

A QUADRANGLE FOR DOWNTOWN BLACKSBURG

by

David Oliver Sunkel

Thesis submitted to the Graduate Faculty of
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

MASTER OF ARCHITECTURE

Donna Dunay

Dennis Kilper, Chairman

Wolfgang Schueller

May 1992

Blacksburg, Virginia

ABSTRACT

I remember with clarity the day Dennis Kilper and Donna Dunay shared with us their awareness of a site in downtown Blacksburg bound by College Avenue, Draper Road, Roanoke Street and Otey Street. The sight is a locus of interface between the university and the town. A place rich in contextual nuance, movement, rhythm, axis and history interact to create a powerful synergy waiting to be expressed.

When the time came to choose a subject for my master's thesis, I found the challenge I was looking for in the puzzle of what to do with such a special opportunity.

My design proposal (multi-use in nature) for the above site is a quadrangle made from the repetition of a square-based brick tower in concert with the development of an axis in the field of the quadrangle. The brick tower transforms itself in response to context, as does the pre-existing interior axis.

To my father,

My deepest gratitude for the many years of unwavering support
that gave life to the dream of a conversation
we had long ago.

To my mother,

My deepest gratitude for helping make this book a reality,
and for your ever constant encouragement
to finish what I had begun.

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INTRODUCTION

I love the town of Blacksburg. It has a feeling I enjoy. It has it's own charm and character.

The thesis site is truly a special place. The College Avenue edge is a people-filled, block-long part of a strong visual corridor that extends from the drill field of Virginia Tech to the heart of downtown Blacksburg. The Draper Road edge is the hub of interface between the university and the town. The Roanoke Street edge, being just a block away from residential neighborhoods, offers a peaceful contrast with the quiet beauty of it's greenery and the quaintness of it's residential scale. The Otey Street edge peers deeply into the university campus, and is adjacent to the architecturally distinct Donaldson Brown Building and the Continuing Eduaction Center. Within the quadrangular site is a beautiful walk laden with trees, parallel to College Avenue, that joins Otey Street to Draper Road.

This part of town is host to an annual town sponsered arts and crafts event and an annual university sponsered international fair. Artisans and their creations fill the streets; aromas of culinary delights from all over the world, music, laughter and conversation fill the air.

The university's needs of additional faculty office space, and housing for both long term visiting faculty and married students blend beautifully with the multi-dimensional nature of the project sight.

However, the downtown suffers somewhat economically, due in part to the construction of several nearby shopping centers. Infrastructurally, a severe lack in the town's present capacity to accomodate an influx of daily visitors and to offer a larger variety of goods and services underly the economic hesitation of this area. Blacksburg also has it's share of visually unattractive areas, of which there are several in my hypothetical project site.

Indeed, something is waiting to happen here.

To note: The parking structure is a five level one-way system which accommodates approximately 700 automobiles. Atop the parking structure is a great, exposed rectangle which rises one and one-half levels above grade. While it is accessible from the second level of the College Avenue tower-wall and the sidewalk stairs within the Otey Street tower-wall, the specifics of the way in which this rectangle is defined have not been formulated.

As I was making the rendered ink-on-mylar drawings (which are not forgiving to corrections), new ideas continued to surface. I chose to allow the design process to continue, thereby foregoing the creation of a perfectly coordinated group of drawings.

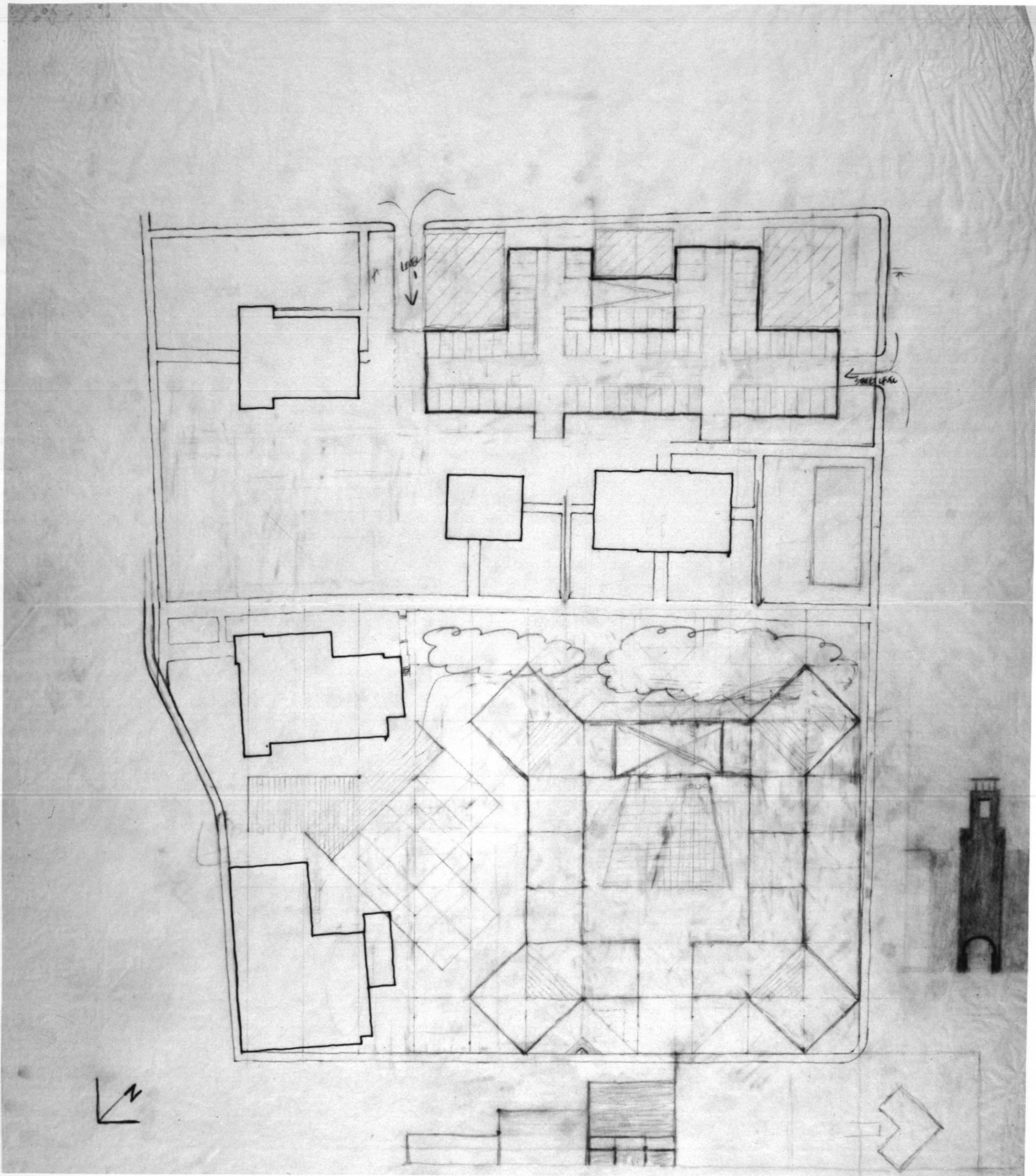
"... Touch: meaning not the touch of the painter, not the touch of the sculptor,
not the mechanical touch of the fingers only,
nor quite their negligent contact with things,
but the exquisite touch of the sensibilities,
the warm physical touch of the body,
the touch of a sound head and responsive heart,
the touch of the native one,
the poet, out of doors,
in spontaneous communion with Nature."

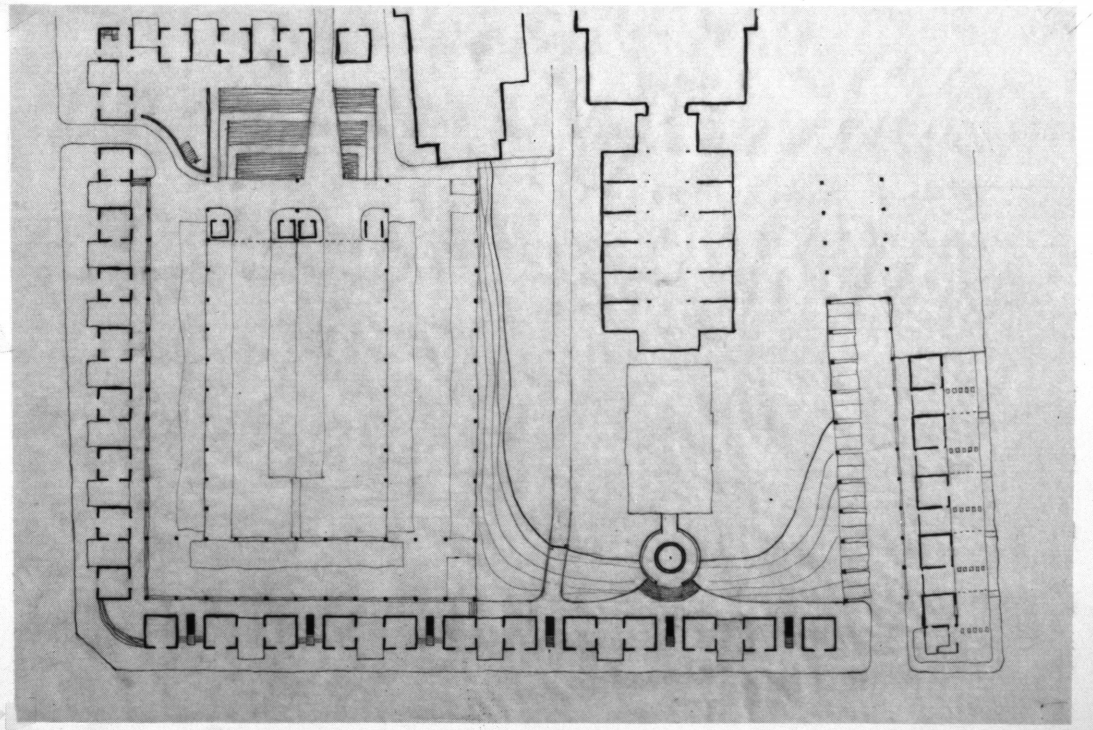
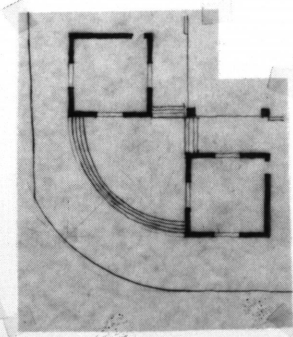
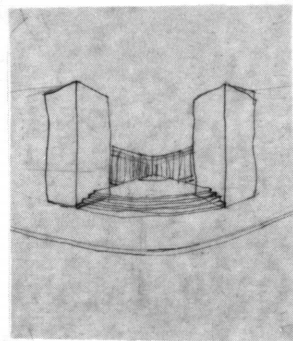
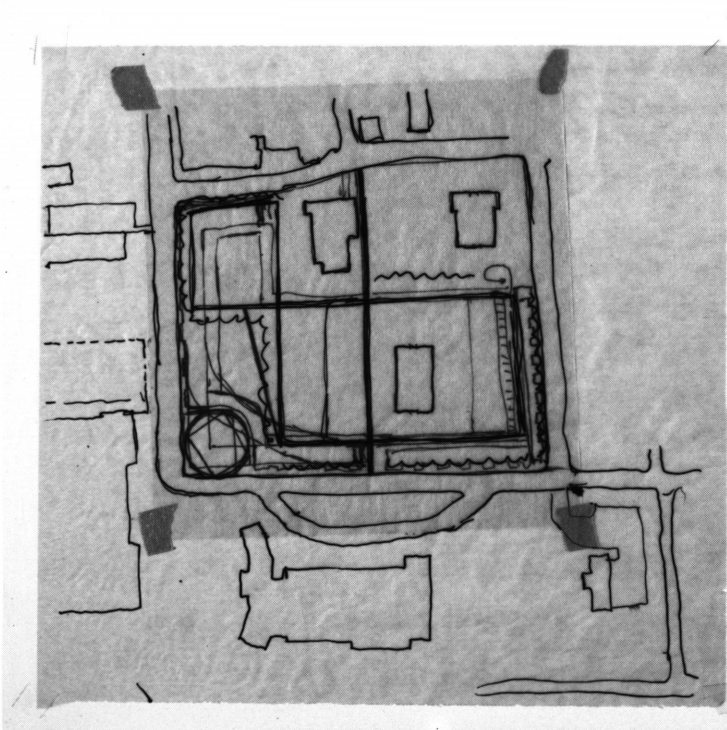
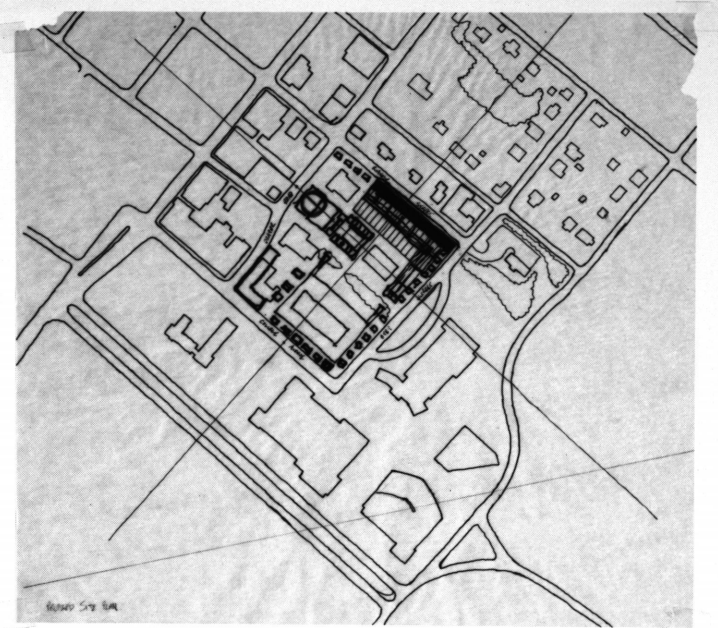
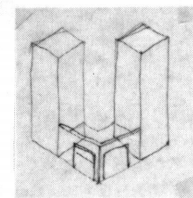
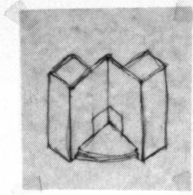
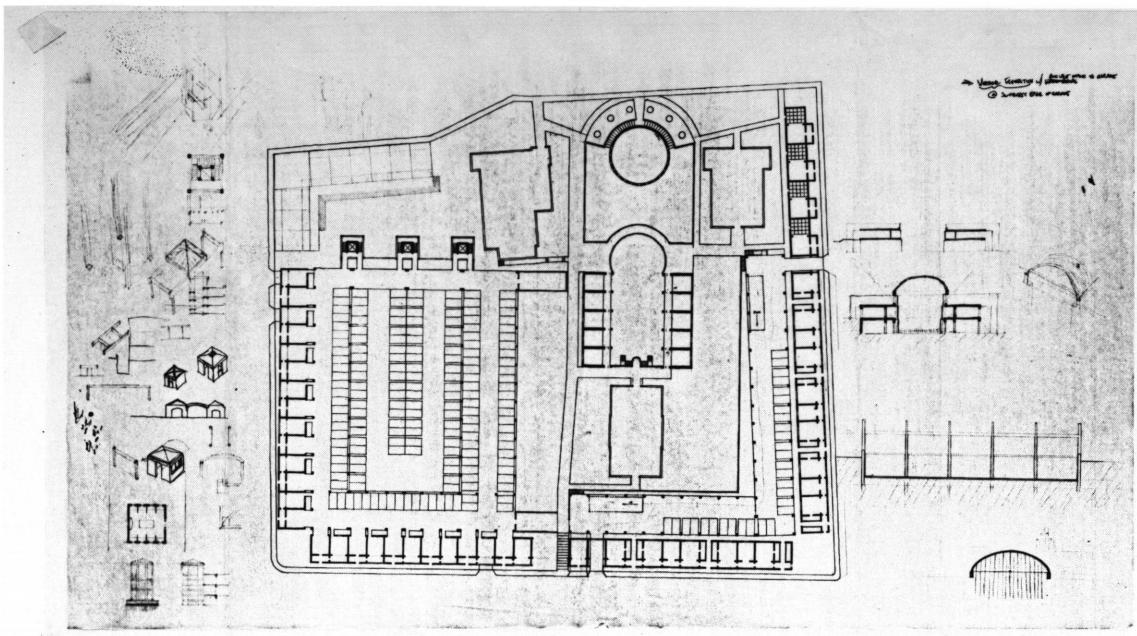
Louis H. Sullivan

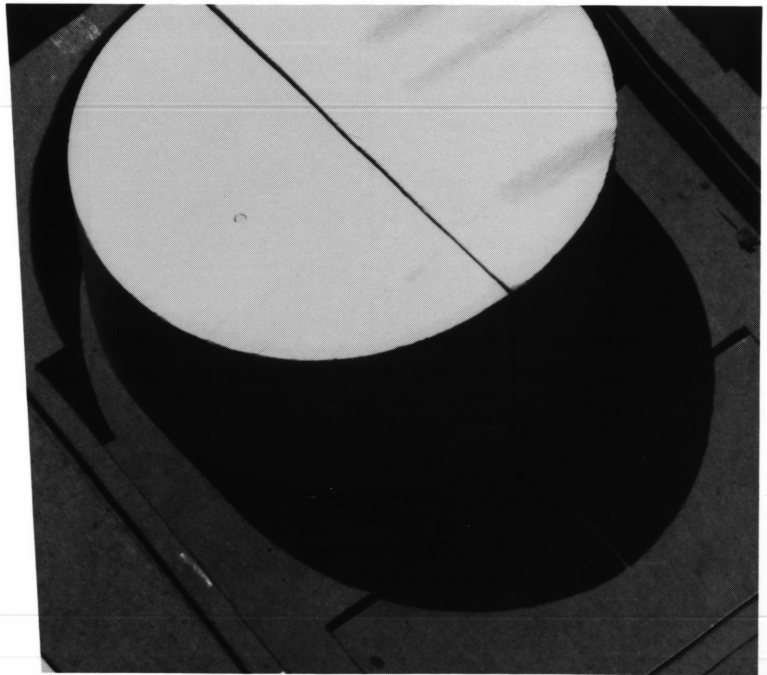
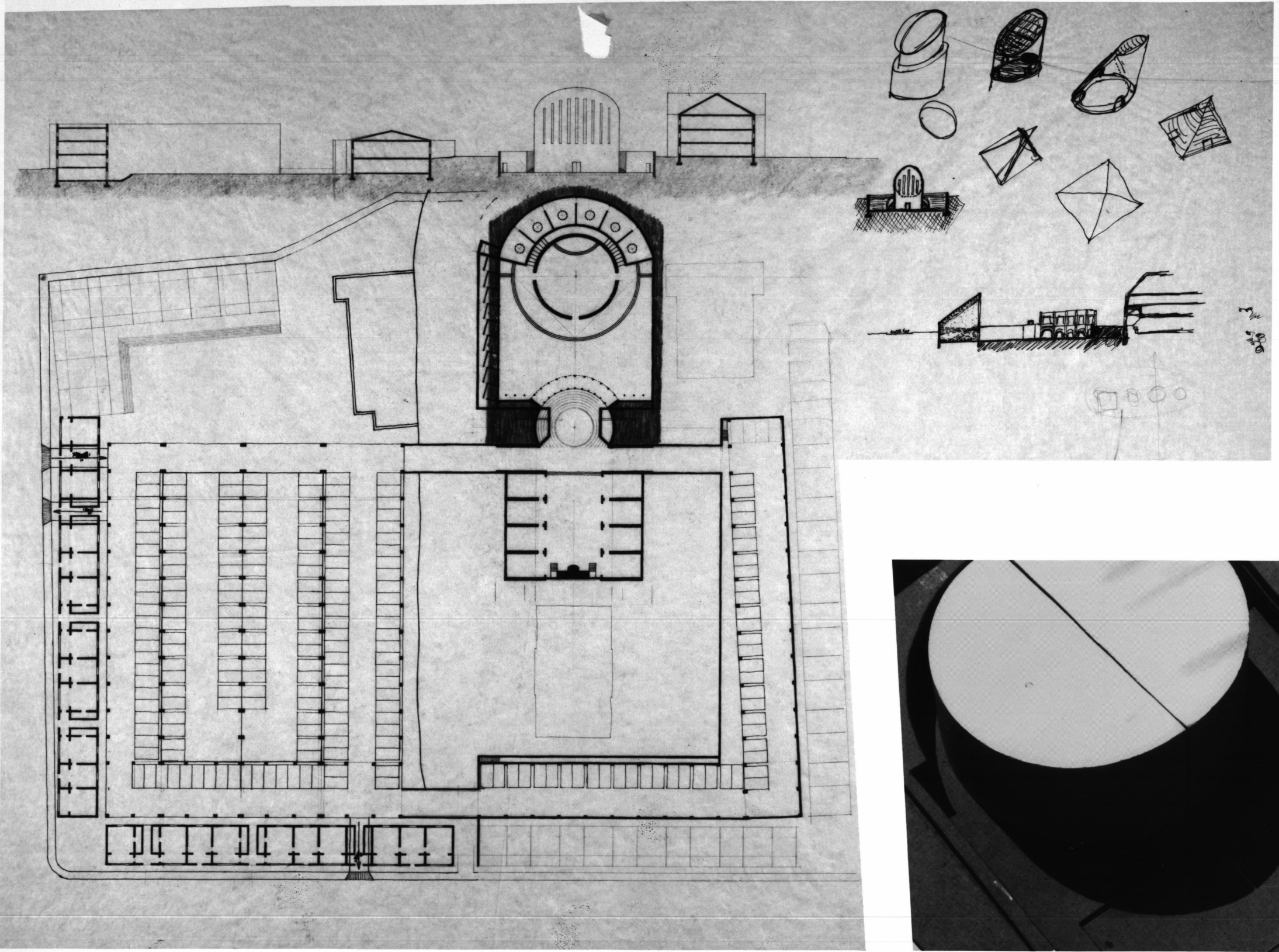


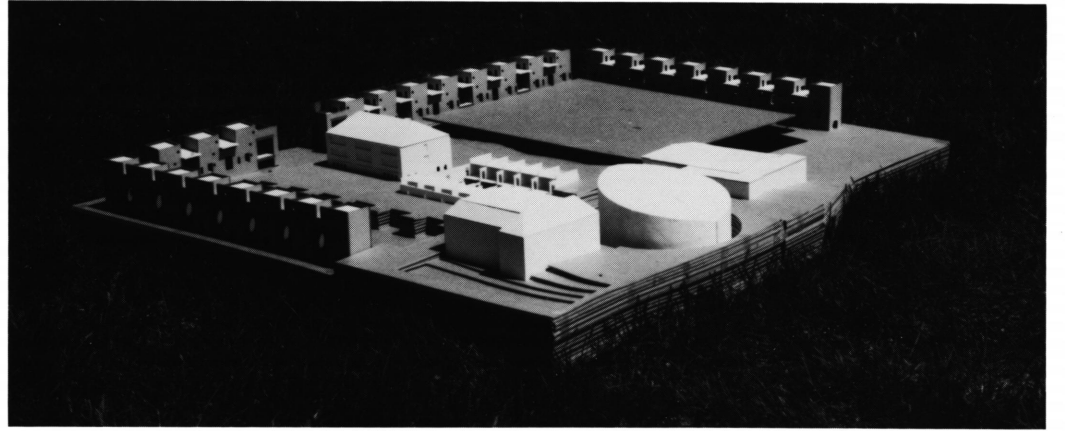
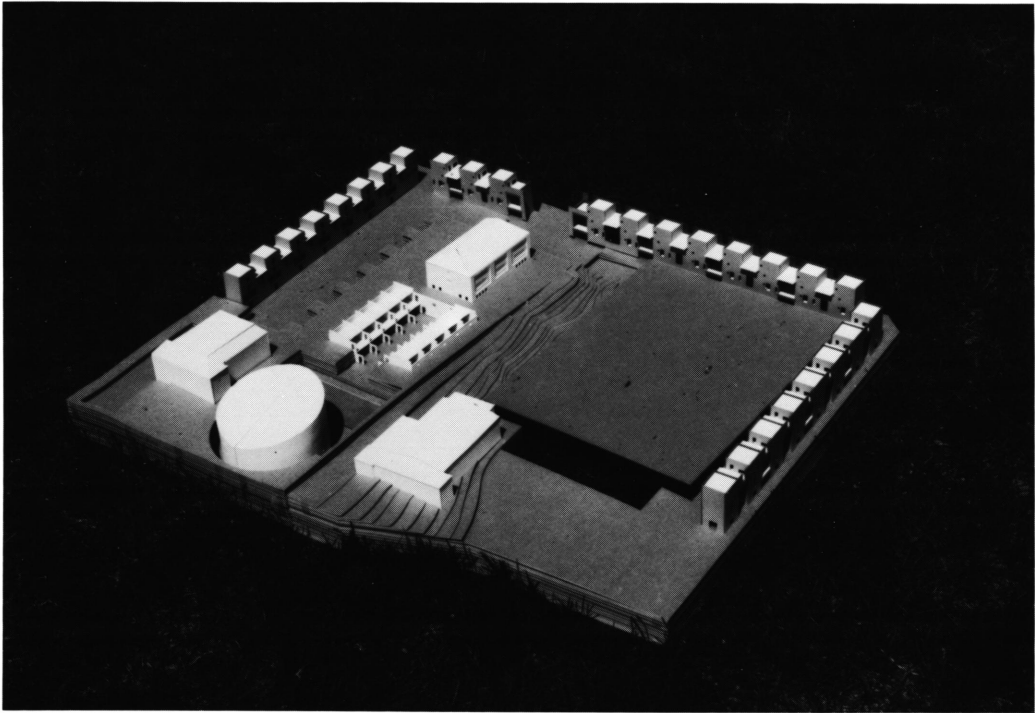


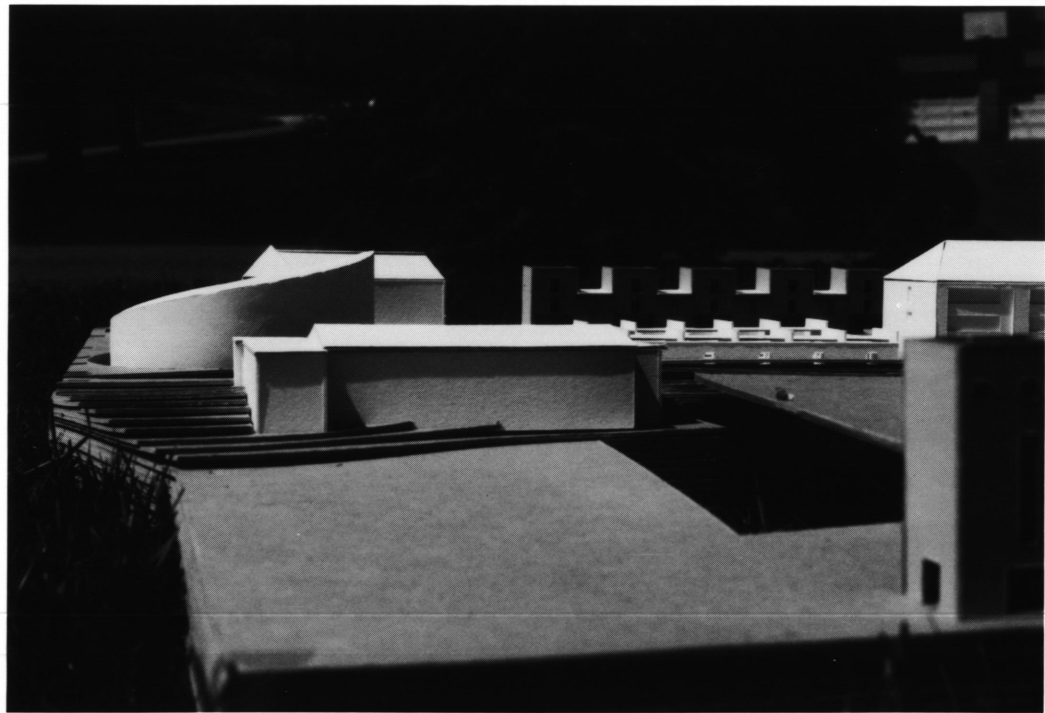


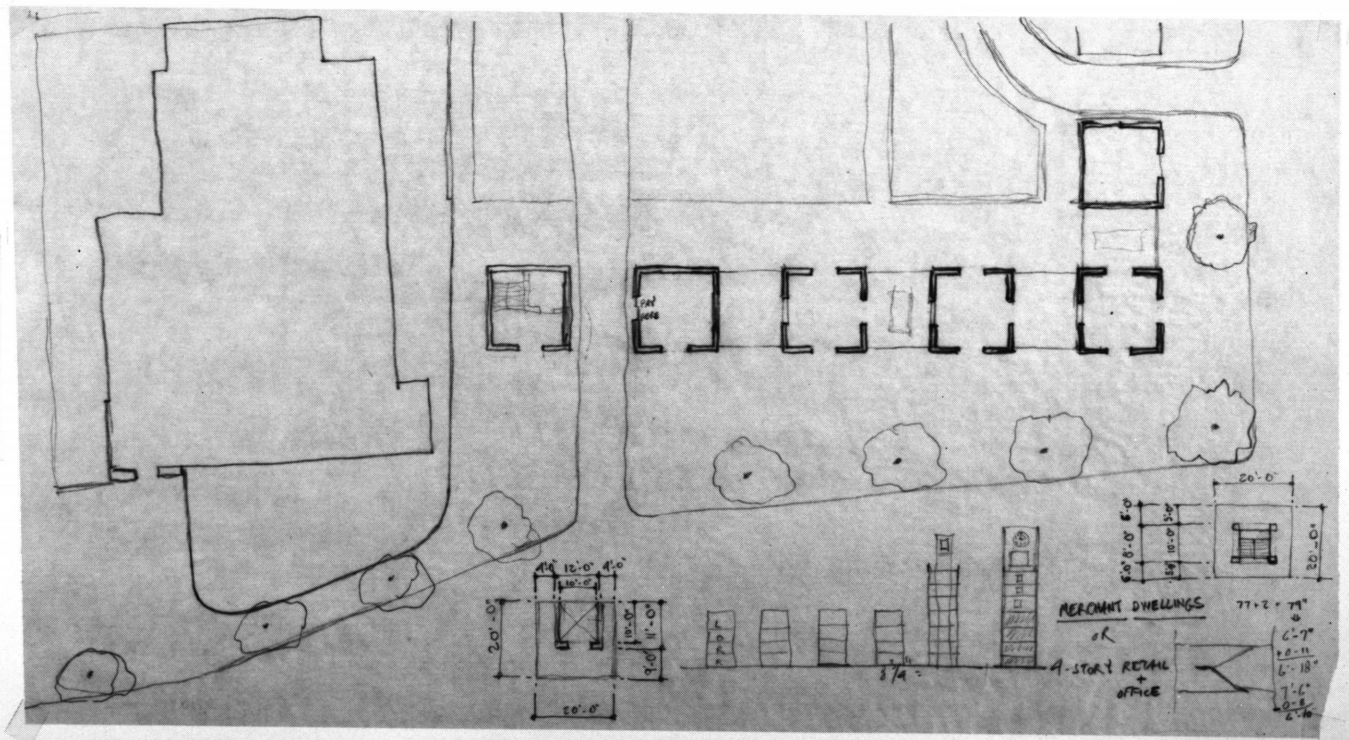
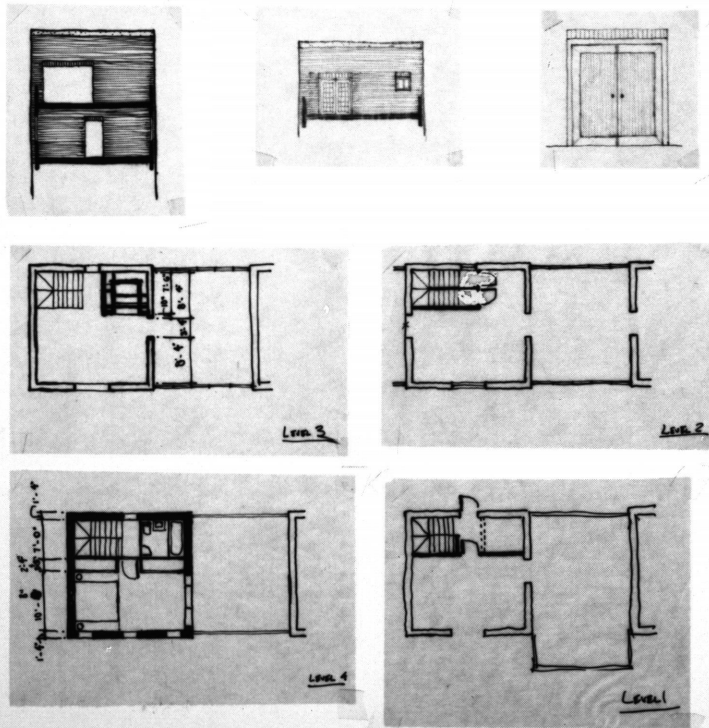
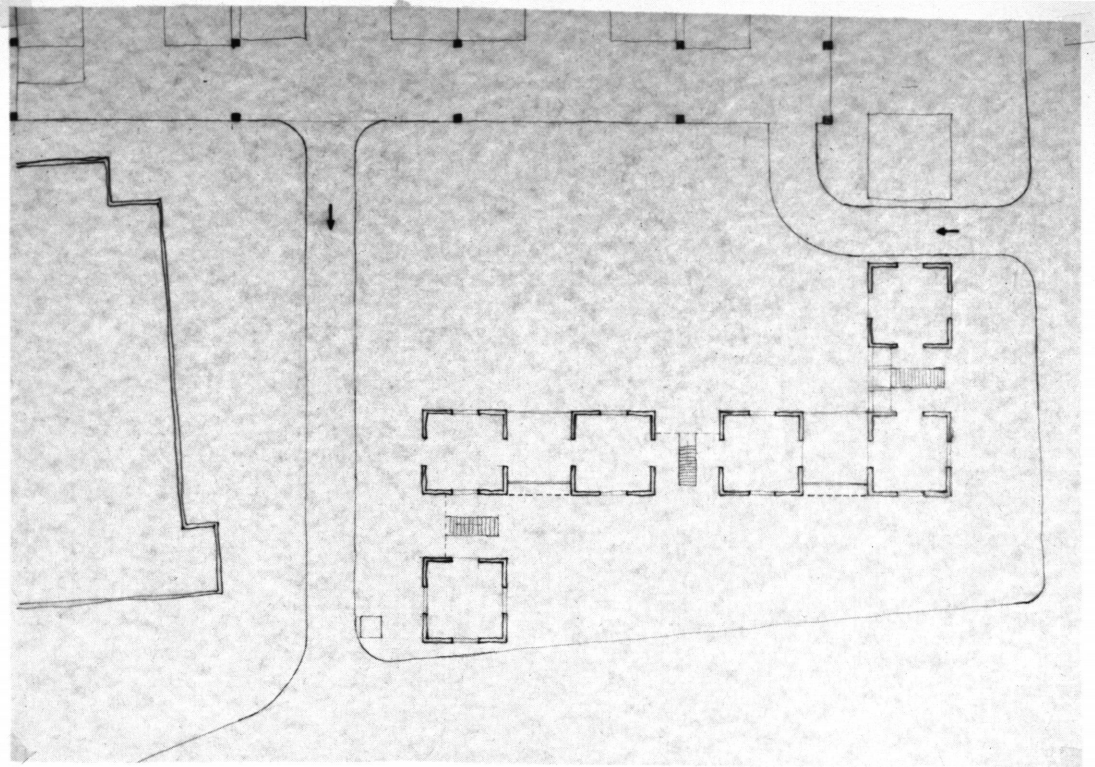
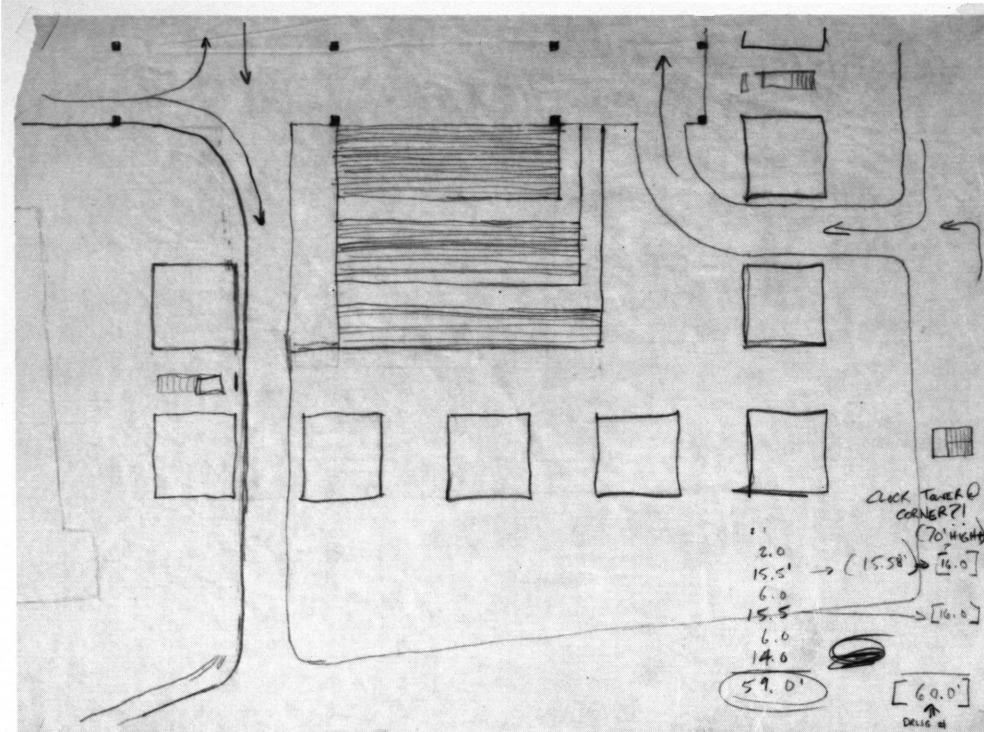


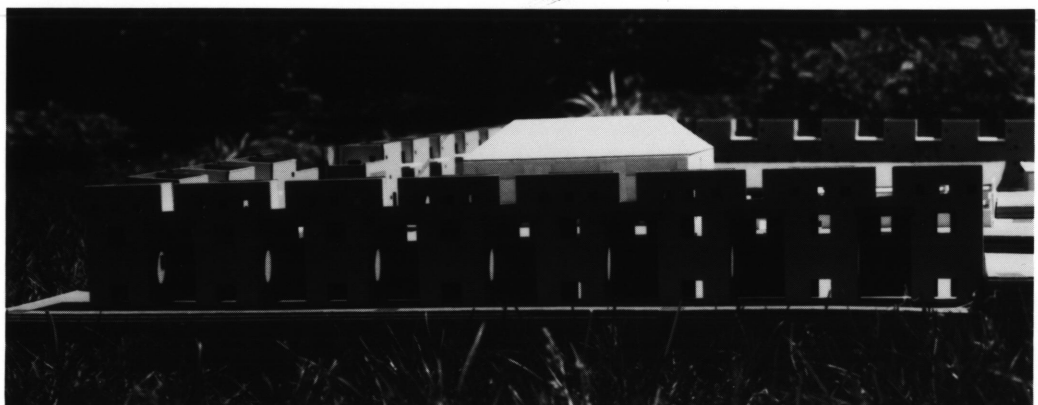
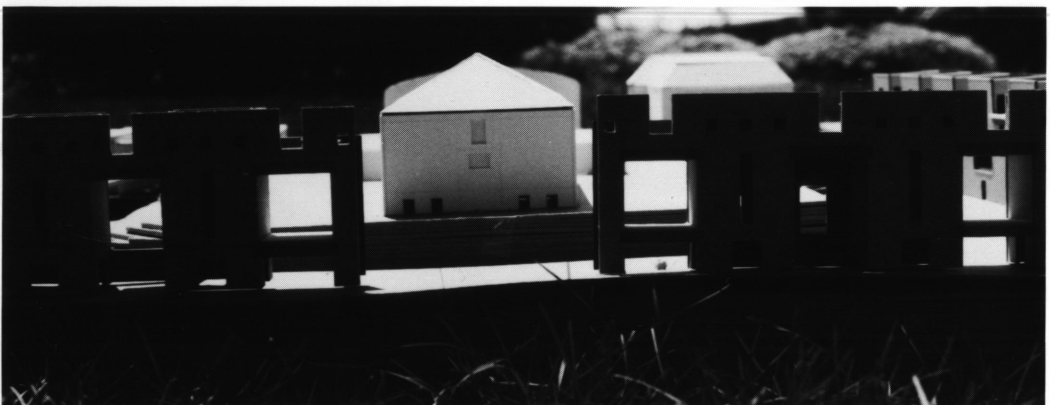
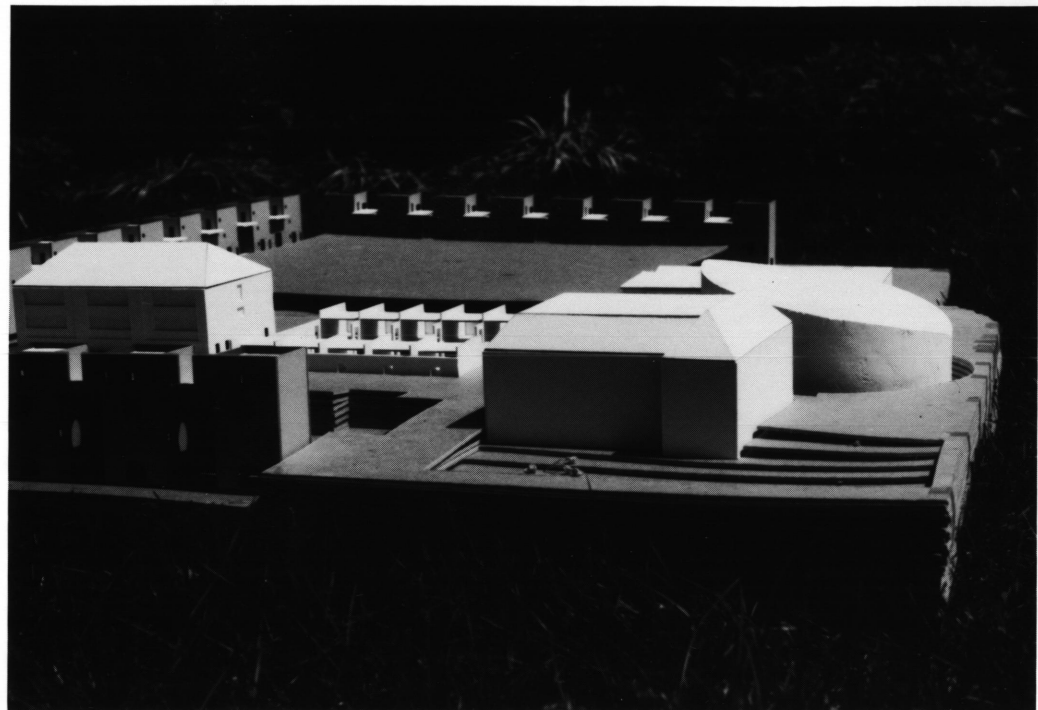
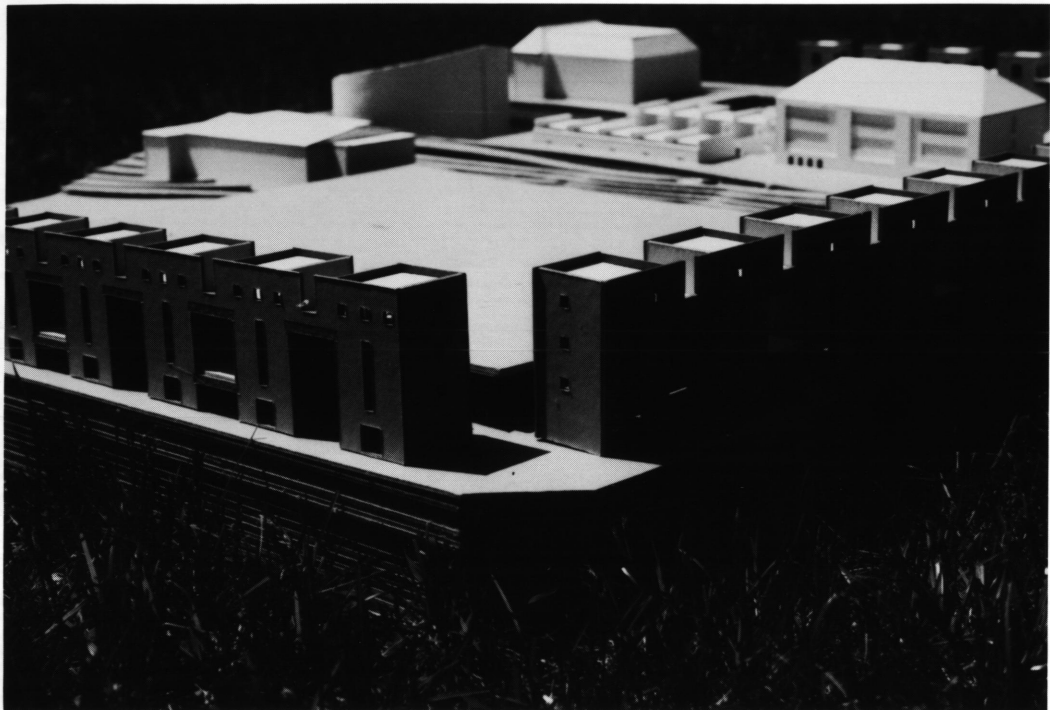


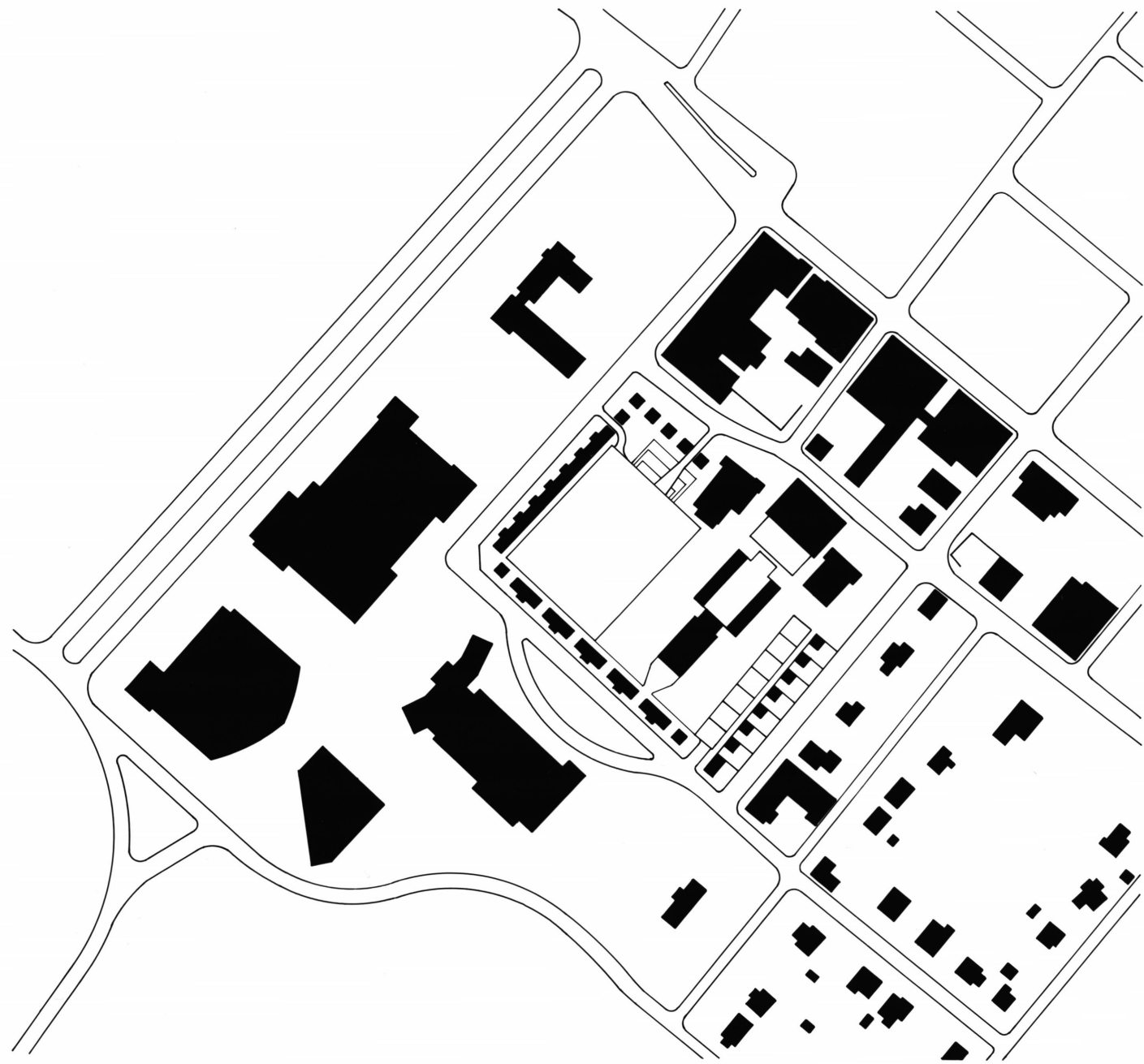


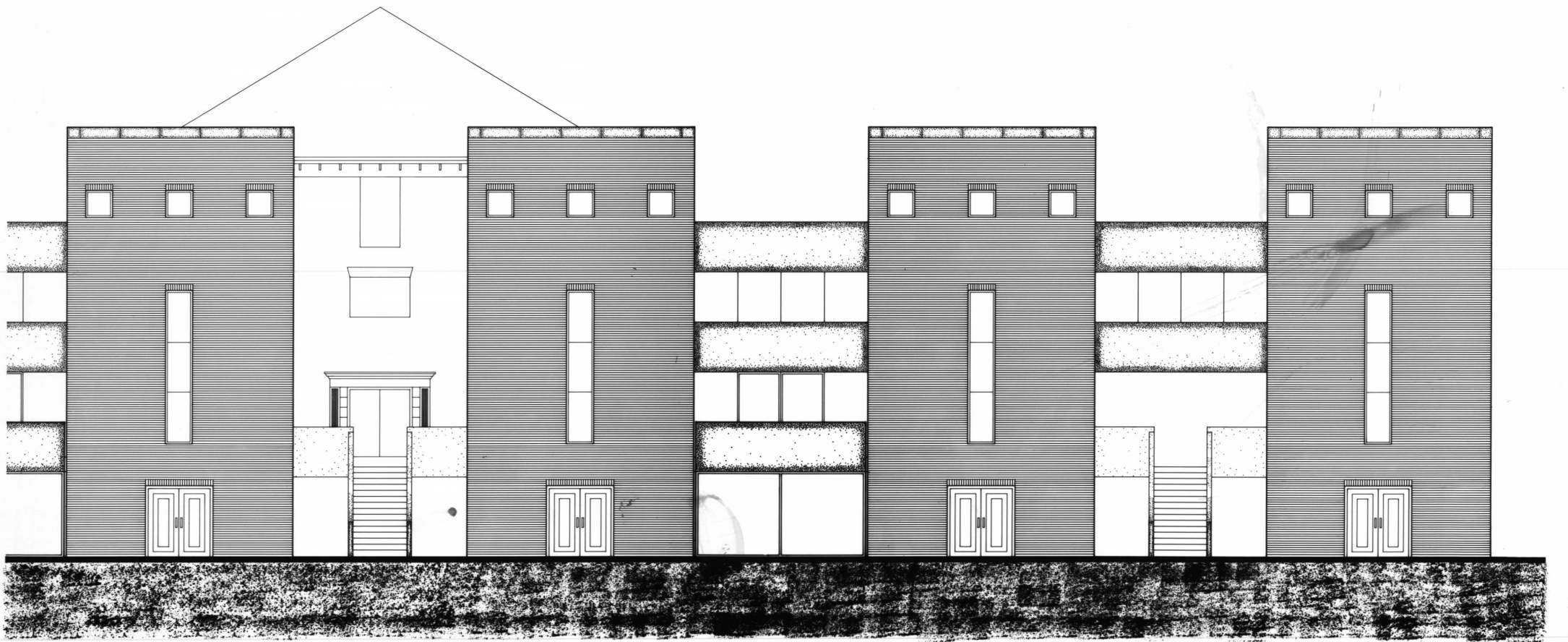












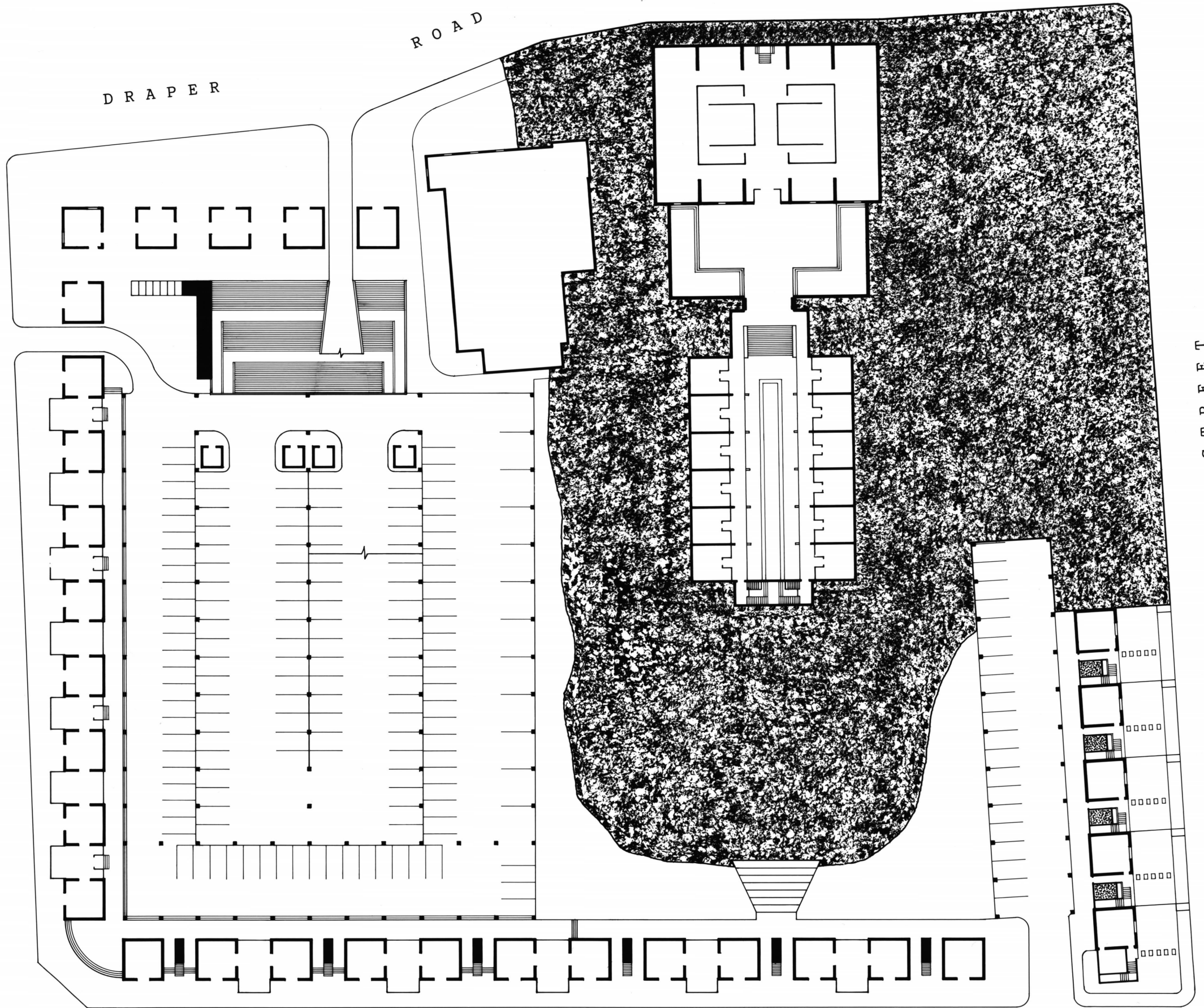
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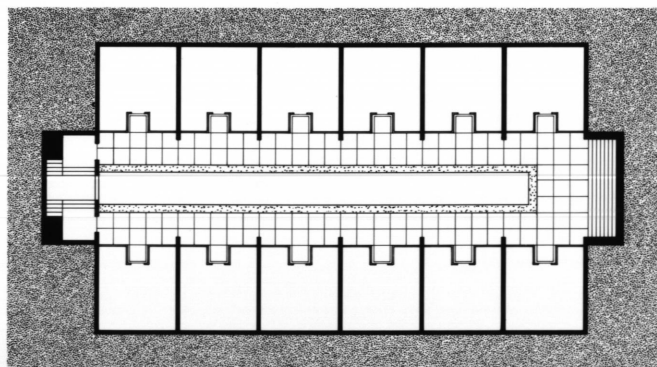
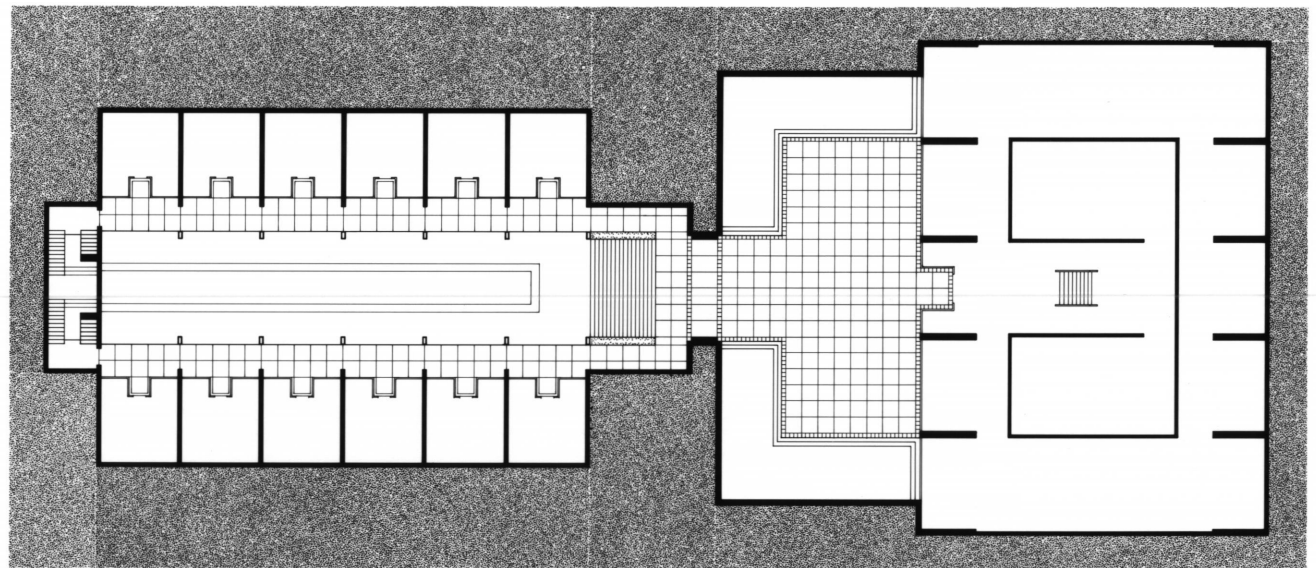
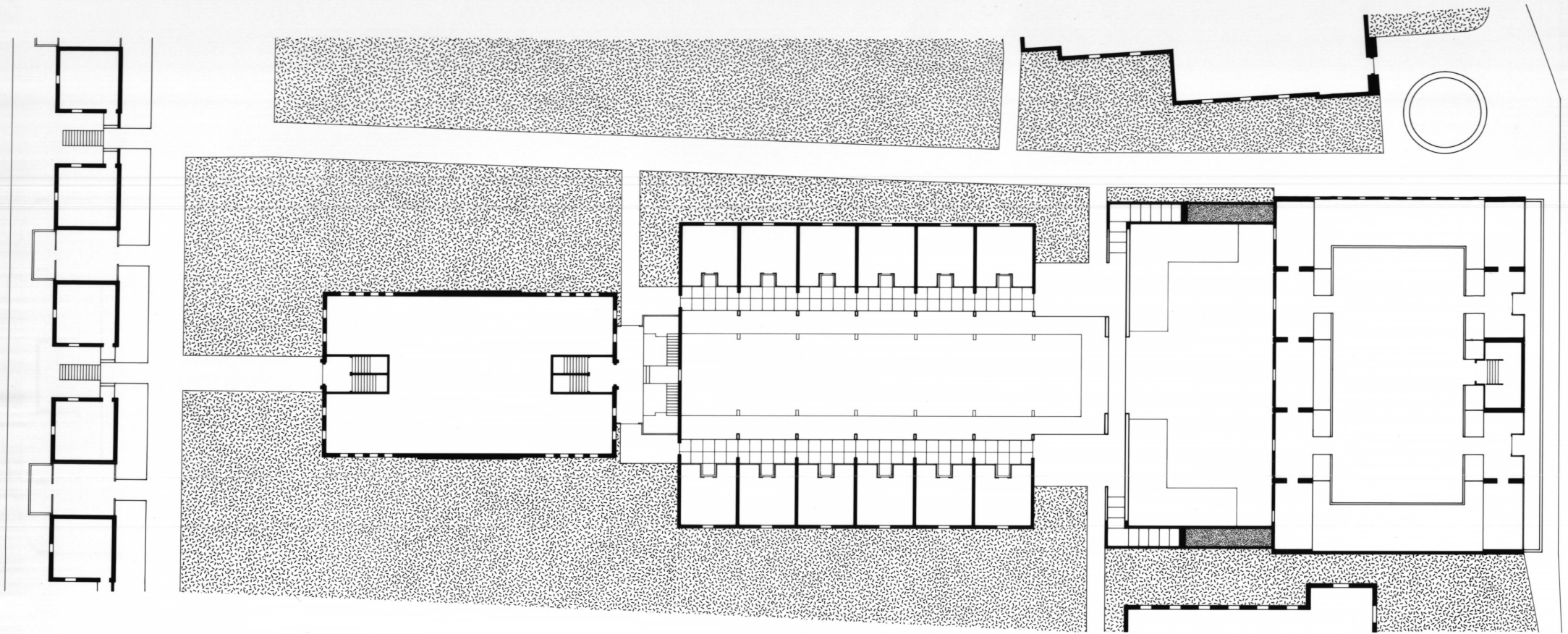
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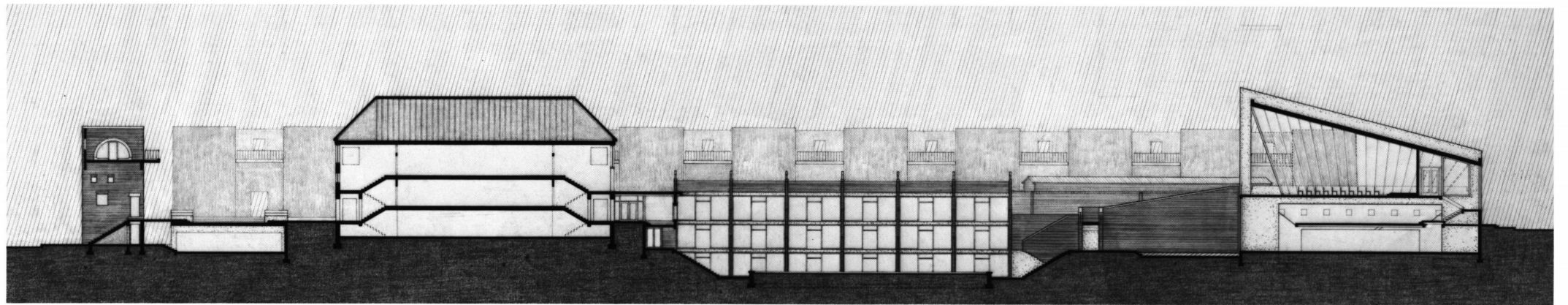
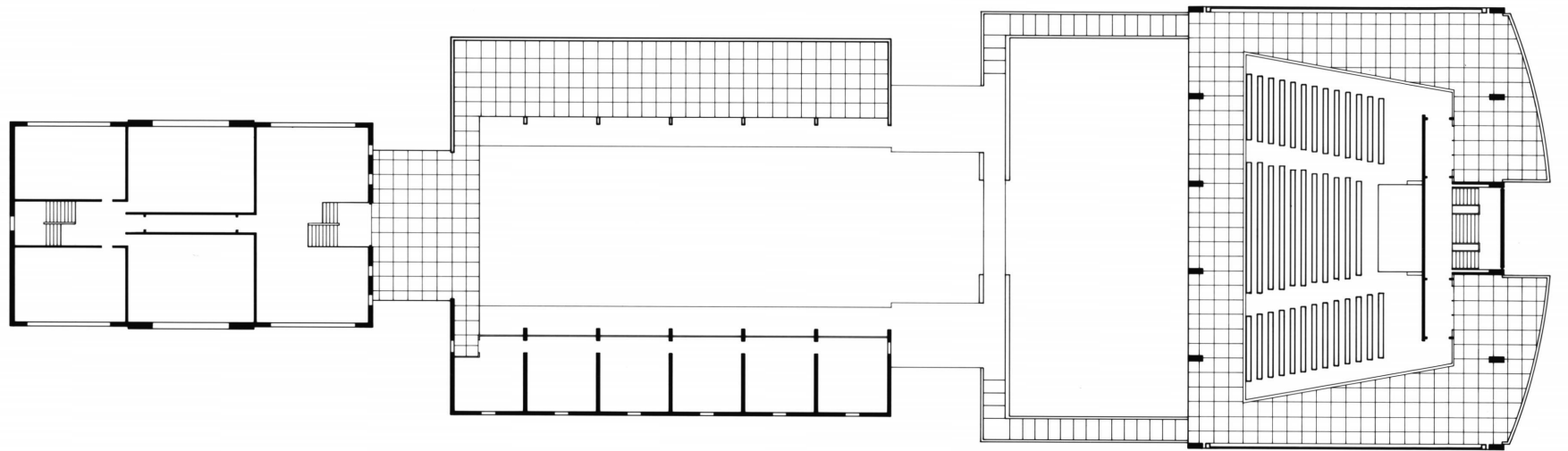
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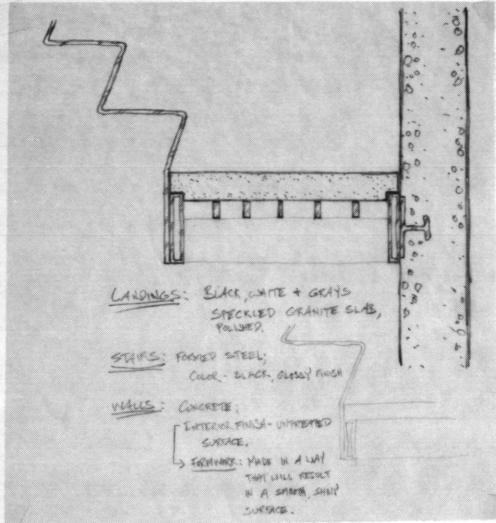
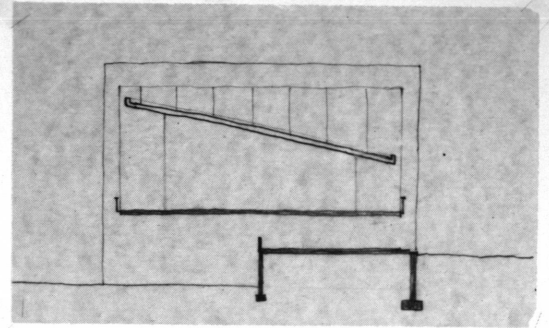
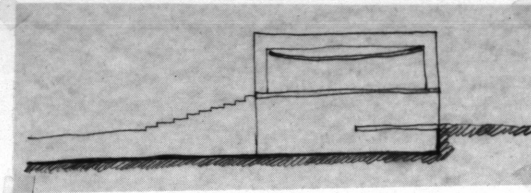
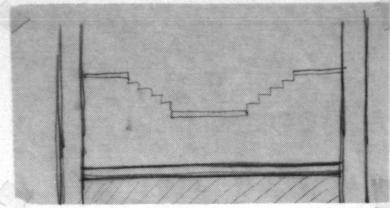
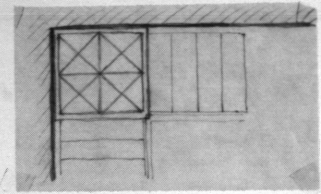
R O A N O K E
S T R E E T

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S T R E E T









$$\frac{2.12}{18} = 0.117$$

$$\frac{1.7}{18} = 0.094$$

$$\frac{2.12}{18} + \frac{1.7}{18} = 0.211$$

$$\frac{17.5}{46} = 0.378$$

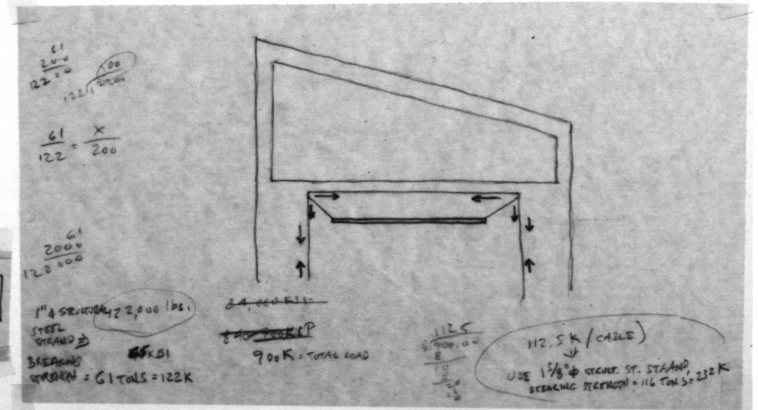
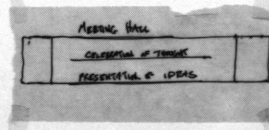
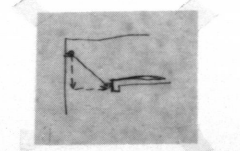
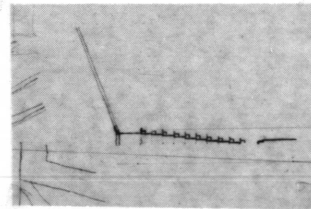
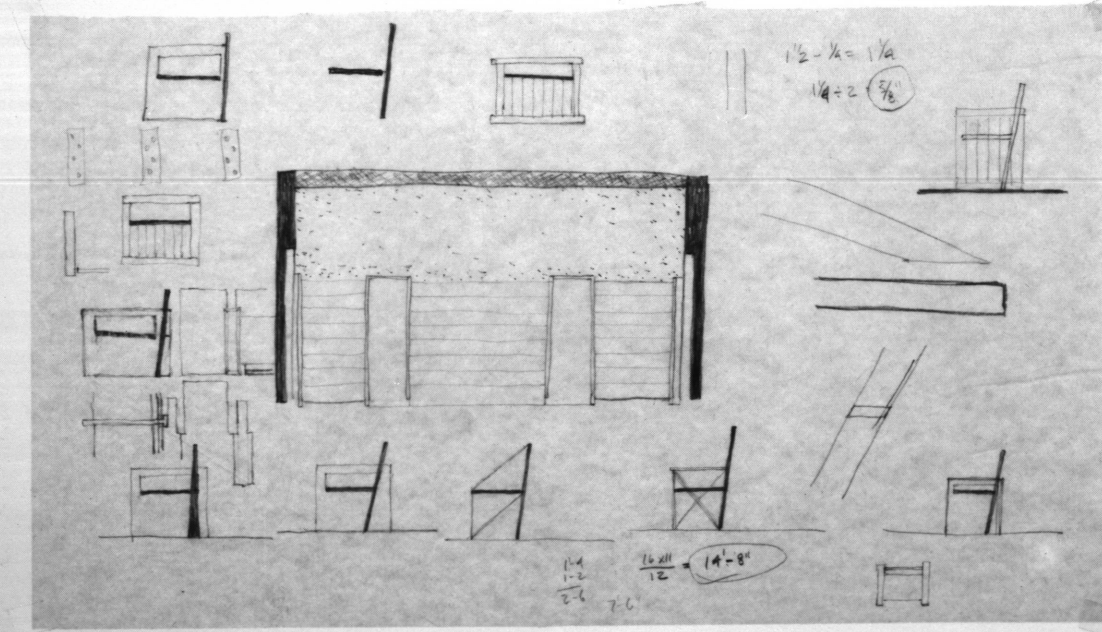
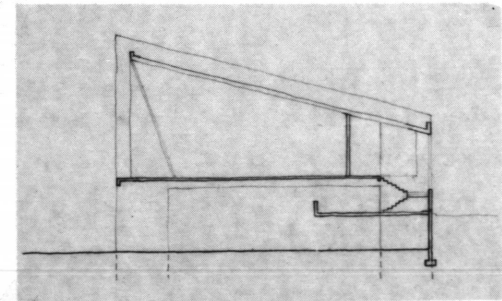
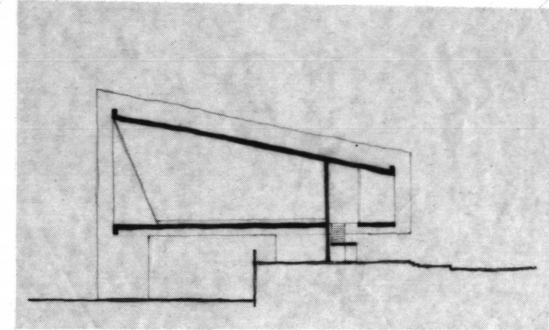
$$\frac{2.12}{18} + \frac{1.7}{18} + \frac{17.5}{46} = 0.589$$

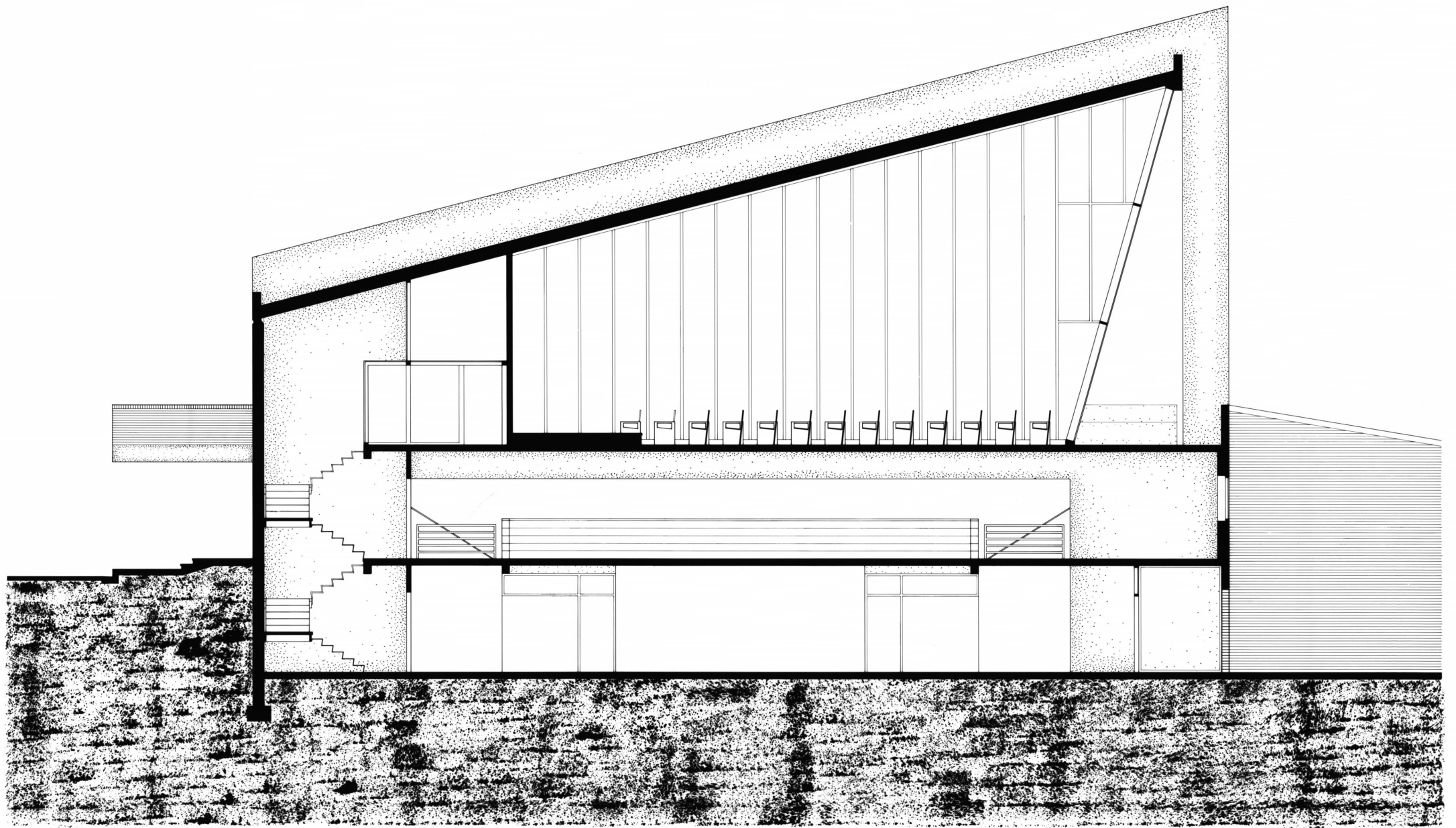
$$\frac{187.7k}{187.7k}$$

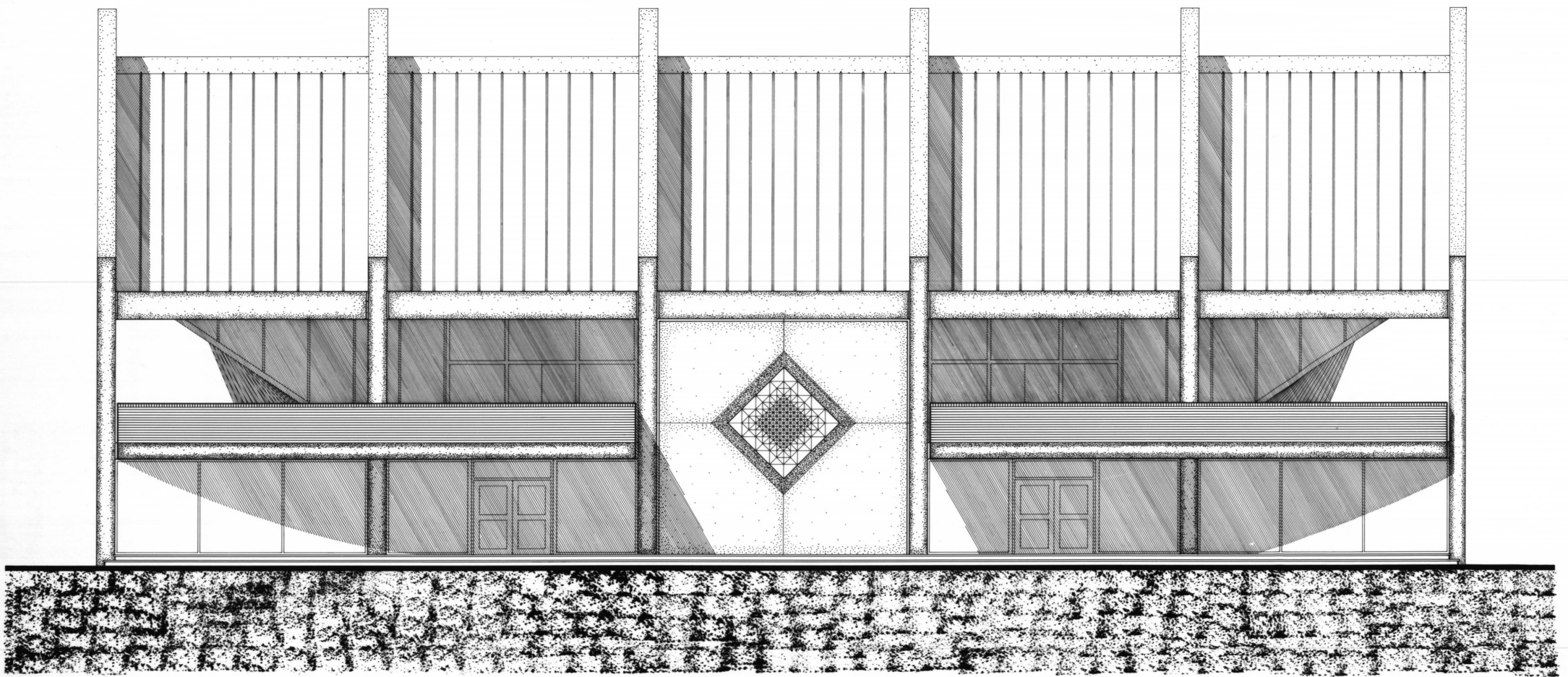
PL 4x8x1/2 x 29 (0.150)
 $M_{max} = 97.5k - DL_{max}$
 $M_{max} = 17.5k = 2.12k/ft$
 LL: 100psf @ LL, 2A (AL) 2.4k/ft
 $M_{LL} = 0.10(100) \cdot 2.4k/ft = 2.4k/ft$
 WOODEN (FORMS)
 $W_{max} = 1.4(2.12) + 1.7(2.4) = 2.97 + 4.08 = 7.05k/ft$
 $M_{max} = 7.05 \cdot 42^2 / 8 = 1543.52k \cdot ft^2/k$
 $M_{max} = 1543.52k \cdot ft^2/k$

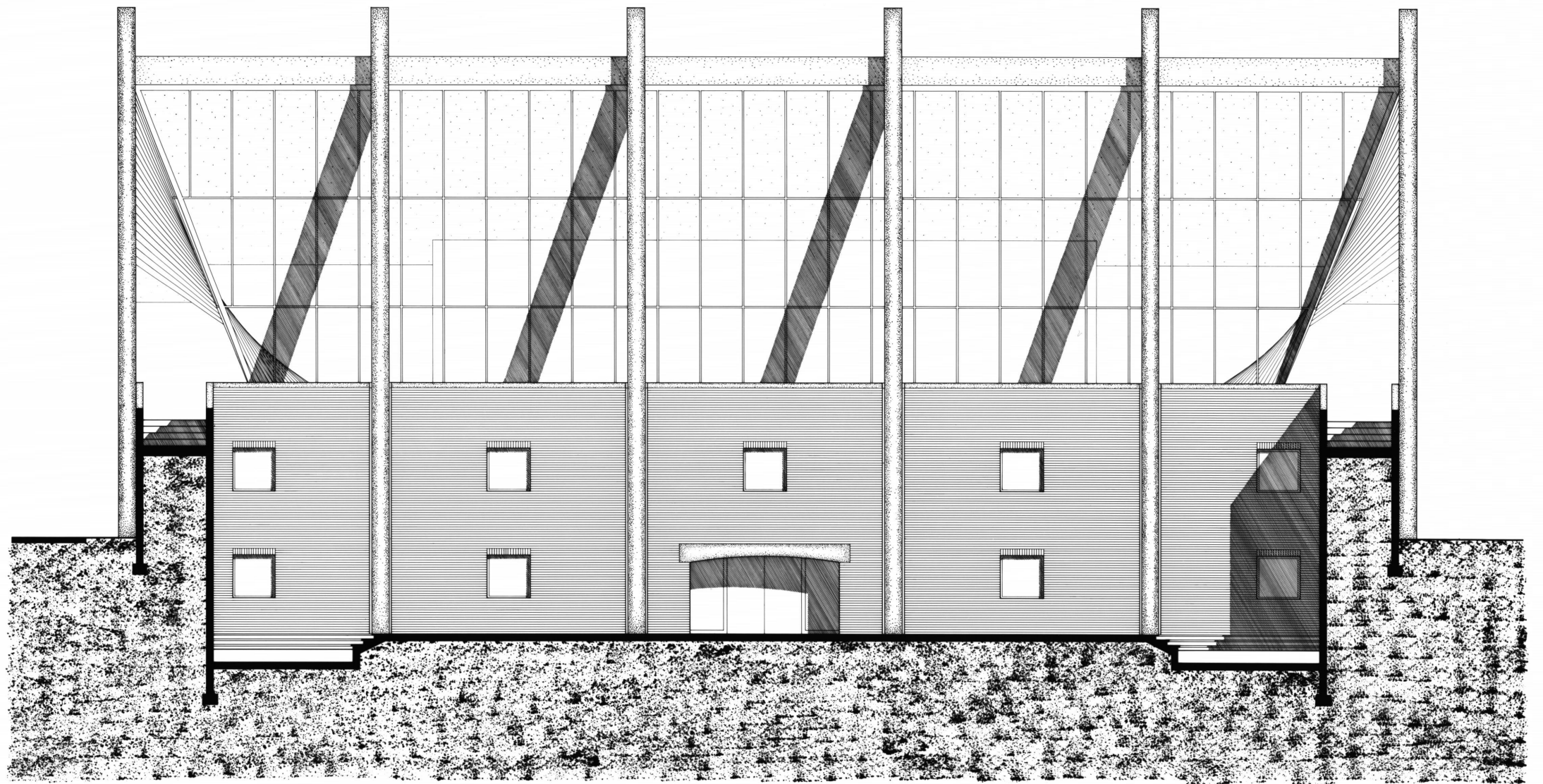
$M = R/L (\frac{1}{2})$
 $M = \frac{W \cdot L}{2} \cdot \frac{L}{4}$
 $M = \frac{W \cdot L^2}{8}$

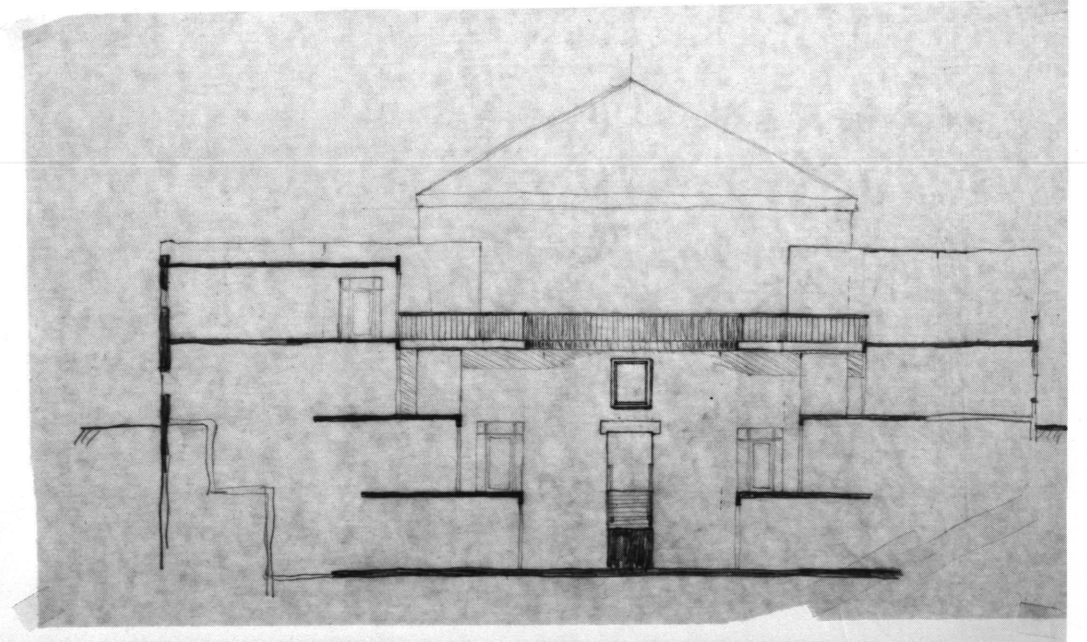
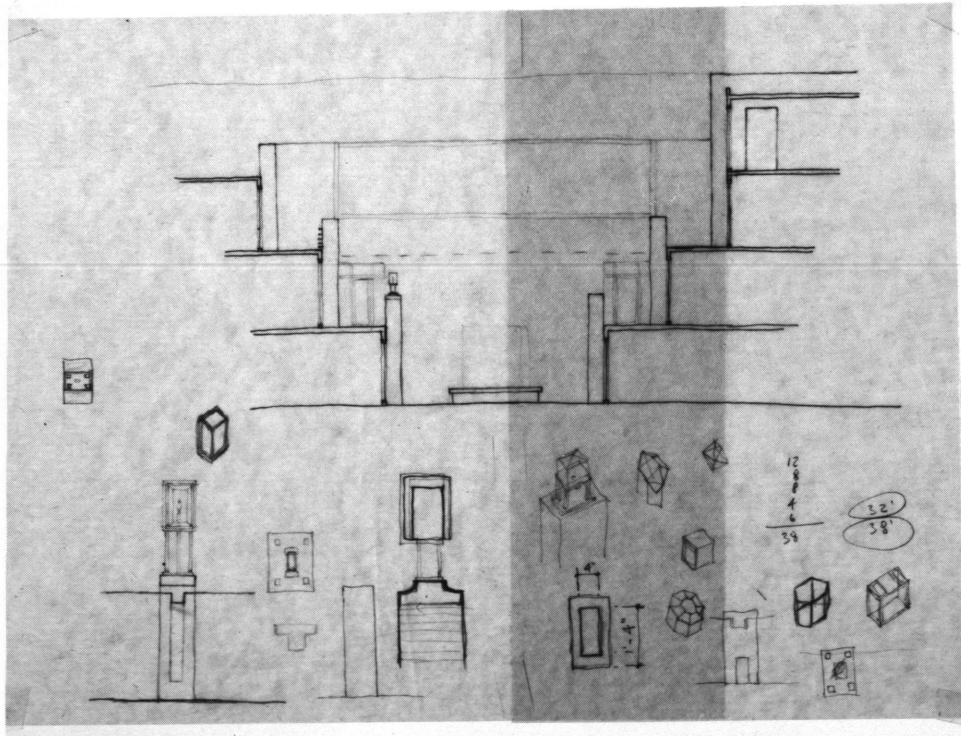
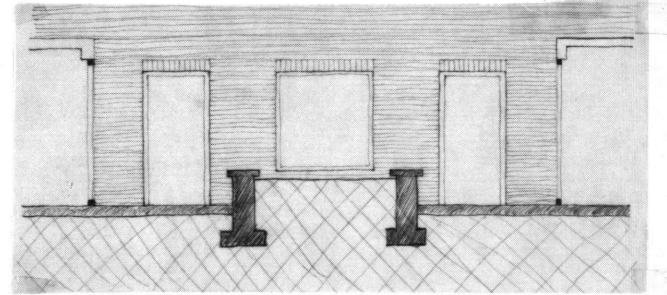
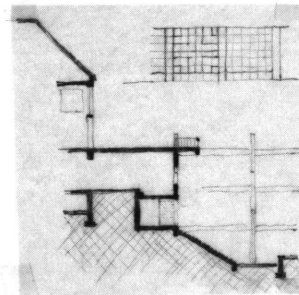
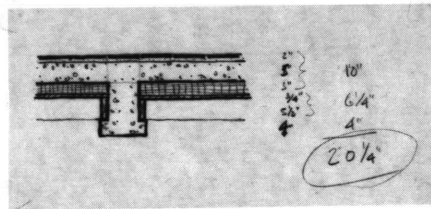
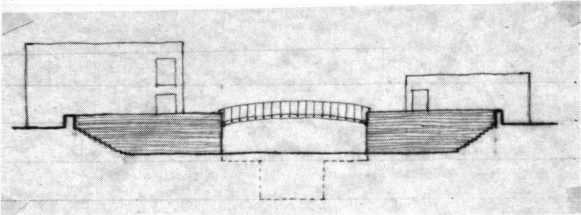
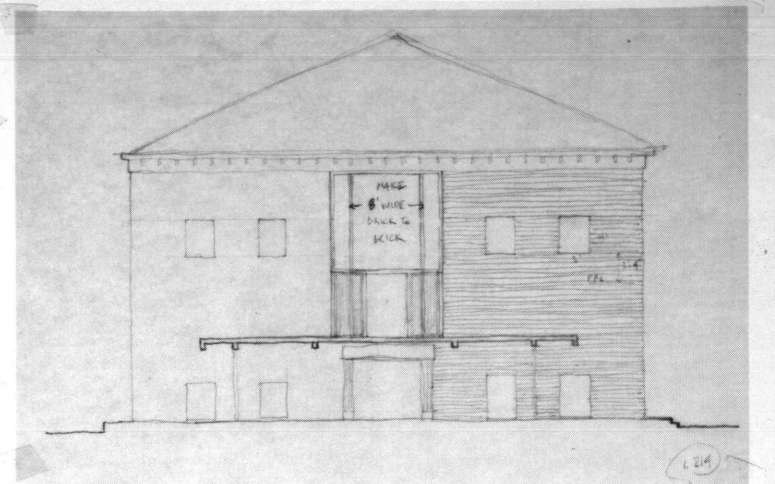
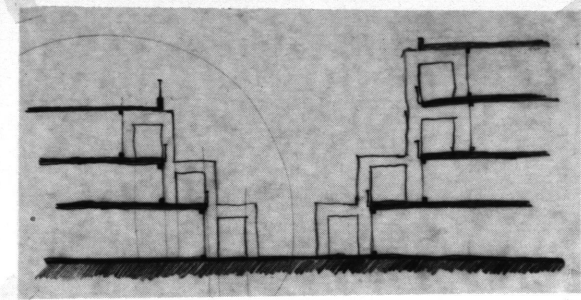
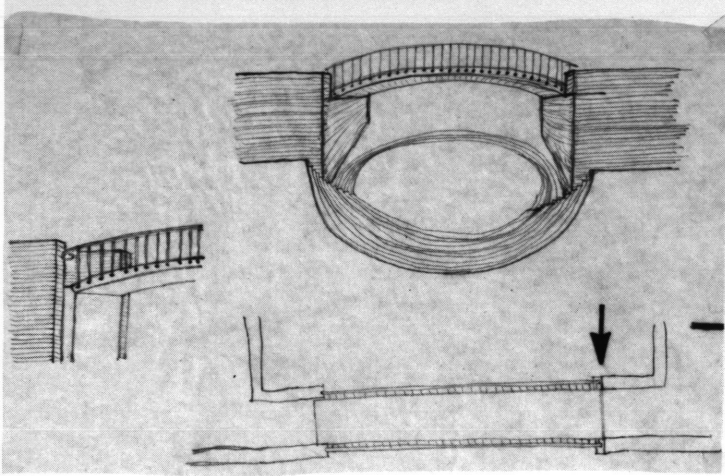
$M = A_1 \cdot Z$
 $1543 = A_1(60)(12)$
 $2.57" = A_1$
 $d \approx 11"$
 TOTAL BEAM DEPTH REQUIRED = 14"

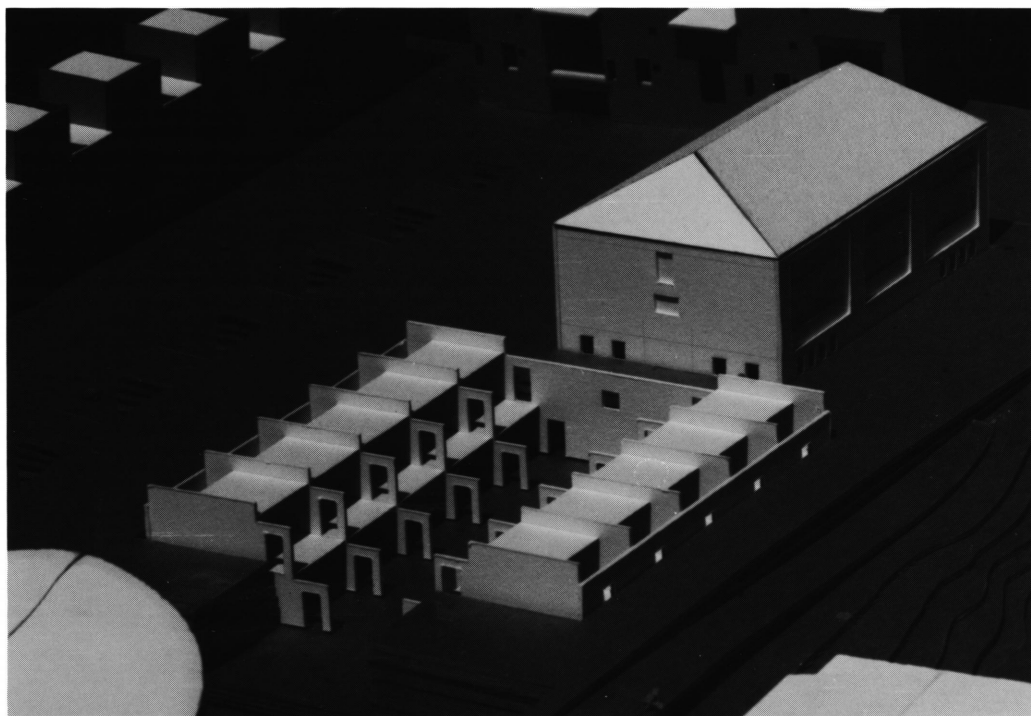
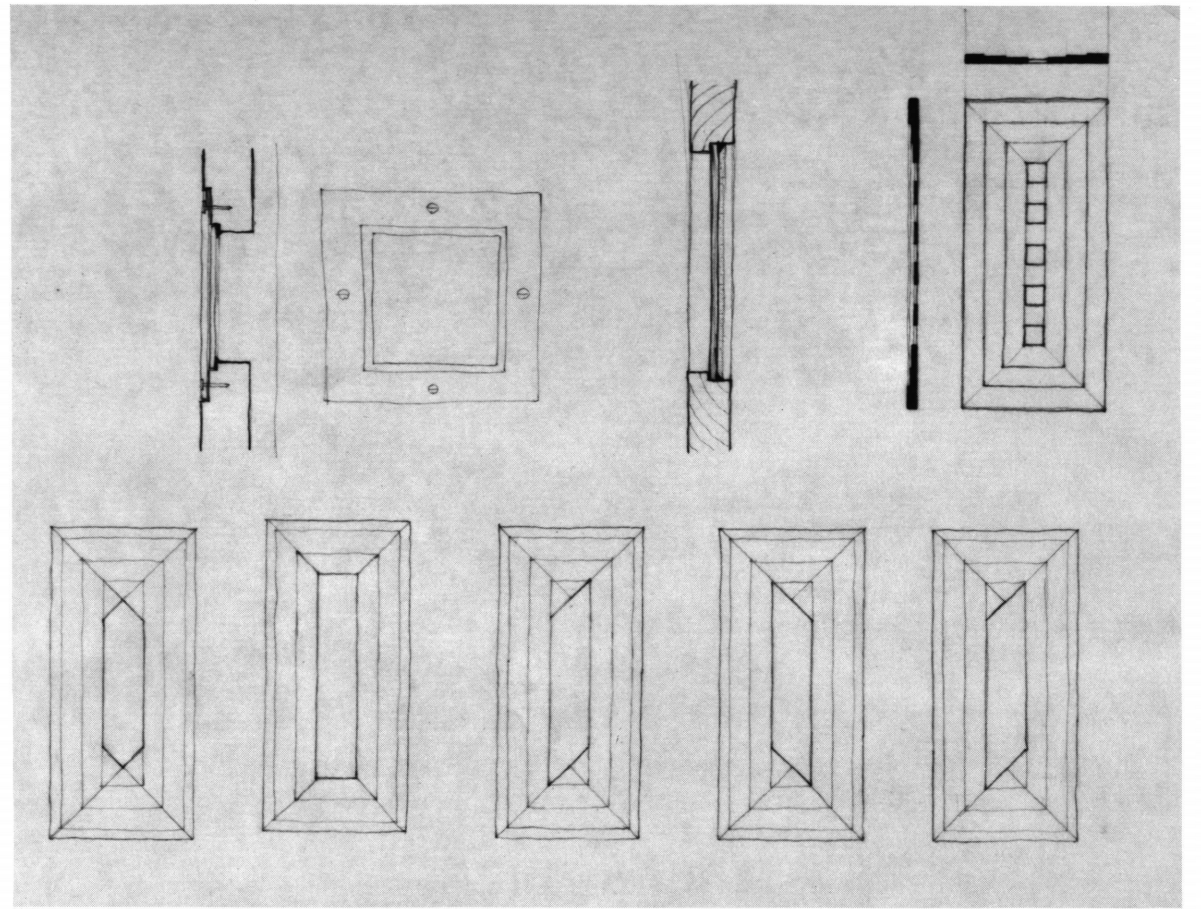


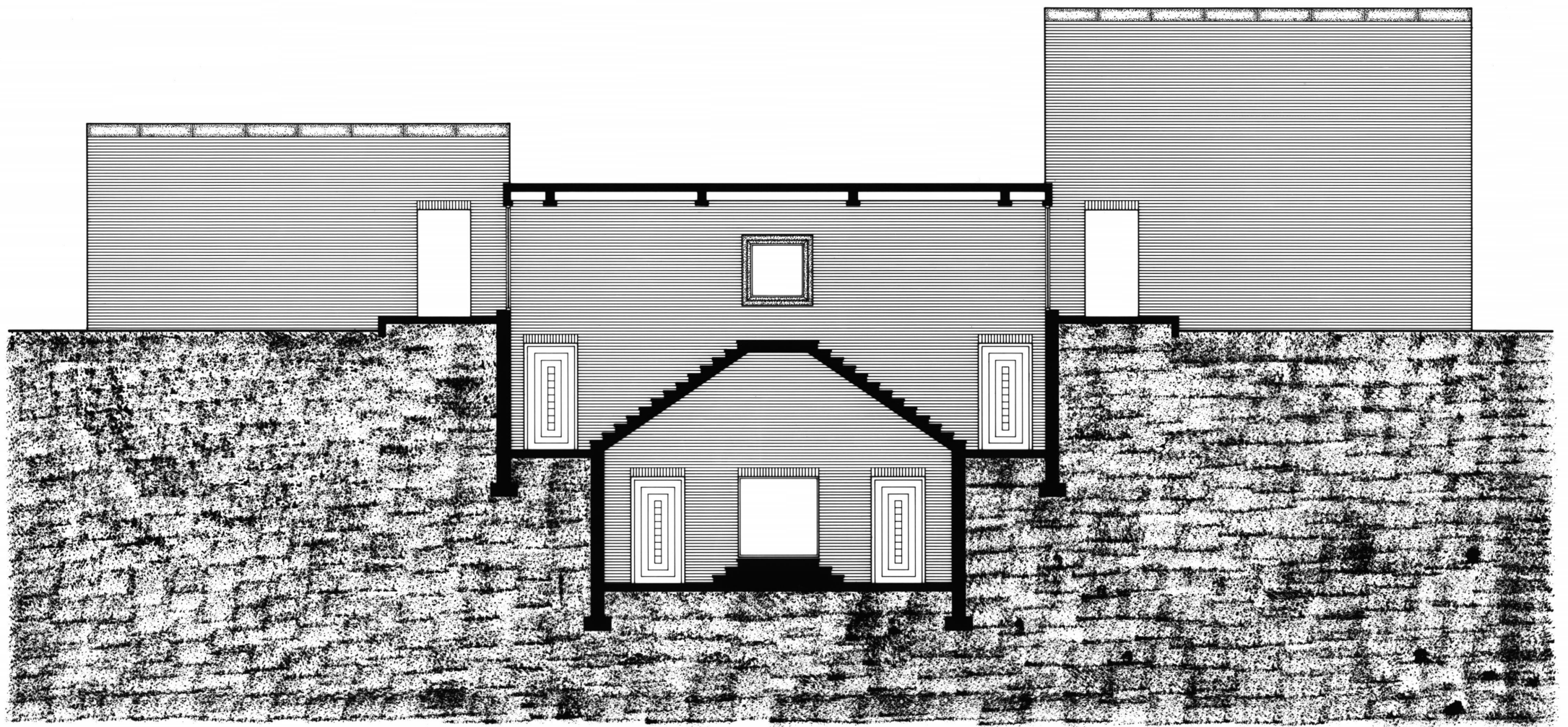


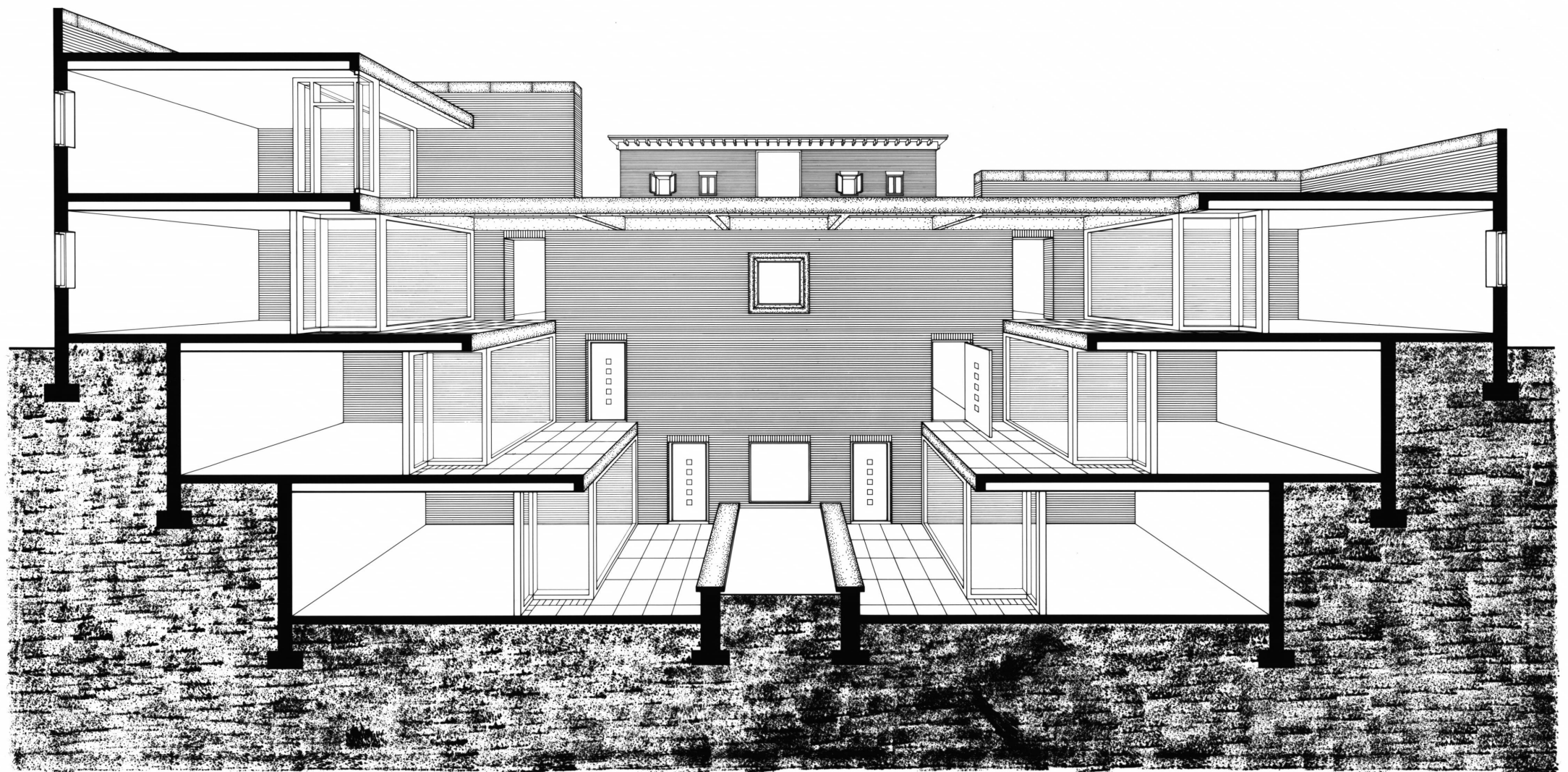


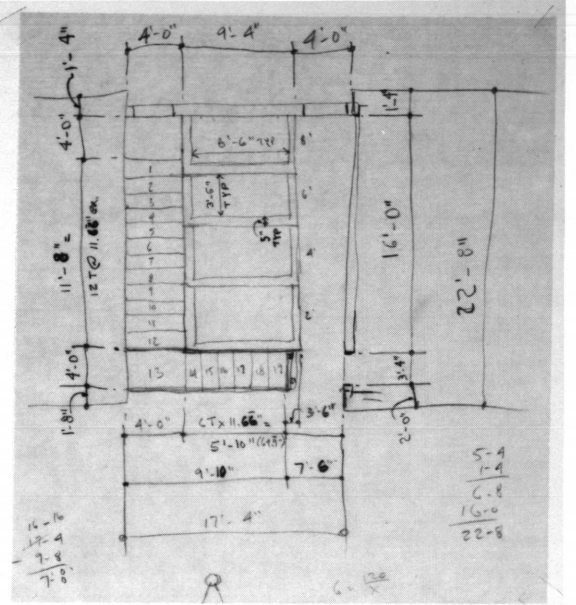
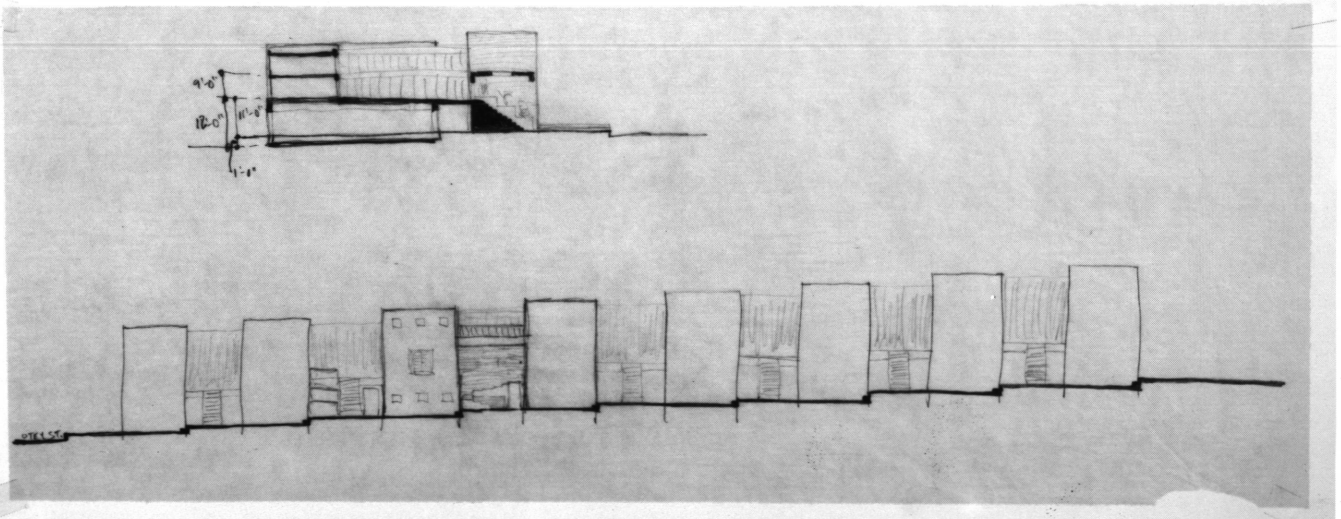
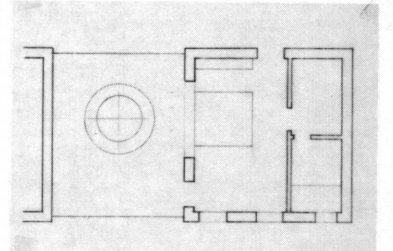
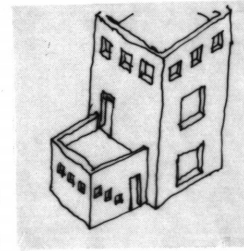
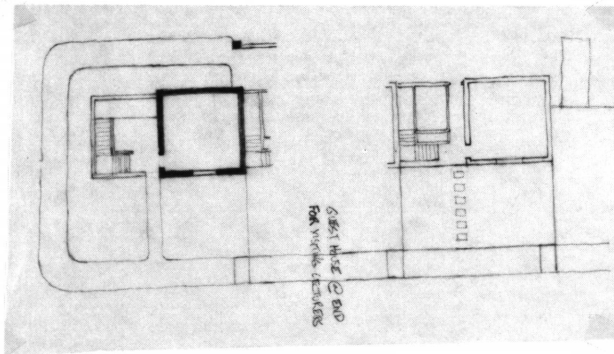
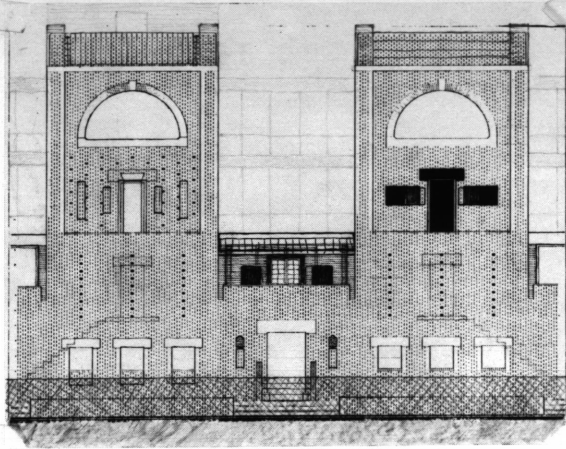
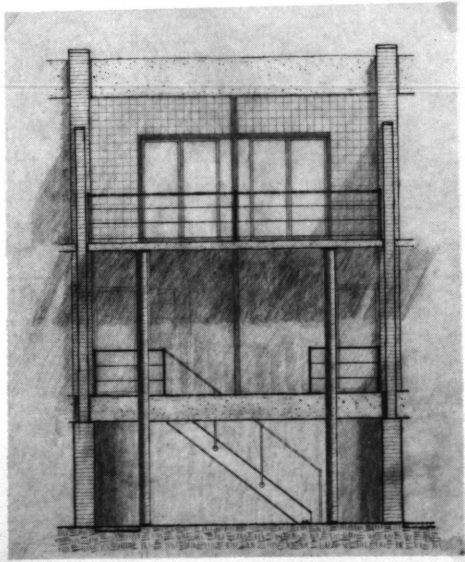
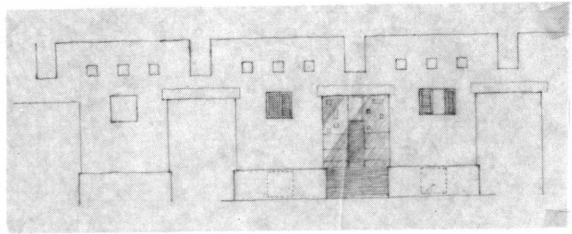
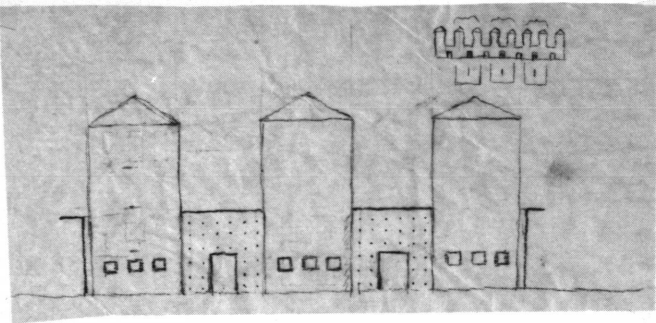
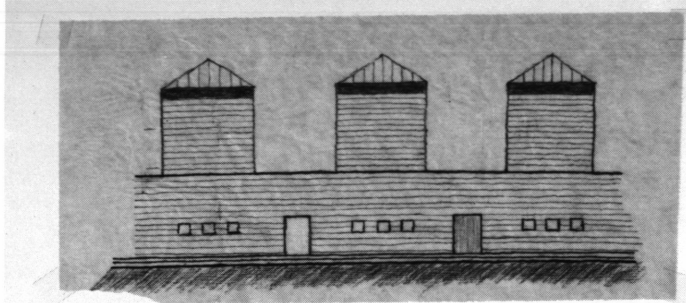




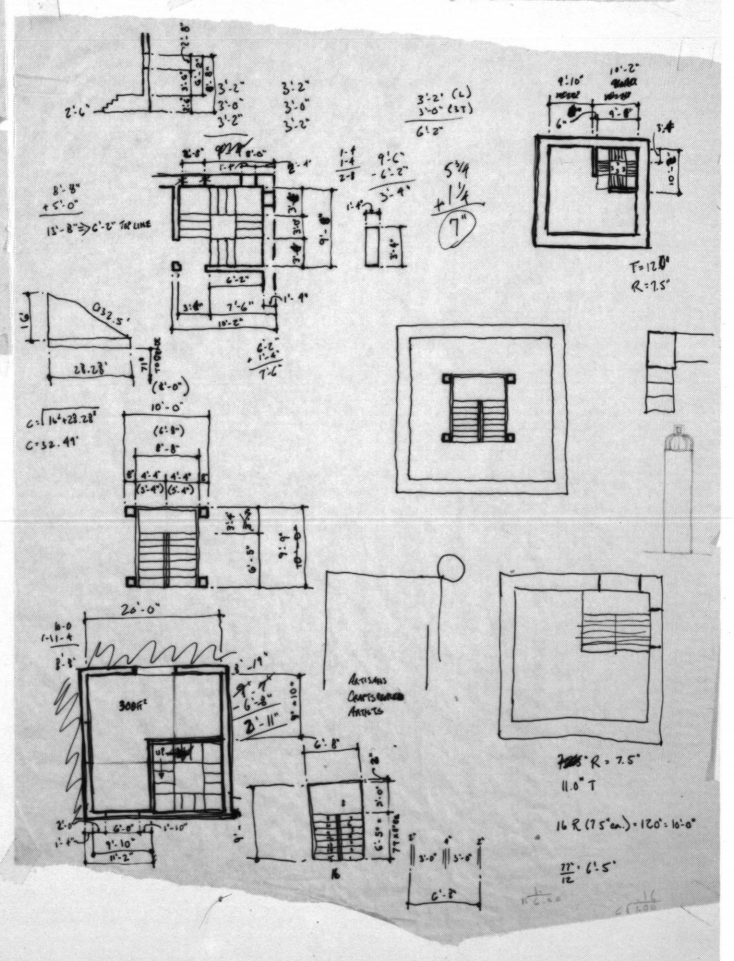
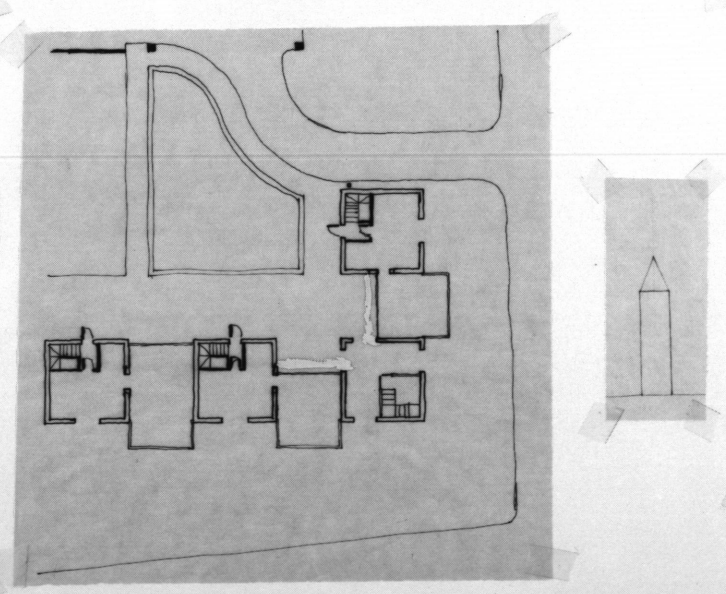
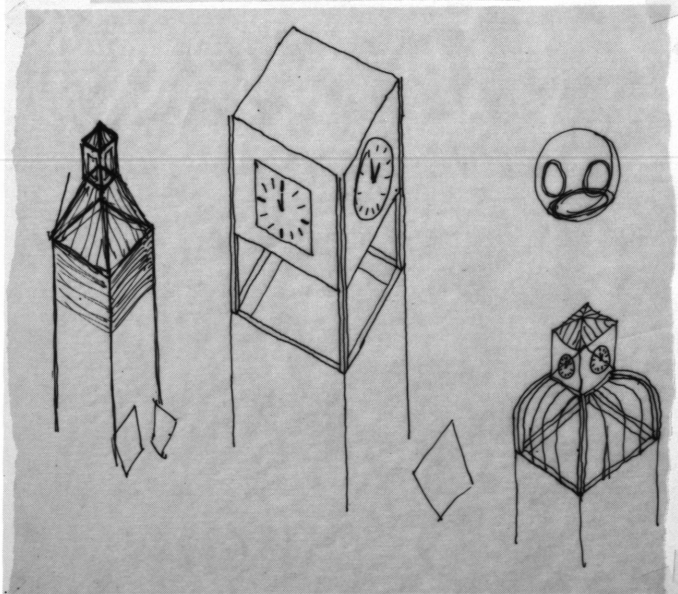
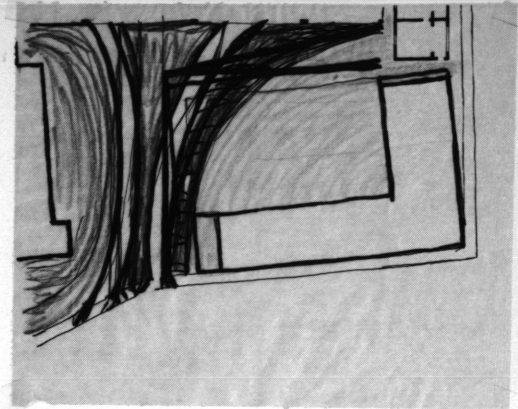
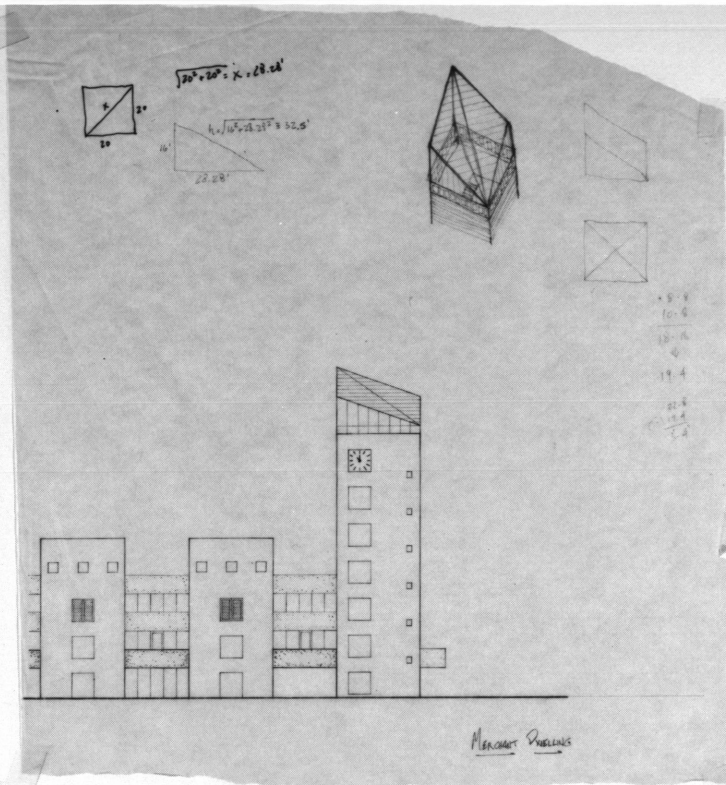
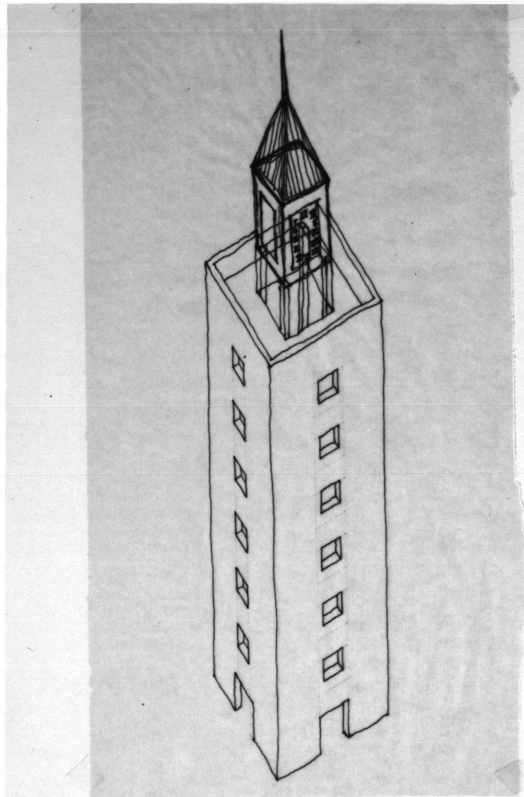


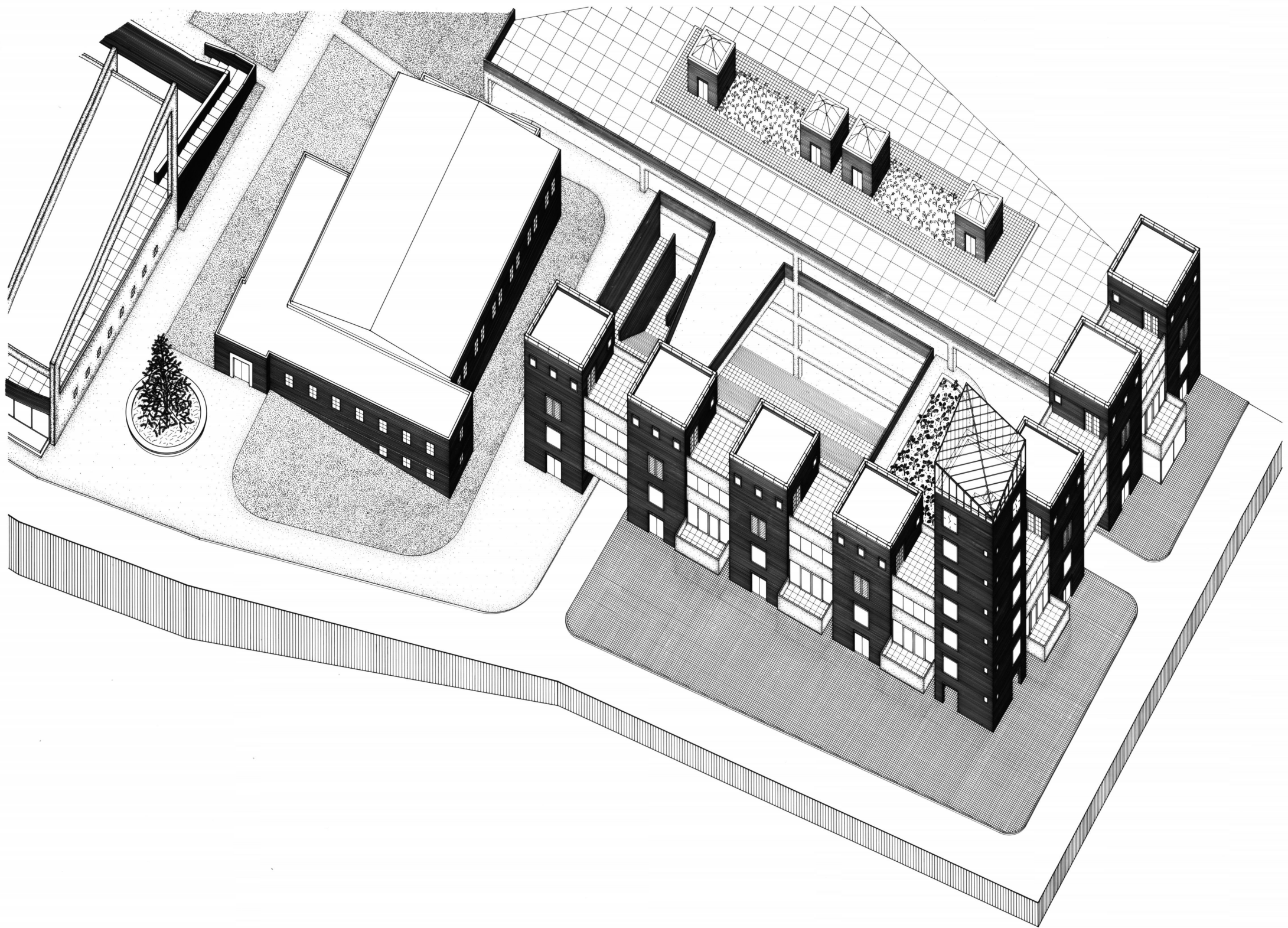












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