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BOZEMAN

A THEATER ARTS CENTER FOR BOZEMAN, MONTANA

Part I

Undergraduate Thesis in Architectural Design

By 441

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Submitted to the School of Architecture as partial fulfillment of
the requirements for the degree of Bachelor of Architecture

at

Montana State University

Bozeman, Montana

March, 1969

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CONDITIONS CREATING A NEED FOR THE PARTICULAR PROJECT

For the first time this year, the Loft Theater is attempting to run a full schedule of winter performances. So far they have proved to be successful, especially for a first year and under the conditions with which they have been faced. The present location is above the Powder Horn Sporting Goods Store located on Main Street. Performances are being held every Thursday, Friday, and Saturday evenings at 8:00 PM. The winter theater began on January 9th and will continue playing through April 26th.

The present location is not by any means ideal. There are many disadvantages to having the theater located ^H where it is. The lighting is as simple as possible and merely strung across the ceiling. It is possible to dim or brighten the lights as a whole, but more difficult to use the lights for emphasis. Individual lights are not controlled, which limits the plays that can be produced in the theater, some plays require a more complex lighting arrangement. Good lighting systems alone may cost one hundred thousand dollars and more, yet a good intimate theater need not have that complex a system.

The acoustical quality is also lacking in the present Loft Theater. The theater is in the round with two rows of seats on three sides and three rows of seats on the fourth. Behind the seats are curtains which form the walls of the theater. These curtains help the acoustics, but one can still hear background noises such as the motors of trucks as they start up after a stop light, the honking of cars, and other loud street noises. During the last play that I had attended at the theater, I could hear the faint sounds from a radio somewhere else in the building. All of these sounds are very distracting.

Other than a small sign located outside the entrance, the theater itself is not publicized. Many people in Bozeman do not realize that a live theater exists. The only publicity the theater gets is through pamphlets and posters and news paper articles. Yet even with this publicity the theater is drawing a substantial group each night and is showing the theater for its first year to be a success.

In consideration of the disadvantages of a poor location and also the fact that the Loft Theater has had many successful summer theater performances, a new theater may be built for permanent housing. The theater will remain small and intimate, for this is one of the real attractions of this theater. It must however, satisfy the conditions that the present theater

does not. The new theater must contain good lighting facilities, it must have good sound control, and it must be located so as to be a good advertisement of itself.

The live theater in Bozeman does not play each weekend or even every month of the year. When it is playing, it holds only a very few performances. The winter theater has only three performances each week. To heat and operate a building for these few performances costs money. In an attempt to balance these costs and also to boost the financial standing, two other functions will be designed into the building. The theater will also be a place for movies and a place for display of art.

Movies will be shown year around on nights when the play is not shown. It may specialize in the showing of art films and may bring to Bozeman many of the foreign and domestic films that are not often seen in Montana. The films will attempt to draw a substantial number of people into the theater on nights when the plays are not shown, so as to make the building economically feasible to operate all year.

In an attempt to hold the cost of the building to a minimum, both the intimate dramatic theater and the movie theater may be housed in the same area. In this way, two activities will not be possible at the same time and will eliminate the noise that one activity may have which would be disturbing to the

other. The use of the same room for both activities would eliminate the necessity of heating and ventilating two rooms, and the one room being used everyday may provide enough income to make the theater economically feasible.

The third source of income for the building will be its use for art display. The display area will hold paintings and sculpture which are for sale by local artists and will be sold on a commission basis. The gallery will be open every afternoon and will also be open evenings, before and after performances as well as during intermissions. The gallery may provide two functions. Since a theater needs a lobby and foyer, it may be possible to convert these areas into something with an economic purpose so that they might pay for themselves. People during the intermission will browse through these areas and if a painting, print, or ceramic happens to please them, they may be tempted to purchase.

The second function of the gallery is to provide an area for the display of art by local artists. The Meat Ball Gallery now provides this area in Bozeman, but also being located over the Powder Horn, does not advertise itself as it could. People attending the Loft Theater are introduced to the gallery during intermissions, yet many others who have not attended the theater are not aware that such a place exists. A new theater arts center could advertise itself and would draw many more customers than the present gallery does.

LOCAL AND SITE CONDITIONS

Bozeman, Its Population and Growth

Bozeman is considered one of the fastest growing cities in the state of Montana. In 1940 the census showed 8,665, today we come near doubling this figure with an estimated population of 15,700. In the greater Bozeman area the population is more than 18,000 people and by adding the student body, the figure approaches 25,000 people. Over each ten-year period up until 1950, the population increased an average of 25.6 percent. From 1950, to 1959, the population increased 28.4 percent. It is not unlikely, from all indications, that the 1970 census will show better than a 30 percent increase.

Bozeman is growing rapidly, each year many new additions and subdivisions are being incorporated into the city. There are presently hundreds of approved FHA sites available within the city limits. Many new homes are being erected on these sites each year.

Going beyond the city we find that Bozeman is classified as one of the state's major retail centers. The retail area covers 24,465 square miles with a total population of more than 65,000 people. Bozeman is the sixth largest city in Montana. In present construction it compares favorably with the national average. In 1968, Bozeman spent 4 million dollars on construction, which is

slightly higher than average.

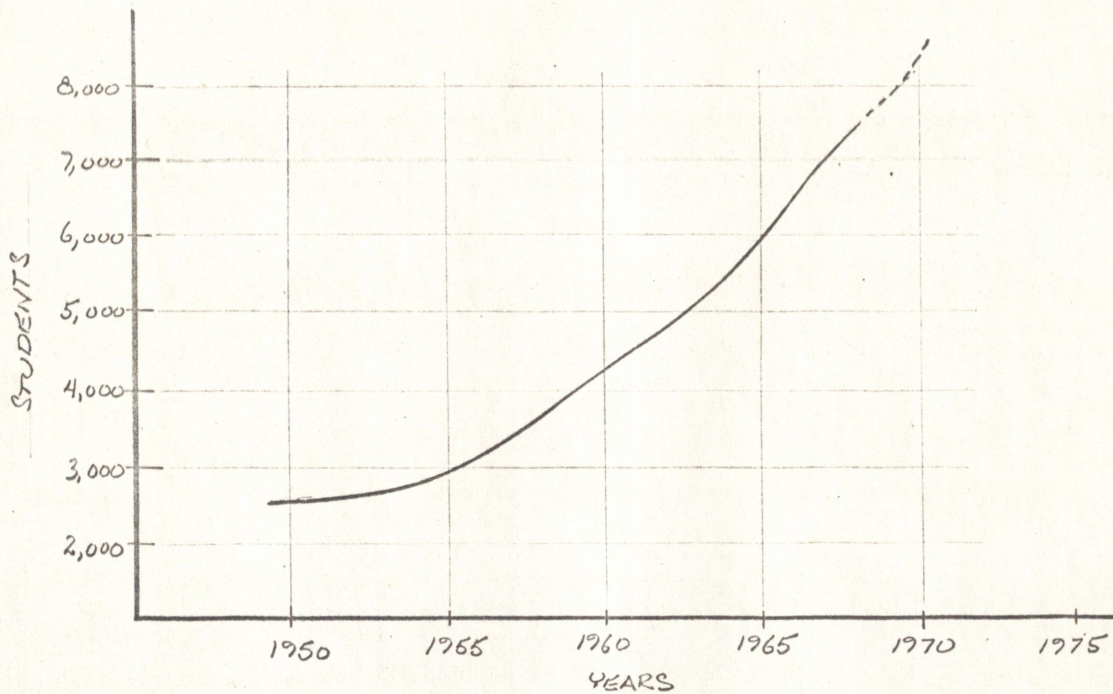
On the following pages ^{are} two graphs which help explain the growth patterns of the city.

The Site

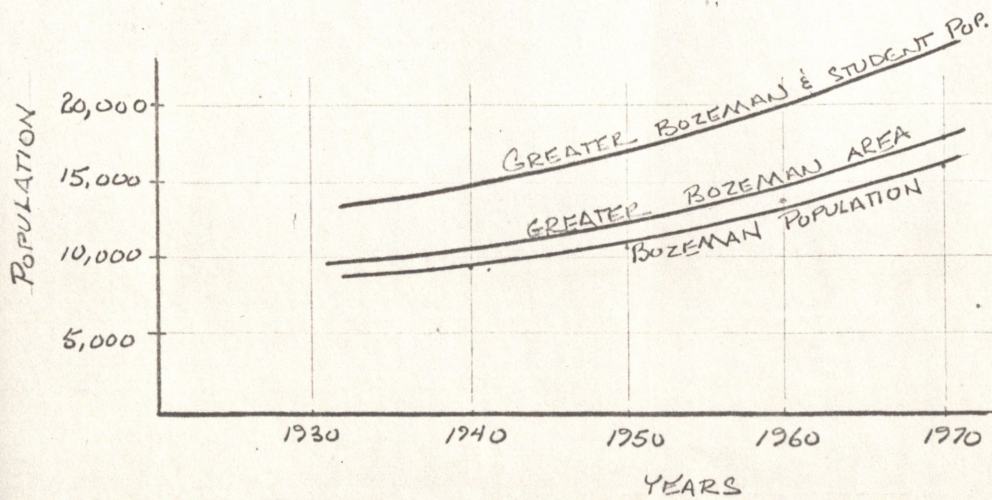
Bozeman is growing rapidly in three directions. One direction is along North 7th, while the second is in the direction of West Main. The third area of rapid expansion is the University. Although South 8th is not rapidly growing in business enterprise, it provides the main route for traffic toward M.S.U. All three of these routes then converge on what is destined to become the heart of Bozeman in the next few years, the intersection of North 7th and Main Street. From this intersection Main continues east to provide an artery from the present central business district.

Since a theater, whether dramatic or motion picture, is one of the major sources of night entertainment, and it must be easily recognized and advertised as a theater, in what better place might it be located than in the center of traffic flow, North 7th and Main? The advantages it receives here will be highly beneficial to its operation. It will be in view of many people everyday as they travel around town and is thus in a position to advertise itself. It is in easy reach from any part of town via the major streets of 7th, 8th, and Main.

still Not
a sufficient
analysis
Not con-
vincing.



POPULATION OF STUDENT BODY



POPULATION OF BOZEMAN

Other areas of the theater's location may have been in the central business district, the university, or on the edge of town near Butrey's Shopping Center. The advantage of being located in the central business district is that it would be close to stores and businesses, yet the theater operates principally at night when these stores would be closed. A disadvantage of this area would be its relationship to two other theaters and too many theaters in one area may not be too good for business. An advantage of the chosen location over the central business area is that it is closer to the college campus. Many students walk to the theaters because of economy and lack of transportation. They would be encouraged to attend the new theater because of its closer location. Even if the encouragement were only for the movie, this location would be beneficial.

The edge of town near Butrey's would also have disadvantages over the selected area. No side walks go all the way out and walking at night along the highway would be difficult, especially during the winter. The location may also be well out of the way for many people living in the further sections of town.

The university area may be another consideration. The movie theater would probably draw its greatest audience from the student body while the play would draw its greatest audience from the faculty, with some student participation. During the summer, however, a large portion of the viewers will be tourists

and they must be considered in selecting a location. The faculty members do not all live near the campus, but they are spread all over town. Because the campus area may be too specialized an area, and may be inconvenient for those living near the heart of town or near North 7th, the area of 7th and Main would be best.

Another advantage to this location is its relationship with other forms of night time entertainment. This is also the location of the Molly Brown and Haufbrau. A theater performance would be ending just about the time these other activities would be reaching their peaks. The Summer Theater draws a good portion of its business from tourists, and many of the motels are located on North 7th, thus the area being considered would be of benefit for this season.

Three possible sites are located in the immediate area of the intersection, all of which have homes on them at the present time. There is a fourth possible location, a vacant lot, but it is several blocks from the intersection.

The first site is on the northwest corner of the intersection of 7th and Main, however, several problems appear when investigating the site. Because of its location on two major streets, it requires greater setback restrictions on the two major sides. Since the site is already the smallest of the four being considered, it gives even less area to design within than may otherwise be possible. The three houses that are located on the property are all brick and this forces the piece of property along with its

CITY OF
BOZEMAN
MONTANA.

SCALE 1" = 1,000'

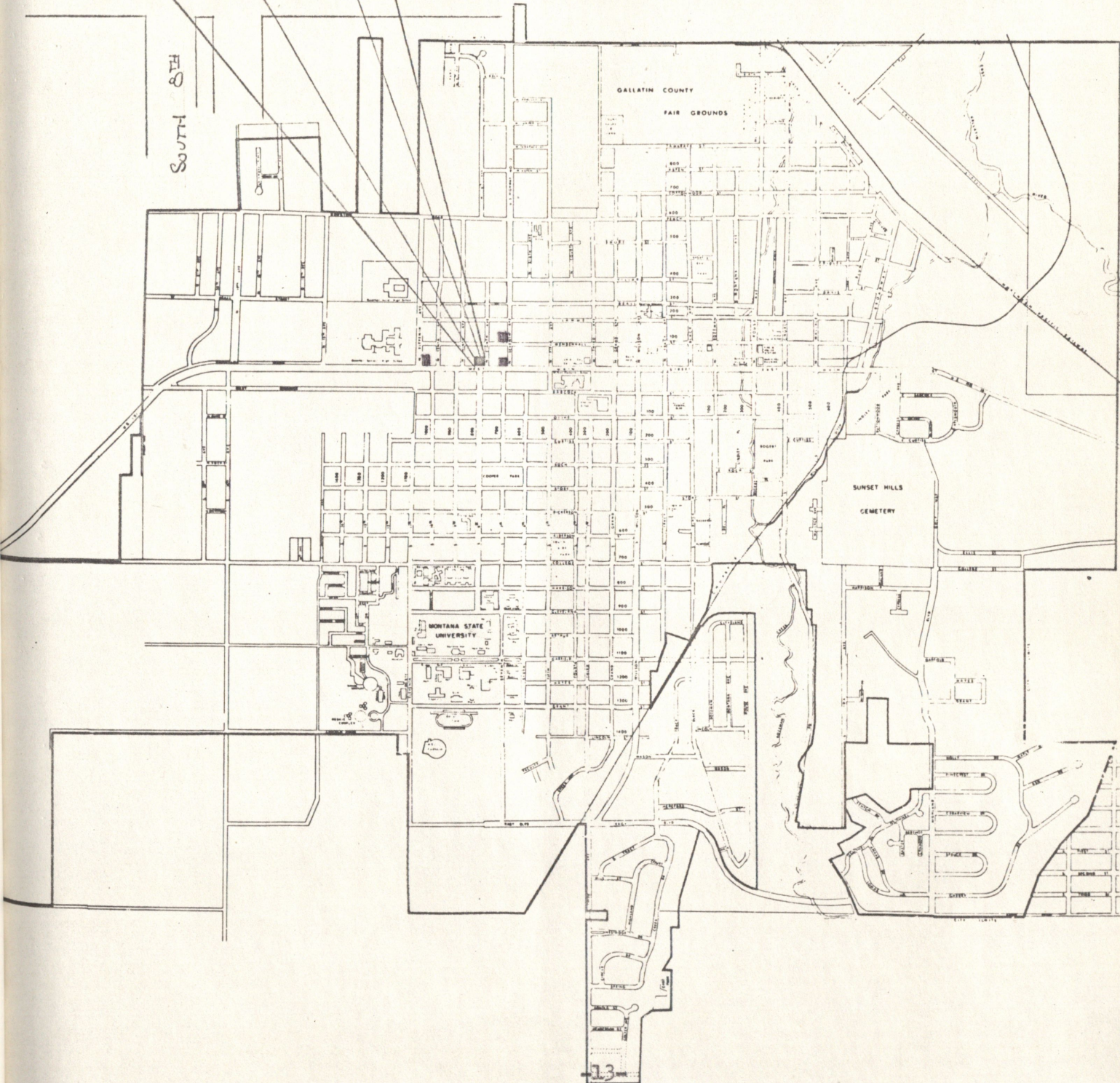


THE SITE

NORTH
0

WEST MAIN

SOUTH
0



RESIDENCE'S

ALLEY

MONTANA
SOUVENIRS

CULLIGAN
WATER
CONDITIONING
CO.

STATE
FARM
INSURANCE

THE SITE

North 8th

PARKING LOT

MAIN STREET

SIESTA MOTEL

ENCO SERVICE STATION

South 8th

SITE & ADJACENT ENVIR.

prime corner location to be at least \$12,000, more than the other pieces considered. A third problem is transportation. The streets in front of the lot ~~does~~ not provide ample room for loading and unloading of auto passengers before or after a show and thus makes traffic movement difficult.

The second two sites in the immediate vicinity are also located on northwest corners. One is located on the corner of 7th and Mendenhall and the other is on the corner of 8th and Main. Both sites would sell for about the same price, \$65,000, including the wooden frame houses on each site. (7, 1969) Both lots are also the same size (5, 1969) Of the two, the site on North 8th and Main proves to have two advantages which will eliminate the site on 7th. 1) All traffic traveling on South 8th toward Main would face the building all the way from the campus to the intersection of 8th and Main, which is the site. This could prove to be excellent advertisement for the theater since the majority of people who would attend would be from the college, either students or professors. 2) The second advantage is the possibility of renting the parking space across North 8th from the site. A person could be easily dropped off at the theater, the car parked across the street in short walking distance from the theater.

The final site investigated was that of a vacant lot to the west of Fletcher's Appliances on West Main. Although the site contained no structures that would have to be removed, the site

itself was several blocks from the prime area. At its location it begins to lose contact with traffic using North 7th. Each of the other sites maintain visual contact with traffic on North 7th. Another problem of the site was that it had recently been sold for commercial purposes, thus the piece of property would not be available. (7, 1969)

The site finally chosen was the one on the corner of North 8th and Main. It is a prime location and provides all the facilities and conveniences that any site in the area could. It is the least expensive of the sites located on the main avenues and provides the easiest parking facilities. It is also the closest and most easily reached site in respect to the university.

People driving down South 8th have a visual contact with this site that they would not ^{HAVE} with the other sites, thus it is a better advertisement. The site chosen is shown on the map of the city of Bozeman and is also blown up. The other three sites considered are also shown on the map.

Site analysis is much better but introductory could be better written.

Topography and Vegetation

The site slopes slightly from east to northwest, but does not vary more than a few feet. There are several full size trees including three willows, 1 pine, and several deciduous trees. Also found on the site are many small shrubs.

Soil Analysis

From talking to Don Barrick in the City Engineering Office, I have found that the site contains approximately 8 inches of top soil. Underneath the top soil is a thick layer of gumbo.

Adjacent Environment

There is no continuity in the architecture of the older buildings that surround the site and precedents will be set by the new structures which come in and those which have come in during the past few years. Fletcher's is a new and well designed building utilizing a large glass exterior, and also the Safeway store uses a large glass exterior with natural stone. The medical clinic uses a yellow brick facade with small windows. Joe's food store which is now being used by radio station KBMN is basically a green metal facade with large glass windows. These are the buildings which may have influence on the theater project.

The gas station, the bar, Burger Inn, the Siesta Motel, and Culligan's may all be replaced someday in the future. These buildings may not influence the design of buildings constructed in this area in the future, as might the other new structures, because of their age.

Traffic Patterns

There is an offset street pattern running north and south which forces north south traffic into an east west direction and

makes the crossing of Main Street difficult. The placing of traffic lights on the intersection of South 8th and Main has helped very little. It is for this reason and also to satisfy zoning regulations, that an attempt should be made to rent the parking lot which had been used for Joe's Foods. By the use of this parking lot, an entrance from Main will be provided approximately 100 feet further east of the intersection and will help facilitate traffic entrance.

Zoning Regulations

The site is located in an MB zone which has the following restrictions: (5)

1. Minimum set back on Main Street of 25 feet.
2. Minimum set back on North 8th of 15 feet.
3. Minimum side set back of 8 feet.
4. Minimum rear set back of 10 feet.
5. If more than one building is to be constructed on the site there must be a minimum of 16 feet between the buildings.
6. There must be a minimum of 700 square feet provided on the first floor.
7. 75% of the required front yard areas are to be in landscape.

8. All yards or portions thereof required to be in landscape shall contain a minimum of one living deciduous tree for each 400 square feet or fraction thereof of yard required to be in landscape. Such trees must be continually maintained at a height of eight feet or greater.
9. Theaters must have one parking space for each four seats provided or one parking space for each 30 square feet of floor area, whichever is greater.

Utilities

1. The water line runs east and west in Main Street.
2. The gas line is supplied from North 8th Street.
3. The sewer line is located in the alley.
4. The electricity is supplied from the alley.

AESTHETIC CONSIDERATION

The theater is a place of entertainment and a place that a person may go to escape the frustrations of our everyday life. Since the production^s, whether stage or cinema, are often an attempt to divert our thoughts toward other things than our own lives, then the building should portray this function. From the exterior the building should give us a feeling of being separate of our common activities and from the interior we should find that we have left our visible world behind and we are not visually conscious of it. We know from our experiences what a theater is, because we have attended them all our lives. We should be aware that this is a theater, but this need not be accomplished by using the stereotyped theater facade.

Because this theater is one designed mainly for live productions, and since live productions as a whole are not as popular as the cinema, the building must serve as an advertisement so as to make itself known. The theater must be intriguing, and should arouse a person's curiosity as to what is happening inside. The building should attempt to draw people into it. Rather than being just another local building. It should be visually marked as an outstanding building, it should be individual in its character and express itself as something special. It should be like the TWA terminal at Kennedy International Airport in New York, in

that it draws many customers because of its visual interest and the curiosity instinctive in the human being to draw him inside to see what that is like.

How shall these ends be achieved? The building should not be so entirely different from the surrounding environment that it completely dominates the scene. It should consider its adjacent environment so that it in fact compliments it. But the building must have a visual interest which will draw attention and curiosity. Since one of the functions of the building is to eliminate a visual relation into the building or out of the building through the walls, then an elimination of a glass facade may cause some interest or curiosity. The building is used primarily for nighttime entertainment which may lead into a consideration of exterior lighting to draw attention to it. With the proper designing of lights, one may be drawn visually to the building and then to the entrance eventually being led inside.

The building should achieve the goal of being an advertisement of itself, that is, it should call attention to itself as a theater. This may be accomplished several ways, one of which may be through the use of bill boards used as supergraphics. Another method may be through the use of other visual design elements. It would be nice to advertise itself other than with

the standard neon lights which say theater.

The interior should be playful, it should visually lead a person into the various areas into which he should go. He should be lead into the art exhibit area, the theater, and to refreshment areas. He should be made aware that these facilities exist. In the stage area his attention should be drawn to the stage and not toward the walls, the ceiling or the exits. The visual elements of this area should be subdued so that performances will dominate.

*This section is
better. seems toned
down.*

THE BUILDING: A THEATER FOR DRAMA

The subject matter of the building is the showing of a play. It will be a live performance employing all dramatic, artistic, and technical devices in an attempt to make the audience believe what they are seeing and credit the characters and the story as presented.

The visual components are the actors and the sets. All props and ~~and~~ elements in the production are made in the human scale. The actors wear costumes which depict the time and place that they are portraying. There is an attempt to appear realistic. Lighting is artificial, but is an attempt to conform to the mood of the lighting that is being portrayed. Lighting may be made to set the mood or a plot.

The major auditory components are the human voices themselves, without mechanical amplification. There are the sounds made to set a location, mood, or atmosphere. There may be music which is live or recorded, it may be vocal or it may be instrumental.

The routine in this intimate theater may be a standard three plays a week, Thursday, Friday, and Saturday evenings at 8:00 PM. This schedule may change, there may be only one showing a week, or there may be as many as eight showings including every evening and twice on Sunday during the summer theater. There will usually be two or three intermissions, but there may not be any for some shows or

there may be many depending upon the length of performance. The length of time of performance may vary from one hour to as many as three hours. The production will combine planning and direction and will require many rehearsals.

The audience is made up of people who will appreciate this type of entertainment. They will be business men, college professors and students, school teachers, and other interested people. The dramatic theater is the freest and most flexible form of visual entertainment. It is often the tryout ground for new ideas and techniques.

The seating requirements of this theater will be for a theater large enough to hold the number of people who will attend and keep the theater operating and small enough to keep the theater intimate. The number of people that will satisfy this requirement for the Loft Theater at the present and in the future is approximately 200 seats.

The Activities to be provided for

An actor will come before a director for whom he will try out for a part in a play. It will consist of the actor reading a set of lines first directly from a script and after memorization from memory. There may be several who will try out for the same part and each will be heard. Then others will be heard for other parts.

After an actor has been given a part he must memorize the script. This may be partly accomplished away from the theater, but will also be accomplished during rehearsals within the theater.

Shortly before a play is ready for opening night, the cast will hold a dress rehearsal. For this ~~each~~ must be fitted for a costume. They must be provided with a place to be fitted and a place to dress. The actors are then made up, lip stick and rouge are applied, masks are put in place, wigs are made and placed, and the actors are made ready for their performance on the stage. After the play ^{each} ~~is~~ must remove make-up and costumes before he is ready to return to the street.

1.0 Following is a list of the activities that are to be provided for in the design of a small intimate theater:

1.0 Dressing

1.1 Removal of street cloths

1.1.1 A place to remove them

1.1.2 A place to hang them

1.2 Changing into costumes

1.2.1 A place to change into costumes

1.2.2 A place to keep and store costumes

1.3 Application of make-up

1.3.1 Large mirrors

1.3.2 A place to set make-up

1.3.3 A place to connect electrical appliances

1.4 Washing before and after applying make-up

1.4.1 Sinks

1.4.2 Showers

1.5 Toilets

2.0 Trying out for a play

2.1 Actor prepares for tryout

2.1.1 Reads and memorizes portions of script

2.1.2 Recites memorized portions of script to director

2.2 Director listens to actors trying out

2.3 Director selects actors for parts

2.4 Director notifies actors chosen for various parts

3.0 Rehearsing of play

3.1 Actors rehearsals if before an audience

3.1.1 Perform as if before an audience

3.1.2 Will repeat lines many times

3.2 Actors requirements for rehearsals

3.2.1 Must have acting area equal to size of stage

3.2.2 Space provided for director, stage manager, and
author watching rehearsal

3.2.3 Space provided for other actors not on stage

3.2.4 Provision of levels and ramps and furniture
used during performances

3.2.5 Acoustical treatment of area so that actors
can project voices as they would during performances

3.3 Technical rehearsal

3.3.1 Lighting rehearsal

3.3.1.1 Learning cues for lighting changes

3.3.1.2 Use of same provisions as for stage lighting

3.3.2 Rehearsal of audio effects used with play

4.0 Dress rehearsal

4.1 Final rehearsal before real performance

- 4.1.1 Costumes are worn
- 4.1.2 Make-up is applied
- 4.1.3 Real stage is used
- 4.1.4 Pictures are taken for publicity

4.2 Final rehearsal of lighting crew

- 4.2.1 Rehearsing of lights with cues
- 4.2.2 Uses actual lights as will be used in final performance

4.3 Final rehearsal of technical crew

- 4.3.1 Using audio equipment with cues
- 4.3.2 Final adjustments of audio equipment for the performance

5.0 The performance before an audience

5.1 Stage manager and directors talk to cast before actors go on stage

5.2 Visual check by stage manager and director before actors appear on stage

5.3 Final review of lines by actors

5.4 Actors check themselves before a full length mirror

5.5 Actors gather socially

- 5.5.1 Between appearances
- 5.5.2 After completion of play

- 5.6 Making of edible props such as coffee, sandwiches,
and cakes
 - 5.6.1 Small oven and burners
 - 5.6.2 Small refrigerator
 - 5.6.3 Limited cabinet space
- 5.7 Lighting control
 - 5.7.1 Controlled from area with good visual appearance
of stage
 - 5.7.1.1 Contacting of control area by directors
and stage managers
 - 5.7.1.2 Contacted from areas used by actors
 - 5.7.2 Lighting for uniformity
 - 5.7.3 Spot lighting for highlights
 - 5.7.4 Lighting is colored for realism, mood, and atmosphere
 - 5.7.5 Lighting controlled according to cues by actors,
written into scripts
 - 5.7.6 Lights not seen as lights, stage appears illuminated
 - 5.7.7 Lights should not cause glare in seating area
- 5.8 Audio control
 - 5.8.1 Voices not projected by mechanical means
 - 5.8.2 Accoustical material and design should evenly
distribute sounds
 - 5.8.3 Sound effects and music
 - 5.8.3.1 Controlled from area with good view of stage
 - 5.8.3.2 Sound control in contact with directors
 - 5.8.3.3 Controlled by cues from actors in script

5.8.3.4 Controlled intensity of sound

6.0 Acting on the stage

6.1 Is an intimate production

6.2 Production places emphasis on human scale

6.3 Actors are in close contact with audience

6.4 Props carried on by hand

6.5 No curtain

6.5.1 Actors walk on with lights on

6.5.2 Actors take places while lights are off and
appear on stage as lights come on

6.6 Audience should feel like part of performance

7.0 Making of costumes

7.1 Actors measured for costumes and wigs

7.1.1 Podium for actors to stand on

7.1.2 Full length mirror

7.1.3 Measuring of actor for costume

7.2 Patterns made from measurements

7.2.1 Sizes taken from measurements

7.2.2 Drafting patterns on pattern table

7.2.3 Movement is all around working and pattern table

7.2.4 Cloth cut from patterns

7.2.5 Cloth is sewen into garments

7.2.5.1 By sewing machine

7.2.5.2 By hand stitching

- 7.3 Cloth is acquired for costumes
 - 7.3.1 Cloth purchased in bolts
 - 7.3.2 Cloth on hand dyed
 - 7.3.2.1 Dyeing materials kept in closed cabinet
 - 7.3.2.2 Supplies needed for dyeing; dye vats,
water supply, heat, drying racks
 - 7.3.2.3 Area for drying must be well ventilated
 - 7.3.3 Cloth may be painted
- 7.4 Storage of materials
 - 7.4.1 Cloth stored which is used for costumes
 - 7.4.2 Costumes which were used in previous plays
 - 7.4.3 Storage of scrap cloth
- 7.5 Lighting of area
 - 7.5.1 Color of lighting important for assimilation to
color of stage production
 - 7.5.2 Ease of vision while working
 - 7.5.2.1 Should be no shadows
 - 7.5.2.2 Uniform level of 25 foot candles on
working areas (1, 1964, 16)
- 8.0 Making of scenery
 - 8.1 The design of scenery
 - 8.1.1 Drafting of designs
 - 8.1.2 Construction of models of design
 - 8.1.3 Storage for sketches, drawing equipment and
models

8.2 Construction of scenery

8.2.1 Working on work bench

8.2.1.1 Measuring materials

8.2.1.2 Cutting of materials

8.2.1.3 Assembly of scenes

8.2.2 Electric power for power tools

8.3 Storage for materials

8.3.1 Wood

8.3.2 Chicken wire

8.3.3 Canvas

8.4 Storage of power tools

8.5 Storage of previously used scenes

8.6 Painting of scenes

8.6.1 Must be well ventilated for drying and removal of fumes

8.6.2 Attached to stabilizer for painting

8.7 Lighting of area

8.7.1 Color is important for assimilation to stage lighting

8.7.2 Should be no shadows on work area

8.7.3 Uniform lighting of 25 foot candles in work areas (/ , 1964, 32b)

9.0 The audience and public activities

9.1 Purchasing of tickets

9.1.1 In advance

9.1.1.1 Outside of theater

- 9.1.1.2 At theater
- 9.1.2 Purchasing at theater immediately before a performance
- 9.1.3 Activity should be shielded from weather
- 9.2 Entrance into theater
 - 9.2.1 Waiting for other in a group after entrance
 - 9.2.2 Waiting for play to begin
 - 9.2.3 Checking of individual tickets
 - 9.2.4 Checking of coats and hats
- 9.3 Seating of people
 - 9.3.1 Ushers take tickets
 - 9.3.2 Ushering individuals to seats
 - 9.3.3 Individuals being seated
 - 9.3.3.1 Seating should be easily accessible
 - 9.3.3.2 Seating should be comfortable
- 9.4 Viewing of play
 - 9.4.1 Should be no visual obstruction of play
 - 9.4.2 Viewing before play begins
 - 9.4.2.1 Illumination at a uniform 15 foot candles so patron can find seats and see freinds.
 - 9.4.2.2 Illumination for decorative purposes
 - 9.4.2.3 Lighting subdued before play begins, when all have been seated

9.5 Hearing the play

9.5.1 Actors voices projected satisfactorily to all
areas of audience

9.5.2 Areas should be free of foreign noises

9.5.2.1 Outside traffic

9.5.2.2 Ventilating and air conditioning noises

9.5.2.3 Other background noises

9.6 Play intermissions

9.6.1 People leave seats

9.6.2 People congregate to talk and have refreshments
of coffee, cake, and candy

9.6.3 Going to washrooms

9.6.3.1 Women to powder faces, smoke and toilet

9.6.3.2 Men to smoke and toilet

9.6.4 Telephoning

9.6.5 Return to seats unushered

9.7 Exiting the theater

9.7.1 Leaving seats

9.7.2 Waiting to be picked up by car

9.7.3 Leaving the theater

THE BUILDING: A THEATER FOR MOTION PICTURES

The building: a theater for motion pictures

The subject matter of the motion picture theater is the display of films of an artistic nature. They will be foreign films and domestic films, but may not be necessarily the standard type which is most often seen at the Ellen Theater in down-town Bozeman.

The visual component of the movie theater is the screen. It is placed before the audience and on it is displayed, through the use of a projection camera, the movie. The auditory system is the loud-speaker, the sound being amplified from the sound track of the film.

The schedule of shows will vary by what plays will be running during the same period of time. The movie and the play will run on different nights or if on the same night, they will be seen at different times. If the films are less than two hours in length, there will be two showings an evening. If the films are longer than two hours in length, there may be only one showing.

The audience for the movie theater will draw from the same sources as the audience for the play, but will also extend to more people in more walks of life. The movie is a more popular form of entertainment. There will be a larger number of interested people in the movie theater, plus its location to the campus in

respect to the other two Bozeman theaters, might increase the attendance. The type of movie being shown in this theater is not, however, as popular as that which is normally shown at the Ellen, thus will draw less than what the Ellen might for an evening performance. The Rialto, which on occasion does play a foreign or art film, often fills to capacity for a showing and repeats filling to capacity for several evenings. The Rialto has a seating capacity of near 300 while the Ellen more than doubles this.

The activities of the movie theater

To satisfy the functions of the movie theater the following activities must be considered:

1.0 The arrival of films

1.1 Films arrive at theater

1.2 Films are delivered to theater manager

1.3 Films are taken to projection room for storage until
used

2.0 The projection room

2.1 Booth controlled by one man

2.2 Projection room contains space for

2.2.1 Operator

2.2.2 Two projectors

2.2.2.1 Wall contains hole through which picture
is projected

2.2.2.2 Wall contains holes through which projectionist
sees movie and can adjust focus

2.2.3 Small storage compartment

2.2.3.1 For films

2.2.3.2 For tools and equipment

2.3 Comfort for projectionist in room (spends two to five hours in room)*

2.3.1 Air conditioning

2.3.2 Ventilating

2.4 Sound proofing the noise from the projection booth

2.5 Lighting control

2.5.1 Lights dimmed before movie begins

2.5.2 Lights brought to intensity during intermission

2.5.3 Lights brought to intensity as show is ending

2.6 Audio control

2.6.1 Music played before, and after showings

*The national codes for projection-room ventilating require 1) that there be a motor-driven exhaust fan with ducts to remove the heat from the projection machines, exhausting a minimum of 50 cubic feet per minute from each machine; and 2) a second exhaust fan to ventilate the projection room requiring 12 to 20 changes of air per hour. The discharge ducts of these fans must be carried directly out-of-doors. The film cabinet must have a capacity of 50 lbs. or more of film and is also required to be provided with a vent directly to the outside of the building. The rules of the National Board of Fire Underwriters states that the "ventilation of the projection-room area shall not be connected in any way with the ventilating or air-conditioning system serving the rest of the building." (4, 1938, 321)

2.6.2 The sound control of films sound track

3.0 The viewing of picture on screen

4.0 The activities of the people

4.1 Purchasing tickets

4.1.1 Tickets bought at door before show

4.1.2 Activity should be shielded from weather

4.2 Entrance into theater

4.2.1 People wait for friends before being seated

4.2.2 Collecting tickets from patrons

4.3 Refreshments purchased

4.3.1 Popcorn

4.3.2 Soft drinks

4.3.3 Candybars

4.3.4 Area for refreshments must hold 40% of audience

(1, 1964, 51)

4.4 Patron enters seating

4.4.1 Patron walks down aisle and crosses to seat

4.4.2 People should not have to stand for people
crossing through row to seat

4.4.3 Seats should be comfortable

4.5 Watching of movies

4.5.1 Viewers should not have to look around obstacles

4.5.2 Considerations in spectators viewing

4.5.2.1 Horizontal angle requiring no eye move-
ment is 40 degrees and should be greatest
angle of vision of spectator

4.5.2.2 A person should not see screen which has an angle of less than 60 degrees, 90 degrees is best angle of vision

4.5.2.3 After an angle of 30 degrees is reached between direction of sight and screen, the ability to recognize shapes begins to fall off rapidly

4.5.2.4 A maximum angle of 12 degrees should be used between line of motion picture projection and screen (1, 1964, 63-65)

5.0 Visibility within the theater

5.1 Amount of light necessary for person to find a seat is 15 foot candles (1, 1964, 73)

5.2 When feature starts lights are dimmed or out

5.3 Small lights may be used near the floor of the aisles so person may enter or exit during feature

5.4 Luminous guide lines and tread edges in the carpet, activated from ultraviolet sources, promote safety with minimum distraction (1, 1964, 73)

5.5 Exit doors must have exit signs over them

5.5.1 Locate exit so that it is seen but not distracting

5.5.2 Blue exit lights are least distracting

6.0 Listening to the movie

6.1 Audience should hear only what it wants to hear

6.1.1 The dialogue on screen

6.1.2 The music and other background noises from

soundtrack

6.1.3 Not the sound

soundtrack

6.1.3 Not vehicles or noises from outside theater

6.1.4 Not the sounds of air conditioning or ventilating equipment

6.1.5 Not sounds from projection room

6.2 Sounds from soundtrack should be evenly distributed at comfortable levels

6.3 Sounds should appear to have their source on the screen

7.0 Rapid public exit

7.1 To provide time for people waiting next showing to enter

7.2 To provide clean-up to begin after last show

OTHER ACTIVITIES

other activities

- 1.0 The art gallery
 - 1.1 Display of art and sculpture to be sold by local artists
 - 1.2 Display of traveling art exhibitions
 - 1.3 Lighting of art gallery
 - 1.3.1 Should be uniformly indirect
 - 1.3.2 Various spotlights for highlighting
 - 1.4 Display area should not distract from paintings
 - 1.5 Method for hanging paintings
- 2.0 Paper work
 - 2.1 Activity located near entrance
 - 2.2 Activities to take place
 - 2.2.1 Reading of scripts
 - 2.2.2 Reveiwing recent films
 - 2.2.3 Discussions of play castings
 - 2.2.4 Leasing display areas for paintings
 - 2.2.5 Figuring of income and expenditures
- 3.0 Operating of mechanical equipment
 - 3.1 Ventilating and air conditioning equipment
 - 3.2 Electricity
 - 3.3 Water supply
 - 3.4 Disposal of waiste and garbage

4.0 Cleaning

4.1 Scrubbing and washing

4.2 Sweeping

4.3 Vacuuming

4.4 Dusting

4.5 Polishing

4.6 Waxing

4.7 Disposal of garbage

4.8 Changing lightbulbs

4.9 Servicing of equipment

5.0 Care of exterior areas

ECONOMICAL CONSIDERATION

The director of the Loft Theater, Prof. Joseph Fitch, feels that for \$75,000, the Loft Theater could have a new building within which it could support itself. The theater need not be much more than a room in which the performance could take place and also seat 200 people.

For the sake of economics two other functions have been incorporated into the structure. A movie theater may provide an activity that will extend the use of the building to everyday, thus allowing the opportunity for income to be greater. The addition of the art gallery is to provide a functional activity to be gained in areas that people may otherwise only pass through, or standing during intermissions.

A cost feasibility check is calculated below.

Building cost including property

Property cost	-----	\$68,000.
Dramatic theater	-----	75,000.
Addition for movie theater	-----	<u>25,000.</u>
		\$168,000.

A 20-year loan is taken at $7\frac{1}{2}\%$ interest per year

Cost of first year equals

$$\frac{\$168,000}{20} + 75\% \text{ of } 168,000$$

$$\$8,4000 + 12,600 = \$21,000 \text{ for the first year}$$

Operation and maintenance estimate

Approximately \$120 per month

\$14,400 per year

Cost of productions

Materials for plays at \$100 per play

9 plays per year ----- \$ 900.

Cost of movie rentals at \$100 average per movie

100 movies per year ----- 10,000.

Payment of performers ----- 15,000.

Many technicians and other

helpers are donating their

time.

Payment of employees including

janitors and projectionists ----- 20,000.

Advertisements ----- 1,000.

\$ 46,000.

Total expenses

\$21,000.

14,400.

46,900.

\$82,300.

Possible minimum intake

Play runs 3 nights a week over 12 weeks

during winter quarter -----36 nights

Play runs 5 nights a week for 10 weeks

during summer theater -----50 nights

Total 86 performances

Dramatic theater holds 200 and tickets are \$1.75 each

Movie runs each night there is no theatrical performance

365-86 = 279 days of movies

Approximately 225 will show twice an evening

Approximately 54 will have only one performance

Total 225 + 225 + 54 = 504 performances

Movie theater will hold 300 and tickets are \$1.00 each

If the average were 50% capacity the income would be

$$86 \times 100 \times \$1.75 = \$15,000$$

$$504 \times 150 \times \$1.00 = \underline{\$75,000}$$

\$90,000 per year

*Looks good
Did you have to
use a fudge factor?*

SUMMARY

The theater, having to satisfy two purposes, had to satisfy two sets of visual requirements. To be a successful movie theater, certain sight limitations placed restrictions on the seating arrangement. Yet as a dramatic theater, the program called for an intimate audience - actor relationship, bringing the audience as close to the stage as possible and surrounding the stage to the greatest extent maintaining both purposes. Considering the limitations a near three-quarter circle theater of the Elizabethan type was designed. With a deep set stage the second function of a movie theater was also satisfied, since all the people could then be within the 60° sight angles desirable in this type theater.

The deep set stage then satisfied a third function, which is now coming into a popularity with the creation of the small intimate theater which often operates on a very limited budget. This is the use of blisters which house projection equipment similar to that of an overhead projector for blowing scenes from transparencies to translucent screens used as backdrops. This cuts the cost of making large scenes, allows the ceiling to be dropped since this space is not necessary for scenery to be stored and also needs less other storage space.

Thus the theater itself is designed from a purely functional standpoint, and all other functions have been designed around this and in relation to it. The public entrance has been located on the

corner of the property so as to have a visual relation both with Main Street which is to the south and with the theater parking lot located across the street to the east. Upon entrance to the theater, all public functions are immediately at hand. To the left is the coat room, which permits the public to hang their own coat, eliminating the hiring of additional help for this purpose. To the right is the refreshment area and the toilets, and beyond is the Art Gallery which doubles as a lobby during intermission. No one need approach the actors areas for any of the public's functions.

The actors are given a separate entrance to their areas from the outside and also provided with a patio which they can use while not on stage, for the purpose of smoking or catching a breath of fresh air. This area opens directly from the Green Room. The Green Room also leads directly to the stage and the dressing rooms also are provided with direct entrance to this area.

Scenery manufacturing is located on the same floor as the stage so that heavy or bulky objects need not be transported up or down stairs to the acting area. Old scenery, however, is stored in the basement. The basement also provides the function of costume manufacturing with a stair case entering directly off the green room with the function of measuring located immediately at the costume room entrance so that an actor need not come in contact with the manufacturing operations. A specific room is set aside for the dyeing of cloth and must be well ventilated.

The Art Gallery is the final function provided in the building

and has its own entrance to the outside as well as an entrance from the theater. The outside entrance is for use during the day when the theater would normally not be in operation, but the gallery would be open. The theater offices are immediately adjacent, and open onto the gallery so that the secretary would have visual control over the area, again providing a dual purpose so that another employee would not be needed.

The major difficulty with the project was the structural framing of the roof, which by necessity had to span the large opening of the theater and also reach a high point over the stage. This was accomplished by providing two major girders spanning the length of the theater and from which the rest of the roof is supported. The structure is further explained on the drawings.

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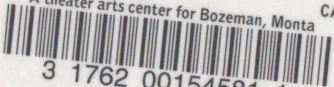
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