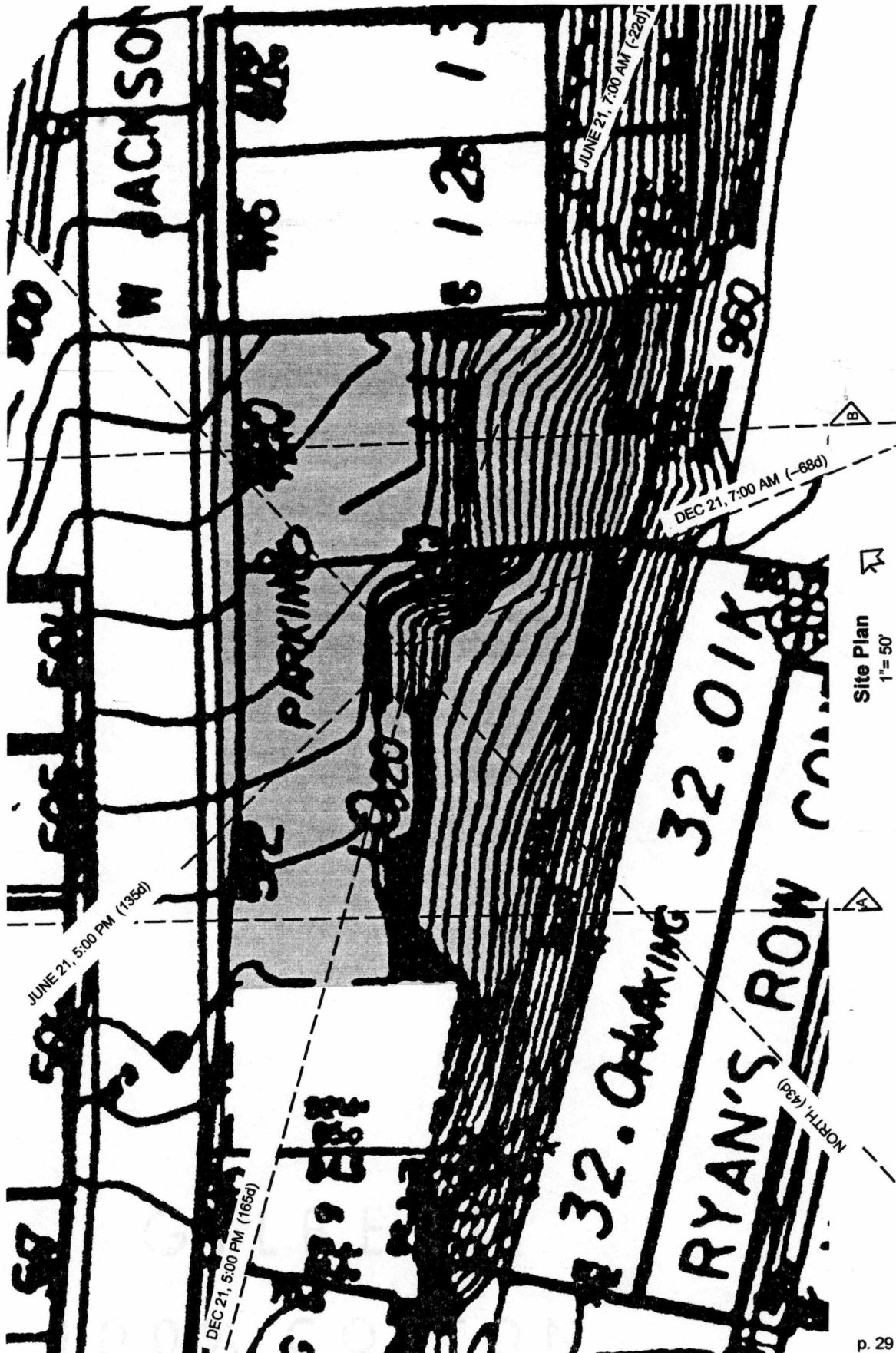
Arial Photograph



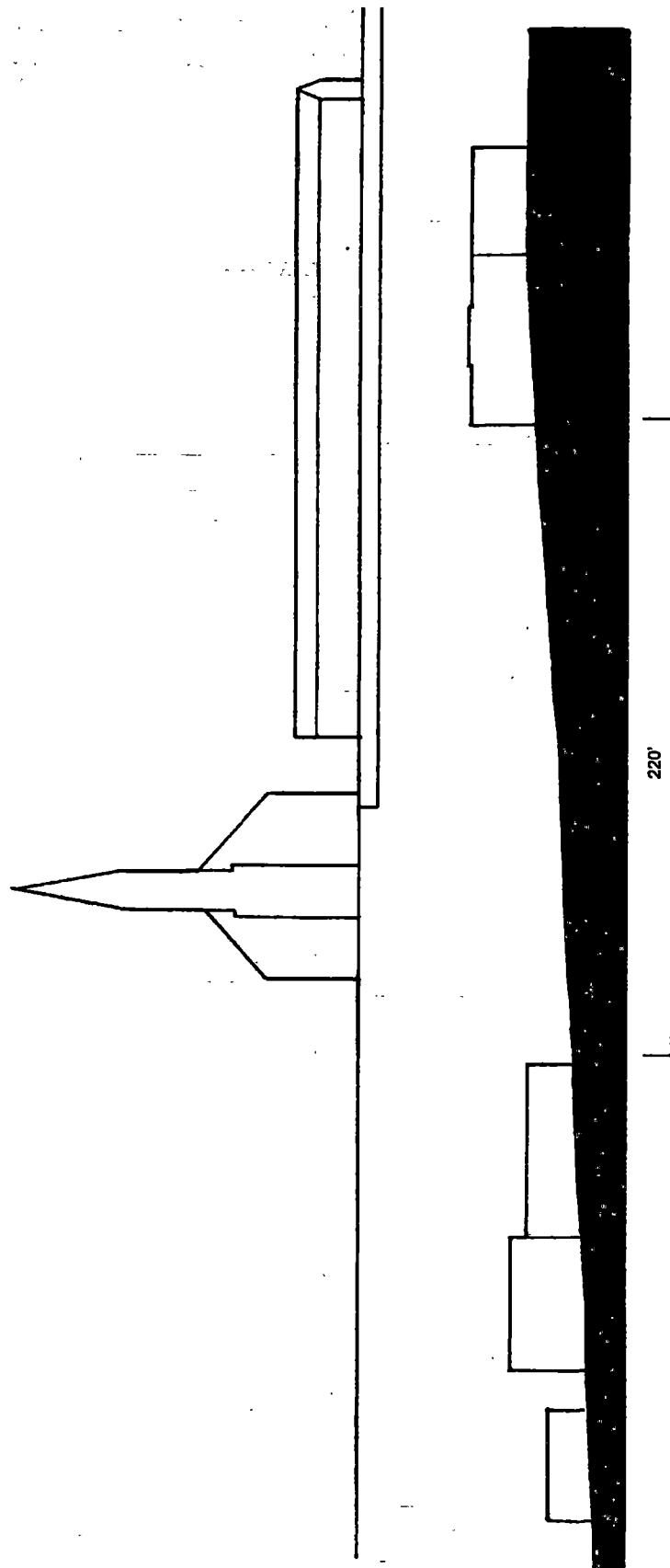
Figure Ground Plan 



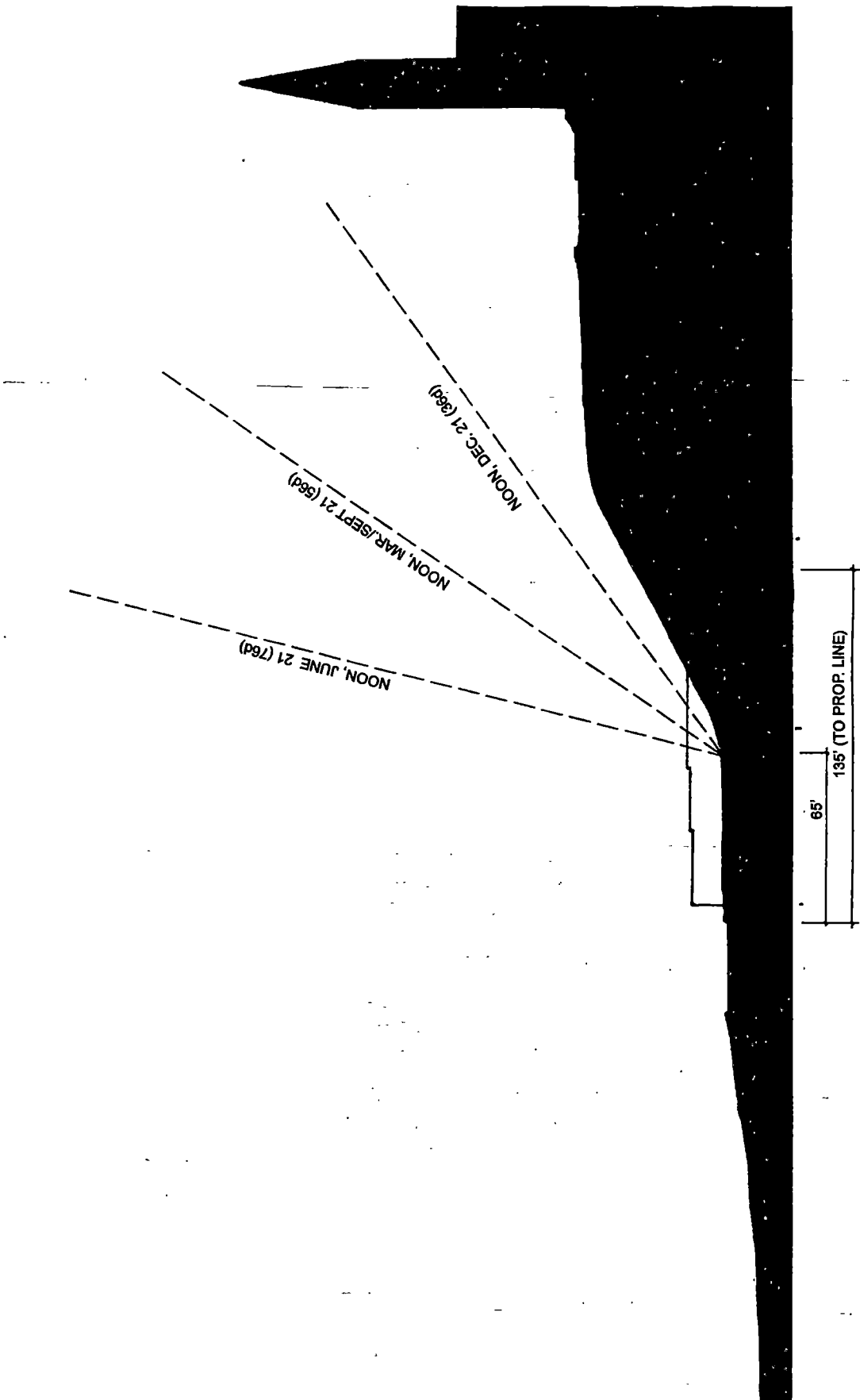
Vicinity Plan
1"= 200'



Site Plan
1"=50'

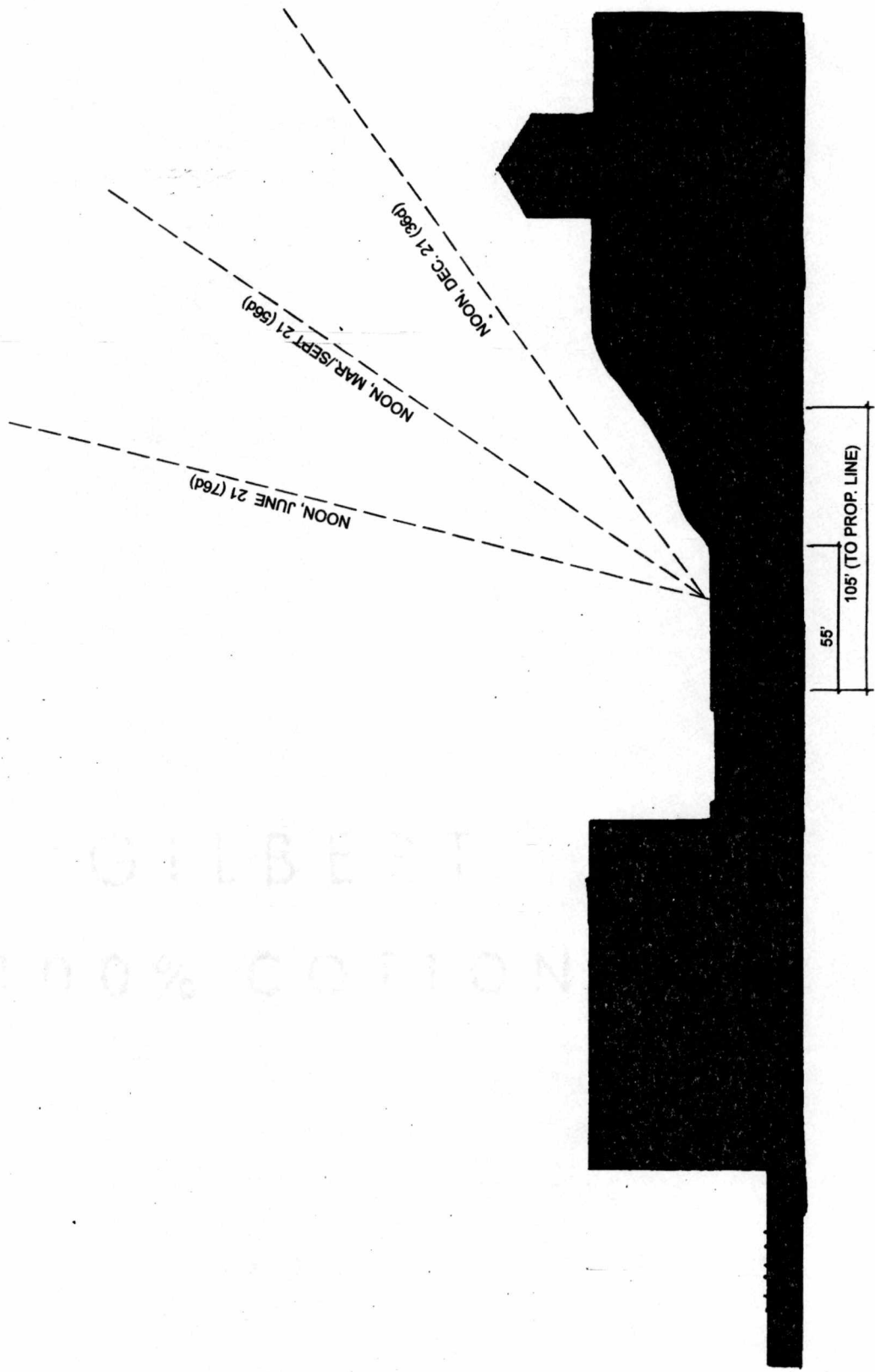


Site Section Through Jackson Steet - Looking South
1" = 60'



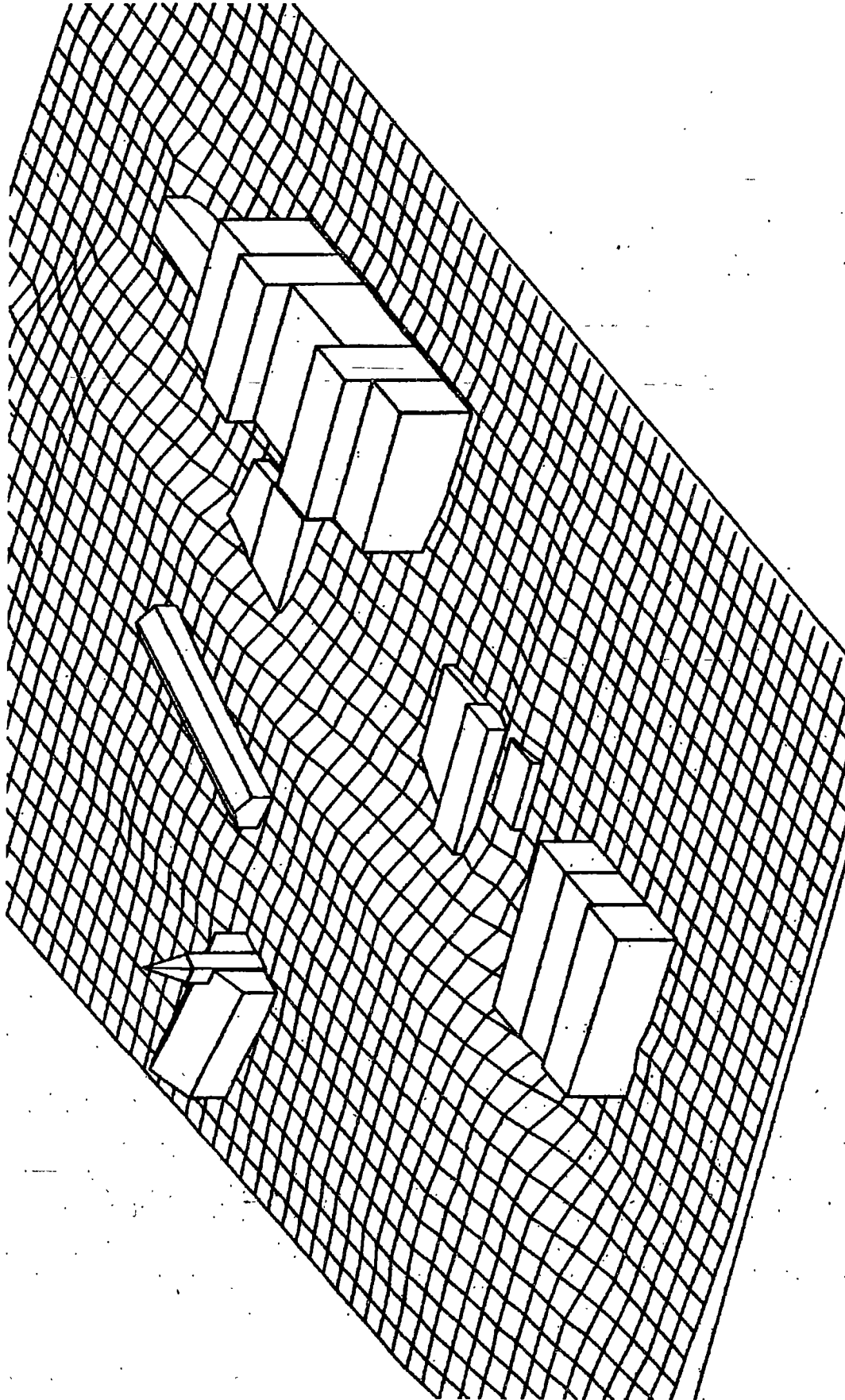
Site Section A - Looking East

1"=60'

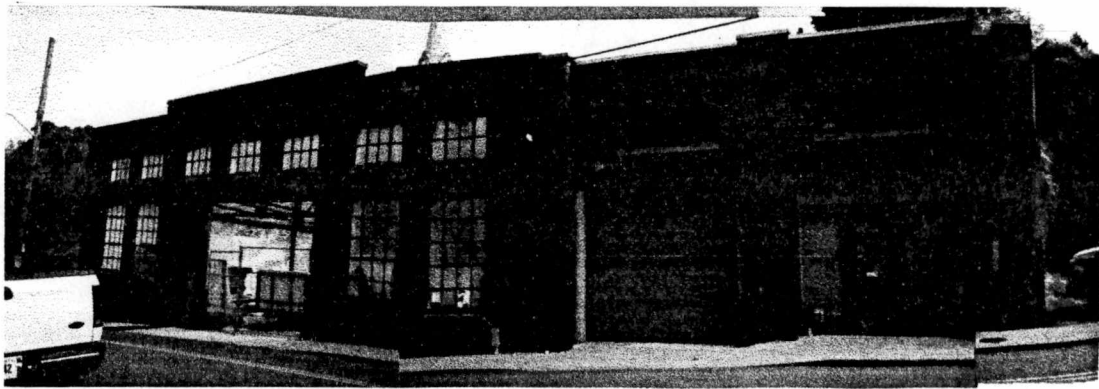


Site Section B - Looking East

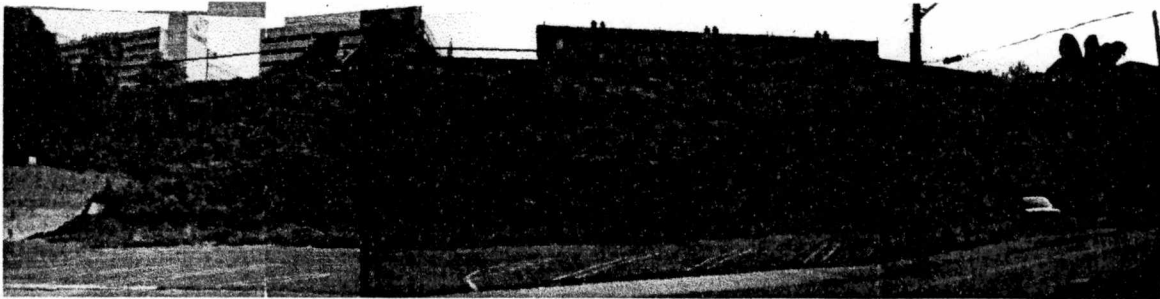
1" = 60'



Site Axonometric - Viewed from Northeast
N.T.S.



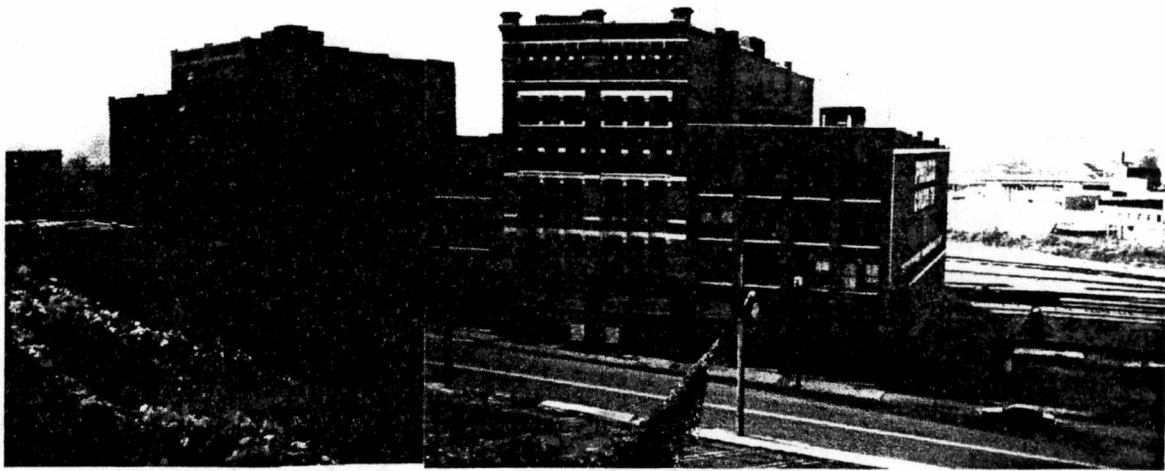
Buildings West of Site - South Side of Jackson Ave.



Thesis Site - South Side of Jackson Ave.



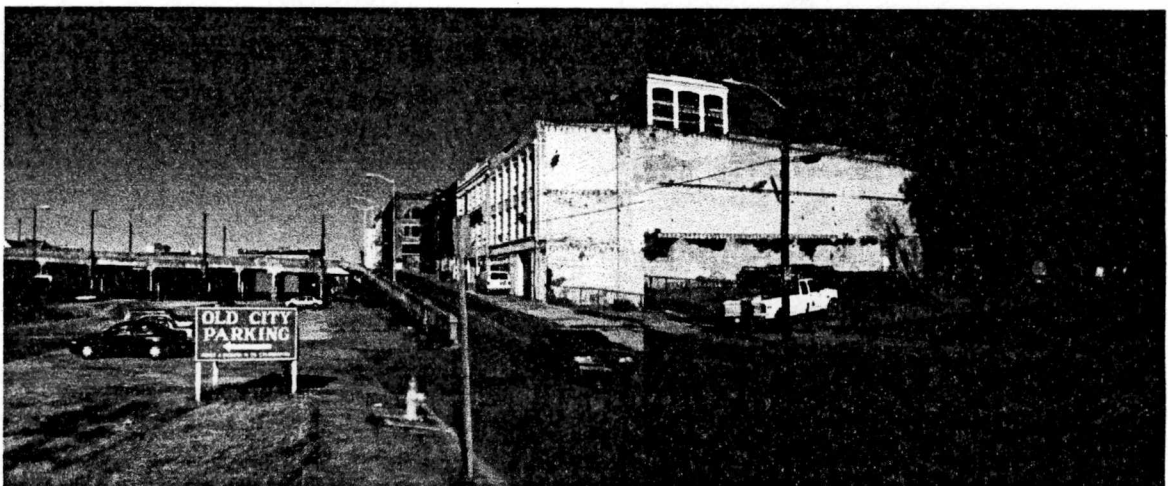
Buildings East of Site - South Side of Jackson Ave.



North Side of Jackson Ave. - Viewed from Hill above Site

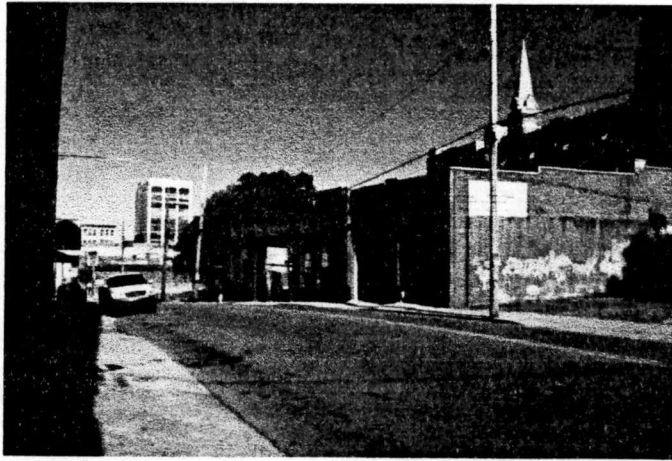


Railroad Tracks, Gay Street Viaduct - Viewed from Hill above Site



Looking East on Jackson Ave. Towards Gay Street Viaduct

Exposures



Street- Along Jackson Ave. the project will address issues of local context.



Highway - The glimpse caught from I-40 offers the opportunity to introduce elements not readily apparent from Jackson Ave.

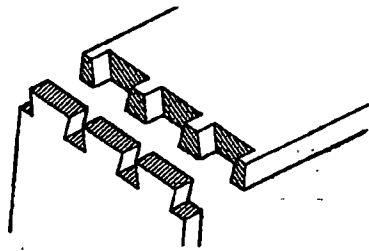


Rear - The rear of the building can only be viewed from the very edge of the parking lot below the church at the top of the hill. Thus the south side of the building is very private.

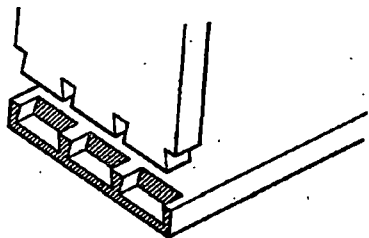
Appendix 3: Precedent Analysis

Furniture Joinery

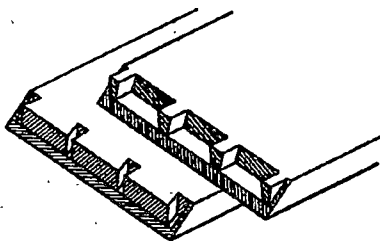
Carcase Joinery



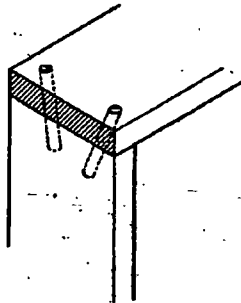
Dovetail



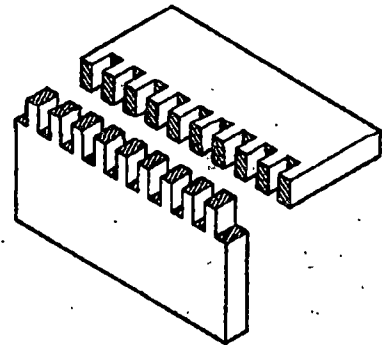
Half-blind Dovetail



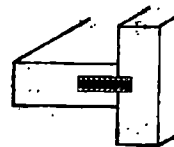
Full-blind Dovetail



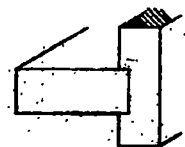
Dowelled Butt Joint



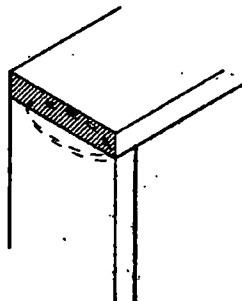
Finger Joint



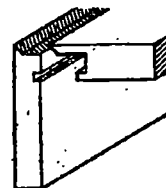
Spline



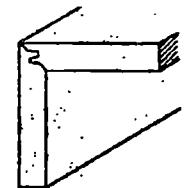
Housed Dado



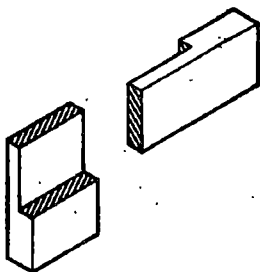
Biscuit Joint



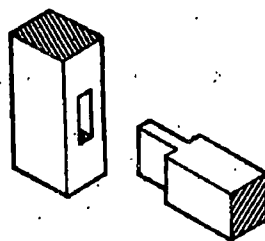
Lock Miter



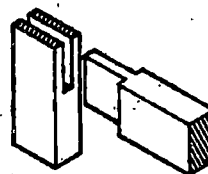
Frame Joinery



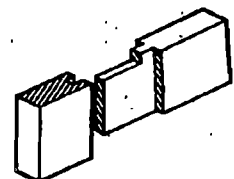
Half-lap Joint



Mortise and Tenon



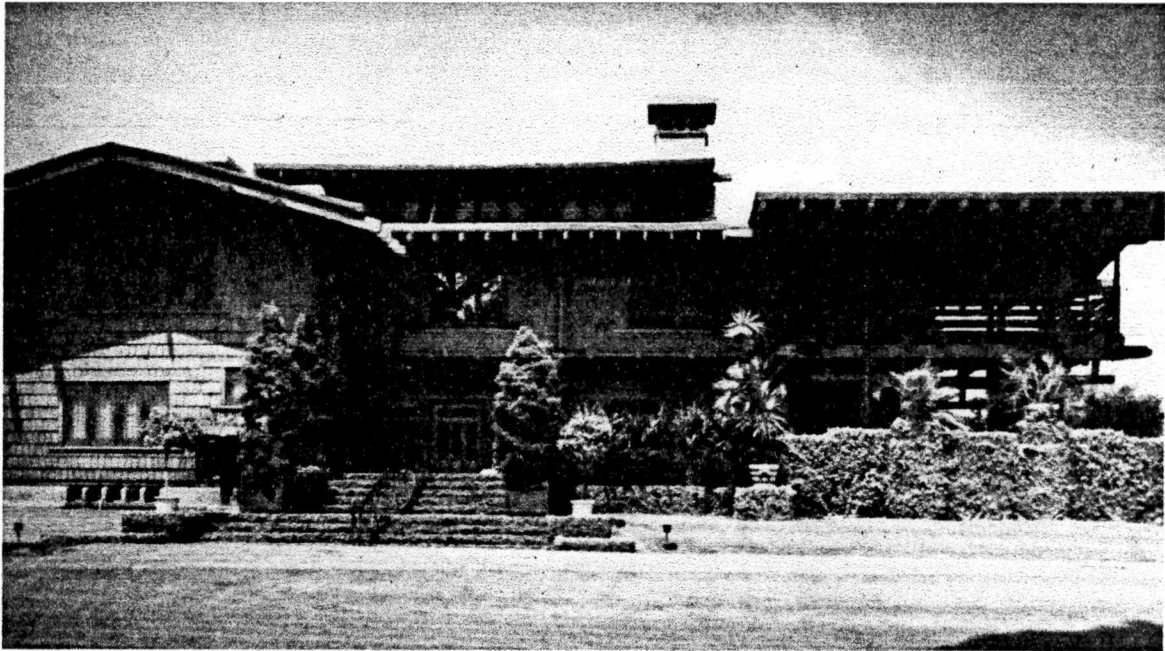
Slip Joint



Haunched Mortise and Tenon

Joint - Tectonic

Gamble House, Pasadena, CA, 1908
Greene and Greene



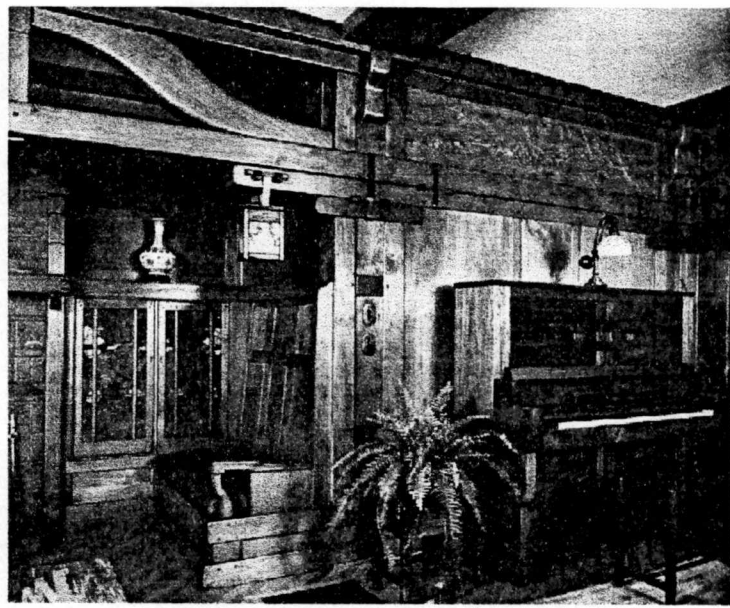
Exterior

(photo from Curtis)



Detail at mudsill

(photo from Ford, v. I)



Interior view of fireplace alcove in living room

(photo from Page)

The detail of the mudsill is a critical joint in the Gamble House. The enlarged and exposed sill members call attention to the connection of the light, wooden body of the house to the heavy foundation. The extension of the timbers beyond the lap joint serves to tie together the walls (which are continuously shingled without any vertical trim to mark corners), not unlike the draftsman's overrun of lines to emphasize the corners. The view of the living room, with its craftfully expressed joinery in all elements, demonstrates the integration of the design of furniture into the overall architecture.

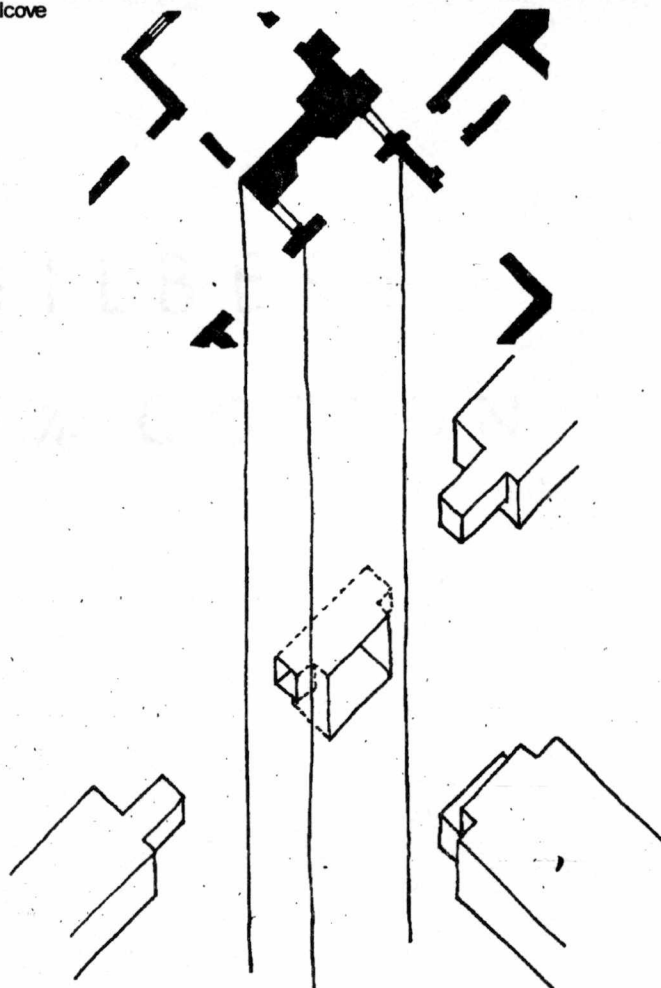
Joins - Spatial

Frank Lloyd Wright Home and Studio, Oak Park, Illinois
Frank Lloyd Wright



View of fireplace alcove
from living room

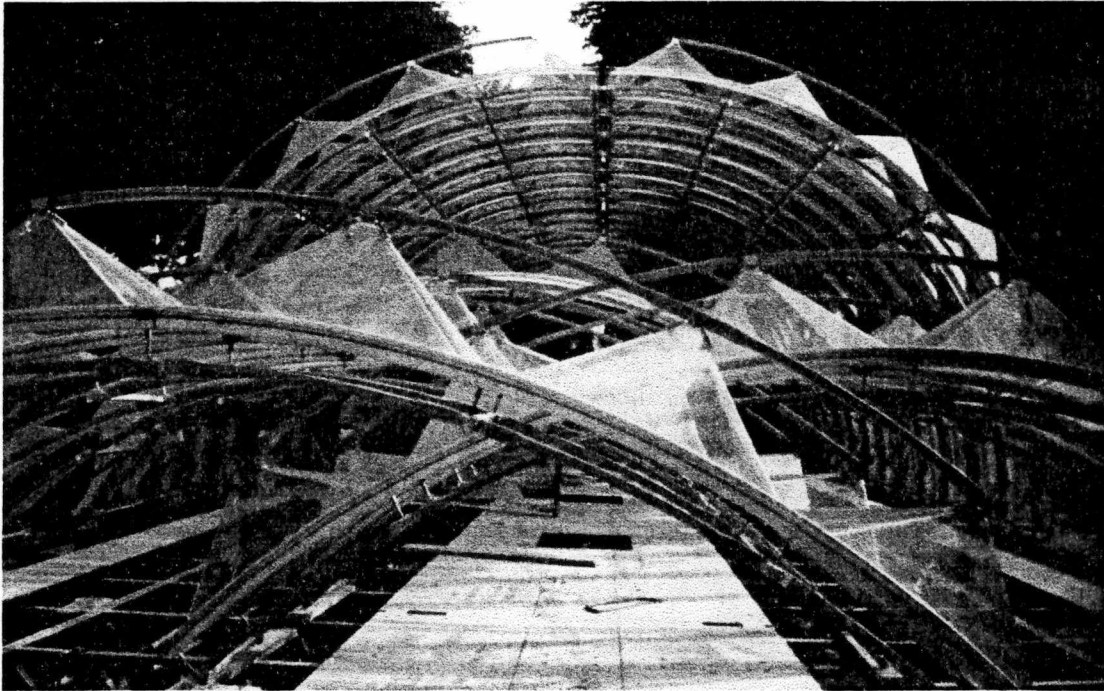
(photo from Abernathy)



Joints - Connectors

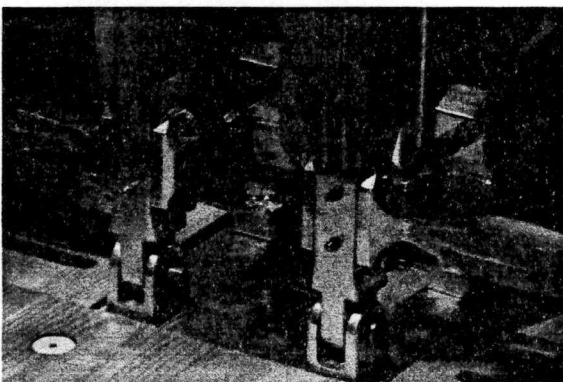
IBM Travelling Pavilion

Renzo Piano



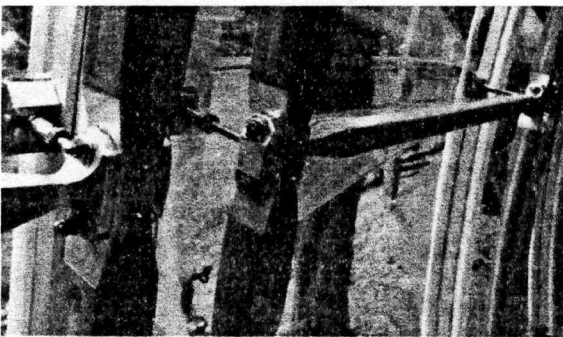
Assembling the arch segments

(photo from Buchanan)



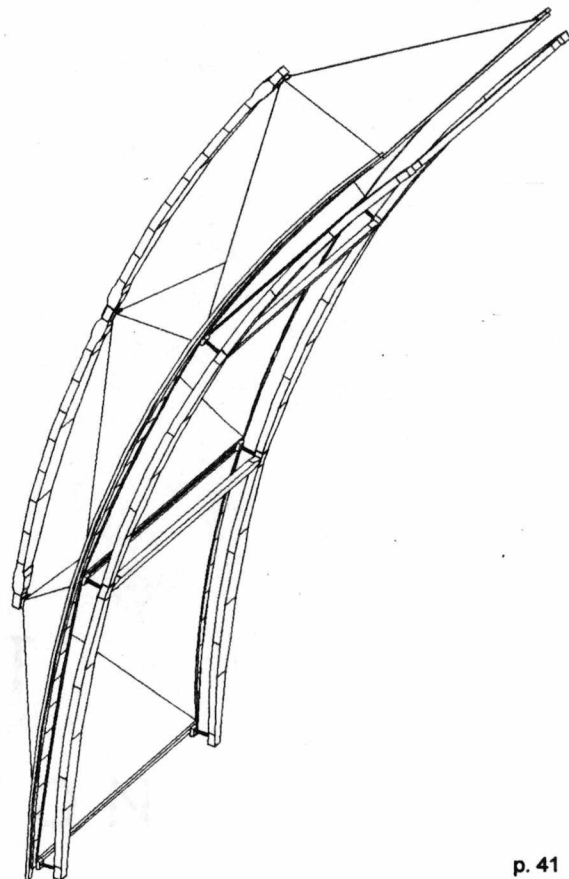
Detail of joint connections

(photo from Buchanan)



Detail of joint connections

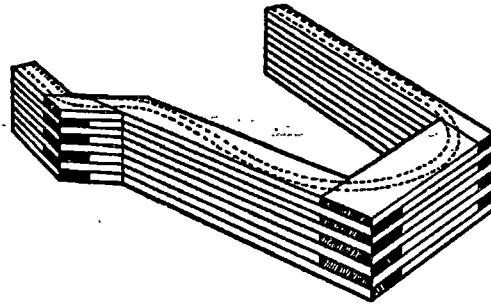
(photo from Buchanan)



Lamination

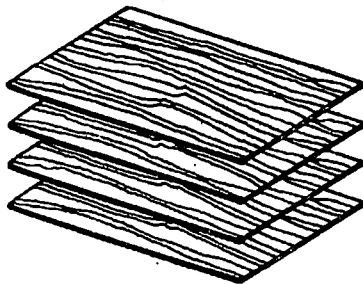
Making a Curved Form

(Drawings from Haywood)

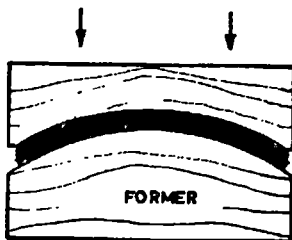


Methods of Forming Laminated Bends

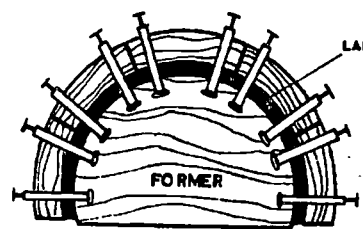
(Drawings from Joyce)



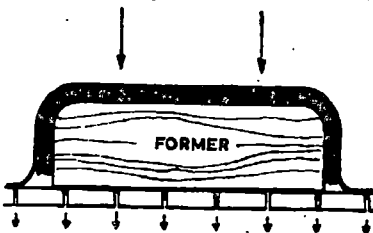
Laminae - wood grain parallel, follows curvature



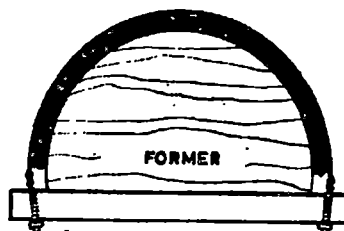
Male/Female Formers



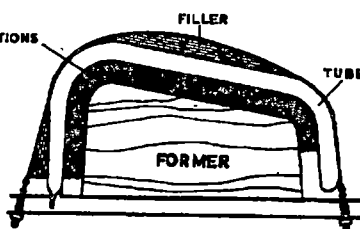
G-cramped



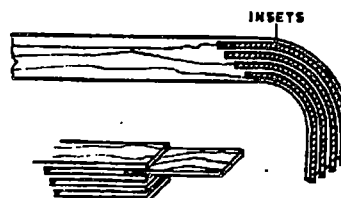
Vacuum-formed



Metal Straps

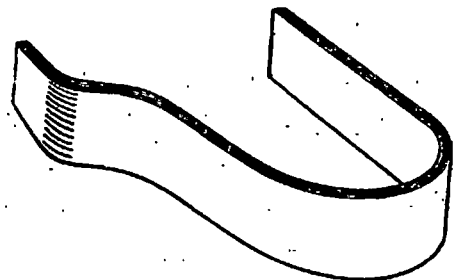


Air-hose



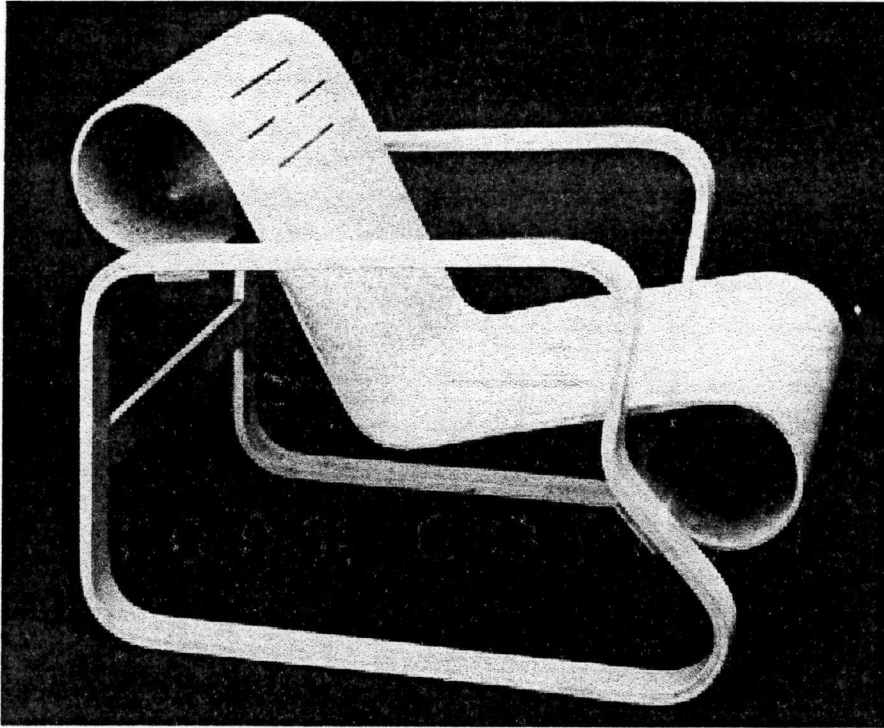
Saw-kerfed

Brick Method - built up overlapping layers of solid wood, bandsawn to final shape



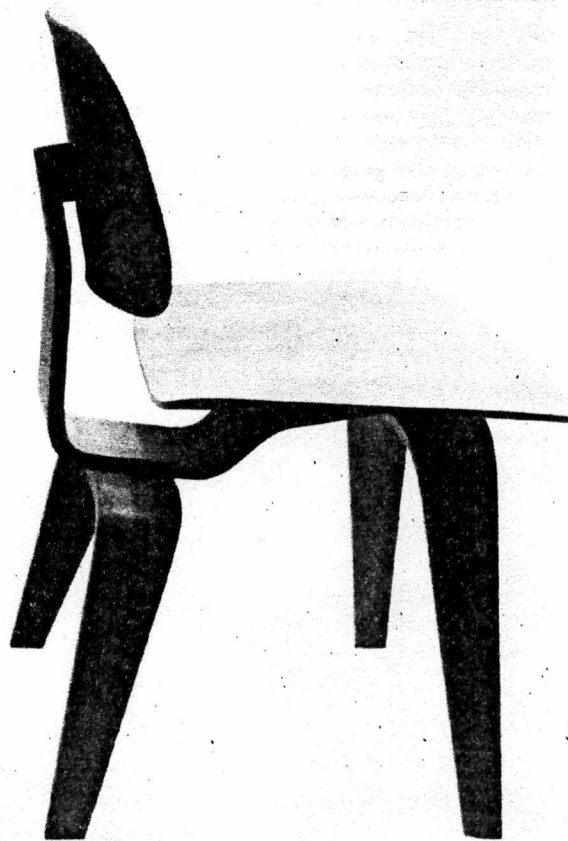
Laminated Method - thin layers of wood bent around former and glued together

Lamination - Bent Laminated Wood Chairs



Paimio Chair, Alvar Aalto, 1930-33

(photo from Page)

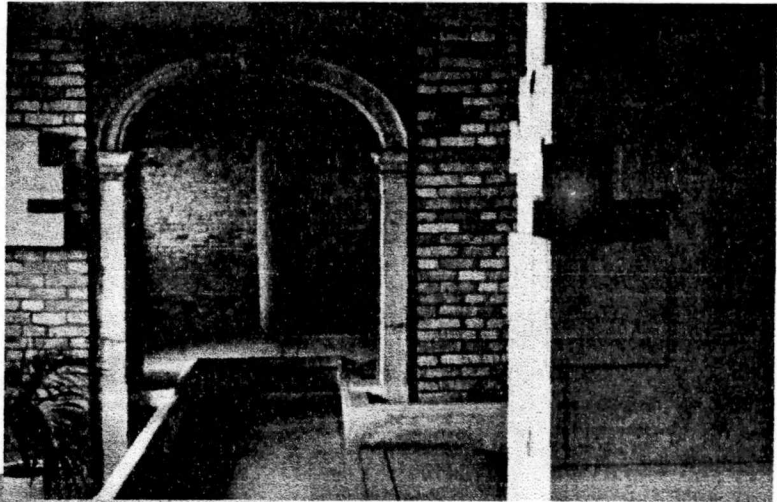


Dining chair of molded plywood, Charles Eames, 1946

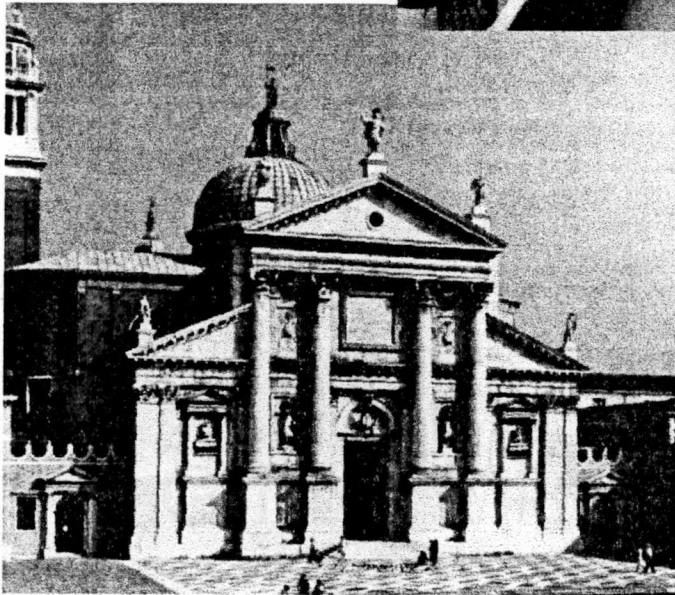
(photo from Page)

Lamination

Carlo Scarpa - Working within the Venetian tradition of layered architecture, Scarpa delaminates and reveals the layers of not only his work but also the layers of history as he joins his new construction to the older building he is adding to.



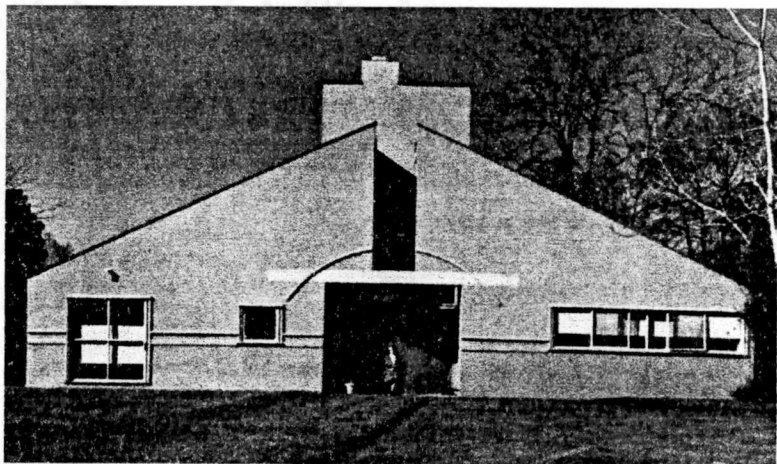
Fondazione Querini Stampalia,
Venice, 1961-63
(photo from Ford, v. 2)



San Giorgio Maggiore, Venice (photo from Ackerman)

Andrea Palladio - Taking two classical temple fronts and laminating them together into one facade, Palladio was able to resolve the conditions of the interior of the church (nave and side aisles) which could not be done with a single classical form in its original configuration.

Robert Venturi - Treating the front and rear facades as distinct, billboard-like walls, Venturi arranges the spaces between in a series of parallel layers, laminating space, form and symbolism into an architectural whole.



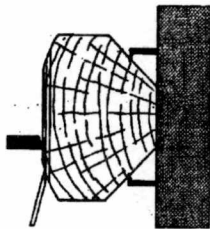
Vanna Venturi House, Chestnut Hill, Penn., 1962-63

(photo from Ford, v. 2)

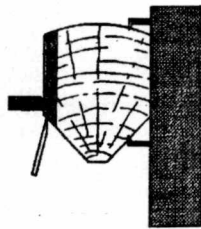
Veneer

Flat Slicing

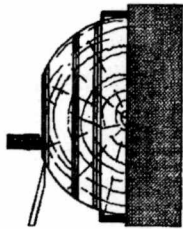
(Drawings from Lincoln)



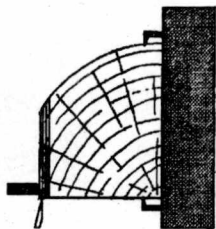
Flat quarter cut



True quarter cut



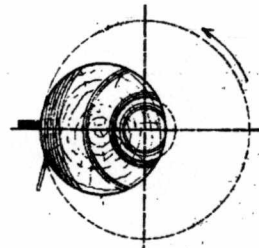
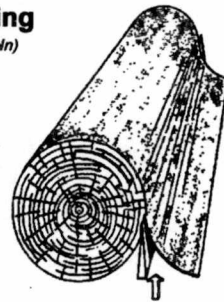
Crown cut



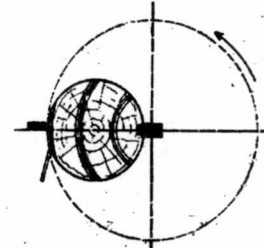
Faux quarter cut

Rotary Cutting

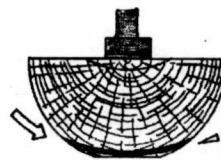
(Drawings from Lincoln)



Eccentric rotary cut



Stay-log rotary cut



True half rounding



Back-cut half rounding

Matching Veneers

(Drawings from Joyce)



Book matched



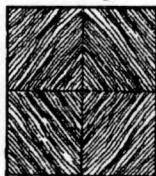
Running



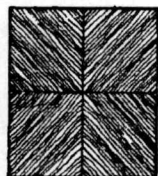
Random



End matched



Diamond quarter



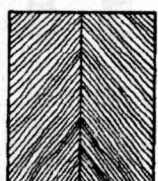
Reverse



Quartered



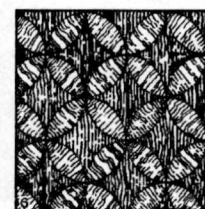
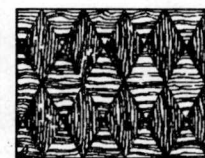
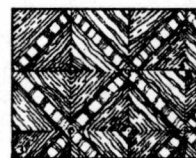
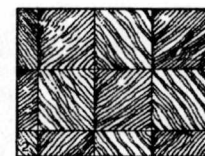
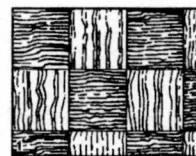
Herringbone



Inverted

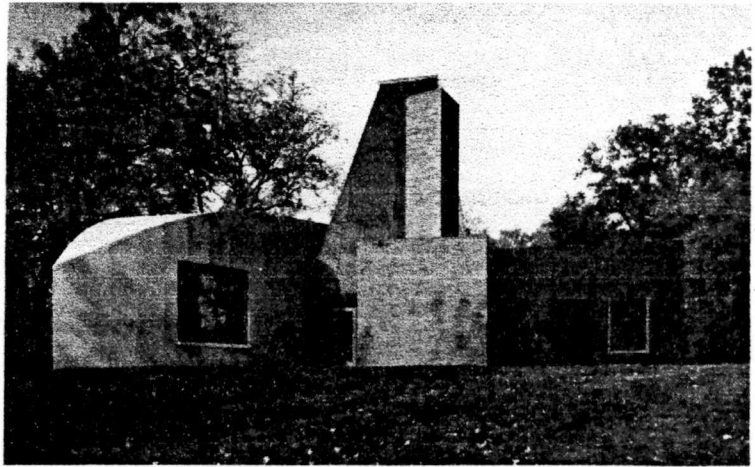
Parquetry

(Drawings from Joyce)



Veneer

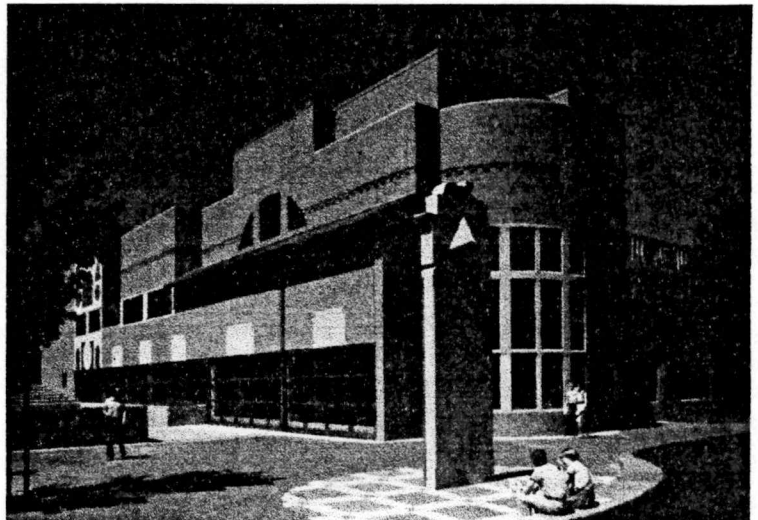
Frank Gehry - Four distinct forms are clad in four different materials - stone, brick, plywood, and metal - thus emphasizing their nature as applied veneers.



Winton Guest House, Wayzata, Minn., 1983-87

(photo from Ford, v. 2)

Venturi, Rauch, and Scott Brown - The compression of referant architectural elements into two-dimensional inlays and patterns in the surfaces of the facade gives the building a symbol-laden, marquetry-like quality.



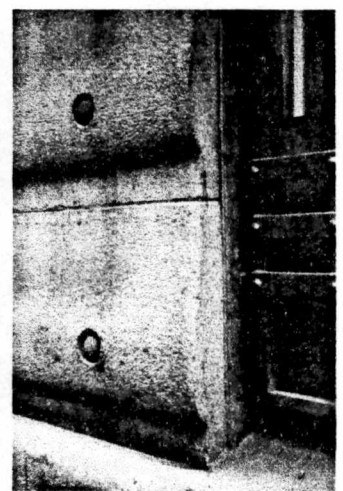
Wu Hall, Princeton, N.J., 1980-83

(photo from Ford, v. 2)

Otto Wagner - In order to express and emphasize the fact that the stone cladding was an applied veneer, Wagner exposed the metal fasteners.



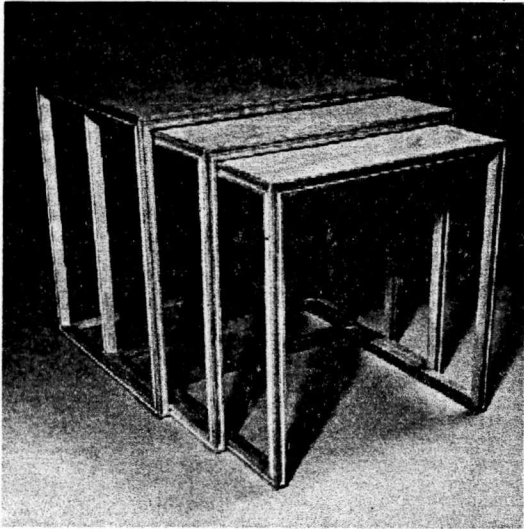
Postsparkasse, Vienna, 1906
(photo from Ford, v. 1)



Detail of stone attachment
(photo from Ford, v. 1)

Furniture as Generator of Architectural Form

Tables



Nested Tables, Anna Praun

(photo from Emery)

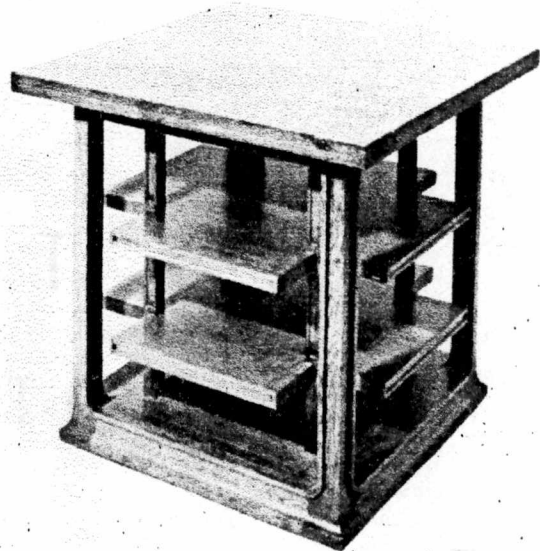
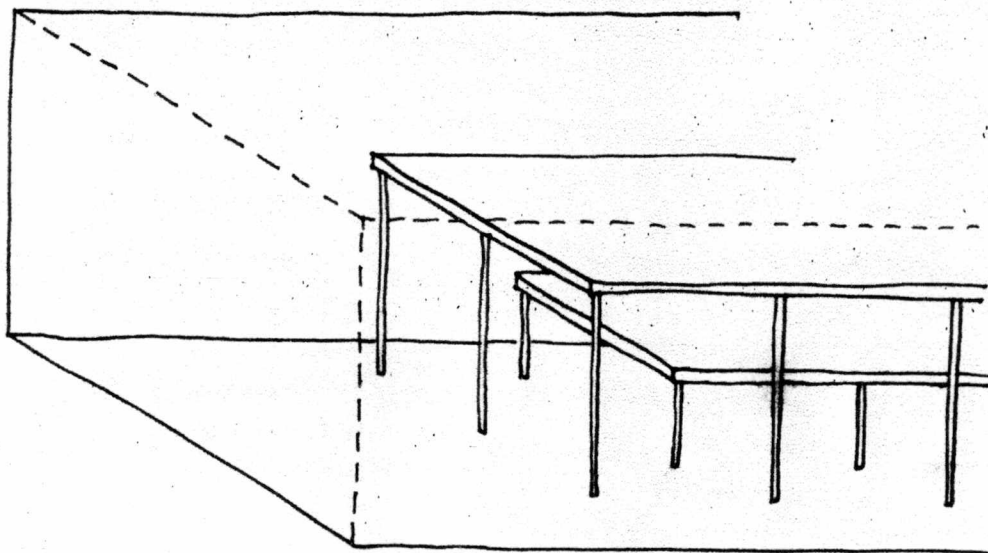


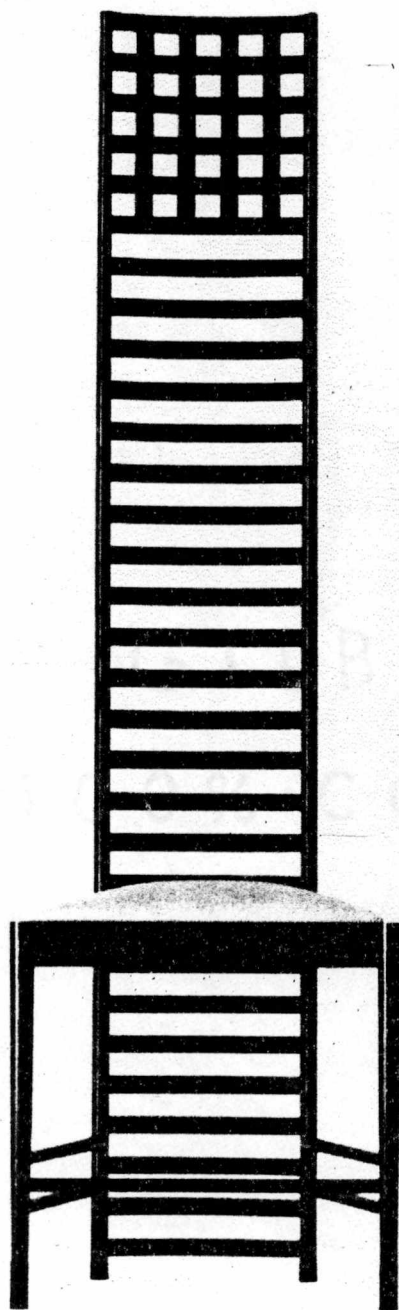
Table for Darwin D. Martin House, Frank Lloyd Wright

(photo from Page)



Furniture as Generator of Architectural Form

Charles Rennie Mackintosh

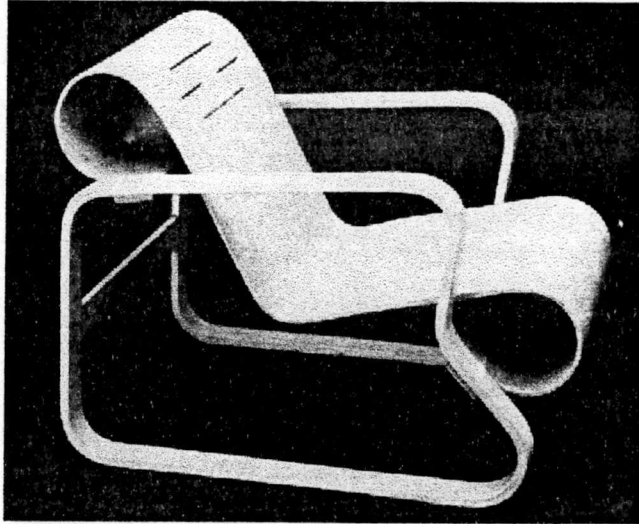


Library of Glasgow School of Art, Scotland, 1907-09

(photo from Howarth)

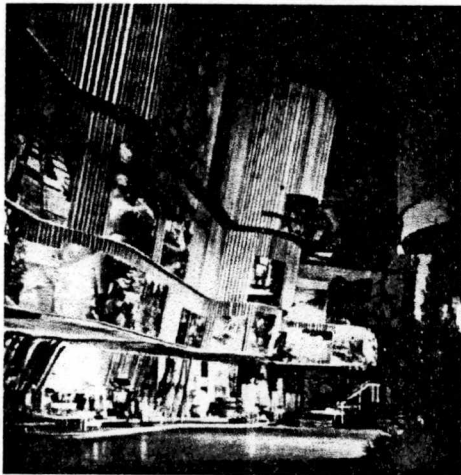
Furniture as Generator of Architectural Form

Alvar Aalto

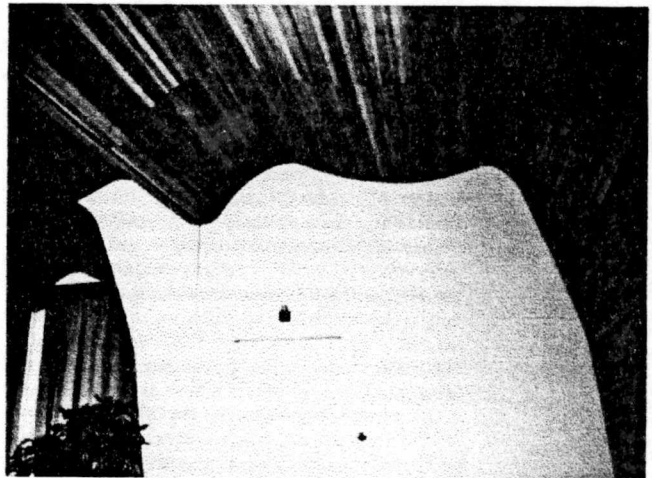


Paimio Chair by Alvar Aalto, 1930-33

(photo from Page)

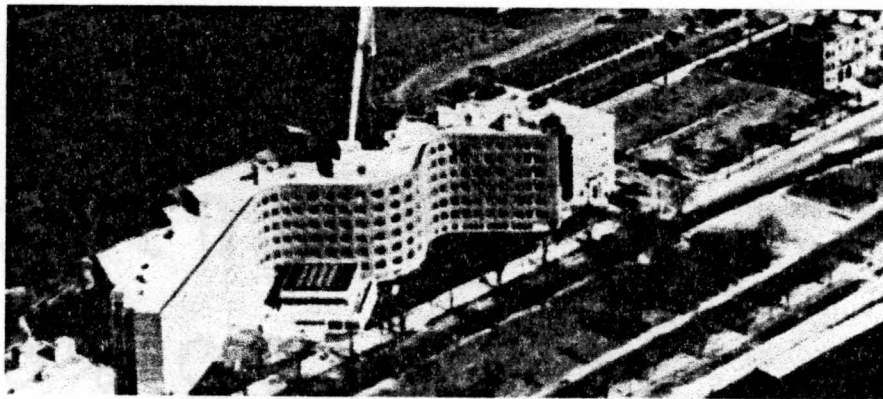


Finnish Pavilion - 1939 New York World's Fair
(photo from Fleig)



Viipuri Library, Finland, 1927-35

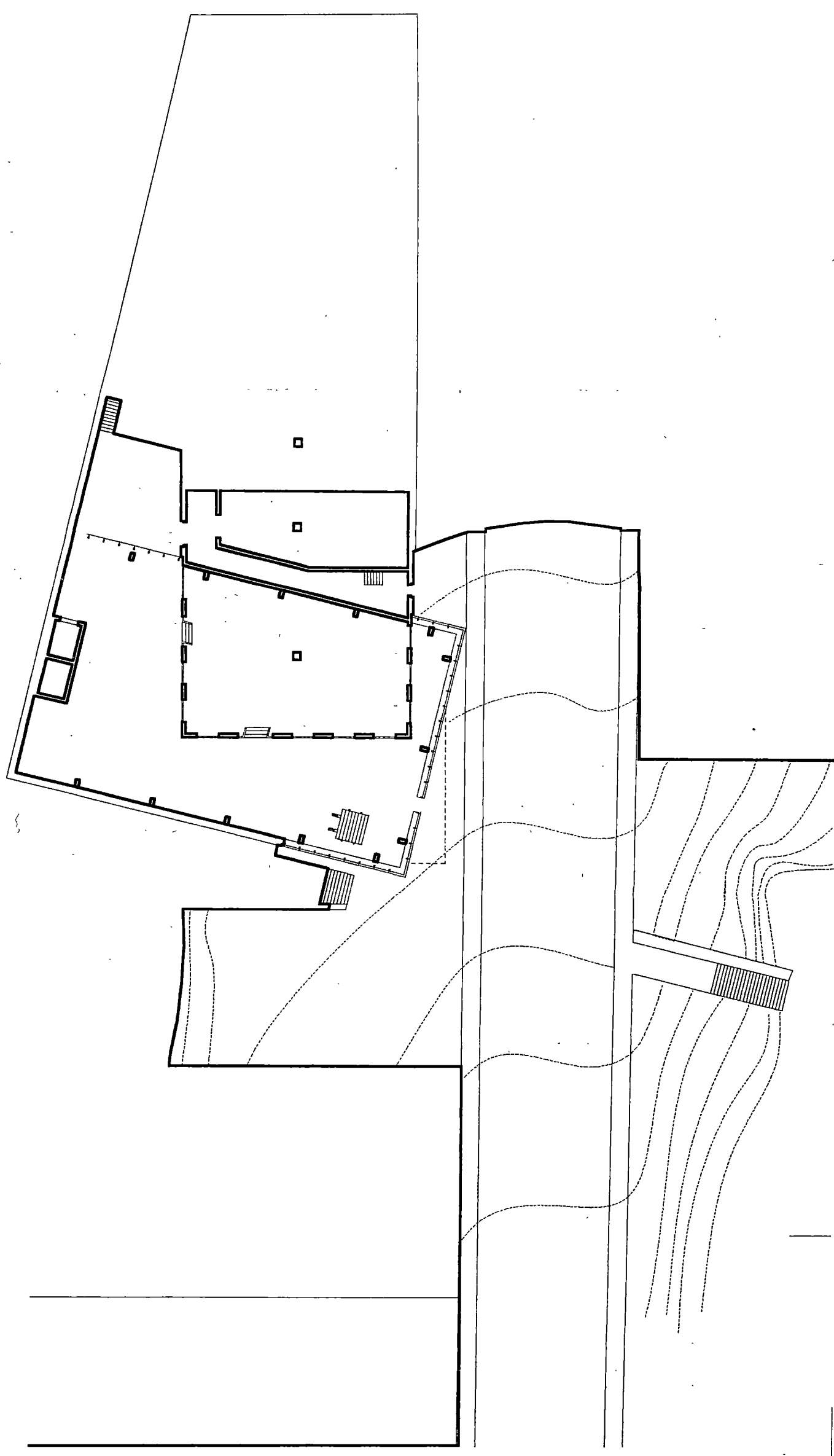
(photo from Curtis)



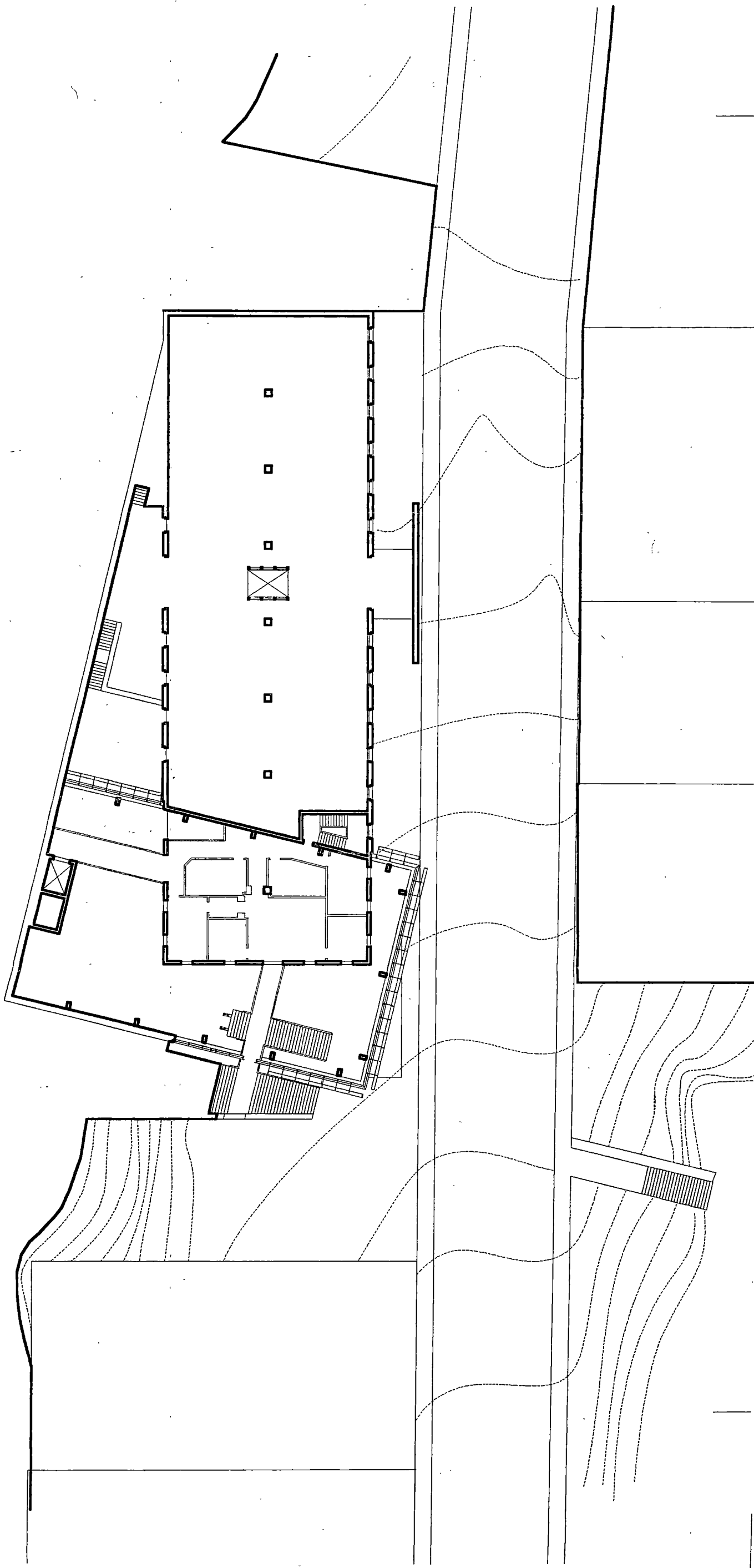
Baker House, Cambridge, Mass., 1947-51

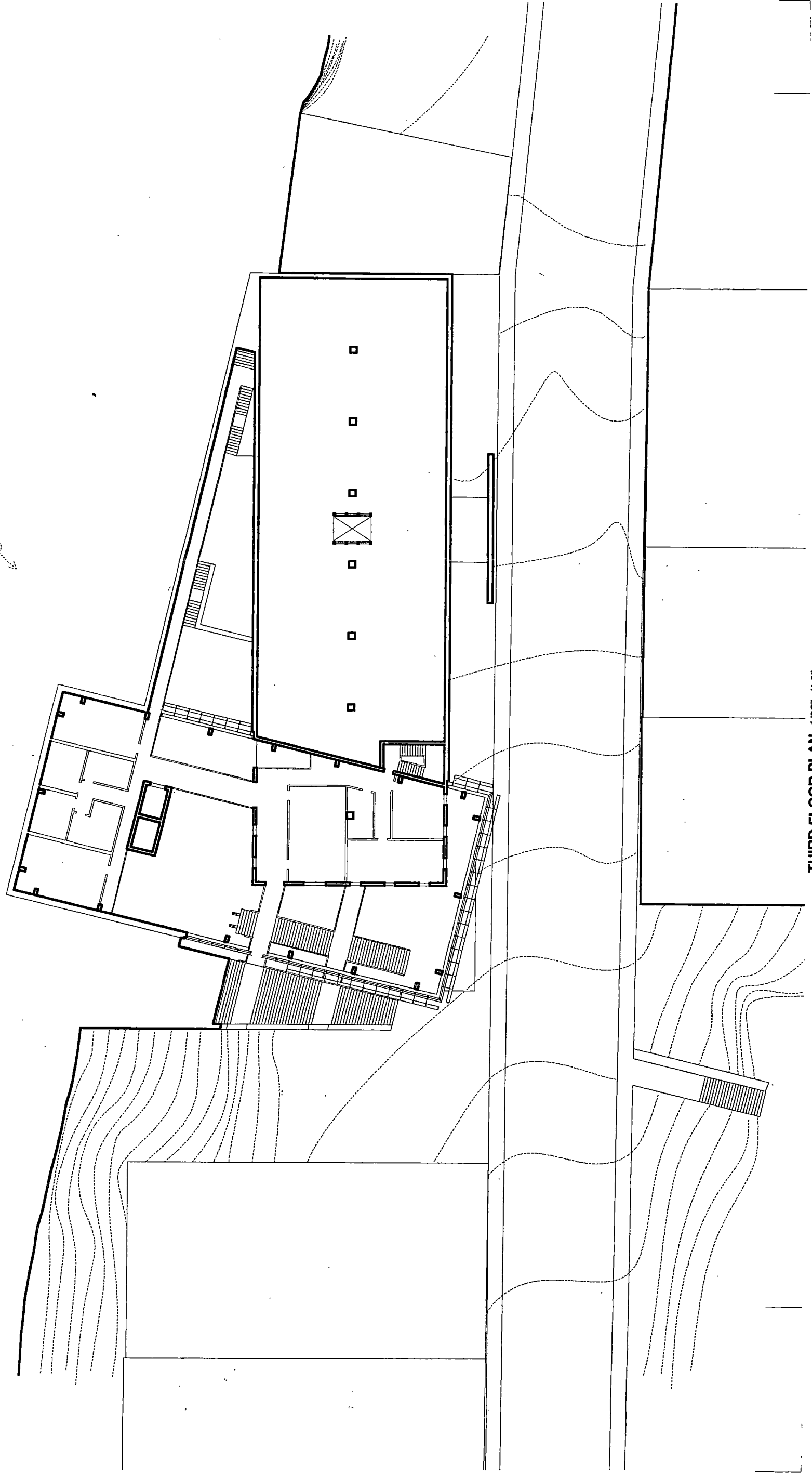
(photo from Curtis)

Appendix 4: Thesis Drawings

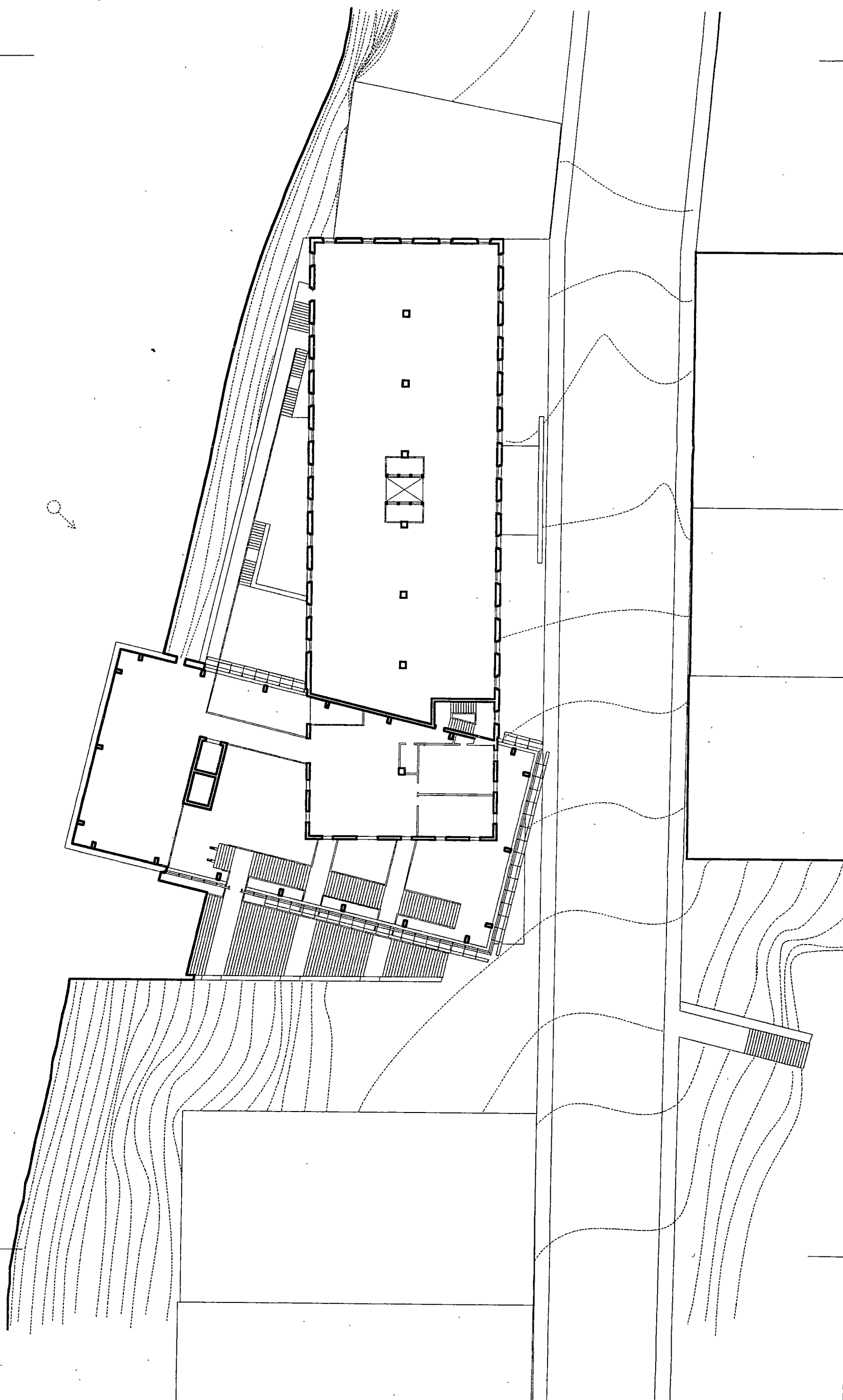


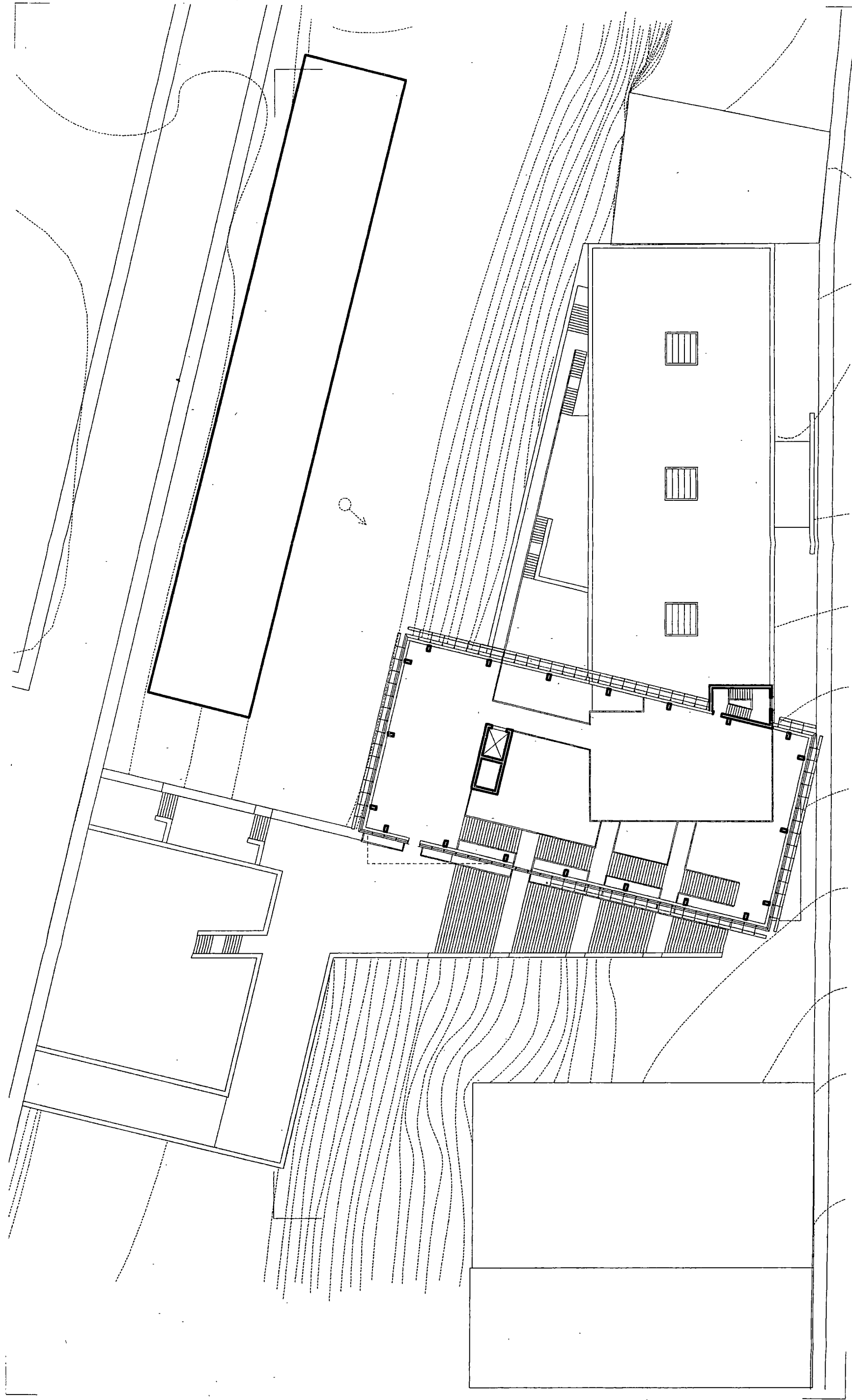
FIRST FLOOR PLAN 1/32"=1'-0"



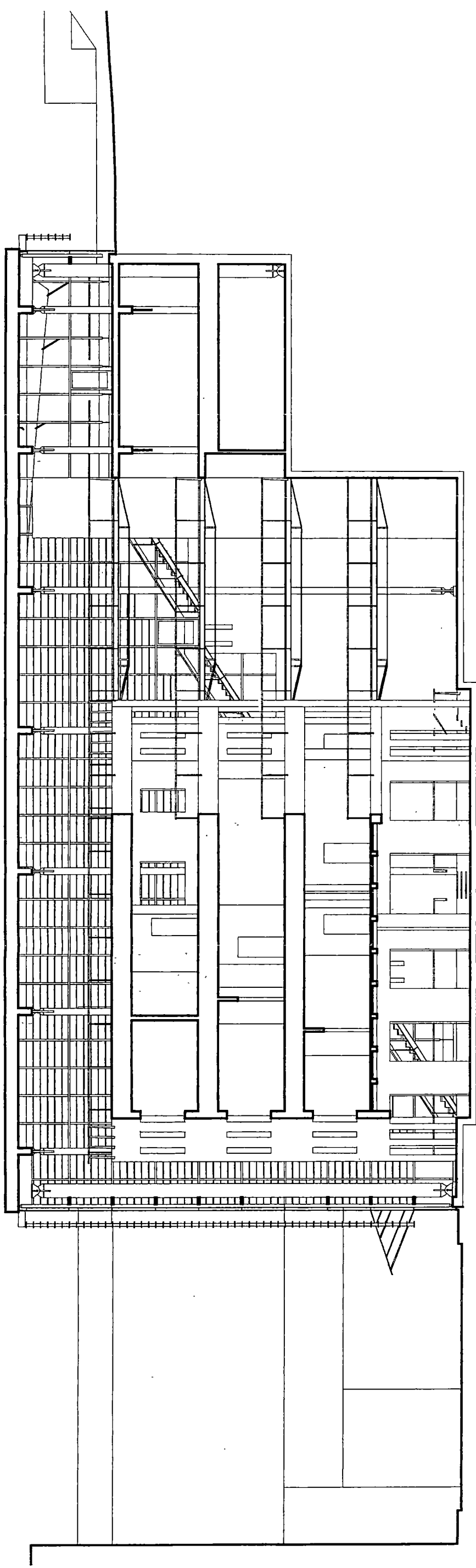


THIRD FLOOR PLAN 1/32"=1'-0"

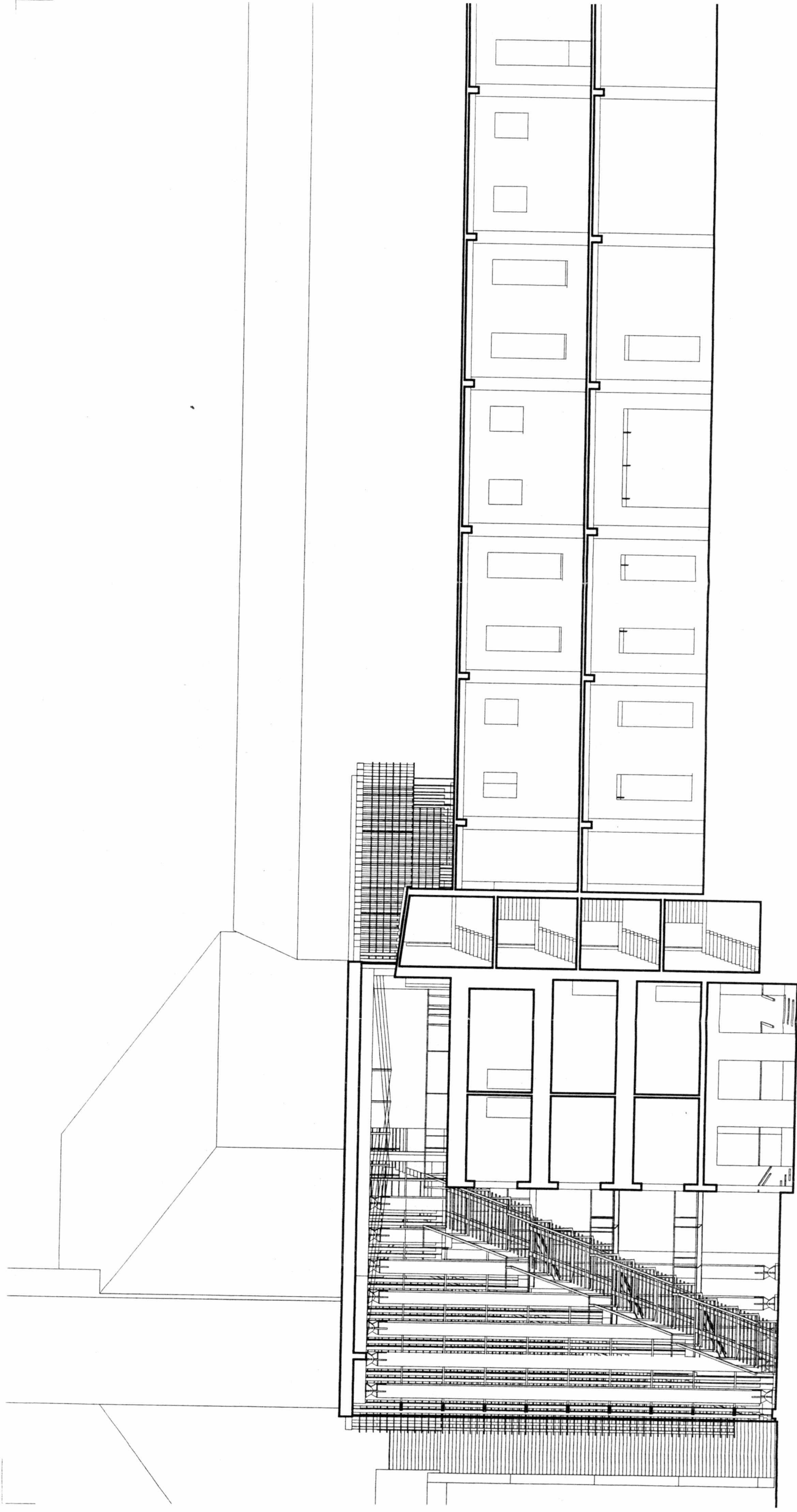


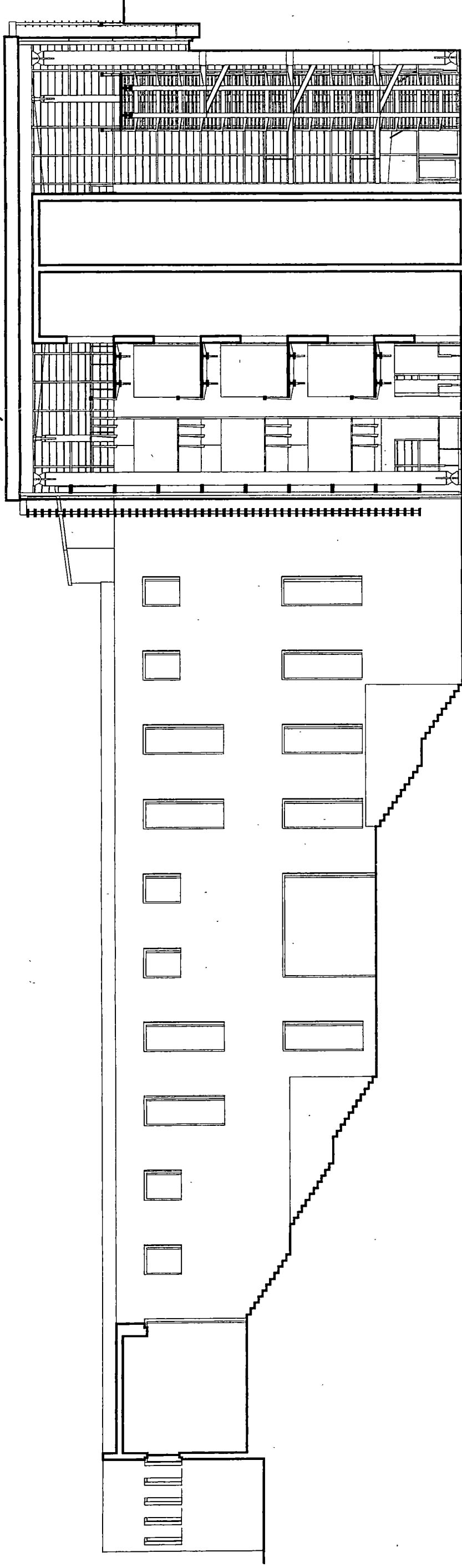


FIFTH FLOOR PLAN 1/32"=1'-0"

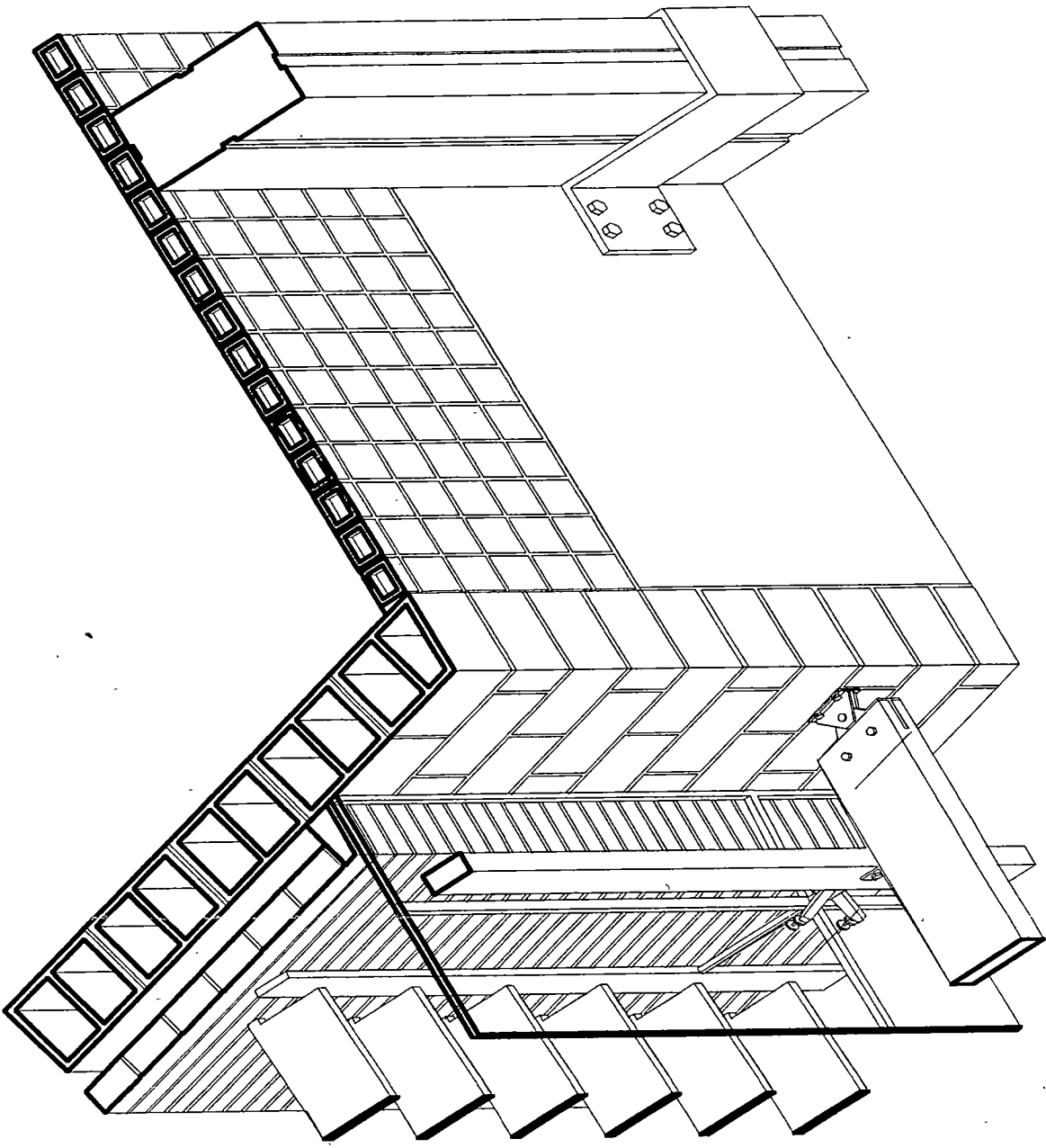
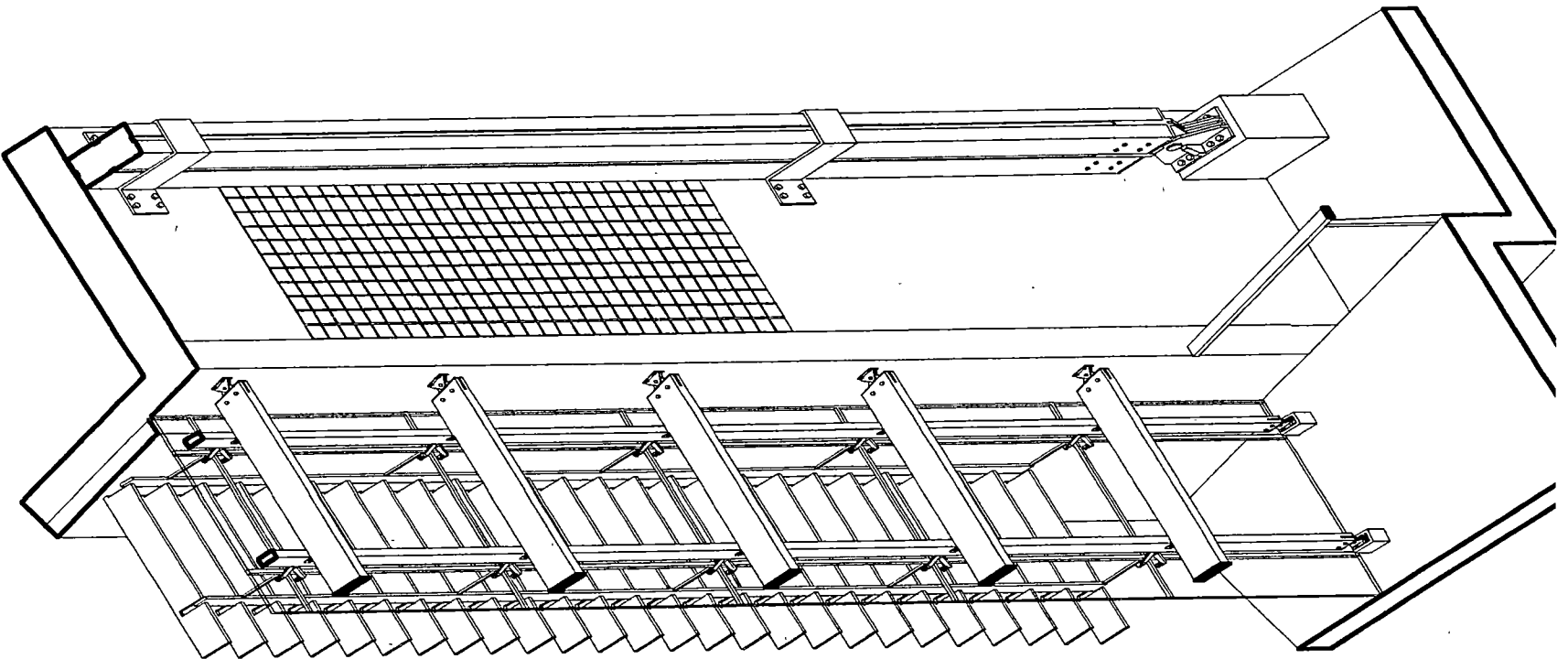


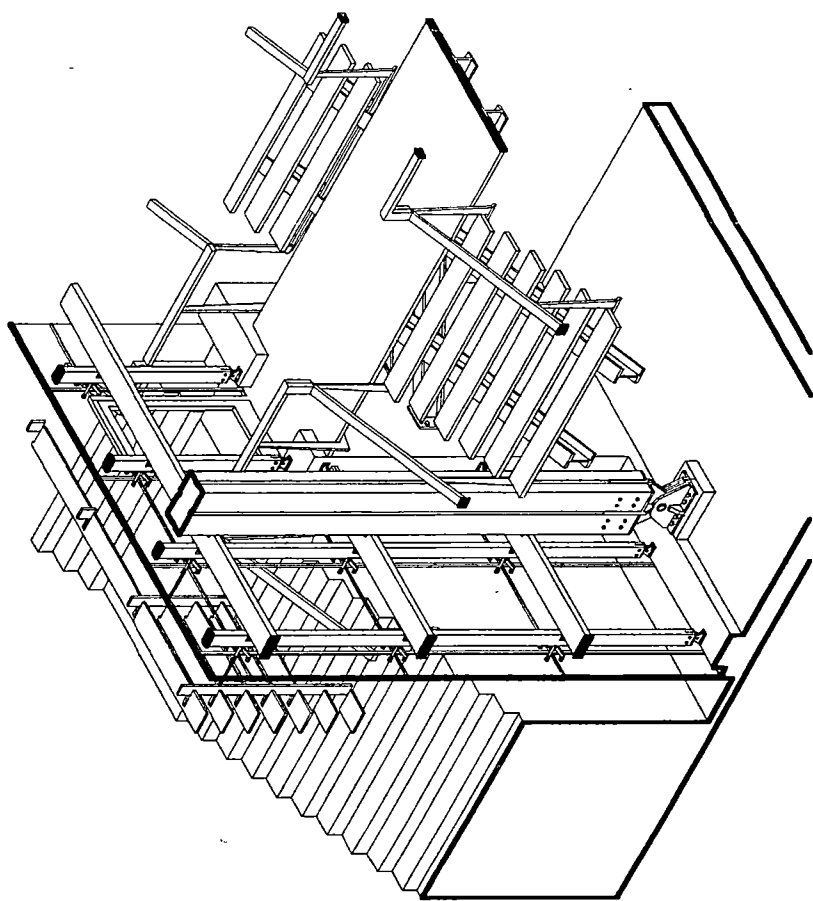
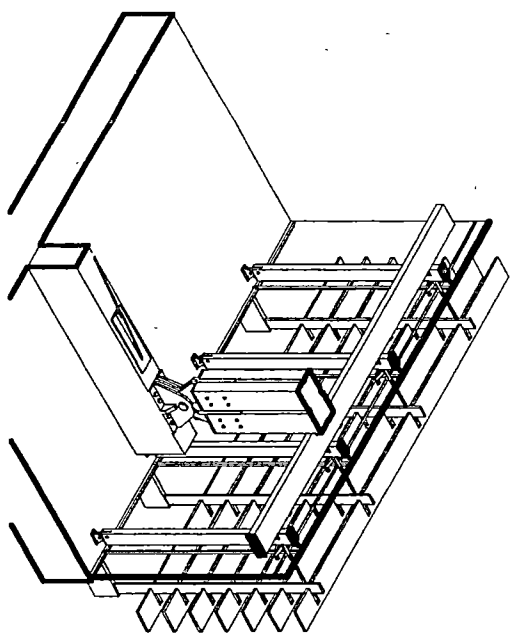
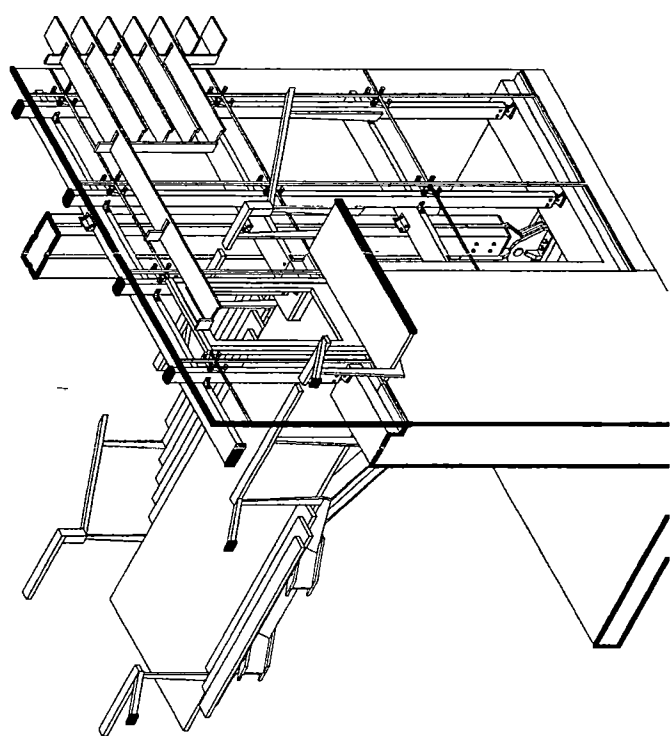
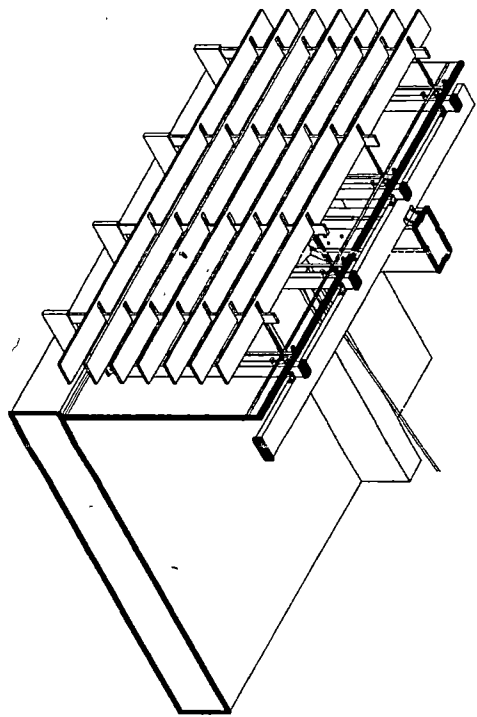
BUILDING SECTION LOOKING NORTHEAST 1/16"=1'-0"



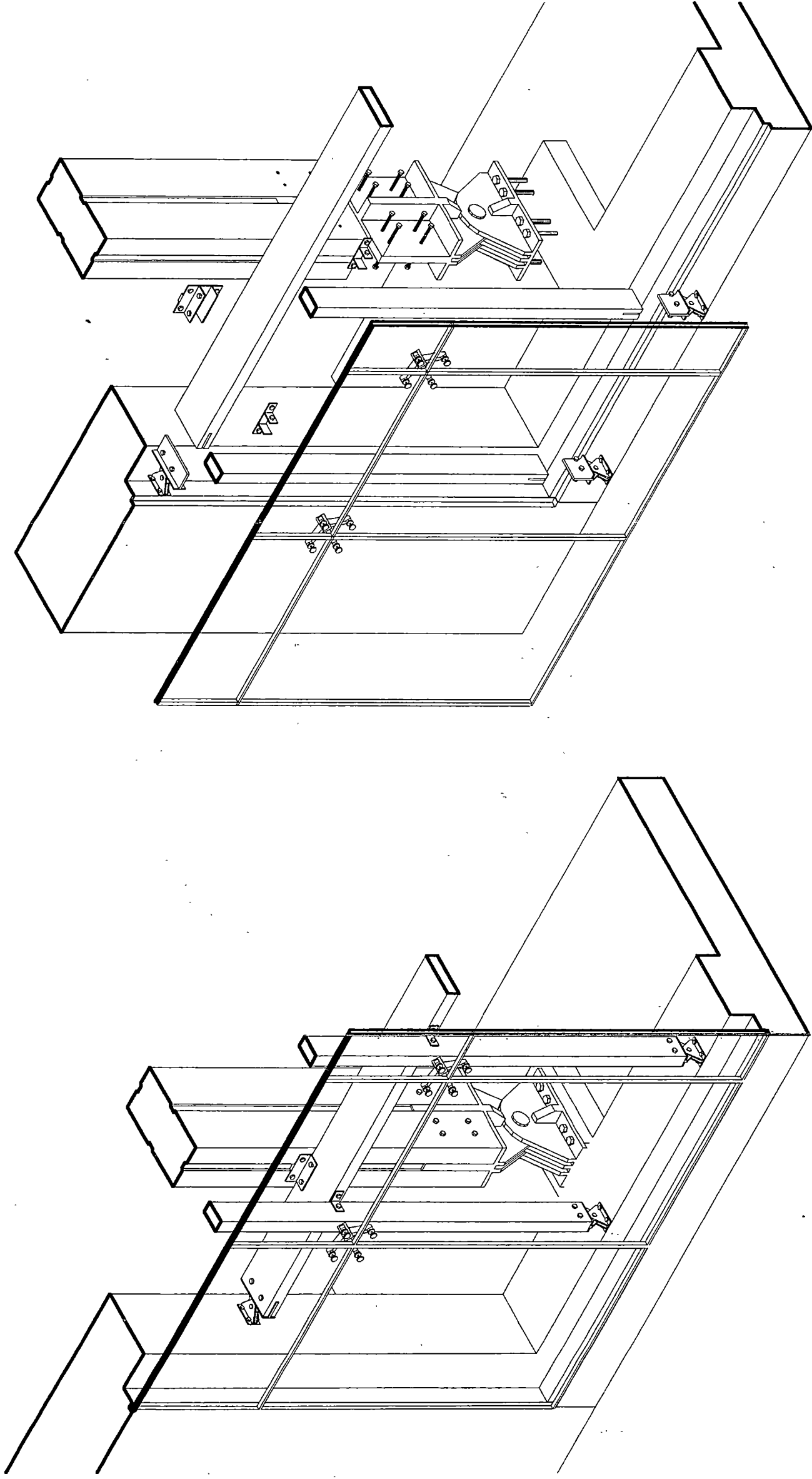


BUILDING SECTION LOOKING NORTHWEST 1/16"=1'-0"

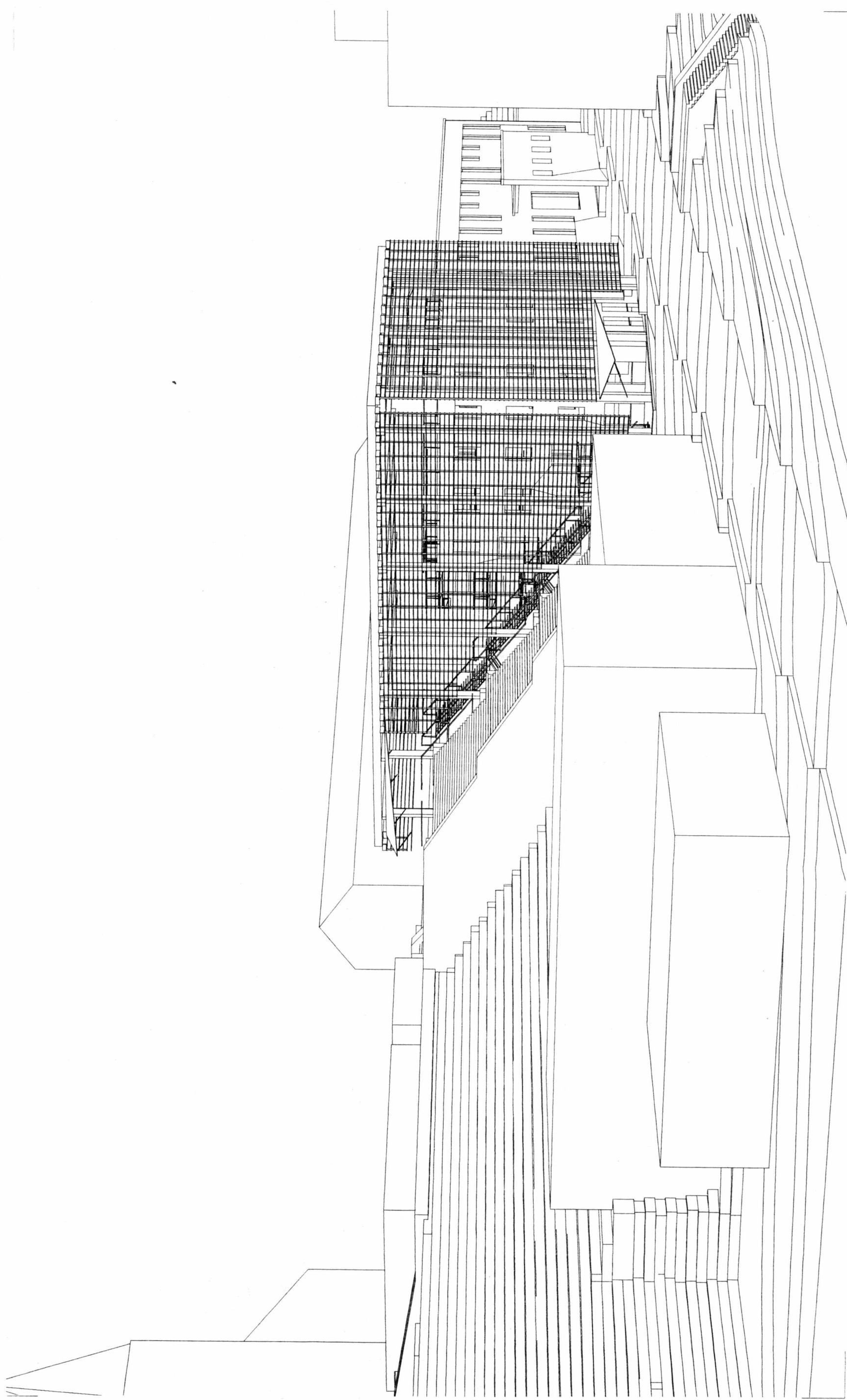




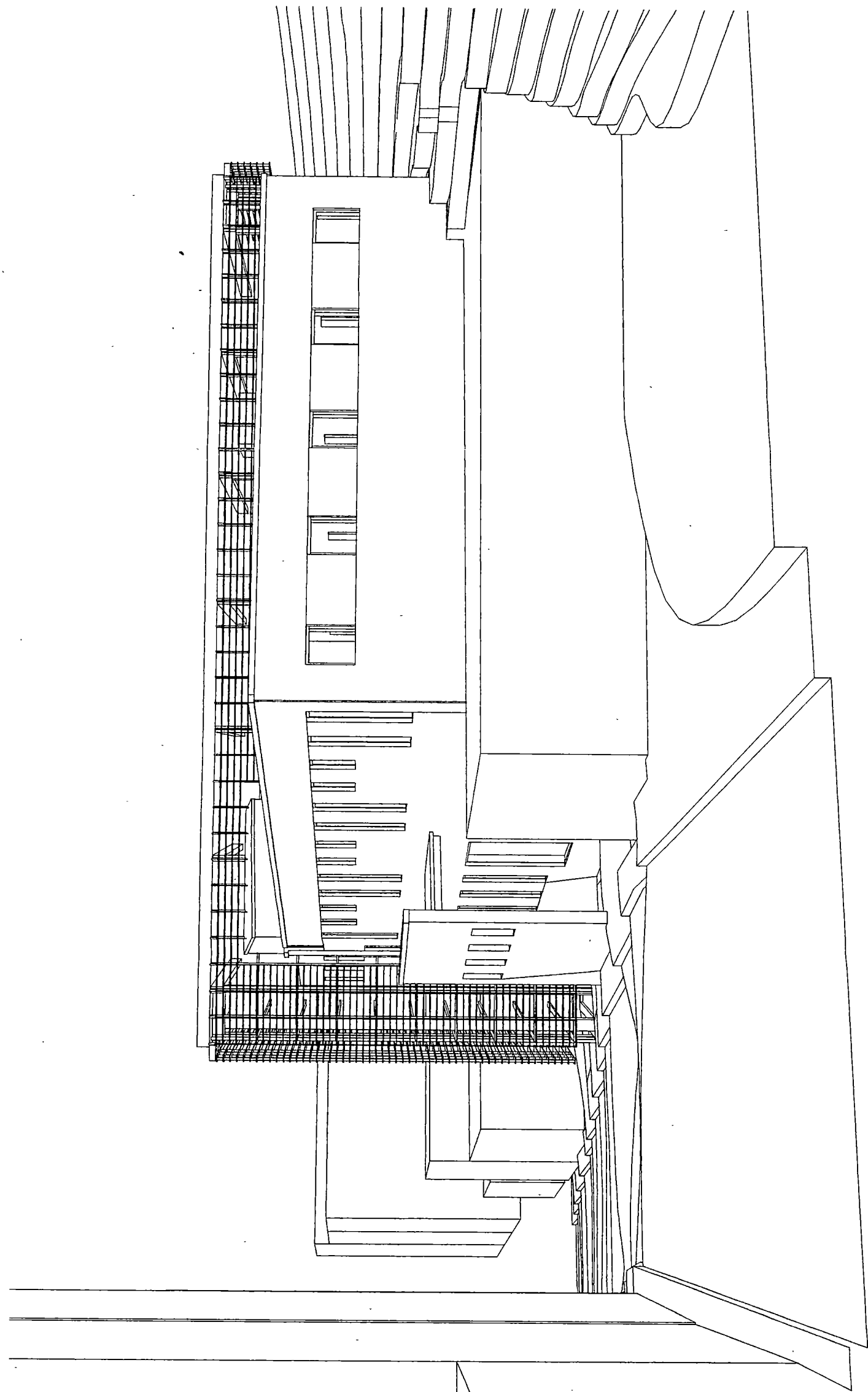
WALL DETAILS 3/16"=1'-0"

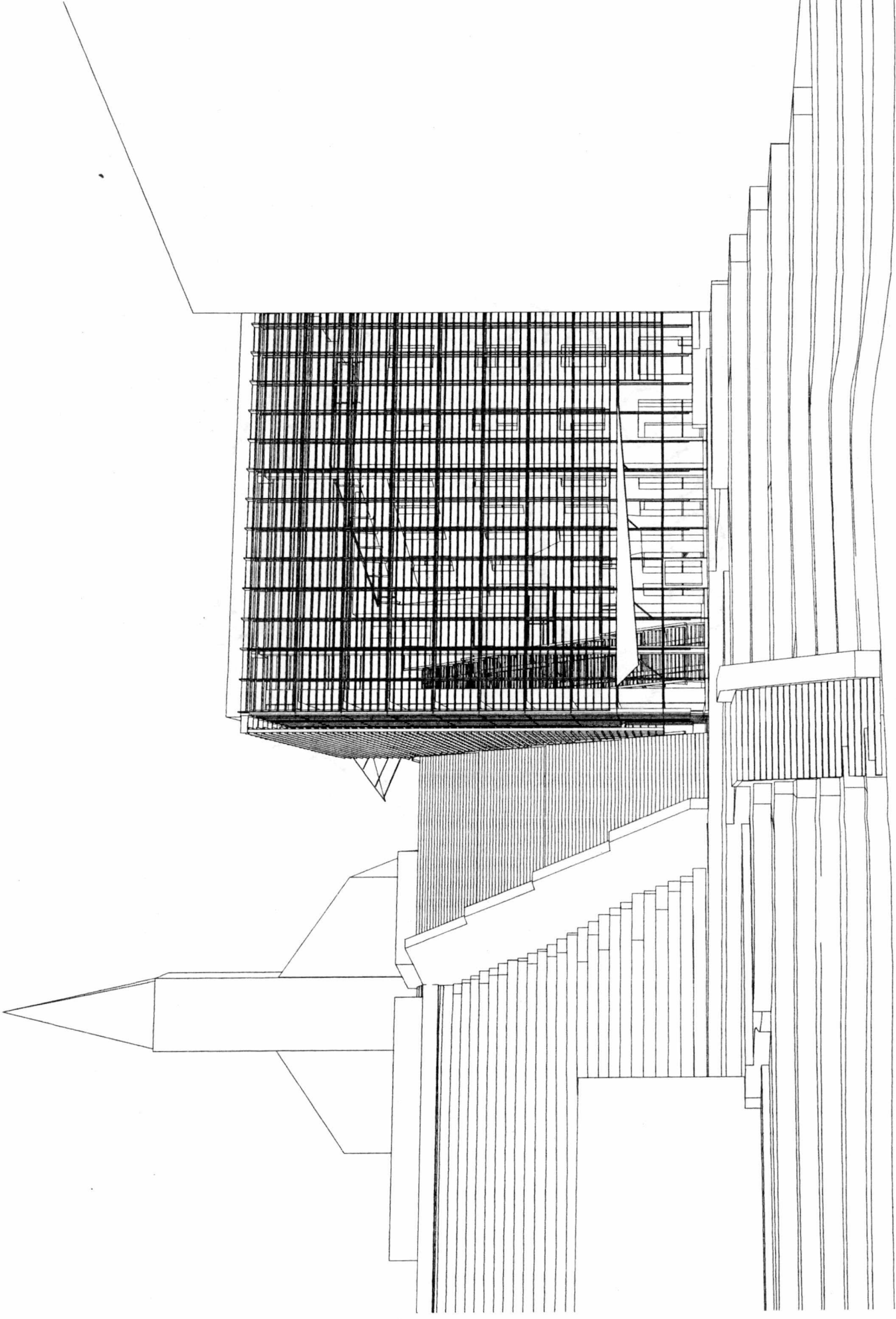


WALL DETAILS 3/8"=1'-0"

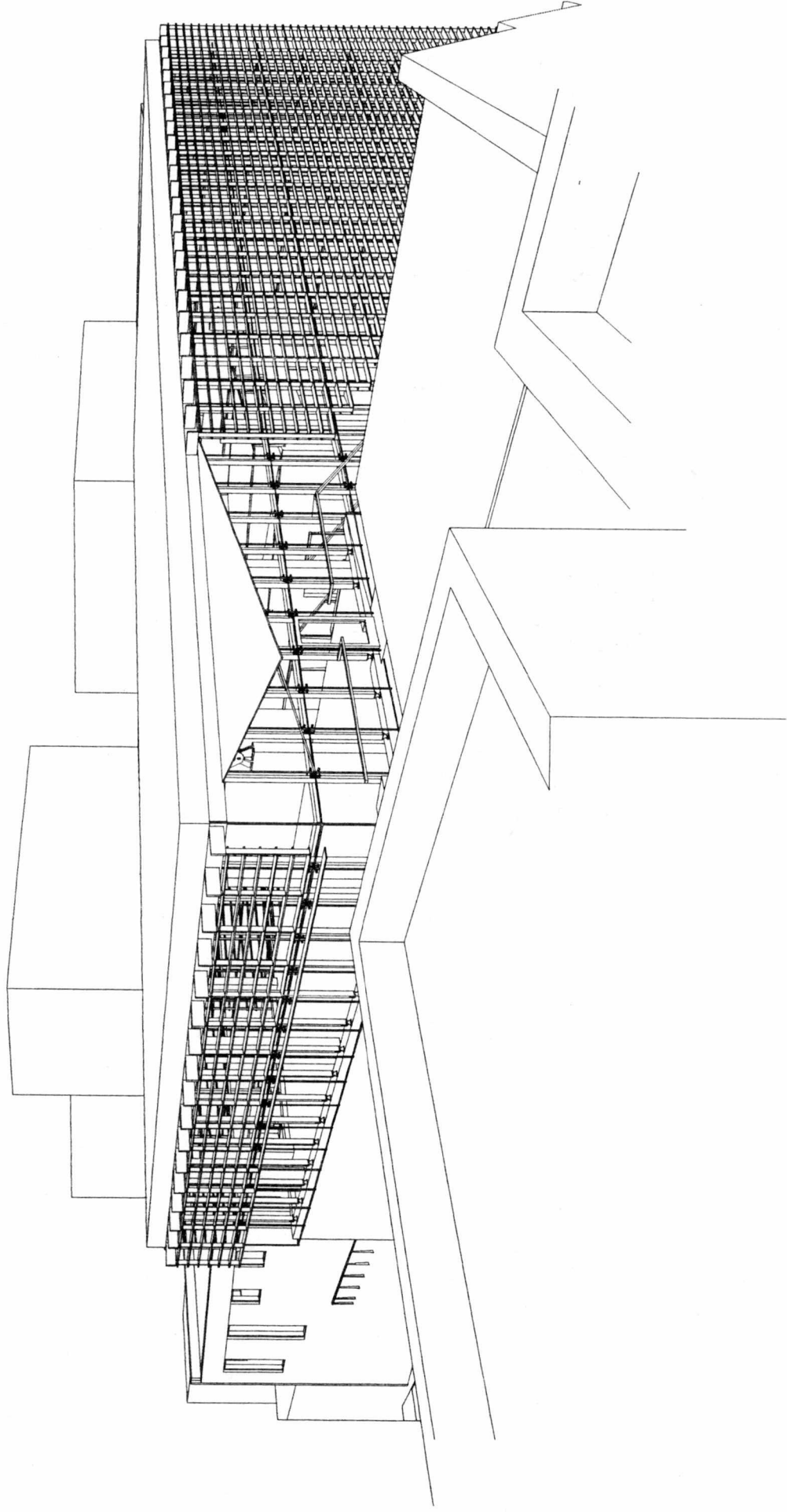


EXTERIOR VIEW

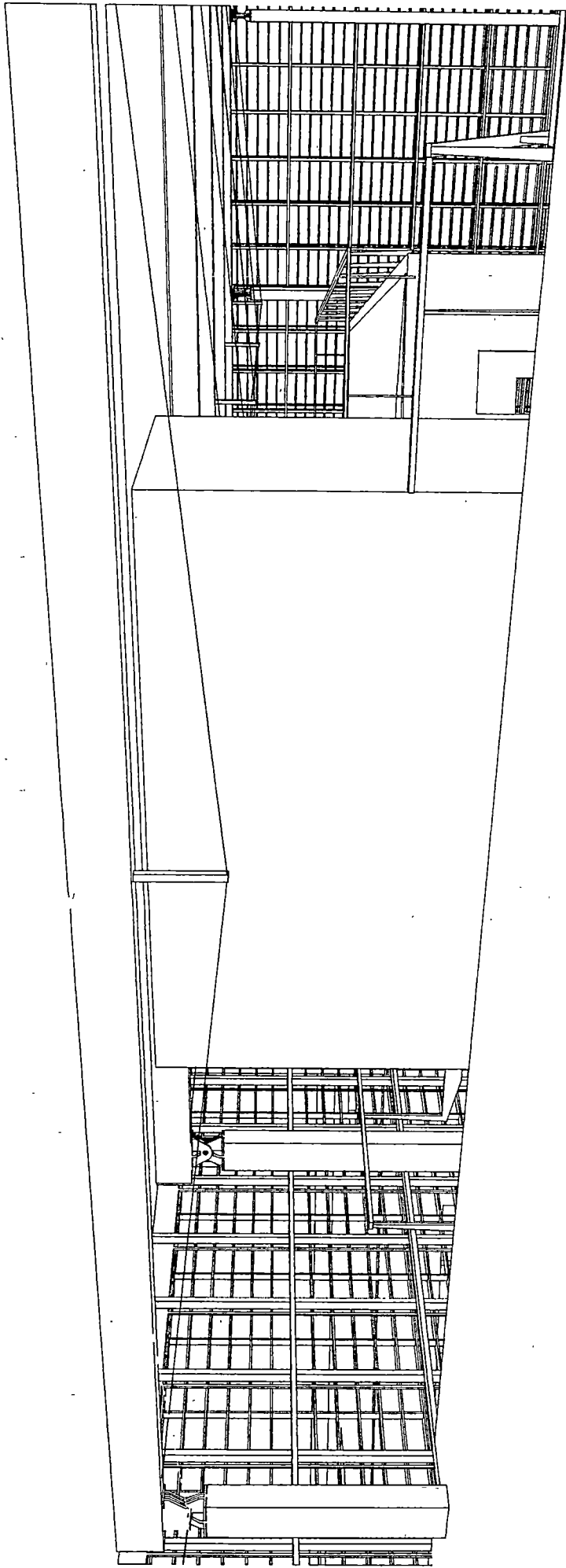




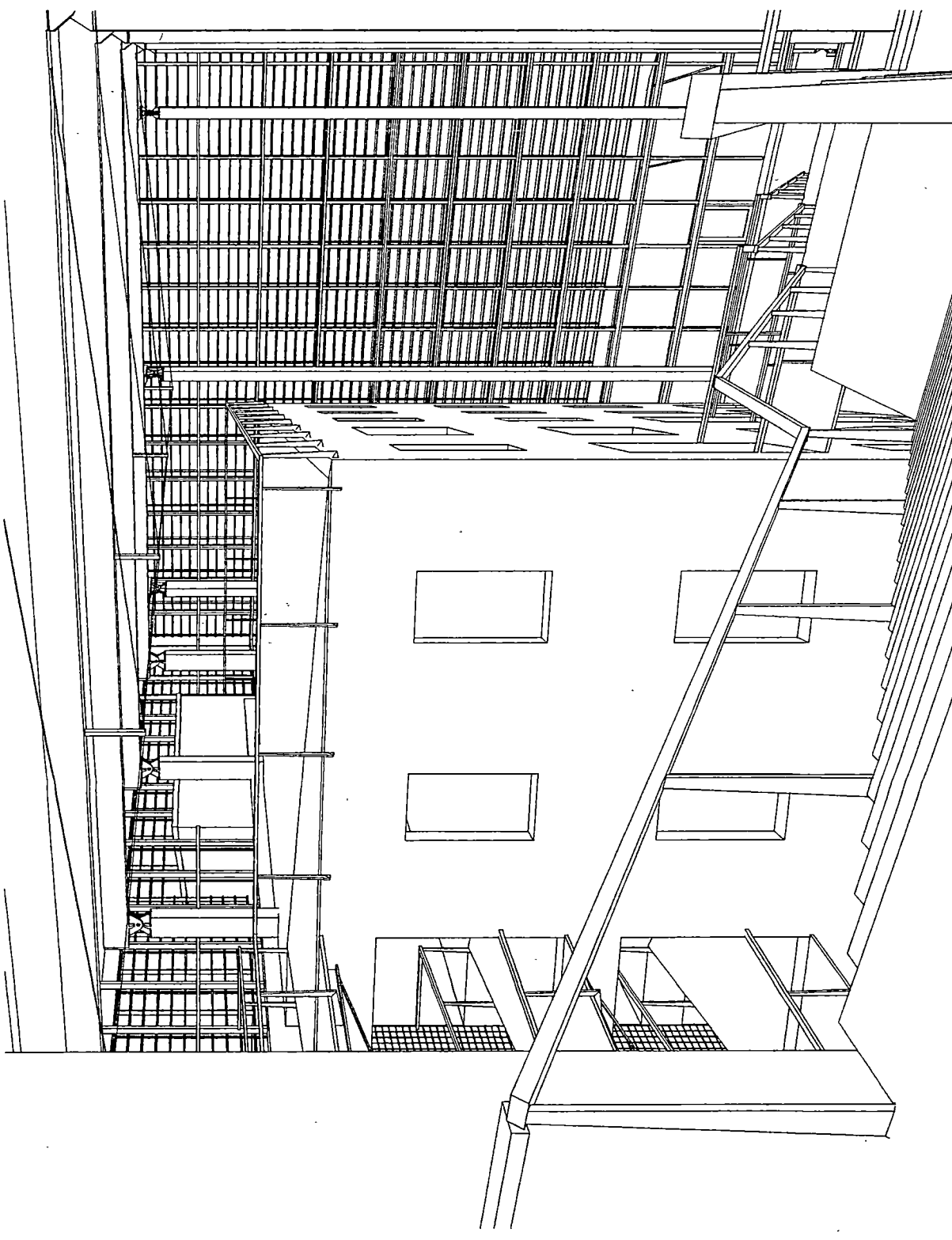
EXTERIOR VIEW



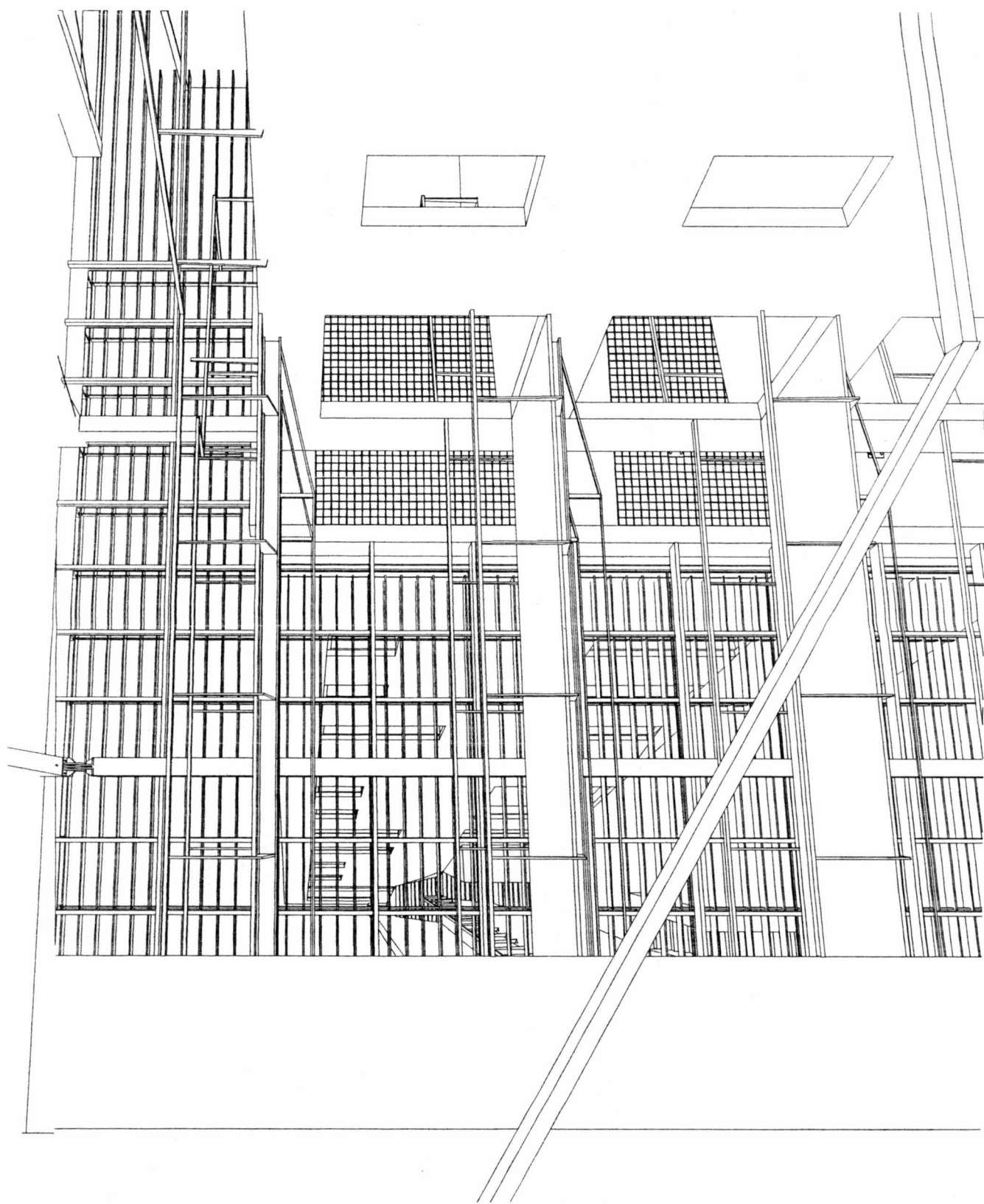
EXTERIOR VIEW

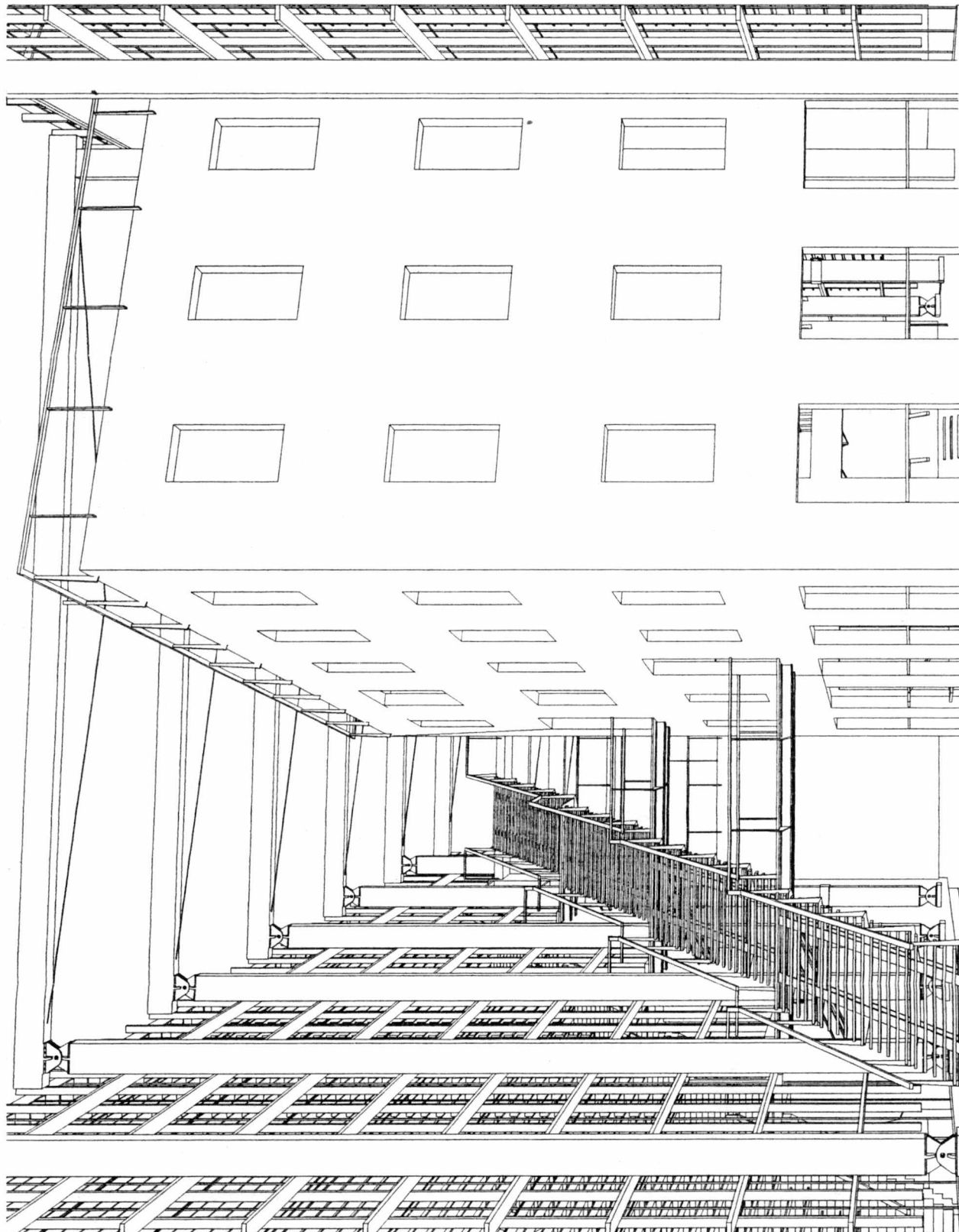


INTERIOR VIEW

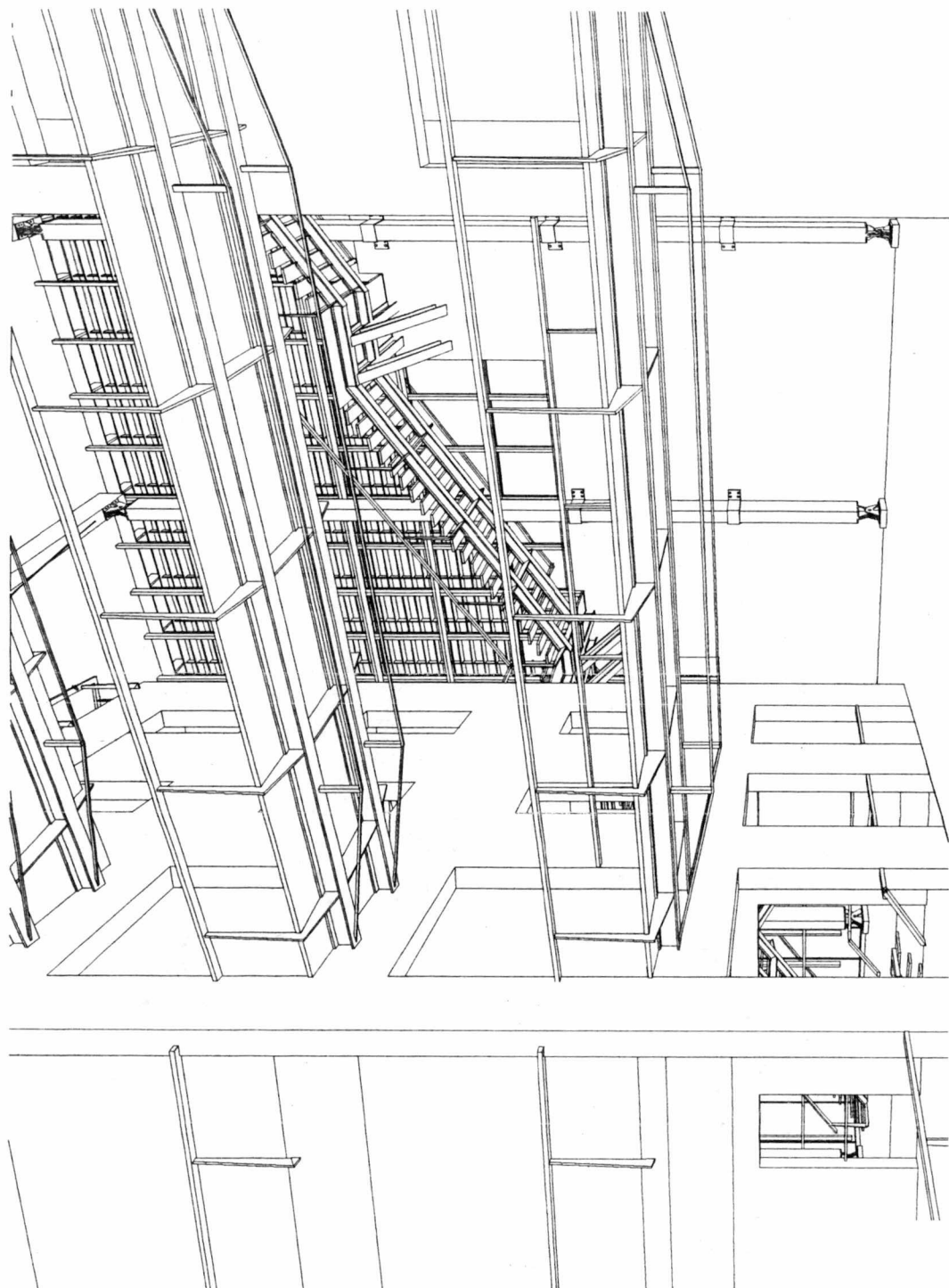
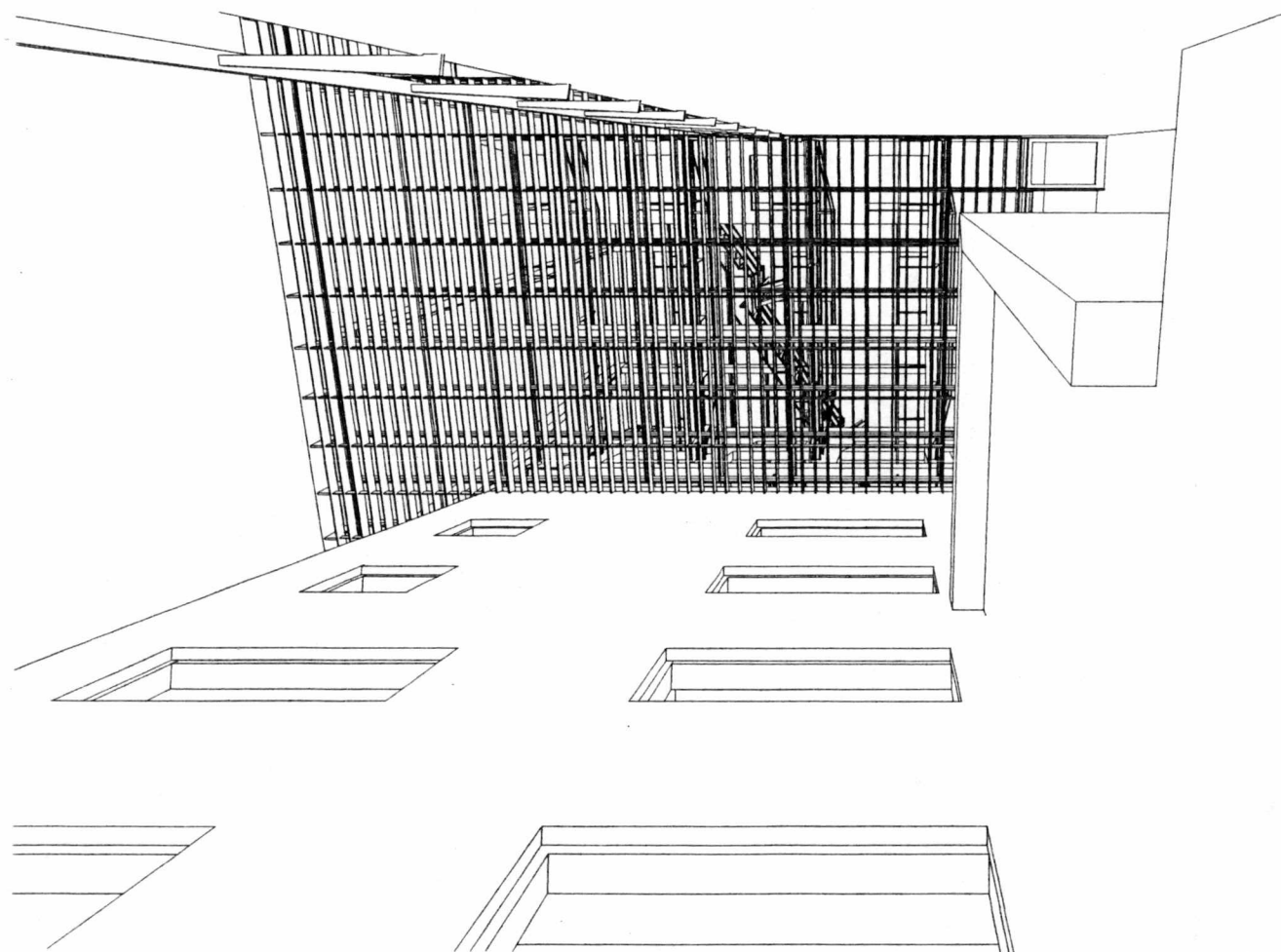


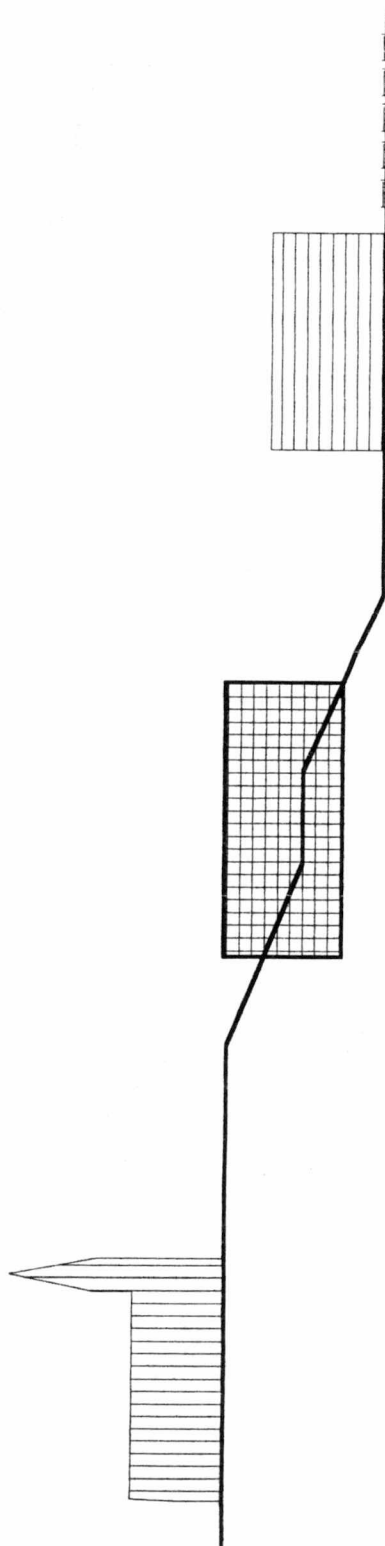
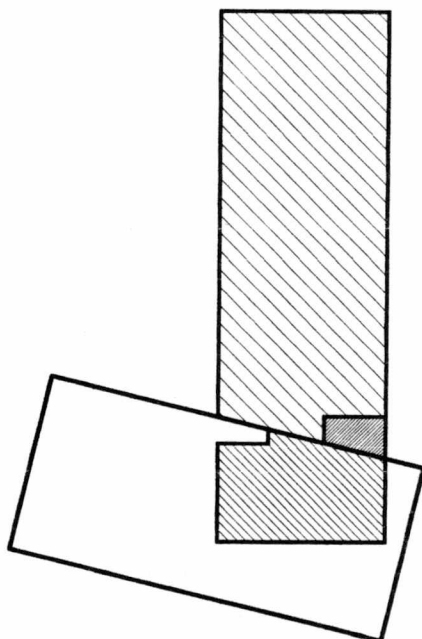
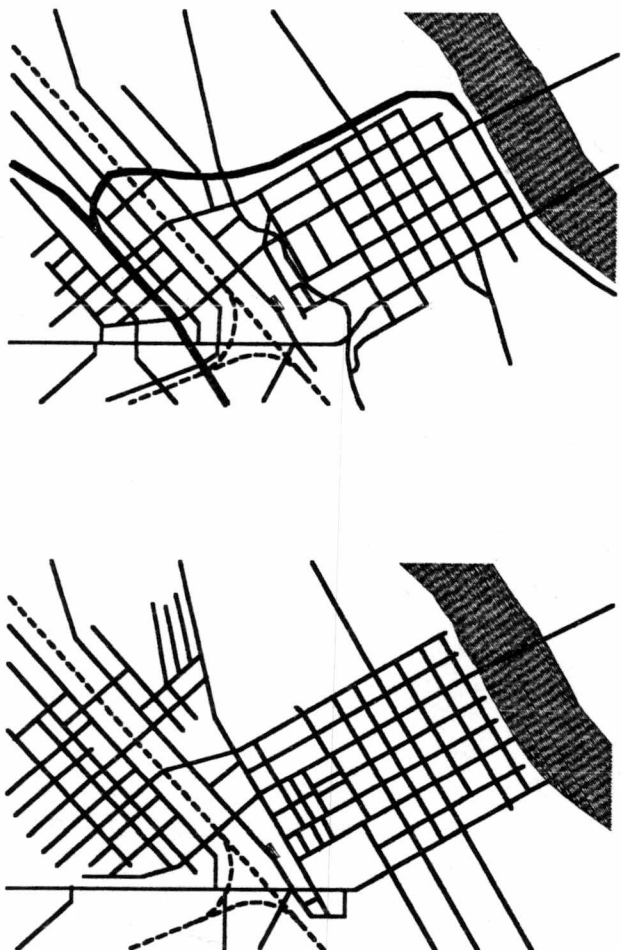
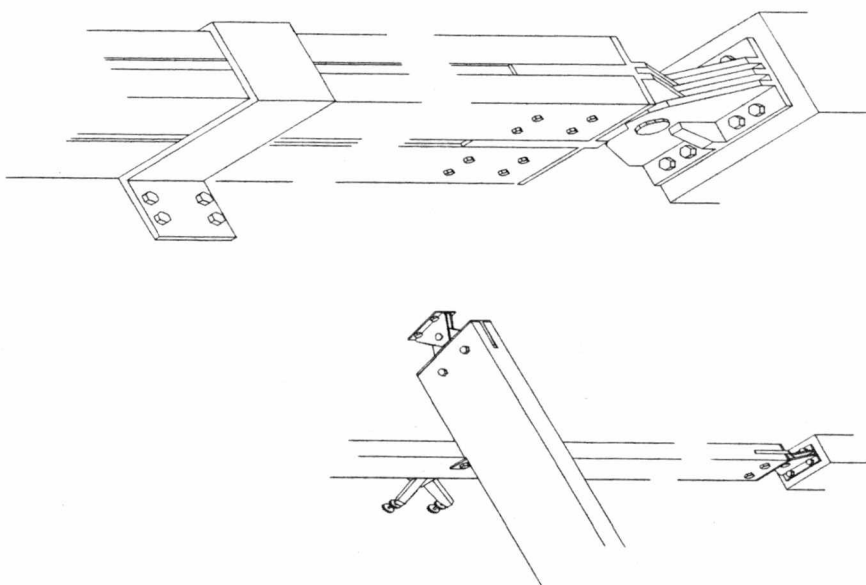
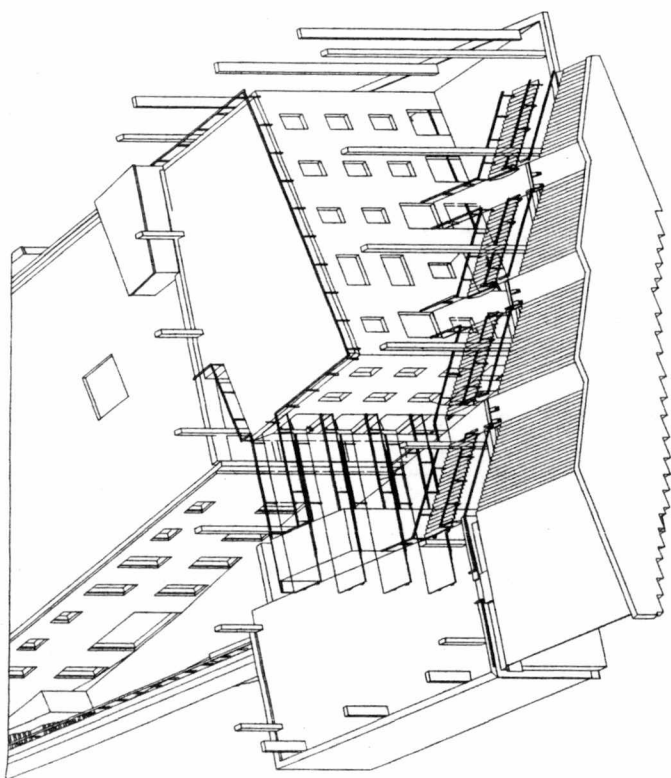
INTERIOR VIEW



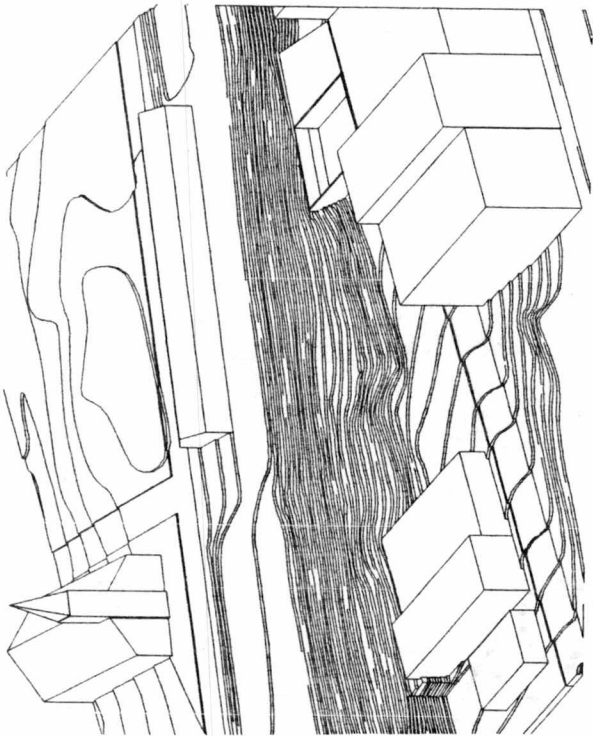
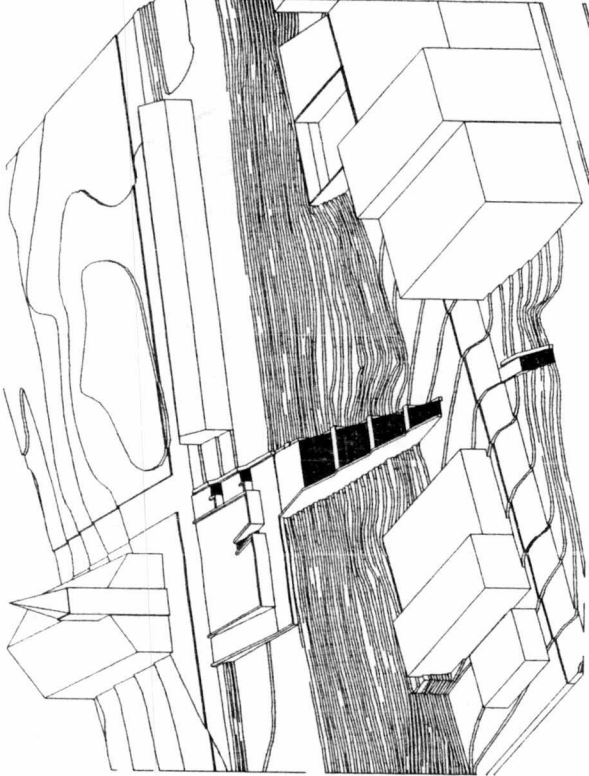
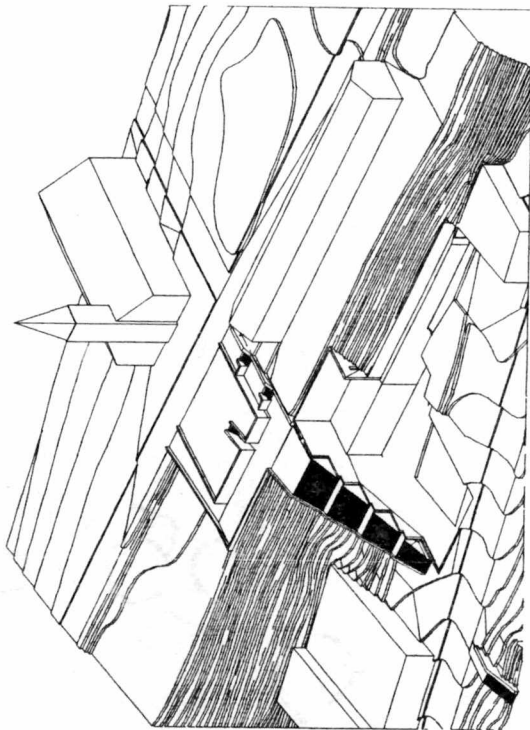
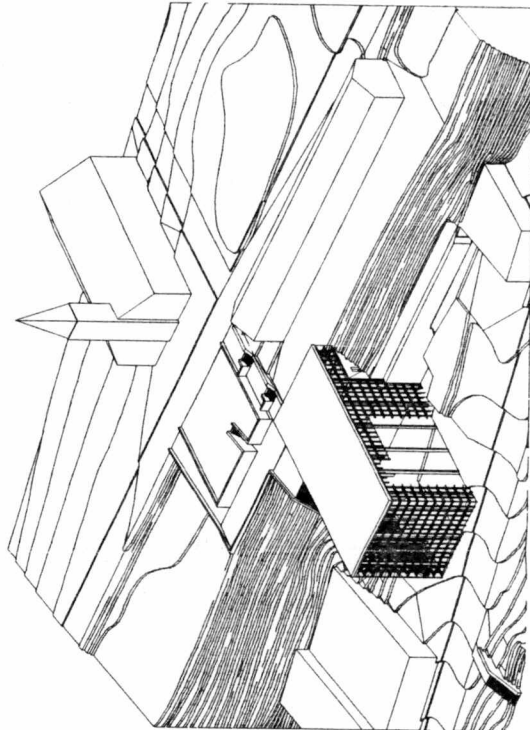
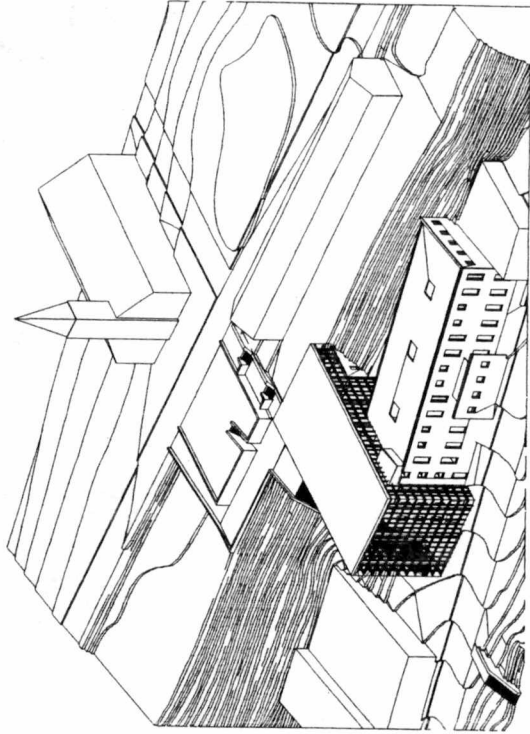


INTERIOR VIEW





DIA GRAMS



Vita

Robert Clayton Rogers was born in Memphis, Tennessee on December 19, 1962. He graduated as class valedictorian at Memphis University School in 1981. He entered Princeton University with expectations of studying physics, but graduated in 1985 with a major in architecture instead. He returned to Memphis and worked for several years in various architectural firms, but decided not to pursue a professional architectural degree and turned to other endeavors, including the renovation of a 1907 house with his wife, Linda. In 1994 he returned to the architectural field, working for Williamson, Haizlip and Pounders. There he completed his Intern Development Program, gaining much practical experience. He served as project manager on two major exhibitions by the Memphis City WONDERS series: *Imperial Tombs of China* and *Titanic*. In 1997 he left that firm to start a design/fabrication business with his wife, 1429 Design. In 1998 he attended a two-week course at the Yestermorrow Design/Build School in Warren, Vermont, where he met some of the country's leading design/build architects. At this time he decided to pursue becoming a licensed architect and go to graduate school. Before moving to Knoxville, he took courses of the Memphis Center for Architecture's 1999 spring program, headed by Coleman Coker. That fall he entered the Masters of Architecture program at the University of Tennessee, Knoxville. On January 11, 2001, his wife gave birth to Genevieve Elise Rogers.

After his graduation he and his family intend to move to Sewanee, Tennessee. Upon passing the Tennessee state registration exams, he intends to start his own architectural practice.