

A DESIGN FOR WORSHIP

by

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To the faculty, staff and spirit
of Virginia Polytechnic Institute,
I offer my sincere thanks.

"..the truest way to an honest and
inspiring architecture is through
a sincere attempt to gain beauty
in a simple way." 1)
Talbot Hamlin

The work contained herein does not attempt to be a solution to church design problems. It is, rather, a step in the direction of design with a sound philosophical background, related to our present-day and anticipated needs.

The first purpose of this study is to relate the buildings to the people and to their surroundings. In essence, this is architecture and city planning as one. The buildings of our cities must be related to their surroundings, they must be built with regard to the future, and must satisfy the emotions of the people. If these requirements are not fully met, our architecture and cities will continue to decay.

The second purpose of this study is to review the best and latest sources of information on ecclesiastical architecture, to analyze this information, and from the acquired knowledge to formulate a program for the design of a church which shall be a design for worship.

The resultant design is not intended to be the ultimate in church architecture, but to be a reference of direction in church architecture controlled by a philosophy which is the foundation of the design. Its basic principles strive toward a church for daily use, possessing an

1) Talbot Hamlin: Architecture, An Art For All Men, Columbia University Press, 1947, p. 224.

atmosphere suited to the use. This church will grow in size and will grow in the heart of the people as they realize the advantages of a variety of activities within the church. The result is a church to meet the daily needs of the congregation and those reached by its influence.

The Christian Church, Disciples of Christ, attaches much importance to its effort to preach and practice primitive Christianity and nothing else. It is its purpose, now, as in the many ages past, to place the main emphasis on preaching, reading of the Scripture, The Lord's Supper, baptism, and the singing of songs of faith. It does not bring processions or creeds into its belief.

Baptism has been a high point of Christian experience in every age. In ancient times it took place in the rivers and lakes. Now, however, baptismal pools are built indoors, and attention is given to producing an impressive service, free from confusion, conducted in full view of the congregation, yet without embarrassment on the part of the candidate.

For The Lord's Supper, in ancient times, a common loaf and goblet were used. Now, individual cups and pieces of bread are used and served from a special table set aside for use as "The Lord's Table".

When preaching, in ancient times, the speaker was surrounded by men trying to get close enough to hear. With the building of churches, the sound was enclosed in a room. For many years little consideration was given to the seating of the congregation. Now, most designers build a rectangular room, placing the entire congregation in front of the minister where all can hear and see.

These basic elements are brought together in the chancel. The communion table is in the center, with the baptistry opening behind it. The pulpit is placed forward and to one side, with the lectern on the

other, giving secondary places of prominence to the preaching and to the reading of the Scripture. In the Christian Church, the choir is placed in the chancel, so that it may lead in the singing. The position of the choir should not be such that it is a distraction to the solemnity of the service.

The chaotic conditions about us breed only monotony and boredom among the confused citizens struggling for existence. Most people, for this reason, are blinded to the conditions engulfing man or to the realities of good life. Man lives and works in a shell which saps material energy from him and gives little or no spiritual or cultural energy in return. Even his pleasures are manufactured for him by conniving merchants. He is the victim of speed and advertising.

With these facts in mind, it shall be a purpose of this thesis to consider the customs of the church and to consider the needs of man. The site plan will be carefully studied so that the church will be apart from confusion and danger. An area will be developed in which man may find an appreciation of the building, and sense its purpose without being distracted by the rush of traffic. The church should meet the everyday needs of man for spiritual energy and reassurance of the Christian way of life.

The existing church is located in the town of Charlestown, Indiana. Until 1940, this was a country town with a population of approximately 1000. The town depended primarily on small businesses and agriculture for its existence. In 1940 a great boom started with the building of Indiana Ordnance Works and Hoosier Ordnance Works (since redesignated Indiana Arsenal) on the south edge of the town. A new school, three housing projects and many businesses were built. With the exception of one housing project, divided and moved to several universities, all of the expansion has remained since the end of World War II. Also, more homes and businesses have been built and several small industries have been established. Again, the town is in the process of expansion with the reactivation of Indiana Arsenal for production for the Korean offensive.

The arsenal, railroad and highway have caused the direction of expansion to be to the north and west from the old part of town.

The existing Christian Church is located on the corner of Water and Harrison Streets near the center of the older part of Charlestown, but away from the center of the population, as the town now exists and shall proceed to grow. The lot measures 80 feet by 200 feet.

The church proper and three small Sunday school rooms, all of frame construction, are on the front of the lot facing Water Street. A recently purchased two story brick duplex is on the rear of the lot facing the minor street. This building is being converted for Sunday

school use, to meet the overwhelming situation which has been upon the congregation for many years. The duplex will be used as an emergency measure to serve until more ground is secured and proper facilities can be built. Only at that time will the church be able to invite many more people to attend its services.



38°27'30"

85°40'



The existing site, as previously stated, is insufficient in size and is in a bad location with regard to the town's expansion. For this reason, it is felt that it is wise to select a new site which is well related to the expansion of the town, and protected against the development of blight around it.

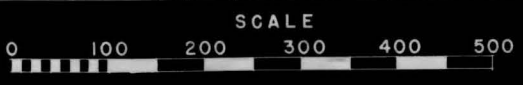
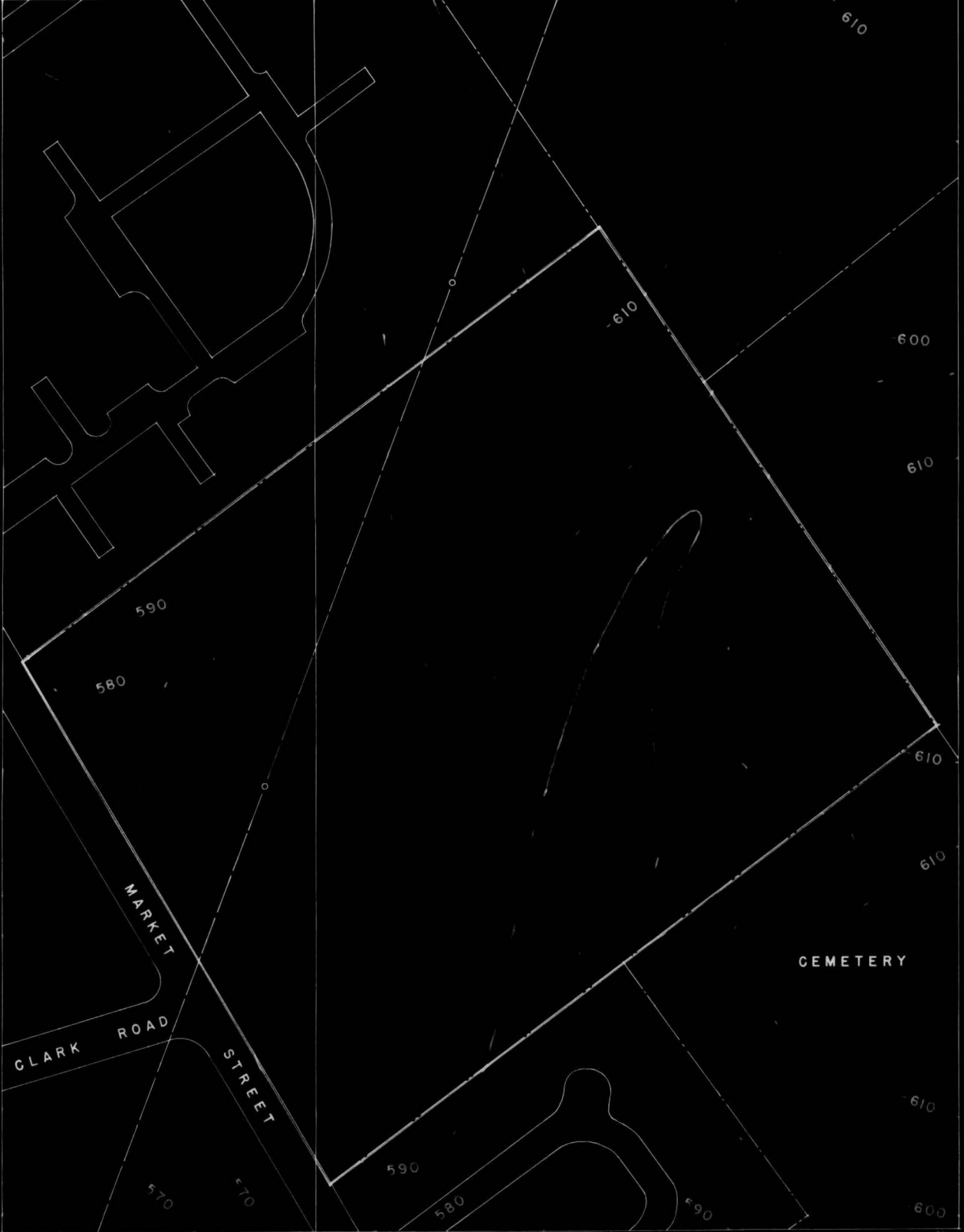
The site selected is located nearer to the physical center of the expanding town and near the center of a community development of sufficient population to support a church of the size desired. The site is larger than is necessary for the church alone, so it shall be subdivided in such a way that a protective belt will be formed around the church plot.

The selected site will be subdivided in such a way that a desirable plot may be obtained for the church group, and the remaining area will be developed so that it will be an asset to the church and to the community.

Because of the importance of the location of this undeveloped site, it is felt that the corner lot on the southeast corner of the intersection of Market Street and Clark Road should be developed for a small neighborhood shopping center. Adequate off-street parking will be provided, and the shopping center will be landscaped so that it will not depreciate the value of the neighboring lots.

The remainder of the site surrounding the church plot will be developed as choice residential lots.

THE SITE



To facilitate access to the church property, a cross-town route will be developed through the site selected, passing on one side of the property of the proposed church. It will extend from Market Street at Clark Road, through the site, to and along the southern edge of the site of the future school. On the other sides of the church will be a loop street, planned as a protection for the church and for the property value of the choice residential lots it will serve.

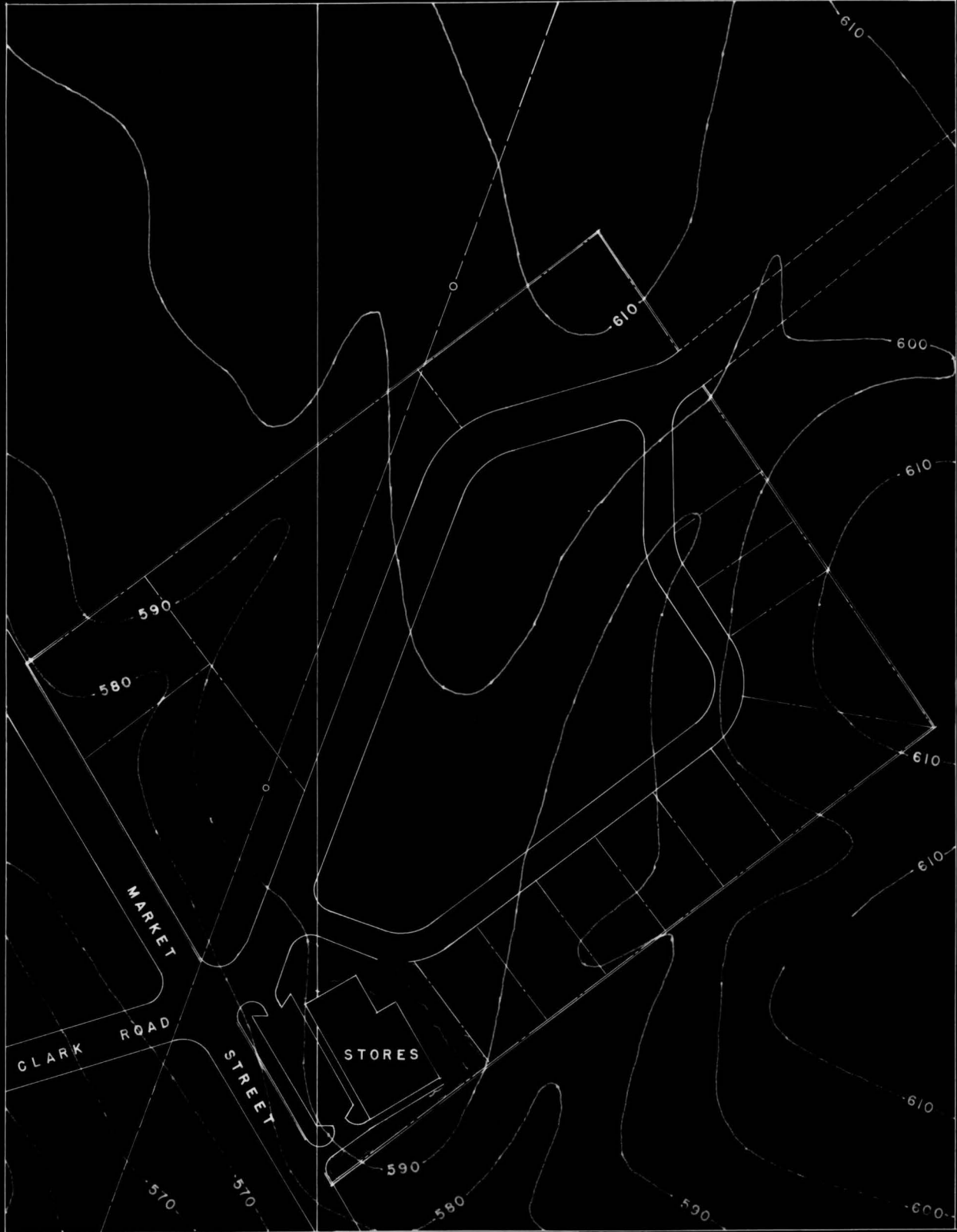
The outmoded and undesirable grid system of site development has been rejected. Consideration is given to all natural elements affecting the development of the site.

The portion of the site selected for the church has been studied, to find the nature of its grades and its orientation; these being prime considerations in the design of the church.

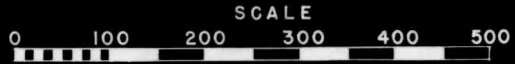
Plot Plan Studies - A, B, C, D and E were made using various combinations of the principal masses of the church group which will be the church, the chapel, the offices and religious education classes. The main purpose was to find the proper relation of these masses to the major street, to the natural grade, to prevailing winds and to the sun. When studying the orientation for natural light, emphasis was placed upon the solar angles at the most important time of use of the principal elements of the church group. When considering natural light in the sanctuary, 11 A. M. was taken as the average hour for a two hour program of worship. It is particularly desired to have proper emphasis on light in this portion of the church to further enhance the solemnness of the

solemnity

THE SITE DEVELOPMENT

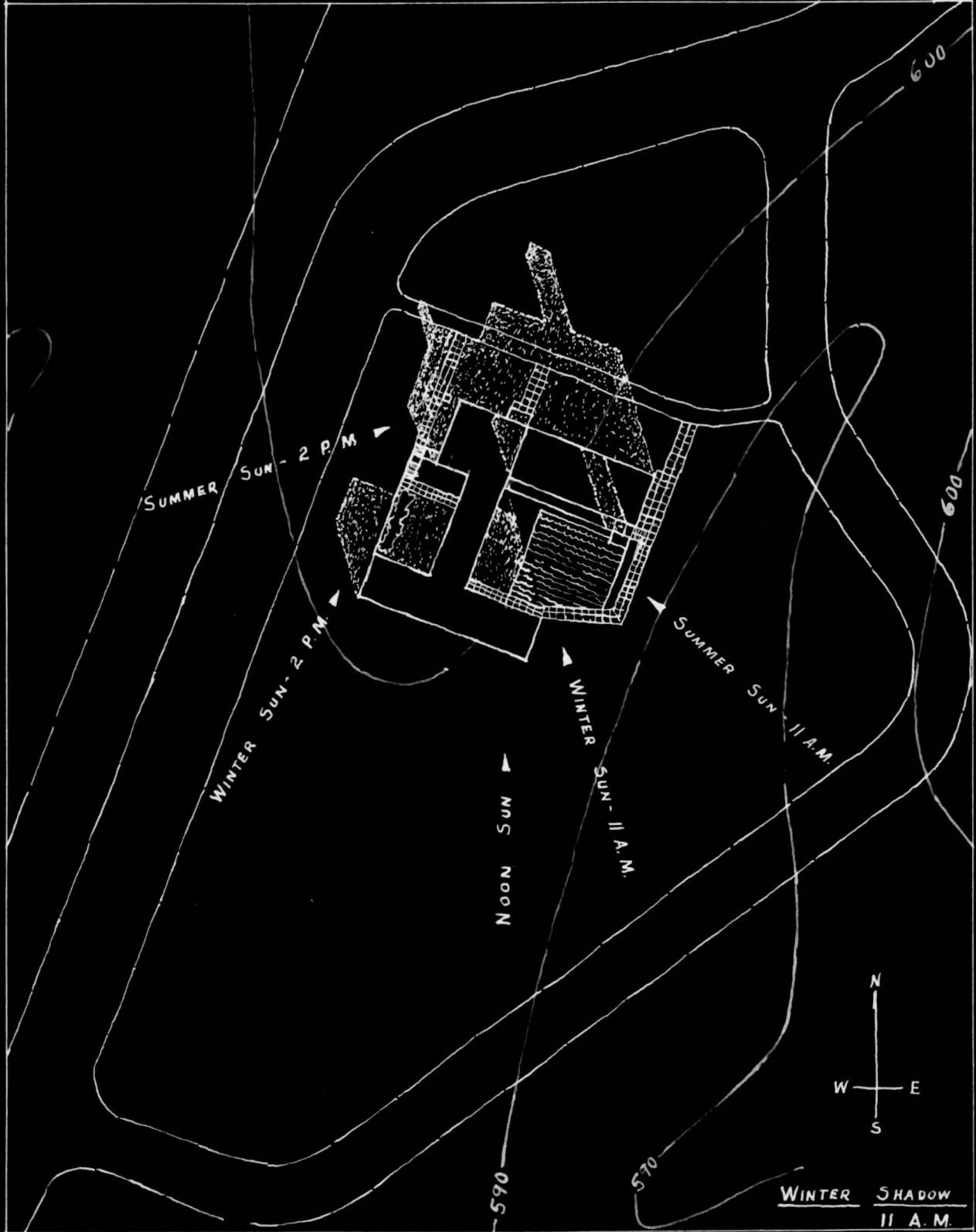


85° 40'

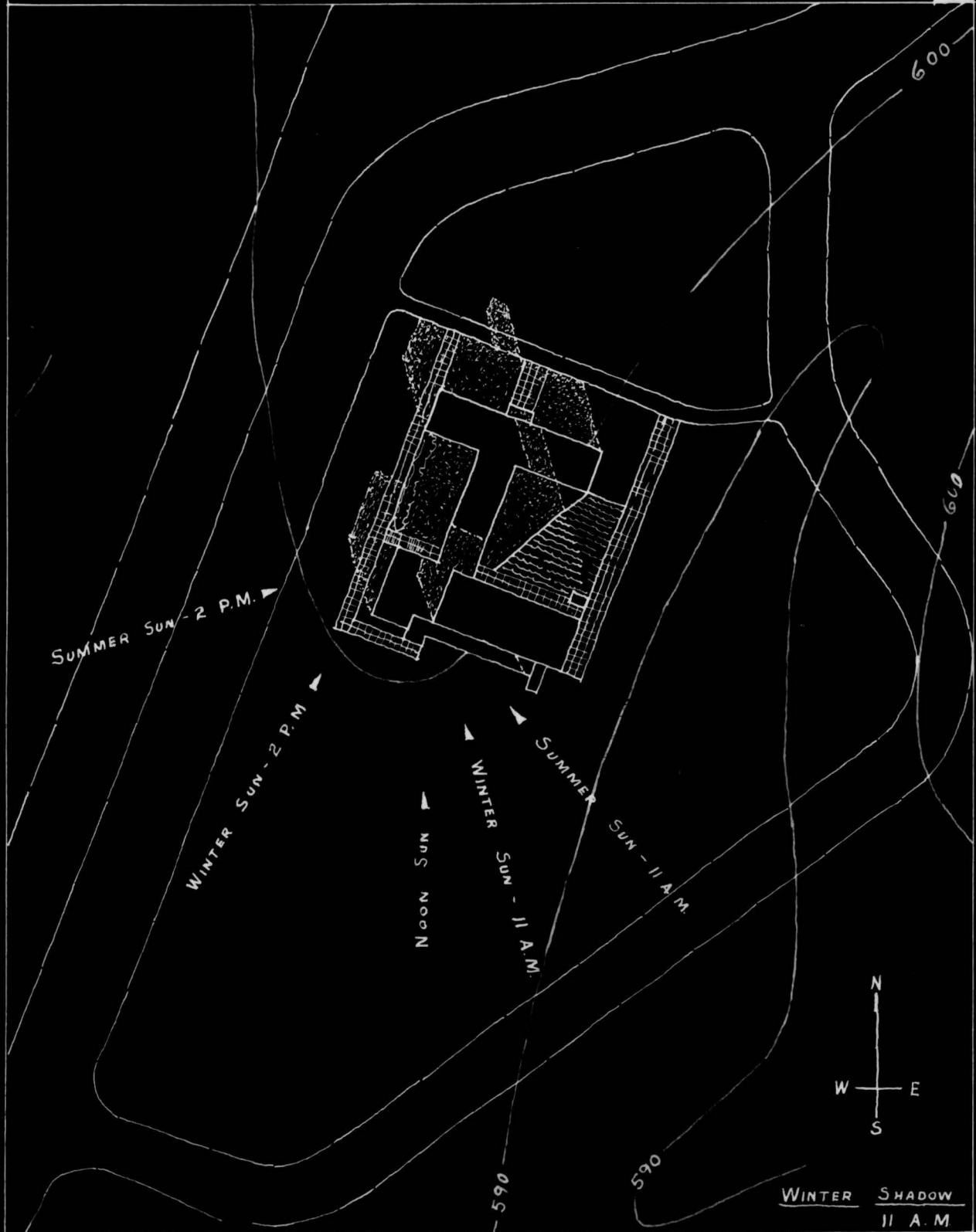


occasion. A similar study was made of the natural lighting for emphasis in the chapel; using 2 P. M. as an afternoon hour for smaller functions such as a small wedding or a small baptismal service.

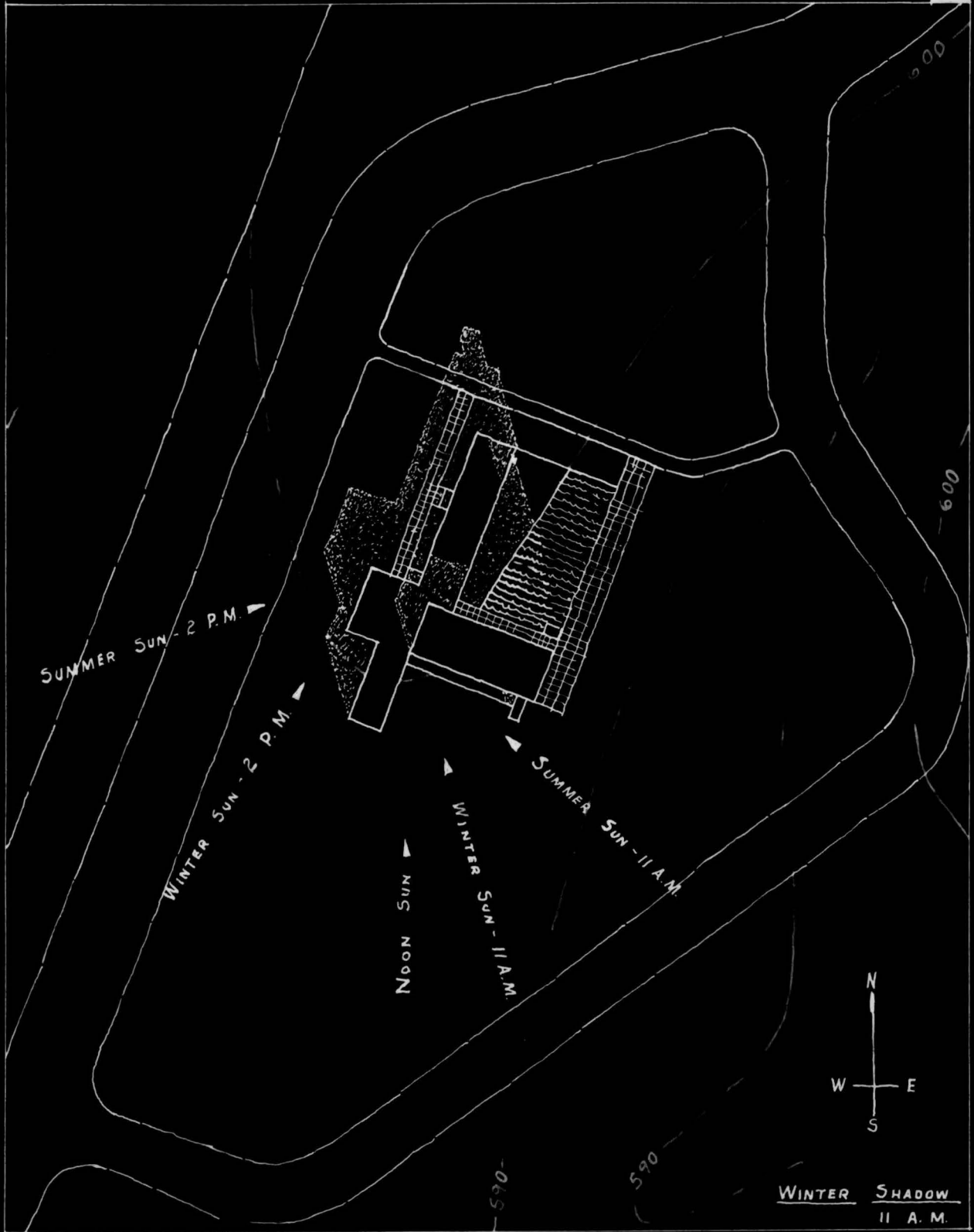
PLOT PLAN STUDY - A



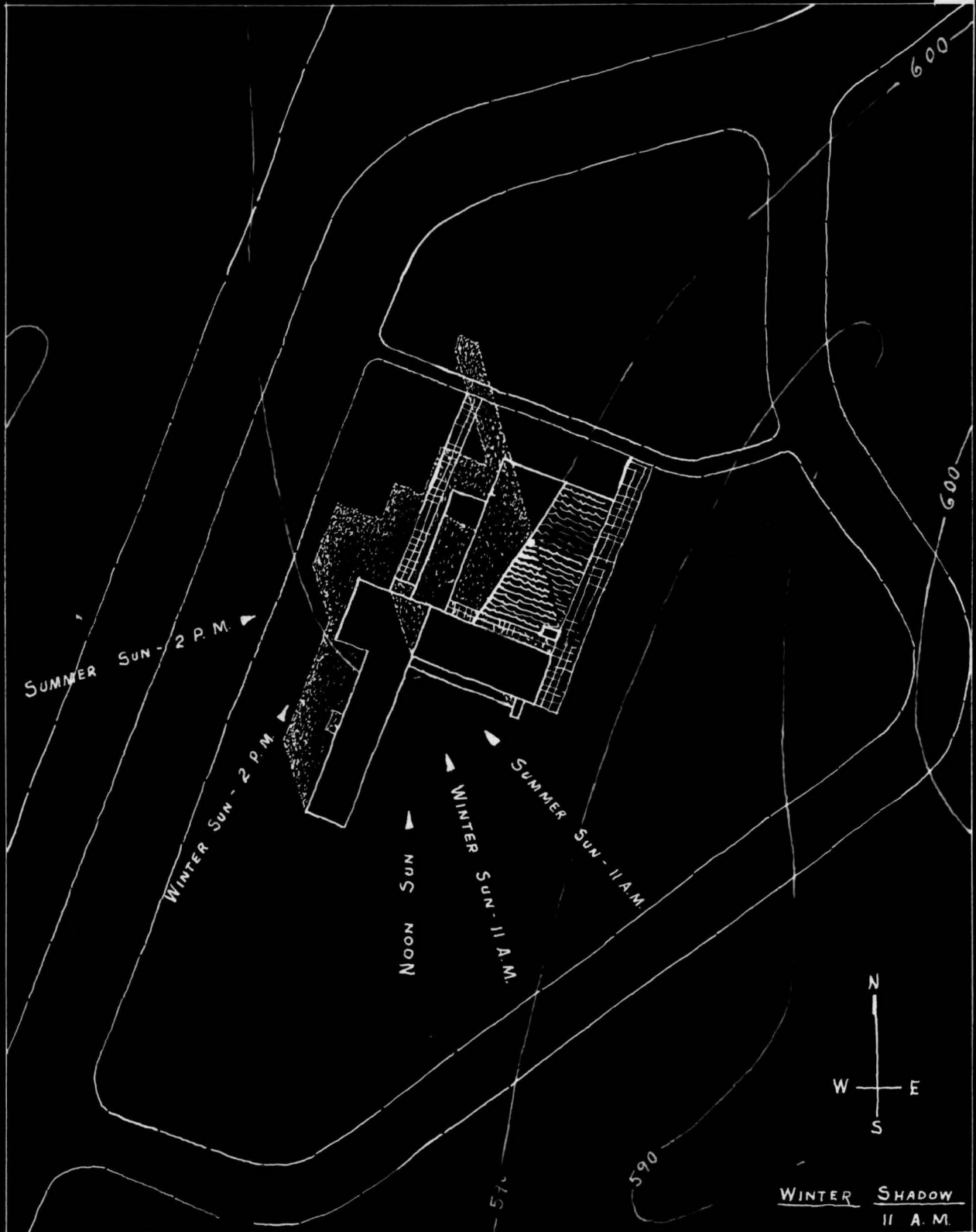
PLOT PLAN STUDY - B



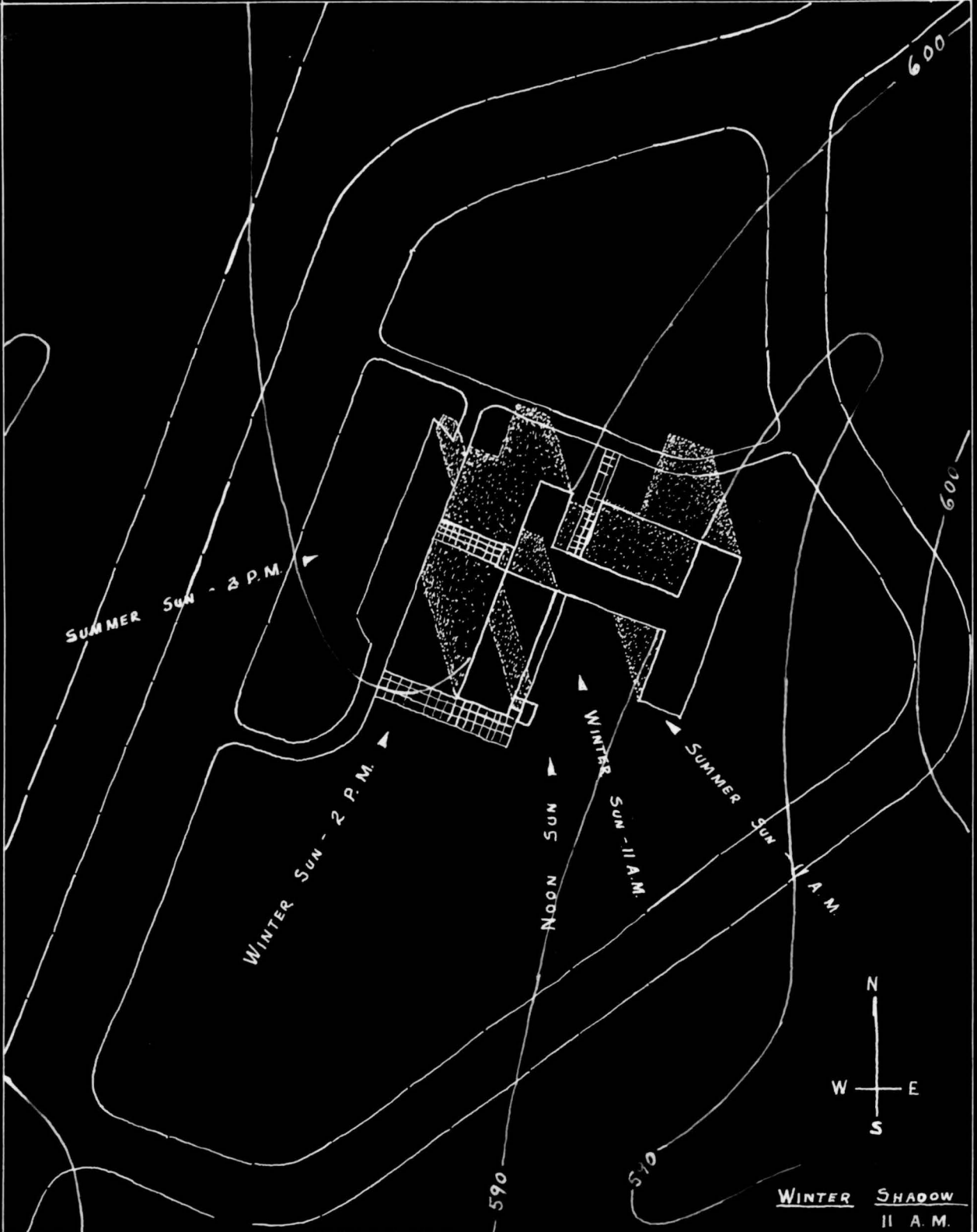
PLOT PLAN STUDY - C



PLOT PLAN STUDY - D



PLOT PLAN STUDY - E



"I find I never weary of great churches. It is my favorite kind of mountain scenery. Mankind was never so happily inspired as when it made a cathedral; a thing as single and spacious as a statue at first sight and yet, on examination, as lively and interesting as a forest in detail."

R. L. Stevenson

An early sanctuary was merely a clearing in the natural forest. Here the trees, and maybe a fence, acted as the walls of the church, and the sky overhead acted as the roof.

Other examples of early designs for worship are the megalithic architecture of Stonehenge and the later temple courts of Luxor and Karnak.

Religious architecture came into existence when large settlements developed and man had surplus production with which to satisfy the aesthetic sense. Today, this urge goes even further, in that a building is considered necessary, to protect the worshipers from the large mass of people in the settlement, and to provide a proper quiet atmosphere for worship.

In Egypt the people served the kings, built their tombs and later worship the kings as sun gods. The tombs were not churches for worship but store houses for sacred objects.

Greek temple architecture did not spring into sudden being but developed over hundreds, even thousands of years. Greek religion had a festal character, with the celebration of games and sacrifices throughout the year. This may seem anti-religious to us today, as we are apt

to forget the primal unity of art, science and religion. The Greek shrine served for men who found God in the idea of man made perfect, but not for those who believed that their best hopes lay beyond man.

From Rome, religious architecture obtained the dome, one of the outstanding inventions in world art. The Roman architecture was immense and lavish but careless in finish; coming mainly from engineering rather than inspiration.

It was with the coming of Christianity that we find the church builders inspired. This was because Christianity led to adoring love, joyous confidence, and exaltation of the spirit.

Mr. Ernest H. Short states in his book, A History of Religious Architecture,²⁾ "The architect, the painter, the sculptor and the goldsmith worked together to make the Christian ritual real for all who gathered within the four walls of a church... This was the architectural ideal, though centuries were to pass before the cathedrals and monastic churches were fashioned for the perfect rendering of Christian ritual and thus achieved the unity of thought, emotion and expression which characterises truly great art."

Thus, Christian Church architecture began to spread and continue its slow development.

The Byzantine church stood apart and was surrounded by trees and entered through a cloistered forecourt.

2) E. H. Short: A History Of Religious Architecture, The MacMillan Company, New York, N. Y., 1936, p. 61.

The Romanesque church secured structural, ritualistic and symbolic unity after a thousand years of experiment. It is the architecture of the age between early Christian and the rise of Gothic.

"A mediaeval architect was the trainer of a team, not the mere designer of a core, working with ruler and compass miles away from the actual building, as is so frequently the case with the architect of today."³⁾

The so-called master synthesis of religious architecture - the Gothic cathedral - gradually came into being following Romanesque. The Gothic builders may never have found a final harmony, but in their search they disclosed beauties which answer some of the deepest searchings of the human heart - the urge towards the unknown. The characteristic accent line in Gothic is the vertical, which is ever striving upwards.

Great cathedrals, such as Notre Dame of Paris, Rheims, Amiens, Chartres and Beauvais were started, each expressing a particular desire of the builder. The time, money and effort demanded was so great that enthusiasm did not suffice to complete many of the great cathedrals. No French cathedral received its full complement of towers. Beauvais was to have been the largest of all, but is only a hint of what it might have been. The Hundred Years War brought a stop to French building and very little was done on the cathedrals after that time because of the lack of communal effort.

3) Supra (2), p. xv.

We find that following the Gothic period, religion became the sport of the political factions and the religious art suffered greatly.

The Renaissance church can not be compared with standards of the Gothic abbey or cathedral. Sir Christopher Wren made no effort to give mystery to his works but sought to leave the impression of space and light.

Parallel with and following these great years of development we find other great contributions, in other countries, but the extent of the subject prevents a more complete coverage.

The editors of Architectural Forum remind us that, "In our generation the church is contributing little if anything to architectural progress, and contemporary architecture is contributing very little to the church."⁴⁾

Seldom, if ever before has this been true. In reviewing the history of architecture we find that from the dawn of history the building of places of worship was the highest form of architectural expression.

Even during unsuccessful periods of the past it could at least be said that the church builders were making an honest effort to keep up with the times.

In the present century, when we find secular architecture reaching toward a new goal, we find that American church architecture has taken a turn toward the past.

4) Architectural Forum, Volume 91, December, 1949, p. 59.

What kept the religious architecture of the many past centuries vital was the constant quest for new means of architectural expression and its unceasing use of new knowledge, new resources, new devices, new materials. Church architects of today have at their disposal more new tools, more new materials and more new techniques than were dreamed of in the middle ages. But the adventuring spirit of the medieval builders has been lost, and the architect of this century has made little effort to use our materials and knowledge to the limit in the creation of an inspiring architecture.

The last few centuries have given us a vast amount of scientific progress, but what the church now lacks is human understanding. This must be overcome by honesty and spiritual significance. Above all else, the successful church must satisfy the spirit of man.

So many denominations are competing for survival and expansion that they are building a quantity of uninspired small churches, rather than a few larger more satisfying edifices. Most of our churches have been built on the same standards as our housing, which will have to be rebuilt before many years. This surely is not economical. These facts may, sooner or later, aid in the consolidation of protestant churches. When this time comes, there will again be the possibility, through communal effort, of economically building more imposing edifices. This is important because the church which embodies and illustrates the truths of Christianity should be a monument in which the affection and inspiration of many generations of Christians are centered. However, if we

cannot erect great monuments, we should endeavor to create small temples designed in a sensitive and creative manner so as to produce the kind of atmosphere most conducive to worship.

The prime purpose of this material has been to build a background for consideration in the development of a design for worship suited to our present day and future needs.

"A Christian Church is more than a building and its designer more than an architect. Something of a poet must be added. His task is to create a symbol, and he must ever have in mind the full purpose of his building, always remembering the particular denomination concerned.

Ernest H. Short⁵⁾

A complete church group which incorporates the educational and all other church activities into one building, which also contains the main worship center, has many advantages. Such a building emphasizes the fact that the program it carries out is a complete and unified program. The seven-day-a-week program of the adequate church group includes worship, teaching, fellowship and service. The design of such a building is an architectural problem of unusual complexity. The design of a church group is the zenith in the realm of architecture.

The church and church school have but a single purpose. As Dr. Elbert M. Conover impresses upon us in his book, The Church School and Parish House Building,⁶⁾ "We think of the church as a fellowship in which persons who seek to know and do the will of God share in the experiences which enrich individual lives and build a Christian society."

5) E. H. Short: Post-War Church Building, Hollis and Carter, London, 1947, p. ix.

6) E. M. Conover: The Church School and Parish House Building, The Interdenominational Bureau of Architecture, New York, 1949, p. 8.

We learn through varied activities as well as studies. It should, therefore, be a purpose of the church to provide facilities for study, movies, games, dramatics, art and many other activities which help to make the program of the church more effective. The church must serve the daily needs of man and meet him on his own level of reasoning.

The church school must be designed to teach through fellowship experiences, through group games, by use of audio-visual aids, by dramatic productions and by experience with art towards the common goal of character building. These facts are emphasized by Dr. Elbert M. Conover,⁷⁾ "Those who plan the building should realize that the 'sit and listen while teacher talks' type of church school is a thing of the past, and that church school rooms today are places of living activity in which several kinds of learning experiences take place."

The atmosphere with which a good religious building surrounds the acts of faith and worship is of course essential. In the past great architectural eras, the most sincere creative effort and the greatest degree of technical ingenuity have always been expended upon religious structures. To do less would scarcely be building to the glory of God.

In the Christian Church, Disciples of Christ, we find little symbolism. Holy Baptism, by immersion, is symbolical of the washing away of sins. The Lord's Supper, not as a sacrament, but as a memorial feast,

7) Supra (6), p. 10.

to which all who are present and love the Lord may be invited to participate.

Church decoration today is much more restrained and simple than in the past, and the decoration is used mainly as a focal point to enhance the form of the church, rather than detract from it. The form of the Latin Cross is appropriate the world over, as it is the actual form of the cross upon which the Savior died. This form of the cross may be safely used almost anywhere.

Reverend Massey H. Shepherd, Jr. impresses us with a thought in an article written in the Witness, weekly publication of the Episcopal Church, "Most people can read these days; hence our buildings need have few illustrations. Men educated in a scientific age will not recognize or appreciate too much allegorical symbolism."

A church with long history in a shifting, growing community comes to the point where it must do something or it will go into a state of decay. It must have room to expand and breathe. The church must be able to carry on a successful program to meet the everyday needs of the people; not just a brief word of the gospel on Sunday alone.

Such is the case of the Charlestown Christian Church. It must expand to meet the needs of the people, and because of a great population change it should move to a better location.

Before any move is made or plans for a new structure commenced, it is important that the minister, the church board, the architect and all members of the congregation realize the importance of the moment. They

must not think in forms of style or period. It would be better to know nothing or be simple-minded than to reproduce a style of the past. This fact is stressed further by Gilbert P. Symons in the introduction he wrote for, The Small Church, a book by F. R. Webber,⁸⁾ "It is a holy state - that of being simple-minded; to have uncomplicated, sincere and humble thoughts. Such men may build their church much as they build their barns - and it will fall into right lines because honest and strait to the purposes of worship."

It is the irreligious man who produces ugliness. The man who is tied by laziness, weakness or tradition. Those who are seekers of the truth of beauty are our true artists and craftsmen. These men use honesty and appreciation with the skillful use of their tools. They do not compromise or bow to the beautiful works of the past. If they chose to spend the time, they would explain that the beauty in the works of the past came from men who were honest with their work as they are trying to be. Also, they would explain that if they tried to reproduce the same thing again, they could never create the same feeling because of the lack of spirit within themselves. Only this type of man has made our good and beautiful works of art.

"Beauty is the architect's goal,
and beauty is a quality that
knows neither race nor nation."
Talbot Hamlin⁹⁾

8) F. R. Webber: The Small Church, J. H. Jansen, Cleveland, 1939, p. xv.

9) Supra (1), p. 218.

With thoughts such as this in mind we should endeavor to see the greatness, the opportunity of the program before us. The completed work should reflect the unselfish and truly religious devotion to a great and difficult art. Not only the building but all which goes within it must be assembled with this spirit of love, or the best design may fall short of the goal. The furnishings must meet the needs, spiritual and aesthetic, of the people who are to see and use them. They must not be copied from others or picked from a catalog.

"A church building is a house
erected to the glory of the
living God, and not primarily
for man's convenience."

Ralph Adams Cram

Many churches of today tend mainly toward glorifying man, and make the church the poor man's club house. This tendency is displayed by the present day emphasis on the church school and club activities, with little thought of the worship center. Even in the worship center, the spirit of the space has been lost, and all emphasis put upon the word of man. Surely we must back up a bit and have a bit of both in our design. We should feel a release from our worries by sensing the Spirit of God, and we should be able to hear and understand the message from the minister. We must be in a receptive state of mind to receive the message. For this reason, it is a function of the church to prepare us for worship. We cannot be prepared by decoration, ornament, sculpture, colorful displays or endless rows of organ pipes; we respond only to

simplicity and sincerity.

The worship center must be used for worship purposes only. It can not be associated in the minds of the people with socials, religious education, or other minor activities of the church.

Churches of the past inclined to darkness, especially in the region of the altar, as symbolizing the mysterious nature of God. With the extreme amount of ornament in most of the churches of the past, this was probably fortunate, for a person was not distracted as much by the detail. It is felt, though, that this is the wrong attitude, and that the focal point of the church should be lighter than the rest of the sanctuary. This places the greatest emphasis on communion and baptism which are the two principal symbolisms of the Christian Church.

Proper accent at the sanctuary of the church requires the proper tone, and not contrast, with the nave and surroundings. With this in mind, careful study of the orientation was made so as to control the natural sunlight and develop the proper tone qualities and emphasis within the church. Also, care was taken to avoid discomfort, from the sun, to anyone in the church. At night, similar tone values may be developed by use of concealed or indirect light.

Texture contributes greatly to atmosphere, so for this reason almost all brick will remain exposed; portions of the building will be covered only for acoustical reasons or purposes of a similar nature. The natural irregularity of the brick will soften the surface and produce walls with pleasing texture and a feeling of warmth.

When considering the tower, Mr. F. R. Webber states in his book, The Small Church,¹⁰⁾ "Every church should have a tower if a good one can be afforded." The main purpose of the tower is to provide a place for bells and to add to the dignity of the church. In many places, church towers are land marks and chief points of dignity of the community. The tower provides a note of climax to a design and emphasizes the upwardness of Christian aspiration. When the spire is flood lighted or spot lighted at night, its usefulness is enormously increased.

In the book, The Small Church, the author, Mr. F. R. Webber, states:¹¹⁾ "In any European country one is hardly ever out of the sound of church bells. Not only do they fill the air with melody on Sunday morning, but they are rung on all holy days, and at early morning, at noon and in evening throughout the week."

However great or small the number of bells, they are to be desired by all to add to the appeal of the church. They should be of the best quality as a properly tuned bell costs no more than a poor one. The congregation might even build up a fine peal gradually until the desired number has been purchased.

The roof of a church should be an honest expression of the need of the building. And the ceiling beneath it should express the structure of the roof. In our day of steel and concrete, we do not need high

10) Supra (8), p. 201.

11) Supra (8), p. 269.

pitched roofs and heavy buttressing. The steel, however, should be enclosed for fire-protection.

The vestibule of the church should be large enough to prevent after-church congestion. It should be planned to prevent drafts from entering the nave, and arranged to keep the noise of conversation from the church. A small coat room should be provided for those who prefer to leave their wraps. The vestibule is an important space and should be designed with skill, as it is the place of transition from the outside world to the place of worship.

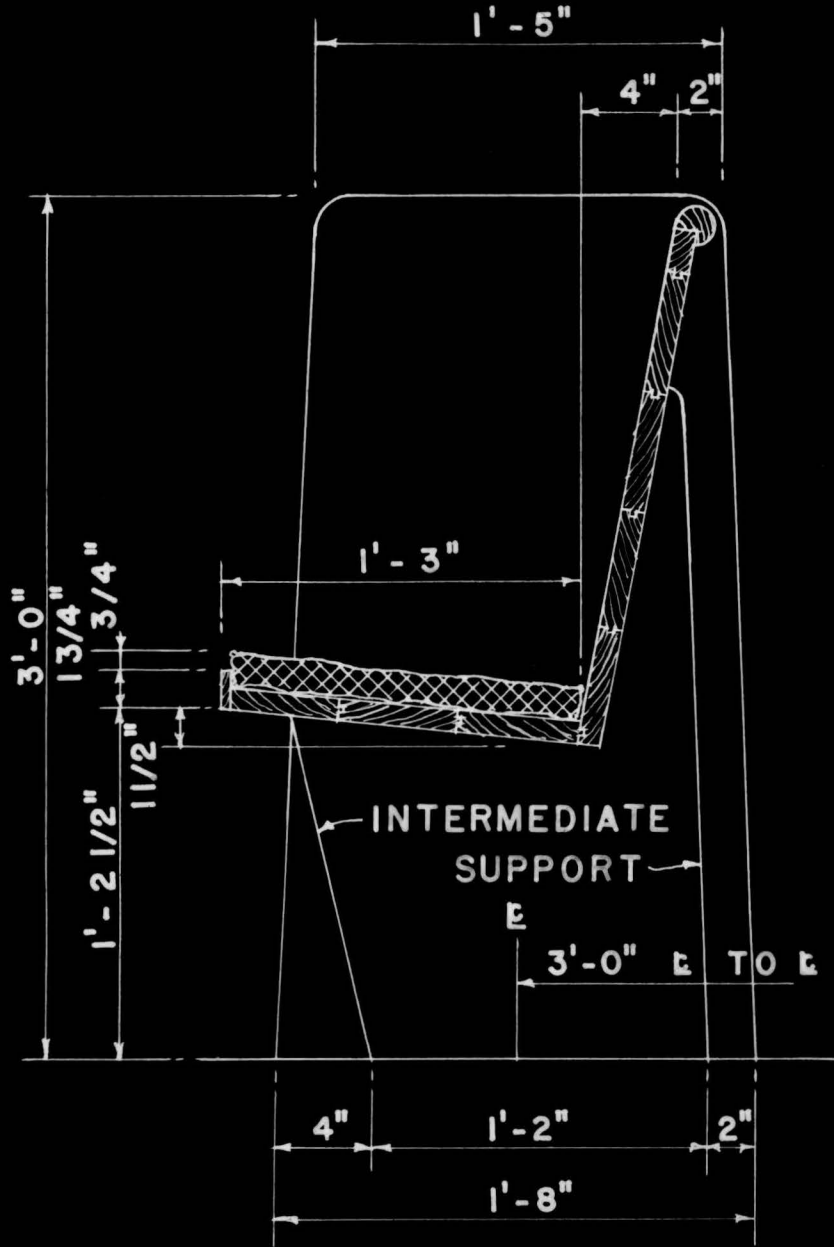
The nave should be so proportioned that its width does not exceed one half its length. The acoustical results are better in a room that is greater in length than width. Usually, the nave gains in religious feeling when its height is accented. It is desirable to have a center aisle for weddings and funerals. The minimum width necessary for funeral services is five feet. The floor of a church should be level.

The church windows should be designed so that the attention of the congregation is not distracted by what goes on outside. They should express their purpose and further accent the feeling of the space they serve. We do not need the colorful story windows of the past to educate the people. This is the work of the minister and the religious education department. Such a display would only distract from the simplicity of the interior. On surely, the cost of fine and proper stained glass windows would be beyond the reach of the congregation.

The pews should be well designed and comfortable. The pew ends should not have arm rests for loungers and should be so designed that they are not tripped over. If desired, the seats may be designed for pads. The pews and all of the equipment in the sanctuary should be designed by the architect.

The chancel is the most important part of the church and it should be very carefully planned. The pulpit should be so placed that the choir director, organist and console are hidden. The choir should be placed as unobtrusively as possible, yet be where it may serve its purpose when the occasion occurs. The Lord's Supper is prominently symbolized by the table. Nothing stands in front of the table of our Lord. The pulpit is placed forward and to one side, with the lectern on the other. The baptismal pool opens behind the table. The chancel arrangement signifies the privilege of the worshippers to receive Holy Communion in fellowship with other Christians.

Every church, no matter how small, should have an organ. A piano is out of the question for it lacks the gravity of tone. An expert should be consulted in the purchase, to make sure that no makeshift is bought on the ground that it is cheaper. There are many manufacturers of good organs in this country, so the church should not buy a harmonium, or so-called "reed" organ, as it is possessed of a nasty tone. Care should be taken to provide sufficient space for the console, pipes, air ducts and blower.



DETAIL SECTION

SCALE: 1 1/2" = 1'-0"

Good acoustics are essential in the church. Careful study must be made to insure proper synchronization of direct and reflected sound so that reverberations do not occur.

The heating of the church group presents an unusual problem for the heating engineer, as the church itself and most of the church school may require heat only one day a week; whereas the offices and other rooms may need to be warm at all times. Because of the varied loads, the heating system should have a maximum flexibility and control. The type of heating system may vary in different parts of the church.

The fellowship hall is the center of such church activities as club meetings, lectures, church suppers, dramatics, games, audio-visual programs and many other functions. Foremost among the requirement is a stage. The space under the stage can be used for storage of chairs and tables, which can be stacked on trucks made for the purpose. A kitchen should adjoin the fellowship hall, and should be of sufficient size to satisfy the demand placed upon it.

The church school should be placed so that the noise from it will not be distracting to those in the sanctuary during a two-hour worship program. This portion of the church group should be planned for flexibility to meet the varying needs placed upon it. Principal considerations are: the change from "sit and listen classes" to active classes; the tendency towards larger classes with the boys and girls grouped together; the use of visual aids; the increased amount of time during which the rooms are used. In many cases we find that the church school

facilities are being used on week days in coordination with the public schools. Special consideration must be given to the furnishing of the church school. The size of the furniture must be appropriate to those who will use it. Large elementary classes may be divided into areas of activity within each department by head-high partitions of shelving or cupboard space designed to contain the particular "toys" or craft material to be used in each area. Again, the head-high partitions relate to those who will be using them. Almost all needed materials will be stored where the children can reach them easily. Part of the training will be in the children's orderly care of the materials.

The chapel is a unit in addition to the main sanctuary, designed and furnished for worship and devotional purposes. The chapel is becoming one of the most frequently used rooms in the church group. Special communion services, weddings, baptismal services, classes in worship, prayer services, private meditation, and other occasions of a religious nature are held in the chapel. In furnishing and spirit it should be similar to the main sanctuary.

The counseling room is a room now given special consideration as to its purpose, design and use. As to the nature of counseling - Dr. Charles Reed Zahniser explains in his book, Techniques of Counseling in Christian Service,¹²⁾ "It has to do primarily with emotional distress rising from one's life situation and ordinarily emerging in misbehavior

12) C. R. Zahniser, Gibson Press, Pittsburgh, 1946.

or illness. As such it undertakes to help the individual understand his own problems and their sources, to discover way of their possible solution in part through religious experience, and to plan for and undertake his own adjustment." The room for counseling must be so situated that a person may come or go without attracting particular attention. The interviews should always be in private and are usually arranged for by appointment.

On the following pages will be found three building program studies and the building program.

The first study was prepared so that we might obtain an accurate picture of the Sunday school attendance averages over a number of years, the number of classes and the age distribution. It must be remembered that the figures of the last two periods are low, because of insufficient space in the existing building.

The second study is a breakdown of the anticipated membership into the church school classes desired. The breakdown is made according to age distribution and percentages, as recommended by The College of the Bible, Lexington, Kentucky.

The third study converts the design figures as obtained by these percentages into areas required, using the space requirements as recommended by The Board of Church Extension, Indianapolis, Indiana.

The figures given in the program are desired areas and it is not intended that they be followed implicitly. They are merely approximations of the space needed by the various activities and departments of the church group. Further consideration should be given to the equipment to go into these areas before the design becomes fixed.

Building Program Study No. ISunday School Attendance Record

Class Rooms	Ages for each dept.	Attendance Averages			
		1934	1940	1949	1950
Men's bible class	<u>25-100</u>	<u>19</u>	<u>22</u>	<u>17</u>	<u>17</u>
Women's bible class	<u>45-100</u>	<u>22</u>	<u>19</u>	<u>24</u>	<u>21</u>
Couple's class	(Not existing but to be desired.)				
Young ladies' class	<u>25-45</u>	<u>19</u>	<u>19</u>	<u>23</u>	<u>20</u>
Young people's class	<u>14-20</u>	<u>10</u>	<u>9</u>	<u>11</u>	<u>13</u>
Senior class	(Not existing but to be desired.)				
Intermediate class	<u>12-13</u>	<u>10</u>	<u>4</u>	<u>16</u>	<u>23</u>
Junior class	<u>10-11</u>	<u>15</u>	<u>8</u>	<u>12</u>	<u>11</u>
Primary class	<u>7-9</u>	<u>5</u>	<u>6</u>	<u>12</u>	<u>18</u>
Kindergarten	<u>5-6</u>	<u>6</u>	<u>6</u>	<u>15</u>	<u>11</u>
Nursery	<u>1-1/2-4</u>	<u>—</u>	<u>—</u>	<u>23</u>	<u>21</u>

Building Program Study No. IIClass Distribution

Space			Design Figure
Membership			<u>450</u>
Nave seating		450 x 55%	<u>250</u>
Chapel			<u>50</u>
Class Rooms	Ages		
Men's bible class	25-100	450 x 10%	<u>45</u>
Women's bible class	45-100	" x 10%	<u>45</u>
Couple's class		" x 10%	<u>45</u>
Young ladies' class	25-44	" x 8%	<u>36</u>
Young people's class	17-24	" x 8%	<u>36</u>
Senior class	14-16	" x 10%	<u>45</u>
Intermediate class	12-13	" x 8%	<u>36</u>
Junior class	9-11	" x 8%	<u>36</u>
Primary class	6-8	" x 10%	<u>45</u>
Kindergarten	4-5	" x 8%	<u>36</u>
Nursery	1-1/2 -3	" x 10%	<u>45</u>

Building Program Study No. IIIAreas Required

	Design Figure	Sq. Ft. / Person	Area Req'd.
Membership	<u>450</u>		
Nave seating	<u>250</u>	<u>7</u>	<u>1750</u>
Chapel	<u>50</u>	<u>7</u>	<u>350</u>
Class Rooms			
Men's bible class	<u>45</u>	<u>10-12</u>	<u>540</u>
Women's bible class	<u>45</u>	<u>10-12</u>	<u>540</u>
Couple's class	<u>45</u>	<u>10-12</u>	<u>540</u>
Young ladies' class	<u>36</u>	<u>10-12</u>	<u>435</u>
Young people's class	<u>36</u>	<u>10-12</u>	<u>435</u>
Senior class	<u>45</u>	<u>8-12</u>	<u>540</u>
Intermediate class	<u>36</u>	<u>10-15</u>	<u>540</u>
Junior class	<u>36</u>	<u>15-18</u>	<u>650</u>
Primary class	<u>45</u>	<u>15-18</u>	<u>810</u>
Kindergarten	<u>36</u>	<u>20-30</u>	<u>1080</u>
Nursery	<u>45</u>	<u>25-30</u>	<u>1350</u>

BUILDING PROGRAM

SPACE REQUIREMENTS	Area in Sq. Ft.
Vestibule	375
Coat room	75
Nave seating of church	1750
Sanctuary of church	1000
Balcony	475
Chapel seating	350
Sanctuary of chapel	300
Minister's study and library	250
Counseling room	200
Waiting space	120
General church office	200
Office for director of religious education	200
Choir room	400
Stage for fellowship hall	650
Fellowship hall or auditorium	1800
* Men's bible class	540
Women's bible class	540
* Club room	540
Couple's class	540
Young ladies' class	435
Young people's class	435

* Room will be used jointly with preceding room or rooms.

SPACE REQUIREMENTS (cont.)	Area in Sq. Ft.
Senior class	540
* Young people's club room	800
Intermediate class	540
Junior class	650
Primary class	810
Kindergarten	1080
Nursery	1350
Kitchen for fellowship hall	380
Kitchen for young people	75
Storage	300
Mechanical Equipment	700
Toilets	800
Circulation	6000
	<hr/>
	Total number of Sq. Ft. 23,320

The design presented herein has been prepared after much research, after thorough consideration of the history of the church, and after study of the anticipated needs of the future. The design is not intended to be a final solution to church design problems. It is, rather, a study in the direction of design based upon sound reasoning.

The proposed design is intended to be a preliminary study. Much more study would be necessary before the building could be built. No attempt has been made to solve all problems of heating, ventilating, plumbing, lighting, structural design, acoustical design, color schemes, furnishings, or of the many other related considerations necessary to the execution of a successful building.

The express purpose of this section is to discuss the basic concepts of the design which may not be evident in the drawings.

The site selected provides sufficient property so that the building does not need to be cramped on the lot. It provides desirable space for outdoor activities. Also, sufficient space is provided to meet the parking problem. In the future, a parsonage can be built on the church site or on one of the adjoining lots, as the congregation may choose.

The orientation of the building was determined by a series of studies to determine the best natural lighting at the important hours of the day, the best circulation, and the best relation of the masses of the principal units of the building.

The plan was conceived so that future expansion can be made of all units, and so that alterations may be made within the various departments of the church school.

The various units of the group are arranged so that they take advantage of the slope of the land. By placing the building as it is and developing a court with a reflecting pool, it is possible to have desirable rooms on the lower floor. This creates a saving in one of two ways. Either, by saving on the height of the building, or by reducing the number of square feet covered by the building. The development of the court makes it possible to have outside access to the fellowship hall and club rooms, thus reducing the amount of circulation in the other parts of the building.

The type of construction used for the church group was selected for the purpose of having a system which could be executed by local skilled and semiskilled labor. The reason for this selection is twofold. First, to use a system of construction related to the size of the structure; and second, to use local labor with the psychological purpose of developing pride among the local citizens.

The foundation, basement floor slabs and main floor slabs are of reinforced concrete construction. All brick walls extending through one or more floors are of prestressed masonry composed of brick facings with a concrete block core. Lateral reinforced concrete tie beams are used at intervals not exceeding twelve feet vertically. All floor and roof slabs above the main floor are of precast lightweight concrete

slabs supported on steel joists or junior beams. The floor and roof joists of the bridge and church school are diagonally braced for wind pressure. Fireproofed Lally columns are used as studs for support along walls of continuous windows. All copings are precast so that forming and in-place pouring above ground level may be held to a minimum. This will speed construction and reduce construction costs.

The interior partitions in the church school and offices are of vertical or horizontal random width boards on wood studs. All boards shall have a natural finish. Ceilings are of gypsum-vermiculite plaster to furnish fireproofing for the steel joists and to provide thermal and sound insulation. The flooring is of asphalt tile or plastic tile.

The walls in the church and chapel are of exposed brick with the exception of areas which might require some acoustical treatment. These areas will be covered with gypsum-vermiculite acoustical plaster. The ceilings in the church and chapel are of cement-asbestos acoustical board. The floors are covered with cork tile for warmth of color and for good acoustical quality.

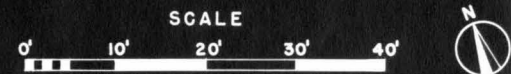
Lighting in the church school and offices will be from recessed fluorescent fixtures with recessed spotlights for feature lighting. The chapel and church will have special incandescent fixtures for general illumination and recessed spotlighting, in the ceiling, for feature lighting. All feature lights will have rheostat controls.

The fellowship hall, chapel and church will have a combination hot-air and ventilation system with the principal outlets at the ceiling of the side aisles, and with floor or baseboard returns. The balance of the building will be heated by recessed convectors. The heating system will be zoned and will have boosters for proper control.

LOWER FLOOR PLAN

LEGEND:

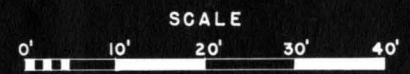
- 1. STAGE
- 2. FELLOWSHIP HALL
- 3. KITCHEN
- 4. WOMEN'S TOILET
- 5. MEN'S TOILET
- 6. BLOWER ROOM
- 7. LOBBY
- 8. BOILER ROOM
- 9. CLUB ROOM
- 10. SENIOR CLASS
- 11. KITCHEN
- 12. YOUNG PEOPLE'S CLASS
- 13. LOBBY
- 14. BOY'S TOILET
- 15. GIRL'S TOILET
- 16. STORAGE
- 17. PRIMARY



MAIN FLOOR PLAN

LEGEND:

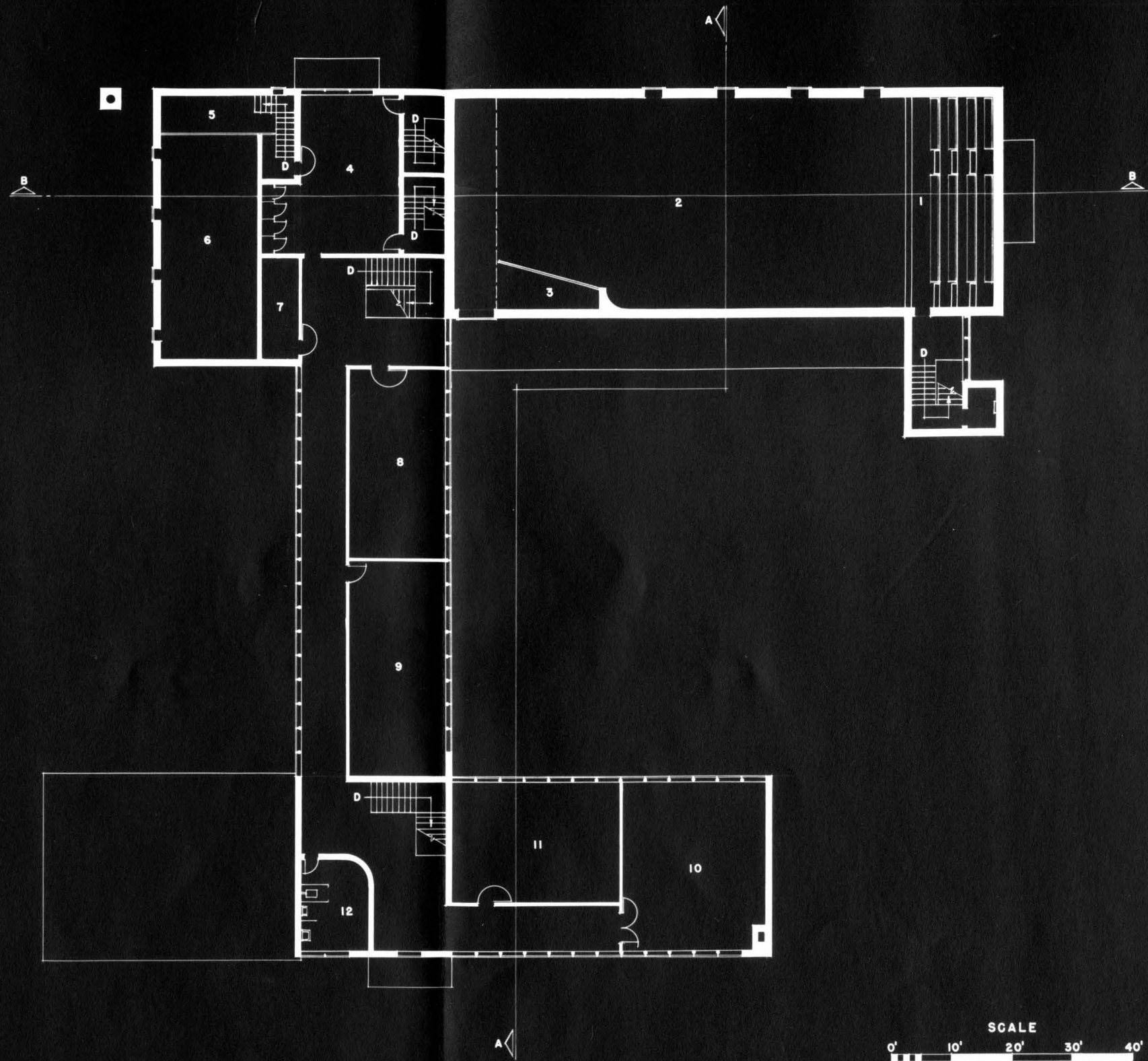
- 1. VESTIBULE
- 2. CLOAKROOM
- 3. NAVE OF CHURCH
- 4. CHANCEL
- 5. CHOIR
- 6. BAPTISTRY
- 7. LOBBY
- 8. NAVE OF CHAPEL
- 9. CHANCEL
- 10. BAPTISTRY
- 11. WAITING
- 12. CHURCH OFFICE
- 13. RELIGIOUS EDUCATION
- 14. MINISTER'S STUDY
- 15. COUNSELING
- 16. WOMEN'S TOILET
- 17. NURSERY
- 18. LOBBY
- 19. CHILDREN'S TOILET
- 20. KINDERGARTEN



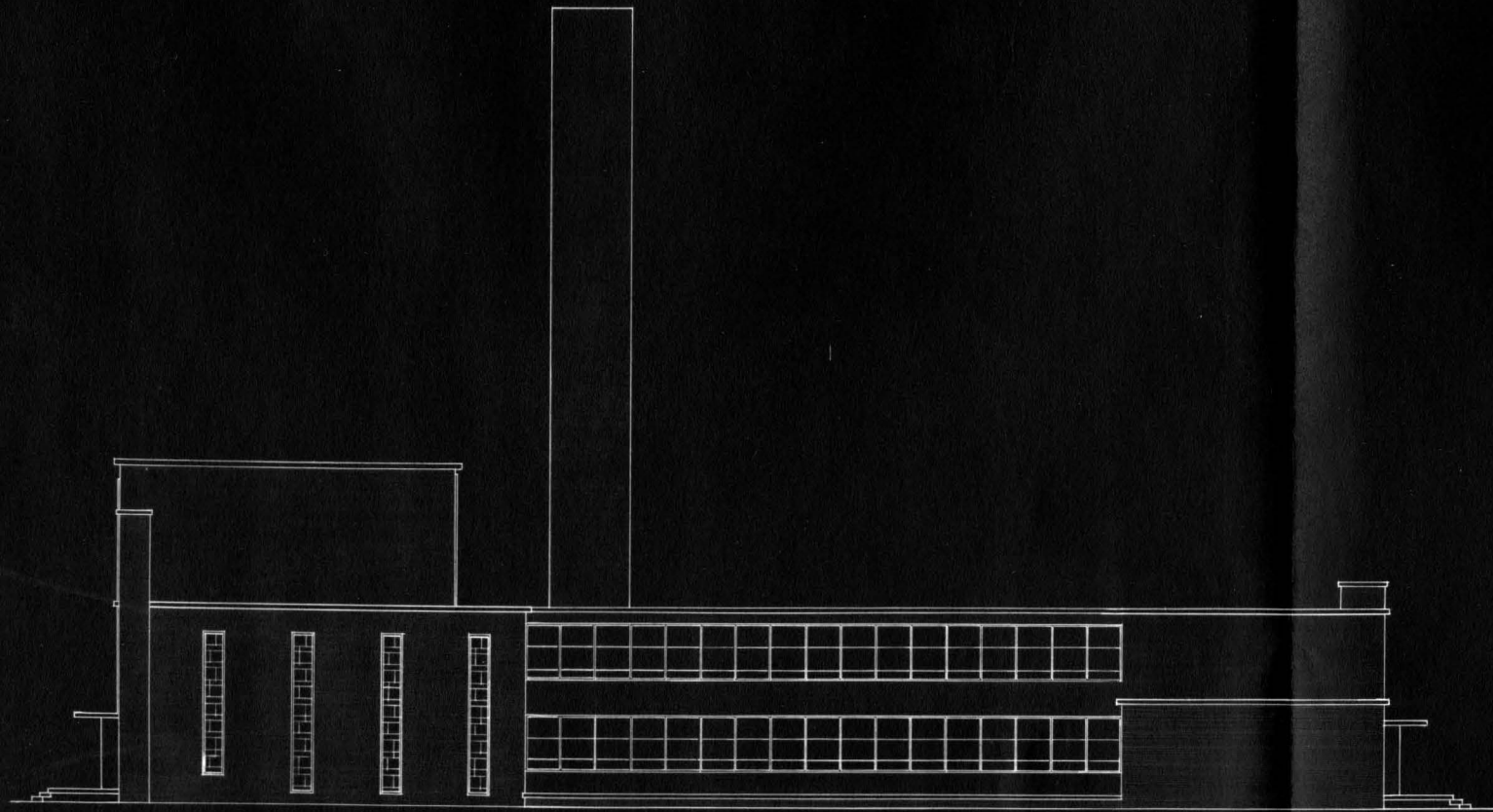
UPPER FLOOR PLAN

LEGEND:

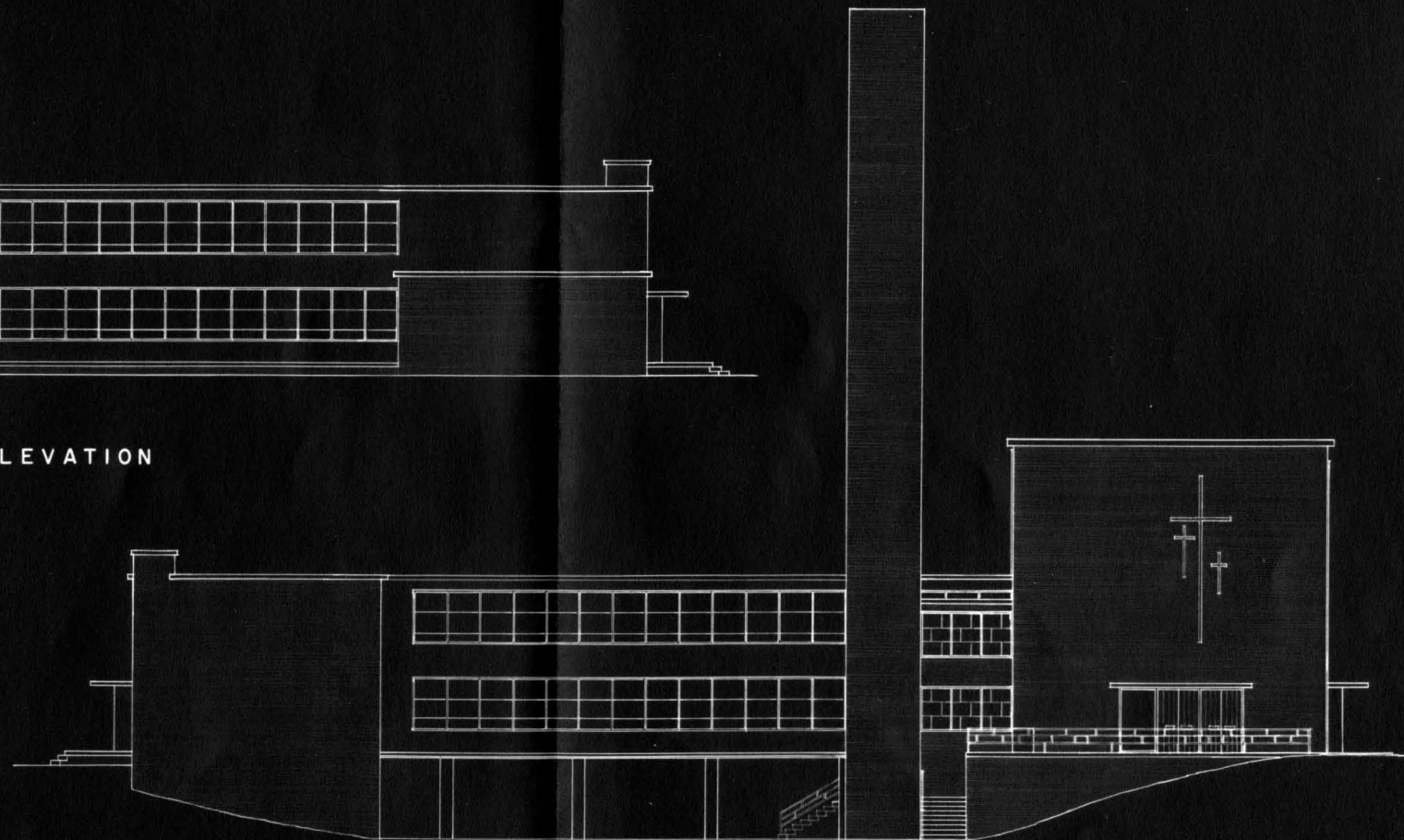
- 1. BALCONY
- 2. UPPER PART OF CHURCH
- 3. ORGAN LOFT
- 4. CHOIR ROOM
- 5. ORGAN LOFT
- 6. UPPER PART OF CHAPEL
- 7. STORAGE
- 8. YOUNG LADIES CLASS
- 9. COUPLE'S CLASS
- 10. JUNIOR CLASS
- 11. INTERMEDIATE CLASS
- 12. MEN'S TOILET



EAST & WEST ELEVATIONS



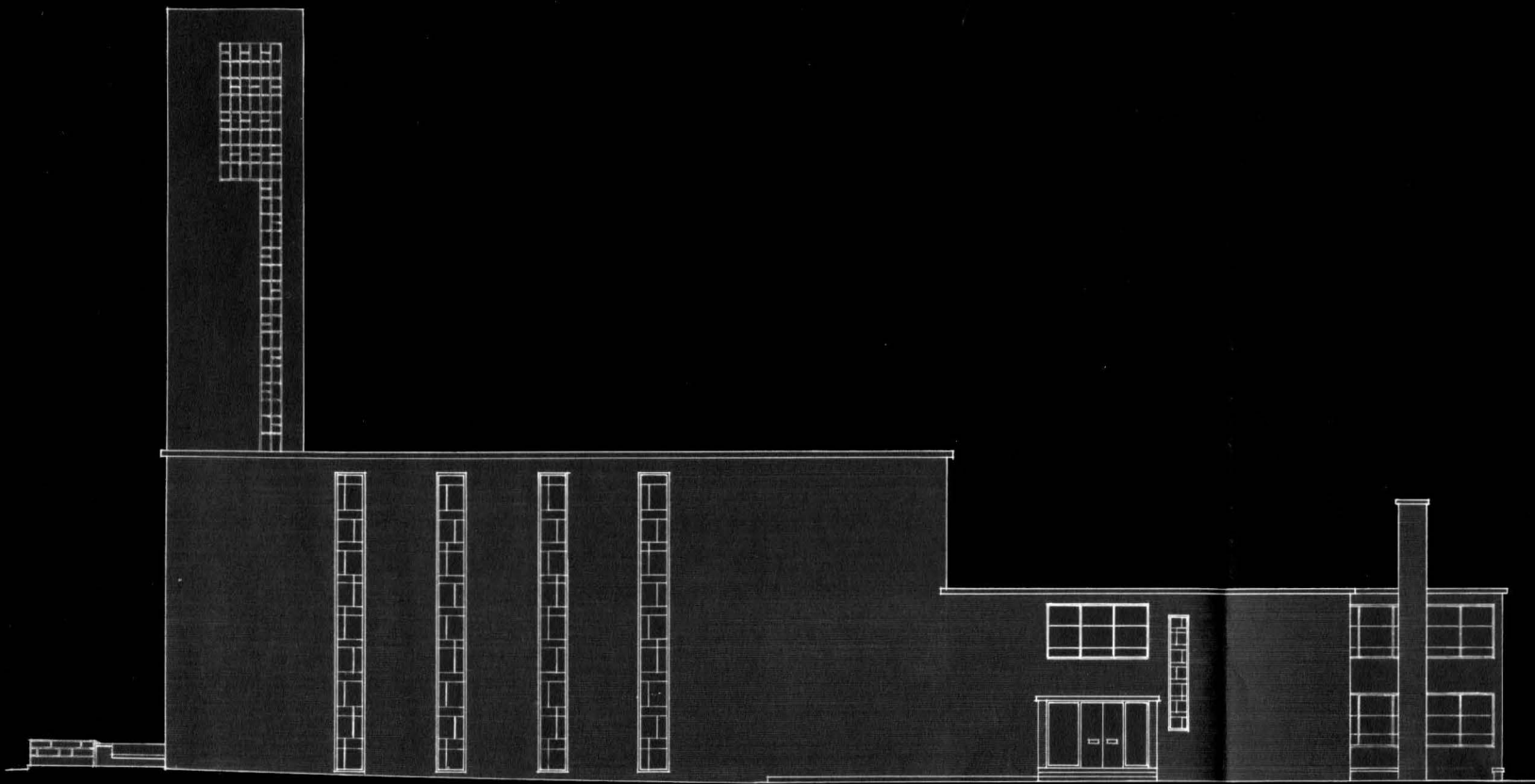
WEST ELEVATION



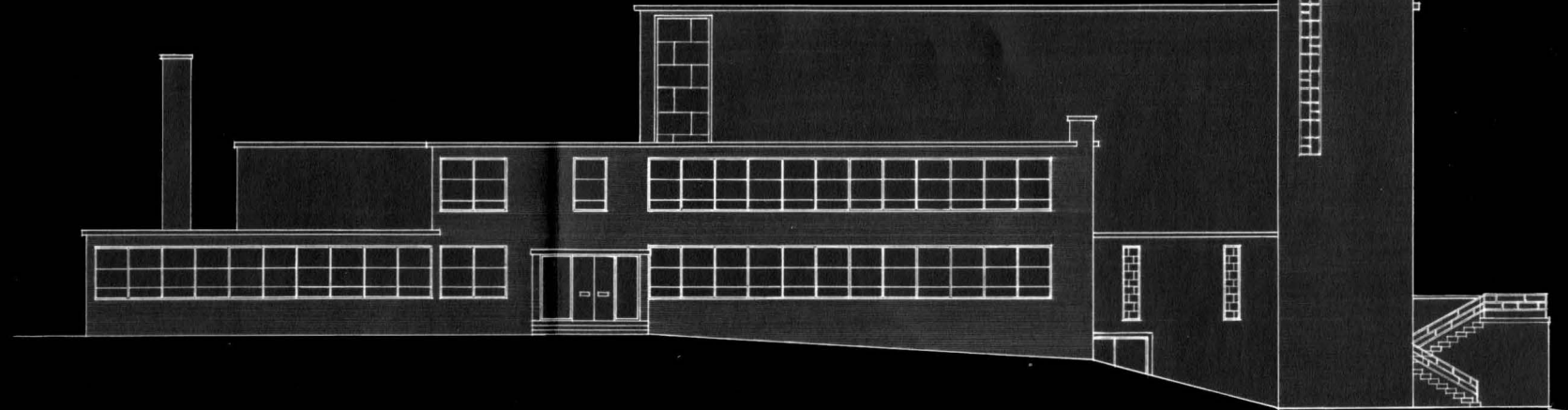
EAST ELEVATION



NORTH & SOUTH ELEVATIONS

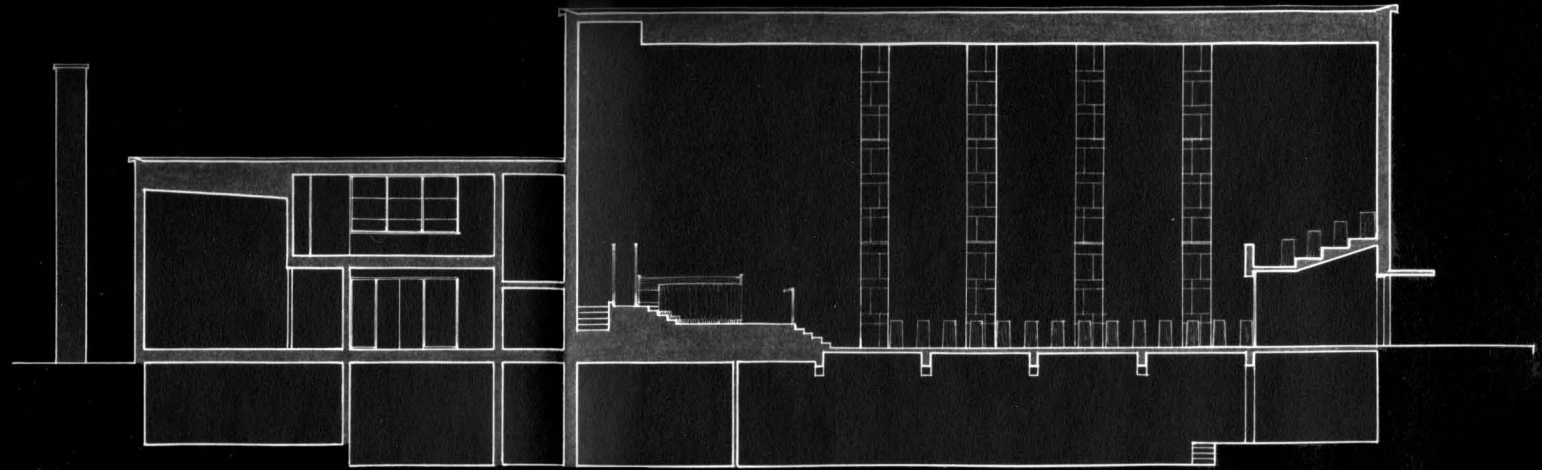


NORTH ELEVATION

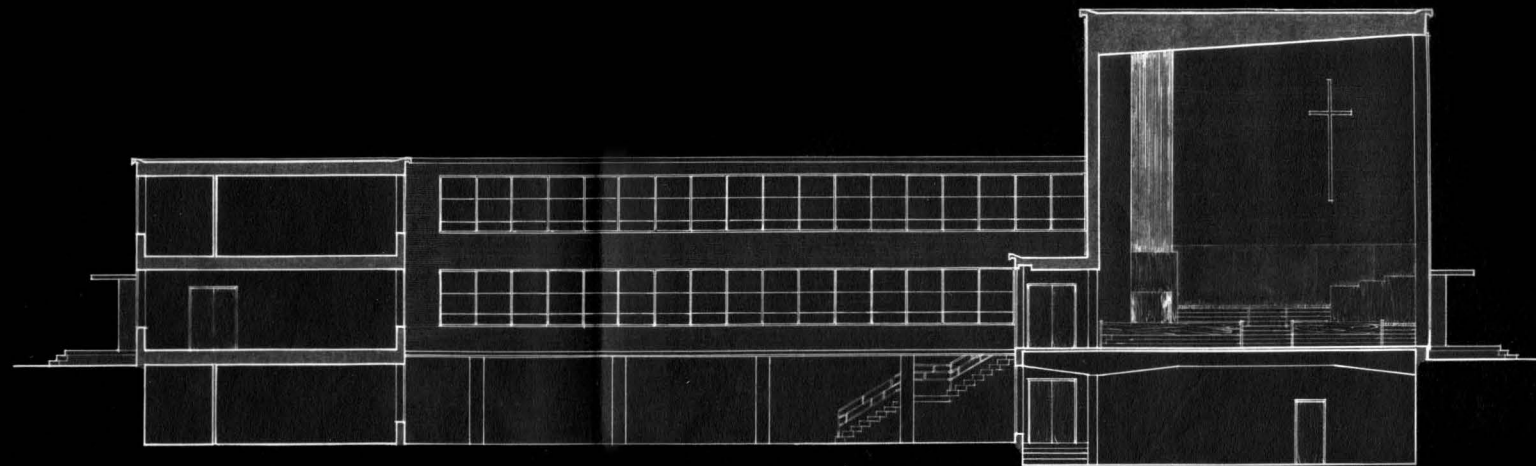


SOUTH ELEVATION





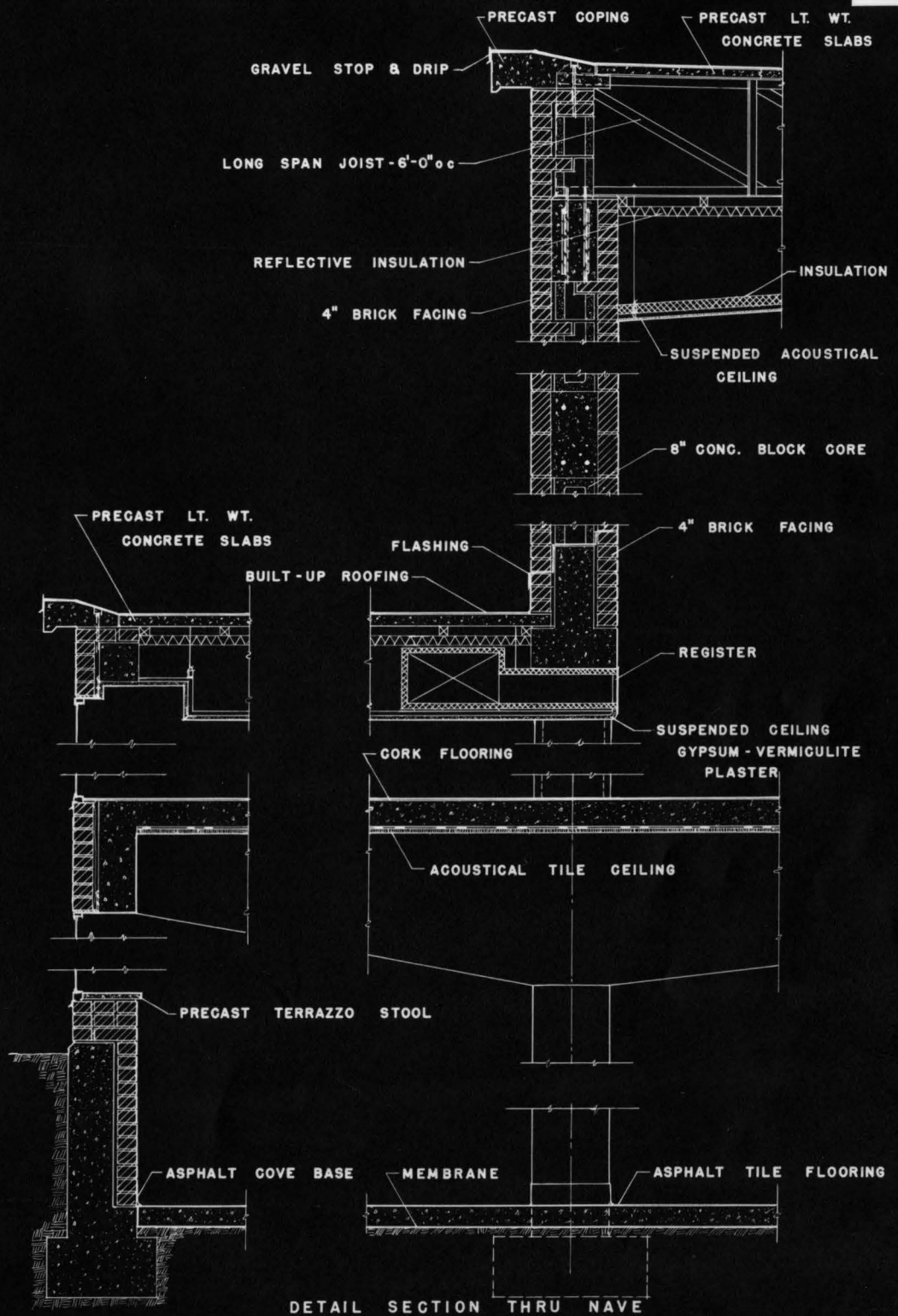
SECTION B-B



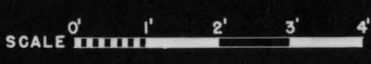
SECTION A-A



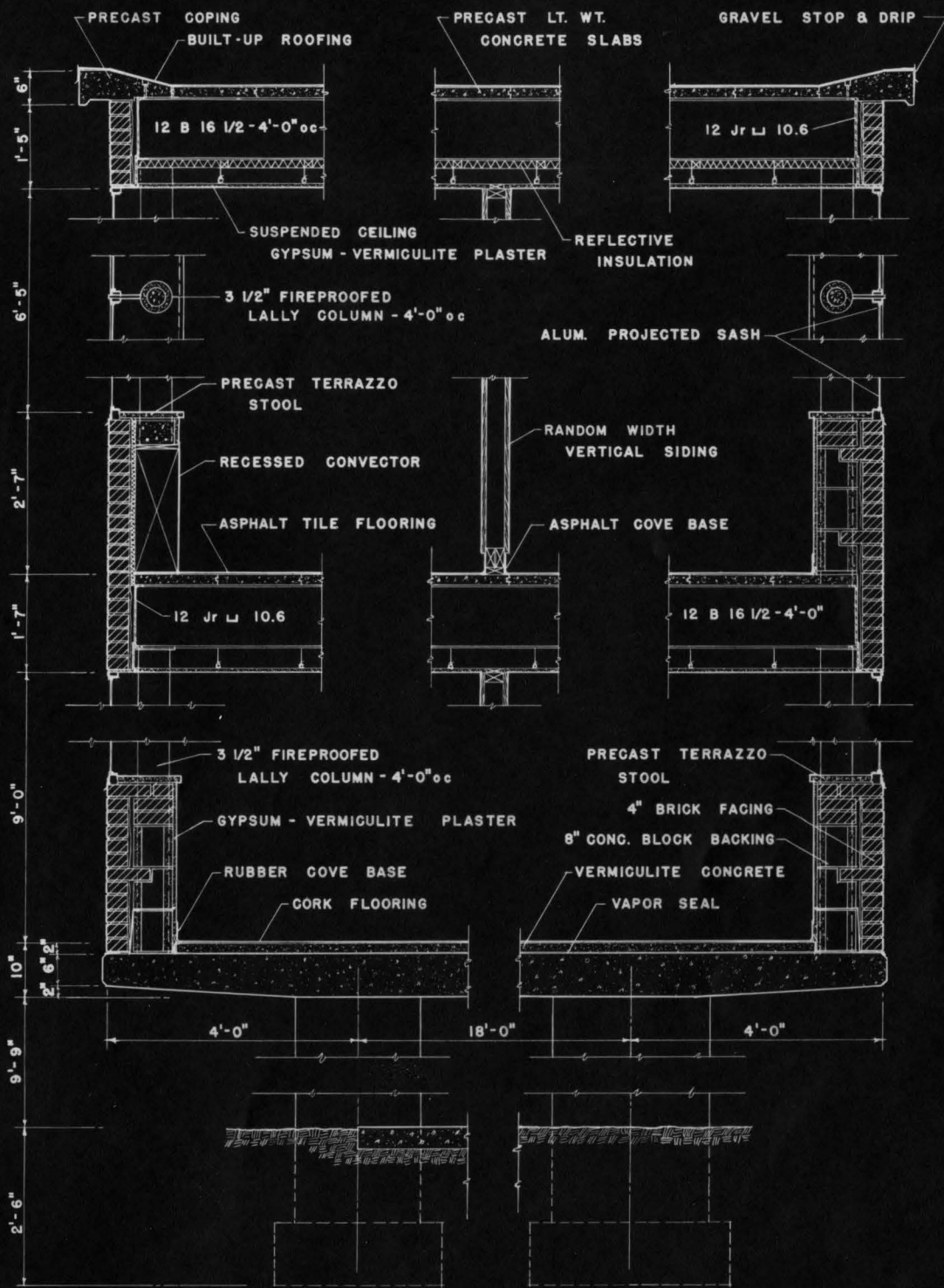
DETAIL SECTION THRU NAVE



DETAIL SECTION THRU NAVE

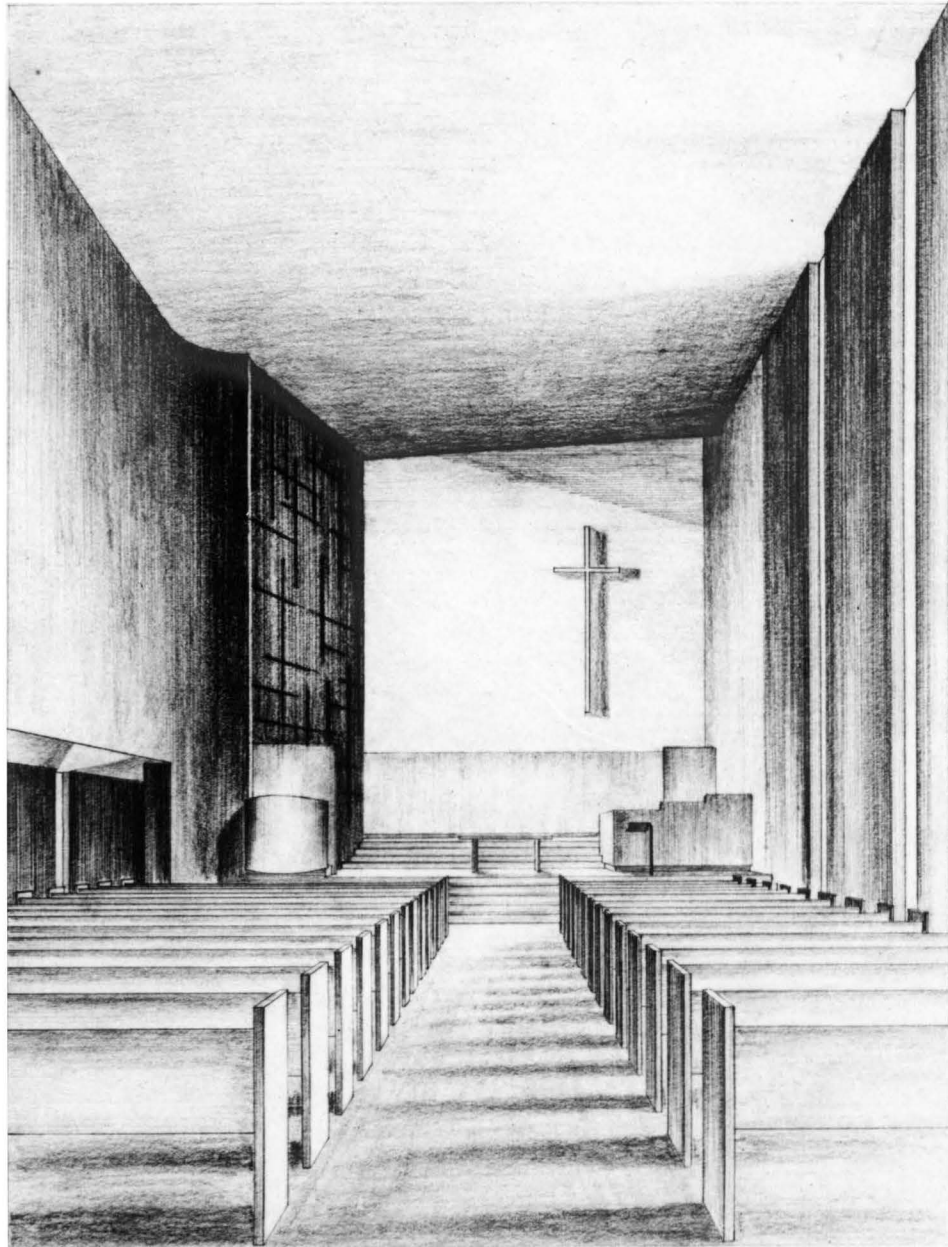


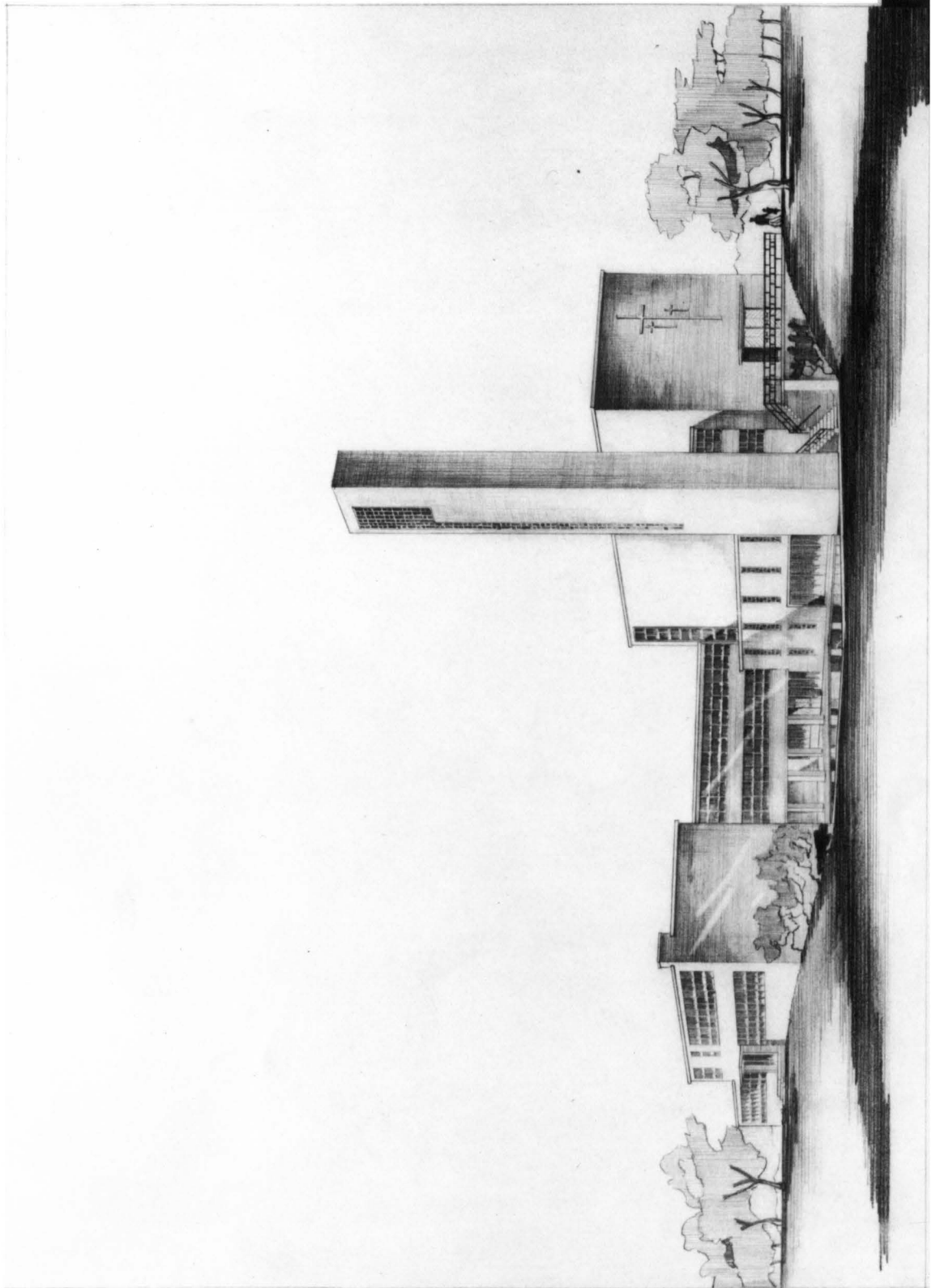
DETAIL SECTION THRU BRIDGE

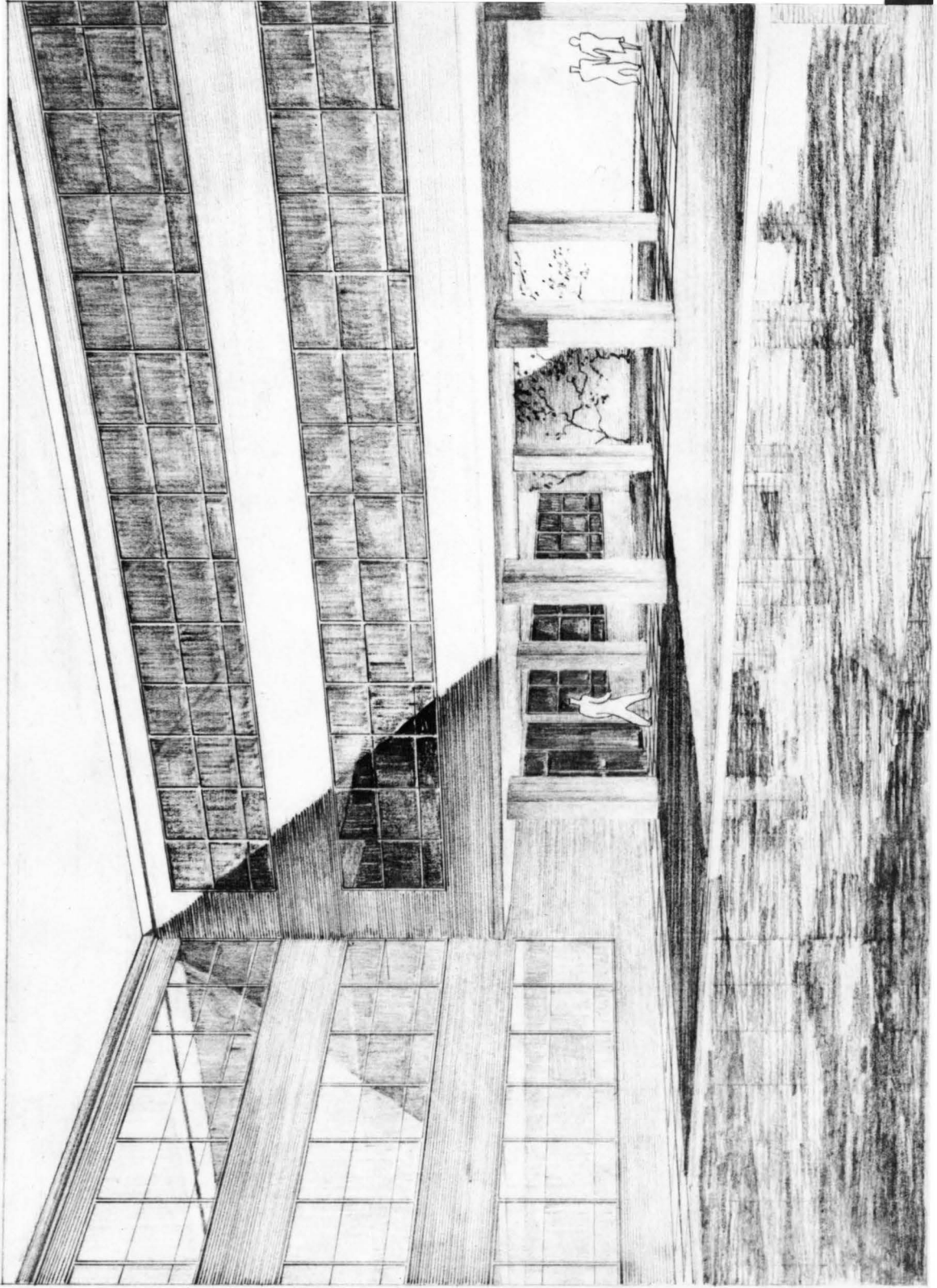


DETAIL SECTION THRU BRIDGE









The author has arrived at the following conclusions from the development of this thesis:

1. Even though the church is one of our oldest types of architecture, it is still in the process of change and it must be designed to meet the needs of the people.
2. The needs of the people are as great as they have ever been in history. Our great years of progress have greatly increased our physical and mental strain and confusion. Thus, it is the purpose of the church to reassure man.
3. The church may reassure man by spreading Christian fellowship and good will. The church is a symbol of strength and security. It represents the unified effort of man towards a common goal. The church must help satisfy man's desire for peace and beauty.

It has been the desire of the author to make these factors a part of the function in the design of this church group. The success of this work can be measured only in time.

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