

TRANSPARENCY

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fulfillment of the requirements
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This project is an investigation into issues surrounding the placing of a building into the context of a site. The study manifests itself through the design of a museum for Phoenician sailing ships and their artifacts.

I wish to thank my family and friends, especially my parents, for their love and support throughout the years. I thank my committee for their guidance through this project and process.

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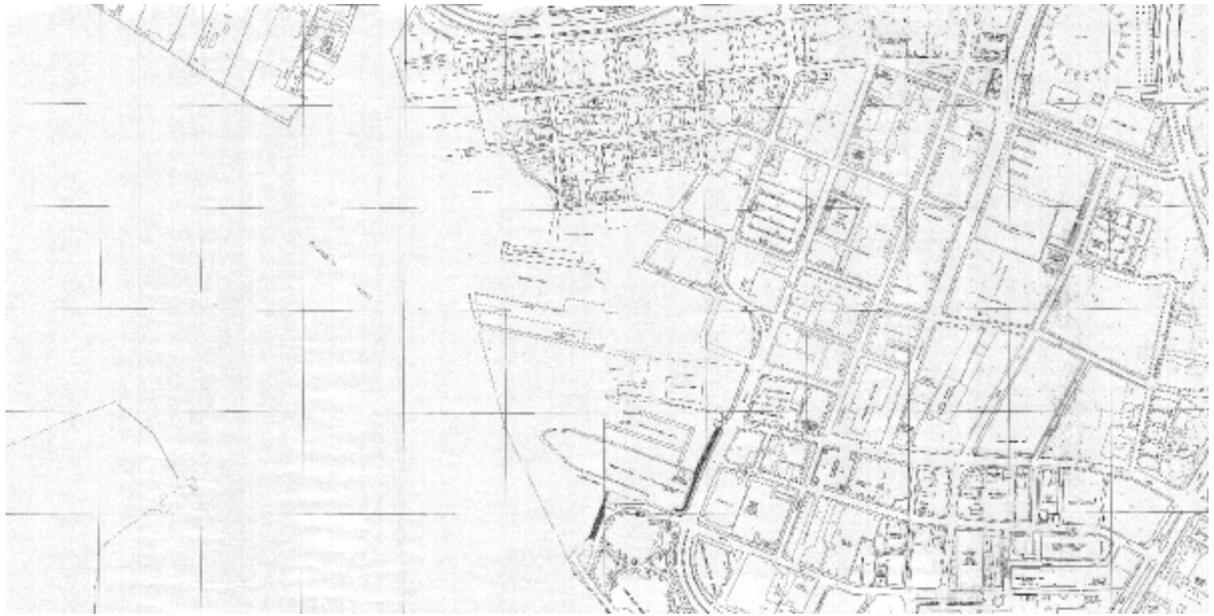
At first our energies are concentrated mainly on the realization of an idea: on how the idea is to become a reality. Then follows the need for justification: we ask ourselves why.

This constantly deeper and more profound analysis, the clarification of the basic concepts to which the work tends to conform, becomes a true philosophy.

At a certain point in his life, each person follows the philosophy of his true nature.¹

-Angelo Mangiarotti

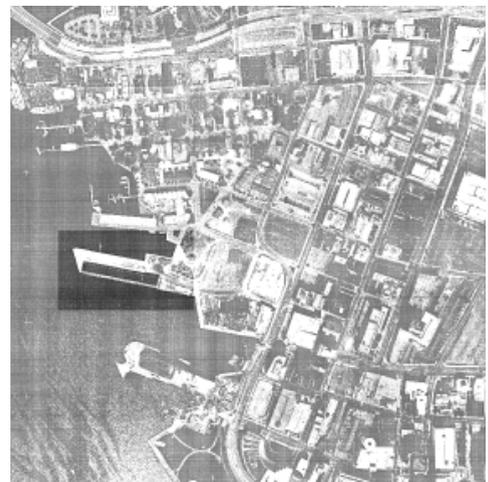




The site for this project is located in Norfolk, Virginia. It is unique in that it lies between two very different areas. One is the downtown business district and the other is the Elizabeth River. The site is a pier that historically has served as a shipping dock for the busiest port in the nation.

The architecture of the city is a combination of older historical residential and commercial buildings and newer more modern buildings of the same type. With the construction of the MacArthur Center Mall, the older buildings and the downtown area itself have seen a surge of renovation and restoration efforts.

The site poses many challenges to placing any kind of structure on it. Some are its neighbors, its location on the water, and its exposure to the elements on all four sides. All facades would be also be exposed visually, requiring careful thought to entrance, exit, and service areas.



Buildings are rarely completely isolated objects, and, invariably, the context has played a major role in my designs. By "context," I refer not only to physical environment but to social, typological and historical milieu.²

-Richard Meier



The site is bounded by water on three sides providing access only from the eastern edge. The neighboring piers are accessible by boat, by foot and in some cases by car.

The site is oriented along its axis eighty-six degrees west of north. With a general east-west orientation and a linear site, a linear building's south wall will receive the sun for much of the day.



From across the Elizabeth River, from Swimming Point, one can see the site and the rest of the cityscape along the waterfront.



Perhaps my style lies in the way I interpret architecture: the sort of challenge represented by responding in a straightforward and different way to needs and expectations that are themselves always different. Heraclitus said that you never step in the same river twice. Everything flows through our fingers, and changes as it flows. Profiting from experience and memory does not mean coming up with the same old solutions.³

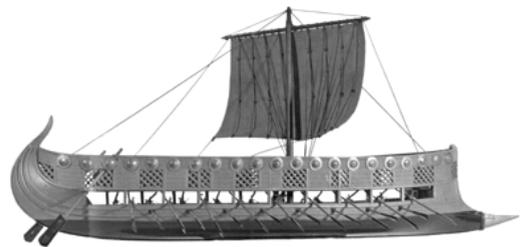
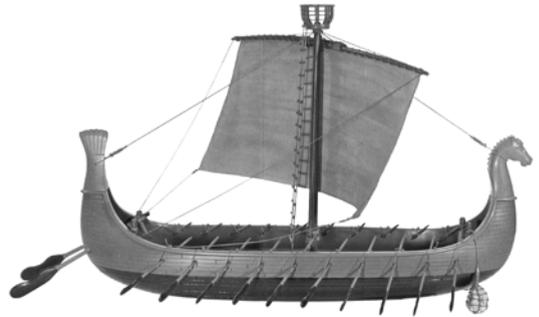
-Renzo Piano



Site _____



The subject of this museum centers around two Phoenician ships which were discovered in the Mediterranean off the coast of Israel. While searching for a lost Israeli submarine, the Dakar, the U.S. Navy's research submarine NR-1 located several wrecks sites, but not the Dakar. A team of oceanographers and archaeologists led by Robert Ballard of the Institute for Exploration and Lawrence Stager of Harvard University returned in 1999 to further research the sites. Using a remotely operated vehicle the team discovered a concentration of ancient ships. Included in that area were the two Phoenician ships, the oldest vessels ever discovered in the deep sea.



The first ancient shipwreck has been named after the ancient goddess Tanit. It was found in 400 meters of water. Four hundred amphoras could be seen on the upper visible surface. The only period that particular amphora style could be is 700-750 B.C. Each amphora carried 18-19 liter (5 gallons) of liquid, meaning that the ship carried an estimated 11 tons of liquid, which Dr. Larry Stager theorizes, was wine. The amphoras have small handles, which would have been used to rope them all together during transit. A 1.5 meter, one-hole stone anchor was found. It is the first Iron Age anchor that can be put in the context of a ship. The ship is an estimated 16 meters long and one-third of that length wide. This shape is documented in models from that time period, which are characterized by the 1:3 ratio of length to width.

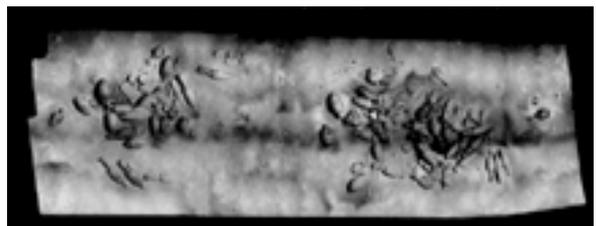


The second wreck, which the team named Elissa, contained 350 visible amphoras amid a chaos of shrimp. This ship is circa 750 B.C. There are two anchors amidships on each side of the vessel. The team found galley equipment and ballast stones in the bow end. The ship is estimated to be 18 meters long and 6 meters wide, again with a 1:3 ratio typical of ships from that era. The team also found a grinding bowl that was a possible import, cooking pots, a challis and incense stand, and wine decanters that identify the vessel as Phoenician.⁴





The Phoenicians were a seagoing people who populated the coast of the Levant from about 1200 B.C. to 146 B.C. These well-preserved shipwrecks open a new chapter in the archaeology and history of Phoenician shipping and seafaring. They reveal the deep-sea routes the Phoenicians sailed in the eastern Mediterranean, the size and types of cargoes they carried, the ports they visited, and their trading partners. For the first time, it is possible to evaluate how accurate ancient artistic renditions and literary accounts of these ancient mariners really are.⁵



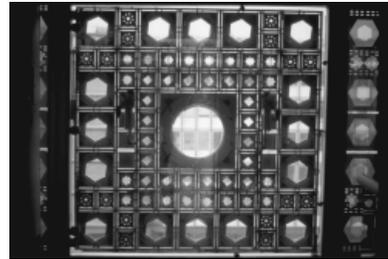


Many architects have embraced the idea of literal transparency and opportunities.

In Peter Rice's book Structural Glass, transparency is categorized three different ways. The first is 'one-way transparency' which came out of very early need to allow light to penetrate the walls of a dwelling. Later these openings were covered with thin translucent membranes and eventually small pieces of glass.

As glass technology improved, the size of the pieces of glass enlarged, allowing for a better view to the outside. This is defined as 'two-way transparency.' Architects and designers now extended their designs to include not only the immediate surroundings, but also views in the distance.

Lastly the 'expression of the transparent surface' of glass. With the advances in engineering, material and glass technology, architects have been able to explore the possibilities of glass. The support system of the glass can become as minimal as possible to emphasize the transparent plane.



The creative act in which a work of architecture comes into being is beyond all historical and technical knowledge. Its focus is on the dialogue with the issues of the time. At the moment of its creation, architecture is bound to the present in a very special way. It reflects the spirit of its inventor and gives its own answers to the questions of the time through its user-oriented form and appearance, its relationship with other works of architecture, and its association with the place where it stands. Answers to the questions which I formulate as an architect are limited. Our times of change and breakthrough do not permit big gestures. We all share the few remaining common values upon which we can build. I thus appeal for a kind of architecture of common sense based on fundamentals that we can all know, understand, and feel. I carefully observe the built-up world, and in my work I try to include valuable aspects that seem to be missing, to correct what is disturbing, and to create anew what is lacking.⁶

-Peter Zumthor



In Colin Rowe's book Transparency, he makes a distinction between the literal and phenomenal type of transparency.

Literal transparency is quite simple. Rowe refers to it as "an inherent quality of substance, as in a glass curtain wall." The workshop wing of the Bauhaus by Gropius falls under this definition.

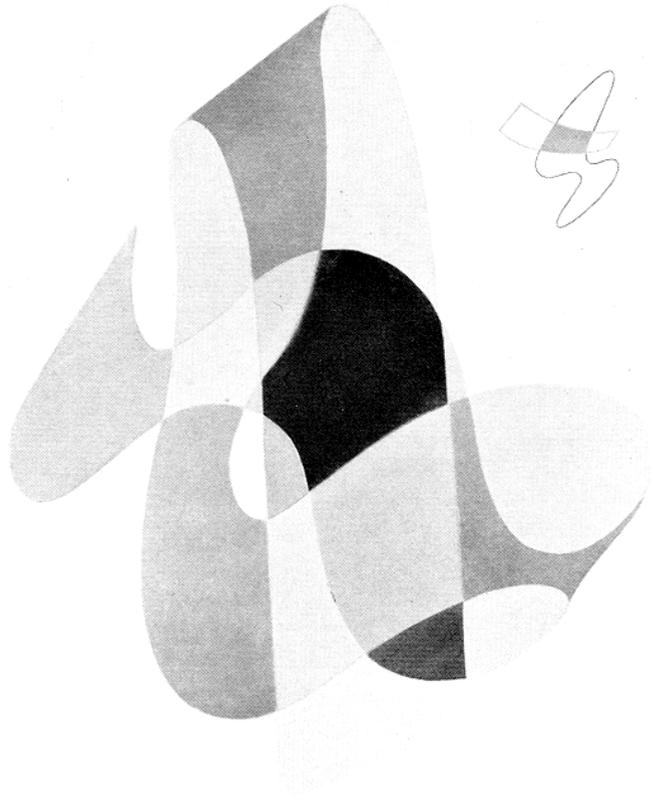


Phenomenal transparency becomes more complex and more interesting. The phenomenon of transparency refers to space, depth, and organization. Rowe's definition is "an inherent quality of organization." At the villa at Garches, "Le Corbusier is primarily occupied with the planar qualities of glass and Gropius with its translucent attributes." "There is a continuous dialectic between fact and implication. The reality of deep space is constantly opposed to the inference of shallow space; and by means of the resultant tension, reading after reading is enforced."⁷



If one sees two or more figures partly overlapping one another, and each of them claims for itself the common overlapped part, then one is confronted with a contradiction of spatial dimensions. To resolve this contradiction, one must assume the presence of a new optical quality. The figures are endowed with transparency; that is they are able to interpenetrate without an optical destruction of each other. Transparency however implies more than an optical characteristic; it implies a broader spatial order. Transparency means a simultaneous perception of different spatial locations. Space not only recedes but fluctuates in a continuous activity. The position of the transparent figures has equivocal meaning as one sees each figure now as the closer, now as the further one.⁸

Gyorgy Kepes



As mentioned before, transparency can be categorized into three historic eras. One way transparency, two-way transparency, and the expression of the glass itself. This project focuses also on three qualities of transparency: view out, view in, and view through.

The first, the view out, is important because of the location of the site. To the south and west the view is of the Elizabeth River and downtown Portsmouth across the river.

The view in allows visitors to see the purpose of the museum. The ships will be in plain view from the neighboring piers, the river, and certain locations in downtown Norfolk.

The last quality is the view through. It is important that the new museum structure not be a visual 'wall' of a building. The situation of building on parallel piers with the valued view perpendicular to the piers is challenging. Making the 'rooms' where the boats reside transparent allows for views not only at the boats, but through the building and beyond.

These different views are highly dependent on the time of day and the natural and artificial lighting of the museum. Reflections on the inside and the outside of the museum can hinder these views. Larger scale experiments would have to be performed to achieve the correct conditions to allow for these views.







The linear site demands some thought about the axial nature and the path that the visitor might take. A series of doors, rooms, or columns along the linear axis can mark the path while segmenting it into smaller sections.

Rather than a straight and direct path, the museum visitor can choose any path from side to side and floor to floor depending on the nature of the visit.



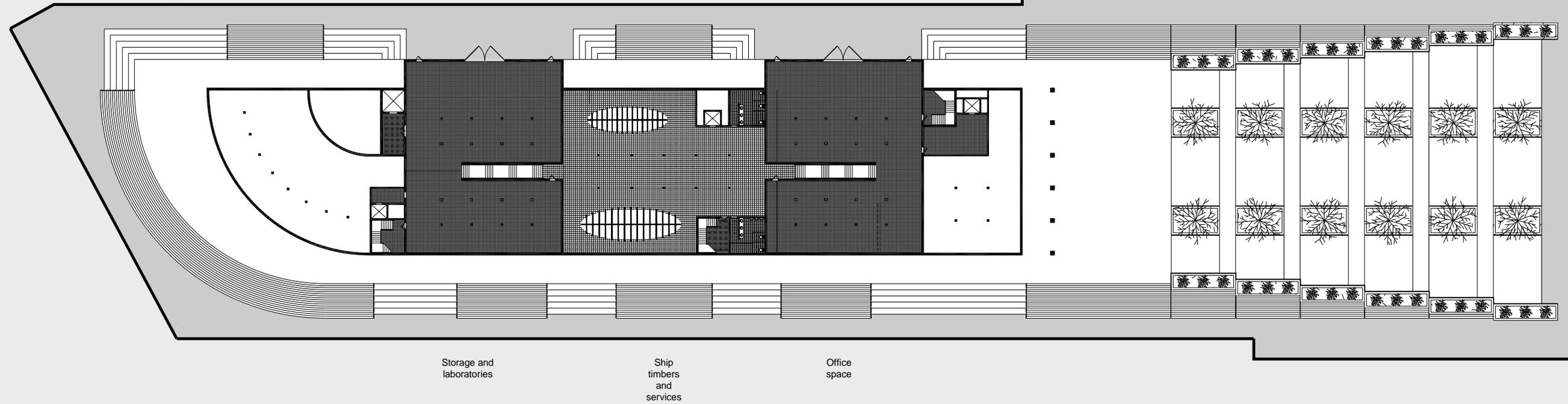
The relatively thin linear site forces itself upon any design to be placed there. In response to this, the museum is also set up in a linear fashion.

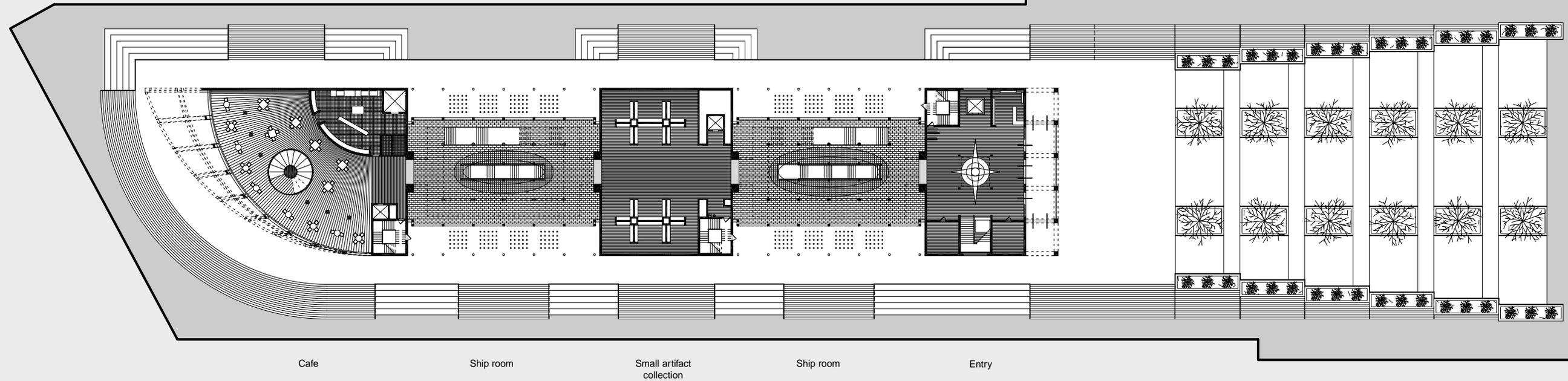
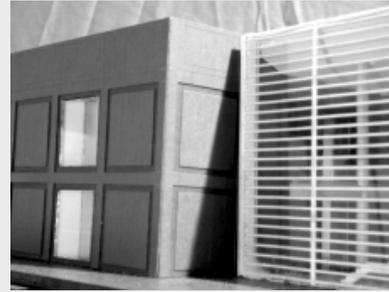
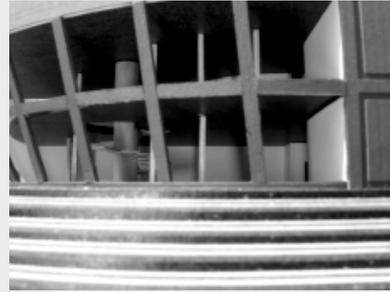
The experiential sequence of the visitor begins at the entry and can take any number of paths through the building.

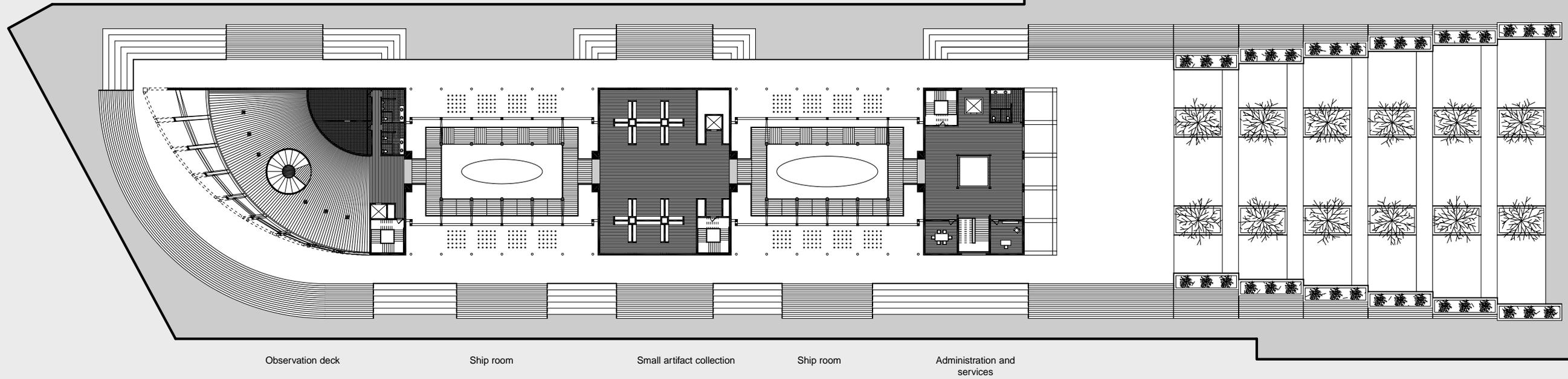
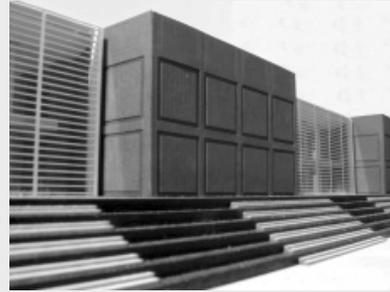
The datum line, however, is a critical part of the visitor's path. The datum line is an imaginary line down the central axis of the building. Through its regularity, the datum line holds the different parts of the museum together. When a visitor travels through the museum his path wanders side to side and up and down from the central axis and datum line. When returning to the datum line the visitor becomes re-oriented with the building.

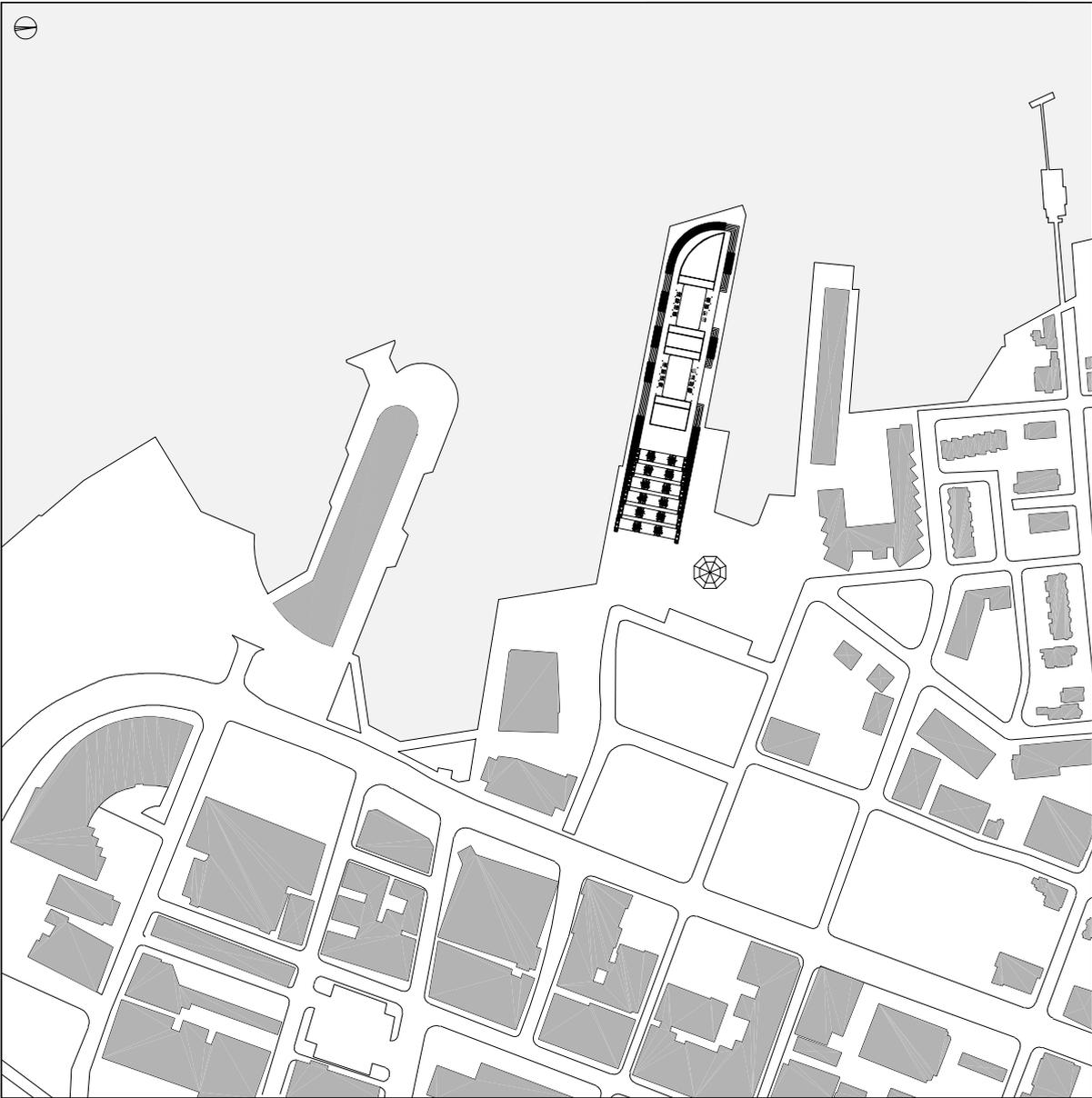




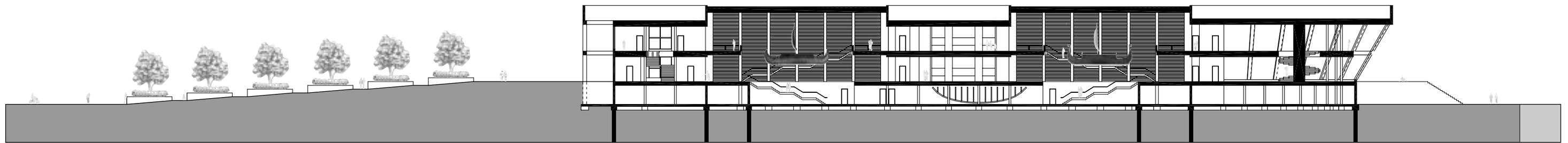
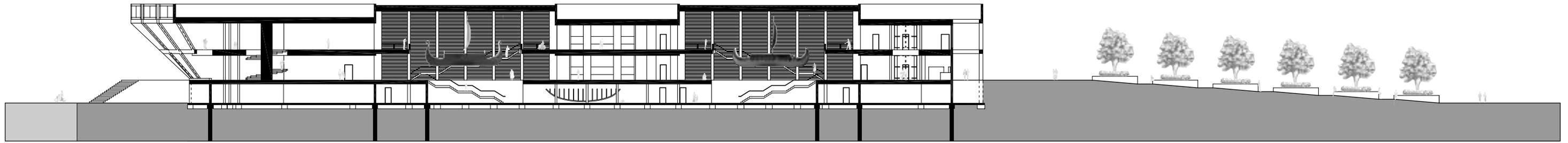


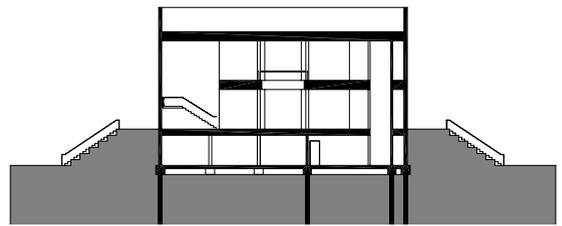
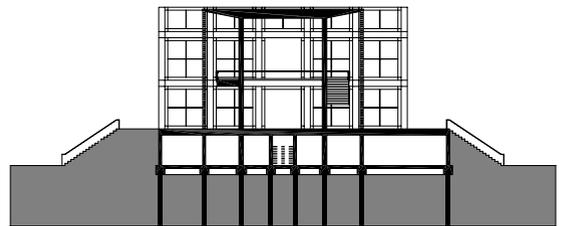
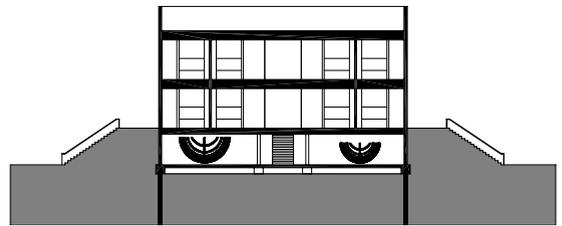
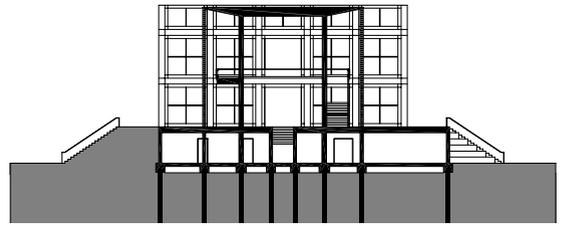
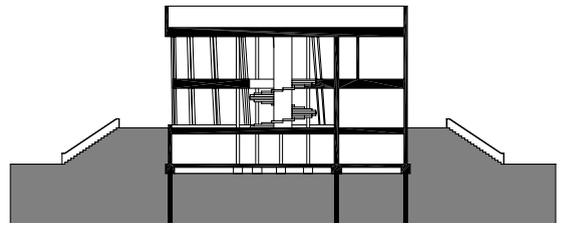
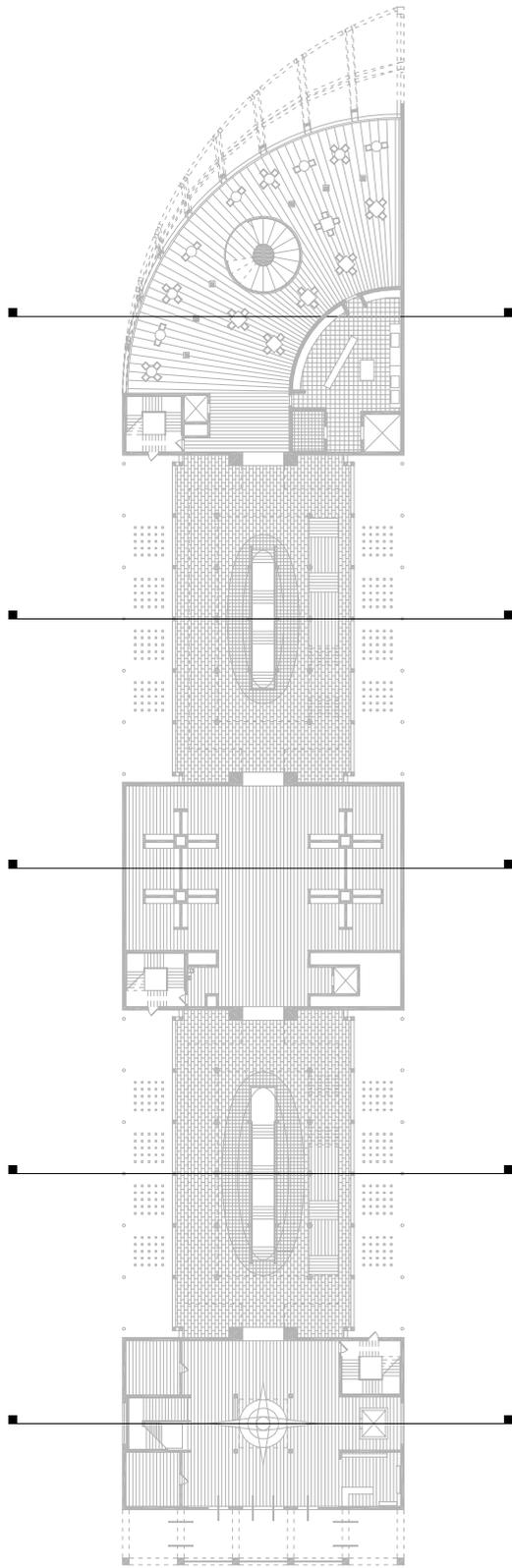


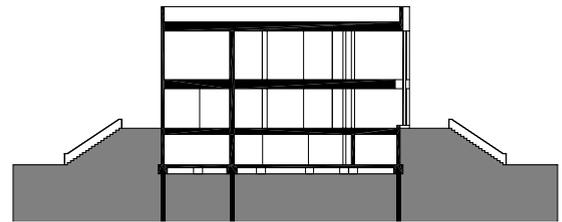
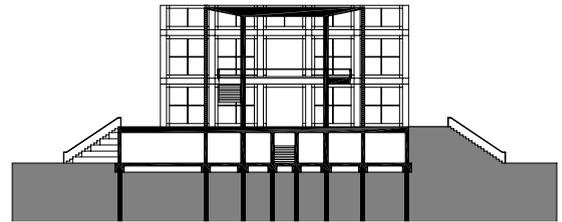
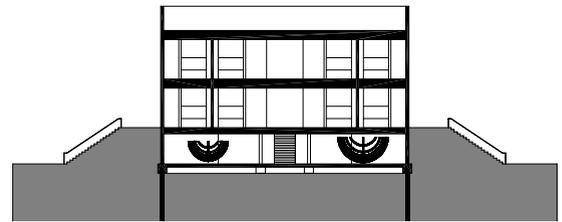
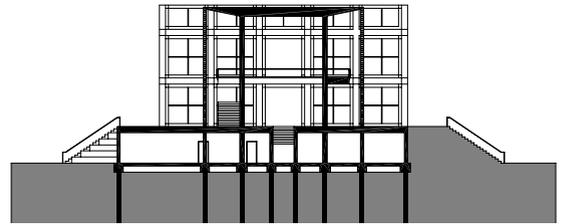
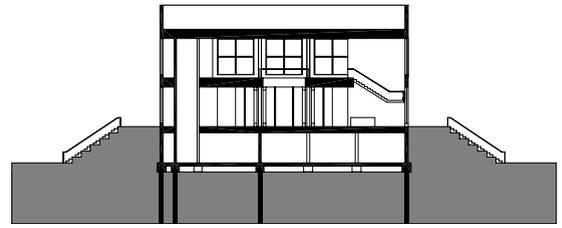
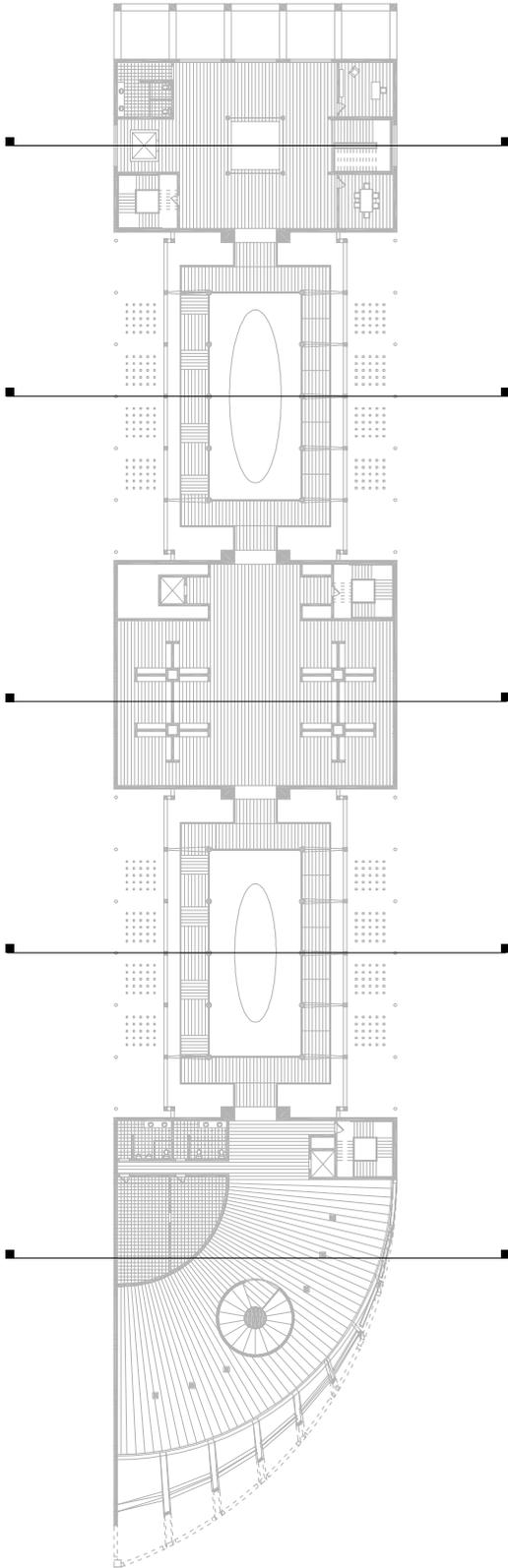


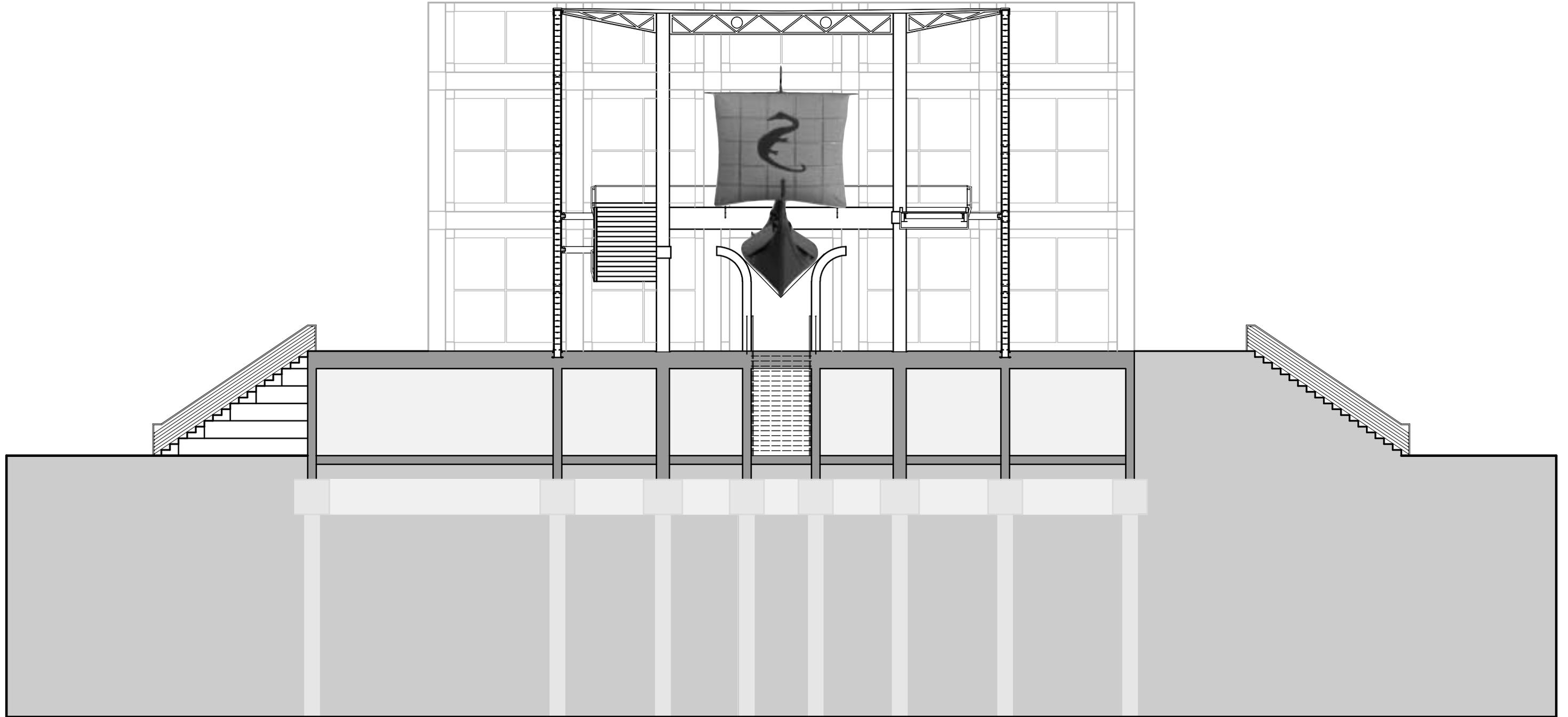




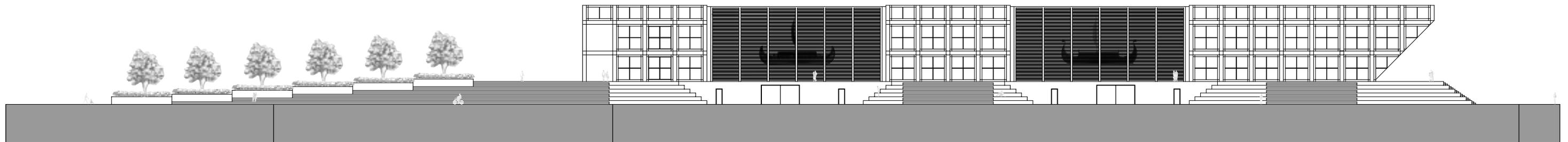
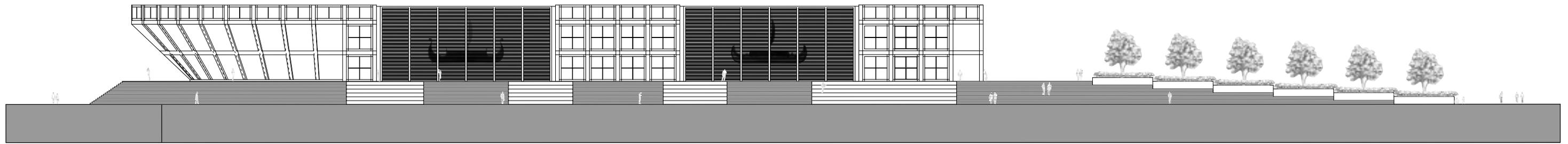




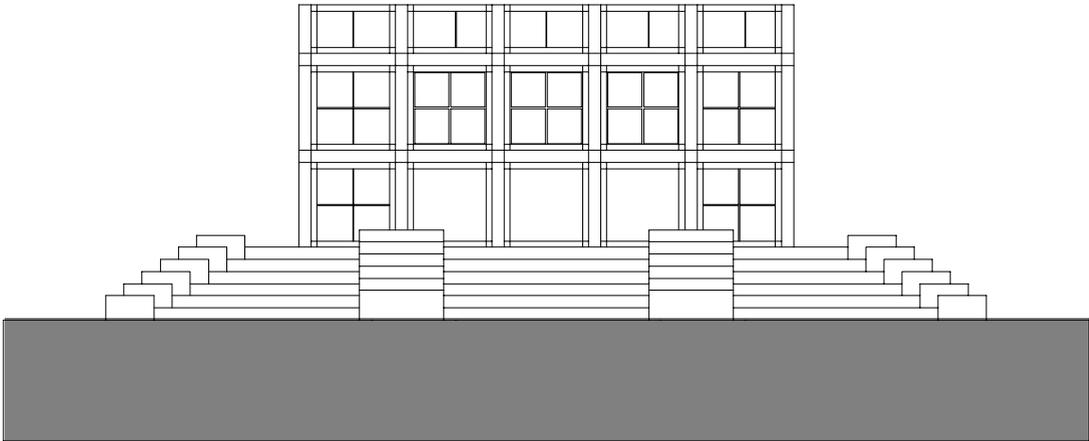
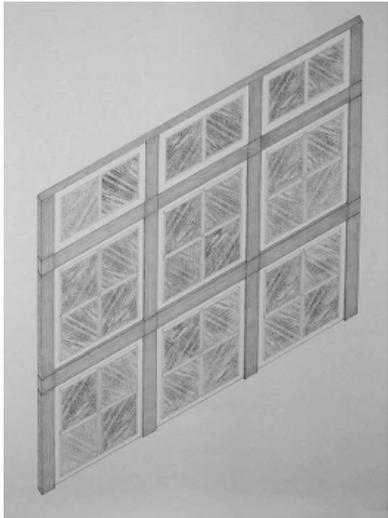
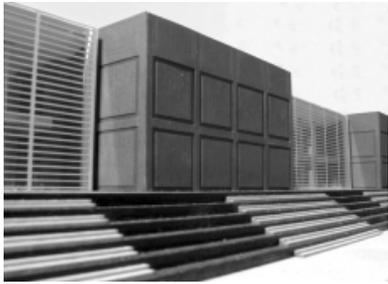






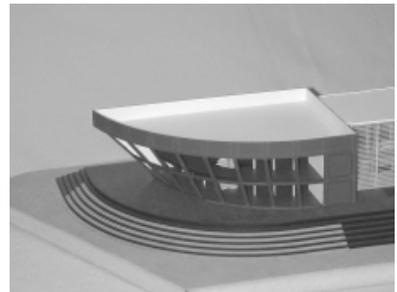
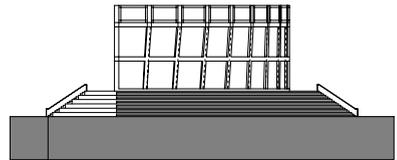
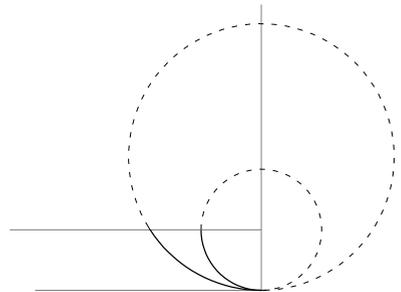
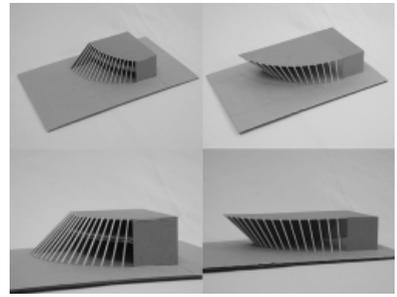


The facades of the solid volumes rely on a grid system for their articulation. The primary grid consists of a series of vertical and horizontal precast concrete members that correspond to the structural system of beams and columns. The infill is pushed back passed the primary grid towards the interior of the building. Square panels smaller than the infill panels are centered in that space and are pushed back out, flush with the grid. These panels are made of a weather resistant exotic wood such as teak.

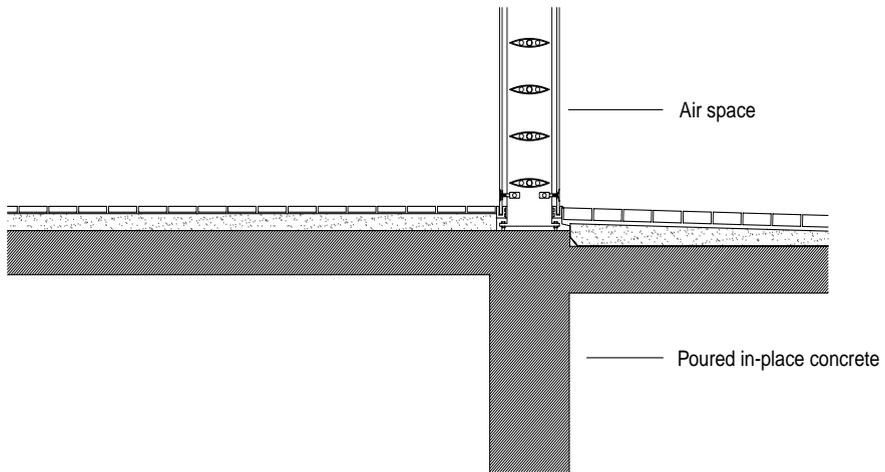
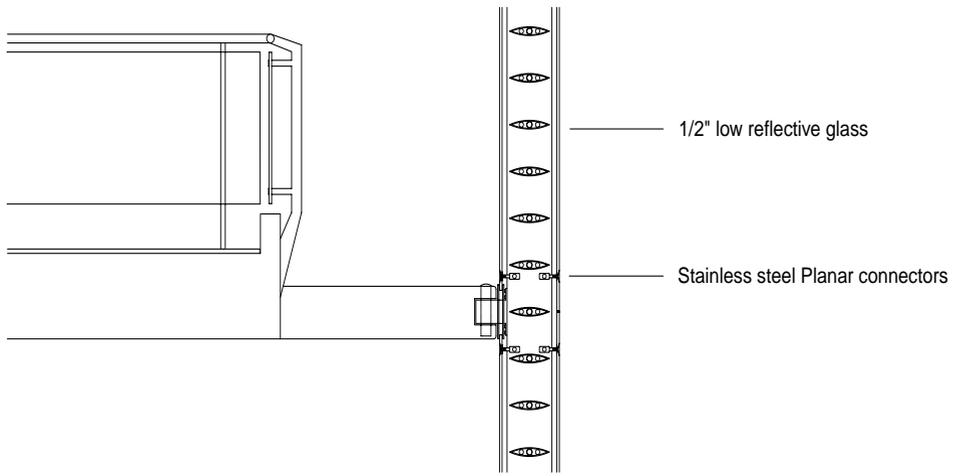
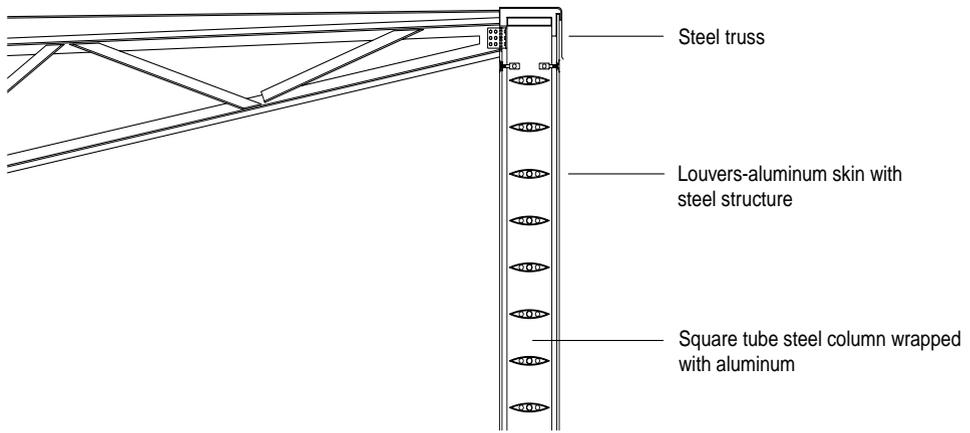


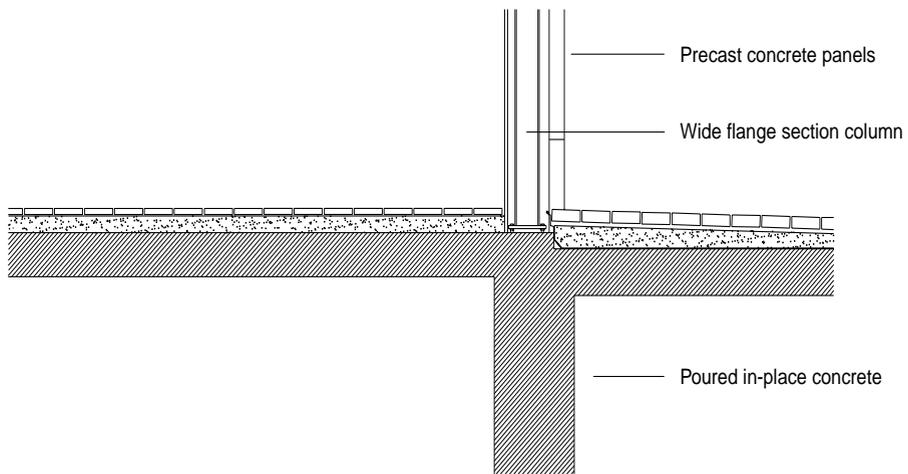
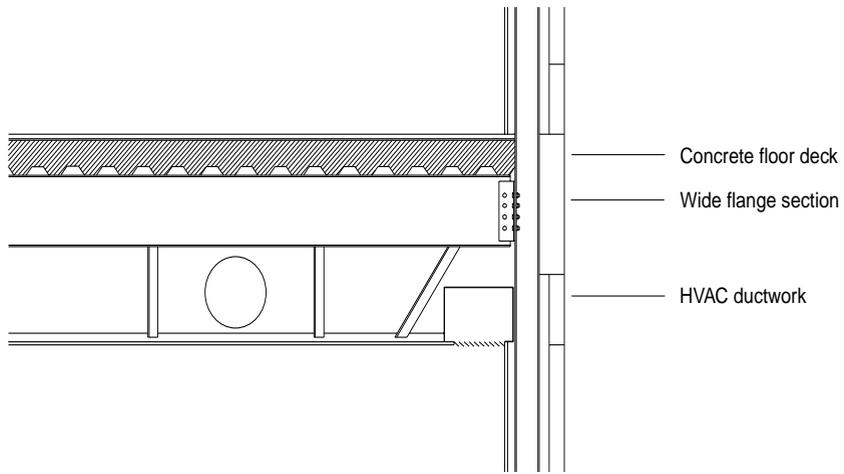
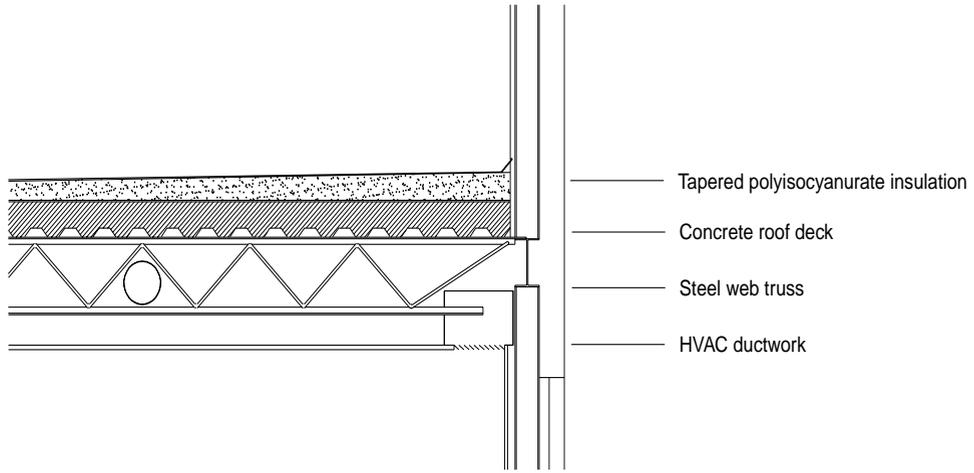
The eastern facade opens up and provides a sweeping expanse of glass which, from inside, allows for a panoramic view of the Elizabeth River.

Its shape is the result of deforming of the gridded facade of the rest of the opaque volumes. It gets its form from two segments of a circle of different radii which have the same starting points but different center points. When these two segments are separated in elevation and connected by equally spaced vertical members, the curved surface is the result.











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6. Zumthor, Peter, Thinking architecture, p. 22
7. Colin Rowe and Robert Slutzky, Transparency, p. 35,41
8. Gyorgy Kepes, Language of Vision, p.77

Page 15-top Phoenician ship of the eighth century B.C.: Zvi, Herman, Peoples, Seas and Ships, p. 112

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Page 27-top Bauhaus: Colin Rowe and Robert Slutzky, Transparency, p.34

Page 27-bottom Villa at Garches: Colin Rowe and Robert Slutzky, Transparency, p.35

Page 29 Study of Transparency -Clifford Eitel: Gyorgy Kepes, Language of Vision, p.77

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