

A RESIDENTIAL SCHOOL
FOR THE MENTALLY RETARDED CHILDREN OF
MONTGOMERY COUNTY, MARYLAND

by
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"Of God's many children these
are the most innocent"
Pearl S. Buck



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Architecture for the education of retarded children, in its broadest sense, should reflect and breathe modern ideals of care, understanding, and treatment. In the education of retarded children there has been found the value of play and free artistic expression under the guidance of a sympathetic teacher who allows the children to do nearly anything they want except to injure or destroy. With poor facilities it is still possible to do a good job but, in addition, planned space must be provided where educational and progressive activities can take place. Play is the free, spontaneous expression of energy. Facilities and space, both indoors and out, should be provided for expression of energy.

As civilization advances, more and more are these facilities recognized as important, and more and more are the facilities now provided recognized as being inadequate. Although other parts of the country had recognized the large numbers of retarded children as early as 1929 and provided them with some education, Montgomery County, Maryland recognized their needs only four years ago. Special classes were then organized, but these have not proven to be sufficient. It is now the theory that a residential school will be needed to meet the county's needs.

OBJECTIVES

Most existing residential schools are institutional in character or have just happened, that is, grown in a haphazard way to fit their needs. This has encouraged detention-type buildings, the use of remodeled homes and, in the cases where architecture has been planned, traditional style for a more "home-like" atmosphere.

The objectives of this thesis will be to investigate the physical requirements of the educational and student living facilities of a residential school for the retarded children of Montgomery County and, to design such a school to meet the requirements.

"It is most interesting and important to study the 'architectural needs' of these children."¹

INVESTIGATIONS

"O masters, lords and rulers in all the lands
How will the Future reckon with this Man?"
Edwin Markham 2

SOCIAL RESPONSIBILITY

The mentally retarded child has been found in all parts of the world and all classes of society. Plato mentioned him and even noted different degrees of retardation. The tragedy of the mentally retarded child is still one of nature's partially-solved mysteries. This tragedy can happen in any family, rich or poor, regardless of sturdy ancestry or distinguished achievement. Mental retardation is a sociological problem of national concern.

Social responsibility for the retarded has been slow in developing because they consist of a minority group and have only recently attracted public notice. Within the last fifty years programs have been initiated, focused on the communities containing the greatest number of retarded individuals. State and private schools have always performed a necessary function; more are needed even now. The slow development of community services reflects neglect, not discrimination.

Institutions were, for many years, almost the only kind of care thought about and provided for retarded children. Through the use of intelligence tests, it was found that two percent of the general population never reached adult mental level. From this number only ten percent are ever placed in institutions, and the average length of residence is under three years.³ According to these facts

the direct responsibility for their care and education falls upon the community.

In the first decade of the twentieth century large cities began to organize special classes. In the second decade the establishment of traveling clinics for problem children was conducted by the state departments of education, and private schools commenced.

The growth of community responsibility has continued both in city and state. Special classes for retarded children are now provided in many school systems with manual training for boys and handiwork for girls. Training is more practical than for normal children, with the idea being to prepare young people for competitive employment. Here public schools are at a disadvantage. Space does not permit the practicing of a complete working day. The social environment is much freer than in actual employment.

The Federal government is now helping to place and train the retarded to be self-supporting. The United States Employment Service operates a selective placement program for all classes of handicapped persons capable of holding jobs. The Public Health Service provides rehabilitation training, gives aid to the states, and offers scholarships for the training of professionals. They also provide financial aid to private institutions, hospitals, univer-

sities, and research centers for special work in the area of mental health. Since 1943 the Office of Vocational Rehabilitation has accepted responsibility for vocational aid of young people over sixteen whose mental handicap is a bar to employment.

Responsibility for the retarded has grown in spite of a lack of funds and trained personnel; it is kept in slow motion by the same obstacles. An organization, composed of parents of retarded children, has sprung from need. In 1950 it was incorporated as the National Association for Retarded Children; the Association now has a membership of over 10,000.

When responsibility has been accepted for providing more help, more retarded children will find a place as responsible citizens and will lead useful and happy lives.

EXPLANATION OF RETARDATION

EXPLANATION OF RETARDATION

There is no such thing as an absolutely normal mind. Minds are as fragile and as individual as bodies. Brains are made of the same stuff; the cells are differently shaped, but they are physical. When something physical is hurt it cannot fully develop. Ignorant shadows are no longer cast; people are not ashamed of children who are mentally retarded. It has now been realized that such a mind is only one that has been slow or halted in its growth. The graphs on page 18 show the mental development as compared with the physical, until the mental process has been halted.

A more informative explanation is necessary for a comprehensive understanding of these people. Mentally retarded individuals are those with poor social and intellectual talents. As children in school, they fail to master and profit from the usual academic exercises; as adults, they fail to achieve economic and social responsibilities. This group has been referred to by various names: feeble-minded, exceptional, mentally retarded, and many more.

The retarded child may be classified roughly into one of three groups, the idiot, the imbecile or the moron.

The idiot is an individual so lacking in intelligence that he cannot live without constant care and attention. He seldom develops in intelligence beyond the level of a normal child two years of age.

The imbecile is capable of simple tasks, such as dusting, mopping floors, ironing flat pieces, or peeling potatoes. He must be so closely supervised that he is economically worthless, and he is unable to grasp the usual rules of conduct. An adult imbecile has the mental age ranging from five to seven years.

A moron can learn to read, write, and do simple work, but lacks the ability to work efficiently without supervision. He is poor in judgement and is poorly inhibited. In adulthood his mental age ranges from seven to ten years.

In short the idiot must be nursed, the imbecile must be supported, and the moron must be supervised. The results are attributed to mental deficiency and are not descriptions or definitions of it. They are only signs of it, but even so, there is a great overlapping of groups.

The retarded child is at times differently composed in his physical appearance. There is often very labored awkwardness and unco-ordinated movements; there is no grace or spontaneity of movements. The features are usually asymmetrical on a face that is heavy with no expression. Various special defects are likely to found, such as: V-shaped palate, crooked or notched teeth, protruding ears, malformed head, etc. Speech is especially likely to be defective. The posture has a tendency to be poor. Some are thin, pale, and emaciated looking; some are overweight. Here again, physical appearance can be broken down into two classifications, cretinism and Mongolism.

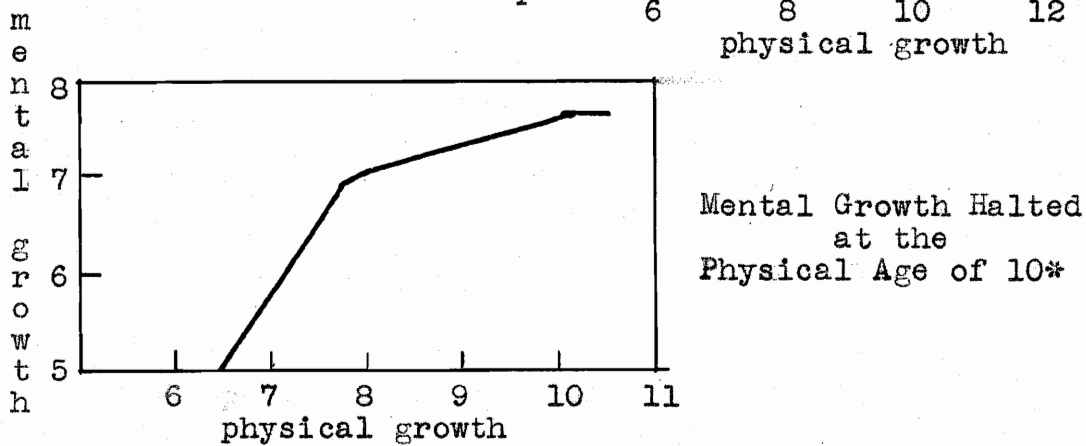
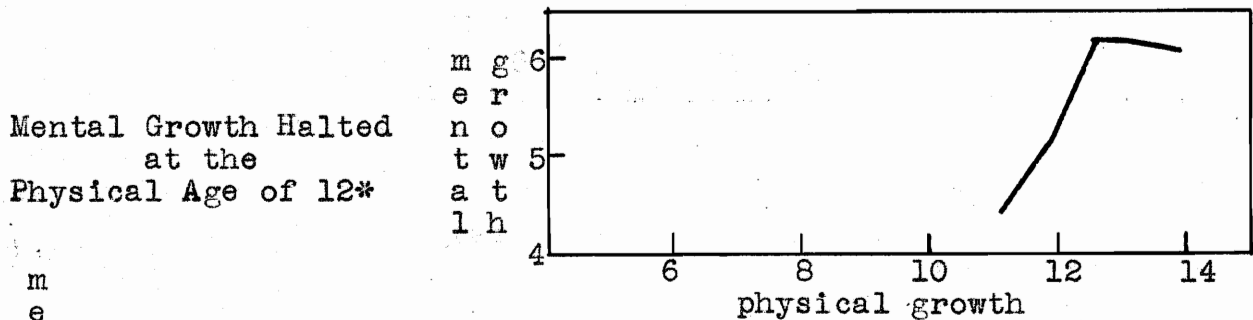
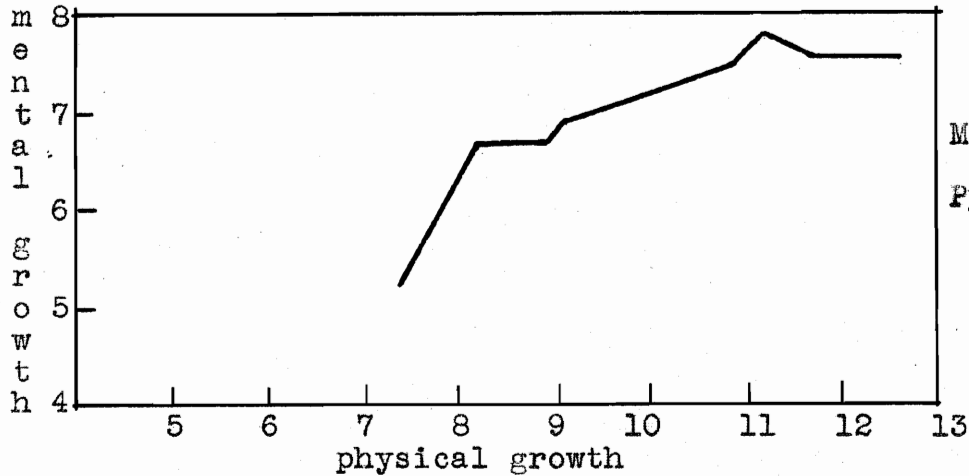
Cretinism has its stunted stature, thickened instead of lengthened bones, blunt and spatulate hands and feet, wrinkled and sallow skin, with a tendency to corpulence. This condition was found to be due to hypo-thyroidism in early life.

The Mongolian condition, again presents a definite physical picture, although its cause is still obscure. Some of the characteristics are slanting eyes, short neck, stubby fingers, and a curving little finger.

The health of these children is rather delicate. Few people realize how subject to minor illnesses they are. They are very prone to digestive disorders, to minor infections, boils, scratches, and upper respiratory infections.

Emotionally again, the mentally retarded child is unstable. He is constantly building walls and creating blocks to shatter the ever-piercing remarks and acts of his fellow man. There may be a great deluge of talk or an exceedingly shallow and repetitious variety, or a monosyllabic vicious ugliness of mood. Carried to an even greater degree, some types of these children tend to convulsions. The average amount of emotional reaction is found in every day happenings, but to a varying degree. Anger is common in all grades except the lowest idiots and is correlated positively with intelligence, not with age. Jealousy, hatred and revenge are very infrequent. Affection also correlated positively with intelligence and again not with age. Fear has no correlation with intelligence nor with age; fear is an emotion influenced by environment.

TABLE I - GRAPHS



The above curves show the results of tests of several children in the slowing down stage given at the Vineland Laboratory, New Jersey.

* The peaks of these graphs indicate an exceptional effort by the child on that one test and the imperfection of the tests.

EDUCATION

The exceptional child, as any other, craves the friendly acknowledgment of himself as an individual with a right to fulfill his destiny, to have his identity kept intact, and to be allowed a fair modicum of self-esteem. He is awakened to the realization that he is different from others. The thought of being, or even seeming, different from others is so abhorrent, especially if the characteristics are regarded as a deficit, a blemish, a liability or any other inconvenience. Thus, it is not uncommon for relatives to be so preoccupied in trying to adjust to a child's retardation, that they are apt to forget that the child also has feelings.

The behavior of such a child is measured by the emotional climate which surrounds him in his immediate environment. The climate depends essentially on the personalities and attitudes of his parents, and on their understanding of his feelings and needs. Here the family home sometimes becomes too difficult a place. Hearty brothers and sisters make demands that are too harsh on these children. The slow ones are pushed into situations too hard for them. Parents trying to protect their special child are tortured with the question of what will happen to this child when they are no longer here.

There are many places for special children where they can be given good custody and kind treatment; there are some with not too good custody nor kind treatment. Just to release the child to custody does not comfort the parents nor insure the happiness of the child. The child has the right to live and do his share of work to the best of his ability. This can best be done in a school which is developed on his level of mental process.

Therefore, a school is necessary where each child is an individual, known and valued for what he is, with the thought of improving that child medically, nutritionally, and educationally.

A neglected child is an unhappy child. A child forced beyond his ability is an unhappy child. A child should be appraised at his true level and helped to reach that level as slowly as need be, taught to live better, and to become a useful and contented member of the social group; these are the basic aims of the education of the mentally retarded. The underlying philosophy of the program is the development of these children within their capacities to meet their needs and interests and to give them an opportunity to make a contribution to the world in which they live, even though that world is small and contributions limited. Happiness for the individual is one of the most important outcomes of this philosophy.

This philosophy has been practiced over the years with many theories being used. In the early part of the 19th Century, Itard, a French physican, set the following goals:

1. To interest the child in social life by rendering it more pleasant than the one he was leading,
2. To awaken his nervous sensibility by more energetic stimulation,
3. To extend the range of his ideas by giving him new needs and by increasing his social contacts,
4. To lead him to the use of speed through imitation brought on by necessity, and
5. To induce him to employ the simplest mental operations upon the objects of his physical needs. ⁴

About the middle of the same century, Sequin put forth his ideas on the education of the retarded:

1. To exercise the imperfect organs to develop their functions,
2. To train the functions to develop the imperfect organs, and
3. To base teachings on the five senses. ⁵

The modern theory is to treat the mentally retarded child as a whole, medically, physically, and mentally.

The education of such children is based on practical rather than theoritical development. The idea is to develop the undamaged part of the brain, to compensate for the damaged area. The actual education of a child depends upon the degree and type of his retardation.

Today most authorities agree that at least fifty percent of the mentally retarded children can be educated to

be productive members of society. Studies have shown that there are at least twelve types of jobs that can be done by an adult whose mentality is that of a five-year-old child.

The characteristics of these children are of such a nature that they should be directed through experiences into concrete activities. There is little or no precision or perfection in their work. These can best be encouraged by the use of materials, tools, and apparatus.

The so-called educable has an I. Q. of above fifty. These children can succeed in academic school work if developed slowly, with constant repetition. Their reading can be brought up to approximately the fifth grade level. They can be taught simple fundamental operations in arithmetic which can be applied to making change. They can absorb history and geography in simple story form.

Since these children must learn from experiences in daily living, thought must be given to developing each individual child to his best advantage. The experiences should be real, not make-believe; they should provide for co-operative living, and should be emotionally, physically, and mentally satisfying to the child. Activities participated in by this group range from those as simple as learning to use the telephone, to those of more advanced

experiences, such as planning, shopping, and preparing a meal. These experiences must continue onto the educational basis of health, social and civic activities, fundamental skills, science, arts, and manual and occupational activities.

Time allotments of the activities cannot be assigned for practical reasons, either for daily work or during the period of a year. This, of course, does not mean that the time of a particular activity is left to take care of itself.

The majority of the education comes from the teacher. She is more than likely, an above average teacher with a special education as to the needs of these children, emotionally and educationally. Not only must she possess a knowledge of the nature of mental deficiency, and an understanding of mental retarded children and methods of teaching the retarded, but she must also have a knowledge and experience in parent education programs. Her patience must never give out because their period of instruction is short, their concentration is poor, and their memory is brief. Since constant vigilance is necessary on the part of the teacher to remove unnecessary hindrances to the child's use of all the ability which he possesses, classes should be limited in number to eight or nine pupils with the ideal size being five pupils.

TABLE II - ACTIVITY SCHEDULE *

| TIME | WINTER ACTIVITIES | SUMMER ACTIVITIES |
|-------------|--|--|
| 7:30 | Rise | Rise |
| 8:15- 9:00 | Breakfast | Breakfast |
| 9:00- 9:30 | Clean-up and Inspection | Clean-up and Inspection |
| 9:30- 9:45 | Opening Exercises | Assembly, Singing |
| 9:45-10:45 | ABC Drill and Reading | Academic Review |
| 10:45-11:00 | Music and Recreation | Activities: Athletics, Hikes |
| 11:00-11:15 | Health Program | Pony Rides, Toy |
| 11:15-11:45 | Arithmetic | Boat Sailing |
| 11:45-12:00 | Preparation for Lunch | Preparation for Lunch |
| 12:00-12:45 | Lunch | Lunch |
| 12:45- 1:45 | Rest Period | Rest Period |
| 1:45- 5:00 | Physical Education, Trips, Arts & Crafts, Games, Industrial Pro- gram | Swimming, Hikes, Stories Music, Games, Sports, Arts & Crafts |
| 5:00- 5:15 | Preparation for Dinner | Preparation for Dinner |
| 5:15- 6:00 | Dinner | Dinner |
| 6:00- 6:30 | Movies, T-V | Campfire, Skits, Parties |
| 6:30- 7:30 | Preparation for Bed | Preparation for Bed |
| 7:30 | Bed | Bed |

* This is an example day set up for no particular type of retarded child. Some variation would have to be made as to the time allotments and type of programs for the different groups of children.

THE RESIDENTIAL SCHOOL

The place in which a child is being educated does not effect the philosophy and objectives underlying his education. His nature and the social environment in which he is to play his part are, rather, the determining factors.

The control of the residential school over its pupils extends through twenty-four hours of the day and three hundred sixty five days of the year. The continuous supervision practiced there cannot be exercised in day schools. The possibilities in a residential school, in having an integrated program in which educational and social values are combined, extend beyond the limits achieved by the day school. Through the use of experiences, classroom activities can be co-ordinated with activities carried on in other phases of institutional life. Cottage life gives the best possible opportunity to develop desirable personal and social habits. Social, industrial, academic, and physical development of the child can proceed hand in hand with one another through a complete practical integration of his experiences during a twenty-four hour day and during every season of the year.

The curriculum must be organized to meet the needs of the various types of pupils. Those of sufficient intelligence to accept needed training can be prepared to return

to the community later. Those who are too deficient ever to return to the community must be prepared to take their places in institutional life. Those who have behavior complications in addition to low intelligence must be studied with reference to their possibilities for satisfactory social adjustment. Some will go back to the community; others will remain in the institution indefinitely.

The fact that persons of all ages are resident in institutions for the feeble-minded makes an arrangement necessary which will give to the children enrolled the opportunity to work in groups of children. This places a responsibility upon residential schools for careful classification and assignment of each child to classroom work, as well as a prevention of undue contact with older retarded inmates. The proper organization of a school within the larger institutional life includes services to pre-school children, bedridden patients, physically mature adults, and old people. Each child's right to live his life as a child with other children should be safeguarded.

The groups to be considered are

1. those children who are mentally below the six year level,
2. pre-adolescent children who are mentally six-years-old or older,
3. adolescents of a mental age lower than nine years, and
4. adolescents of a mental level of nine years or more.

These are major divisions; they must again be divided into

such groups as socially disturbed, emotionally disturbed, and others which can be determined only by careful testing. The task of a residential school is to add to the educational service for those respective groups continuous social supervision and training.

It is of great benefit to the children to have different staffs in the home and school. The housekeeper is in charge of the residence, and she should be assisted by a house mother, night supervisor, and possibly a trained nurse. These members are responsible for the health, clothes, and living quarters of the students. They are responsible for the small amount of free recreational time; programs are arranged to give each child an opportunity to use, in this free time, the skills he has acquired in the more formal atmosphere of the classrooms and gymnasium.

Subject supervisors, each should be a trained specialist in his department, are in charge of the school work, and each should be assisted by specially prepared teachers. Thus students have the advantage of experts in the fields of manual training, recreation, and academic work, an advantage they might not have if the responsibility of home and school fell on the same people.

The separation between home and school approximates that of normal living and so counteracts the emotional restrictions so often resulting in boarding school life.

The child can go "home" at the end of his classes to a substitute family that is interested in hearing of the day's activities.

Sufficient personnel should be in residence at the school to round out something of a normal community in the make-up of its population. This factor is highly desirable, if not essential, in the operation of an institution, particularly one for children. Children remain overnight and throughout the week. They enjoy having in their community at least some of the activities which go on in a normal community. Although it takes more effort to procure the facilities and more to operate them, it is worth while to have as large a proportion of personnel as possible live on the grounds. The accommodations planned, with happiness and welfare of the staff in mind, will usually pay well.

THE SITUATION IN MONTGOMERY COUNTY

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The Montgomery County school board has recognized the need for the education of retarded children and has provided some special classes for approximately seventy-five mentally deficient children in their area. This was begun in 1950 when four classes were organized, using odd rooms of the different public school buildings in the county. By 1954 this number had been increased to twelve classes. Contained in this number are three classes for groups of emotionally disturbed children and three classes for physically handicapped. The county now employs one bus for transportation and one therapist.

This has proved a beginning, but it is by no means completely satisfactory. With only one bus as a means of transportation, fifty children are lacking in special aid. The classes are spread throughout the county because of limited space available in each school. Insufficient space makes it necessary to leave out about seventy-five other children who are either in regular schools or in private schools. An efficient operation system is impossible.

The ideal way to solve most of these problems is to operate a residential school located in the rural area of the county, but not too far from the urban districts. Because of its small number of students, such a school could

never be completely self-supporting, but could be partially so.

An accurate census of the mentally retarded children living in Montgomery County has never been taken. There are approximately 42,000 children of school age in this county; if the average two percent were assumed to be those having I. Q.'s of seventy-five and less, 840 students would need special education. A school planned for this number would be unnecessary at the beginning; the best plan would be to design for a known number, with provisions for expansion in the near future.

A residential school is necessary for only those children who will profit most by twenty-four hour supervision. This class would consist of the emotionally insecure and the middle and low grade mental levels. The remaining can be taken care of in provided day classes in public school or in the residential school.

Since there are only seventy-five retarded children enrolled in the special classes, and one hundred twenty-five other children of known mental deficiencies, the school designed for in this thesis will be designed to accommodate 200 residential students.

Expansion will not be a problem of great concern, although too many more children need help to allow for a definite increase. Each building is considered as an

individual unit and can be reproduced at any time. If this is improbable with such units as the auditorium, gymnasium, and buildings of this nature, a dual program will be set up to accommodate the increase in students. Also in the expansion program housing for permanent residents will be provided.

TABLE III - POPULATION BREAKDOWN AND GROUPING OF
 RETARDED CHILDREN IN A RESIDENTIAL
 SCHOOL FOR MONTGOMERY COUNTY

| NUMBER | PHYSICAL AGE | MENTAL AGE | SEX |
|---|--------------|------------|---------------|
| Below 6-year mental level | | | |
| 20 | under 4 | under 2 | Male & Female |
| 15 | under 4 | under 2 | Male & Female |
| 15 | 4-6 | 2-4 | Male & Female |
| 15 | 5-9 | 4-6 | Male & Female |
| 15 | 6-9 | 4-6 | Male & Female |
| Pre-adolescent, above 6-year mental level | | | |
| 15 | 9-12 | 6-9 | Female |
| 15 | 9-14 | 6-9 | Male |
| 15 | 9-14 | 6-9 | Male |
| Adolescent, below 9-year mental level | | | |
| 15 | 12-18 | 7-9 | Female |
| 15 | 12-18 | 7-9 | Female |
| 15 | 14-18 | 7-9 | Male |
| Adolescent, above 9-year mental level | | | |
| 15 | 16-18 | 9-up | Male |
| 15 | 14-18 | 9-up | Female |

TABLE IV - POPULATION AND BREAKDOWN OF ADULT
EMPLOYEES IN A RESIDENTIAL
SCHOOL FOR MONTGOMERY COUNTY

| PERSONNEL | TOTAL NUMBER | RESIDING AT SCHOOL |
|--------------------------|--------------|--------------------|
| Administrative | 4 | 4 |
| Cottage | 78 | 40 |
| Grounds & Maintenance | 15 | 8 |
| Janitorial | 20 | 10 |
| Medical | 5 | 5 |
| Others | 15 | 15 |
| Teachers | 55 | 45 |
| Total | 192 | 127 |

DEVELOPMENT

"A new tomorrow is dawning
for mentally handicapped
children, but tomorrow never
arrives suddenly with a full
noon-day sun"⁶

THE SITE

Entrance to Crestleigh



View towards the
Highway



View of a Section of the
Existing Farm Land



Wooded Area on the
Southeast

Close-up of Wooded Area



View to the Northwest

Children of all sizes need space in which to grow. Children with deficiencies would require even more, according to their handicap. Mentally retarded children should have their school located in a setting of peace and contentment. In examining several residential schools, founded fifty years ago or more, it was found that the amount of land used was approximately one acre per child. Besides land for the main campus buildings, this figure includes an efficient farm and the space occupied by personnel housing.

The site chosen is a farm called Crestleigh, Montgomery County, Maryland. The two hundred acres is situated in a farm section with mostly undeveloped land in the immediate surrounding area. A 1,300-foot boundary of the plot faces a four-lane highway, U. S. Route 29. Half a mile to the northwest is a small farm town of Ashton, and to the south are the larger towns: Silver Springs, 12 miles, Bethesda, 15 miles, and Rockville, 11 miles. The special classes are now held in the schools of the last mentioned towns.

The reason for selecting this site is primarily because it affords an ideal location in a rural area with ample acreage for activities, and because it is near enough to the urban area from which many of the students come. Another reason is the great interest in these

children that has been shown by the owner of Crestleigh.

The plot, with gently rolling land throughout, slopes down, away from the highway at about a three percent grade, allowing for privacy from travelers and sight-seers. Except for a few scattered trees, a forest following the southeast boundary to the rear of the lot is the only wooded area. Shrubs have been planted around and near the entrance to the grounds. A stream follows the boundary lines on the south and west sides and comes to a fork at the southwest corner.

A tar and gravel road now goes from the highway to the only large building, the house, located near the middle of the site. There are a few other buildings, all of colonial architecture. This road, in all probably, will be used as the entrance to the school and will be surfaced with a hard top, as is the practice in that vicinity. Because of the small percent of grade, the only grading necessary will be to level the play areas. The existing trees and shrubs will be left, and a general landscaping will be done to give more shade and beauty to the site and its new buildings.

THE LIVING, ADMINISTRATIVE AND MEDICAL FACILITIES

THE LIVING, ADMINISTRATIVE AND MEDICAL FACILITIES

The elements required to make this school an efficient unit are as follows: the cottages for living and classroom work, the administrative unit for proper supervision of the school as a whole, the medical unit for administering specific care of the body and the mind, the auditorium for social group activities, the gymnasium and the play shed for supervised play, and the shops and the service buildings to aid the individual and the community.

THE COTTAGE

The cottage is, by far, the most important building in the school because it will be both the home and the school for the enrolled students. This unit must be treated as a whole and yet be divided into separate parts. It is to the advantage of the student to be able to go from his "home" to his classroom without needless dressing and undressing during the winter months; it is again to his advantage to feel that he has complete separation from home and school. The student will spend his free time in or near this unit, and it must have space planned accordingly.

To accommodate the two hundred students, thirteen cottage units will be planned initially. Each cottage will house fifteen children with twenty children in one of the nursery units. The cottages will be grouped together in

the living area of the site, and each will be oriented so far as possible, with classrooms on the north or east, the living area to the south and bedrooms on the southeast and northwest. Ample space will be allowed around each unit for lawn and play areas and to serve as a natural break for noise. For easier supervision of the children, some of the outdoor sections will need fencing.

The classrooms will be large enough to contain an arts and crafts area. Each classroom will have moveable partitions to be used to separate one section from another for the purpose of showing slides or to separate several activities. Toilet facilities will adjoin each classroom and a lavatory basin will be installed within the room. Classes will be smaller, but area per pupil will be greater due to emphasis on muscle activities and craft work areas.

The space requirements are listed below:

Living Area

Entrance and living area

Dining area to serve fifteen children and two supervisors

Kitchen to serve three meals a day, year around

One lavatory

Housekeeper's office

Sleeping Area

Two housemother's suites

Three single bedrooms

Six double bedrooms

Two bathrooms to hold more than one child at a time

Classroom Area

Three classrooms for five students, each

Two toilet rooms

Outdoor study and play area

Teacher's room for small conferences, lunches, etc.

Recreation and hobby area

Storage Area

Toy storage

Linen closet

Janitor's closet

In the building used for nursery children, three classrooms are unnecessary, but instead a large area for play and several small areas for some group instruction are needed. The unit for twenty children will need proportioned enlargement of the areas.

THE ADMINISTRATION UNIT

The administrative unit serves many purposes: to admit and properly place students, to keep records, to link the school with the parents, and to be the contact between the whole school and each of its parts. The services

rendered should be easily available to the parents, to the students, and to the employees. Since the administration unit for this school will undertake the management problems, other than those concerned with students and teachers, it will contain a few more areas than required in a school of one building. Besides the head of the school, there will be three directors: the director of training and cottage life; the director of medical, psychological and Social Services; and the director of plant operations and services. Of course, each of the directors will have assistants with offices in the administration building, or in other buildings.

The space requirements are listed below:

Entrance, lobby and reception area

Area for three secretaries and switchboard operator

Three offices for the directors

Office with secretary space for the school's principal

Two conference rooms to seat twenty people, each

Storage for office supplies and records

Office area and an interview room for social workers

Men's rest room and lounge

Women's rest room and lounge

THE MEDICAL UNIT

Health is a function of the school and there are various aspects of the job. In this area the children are

checked periodically on their mental and physical health status. Those with defects are cared for until they are well again. If the child has a serious or long recovery disease, such as cancer or tuberculosis, he will be sent to a hospital or health center better fitted for his care.

The space requirements are listed below:

Receiving Area

Receptionist desk and file space

Waiting area with seating for ten people

Nurses' office for two nurses

Warming kitchen

Examining Area

Medical examination room with supply closet

Dental examination room with supply closet

Mental examination room with supply closet

Operating suite

Ward Area

Two wards with 6 beds, each

Three wards with 4 beds, each

Six wards with 2 beds, each

Four wards with 1 bed, each

Sunroom for 10 patients

This department will be complete enough to satisfy the medical and health needs of a community of this size and to meet the special medical problems inherent in the

field in which it works. The location of this unit will be close to the administration unit for convenient use by new students who must be checked physically and mentally when they enter.

THE RECREATIONAL, TRAINING AND SERVICE FACILITIES

THE RECREATIONAL, TRAINING AND SERVICE FACILITIES

THE AUDITORIUM

The auditorium is a place to meet and learn social and group skills. This is important in the education of all children, especially the mentally retarded. Personalities interact, and the art of getting along in groups develops.

The activities which take place here will be various, such as movies, plays, band concerts, pageants, and religious programs. The building should be used with the respect demanded of a public building, and the children will learn to know it as their "movies", theater, and church. All this does not mean that it is a building that is damp and gloomy, or whose halls echo. It will still contain the homelike atmosphere so necessary to make these children feel they belong.

The space requirements are listed below:

Audience Area

Entrance and lobby with some space for exhibition

Auditorium to seat 300 people

Public toilets

Stage

Stage and proscenium

Orchestra section in front of the stage

Projection room

Four dressing rooms

Two lavatories between the dressing rooms

Work area

Storage Area

Storage for extra folding chairs

General storage area with janitor's closet

The physical requirements are a room designed for proper sight-lines, and trussed for an unobstructed view, artificial lighting and ventilation, a pitched floor, and the walls and ceiling angled to implement acoustics. The decoration will be little or none, although exhibits of children's work may be placed in the entrance and lobby area.

THE GYMNASIUM

Along with the muscle exercise and skill, free group play makes a contribution to the growth of students in character development, sportsmanship and the ability to work together. This building will probably resemble a gymnasium only in its definition - to build health and physical fitness

The child of mental deficiency lacks muscular coordination to some degree; the majority, to a greater degree. A corrective gymnastic area must be provided with such equipment that will enable the students to receive practical benefits from their exercises. A gym area must

also be provided for group games and spectator sports. An indoor swimming pool is desirable from the development viewpoint, but as these children have a tendency towards colds, swimming during the winter months would be undesirable. An outdoor swimming pool will be provided for the summer months.

The space requirements for this unit are listed below:

Play Area

Gym area, one basketball court with clearances and seats to accommodate 100 people

Outdoor play area

Therapy area for required equipment

Service Area

Storage for portable bleacher

Storage for equipment

Two offices for supervisors, one with bed

Locker space and toilet area

Floors will be of hardwood, walls smoothly finished, and the area will be trussed to allow an open unobstructed area. Window areas will be large to prevent the feeling of being trapped in a well and to assure good circulation of fresh air. Netting devices will be used as decorative curtaining and as preventive measures against window breakage. All other fixtures, heating lighting, will be protected against damage by covering or recessing.

THE PLAY SHED

A play shed is a covered, out-door area used all year around for group play. It should be large enough to accommodate several groups at once. Counter area will be provided, as some handiwork may be done here. Although it will be located near the gymnasium, cabinet and storage area will be provided in it for the convenient location of equipment. Two enclosed lavatories consisting of two toilets and two lavatories each will be needed, and they will be placed out of the playing area.

The space requirements for this unit are:

A large play area

Outdoor play area

Two lavatories

The roof of the shed is only for protection against sun, wind, and rain. Here again the space will be trussed to obtain an unobstructed area which will be used for both indoor games like volleyball, and outdoor games like shuffleboard.

THE SHOPS

Training for useful employment concerns itself with the development of skills and knowledge required for quality and quantity production of some form. All vocational training is specific and unique, as it pertains to a particular

area, and must be given under physical conditions which stimulate actual real-life situations. The use of these shops and their products will help to make the school self-sufficient and self-operating.

Because of the small number of students in this school capable of enrolling in such a course, only a very few shops will be included at the present time, and ample space will be left for expansion in the future. The shops will be weaving and needlecraft for the girl students and printing and woodworking for the boy students.

The Weaving and Needlecraft Shop

This shop will combine the two trades under one roof for efficiency. Its purpose will be to teach the students how to weave material and sew clothing on a large scale basis. Many of the finished products will remain in the school for use.

The space requirements are listed below:

Utility Area

Locker and lavatory area

Lounge area

Storage for supplies

Working Area

Large area for looms and work space

Large area for cutting and sewing machines and
work space

Supervisor's and instructors' area

The Print Shop

This shop will not only teach its students how to be efficient in the printing trade, but will also put their knowledge to use in the printing of school circulars, pamphlets, and possibly a newspaper or magazine.

The space requirements are listed below:

Utility Area

Lockers and lavatory area

Storage for supplies

Working Area

Large area to accommodate the presses and working space

Supervisor's and instructors' area

The Woodworking Shop

The students who study in this shop will learn the technique of working both in a large factory and as a carpenter's assistant. The products will be of a practical nature, such as furniture, molding, and building repairs and will be useful within the school.

The space requirements are listed below:

Utility Area

Locker room and lavatory

Storage space for supplies

Work Area

Large area to hold the tools and working space

Supervisor's and instructors' area

As a natural barrier against noise, some of the shops will be enclosed in separate buildings but they will all be in the same general area. Each unit needs good general natural lighting, accessible delivery space, and ample working space. Within the working areas no permanent partitions will be used.

THE SERVICE BUILDINGS

The service buildings will contain those facilities needed for the smooth operation of a community of this size, namely, a laundry and shoe repair shop and a barber and beauty shop. These facilities will serve the students and many of the personnel. Good occupational training will be received by the students working here.

The Laundry and Shoe Repair Shop

The laundry and shoe repair facilities will be housed under one roof, but will be separated, one from the other, in plan by means of partitions. This building will be located on the site where it can best serve the personnel and the students; between the two living areas and near the central part of the activities.

The space requirements for efficient operation are listed below:

Laundry Area

Receiving counter

Area for washing and drying equipment and work space

Area for ironing equipment and work space

Supervisor's area with file space

Shoe Repair Area

Receiving counter

Area for repairing equipment and work space

Supervisor's area with file space

Storage

Utility Area

Locker space

Lavatory and lounge area

This building, because of its function, will have ample window area for proper ventilation and lighting. Mechanical ventilation and artificial lighting will also be supplied.

The Barber and Beauty Shop

These two services will be combined in one structure for economical and practical reasons; they will also be divided by partitions. Since these facilities will serve both the personnel and the students, it will be placed in the vicinity of the laundry and shoe repair building.

The space requirements are listed below:

Barbering Area

Waiting area, seating for five people

Area for two chairs and equipment

Lavatory and coat closet

Office area, desk and file cabinet

Storage

Beauty Area

Waiting area with desk

Work area, four people at once

Lavatory and coat closet

Office area, desk and file cabinet

Storage

These two shops will have all the requirements of those serving the general public to acquaint the student assistants with actual working conditions. The atmosphere will be warm and pleasant; the building will be light and airy.

THE ASSOCIATED AREAS

THE ASSOCIATED AREAS

The areas not yet mentioned are general storage, the farm, housing for the personnel and possibly a shopping center. To give background and requirements for each of these areas would take research and thought not planned for in this thesis. It could be another thesis or two, to do the work properly; therefore, these facilities will be mentioned, approximate areas will be given and location on the site assigned.

The general storage will contain the majority of the food supplies before they are sent to the individual cottage kitchens and the medical center kitchen. Space should also be provided for unused furniture, garden tools, winter tools, and a small maintenance shop. The location of such a unit would be close to the kitchens.

The farm will employ mostly the students of the school who are able to work, but cannot manage for themselves in an outside community and so must be permanent residents of the school. A farm for a school of this size will be fairly small, and yet large enough to be self-supporting. It will have all the usual buildings, barns, homes for the permanent students, homes for the personnel, chicken houses, etc.; it will have up-to-date equipment for proper instruction of the students and efficient management. It is best located in an area not too close to the main school grounds,

with a road connecting it to these grounds and also, if possible, a direct road to the highway. The produce raised on this farm will be used in the school and any surplus will be sold to near-by stores and to the personnel's families.

It is a great advantage to have all the personnel live in a community adjoining the school; but this is next to impossible. Many of them will come from the Washington area and be unwilling to move. It will be hard enough to find employees with suitable qualifications without imposing another handicap of requiring they live in the community. As the community grows more people will desire to live there. An area will be planned for two-thirds of the total employees, although further investigation may show such an assumption to be incorrect. The types of dwellings will be various - apartment type units for childless couple employees, family type units for employees with children, and dormitory type units for single employees. A development of this make-up, should be separated from the school area, but still be close enough to those facilities that are intended to serve both the school and the personnel.

The whole school, as before stated, is located only one-half mile from Ashton and can use some of the community facilities located there. These might prove to be

inadequate, as it is only a small farm town. Careful study and investigation will be needed to decide whether to provide additional facilities at the school site, or to encourage the people of Ashton to build their facilities for the benefit of themselves and the school employees.

STRUCTURES, MATERIALS, AND MECHANICAL EQUIPMENT

STRUCTURES, MATERIALS, AND MECHANICAL EQUIPMENT

The education of mentally retarded children comes from the teacher. The surroundings should provide unlimited aid. The children are, at times, happy and gay; the next moment, mean and destructive; their actions are clumsy. The surroundings should sooth their ever-changing moods. Because of their slowness of gait and awkwardness of movement, safety is a great concern. The buildings should be of fireproof construction with readily accessible building exits. The interiors and furniture should be well-built with no sudden projections or sharp edges.

STRUCTURES

The structural frame of the cottages will be of steel I-beams supported by enclosed H-columns. The beams will have a pitch of one and one-half inches in a foot. In the bedroom and classroom wings the frame will be supported by four columns. In the main section the pitched beams will be supported by two columns with another column to support the roof over-hang; the beams will be held rigid with a tie-rod. The end walls of this section will be load-bearing.

MATERIALS

Since this building is to be essentially fire resistant, the materials will be basically of a masonry type and metal, using wood as little as possible. The walls will be a tan-

color brick with concave joints backed by painted cinder-block with flush joints. The interior partitions will be of painted cinder block. The fireplace wall will be a brick cavity wall, allowing the tan brick to be used on the interior for a more pleasing wall treatment. The chimney will be of stacked brick on the exterior to set off the chimney element from the wall. Metal panels in the exterior wall are used to give lightness and cheerfulness to the building. They will be enameled in bright primary colors. They have honey-comb insulation, sandwiched between porcelain enamel on the exterior, and plywood on the interior. The louvers in the classroom wing and bedroom wing will be of metal painted according to the general scheme. The walls in the living and dining area will be plastered except for the fireplace wall. The kitchen and bathrooms will have tile wainscot with cinder block above for ease of cleaning and protection against water. The windows will be metal cased with metal sills.

The floor will be placed on the ground and will consist of four inches of concrete laid on six inches of tamped fill, separated by a moisture proof building paper. A finished flooring of asphalt tile will be laid on the concrete to provide an easy surface for cleaning and to give a resilient flooring.

The ceiling will be hung from the steel deck in the

bedroom wing, the classroom wing, the kitchen and the housekeeper's office. In the living, dining and entrance areas the beams will be exposed. The insulation used will be rigid because of its ability to be left exposed. The roof will be 5-ply built-up roofing covered with a black and white gravel. Sky domes will be used for their waterproof quality. These are constructed at the factory and can be fastened to the roof with ease and speed.

The fences used on the exterior will be constructed of wood and will be painted to compliment the building.

MECHANICAL EQUIPMENT

The heating system of the cottages is of prime importance. An evenly distributed supply of heat must be provided twenty-four hours a day. A control system will be used to proportion the amount of heat to the activities.

A central power plant will be located on the site with provisions for future expansion. The heat from the plant will be steam and will travel underground through tunnels to the individual units. At the cottages the pipes will enter a basement service room, and the steam will be converted to hot water. This precaution is taken for the protection of the children from burns.

The hot water will be carried through the building in underground tunnels large enough for crawl space and water

pipes. The rooms will be heated by baseboard convectors because of these advantages: easy future expansion, the small amount of space consumed, their cleanliness, and their aesthetic value.

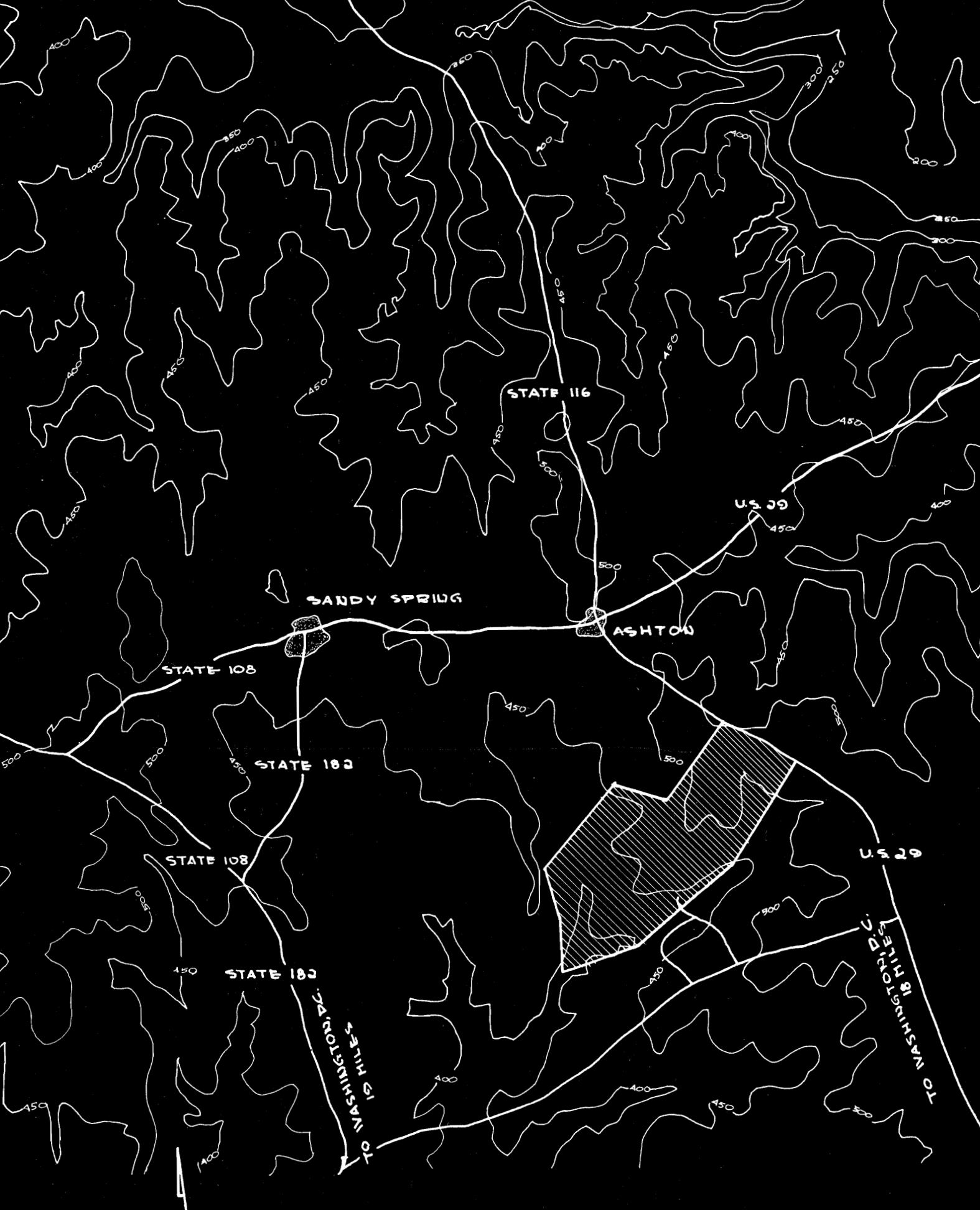
P R E S E N T A T I O N



O TOWNS
 — ROADS
 ■ SITE

SCALE: 0 1 2 3 4 5 MILES

Site and Vicinity



NORTH

SITE AND VICINITY

 SITE

SCALE:  1000 0 1000 2000 FEET
 CONTOUR INTERVAL: 50 FEET

Site Plan



WASHINGTON, D.C. ON THE LEFT

U.S. ROUTE 29

TO ROUTE 29

NEW TREES

OLD TREE

POWER HOUSE

OLD TREES

WEAVE & SEW SHOP

PRINT SHOP

WOOD SHOP

POOL

GYM

PLAYGROUND

PLAY SHED

INFIRMARY

ADMINISTRATION

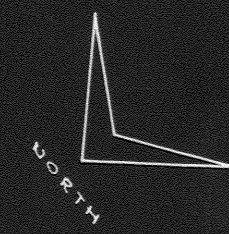
AUDITORIUM

LAUNDRY & SHOE REPAIR

BARBAR & BEAUTY SHOP

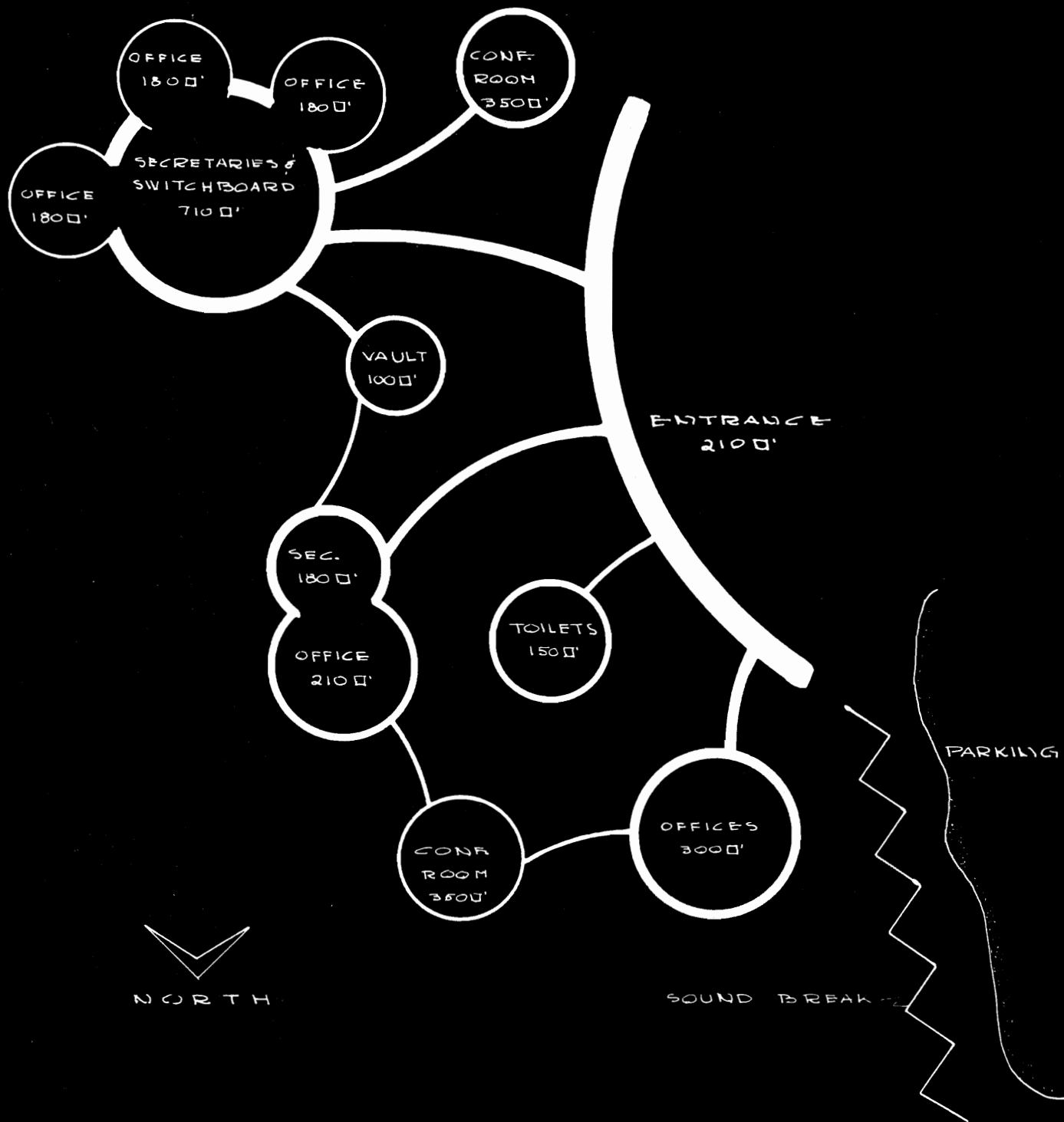
HOUSING 30 ACRES

FARM 120 ACRES



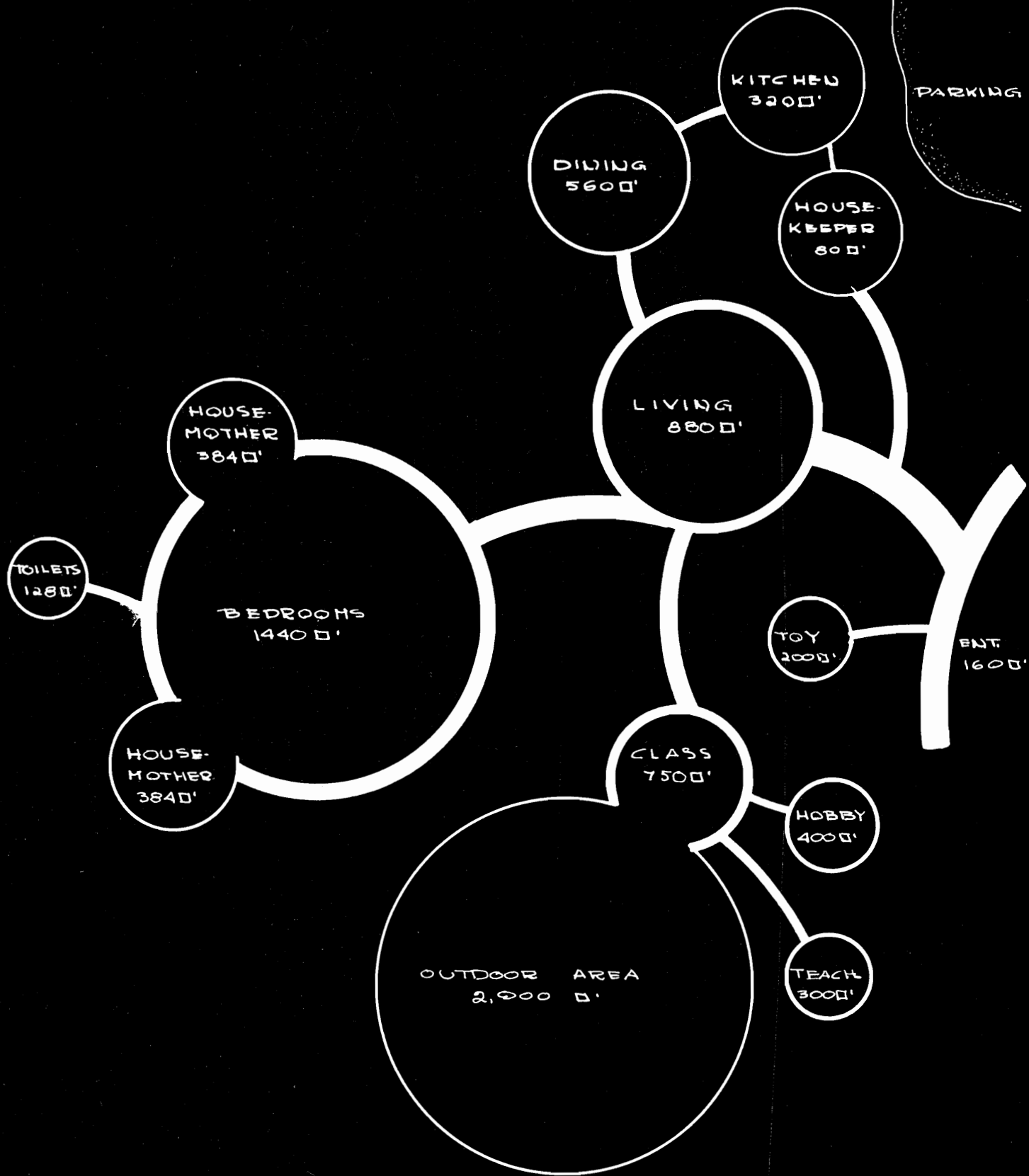
SITE PLAN

SCALE: 0 100 200 FEET



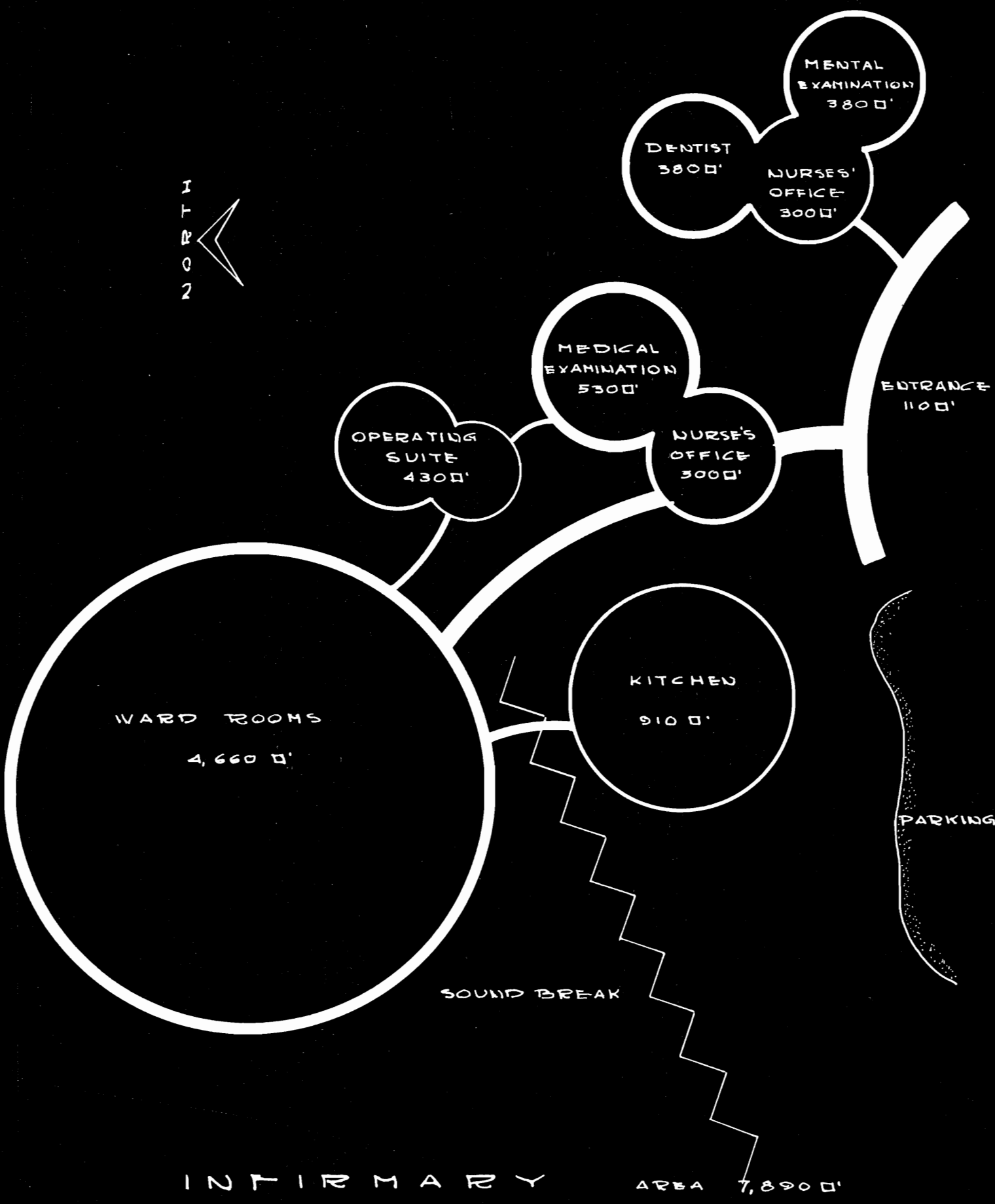
ADMINISTRATION

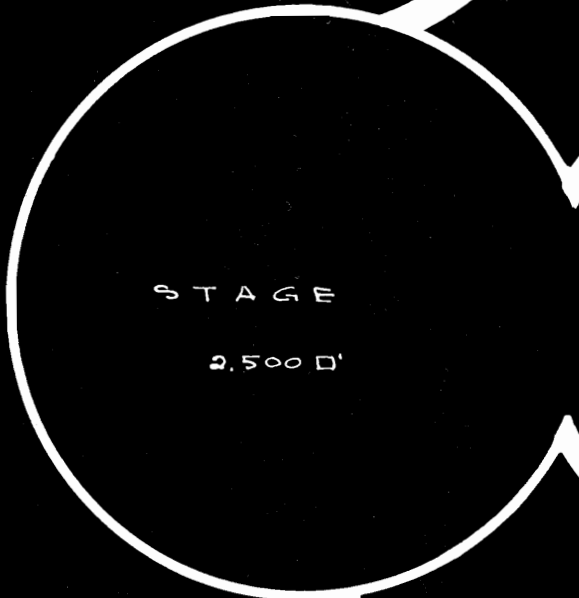
AREA = 2,900 0'



C O T T A G E AREA: 6,000 sq ft

Infirmary





AUDITORIUM

AREA - 8,800 sq ft

NORTH



OUTDOOR PLAY AREA

3,850 □'

PLAY GYM

5,000 □'

PARKING

BLEACHER
STORAGE
1000 □'

OFFICE
1200 □'

STOR
2000 □'

ENTRANCE
3000 □'

LOCKER ROOM

960 □'

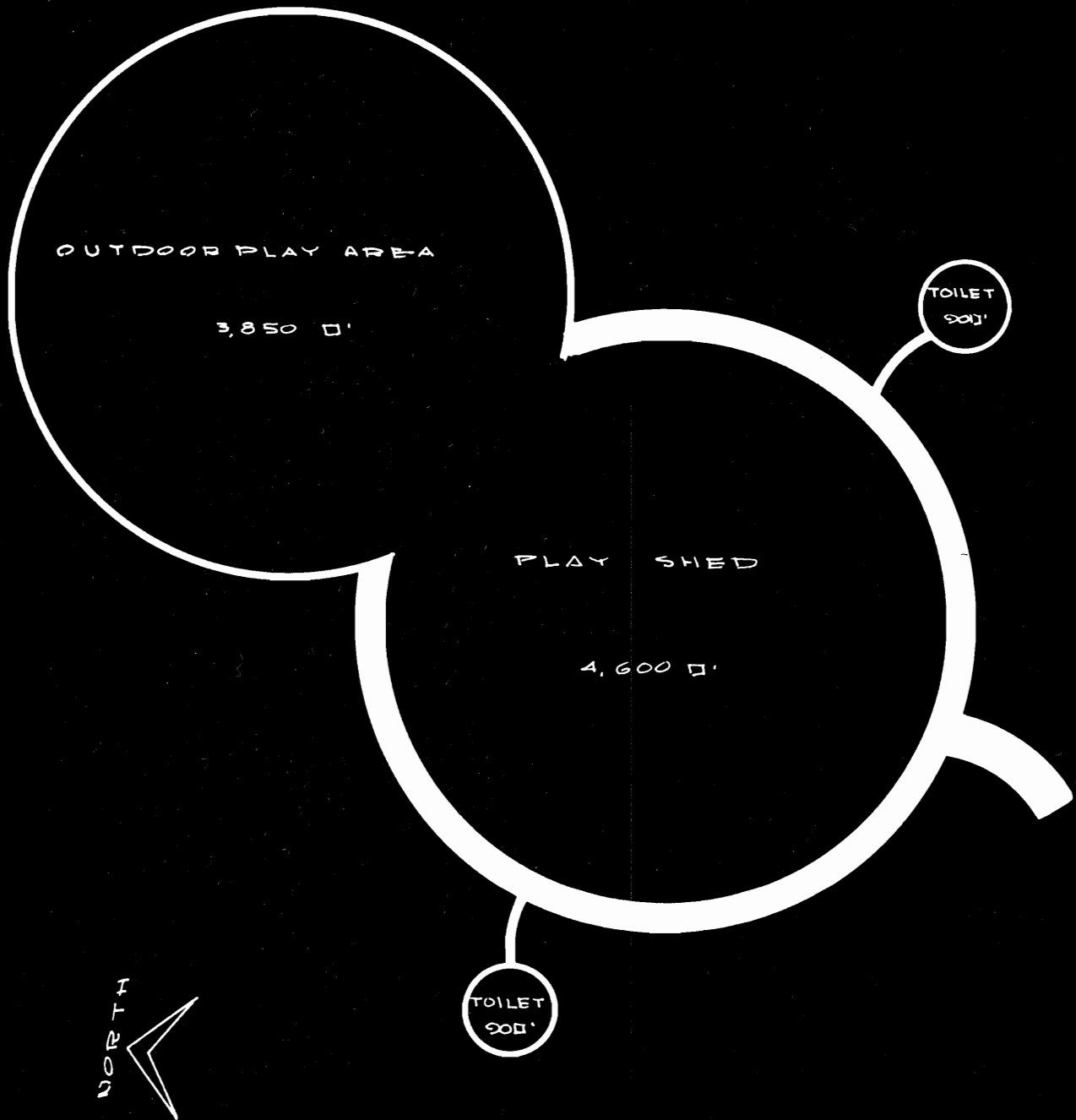
OFFICE
800 □'

THERAPY GYM

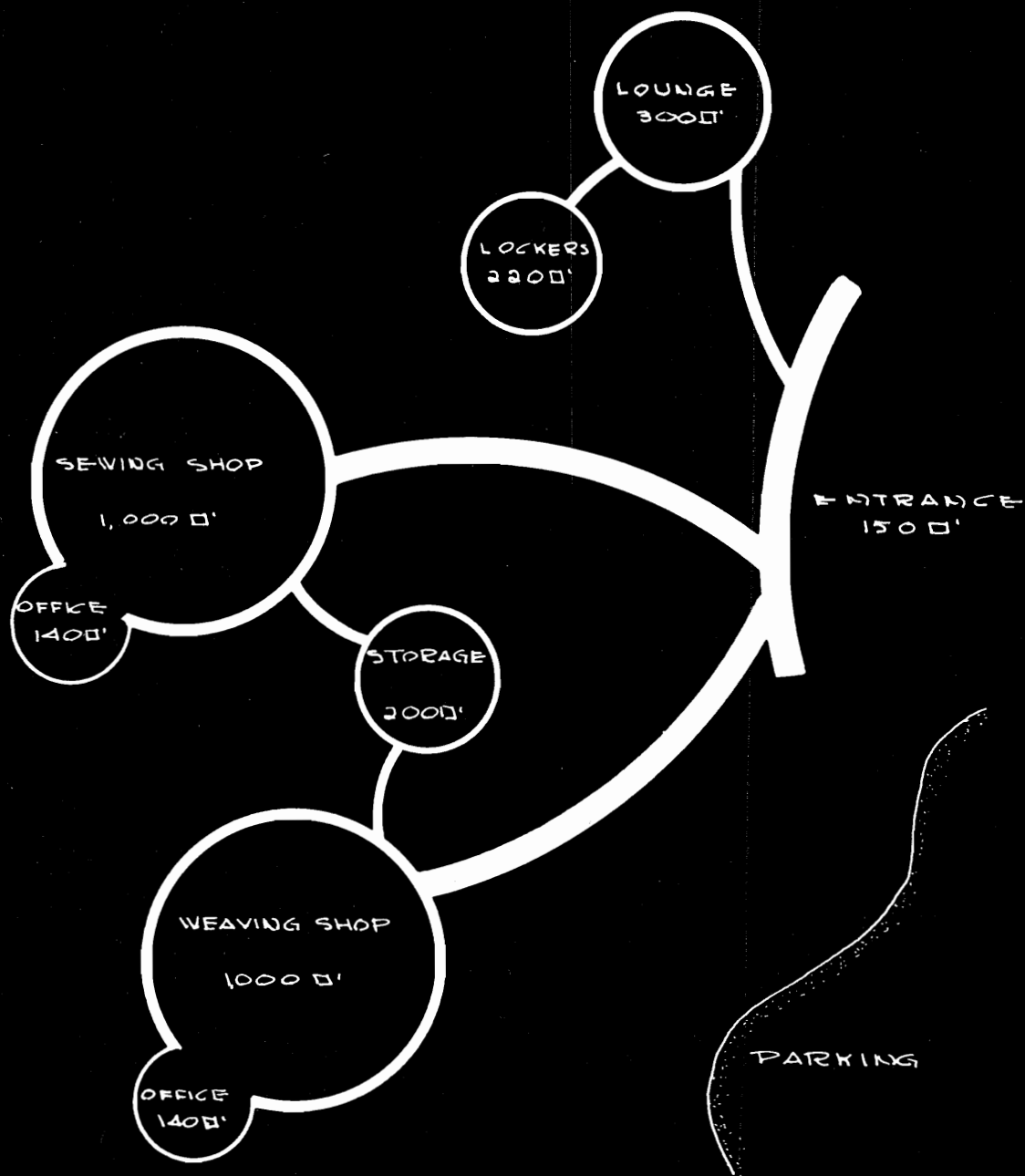
1250 □'

GYMNASIUM

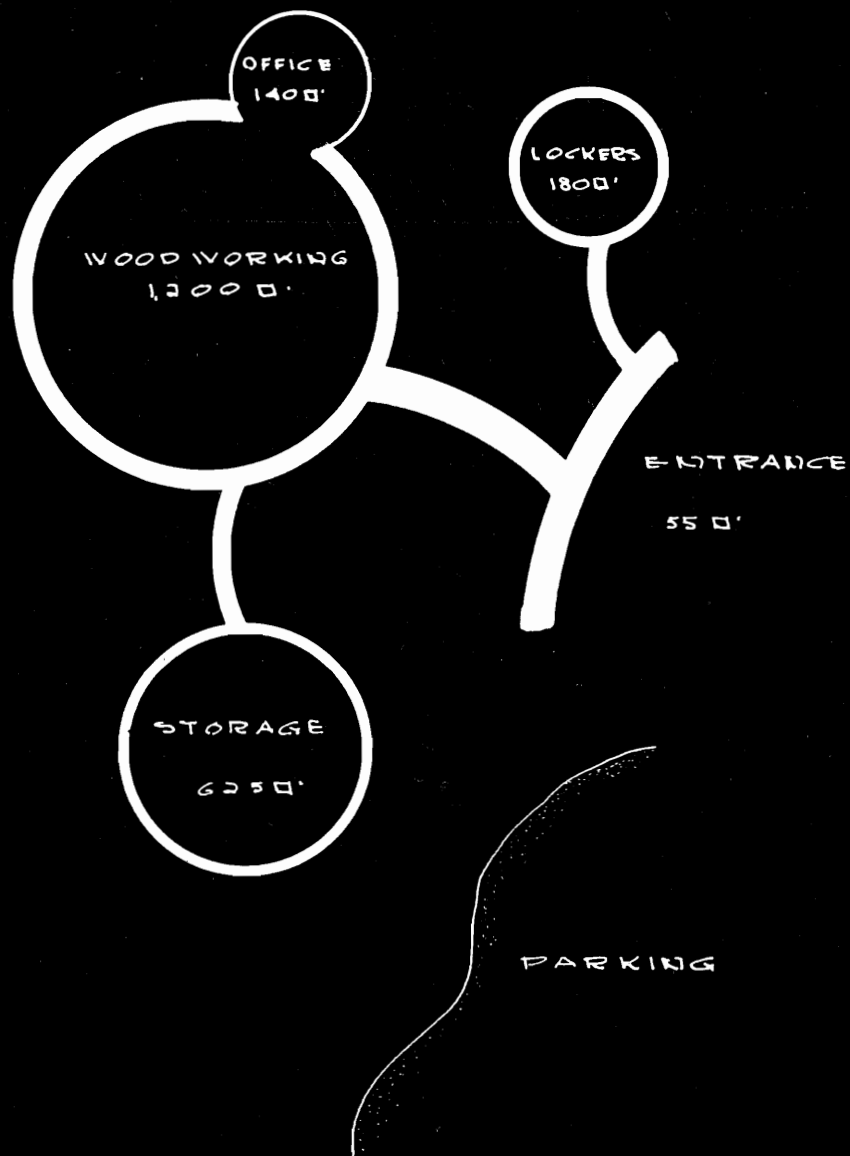
AREA: 6,900 □'



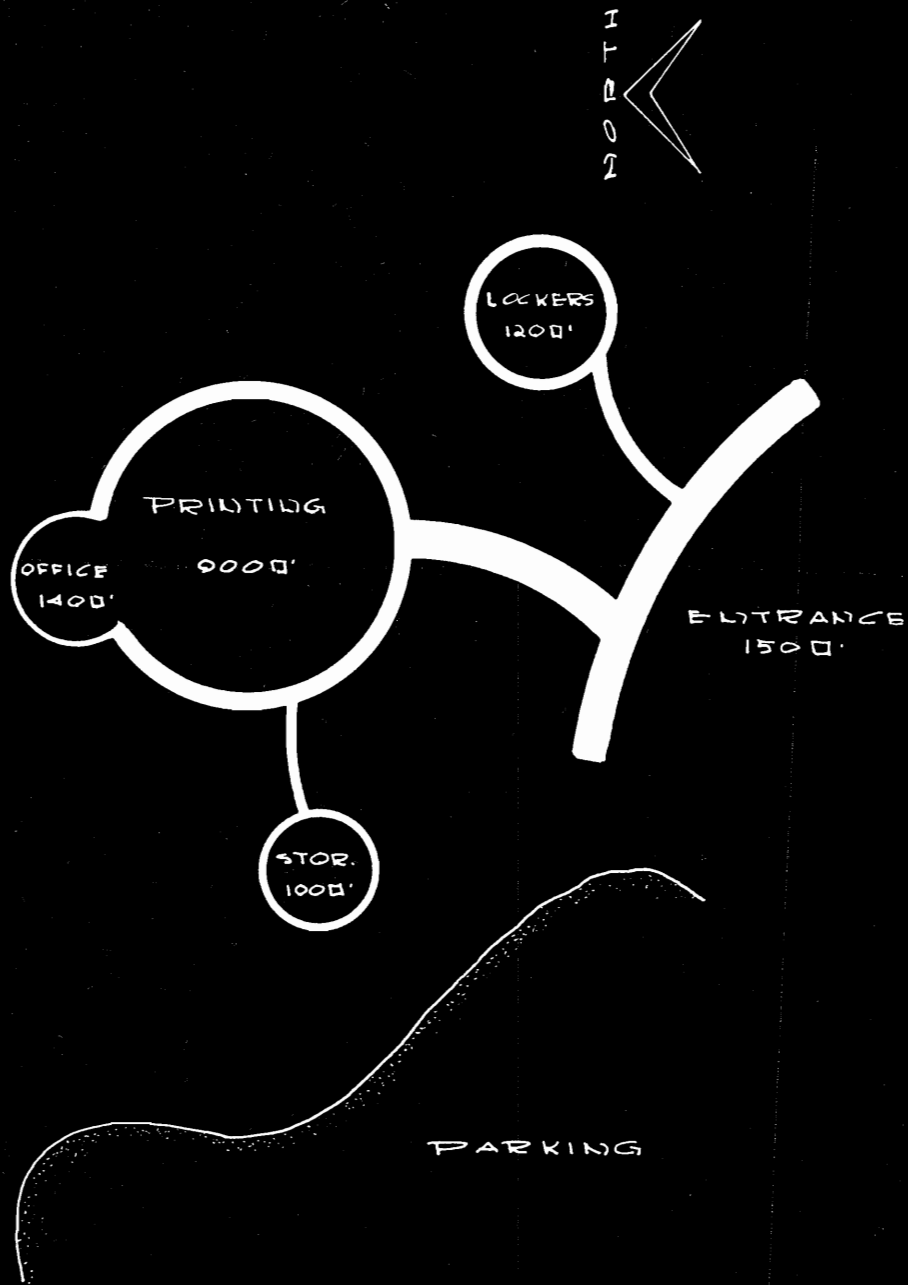
PLAY SHED AREA - 4,780 sq'.



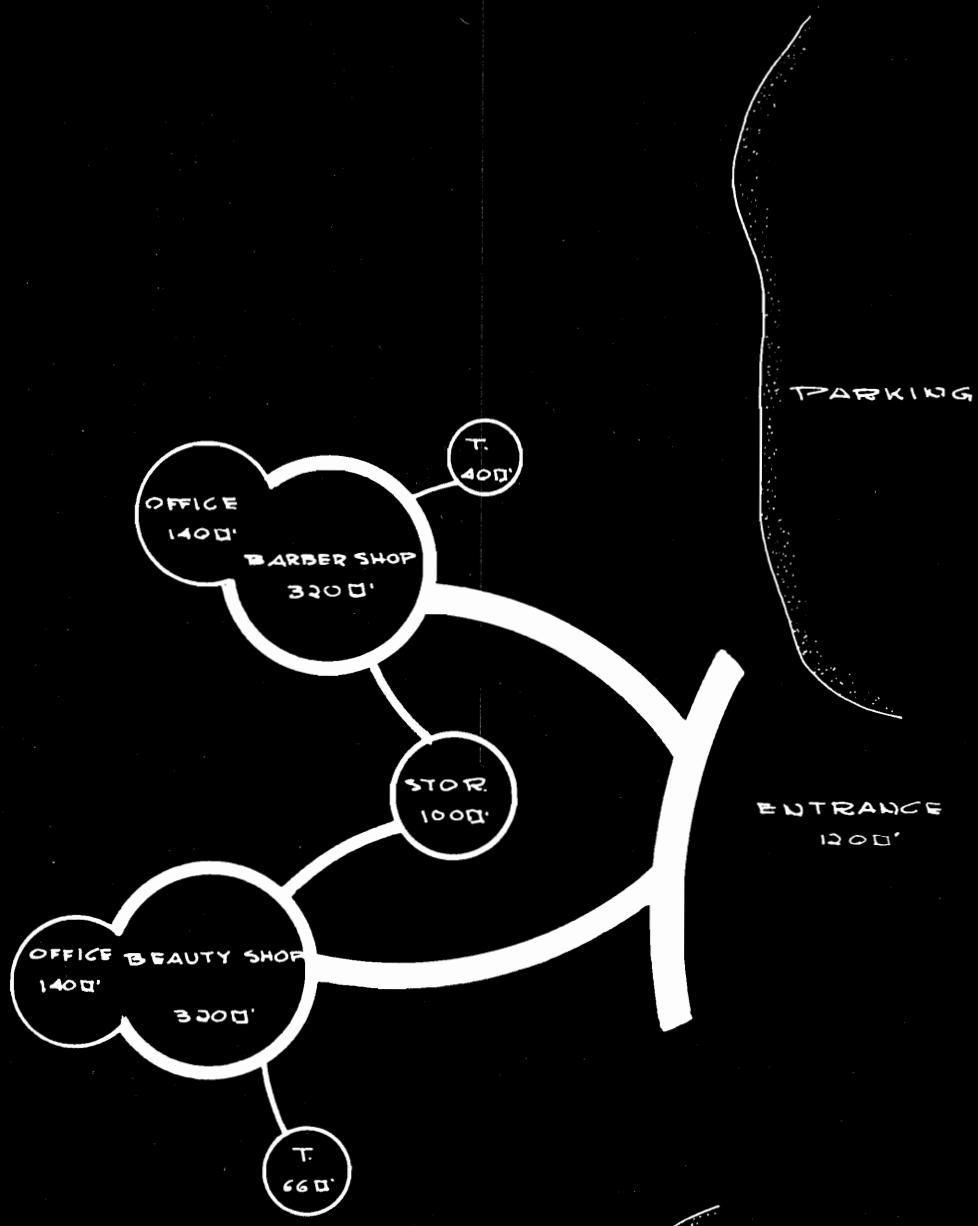
WEAVING & NEEDLECRAFT SHOP
AREA: 3,150 sq ft



WOOD WORKING SHOP AREA: 2,200 sq.

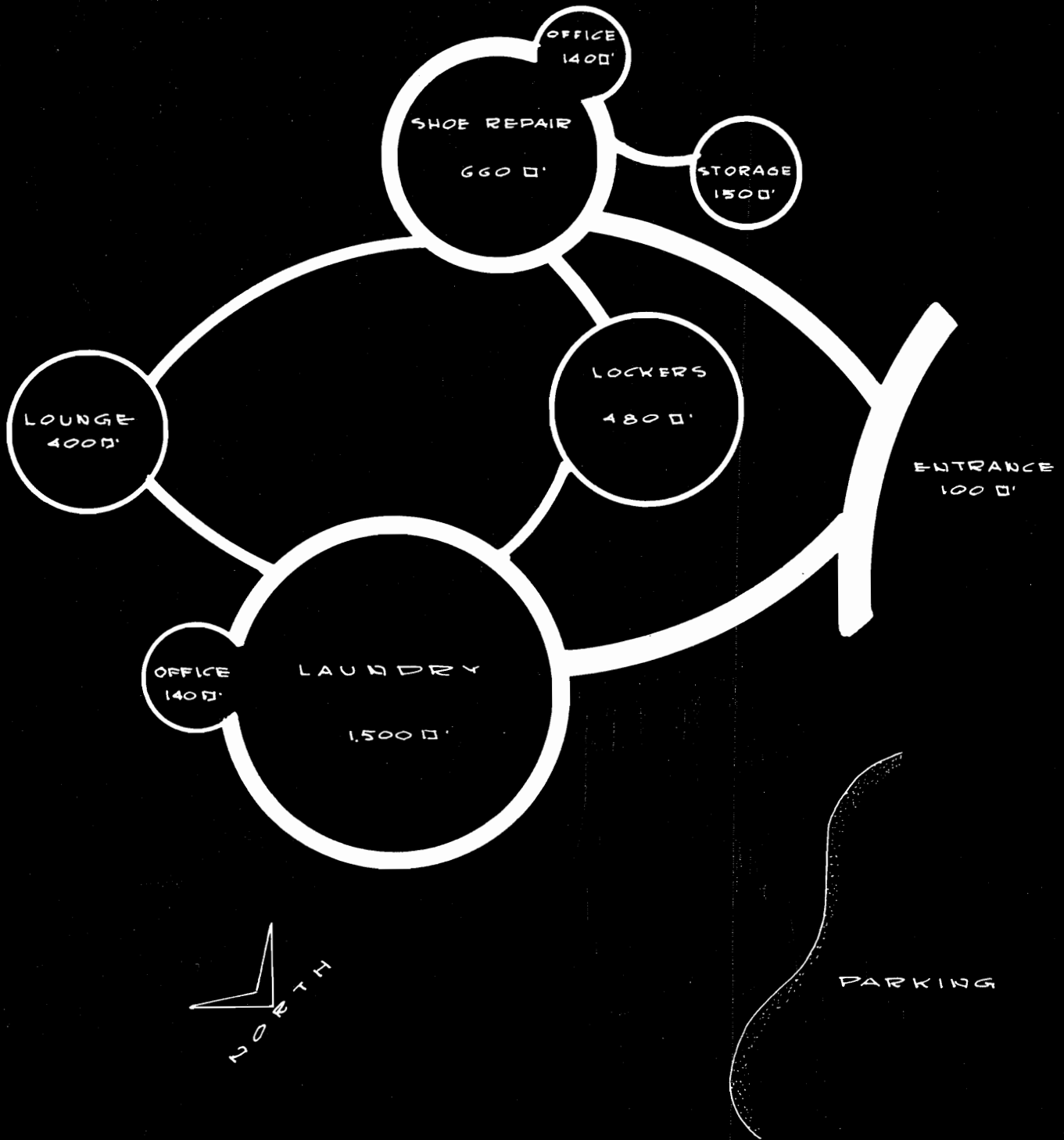


PRINT SHOP AREA : 1,3100'



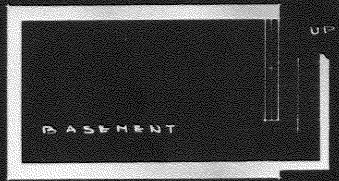
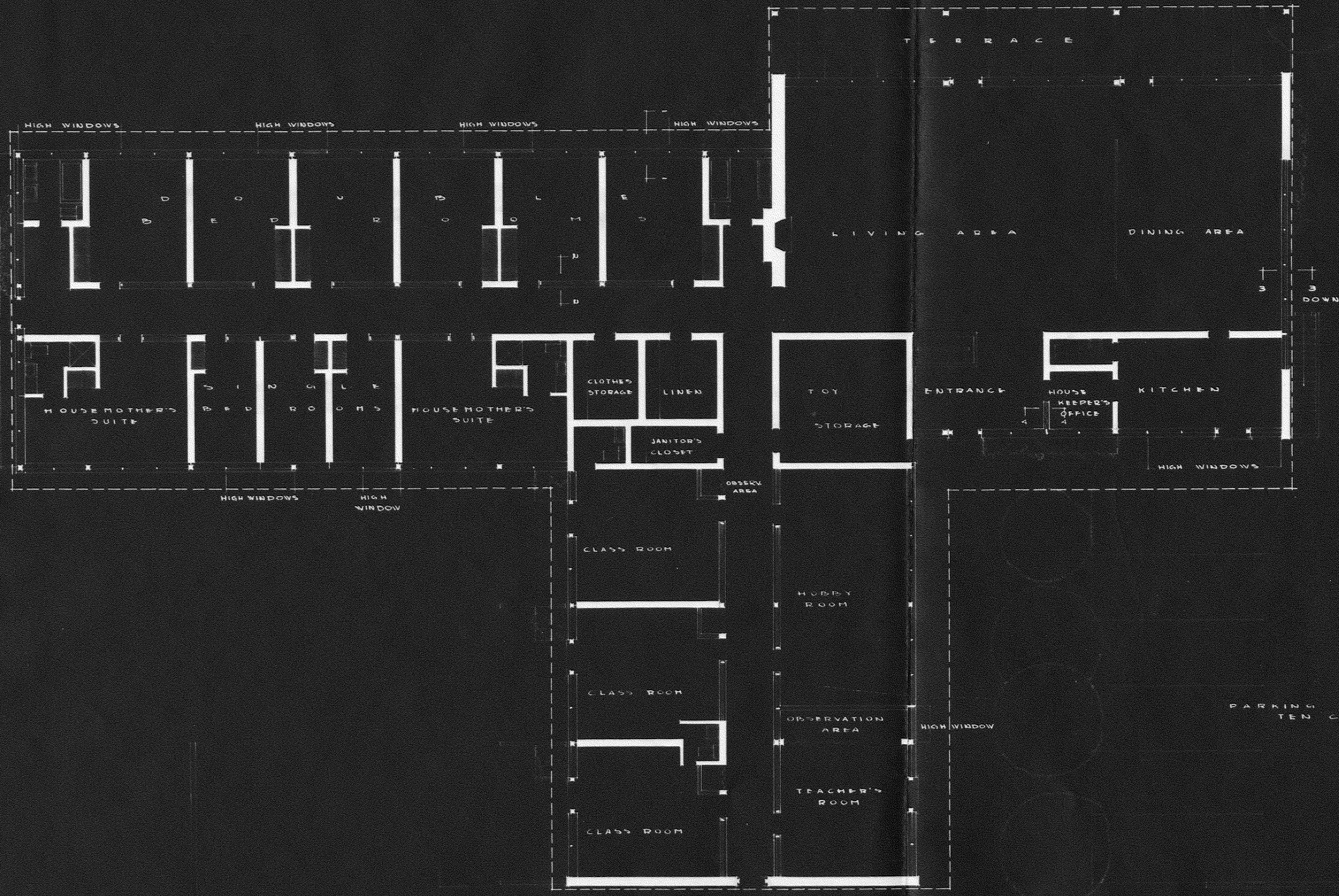
BARBER & BEAUTY SHOP AREA: 1,345 0'

Laundry and Shoe Repair Shop



LAUNDRY & SHOE REPAIR SHOP AREA: 3,570 sq'

C



DOWN

D

PLAYGROUND

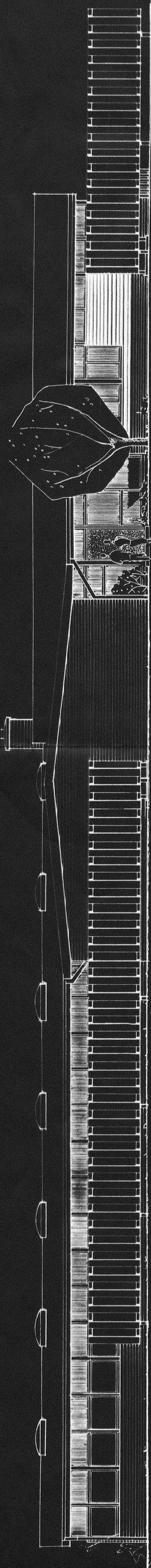
PARKING TEN CARS

A

PLAN THE COTTAGE

SCALE: 1/4" = 1'-0"

Elevations A and B



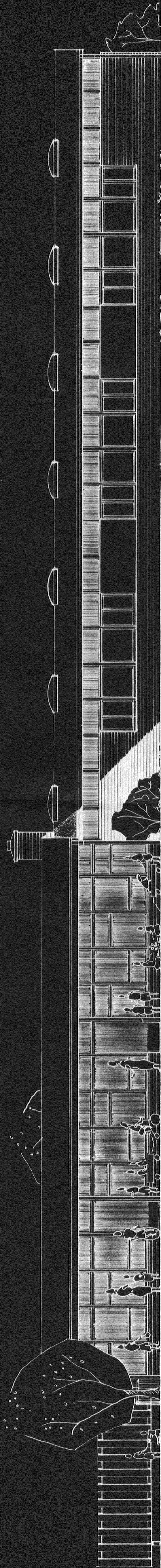
ELEVATION A



ELEVATION B

SCALE: 1/8" = 1'-0"

Elevations C and D



ELEVATION C



ELEVATION D

SCALE: 1/8" = 1'-0"

5-PLY BUILT-UP ROOFING

STEEL DECK

NAILER

1" RIGID INSULATION

3/4" FURRING

METAL LATH

3/4" PLASTER

METAL LATH CEMENT PLASTER

2'-0"

2'-0"

4'-0"

TILE

BRICK TIE

BRICK

2'-2"

CINDER BLOCK

CONNECTOR

ASPHALT TILE

BUILDING PAPER

GRAVEL FILL

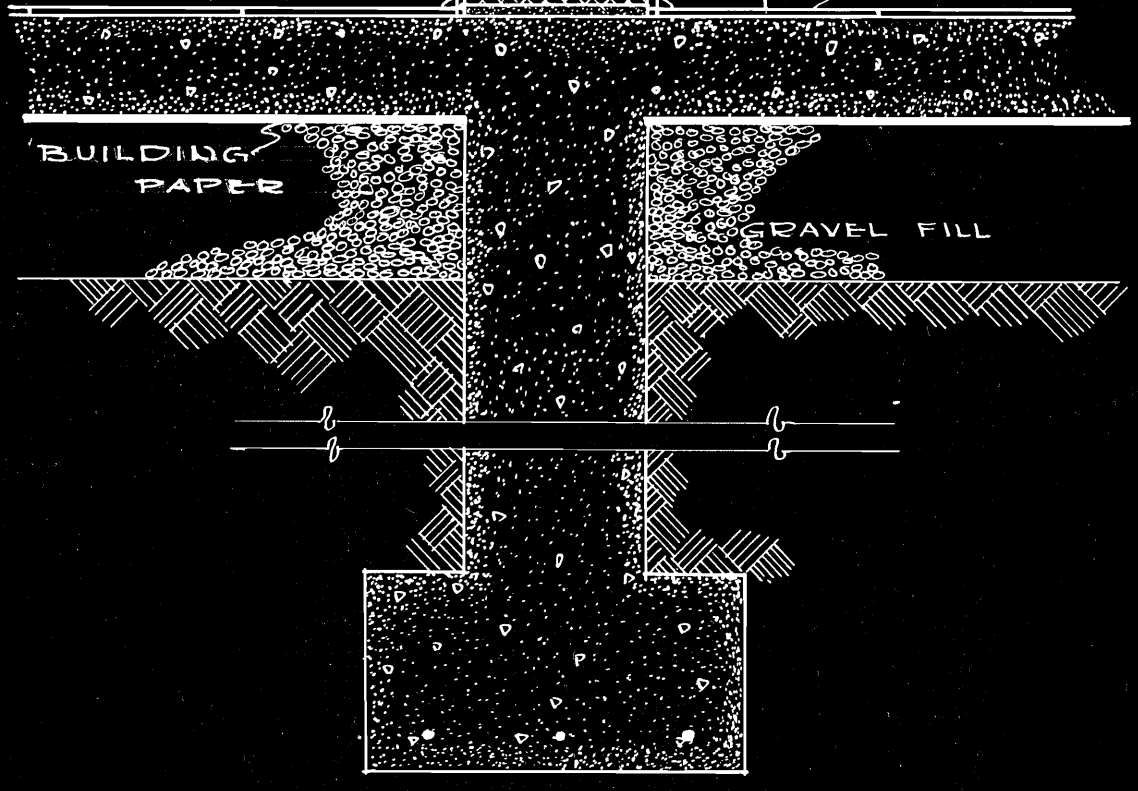
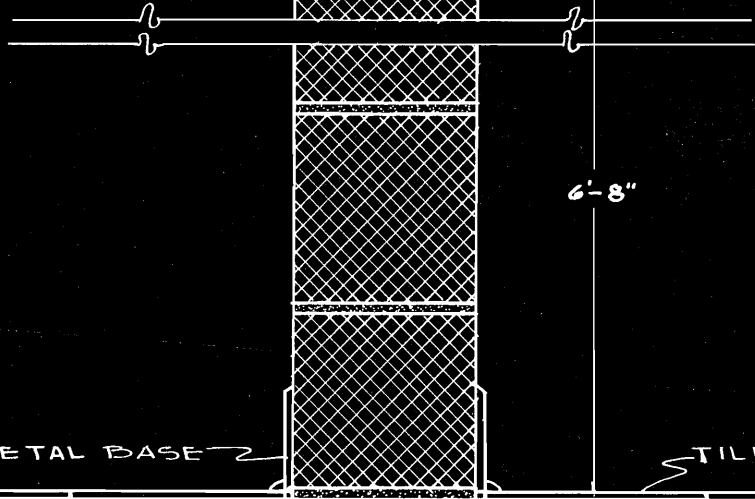
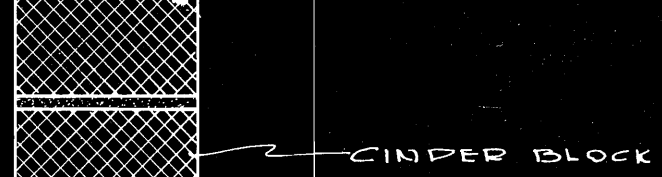
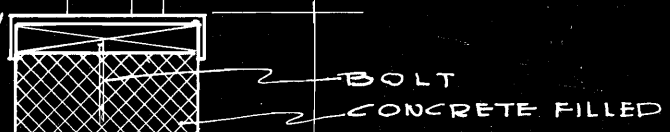
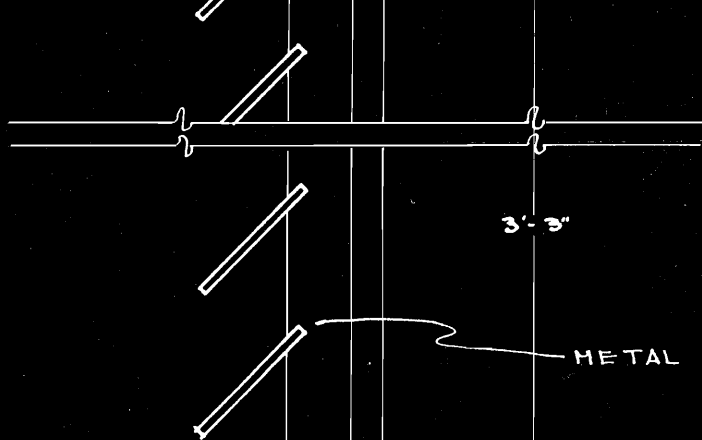
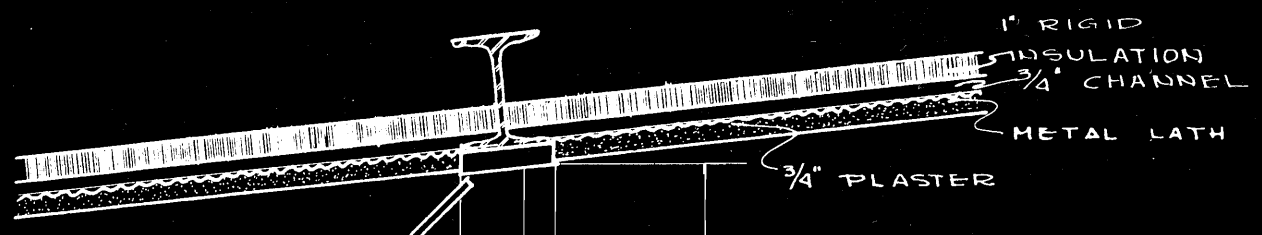
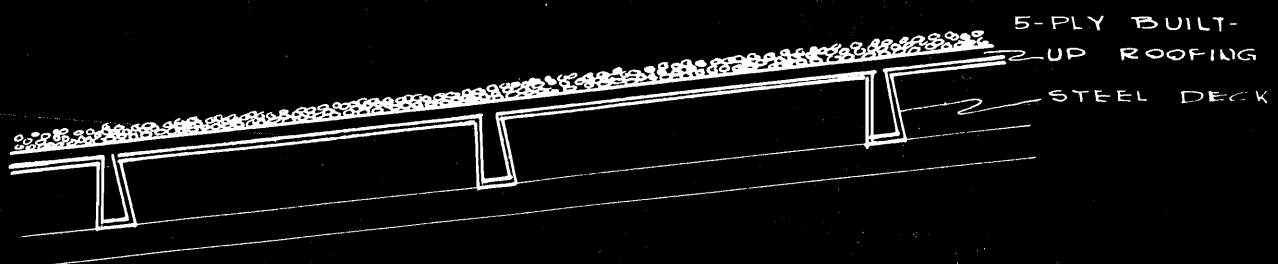
CRAWL SPACE

SECTION I-1

SCALE:

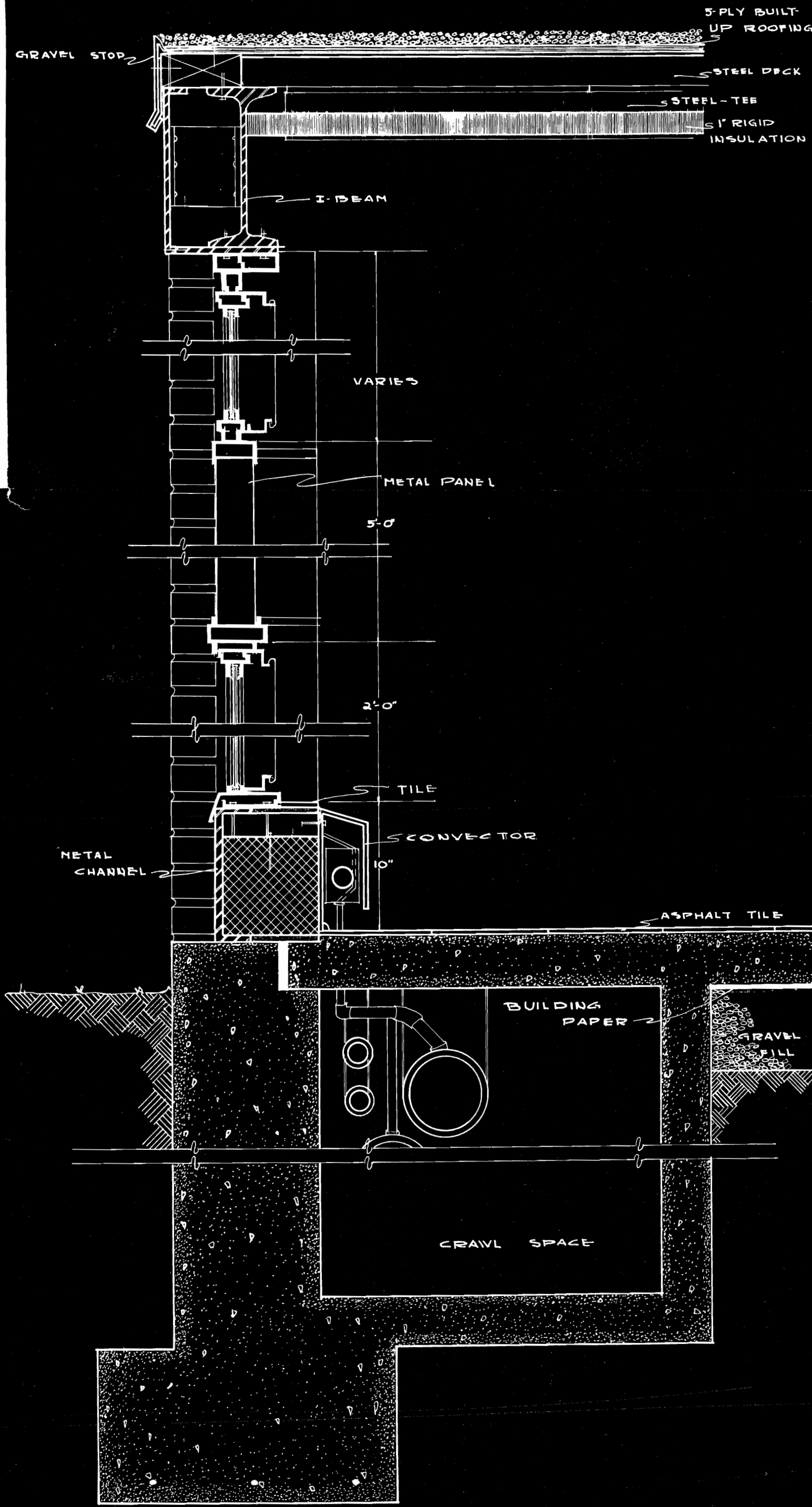


12 INCHES

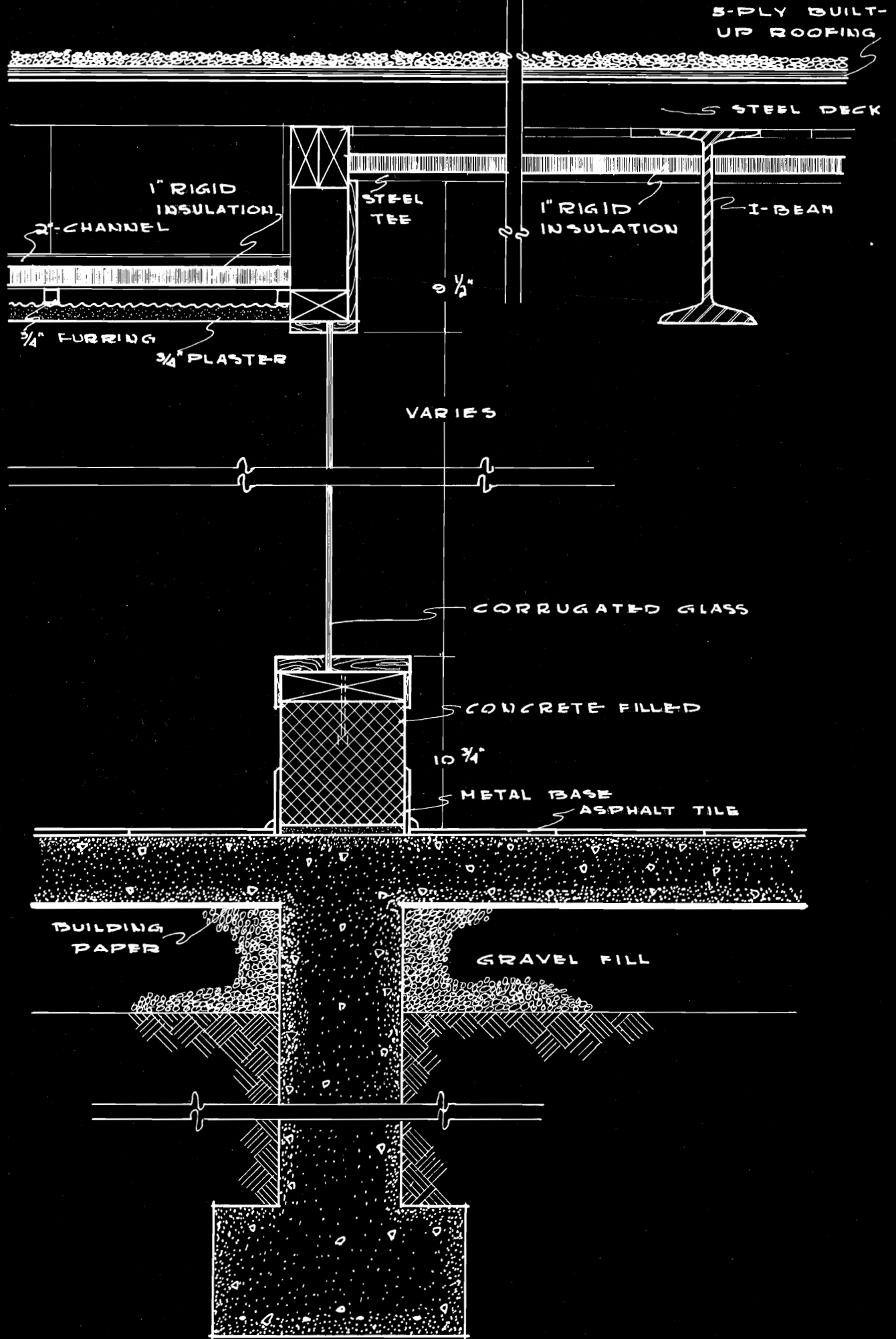


SECTION 22

SCALE: 12 INCHES

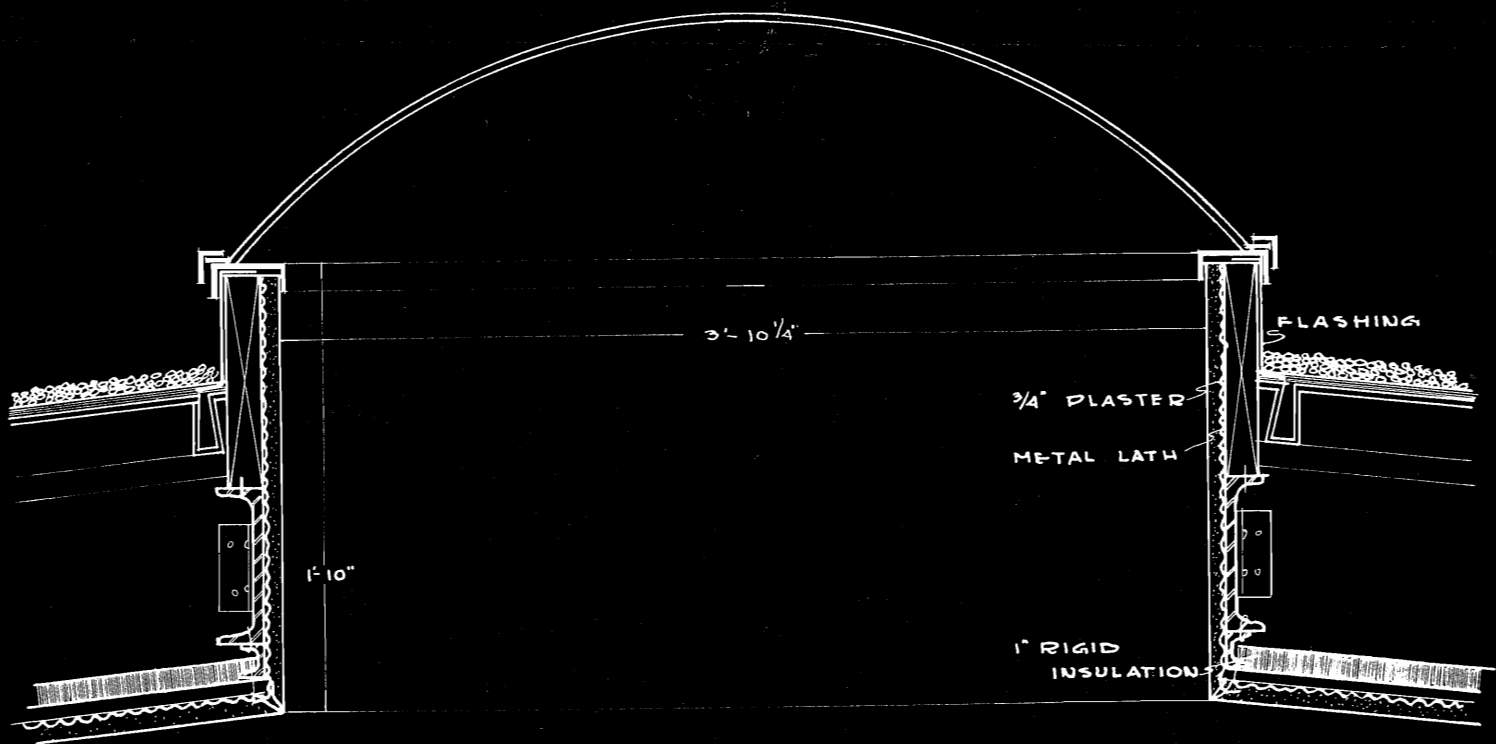


SECTION 3-3 SCALE: 12 INCHES



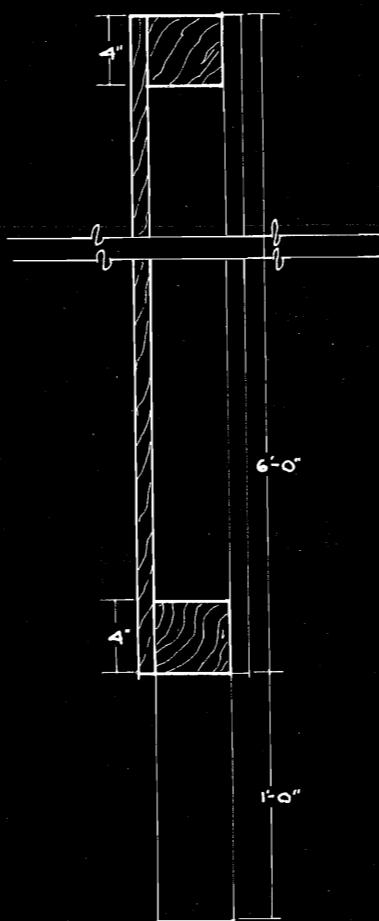
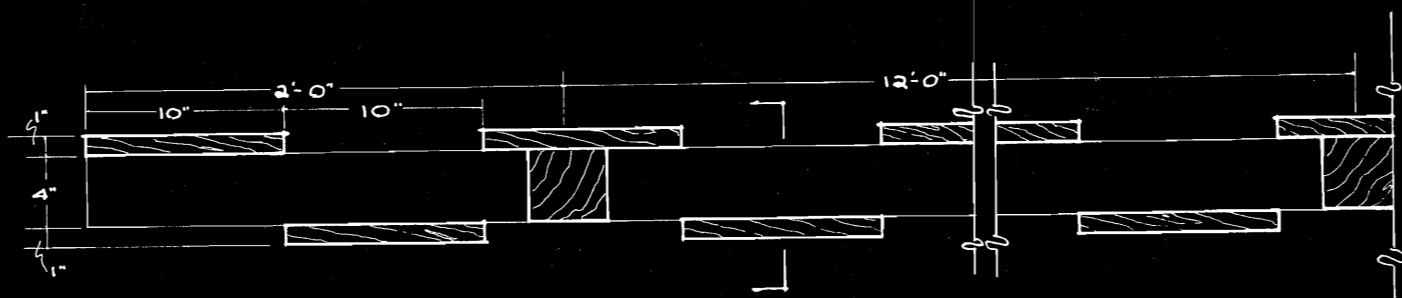
SECTION 4-4 SCALE: INCHES

Section thru Dome,
Details of Fence



SECTION THRU DOME

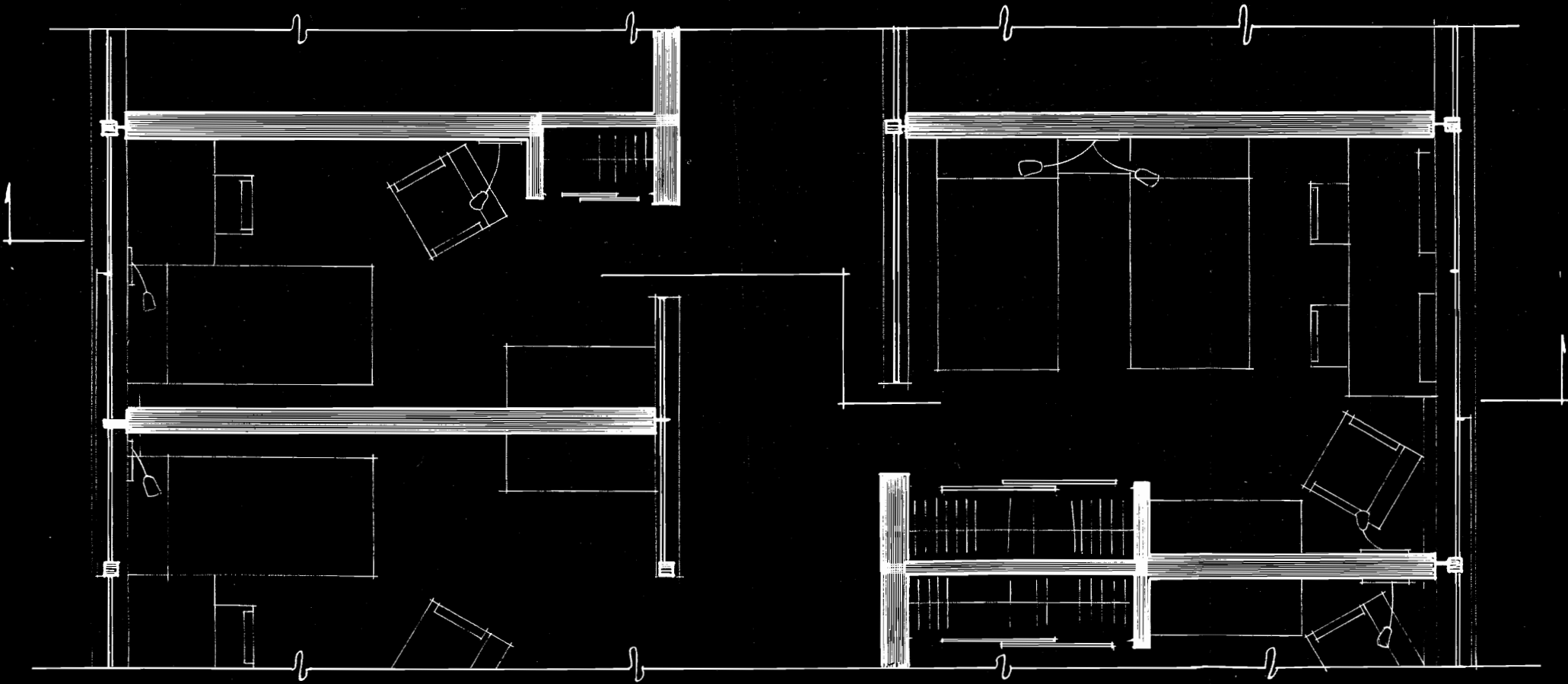
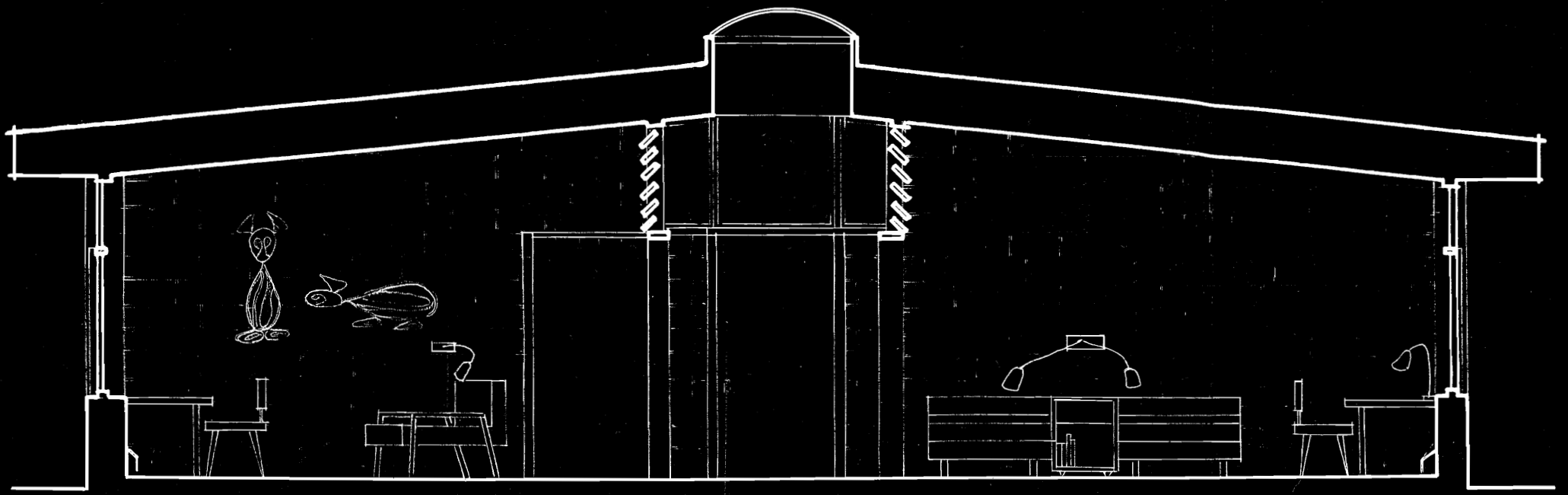
SCALE: 0 3 6 9 12 INCHES



DETAILS OF FENCE

SCALE: 0 3 6 9 12 INCHES

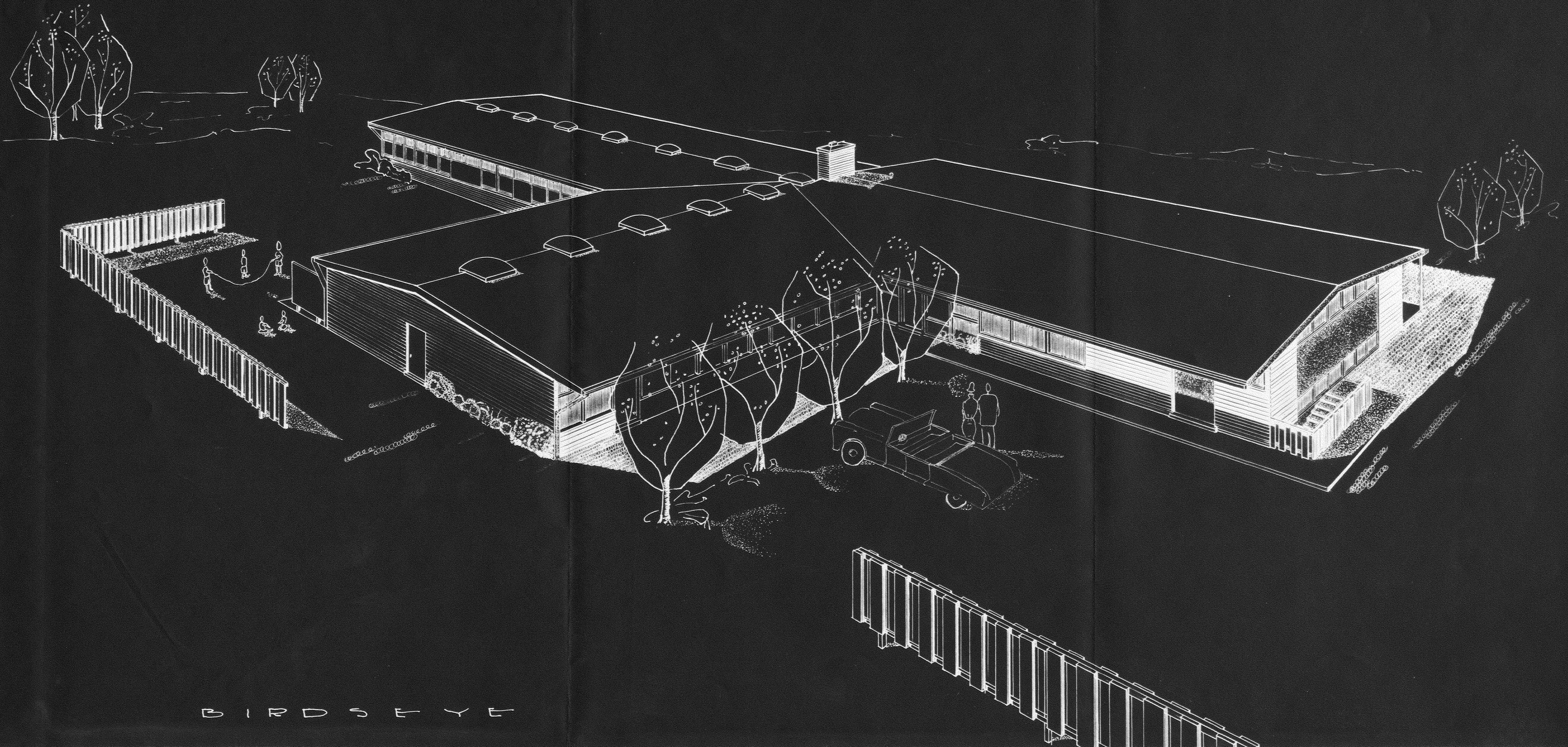
Bedroom Layout and Section



BEDROOM LAYOUT & SECTION

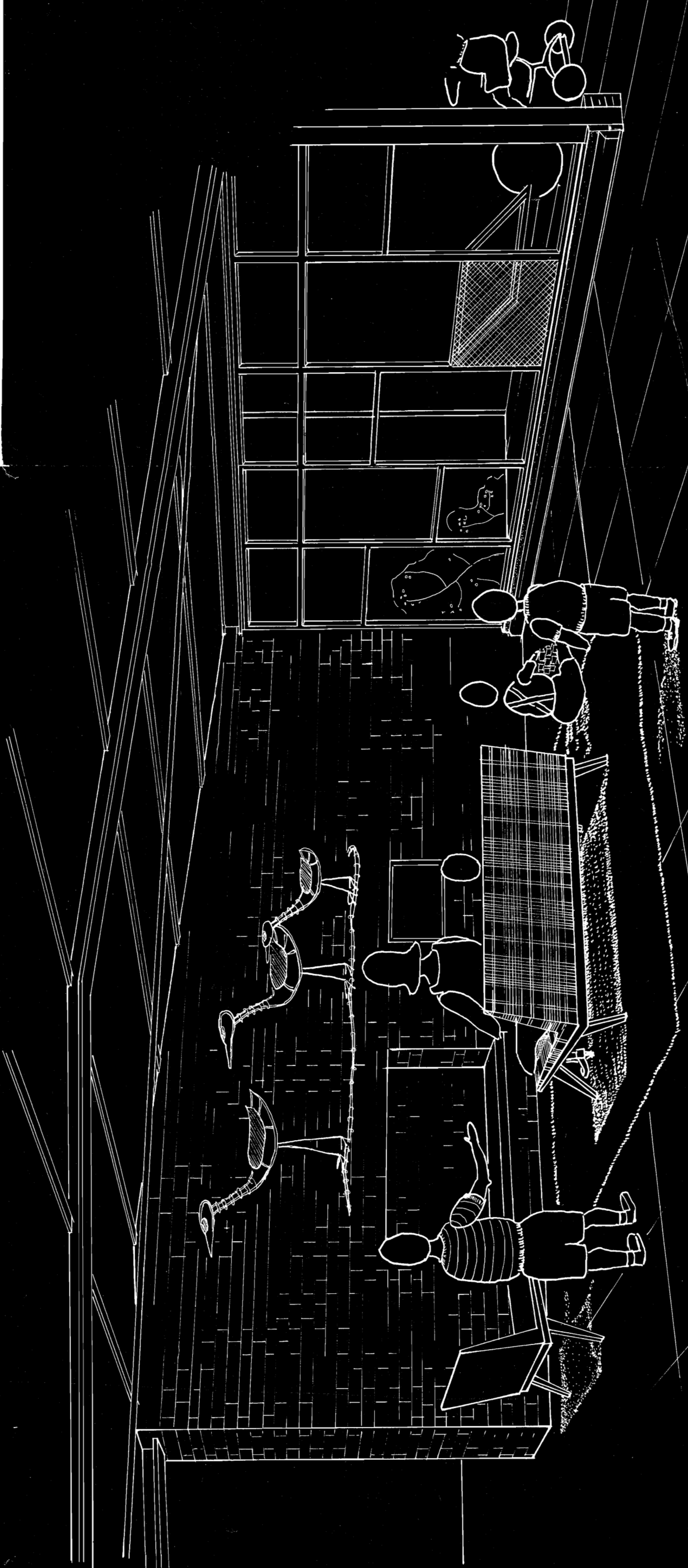
SCALE: 0 1 2 3 4 FEET

Birdseye Perspective



B I R D S E Y E

S N A P S H O T



Photograph of Model in Plan



Photograph of Model



C O N C L U S I O N

CONCLUSION

The material contained in this thesis is the beginning. If time allowed it would be possible to complete each building in this school with the same high ideals that are embodied in the design of the cottage.

These high ideals may have caused the buildings to be uneconomical and impractical; but, from a theoretical standpoint, perfection is the goal to be strived for.

As for the aesthetic value of the design, a home-like, cheerful character was planned, but the final conclusion as to whether this was achieved can not be made until this building is built and used.

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4. A. Levinson, The Mentally Retarded Child, John Day, New York, 1952, pp. 63.
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6. "Schools Still only in Early Dawn", Children Limited, August-September 1953, pp. 3

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