CINERAMA
MUNCIE, INDIANA

ARCHITECTURAL THESIS

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The primary purpose of this program is define the perimeters of the project. In no way should this program be thought as a total and complete 'problem definition.'

In the context of this program includes an introduction, statement of goals, organizational data, space requirements, and other information.

The introduction consists of background data, a short history, scope of program, and active participants. The background information deals with general information about Muncie and its movie theaters. An industrial outlook is included which states that Muncie is a good investment.

A short history is given within the introduction. From the past, one can see how responsive theatres have been to design; also it states that today most theatres are just big boxes. Another section of the introduction deals with scope of program. The primary purpose of the scope is to define the boundaries and limitations of the project. Lastly, within the introduction is a list of all helpful participants to the project.

One of the major chapters of this program is a statement of goals. The goals are categorized by users. Goals aid in giving the project direction and meaning.

The chapter dealing with organizational format helps to define the system of command. The structure of this format is only one alternative to an organizational structure.

One of the most important parts of this program are the space requirements. Within the space requirements, users and their activities are respectively defined and explained. Also within the format of space requirements is a description of space performance and standards. Each space type is evaluated and allocated an approximate area.

Spaces are then diagramed to show their relationships to each other. The relationship diagram helps to illustrate the line of communication.

Preliminary, cost breakdown and space tabulation are also a part of this program. The total net assigned space is 97,948 sq. ft. The total gross area is 150,700 sq. ft.
The building cost has been estimated at a cost of $9,050,000. The total construction cost is $12,220,000.

Also, the following information is given: building and exterior criteria, site data and appendix.

There are several basic assumptions that must be made upon starting any initial design. Several issues that must be considered are predicted growth around the site, circulation, entrance, and building orientation.

The site is surrounded by two corn fields to the north and south. The northern field is owned by Ball State University; it has been contemplated that this area be used for a hotel facility. The hotel would be somewhat elegant in nature. The field south of the site is zoned for residential. The site and the project must somehow be responsive in a positive way to this new growth. The site must also be responsive to the commercial node located northwest to the site. One may speculate that the transition on the southside from site to residential would be somewhat passive in nature. On the other hand, the transition on the northside is less private; catering to a more active space in a commercial type setting.

Because of the location of the site, traffic headed westbound on McGalliard is not able to cross over onto the site. The existing site only allows entry only on the corner of McGalliard and North Chadam Lane, and McGalliard and Everett Road. Because of existing traffic on McGalliard and easy visibility to the site, a main entrance seems most practical. Secondary, access seems possible on Everett and Bethel.

There are some possibilities where the mass of the building may be placed. The building may be located on the west corner of the site. One main advantage on this configuration is that it utilizes the awkward corner and allows parking behind the mass.

Another favorable location the mass is in the center. This location utilizes the highest point on the site, easy visibility and accessibility on all sides. It seems that this is the most favorable location on the site. There are other alternatives on the site but they offer less opportunities.
The program can be arranged in several different ways. Cinerama can be organized as a single centrodial plan. The main exhibition space can act as the central node; all other spaces surround the node. The centrodial plan seems somewhat awkward.

The triple centrodial plan can be used. Theatres, university facilities, and the exhibition hall are used as the three nodes. This type of arrangement works well within the site. Each node has the ability to have its own identity and entrance.

Another important issue in the program is the experimental theater. The experimental theater may be a part of the exhibition space or a separate entity. If the experimental theater is a part of the exhibition space, it is most likely to be on a temporary basis. The exhibition space must be able to accommodate or adapt to productions for the experimental theater.

The primary function of the cinema is the projection of 35mm. There probably will be three or four cinemas within the total program of Cinerama. The individual cinema must be able to convert into one single theater for the projection of 70mm and 75mm films. Seats, screens and the entire environmental requirements must be able to combine into one system.

The enclosure system for the project needs to be taken into consideration. The enclosure shell of this project may have connotative meaning, such as monumentality and tranquillity. Due to the fact the program contains the exhibition space and the university facilities, the outer shell should have some academic atmosphere.
The scope of the program is to aid in defining the project. One may define the project by users, activities, location and size.

The users of Cinerama will be Merchants, Management, Students, Faculty, and the general public.

The Merchants will vary with respect to the type of business. But each type of business will have some relationships to the audio/visual industries; the relationships may be defined in terms of technological recreational or leisure activities. Merchants will have retail shops within the premise. The largest opportunist of the project will be the cinemas which will be able to convert into one large auditorium.

The Management of Cinerama will be responsible for the entire building. It is also responsible for the scheduling and maintenance of the exhibition space. The Management Department is in charge of the maintenance and security for the project.

The students and faculty of the Center for Radio and Television will be the primary users from Ball State University. The faculties within Cinerama used by the center should be an extension of the faculties and equipment at the center at BSU.

The general public will visit the Cinerama for several reasons. People will be visiting the exhibition space and the experimental theatre. Also they will be visiting retail shops, the cinemas, and public services.

The activities that take place within Cinerama are directly correlated to users. Some of the activities that will be taking place are: retail shopping, window shopping, displaying of audio/visual equipment. One may visit the exhibitions, experimental theatres, or one may visit the cinemas. The students of the center will be producing, directing and developing audio/visual presentation and projects.

After a preliminary analysis on different sites, a triangular plot of land on West McGalliard was chosen. See "Site Data" for descriptive location. The land was chosen for its proximity
to a commercial node and Ball State University. The site is in walking distance for most BSU students. A campus route can be easily alternated to make scheduled stops by the facilities.

McGalliard Road supports much of the commercial business in Muncie; it also serves as a main artery for vehicular traffic. West McGalliard is used as a by-pass for many commuters in central Indiana.

The site may be seen as a transition from local commercial to an academic environment.

The following information are excerpts from the program Cinerama. Within the original program users and their activities are respectively defined and explained for each space within the project. Also with the format of space requirement is a description of space performance and standards. Preliminary, cost breakdown and space tabulation are also a part of that program.

The total net assigned space is 97,948 sq. ft. The gross area is 150,700 sq. ft.
According to the Bureau of the Census and Trade Administration, Motion Picture Association of America an 8 to 10 percent annual growth rate is predicted in gross box office receipts. Box office receipts should reach a record high of 3.3 billion dollars this year. Receipts should steadily climb to an estimated 4.4 billion by 1984.

With this type of steady growth in the motion picture industry, it seems reasonable that Muncie can share in this growth.

There are 3,572 commercial movie screens in operation today, but only 20 percent of those screens are multi-screen operations. The state of Indiana has less than 10 multi-screen operations. Also large, wide screens are very rare in Indiana. The Muncie area has no multi-screens. The film promoters of Muncie all agree that there is a demand for wide screens in Muncie.

Also, other positive aspects for the growth in the audio/visual media are new advancement in technology. Such advancements are the development of the millimetre, optics fiber, video tape, and films. During the 1980's, one should see price drop for equipment.

One important factor that will support such a project is Ball State University. Within the University exists the Center for Radio and Television. The center has long recognized the appeals which the media has upon the mass audience, and the important part which the media plays in our everyday lives.

The center has already outgrown its facilities. The project of Cinerama should serve as an extension of the center. It should encourage learning by a "hands on approach."

Cinerama may have a built in work force program and summer internships to allow students to gain an insight into actual work situations.

With the help of Ball State University, Center for Radio and Television, Technological and Industrial growth and a good location, Cinerama should have an excellent chance of success.
Within its short history, the motion picture house has gone through several changes. At the turn of the century, there was not a building in the world devoted exclusively to cinematographical use; thirty or forty years later, cinemas could be found in almost every major city or town. The motion picture house became a common part of the urban environment and the American lifestyle. Buildings for the movies were articulated by distinctive facades and elaborate interiors.

The first motion picture cinemas were converted theatres. Cinematography was a new state of the arts; films were short and silent. Music was choreographed to the film and played on a piano or organ. The entrance fee to the converted shop premises was usually a penny in Britain hence the generic term "the penny gaff"; Patrons paid a nickel in the states and the premises were known as "nickelodeons."

The first theatres were just simply converted from theatrical theatres or music halls. A typical theatre would usually include an auditorium, pavement paybox, exterance hall and stage area. Stage area was used for small productions between films.

With the introduction of sound to film or 'talkies' theatres became more than a mere extension of the conventional theatre. Facades, entrance halls and foyers were articulated more elaborate. Theatres had the tendency to be more decorative in schemes in relationship to the auditorium. Some theatres included restaurants and ballrooms as part of the movie theatre.

Within the United States there were basically two schools of thought about movie building themes, Neo-Classical Forms and Atmospheric environment. Neo-classical movement was initially advocated by Beaux-Arts tradition. The Roxy 1914, designed by Thomas W. Lamb typified the Neo-Classical movement. The Roxy was one of the first major luxury picture theatres. The following is an brief description by Ben Hall of the Roxy in The Best Remaining Seats:

"Guilt and Marble and deep pile rug, crystal chandeliers hanging from the ceiling and original art works on the walls, with luxurious lounges
and comfortable chairs, a thirty-piece symphony orchestra... and a mighty Wurlitzer.'

Then, on the other hand, architects like John Eberson and C. Howard Crane advocated theatres that were atmospheric in nature. Many of the interiors of the auditoriums had the tendency to be a somewhat exotic and romantic environment. Eberson's interiors were very flamboyant in style.

"We visualize and dream," he once wrote, "a magnificent amphitheatre under a glorious moonlit sky in an Italian garden, in a Persian court, in a Spanish patio, or in a mystic Egyptian temple-yard, all canopied by a soft moonlit sky."

Later during the 1930's, some architects started to break away from the restraints of classical detailing and the day dreams of atmospheric schemes. Many designers felt that the movie picture house should reflect the uniqueness of the film medium and the spirit of the times. Harry W. Weedon, the Birmingham architect, helped in establishing new forms for the modern movie house. Many of Weedon's designs for the Odeons possessed the quality of verticality and streamlining. Oden Theatre, Morecombe, 1937, typified the works of Harry W. Weedon.

But in 1945, one can see a decline in the number of cinemas being built and a decline in the quality; this is usually attributed to the advances made in television and home entertainment. Today, the buildings used to house the presentation of a programme of films has too often been considered irrelevant. Most cinemas have a simple external appearance except in some instances where the facade may be given special treatment. The buildings of new cinemas and the re-vampin of older buildings today appears inadequate to meet the requirements for visual and audio entertainment and for the expanding needs in education and instruction. It is the purpose of this program to bring back the color and the excitement of the picture palace, and to satisfy the needs in audio and visual communications.
Many people and organizations were very helpful in preparation for this program. The list of people below are persons who were very influential in the programming and who can be very helpful during the design phase.

DISTRIBUTION

April Fools Distributing
Film Art Building
636 Northland Blvd.
Cincinnati, Ohio 45240
(513) 351-5700

American International
620 Illinois Blvd.
Indianapolis, Indiana 46204
(317) 634-4952
Tom Goodman

National Programming Co.
P.O. Box 450
South Bend, Indiana 46624

Twentieth Century-Fox
7002 N. Graham Rd.
Indianapolis, Indiana 46220
(317) 842-2203
Robert Meyer

United Artists
7002 N. Graham Rd.
Indianapolis, Indiana 46220
(317) 849-2914
R. Brown

W. D. Releasing
503 Investors Trust Bldg.
Indianapolis, Indiana 46204
(317) 634-2753
Silly Sorrell, Bill Daurelle

Zipp Film Distributing
718 N. Senate Ave.
Indianapolis, Indiana 46202
(317) 636-5131
John Holokan, Larry Diebold
EQUIPMENT

Evansville Theatre Supply
2274 E. Division Street
Evansville, Indiana 47711
(812) 476-6410
John Stumpf

Ger-Bar, Inc.
339 N. Capitol Ave.
Indianapolis, Indiana 46204
(317) 634-1727
Ben Hopkins

Projection Equipment Co.
P.O. Box 443
Union City, Indiana 47390
(317) 964-5181
George and Joe Wenger

MANUFACTURERS

American Can
24th and Dixie Ave.
Easton, PA. 18042

Ansell Simplex Ticket Co.
1852 Pickwick Ave.
Glenview, Illinois 60025
(312) 729-9026
Harold Rohde

Brulin and Co. Inc.
P.O. Box 270-B
Indianapolis, Indiana 46206
Ernest Funkacey

Crown Amplifiers
1718 Mishawaka Road
South Bend, Indiana 46514
(219) 294-5517
James Beattie

Princeton Farms
P.O. Box 319
Princeton, Indiana 47670
(812) 365-5227
Sani-Serv
1350 Stadium Drive
Indianapolis, Indiana 46207
(317) 635-5440
Gabe Aguirre

PEOPLE IN MUNCIE THAT WERE BENEFICIAL TO PROGRAM.

Ball State University
School of Architecture and Planning
Muncie, Indiana 47306
David Hermansen and Sonny Palmer

Ball State University
Center for Radio and Television
Muncie, Indiana 47306
Thomas Tomlinson

Movies at Muncie
Muncie Mall
Muncie, Indiana
(317) 284-4100

Muncie Mall, Management Office
3501 Granville Ave, Muncie
(317) 282-2121
Sherry Limber

Muncie Mall, Merchants Assoc.
8501 Granville Ave, Muncie
(317) 289-5435
Mary Mauger

Northwest Plaza Cinema Theatres
Northwest Plaza
Muncie, Indiana 47304
(317) 289-7200
James Jones
GOALS

Defining goals aid in bringing about a better perspective on a project; they help in efforts of the programmer and the designers in indicating what the project is trying to accomplish.

Goals may be classified according to the type of the users. The goals of this project are classified into: merchants, academic sect, management, and the designer.

MERCHANTS

• To improve public image and to show that business is very interested in building our community.

• To serve as a showcase for audio/visual equipment and its related technologies.

• To serve as a culture center for audio/visual industry in its surrounding area.

• To allow for growth in retail shops related to audio/visual equipment.

ACADEMIC SECT

• To provide programs for those who seek educational opportunities.

• To provide students, who are in the center for radio and television, a good understanding of the practical applications of the various medias.

• To provide learning through a "hand on" approach.

• To inform surrounding business in topics such as audience research, performance, production, programming, media sales, and other activities.

• The whole project should be an educational tool for the general public and special groups. Some possible groups could be local schools, College of Architecture and Planning, Art Department, and other groups.

• To allow growth with respect to educational needs.
MANAGEMENT

- To provide amusement, entertainment and recreational services through the motion picture industry and all of its' related arts and sciences.

- To provide the facilities for trade shows, special movie presentation, exhibitions, and student works.

DESIGNER

- The design of the building should try to recapture some of the aural excitement and entertainment of the Magic Picture Palace of the past.

- When developing the project, designers must keep in mind the needs of the handicapped and small children.
Organizational Data
One must have a good understanding of the structure of an organization. By defining the organization, a programmer can understand how users are related to each other.

The organization of this project may be divided into three technological structures: Industrial Management, Business Administration, and Academic programs and services. Each technological structure can also be described in terms of social structure. The relationships between individuals and groups are the integral parts of the social structure of a project.

The purpose of Industrial Management is to manage and care over the total structure. Industrial Management may be subdivided into departments: Management and Maintenance.

The management department's primary purpose is to control and the management of the common exhibition/mall area. Directors of Management will schedule the use of the exhibition space to exhibitionists, merchants, and students. The advertising manager within the department will promote most of the activities held. The advertising manager will have a staff of art editors, printers, production technicians working under him.

The Maintenance Department's main function is the upkeep of the grounds and the building. Maintenance Department may be subdivided into two crews: Grounds and Custodial. The Custodial Crew will only be responsible for exhibition area.

The social structure of industrial management may be thought as a tree type chain of command. Management and Maintenance are at the top of rank of command. Each Department will have its' staff under their command.

The primary functions of Business Administration is to lead and preside over itself. The Merchants Association will serve as the spokesman for the business community. The Merchants Association will consist of association offices and members.

The social structure of the Business Administration may be thought as a circular chain of command. Association offices only serve the merchant association; they have no rank. Offices, Merchants, Owners, and others should be thought
as equal counterparts.

The primary function of Academic programs and services are to provide education in the mass media. The services and facilities will be an extension of the center for Radio and Television. There are two basic departments: the Center and Public Services. The Center will consist of Department Heads, Faculty and Students. On the other hand, the Department of Public Services will deal with the public and other departments on campus.

Students may form a chapter association of the audio/visual arts. Members will include faculty, students, and public.

The social structure of the academic programs and services is a very complex system. BSU will be the administrator for the center. Public services are self generating. On the other hand, the center will preside over its faculty and student.

Students are well as faculty should have all lines of communication open to them.

The following diagrams help to explain the total organization of the project.
INDUSTRIAL MANAGEMENT

- Management Department
  - Marketing Dept.
  - Directors
  - Staff
  - Advertising Mgr.
  - Production & Display
    - Art Editors
    - Editors
    - Printing Services
    - Production Techn.

- Maintenance Department
  - Director
    - Staff
  - Supt. of Grounds
    - Crew
  - Custodial Supt.
    - Crew
  - Supt. of Security
    - Crew

BUSINESS ADMINISTRATION

- Merchants Association
  - Assoc. Officers
    - President
    - Vice President
    - Secretary
    - Treasurer
  - Members of Assoc.
    - Owners
    - Merchants
    - Dept. Representatives
    - Franchise Representatives
    - Managers
    - Public
    - Others

- Financial Institution
  - Officers

ACADEMIC PROGRAMS and SERVICES

- State Board of Education
- Ball State University Administrative Organizations
  - Board of Trustees
  - President of University
  - University Senate
  - Others
- Center for Radio and Television
  - Director for Center
    - Staff
  - Director for Public Services
    - Staff
    - Dept. Architecture Repr.
    - Dept. Art Repr.
    - Public
    - Others
- Faculty
- Chapter for A/V Arts
  - Faculty
  - Students
  - Public
- Students
Space Requirements
SPACE STANDARDS:
CINEMA SEATING
SPACE

USERS

Users of the auditorium will be public patrons, ushers, stage entertainment and any special users such as the handicapped and small children. The audience of the auditorium may be classified into two main groups: people that will be seated on the lower floors and people seated in the balcony. Both groups shall be looked at as separate entities.

The theatre patrons with the possibilities of carrying coats and food will be walking into the auditorium and searching for patrons seats. The movie patrons in the balcony may be required to walk up a flight of stairs. The handicapped person must be able to reach, by ramps or some other means, the lower floor and the balcony.

Ushers who will be consistently walking within the aisles will be helping people to their seats. The services of the ushers may be used during any intermission or directing heavy traffic in or out.

One may consider the circulation within the auditorium for the most part as a cyclically pattern of movement. During a typical day and night cycle a maximum of 6 showings at 2 1/2 hours each may be shown. For each showing or production movie, patrons will be going through the routine of finding seats, the possibility of leaving and re-entering the auditorium for food, intermission and the restrooms, and of exiting totally from the auditorium. It should be kept in mind that a smooth transition of entering and exiting is desired.

During the waiting for 'curtain time', management may desire to have entertainment for the public. The most portable type of entertainment will be acts that will require very little equipment or environmental requirements; for example such acts could be singing, magic shows, skits and other similar acts. Acts may be provided by local schools and universities.

SPACE PERFORMANCE

CINERAMA
Some issues to consider are the views of the movie patrons, behavioral aspects, and the sizes and shapes of projected picture. Other considerations for space performance should include performance of corridors, ceiling, floor, walls and chairs.

Each individual must have a clear unobstructed view to the screen. Floor slopes, balcony pitches, and seat positions should be designed so as to provide this unobstructed view of the entire performing area.

To provide a suitable viewing angle for the viewer, one must plan for theatres primary function, yet it must be adequate for its secondary functions. Space must be able to project images of 35mm, 70mm, and 75mm films. The theatres primary function is the projection of the 35mm film. The use of other types of projection should be taken into consideration as possibilities for secondary functions.

There are many noticeable behavioral patterns that take place within the theatres. The people within a cinema will try to spread themselves so that their personal space is not interrupted. The patrons will also place coats to mark boundaries between themselves and others. The people within the cinema should have the option to group themselves according to their sense of personal space. In other words, people should be able to space themselves so they don't feel over crowded.

As stated before, the primary function of the cinemas is the projection of 35mm film. There will be three or four cinemas within the total structure of Cinerama. The individual cinemas must be adaptable to a grand projection of 70mm and 75mm films. In other words, all individual cinemas must be able to combine into one single theatre for a special presentation. Seats, screens, and the entire environmental requirements must be able to combine into one system.

There are areas where standards must be considered so one may allocate the required space.
In setting standards for seating, one must consider floor slopes, balcony pitches, and seat positions. The most important factor for determining seating is the elimination of objectionable screen obstruction caused by persons seated in front of the viewer. The general accepted criterion for sight-line clearance design is known as two-row vision. In two-row vision persons see through the gap between the spectators one row in front of him and over the head of the person two rows in front. The technique of two-row vision is used most commonly in cinemas.

For the use of special presentation, such as 70mm or 75mm, a one-row vision method may be used. In one-row vision the person is required to see over the head of the person seated in the row in front of viewer. The method of one-row vision requires steep floor pitches and steps. One-row vision is most commonly used in the projection of 70mm and 75mm. In using one-row method, a slope may be a minimum of 100 to a maximum of 350; the actual slope would depend on the height of the screen. Some seating using a two-row method will require some slope.

Depending upon manufactures, the width of the chairs within the auditorium will vary. Standard widths of chairs are 19, 20, 21, 22, and 24 inches. An approximate value for the area which a person will occupy is 6 sq. ft. The value may be increased if additional space is added for providing a walkway in between each row; hence the area per person may become 8 sq. ft. The minimum spacing between rows should be 34 inches to a maximum of 42 inches between rows.

Corridors or gangways must be clear of all obstruction by doors, coat racks, and radiators. For cinemas containing over 500 persons corridors shall be given 2 sq. ft. of gangway for each person attending.

A rule of thumb for determining the minimum distance from the screen to the first rows of seats is a maximum of 330 from the top of the screen to the viewer’s eye.

Picture shape and viewing patterns are determined by fixing visual standards that enable each viewer to see the picture
satisfactorily. The picture must appear undistorted and its' details discernible. The quality of the projected picture affects the size and shape of the seating patterns. If 35mm film is used, the seats nearest the screen are less acceptable because film graininess becomes visible from this location. When 70mm or 75mm film is used, the seats nearest the screen become desirable since film graininess is greatly reduced and these seats enable the viewers to experience the impact of 'picture dominance.'

According to Time Saver Standards, for the best compromise of design for 35mm, 70mm and 75mm the following general guide may be used:

1. The maximum viewing distance should be no greater than twice the width of the widest picture to be projected.

2. The width of the seating should vary from 1 times the widest projected picture at the first row to 1.3 times at the farthest from the screen.

'The resultant shape will be less rectangular than the long narrow theaters of the past, which are more economical to build but are unfortunately not well suited for 70mm and 75mm projection.'

In general, the projected picture widths should not exceed 35 ft. for standard 35mm film, 45 ft. for cinemascope 35mm film, and 65 ft. for 70mm film. Picture masking will add more dimension to the screen width. Ratio of a height:width are related to the type of production. The following is a list of such ratios:

1:1.66  Paramount
1:1.75  MGM
1:1.80  Columbia
1:2.00  Universal
1:2.55  Cinemascope
1:3.25  Cinerama

As written before the Cinerama will consist of three or four
large screen theatres. There is a shortage of large screen theatres in Muncie, Indiana. The following is a space standard for one cinema. An approximate value can obtain for the four or three theaters by a simple multiplication.

- 600 persons per cinema @ 8 sq. ft. of seating per person
- Corridor space for 600 persons @ 2 sq. ft. per person
- Addition space between first row and screen

Total Area for one theatre
Total Area for four theatres

4,800 sq. ft.
1,200 sq. ft.
1,000 sq. ft.
7,000 sq. ft.
28,000 sq. ft.

SPACE RELATIONSHIPS

The cinemas are a major activity within the total structure. The cinemas are supportive by other spaces and activities. Spaces like foyer, lobby projection room, concession, and the restroom have direct relationship to the success of the cinemas.

BOUNDARIES

The audience of the cinemas must be able to use the concession space without having to cross the path, of the other audience. This will stop people from wondering from one cinema to another.

FURNITURE AND EQUIPMENT

Special attention should be given to the seats within the theatres. Seats should be shaped for comfort with upholstered bottoms that give proper support. The backs of chairs should be upholstered not only for appearance but for acoustical properties. If possible, chairs should be double-arm blocked. Seats should operate silently. If labeling or numbering is used for seating make sure it can be read easily. Seats should be self-lifting for safety and the ease of sweeping. Some seats may have indirect lighting.

ENVIRONMENTAL REQUIREMENTS

Environmental factors such as acoustics, sound, lighting and other general conditions play an important part in a workable theatre.
Where it is possible, location of the cinemas should be in the quietest surroundings; eating places and parking space will make pleasant surroundings. If site is located around a high noise level, a noise survey should be used to determine how much sound insulation will be required. Sound-absorptive materials and other acoustical treatment can be used extensively in the projection room, chairs, floor walls, ceiling, around doors leading into the auditorium, and in other locations where work or conversation might interfere with the spectator's enjoyment of a performance. Adequate sound-absorptive insulation should be provided within the ventilation system to make the ducts equal to walls in sound attenuation. All mechanical equipment should be placed away from the cinemas.

The ceiling and the side walls nearest the sound source should act as a reflective source. If possible, side walls in the auditorium should be unbroken parallel to help the flow of sound. A high degree of floor slope usually results in acoustical benefits as well as enhance spectator's vision. To suppress long-delayed reflections of sound rear wall of the auditorium should be kept to a minimum height.

When using sound-absorptive materials, one must consider not only their acoustical absorptivity and appearance, but also their durability and ease of cleaning.

When sound systems is being used, better results can be obtained when this is considered in the original design. One may consider providing microphones for a small stage act. The sound system must adopt to special systems of 70mm and 75mm films.

Screen luminances for a 35mm on the average is a minimum of 9 fl (foot lamberts) and a maximum of 14 fl. The use of 70mm and 75mm will increase the screen luminance approximately double. In general, the luminance of an auditorium will range while the film is running. The auditorium must be designed and illuminated so that it has a luminance compatible with the screen luminance. As seen from the seat, but looks dark when viewed from the stage.
Lighting for the main body must be considered. The illumination must range from total darkness to a smooth transition of illumination for reading.

All materials such as walls, floor, ceiling, and seating should be fire proof or fire resistant. The patron must have a clear and easy path for a fire escape.

The theatres must be properly heated, cooled, and well ventilated for human comfort.
The staff projectionist and any traveling projectionist for cinemascope must be able to use projection space.

The projectionist must be able to operate 16mm, 35mm, 70mm, 75mm and other visual equipment. One projectionist should be able to operate the projectors for all four cinemas. Projectionist should be able to control all preliminary visual and audio technique. Projectionist must be to observe activity in the cinemas from projection space. Projectionist will be loading, rewinding and splicing film in this area.

The special occasion of projecting 75mm will require the moving of 75mm equipment into the projection room and the moving out the 35mm equipment.

The projectionist must be able to supervise all of his equipment at one glance; he must be able to observe activities in the cinemas within the projection space. The projectionist must be able to rewind film within the given space.

Space must be flexible to accommodate 35mm equipment or 75mm equipment.

Viewing audiences should be able to observe the projectionist and projectors at work.

According to *Time Saver Standard* for 35mm requires 48 sq. ft. for the first projection machine and 24 sq. ft. for each additional projector. Some 75mm for cinemascope presentation require nine projectors at one time. The 75mm projector requires more area than 35mm. If 70mm projectors are used, vertical space becomes an important design criteria. Most cinemas now use a platter system for 35mm with modification for 70mm and 75mm. Platter systems require on the average 50 sq. ft. One platter system can serve two projectors.

Space should be allocated for automatic change over, DPA remote control, rectifier, one per projector, multi channel sound system, temporary storage for films, rewinding table, water cooling system, film safe, and small toilet room.
- Maximum nine projectors @ 48 sq. ft. each: 432 sq. ft.
- Maximum of three platter system @ 50 sq. ft. each: 150 sq. ft.
- Three rectifiers @ 9 sq. ft. each: 27 sq. ft.
- Rewind table @ 24 sq. ft. each: 24 sq. ft.
- Approximated area for sound systems, automation, storage and toilet room: 150 sq. ft.

Total area for projection room: 763 sq. ft.

The projection room must service all four cinemas at one time. Projection space has no connection to the auditorium except projection openings.

Incoming audiences should have visual contact to projectionist and projectors.

One of the most important factors dealing with boundaries is noise control. Noise generated by projection space must not be allowed to infiltrate into theatres.

Operating equipment will consist of projectors, effect machines, stereoptican dissolvers. Power equipment consists of projectors ARC-Lamp projectors, motor generators, rectifiers. Controls of operating equipment consists of DPA remote control, panel boards, sound equipment, projector sound heads, sound amplifier, ventilator fan, water cooling system, light controls, and emergency controls.

Furniture that will be required are chairs, table, rewinding table, storage and restroom facilities.

The equipment for 70mm and 75mm will most likely be supplied by traveling companies. The equipment is the same as 35mm but larger in size and more sophisticated.
VENTILATION REQUIREMENTS

Ventilation provisions must be made for the general area and independently for each projection machine, for the film safe, and for the motor-generator room. For the general area, an air change of 6 to 10 per minute is the usual minimum. The maximum desirable fan capacity is usually 50 cfm per arc. A minimum of 4 air changes per minute is recommended for the motor-generator. Film safe can exhaust directly to the outside air.

Fire-protection measures include materials and methods of construction and finish, which are usually prescribed by codes. For combating film fires portable chemical extinguishers, and sand bucket, one of each per machine should serve for protection.

Fire doors, usually Kalamein, are required by code; these are usually equipped with fusible link releases.

Floor must have at least a "4-hour" rating as prescribed by insurance codes. The floor material is usually reinforced concrete. Slab must accommodate most conduits without cutting. Walls and ceilings are subject to the same condition as floor. Four-inch hollow tile, terracotta, are likely to be used for walls; 4 in. reinforced concrete or precast materials are used for ceiling. Cement, 1 in. thick on both sides of walls and 3/4 in thick on ceiling, are the usual finishes.
SPACE STANDARD: PROJECTION SPACE

Scale: 0'-1"=60'-0"
TOTAL SQ. FT.: 500
TOTAL UNITS 1

Scale: 0'-1"=60'-0"
TOTAL SQ. FT.: 750
TOTAL UNITS 1

Space for 35mm projection
add 48 sq. ft. for any addition projectors

1. 35mm projector
2. Plater system
3. Rectifiers
4. 70mm projector
5. Sound system control

6. Cooling system
7. Rewind table
8. Film safe
9. Restroom
10. Panel boards

Space for 70mm projector (adapted to space above)
SPACE STANDARDS:
STORAGE SPACE
FOR PROJECTION
EQUIPMENT

USERS

When a special presentation is being given in the theatres, as one facility, standard 35mm equipment may need to be removed from the projection space. This is assuming that there will only be one room for the projection of 35mm, 70mm and 75mm. Therefore, it might be necessary to have a special storage area for 35mm, 70mm when not in use. The use of 75mm equipment is a very sophisticated trade; most likely, if 75mm is used, it would be furnished by the traveling company.

ACTIVITY PERFORMANCE

The changing of equipment for example 35mm to 70mm may only occur two to three times a year. Most large pieces of equipment must be moved on pull trucks. Some large pieces of equipment have built-in wheels for ease of moving.

SPACE PERFORMANCE

The changing of equipment must be a smooth transaction from the projection room to the storage area. For a smooth transaction the following criteria should be considered.

Doors should be wide and high enough to handle all equipment being moved. If a difference between floors exists between the projection room and storage, one may consider an elevator to carry equipment.

Also, adequate work lighting should be installed, and wherever possible, sharp corners should be padded or blunted.

Lastly, proper security must be provided for the equipment.

SPACE STANDARDS

The storage space must be to store all the standard equipment for 35mm or 70mm. Space allocations are the same for 35mm projection space. The total required space for storage would be somewhat less than the area for 35mm projection space. The total approximation for the storage space is 400 sq. ft.

SPACE RELATIONSHIPS

Storage space has one simple requirement in relationship to location; it's most beneficial to have it adjacent to projection room.
If equipment will be kept in dead storage for long periods of time, one must consider installing devices that will protect them against dust and mildew.

The equipment that will be stored will be 35mm projectors, platter system, rectifiers and panel boards.

The storage space must have the proper heating, cooling and ventilation. Also, floor must be susceptible to heavy punishment from movement of equipment.
The users of this space will be ticket sellers working for the cinemas. One should note that the paying audience is also an indirect user of this space.

Ticket sellers will only sell tickets for the cinemas. Sellers may be required to answer the phone.

Sellers should be able to see the incoming audience and to communicate with them. In case of an emergency, sellers should be able to set an alarm by foot.

Space must comfortably accommodate two ticket sellers at one time. Ticket sellers must be able to perform all activities sitting in a chair. Space will only permit the audience to visually see within the booth, but the audience must be allowed to exchange money for tickets. Ticket booth should be fixed; the booth doesn't need the capacity to adapt to change. Ticket booth shall promote social interaction between seller and customers.

According to Time Saver Standards, ticket sellers must have approximately 10 sq. ft. to a person. Additional space must be adopted for a small closet.

Two persons per booth @ 20 sq. ft. per person

Total sq. ft. for booth 20 sq. ft.

Ticket booths may be located near the street depending on the character and direction of the street and pedestrian traffic. The ticket booth may be isolated as an island, centered, or included in the corner of the entrance. There is also a need to have the ticket booth located within the structure, in case of bad weather.

The ticket booth will contain two chairs, telephone, table, coat hooks, ticket dispensers, cash registers, and directory board.

Heating, cooling and ventilation are required at an adequate levels of comfort. Ducts for heating and air conditioning shall be provided by theater's heating and cooling system.
Ticket booths will require electrical serves.
The user of the foyer will be paying patrons and the possibility of patron of the exhibition space.

For the most part, patrons will be waiting in line for tickets. Usually, the waiting in line is only for a short time. But the line waiting at the advance sale window for a popular production is often long, and patrons may stand for hours.

The foyer must be large enough to accommodate large waiting crowds. To fulfill this function, the foyer must be arranged that patron, who has his ticket can pass through without getting tangled in the crowd. The foyer must be comfortable and enough ticket windows to make it possible for speedy ticket sales.

Foyer must provide space for members of the audience waiting to meet friends.

According to Theatres and Auditoriums, by Harold Burriss-Meyer, 1/4 sq. ft. is required for each seat in the cinemas.

- Approximately 600 seats @ 1/4 sq. ft. per seat

- Approximate total area for one theatre

- Approximate total area for four theatres

No less important than foyer capacity is its' relationship. Some patrons wait for friends habitually just inside the doors. Therefore, doors are best placed on the long side of the foyer.

The ticket booths must be located within the foyer.

The noise generated by the crowd must not be allowed to interfere with activities within the theatres.

The furniture and equipment that will be used in the foyer are seats, ash trays and facilities for exhibits or advertising
display.
Also a warning system must be provided within the space.
The foyer must be well lighted during the evening.

If the theatre has a good view of surrounding landscape, consider making it possible for people to enjoy it from the foyer.
The users of the lounge will be paying patrons and the possibility of patron of the exhibition space.

For the most part, the lobby serves as a distribution area. Usually, the head usher stands inside the lobby door to direct each patron to his aisle or staircase by a route which will not involve the crossing of the route of any other person, or even having tangential contact wherewith the lobby may be small but adequate.

As written before, the principal function for the lobby space is to distribute people. People must be able to quickly locate the lounge, cinemas, and coat room from the lobby space.

According to Theatres and Auditoriums, by Harold Burris-Meyer, a motion picture house will require 1.8 sq. ft. of lobby space for each seat.

- Approximately 600 seats per cinema 1080 sq. ft.
  @ 1.8 sq. ft. per seat

- Approximate total area for one theatre 1080 sq. ft.

- Approximate total area for four theatres 4320 sq. ft.

The lobby space must be the main focus for the lounge, foyer, and coat room. A direct circulation path exists for the patterns of foyer to lobby, from lobby to coat room, from coat room to lobby, from lobby to lounge. The lobby is a circulation node.

Patrons standing in the lobby must be able to locate all functions within building. One must remember that the range of depth is reduced greatly in a heavy crowd.

Signs will play an important part in directing people within the building. Signs should be universally readable.

The space must have a quick air-change. It must also have proper heating, cooling, and ventilation. The lobby must
be well lighted.
The users of the lounge space will be patrons of the cinemas and possible users of the exhibition space.

For the most part, the lounge serves as a distribution area. Patrons entering the lounge will be able to quickly locate the following services: refreshment stand, lavatories, telephones, and seating.

The movie patrons will be using the lounge space during intermission and after the show.

The lounge must be a comfortable space to accommodate the needs of patrons.

The space of the lounge must be adequate to control the heavy flow of traffic. As written before, the lounge is a distribution area. Special attention must be given to direct traffic and to avoid crossover of patrons.

According to Theatres and Auditorium, by Harold Burris-Meyer, a motion picture house will require 1 sq. ft. of lounge space for each seat in the theatres. This value may be taken as adequate but not luxurious.

Lavatories must be located close to the lounge. The concession stand must also be adjacent to the lounge space.

The lounge must stop crossovers from paying patrons and other visitors of the exhibition space. The sound generated by the lounge must not be allowed to interfere with activities within the cinema. Also, be sure that light cannot leak from the lounge into the auditorium.

The furniture and equipment that will be used in the lounge area are drinking water coolers, signs, tables, chairs, telephones, warning system, ash trays, and displays.

The proper heating, cooling and ventilation is needed for the lounge space. A rapid air-change is required for comfort.

The lounge shall be well lighted.
One may note, that during intermission time, about 50% of the audience will leave for intermission.
The users of the concession space will be cashiers and movie patrons. Distributors must be able to maintain and restock their products.

The cashiers will be making popcorn, serving drinks and working at the cash registers. Occasionally beverage syrups must be changed by the employees. If needed, the employees will assist in carrying products to the patron's seats.

The space around the concession will be very active; the design of the concession space should try to minimize the waiting time to be served. The concession stand should be designed to minimize the number of employees needed to operate it. The design must also try to minimize the number of steps from products to cash registers.

The cashiers carrying food will be crossing each others' path behind the counter; corridor's width should be large enough for three people. Corridor's width should be approximately 7 ft. wide. Counter width should be approximately 2½ ft. wide. Approximate areas are given for necessary equipments are as follows:

Two Commerical Popcorn Machines @ 16 sq. ft. each
Freezer @ 16 sq. ft.
Two candy displays @ 16 sq. ft. each
Counter area @ 30 sq. ft.
Beverage dispensers (2) @ 8 sq. ft. each
Popcorn Warmer @ 8 sq. ft.
Storage for supplies
Corridor @ 20 ft. in length and 7 ft. wide
Total Area for Concession Space 304 sq. ft.

The concession space shall be near cinemas for the convenience of carrying food to the cinemas.

The equipment that will be used will be popcorn machines, freezer, sink, candy displays, beverage dispensers, popcorn warmer, salt, trays and napkin dispensers.

The total surface area must be easy to clean. Task lighting will be needed above the cash registers.

Heating, cooling and ventilation are required at an adequate level of comfort.
Merchants, students, private and public exhibitionists, and the general public are the primary participants that will be involved in the exhibition space.

Audiences, whom will wish to visit the exhibitions, must have a clear circulation path for the observation of displays. Large, slowly moving, audiences will tend to gather up at interesting sections of the exhibits. Therefore, not only should the material displayed be arranged in such a way that a number of people may see it at the same time without difficulty, but also sufficient room for passing by the exhibit should be allowed. In other words, if the exhibit is of such a nature that people will tend to stand three deep in front of it, the material should not be placed lower than shoulder height and space should be provided for the circulation of people, who choose to pass by that particular section. Audiences seem to distaste being pushed around in a confining maze; people may be forced through at a speed dictated by the pressure of the crowds behind them rather than at their own speed.

Exhibitionists will be constructing permanent and temporary displays within the space. Vans and small trucks should be able to drive inside of exhibition space for drop-offs and pick-ups.

Exhibition space should be open during store hours all year round.

The character of each display will vary from each other because of the nature of its' content. The character of an exhibition should bear some relationship to the subject of the display and to the audience who will visit it. The contract of an exhibition to its' surroundings tends to increase interest and is, therefore, a definite advantage. Thus, an exhibition should be consistent within itself; space may be calm or active, formal or informal, or whatever character that is accomplished by color, light and form.

Depending on the particular exhibit, spaces may be sociopetal or sociofugal. The whole exhibition space should have the capacity to adapt to change and support new activities.
The total space should have a sense of community and a sense of sharing with other.

The size of an exhibition should always be related to the subject matter and to the space available for its presentation. The size of exhibitions will vary, normally a well accepted rule of thumb for an exhibit is: 'total area of the exhibit should be approximately ten times that is taken up by the product displayed.'

The total capacity of the exhibition space should be 100% of the total occupancy of the theatres. Total occupancy of the theatre is approximately 2000 people. A preliminary assumption for area for each occupant is 3 sq. ft. Another preliminary assumption for the main circulation path width is 15 ft.

- 2000 people @ 3 sq. ft. = 6,000 sq. ft.
- Corridor width 15 ft. at approximately 200 ft. in length = 3,000 sq. ft.
- Approximate area for each exhibit is 30 sq. ft. with a probability of 20 units and plus 10 factor = 6,000 sq. ft.
- Total area for exhibition: 15,000 sq. ft.

Note: All assumptions dealing with sq. ft. and corridor width are from the source, Graphic Standards.

Ceiling height should be on the average of 10-15 ft. Some exhibits using wide screen projection will need more ceiling height.

Exhibition space will need to be supplemented with space for restroom facilities; also storage space for students displays, merchants exhibits and materials for framing systems. Foyer and cinemas should be positioned in a sequence in relationship to the exhibition space to provide a smooth transition from outside to inside, special attention should be taken for circulation in case of a fire. The exhibition space may open to the outdoor for summer activities and displays.
Noise generated by an audience should not interfere with audiences' attention within an exhibit, and should not distract people within the cinemas. Noise generated by an audience can be used to 'mask out' noise for each exhibit; mechanical noise can also be used to filter out noise out of a display. Care should be taken when choosing or designing for acoustical partition for each display. Partial height barriers can be used to 'mask out' background noises. If more acoustical boundaries are needed, partition may be full length.

Special attention should be taken for exhibits, like rare valuables, that must have a control environment.

Visually, each exhibit should not interfere with another display but should visually tie into each other's displays for smooth circulation. To obtain a sense of orientation within the structure, the total exhibition space should act as a visual focal point.

The furniture and equipment that will be needed for the exhibition space is chairs for viewing A/V exhibits, chairs for resting, modular frame-works, compact stands, suspended frames, showcases, screen, A/V equipment, crane for moving large heavy objects, murals, multi-purpose boxes, and movable, multi-purpose A/V rooms. The quantity of each piece of equipment will depend on the type of exhibit, and the amount of money available. The quantity of each piece of equipment should be thought of as a resource for multi-media presentations.

Exhibits should be acoustically separated from each other; the total noise level generated by the exhibition space should not interfere with surrounding activities.

Areas should be properly heated, ventilated and cooled. Special attention should be given for proper humidity, so that valuable work will not dry up.

Lighting must be an integral part of the design. Daylight is not wanted in an exhibit because it varies in intensity; but northlight may be used for paintings, photographs,
and sculpture. Lighting system should enhance, create atmosphere, emphasize, and otherwise help to tell the story for an exhibit. In general, strip or tube lighting is often used for general lighting, either concealed above a louvered ceiling or behind valances or other baffles. Incandescent fixtures are often used as spot lights with such profusion that additional general lighting can be omitted. In areas within exhibitions where business transaction must take place, as in stands at trade shows, a high level of illumination is usually desirable.

Special lighting effect can be best achieved with the use of special equipment such as theatre floodlight, projectors, focusing or picture spotlights, mercury vapor lamps, cloud projectors, or other mechanical optical devices.

Lighting system must be integrated with natural light. It must be flexible and adaptable to all of the exhibition space. Lighting system must be able to vary from high levels of illumination to very little illumination.
The users of the storage room will be merchants, students of BSU, faculty, and exhibition staff.

Users will be storing crates, panels, packages, systems, boxes, drum packages, and cases; most of these devices are used for the transportation and storage of displays. Space may be used as a means for permanent and temporary displays.

The storage space must provide safety and security for each individual's and each group's possessions. One of the greatest dangers to a display is water; space must be therefore, waterproof from the exterior. Also special attention should be given to fireproofing of space envelope. Sometimes oil paintings and wood panels and other delicate and valuable objects occasionally require protection against changes in temperature and humidity.

Space should have doors that are wide and high enough to handle maximum-size panels and crates. One must allow adequate height in the storage area for maximum foreseeable size of panels and crates. Space may contain an elevator to carry materials to other levels of the complex. If bins are used to allocate space for storage, they must be flexible to change.

In Public Assembly Facilities by Don Jewell, it states, "Interviews with Dray Age Firms indicate that no standard volume of crate storage, adequate for all shows, has ever been set. The most reasonable ratio appears to be approximately 1 foot of storage for 10 feet of net exhibition space used."

- Net exhibition @ 6,000 sq. ft. 600 sq. ft.
  1 ft. per 10 ft. of net exhibition space.

- Total area for storage 600 sq. ft.

Storage might need to be supplemented with an elevator. Storage space main purpose is to serve the exhibition space. It will be useful if storage is adjacent to a loading dock.
Storage must be secured from the general public. Each group must be able to secure their valuables separately from other organizations.

The furniture and equipment that will be used are special locks, pull trucks, dollies, padding, small hand tools, and small work tables.

Room must be kept at a constant temperature. Space should be well ventilated, cooled and heated. Materials of space envelope must have a high fire rating.
The users of the loading facilities will be merchants, students of BSU, faculty, exhibition staff and truck drivers.

Individuals will be loading or unloading materials onto a truck or a van.

Space must be designed for easy loading and unloading conditions. Loading dock should be able to unload three large trucks at one time. Special consideration must be given to minimum apron space for trucks. Loading dock must be able to accommodate all types of trucks and vans. Doors must be large enough to provide easy access to storage and exhibition space.

Design must maintain a minimum space of 1'-0" between door openings and the end of the building or stairway. Platform height will be from 4'-4" to 3'-8". Each truck will need a width of 12'-0" to back-up and approximately 50'-0" behind the truck to unload. All space standards are taken from Architectural Graphic Standards.

Three loading dock @ 12 ft. wide and 40 ft. in length

Total area for loading dock

1,440 sq. ft.

Loading dock must be near storage, exhibition and retail shops. Loading dock may be considered an eye sore; so it might be favorable to keep it out from sight.

The loading dock may become an integrated part of the storage; therefore, the total area for loading dock may be reduced.

Furniture and equipment that will be used are pull trucks, padding, ramps, and corner, door, wall guards.

Air conditioning will not be needed in this area, but heating and proper ventilation will be necessary.

Proper lighting is required for interior and exterior of loading dock.
The audiences of the cinemas and exhibitions will be the primary users of these facilities. An approximation of the number of people that this type of facility will need to accommodate is 2000 people; half of the approximated value is men or women.

Users of the restroom facilities primary activities are the relief of body waste. Other activities performed in this area are grooming, 'freshing up' and washing of hands and face. Some women may wish to sit and apply cosmetics.

Handicapped people should be able to perform all activities as a person not handicapped.

An occupant of a toilet stall should have privacy to perform any intimate activity. Restrooms may become sociofugal at the area where grooming will take place. Restroom must be accessible by everyone which includes the handicapped and small children.

According to Graphic Standards, a minimum of two toilets for fifty men, a minimum of two urinals for twenty-five men and a minimum of three lavatories for 20 individuals are recommended. According to the same source a minimum of three toilets for thirty women, a minimum of three lavatories for each twenty women.

Toilets for 1000 men,
@ 1 toilet per 50 individuals,
@ 1 toilet = 9 sq. ft.

Urinals for 1000 men
@ 1 urinal per 50 individuals,
@ 1 urinal = 6 sq. ft.

Lavatories for 1000 men
@ 1 lavatory per 25 individuals,
@ 1 lavatory = 4 sq. ft.

Total area for mens restrooms
Note: This area may be divided in half if two units are needed
Toilets for 1000 women
@ 1 toilet per 25 individuals,
@ 1 toilet = 9 sq. ft.

Lavatories for 1000 women,
@ 1 toilet for 20 individuals
@ 1 lavatory = 4 sq. ft.

Total area for women's restrooms
Note: This area may be divided in half if two units are needed
Note: Sq. ft. include space being occupied by individual
Note: Ceiling should be about 10 ft. in height

360 sq. ft.

560 sq. ft.

Restrooms will need to be supplemented with space for utilities for janitorial work. Restrooms main purpose is to serve the exhibition space and cinemas.

Restrooms must be visually accessible to all entering Cinerama.

All physical boundaries should be eliminated for the handicapped and small children; doors and height of facilities may be considered as physical boundaries.

Restrooms must be visually accessible to all entering Cinerama. Restroom must be clearly marked using universal symbols.

Odors should be eliminated by proper ventilation.

Furniture and equipment that will be used are lavatories, water closets, urinals, mirrors, waste paper baskets, paper towel dispensers, water closets for the handicapped and small children, lavatories for the handicapped and small children, shelves, and ash trays.

Restrooms must have a rapid air change. Space must have proper ventilation, cooling and heating. Materials, such as ceramic tiles, should be used for their ease of maintenance and cleanliness.
The users of the experiment theatre will be the students and faculty of the Center for Radio and Television.

The emphasis of this space will be for the presentation of films, slides and video. Student and faculty will be designing the presentations. Presentations will vary in size and the usage of media; the space must be adaptable to the film designers imagination.

Some example types of student projects will be multiple-projection environments, videotronical environments, intermedia theatres, sensorama sound shows, kinaformcial images, and whatever idea a designer may have.

Presentations and shows will be open to the public during cinemas and store hours. Hopefully, this type of social interaction between college programs and public interest will promote more interrelationships between both entity.

Presentations given by the center may serve as temporary or permanent display within the large exhibition space. See Space Standard: Exhibition Space.

The space must be accessible to all diverse projects. The space must be very adaptable to various usages.

Users must be able to hang lights, screens, boards, heavy sound systems and other equipment from the ceiling. Also users must be able to project images on the ceiling. Ceiling must be able to change forms to accommodate different presentations. Some possible ceiling forms are domes, pyramids, conchoids and other common shapes.

The ceiling of the experiment theatre must be accessible by foot. If catwalks, ladder or stairs are used, they must be able to fold up or be put away when not in use. Users must be able to easily hang equipment. Roof must be able to take high concentrated loads. One may think of ceiling as similar to a stage loft.

One may consider having the use of a counterweight system.

The walls of this space must be moveable, and demountable.
Walls must act as screens for some presentations. Walls should be able to fold, slide or be put away when not in use.

The floor must be able to support high concentrated loads. Also, much of the equipment will be on wheels; the floor must accommodate such movement.

For some presentations it will require that some equipment be below the floor level. A hydraulic lift within the center of the room would be able to rise and lower floor level of pit. When pit is not being used, the floor level may be flush with floor level of the experiment theaters.

The space must accommodate a range of projects and presentations; all which will vary in size. Presentations which require rear projection seem to occupy more space than other projects. If transparent walls that were 60' x 20' were used for rear projection, the dimensions for the experiment theatre would be 180' x 180' x 20'.

Total Area for Experimental Space 32,400 sq. ft.

This approximate value can be greatly reduced by the use of a 'blister', a small funnel-shape recess in the rear walls. The height of the ceiling must be adequate for projects that require a placement of a dome, screen or another type of facility.

The theatre may be a temporary or a permanent part of the exhibition space. Another option would be to have the experimental theatre adjacent to the exhibition space.

The noise and light that are produced from each performance must not be allowed to penetrate other activities within the building. Moveable walls must stop all infiltration of noise; it must also stop all light leaks.

Moveable seating will be used for the viewing audiences for some presentations. Seating must be able to fold or stack away and be moved to storage when not in use. Other equipment that will be used are hydraulic platform, ladders, demountable catwalks, adjustable lighting. The space
must accommodate other equipment used for presentations.

One must be able to plug into a outlet easily. Outlets should be supplied within the pit area.

Also many projectors need a water source and a water return to operate. Valves must be located within the pit and surrounding 'blisters'.

Spotlights may be used for some presentation space. An adjustable lighting frame may be used for task lighting within the space.

Proper heating, cooling, and ventilation must be supplied to the theaters.
The users of this space are students and faculty of the Center of Radio and Television.

Users will be filming with movie cameras, regular cameras video tape or another method. Backdrops may be used within the studio.

Sound recording may take place within the space.

Studio should be a large open space for the filming of motion pictures. The studio should be flexible. The use of demountable flats will permit simultaneous filming of two or more productions.

Space should open to an external slab for outside film shooting. It may also be used as a receiving platform for materials taken directly into the studio.

The average set may be 300 to 400 sq. ft. Sets will require additional space for backstage activities. Also, one must consider the space needed for filming in front of a set.

- Set @ 400 sq. ft.
- Backstage and area for filming
- Total area for one set

400 sq. ft. 400 sq. ft. 800 sq. ft.

The multi-use studio must be adjacent to the sound studio. Many films will originally be done without sound; sound is then added later.

The equipment that will be used within the studio are: overhead lighting, cameras, scenery, sound equipment and other filming/recording equipment.

The studio will need a range of high and low level of lighting. Spot lighting will be required for the studio.

Proper heating, cooling and ventilation is required for human comfort.
The studios must be able to combine together to form one large space that is desired.
The users of graphics room(s) will be from the management department and the media center.

The users will be printing, painting and drawing. User will be operating a roll press, hand press, photo reducing machine, photo copiers, light table, and other small equipment. There must be ample space for working on tables.

Other activities that will also be performed are silk screening, drafting, layouts and so forth.

Use must be able to perform the production of graph art. Space may be used for some editing of film.

The more room for laying out of project the better. The more users the more space will be needed. Approximately, 3 persons will be permanently using the facilities for management. Approximately 25 persons will be temporarily using the facilities for the center.

<table>
<thead>
<tr>
<th>Equipment Space</th>
<th>300 sq. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layout Space for 3 persons @ 50 sq. ft. per person</td>
<td>150 sq. ft.</td>
</tr>
<tr>
<td>Total area for Graphic Department for Management</td>
<td>450 sq. ft.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Layout Space for 25 persons @ 20 sq. ft. per person</th>
<th>500 sq. ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Area for Graphic Department for the Media Center</td>
<td>800 sq. ft.</td>
</tr>
</tbody>
</table>

The space must be in the proximity of studios and shops.

The type of furniture and equipment that might be used are: type press, drymounting, die cutter, copier, plate press, offset lithograph press, letter press, tables, lockers, sink, chairs and other graphic equipment.
Room will have a rapid air-change. It will also be properly heated, cooled and ventilated.
The users will be trained students and faculty of BSU.

Users will be recording or monitoring activities within the adjacent multi-use studios.

Space shall accommodate sound track equipment, television monitors, and sound delivery systems. Individuals within the control room must have visual contact with other people in the multi-use studios, but sound generated within the control must not be allowed to infiltrate out to studios.

An average size studio for a university is 400 sq. ft.

As written before, control studio must be adjacent to multi-use studios.

The furniture and equipment that will be used are: table, chairs, sound track equipment, monitors, delivery system and other controls of A/V equipment.

Space shall have proper heating, cooling, ventilation and lighting.
The users of the photographic laboratory will be students and faculty.

Users will be developing color and black/white films, dry mounting, chemical mixing contract printing and enlarging. Users will be finishing photos and films within the space.

Users must be able to enlarge, finish, print, and development independently of each activity.

Several film developing stalls should be within the lab.

The following are approximate value for a lab. Value are from Time Saver Standards.

- Enlarging: 100 sq. ft.
- Finishing: 250 sq. ft.
- Printing Stalls (2): 100 sq. ft.
- Film Developing Stalls (3): 150 sq. ft.
- Chemical Mixing Space: 100 sq. ft.
- Total Area for Lab: 700 sq. ft.

Lab should be near studios. Also it would be convenient for the lab to be in the proximity of sound control space.

The enlarging space, printing space, film developing space must all have light lock. People should be able to freely enter and exit without letting outside light entering in the space.

Equipment that will be used are tables, lab sinks, lockers, enlarger, dryer, print and film washer, chemicals, and other photo equipment.

Lab must have a rapid air-change. Also room must be properly heated, cooled and ventilated.

Film developing stalls and enlarging space shall have