

STUDENT HOUSING

by

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in partial fulfillment of the requirements for the degree of

MASTER OF ARCHITECTURE

in

Architecture

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Blacksburg, Virginia

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Committee Chairman: Michael O'Brien
Architecture

(ABSTRACT)

My thesis explores four categories through a student housing project. These categories are balance, strength, structural engineering, and architecture giving rise to references. The thesis is divided into theory, exploration and conclusion.

I Theory

THEORY

My thesis explores four categories. These are balance, strength, structural engineering, and architecture giving rise to references. Beginning with balance, every historical culture has reached a steady-state between spiritual, mental, physical and social activities. For example, the Gothic culture emphasized spiritual and physical activities. Their cathedrals were the crowning achievement of devotion to God while their economy was largely based on physical agrarian activity. Our culture, if it has reached a steady-state, seems to emphasize mental activities over other activities. Our careers, mental activities for the most part, occupy our lives to a great degree. The other activities are important however. If our culture is not to die from its extreme emphasis on mental activity, I believe the architect of today ought to provide separate places possessing specific physical qualities to encourage specific types of activity. I have attempted to do this in my dormitory. This task sees the architect as an important contributor to culture.

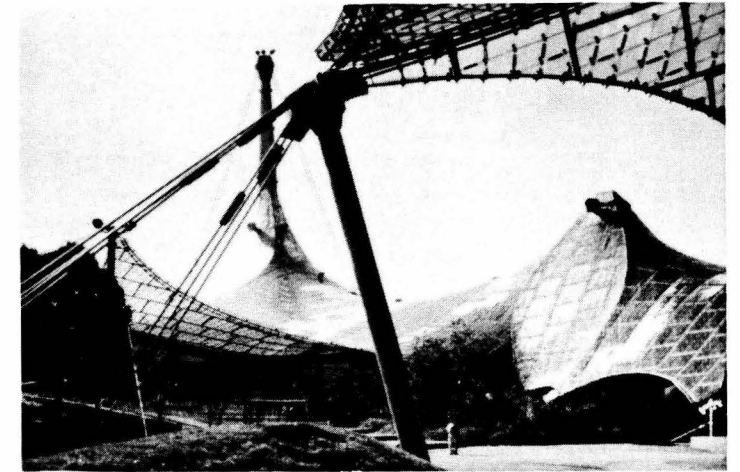
In my dormitory every student is given an individual study room for mental activity. This small vaulted space shelters private study. If the student prefers a more collective space to study in he may go to the dining rooms at the two right angle turns in the buildings which I have called joints. Physical activities are provided for in the courtyard. In this area swimming, basketball and volleyball can take place in a semi-sheltered area. The spiritual needs of the students are encouraged in the semi-circular niche with quarter sphere above located in the majority of the study rooms. By spiritual I mean whatever the student holds as sacred or what he is passionate for be it religion, nature, truth, or a more mundane passion for sports, art, or his major. In this special niche the student can place a reminder of his passion be it a cross, pine boughs, a flame, an athletic trophy or a painting. The social activities of our culture are provided for in the porches between

rooms, the outdoor terraces that surround the courtyard at different levels which I call step-ups, or in the party or meeting room on the top floor of the joints. A glass pyramid rising from 33 foot high walls gives the party room a festive aura with the glitter from the glass. From this room the roof terrace overlooking the courtyard and backed by a protective wall can be enjoyed. These places range from intimate social areas to collective social areas.

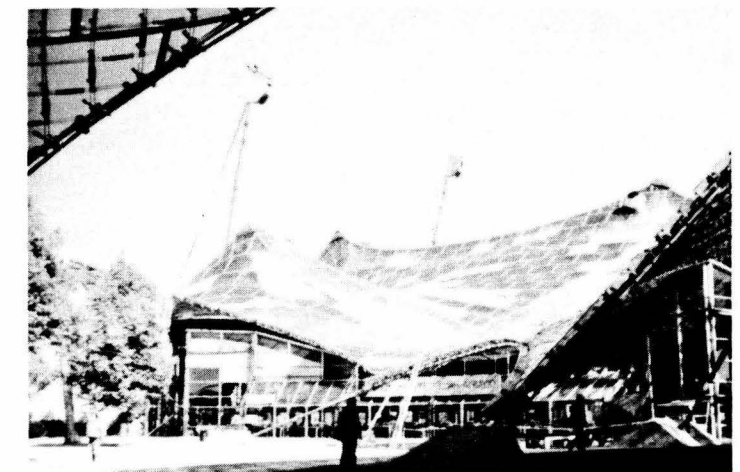
A dormitory must be more than a place to sleep even though other buildings on campus address mental, physical, spiritual, and social needs. If a dormitory becomes a home rather than a house then the student will be happier. From my experience of living in a dormitory I can say that if dormitories are designed multi-dimensionally the students will use all dimensions provided.

The next aspect of balance my dormitory addresses is a balance between discipline and differences. The discipline of the dormitory is given by the rigid 5 foot grid the dormitory is designed with while the differences are seen in the modulation of the room facades on the inside making porches of various sizes and articulation of the outside walls in the form of pilasters, indentations and balconies at various heights. The articulation of the outside wall takes its rhythm in elevation from the bank of rooms toward the inside of the courtyard.

I have several examples of this discipline and play as I first called it. Frei Otto's sports complex in Munich was designed with complex engineering, yet to the layman's eye it appears to be a playful free form. I could state the same about the sculpture and mobile by Calder in the Pompidou. The discipline and play seen in Chambord in France with its rigidly geometrical base giving rise to fanciful turrets is more like the discipline and differences I talk about with regard to my project.



Sports complex by Otto

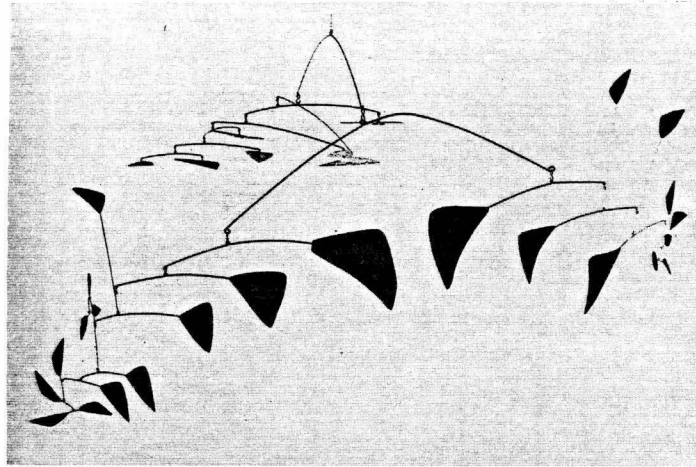


Sports complex by Otto

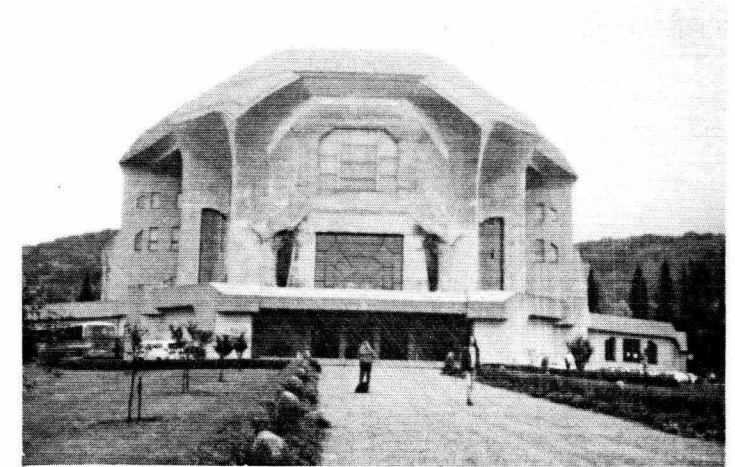
Along with discipline and differences two other balances have been present in my project from its start. These balances came from the work I did before thesis and are the germ of my thesis. In my project there is a balance between spaces for the collective and individual. Although certain spaces in my dormitory can be used by one person or the whole population of the dormitory, these large spaces are designed for a large group. These spaces, ranging from large to small, include the courtyard, the roof terraces, the party or meeting rooms on the seventh floor, the step-ups, the private bedrooms, and the study rooms.

In my project there is also a balance between inside and outside spaces. The most unsheltered spaces are the courtyard, the step-ups and the roof terraces. The halls form a transition along their length from exposed to more sheltered. The atriums at the joints are inside, yet they are in touch with the outside through trees and a view through the glass. Many of the bedrooms have a view to the outside while the kitchen / dining areas have a view to the outside through the circular windows and atrium glass. The private study rooms have only small windows to the outside.

Finally, with regard to balance, I will write about two ideas that came up toward the end of my thesis. The first of these is a balance between geometry and function. Sometimes geometry controlled my design, and other times function controlled it. A good example of this occurs at the joints where I felt it was necessary to distinguish the entrances towards the ground level, a functional consideration resulting in the two different entrances. At the top of the joints both have the same pyramidal glass roof. Here geometry is in control of the design. Another example of function controlling the design is the 5 foot on center horizontal grid, on which the building is based, gives way to a 5 foot off center vertical grid to facilitate the dimensions of the study rooms' vaults. Finally, an example of geometry controlling the design is where the glass face of the joint

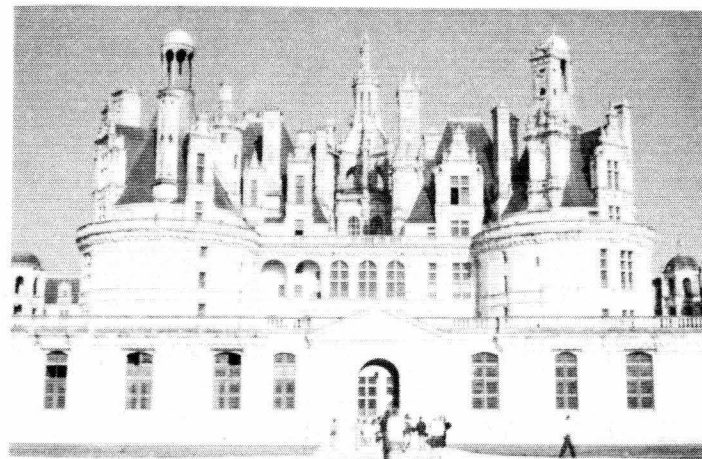


Mobile by Calder



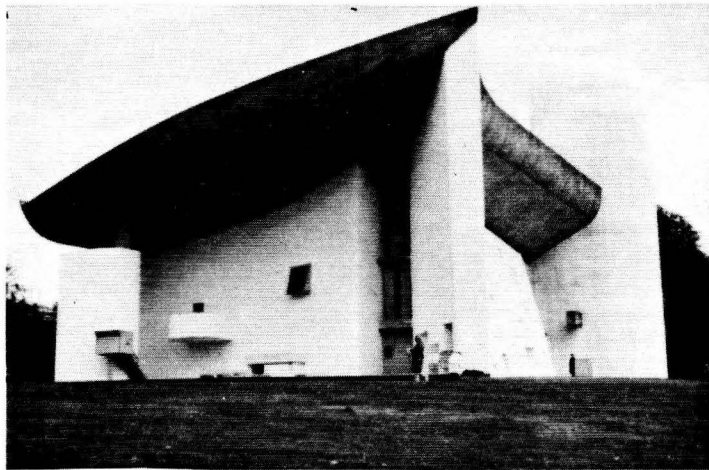
School by Steiner

Chambord



House by Steiner





Ronchamp by Le Corbusier

rises at an angle which just touches the seventh floor. The last idea of balance that came up was a balance between contrasting materials of steel, glass, and concrete used to achieve a unity by repetition although the parts of the dormitory are differentiated with these materials.

The second category my thesis explores is strength. I believe a clear articulation of elements in my dormitory gives it strength. The joints with their glass atriums are differentiated from the wings of the building with their pilasters, indentations and balconies. Within the wings the outside wall, the outside bank of rooms, the hall way, the inside bank of rooms and the inside walls are differentiated from each other. In particular the inside bank of rooms and the inside walls distinguish themselves from the outside rooms and walls since the inside rooms and wall step-up in height. The basic building materials of glass, steel, and concrete give my building a rawness which is characteristic of strength. Even the colors of these materials, clear, black enamel, and white are raw. The rhythm and repetition of elements give my building strength by giving it unity. I am thinking here of the pilasters, indentations, and balconies on the outside of both the outer and inner walls. Finally the large scale and structural simplicity add to the mass of the building thereby giving it strength.

Alp



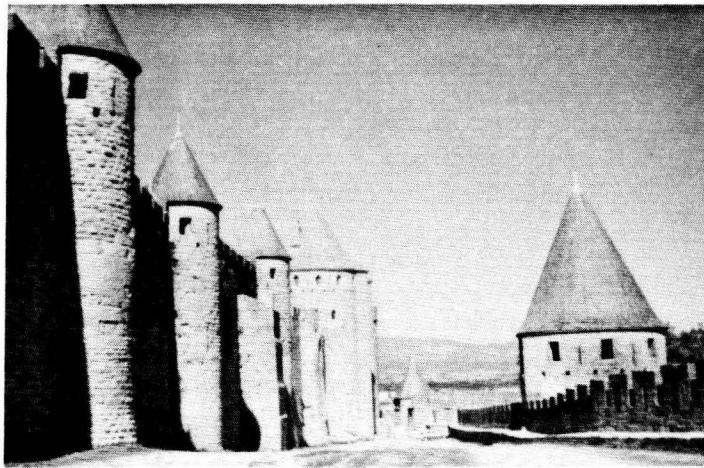
I believe Rudolf Steiner's school and house gain their strength from their mass and the clear articulation especially in the house where two colors divide the roof from the other part of the building. Ronchamp is massive also with a clear articulation of the roof, towers, and walls. The alp outside of Bosco Gureen is powerful for its mass and the way it gets steeper towards the top. This steepness towards the top is a geometric progression. It can remind one of the parabola which is significant in the modern age for predicting such phenomena as population increase or technological achievement. The parts of my building that



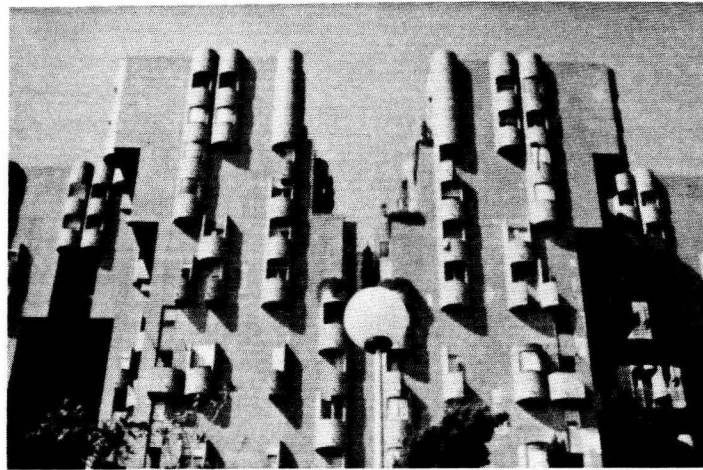
St. Peter's

Villa by Hadrian





Carcassone



Walden by Bofill

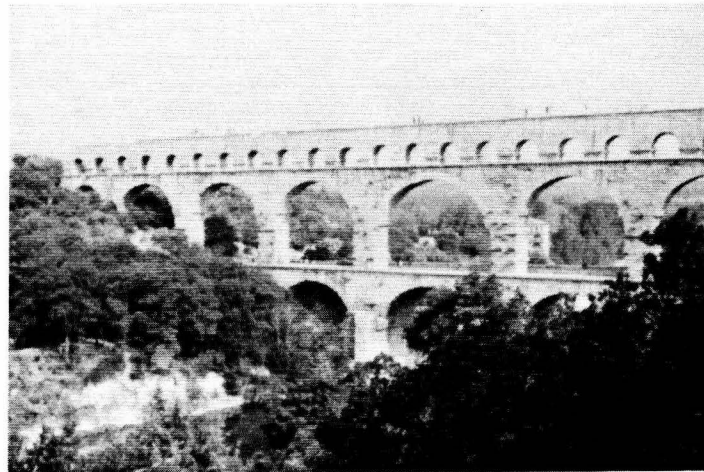
step-up do so in a near geometric progression. Though the association of the step-ups with the parabola a connection to the powerful predictive ability of geometric progression can be made. Finally, I think the vaults of St. Peter's and Hadrian's villa are powerful for their large scale. Although my pilasters, indentations, and balconies are thin, they rise to 5 stories giving them a strong presence.

The third category I explored in my building is that of structural art as expressed in David Billington's book The Tower and the Bridge; the New Art of Structural Engineering. In this book three ideas are expressed which make a work of civil engineering, art. These are economy, efficiency and aesthetic. Billington expresses efficiency as an economy of thought. I believe my building shares this. One example is where columns of the frame could step back 5 feet but don't because of economy of thought. Nervi states that for him aesthetics is the patient struggle of making a building pleasing to the eye and structurally sound at the same time. I think Billington would agree with this statement, and I do as well. My dormitory is pleasing to my eye and is structurally sound.

Walden by Bofill

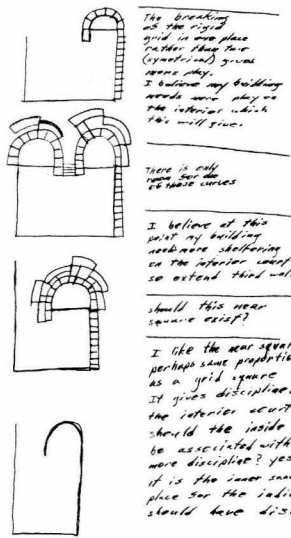
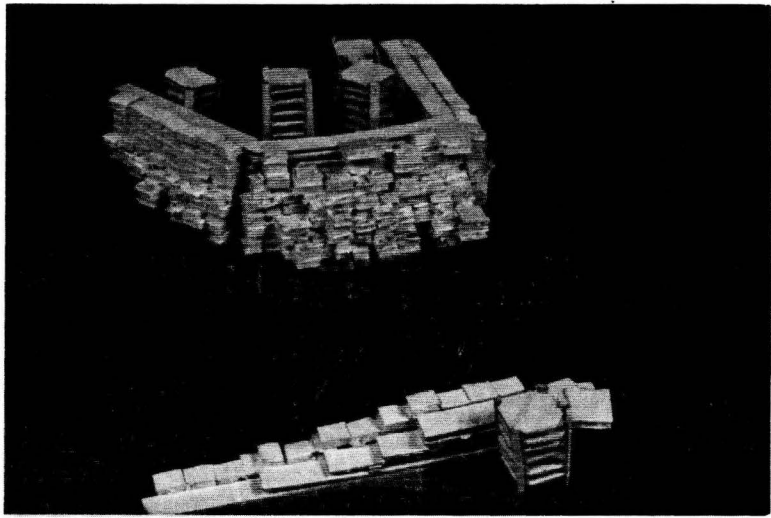


Pont du Gard



The last category I explored in my building is architecture giving rise to references. I believe references occur in all phases of the design, before, especially during, and after. My building gives rise to the following references in my opinion: Carcassone, a walled pilastered city in southern France, Bofill's Walden near Barcelona, Spain, The Pont du Gard in France, and Miquel Angel Roca's bank in Argentina. Certainly the building will bring to mind other references to its beholder thereby making the experience of the building richer.

II Exploration



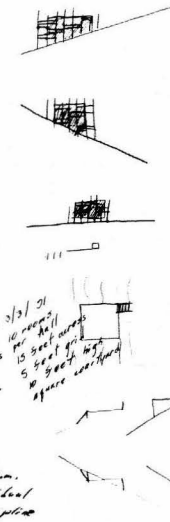
The breaking
of the rigid
grid in one place
rather than two
(circular) gives
some play.
I believe my building
would work better
the interior which
this will give.

There is only
some play
to make curves

I believe at this
point my building
work more sheltering
on the interior and
so extend that wall

Should this near
square exist?

I like the near square
perhaps some proportions
as a grid square
It gives discipline
the interior and
should the inside
be associated with
more discipline? yes,
it is the inner sanctum.
Give for the individual
should have discipline

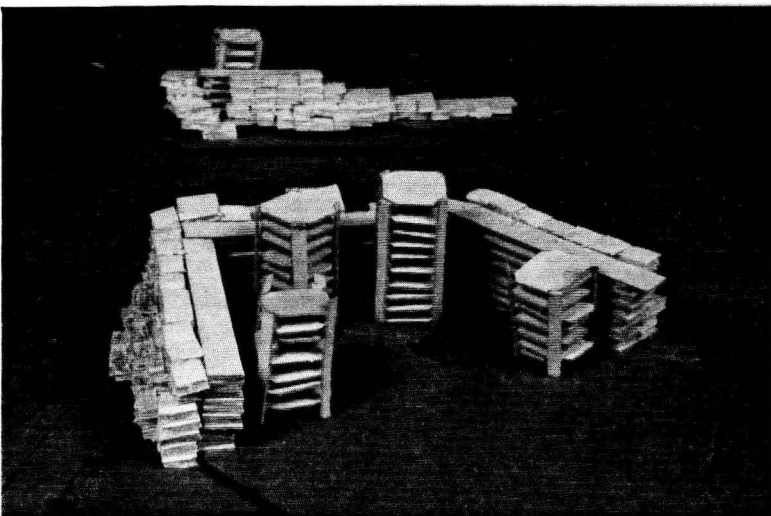
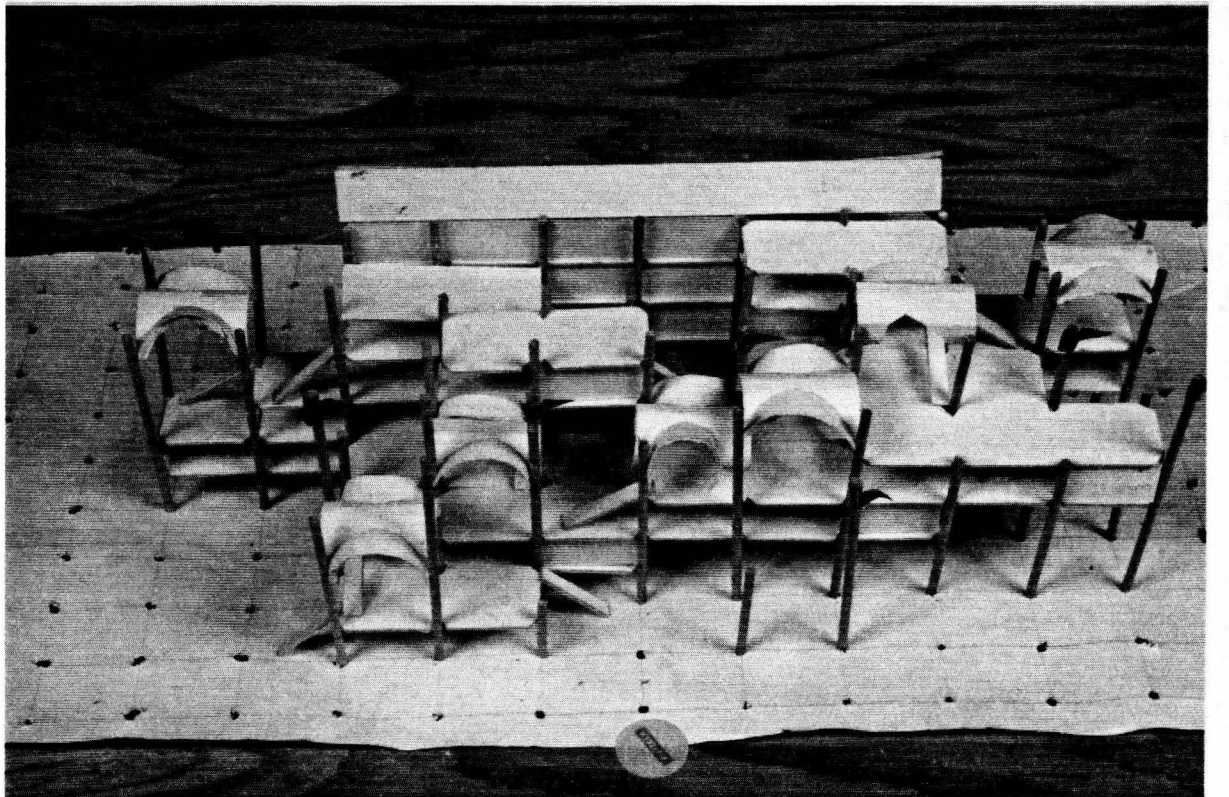
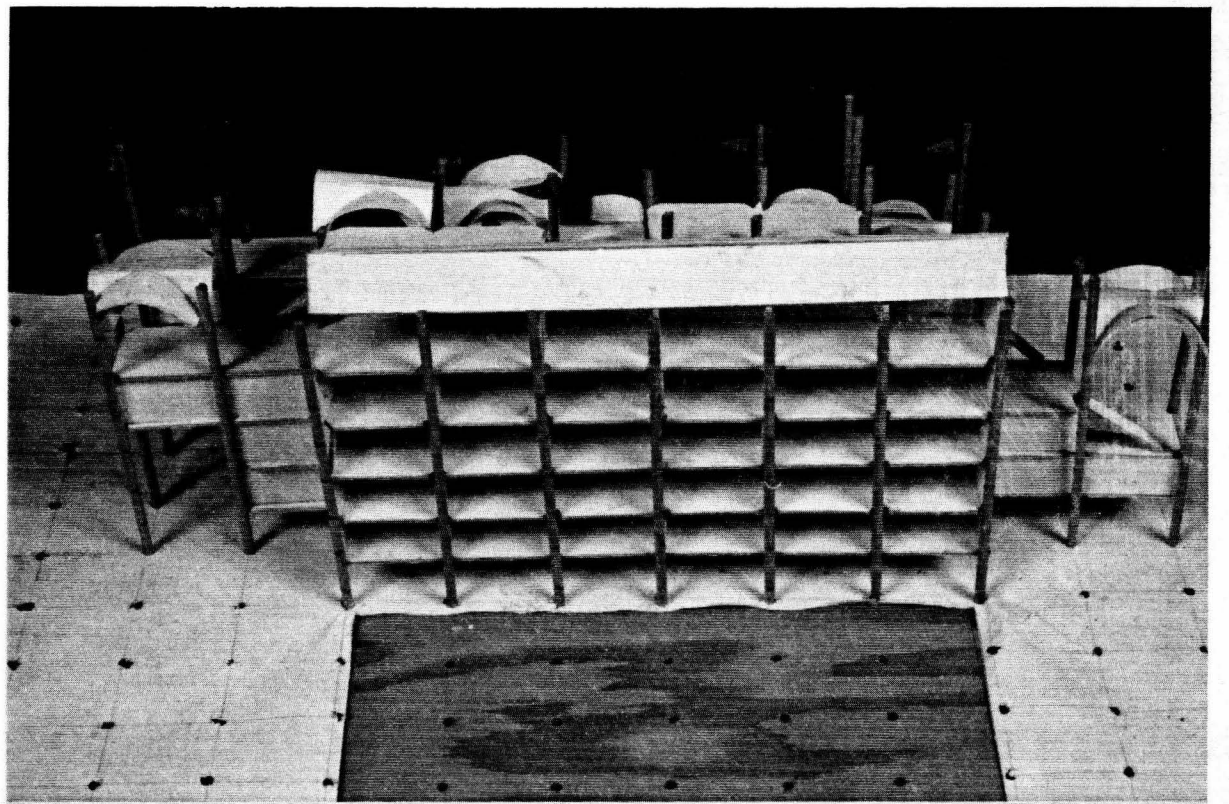


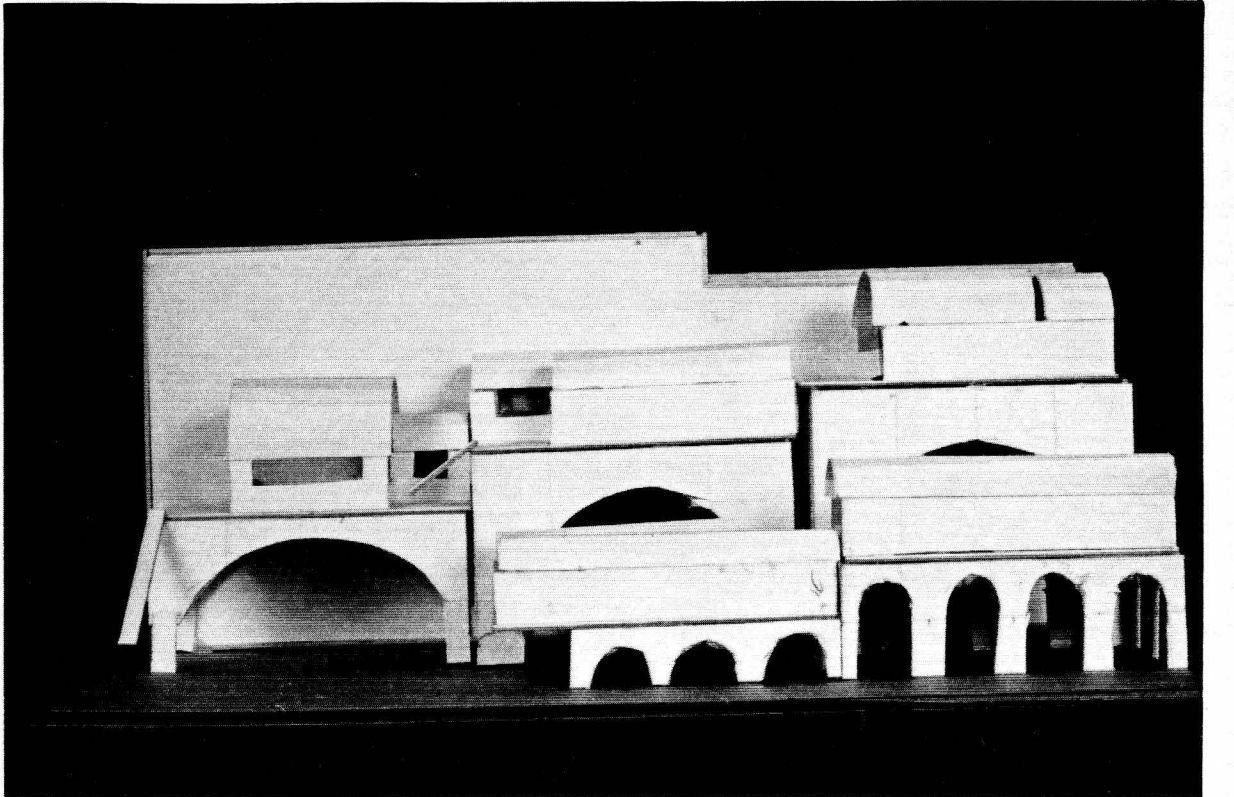
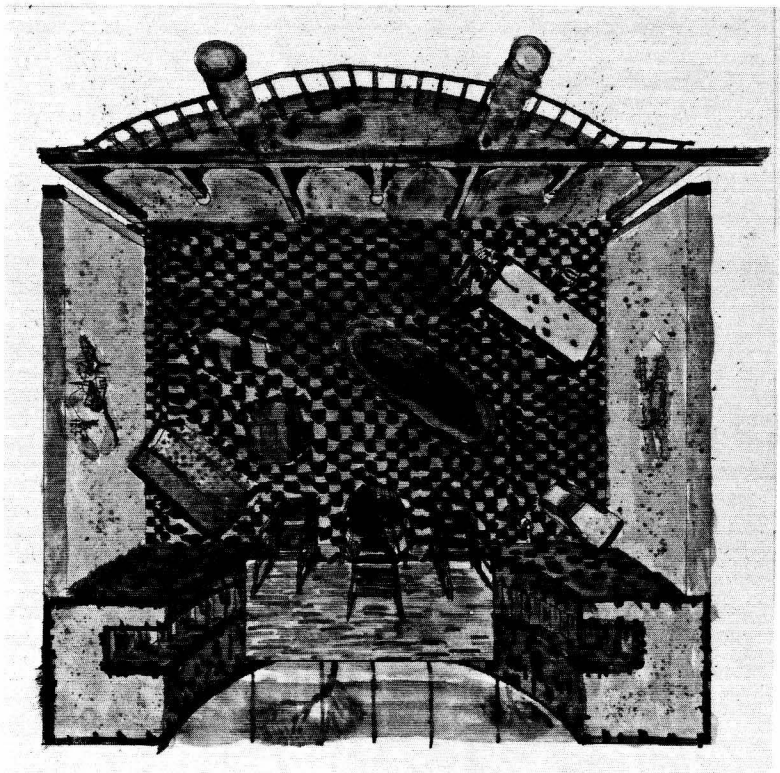
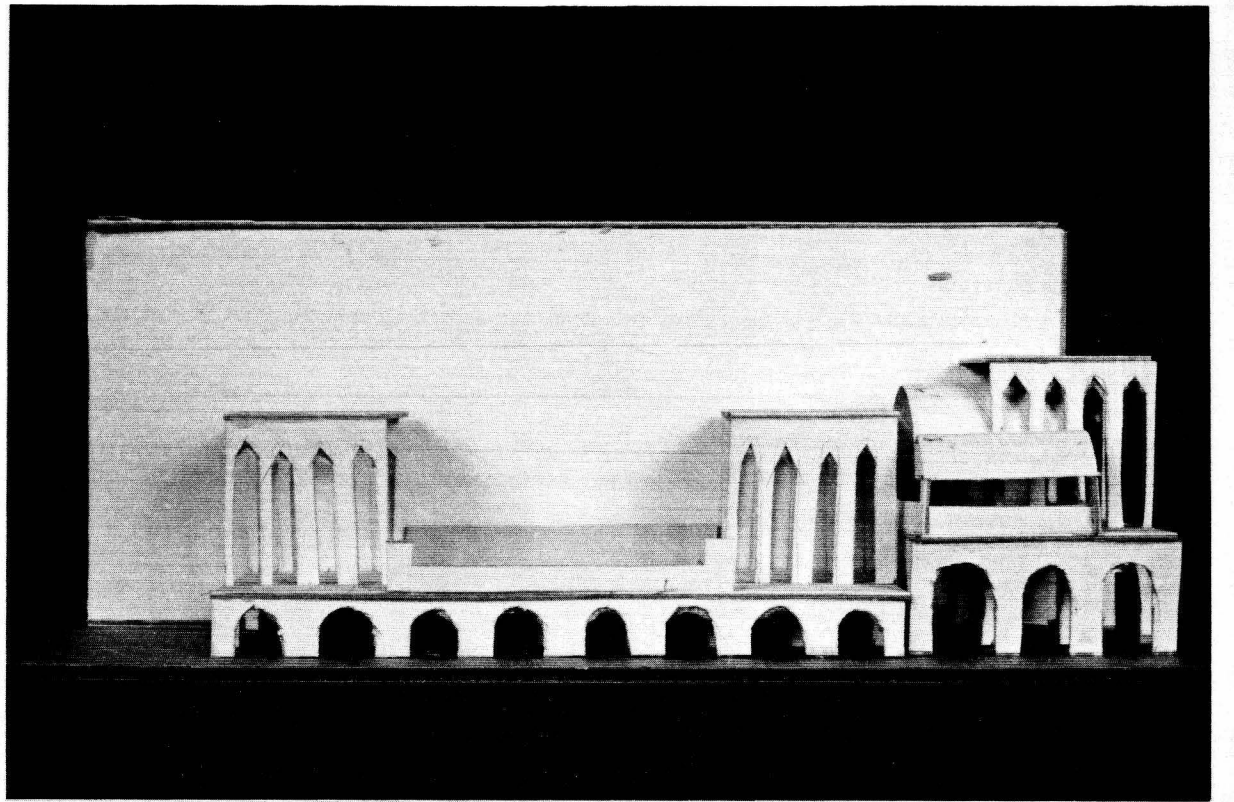
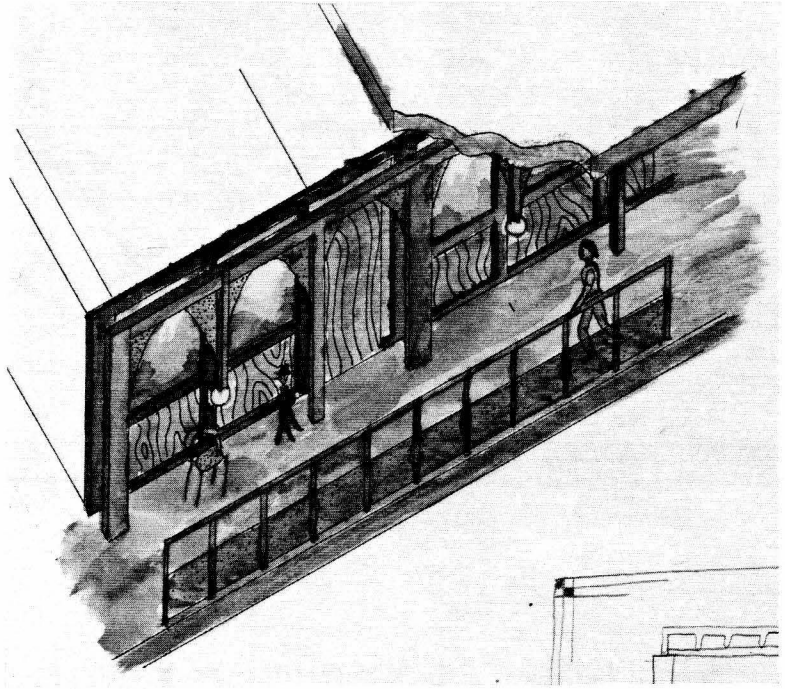
A slope can emphasize
the fact that the building
stands on sand
what about site! It seems
site and slope are not central
to my theme
Slope certainly adds drama
like La Tourette

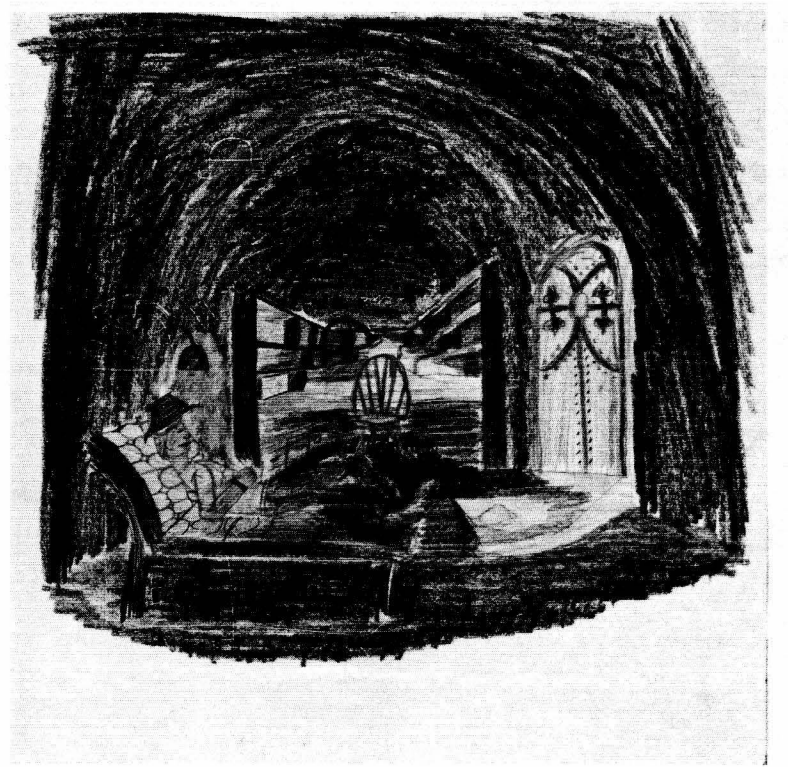
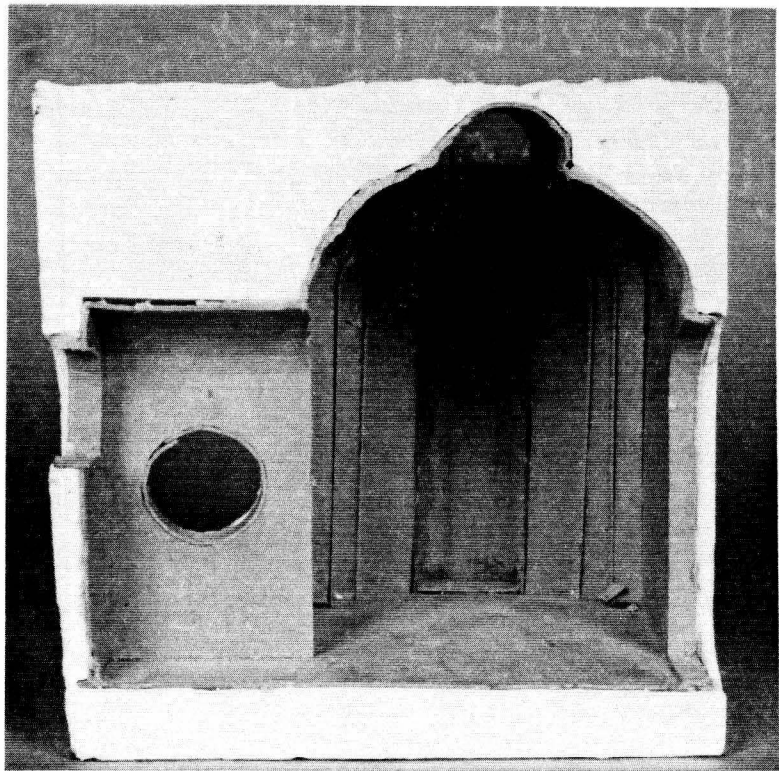
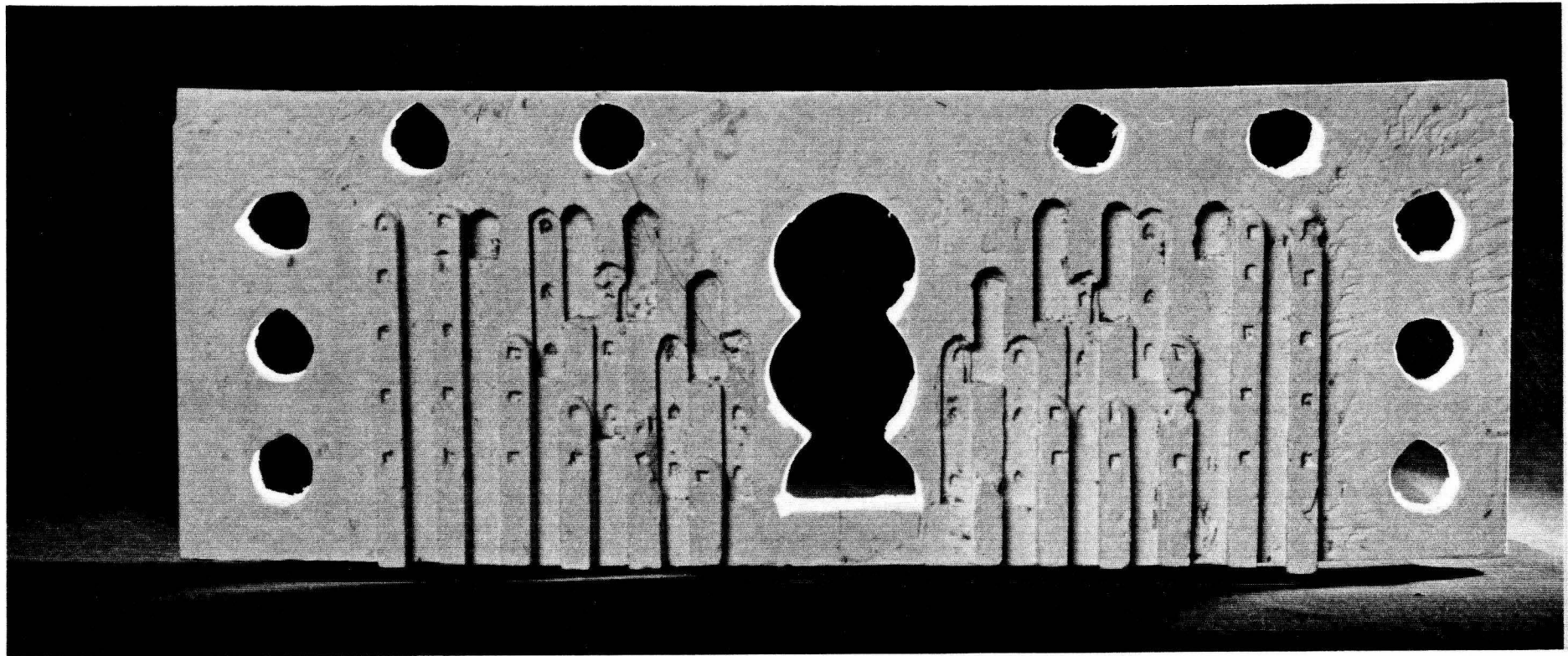
Perhaps make the interior
court a platform
entering from the
platform will give the
interior even more
shelter

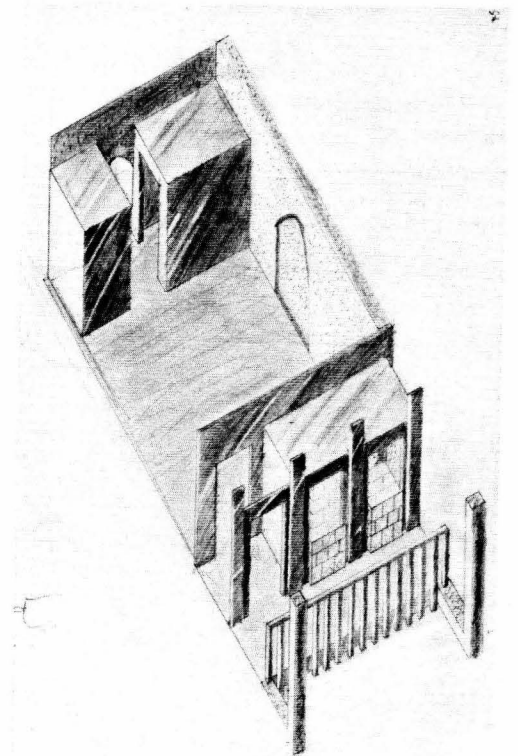
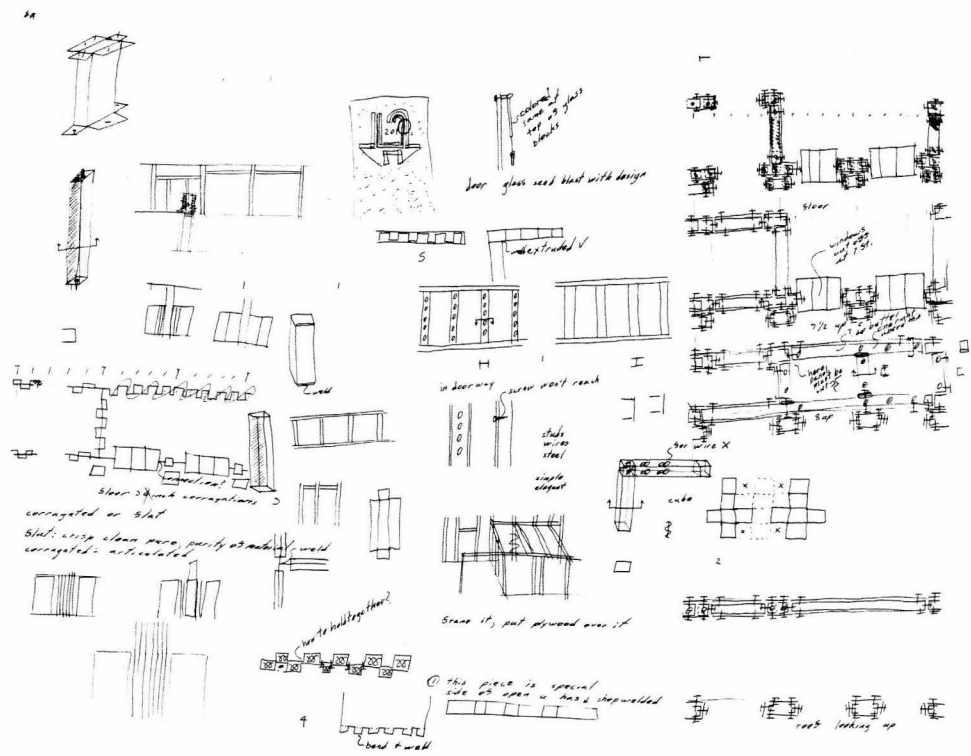
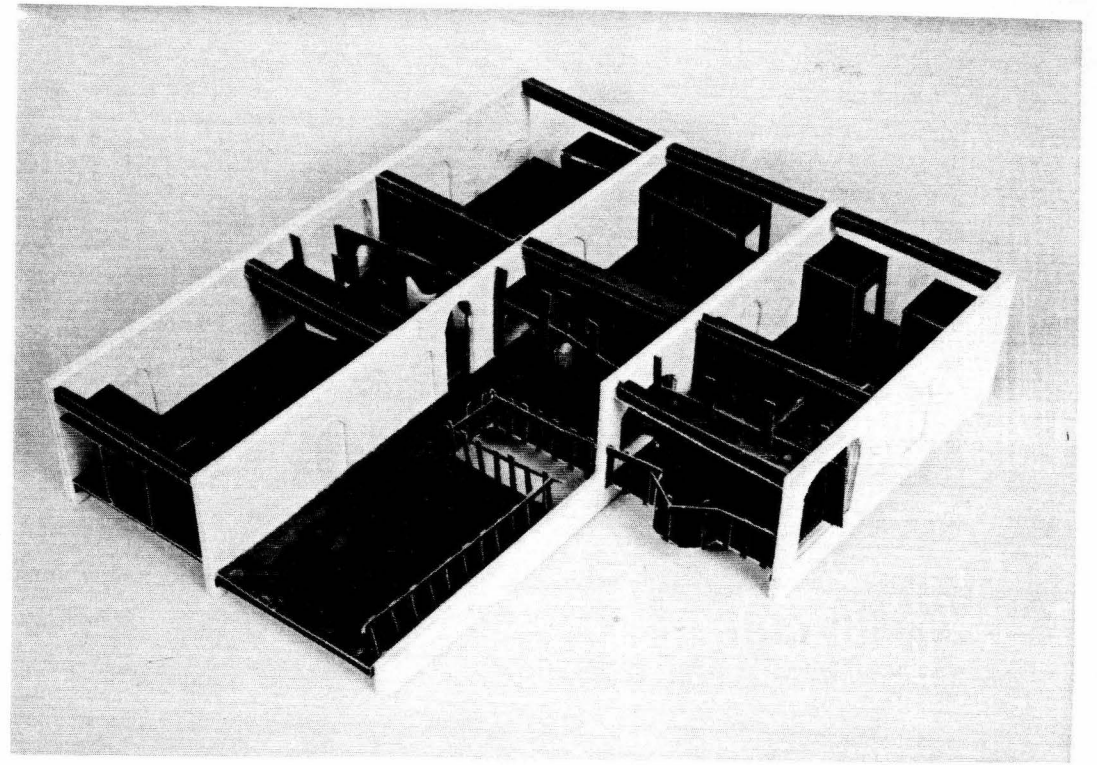
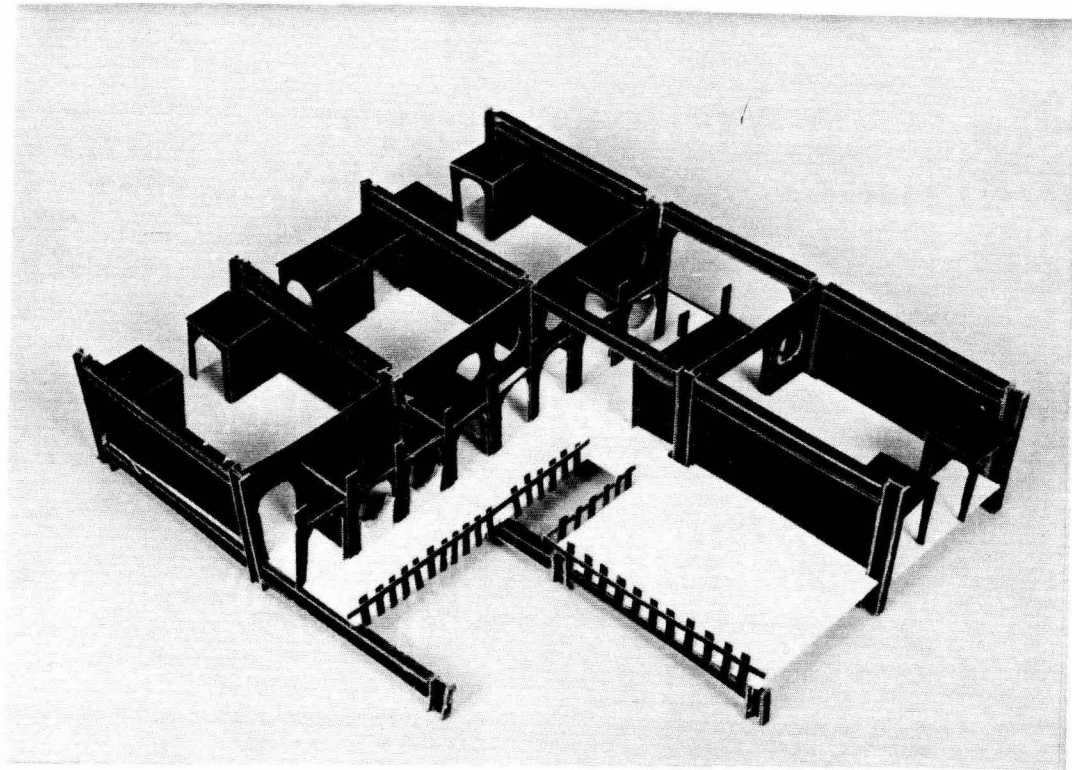
Perhaps the upper portion
should set into the slope
X earth sheltering certainly
is good for individual/inside

I think if upper portion
sets into slope this shows X
I think if I did try to
earth shelter some of the rooms
it would still be alright
to have the other rooms
and the brick wall
idea

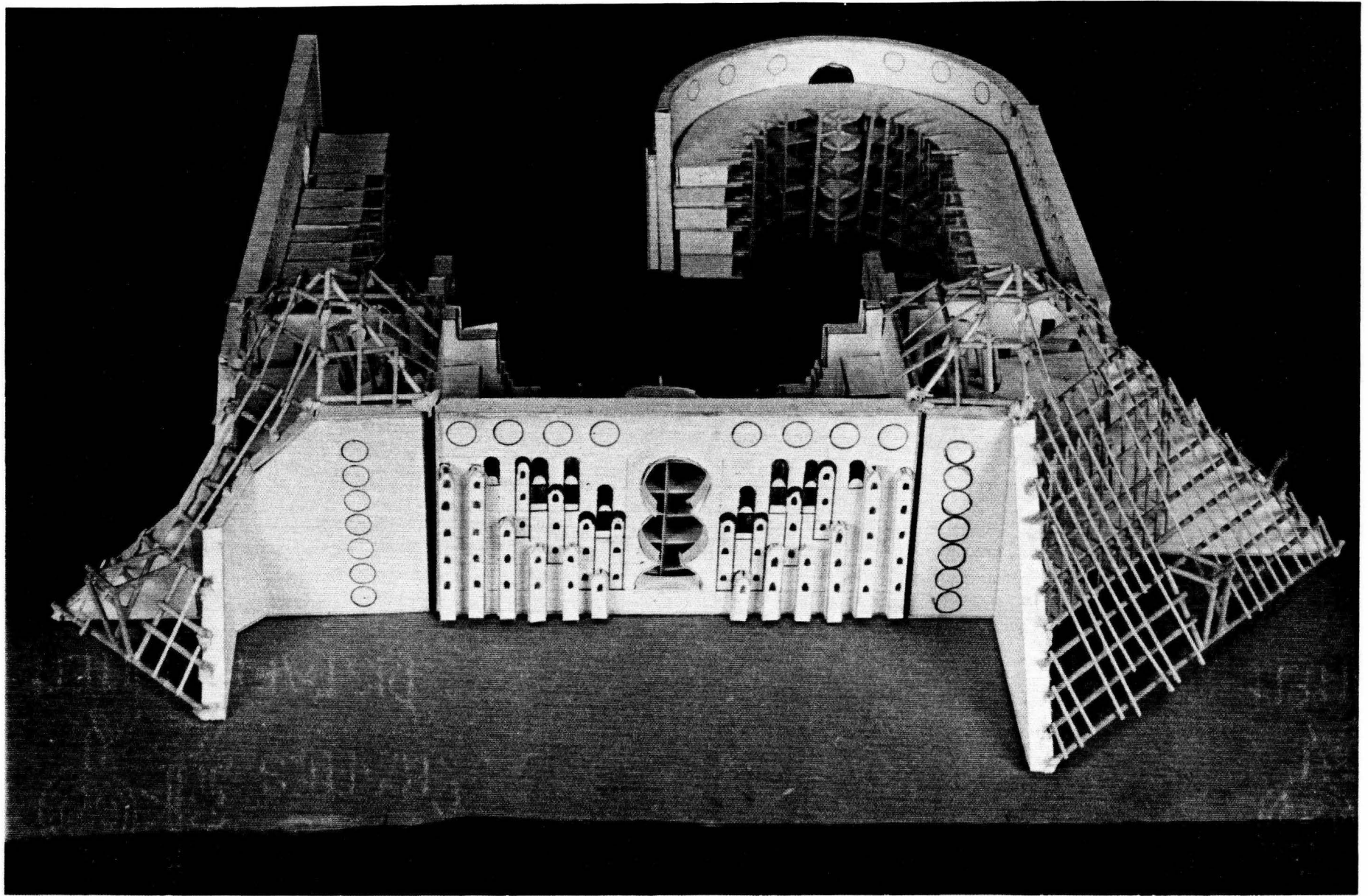


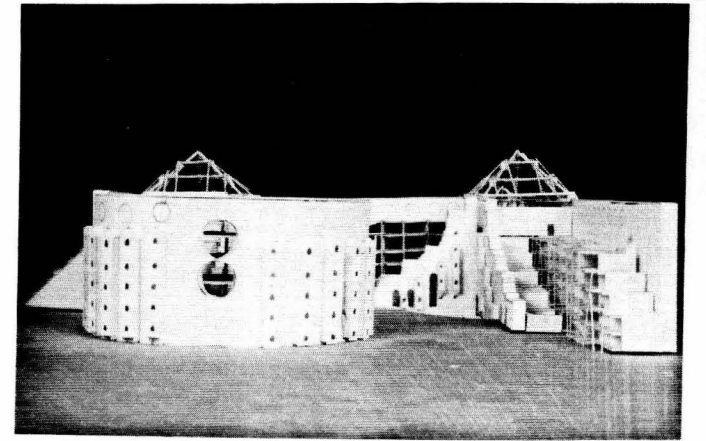
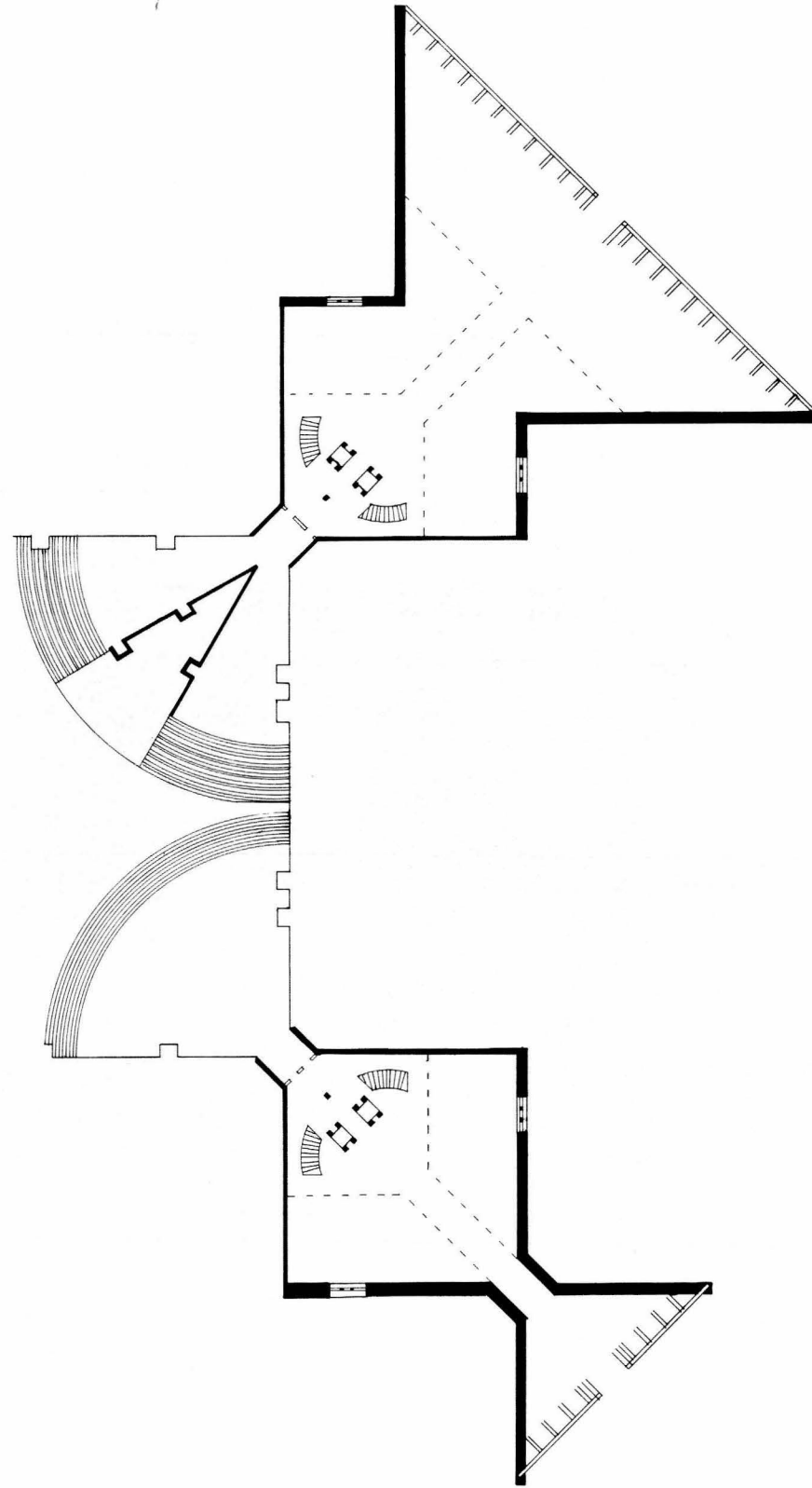




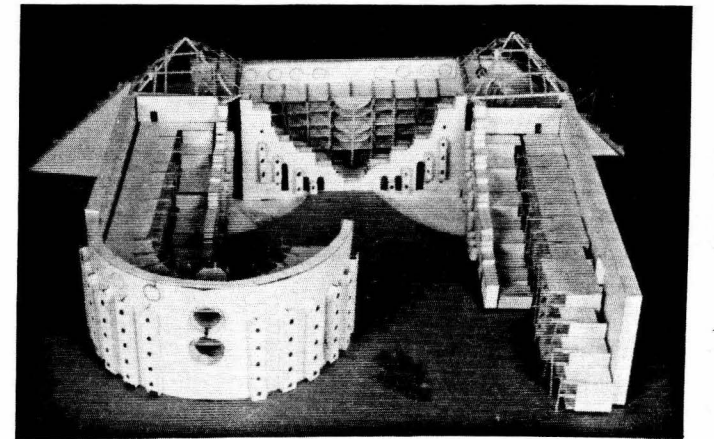


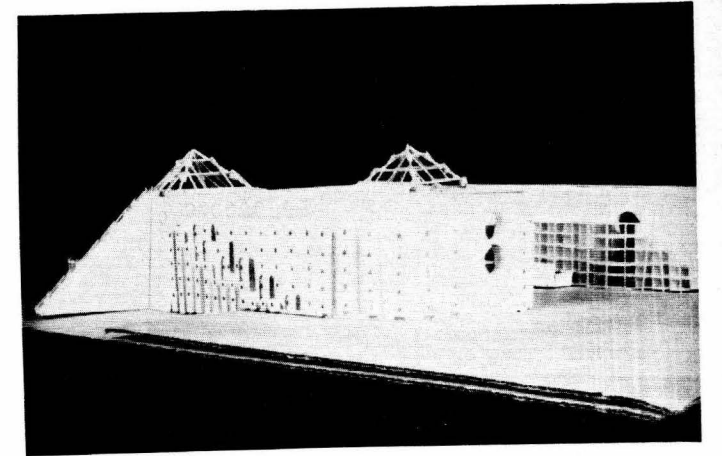
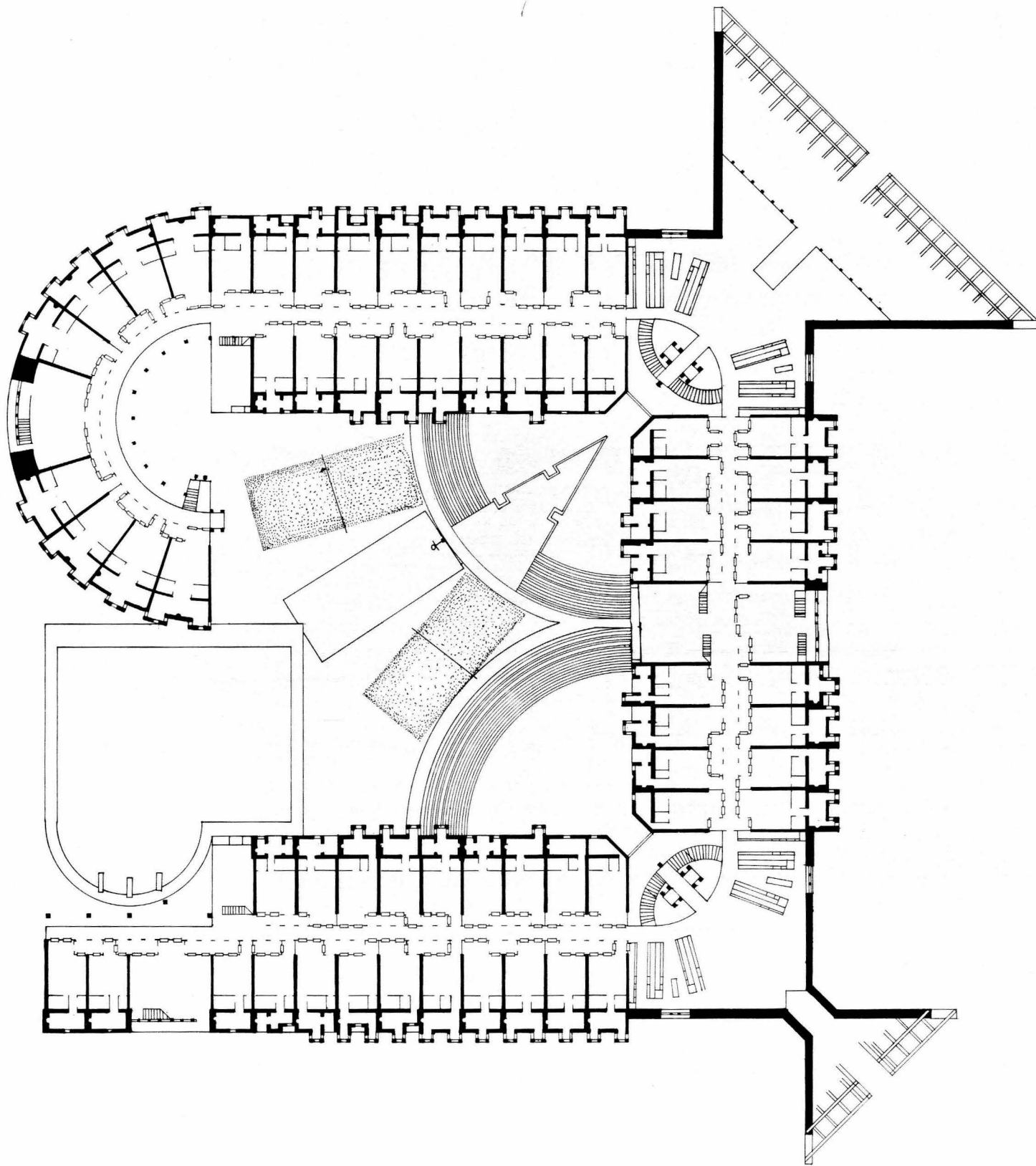
III Conclusion



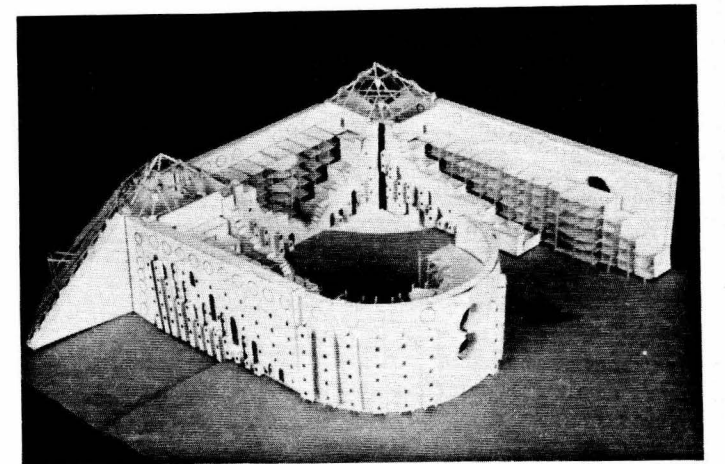


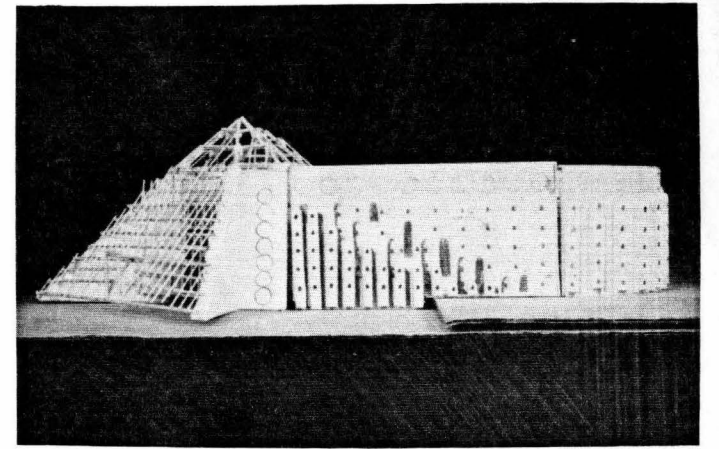
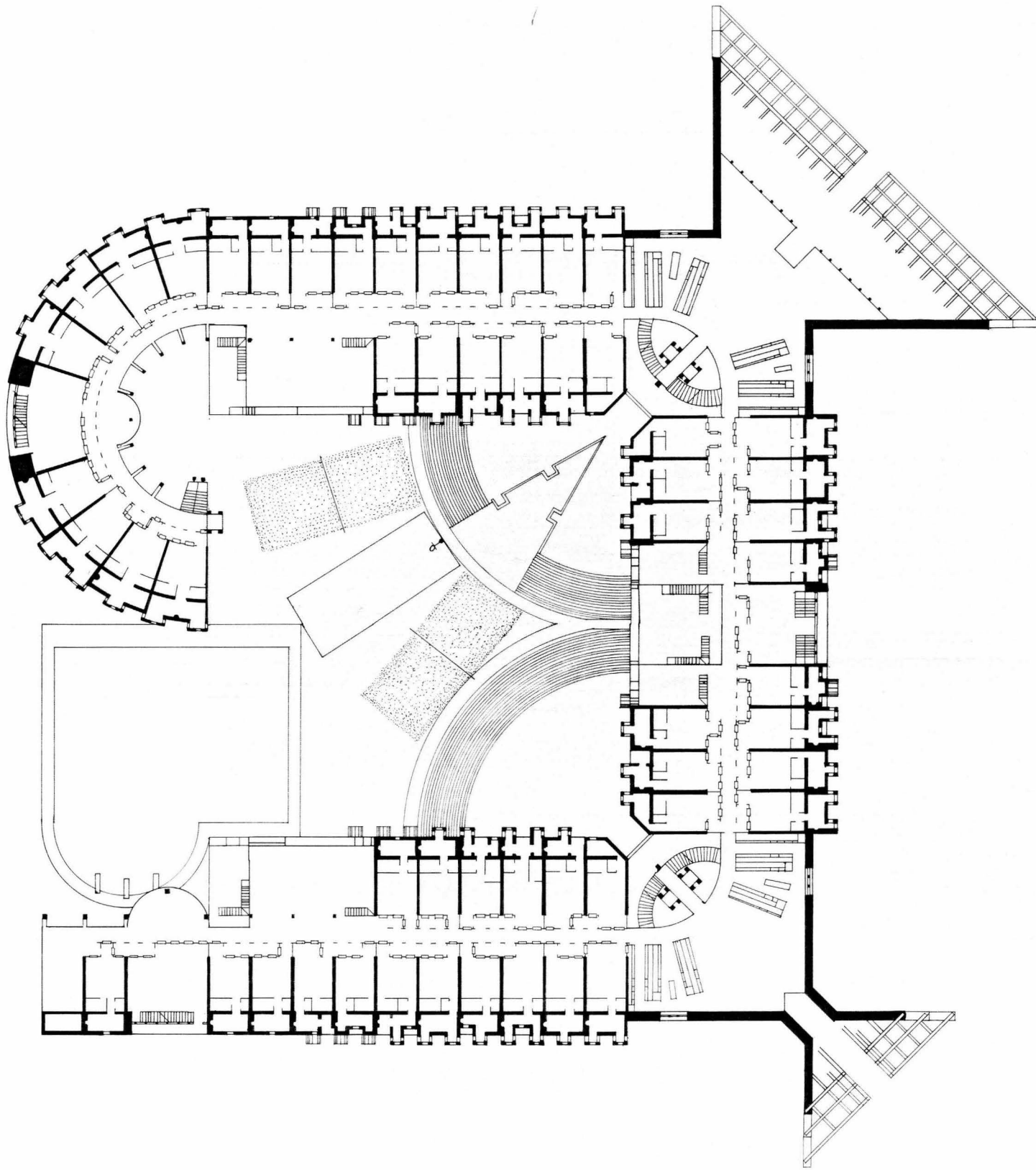
First Floor



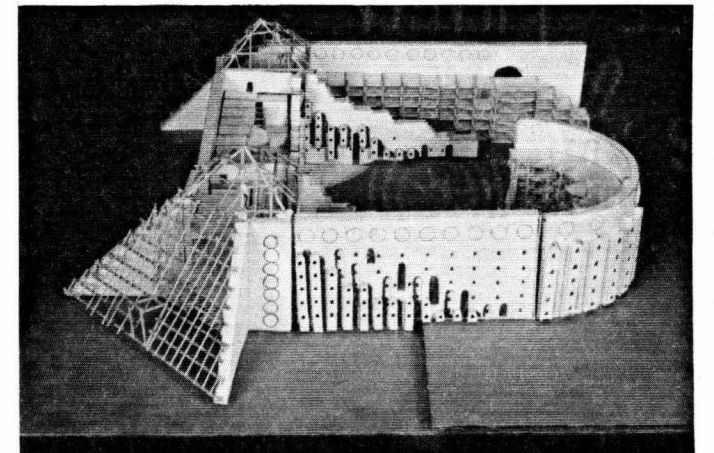


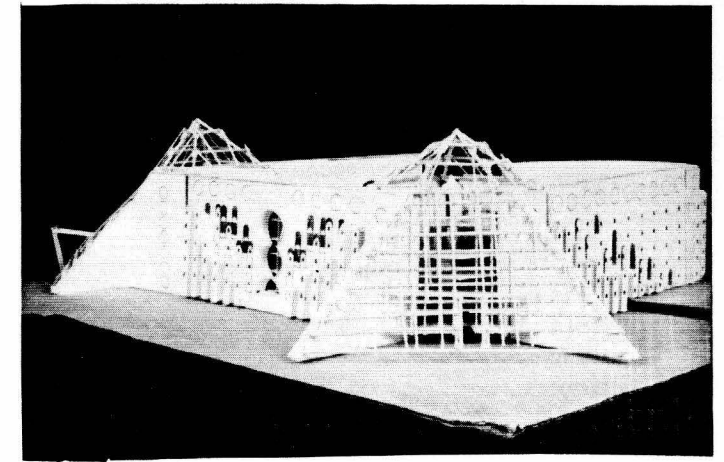
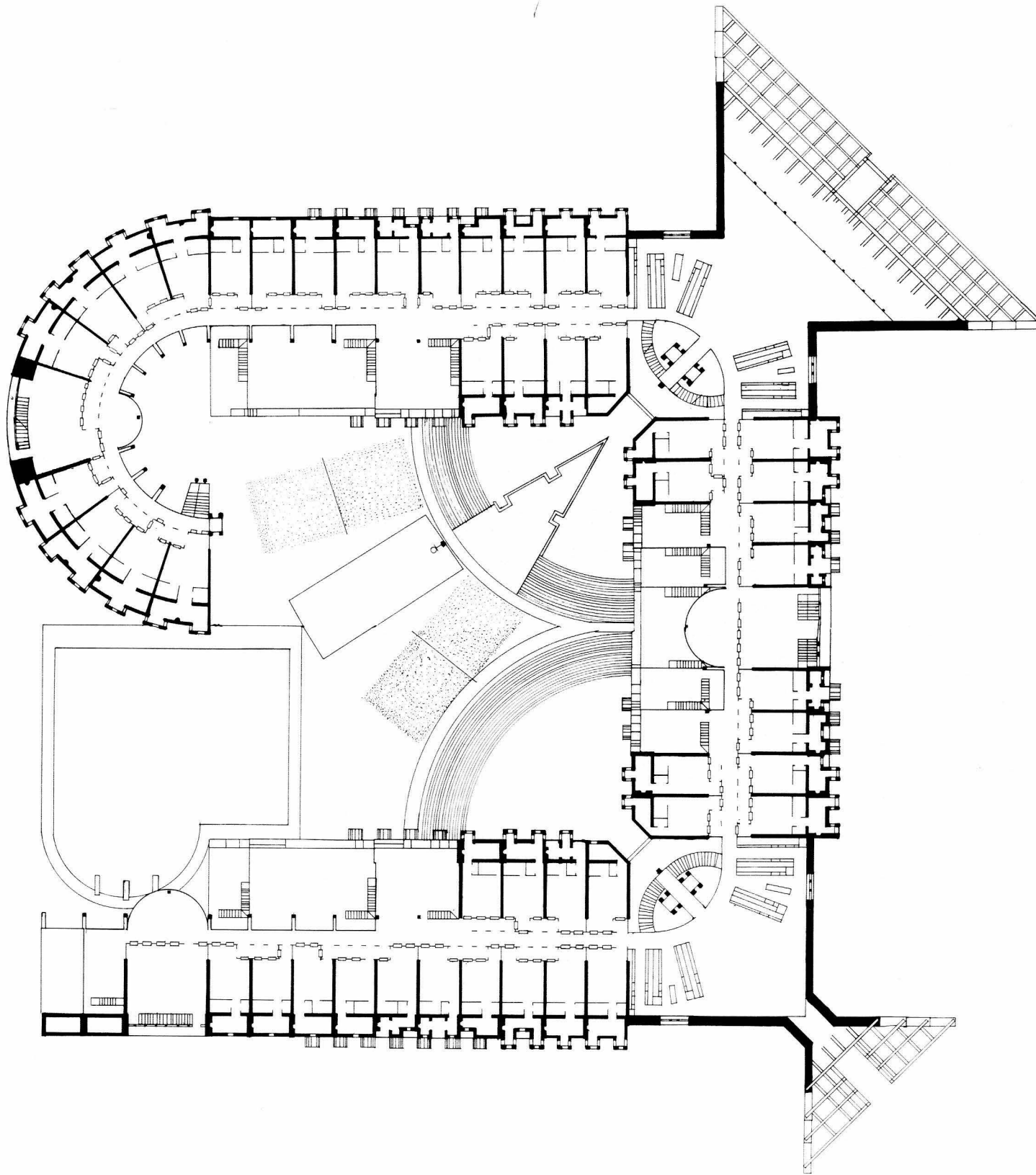
Second Floor



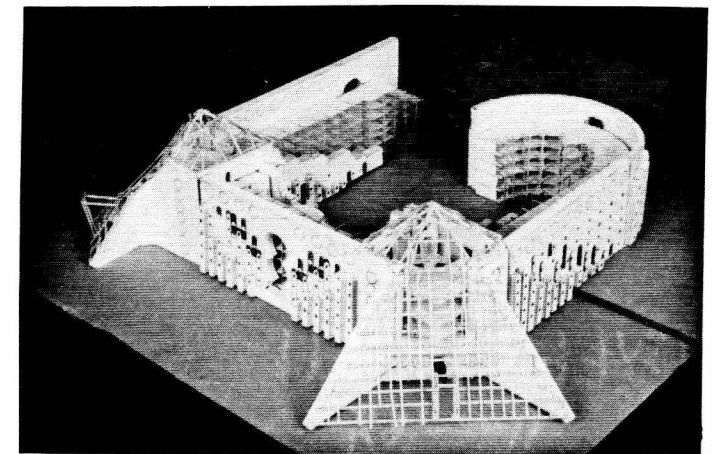


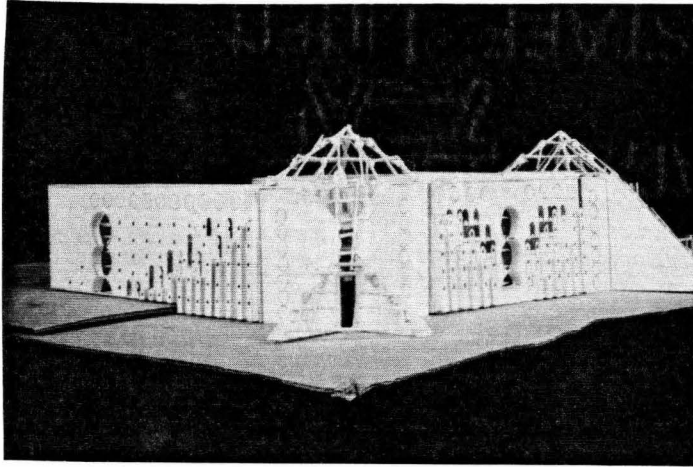
Third Floor



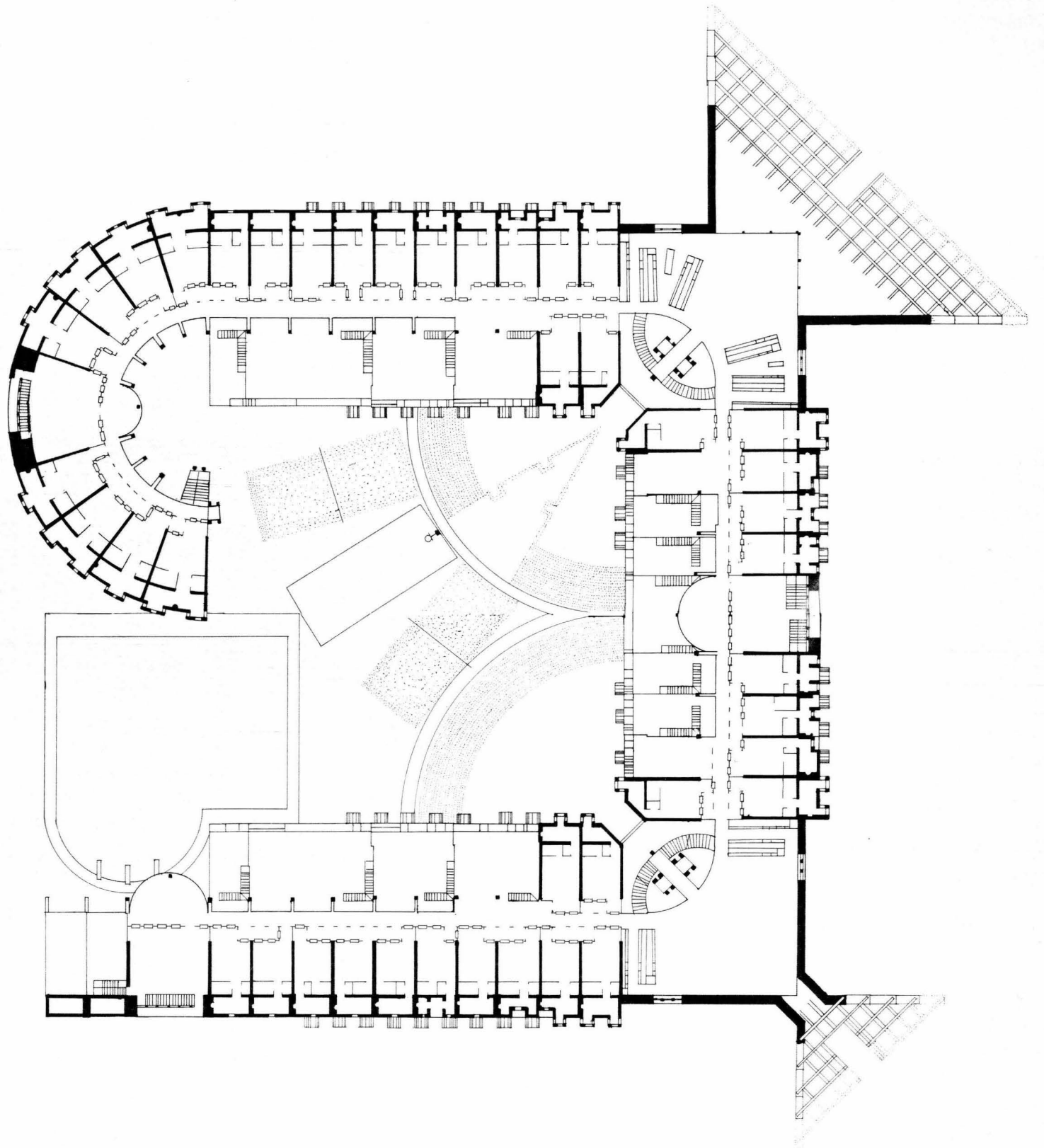
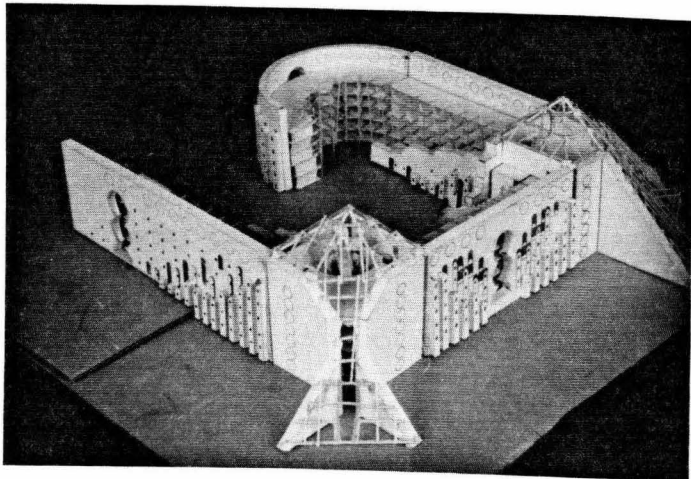


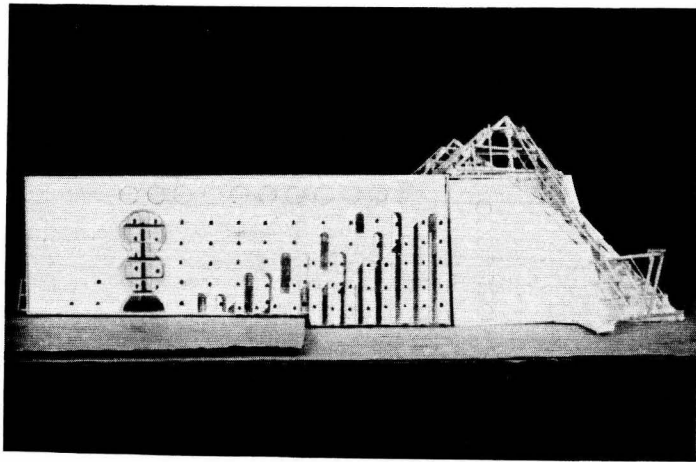
Fourth Floor



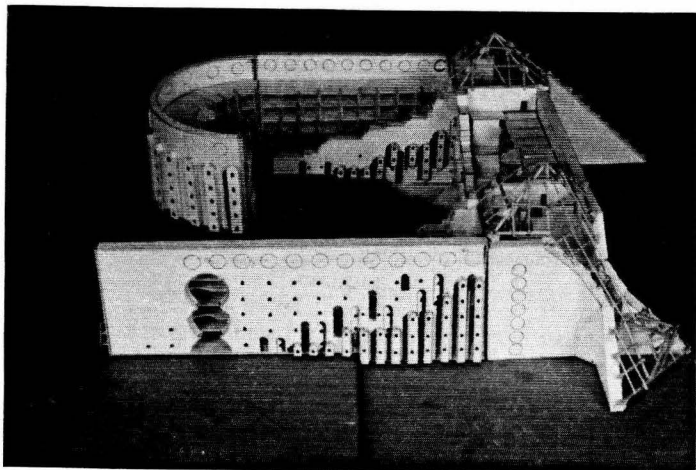
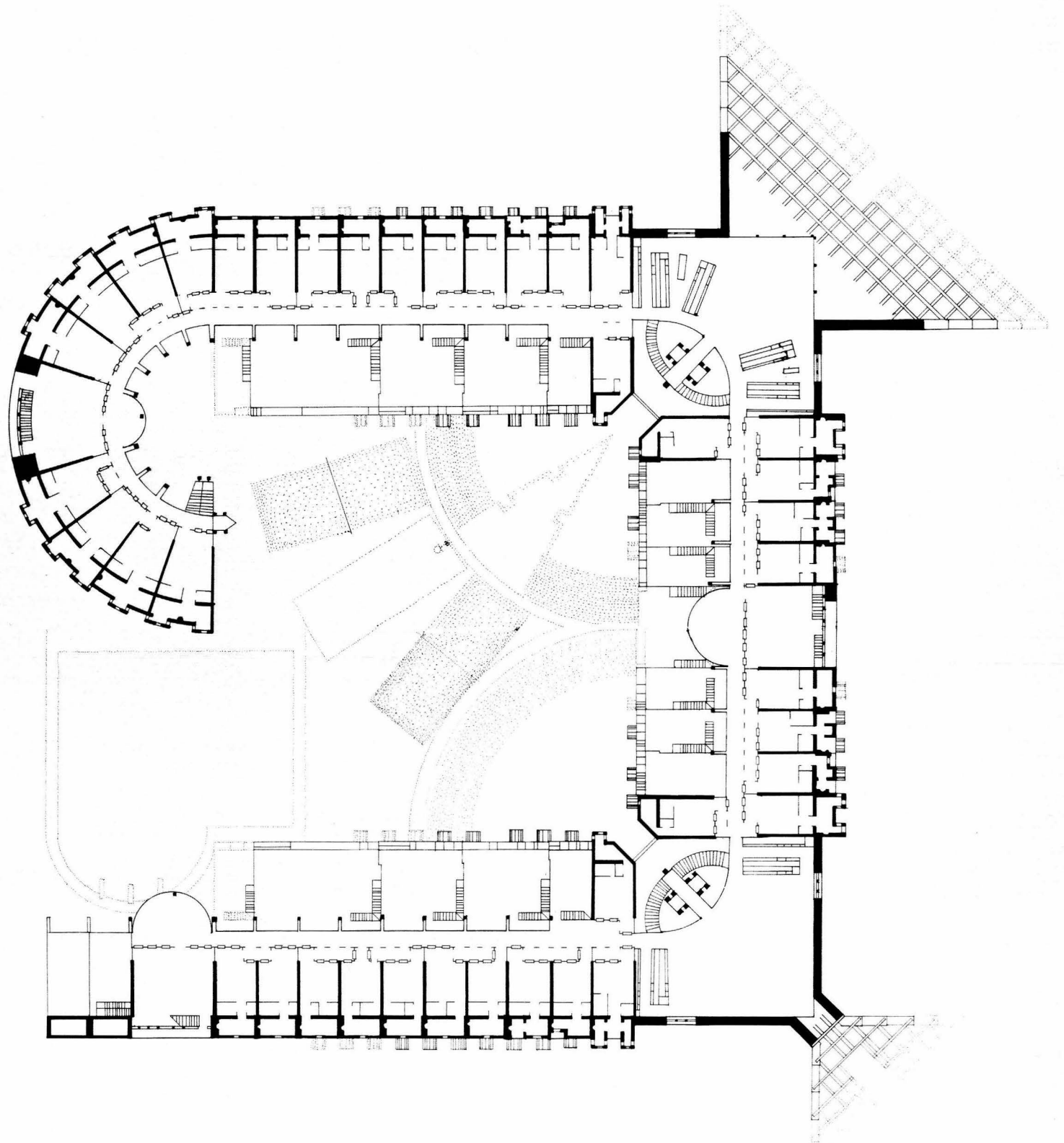


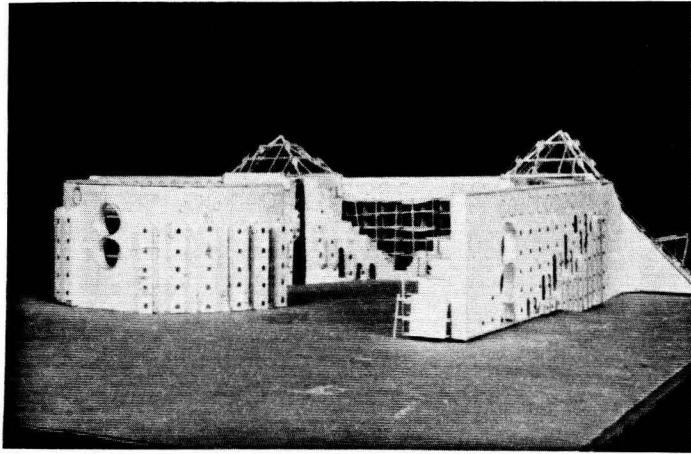
Fifth Floor



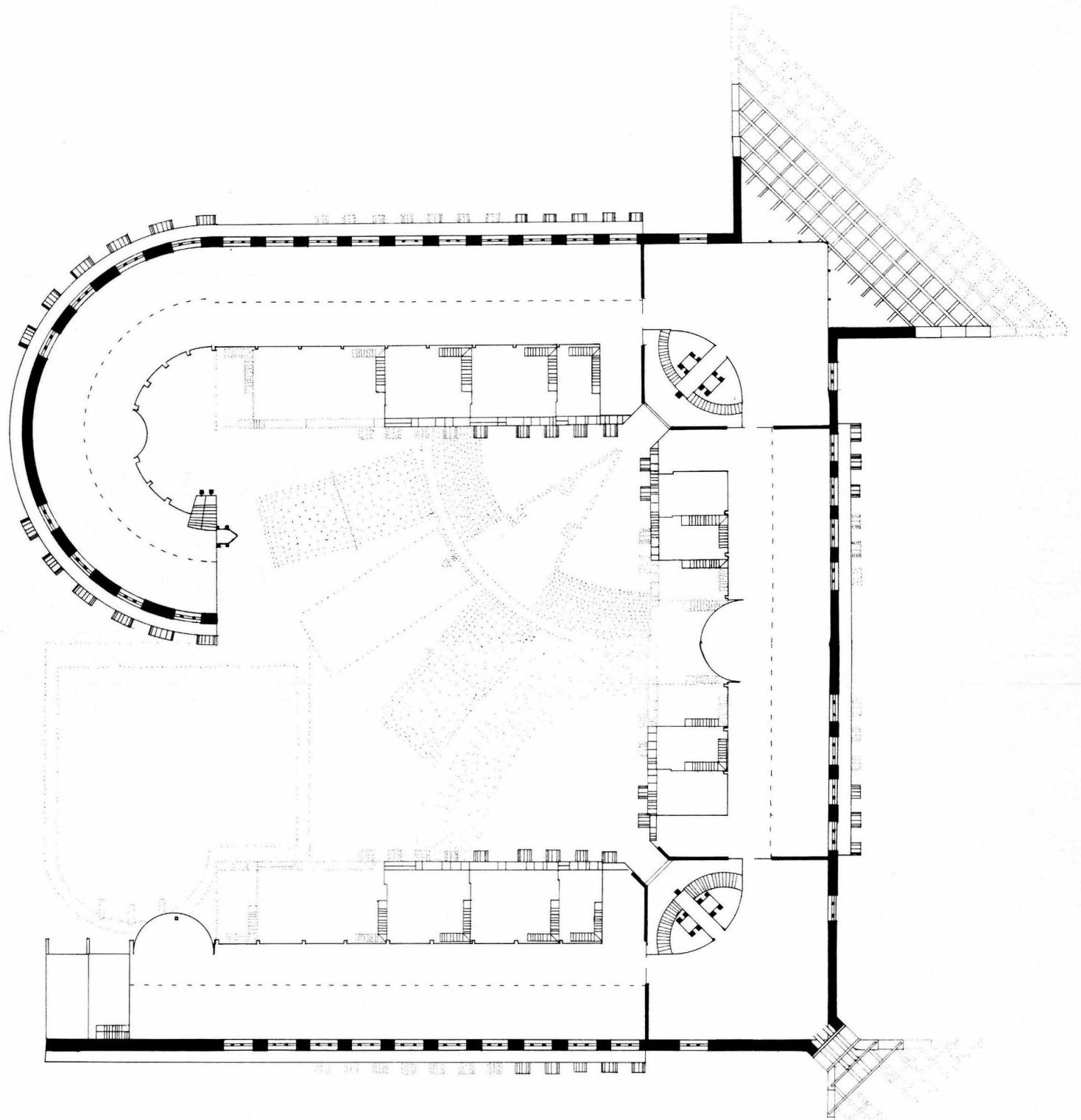
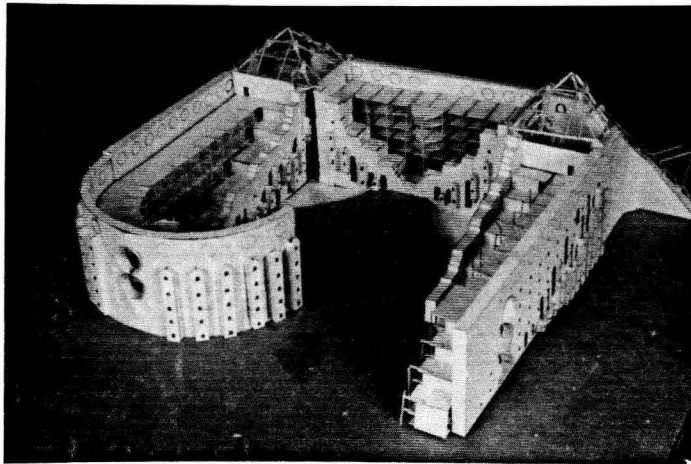


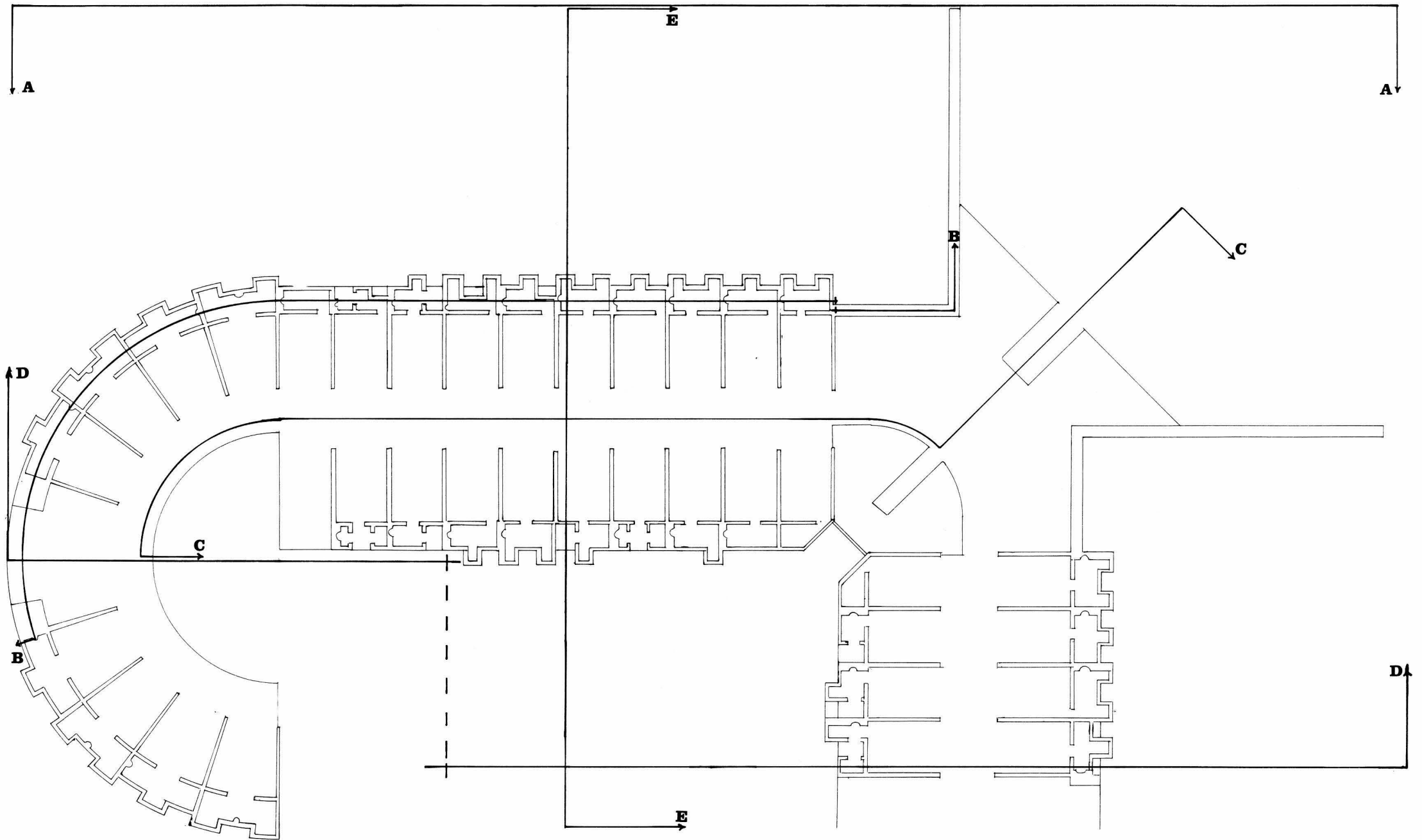
Sixth Floor

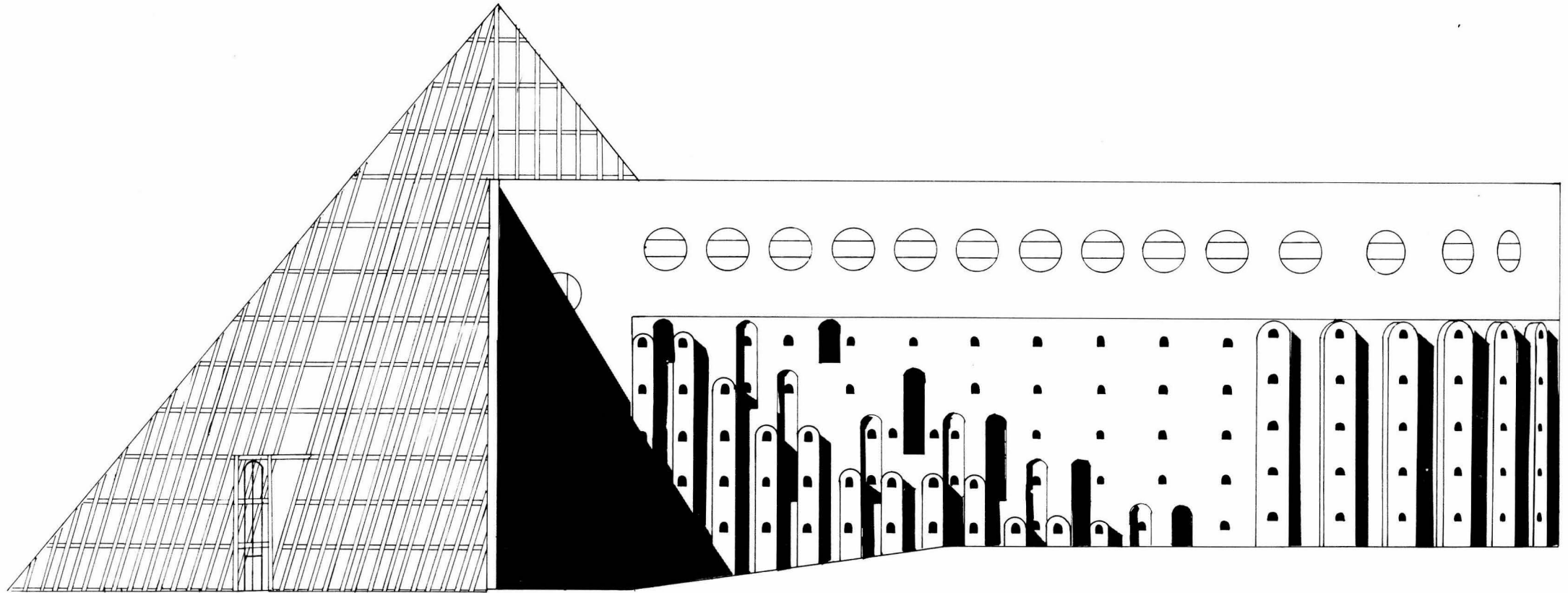




Seventh Floor

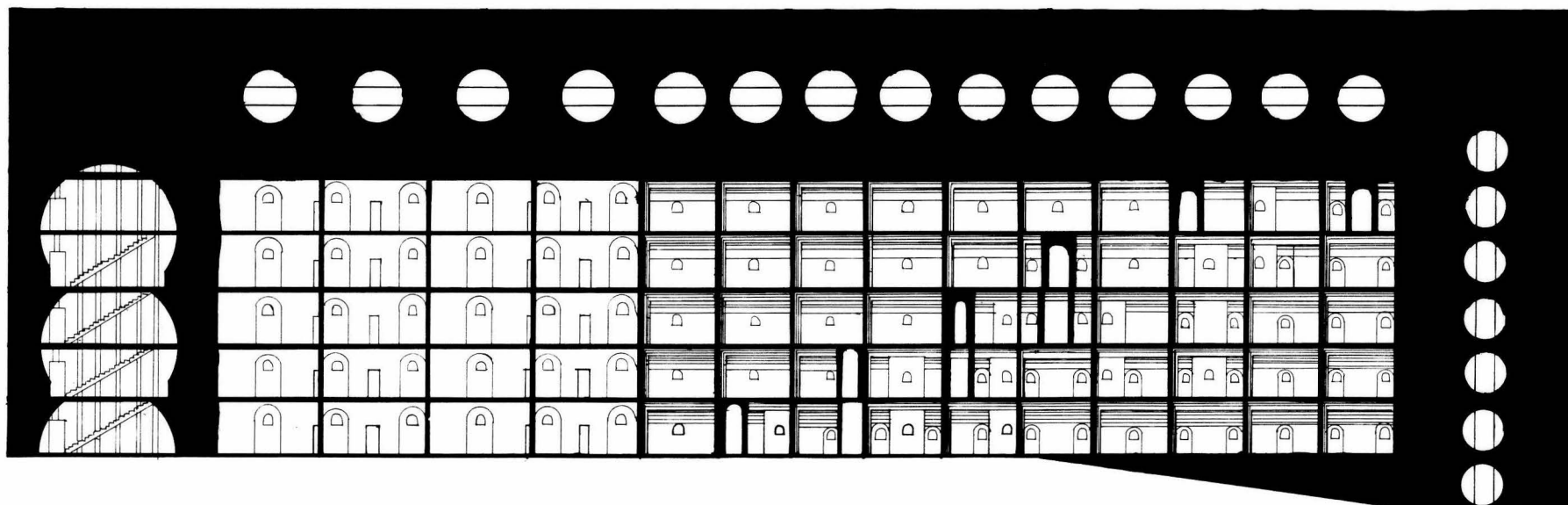


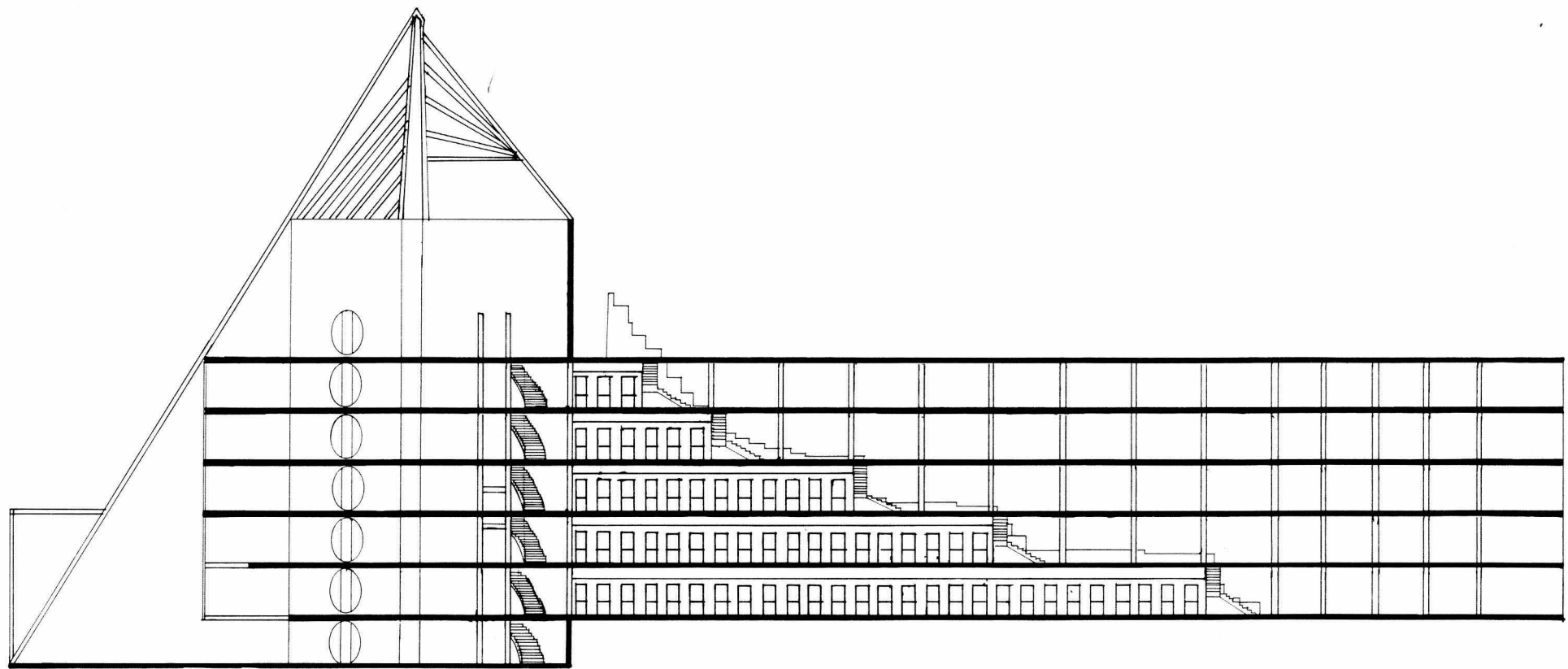




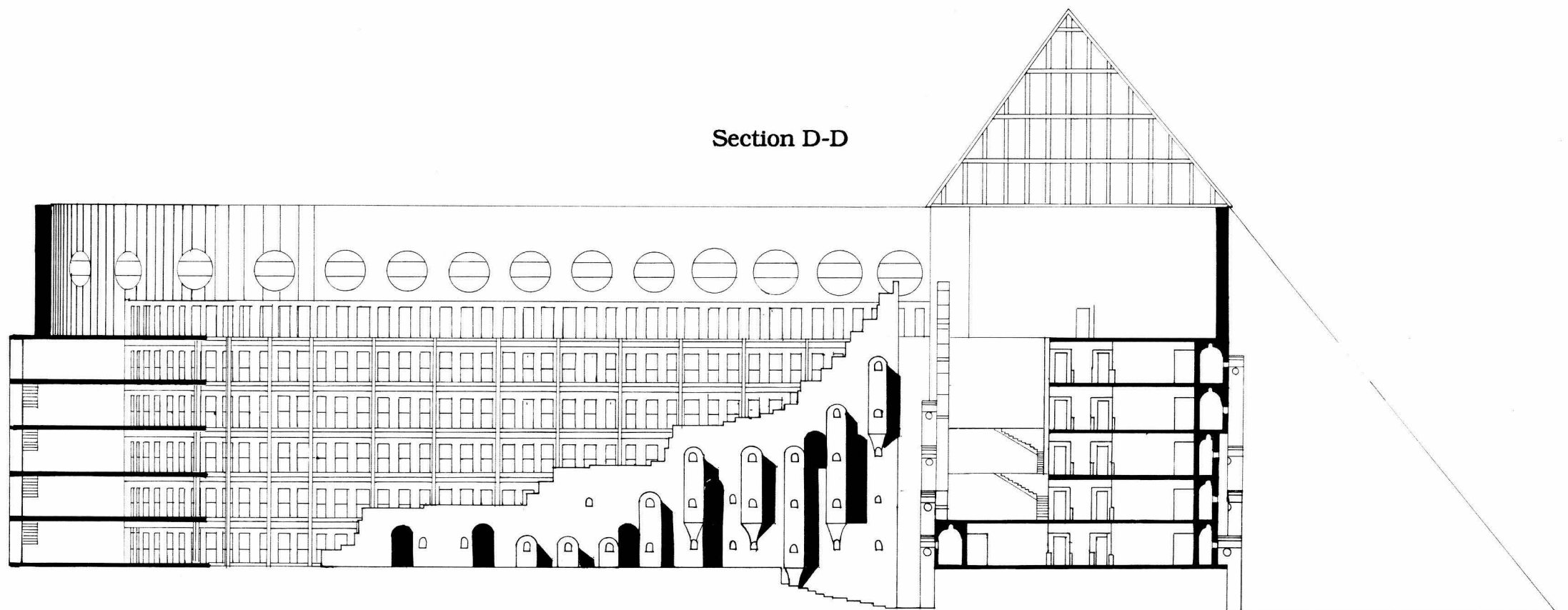
Elevation A-A

Section B-B

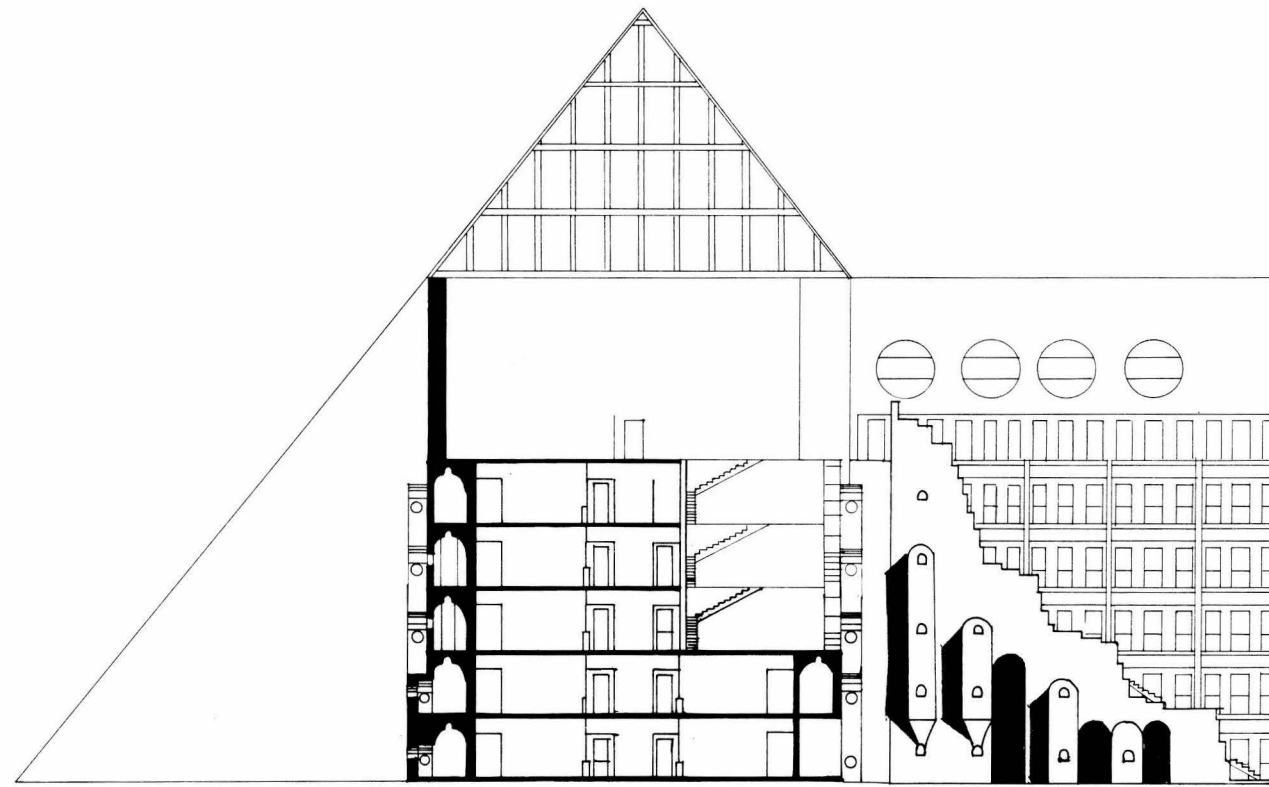




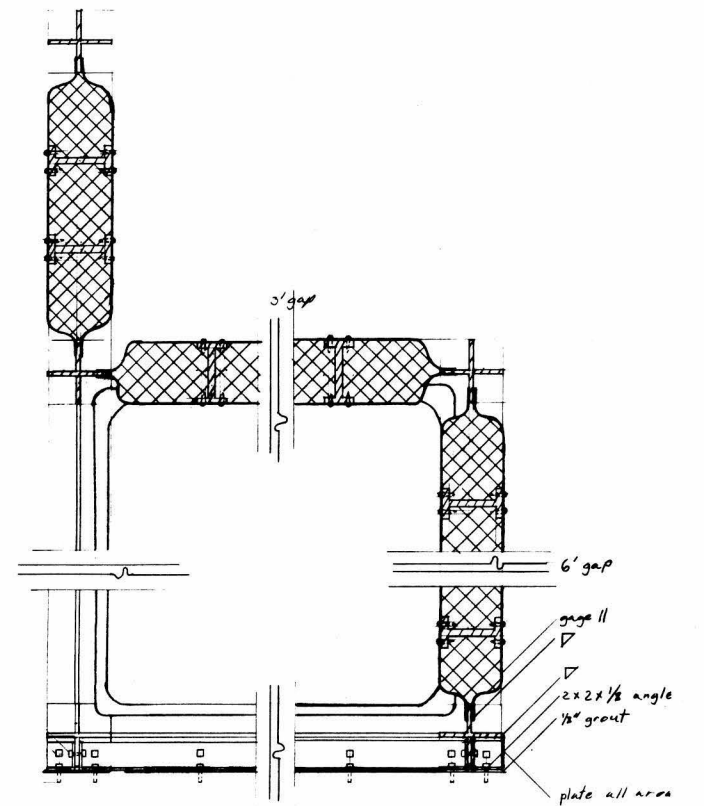
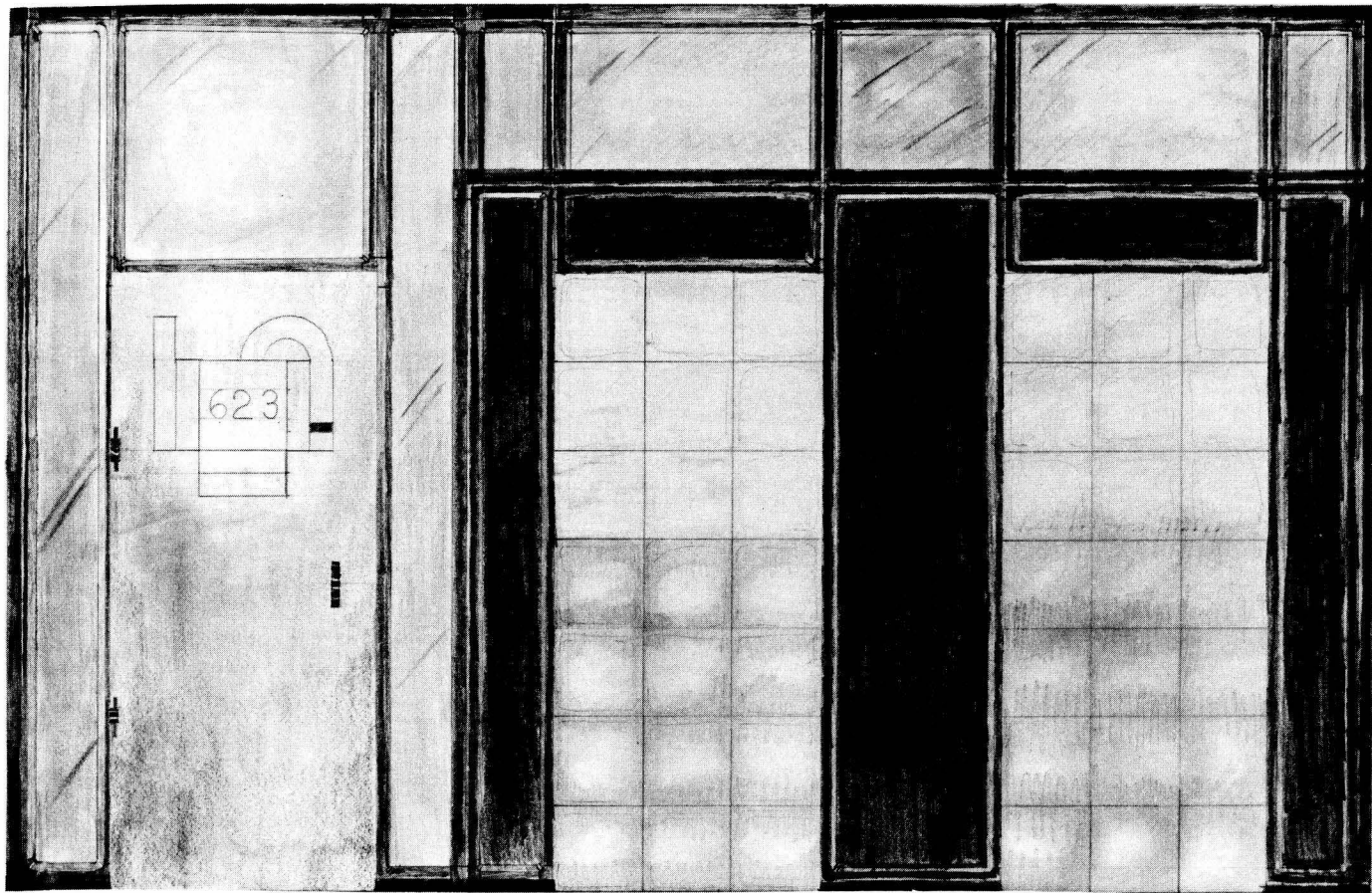
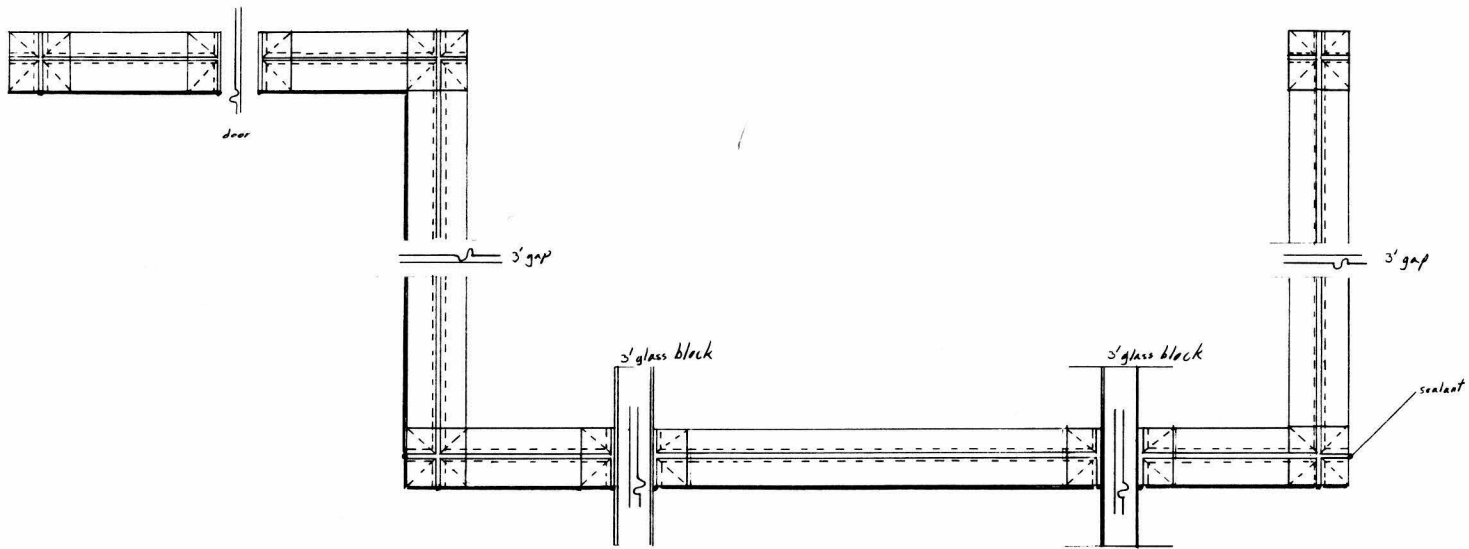
Section C-C



Section D-D



Section E-E



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