

# **Study and Design of a Synagogue**

by

**Cary A. Moskowitz**

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**William Brown, Chairman**

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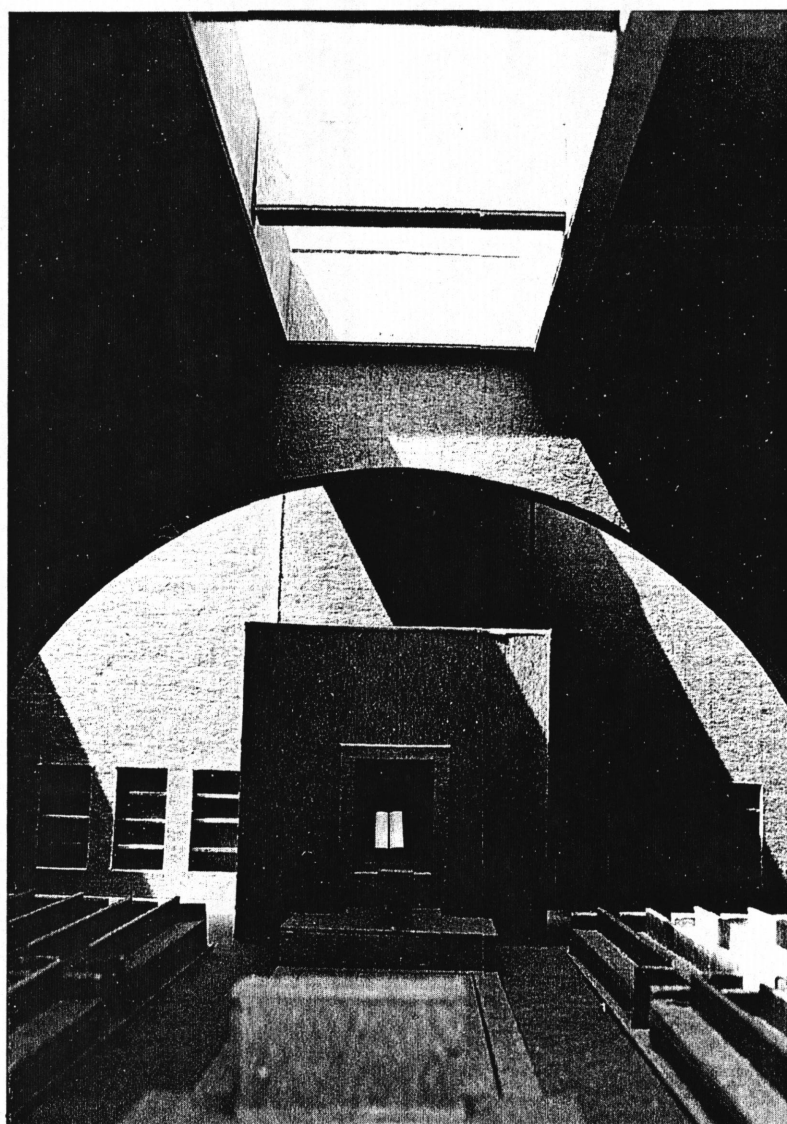
**Frank Weiner**

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**Bonnie McCormick**

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Cary A. Moskovitz



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A place of worship seems to demand dignity and serenity as its birthright. It is part of its function to reach beyond function.<sup>1</sup>

**Marcel Breuer**

The synagogue is a house of God expressing a unity of several opposite but mutually sympathetic elements:

The individual who worships should have a personal relationship to the Torah and Rabbi but he should also have a meaningful relationship to his fellow worshippers and be aware that he is one of a group .... religious expression must be inspiring and spiritual and must raise people above the commonplace of the material world. But this same religious expression must exist within the material world and infuse this world with significance.<sup>2</sup>

**Herbert Oppenheimer**

If the Ark is seen in its profounder symbolic meaning as representing the centrality of the Law, the written tradition, and the Bimah as the symbolic representation of the importance of the congregation in study, in its role as interpreter and in prayer, we may glimpse the essential polarity to which the very arrangement of the synagogue interior was witness.<sup>3</sup>

**Dr. Eugene Mihaly**  
*from "The implications of the  
Jewish Concept of Prayer for  
Synagogue Architecture"*

# 1

## HISTORY AND STUDY

### of the Synagogue as a Building Type

The synagogue has been the primary place of worship, study and social gathering for Jews for two thousand years. In many ways the history of the synagogue is the history of Judaism, and in the architecture of the synagogue sanctuary one can trace the development of much of Jewish theology, philosophy and sociology. As a preliminary step in the design of a synagogue, I undertook a study of its history in order to make intelligent judgements as to what was necessary and unnecessary, what was desirable and undesirable, what was timeless in its symbolic meaning and what could be omitted in this time and place.

The synagogue is essentially the Jewish Temple reformulated for the post-Temple era. In order to understand the synagogue, one must understand the Temple from its inception as the portable tent-tabernacle of the bible to its re-formation in which prayer and study are substituted for ritual sacrifice.

The biblical description of the structure and dimensions of the tent-tabernacle is detailed in the book of Exodus and represents the first physically structured formation of Jewish worship (fig. 1):

...On the south side, a hundred cubits of hangings of fine twisted linen for the enclosure - with their twenty posts and their twenty sockets of copper, the hooks and bands of the posts being silver ... And on the front side, to the east, fifty cubits: fifteen cubits of hangings on one flank, with their three sockets, and fifteen cubits of hangings on the other flank - one each side of the gate of enclosure - with their three posts and their three sockets ..<sup>4</sup>

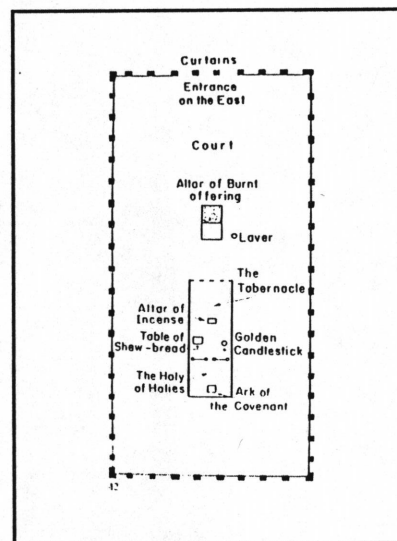
The primary elements are the tabernacle, with its rear portion curtained off as the "Holy- of -Holies" which holds the Ark of the Covenant which in turn holds the tablets of the Ten Commandments, and the Alter of Burnt Offering, a platform on which ritual sacrifices and offerings were performed. Both elements were surrounded by a gated curtain with its entrance to the east.<sup>5</sup> This bi-focal arrangement of the ark and the alter

within a perimeter border open to the east, and the Ark to the west was constructed in non-portable form as Solomon's Temple in Jerusalem in 950 B.C.E. (fig. 2).

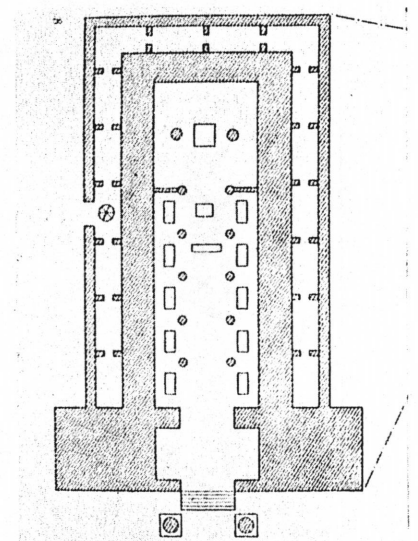
Archeological researchers<sup>6</sup> speculate that the east-west axial arrangement may in fact have been assimilated from the Caananites, from whom the Israelis acquired knowledge of agricultural methods, and whose own religious practices involved solar worship. This included a celebration of the equinox in which, at the precise moment, a door facing due east in their temple was opened allowing the rays of the sun-god to pass west into the holy chamber. This structure, with its east-west axial alignment of entrance, Ark and alter, remained unchanged throughout the development of the synagogue with two important exceptions.

First, during a Judaic reformation succeeding a period of increasingly lax adherence to Jewish law and the spread of Pagan practices within the Jewish communities, the religious leaders mandated the solar orientation of the Ark-Alter axis to be reversed, as both the physical and spiritual rejection of Pagan worship. This ark-to-the-east orientation was subsequently adopted for general application to synagogues.

The second and most important change in the physical structure for Jewish worship was that of the replacement of a sacrificial alter with an alter for prayer.<sup>7</sup> With the second destruction of the Temple in Jerusalem by the Romans in 70 C.E. and the subsequent scattering of the Jewish population into exile,



1



2

1. Tent-Tabernacle of Exodus
2. Plan of Solomon's Temple Tabernacle

Jews were no longer able to perform the ritual sacrifices which constituted the most important religious events. At the same time, the decentralization of the Jewish people necessitated local establishments for communal/social activities. These events led to the generation of joint religious-social-educational assemblies which became known as synagogues. It was with these new buildings that, in the absence of the ability to perform ritual sacrifices which by law could only be conducted at the one Temple, prayer and study were substituted for offerings. This led to the subsequent development of Judaism as a religion in which prayer was deemed equal and then superior to ritual sacrifice. This dramatic change in the structure of worship was given its physical manifestation in the one uniquely Jewish architectural element - the bimah.<sup>8</sup>

Initially the role of the synagogue was as a place of meeting and worship that did not duplicate or replace the Temple services.<sup>9</sup> Synagogues of this sort seem to have existed contemporaneously with the Temple. As such, the physical arrangement of the building elements was not tied directly to the Temple form, with its ark-altar foci (fig. 3, 4 and 5). With the development of prayer and study as substitutes for Temple worship, the ark-altar structure was transformed into the ark-bimah structure. Each ark became a house for one or more Torahs and the sacrificial altar was replaced by the bimah, a raised platform to which the Torah was ritually carried and from whose height the Torah was regularly read. Whereas the Ark of the Covenant and its contents were accessible only to the Jewish priesthood, in the synagogue the ark and the Torah were made explicitly available to *all* Jews, and the calling of the congregants to participate in the reading of the Torah became a central feature in synagogue worship.<sup>10</sup>

So the centrality of the ark-altar worship structure of ritual sacrifice performed only by the select few was replaced by the ark-bimah worship structure, in which ritual prayer and study were performed by the congregants as equal participants. This transformation can be seen by comparing a typical synagogue plan (fig. 6) with the original tent-tabernacle plan (fig. 1).

Further refinements of the synagogue plan occurred throughout the areas of exile, where regional variations in building

3. Plan of synagogue from first century B.C.E.

4. Plan of synagogue from first century B.C.E.

5. Plan of synagogue from seventh century C.E.

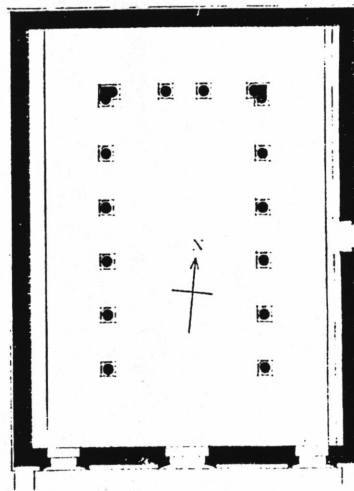
6. Single bay plan of the eighteenth century

7. Six-bay plan of Eastern Europe from the Thirteenth century

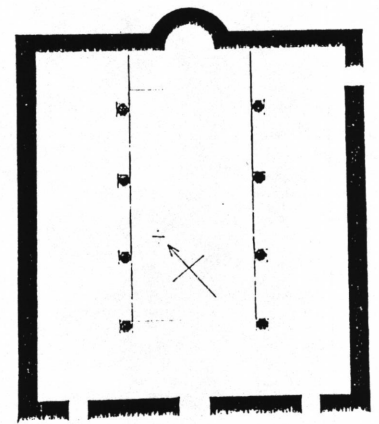
8. Nine bay plan of Eastern Europe of the seventeenth century.

9. Italian bi-polar plan of the seventeenth century.

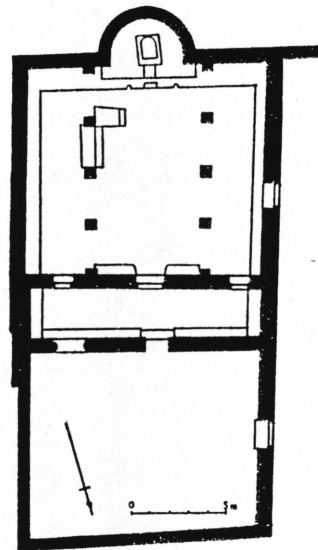
10. Bi-polar plan with Bimah and ark on the long walls



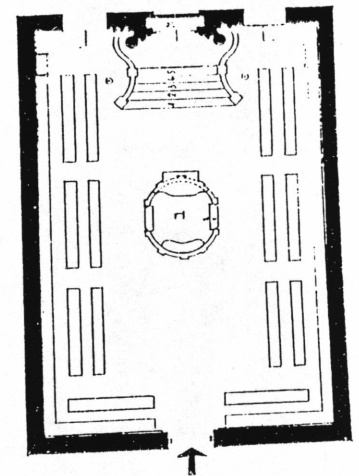
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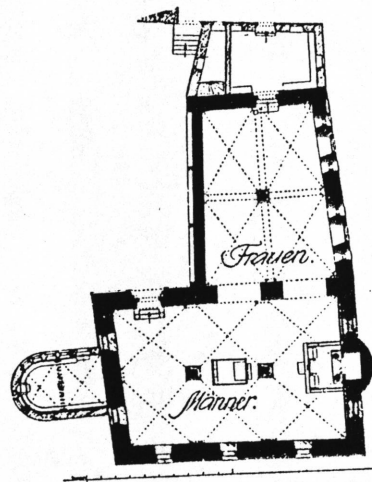
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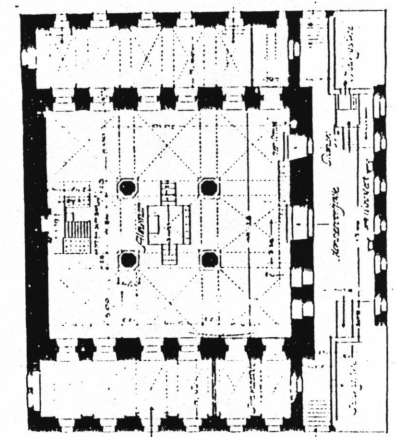
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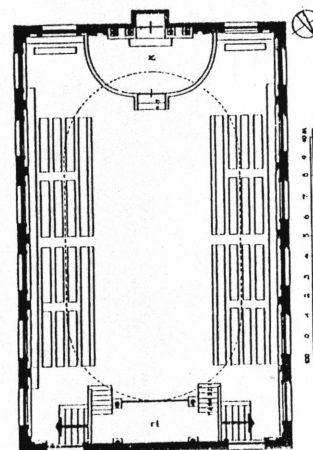
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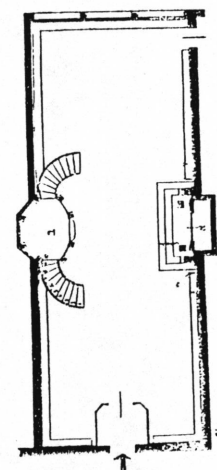
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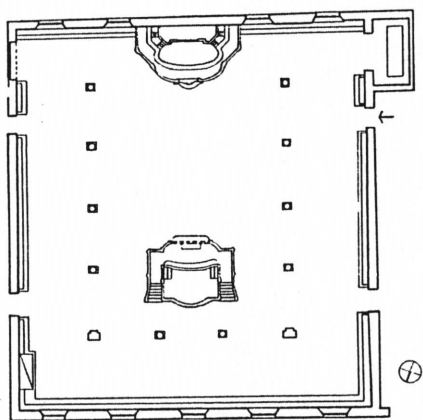


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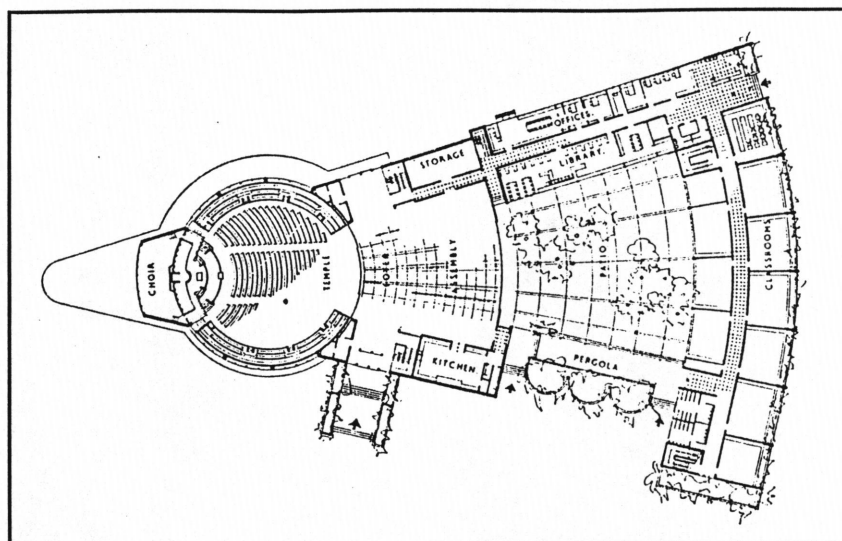
tions gave rise to distinct synagogue types. The six- and nine-bay plans (fig. 7 and 8) found primarily in the Ashkenazic congregations of Eastern Europe and the small single bay plan (fig. 6) each has the bimah located in the geometric center of the worship space, and a niche in the center of the eastern wall as the permanent location of the ark. The typical plan of the sephardic Jews of southwestern Europe was bi-polar, with the ark and bimah located opposite one another on the eastern and western walls (fig. 9). These were generally the shorter walls but were also occasionally built into the longer walls as well (fig. 10).

The relegation of women to a non-participatory presence in the synagogue had a marked influence in synagogue design,<sup>11</sup> which by the eighteenth century had given rise to the archetypal form of a central space with the ark and bimah as foci, surrounded by a colonnade which supported a balcony for the women (fig. 11). This was the dominant form of the eighteenth and nineteenth centuries, and was in fact the form of the first American synagogue, the Touro Synagogue, built in Newport, Rhode Island in 1763 with Peter Harrison as Architect.

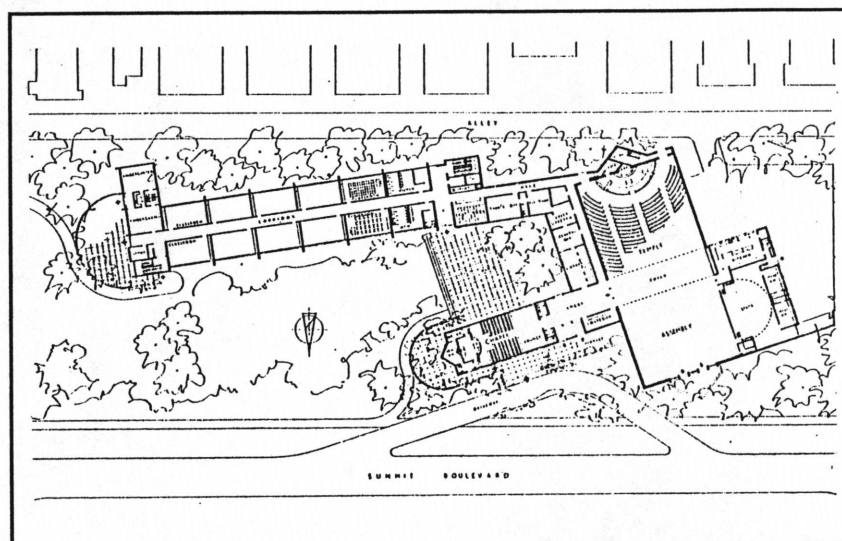
In the middle of the nineteenth century, however, Jews were finding a greater level of acceptance into the mainstream European communities, which opened the way for significant assimilation and the embracing of a European culture which was dominantly Christian.<sup>12</sup> In their desire to become a part of the general European society, many synagogue boards chose church-like plans and often even selected architects renowned for church design for their new buildings. From the late nineteenth century to the present, synagogue architecture of most types of Jewish communities, from the most reform to the orthodox, has been modeled on the church archetype, in which the bimah and ark have been combined into a single focal point, and the seats all face toward a "stage" so that congregants are spectators, as opposed to participants.<sup>13</sup> This trend mirrored the decreasing knowledge of Jewish ritual and observance of an increasingly assimilated Jewish population.



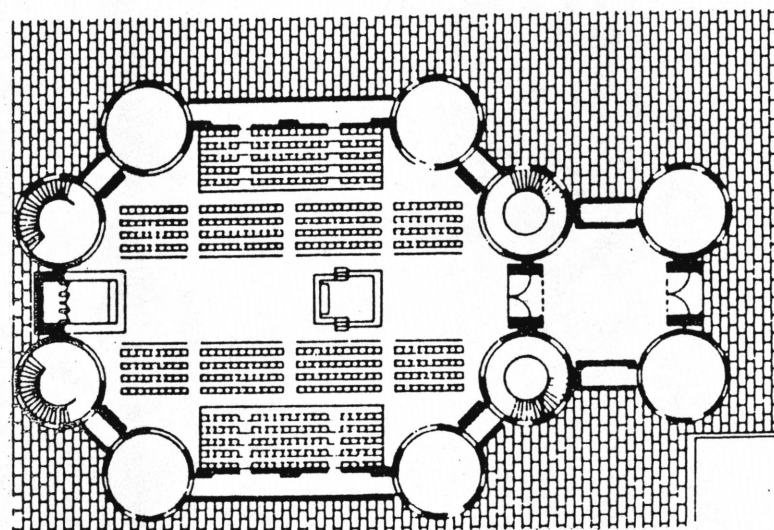
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11. Nineteenth century standard plan

12. Synagogue for Detroit by Eric Mendelsohn.

13. Synagogue for St. Louis by Eric Mendelsohn.

14. Project for a synagogue by Louis Kahn.

## THE INFLUENCE OF HIGH HOLY DAYS ATTENDANCE

As Jewish observance and synagogue attendance waned, especially in America, except on the few days of Yom Kippur and Rosh Hashanna, a new dilemma was introduced to synagogue design. To build a sanctuary which seated the entire congregation for a few days but was occupied the majority of the year by a relative handful of members, became a primary economic issue.<sup>14</sup> In large part, synagogue architects embraced this annual swelling, led in America by German emigre Eric Mendelsohn. His synagogues for Detroit and St. Louis (fig. 12 and 13) introduced the idea of a movable partition between the sanctuary and the social hall, which became the prototypical American response to this new Jewish observance pattern.<sup>15</sup>

During the latter part of the current century, a number of architects have sought to return to a more "Jewish" architecture, which included sacrificing the economic benefits of a flexible space for the enhanced qualities of a single purpose space, as described by architect Phillip Johnson:

One of the most difficult problems which exists uniquely in relation to the design of the synagogue, is the double use of the sanctuary, a problem which perhaps cannot be completely answered by the architect. Buildings have been designed which have attempted to combine classrooms and the sanctuary, a social hall and the sanctuary, or a lobby, social hall and the sanctuary, in order to increase the seating capacity for the High Holy Days. This problem of an expanding and contracting space is evident in many [synagogue designs]. Those architects who have not had this problem, but instead have been given a single space to design, have usually created a more satisfactory structure.<sup>16</sup>

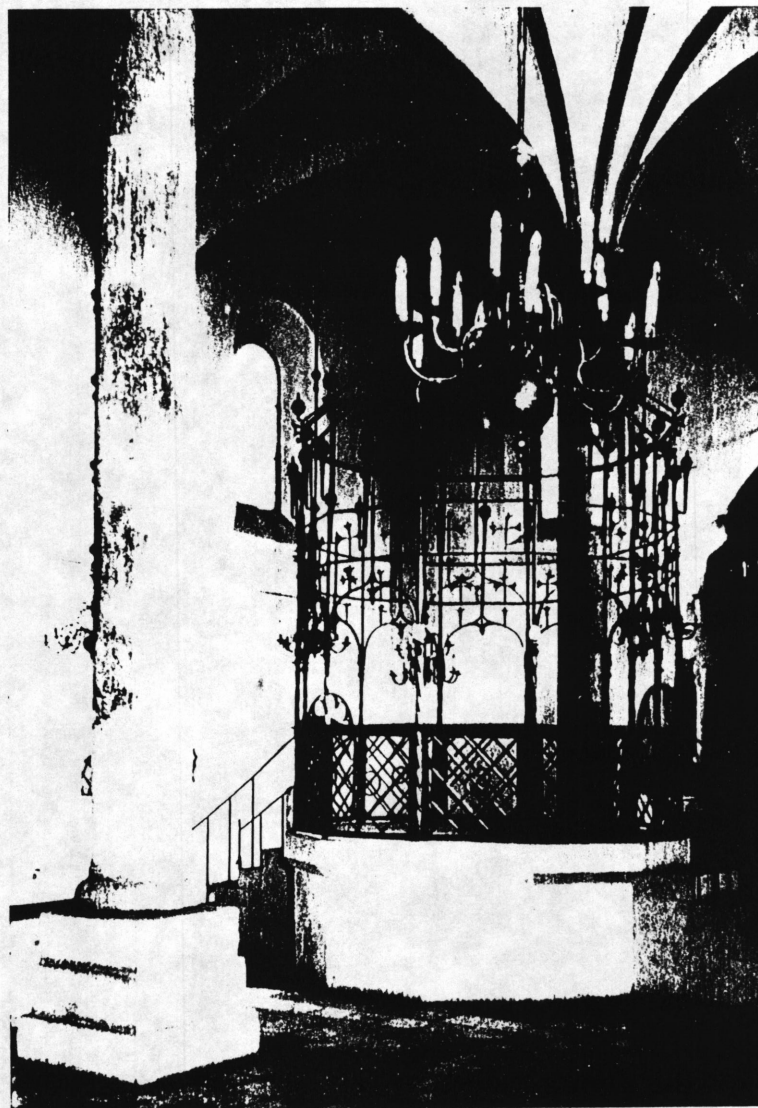
This often included the reintroduction of the bimah to the sanctuary. Notable among these architects was Louis Kahn, who was himself of Jewish parentage. Kahn's interest in finding the timeless spirit in architecture led him to the roots of synagogue form and therefore to the ark-bimah axial form (fig. 14), and his own inclination toward well-defined separate spaces defied the utilization of movable partitions.<sup>17</sup>

## SYNAGOGUE AESTHETICS

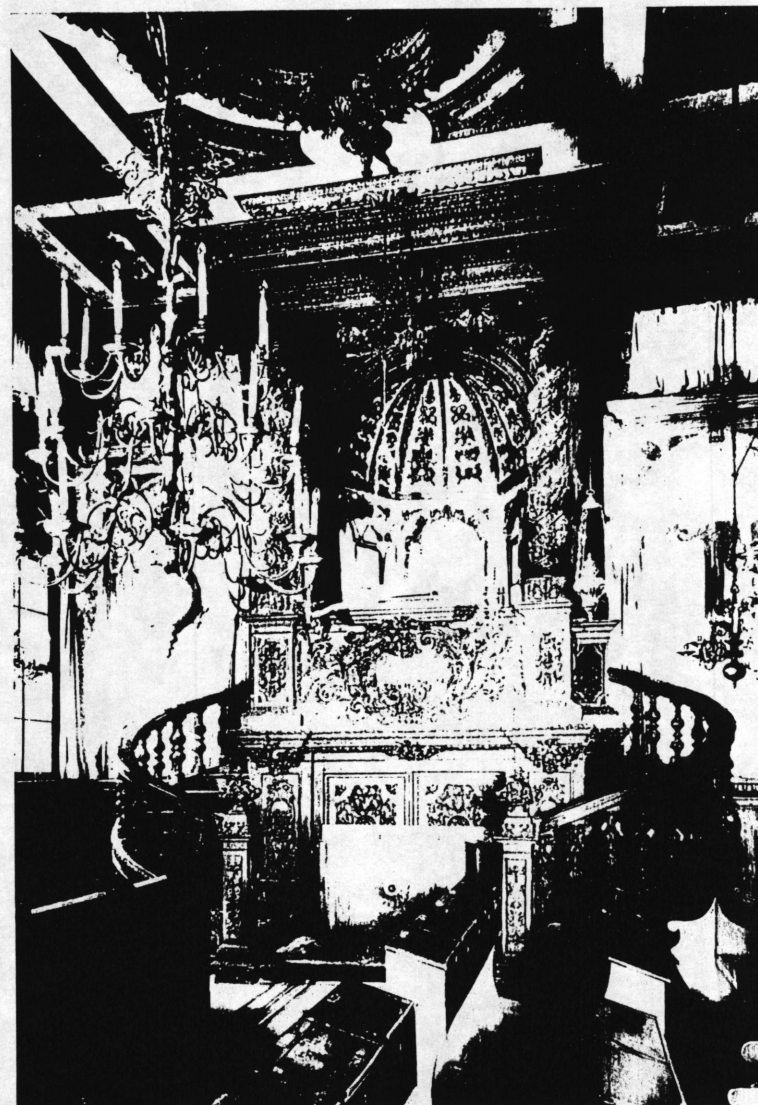
From its earliest inception, synagogues have been designed and built in the manner and with the materials typical of their time and location.<sup>18</sup> The synagogues of the ancient Middle

15. *Bimah and column from thirteenth century nine-bay plan.*

16. *Bimah from Venetian synagogue of 1660 (bi-polar plan).*



15



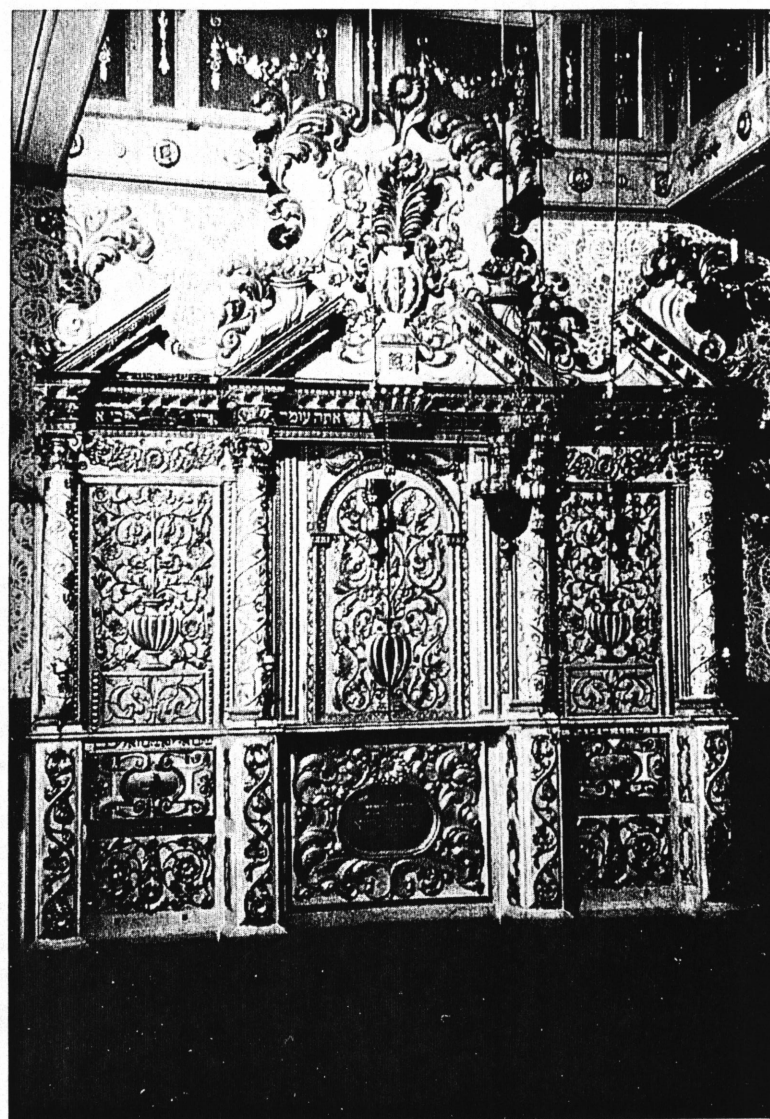
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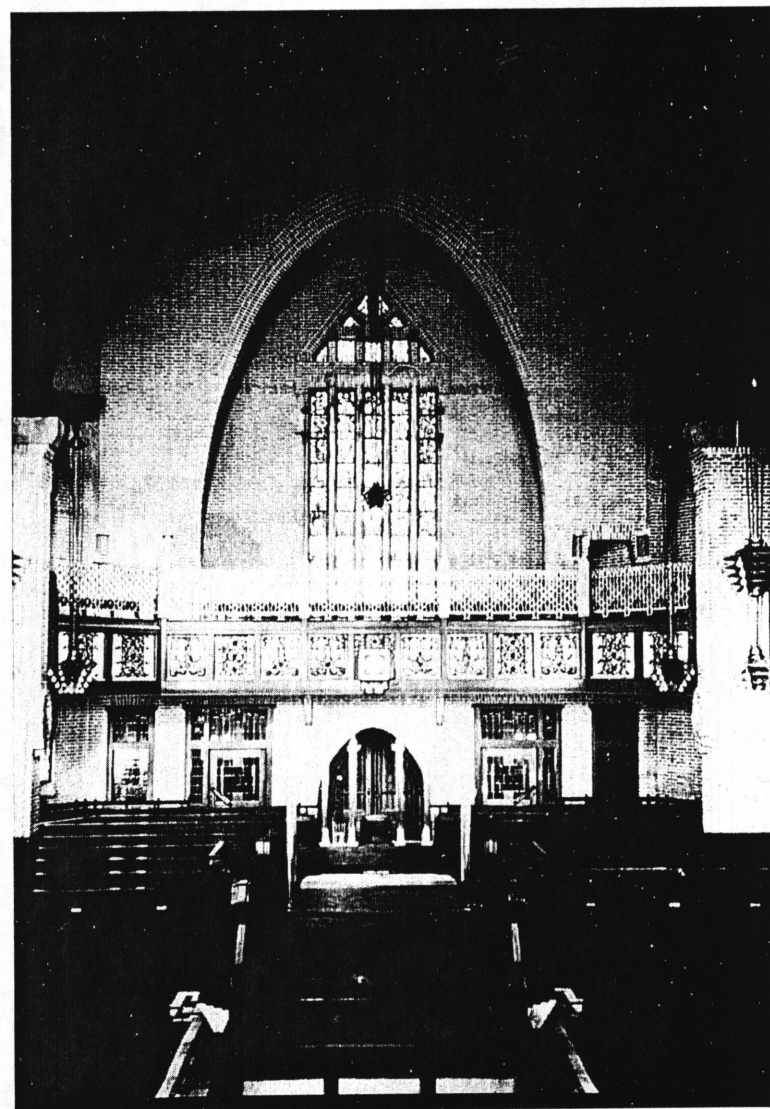
East differed little from the edifices of their Pagan counterparts. In fact, Synagogues were often converted Pagan temples, and in times of persecution, synagogues were often destroyed and rebuilt for Pagan worship.<sup>19</sup> During the present century, it has not been uncommon for a Jewish community to sell its building to be converted to a church, when their needs lead them to construct a new synagogue.<sup>20</sup>

Through photographs and drawings it can be shown that architectural materials and details of synagogues follow the general history of architecture, as is exemplified in the synagogues of Europe from medieval through contemporary times.<sup>21</sup> The synagogues of thirteenth century Eastern Europe (fig. 15) have the ribbed vaulted roof structure typical of period churches. The bimah of a Venetian synagogue of the middle seventeenth century (fig. 16) has features typical of Italian renaissance architecture. The Rococo ark from another synagogue in Venice but built in the eighteenth century (fig. 17) shows that in a given location, synagogue design followed the path of architecture as a whole.

In Amsterdam in 1925, a reform synagogue might have been virtually indistinguishable from its Christian counterpart except for the presence of the bimah (fig. 18). In the same city, a synagogue built by a more traditional congregation in 1936 shows the definite influence of the Modernist philosophy (fig. 19). Finally, the design of a synagogue interior by Louis Kahn (fig. 20) shows the same concern for light and the formal articulation of space that he brought to his churches and secular structures.



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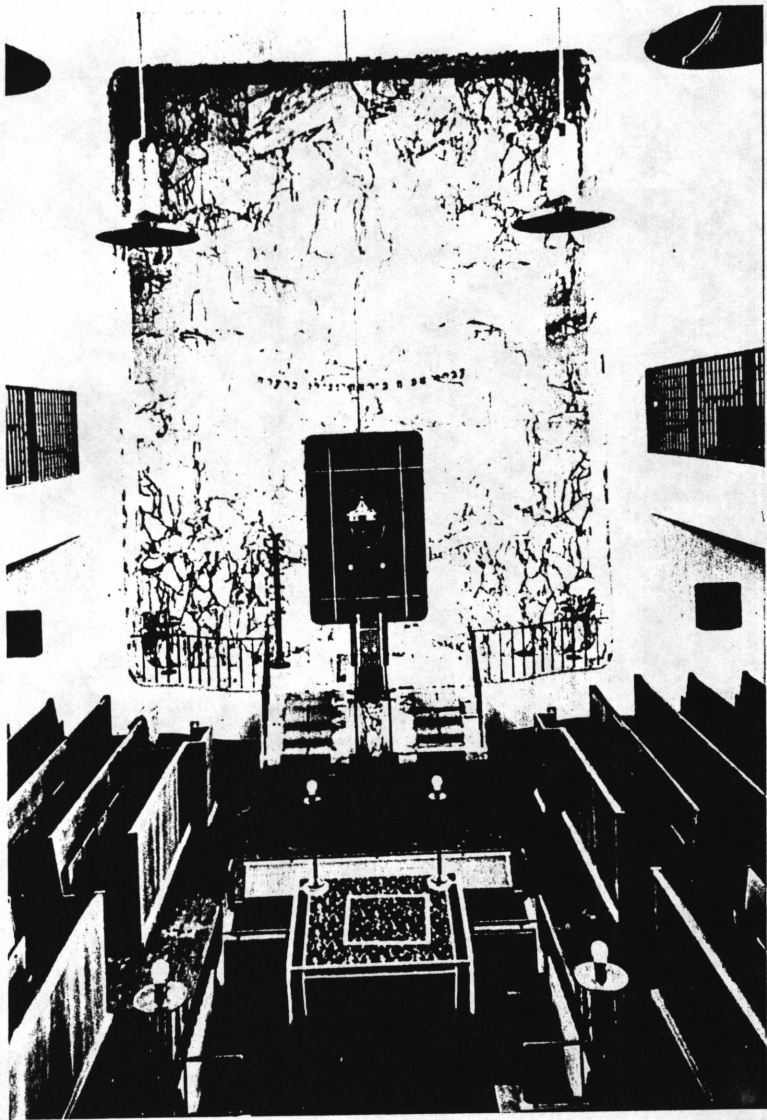
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17. Rococo ark from Venetian synagogue of the eighteenth century.

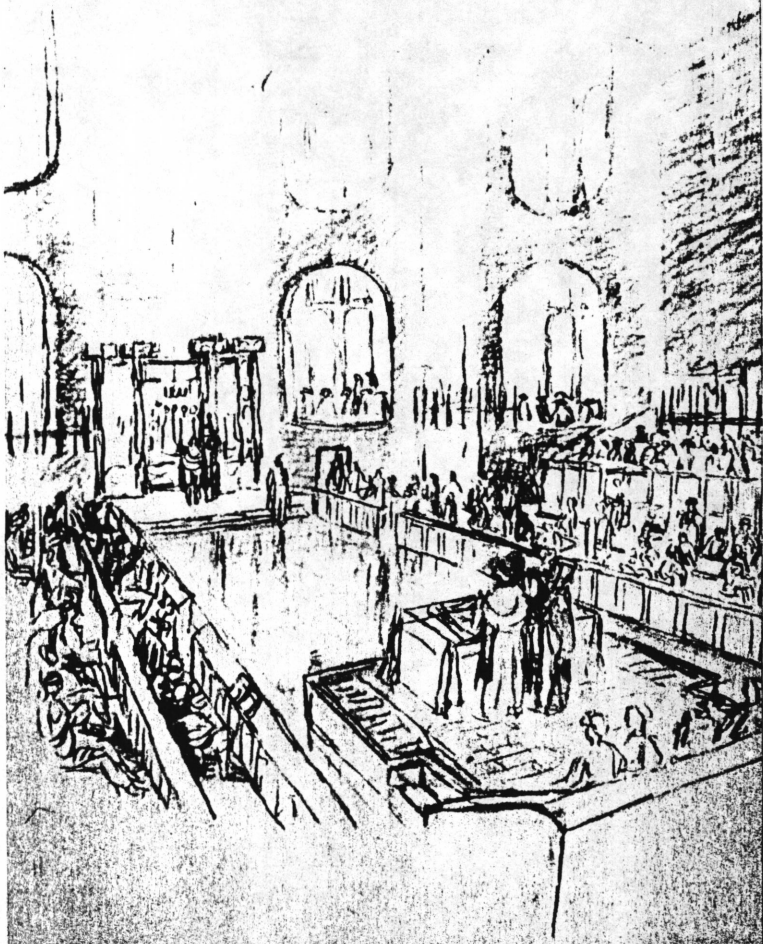
18. Interior of Amsterdam synagogue of 1925.

19. Interior of Amsterdam synagogue of 1936.

20. Project for a synagogue by Louis Kahn.



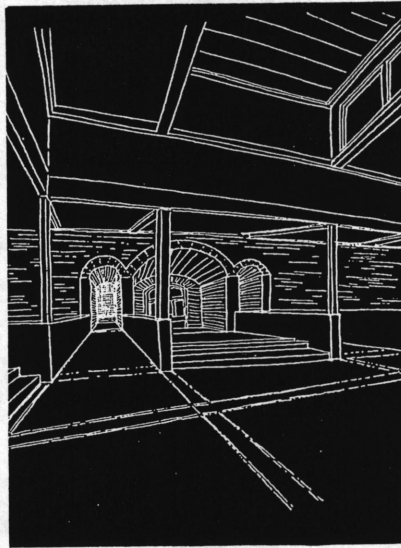
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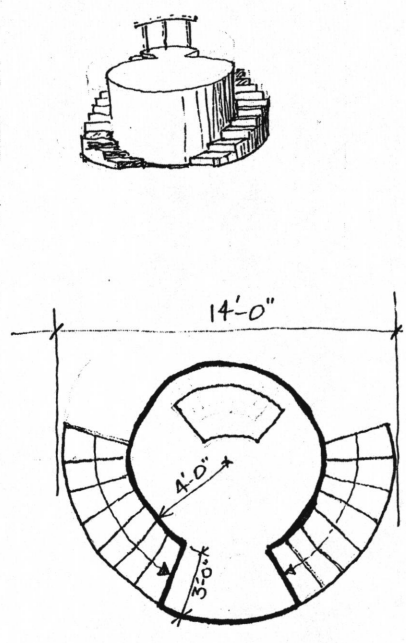
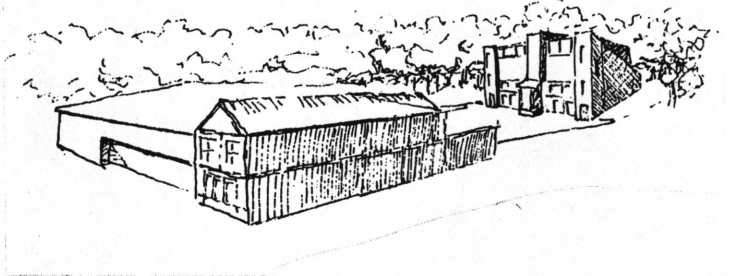
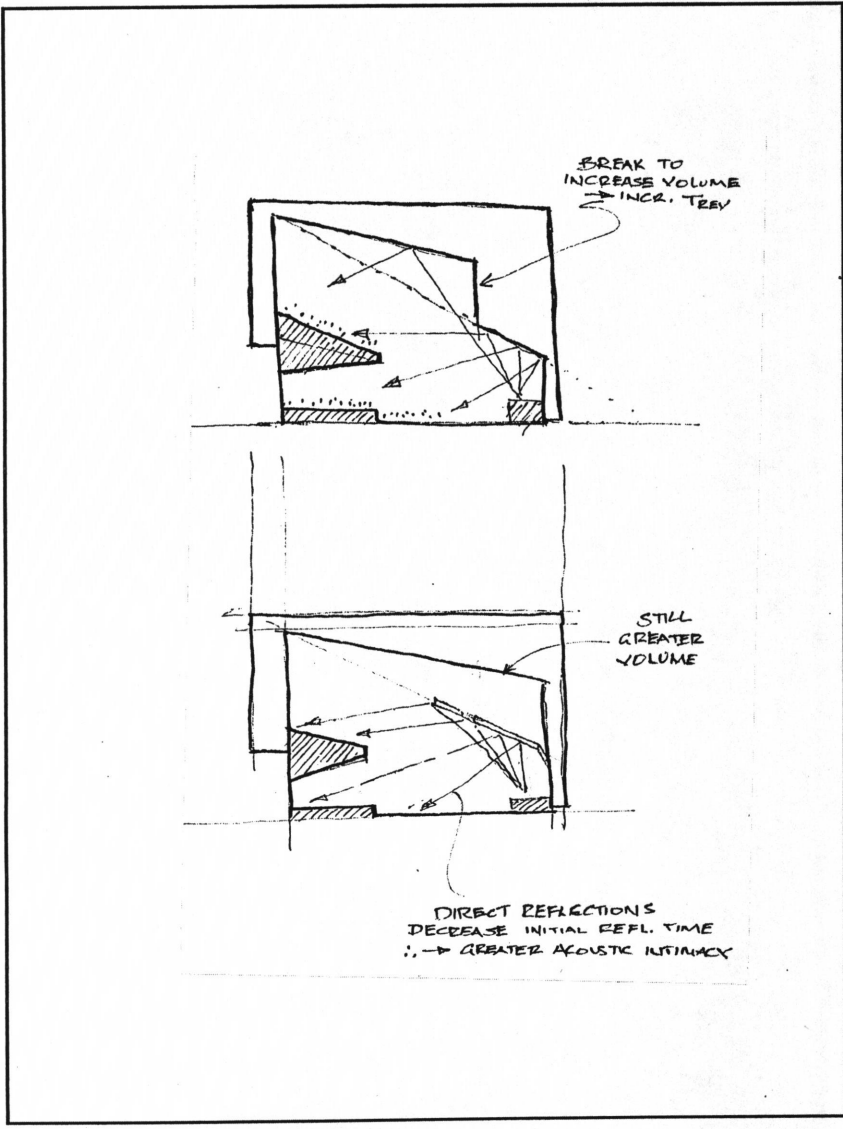
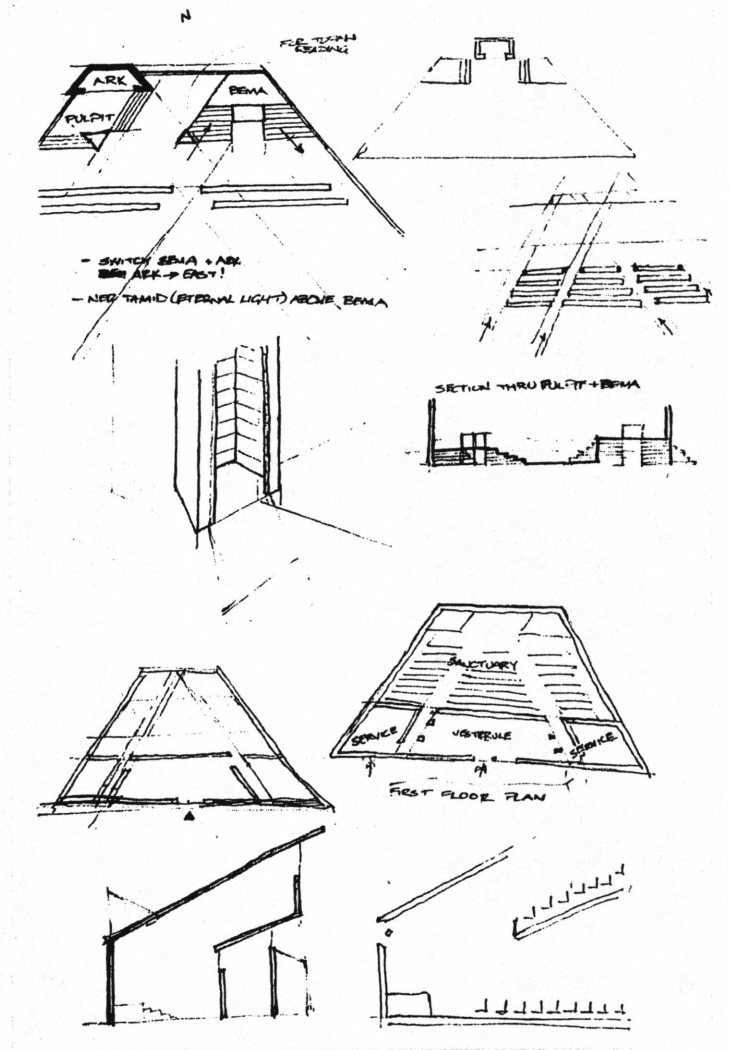
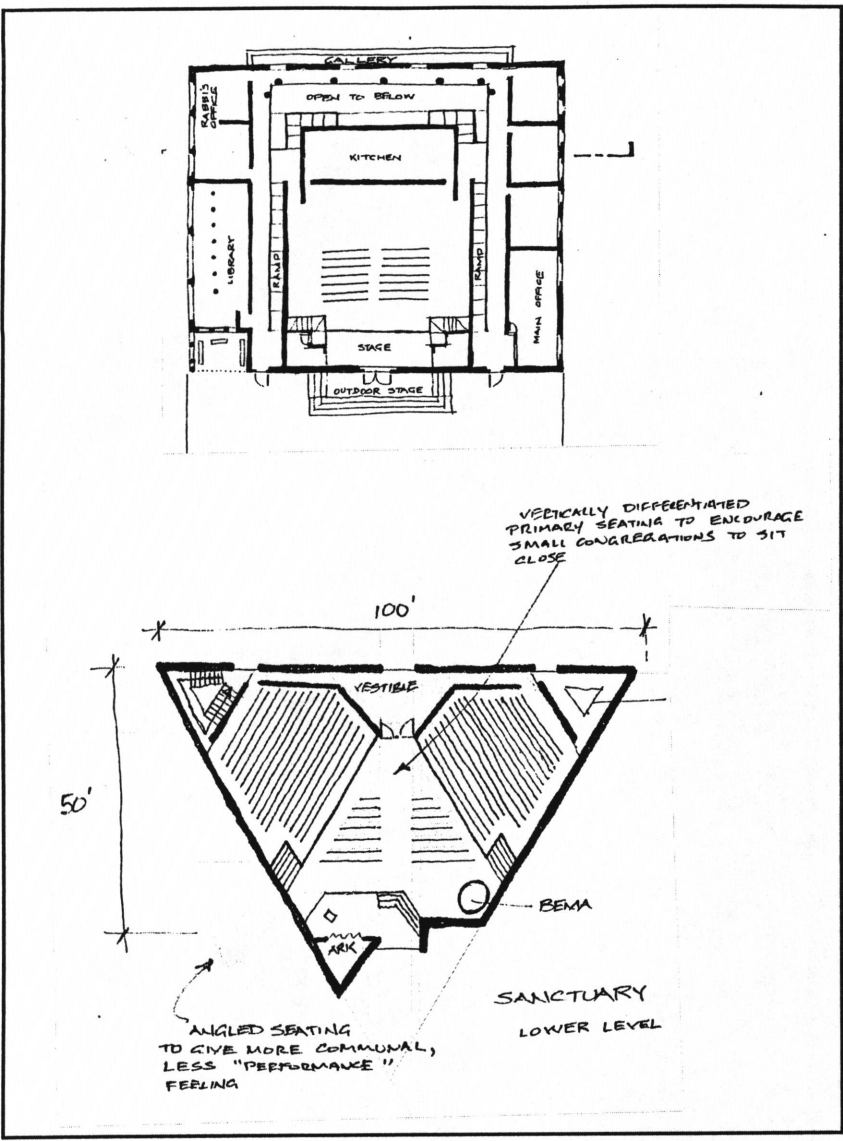


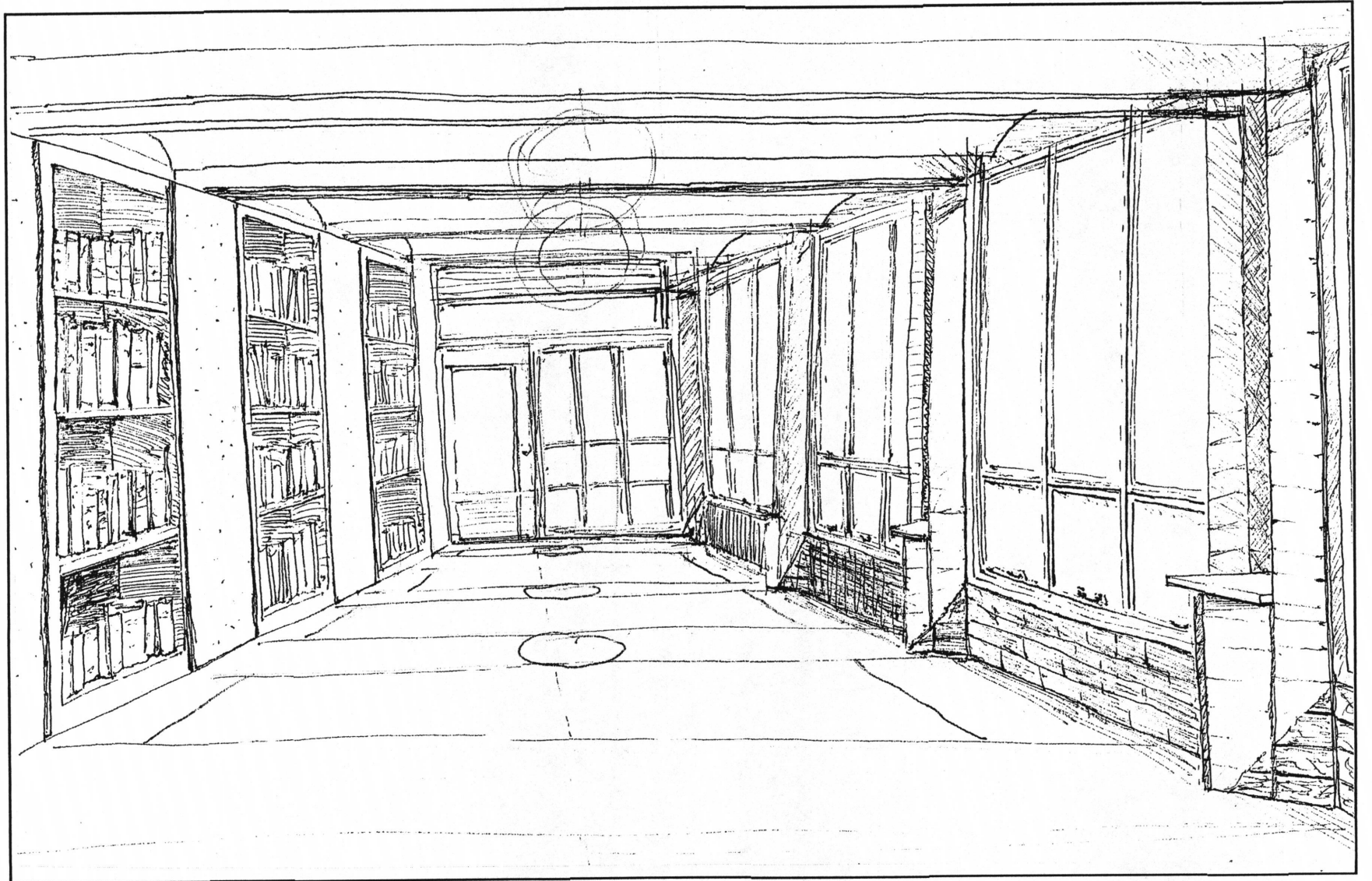
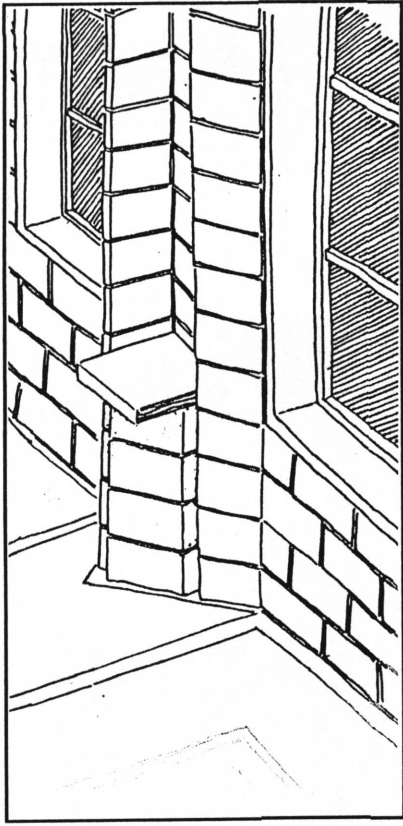
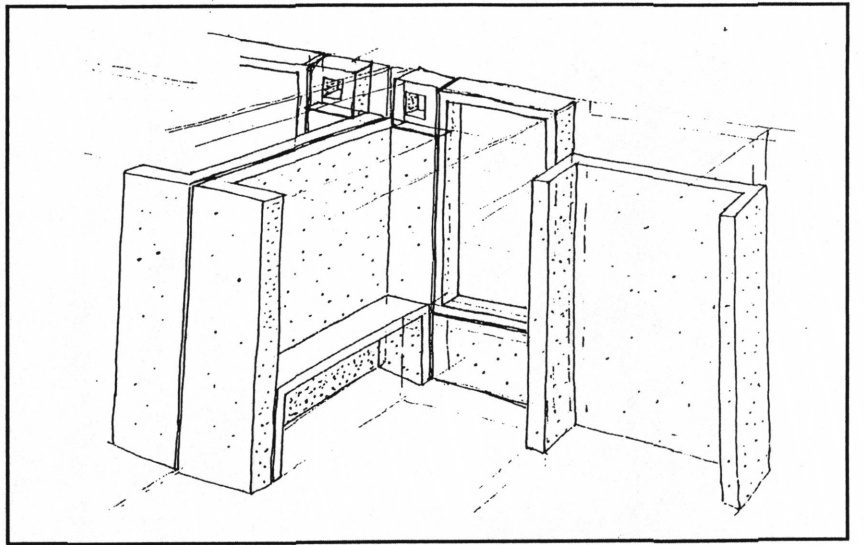
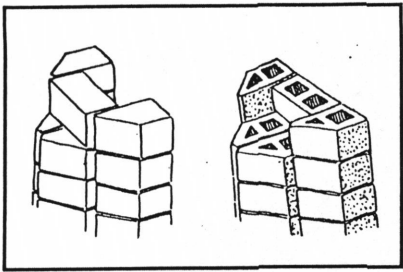
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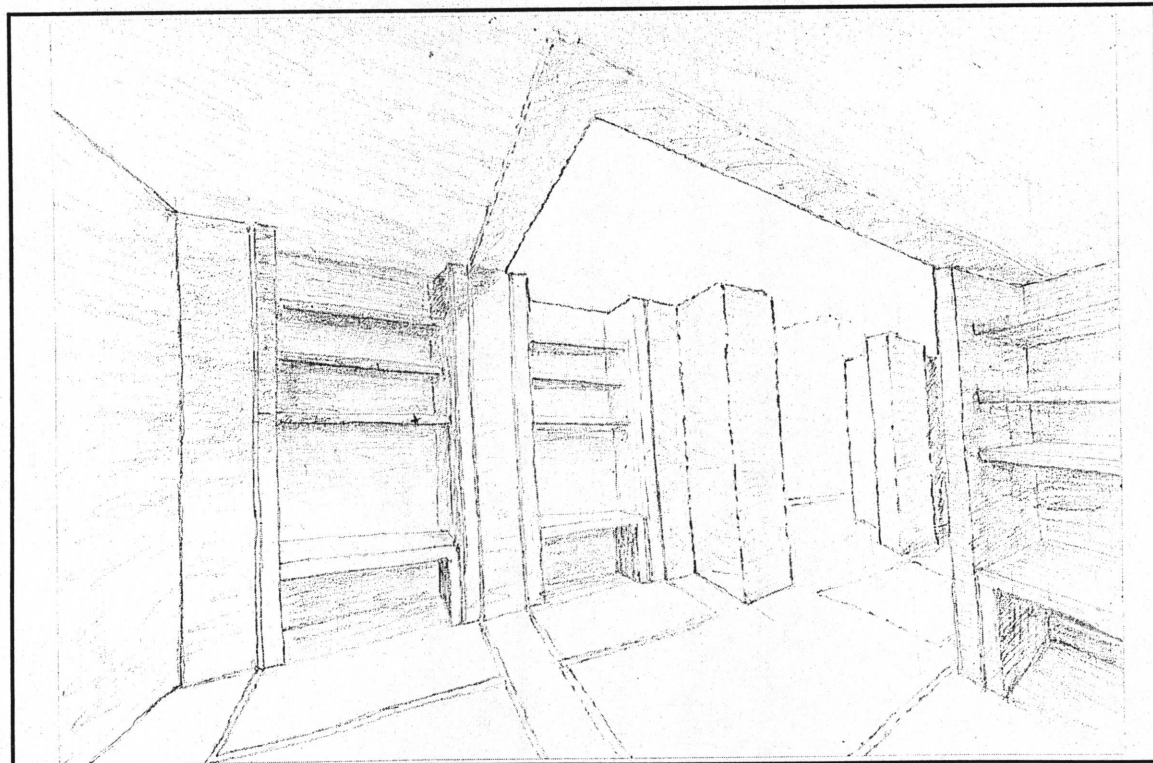
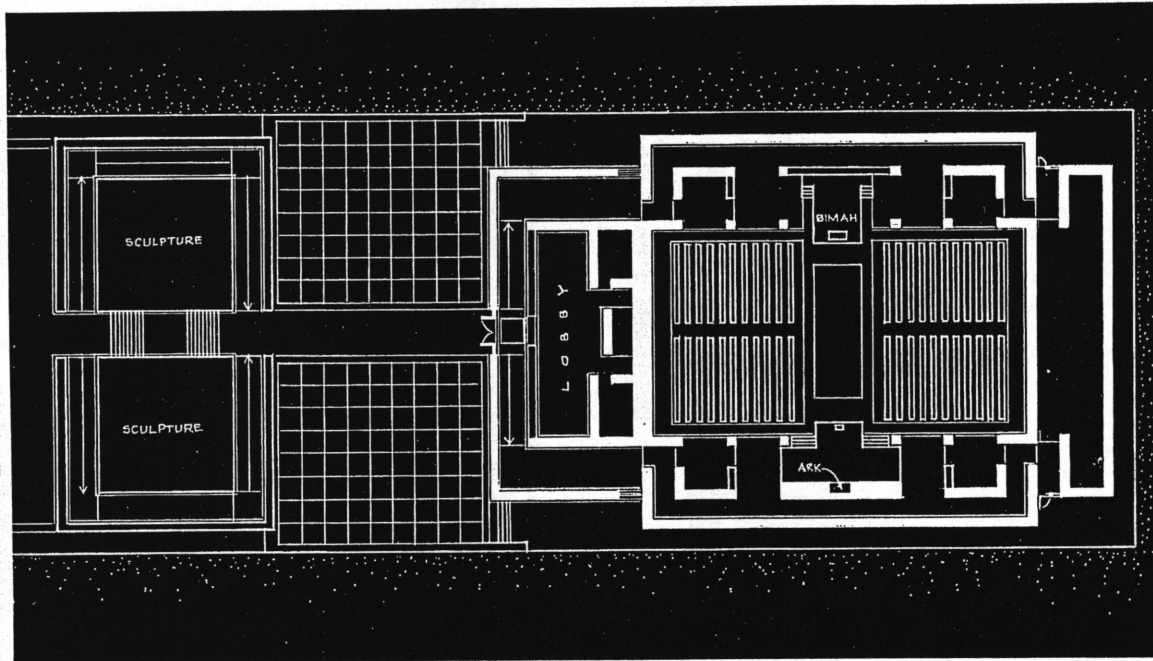
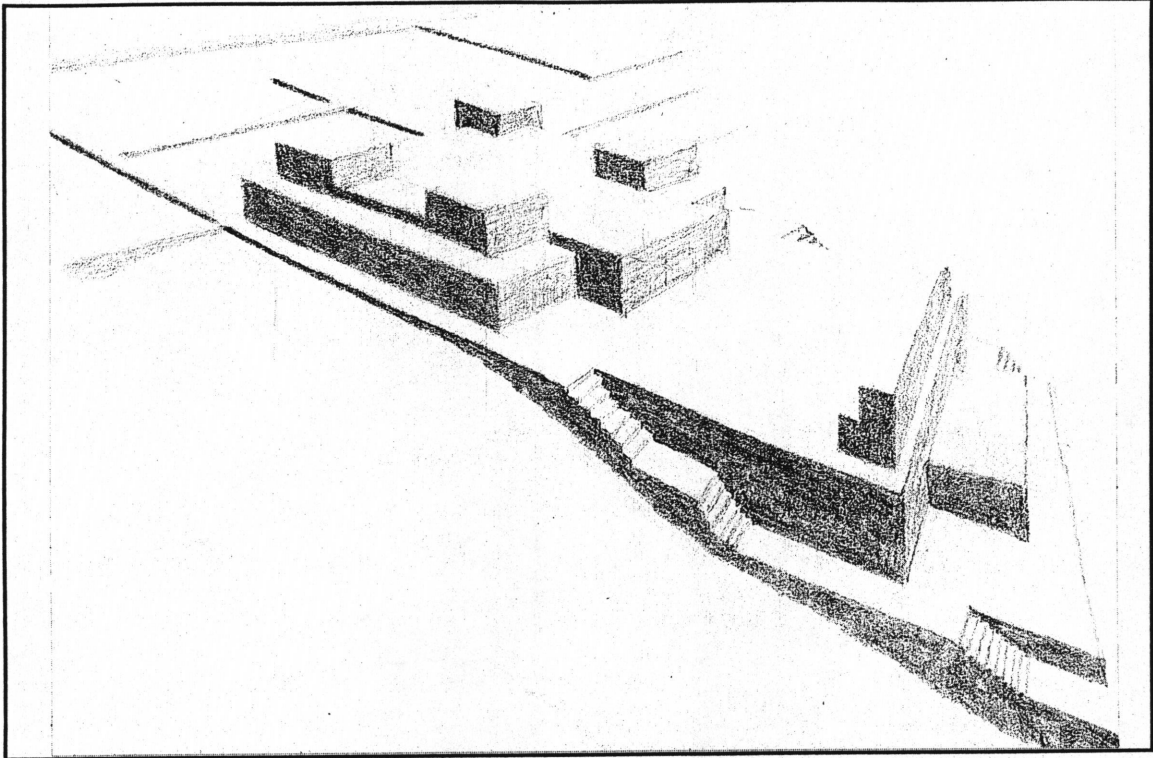
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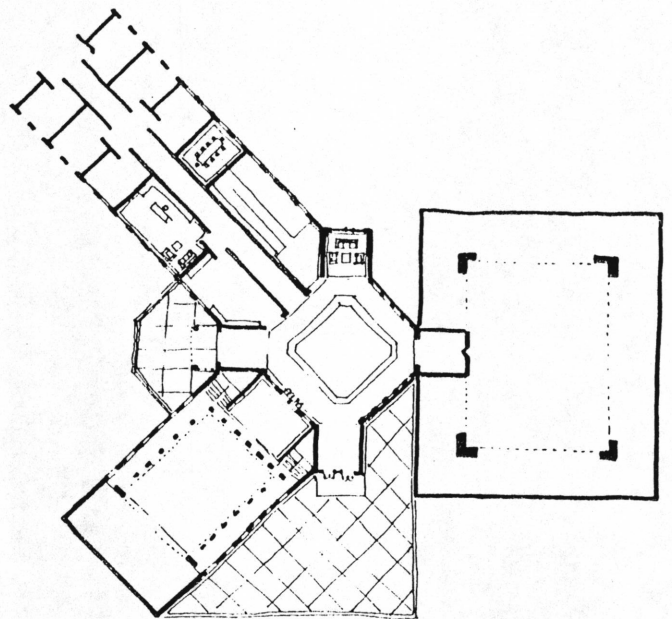
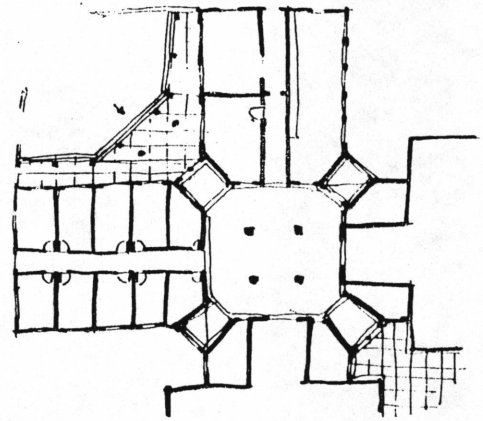
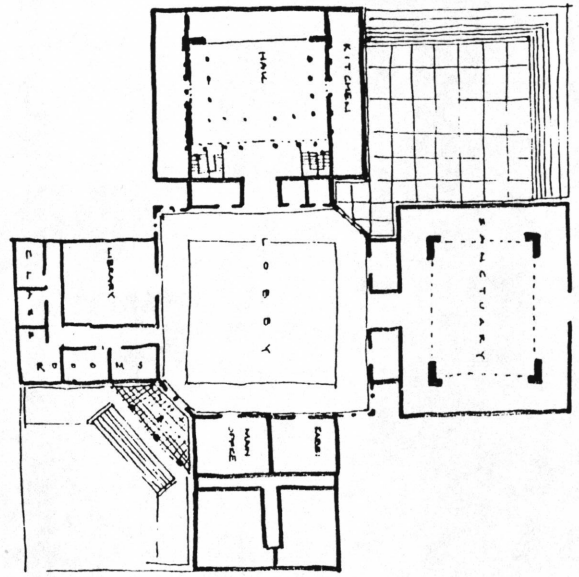
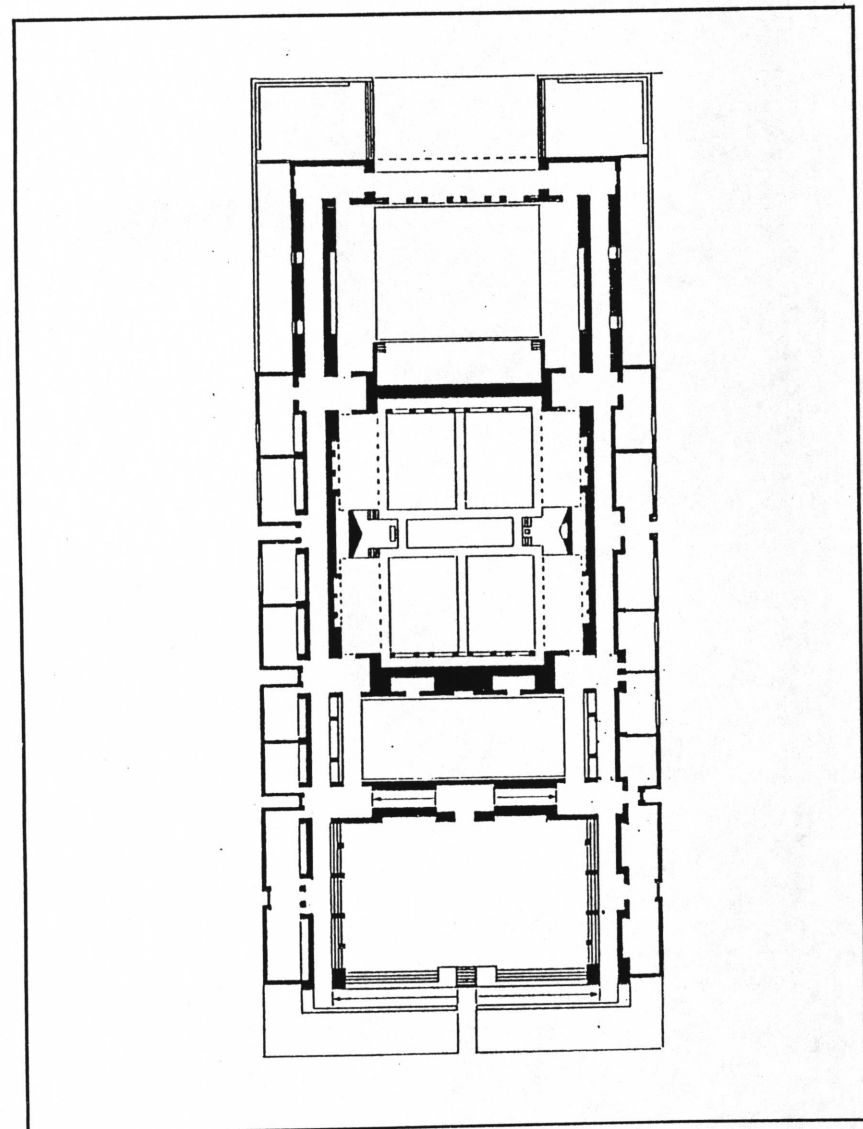
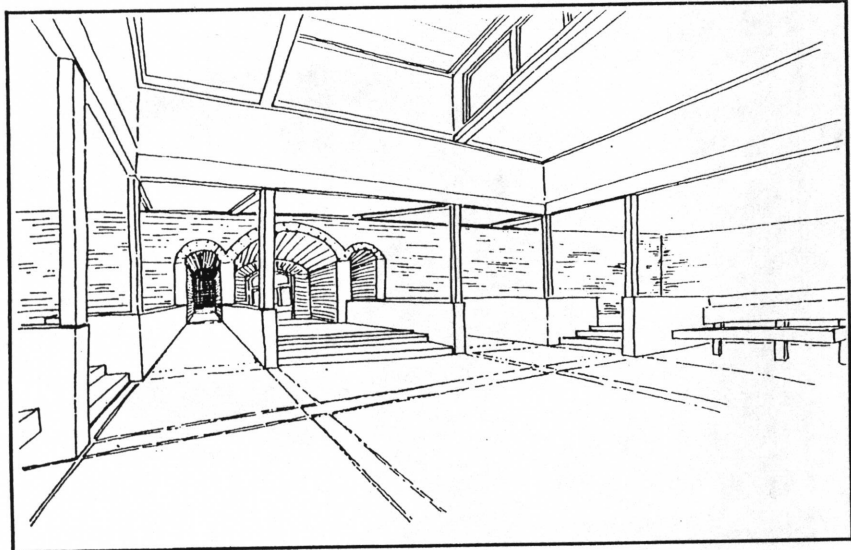
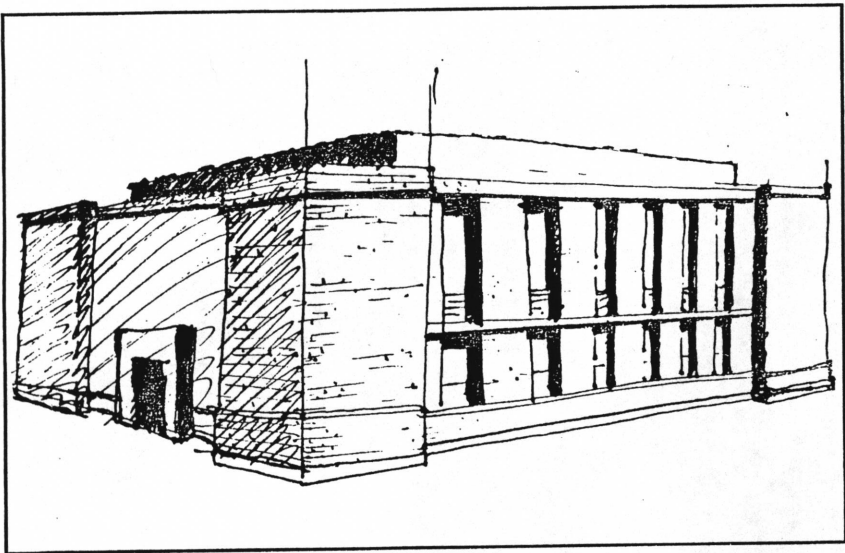
## DESIGN STUDIES

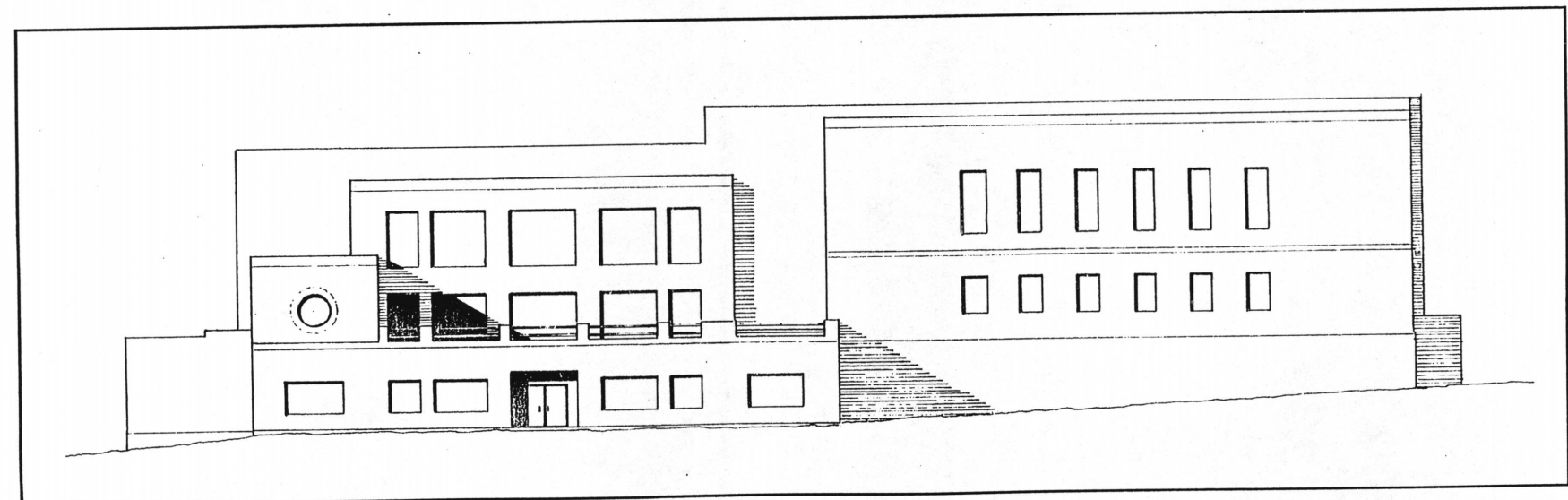
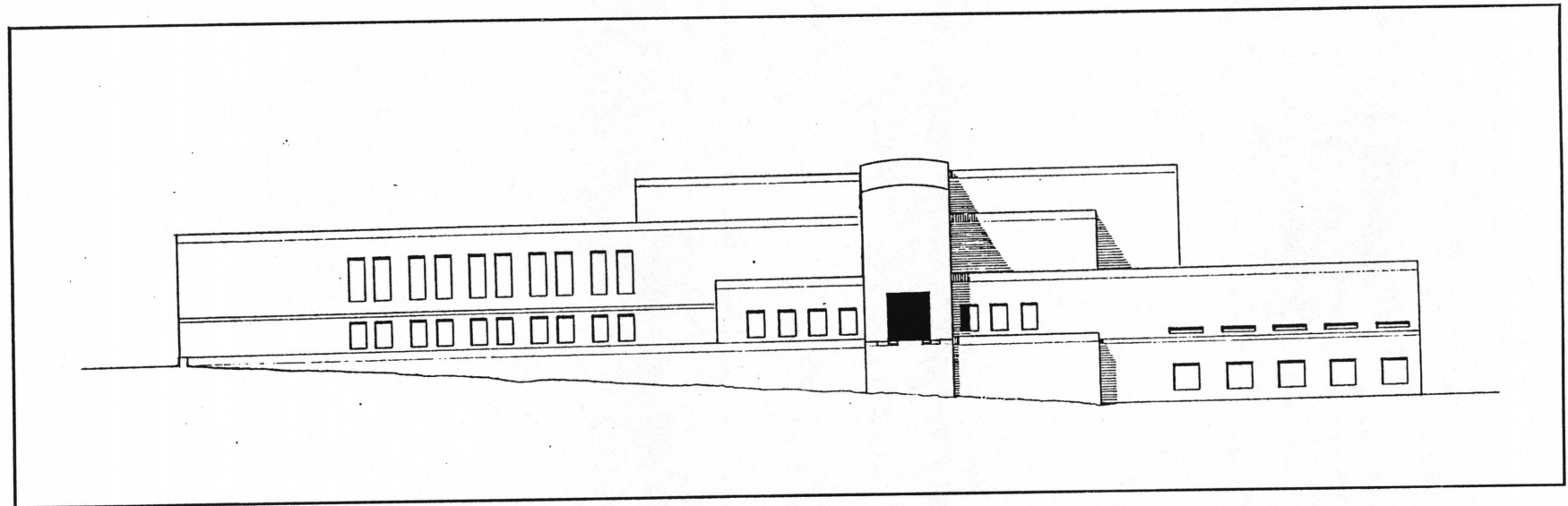
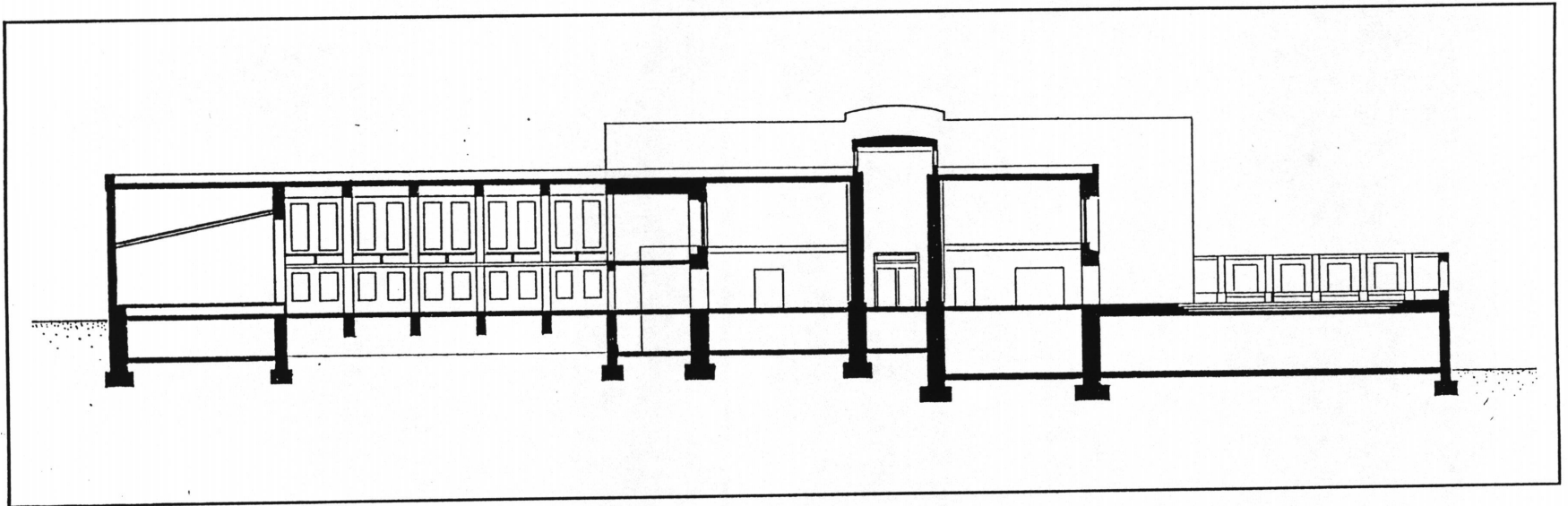
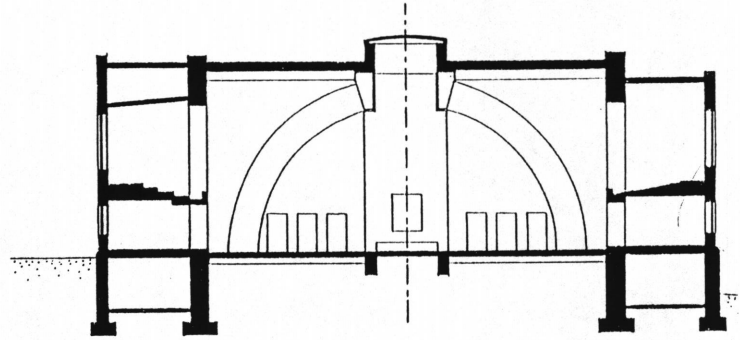
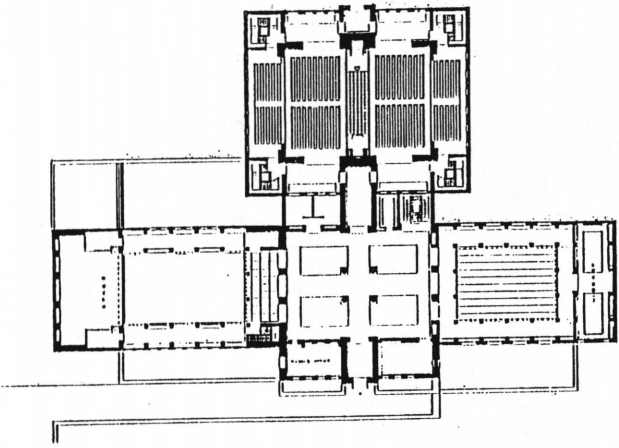




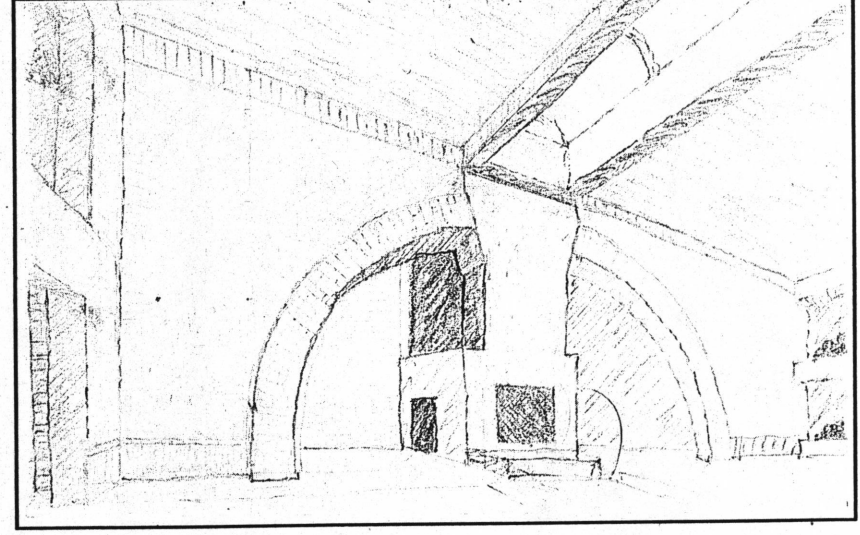
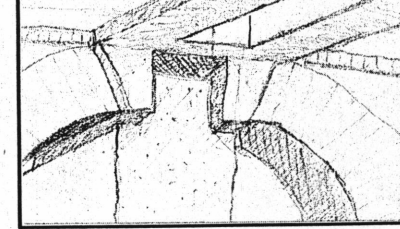
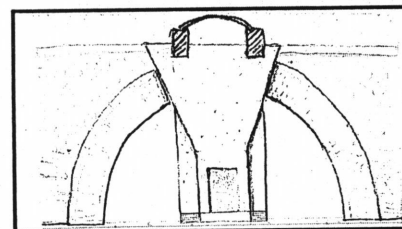
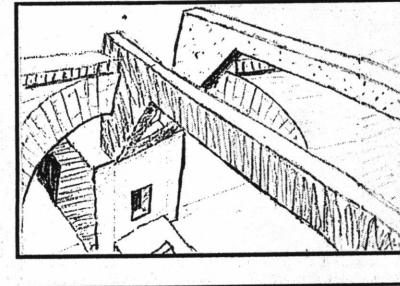
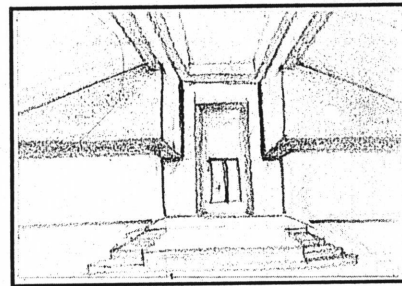
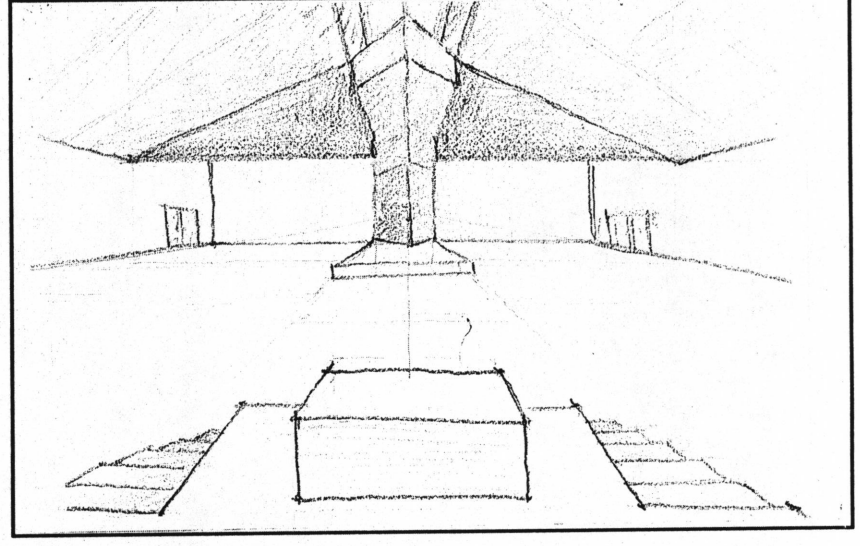
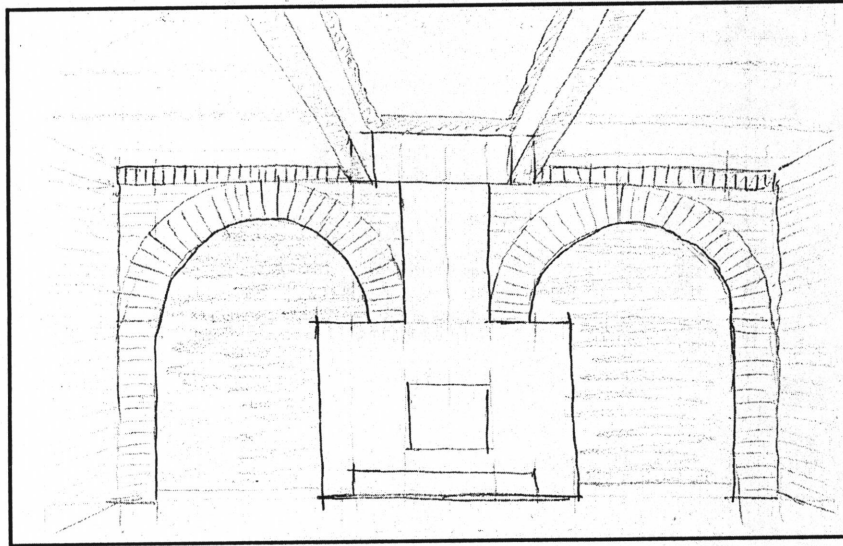
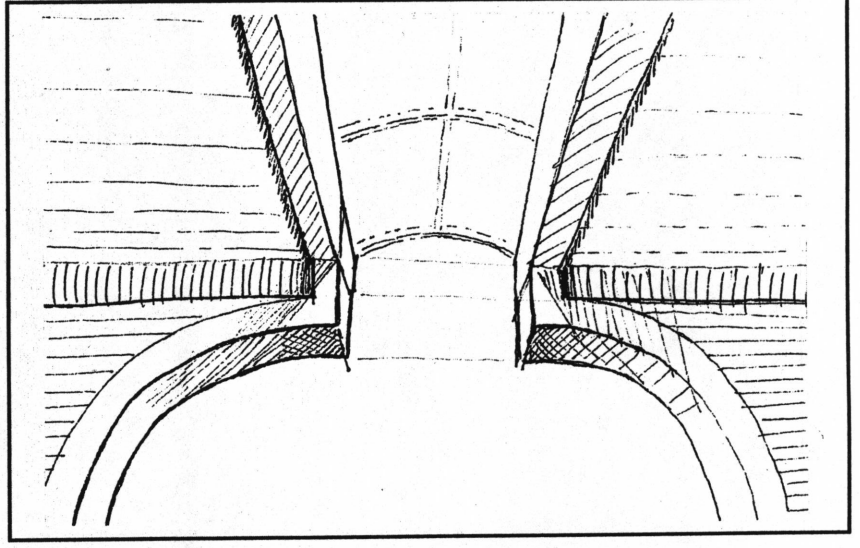
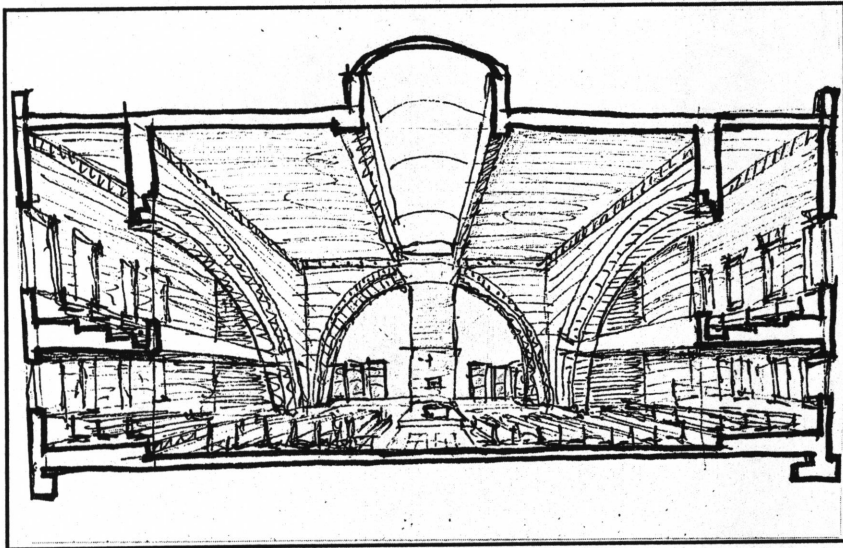
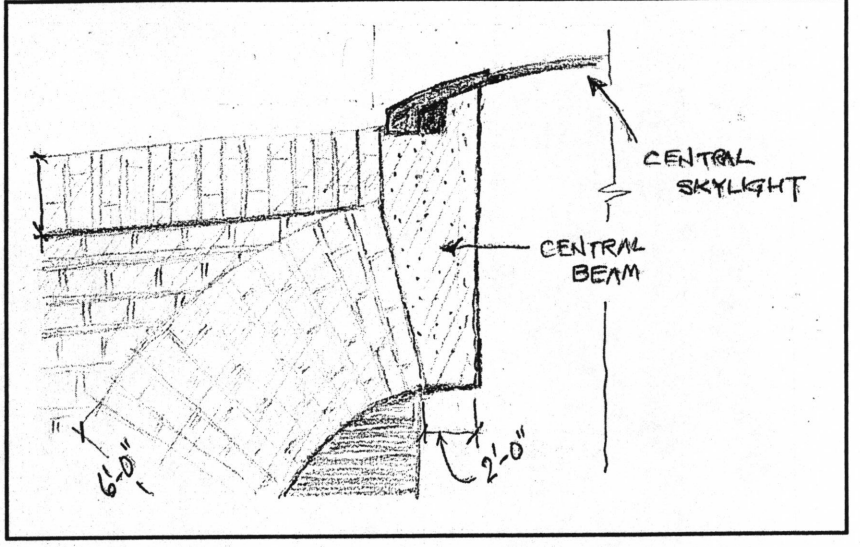
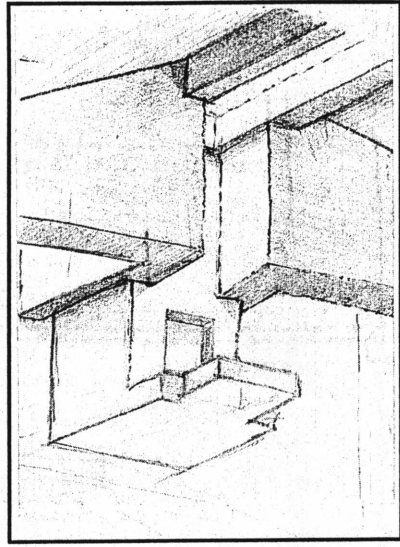
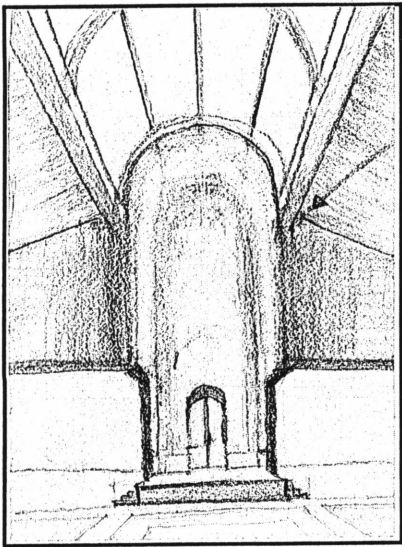


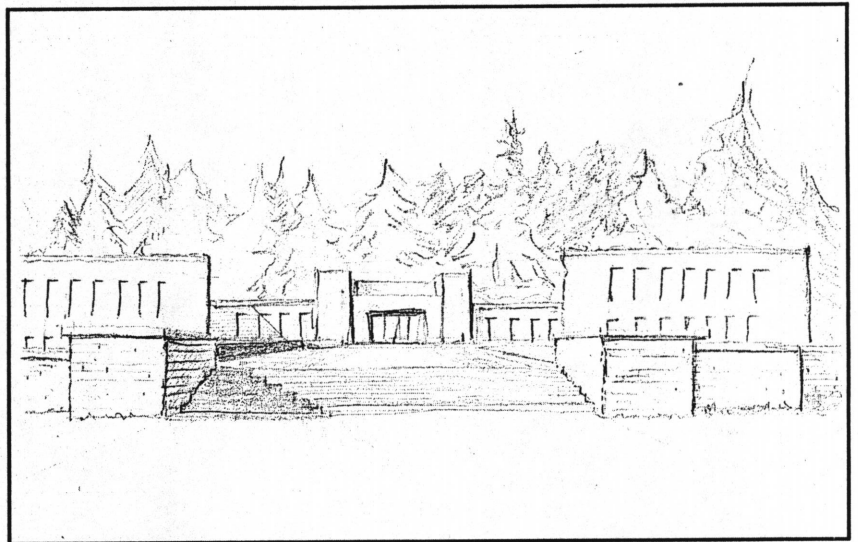
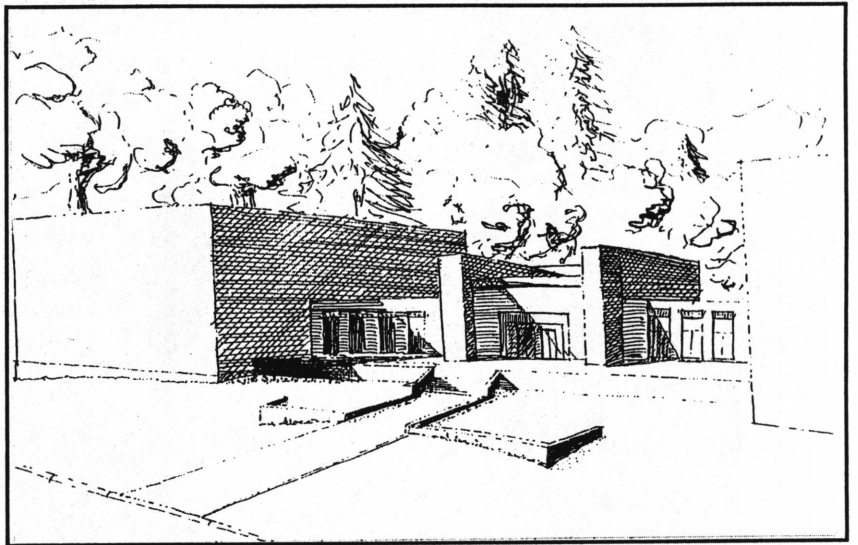
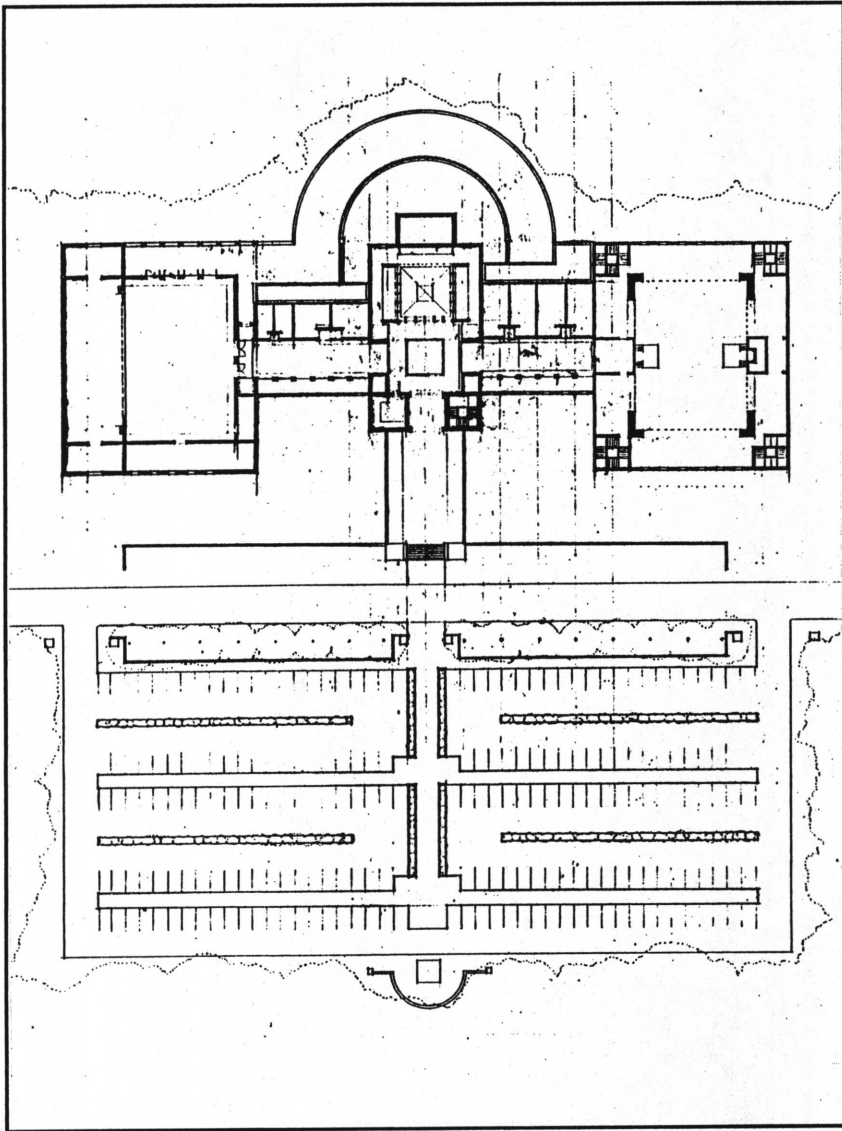






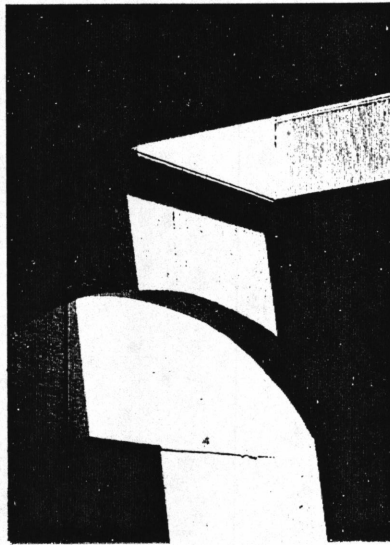


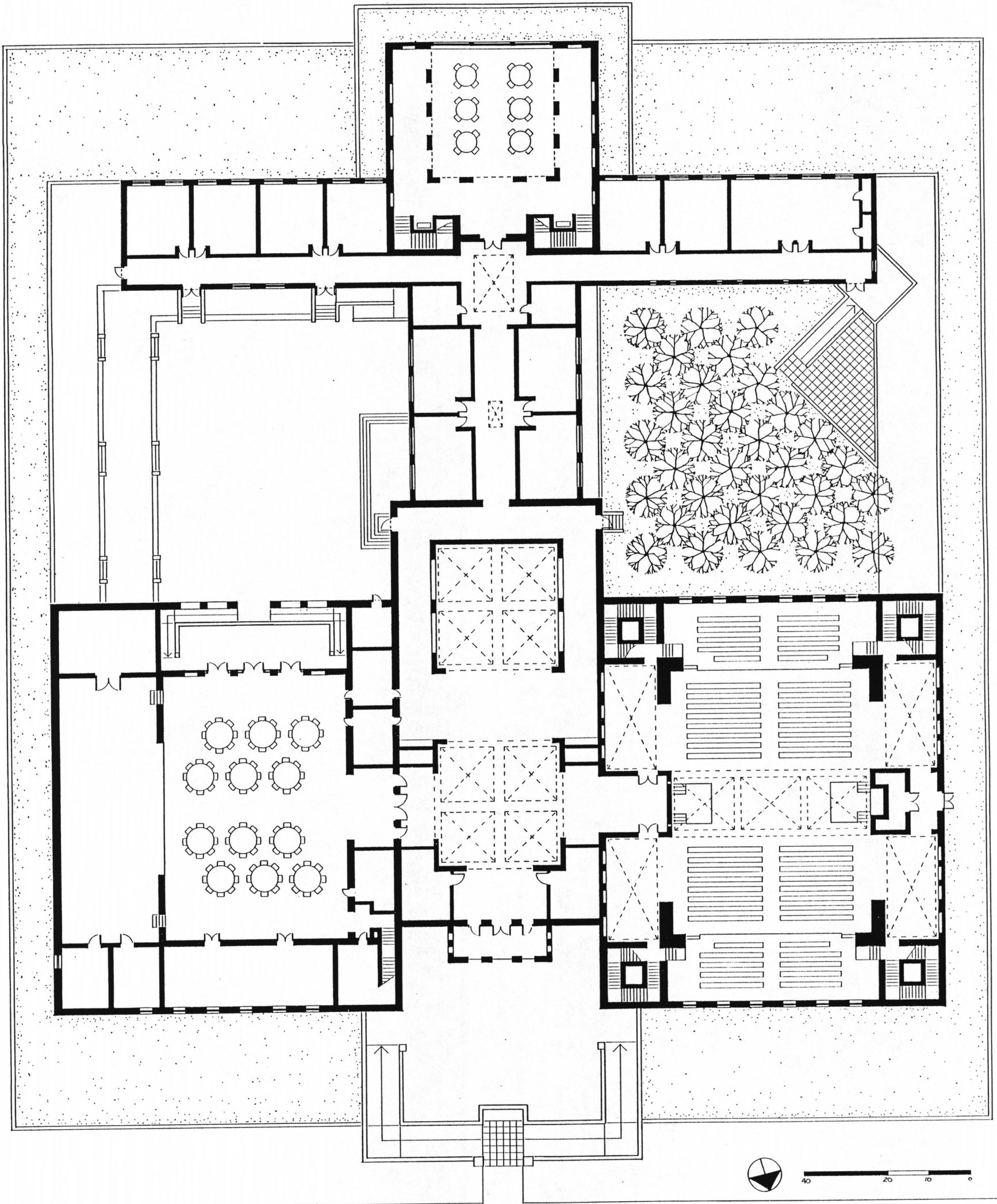


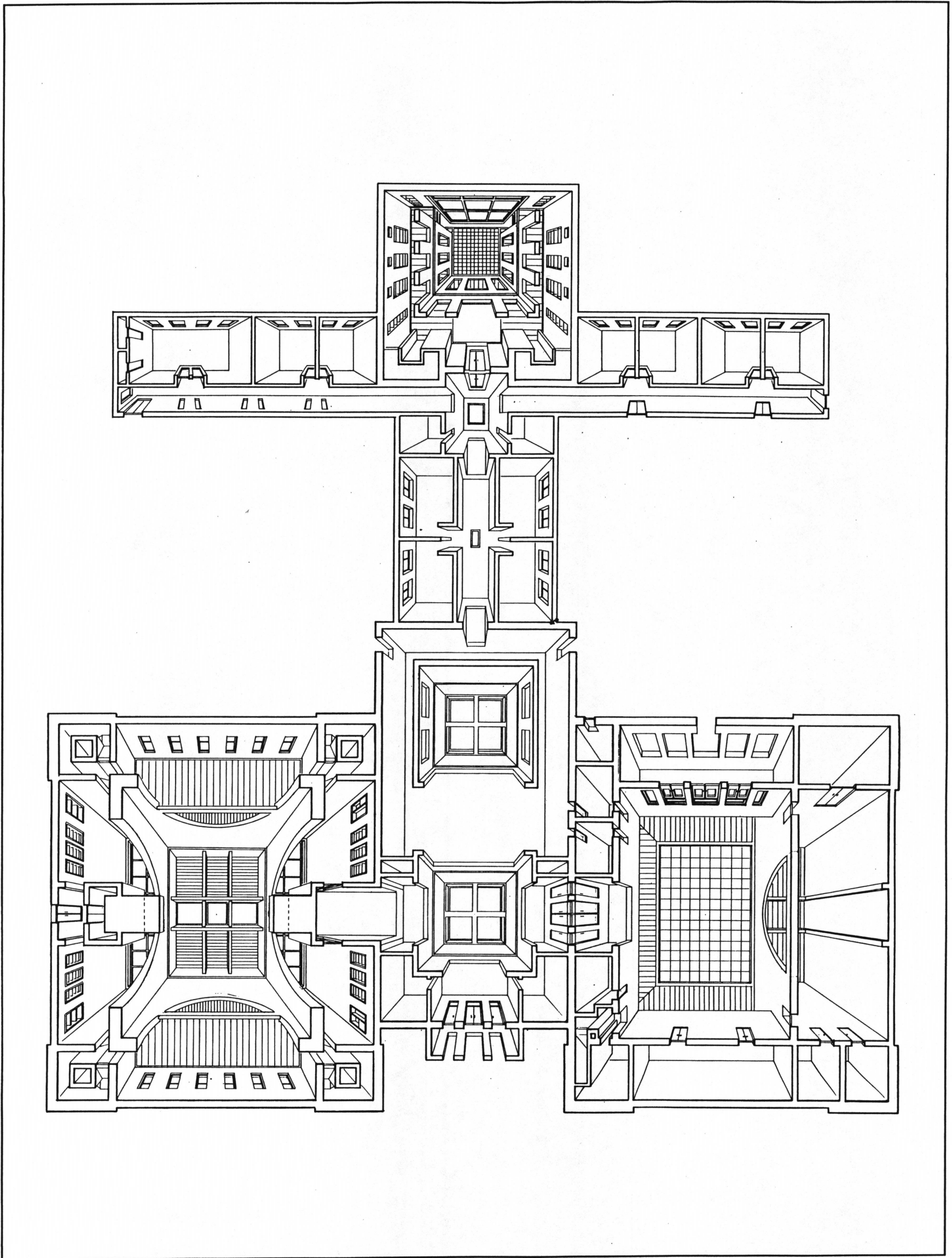


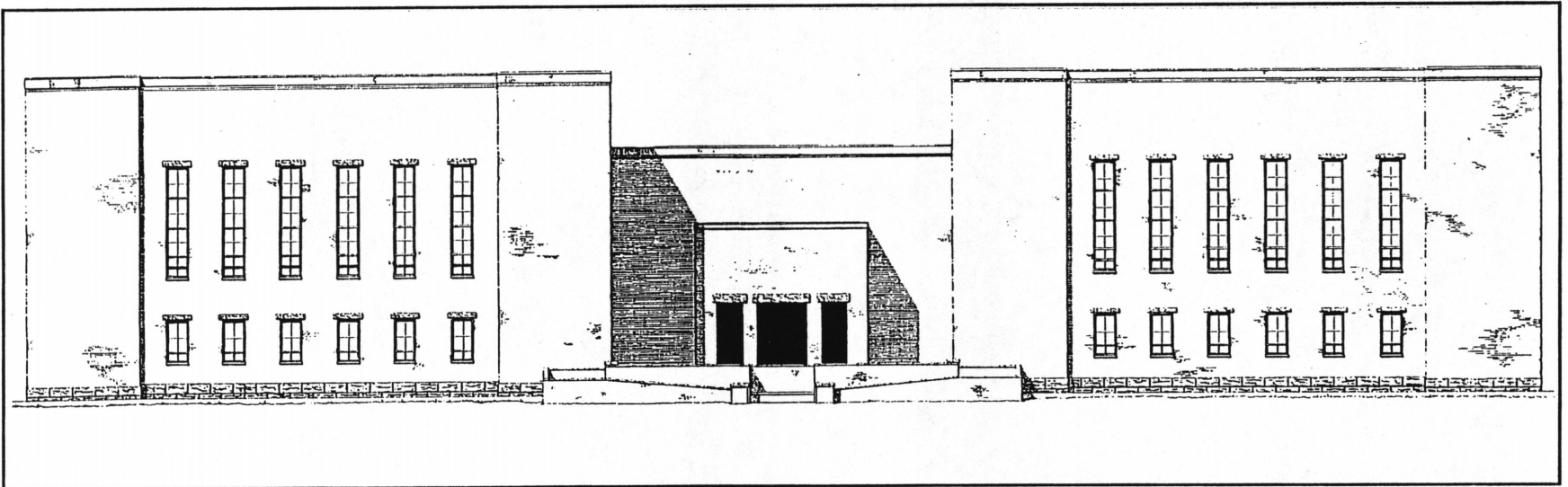
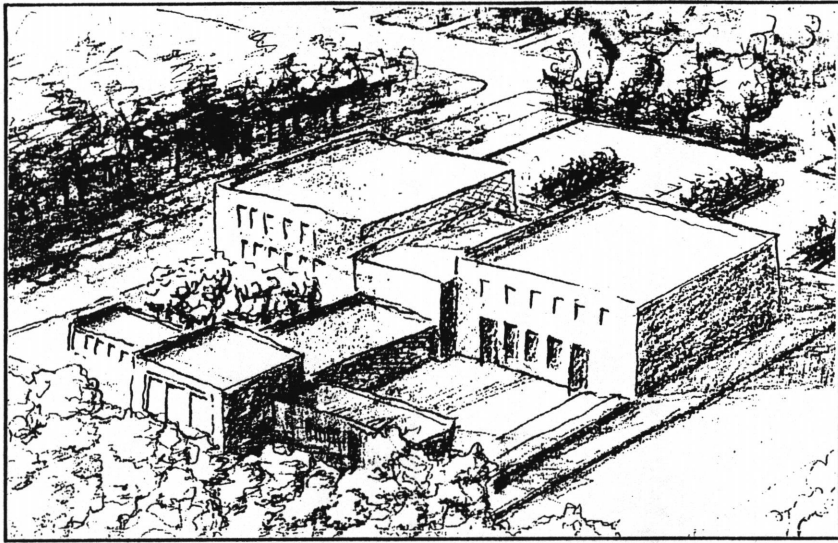
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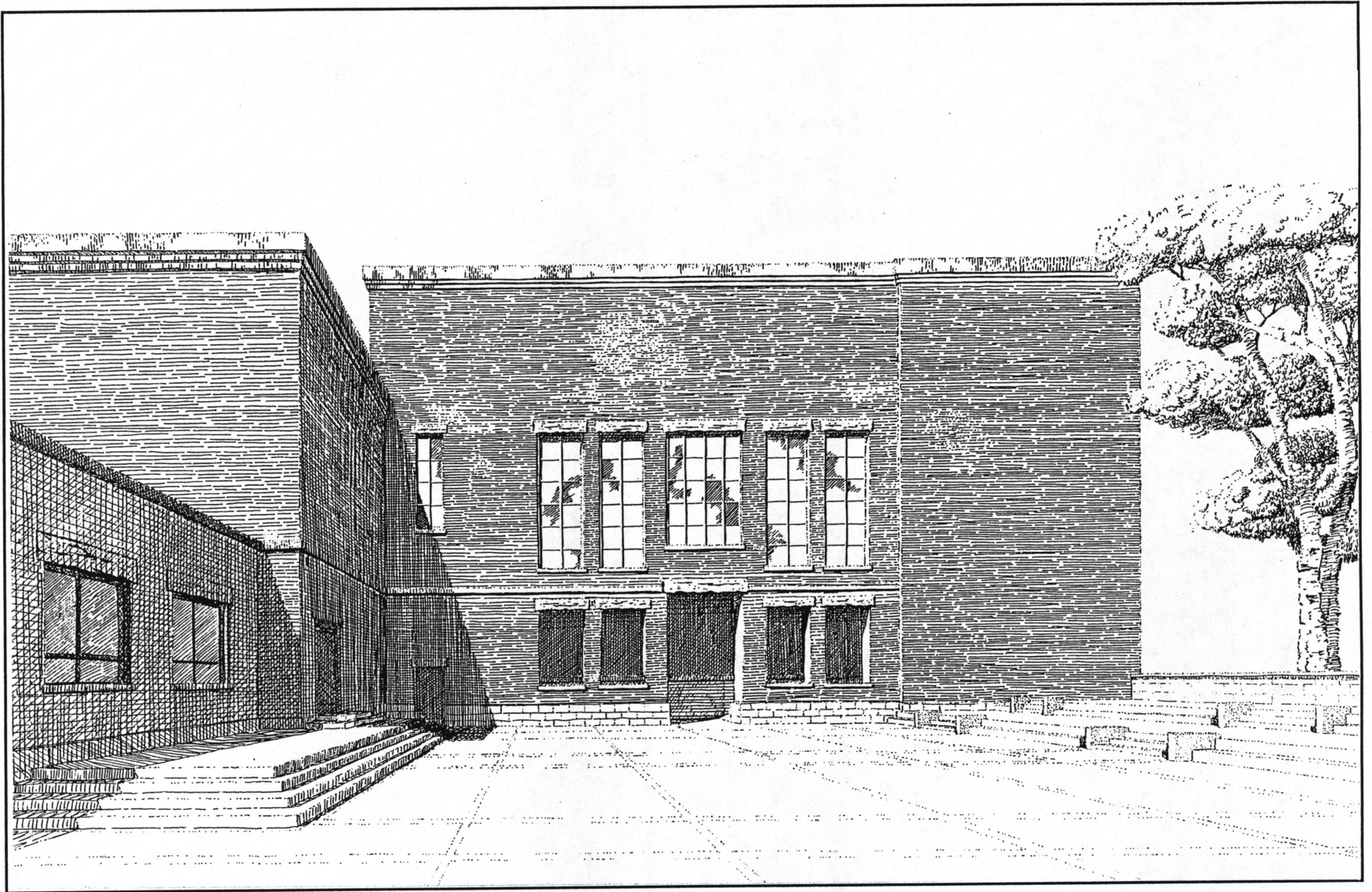
## THE FINAL PROJECT

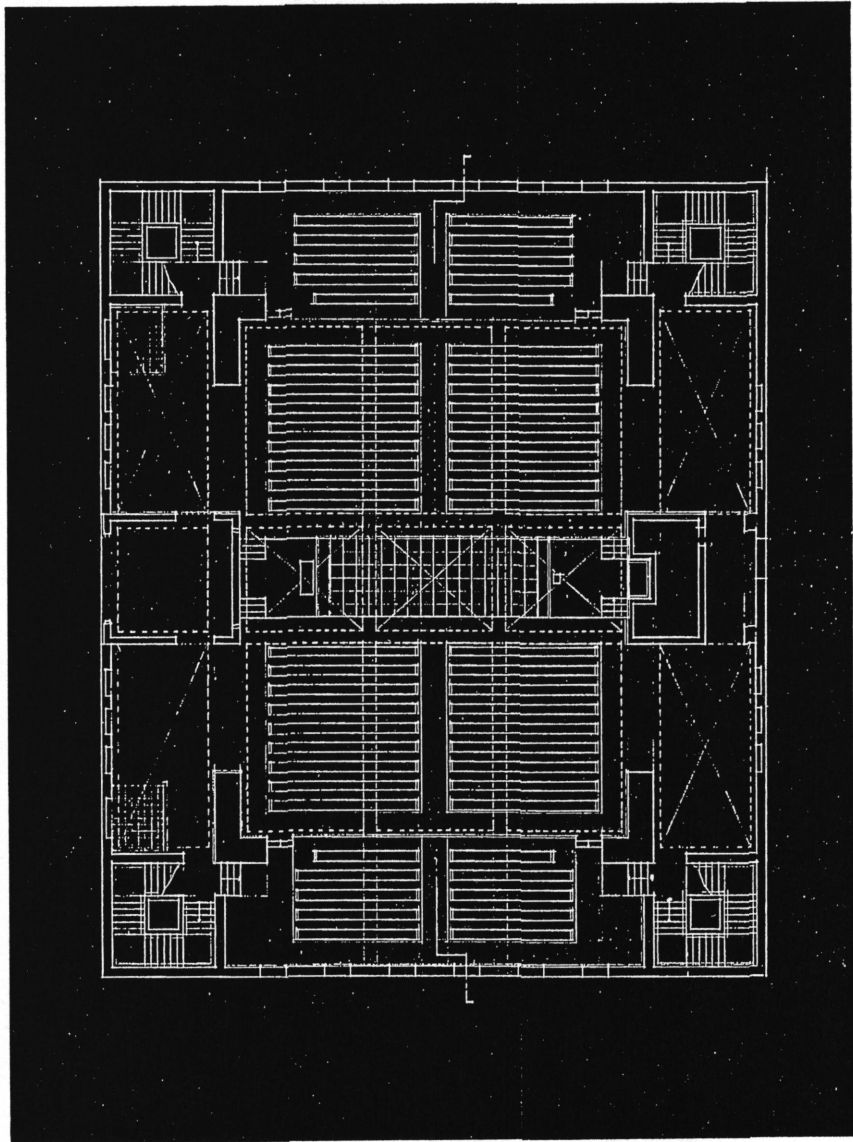




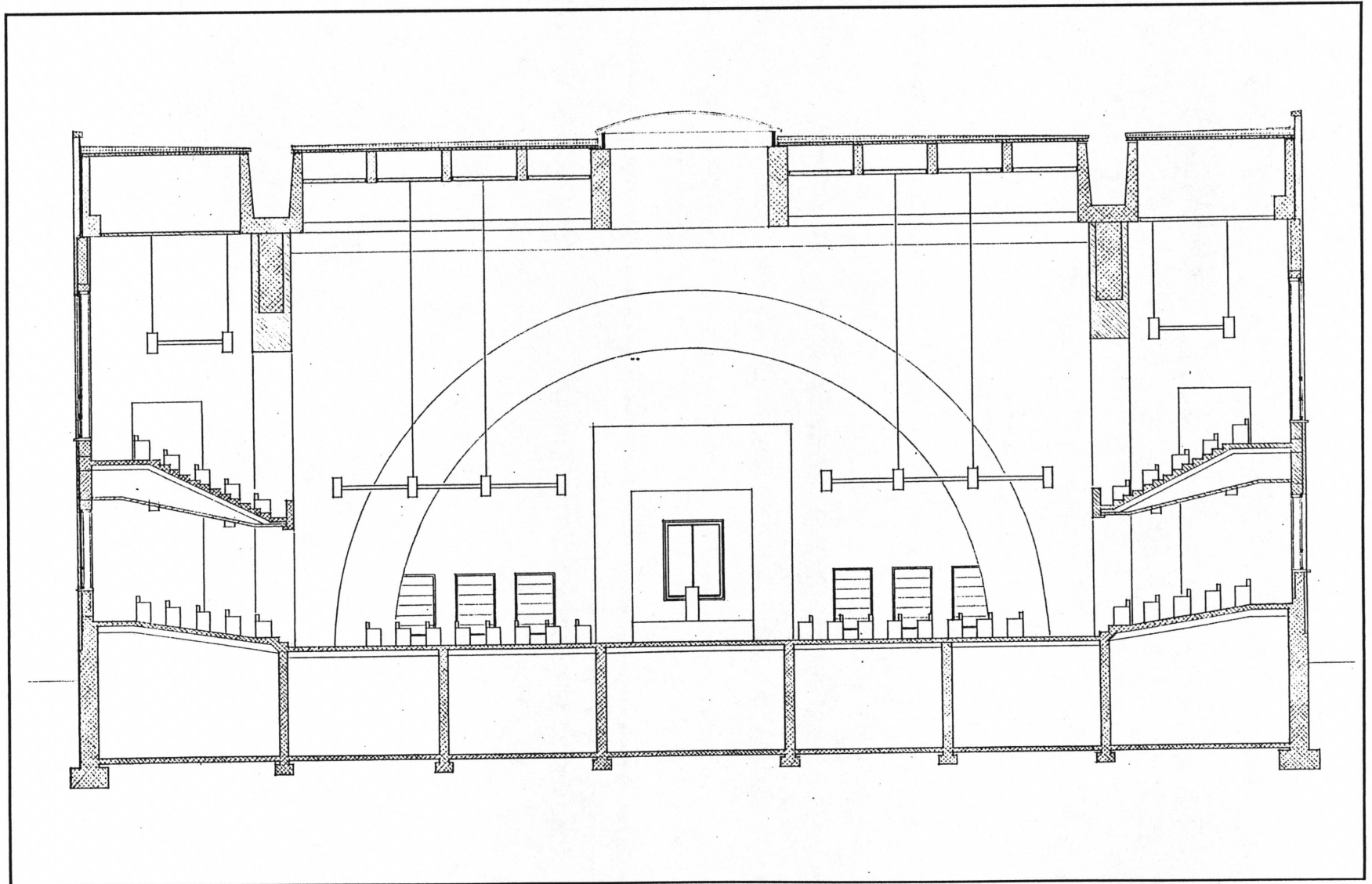
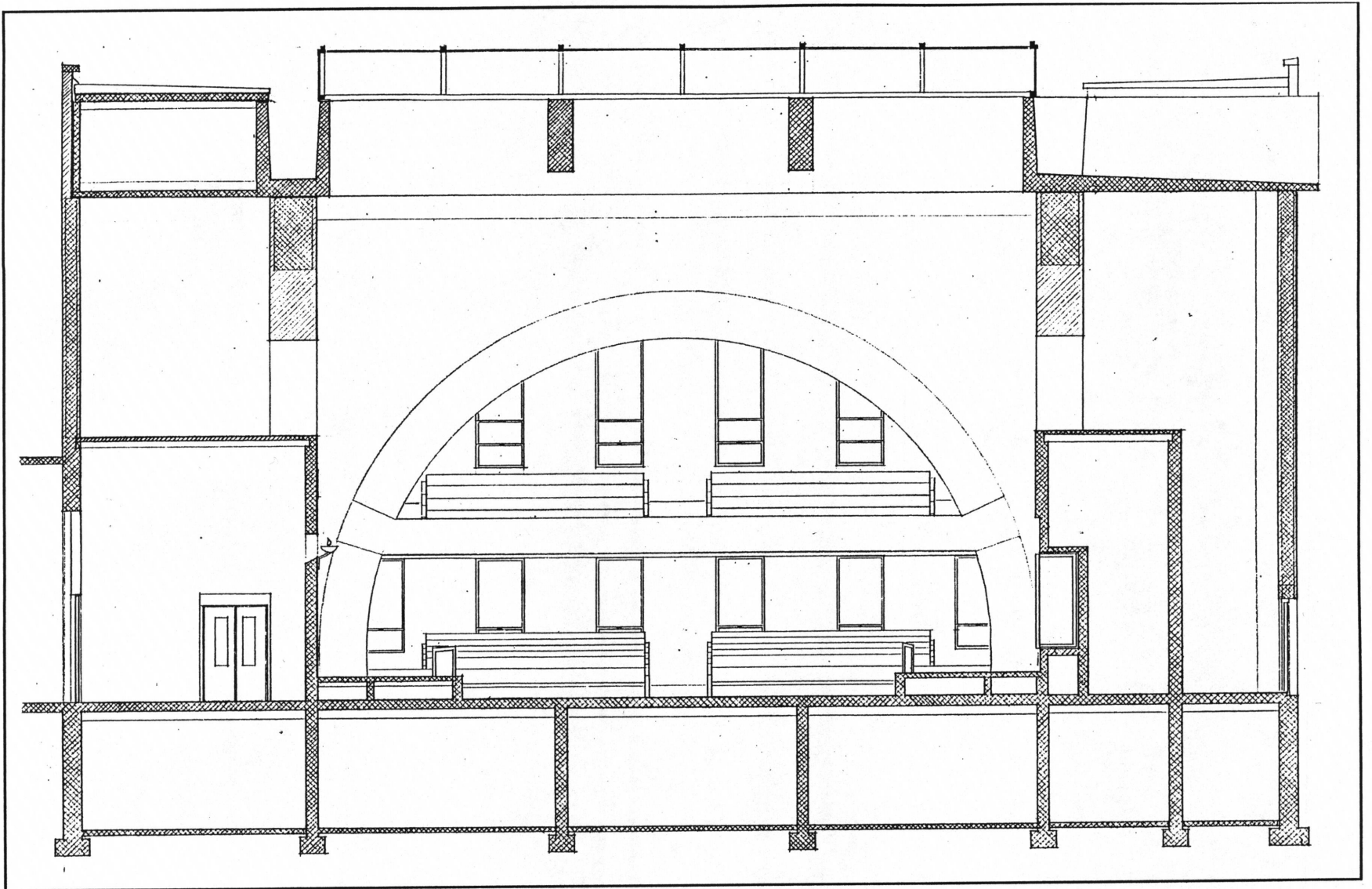


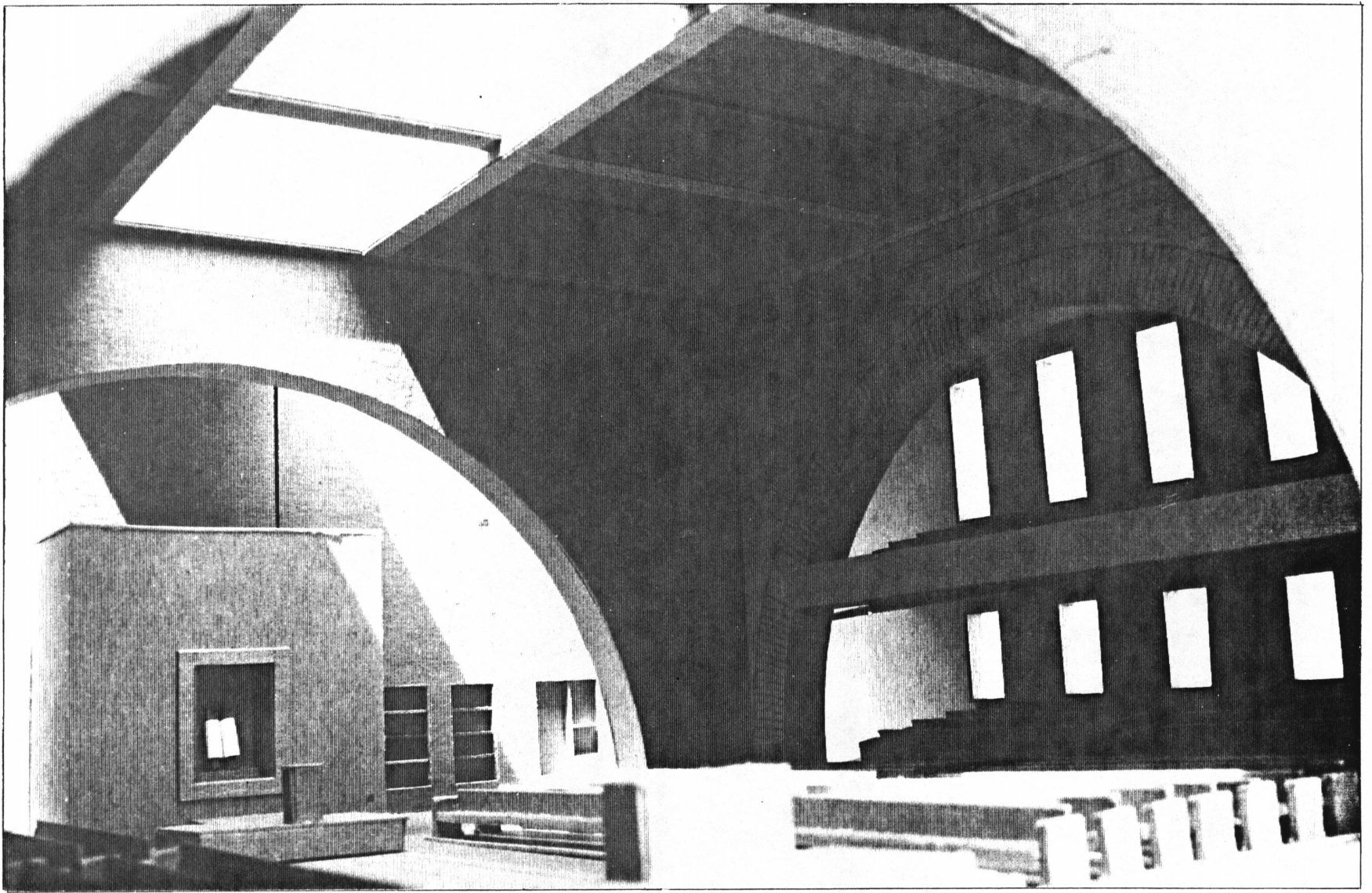


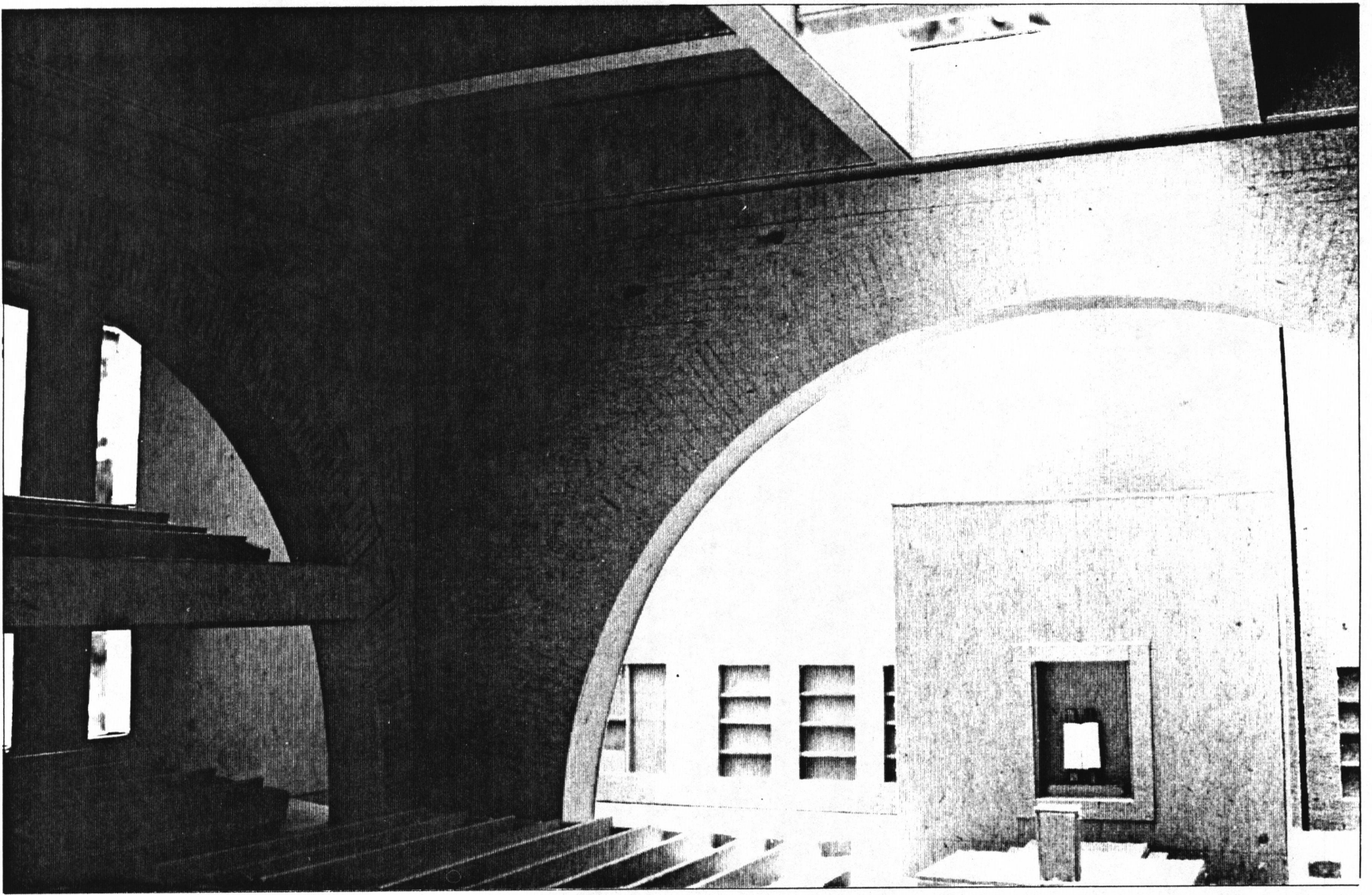


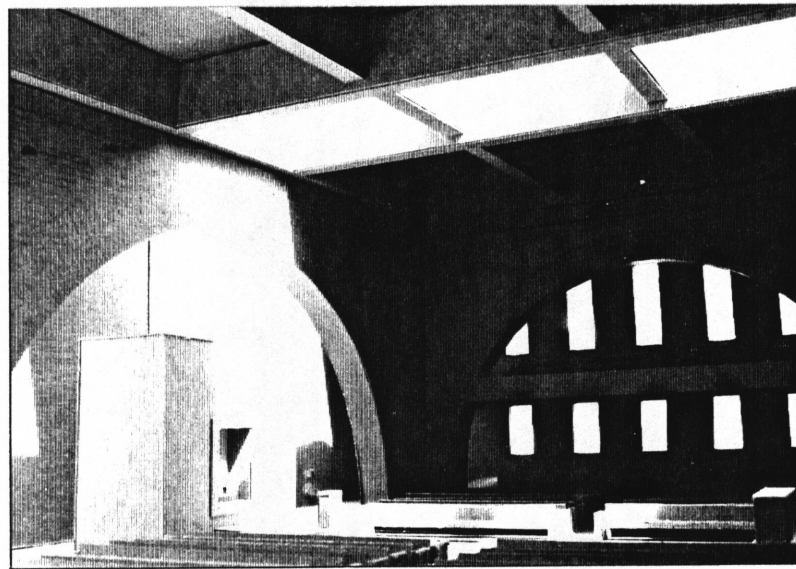
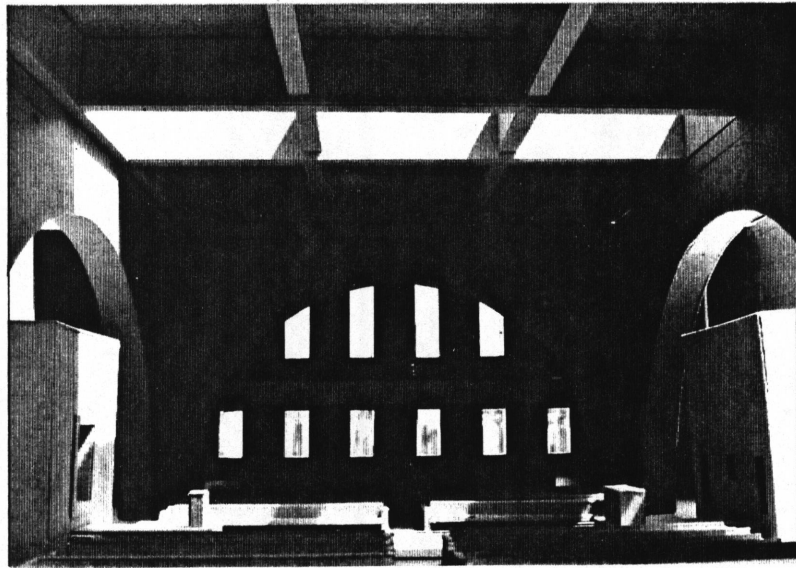


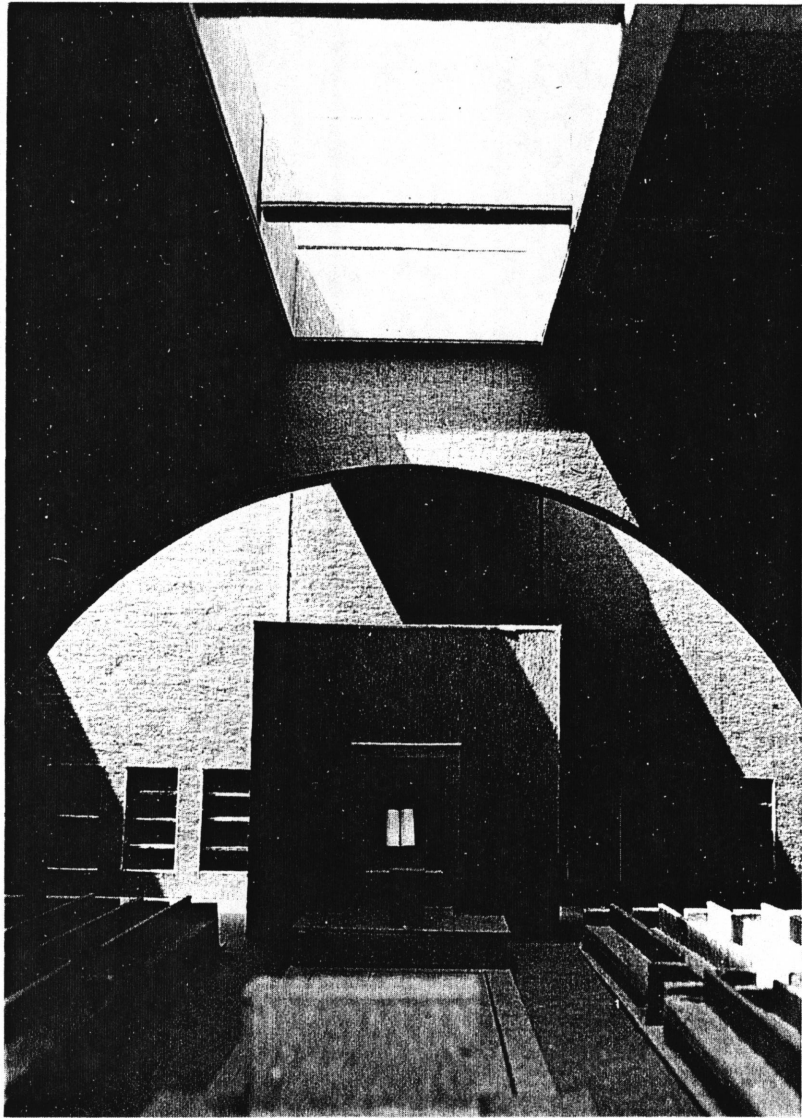












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