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## **Mutualism : a means for creating an architecture of relationships**

D. Taylor Bowers

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To the Graduate Council:

I am submitting herewith a thesis written by D. Taylor Bowers entitled "Mutualism : a means for creating an architecture of relationships." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Architecture, with a major in Architecture.

Tracy Moir-McClean, Major Professor

We have read this thesis and recommend its acceptance:

Dean Almy, Jon P. Coddington, J. Stroud Watson

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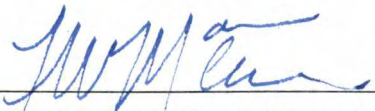
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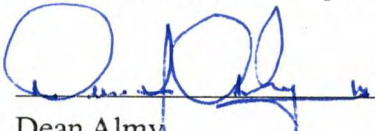
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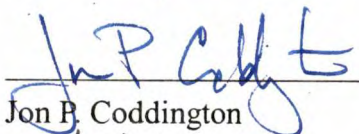
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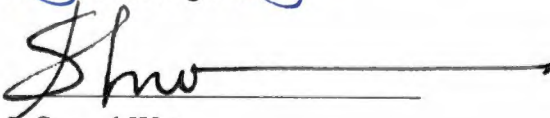
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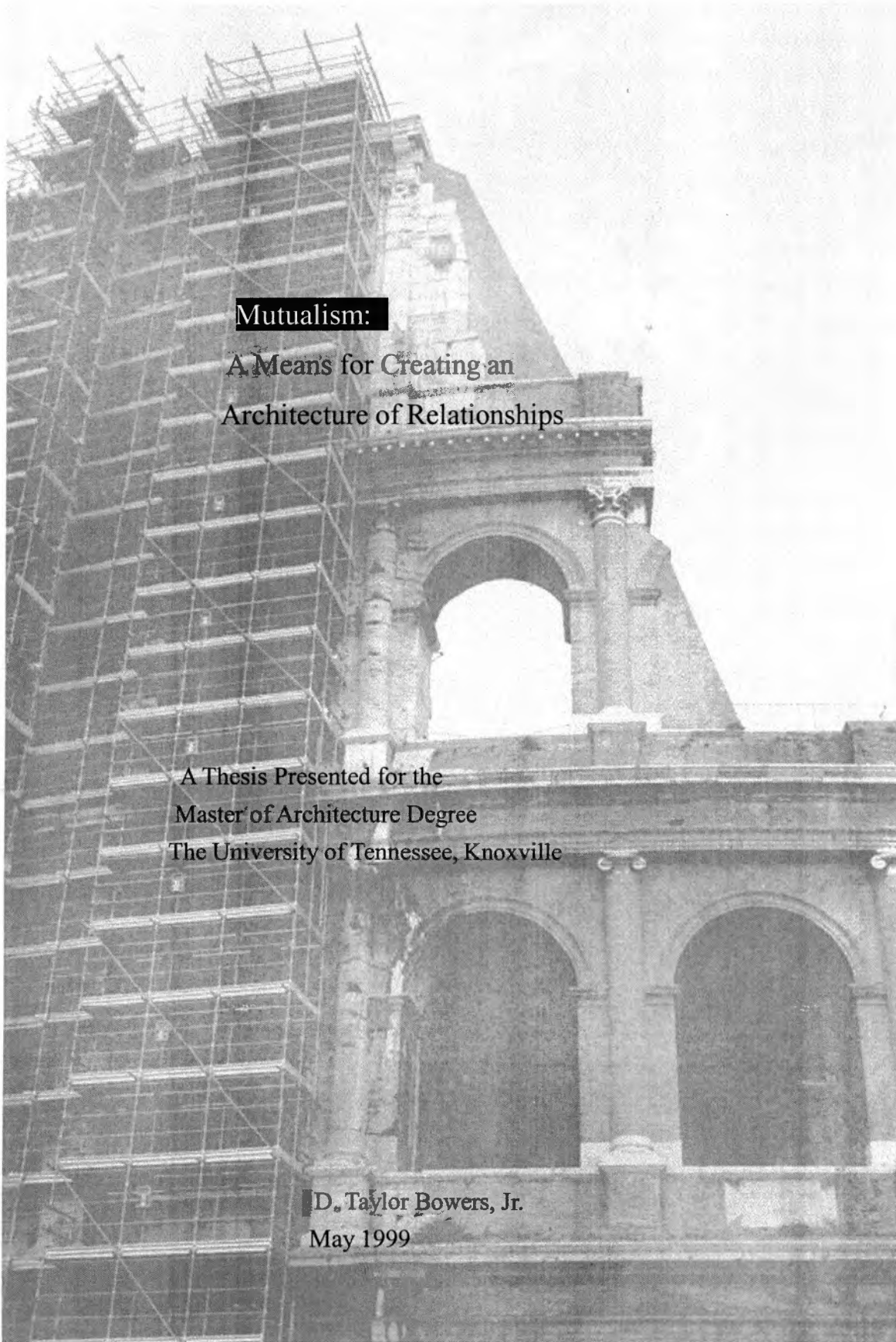
  
Dean Almy

  
Jon B. Coddington

  
J. Stroud Watson

Accepted for the Council:

  
Associate Vice Chancellor and  
Dean of the Graduate School



**Mutualism:**

A Means for Creating an  
Architecture of Relationships

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

D. Taylor Bowers, Jr.  
May 1999

## **DEDICATION**

This thesis is dedicated to David and Lynne Bowers,  
two people who have supplied so much support so selflessly.

## ACKNOWLEDGMENTS

Having chosen the idea of mutualism as a thesis I would be remiss if I did not recognize those people who have played a vital role in this project's development. This thesis is really a collaboration for which I will be given credit. I hope to redress that here.

First I must thank my thesis committee, Dean Almy, Jon Coddington, Tracy Moir-McClean and J. Stroud Watson as well as Jeff Gordon, a consultant in the early phase of the project, for their considerable contributions. Offering an experienced eye as well as a listening ear each member worked both individually and collectively to craft this thesis into its present form. The committee has had an immeasurable effect on both the project's development and my own.

More specifically I would like to thank Tracy Moir-McClean who served as both the major thesis advisor and a patient friend. She is one of those rare listeners who has the ability to extract the truth, which I had been busily obscuring, from each situation.

Special thanks also go to Jon Coddington whose door is always open and who, despite countless activities, manages to stay involved with each student. He has a vision and tenacity which results in the rigor that should be evident in the graduate work.

I would also like to thank my classmates who listened to me babble incoherently and oftentimes provided keen insight. But more importantly they often provided me with the valuable quality of distraction and kept me from taking this whole thesis process too seriously.

Finally, I must thank my family. Although not always understanding the battle being waged, they offered endless support and motivation.

## ABSTRACT

This study explores the idea of mutualism as a process of combining apparently oppositional elements into interdependent relationships. This combination creates an architectural system which provides greater value to its component parts and simultaneously establishes a larger more coherent whole. It is through this process that a zone of combination is achieved, a zone that is perhaps more real and which speaks to the complex fluidity of contemporary life.

The method chosen for the exploration of this thesis involves the design of an architectural design/ build school which focuses on a "hands on" approach to education to be located in downtown Chattanooga Tennessee.

"..all experience requires an element of interpretation, and that seeing a whole thing in one way will influence the perception of each individual part."

M. Thompson

"Things derive their being and nature by mutual dependence and are nothing in themselves"

Nagarjuna

"An elementary particle is not an independently existing, unanalyzable entity. It is, in essence, a set of relationships that reach outward to other things."

H.P. Stapp

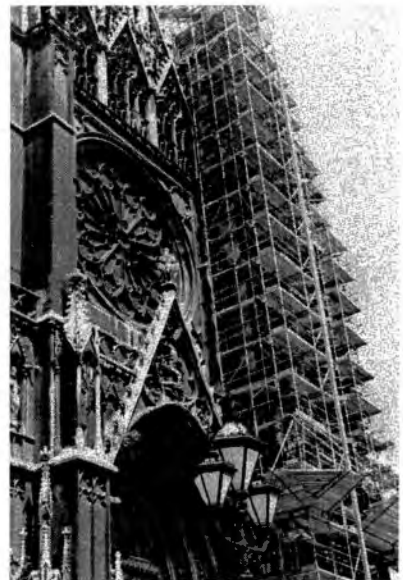
## PREFACE

A trip to Europe these days makes one very aware of the effects of time. Numerous historical monuments can be seen wrapped in apparent exoskeletons of scaffolding. The function of the scaffolding is one of renovation; an attempt to resist the effects of change. Beyond the obvious functionalism, however, is a striking imagery.

The initial impression given by this imagery is one of juxtaposition, or contrast. However, a closer inspection of these heavy, venerable monuments of stone clad with lightweight, temporary steel scaffolding points to an intriguing and pragmatic relationship which consists of the simultaneous existence of independence and interdependence. This relationship can be referred to as mutualism.



The Coliseum with scaffolding  
Source: Andy Berry



Church with scaffolding  
Source: Christina Heidel



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## MUTUALISM

### Philosophical Background

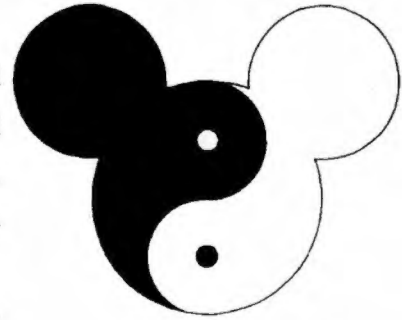
Since the Greeks the western mind has operated largely in terms of dualities. The earliest Greeks regarded dualisms as a useful way of dividing reality for examination. The key to this process, however, was the overriding understanding that these divisions were part of a larger whole.

It was not long before the understanding of dualisms changed. Instead of being seen as part of a larger whole, the different elements were viewed as oppositional. The evolution of western thought continued with this reductionism. Science, viewed by many as the pinnacle of western thought, defines the world in terms of yes or no questions reducing reality into a series of pieces without a clear understanding of their essential relationships. The current search for the Grand Unification Theory in physics is an obvious example of the attempt to reassemble the fragmented model of reality.

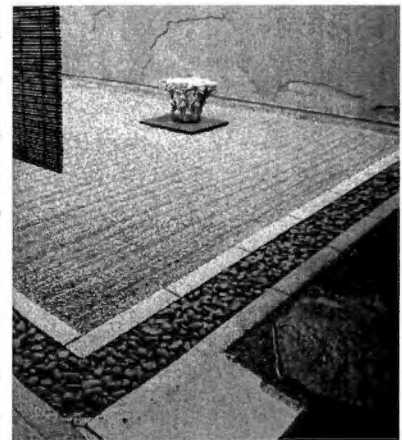
The French philosopher Jaques Derrida has attacked the western mindset of thinking in terms of “binary oppositions”. These oppositions consist of unequal pairings in which one of the components is given a greater value at the expense of its “opposite”. The very name “binary opposition” suggests an adversarial relationship.

This method of perception in terms of binary oppositions appears to be largely a western phenomenon. Eastern thought also contains dualisms but perceives them in a different way. Similar to the early Greeks, the eastern mind views dualisms as parts of a larger whole.

The Japanese philosopher Miura Baien of the Edo-period developed a philosophy of ‘oppositional unity’. Influenced by both western and eastern thought Miura’s system bears resemblances to the later dialectical system developed by Hegel. Miura, in accord with Indian Monism, realized that reality could be infinitely reduced into dichotomies.



Drawing of Baseball Hat Logo  
Source: Author



Corinthian Capital/ Zen Garden  
Source: Slesin (170)

Subsequently he began a process of unification in an attempt to realize reality as a whole. In contrast with Hegel's system which created a synthesis through the destruction of the thesis and antithesis (in much the same way energy is created by the mutual annihilation of matter and antimatter) Miura's system recognized the mutually supportive existence of the dualistic parts and the whole.

The contrast between eastern and western thought is the hierarchical value placed upon the dualism by the west. The existence of the dualism itself is a valuable method of perception. It can be argued that it is precisely the act of pairing which provides value to the components. Each partner in a pairing is more completely understood by referencing it with its "opposite". Derrida's criticism would be that one component is understood as having a lack of some quality which the other possesses thereby rendering the former inferior. This view is understandable when the components are viewed as opposing forces. Part of the problem may arise from the perception of these "opposites" as polar forces rather than as positions along a continuum. It is the nature of the relationship that is vital. By combining these dualisms into interdependent relationships a different perception arises; the pairings become mutually supportive rather than opposing. Each component is given a new value with the result of a new factor: a system that contains both of the "opposites" at the same time. The dualistic forces and the zone of combination are now understood as partners in a triumvirate, with each component contributing and receiving value from the others. It is from this joining that the notion of the simultaneous existence of independency and interdependency results.

"Everybody on earth knowing that beauty is beautiful makes ugliness.

Everybody knowing that goodness is good makes wickedness.

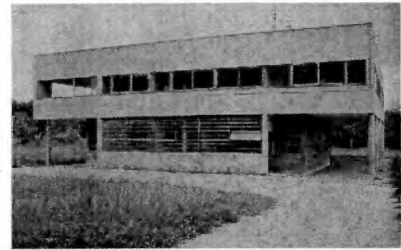
For being and nonbeing arise together;  
 hard and easy complete each other;  
 long and short shape each other;  
 high and low depend on each other;  
 note and voice make the music together;  
 before and after follow each other."

Lao Tzu

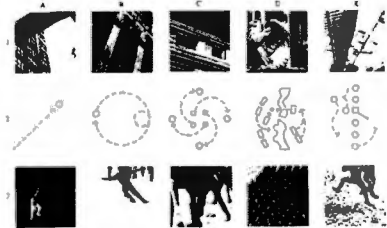
## Independence/ Interdependence

Mutualism may be defined as “an interaction between species” (or systems) “that is beneficial to both” (Moran 106). The important aspect of mutualism is the nature of the relationship. The interacting species are independent in that they are components which have the ability to terminate and reform relationships. A certain amount of autonomy is allowed to the part even when it is a component of the whole. At the same time the existence of the relationship imparts a degree of interdependency. The components may be viewed both independently and as part of the larger whole.

Mutualism originated as a biological concept but its existence can be seen in any system of relationships. Ecological systems are an obvious model of inherently adaptable, and therefore stable systems, due to their complex webs of independency and interdependency. Computer networks and socio-economic systems are just a couple of examples of human created arrangements of independency and interdependency. Architecture is also such a system.



Delapidated Villa Savoy  
Source: Mostafavi (8)



Movement Diagrams  
Source: Tschumi (17)

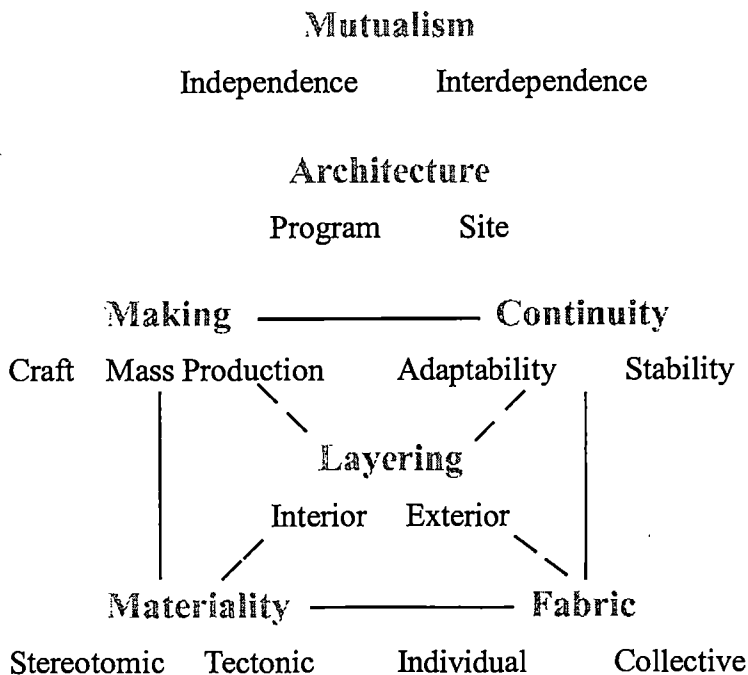
# ARCHITECTURAL ISSUES

## General Structure

The overriding idea which binds this thesis is the concept of mutualism. This larger philosophical idea is explored through the medium of architecture. For the purposes of this argument the concept of architectural mutualism will focus on systems of pairings as a staging point. Although systems are by no means limited to a set number of participants, a boundary must be drawn in order to produce a coherent argument.

Architecture is expressed here in general terms as the combination of program and site. The architectural issues are perceived as focused areas of the larger mutualistic concept. These issues are interrelated and subsequently any attempt at distinction is ultimately misleading. Each relationship is mutualistic in nature and consists of three parts: the two "opposing" components and the zone of combination.

Thesis issue:





## Issue Specifics

### MAKING

The issue of making deals with production. It arises from the duality of craft and mass production. The craft process precedes an industrial means of production. Craft implies a high degree of value and care due to the nature of production: a handmade item produced by an individual in control of the entire production process for a specific application.

Mass production arrived with the advent of the industrial revolution and the subsequent increasingly efficient methods of manufacturing. The assembly line nature of mass production implies a lower economic cost of production but also a lesser degree of care since products are produced by workers less vested in the process and subsequently the final product. Mass production produces goods for a generic consumer thus denying the individual the quality of specificity.

An obvious example of the schism between these methods of production can be seen by comparing medieval texts (Fig. 1) with modern day newspapers. Medieval monks copied sacred texts by hand, painstakingly producing embellished works of art. The contemporary newspaper is focused on disseminating large amounts of information to a mass audience on a daily basis. Granted, the differences are due as much to the perceived sanctity of the content as the means of production but this raises a point of value. In a craft oriented society, with limited means, only the most valued items are produced while in a mass production society the value of the produced often sinks to the level of the lowest common denominator.



Fig. 1: Illustrated Manuscript  
Source: Brown (24)

## MATERIALITY

The issue of materiality is constructive in focus and covers two aspects of the stereotomic/ tectonic duality. The first aspect involves an understanding of stereotomic and tectonic as constructive processes.

The stereotomic process is essentially reductive in nature (Fig. 2). It involves the definition of form, or perhaps more properly space, by the sculpting of the homogenous material. In the purest sense this sculpting would involve the subtraction of material. An extreme example of this reductive process would involve carving a cave out of solid rock.

The tectonic process of construction is one of assemblage (Fig. 3). It involves the combination of parts, whether homogenous or heterogenous, into a larger whole. The majority of constructive processes are tectonic in nature.

The second aspect of materiality exists on a more phenomenological level and deals with the physical properties of a substance. Stereotomic materials, at this level, are generally considered to have qualities of solidity and massiveness. In contrast, tectonic materials are typically viewed as relatively light and modular in nature. However, these classifications are somewhat misleading in light of the previously outlined understanding of stereotomic and tectonic as processes.

Stereotomic materials, viewed from the phenomenological perspective, might include earth and heavy stone while tectonic materials would include steel, glass, and lumber. Materials such as concrete and masonry are not so easily classified due to the perceived stereotomic nature of their finished form which contrasts with their tectonic method of assembly.

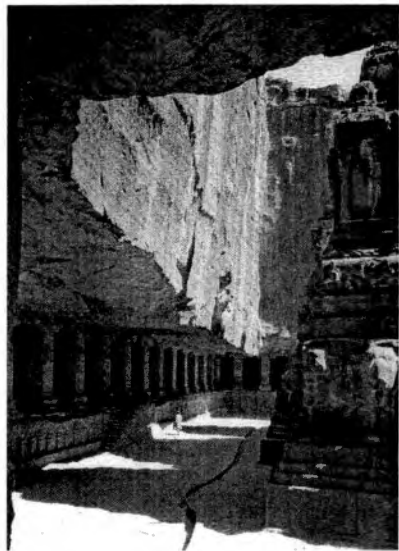


Fig. 2: Kailasa Temple, India  
Source: Smith (38)

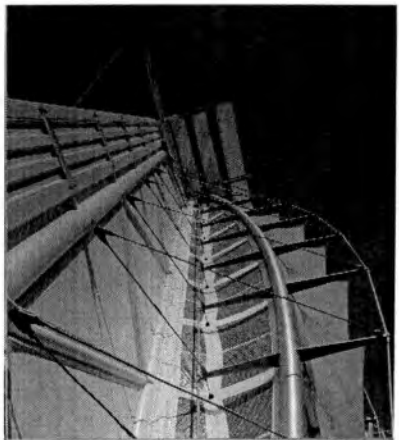


Fig. 3: British Pavilion, Seville  
Source: Moore (78)

## CONTINUITY

The issue of continuity is essentially environmental in nature. Continuity focuses on the combination of adaptability and stability. Adaptability is the ability to change, to respond to a different condition. Adaptable systems change to correspond to fluctuations and alterations within the larger system.

Stability is the existence of a system over a period of time. The stable system is somewhat harder to define. It persists, but it relies on an ability to change as a means for its continued existence. These two conditions are actually inseparable.

The built environment, similar to “natural” environments, is also a combination of adaptability and stability. From an architectural perspective the nature of building has shifted from an emphasis on stability to one of adaptability due to technology and the accelerated nature of the contemporary consumer culture.

The architectural monuments (Fig. 4) that have been preserved and passed down through time are testaments to the value placed upon them by both their builders and successive users. These buildings serve as anchors for the social fabric of which they are a part, providing both stability and a sense of continuity with a romanticised past that proved willing to make staggering commitments of resources to the construction of such monuments.

Building in the last half of the twentieth century has been of a much different nature. Technology and its provision of readily available resources has hidden the full costs of building. With the relative ease and speed of contemporary construction, architecture has often been reduced to another consumable and a large quantity of buildings today are designed and built to be disposable (Fig. 5).

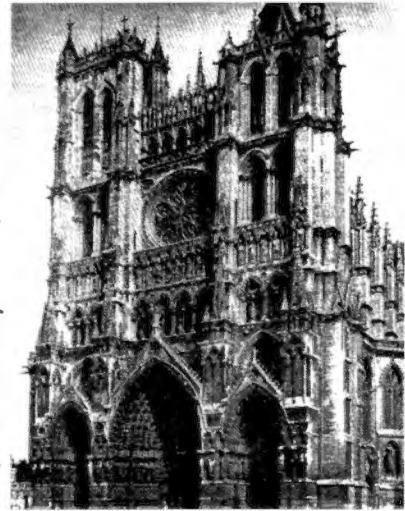


Fig. 4: Amiens Cathedral  
Source: Venturi (108)



Fig. 5: Las Vegas  
Source: Venturi (36)

## FABRIC

The issue of fabric is both a physical and social concept. Fabric is comprised of the “opposing” forces of the individual and the collective. Similar to a literal piece of fabric (Fig. 6) this issue is understood as being a combination of the collective and its individual parts. The term “individual” is used here to refer to an independent unit, or perhaps more properly an independent system. The collective is seen as a system comprised of component parts.

A system’s role as either an individual or a collective is a matter of perspective. An “individual” can be comprised of individual parts while simultaneously existing as a component within a larger system. The level at which the “individual” exists is a result of the subjective termination of the process of reductionism. For example, a society is comprised of human beings which are in turn comprised of functional systems. These systems can be reduced into “organs” which are in turn made up of cells. Historically, one of the concerns of physics has been the search for the basic building block of matter. Current thought understands matter as a series of nested relationships. This understanding realizes the fallacy in perceiving a collective system as being oppositional to its tectonic parts.

The issue of fabric extends beyond the obvious human social example. All systems may be viewed as a collective comprised of component parts. The city is a piece of fabric, as is a building, and a material object.

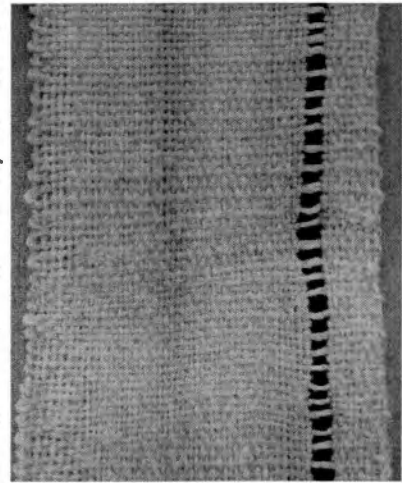


Fig. 6: Woven Fabric  
Source: Author

## LAYERING

The issue of layering is perhaps the most complex concept. It is primarily a spatial issue and is seen as the combination of interior and exterior. These terms should be understood as deliberately vague and do not necessarily imply a physical relation to an enclosure. Rather, interior and exterior delineate position within a sequence. This sequence may exist on a variety of levels including spatial, temporal and conceptual.

Typically exterior refers to a condition of exclusion while interior denotes inclusion. When the two are combined a progression is achieved in which an exterior may also be an interior and vice versa. This progression obscures definitive boundaries and creates a larger system.

Layering essentially becomes a process of combining (Fig. 7) and a method of creating a larger understanding of relationships. For this reason layering is viewed as the issue which weaves the rest of the issues together.

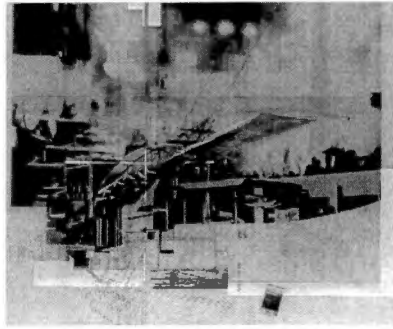


Fig. 7: Layered Image

Source: Mayne (29)

## THE PROGRAM

### A Design/ Build Architecture School

The idealized program chosen for the exploration of this thesis involves the development of a "design/ build" architecture school. The term design/ build should be differentiated from its use in the building industry as a designation for a form of project delivery. Here the term is used to describe a method of education which focuses on learning by direct constructive experience.

In many traditional educational settings design seems somehow autonomous from the act of building. Construction is relegated to the act of bringing physical form to the previously conceived design. Architecture inherently deals with building; as such, it can be argued that the best way to learn about the relationships between the design of architecture and its built form is to physically construct. The position taken here is that construction is another stage of the design process. The main focus of the school, therefore, is to bring together these seemingly separate forces into a more coherent combination.

### General Program Issues

The general programmatic issues are focused applications of the previously outlined architectural issues of making, materiality, fabric and continuity. The issues of making and materiality are concerned primarily with the idealized function of the program without relation to a site. As an idealized program, the intention of the school begins without reference to a specific site and could subsequently exist in a wide variety of locations. However, this idealized program does have a certain degree of site intentions and certain site qualities were desired which would lend themselves to a potential set of mutualistic relationships. The issues of fabric and continuity address the intentions of the program in regards to a suitable site.

"Today...I cannot imagine any other desirable view of the future than an ecologically adapted form of life where architecture returns to early Functionalist ideals derived from biology. Architecture will again take root in its cultural and regional soil. This architecture could be called Ecological Functionalism...this view implies a paradoxical task for architecture. It must become more primitive and more refined at the same time; more primitive in terms of meeting the most fundamental human needs with an economy of expression and mediating man's relation to the world...and more sophisticated in the sense of adapting to the cyclic systems of nature in terms of both matter and energy. Ecological architecture also implies a view of building more as a process than a product. And it suggests a new awareness in terms of recycling and responsibility exceeding the scope of life. It also seems that the architect's role between the polarities of craft and art has to be redefined... After the decades of affluence and abundance, architecture is likely to return to the aesthetics of necessity in which the elements of metaphorical expression and practical craft fuse into each other again; utility and beauty again united."

Juhani Pallasmaa

The function of the school is essentially one of making. Through the use of a variety of shops as well as studios and large construction yards this intention is explored in the use of both traditional materials and methods of construction as well as experimental systems. Full scale construction systems as well as Bauhaus influenced craft studios would be utilized to explore construction from the scale of a building detail to a building system prototype.

Materiality is an obvious issue in a school centered on making. This issue focuses on both the nature of materials as well as constructive processes. Material testing labs and an on-line library, in addition to the previously mentioned workshops and craft studios, enable students to explore the structural and phenomenological properties of materials as well as their historical and constructive use. Careful attention to the environmental consequences of harvesting, processing and utilizing materials would also be explored.

The school's emphasis on education extends beyond the enrolled student population to the surrounding fabric. Due to the "hands on" approach the educational goals of this institution need practical application. Beyond the obvious internal facilities of shops, material testing labs and large construction areas, the school should seek to experiment and apply its knowledge by constructing in the surrounding communities. It is through both the active constructive involvement within its context and its open educational intent that the school will begin to form mutualistic relationships.

In addition to the relationships created within the social and physical fabric, continuity with the larger surrounding socio-economic and ecological systems are recognized as paramount. These two systems are, of course, inextricably linked. For this reason, part of the school's mission is to construct with a clear view of ecological responsibility. Relying on the combination of adaptability and stability as a model this ecological mindset should be applied on numer-

"...Our interest in the invisible world is in finding a form for it in the visible world. That is, in breaking through the deceptive, visible and familiar guise to take it apart, to atomize it, before relating to it anew. The invisible world is not a mystic one, but it is also not (only) a world of natural sciences, of invisible atomic crystalline structures. With this we mean the complexity of a system of relationships which exists in nature, in an un-researchable perfection, and whose analogy in the realm of art and society interests us. Our interest is thus the hidden geometry of nature, a spiritual principle and not primarily the outer appearance of nature."

(Herzog & de Meuron)

ous scales from urban planning to building details and should be a major focus of the school's educational mission.

The school further emphasises the issues of fabric and continuity through its temporal existence. Due to the contextual mission of constructing the surrounding fabric the school will eventually live out its usefulness. Using the ecological process of natural succession as a model the school is understood as a pioneer species which is a first stage in a cyclical process of growth. Once the fabric is constructed the school will need to move to another area of potential and need. It is imperative that the school not leave behind an inflexible facility and site which would be costly and inefficient to redevelop, but rather a flexible facility which could serve as a model for future mutualistic development.



## THE SITE



Fig. 8: Regional Location of Chattanooga, Tennessee  
Source: Rand McNally

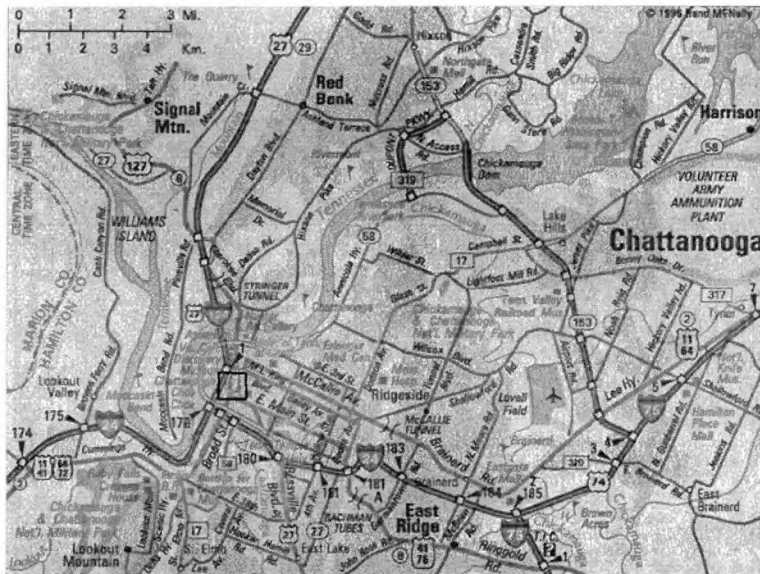


Fig. 9: General Site Location Within Chattanooga  
Source: Rand McNally

### Chattanooga, Tennessee

Chattanooga is located in the southeastern corner of Tennessee (Fig. 8). Due to its position on the Tennessee/ Georgia border, Chattanooga finds itself in a boundary condition. Nestled in a bowl and surrounded by ridges and the Tennessee River, Chattanooga has natural boundaries which have controlled and limited its growth.

The past deteriorating relationship of the city's industrial development and its environment has been an incentive for Chattanooga's major developmental turnaround. Recently, Chattanooga has pursued efforts to reach a more balanced relationship between its socio-economic renewal and its ecosystem by focusing on sustainable development.

The site chosen for the project is located in Chattanooga's southern downtown district (Fig. 9). Physically, the local site exists in a floodplain bounded to the south and west by interstates, to the north by the mass of



Fig. 10: Two-Block Site in Downtown Chattanooga  
Source: Tennessee Valley Authority



Fig. 11: Specific Site with "Environmental Corridor"  
Source: Author

downtown and to the east by industrial development. It is presently in decline and in need of conscientious development.

The site's two block location (Fig. 10) is in the Southside area which is under current attention as the next stage of Chattanooga's redevelopment program. This area is slated for a mixture of developments including residential, live/ work, entertainment and eco- industrial. The intention of the eco- industrial development is to promote ecologically minded industries which share resources and waste products.

Part of the planning for the area involves the creation of an "environmental corridor" (Fig. 11) which would serve as both a part of the proposed network of public greenways and a viaduct for connecting the eco- industries. An ecology center and a "One Stop Shop", which would house all of Chattanooga's functions dealing with building permits, inspectors and planning services, are also planned for the area.

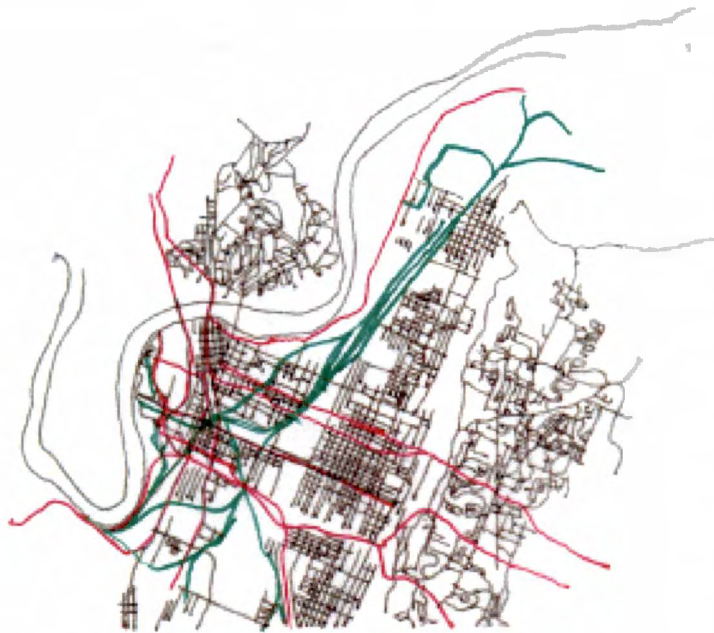


Fig. 12: Railroads, Interstates, Roads and River  
Source: Author

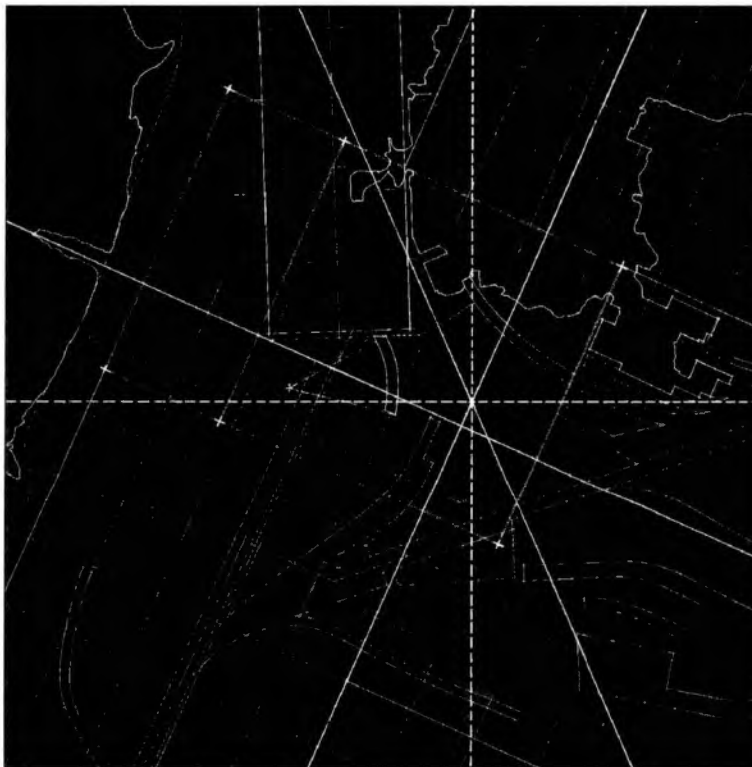


Fig. 13: Underlying Structures of the Local Site  
Source: Author

### Site Analysis

The analysis of the site began with an examination of the city. A casual look at the streets (Fig. 12) reveals much about topography. The gridded street network exists in the floodplain of the Tennessee River while the more chaotic arrangement of streets weave themselves over the hilly terrain. In addition to the natural forces, the railroad and interstate system have played a significant role in Chattanooga's development.

Early in the site selection process a fairly specific site was defined. An examination of the area (referred to as the local site) around the site began. Once again the structuring forces within the area were analyzed resulting in a composite mapping (Fig. 13). This mapping examines the relationships between topographic forces, street grids, block structures, functional and implied zoning, geometries, axial forces and cardinal directions. This layering allowed for a clearer understanding of the forces that have produced and continue to affect the site.

The next stage of the site analysis involved understanding the local site in terms of the previously outlined issues.

The first issue deals with a reading of the local site as a piece of fabric. The understanding here was primarily in terms of underlying structures which produced the physical tapestry of the region.

Initially a composite diagram was created by combining a series of mappings which examined different physical aspects of the local site (Fig. 14). A map of the area (Fig. 15) was generated and then overlaid with the layers of colliding grid structures. This diagram was then combined with geological zoning maps (Fig. 16), which describe the area in

terms of its underlying soil structures, and a functional zoning map, which shows the interweaving of programmatic uses. The final diagram is a layered mapping of physical elements of the local site (Fig. 17). Each of these elements was isolated from the area plan and then stacked vertically in order to understand the sectional nature of the area fabric.



Fig. 14: Composite Fabric Site Analysis Diagram

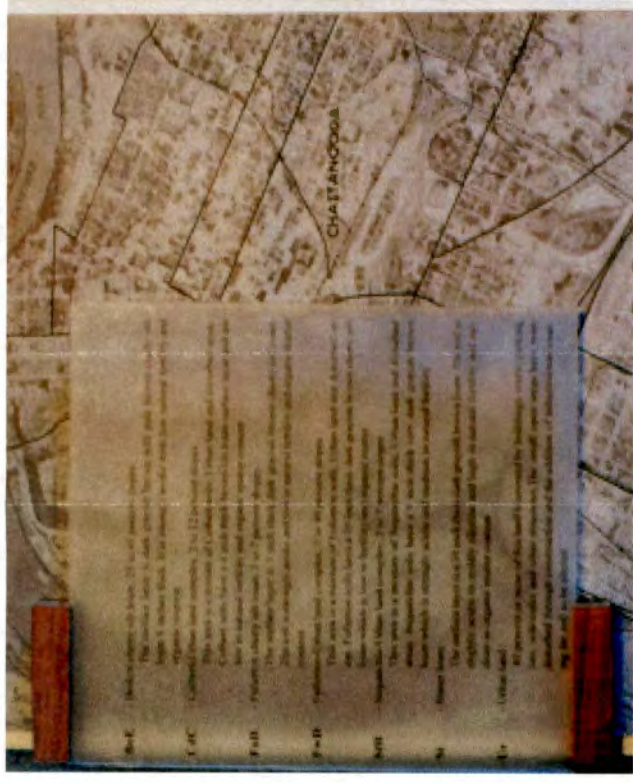


Fig. 16: Geological Mapping with Soil Type Overlay

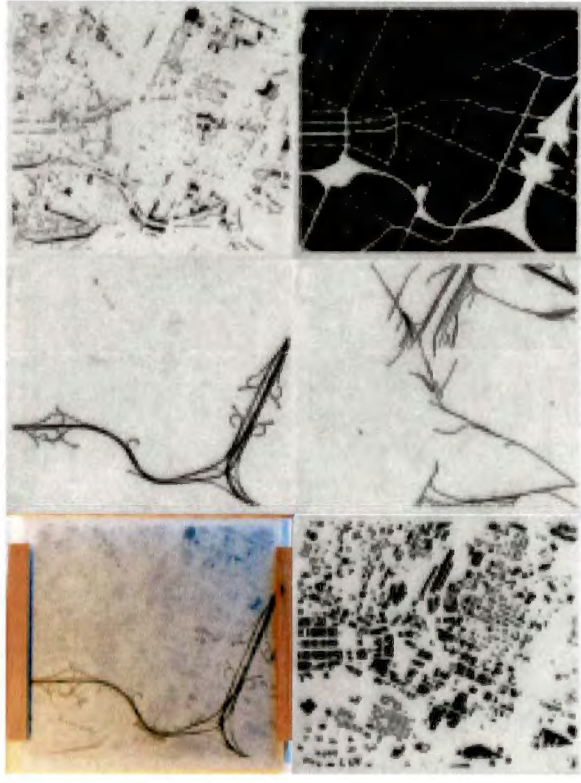


Fig. 17: Exploded Mapping of Physical Site Elements

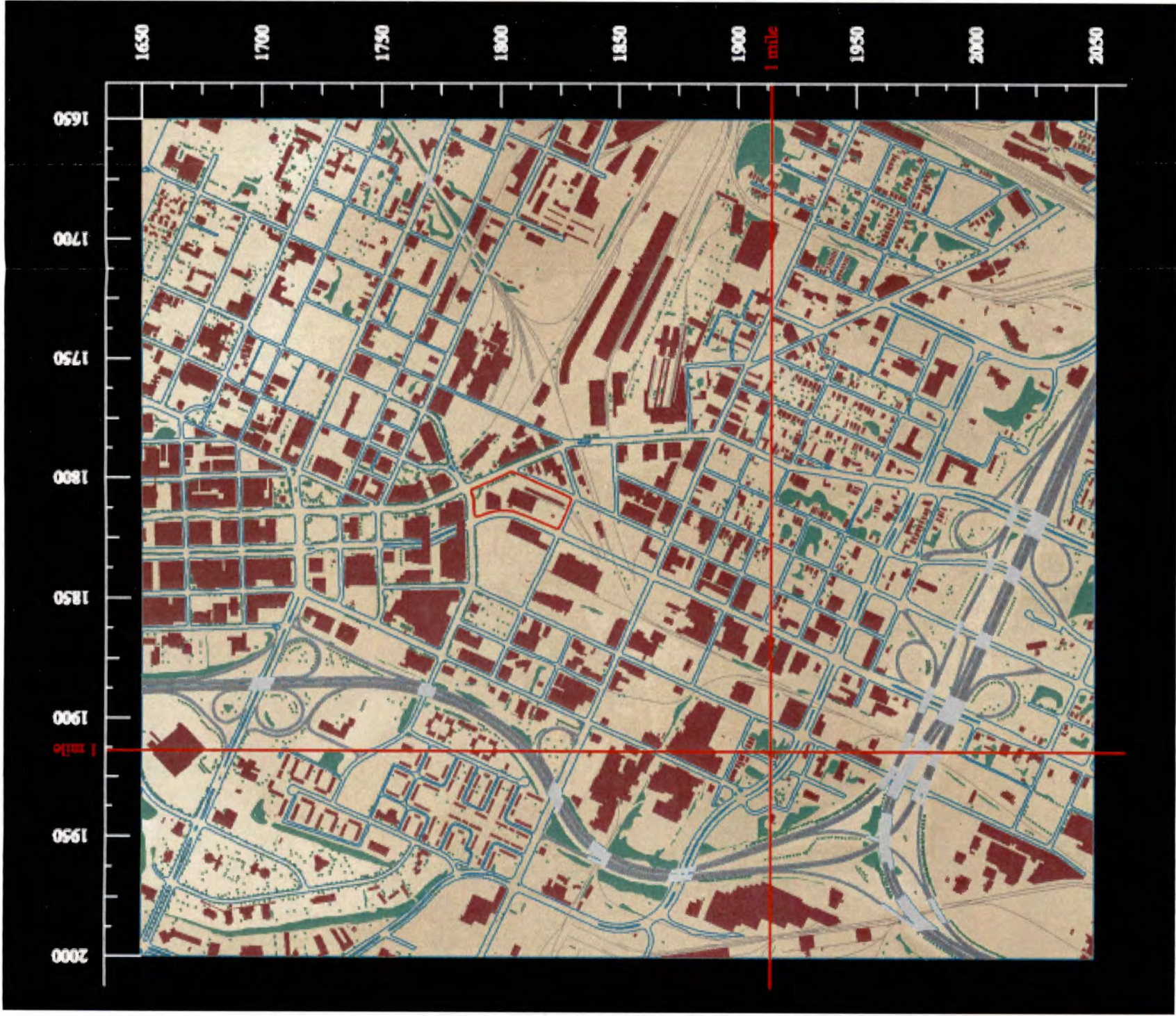


Fig. 15: Local Site Mapping

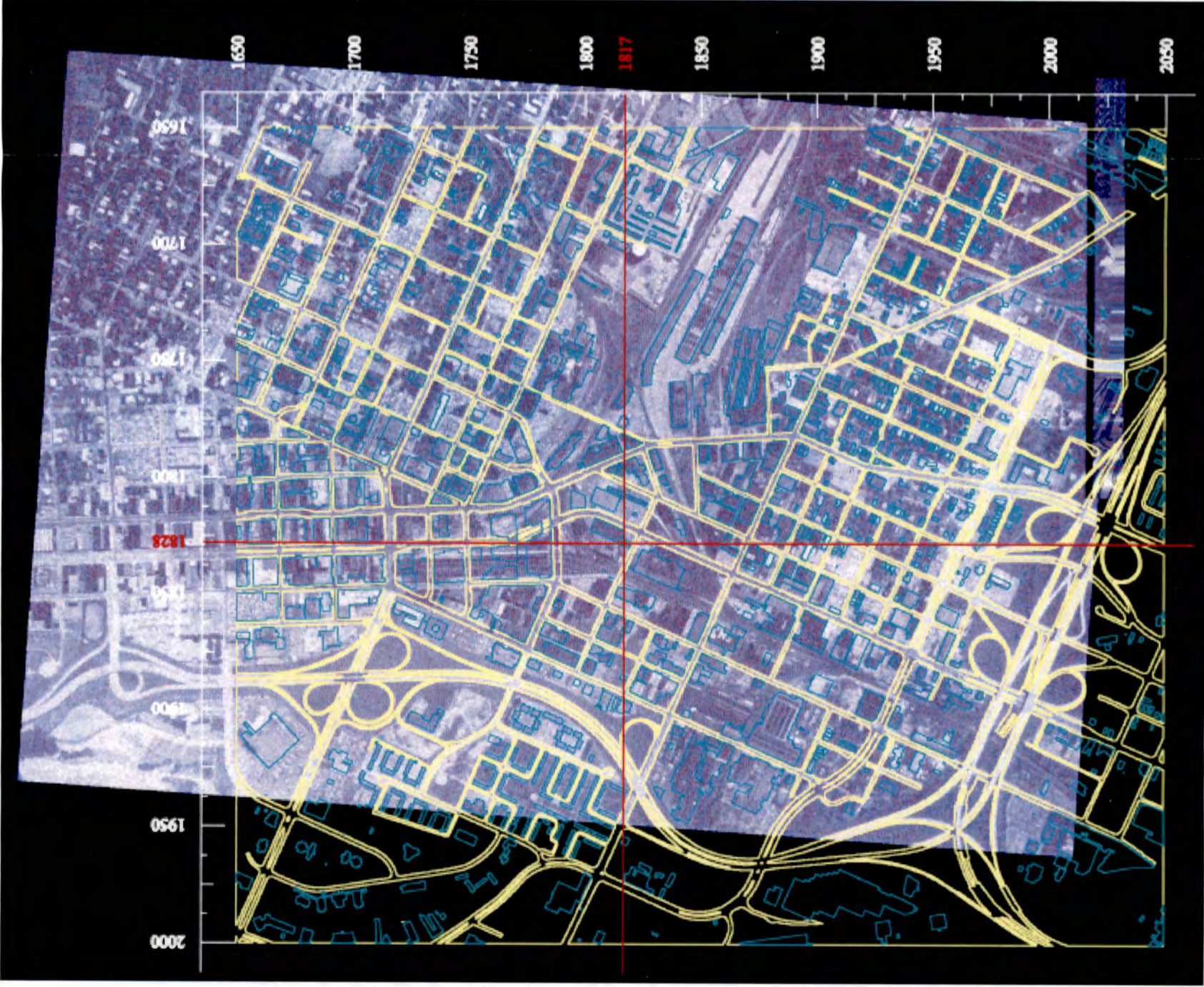


Fig. 19: 1969 Aerial Photo with Computer Map



Fig. 18: Composite Continuity Site Analysis Diagram

The second site issue deals with continuity. The analysis examined the area from both an historical and ecological perspective which were then combined into a composite diagram (Fig. 18).

A 1969 Aerial photograph was overlaid with a more contemporary computer map (Fig. 19) in order to identify infrastructure and buildings which have persisted. This was examined with a civil war era map of the area in order to understand what continuous elements and forces have operated within the area. This line of investigation was continued with a series of old photographs overlaid with a timeline of important events in Chattanooga's history (Fig. 20).

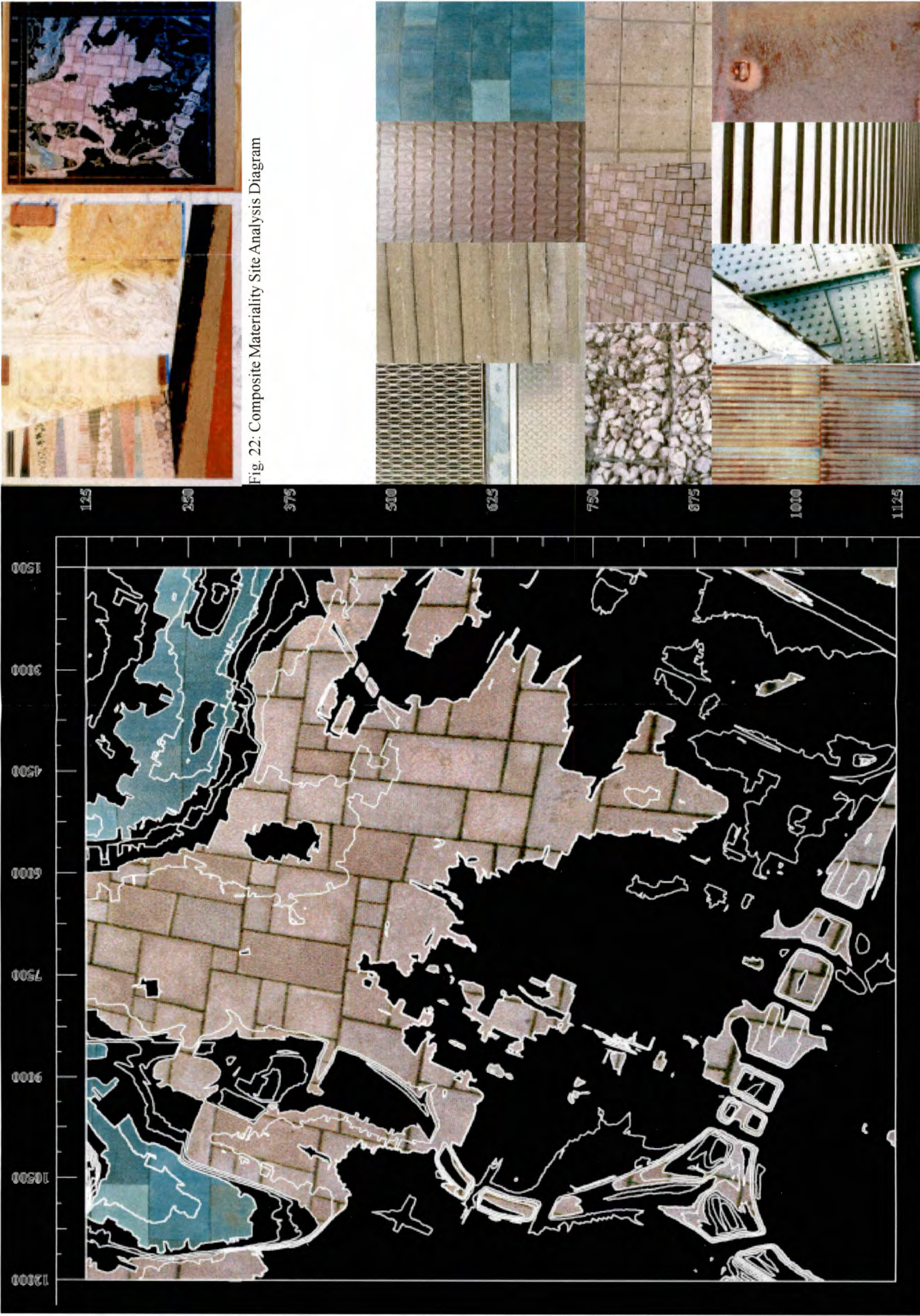


Fig. 20: Historic Photos with Timeline Overlay

The ecological examination was pursued by mapping the potential presence and influence of the proposed environmental corridor. The final diagram layered images of forest fires and new growth with text on ecological succession (Fig. 21) in an attempt to understand the role of the proposed program as a pioneer species.



Fig. 21: Ecological Succession Information



The third site issue of materiality involves an understanding of the area in terms of its material makeup.

Geological maps refer to the local site as “urban land” meaning that the earth has been so developed and redeveloped that any geological classification in terms of coherent soil structures is impossible. Subsequently the area is understood as a constructed landscape. A composite diagram of the area (Fig. 22) was generated in order to understand the material nature of the local site. A “material topographical” mapping (Fig. 23) of the area was generated by infilling a contour map of the area with material images in order to communicate the local site as being made up of accumulated layers of material construction.

The final level of materiality analysis involved a photographic sampling of materials in the local site area (Fig. 24). This was intended as a palette from which a design vocabulary could be developed.

Fig. 22: Composite Materiality Site Analysis Diagram

Fig. 24: Photographic Sampling of Area Materials

Fig. 23: Material Topographic Mapping



Fig. 25: Finalized Site with Southern Geometry Edge



Aerial View of Site Looking Southeast



Aerial View of Site Looking Northeast

## Finalized Site

As part of the local site analysis a serious consideration was given to the combination of the idealized program and the specifics of the site. This resulted in a refining of the definition of what was to be regarded as the site.

The finalized site (Fig. 25) is in a pivotal position within the city. It exists as a zone of combination between the downtown massing to the north and the underdeveloped, more open Southside on a different grid. The site's position also makes it the "headwaters" of the proposed environmental corridor. This role establishes the site as part of the network of Chattanooga's greenways.

The finalized site is currently spread over two blocks. The first piece is a whole block bounded to the east by Market Street and to the south by 13th Street. The second piece is a fragment of the adjacent block to the west. The massive TVA complex provides the northern edge for both pieces while they are split physically by Broad Street. The northern edge of the southern geometry further sub-



Photo Assemblage of Site as Viewed from the TVA Complex

divides the site. This implied edge separates the northern wedge shaped piece from the block which exists within the southern geometry.

The eastern block contains three existing buildings and is adjacent to the proposed location of the “One Stop Shop”. The fragment is currently an open space being used as a parking lot by the TVA complex.



View of Site Looking Southwest Toward the Existing Buildings



View of Site Looking South Down Broad Street from TVA



View of Site Looking Northeast up Broad Street Toward TVA



## ARCHITECTURAL INTENT

### Program/ Site Relationship

Typically, the process of architectural development involves the establishment of a purely idealized program. This is followed by the search for the potential site which then undergoes a process of adaptation to make it conform with the programmatic requirements. From this perspective the landscape is always subservient to human intention. The opposite approach, a rare and refreshing phenomenon, would involve the creation of a program based on the needs of a site. The combination of these two approaches conforms to the idea of mutualism explored in this thesis.

The format of this document contains an initial division between the idealized program and the site. This is understood as a staging point for a mutualistic process of development. An initial intention must exist before development. However, the development of program and site should be mutually supportive. The site will place limits and provide opportunities for the development of the program and vice versa. Similarly, just as a program may require certain site attributes, so may a site suggest certain programmatic functions.

Rather than approach the project with a rigid program and a site analyzed in terms of its potential for programmatic plundering, both program and site were viewed as malleable. The process of site analysis influenced the concept of the program. The program/ site relationship would be further developed through the design process resulting in a further adaptation of each component. Certain aspects of both program and site stayed constant and provided some measure of stability. This general framework allowed for a greater flexibility for changing needs.

## **Program Summary**

These spaces are roughly categorized according to potential users. There is however a great deal of overlap. For example the public facilities will be utilized by the school.

### **School Facilities:**

- Studios
- Workshops (Wood and Metal)
- Material Storage
- Instructors' Offices
- Classrooms
- CAD Lab
- Administration Offices
- Building Yard(s)

### **Public Facilities:**

- Library (with Internet Access)
- Lecture Hall
- Exhibition Areas
- Conference Rooms
- Craft Studios (with Kiln)
- Cafe (with Kitchen)

### **Residential:**

- Adaptable Apartments
- Communal Kitchen(s)
- Laundry Facilities
- Recycling Facilities
- Communal Recreation Spaces

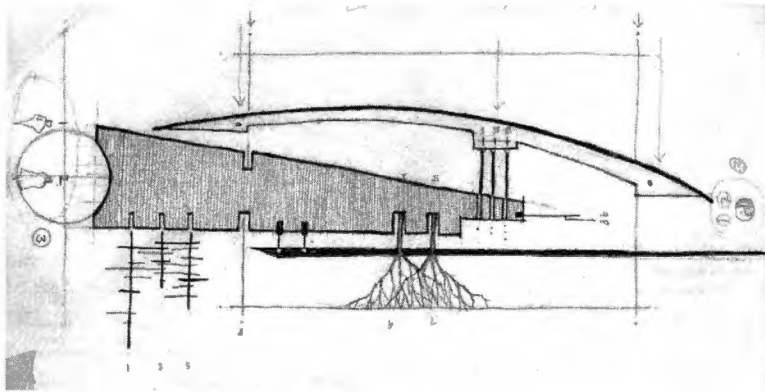
## DESIGN INVESTIGATION

### A Note on the Format

The program and site analysis are part of the design process. Subsequently the division of these elements for the purposes of this document are somewhat misleading. A continuing analysis of both the program and site remained constant throughout the process; a new synthesis in thought often necessitated a reexamination of earlier assumptions. The whole process is therefore cyclic in nature.

The sketches, models and precedents have been arranged in a rough chronological format. This was done to show progression and development. Each page deals with one specific part of the project, whether the site as a whole or one of the pieces within it. Each part was being designed simultaneously resulting in the arrangement of each page as a developing subplot within the larger story. These subplots weave in and out of each other so that though the pieces may appear and reappear the story as a whole develops in a coherent manner.

The design process outlined here is by no means complete. It is a carefully selected dialogue which represents a steady progression to the "final" solution. The design process is by no means linear. Its true cyclical nature involves missteps, tangents and backtracking. Most of this has been edited resulting in a more straightforward, idealized version of the process.



## Process

The constant underlying concept driving the design dealt with separations and combinations of forces into a larger whole. This resulted in an understanding of the project in terms of twos and threes.

The beginning sketches were begun before the preliminary program and site analysis were completed and show a slight shift from the finalized site. However, they do show some early moves which were to remain essential throughout the rest of the process.

One of the first decisions involved the division of the programmatic functions into two pieces. The first piece was intended as a flexible prototype infill building that would contain the production and housing elements of the program while the other piece would be a figural civic building which would contain the display functions and serve as a stable anchor for the urban fabric.

A third element, the parkspace, was added to the program as a result of the need for an open greenspace.

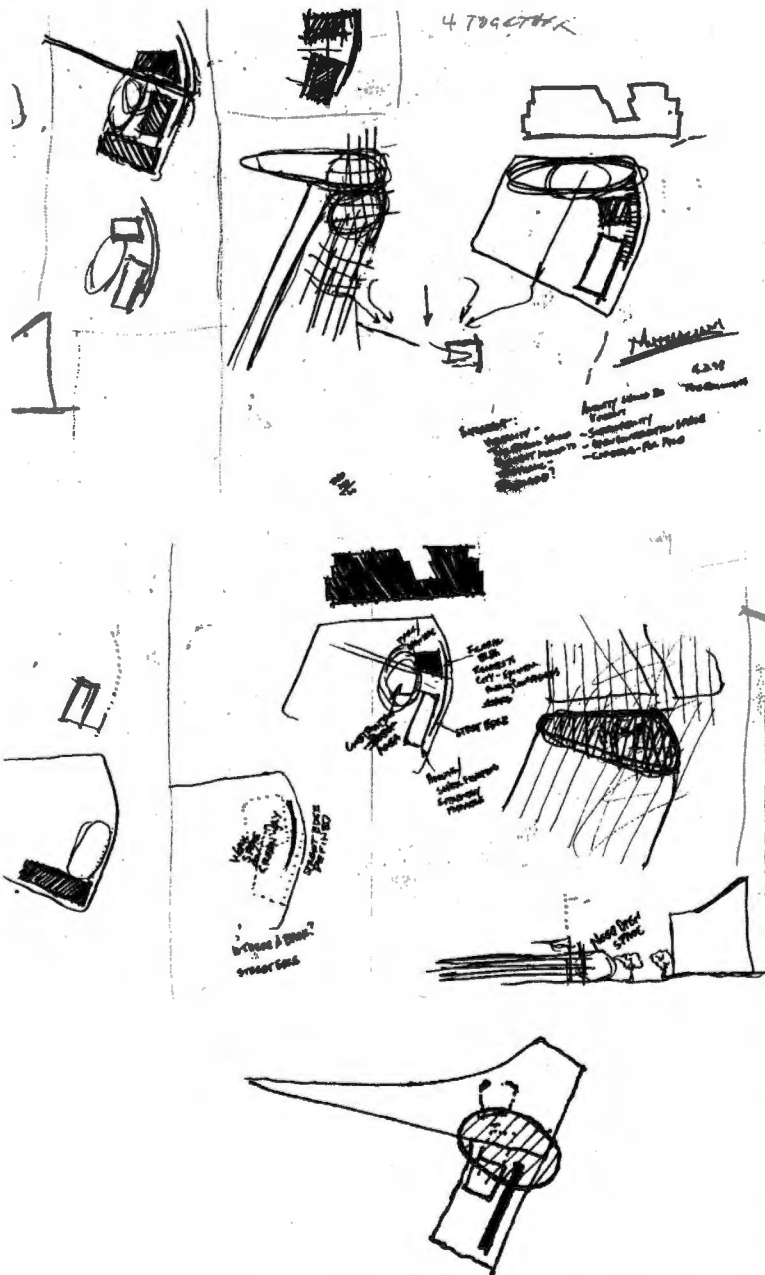




Fig. 26: Existing Abandoned Auto Showroom



Fig. 27: Existing Abandoned Manufacturing Facility



Fig. 28: Existing Abandoned Train Shed



Fig. 29: Existing Abandoned Railroad Bed



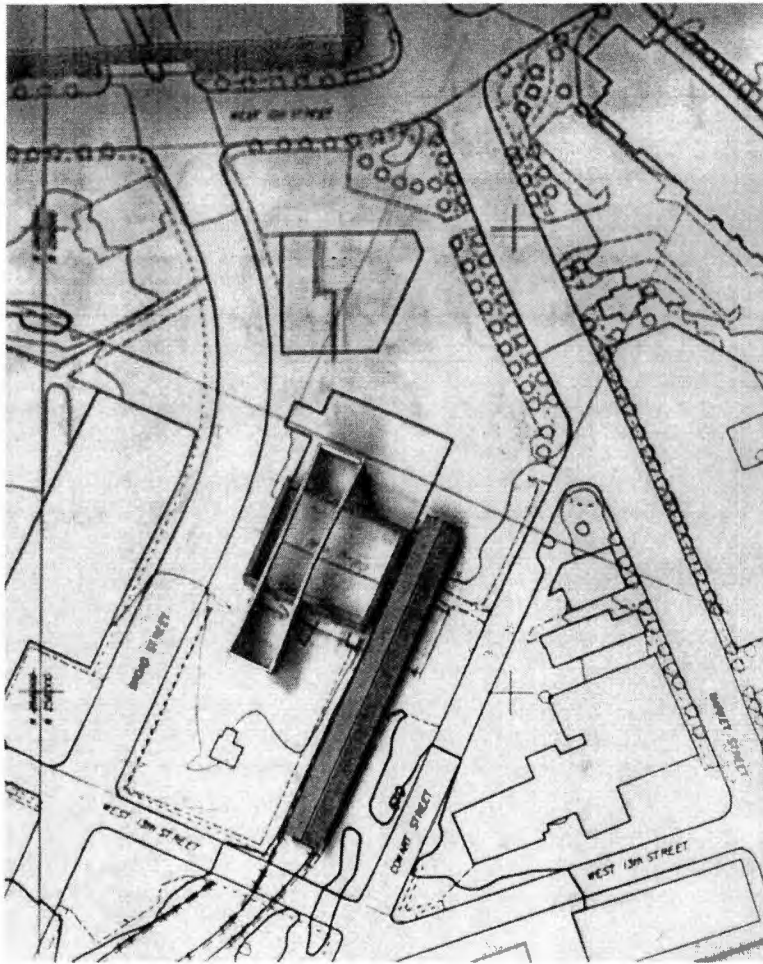
Fig. 30: Potentially Reusable Structure

Three different attitudes were taken towards the existing site buildings. The first attitude was one of removal and was directed toward the old auto showroom (Fig. 26) at the northern end of the site due to its poor position in the fabric.

The second building was a manufacturing facility (Fig. 27). It is an unremarkable building but does have potential for transformation. Its central loadbearing wall divides the building. The northern half would be removed to allow for the cross fabric while the southern half would be gutted leaving a usable shell.

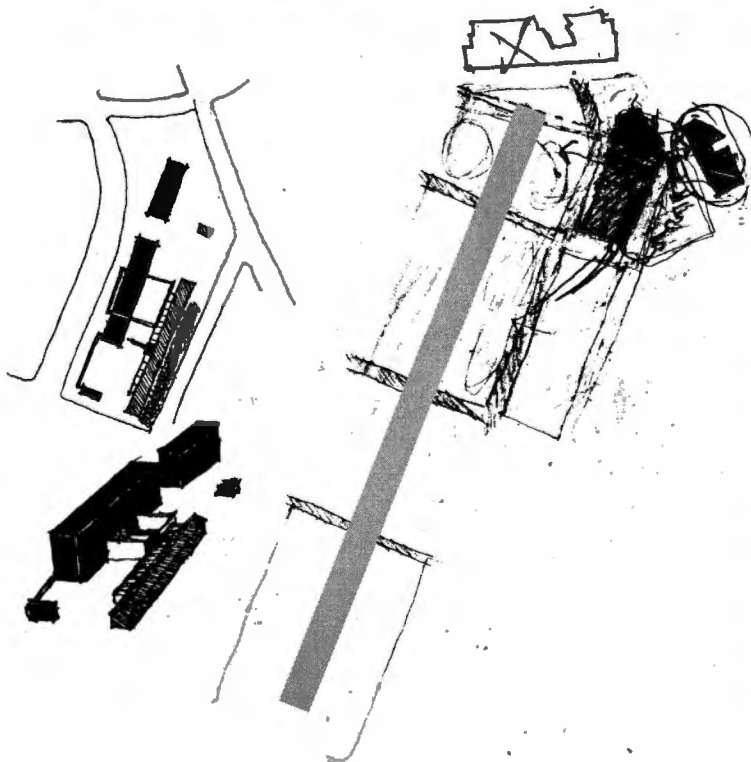
The train shed (Fig. 28) is a linear building which provides a valuable edge for the eastern side of the site. Subsequently, it was renovated as a usable part of the program.

The concern with reuse extended beyond the adaptation of the existing buildings. The abandoned railroad track (Fig. 29) provided the potential for a reuse, in a more romantic sense, of past infrastructure. The demolished buildings were viewed as potential material sources (Fig. 30).

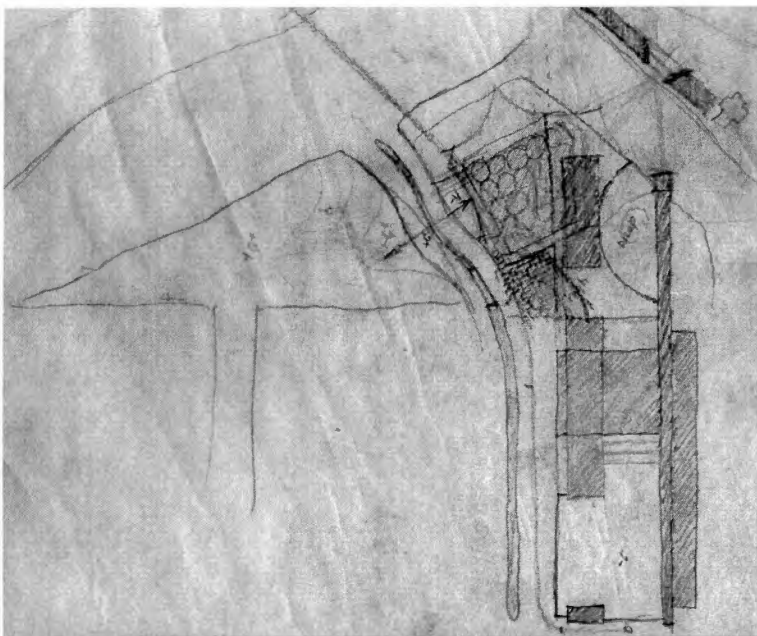
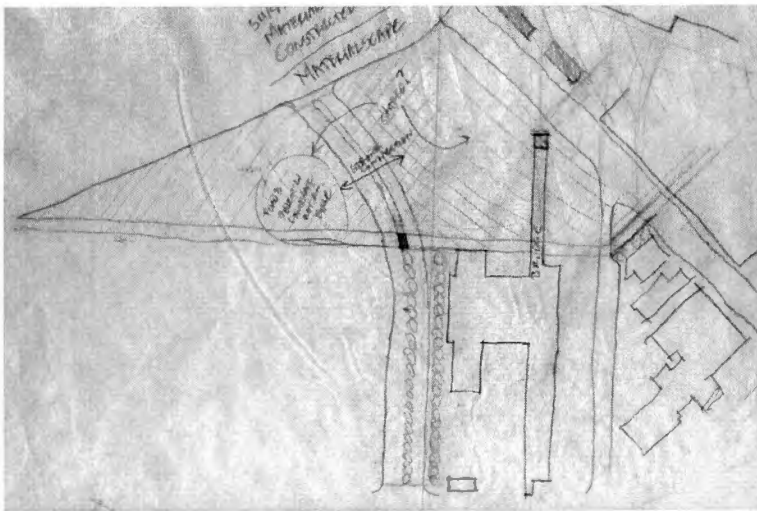
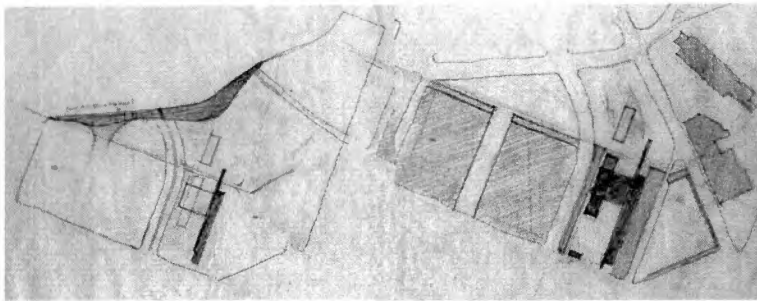


The next step involved the method of intervention. The need for an edge was identified which would front Broad Street and enclose part of the site. A linear footprint conforming to the southside grid was added along Broad Street. This move combined with the existing train shed and the gutted shell to define an exterior building yard.

The northern terminus of this linear edge was initially established at the edge of the southside grid structure although a possible fragment to the north was considered for housing the display functions. The southern terminus of the edge was more arbitrary. There was not enough program to support a complete edge. The building was intended to allow for future expansion and could serve as a prototype that could be extended over the rest of the site and even further through the southside area.

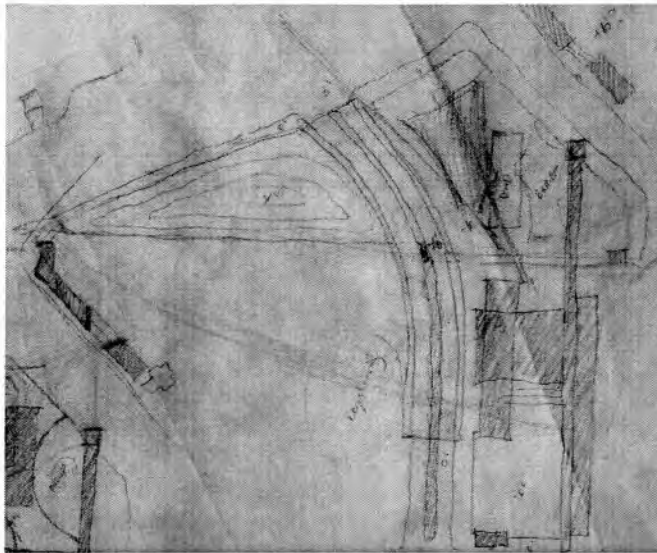


The next element that was added was the crane run. This was located over the remains of the rail line. The crane was established as a means of moving materials across the site.

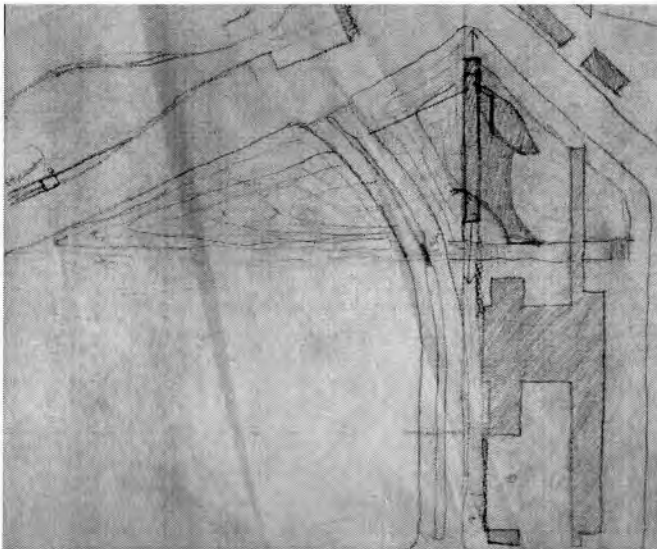


Conceptually and program-  
matically the site was divided  
into three separate pieces.  
However, these pieces contain  
a great deal of overlap. The first  
piece consisted of the previ-  
ously considered production  
facility which exists as part of  
the southern geometry. The  
wedge- shaped park fronting  
TVA was divided into the two  
remaining pieces by Broad  
Street. In order to preserve the  
continuity of the park Broad  
Street was elevated creating an  
object within the landscape  
rather than a divisive edge.  
This allowed for the unhin-  
dered flow of pedestrian traf-  
fic within the park as well as  
creating a landscape experi-  
ence for the motorist. However  
the division of the parkspace is  
still suggested. This was en-  
couraged by allowing the west-  
ern part of the wedge shaped  
part to remain open and unpro-  
grammed while the piece lo-  
cated to the east of Broad Street  
would contain the public dis-  
play functions of the program.  
These functions would become  
figural due to their placement  
within the open parkspace.

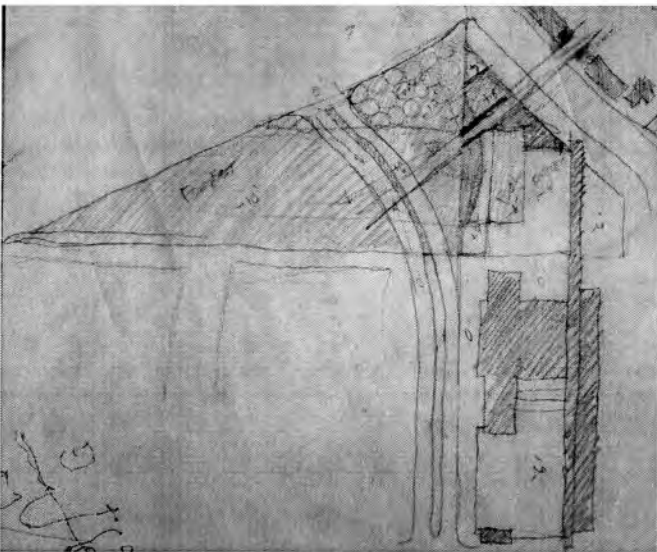
The division of the site into



three elements corresponded with a developing understanding of the roles of each piece. The southern production facility is concerned with building while the western parkspace is about urban landscape. The figural element of the parkspace is the zone of combination and is concerned with building within the landscape.



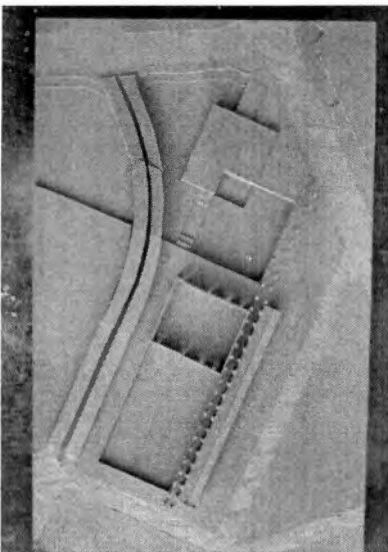
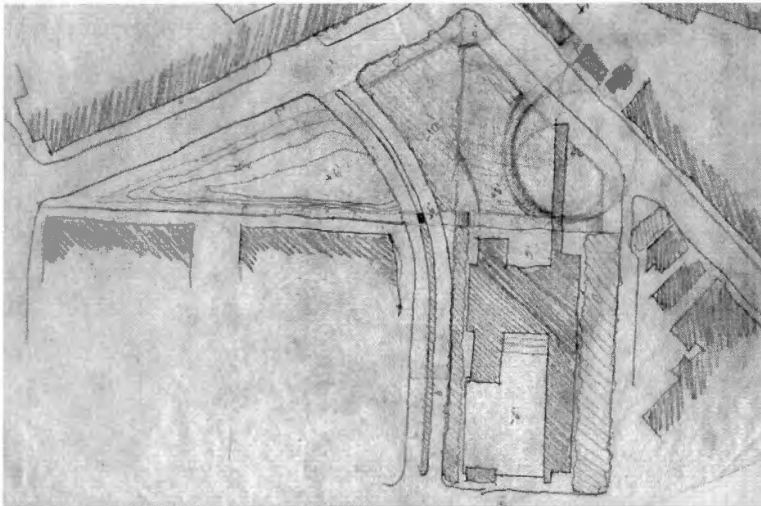
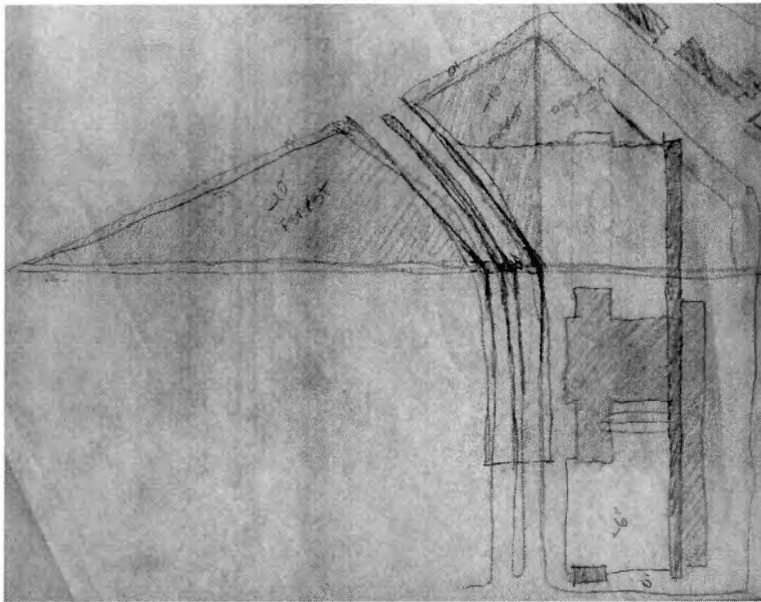
A series of site studies was produced in an effort to understand the relationships between the three elements and the local site. The studies dealt primarily with the parkspace since the larger moves within the production element were basically resolved.



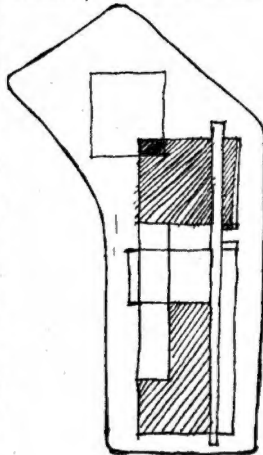
The studies attempted to understand both the nature of the parkspace and how to make the display element figural. The linking joint function of the display zone was also an important issue. Topographical changes, vegetation, massing studies, urban geometries and circulation routes were studied in order to properly define the role of each piece.

The studies resulted in several moves. The implied edge dividing the southern geometry





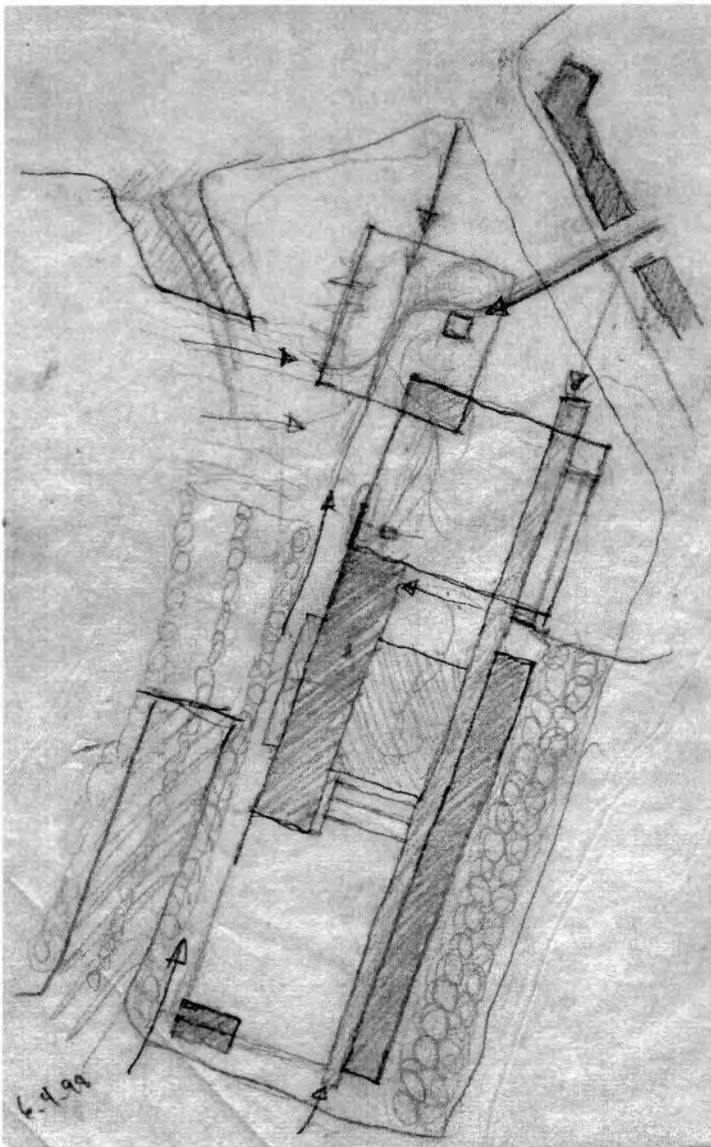
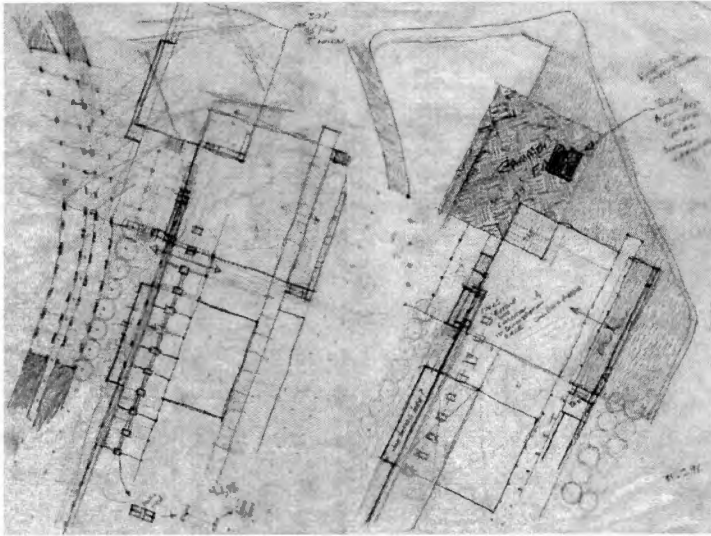
*THE SPACES ARE SOMEWHAT ANOMALOUS BUT LINKED BY CIRCULATION + GEOMETRY*



from the wedge shaped park was emphasized by building up the mass within the southern geometry. This was to be accomplished using both building mass as well as dense plantings of trees. This also served to emphasize the openness of the park space and subsequently the presence of the figural display building within the parkspace.

The mass to void relationship was further explored by a series of massive excavations within the parkspace. This served several functions. First it provided a contrast to the massing of TVA and the built up southern geometry while further emphasizing the implied edge. It also provided a stronger continuity across the parkspace by emphasizing the park as a larger landscape over which Broad Street passes. The excavations also became an opportunity for creating a kind of archeological dig through which to better understand the urban land as a highly constructed landscape.

This series of moves created a strong division between the parkspace and the production



facility. The next moves sought to establish strong connections between the figural parkspace and the production facility. The primary move was the continuation of the southern geometry into the parkspace. This resulted in the creation of an excavated “garden” and a corresponding plinth of the same footprint. The plinth’s position within the wedge-shaped open park made it a figural base upon which to place the display building.

The bridging of the crane across the excavated garden space created a circulation spine which allowed for the movement of materials and people across the site corresponding with the bridging effect of elevated Broad Street. This also served to better connect the production facility to the figural display both in terms of circulation and through the potential for moving built works from the production areas to the display areas.

The excavation of the building yard also created a connection with the northern excavations.



After the major site moves had been established a more serious consideration was given to each piece.

The edge building was studied in terms of flexibility and its relationship to the existing shell. Programmatically this building would contain the design studios, offices, classrooms, administration, library and housing associated with the architecture school while the existing shell would contain the production shops.

The building's role as an edge was the subject of several initial studies. The first considerations were heavily influenced by the previously mentioned stone monuments of Europe clad in light steel scaffolding. Subsequently the combination of stereotomic and tectonic building assemblies were juxtaposed more in terms of imagery rather than as a coherent scheme for the building. The idea of the edge dominated in these first studies in that the rest of the building was placed behind the dominating wall. The edge also played a role as a backdrop for part of the existing shell as a figural move.

But this building is essentially a  
 5m x 10m structure - concrete frame -  
 plus the facade & structure  
 is the figure building?

But then the facade is the building  
 element? What is the figure?  
 the facade line is visible in the  
 rendering - but is it not the  
 building's facade?

But then the  
 facade is the building  
 element? Is it  
 separate from the  
 building? Or is it  
 the building's facade?

A building is a structure that  
 has a function - a house, a school,  
 a shop, a factory, etc.

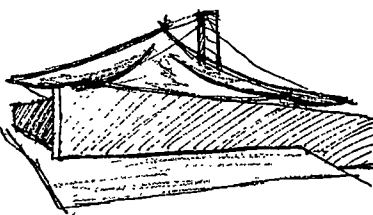
But the form shows also what the ground  
 has to do with the building - in a  
 way - in the way of the building's  
 facade.

The facade is the building  
 element - but is it not the  
 building's facade?

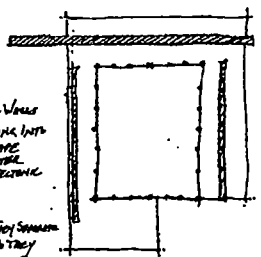
A building is a structure that  
 has a function - a house, a school,  
 a shop, a factory, etc.

A building is a structure that  
 has a function - a house, a school,  
 a shop, a factory, etc.

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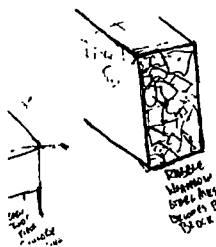
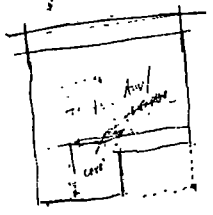
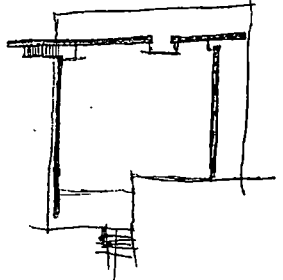


Heavy Mass, Light Roof: Cantilever, light steel

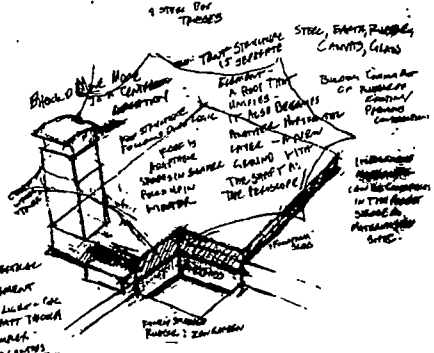


Massive Mass  
 Extruding into  
 Landscape  
 Light, Technical  
 Box  
 Are They  
 Same?  
 Are They  
 Different?

How do they relate?  
 How to be placed where examine the landscape?  
 Programmatically - How to be 'sustainable'  
 Raise the floor - Raise the building's base and  
 act as heat sinks - provide structure  
 Technical frame - provide light, air  
 permeable skin  
 Glass, screens  
 Why heavy roof? - separate element?  
 How this facade box adapts to seasons  
 How to collect water, sun, wind?



Visible  
 elements  
 show  
 how  
 the  
 building  
 is  
 made

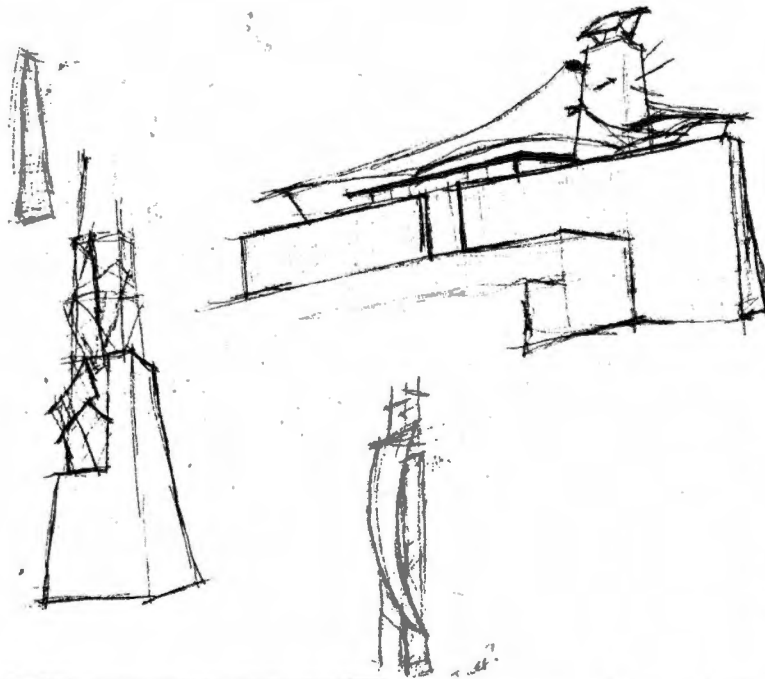


Vegetation  
 Element  
 in  
 landscape  
 can  
 be  
 used  
 to  
 create  
 a  
 canopy  
 over  
 the  
 building  
 to  
 provide  
 shade  
 and  
 reduce  
 heat  
 gain  
 in  
 the  
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 to  
 improve  
 energy  
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 and  
 provide  
 a  
 more  
 pleasant  
 outdoor  
 environment

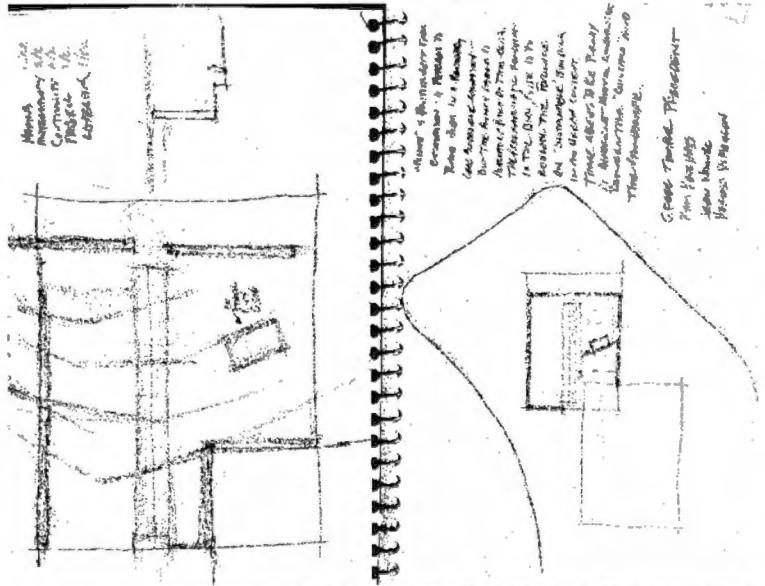
The development of the figural building was to be a much more complex problem. The issues explored in this piece reflected evolving personal attitudes towards the relationship of building and landscape. Whereas the edge building sits "lightly" on the land the figural building was intended to be much more integrated.

Programmatically the figural building contains spaces intended for the public's use. The intended spaces consist of an exhibition hall, conference areas, a lecture hall, administrative offices and a cafe. These functions are intended to continue the school's mission of education by offering public displays and lectures on sustainable development in terms of both planning and constructing.

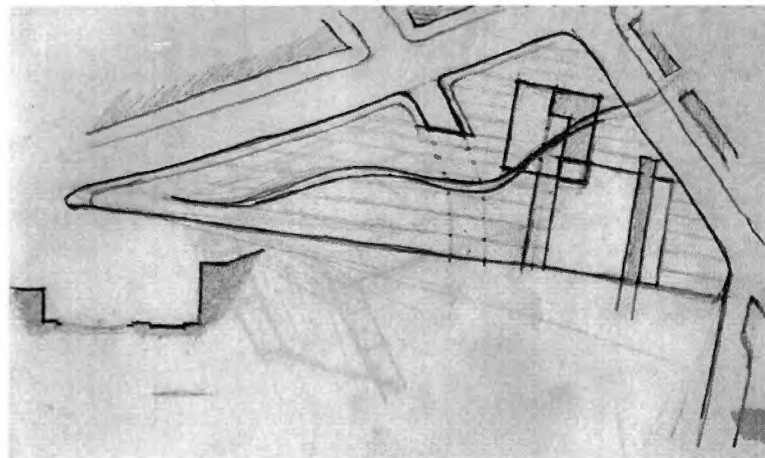
Initially the building was intended to sit upon a rammed earth plinth in order to emphasize its presence. Massive rubble walls were considered both as a means of reusing the demolished buildings and as a way of sheltering and emphasizing the glass box container which contains the program.



The figural presence of the display building was emphasized in these early schemes by the contrast of several elements. The massive rubble walls and plinth would contrast with the light glass box and an ephemeral canvas roof while being tied together by a sculptural observation tower.



The desire to integrate the figural building into the landscape caused a reconsideration of the nature of the plinth. From the approach it would appear as a plinth but upon engaging the building one would realize that the plinth was actually part of the building.



Due to the increasing complexity of the building's relationship to the landscape a strategy of simplification was used in respect to the formal and material elements. The resulting desire was to create a deceptively simple appearing building from the exterior that would be revealed in its spatial complexity as one engaged it.

The tower element and the canvas roof were eliminated in favor of a much more platonic initial appearance of form.

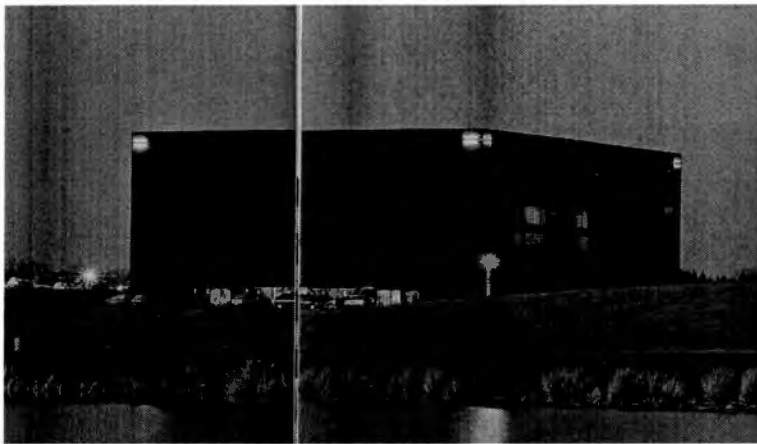


Fig. 31: Onyx Cultural Centre by Jean Nouvel

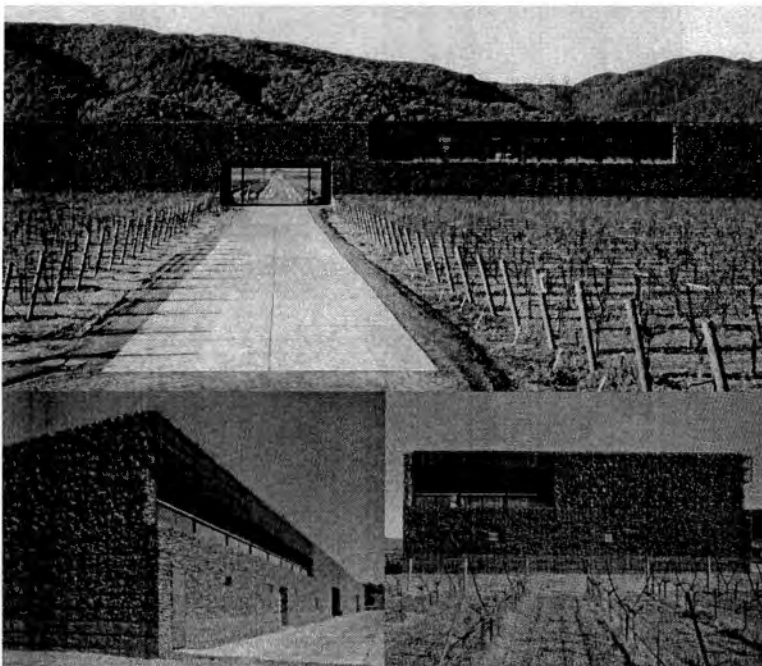
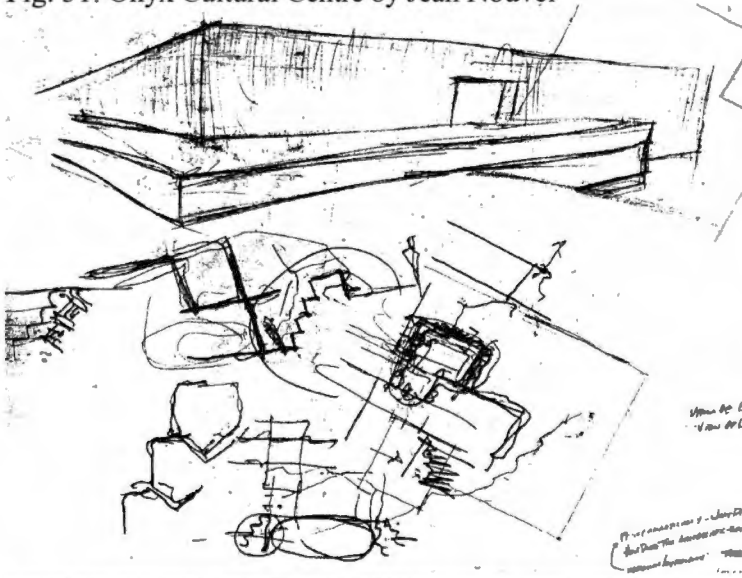
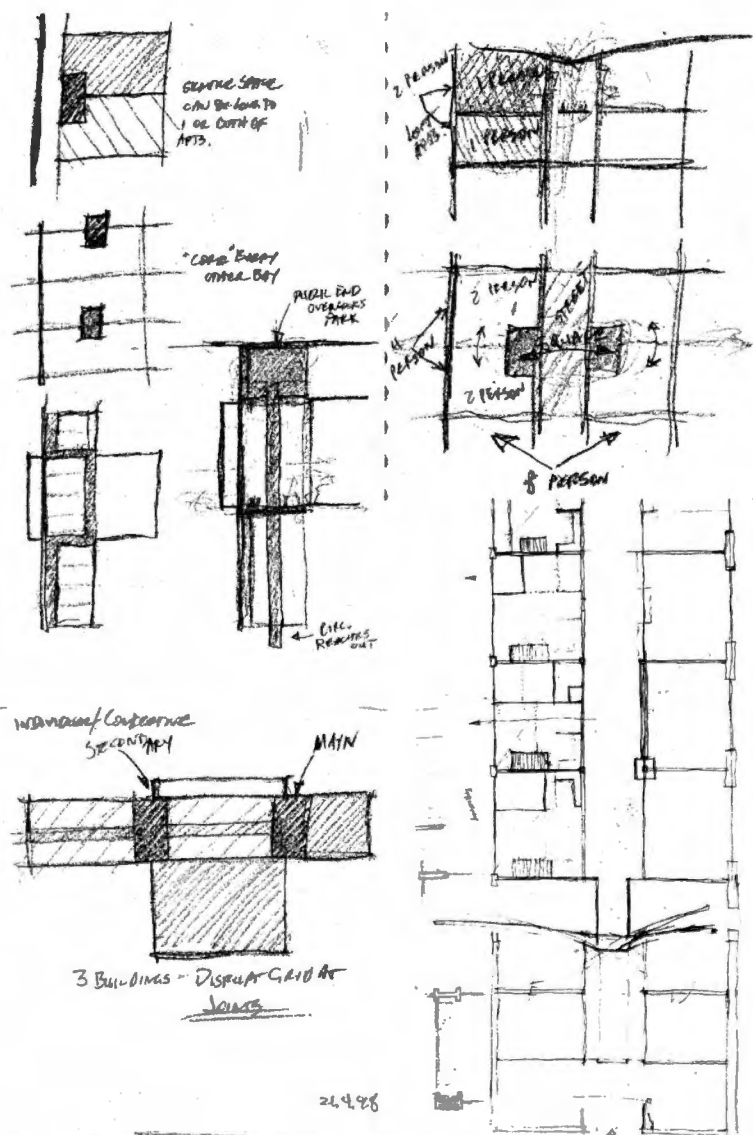


Fig. 32: Dominus Winery by Herzog and de Meuron

Several precedents were examined in an attempt to develop strategies for enclosing the complex interior within a tight container. These studies dealt primarily with the skin of the building and emphasized materiality.

The Onyx Cultural Centre (Fig. 31) by Jean Nouvel is a figural building due to its position, pure geometric form and exterior. The value of this project is in its screen skin which creates a layering effect. The building is sheathed in a homogenous skin but due to its semi-transparent nature the exterior of the building is subtly articulated by the variety of functions inside.

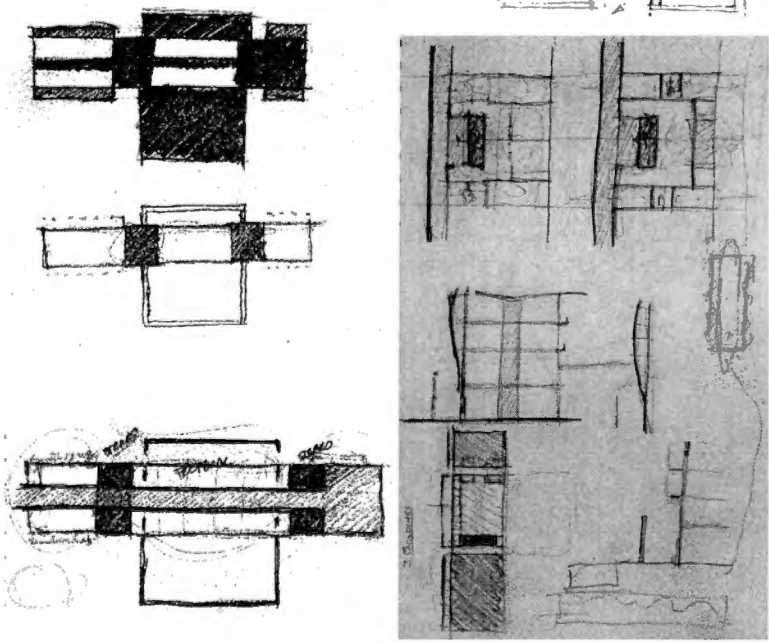
The Dominus Winery (Fig. 32) by Herzog and De Meuron is similar to the cultural centre in its primal exterior which encloses a variety of interior spaces. This project houses a largely glass box within a separate skin of basalt rock bound in steel mesh. This project, combined with observations of interstate retaining walls, served as the inspiration for the rubble walls of the display building.



The continuing development of the edge building focused on a process of zoning. This delineation would be accomplished by the layout of structure and the articulation of building skins.

In order to make the edge building highly flexible there needed to be an establishment of the stable public service spaces which would allow for the more private served spaces to be highly adaptable. The public service spaces consisted primarily of circulation (people and services). The extent and location of these spaces needed to be highly defined. The individual infill spaces needed only a minimum level of definition due to the adaptable needs of a changing population.

The zoning of the building occurred three dimensionally. Circulation was defined by the establishment of vertical service cores and a central corridor. Adaptable spaces were defined so that they would be able to expand both horizontally and vertically. For example an apartment could occupy a single structural bay, several bays or even multiple floors.



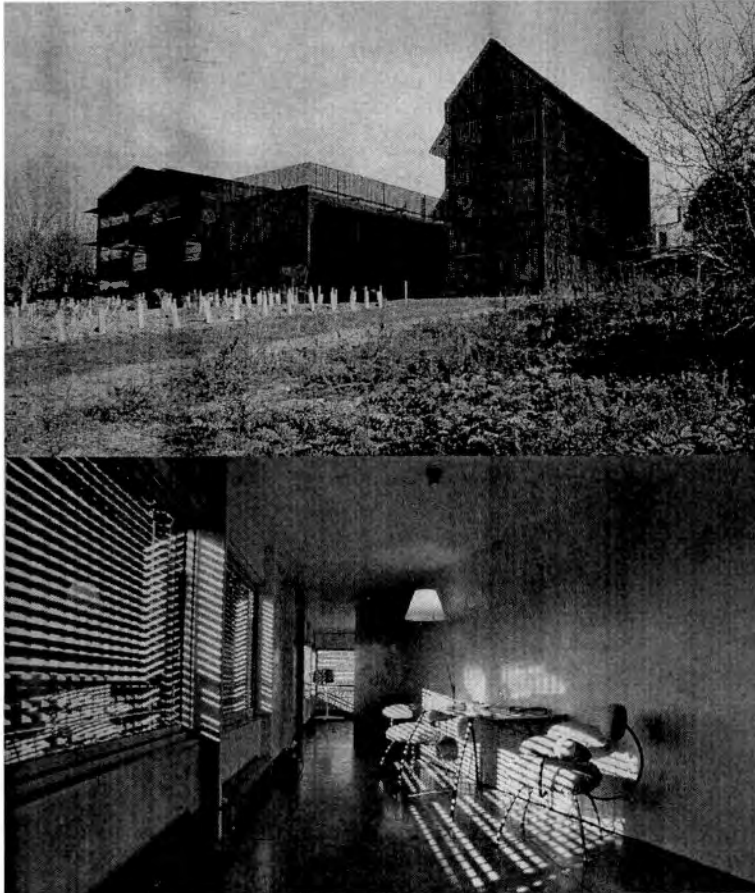
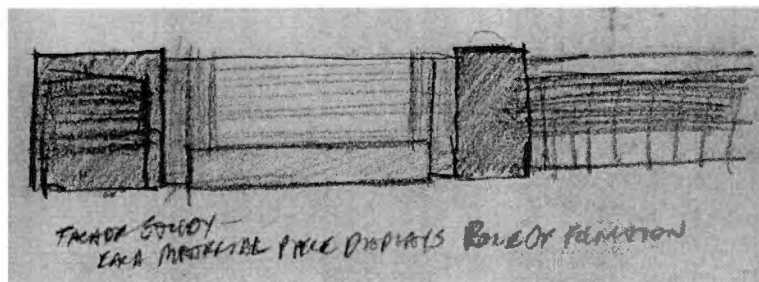
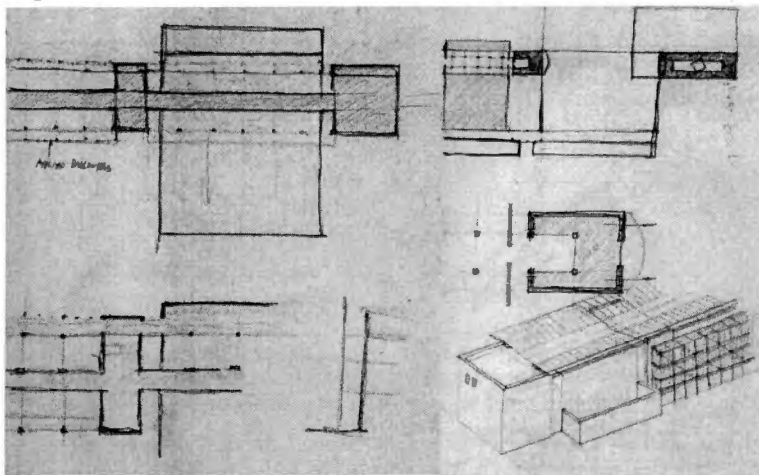


Fig. 33: Saint-James Restaurant Hotel by Jean Nouvel



Zoning of the building created a layering from the public interior street to the private interior spaces and culminated in an exterior zone which was considered as a potential “porch” for the private spaces. An expression of the relationships between the collective nature of this exterior zone and its individual components was sought through the building’s skins. This combined with a desire to create a layered exterior and resulted in the idea of a facade which could be enlivened by individuals articulating their respective space.

Each face of the building has a different nature and subsequently required a different face. The side facing Broad Street is the most public face of the building. A large screen similar to a billboard would cover the “porch” spaces on this side of the building. Similar in nature to the screens on the Saint-James Restaurant Hotel by Jean Nouvel (Fig. 33), this skin would appear as one large metal screen but would be made up of individual operable panels whose use would create a dynamic exterior.



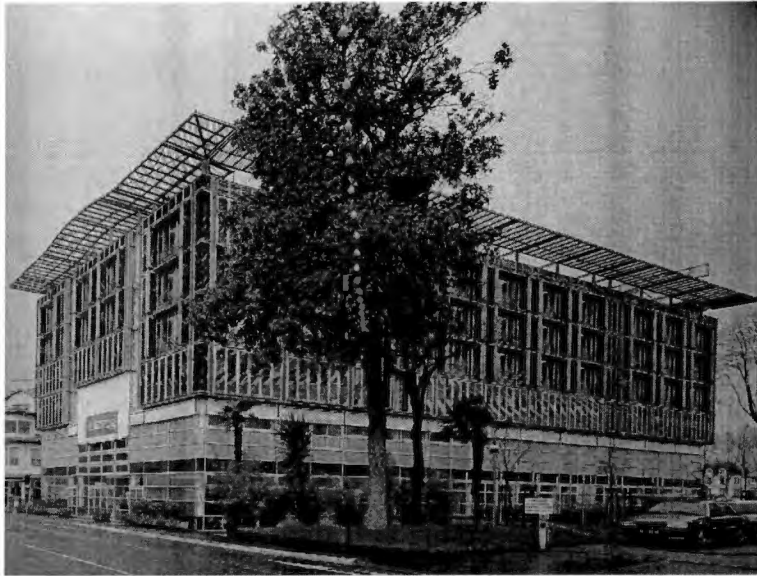
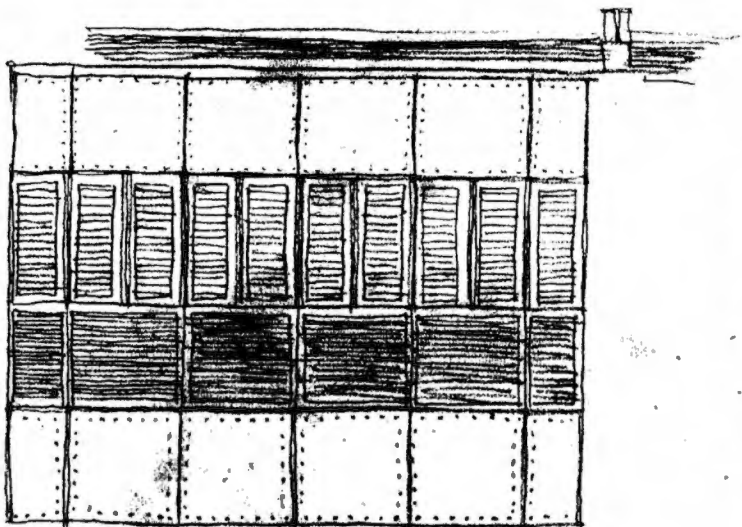
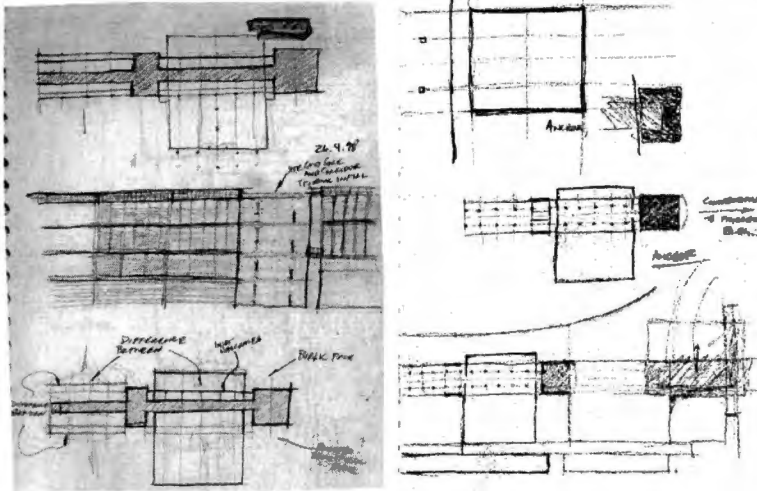


Fig. 34: les Thermes Hotel and Spa by Jean Nouvel

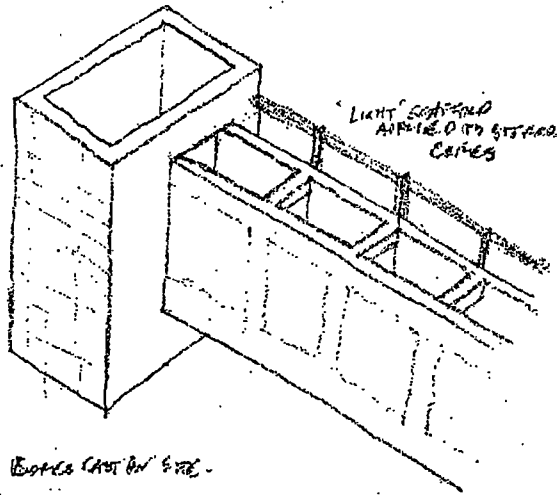


On the Broad Street side, the intersection of the edge building with the existing shell gave rise to a different facade condition. The “porch” zone is removed giving rise to a glass facade and emphasizing the presence of the remanent of the existing shell.

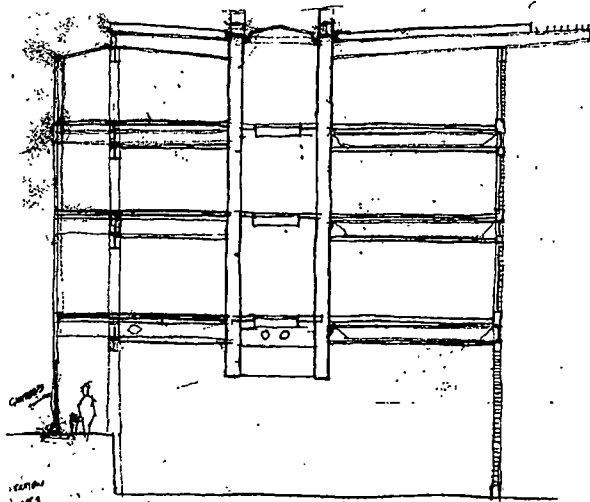
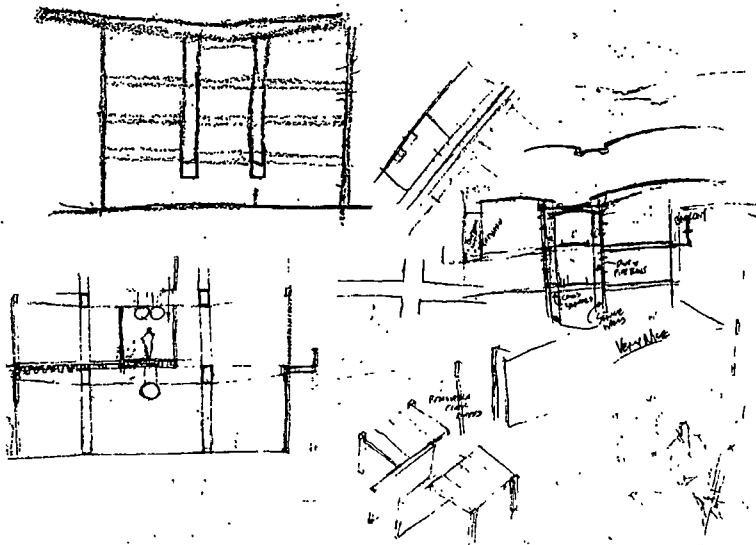
The southeastern facade overlooks the building yard and train shed. This more private nature of this side of the building combined with direct gain solar considerations and resulted in the consideration of a more individualized and flexible facade expression.

In contrast to the metal screen considered for the Broad Street facade, this skin would be composed of wood. A delineation of floors and structural bays would be represented in this facade resulting in different uses of the material.

Similar to the individual expression within the collective metal screen “billboard”, this facade would utilize movable louvred panels. Once again Jean Nouvel’s work was studied specifically in the form of the les Thermes Hotel and Spa (Fig. 34).

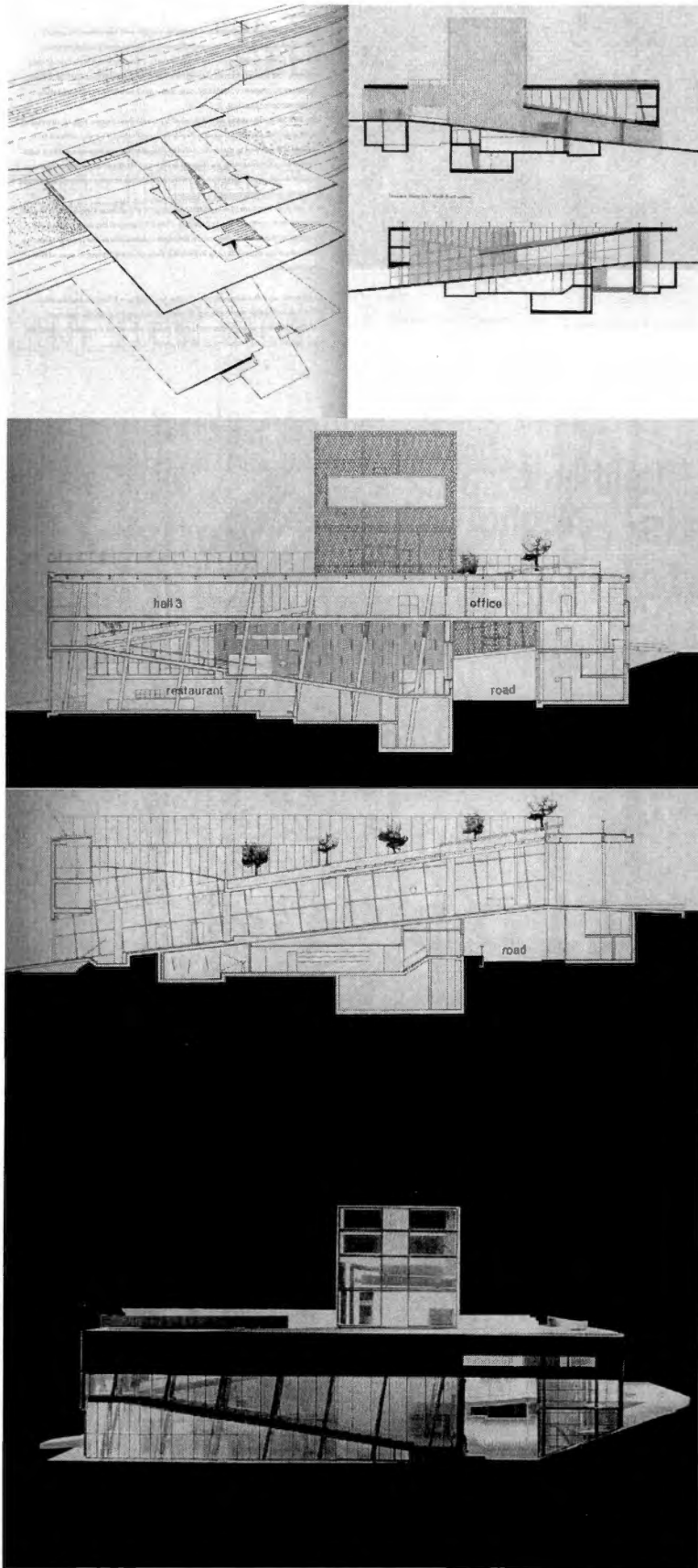


BLOCKS CAST ON SITE -  
 HORIZONTAL CORE AS BEST OPTION - CAST ON  
 GROUND + LIFTED INTO PLACE  
 HOW TO SUPPORTED UNDER IN CONSTRUCTION AND PROCESS?  
 FORMWORK PANELS USED AS INT. FINISHES



These skins are tectonic and were meant to represent the individual and adaptable nature of the enclosed spaces. This contrasted with the developing structural system of the building's interior. The pragmatic consideration of how to place the intervention through the existing shell without disrupting its foundations resulted in the idea for a structural bridge. This evolved into a reinforced concrete truss that would be supported by the concrete service cores and would span the existing shell creating an open floor plan. The service corridor would exist within the truss.

The idea of mutualism was carried into the process of construction. The idea was that the truss would be poured in lifts and that after each stage a light steel scaffold would be raised to act as a staging area for the next lift. This scaffold would receive support from the truss and would be left after the pours as the structure for the individual spaces. The concrete formwork would then be re-used as the floor decking.

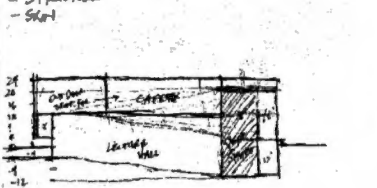
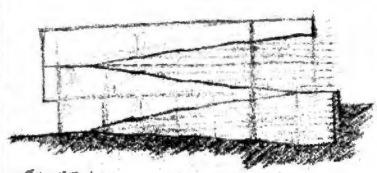
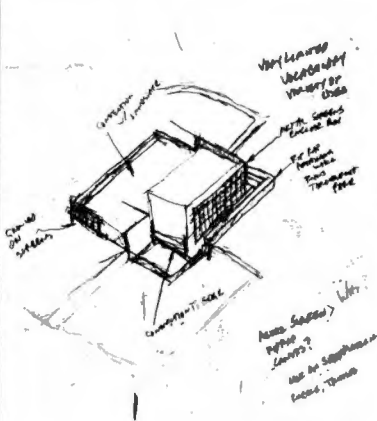
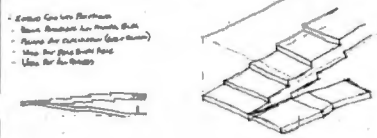
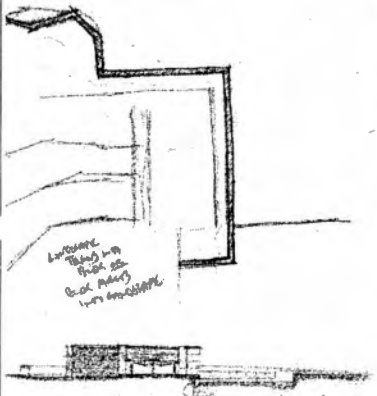
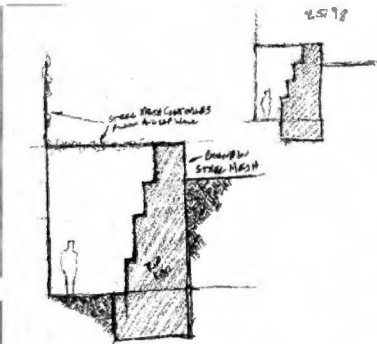
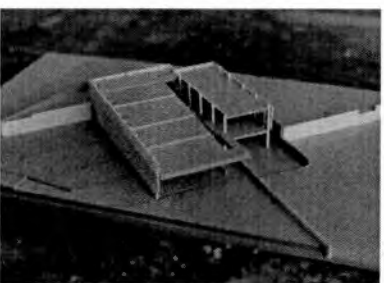
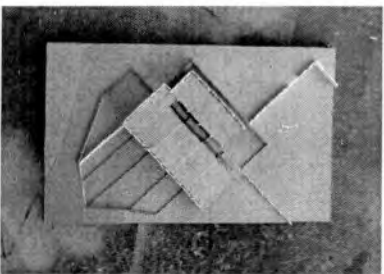
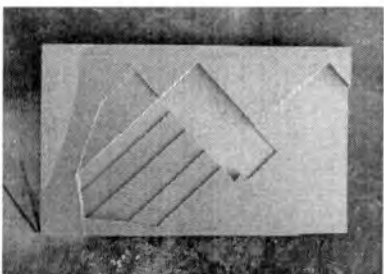
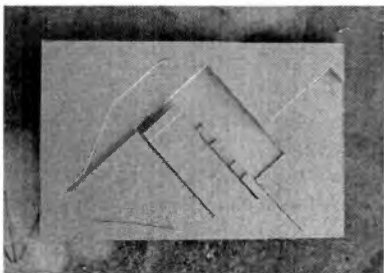
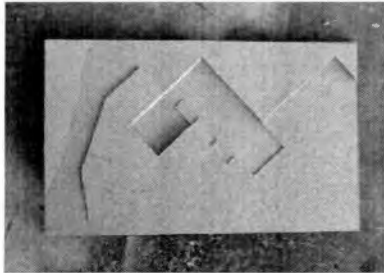
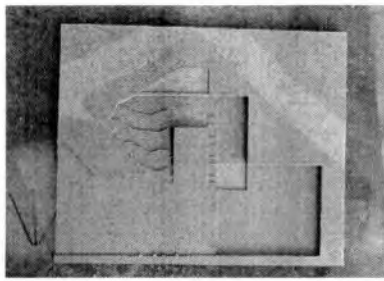


The developing understanding of the display building was heavily influenced by the Kunsthall (Fig. 35) by Rem Koolhaas. This important building deals with several important issues.

The Kunsthall contains several different programmatic functions within a tight form. The interior is very dynamic spatially with each part of the program finding its own expression while being visually linked with the rest of the building. A circulation ramping system ties the pieces together and allows a progression through the building that is vital to an understanding of the spaces. The interior of the building also takes on a topographic feeling due to the spiraling and movement of the floors. The ground itself seems to slide into the building to become the lowest in a series of interior landscapes.

The display building is very similar to the Kunsthall in the separation and linking of its diverse programmatic elements by a circulation ramp. The interior transparency between spaces and the feeling of float-

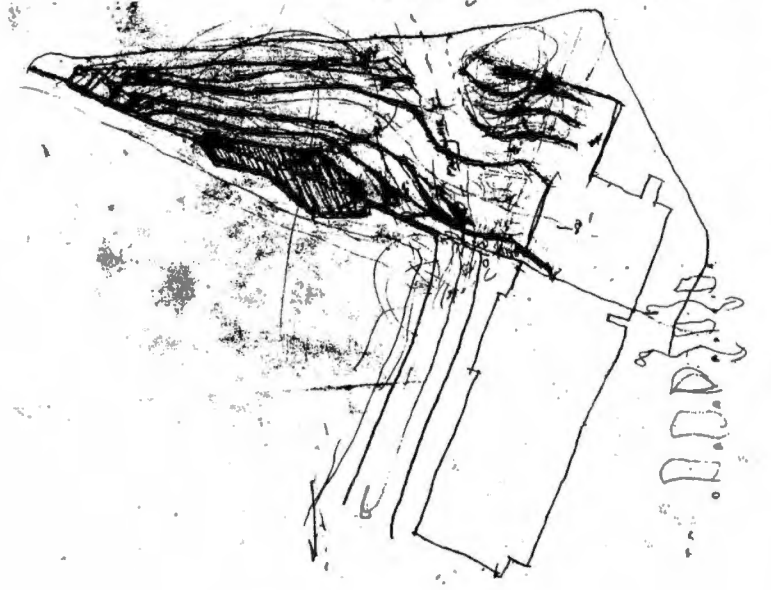
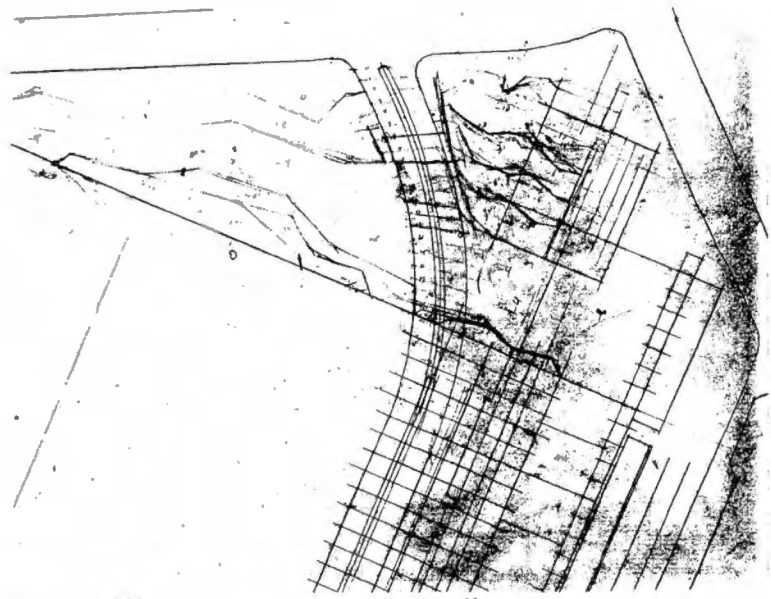
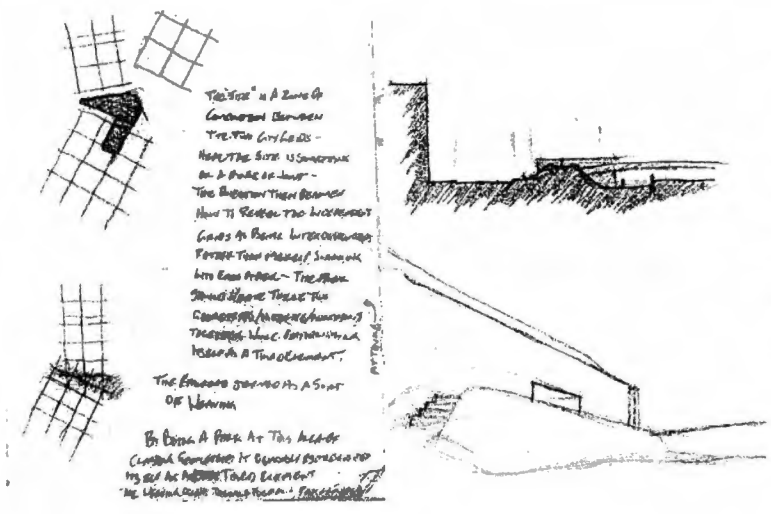
Fig. 35: Views of the Kunsthall by Rem Koolhaas



ing landscapes were also explored.

The next stage in the figural building's development was a consideration of the interaction of the building with the landscape. A series of landform models were generated in an effort to obscure the definite boundary of where the building stopped and the landscape started.

What resulted was the appearance of a plinth which was really an excavation defined by the large rubble filled retaining walls. The building would appear to sit upon this illusory plinth while in reality it would extend into the excavation. The contoured landscape would then flow into part of the building to become the floor of the lecture hall. The circulation ramps link the interior spaces while dividing the interior of the building into two pieces. The eastern piece is seen as a fragment of the edge building and reflects those attitudes in the way it touches the ground. The western piece is integrated into the land and is seen itself as a series of stacked landscapes.



Only the relationship of the landform mass to the figural building is resolved for the parkspace. The further problem of defining the role of a material parkspace in an urban setting is beyond the scope of this achitectural investigation.

Carol Burn's article *On Site* and some of the landscape work of Adrian Geuze proved to be major influences on the developing attitudes toward urban landscape. Rather than creating an idealized, romantic garden, a purely stereotomic strategy of unearthing a materialscape was explored.

Several studies of topographical manipulation were made which explored the contrast of a flowing landscape with the controlled grid of the rest of the facility. Most of these moves seemed highly contrived and were disregarded. In the end a simplified approach was taken in which the park's edges were bermed to create a boundary against the mass of TVA. The rest of the park was allowed to flow under elevated Broad Street and into the rest of the facility.

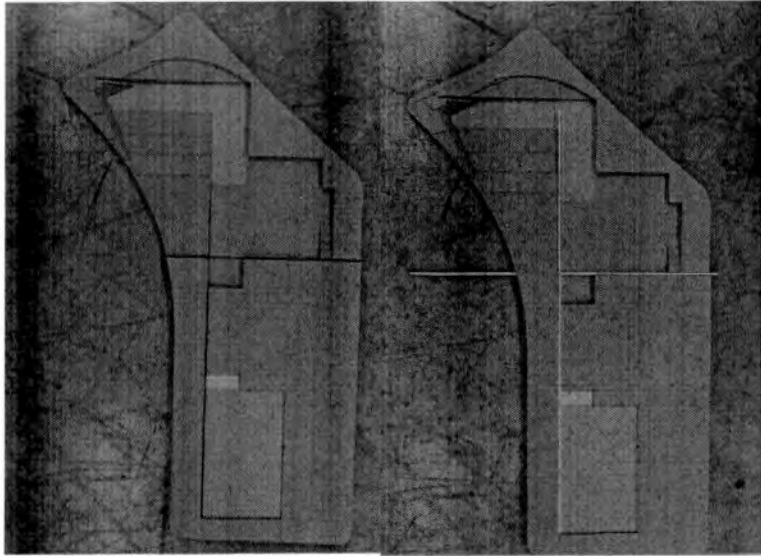


Fig. 36: Excavations

Fig. 37: Edges

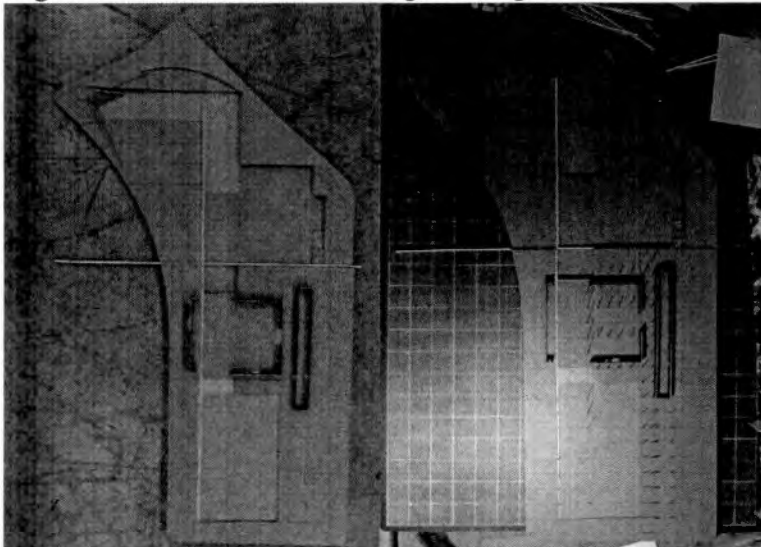


Fig. 38: Existing Buildings

Fig. 39: Crane Run

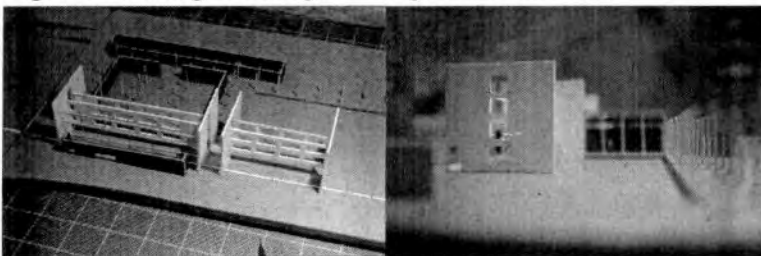


Fig. 40: Concrete Structure

Fig. 41: Core End Wall



Fig. 42: Steel Scaffold

Fig. 43: Structure Plan

The building of a working model which would explore the site relationships and the process of construction was utilized.

The model began with the landform excavations (Fig. 36), the purely stereotomic process of construction. The implied edge of the southern grid and an edge defining circulation across the site were then given form by the placement of concrete retaining walls (Fig. 37). This was followed by the addition of the retained existing structures (Fig. 38) and the imposed crane run (Fig. 39). Construction of the edge building began with the concrete cores and trusses and the light steel structure (Fig. 40 - 43). The structure was continued across the site beyond the envelope of the edge building both to create a fenced edge for the building yard and to suggest the nature of future expansions. The next step involved the roofing of the edge building (Fig. 44) by using composite wood and steel trusses which would span across the steel scaffolding to allow for a free upper floor plan similar to

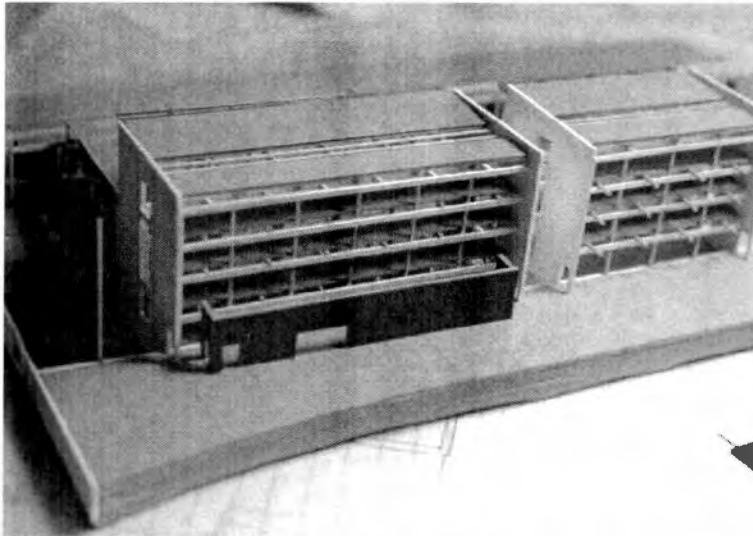


Fig. 44: Edge Building Roof

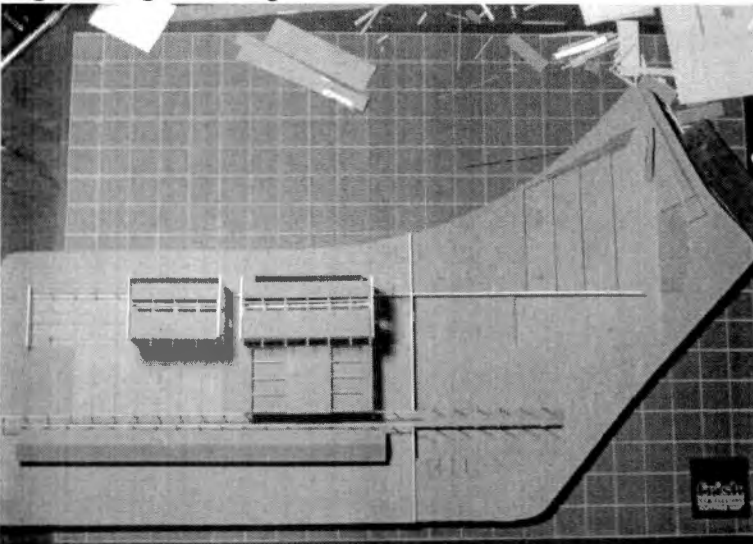


Fig. 45: Site Plan with Added Roof Over Existing Shell

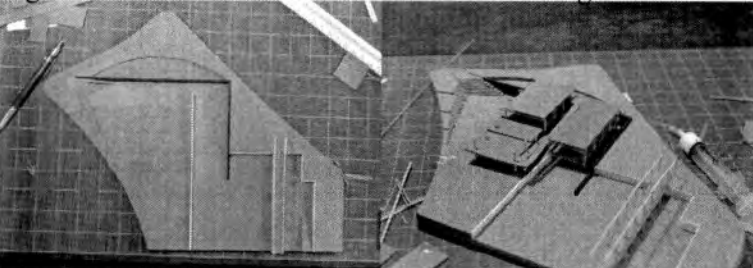


Fig. 46: Rubble Wall

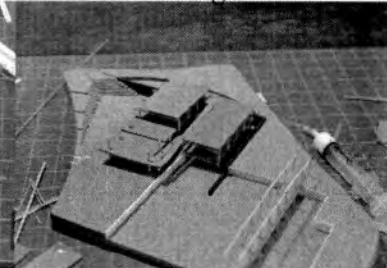


Fig. 47: Internal Building

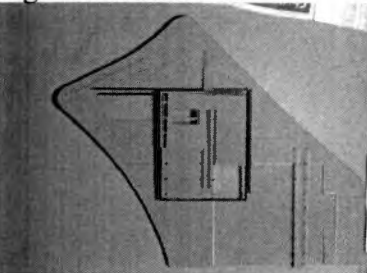


Fig. 48: Added Skin

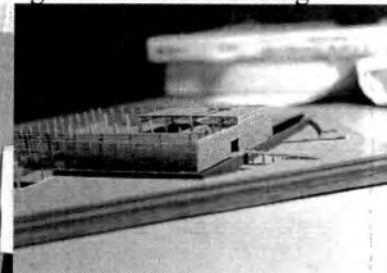


Fig. 49: Exterior Screens

the ground floor.

A roof was elevated over the existing shell in order to create a large workshop area (Fig. 45). This roof was supported by re-using existing trusses from the demolished buildings and its raised height allowed for clerestory lighting. The edge buildings skins were then added before attention turned to the figural building.

The placement of the rubble wall defined the “plinth” (Fig. 46). This building was clad primarily in glass (Fig. 47) before the addition of the second skin (Fig. 48 and 49). This skin consists of two types of screens, a wood louvre system and a metal mesh system. The wood louvres covered interior spaces while the metal screen covered the exterior areas. This allowed for the use of a platonic shell which began to reveal the complex play of interior spaces.

This vocabulary was continued in the facade of the entry/administration area of the edge building in order to establish a definite connection between the two.

# DESIGN RESOLUTION

## Diagrams

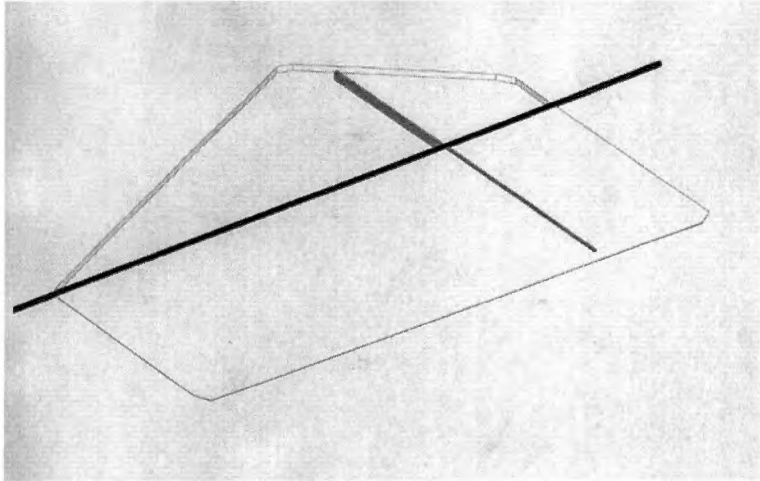


Fig. 50: Important Defined Edges

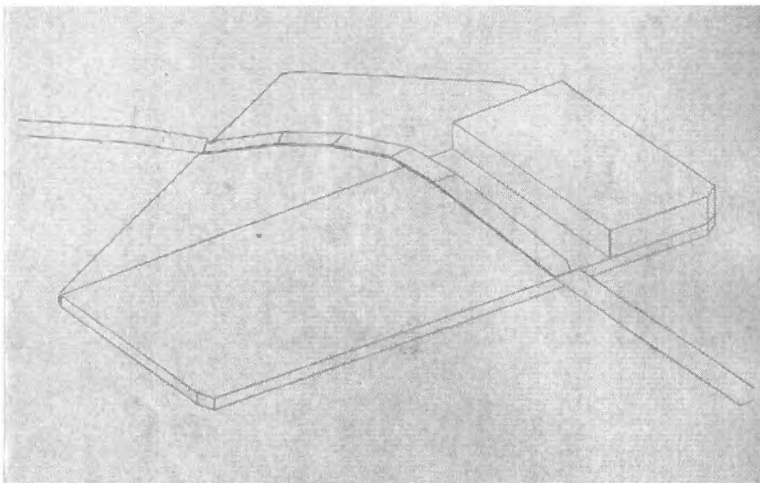


Fig. 51: Massing/ Void of Site

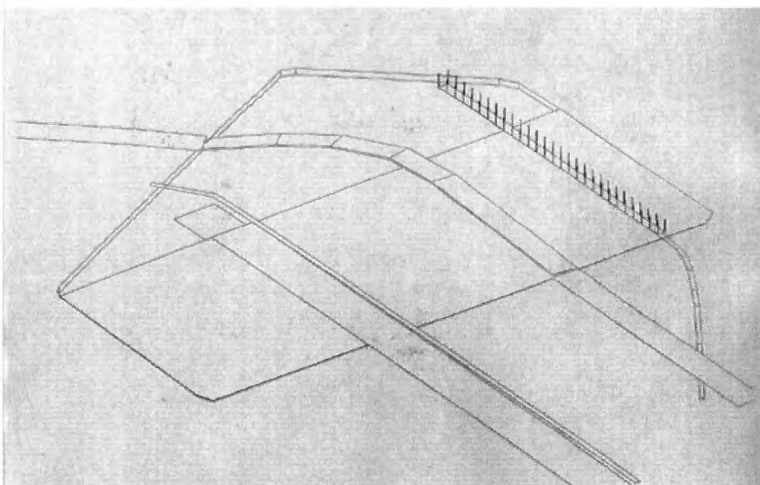


Fig. 52: "Bridges" Across Site



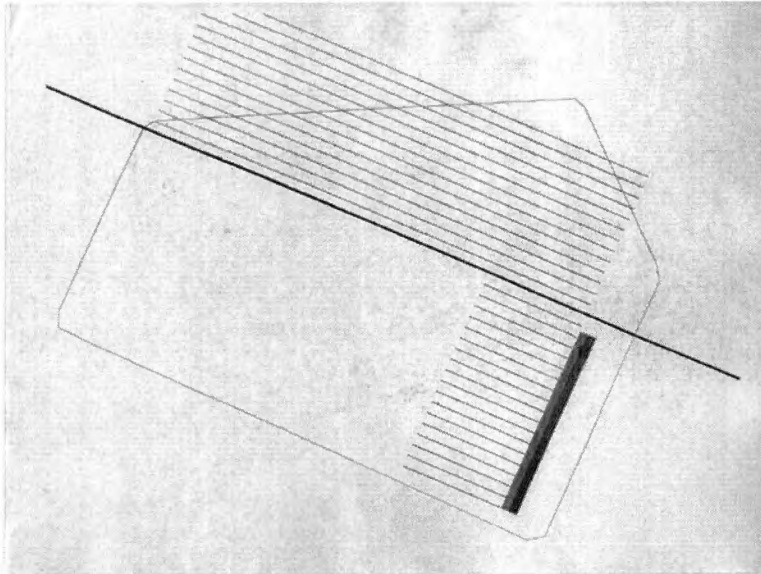


Fig. 53: Site Grid Generated by Train Shed

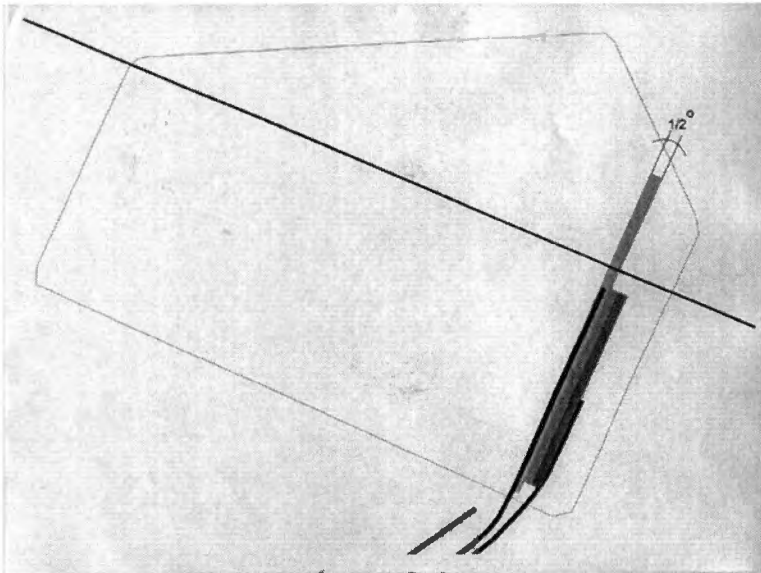


Fig. 54: Geometry and Location of Crane

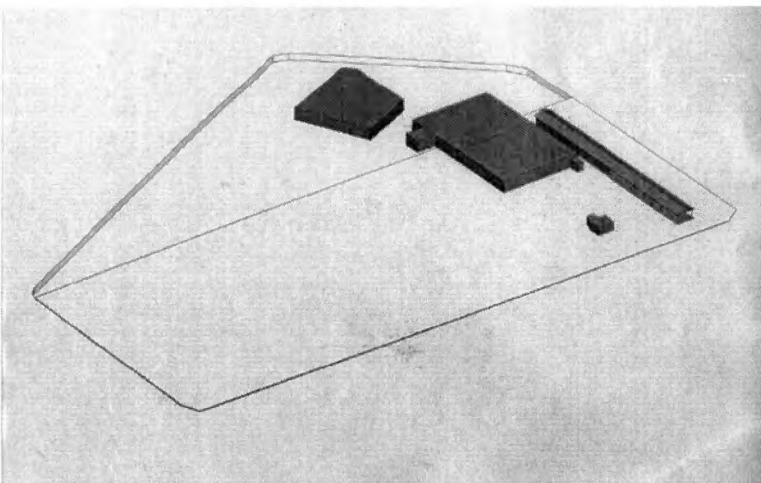
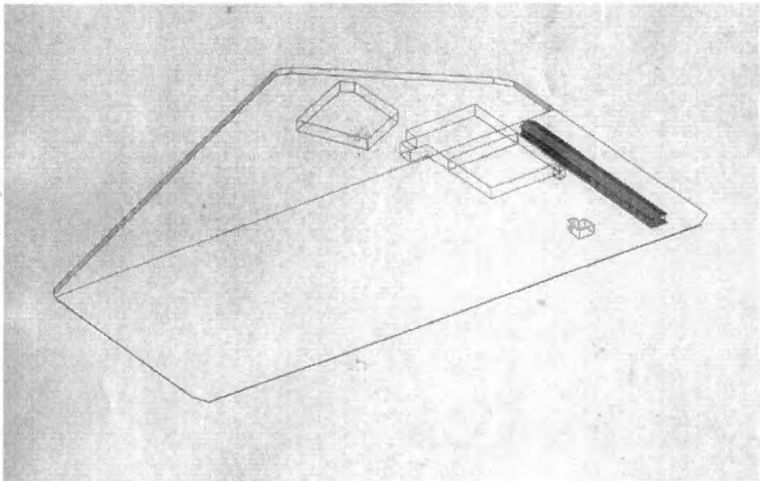
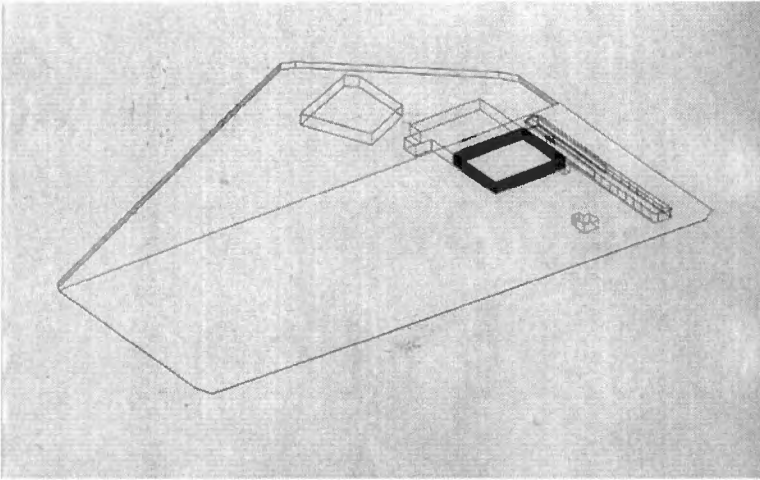


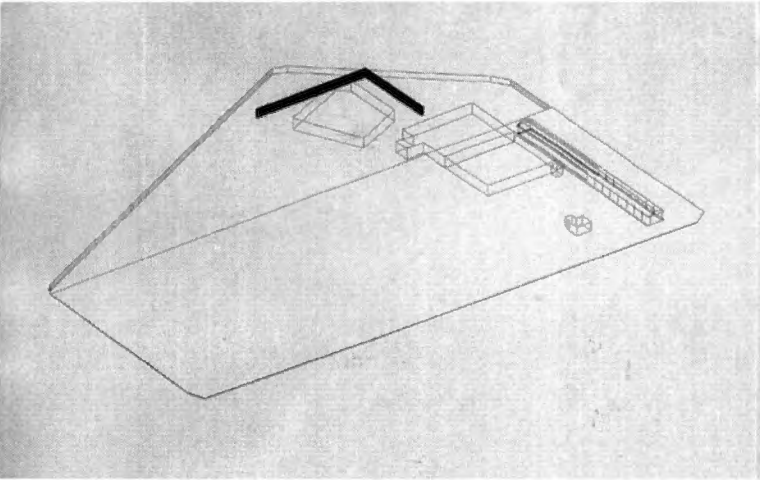
Fig. 55: Existing Site Buildings



**Fig. 56: Renovation of Train Shed**



**Fig. 57: Transformation of Manufacturing Facility**



**Fig. 58: Material Reuse of Auto Showroom**

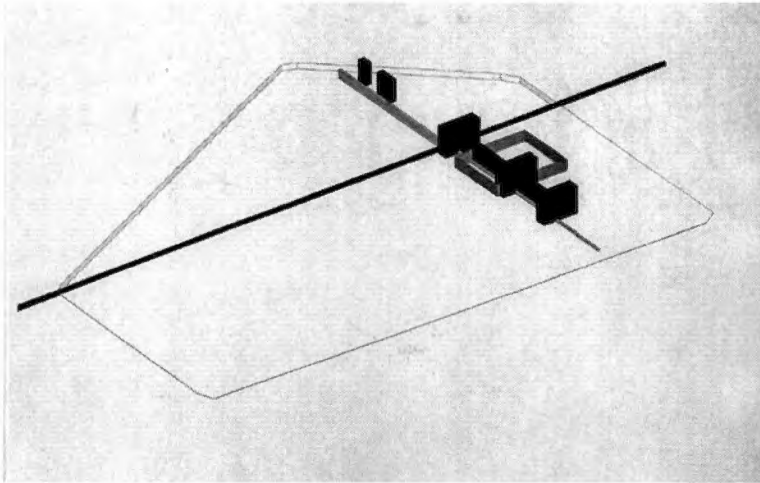


Fig. 59: Relation of Service Cores

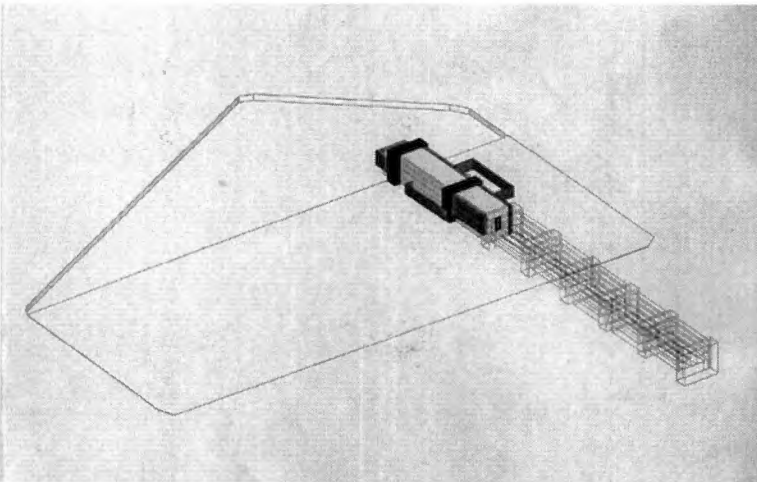


Fig. 60: "Infinite Expansion" of Edge Intervention

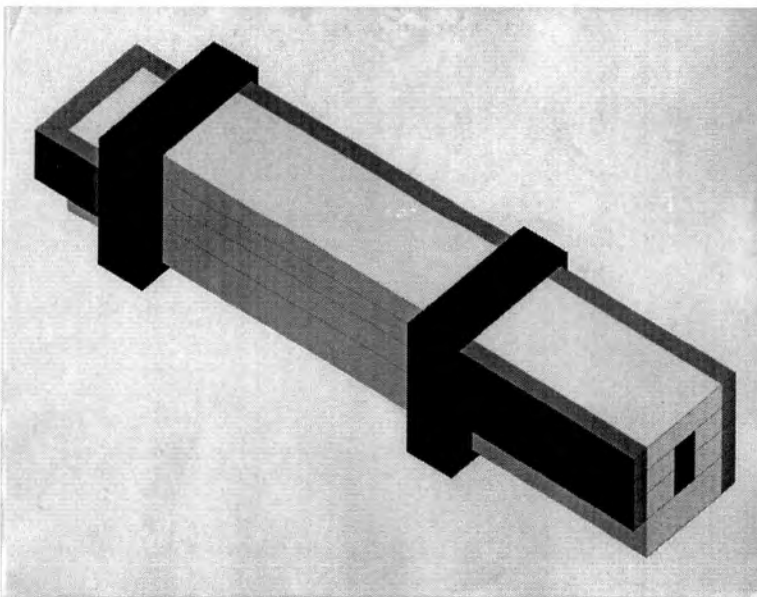


Fig. 61: Primary Zoning of Edge Building

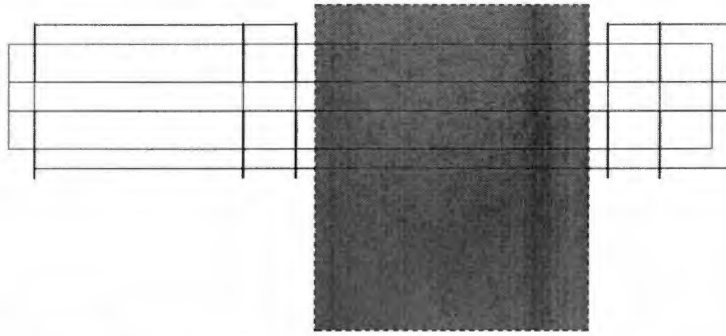


Fig. 62: Existing Shell

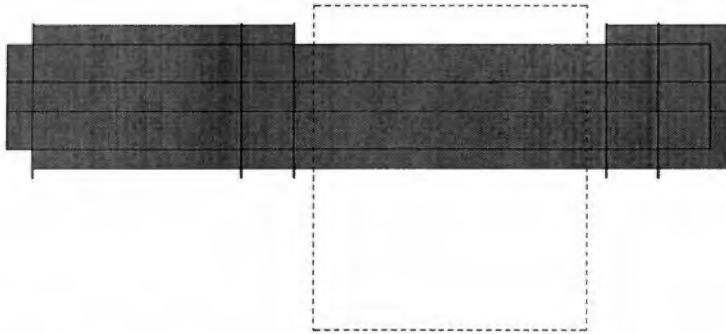


Fig. 63: Intervention

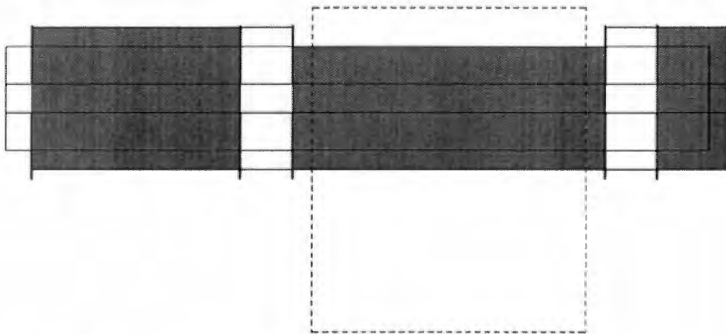


Fig. 64: Three Separate Buildings

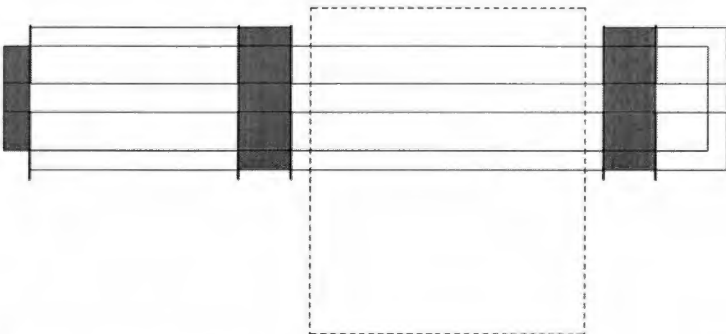


Fig. 65: Service Cores

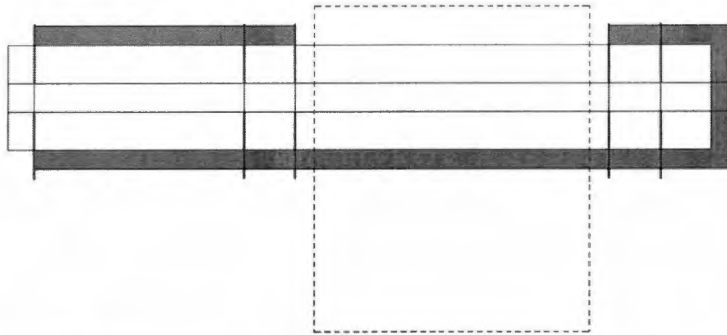


Fig. 66: Wrapper

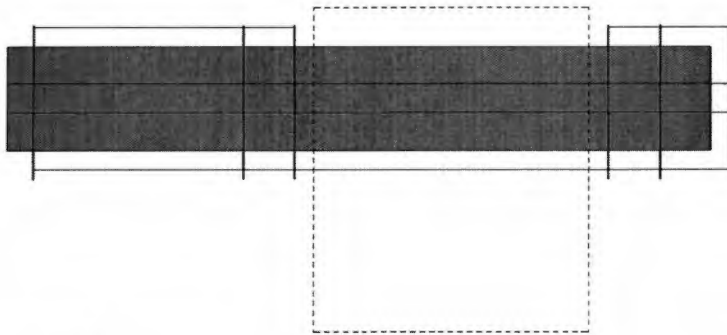


Fig. 67: Insertion

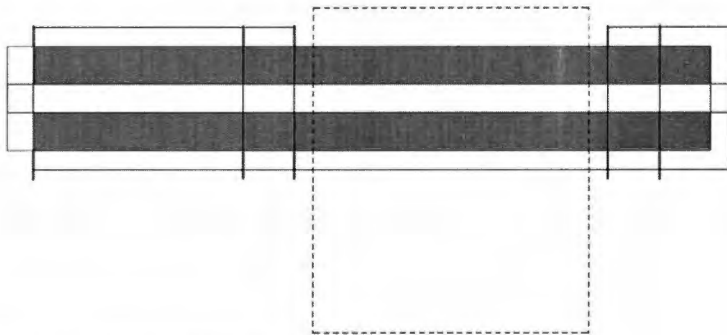


Fig. 68: Private Interior

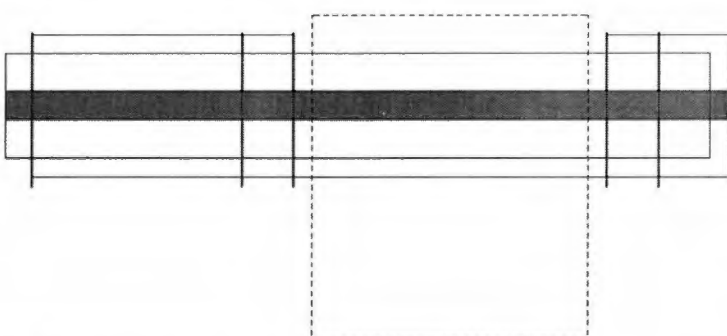


Fig. 69: Circulation Corridor (Interior Street)

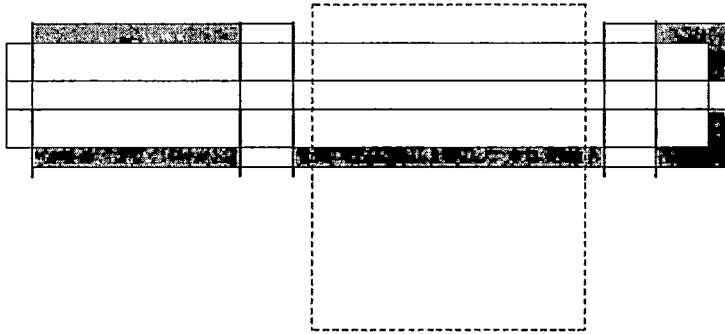


Fig. 70: Semi- Private Edge

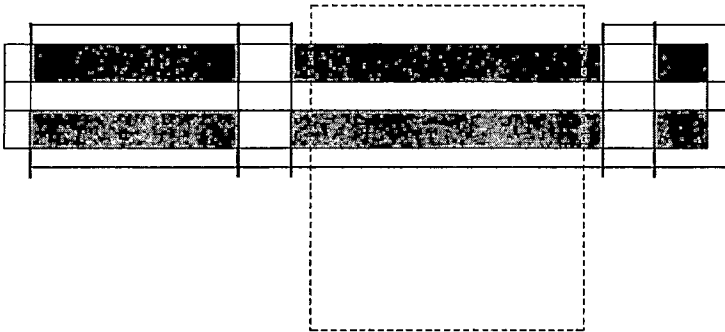


Fig. 71: Private Flexible Interiors

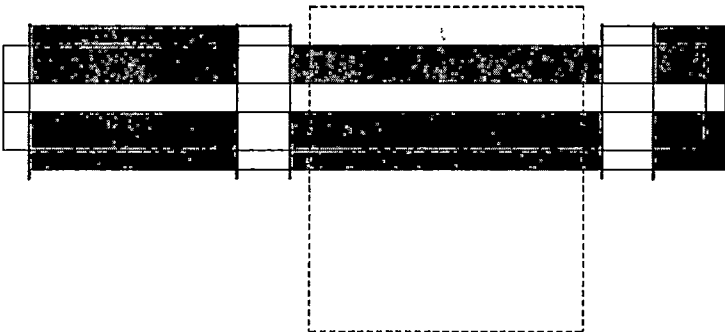


Fig. 72: Individual Served Zones

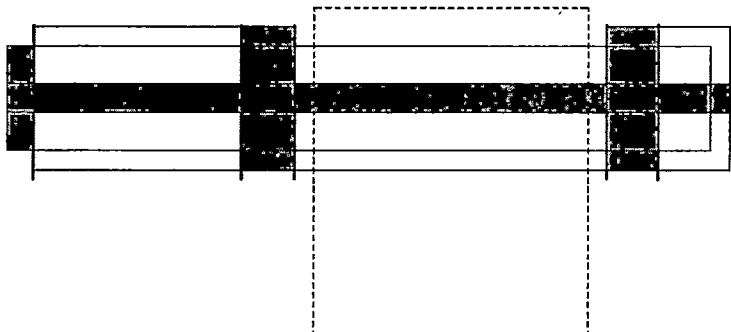


Fig. 73: Collective Service Zones

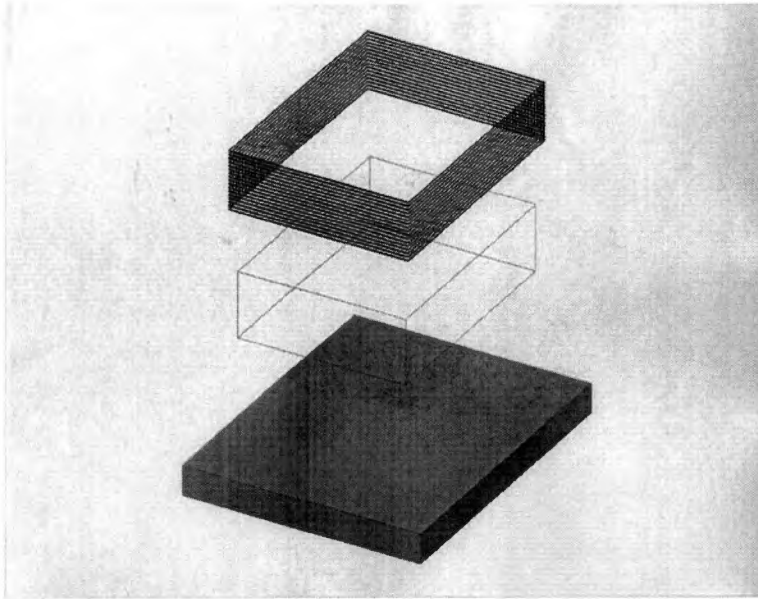


Fig. 74: Glass Box with Skin on Plinth

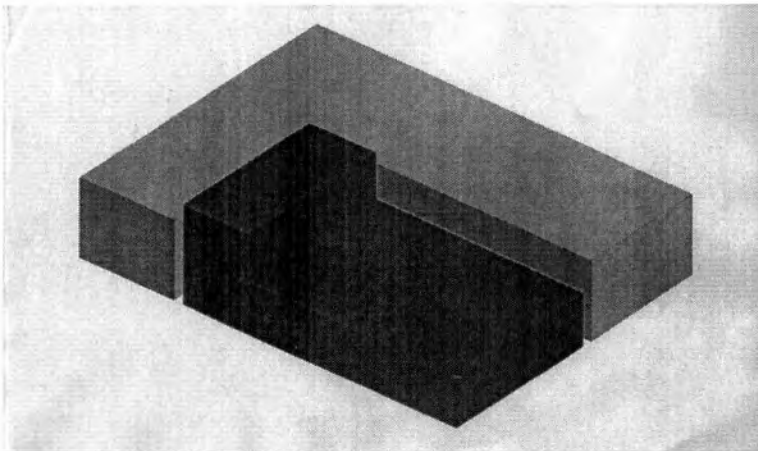


Fig. 75: Overlapping Spatial "L"s

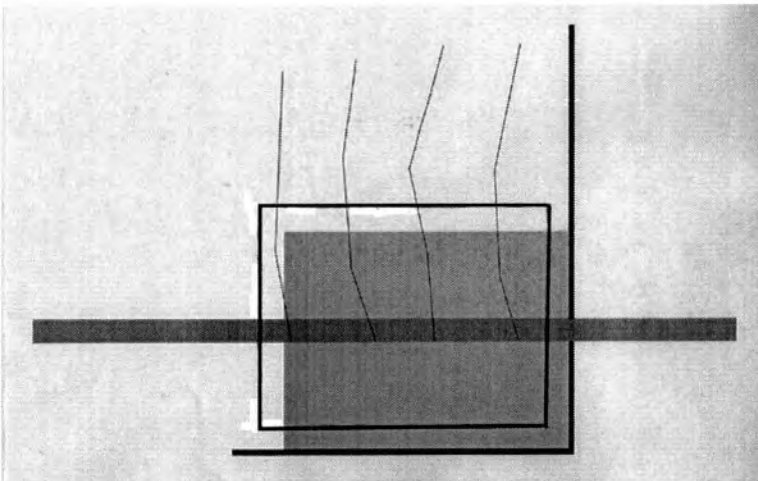


Fig. 76: Box, Skin, Rubble Wall, Circulation, Land

The Drawings



Fig. 77: Aerial Photo Showing Intervention



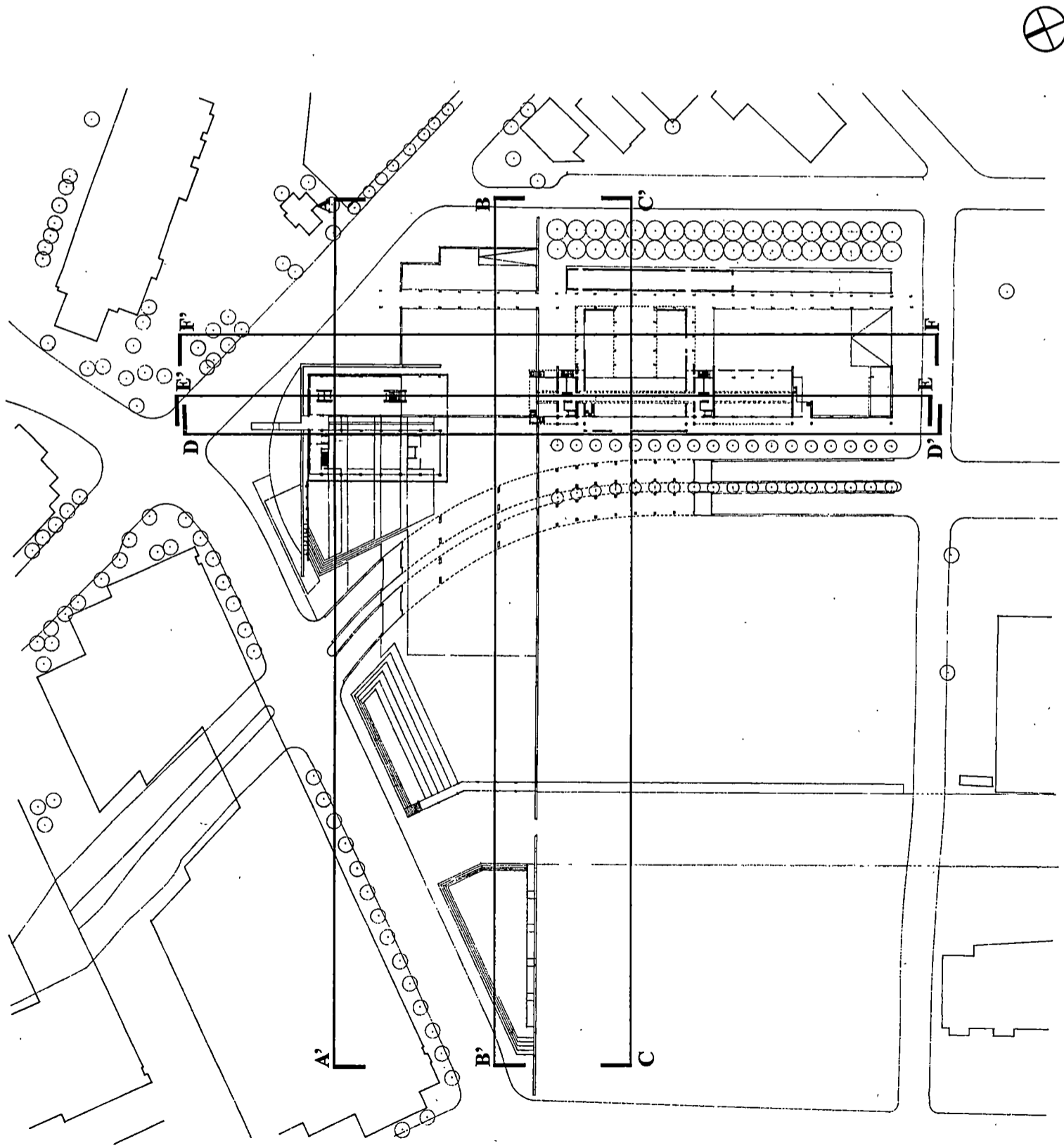


Fig. 78: Ground Level Site Plan

0 18.75 37.5 75 150'

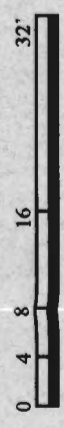
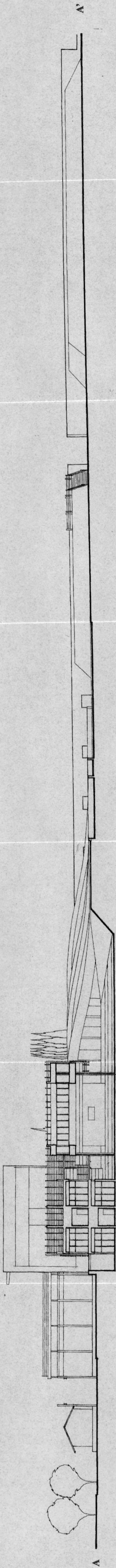


Fig. 79: SW Site Section Through Figural Building

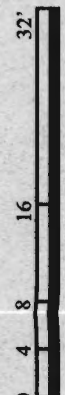


Fig. 80: SW Site Section Through Park

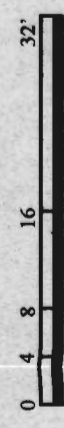
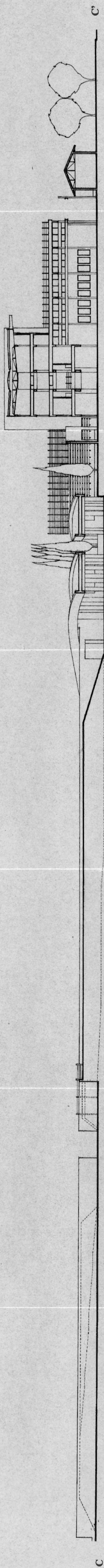


Fig. 81: NE Site Section Through Edge Building

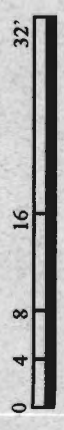
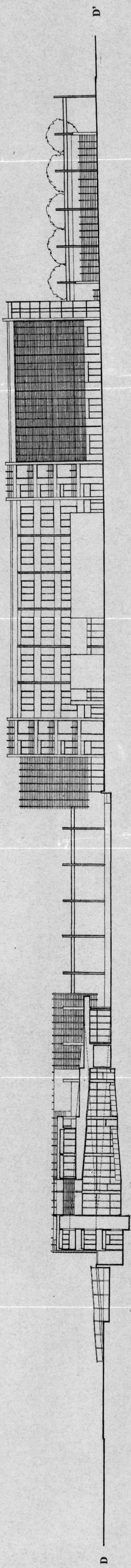


Fig. 82: SE Site Section Through Figural Building

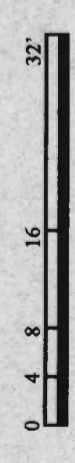
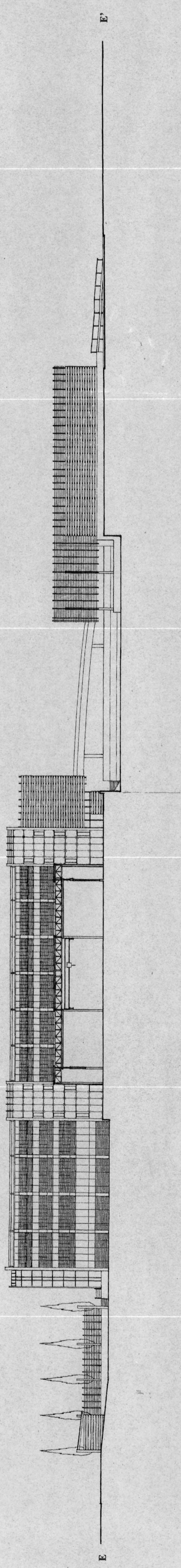
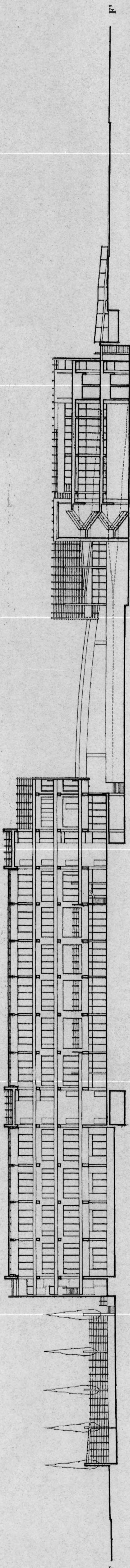


Fig. 83. NW Site Section Through Existing Shell



F

F

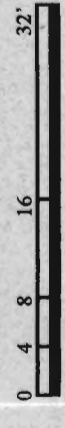


Fig. 84: NW Site Section Through Service Corridor

Spaces:

1. Entry/ Lobby
2. Design Studios
3. Workshops
4. Crane
5. Kilns/ Material Storage
6. Craft Studios
7. Building Yard
8. Equipment Shed
9. Adaptable Live/ Work
10. Restrooms
11. Recycling
12. Storage

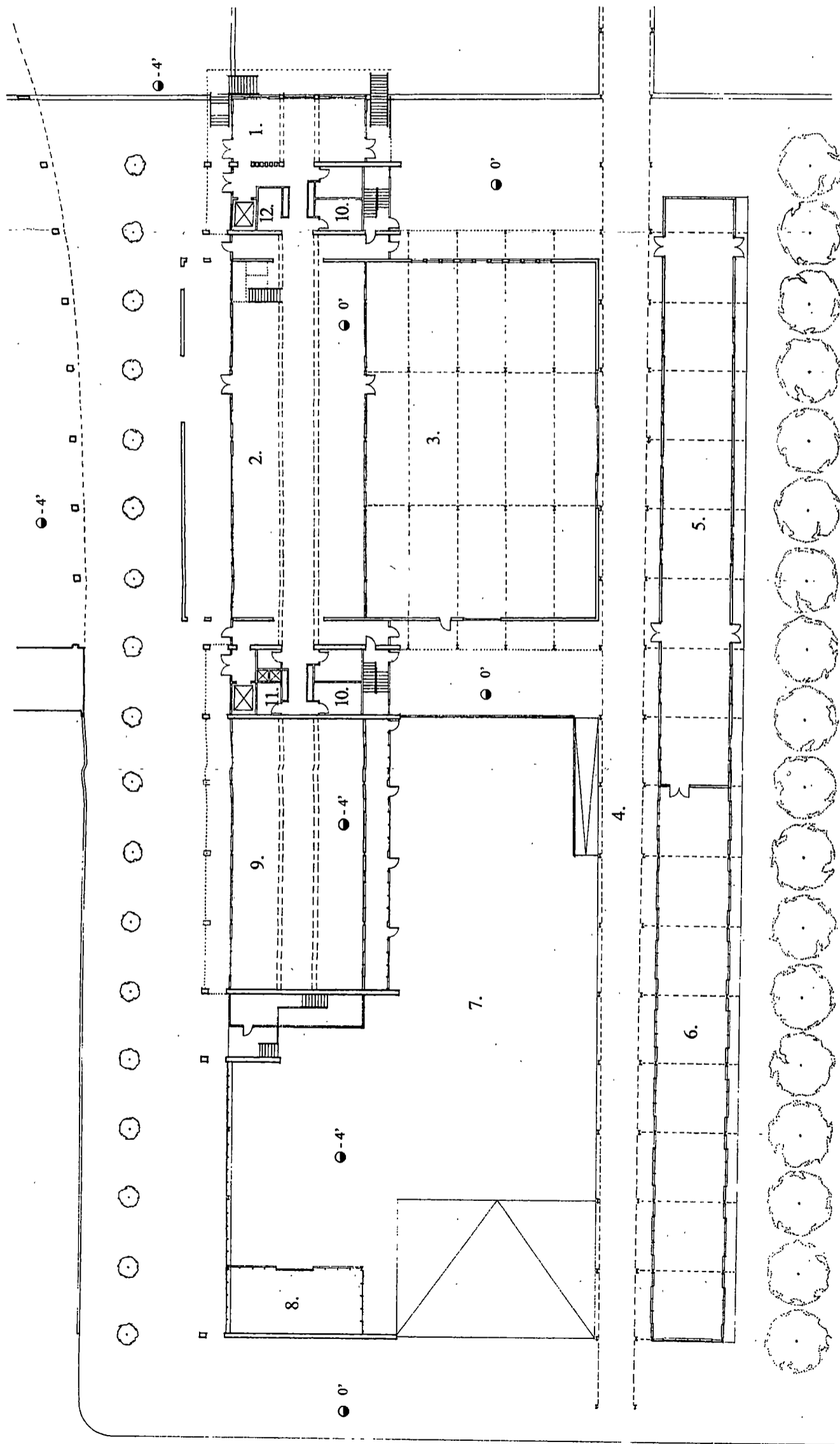


Fig. 85: Ground Level Floor Plan - Edge Building



Spaces:

1. Administration
2. Kitchennette
3. Offices
4. Student Break Area
5. Classrooms
6. Computer Lab
7. Service Corridor
8. Adaptable Live/Work
9. Restrooms
10. Recycling
11. Storage

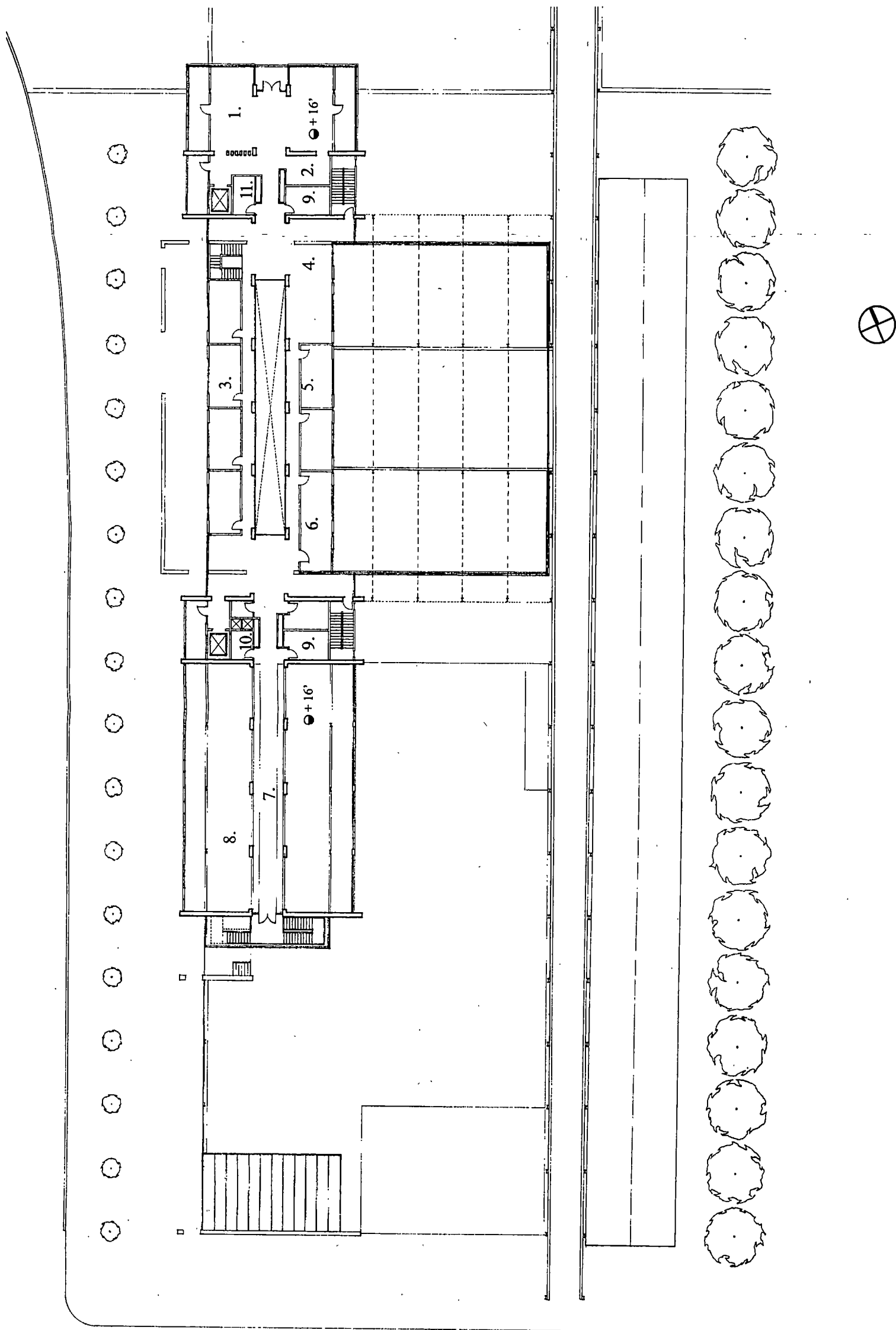
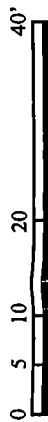


Fig. 86: Second Level Floor Plan - Edge Building



Spaces:

1. Library
2. Computer Data
3. Adaptable Residential
4. Communal Recreation
5. Communal Kitchen
6. Occupiable Roof Deck
7. Adaptable Live/ Work
8. Service Corridor
9. Restrooms
10. Recycling

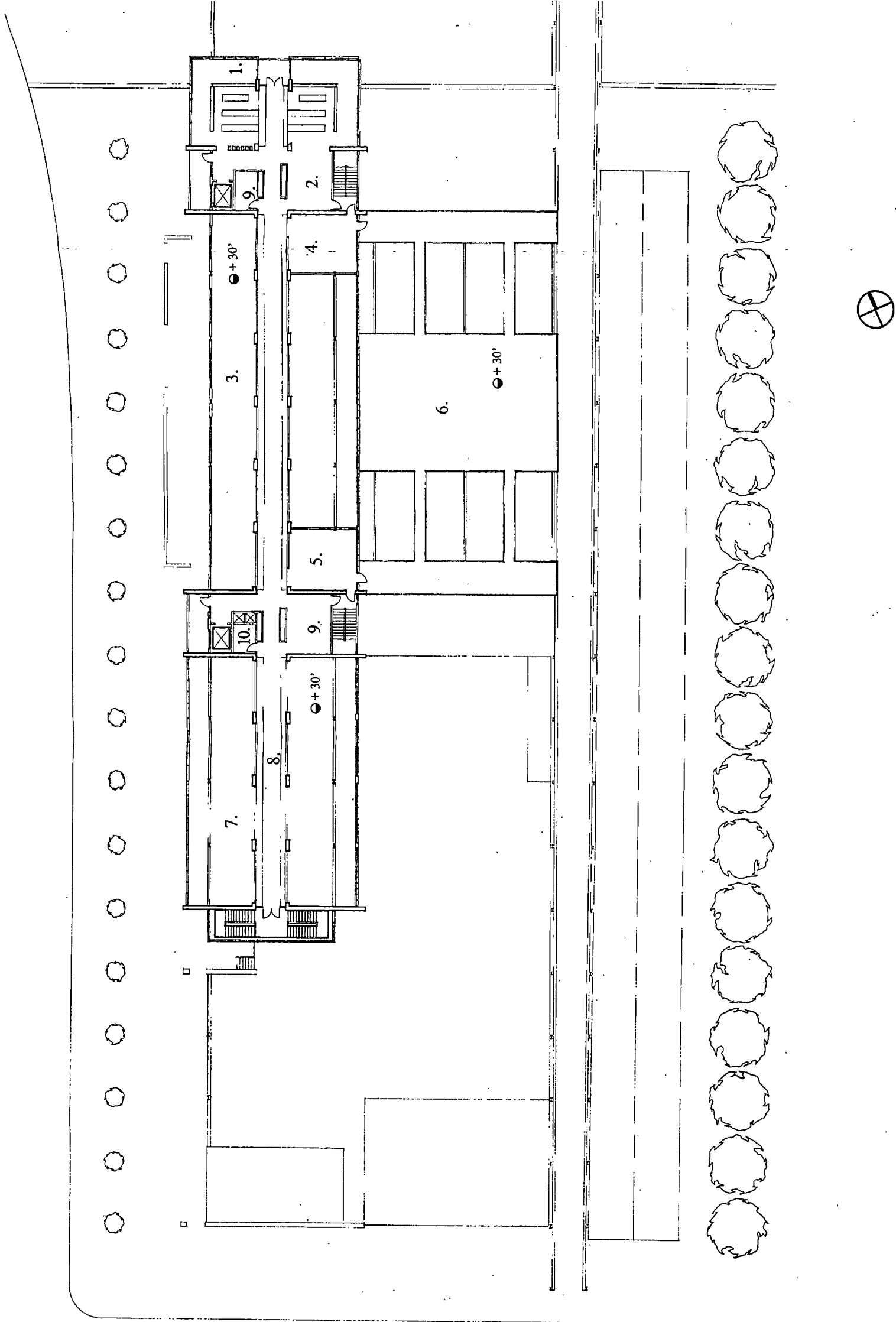


Fig. 87: Third Level Floor Plan - Edge Building



Spaces:

1. Occupiable Roof Deck
2. Adaptable Residential
3. Adaptable Live/ Work
4. Flexible Service Space
5. Recycling
6. Storage

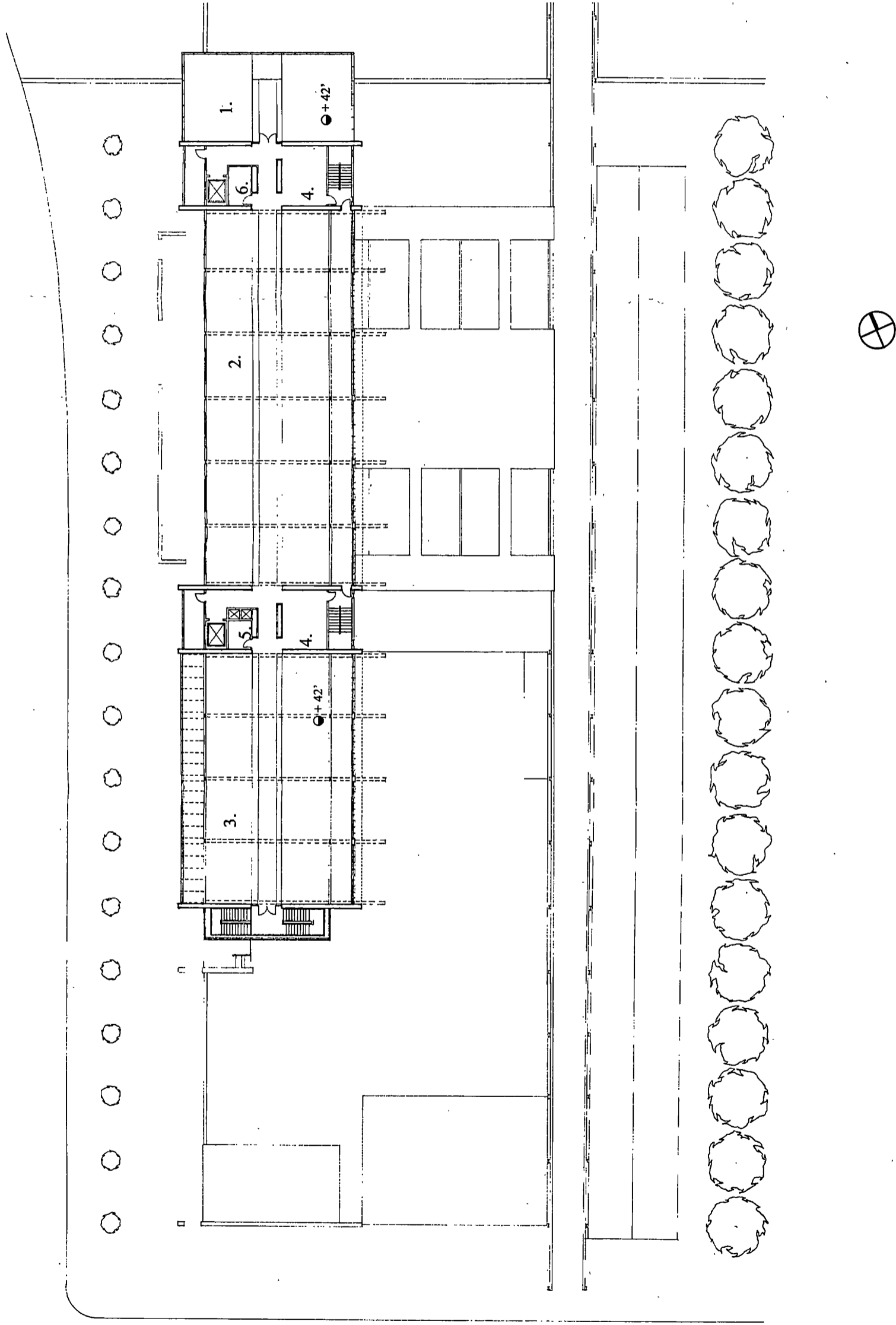


Fig. 88: Fourth Level Floor Plan - Edge Building

Spaces:

1. Circulation Ramp
2. Lecture Hall
3. Storage
4. Amphitheater
5. Exterior Hallway
6. Restrooms
7. Exhibition Hall
8. Entry Courtyard

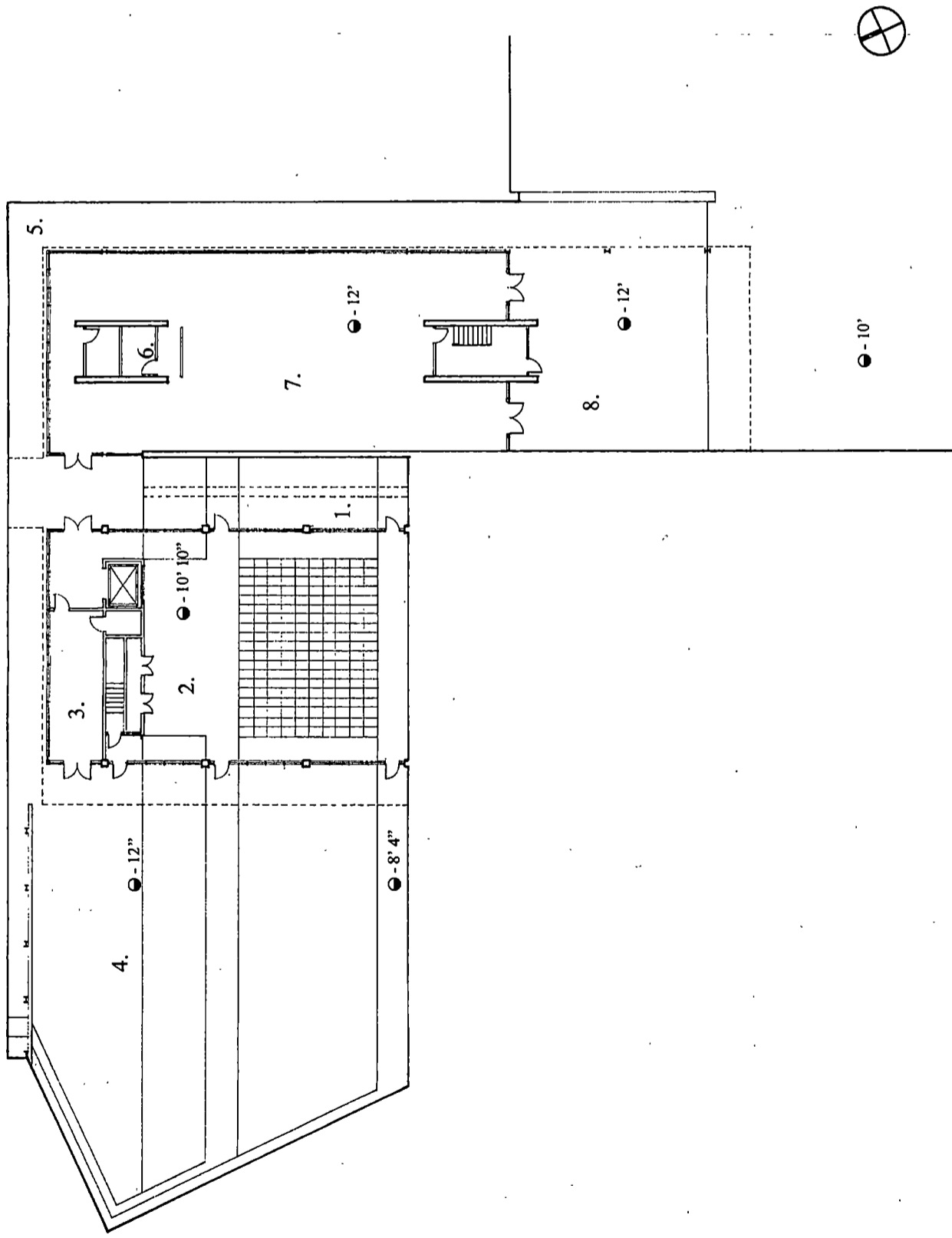


Fig. 89: Below Grade Floor Plan - Figural Building

Spaces:

1. Circulation Ramp
2. Lecture Hall Lobby
3. Restrooms
4. Projection Booth
5. Lecture Hall Stage
6. Offices
7. Entry
8. Pool
9. Conference Rooms

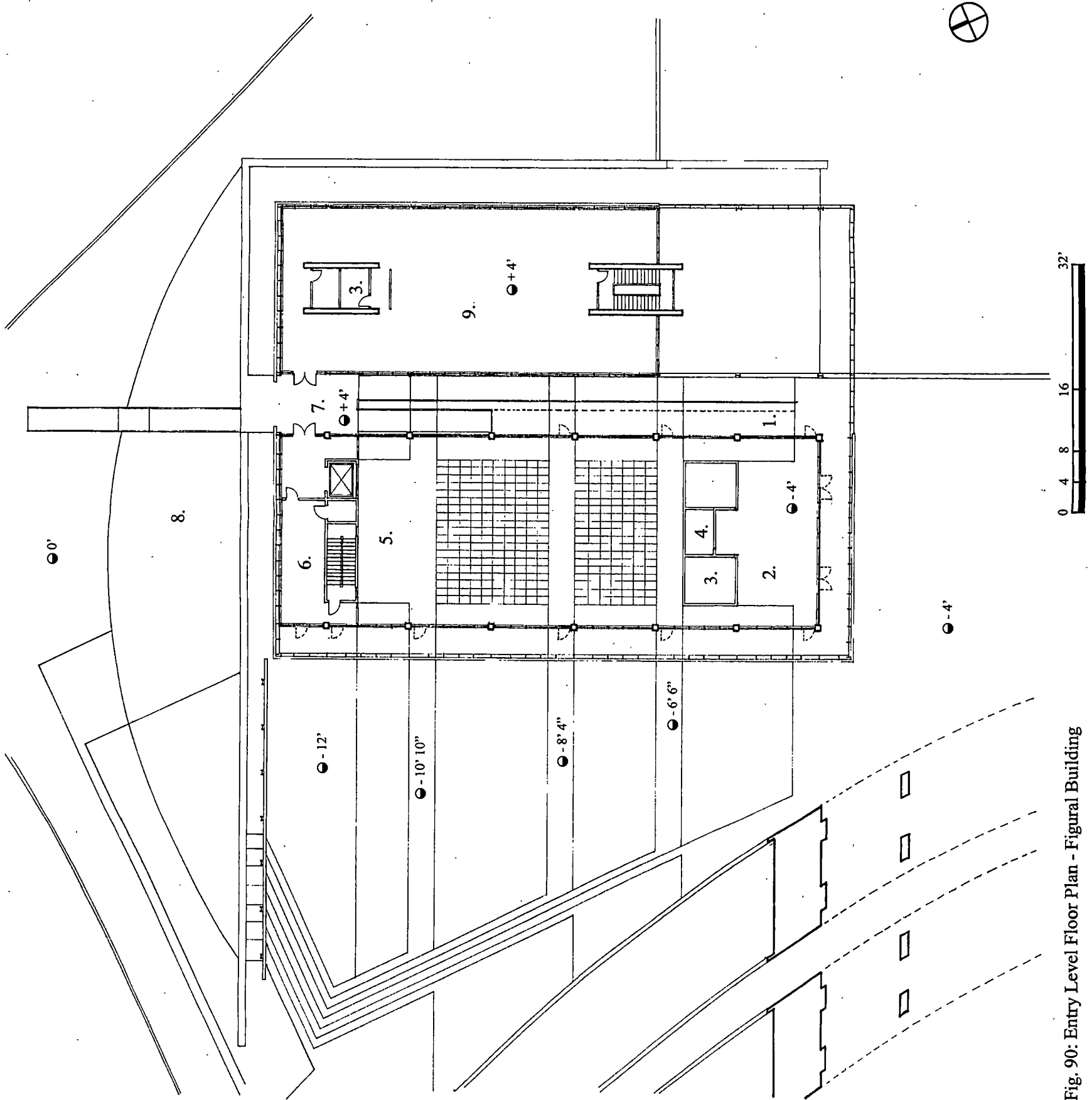


Fig. 90: Entry Level Floor Plan - Figural Building

Spaces:

1. Circulation Ramp
2. Outdoor Cafe Terraces
3. Cafe/ Kitchen
4. Restrooms
5. Kitchen Storage
6. Occupiable Roof Deck

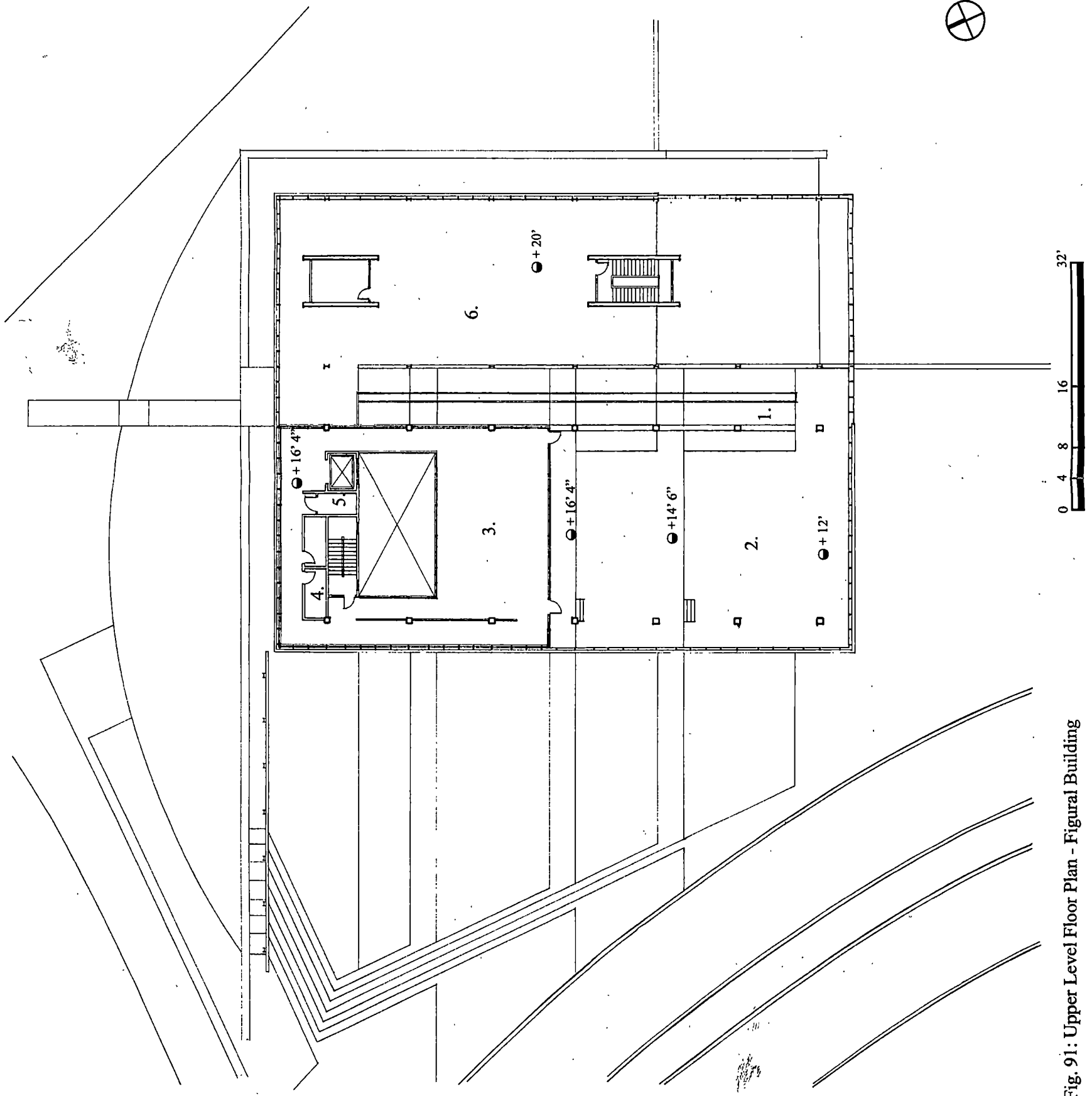


Fig. 91: Upper Level Floor Plan - Figural Building

## EPILOGUE

Certain self criticisms arose from a retrospective look at the project. The primary fault in the project is the almost oppressive amount of control. For a thesis advocating a series of balances there seemed to be too much in the way of imposed limitations. This is perhaps partly due to the role of a single designer in the project. Due to the sheer complexity of mutualistic relationships it seems naive and antithetical to attempt to establish these systems alone. Mutualism would advocate groups of specialists and lay people working together. However, sole authorship is the nature of the thesis process so certain shortcomings are to be expected.

In retrospect, the architectural project attempted to handle too many issues. As such, parts of the project lack the extent of exploration that other parts received. However, too narrow a focus would not have allowed a satisfactory exploration of mutualistic connections.

Finally, it should be noted that this project represents the beginning of an investigation of the idea of mutualism. The more the topic was explored the more vast and seemingly boundless it became. The design of the project became increasingly complicated as the connections seemed to multiply. Although complex, I am convinced that this kind of mutualistic connectivity in design is necessary in our increasingly interconnected world. As a philosophical approach the idea of mutualism extends far beyond the limitations of architecture.

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## VITA

D. Taylor Bowers, Jr. studied architecture at Clemson University and in 1996 received his Bachelor of Science in Design degree. He began his pursuit of a first professional degree by enrolling in the University of Tennessee's Master of Architecture program in 1996. After graduating he plans to begin the architectural liscensing process by working as an intern. He intends to continue his education and plans to teach at the university level.