

A House by the Bay

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ABSTRACT

This thesis explores structure as a visual and literal framework for a building. The relationships or connections of discreet pieces to the framework, whether on the scale of a handrail or the brick cylinder is the basic structure of the project. The structural grid establishes an order. It defines the boundaries of the house. The enclosure and spaces within the grid of columns and beams can then respond to other temporal considerations.

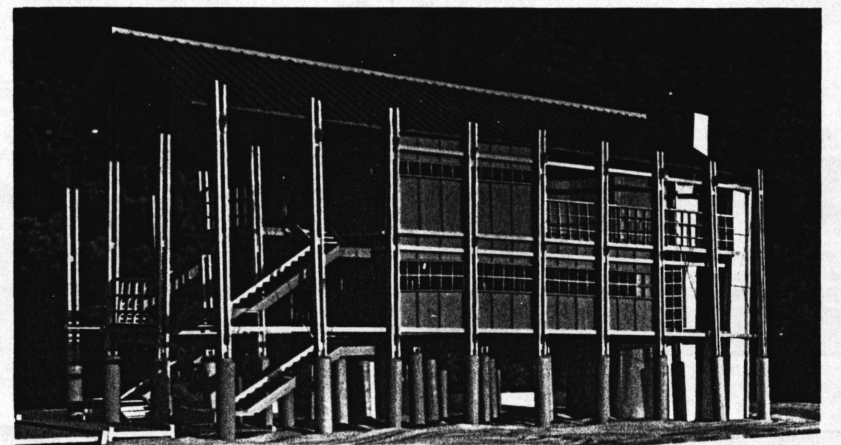
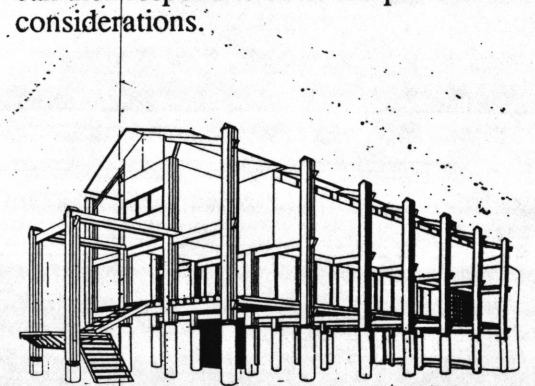
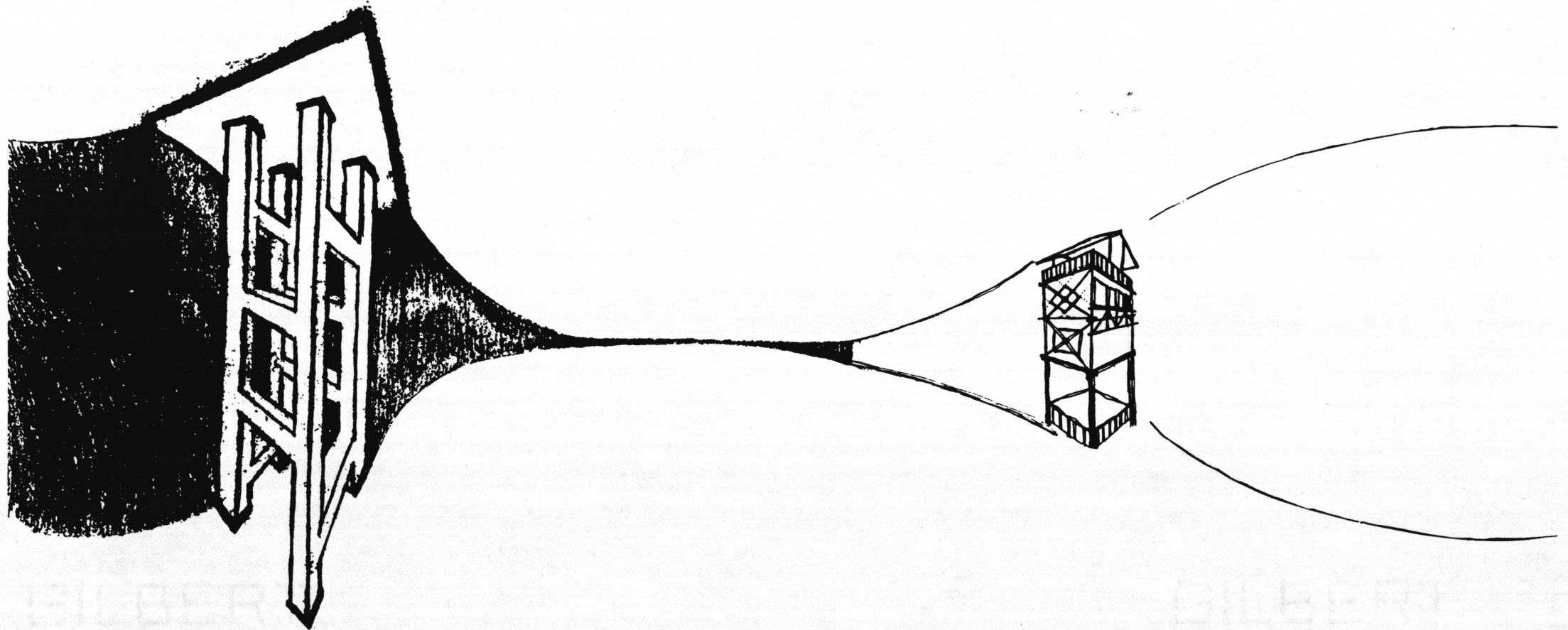
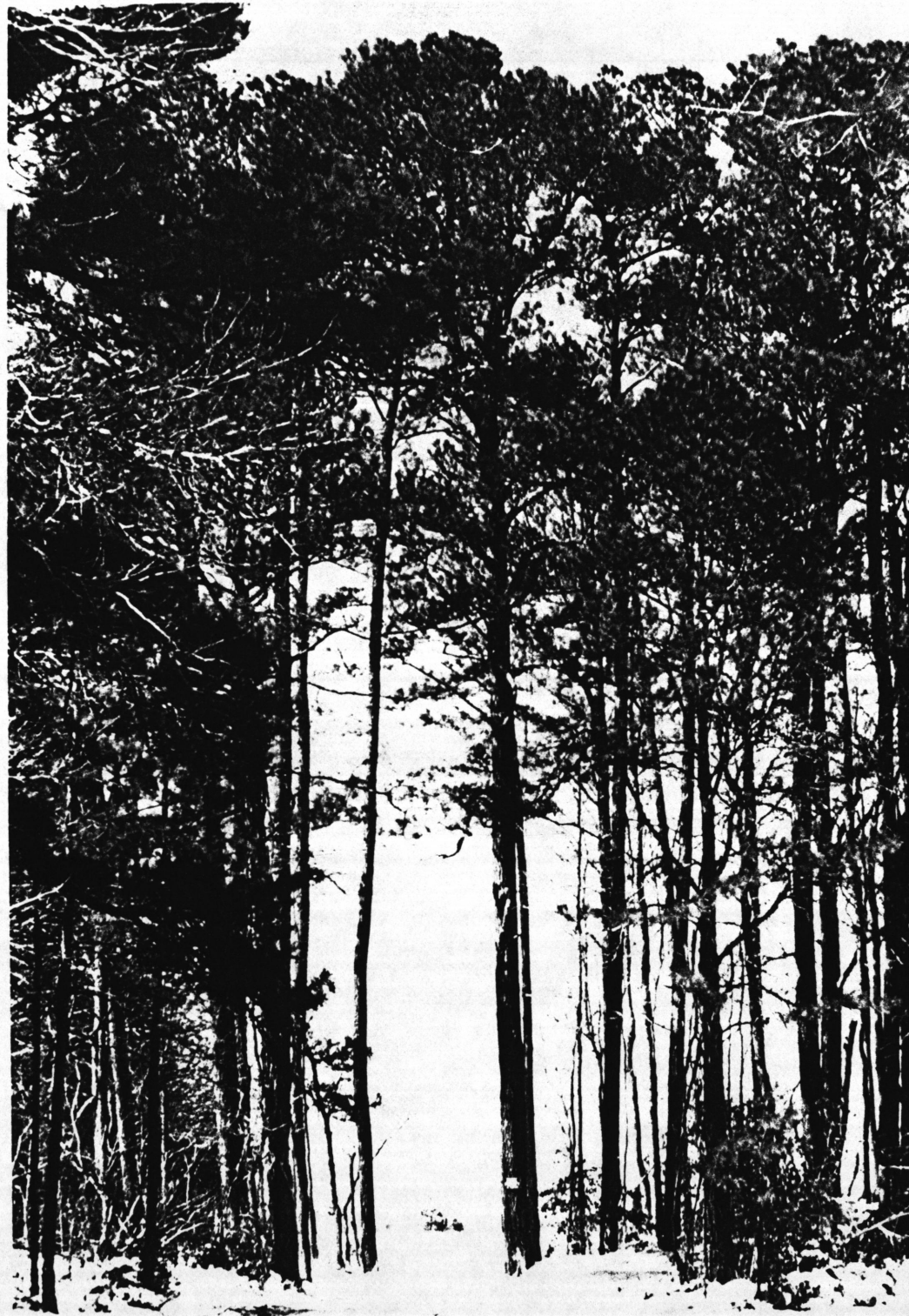


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THE LANDSCAPE



The Eastern Shore of Virginia refers to the lower part of the Delmarva peninsula. This body of land separates Chesapeake Bay from the Atlantic Ocean. Water and sky dominate the landscape. Groves of pine trees are the only substantial vertical element connecting land and sky. The water draws you to its edge. One end of the beach hosts a community of fiddler crabs. Along another stretch Indian arrowheads of slate and rose quartz have been found. These are the only stones to be found in this landscape. Further along, old bottles and bricks from a former house wash ashore and horseshoe crabs often get trapped out of the water. Along the north end of the old farm, a marsh has formed. A comparison of the map surveyed in 1916 with that of 1988 reveals that the Point has been migrating north. The rate of erosion and deposition of material is constant with the action of wind and water but is most apparent after a storm. In addition to natural processes, the recent dredging of a channel in the creek to increase draft seems to have accelerated erosion on the site. Attempts to stall erosion have thus far been unsuccessful. Apart from coastal erosion, the land is also threatened by a rise in sea levels. Shoreline retreat in the Chesapeake Bay is well documented. Subsiding land and rising sea levels account for a loss of about one foot per century.

*Each operation brings about a destruction:
destroy with sensitivity.*

- Luigi Snozzi

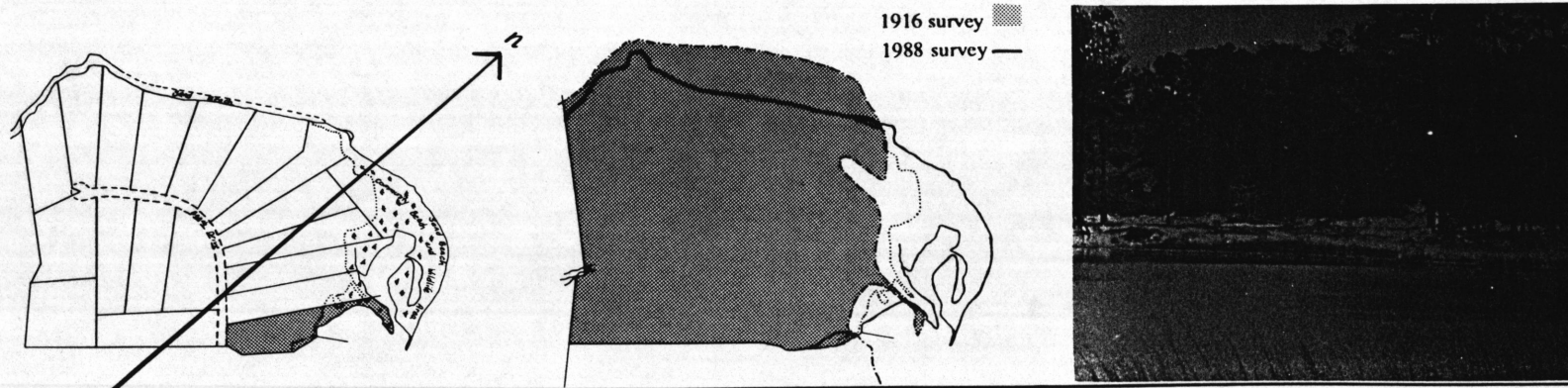
Location

Situated near Onancock on Virginia's Eastern Shore, the site lies at the end of a spit of land known as Bailey Point. Once part of a 60 acre farm, the land was subdivided into 18 lots which fan out around the point giving the majority of the lots water frontage. The dimensions of the site are 75 x 300 feet. It rises on average, only 5 feet above sea level. Bailey Point is bounded to the north and west by Onancock Creek, a tributary of Chesapeake Bay.

Potential for hurricanes

Being a low lying area, close to a large body of water was a major question to consider in the design of this project. In terms of natural disasters, a large storm presents the most likely hazard to the area. Damage in tropical storms usually occurs due to water (storm surge), wind pressure or wind-bourne objects hitting the structure.

The probability of a storm of hurricane strength hitting the Eastern Shore is approximately 2%. However, the occurrence of Nor'easters, or storms with gale force winds, averages 3 - 5 times per year. Wave size is related to the strength and duration of wind and the distance of water over which the wind blows. The Chesapeake is a shallow and confined body of water (as opposed to the ocean for instance) so wave heights are somewhat limited. Predictions as to 'worst case scenario' of storm surge estimate 13 feet above high tide. The house is raised on concrete piles which anchor the house and extend 8 feet above the ground surface. Onto these piles, the wood columns are attached. The lower level of the house is 11 feet above the ground and 16 feet above high tide waters.



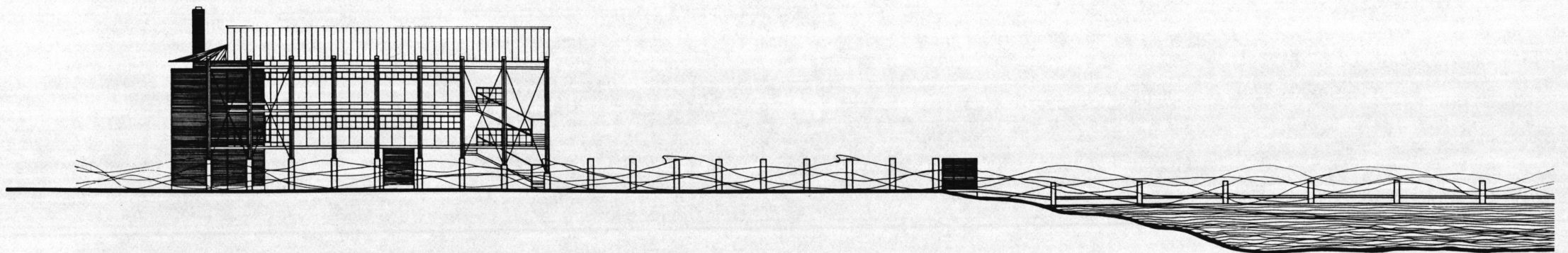


shoreline 1986

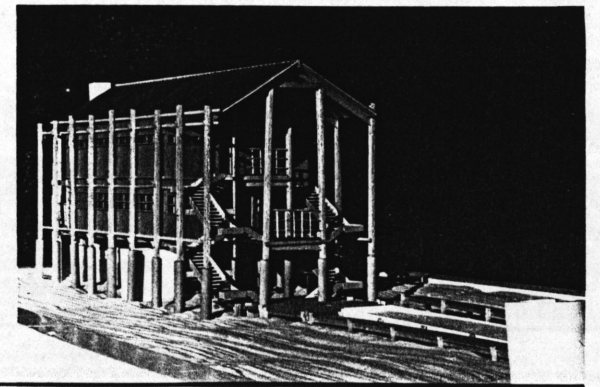
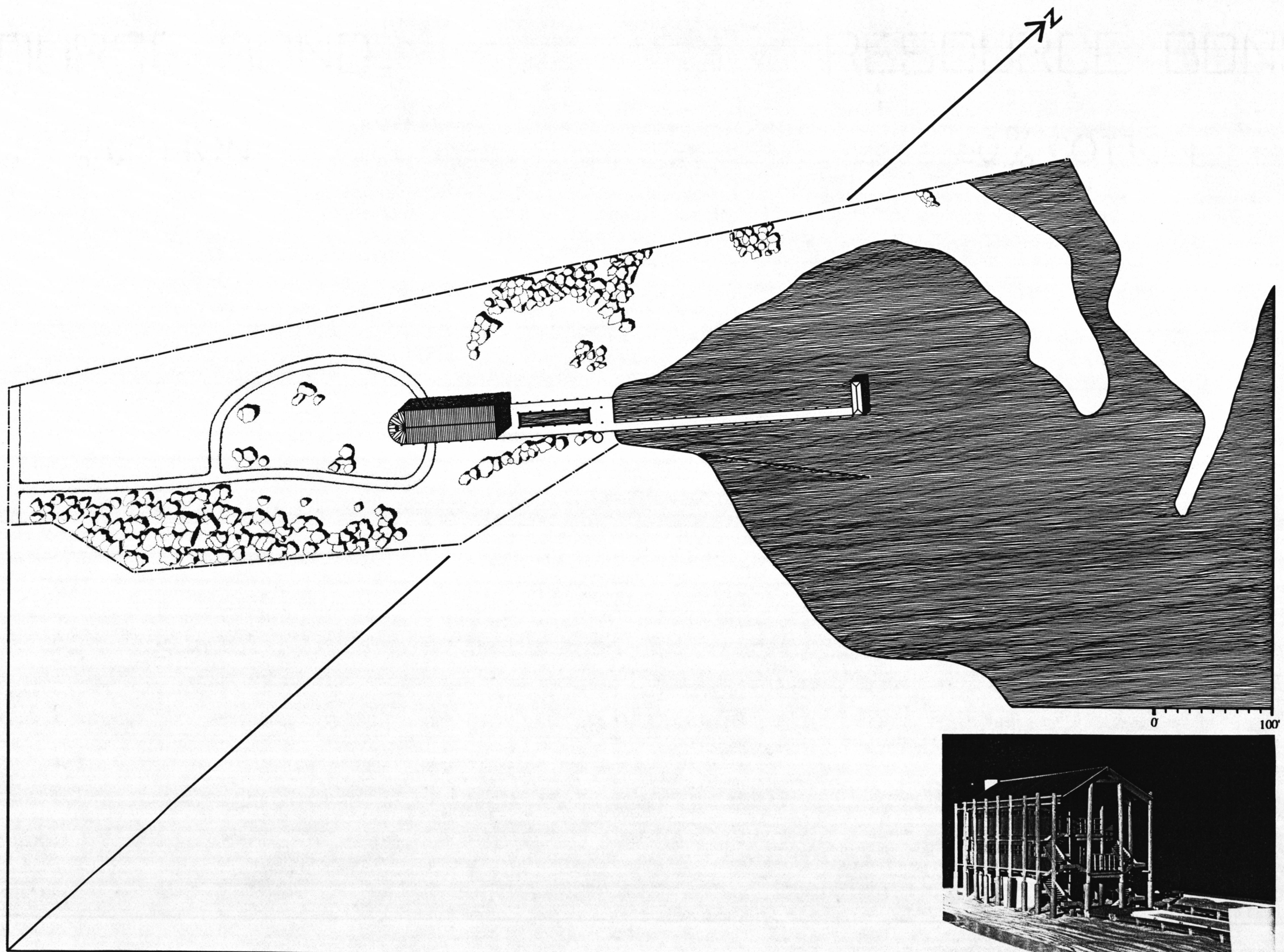


shoreline 1989

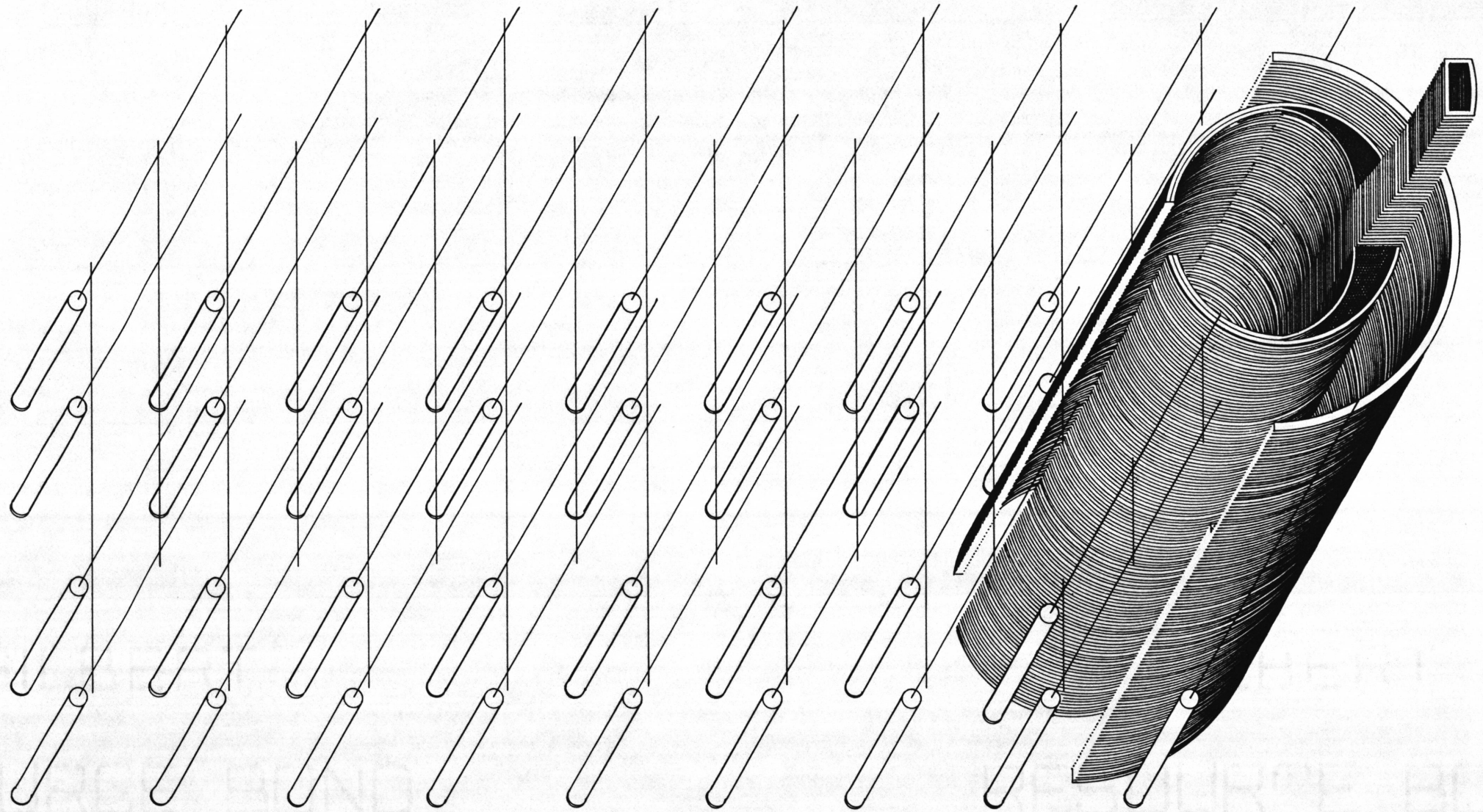
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Potential Storm surge



THE STRUCTURE



Looked at historically, structure does not dictate architectural form- Structure always limits, it usually facilitates, it often inspires, sometimes is merely incidental in, architectural change.

-Ying-tsoo fa shih

We call this spontaneous construction: structure. We can define structure as a sequence of parts proceeding from inner principle: an idea of parts.

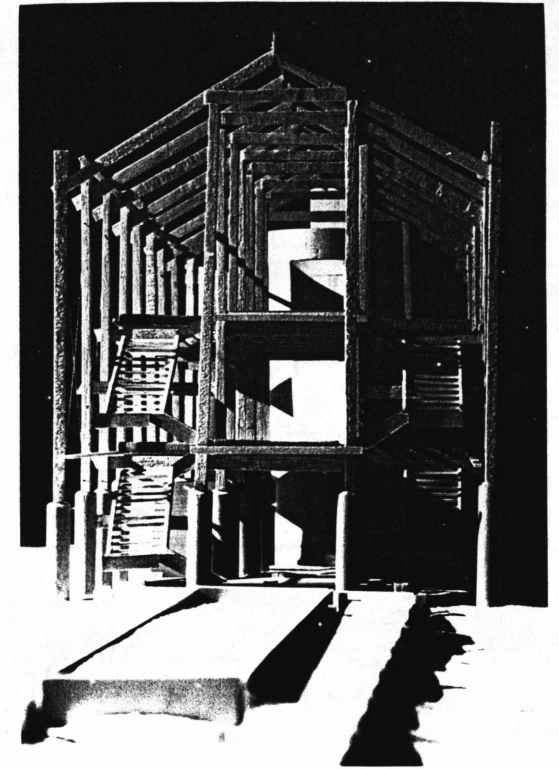
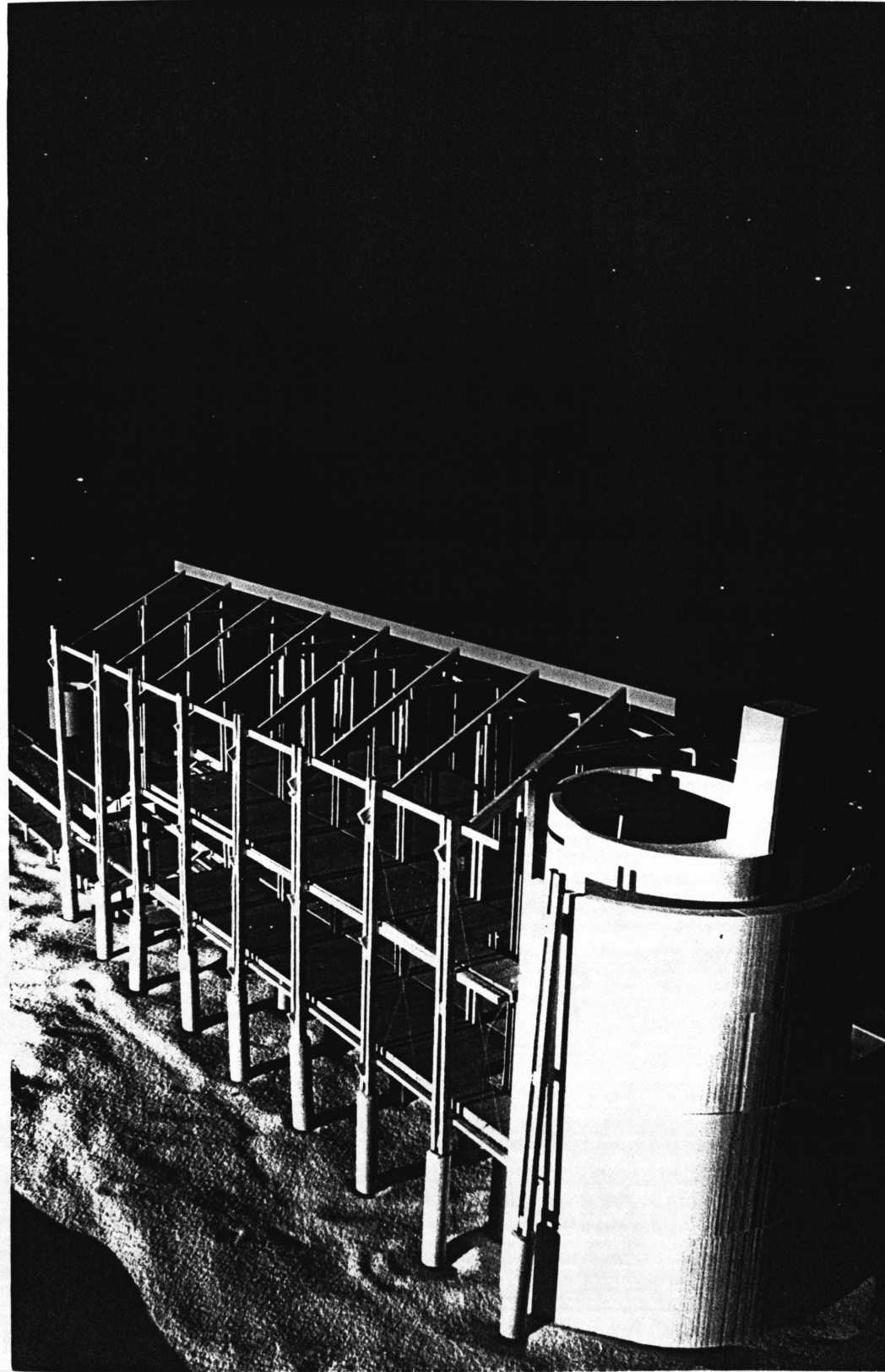
- Alfred Caldwell

"Structure" is a difficult word to use in describing a building. It can be used to mean the building itself or else the pieces or means in which a building is supported. Or else it can refer to the organization, the arrangement of parts or elements which give form to a building. The set of relationships between elements, this idea of parts, is the principle tenet of Structuralism. The relationship of the parts is more important than the parts themselves. Since the order is dependant on the relationship between elements and the whole, elements may be combined in a variety of ways, but the structure remains intact.

To do so the whole and the part are considered simultaneously and ordered by means of a rhythm and subrhythm. The order allows for freedom and capacity to change over time or with function. The elements of a structure may be ordered on a variety of scales. Differentiation can thus exist within the unity of a structure. Other design considerations allow for variations on the ordering theme and may bring a greater complexity to the structure.

An object has to be able to change its face without losing its face. Whatever space and time mean, place and occasion mean more.

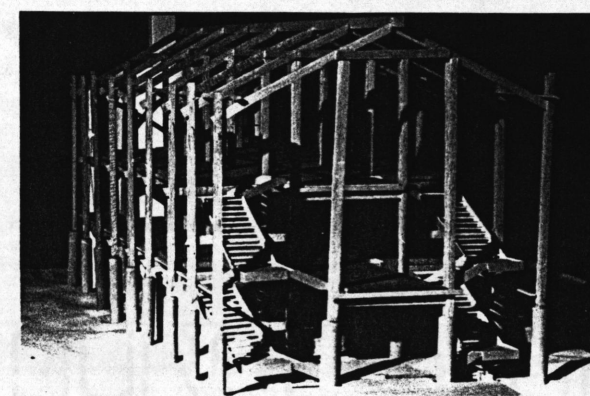
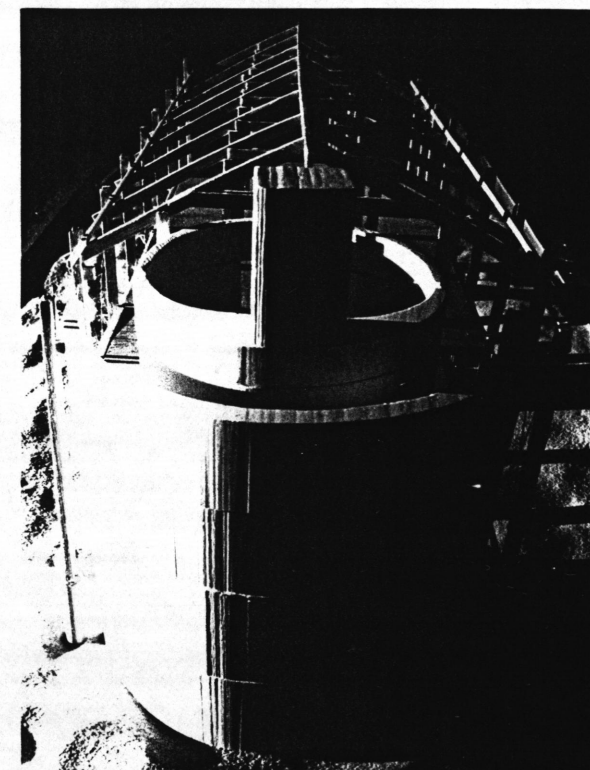
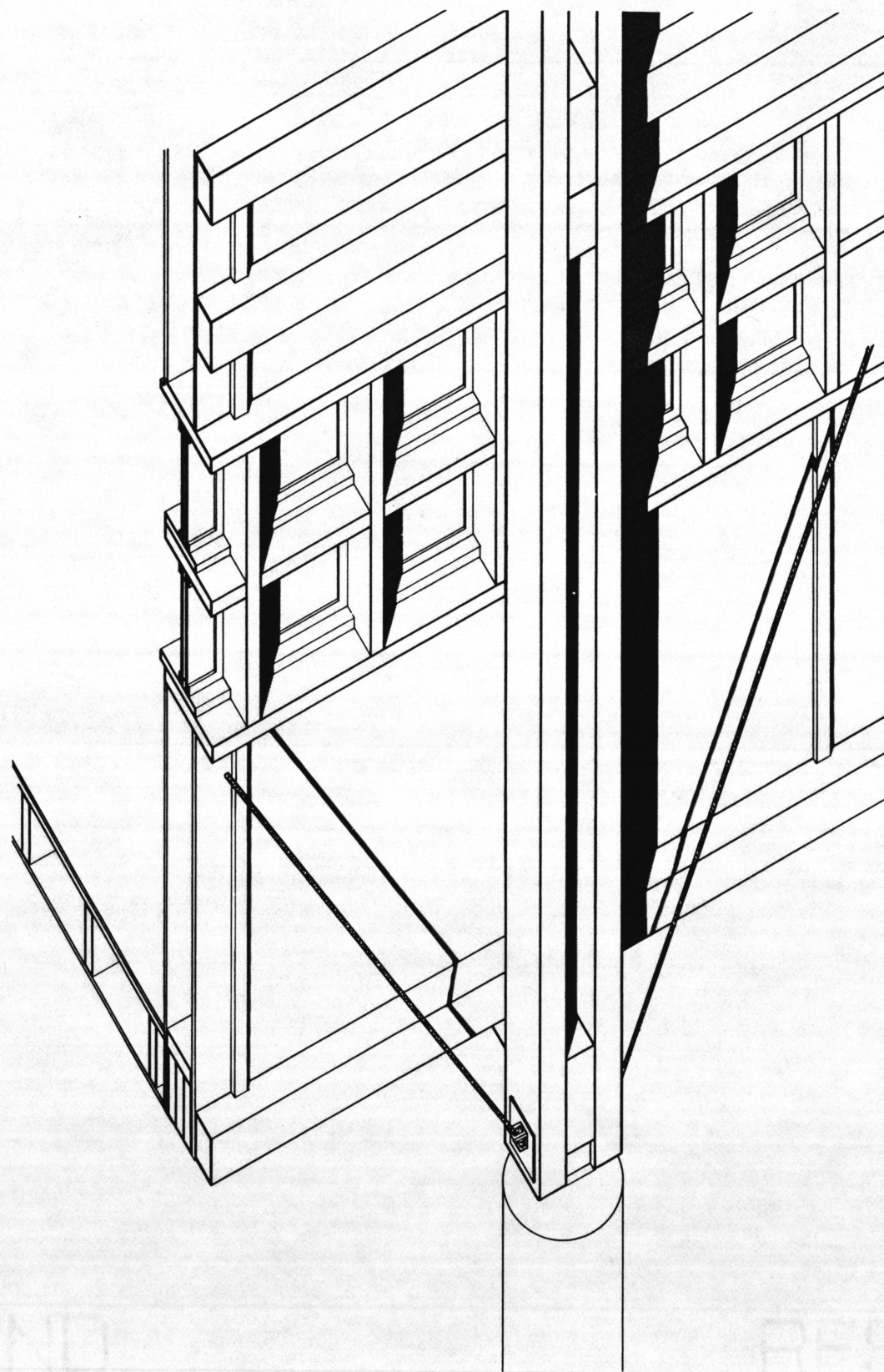
- Aldo van Eyck

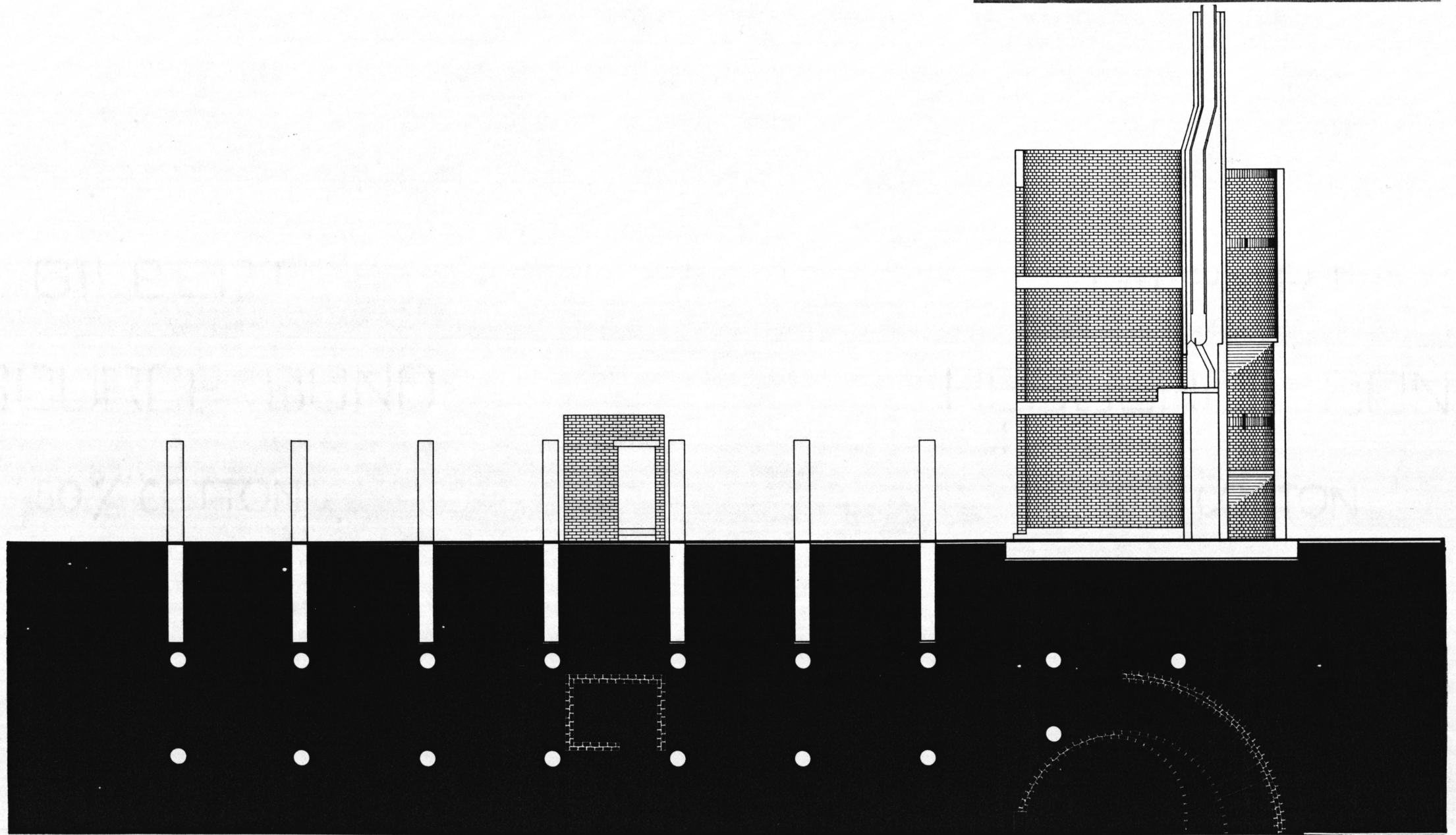
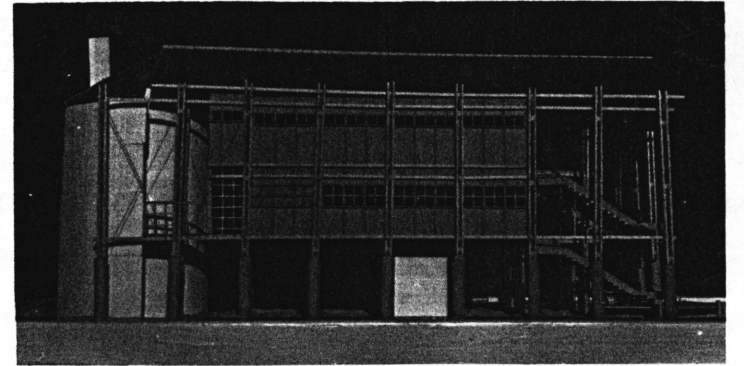


The initial ideas about the structure of the house derived from considerations of the landscape and materials on the site. The relationships or connections of discreet pieces to the framework, whether on the scale of a handrail or the brick cylinder is the basic structure of the project. The columns that support the elevated structure are the literal and visual framework of the structure.

The ordering of the columns allows the walls to respond to the needs of enclosure and opening. Infill panels and the screens which form the partitions and railings are a subrhythm of the structural grid. The wood structure does not touch the earth. It is raised up on concrete piles removing it both physically and visually from the earth, insects, and potentially from rising water levels.

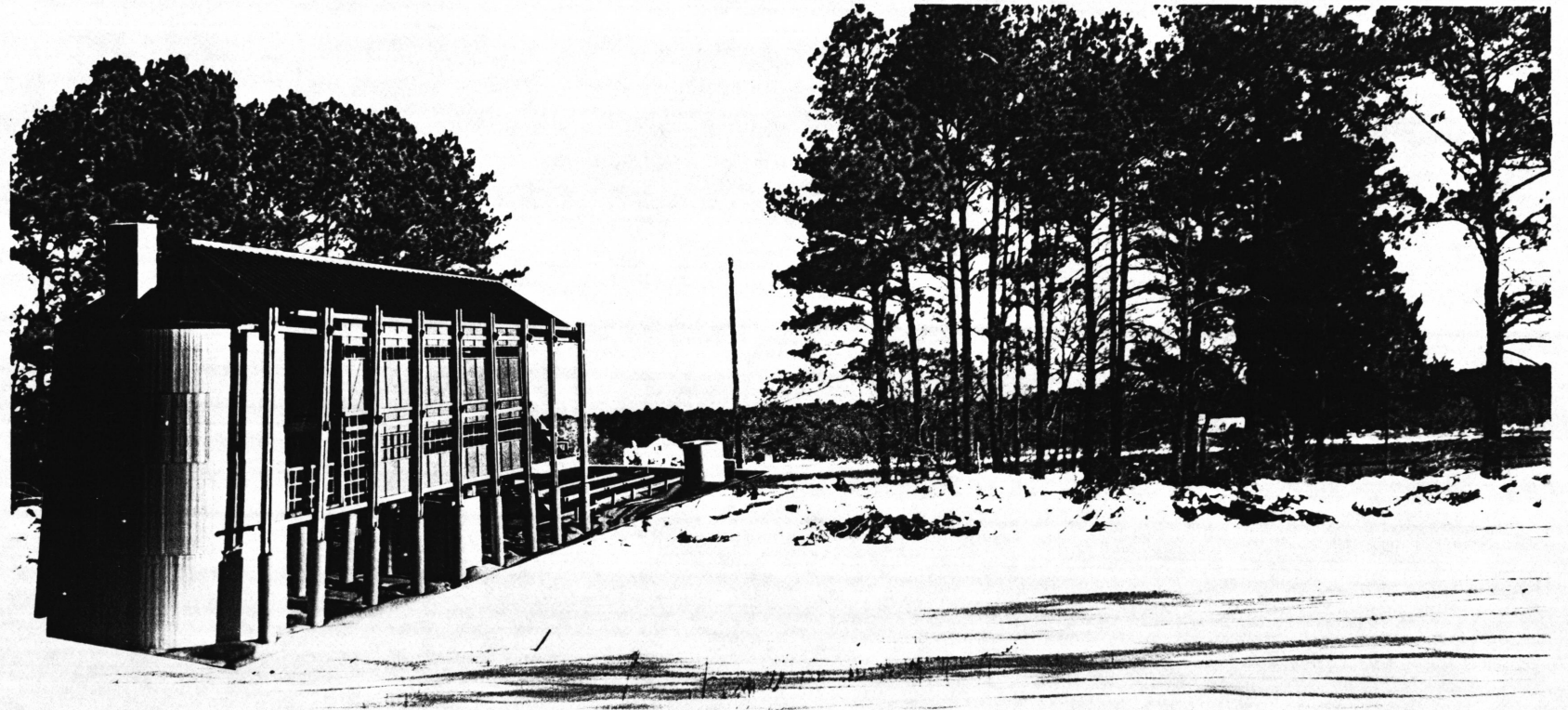
Brick is widely used in vernacular buildings in the area. The brick portion anchors the building to the land. The curved brick wall is derived from an idea of how a brick structure could stand on its own as do, for example, silos and the serpentine walls at the University of Virginia. The form also came from ideas about making a place for a hearth or fireplace which could contain the fire and encircle or embrace those around it. It is composed of two pieces, the inner cylinder and the outer half cylinder. The inner portion encloses a room on each of the levels opening into the main body of the house. A stair runs between the inner and outer brick walls.

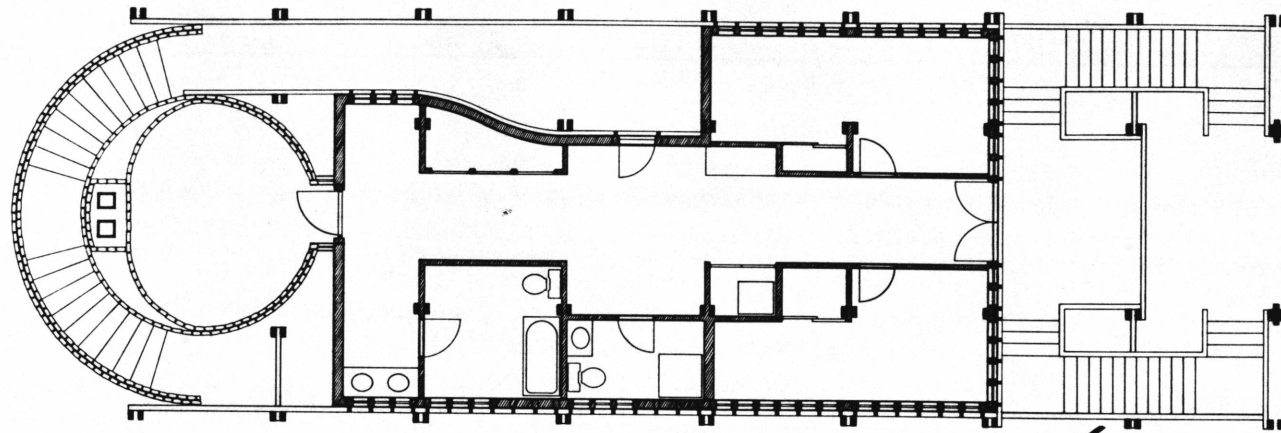




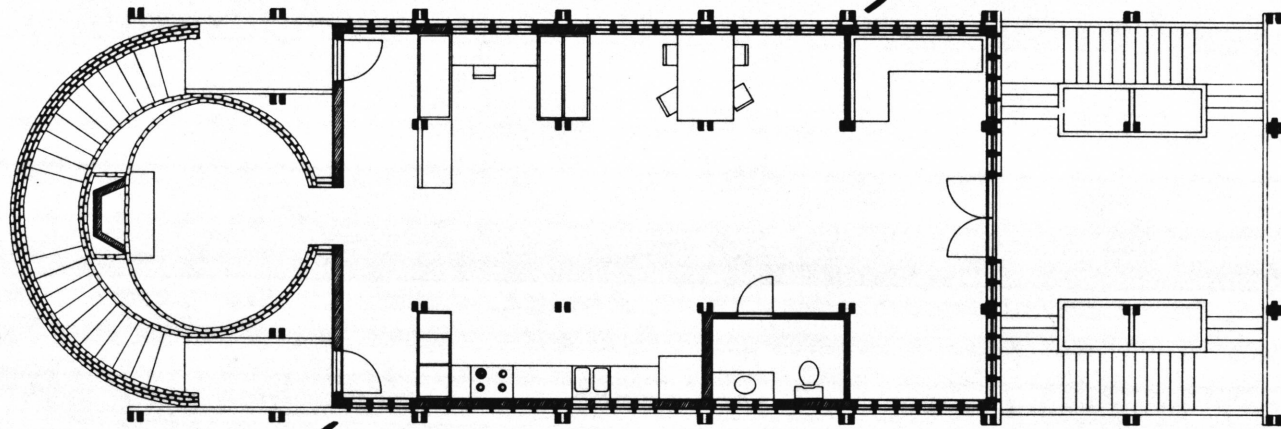
THE HOUSE

The house is composed of three parts proceeding from the land towards the water. The brick cylinder, the enclosed portion of the frame and the porch are distinct elements that illustrate oppositions existing in the building and support the idea of the structure. These dualities include: the permanence of the brick versus the transience or alterability of the wood frame, the curve versus the orthogonal grid, the massiveness of the brick versus the lightness of the wood, the enclosure of the brick end versus the openness of the porch, and dark versus light.

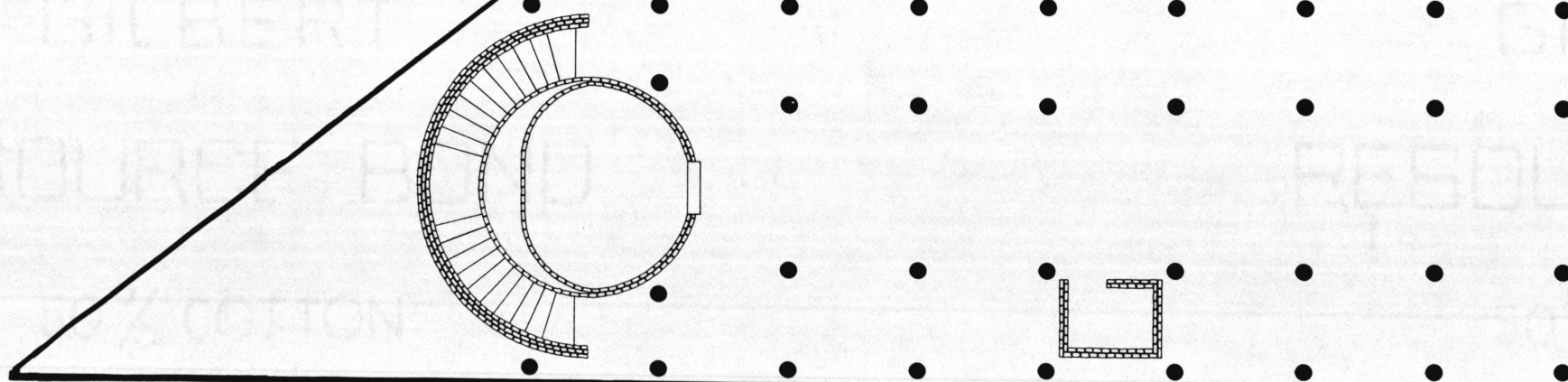




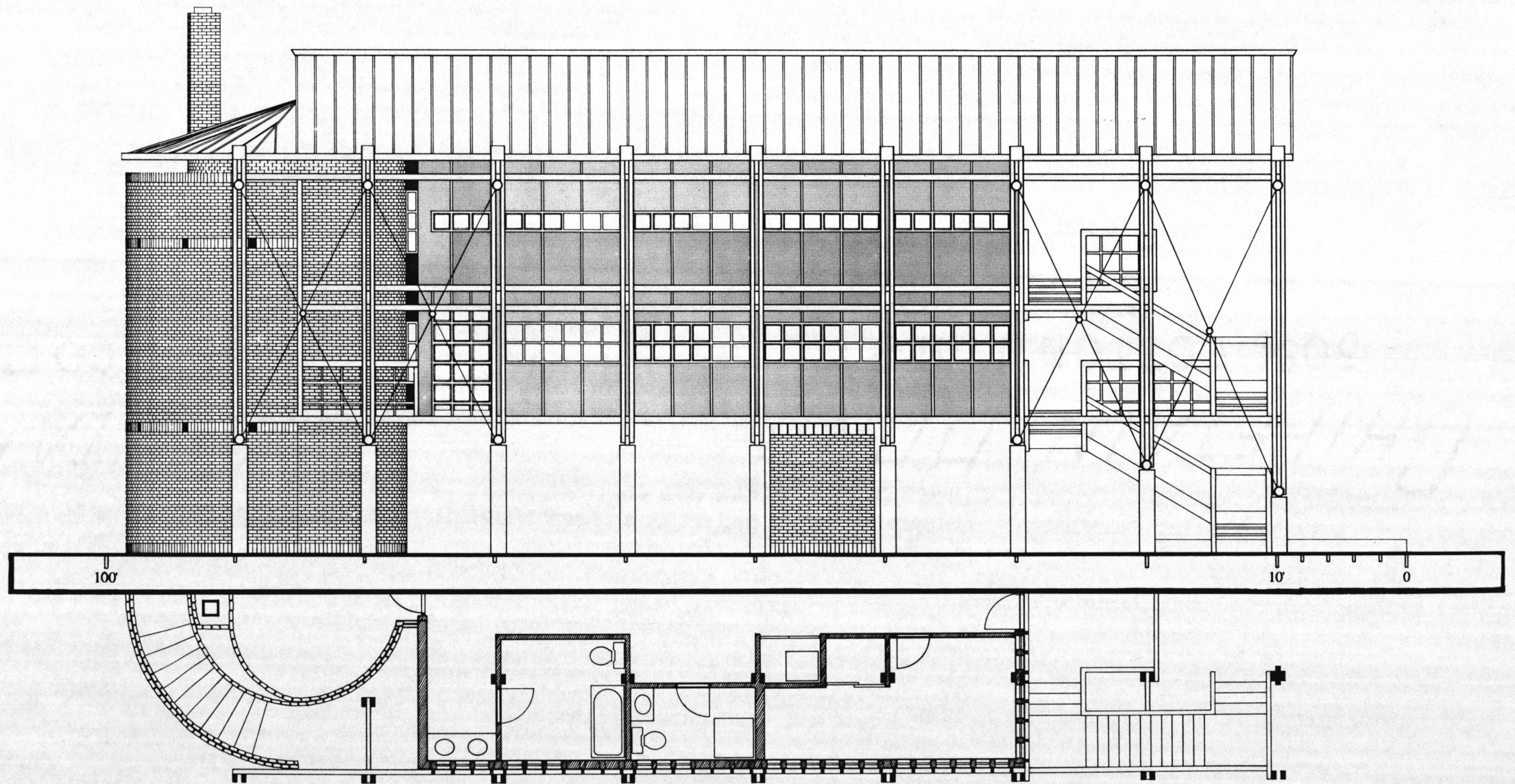
Lower Level Plan



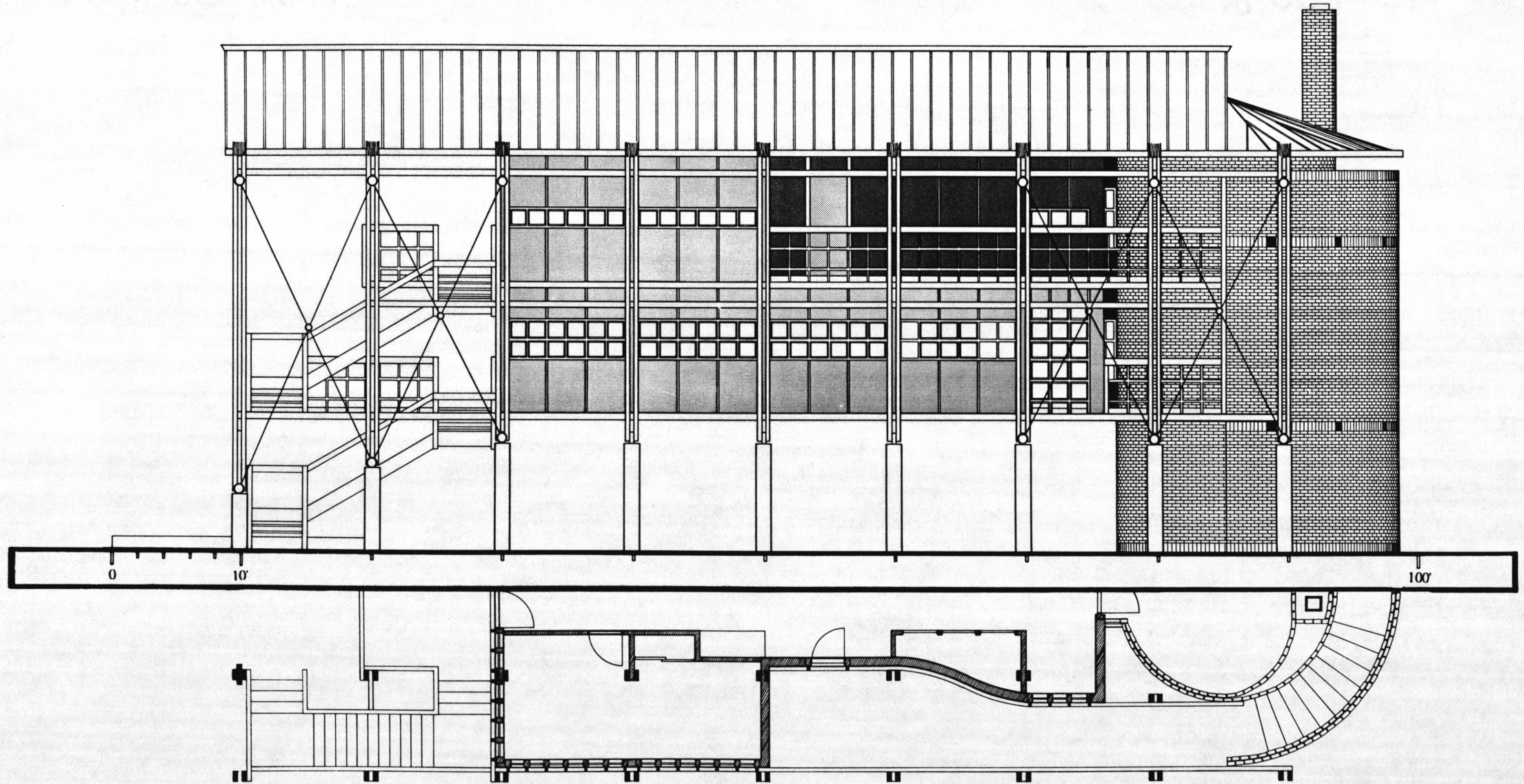
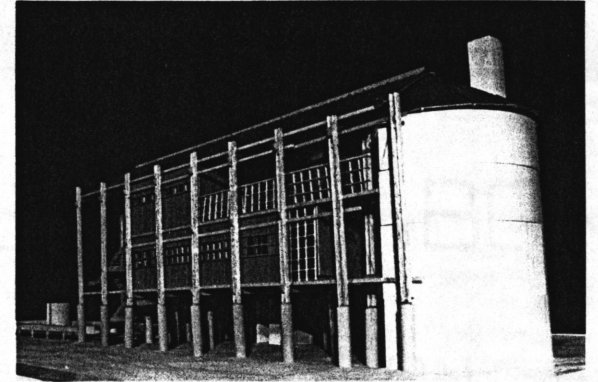
Upper Level Plan



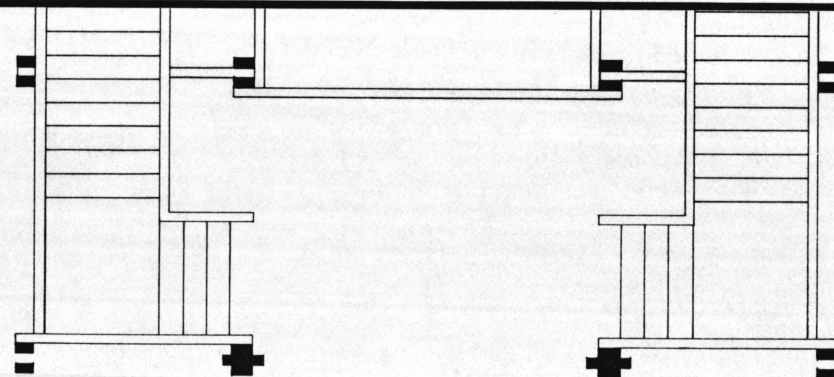
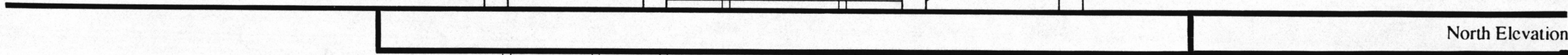
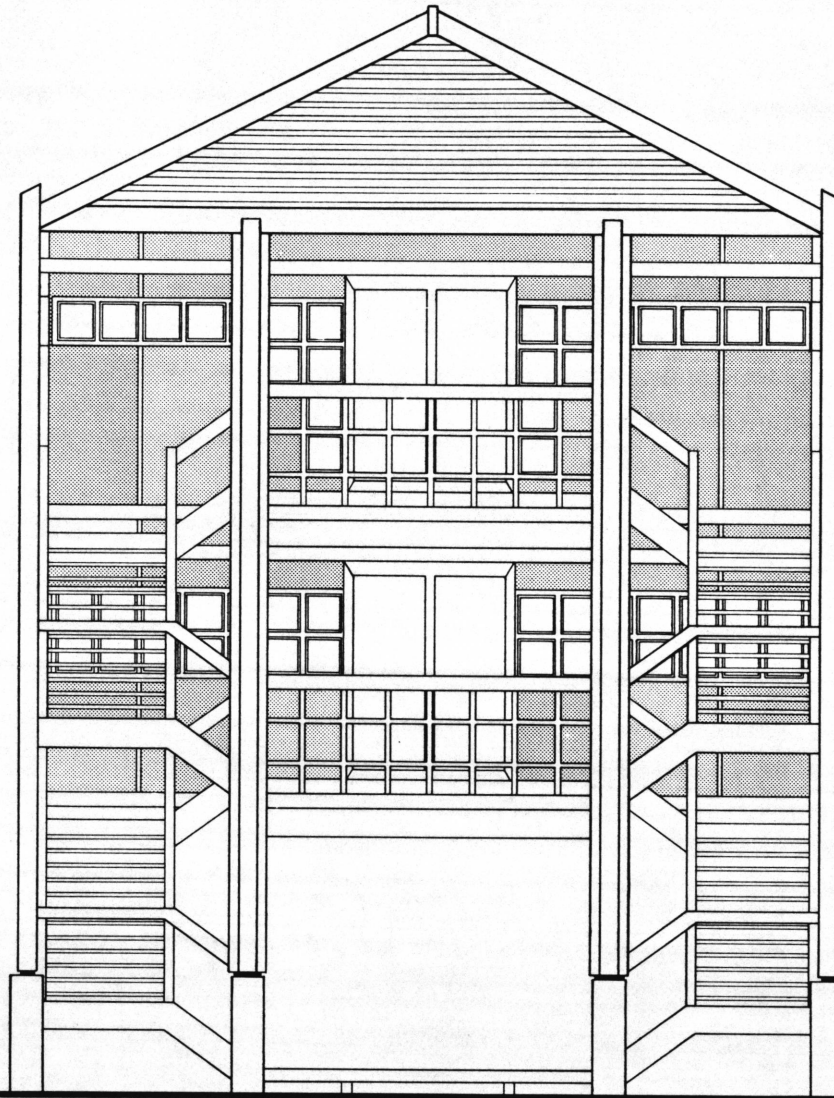
Ground Level Plan



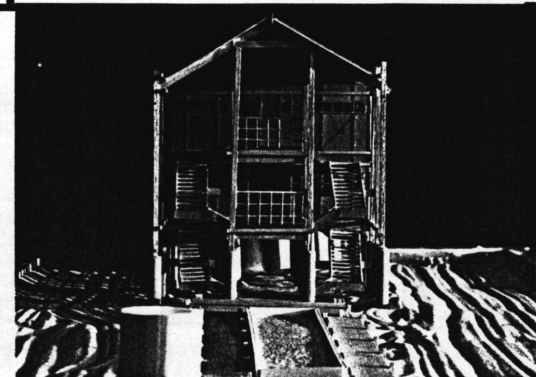
East Elevation

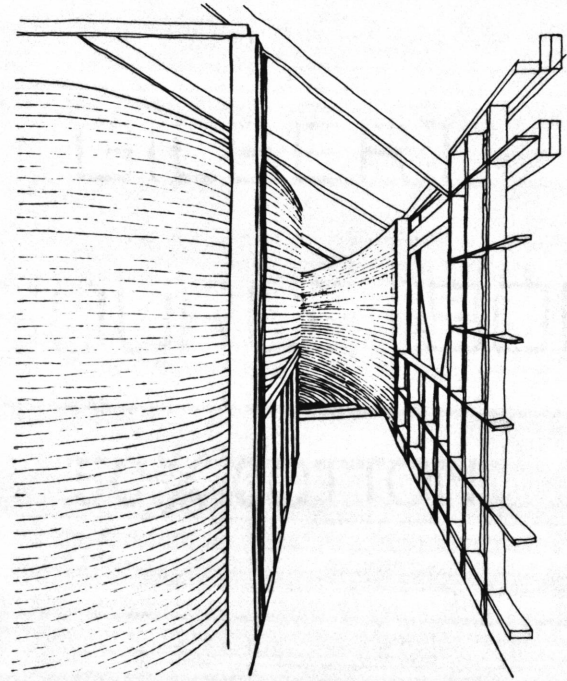
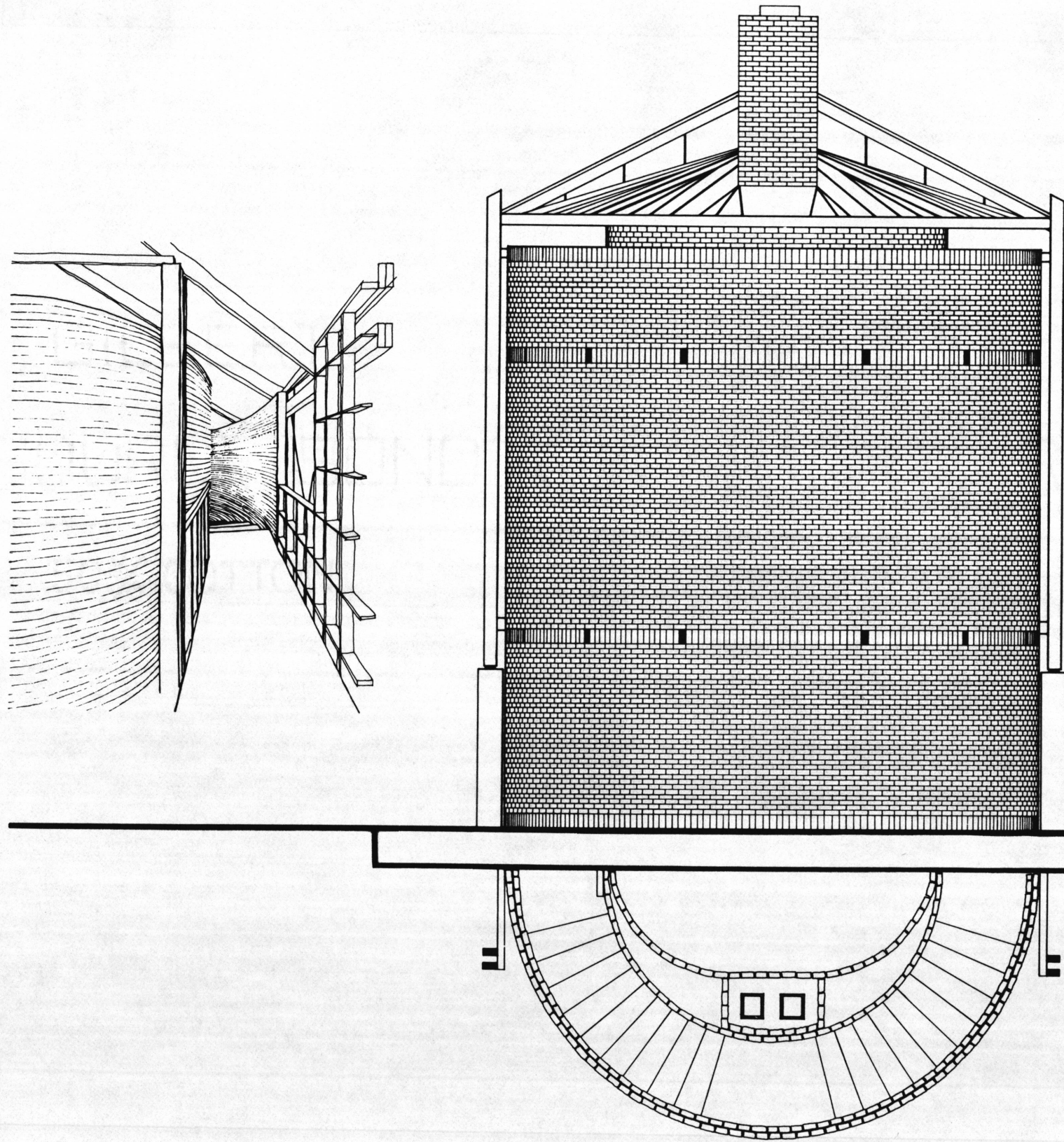


West Elevation

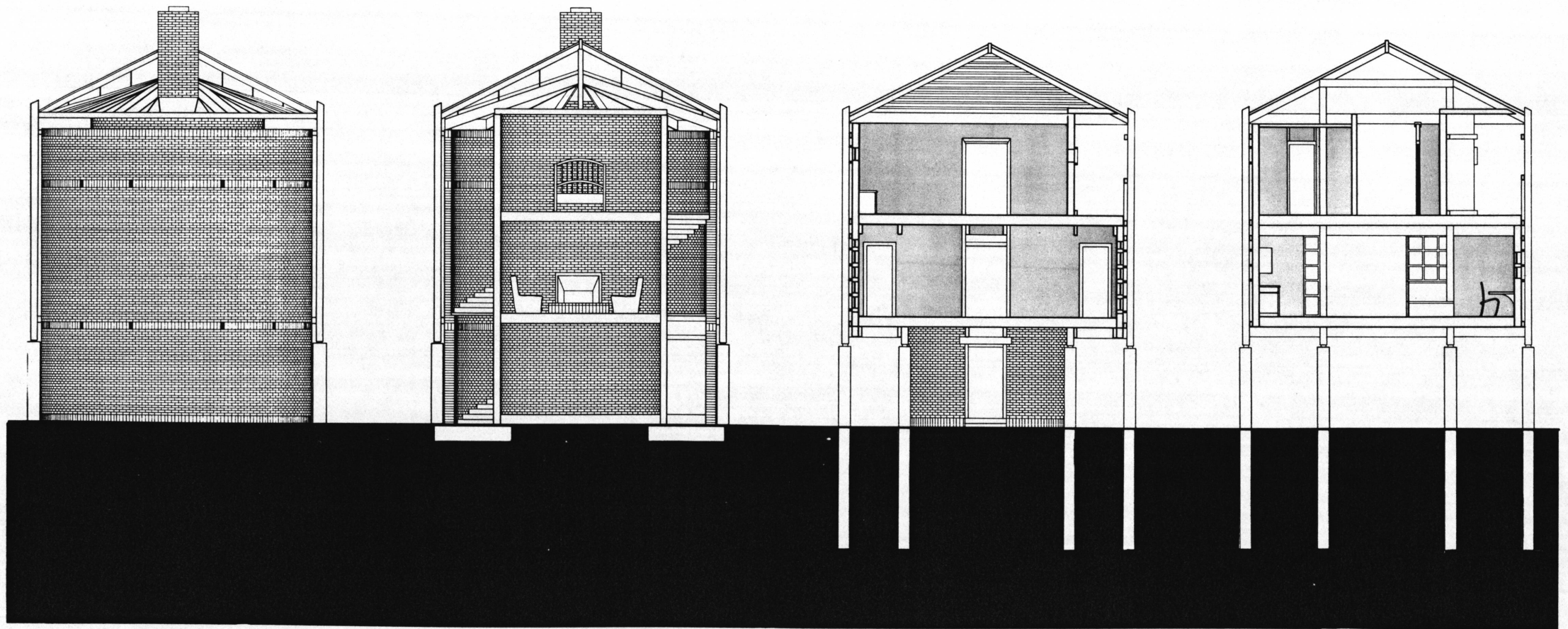
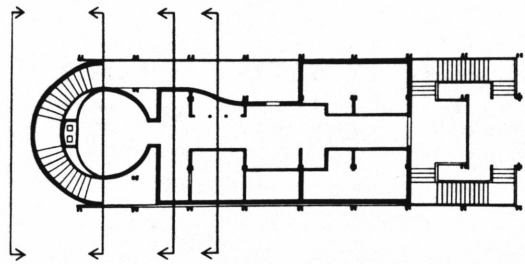


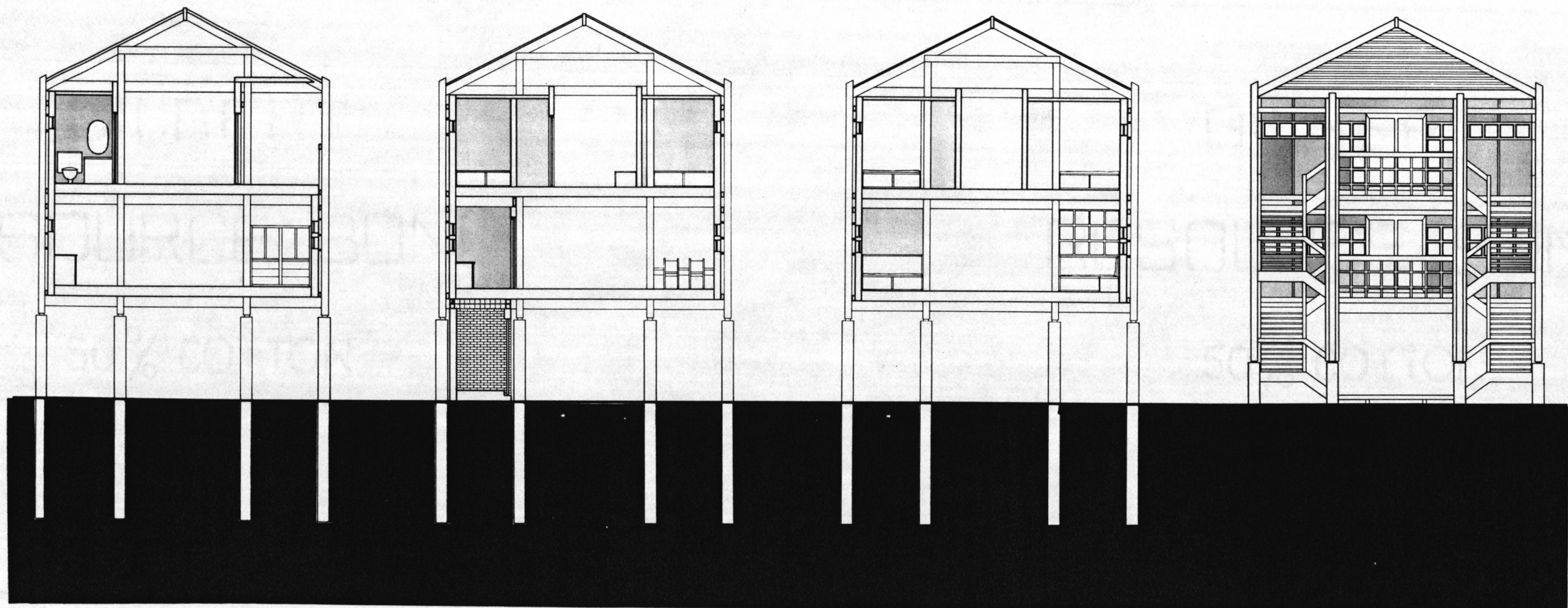
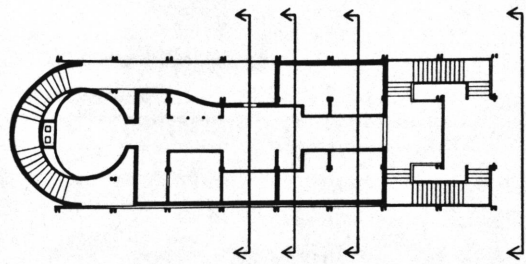
North Elevation



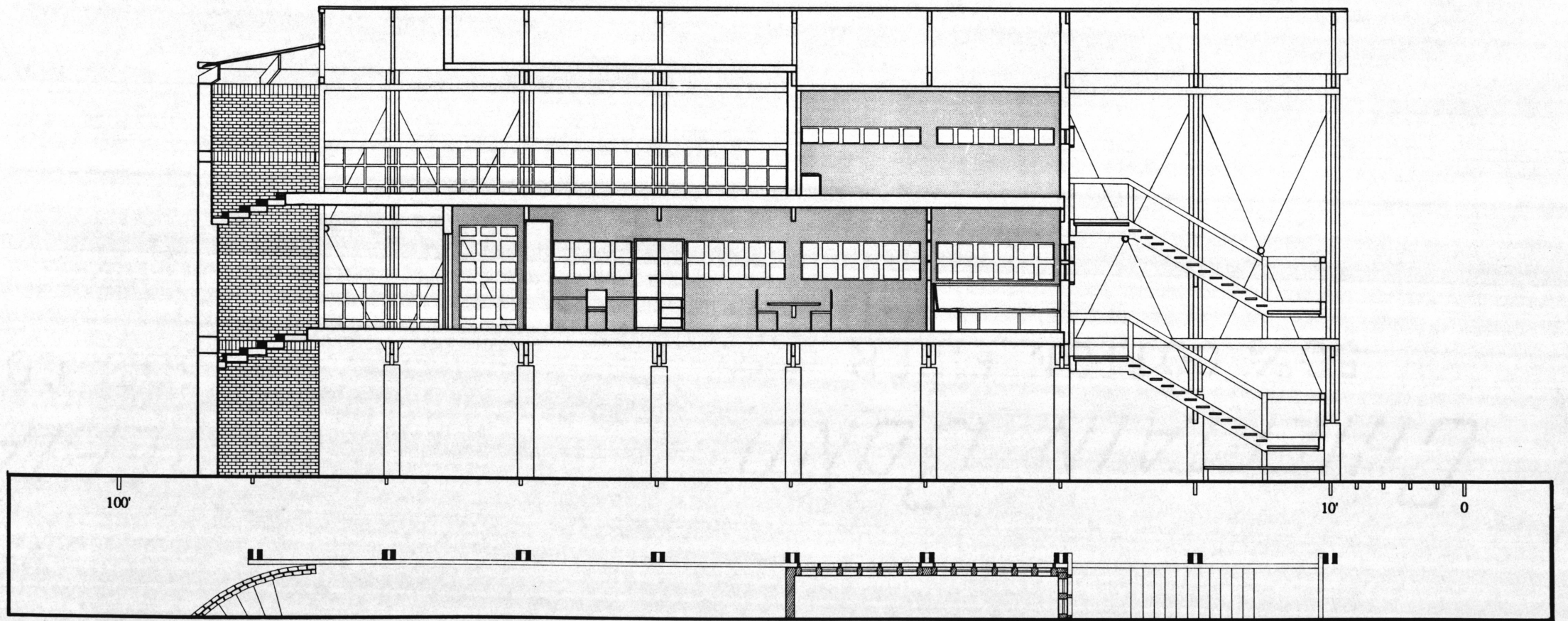


South Elevation

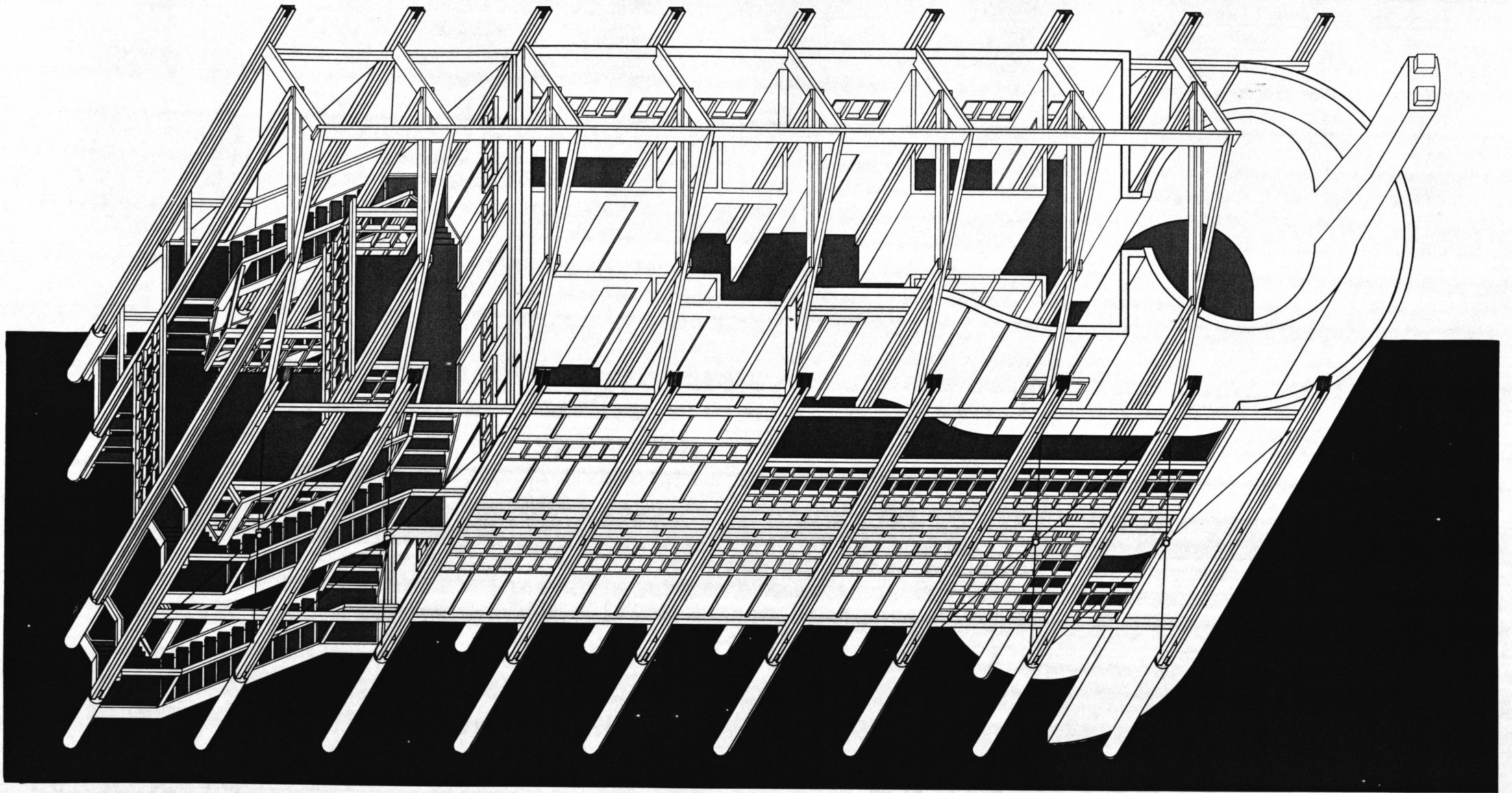




Transverse Sections



Longitudinal Section





*The journey was over , and I felt
keenly how little of itself, mere
displacement in space adds to a man.
On returning to his point of departure,
unless he has developed his inner life-
a thing which doesn't show
outwardly- he is still exactly like
everyone else.*

- Teilhard de Chardin

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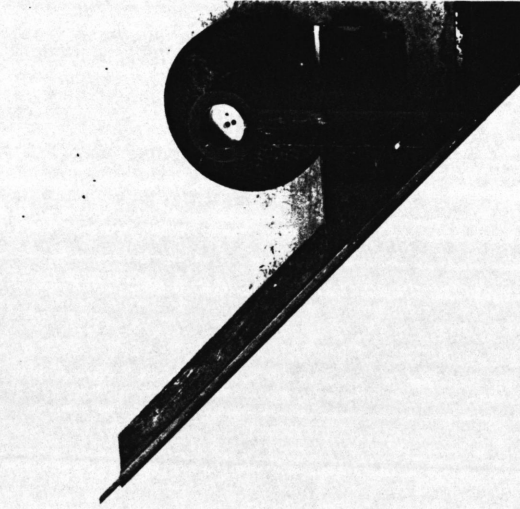
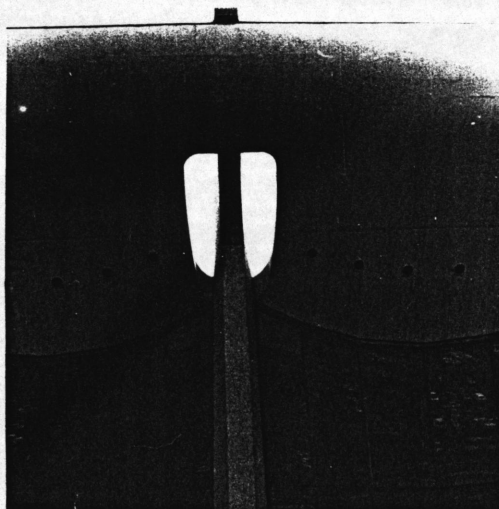
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