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Approved:

Charles S. Worley
Chief Critic

John W. Whittemore
Dean, School of Engineering
and Architecture

Leonard J. Currie
Head, Department of
Architecture

Dr. Louis A. Pardue
Director of Graduate
Studies

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A CIVIC AUDITORIUM GROUP FOR ROANOKE

Allan E. Sadler

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INTRODUCTION

OBJECTIVES

This thesis has three objectives:

FIRST, to draw together in one place factual data concerning the functional and technical considerations in civic auditorium design, and to present a discussion of some of the problems that the design of such a structure most often involves.

SECOND, to investigate the particular needs and potentialities of Roanoke, Virginia as the location of a civic auditorium.

THIRD, to present a complete and detailed design of a Civic Auditorium Group to serve the community of Roanoke, Virginia and its surrounding area.

GENERAL STATEMENT

The civic auditorium must be designed with the principal needs of the community kept clearly in mind. Auditorium design and layout varies a great deal, and there are many different types of units and facilities.

There are two basic types of auditorium units; the theatre and the arena. Each is suitable for certain types of functions.

The theatre of the civic auditorium is in many respects like the commercial theatre. It has a sloping floor, permanent seats, a stage, dressing rooms, and possibly an orchestra pit. Here the community sees stage shows, operas, concerts, motion pictures, and similar programs for which a stage is required.

The arena, however, is a hall which is used for events requiring a level floor. Sporting events such as basketball, boxing, and wrestling may be seen in this area. Conventions, exhibitions, trade shows, and large meetings are also accommodated by the arena. Tiers of seats surround the arena. Removable chairs are also set up on the level floor for certain programs. Facilities should be available for press, radio and television coverage of events.

Certain smaller areas such as a lobby, lounge, and foyer are also needed in a municipal auditorium to serve the theatre and arena. Some communities desire, in addition to the principal units, separate smaller rooms for clubs, committees, lectures, and other limited-use activities.

Thus it is evident that civic auditoriums in different communities will show considerable variety in the facilities they provide. Some of the larger auditoriums can accommodate almost any type of program. They consist of many different units such as an arena, a music hall, a ballroom, a little theatre, exhibition areas and club rooms. Other large auditoriums provide for both a theatre and an arena, together with smaller areas for supplementary uses. Some such auditoriums have a common stage, located between the arena and the music hall, which can be used in conjunction with either area.

The civic auditorium in the smaller community may consist of only a single main hall. The furnishing of this hall must be very flexible, since all major functions are held here. Such an arrangement is certainly not ideal, but it must often be used for reasons of economy.

And so, after consultation with city government officials, members of community organizations, and other interested citizens, a program will

be developed for a civic auditorium for Roanoke, Virginia. Also, a study will be made to determine the best possible site for such a structure. From these findings a municipal auditorium will be designed to serve Roanoke.

DEVELOPMENT OF THE CIVIC AUDITORIUM

There is little available information concerning the historic background of the municipal auditorium as a building type. However, it is believed to be an outgrowth of the New England town hall, which has been a community gathering place since the early days of our history.

The municipal auditorium of today is a relatively recent development, and the operation of the auditorium as a municipal function evolved only after the present century was a decade or two old. Many municipal auditoriums were built after World War I, when cities built them as local memorials to the war dead. The depression also had a considerable effect on this movement, because many auditoriums were built as construction projects which were part of the relief program. There was very little auditorium construction during World War II.

The construction of privately owned and operated auditoriums closely paralleled the municipal auditoriums in many cities. At present about

two thirds of the auditoriums in the country are owned by public organizations and about one third are owned by private bodies. Many problems are common to both. However, their methods of operation and basic programs are likely to differ markedly.

The concept of what constitutes an auditorium has changed considerably over the years. In past years the auditorium was likely to be a small building, very poorly designed, with a raised platform and wooden seats or benches. It was a structure of meager facilities and was generally used as a meeting place to conduct municipal business. The civic auditorium of today, however, should be a well-planned, aesthetically pleasing structure, accommodating many hundreds of people, and in the larger cities, containing facilities for operas, balls, theatricals, concerts, ice shows, conventions, and similar events. It should be equipped with lounges, an air conditioning plant, a public address system, and other similar conveniences and facilities.

A number of factors have influenced the erection of these civic auditoriums. Well designed and wisely conceived auditoriums can contribute considerably to the beauty of the city. The cultural life of communities and their surrounding areas is developed and

expanded through these facilities. In many instances, they are the only available buildings for such functions as concerts, meetings, and other public events requiring extensive seating capacity and special facilities and equipment.

FUNCTIONAL CONSIDERATIONS

SITE SELECTION

The location of the proposed civic auditorium is of paramount importance and should be given careful consideration. If the building is to be of maximum benefit to the community, it obviously must be within easy reach of those who are expected to use it most frequently.

The character, facilities, and principal purposes of the auditorium are important considerations in determining its location. A central location is preferred by cities which expect their auditoriums to frequently accommodate nation-wide or state-wide conventions, expositions, and other events which serve to bring large numbers of visitors to the city. A typical example is the Milwaukee auditorium which has an ideal location because it is near railroads, hotels, bus lines, streetcar service, and is on two through highways.

There are some cities having centrally located auditoriums that would prefer that they had been located outside the business district

to ease the conjested parking situations. Many cities located their auditoriums without giving sufficient thought and consideration to this problem. The parking facilities in many downtown areas are becoming increasingly inadequate to handle normal parking demands, much less the increased demands that would accompany large gatherings at the civic auditoriums. These cities think that the auditorium would be of greater convenience and value to the community if it were located out of the main business district, preferably in an area served by mass transportation facilities and one near publicly or privately owned land which could be used as parking lots to accommodate the auditoriums patrons.

Parking problems are, of course, most severe in the larger metropolitan cities where downtown traffic is always congested. However, the problem is also of a serious nature in the smaller communities, because the people normally drive from their homes directly to the auditorium, and they expect to find adequate parking there.

These factors indicate that before any plans are made for the construction of the auditorium, a careful study should be made of the

community and its needs to determine the best location. The usefulness of the structure and the nature of its facilities will be conditioned largely by this study.

Another factor which will have considerable bearing on the size and type of building is the anticipated population of the community and its surrounding region during the next three or four decades. Land values, the need for proximity to hotel and transportation facilities, existing mass transportation, and availability of adequate parking space, all affect the choice of a location for the auditorium.

Many auditoriums have their own parking lots which are large enough to accommodate one third as many cars as there are seats in the auditorium. This may seem adequate, but there are times when the capacity of such lots is taxed. There must be adequate parking area if the auditorium is to attract audiences, especially in inclement weather.

GROUP RELATION OF SPACES

In general, the larger areas of the municipal auditorium do not require daylight. These larger areas include an exhibition area, an arena, a concert hall or theatre, and perhaps a little theatre. The arena itself

is sometimes used as the exhibition area, but if these are provided separately, they can at times operate simultaneously. There will be times when certain spaces will function separately, either while other areas are closed or are operating simultaneously. At other times, as during conventions, the crowds will be using several different areas for various meetings, and will flow from one space to another. Therefore, the designer should attempt to give each principal area its own lobby and foyer.

Meeting rooms should be available to the public for committee meetings, gatherings of smaller groups and similar purposes. These areas should also be readily accessible from the larger areas for use during conventions. Offices are needed either for use in connection with the auditorium or for building administration purposes. Those offices for the former function should be located between the public areas and platforms, and those offices for building administration should be located where they can conveniently serve all groups.

Committee rooms, workrooms, studios, and other similar rooms used for community activities may form a separate wing of the building and have their own entrance. However, in some instances, for economic reasons, this may not be practical.

CIRCULATION

Three circulation systems should be considered in connection with the auditorium spaces: (1) public access to all meeting areas; (2) service access to these facilities; and (3) additional exits from all such areas for use in case of fire or panic.

The public circulation system is to channel the patrons into all the meeting areas. On many occasions admission is by ticket, so careful consideration must be given to moving the public past the ticket windows without delaying its flow. All of the individual spaces must be connected by corridors and stairs, preferably about a common lobby. The normal exits make use of the usual entrances, but the arena may have additional side entrances. All this circulation must connect with the exterior transportation facilities and the pedestrian approaches. A marquee should cover the entrance area.

It is advisable to have a single service entrance and receiving room; this would accommodate all employees, and incoming and outgoing goods. This entrance should also provide access to the arena, exhibition areas, stages, work rooms, and other spaces where goods may be delivered or to which employees may be going.

The third circulation system is the fire exit system. Its purpose is to provide for an almost instantaneous outpouring of all people in the building in case of fire or panic. Many additional doors, corridors, and stairs are generally needed in addition to the usual entrances.

A very careful study of audience traffic from entry into the building to the theatre seats is warranted. There are many opportunities for pedestrian congestion due to the large number of people entering or leaving the auditorium.

The first interruption to the smooth flow of traffic into the building occurs at the waiting line for tickets. The designer should provide an adequate foyer with ticket window located and arranged, so as to allow an efficient and speedy sale of tickets.

Many patrons will be waiting to meet friends, so the architect should provide enough foyer area to accommodate them. The foyer must be arranged so that a person may buy his ticket and enter the lobby without his way being obstructed by the waiting patrons.

The ticket taker provides the next traffic bottleneck. His position should be located not only to facilitate through traffic, but also to afford short, straight paths from the entrance to aisles, staircases

and elevators. The lobby is principally a distribution area. Its efficiency depends upon its arrangement as well as its size. The lobby must be so arranged that a patron can go from the lobby door directly to his aisle or stair without crossing the traffic route of any other patron.

The lobby must also be planned so that there is easy access to the coatrooms and to the lounge. The coatroom must naturally be arranged so that the stream of people passes it before dividing. Enough coatroom counter and floor area must be provided to make it possible to check items as fast as the audience moves through the lobby.

Lounge doors should be located so that traffic to and from the lounge will not conflict with other main traffic lines. Traffic in the lounge itself is to the bar, refreshment stand, or the lavatories. Lavatories located left and right of, and close to the lounge entrance, split the traffic. Telephone booths near the entrance, and the bar located directly in front of the entrance and across the room, also help to divide the traffic.

Efficient traffic exists when there are direct passages from the lobby to every aisle in the auditorium. Such an arrangement as this may

be impossible, so a crossover behind the seating area is often used. Its width must be at least the width of the total number of aisles it serves.

The width of aisles must be planned to accommodate the total audience at the critical time when a capacity audience leaves the auditorium in an emergency. This requirement also dictates minimum seat spacing. The minimum code requirement for width of aisles is not recommended to be used as it does not eliminate congestion when a capacity crowd leaves the auditorium.

Many people of the theatre audience go to the lounge for refreshment or conversation during intermission. Generally the lounge is not adequate for this purpose and becomes very congested. Some persons remain seated because of this and the difficulties of getting seated again at the resumption of the show. Therefore, the designer should plan the lounge area to accommodate this influx of patrons at intermission time.

Although the foyer, lobby, and lounge have separate functions, they may in some instances, occupy the same area. In such cases, the space requirement for each function must be kept in mind.

ELEMENTS OF THE CIVIC AUDITORIUM

FOYER The foyer of the theatre is actually an exterior lobby exposed to the weather, but designed to create an atmosphere of welcome. Its arrangement is determined to a large extent by a study of the traffic loads. This has already been discussed.

There is more traffic through the foyer than through any other part of the structure, so special consideration must be given to its floor surface. This surface must be able to stand the heavy traffic, must be easily cleaned, must not be stained or rendered hazardous by standing water, and must not be uncomfortable to stand on. Stone and tile are probably the most popular floor materials, but they have the disadvantage of becoming slippery in wet weather. Wall surfaces must be able to resist defacing up at least shoulder height, and they should be easy to keep clean.

Since hard-surfaced rooms tend to be excessively noisy, the upper section of the walls and the ceiling should be surfaced with a sound-absorbent material. Again, the material must be easy to clean.

Lighting requirements for the foyer are the same as those for the marquee. That is, some variation of illumination is desirable, the

bright spots being at steps, areas in front of ticket windows, and the area about the ticket takers stand at the entrance lobby. Bright light sources are annoying, and therefore should not be within the normal visual angle.

LOBBY For safety doors must usually occupy the whole wall between the foyer and lobby. No doors are necessary between the lobby and lounge. Since the lobby is adjacent to the auditorium, it obviously must be quiet. Therefore, the floors must be completely carpeted, the walls sound absorbent or containing sound absorbent panels, and the ceiling sound absorbent. Sound from the lobby must not leak into the theatre.

Lighting in the lobby demands several special considerations. It must be warm enough to be flattering, but bright enough to highlight jewels, and so planned that it does not leak into the auditorium. Lights are generally dimmed during the performance, but still they must remain bright enough to allow the patron to read his ticket stub, see the stairs, and readily locate the coat room or lounge. These lighting requirements demand both direct and indirect illumination. Such facilities as the coat room, lounge entrance, and balcony stairs are usually indicated by illuminated signs.

Traffic studies dictate lobby size and shape, but lobby ceiling height usually depends on other elements in the structure. A high ceiling height is desirable as it contributes to a feeling of luxury. The aim of all decorative treatment must be to promote this feeling of luxury.

There is little to say about furniture in the lobby. All the furnishings should be planned to fit into the overall decorative scheme. Special care should be given to the placing of furniture so that it is located in space that is not part of the clear width required as passageways. Furniture must not impede the flow of audience traffic.

CHECKROOM The checkroom should be planned so that it will not slow down audience traffic to the auditorium. The counter should be wide enough to accommodate five attendents for each one thousand seats in the theatre. Lobby congestion can be reduced if there is a checkroom in the balcony lobby. Racks should be built in the checkroom for coats, hats, sticks, umbrellas, and parcels.

LOUNGE The lounge is most convenient if located at the opposite side of the lobby from the checkroom. Lounge design should show concern for comfort, luxury, and informality.

Floors, walls, and ceiling of the lounge should be given the same acoustical treatment as those of the lobby. Lavatory entrances should be readily apparent to the patron as he enters the lounge.

The lounge deserves comfortable chairs as though in a living room, and they should be located in groupings to accommodate three or four persons for conversational purposes. Flexibility in the seating arrangements may be maintained by an occasional straight chair. Small but rugged tables should be part of some of the groupings for conversation.

Light intensity should be higher in some areas of the lounge than in others, Illumination should be high at the entrance, exit, and lavatory entrances. An effective lighting system is one planned so that the person walking through the lounge passes through alternating areas of medium and high intensity. A dramatic effect will thus be obtained from the movement of groups of people through the area.

The number of people of the audience who visit the lounge at intermission is limited only by the size of the lounge. It may well occupy a space equal to that of the theatre seating area.

The lounge should be planned so that it can be conveniently used for exhibitions, parties, and lectures in connection with meetings at

times when the auditorium is not in use.

TOILET FACILITIES Adequate toilets for both men and women are essential. The time for reaching them and returning must not be excessive, so they should be located on every auditorium level. It must be realized that they will be used with maximum intensity during limited intermission periods; therefore, not only must the supply of fixtures be adequate, but there must be ample room for people awaiting their turn. The toilet facilities should have a smoking room for men and a powder room equipped with dressing tables for women.

STAGE As previously mentioned, a theatre unit is a principal part of the civic auditorium. Concerts, opera, and stage shows will be presented here. The performance however, can never reach its top effectiveness if the stage area is not properly designed.

The theatre artists should have physical facilities which will allow their performance to give maximum satisfaction to the audience. Unfortunately, often the audience cannot understand the performance as the artist had planned it because of an inadequate theatre building. In such cases, the artist fails through no fault of his own, and the audience is disappointed.

The stage may be divided into three functional units: (1) the space in which the performers work, or the acting area; (2) the space surrounding the acting area where scenery is arranged; and, (3) the working and storage space.

The size of the acting area is, of course, a variable factor, depending on the nature of the performance. For example, the single performer delivering a lecture requires only about four square feet, whereas the solo dancer may require an area of three hundred square feet.

Some performances, such as ballet, are most effective when the audience is aware of the depth dimension of the movement. So, in such cases the audience should be elevated in order to have a good view of the entire acting area. This consideration often determines the height relationship between stage and seating area.

The stage must be designed not only as a space where scenery is used, but a space where large amounts of scenery not in use may be stored out of sight of the audience. So in addition to the playing area of the stage, a maximum space for storing and stacking scenery is a necessity.

The maximum dimensions of scenery are determined by sightlines. The balcony looks down, but most of the orchestra and those people sitting in the front rows of seats look up. The curtain is seldom raised more than fifteen feet. If the curtain is raised more than this height, the realistic interior is lost. In open-air scenes, a spectator toward the front can look up so high that the backdrop must be approximately forty feet high.

The proscenium is that part of the stage between the curtain and orchestra. Its design is of extreme importance, as it directs the attention of the audience to the stage. The proscenium is formed by a narrowing of the side walls of the auditorium toward a rectangular or arched opening. In older theatres these side walls contained a conglomeration of useless architectural ornament. This ornament is distracting, and a more simple architectural effect is recommended.

The relation of auditorium sightlines determines the width of the proscenium opening. The seats must be arranged in a fan shape for adequate capacity. If the proscenium opening is too narrow, a large section of the audience at the right and left see only about two-thirds of the stage. If the proscenium opening is too wide, the

necessary stacking space may be destroyed.

The following proportions have been recommended for stage-house, and stage floor, width and depth, and proscenium opening: *

Width of Proscenium:	30-32 feet, ample for even the largest productions. It should never be less than 25 feet.
Height of Proscenium:	This is unimportant except as it affects the design of the audtorium. The height of the stage as played in is determined by the height to which the curtain is raised, rarely more than 15 feet.

* E. J. R. Issacs, Architecture for the New Theatre, New York, Theatre Arts, Inc., 1935 Page 34.

Total Width of Stage Floor: Minimum at least twice the proscenium opening, allowing stacking space at each side of one-half the proscenium opening, i.e., for a 25 foot proscenium 12 1/2 offstage R and L. But this is a minimum and is not recommended for best use.

Depth of Stage Floor: Minimum at least one and a half times the width of the proscenium opening.

Height of the Stage-House and Gridiron: Never less than two and one third times the width of the proscenium opening.

Music is an integral component of most types of productions. The orchestra is usually located in a pit between the acting area and the audience. Often the conductor directs not only his orchestra, but also singers on the stage, so he must have a complete view of the acting area, although the orchestra is concealed from the audience.

Space planning for the orchestra should meet the following requirements: *50 square feet for a standard grand piano, 100 square feet for a concert grena piano, 50 square feet for the tympani, 20 square feet for a harp, and 10 square feet for all others.

SEATING

Seating is certainly one of the most important considerations in the design of the auditorium. The designer must provide for the audience's comfort, safety, and convenience; for the audiences' desire to see and be seen, the control of attention, the elimination of distraction, and the creation and maintenance of mood. The architect must completely satisfy the desires of both the audience and the showman. If he fails to do so, he will impair the theatre's functional and earning power.

Certain elements of the auditorium must be concealed to avoid distracting the attention of the people or to avoid detracting from the desired atmosphere. Such elements that should be concealed include all backstage areas, loud-speakers, stage lighting units, and any bright light sources.

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* Borris-Meyer and Cole, Theatres and Auditoriums, Reinhold Publishing Corp., 1949 Page 82

If the patron is to see satisfactorily, plan and section must conform to the following limitations: *

(1) The horizontal angle of polychromatic vision (no eye movement) is approximately forty degrees.

(2) The horizontal angle to the center line at which objects on stage cease to bear the intended relationship to other objects on stage is approximately sixty degrees.

(3) Audiences will not choose locations beyond a line approximately one hundred degrees to the curtain at the side of the proscenium.

(4) The vertical angle beyond which ability to recognize standard shapes falls off very rapidly is approximately thirty degrees.

The foregoing limitations serve to confine the desirable seating area to a space that is approximately elliptical. This shape has often been chosen on aesthetic and acoustic grounds.

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* Borris-Meyer and Cole, Theatres and Auditoriums, Reinhold Publishing Corp., 1949, Page 31

The audience is visually more closely related to the performance when the seats are faced toward the stage. This necessitates curving the rows of seats, the center of curvature being on the center line of the auditorium. It is necessary to stagger seats to assure that no patron's visibility will be impaired by any other person. This involves a nonuniform placement of seats of slightly varying widths in succeeding rows. If the auditorium is fan shaped, the succeeding rows will be of different widths. Staggering of seats can then be accomplished by this lack of uniformity.

Continental seating eliminates the need for aisles because all seating rows are widely spaced and serve as transverse aisles. However, this type of seating should be limited to small theatres, where it does not force the rear rows to be located too far from the stage. Some building codes make no provision for continental seating, so radial aisles must be employed in these localities. It must be remembered that the most desirable seating in the auditorium is the center section, so this space should not be wasted by a center. aisle.

Code requirements for safety should not determine the seat spacing. Such minimum requirements do not produce comfort. Seat spacing should be adequate for patrons to pass other seated patrons comfortably.

As previously mentioned, thirty degrees is the maximum vertical angle at which objects may be viewed without appearing distorted. Therefore, the highest seat in the balcony must be on a line making an angle of not more than thirty degrees with the stage floor if objects are not to appear distorted. Another limitation on the design of the balcony is created by the person standing on the main level in back of the seating area. This person should be able to see the top of the proscenium, so the lower edge of the balcony must not interrupt this sight line.

It is generally considered unsafe to change the balcony slope, so sight lines are laid out from rear to front. If vision from the rear row in the balcony is adequate, the rest of the balcony is satisfactory.

The slope of the main floor should be determined to assure unobstructed vision from all seats. Raising the stage will reduce the floor slope. The planning of the floor slope is also affected by the curve of the rows of seats. If the seats are to be level, the whole row must be at the same elevation, so the floor is not a sloped plane. It is rather a dished surface in which horizontal contours follow the seat row curve. The balcony is planned the same way, except

that the floor consists of treads and risers.

MANAGEMENT AND FINANCIAL CONSIDERATIONS

The problems of operating a civic auditorium differ from those of most other municipal undertakings. After deciding to build an auditorium, one of the first questions faced is how to control and operate the facility. Several considerations that affect the answer to this question are: the size of the proposed auditoriu, the size of the city, and the organization of the city government. In some instances, the creation of a special agency or office is necessary, while in other cases the management of the auditorium can be handled within the existing municipal framework.

Municipal ordinances generally state the conditions under which auditoriums shall be operated. Such considerations as the policy for granting use of the auditorium, the schedule of rates, free use of the facility for non-profit purposes, and the matter of concessions should be covered in the municipal ordinances. Other matters that may be covered are damage of premises, reletting, subleases, revocation of agreement, objectionable persons and performances, rehearsals, alteration of premises, extra police and firemen, signs, billboards, and similar matters.

Regarding the management of civic auditoriums, certain trends may be discerned, although there is actually little conformity of practice. Authority to operate the auditorium is usually vested in the governing body of the city, a separate non-salaried board, or the mayor or city manager. However, the responsibility for actually operating the auditorium is sometimes given to the head of some administrative department or, more frequently, to an auditorium manager.

In recent years there has been a trend toward the employing of full-time managers. The two main reasons for this trend are the increase in the scale of operations, and the greater variety of uses of the more recent auditoriums. The management of a large municipal auditorium calls for special skills and the services of a full-time manager. One of his primary functions is the promotion of profitable uses of the auditorium such as conventions.

The manager should be carefully chosen, for successful auditorium operation, both financially and as a center for community affairs, will depend on his efforts. He must have some knowledge of business, some public relations experience, and an ability to promote civic events.

There is a tendency for the public to regard civic auditoriums as money makers. Some auditoriums are constructed with the purpose

of making them important sources of income. Overenthusiastic groups often urge the building of the auditorium for its supposed business - attracting potential, and these groups sometimes overlook the recreational and cultural value that the facility will offer the community.

In a very small minority of the communities having auditoriums, the facility does meet all community needs and at the same time yield sufficient funds to pay all operating expenses and to amortize capital costs. However, few auditoriums can claim such a happy financial state. It is therefore important that each city evaluate its own particular circumstances and potentialities to determine what its financial policy should be.

Public officials find that the construction and operation of a municipal auditorium involves several financial questions that must be given careful consideration before plans for the proposed building reach their final stage. The auditorium may be a semicommercial enterprise and involve many of the problems, uncertainties and opportunities of any private business venture. Regardless of whether the auditorium is to be operated as a commercial enterprise or within the framework of the city government, its construction will cost the community a considerable amount of money. It may also be assumed that its

continued operation will be a further expense. So it is imperative that there be a clear understanding of the major problems involved to insure a maximum return on the investment. This return may be considered in terms of dollars and cents, but what is more important is the cultural and recreational value which the auditorium renders to the community.

The principal financial matters which need to be given careful consideration are: (1) financing the original construction costs of the auditorium; (2) fixing rates for the use of the building; and (3) determining the financial policy of the auditorium.

Sources of revenue for the original construction costs are the cities themselves, the federal government, state governments, and county governments. In most instances, however, the cities alone raise the necessary amount by bond issues, appropriations from general funds, gifts, or subscriptions. Next to the cities themselves the most important source of revenue has been the federal government. Those cities in the below 10,000 population group have been the largest beneficiaries of the federal aid. It should be pointed out that most of these federal grants were given during the depression years.

Several factors determine the fee schedule for the use of the auditorium. The rental fees that are established will reflect the financial policy of the building; that is, whether the facility is expected to recover all costs, whether only operating expenses must be met, or whether the city plans to bear all or part of the operating expense.

Other factors which must be considered in fixing the rental fee are the size of the building and the facilities which it contains. Although many communities operate their auditoriums on a nonprofit basis, the value of the auditorium to the lessees depends very much on its potential earning capacity with respect to the different types of attractions they have to offer. The more important events, such as sports, theatricals, and conventions are usually of a commercial nature, so the number of people who can be seated and the facilities and equipment available are important factors in establishing the rental schedule.

Although auditoriums are used for a considerable variety of functions, their principal revenue is derived from a few major sources. Sporting events constitute the largest single source of revenue. Other important revenue producing events are dances, road shows, concerts, and local affairs of various kinds. Still other sources of revenue that should be mentioned for the municipal auditorium are leases, rentals,

conventions, trade expositions, and church services. It is interesting to note that the principal uses of auditoriums are not necessarily the same as the major sources of income. Perhaps one reason for this is that sports, dances, road shows, and similar recreational events are likely to draw a bigger gate, and at less cost in money and time, than a convention or trade show. Cities like to attract conventions, not necessarily because they produce profit for the auditoriums, but because of the business they bring to the community in general.

Municipal auditoriums in the larger cities are very seldom used on a nonprofit basis. However, generally the auditoriums in communities of 50,000 population or less are used almost equally for revenue-producing and nonrevenue-producing activities. In some of the smaller cities the free use is much greater than the paid use.

Accounting proceedures with respect to auditoriums vary widely among the different cities. However, there are some points of consistency among them that we may note. Allocation of funds for new construction, depreciation of property, and interest and retirement of indebtedness, are usually regarded as items of operating expense. Repairs, replacements, and new equipment are often also included as operating expenses.

Salaries of management personnel connected with the auditorium and watchman services are included as operating expenses in most communities. Janitorial service, heat, light maintenance supplies and materials are also included here. Bookkeeping and accounting are items of operating expense in some cities, but not in most cities.

Relatively few cities run their auditorium on a strict accounting basis, and perhaps some of the surplus shown by some auditoriums may be due, at least in part, to the fact that these buildings are not always made to bear their full share of municipal expenses. For example, some cities make annual contributions to their auditoriums out of general funds, and it is likely that their favorable financial showing is partially due to these subsidiaries.

The fact that an auditorium costs a city money is not in itself of great significance. Municipal undertakings should not be expected to pay their way. The price that the city pays is not too high for the benefits that a well-managed auditorium can render a community.

As already mentioned, many variables come into consideration in developing a rental schedule for the auditorium. A brief discussion of

of some of these factors may be of some interest. Principal among these are: *

(1) Basic rates

(2) Extra equipment and services

(3) Commercial or nonprofit users

(4) Admission paid or free

(5) Type of activity

(6) Matinee or evening preformances

(7) Charges on a percentage basis

All auditoriums establish basic rates for the use of the building or certain parts of it. The small civic auditoriums consist of only a single main hall used for all purposes. Obviously, the fee then covers use of the entire building during a specified time and for a specified purpose. However, the larger auditoriums will consist of several different large units for principal events as well as smaller halls or rooms for committee meetings, lectures, and similar uses. Such auditoriums require the development of rental schedules for each of the separate units, and prescribed modifications to them according to the user, frequency of use, time of day, and such variations.

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* F. G. H. Symons, Municipal Auditoriums, Public Administration Service, 1950, Page 22

Regular house services, such as heat, light, ventilation, water, and telephone, are generally included in the basic rate. Extra charges, however, are usually made for such services as public address systems, pianos or organs, stage scenery, amplifiers, portable chairs, and similar movable equipment.

Such special equipment as freezing units for creating ice for carnivals, platforms, and equipment for track meets or hockey games, almost always requires additional charges. Where air conditioning exists, it is generally considered as part of the regular fee.

Ticket sellers, doormen, ushers, and other public handling personnel are included in the basic fee in most instances. Assistance in moving in and out of the auditorium and in the erection of displays, exhibits, and so forth, is subject to extra charge.

Almost always a lower rate is charged a nonprofit user than a commercial user. These reductions are generally about 25-30 per cent. Some cities base the rate for nonprofit users on actual operating costs per performance. In some cities, ordinances provide for rate reductions or entirely free use of the building by nonpolitical and non-denominational users when no admission is charged. Churches, charitable organizations, and various citizens' groups are frequently

permitted use of the auditorium without charge or at only nominal rates.

Many communities make a distinction between events for which a fee is charged and those which are free. This distinction applies to commercial shows, displays and exhibits as well as charitable organizations and religious groups. Lower rates may be set for these events when no charge is made for admission. These reductions vary a great deal from city to city, but generally run from about 30 to 50 per cent.

Auditoriums also establish rates which vary with the type of activity. For example, lower rates may be charged for political or fraternal purposes than for professional theatrical shows or sporting events. Conventions are often in higher fee catagories than concerts or local talent shows. While in some cases higher charges are based on use of special equipment and facilities in other cases they are bases on the potential gate. For example, a professional road show may be expected to draw a larger audience at a higher entrance fee than a local talent show. Therefore, the charge for the use of the auditorium may justifiably be higher in such a case.

Auditoriums in smaller cities are used most often only for evening meetings. Such is not the case in the larger cities where there is a

greater demand for the auditorium. There may be a number of events going on at the same time with others to follow very closely. The auditorium may be in use almost around the clock. It is customary to charge separate fees for different specified periods.

Most cities charge higher rates for evening performances than for morning or afternoon periods. In some cities night prices double the daytime rate, but prevail only when the matinee is booked. Practically all auditoriums make reductions for combinations of day and night use by the same lessee. Extra charges are specified by most auditoriums for use of the building beyond the agreed period of time. These charges are based on a fixed amount for each additional hour, or fraction thereof, after midnight.

Some of the larger cities arrange their charges on a percentage basis. That is, they charge a definite minimum payment plus a percentage of the gross receipts. This percentage is generally around 15-20 per cent of the total gate receipt. In some instances the auditorium manager may accept either a fixed rental fee or a certain percentage of the gross receipts. The term "gross receipts" in most cases means the total revenue received from the admissions charged, less only federal, state, and city amusement taxes.

TECHNICAL CONSIDERATIONS

AIR CONDITIONING AND VENTILATING

An air conditioning system should be installed in the theatre for the comfort of the audience by providing the right amount of fresh sterile air at the proper temperature and humidity. Such a system is a necessary feature of any auditorium if it is to draw customers in hot weather. Air conditioning also serves other minor functions. It protects seat coverings, drops, and hangings from mildew and protects metal surfaces and duct linings from excessive moisture in the air.

The major features that form the air conditioning systems are air supply and its distribution; refrigeration or cooling equipment; and the treatment of secondary areas such as the lounge, toilets, foyer, and lobby.

In determining the needed volume of air supply, the heat load within the theatre must first be calculated. This calculation must take into account transmission of heat from outside through awalls, floor, and

roof. Heat and moisture given off by the theatre must also be considered.

The latent heat and sensible heat must be figured separately. After the total internal sensible heat load has been determined, a temperature differential between the temperature of the air admitted to the theatre and the desired room temperature is selected. This temperature differential may range from between 12 to 18 degrees.

Experience has proven that the air supply to an auditorium should not be less than 24 cubic feet of air per minute per occupant. Supply fans, air filters, and heating and cooling coils must be sized to supply air to the lounges, foyer, lobby and other areas, as well as to the theatre proper.

After the proper amount of air has been supplied to the theatre, its distribution is the next consideration. Air supply diffusers must be sized and located so as to furnish fresh air to every area and thus to every person in the theatre. Generally this air is admitted to the theatre from the ceiling. However, some air should be admitted from the balcony soffit, to assure comfort to those persons sitting under the balcony.

In selecting an arrangement of the air diffusers in a balcony theatre, the theatre should be considered as divided into three parts:

(1) The orchestra floor area under the balcony

(2) That portion of the orchestra floor in front of the balcony rail

(3) The balcony

The air diffusers should be located so as to supply the correct amount of air to these areas according to the number of occupants in each.

In theatre design it is customary to design the air conditioning system on the assumption that 75 per cent of the air supplied to the theatre will be reconditioned and mixed with 25 per cent of outside air and the mixture returned to the theatre.

Many methods have been used for withdrawing return air from the theatre, but the most satisfactory method is through standard outlets located under the seats and connected with return-air tunnels under the floor.

Since heat is needed only when the ventilation system is also required, it is more economical to heat the house by a radiator in the main air duct than by any other system. Consequently, a heating coil may be found as a unit in the air conditioning circuit. This steam coil is fed

from the boiler as in any other steam heating system.

The temperature of the house will be raised approximately one degree per minute for the fifteen minutes before curtain time by the incoming audience. Many control instruments cannot cope with such rapid temperature changes. For this reason the temperature in an empty house may start at about 65 degrees, and then effort should be directed toward keeping the theatre cool until the standard working temperature is reached. The theatre system must be able to rapidly adopt to changing conditions.

The moisture content of air is reduced as the air is cooled. This is fortunate, for the drier the air, the warmer it may be without causing discomfort. Dehumidifying caused in this manner is generally not sufficient, so mechanical means must also be used.

The body often finds it difficult to adjust to the difference between the temperature inside and outside the theatre. A ten degree temperature change is the maximum difference the body can accept without unpleasant effects. However, even in temperatures of 90 degrees or higher, comfort can be maintained by reducing the relative humidity. This causes immediate evaporation of perspiration, lowering the temperature of the skin,

Airborne infection is a potential threat in any theatre, so air sterilization becomes necessary. Sterilization is achieved by the maintenance of a germicidal vapor in the air. Since vaporizing equipment is needed only when the ventilating system is in use, it is electrically interlocked with the fan motor.

The conventional thermostat and humidistat are the control devices for the auditorium air conditioning system. If placed on the wall, they should be located at average audience elevation, and they should be well insulated as not to be affected by wall temperature.

The lobby poses its own particular problems in air conditioning. The wind blowing in through the outer doors must be counteracted, or it may blow on into the theatre. Needless to say, this would be very annoying to those persons sitting in the rear seats.

The use of radiators is generally found unsatisfactory in the lobby for several reasons. They cannot respond quickly to the sudden demands for heat placed upon them. Also, it is difficult to find space for the amount of radiator needed, and they present an unpleasant appearance even when recessed or covered with a grill.

One solution often used is to heat the lobby with the same equipment supplying the conditioned air. A booster air-heating coil and a small

booster fan are interposed in a branch duct extended from the main theatre air conditioning supply duct. Thus air is supplied to the lobby at a sufficient pressure to counteract air blowing in from the outer doors.

Mechanical exhaust ventilation should be provided in all toilet rooms, even if they have windows. Windows are generally kept closed in the winter, so they are of little use. When opened they may admit air which will blow toilet-room odors into the theatre.

Toilets are usually entered from the lounge, so they receive their conditioned air from that area. The toilet doors are louvered, and the air is drawn from the lounge into the toilet rooms through them.

The air conditioning system in the auditorium represents a considerable investment to the owner. Therefore the servicing and maintenance of the system should be given careful consideration. Replacement of apparatus is high in equipment cost and delay involved in securing parts and qualified installation labor. Prompt replacement of worn parts is imperative in view of the loss of business resulting from a breakdown of equipment. Periodic service and maintenance checks are advisable in that they may reveal small defects prior to serious trouble.

Theequipment room should be planned so that a maintenance man will have sufficient room to check and lubricate apparatus. If lubrication points are not easily accessible, they will seldom be checked.

ACOUSTICS

It is the job of the architect to devise the best possible conditions for the dramatic and aesthetic presentation of the program. Such an undertaking calls for a study of the factors affecting the acoustic properties of auditoriums. Emphasis should also be placed on those factors which contribute to the aesthetic, particularly concerning the shape of the auditorium.

The architect must insure perfect audibility of the show. The audience wants to hear the orchestra, the singer, the actor, the instrumental soloist, the organ, or any other sound which is a part of the show. The audience does not want to hear auto horns, fire sirens, wind, rain, scraping feet in the aisles and rows, whistling fans, roaring blowers, knocking radiators, telephone bells, the noisy shifting of scenery, or any other noises that detract from the show. So it is seen that the architect has a two-fold job: (1) to eliminate all sounds that are not a part of the show, and (2) to assure audibility to all sounds which are a part of the show.

Noise is either solid-borne or air-borne. Solid-borne sound is transmitted with considerable efficiency by structural steel members. Wall, floor, or ceiling areas or fixtures are vibrated by the structural members, and the sound thus transmitted becomes air-borne. Such sounds as those produced from vibrations of sump pumps or blowers are hardly noticeable as noises in the air. But they become distracting noises when structurally transmitted to the house.

It is wise to first list the source of noises, and then list the possible means by which these noises may be transmitted to the house. Then the architect should see that the specifications provide for the elimination of noise at its source. Certain precautions should be taken in design to assure minimum transmission of sound to the house; that is, proper roof insulation, doors, opening on alleys, no single door which must be used during the performance, having direct access from outside to the house and similar precautions.

Certain noises originate in the theatre, but proper preventive measures may be taken to keep them from becoming distractive. For instance, radiator return lines on stage should be properly graded to avoid the accumulation of condensate, and resultant banging. The audience itself is a potential source of distracting noises. Therefore, the rear

crossover from the house by a wall. Silent seats and carpets should always be called for in the specifications.

Electrical equipment is another source of noise. About the only precaution that may be taken is to buy good equipment. It should be operated in a most efficient manner, and a thoroughly competent organization should be engaged to maintain the equipment.

The ventilating system is certainly another important source of noise. One airborne noise is the noise of the air itself in rushing through the ducts. Then the vibrations transmitted through the ducts cause solid - borne noises.

In order to eliminate these noises the air should flow through the ducts at a low velocity. At the higher air velocity the fins in the registers begin to vibrate, so it is best to use a register with sufficient opening so that the air is not constricted. The air velocity should not increase to any considerable extent at the openings.

The water supply system is another cause of noise. Proper air cushions should be installed to prevent knocking in the pipes. Shock - absorbing mounts for fastening water lines may be used, so that vibration will not be transmitted to the theatre structural system.

If a steam heating system is used, hissing valves should be discarded in favor of quiet operating valves on the radiators. Pressure - reducing valves are a big source of noise in steam systems. They should be isolated from the rest of the building to eliminate transmission of structural-borne noises and covered with alternate layers of various materials to reduce the noise.

The ceilings of the projector and generator rooms should be treated with an acoustical material. If the ceiling is high, acoustical absorbing materials should also be used on the walls to from four or six feet above the floor. Openings such as projection ports should be treated with acoustical tile to minimize sound escaping through them.

Windows are weak points in any wall designed to reduce sound transmission, so they have no place in the theatre. If for some reason there must be windows, they should be fastened so that they cannot be opened to reduce sound transmission.

It should be pointed out that a rear wall should not be concave. Concave surfaces tend to catch sounds and retransmit them to other points, sometimes louder than they were at the point of origin. If the wall is not concave, sound-absorbing material may not be needed.

Concerning the action of sound, the architect is concerned with two problems: the distribution of sound and the reverberation time of sound. Distribution is getting the sound to all customers in the theatre without distortion or appreciable loss of intensity. Reverberation time is getting the sound to the customers with almost equal intensity everywhere, and at such an interval that it will not interfere with the next sound as it comes along. Only part of the sound pressure wave goes directly from the source to the auditor. Part of it is reflected from ceiling and walls. Part is reflected many times back and forth about the house.

Since the ceiling is the principal distribution surface, it should be very carefully planned. The ceiling must be designed so that sound reflected from it will not be concentrated in certain areas. Also, the waves must not reflect back and forth between parallel surfaces, and must not reach the audience out of phase with the direct wave.

Side walls should be designed to provide maximum reinforcement of direct sound, particularly in areas most remote from the sound source. Sight lines must also be considered in determining the position of the walls.

Optimum reverberation time is not a fixed factor but will vary from scene to scene depending upon the setting. Therefore the ideal theatre will have provision for controlling reverberation. A compromise for the various types of productions will result if there is no means of controlling the reverberation time. When such a compromise is necessary, the chosen reverberation time should be the average between the optima for speech and orehestra music.

The part of the stage enclosed in a box set has some effect on the reverberation, so it should be considered with the house in making the calculations. If tolerances are considered, they are best taken on the long side. This is done because tolerance involves a margin of error. Correction is costly if the house is too dead, but is simple and cheap if it is too live.

Obviously the same sized audience does not attend the different performances at the theatre. The size of the audience affects the reverberation time, so provisions must be made to compensate for this. It is possible to keep the reverberation time constant regardless of the audience size.

The seats should meet acoustical specifications so that an empty seat will absorb the same amount of sound as a seat plus a person sitting

in it. Therefore the total absorption and reverberation time will remain unchanged regardless of the size of the audience.

Sometimes the seats or audience do not furnish enough absorption. In such cases additional absorption may be gained from carpet (which also serve to minimize sound from the audience) or from decorative hangings which can be changed in position and size.

Acoustics requirements allow the architect a considerable leeway in the basic shape of the floor plan. The ratio of length to width may vary from 2:1 to 7:5 and still yield excellent hearing conditions. The design tends to approach the so called "shooting gallery" shape when the length is greater than twice the width. The difficulty resulting from such a shape is the multiple reflections between the side walls and the long, narrow ceiling over the audience. It is not intended here to imply that the floor plan should be a rectangle, but merely that the average dimensions should lie within these limits. Actually, it is generally desirable to avoid a rectangle. In regard to the ceiling height, it should not exceed one half the width for the 7:5 ratio of length to width. For a 2:1 ratio the ceiling height should be less than two-thirds the width.

In order to minimize the amount of acoustic treatment and necessary sound dispersion, the volume per seat should be kept low. The

desirable volume per seat increases with the number of seats in the auditorium. For example, the volume per seat for a 400 seat building should not exceed 125 cubic feet. However, the volume per seat for a 1200 seat auditorium may go as high as 140 cubic feet.* A volume greater than that indicated results in large flat surfaces which must be broken to disperse the sound properly. Such planning is uneconomical.

When sound energy is decaying or receeding in the rectangular room or theatre, it tends to concentrate in certain modes of vibration. Nonrectangular shapes do not find this tendency so strong, but even they require some additional dispersion to obtain a smooth logarithmic decay. The time interval between successive reflections is decreased by this additional dispersion.

The so called "character" of the theatre is influenced by the nature of the successive reflections, and the time interval between them is interpreted as "size".

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* H. M. Stone, The Motion Picture Theatre, Motion Picture Engineers, Inc., 1948 Page 154

We know that the aesthetic value of a show performed in a theatre is enhanced when that theatre has a pleasing character. Therefore, it is advisable to guard against an excessive amount of dispersion, as it destroys this character and, as previously noted, also tends to decrease the time interval between successive sound reflections. Excessive diffusion or dispersion tends to result in a characterless and cramped theatre which is none too pleasing as a place of entertainment.

Good definition for speech may be obtained without excessive dispersion even when the reverberation time is long enough for good music production or reproduction. Numerous small-angled surfaces on the side walls and ceiling serve to reflect the higher frequencies directly to the audience, thus maintaining good definition of speech without using too low a time of reverberation.

Since the control of the acoustics of theatres and auditoriums, and the quieting of noisy rooms both require the installation of acoustical materials, it is well to discuss the behavior of these materials. A sound-absorbent substance which is fastened in flat patches to the walls and ceiling is the most generally used acoustic material. However, other sound absorbers in the form of cylinders, cones,

and spheres may be effectively used. They are suspended at a distance from the walls and ceiling of the room.

Acoustic materials serve a two-fold purpose:* they absorb sound energy which originates in the room, and they prevent the transmission of sound from one room to another. The latter function is a secondary one for acoustic materials, as other techniques serve the purpose more efficiently.

There are two main kinds of acoustic materials. One kind is manufactured at the point of application. This type includes acoustic plasters and sprayed-on fibrous materials. The other type is the more commonly used prefabricated one-square-foot tiles.

The principal advantage of the prefabricated type of acoustical material lies in the uniformity of the product. Its manufacture can be carefully controlled. Acoustic plasters are sometimes difficult to handle, and special care must be used when they are applied. However, sprayed-on materials are often more economical.

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* H. M. Stone, The Motion Picture Theatre, Motion Picture Engineers, Inc., 1948, Page 176

The painting of acoustic materials presents a problem since it may clog the pores and prevent absorption of sound. There is little difficulty in the case of acoustic materials covered with a mechanically perforated facing. But the porous material without large holes or fissures presents a much more difficult task. The paint should be applied with a spray gun as thinly as possible. Brush applied paint is more likely to clog the pores, so such an application should be avoided.

FLOOR COVERINGS

Floor coverings, especially carpeting, constitute a major item of cost in the furnishing of an auditorium, and also in the maintenance and replacement program. Therefore an understanding of the basic aspects of the problems involved may result in considerable savings.

The theatre manager needs to know the factors of carpet construction and installation affecting wear. Poor wearing time for carpets result in replacement costs and installation costs.

The life of the carpet is affected by its installation. An underlay should always be used, because it absorbs some of the energy transferred to the carpet by the action of moving feet. The carpet without an underlay

must absorb all the energy and will have a shorter wearing time than if an underlay had been used.

Sponge rubber is more effective as an underlay than felt. It is more resilient than felt, and therefore does a better job of prolonging the life of the carpet. Sponge rubber, even after a considerably amount of traffic, will retain its original thickness and ability to absorb energy.

Obviously, carpeting is not practical for certain areas of the civic auditorium. The outer lobby floor, for instance, receives dirt, grit, slush, and moisture from the outside, so a floor covering must be chosen that will stand up under these adverse conditions.

Rubber floor coverings are usually used in these areas. They may be corrugated to prevent slipping and act as silent foot scrapers. Perforations catch the grit and dirt before it reaches the carpeted areas. Rubber floor coverings have outstanding wearing qualities. They are easily cleaned and therefore sanitary.

Different problems are presented by powder rooms and smoking rooms. Rubber tile or sheet flooring is best used here. A highly polished surface is desired, so the floor must be waxed frequently.

PROGRAM DETAILS

THE COMMUNITY

On the map of Virginia, Roanoke is but a small area located at the foot of the Shenandoah Valley and at the entrance to mountainous southwestern Virginia. Roanoke is fortunately located as a cross-roads of transportation. U. S. Highway No. 11 enters the city from the industrial northeast. Travelers from the east arrive in Roanoke by route US 460 from Norfolk, Richmond, and Lynchburg. US routes 220 and 221 enter from the Carolinas and Florida. Travelers from the western states come by way of routes US 460, US 220, and state route 311.

Roanoke has fast become a city of size and importance. In 1900 there were 21,000 people in Roanoke. The 1910 censue showed 39,000 people. Today it is a city of 108,000 inhabitants, with better than average incomes, but in other way representative of the typical American city.

It is a transportation center, and an industrially minded community. Such industrial names as U. S. Steel, American Viscose, Burlington

Mills, General Electric, and Yale and Towne are found here.

One of the major reasons for Roanoke*s enormous postwar growth is the Roanoke Valley Development Corporation, an agency financed by funds from businesses and industries throughout the valley.

The Development Corporation, formed in 1953, is performing a number of services which further the commercial and industrial development of the area. Much of its effort is concentrated on acquiring or controlling desirable industrial sites throughout Roanoke County and adjoining areas. The RVDC is empowered to construct new factory buildings for lease to desirable tenants, and it can extend financial assistance to companies needing that type of help.

If the present rate of economic growth is maintained, Greater Roanoke is destined to emerge as one of the significant southern trade capitals during the latter part of the century. It is well located between New York and Atlanta and should gain considerable benefits as the migration of American industry continues to favor the southern states.

When a community is young and absorbed in its physical growth, culture often takes a back seat. This has not been true with Roanoke. The Academy of Music was organized when the city was scarcely ten years

old and served as the home of the legitimate stage, concerts and many other activities for over a half century. It served as host to many outstanding figures of the theatre, music and ballet until time ended its career in 1948.

The Roanoke Gilbert and Sullivan Light Opera Company played before capacity audiences for many years. Many amateur groups have supplemented the professional players. An employee band of the Norfolk and Western Railway Company held indoor and outdoor concerts for many years.

Nearby Colleges have been doing their part for culture for many years. Roanoke College at Salem and Hollins College just north of the city have contributed a great deal through their extracurricular programs. Students at Hollins may enjoy regular plays, concerts, lectures, and dance recitals each year. Its Little Theatre has booked many of the worlds outstanding artists throughout the years. Roanoke College is best known for its sponsorship of the summer players, The Showtimers, founded in 1951. It offers a different play each week for six weeks. Capacity crowds attend these plays regularly at The Laboratory Theatre. Members get experience in acting, directing, scene designing, and costume making.

The Thursday Morning Music Club has undoubtedly been the most influential organization in the musical life of the city for a half century. The club has gradually expanded its program, but was originally formed as a pleasant medium for the enjoyment of good music by a comparatively few public spirited women. Today it offers to the public, on a subscription basis, a series of concerts which always includes one of the nation's foremost symphony orchestras and leading individual artists. The TMMC has doubled its own season since the Community Concert Association discontinued operations two years ago. The organization often sponsors young artists at regular club meetings.

The Roanoke Symphony Orchestra has been the most amazing success in the cultural field. After a number of failures in this field, a brilliant young conductor, Gibson Morissey, was brought from Bluefield, West Virginia in 1954. He quickly assembled an orchestra of eighty members which has since performed with remarkable success. To provide a sound base for obtaining future members, Morissey has auditioned scores of young artists and has started a youth symphony of 40 boys and girls.

Roanoke has not neglected the literary side of her culture. A fine public library, the first all air-conditioned library in the country, has recently been erected. It houses a collection of well over 100,000 volumes. It is a headquarters for a chain of neighborhood libraries, and has often served as a facility for art exhibitions and lectures in its auditorium.

Community life in the city has also been influenced by art. Encouraged by traveling exhibitions of the Virginia Museum, amateur artists and patrons combined to form the thriving Roanoke Fine Arts Center five years ago. The center holds classes for adults and children several times a week, in addition to lectures and exhibitions.

The cultural development of Roanoke certainly owes a great deal to the Woman's Club and its affiliates. Through its interest in art, music, and related fields, it long filled the needs until demand brought forth some of the organizations already mentioned. The Junior Chamber of Commerce has annually sponsored the famed Barter Theatre of Abington, Virginia. Several widely known dancing schools have been responsible for the creation of a Civic Ballet.

The Council of Garden Clubs, with its forty-five member groups, has also played an important part in Roanoke's cultural development.

Approaching the economic importance of Roanoke's normal trade volume is business from tourists and conventions. As has been previously noted, Roanoke is blessed by fate by its location. Many travelers to the Roanoke area stop to view the magnificent scenery, explore a noted cavern, or view Virginia's Natural Bridge.

A travel artery not previously mentioned is the scenic Blue Ridge Parkway. This National Park Service facility travels some 488 miles from Waynesboro, Virginia to the Great Smoky Mountains of North Carolina.

Mill Mountain is one of Roanoke's favorite attractions. Lying wholely within city limits, it is 2,000 feet above sea level, and affords a breathtaking view of the sprawling Roanoke Valley, from its top 1,000 feet above the valley. On the mountain top there is a public park, picnic tables, a recreation center, and a municipal children*s zoo.

Roanoke operates a year-around municipal recreation program. There are many activities to attend, such as baseball, sandlot football, softball, basketball, tennis, golf tournaments, and other park functions. The city has a municipal stadium seating 27,000 persons.

The American Legion Auditorium in Roanoke was recently destroyed by fire. It had been the area's largest indoor arena for meetings and shows of all types. The auditorium was kept in constant use by ice shows, indoor circuses, name-band public dances, wrestling, boxing, stage shows, and large group activities.

Roanoke has become an important convention center. Conventions have been held at the rate of well over one hundred a year. Most of the groups represent a district or regional area, but several national meetings bring visitors from over the nation and some foreign countries.

Hotel Roanoke, Virginia's top convention hotel receives most of the visitors. However, the Hotel Patrict Henry and the Ponce DeLeon also receive a considerable number of the convention members. It has been estimated that these conventions leave an estimated 1.5 million dollars a year in Roanoke.

So, a study of Roanoke reveals a city intensely interested in practically every type of cultural affair. The people of this community have demonstrated a lively interest in culture and art, and they certainly deserve proper facilities for these functions.

Roanoke's need for a civic auditorium has become all the more apparent since the recent destruction of the American Legion Auditorium by fire. At present the community has no adequate facility for cultural and art shows. There is no building to accommodate conventions or sporting events.

THE SITE

The site is an area which has been set aside for a future Civic Auditorium by the Roanoke Redevelopment and Housing Authority. In view of Roanoke's particular needs for a municipal auditorium, this area seems to be a logical choice. The irregularly shaped property is bounded on its west side by Second Street, which intersects US route 460 north of the site. US route 11 borders the northwest corner of the property.

The intersection of Jefferson Street and Salem Avenue, which is considered the central point of Roanoke, is only 400 yards from the proposed site. Such a location is ideal in that it is readily accessible to the greatest possible number of people. However, this central site presents the disadvantage of adding to business area traffic conjestion. Many cities would prefer a suburban location, but

Roanoke's well-known popularity as a convention center justifies this central site. The property is within 200 yards of Hotel Roanoke, and is also within walking distance of the Hotels Patrick Henry and Ponce DeLeon.

THE PROPOSED ELEMENTS

The design of the civic auditorium involves the arrangement of mass and form, not only as a functional unit, but also as a social unit. Civic leaders of Roanoke have been interviewed by the author in an attempt to evaluate the particular needs and potentialities of the city as the location of a municipal auditorium. The conclusions reached from these interviews may now be noted.

The facility should include three principal units; (1) a concert hall, (2) an arena, and (3) a little theatre. The concert hall will be used to accommodate Roanoke's Symphony Orchestra, guest artists, operas, ballet, and similar events. This area will have fixed seating and stage. Its acoustical design is very important and must receive careful consideration. The desirable seating capacity for this area is 3000. Box office facilities must be provided for maximum demand even though it is only occasional. An inadequate entrance area can create the worst kind of congestion. All lobby and lounge space will be an important,

not a negligible feature.

This concert hall will be a meeting place for the community. It will be a social center where conversation between the acts with acquaintances will be part of the delight of an evening in the theatre. Therefore, arrangements for circulation between acts will be as important as seating arrangements in the auditorium.

An arena is another principal unit that will be included in Roanoke's municipal auditorium. This flat-surfaced area must be able to accommodate an audience of 6,000 persons. The many conventions that are held in the community each year will meet here. The arena will also be used for sporting events, such as boxing, wrestling, and basketball. Trade shows and large meetings may be held here. The arena acts as a magnet to draw outsiders into the city and is an indication of the city's dominance in the region. The level floor area will be surrounded by rows of seats. The tiers of seats will have one or more crossovers, joined by aisles and served by vomitories.

The third principal unit for the civic auditorium is the little theatre. Probably one of the most frequent users of this theatre will be The Showtimers, an amateur theatrical group sponsored by the Roanoke

College. The unit will also accommodate lectures, and similar events. Considering past attendance at Roanoke's theatrical events and probable future needs, the little theatre should seat an audience of 600 persons.

In many existing theatres, the stage is too small and backstage equipment is inadequate. These theatres have been built on the unsound theory that amateurs need less secure equipment and are less concerneded about right proportions than are professionals. If these amateur groups continue, they are bound to become more expert and to put on productions that are increasingly elaborate. Inadequate technical equipment will hamper future growth, so a well-equipped stage is an immediate asset. As was true for the concert hall, the entrance area and box-office must be planned so there will be no congestion, even on nights of peak attendance.

The proposed elements are:

The Concert Hall

Foyer

Box Office

Ticket Collecting Booth

Lobby

Checkroom

Lounge

- Public Telephones
- Public Toilets
- Bar

Seating Area for 3000 Persons

Stage

Orchestra Pit

Green Room

Room for Musical Instruments

Storage Areas

Shipping and Receiving Area

Dressing Rooms

- Suites for Speakers, Visitors, and Performers
- Locker and Toilet Facilities

Quick Change Rooms

Director's Room

Administrative Rooms

Mechanical Equipment Area

Janitor's Rooms

First Aid Room

Locker and Toilet facilities for Workers

The Arena

Foyer

Box Office

Ticket Collecting Booth

Lobby

Seating Area for 6000 Persons

Exhibition Area

Public Toilets

Public Telephones

Dressing Rooms

Stage

Meeting Rooms

Storage Space

First Aid Room

Administrative Area

Mechanical Equipment Area

Janitor's Rooms

Concessions Area

Locker and Toilet facilities for Workers

Shipping and Receiving Area

The Little Theatre

Foyer

Box Office

Ticket Collecting Booth

Checkroom

Lobby

Lounge

Public Toilets

Public Telephone

Seating Area for 600 Persons

Stage

Orchestra Pit

Green Room

Quick-change Dressing Room

Rehearsel Room

Make-up Room

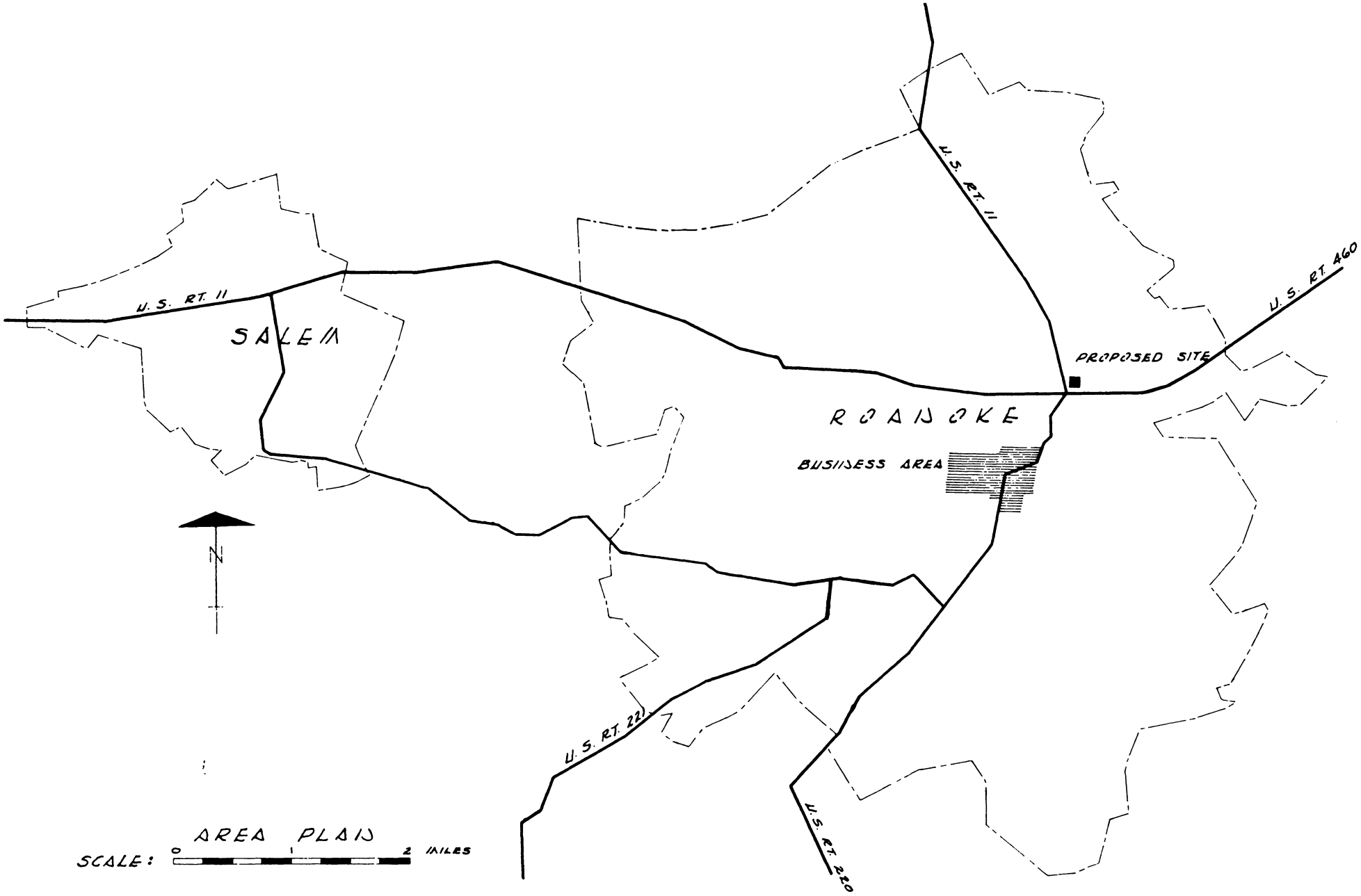
Dressing Rooms

Suites for Speakers, Visitors, and Performers

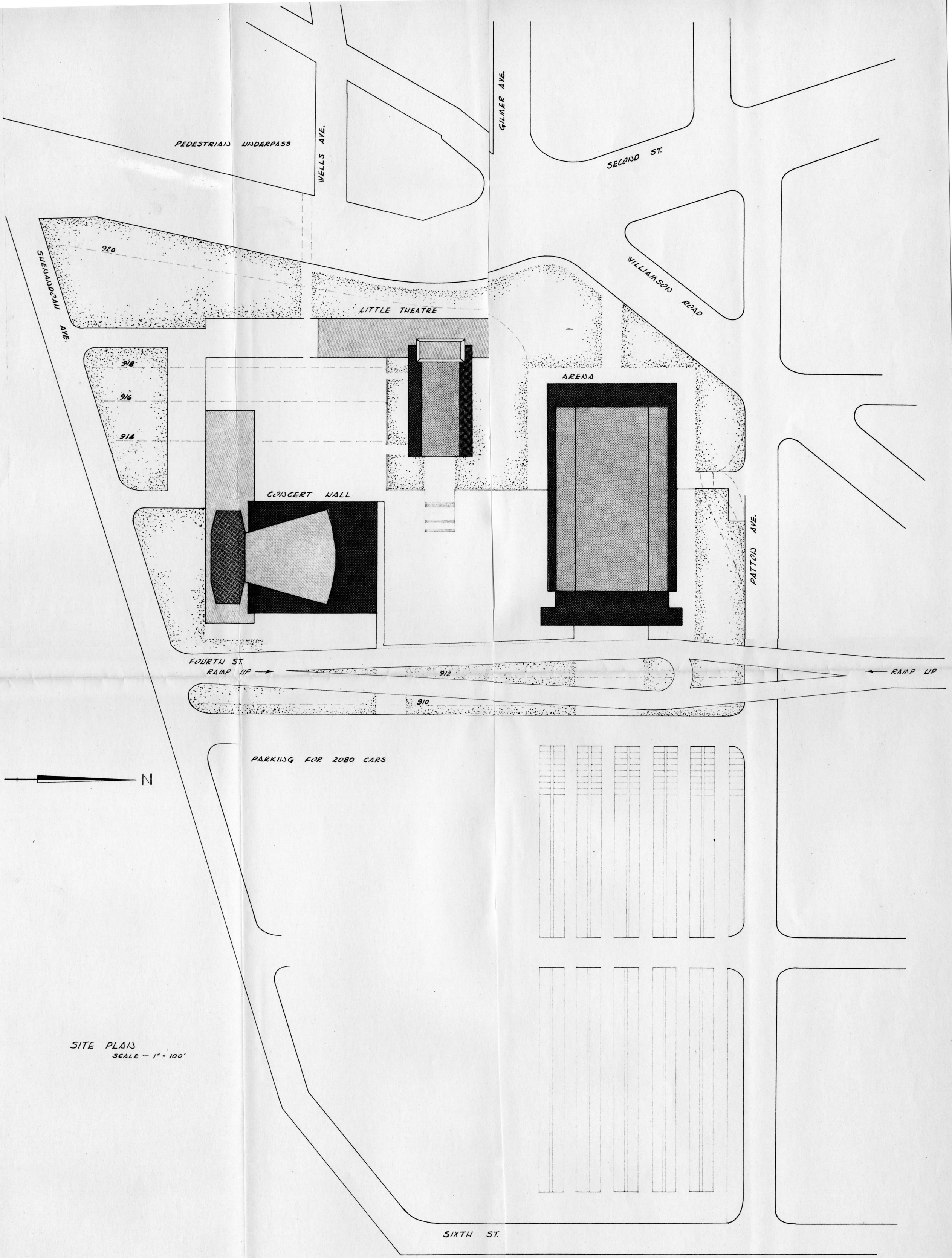
- Locker and Toilet Facilities
- Costume Rooms
  - Sewing Area
  - Dyeing Area
  - Storage Area
- Workshops
  - Carpenter Shop
  - Paint Shop
- First Aid Room
- Storage Space
- Shipping and Receiving Area
- Administrative Area
- Mechanical Equipment Area
- Janitor's Rooms

PRESENTATION OF THE DESIGN

AREA PLAN

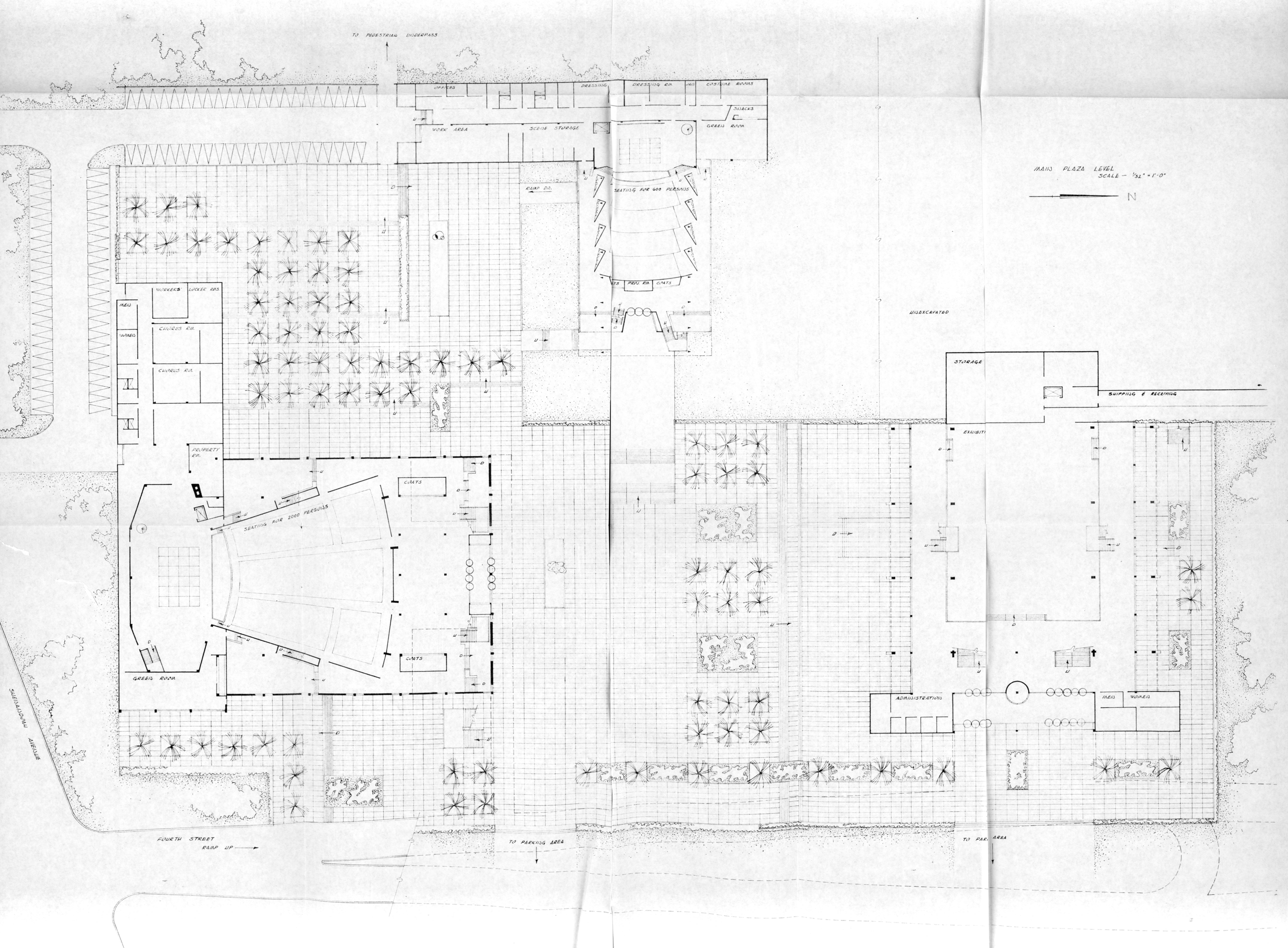

U. S. RT. 11
SALEM
U. S. RT. 11
U. S. RT. 460
PROPOSED SITE
ROANOKE
BUSINESS AREA
N
U. S. RT. 221
U. S. RT. 220
AREA PLAN
SCALE: 0 1 2 MILES

SITE PLAN

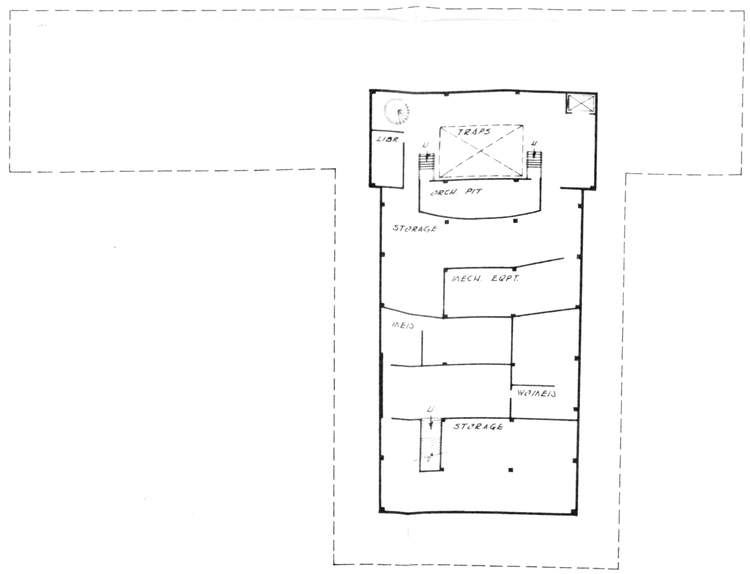


SITE PLAN
SCALE — 1" = 100'

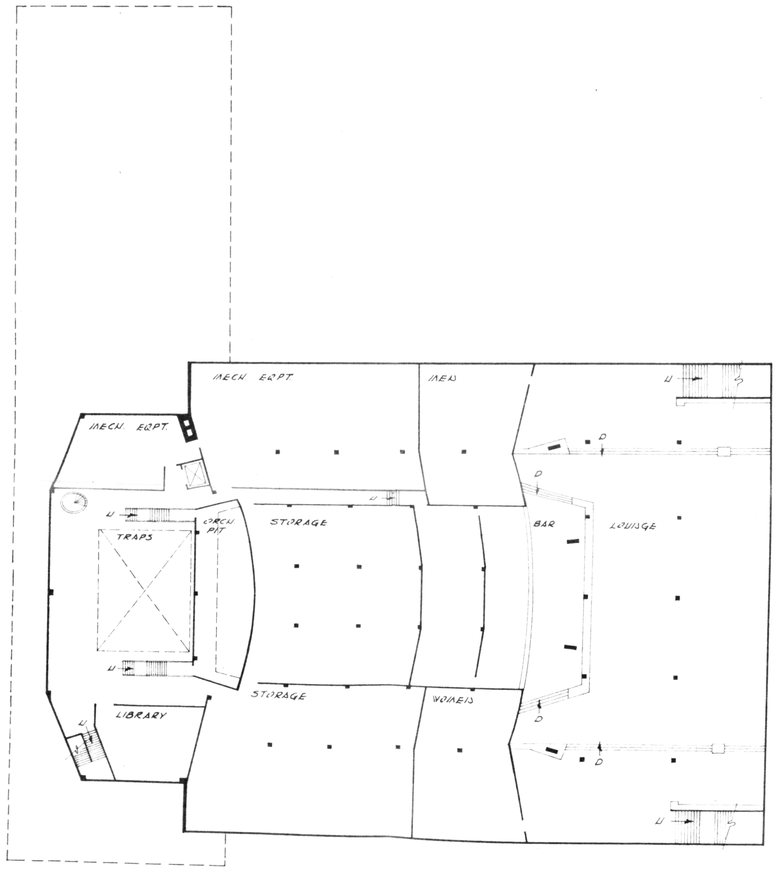
FLOOR PLAN


MAIN PLAZA LEVEL
SCALE – 1/32" = 1'-0"
N
TO PEDESTRIAN UNDERPASS
OFFICES
DRESSING
DRESSING RM.
COSTUME ROOMS
SNACKS
WORK AREA
SCENE STORAGE
GREEN ROOM
RAMP DN.
SEATING FOR 600 PERSONS
COATS
PROP. RM.
COATS
UNEXCAVATED
STORAGE
SHIPPING & RECEIVING
EXHIBIT
WORKERS' LOCKER RMS.
MEN
WOMEN
CHORUS RM.
CHORUS RM.
PROPERTY RM.
COATS
SEATING FOR 2000 PERSONS
COATS
GREEN ROOM
ADMINISTRATION
MEN
WOMEN
SHENANDOAH AVENUE
FOURTH STREET
RAMP UP
TO PARKING AREA
TO PARK. AREA

FLOOR PLAN

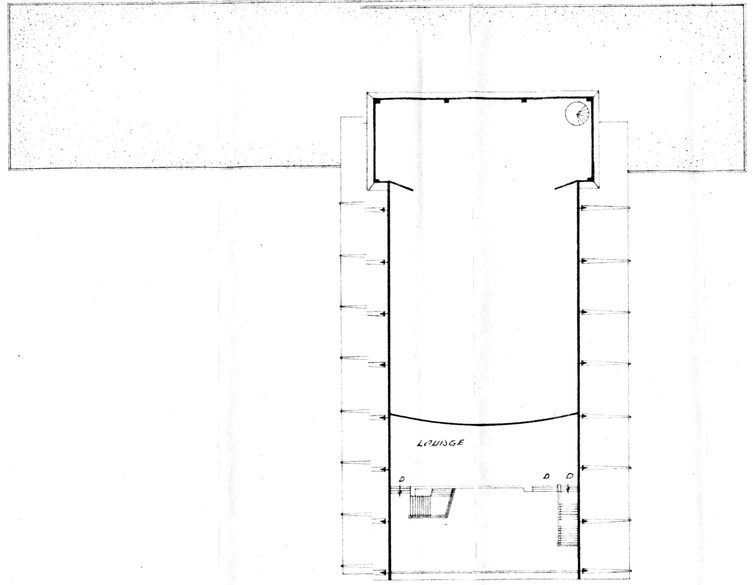


LITTLE THEATRE
LOWER LEVEL

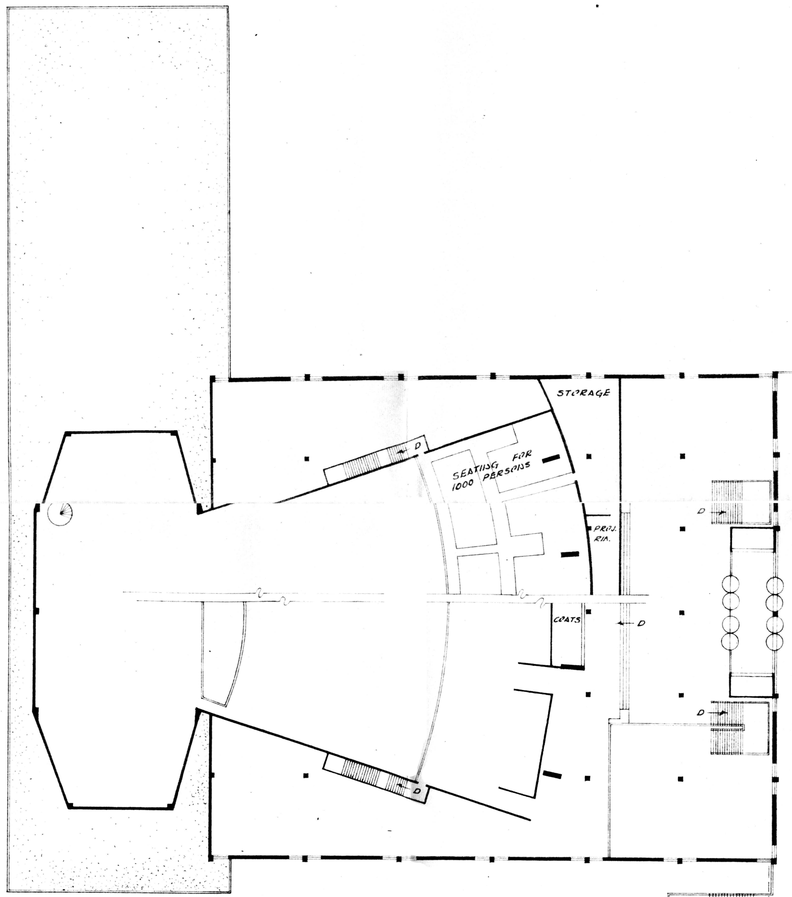


CONCERT HALL
LOWER LEVEL

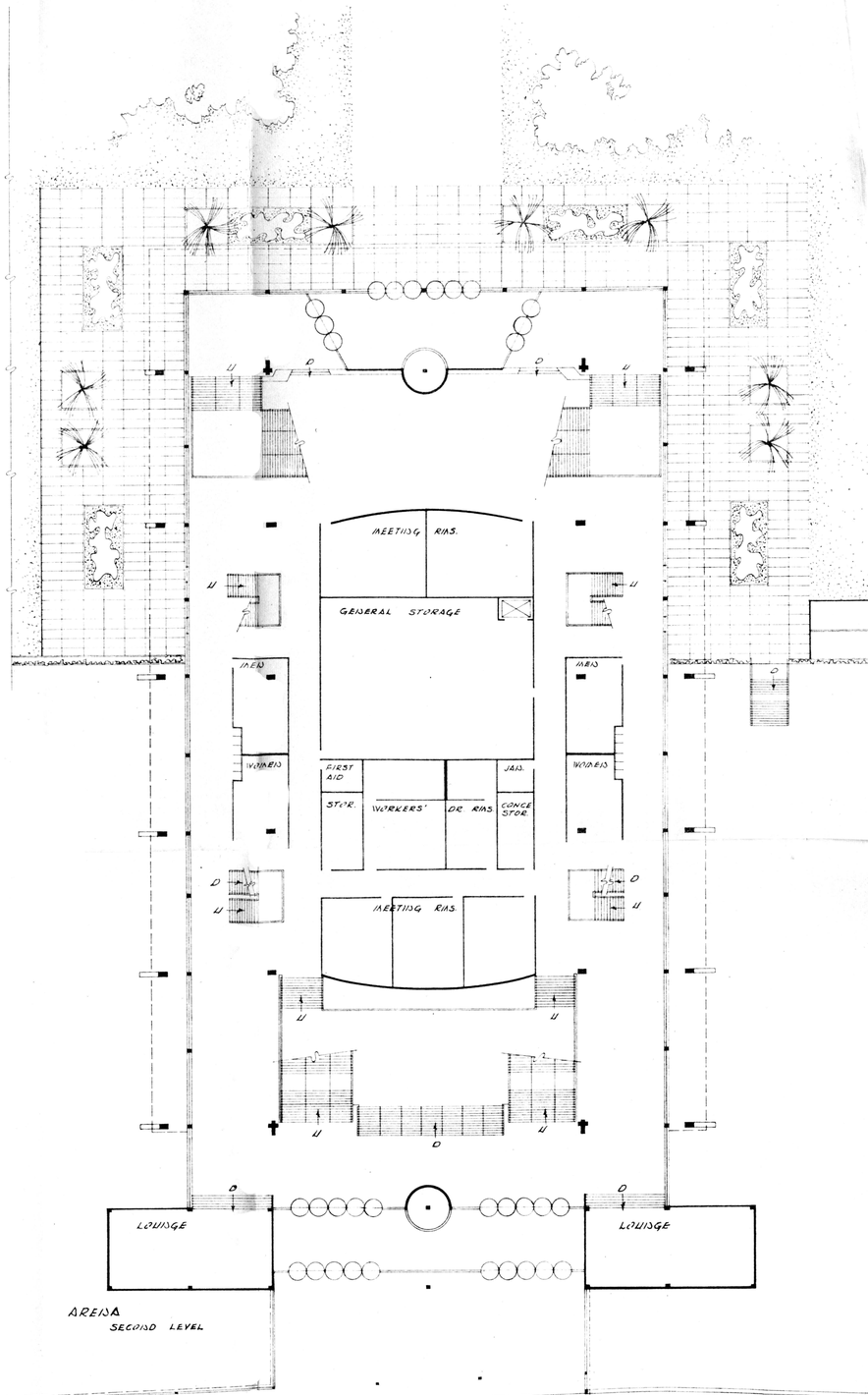
FLOOR PLAN



LITTLE THEATRE
UPPER LEVEL



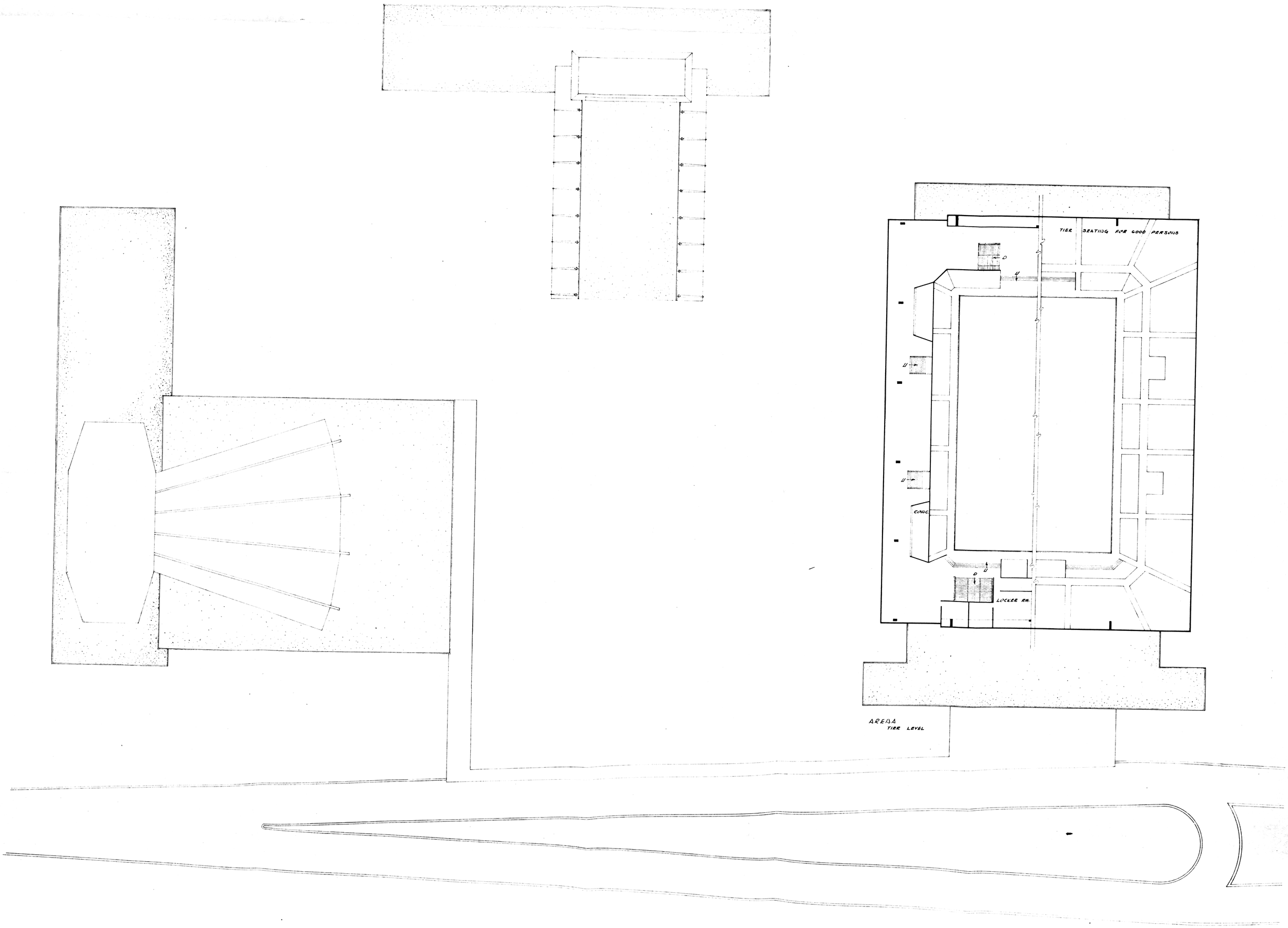
CONCERT HALL
BALCONY LEVEL



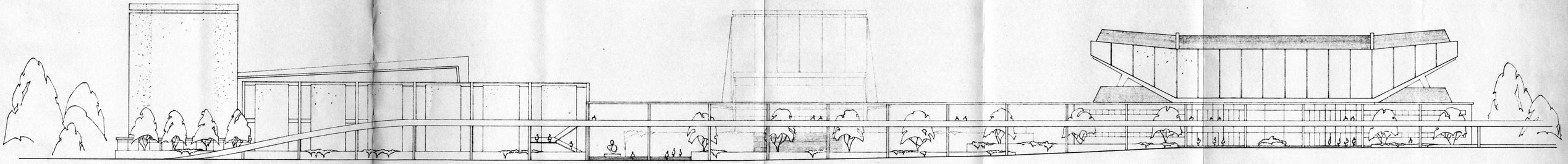
AREIA
SECOND LEVEL

FOURTH STREET

FLOOR PLAN

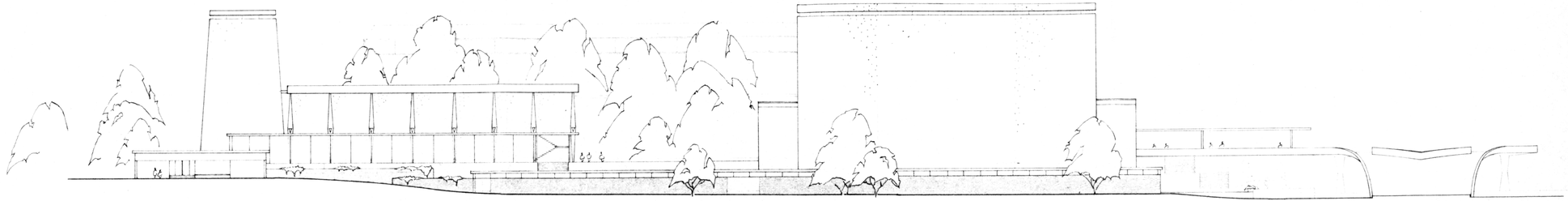

TIER SEATING FOR GOOD PERSONS
D
U
U
U
CLOSC
D
U
LOCKER RM.
AREA A
TIER LEVEL

ELEVATION

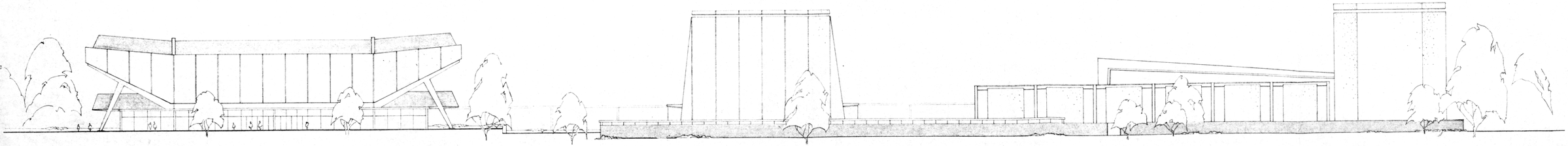


EAST ELEVATION

ELEVATIONS

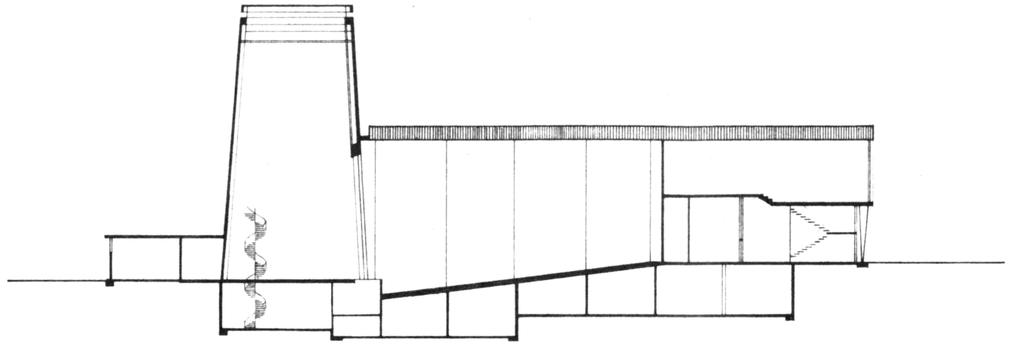


SOUTH ELEVATION

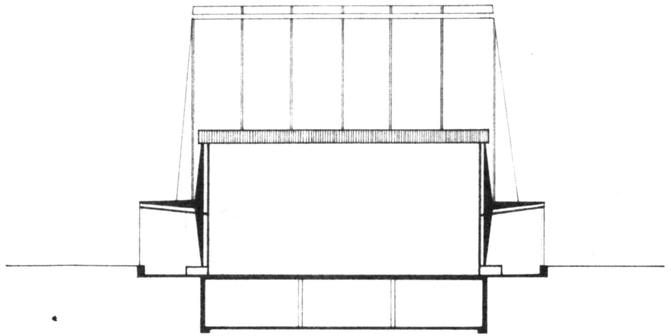


WEST ELEVATION

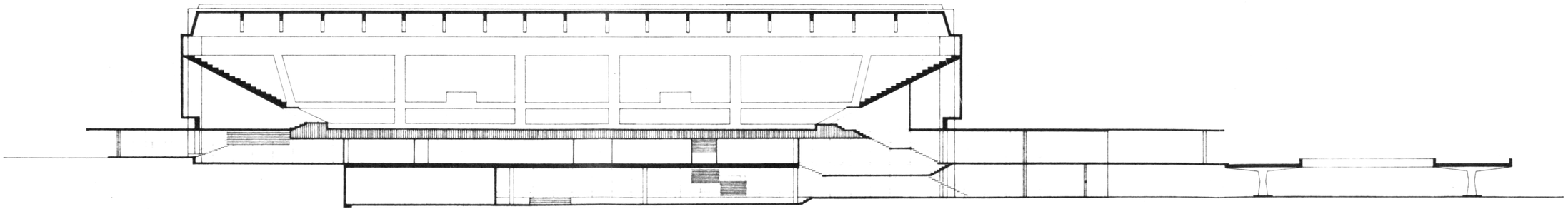
SECTIONS



LITTLE THEATRE
LONGITUDINAL SECTION

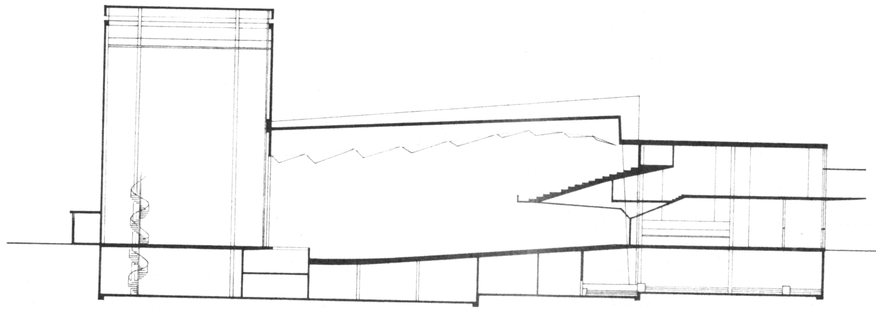


LITTLE THEATRE
TRANSVERSE SECTION

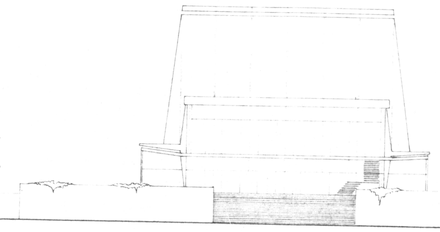


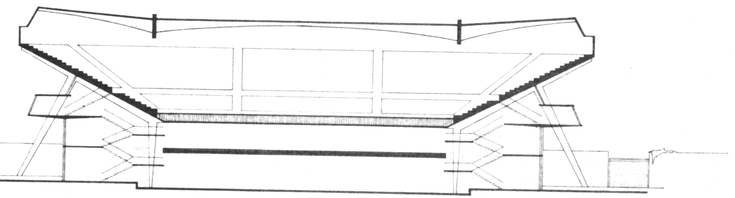
AREIA
LONGITUDINAL SECTION

SECTIONS



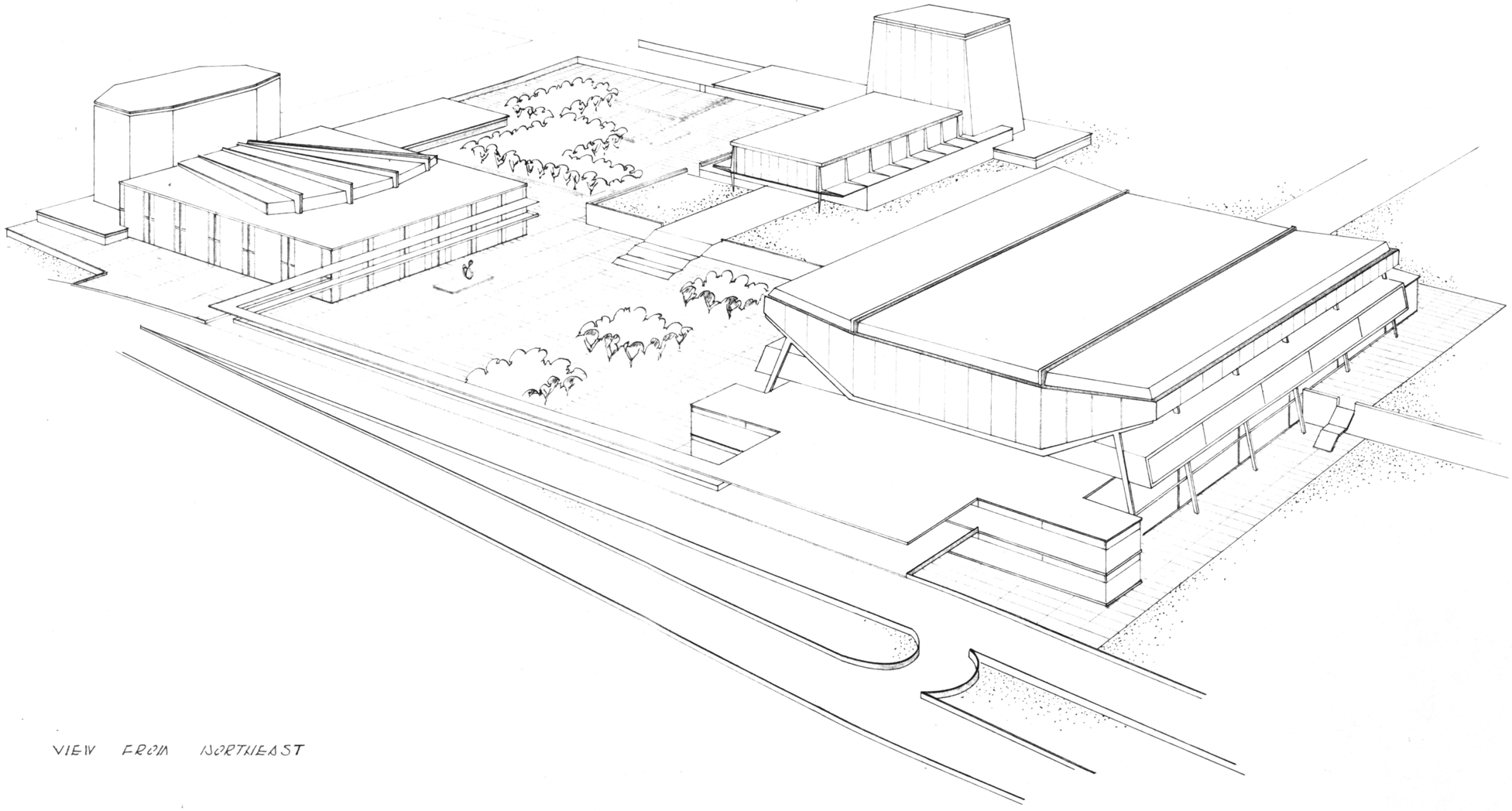
CONCERT HALL
LONGITUDINAL SECTION





ARENA
TRANSVERSE SECTION

PERSPECTIVE

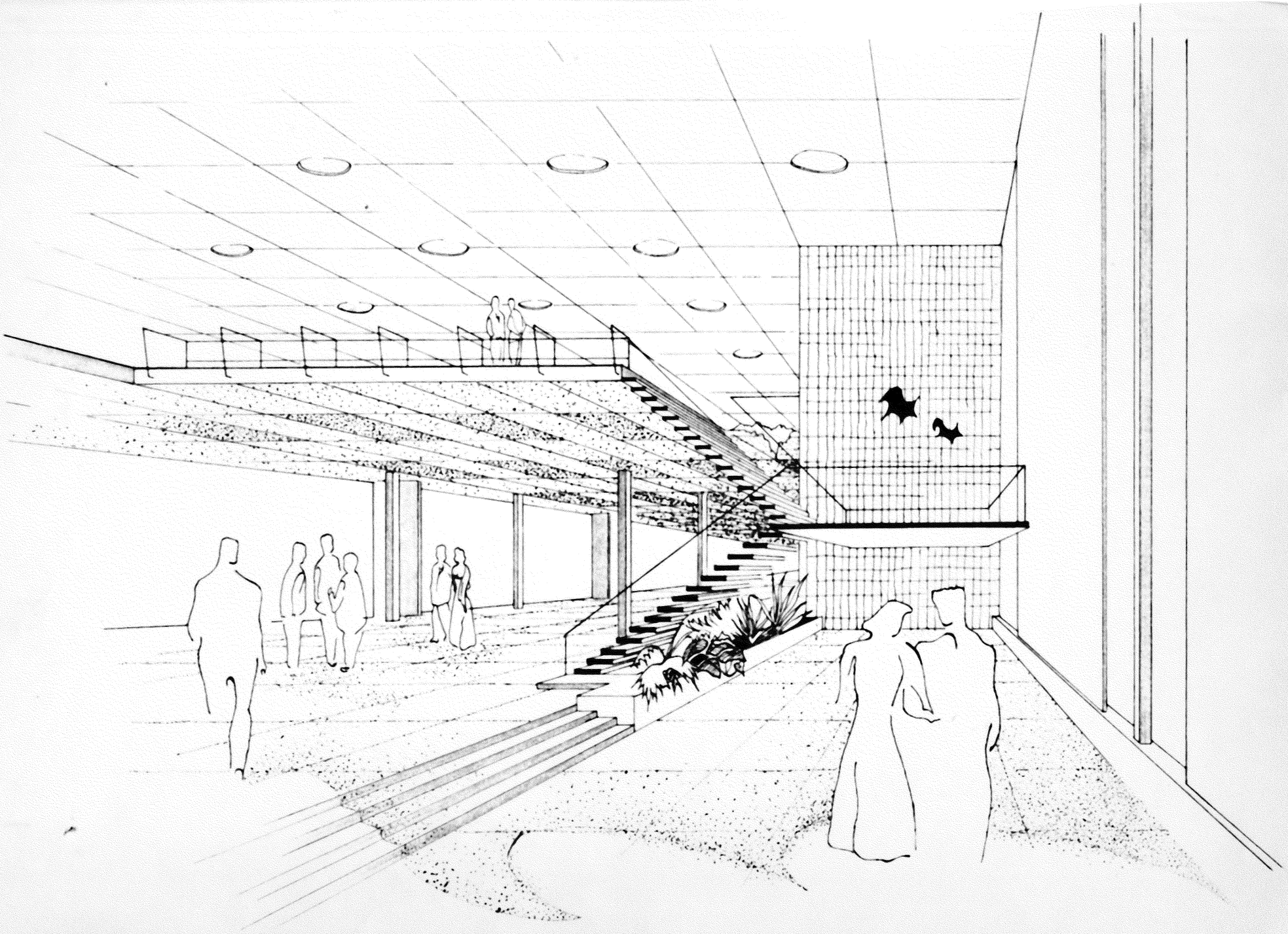


VIEW FROM NORTHEAST

PERSPECTIVE

VIEW OF ARENA

PERSPECTIVE



CONCERT HALL LOBBY

ANALYSIS OF THE DESIGN

ANALYSIS OF THE DESIGN

Most existing civic auditoriums have placed all the varied facilities under one roof on single city block. Cost and site limitations have generally necessitated this near assemblage of parts. Obviously, under such conditions aesthetic considerations with respect to the interrelation of interior and exterior spaces are greatly limited and the designer is handicapped. The multi-use auditorium lacks the unity and honesty of expression found in the auditorium devoted to a single purpose.

Each of the major elements found in the multi-purpose civic auditorium presents its own strong, personal character. The arena has its slanting tiers of seating. The theatre has its great stage tower, and the concert hall has its apse-like platform. Each of these facilities offers an unusual opportunity for expressive form. But this opportunity is suppressed when the elements are fitted together under one roof like pieces of a zigsaw puzzle.

Obviously, this design was developed under less rigid limitations on site coverage than those mentioned above. Perhaps the major aim in the design of this civic auditorium has been the desire to develop harmonious grouping of the three major diverse elements, and the desire that each building should present from the exterior a clear, honest expression of its function.

This latter desire brought about in each of the buildings a close relation between structure and function. The structural systems have resulted from the architectural concept and approach to the functions of the buildings.

In the Arena the slanting effect produced by the tiers of seats is evident from the exterior. The seating is supported by precase concrete members spaced 60 feet on center. The roof load is supported by an entirely independant structural system. This load is carried to the ground by four columns supporting two steel girders which span the entire Arena (longitudinally). Additional girders span between the two main girders, while cantilevered members on each flank support the remaining roof load.

The structural system of the Little Theatre is also an expression of the seating type. Continental seating, which requires no aisles to take up

some of the best seating, is used here. The high ceiling area is flanked on both sides by lower ceiling lobby areas. The structural system thus devised consists of precast concrete vertical members, with cantilevered horizontal beams at mid-height. The vertical part of the member makes possible the high ceiling seating area, and the lower cantilevered sections support the roof over the lobby spaces on each side.

The roof over the seating area of the Concert Hall is supported by four precast concrete "L" shaped members. The slight slope of those members parallels the slope of the seating floor below. Lobby and lounge areas use the conventional column and beam structural system.

In the Arena, the Little Theatre, and the Concert Hall, the concrete structural systems are different, yet similar in architectural concept and approach. This parallelism develops a close relationship or unity among the buildings.

Concert halls, used exclusively as such, do not require stage towers. However, municipal auditoria should be flexible and adaptable to many varied uses. In view of this fact, the concert hall has been designed with complete play production facilities to accommodate professional

theatrical groups. The Little Theatre is more intimate and does not have the seating area necessary to support such productions.

The large number of people gathering at the Civic Auditorium Group results in major traffic planning problems. Fourth Street, which divides the auditoria from the parking area, has been raised to separate the vehicular and pedestrian traffic. This allows the patrons to walk from the parking area to the auditoria without crossing any streets. A canopy connecting the Arena and the Concert Hall covers the sidewalk along the flank of the raised roadway. Thus a marquee of generous length results. Persons entering the Arena from the roadway will be only one level below the tier seating area. The balcony level of the Concert Hall will also receive patrons directly from this raised street, so this level of the building has its own major entrance, thus easing traffic congestion.

Another traffic problem of major importance results from persons walking from the Hotel Roanoke to the Arena during conventions. A pedestrian walkway under busy Second Street is provided for these people, who will then have no major traffic arteries to cross.

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ABSTRACT

A Civic Auditorium Group for Roanoke, Virginia

Allan E. Sadler

An investigation of Roanoke's particular needs and potentialities for a civic auditorium was the initial step in the development of this thesis. Members of the city government, members of community organizations, and other interested citizens were consulted as to their views on the facilities required in the proposed structure. The Roanoke Redevelopment and Housing Authority offered constructive suggestions concerning the site selection.

These interviews revealed the need for three principal facilities: (1) an arena for 6000 persons to accomodate conventions, trade shows, and sporting events, (2) a concert hall for 3000 persons, and (3) a little theatre with seating for 600 persons. Perhaps the major aim in the design of this civic auditorium has been the desire to develope a harmonious grouping of these three major elements, and the desire that each building should present from the exterior a clear, honest expression of its function.

This latter desire brought about in each of the buildings a close relationship between structure and function. The structural systems have resulted from the architectural concept and approach to the functions of the buildings.

Technical and functional considerations have been discussed in detail, and drawings have been prepared to thoroughly explain the final design.