

BETWEEN SOLID AND VOID

by

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To my committee members for their insights, criticisms and guidance.

To my family, whose faith and support were neverending.

And above all, to _____, whose love, encouragement, and sense of humor helped keep things in perspective.

This book is dedicated to _____.

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ABSTRACT

Too often, space or void, has been considered an a priori condition. Rather than using it and its relationship to solids to create a harmony and balance of form, void has been unconsciously disregarded as a virtual non-element in design.

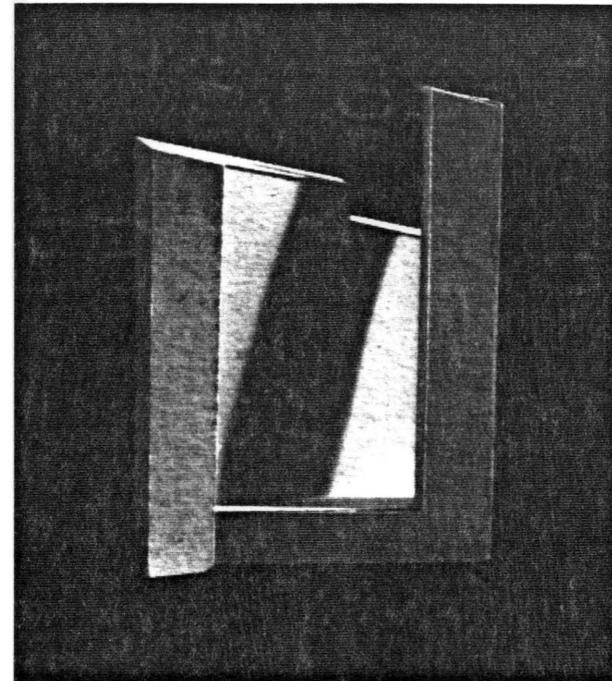
This thesis attempts to bring a tangible character to the void; to design the void as if it were a solid form. In doing so, the limiting properties of solid are broken down. Defining characteristics of solid and void are shared and boundaries are blurred.

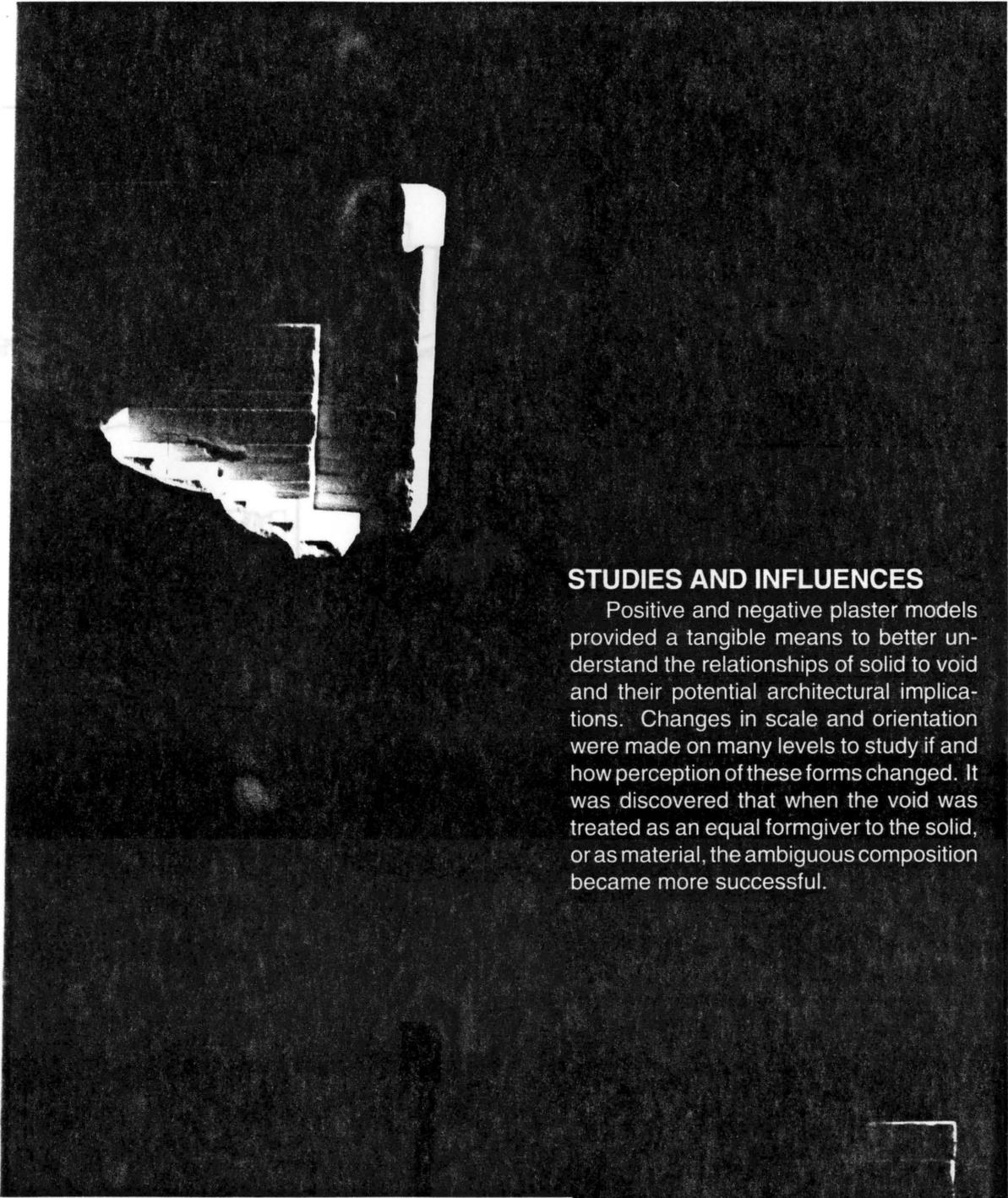
What was once known becomes unknown.

THE FOUNDATION

A wall provides an opening... becomes a bench... evolves into a column. How is it that a single wall can be so many things? How is it that something so ambiguous can be so wonderful?

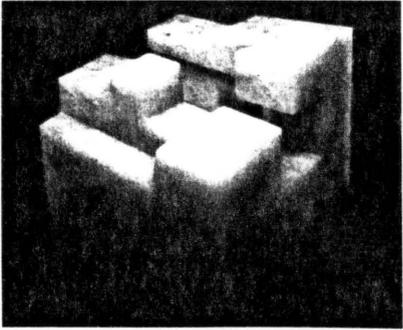
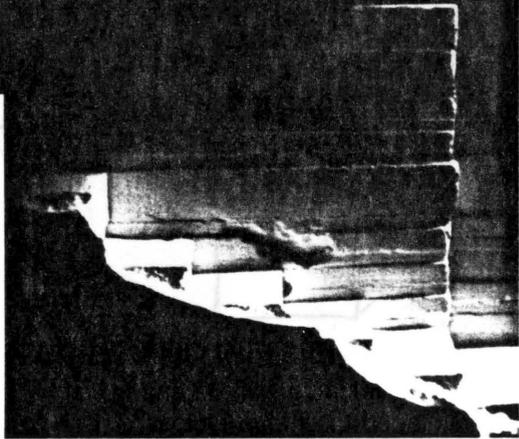
When viewing this cardboard model, it quickly became apparent that the solid to void relationship had a primary role in the model's composition. Further studies ensued, including exploring the possibilities of using acute angles to smoothly guide the eye along shared surfaces and edges between solid and void. It was found that where one element was gradually making a transition to another element, the void was constant, drawing the eye through an unbroken transformation. Clearly separate elements could not be discerned, as the boundary from one element to another was extended.



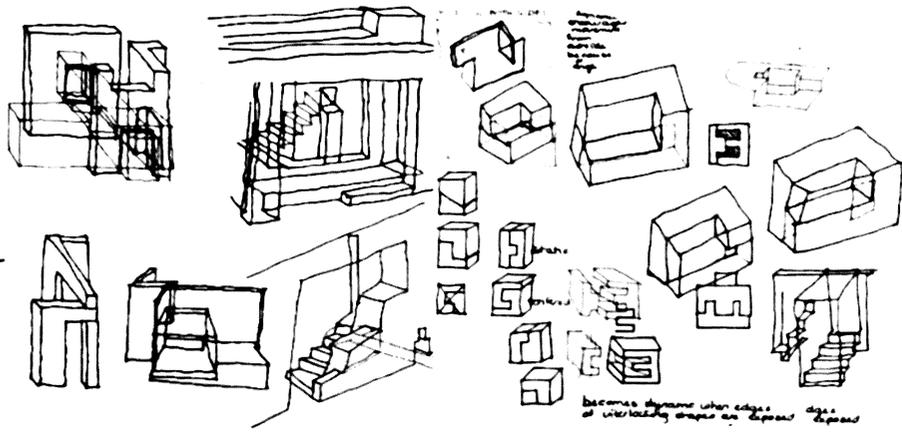
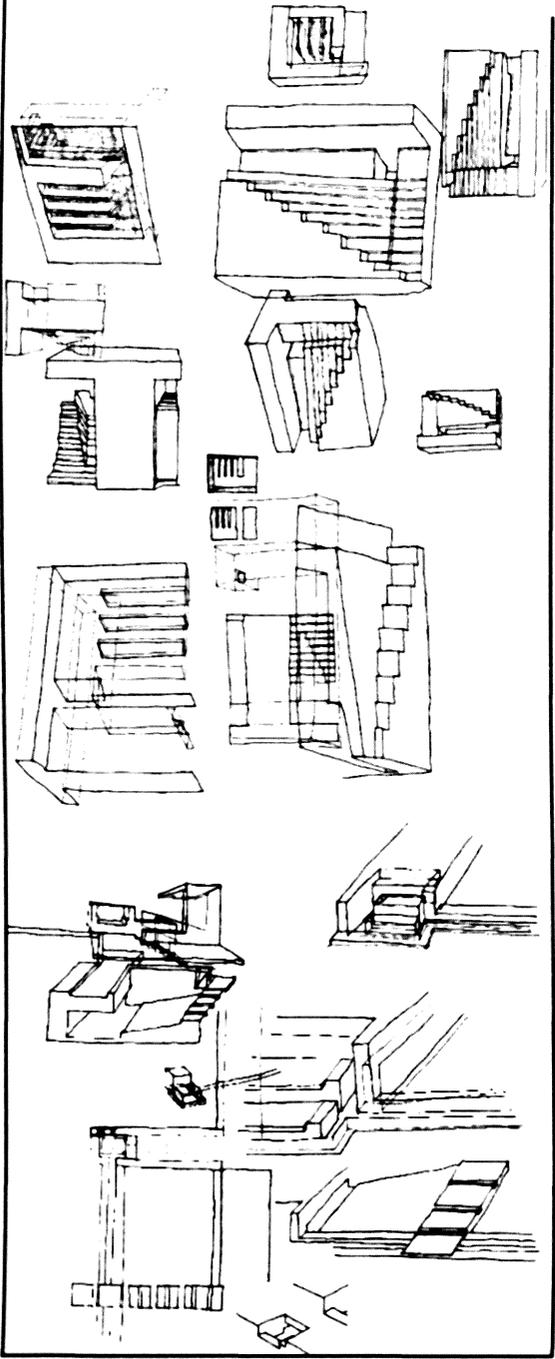
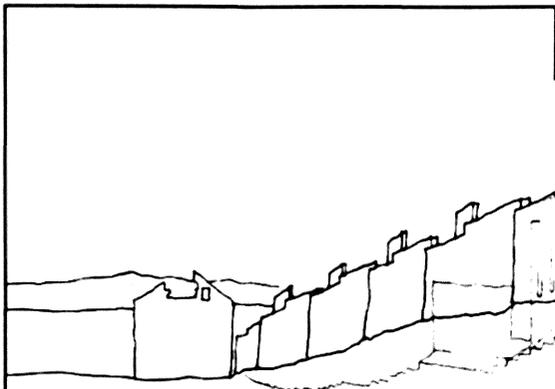


STUDIES AND INFLUENCES

Positive and negative plaster models provided a tangible means to better understand the relationships of solid to void and their potential architectural implications. Changes in scale and orientation were made on many levels to study if and how perception of these forms changed. It was discovered that when the void was treated as an equal formgiver to the solid, or as material, the ambiguous composition became more successful.



1. *House of Light ii*, Alabaster, by Eduardo Chillida, 1977.



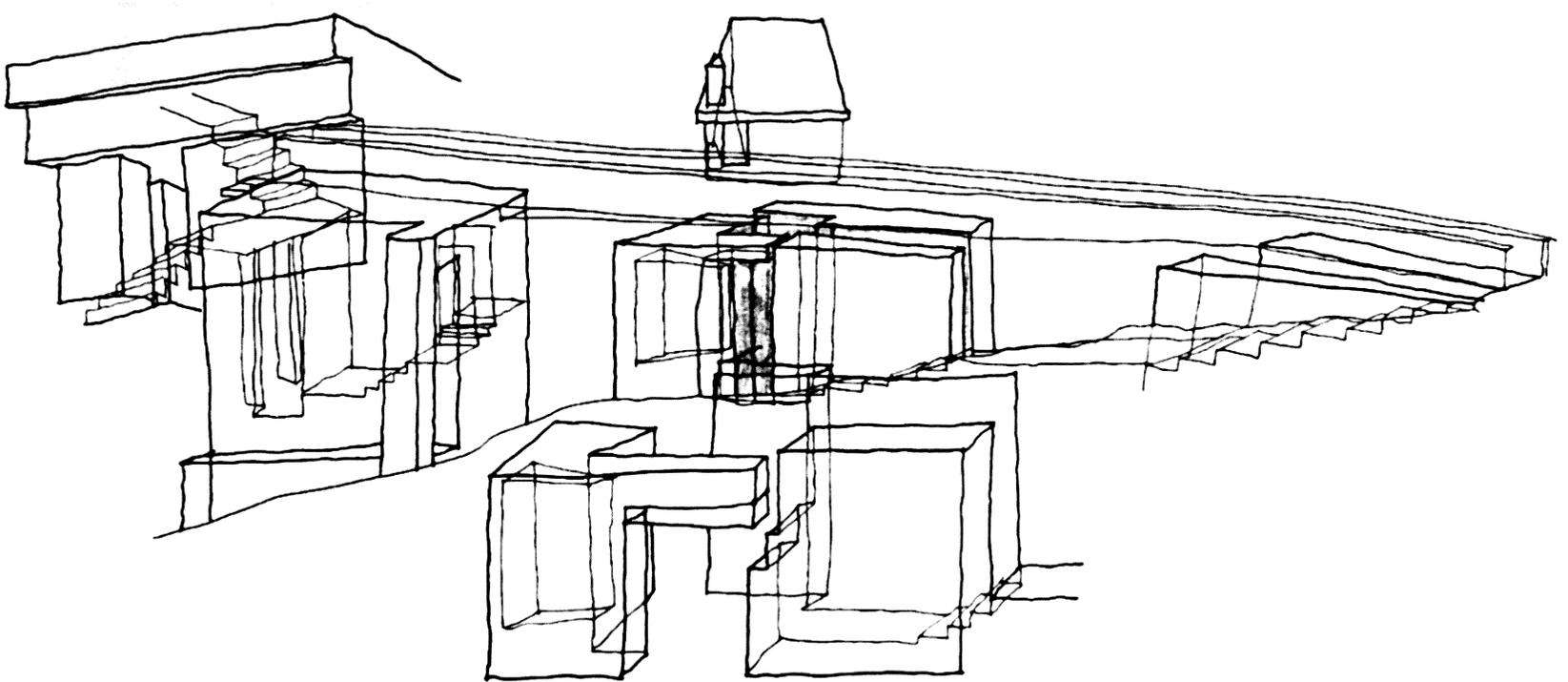
- is this condition
is a void present?
just kinetic space?

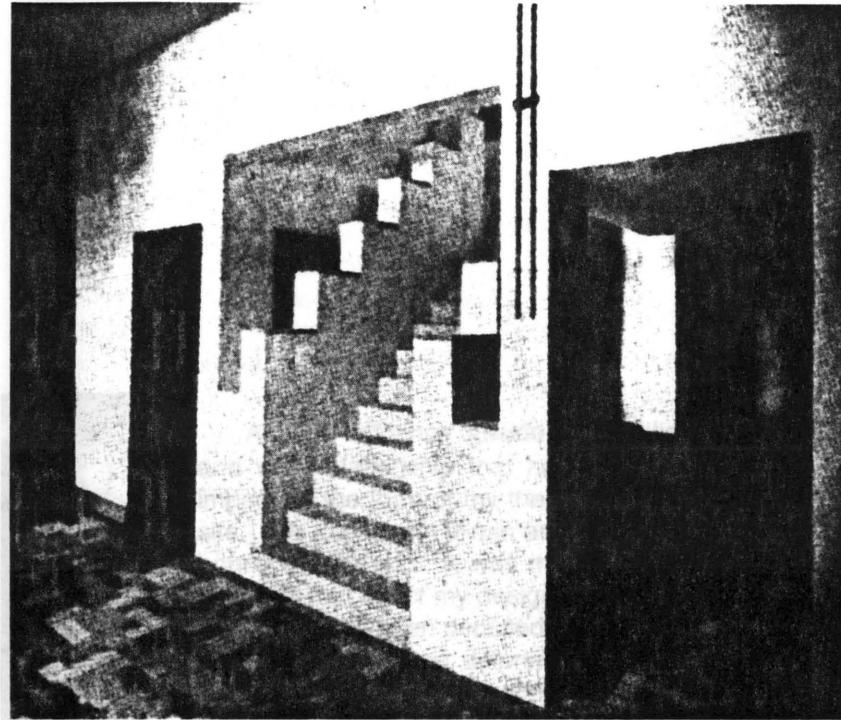
now? yes but
not equal to solid

here they are
one is the same
the other is not

have they combine
to form a union
both clearly defined
void containing void?

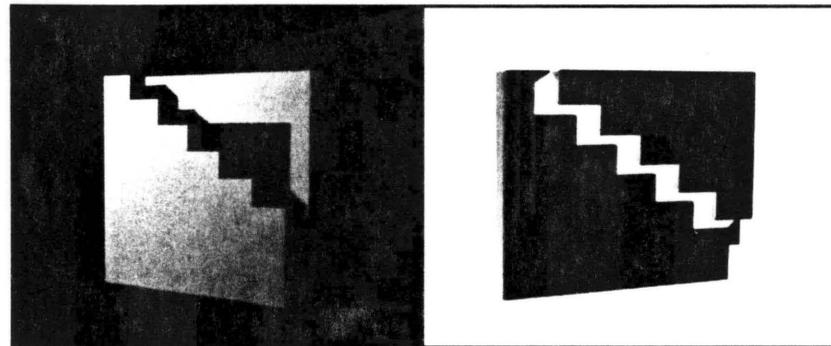
- is top of solid
form seen as
a plane element?
can edge be disguised
by another form?



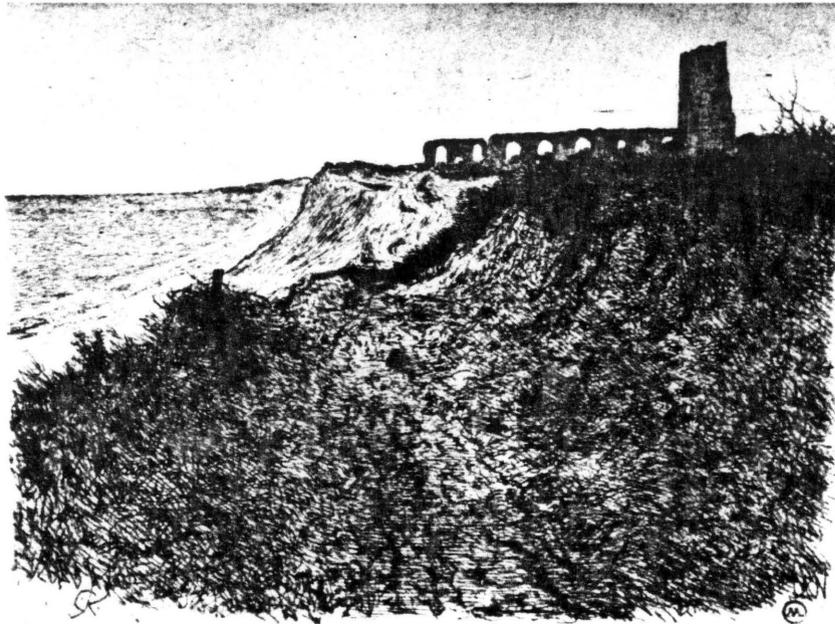


Early in my formal architectural education I became enamored of this stair. Though never studied seriously, it came to mind more frequently as time passed. As my thesis was becoming more clearly defined, I was compelled to study the stair's components more closely, and its relationship of solid to void.

There were several clearly separate unions of solid to void, but the void extending back from the frontal plane was what held the entire composition together. It's qualities were intriguing... how one element was ingeniously woven into another with the utmost ease through the conscious employment of the void.



2. *Stair, Vacation Home. Noordwijkerhout.*
by J. J. P. Oud, 1917



3. *Dunwich*, etching by Charles Samuel Keene, 1823- 91.

Another influence outside of the solid and void relationship that had a major impact on the form of my thesis was the site. It is linear with a ruin and lake that bound the far end. It was my desire to have the ruin effect my design.

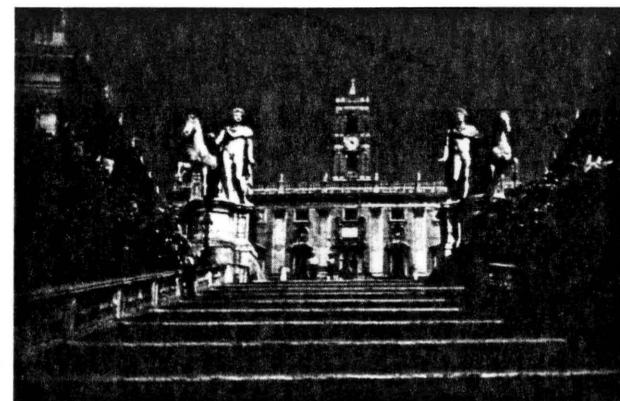
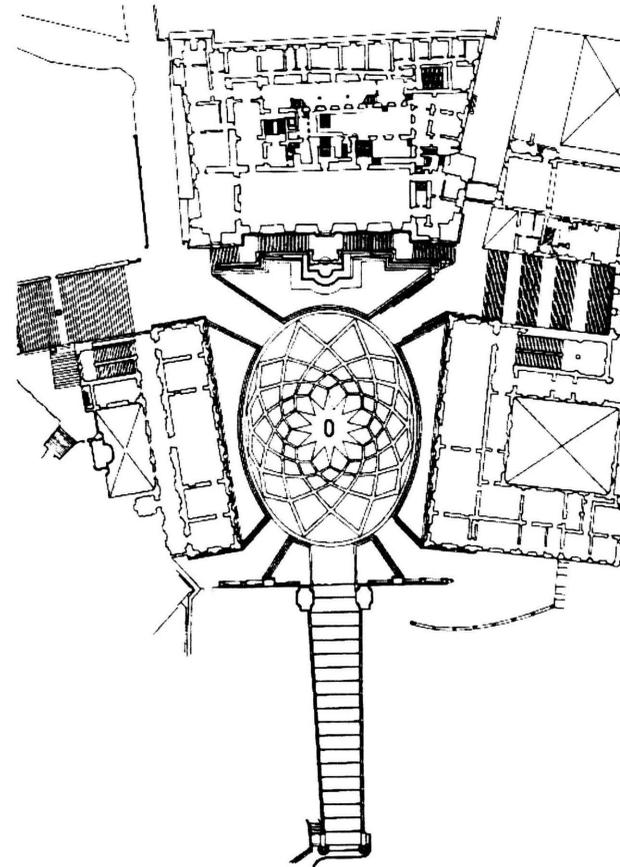
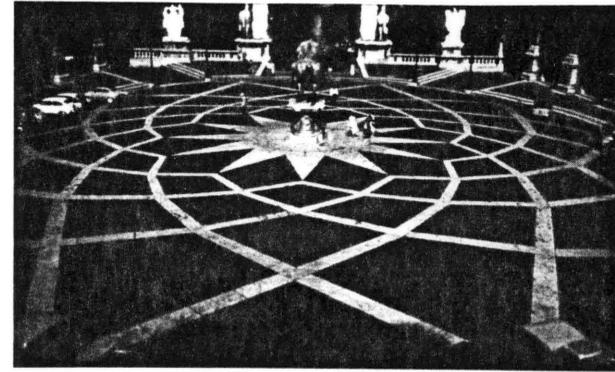
Ruins have been depicted throughout art in basically three different ways: by foreshadowing impending doom or disaster; being employed as a stage set; or as a picturesque view, where the ruin is set off in the distance. The latter was the most coincidental with my own architectural intentions and impressions of the site. Therefore the decision to employ the ruin in this manner led me to study many architectural applications of accentuated perspective.



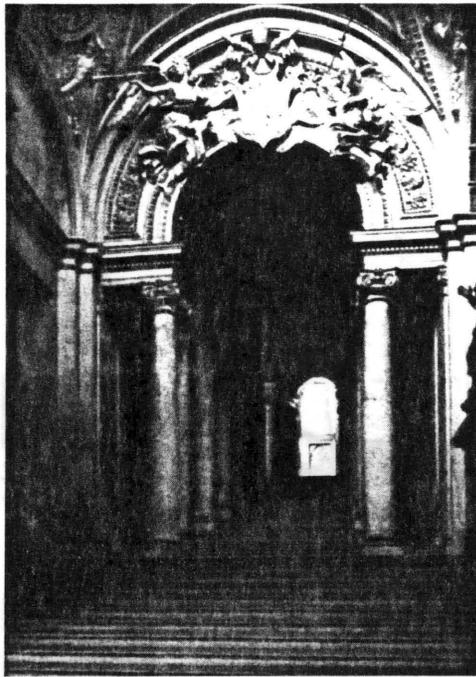
4. *Landscape With Dale Abbey*, oil painting by Joseph Wright, 1734- 97.

The Renaissance and Baroque periods were when the most architectural efforts directly explored perspective, as it had just recently been discovered. Most of these projects naturally dealt with axial plans and primarily used transparencies, rhythmic elements and angled surfaces as ways to accentuate the perspective views.

The Campidoglio is a prime example of these conditions. The stairs leading up to the courtyard are slanted upward from the front to back and are accented on the front edge with a marble strip to ensure their visual perception. The stair gradually opens up on its ascent, passing the angles off to the flanking buildings on the courtyard, while the statues and finials continue the stairs marked progression. Upon reaching the courtyard, the angled surfaces of the Capitoline buildings and the elongated starburst pattern on the courtyard floor bestow prominence to the head building. Every element in the composition adds to the procession, sense of grandeur, and anticipation of arrival.



5. *The Campidoglio*, by Michelangelo



The Scala Regia is yet another example that explores accentuated perspective. This staircase extends itself between St. Peter's and The Vatican in Rome, and connects directly to the Sistine Chapel.

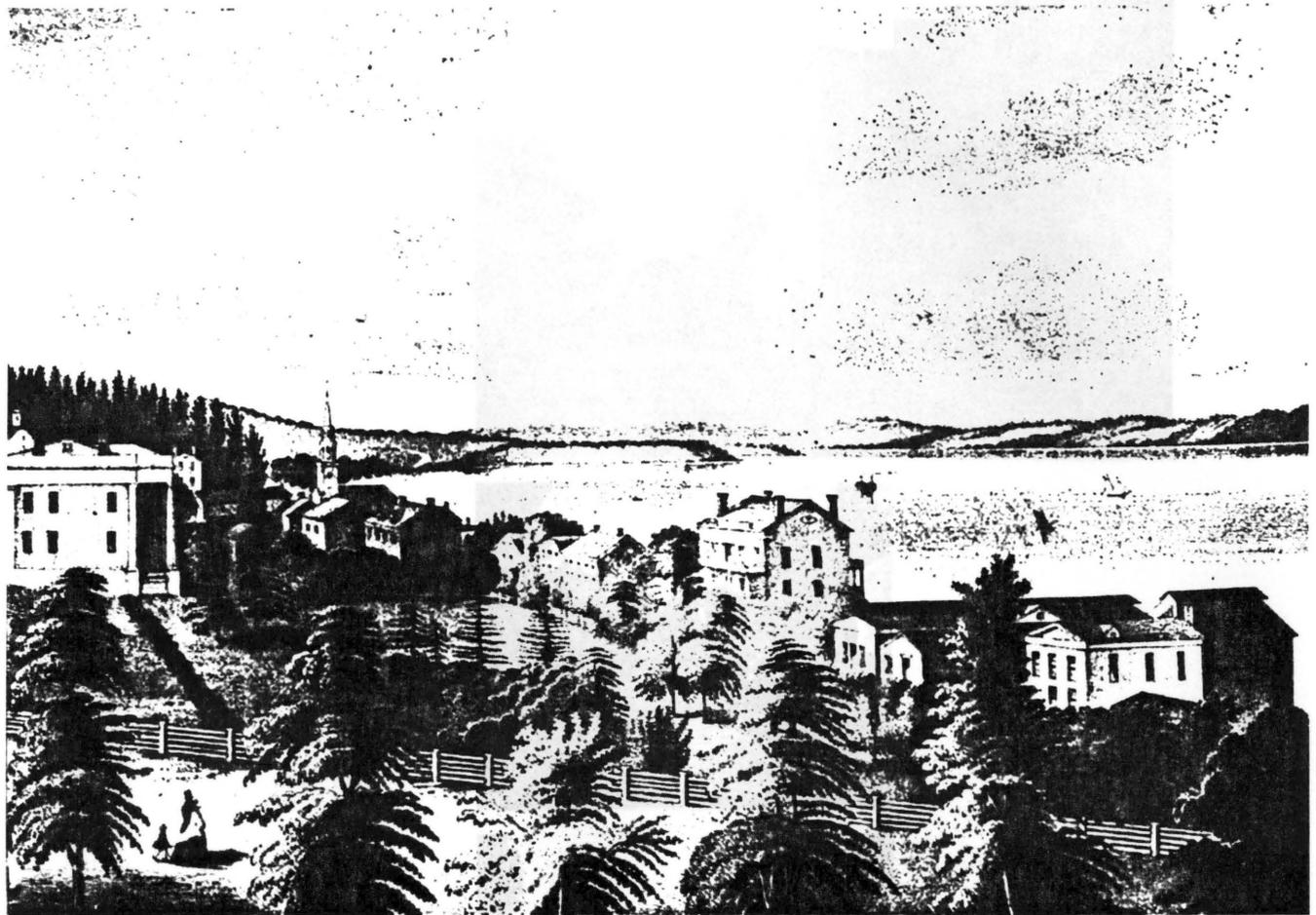
As the stair ascends, the column placement becomes more frequent while the columns and adjacent outside walls

taper inward to create an elongated effect. This utilization of space makes little rooms or pauses possible on each side of the stair.



The natural light accenting the end of the lower flight of stairs further reinforces the perspective as it reflects from a small length of each column, rhythmically striking the cadence from one column to the next. Each element further enhances the experience of the length of the stair.

Scala Regia, by Gianlorenzo Bernini, 1765
6. Scala Regia plan, etching by Paul Letarouilly, 1882



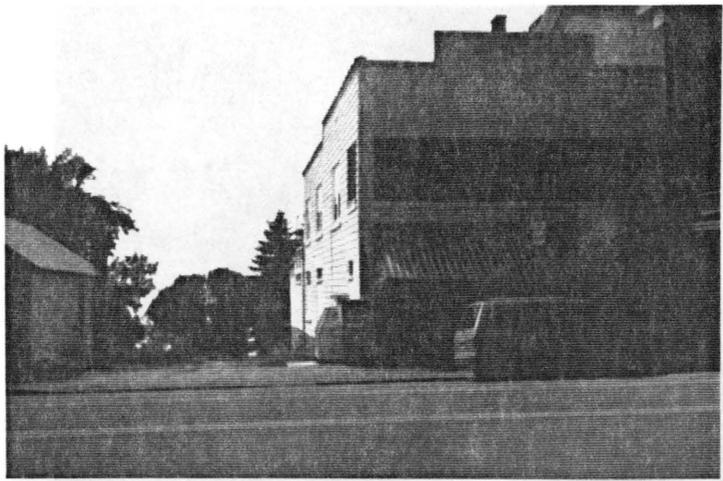
THESIS

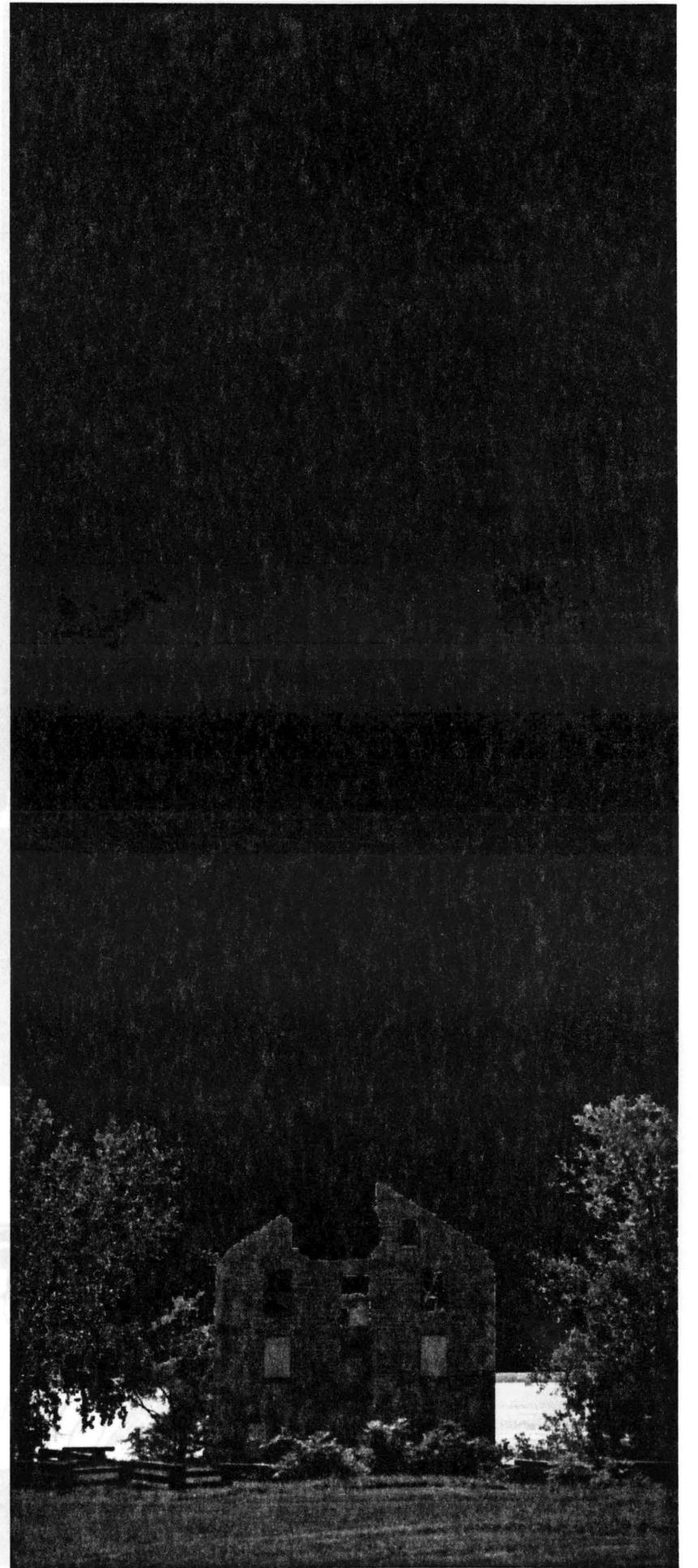
Located in the FingerLakes Region of New York State, the village of Aurora overlooks the east side of Cayuga Lake. This area was originally inhabited by the Cayuga Indians until 1789 when they were forced out by white men settling the region.

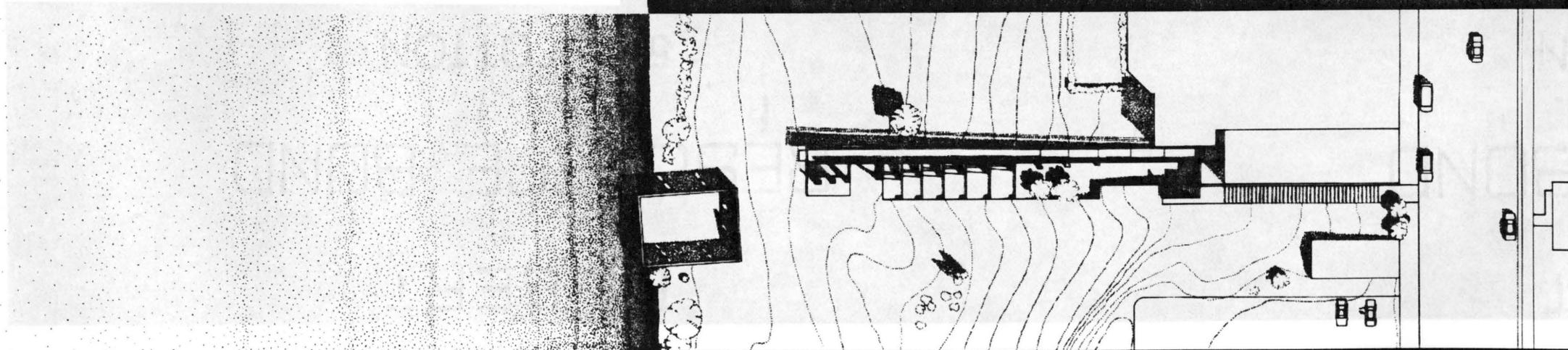
Following its settlement, Aurora became a natural stop for lake travelers and suppliers to the area, as it lay approximately halfway down the length of Cayuga Lake. With increasing growth and commerce, many new buildings were erected, including a steam mill (1817) and Inn (1833). The land between these two buildings became a major thoroughfare, as the mill and village docks lay at one end, and the Inn and the rest of the business district at the other. As time passed, however, two major sources curbed the use of this connection from lake to town. First of all, the invention of the train and then automobile greatly reduced lake travel and the use of the village docks, and then secondly, there was a major fire in 1919 which destroyed much of the business district.

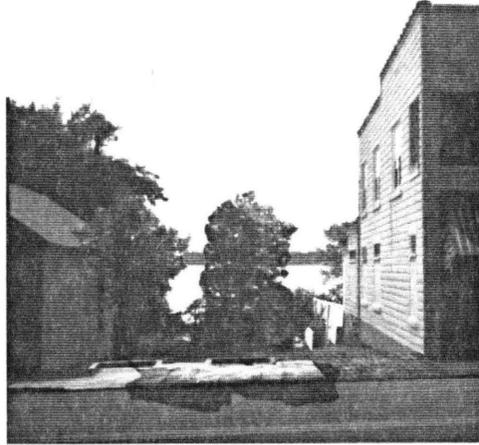
This project attempts to reestablish this lost connection that once had such a major influence on the development of the town.

7. *Aurora, N.Y. From the "North Poplars."* Drawn by H.W.P., 1848
Lithograph of Richard H. Pease, Albany, N.Y.





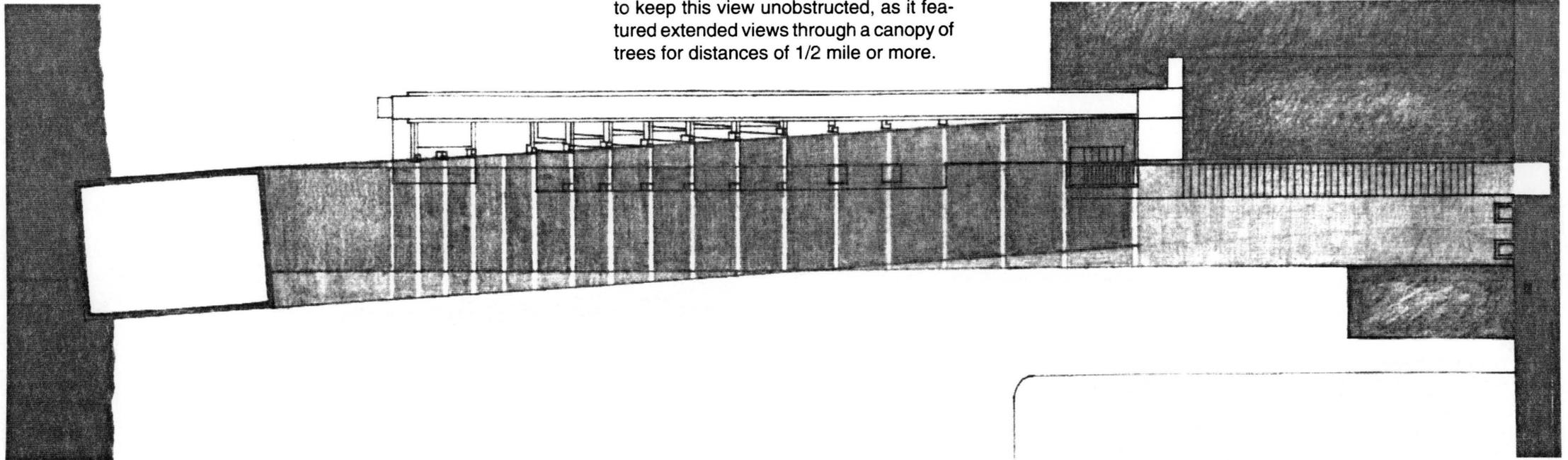


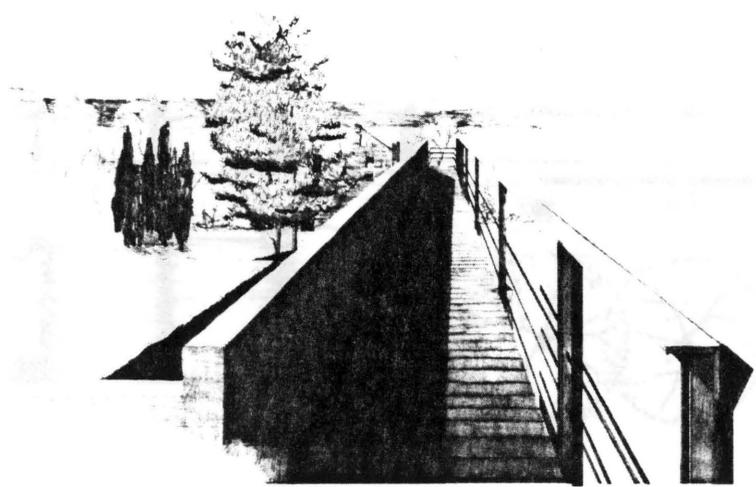


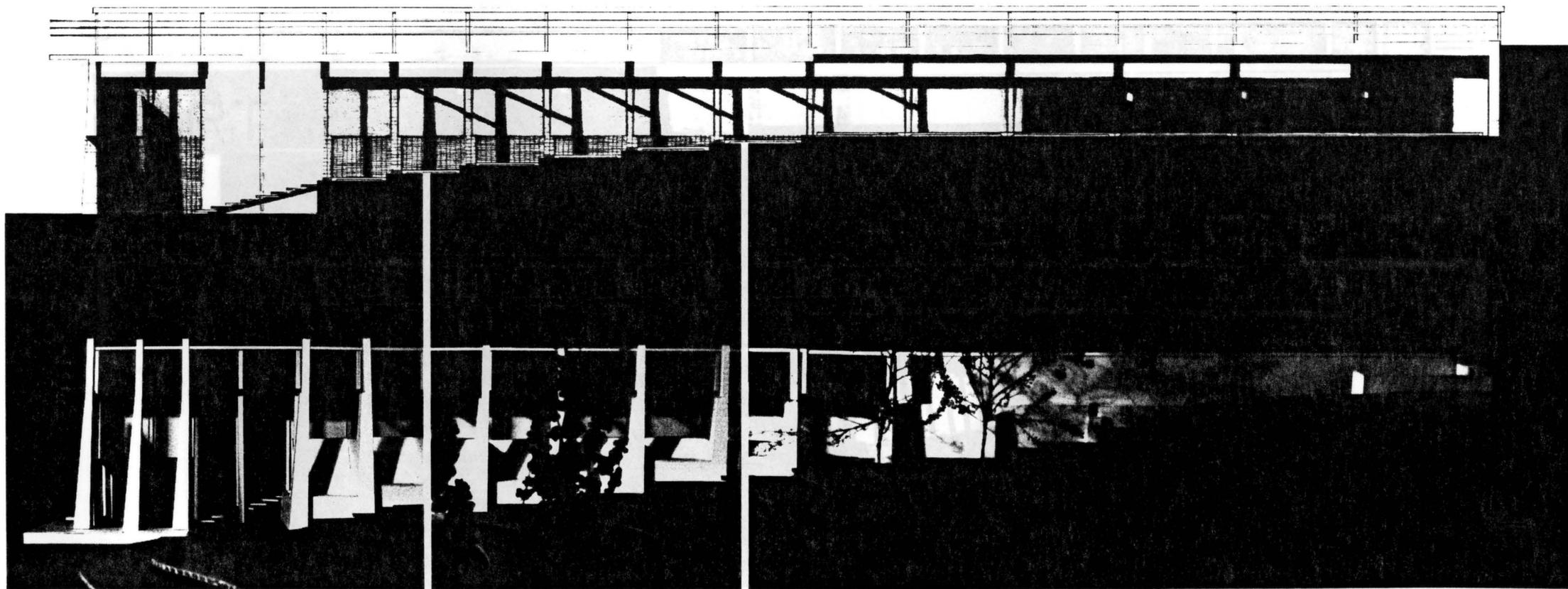
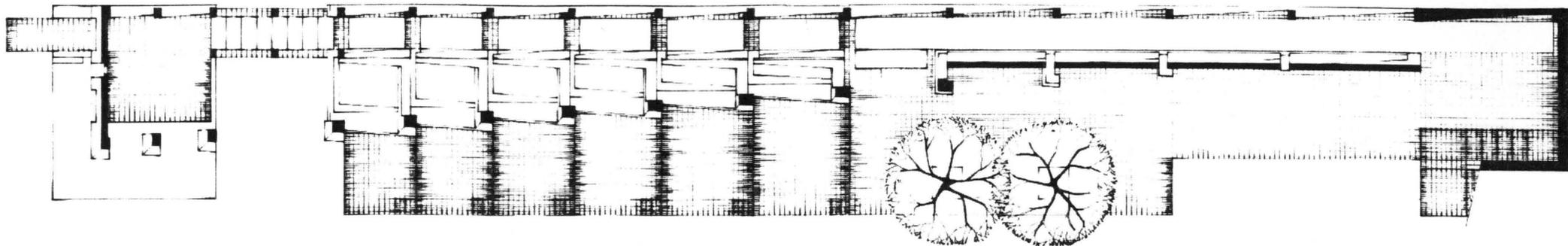
The face of the ruin is oriented parallel to the lakeshore, while the stores, Inn, and main street lie at a 3 1/2 degree angle off that of the lake and ruin.

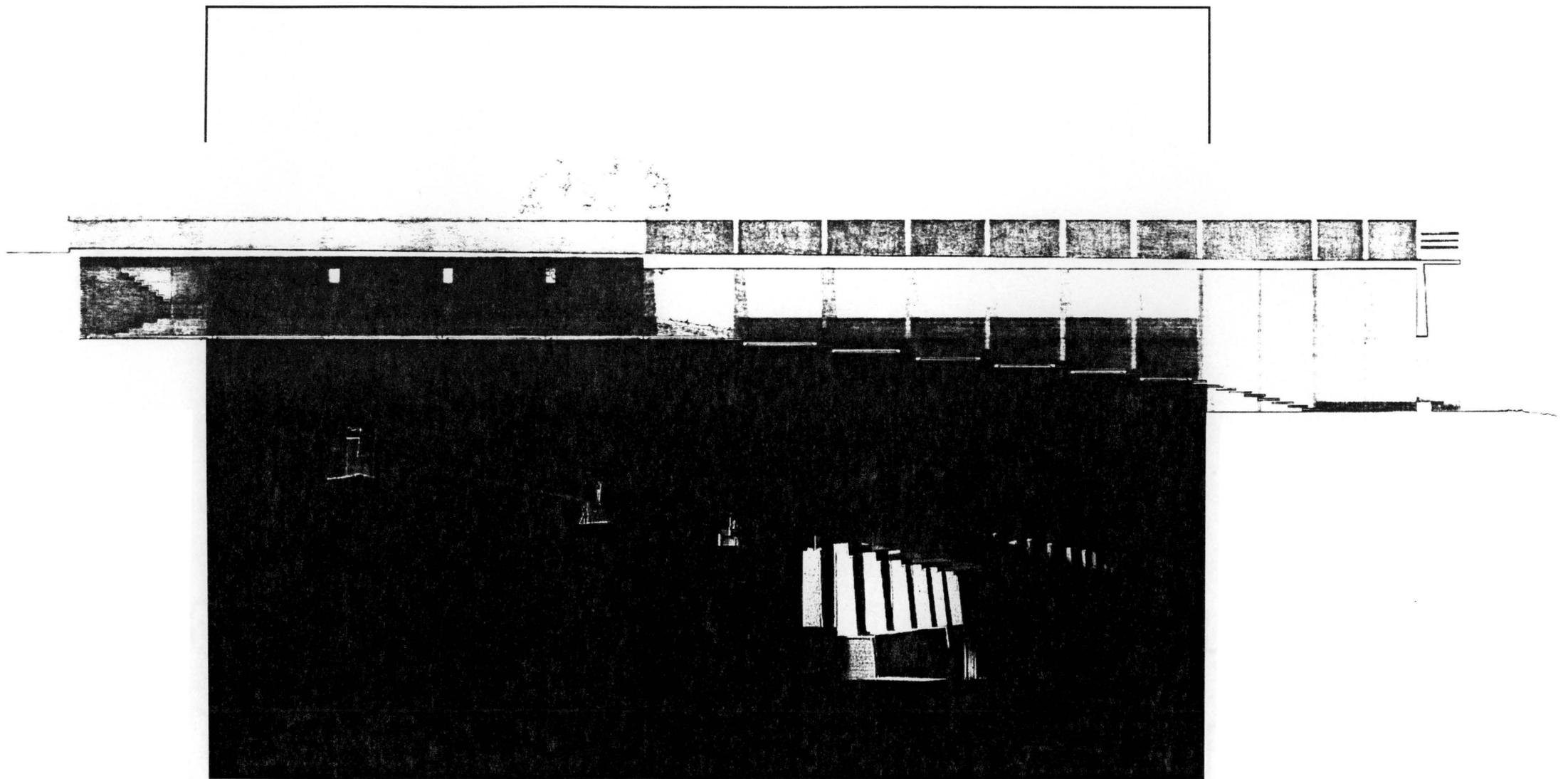
Using this information, lines were extended perpendicularly from the face of the ruin, and from the opening between the stores, to provide controlling lines for the project. A mathematical progression was then applied across these controlling lines to round out the factors that would effect accentuating the perspective.

There was one other limit to be placed on the project that concerned the site. There was a clear, 25' wide walking path that ran parallel to the lake the entire length of Aurora, and ran directly between the ruin and main street. It was desirable to keep this view unobstructed, as it featured extended views through a canopy of trees for distances of 1/2 mile or more.

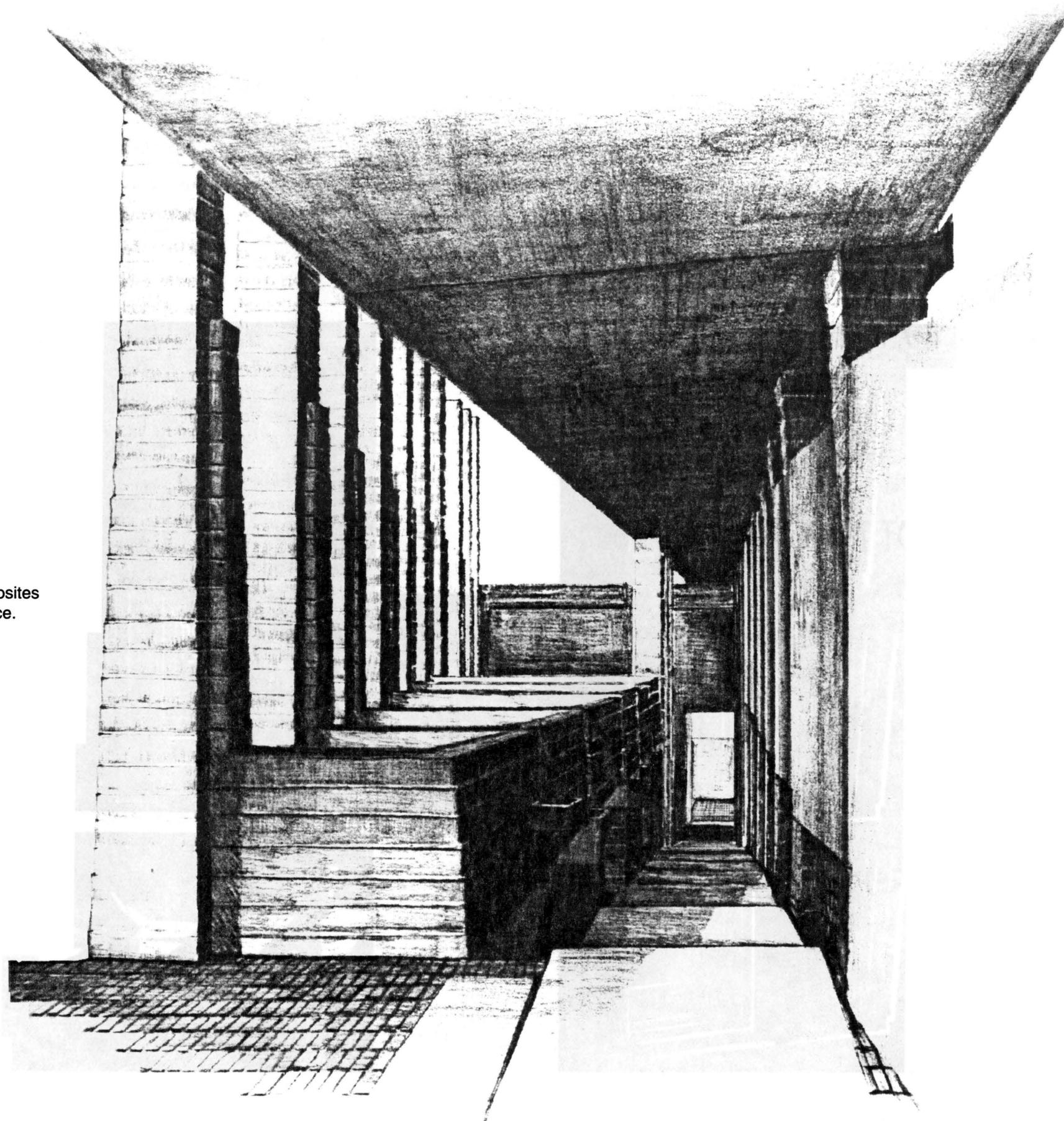


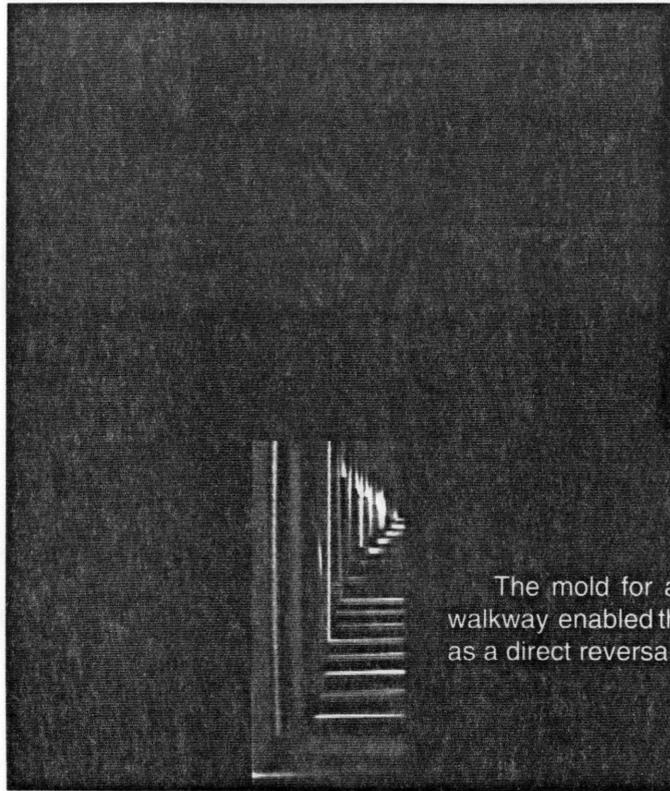




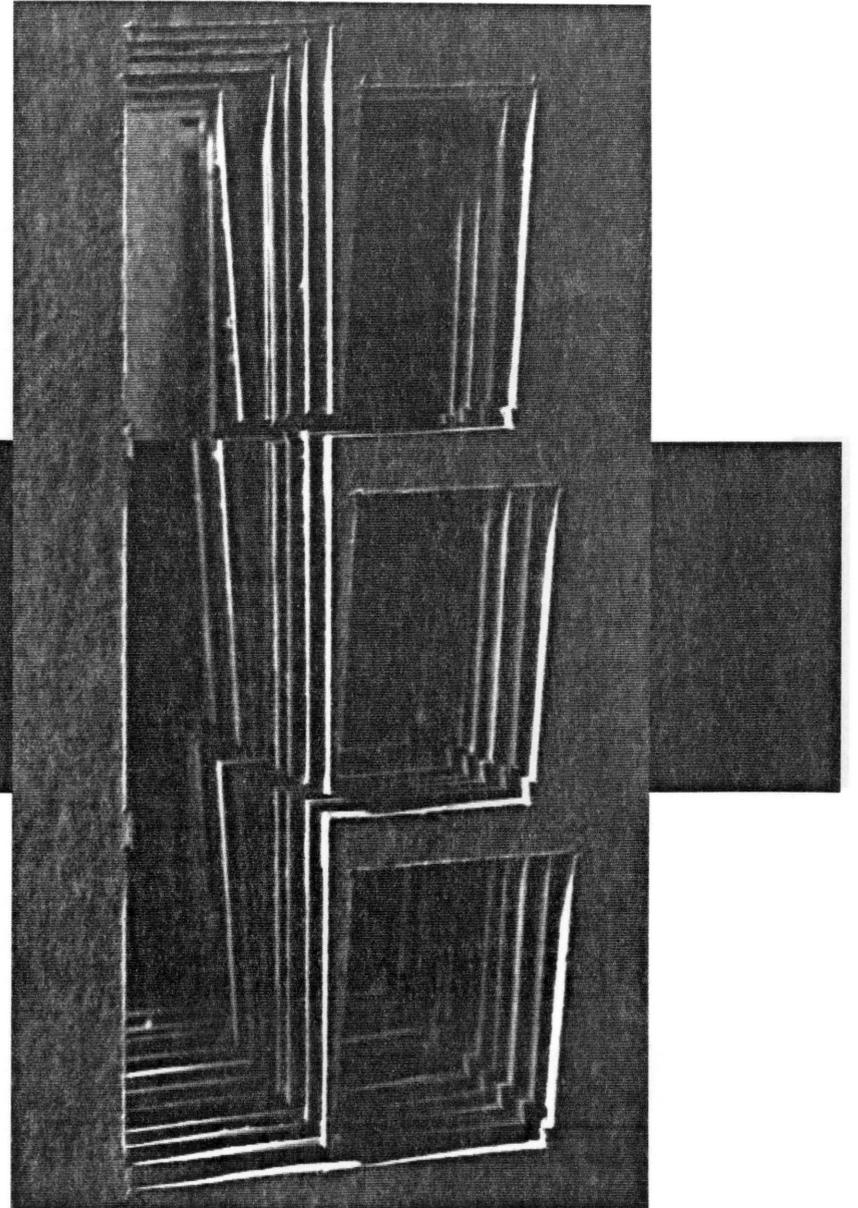
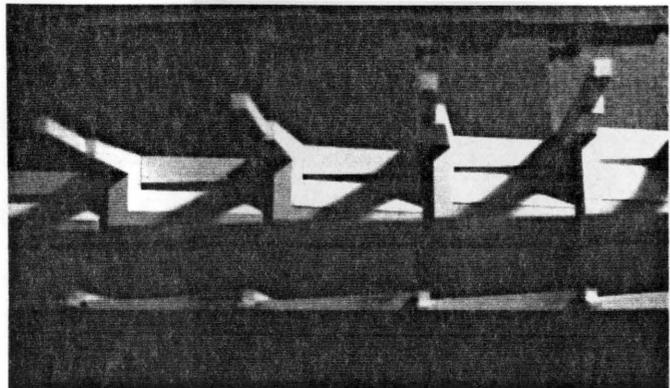


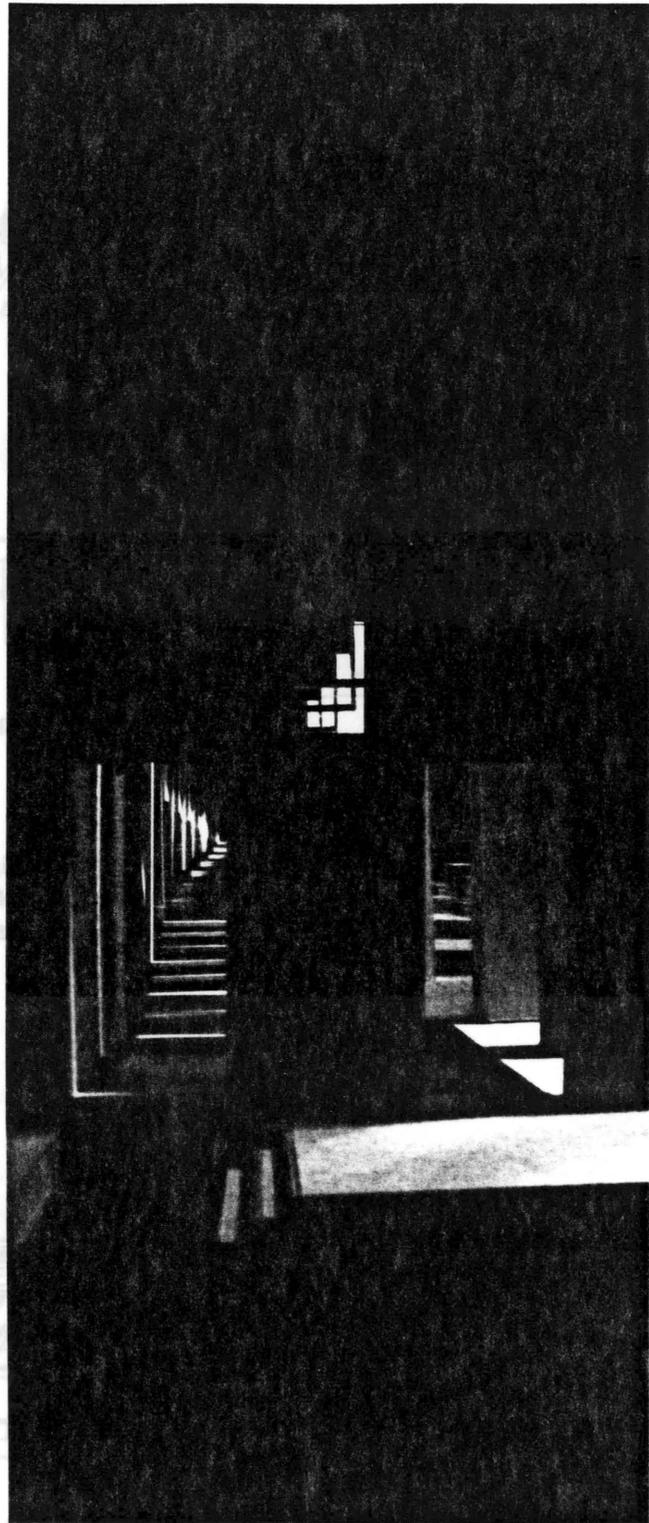
The walkway is a marriage of opposites
whose only limits are time and space.

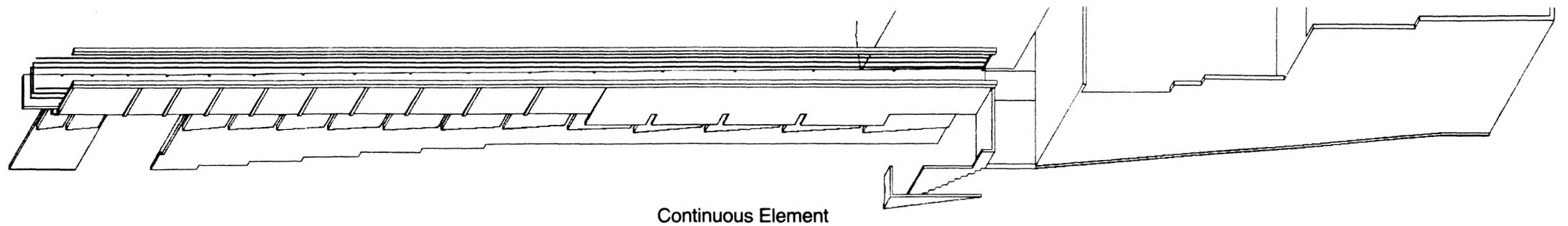




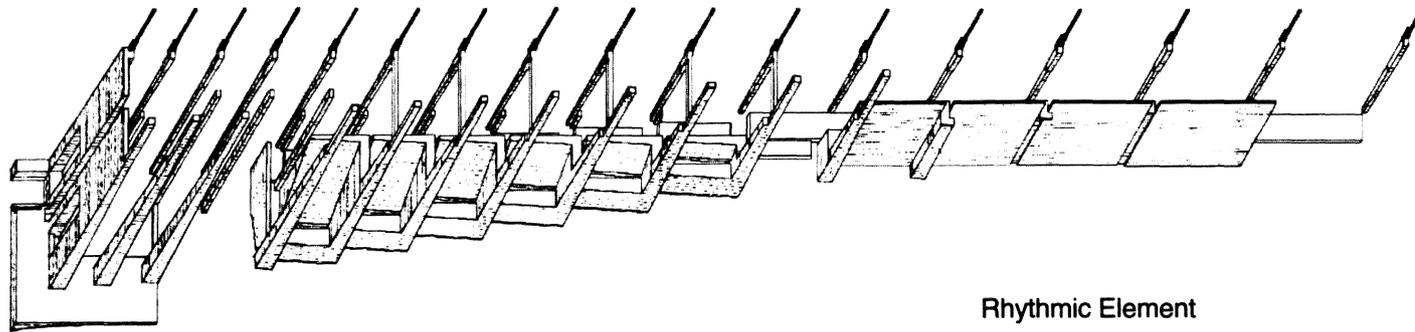
The mold for a portion of the lower walkway enabled the study of solid to void as a direct reversal of the end cast.



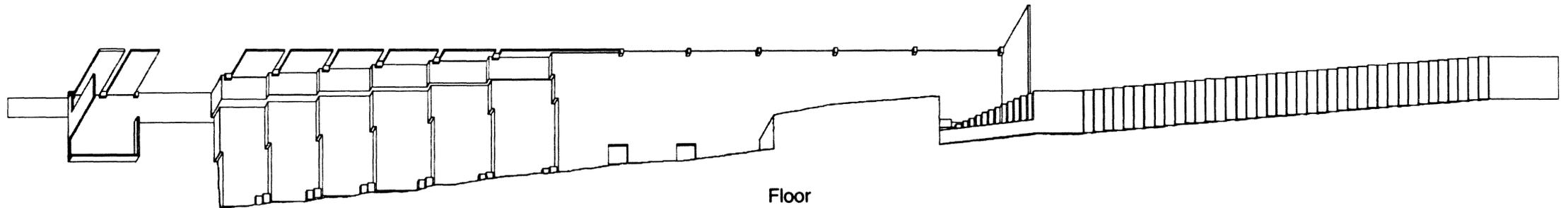




Continuous Element

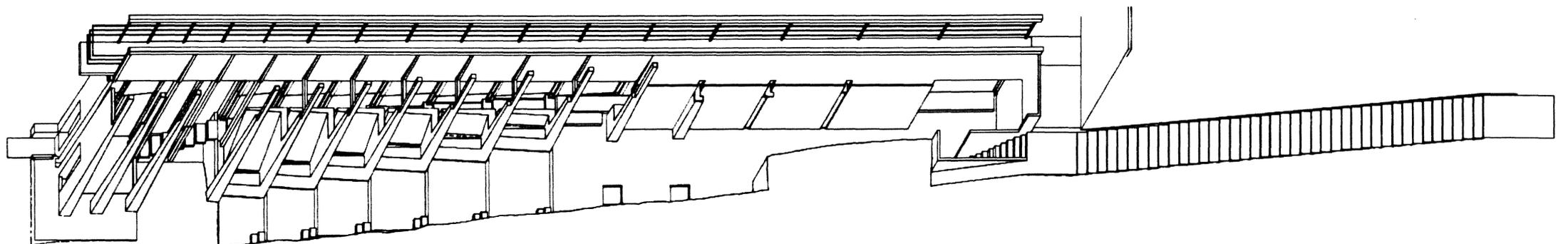


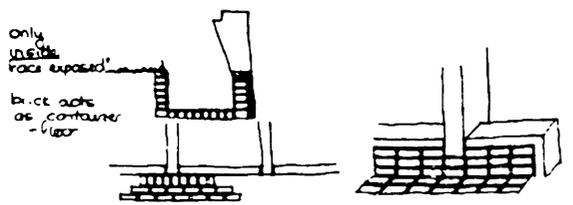
Rhythmic Element



Floor

continuous element...boundary between contained space (solid/void union) and infinite space...defines upper limit of container...mediates between existing conditions and conceals the outside surface of the floor... **rhythmic element**...where the solid/void unions occur...provides structure...marks visual cadence... **floor**...container...defines volume...inside surface is it's ultimate characteristic: surface shared by both container and contained...outside surface is never revealed...sets the boundary between contained and limitless space...





- Void is defined as Space or Space that defines/contains a solid to make a whole

to design a special brick for edge condition but not for angled floor condition - only material should be used

brick → 90° angles

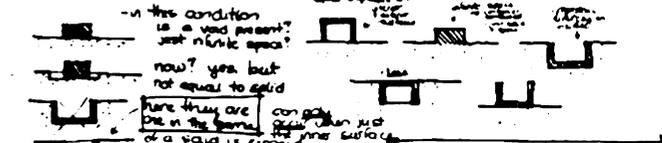
cannot expose the 'thickness' of the floor why? what's the difference between and?

they are containing each other rather than one containing the other

The void is considered as an equal to the solid! It's not the difference between additive and subtractive form

brick cannot be butted against existing structures - must have intermediary - core.

The inside surface is the most important in a container/contained situation - it is the boundary between the two - defines both.



- Angles only occur in horizontal direction - not vertical when bricks are used.

- no angles don't want to be used at all unless kept in separate elements - planes. Cannot have floor/wall combination

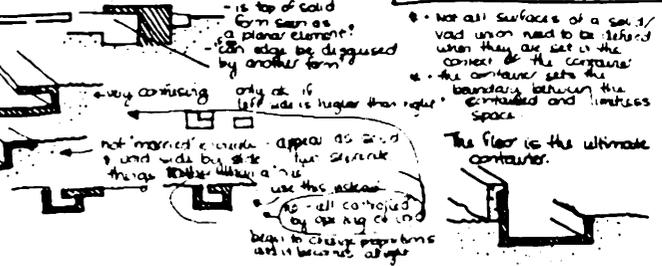
- Solid cannot be considered a planar element unless void is as well. Boundaries must be made.

- A cutting or contact must be established in order to present a oneness or union of solid + void

- that cutting is defined by the inside surface of form.

- Not all surfaces of a solid/void union need to be defined when they are set in the context of the container

- the container sets the boundaries between the contained and limitless space



How are the red and yellow components of the solid/void union different?

Red

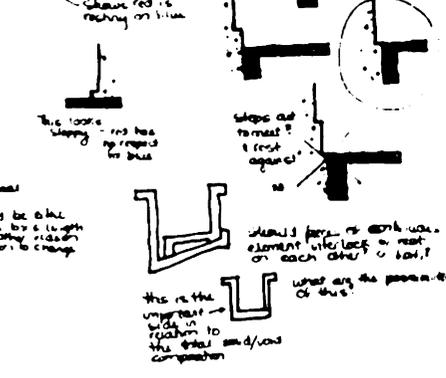
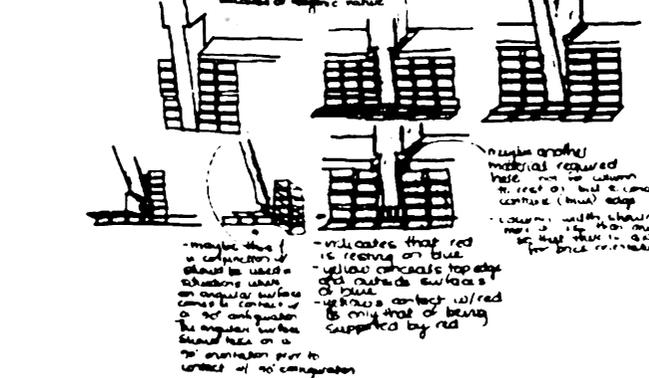
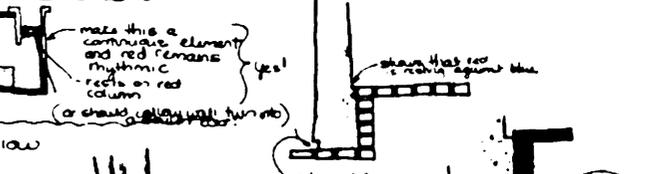
- Directly comes in contact with the blue. Rests on, how are the qualities different when the blue is 2-dimensional and when it's 3-dimensional?
- mediates between existing buildings and blue (how is it different when it just exists on its own against an existing surface?)
- not always perceived as a continuous element - rhythmic, time element
- acts as a vertical element
- Blue defines space while red and yellow components define time in space? because of rhythmic nature

Yellow

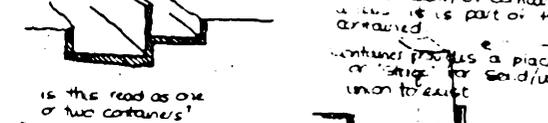
- does not touch blue - ever? (if there is a condition in which it would touch the blue, where would it be?)
- rests on red components
- reads as a continuous element, however, the rhythm of the red is reflected in the construction of the yellow
- reads as a horizontal element

if yellow is a continuous element, then maybe it should be the yellow that mediates between the existing structures and the blue + provide a disguise for the blue surface that emerges from the ground

- is yellow element a lead-bearing?



Container does not exhibit vertical components when butted against existing vertical structures. The outside surface of the existing structure becomes the inside surface of the container



Vertical elements are OK - they are not a continuous element along the entire container. There must be some interruption

elements can exist outside the container/Or long as they rely on the outside surface of the container as the inside surface

can the outside of the container ever be exposed? yes, definitely at its presentation point - dice

it addresses the street - this is not what about the end? no - this can't occur, ever

where concrete addresses the street, container's exterior surface can be expressed, however, it cannot have a facade-like quality, must be more of a gate

is the floor the primary element? or are the contained parts? both can exist without each other, however, the contained parts require more when exposed to the container

should the yellow read as both a container/contained element and as part of the solid/void union? it definitely forms a void separate from the whole

exposed most directly to these infinite space, which experience relates to that of infinite space than that of defined space

Focus is always on the white - however, because more concentrated on the white from the left to the contained portion

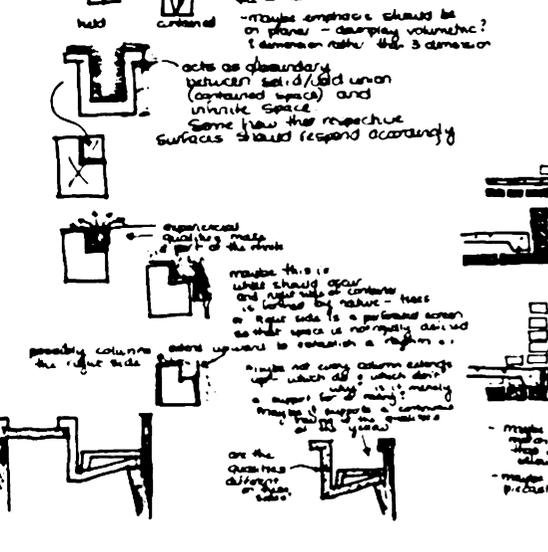
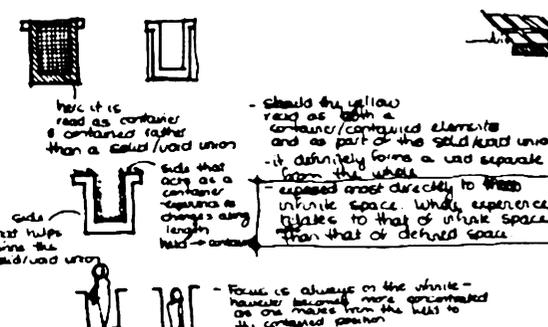
maybe emphasis should be on plane - displaying volumetric? 1 dimension rather than 3 dimension

acts as boundary between solid/void union (contained space) and infinite space. Some how the respective surfaces should respond accordingly

perhaps this is what should occur when you cut a container and you have a surface - there is a surface by nature - as that space is not really defined so that space is re-created a rhythm

maybe not every column extends up which all 3 which don't mean a support for nature - maybe it suggests a cornice part of the structure of the yellow

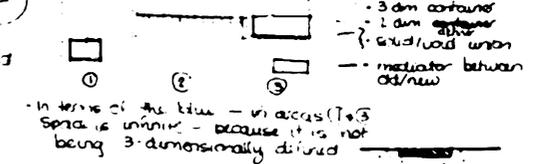
on the other side



The responsibility of the solid/void union is to determine the height of the container

the solid/void union is not present a height is not required therefore the boundaries are 2 dimensional

3 dm container
2 dm container
solid/void union
mediator between old/new

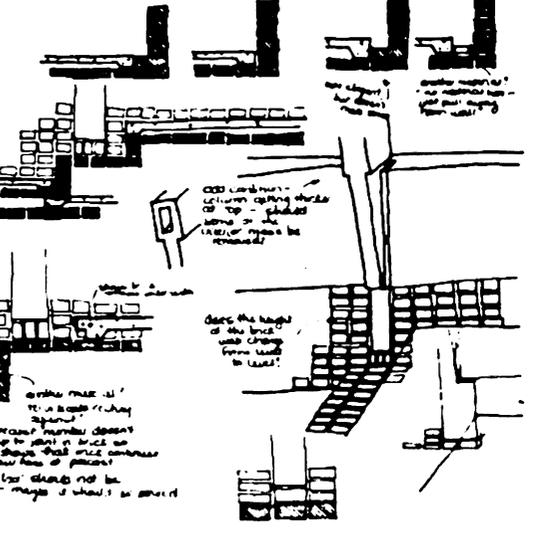
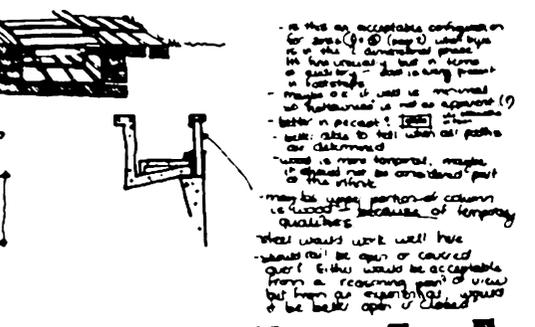


can something that appears to be 2-dimensional be the starting point? maybe more needs to be added

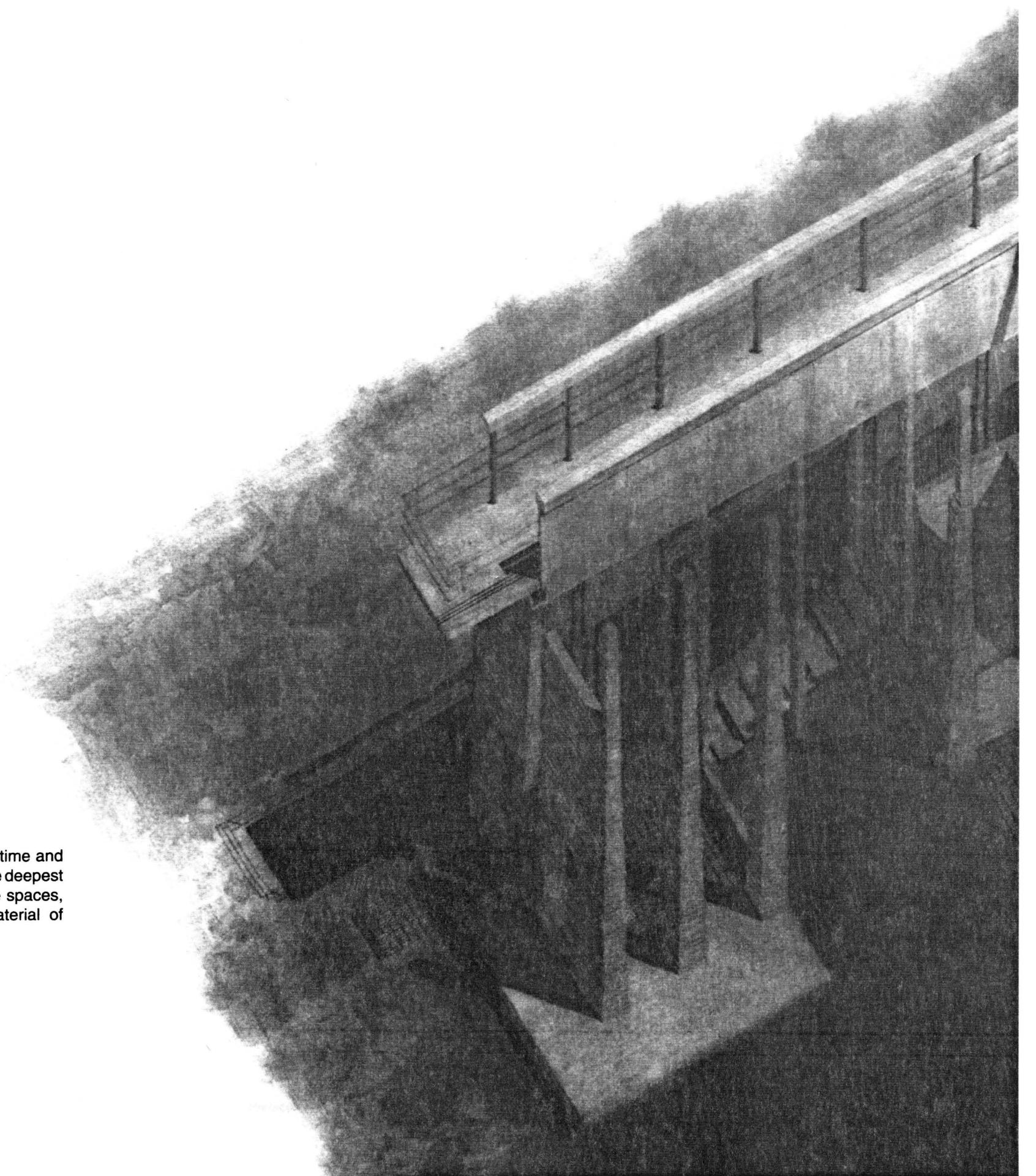
in area? the red inside surface is acting as a container for the red to rest - the existing can act as a termination of the project

how does it look? maybe red wraps around blue at street - relying on blue for one of the sides?

can say that street is already an existing edge - like that of the side of an existing building - therefore it can be treated as such



As the rhythmic divisions of time and sound in music find an echo in the deepest recesses of the mind, so do the spaces, the light, the shadow, and material of architecture.



“Ignorance is a treasure of infinite price that most men squander, when they should cherish its least fragments; some ruin it by educating themselves, others, unable so much as to conceive of making use of it, let it waste away. Quite on the contrary, we should search for it assiduously in what we think we know best. Leaf through a dictionary or try to make one, and you will find that every word masks a well so bottomless that the questions you toss into it arouse no more than an echo.”

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